

# **FACT SHEET**

## **SAND AND GRAVEL GENERAL PERMIT**

On July 6, 1994, the Department of Ecology (Ecology) issued the Sand and Gravel General Permit. That permit expires on August 6, 1999. A proposed general permit has been prepared to replace the expiring general permit. This fact sheet is a companion document to the revised National Pollutant Discharge Elimination System (NPDES) and State Waste Discharge sand and gravel general permit. The proposed permit provides coverage for discharges of process water, stormwater, and mine dewatering water associated with sand and gravel operations, rock quarries, and similar mining operations, including stockpiles of mined materials. It also provides coverage for concrete batch operations and hot mix asphalt operations. Operations covered under this permit are authorized to discharge wastewater to waters of the State of Washington subject to the conditions contained in the proposed permit.

This fact sheet explains the nature of the discharges, Ecology's decisions on limiting the pollutants in the wastewater, and the regulatory and technical bases for those decisions. Public involvement information is contained in Appendix A. An advisory group participated in the development of the proposed permit and Appendix C includes the mission and members of this group.

The proposed general permit provides protection of ground water, surface water, and sediment in waters of the state by limiting the discharge of pollutants in process water, mine dewatering water, and stormwater. The pollutants that are limited in this proposed general permit result from the processing of mined material, the manufacture of concrete and asphalt, stormwater runoff, mine dewatering, and from equipment and materials associated with this industry group. Chemical or physical treatment of the wastewater may be necessary to comply with the conditions and limits in this permit. All sites must implement Best Management Practices (BMPs) to control stormwater and minimize soil erosion on site. Stormwater may also require treatment before discharge to waters of the state. This proposed general permit limits the discharge of pollutants to surface waters under the authority of the Federal Water Pollution Control Act (U.S.C.S. 1251) and limits the discharge of pollutants to surface and ground water under the authority of Chapter 90.48 RCW.

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## **INTRODUCTION**

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

The regulations adopted by the State include procedures for issuing general permits (Chapter 173-226 WAC), water quality criteria for surface and ground waters (Chapters 173-201A and 200 WAC), and sediment management standards (Chapter 173-204 WAC). These regulations require that a permit be issued before discharge of wastewater to waters of the state is allowed. The regulations also establish the basis for effluent limitations and other requirements which are to be included in the proposed permit. One of the requirements (WAC 173-226-110) for issuing a general permit under the NPDES permit program is the preparation of a draft permit and an accompanying fact sheet. Public notice of the availability of the draft permit is required at least thirty days before the proposed permit is issued (WAC 173-226-130). The fact sheet and draft permit are available for review (see Appendix A--Public Involvement of the fact sheet for more detail on the Public Notice procedures).

After the public comment period has closed, Ecology will summarize the substantive comments and the response to each comment. The summary and response to comments will become part of the file on the permit and parties submitting comments will receive a copy of Ecology's response. The fact sheet will not be revised. Comments and the resultant changes to the proposed permit will be summarized in Appendix D--Response to Comments.

## **PERMIT COVERAGE**

The sand and gravel general permit provides coverage for discharges of process water, mine dewatering water, and stormwater associated with certain types of mining operations, concrete and asphalt production. A general permit is designed to provide coverage for a group of related facilities or operations of a specific industry type or group of industries. It is appropriate when the discharge characteristics are similar and a standard set of permit requirements can effectively provide environmental protection and comply with water quality standards for discharges to surface water or ground water. Coverage under this general permit for discharges to surface water or discharges to ground water will typically be appropriate. Those facilities with activities designated by the following Standard Industrial Classification (SIC) codes are subject to coverage under the sand and gravel general permit:

- 0811 Timber Tracts (sand and gravel point source activities)
- 1411 Dimension Stone
- 1422 Crushed and Broken Limestone
- 1423 Crushed and Broken Granite
- 1429 Crushed and Broken Stone, Not Elsewhere Classified

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1442 Construction Sand and Gravel  
1446 Industrial Sand  
1455 Kaolin and Ball Clay  
1459 Clay, Ceramic, and Refractory Minerals, Not Otherwise Classified  
1499 Miscellaneous Nonmetallic Minerals, Except Fuels  
2411 Logging (sand and gravel point source activities)  
2951 Asphalt Paving Mixtures and Blocks  
3273 Ready-Mixed Concrete

The types of facilities included are sand and gravel mines, rock quarries, clay mines, silica mines, diatomite mines, olivine mines, dolomite mines, hot mix asphalt plants, and concrete batch plants. Some facilities may require coverage for stormwater only.

Coverage for timber tracts and logging activities (SIC codes 0811 and 2411) only includes those mining activities associated with the forestry industry that classify as silvicultural point source. Silvicultural point source activities are limited to rock crushing or gravel washing operations that use a discernible, confined and discrete conveyance (e.g. ditch, pipe) to discharge pollutants to surface waters of the state. The United States Environmental Protection Agency (EPA) pursuant to a court order, excluded most forest management activities from NPDES permit coverage. Additionally, best management practices for gravel pit sites are set by forest practice regulations under the Forest Practices Act, RCW 76.09. However, this exclusion only applies to activities that produce materials for use in forest practices. Any commercial mining operation operating on forestland is subject to the same coverage requirements as any other commercial mining operation.

The criteria for coverage under the proposed general permit are listed in Special Condition S1, Permit Coverage. All facilities identified by the SIC Codes listed above and which meet the criteria of Special Condition S1 must apply for and be covered by the proposed general permit, even if the only discharge is stormwater. In addition to these activities, related activities (e.g. SIC 3272 - Concrete Products, Except Concrete Blocks and Brick) may be considered for coverage under this general permit. Coverage may be offered when Ecology determines that discharge characteristics are similar and the permit conditions satisfy applicable state and federal requirements.

Since a general permit is designed to provide environmental protection under conditions typical for the covered industry group, it will not be appropriate for every situation. Environmental protection can not always be assured when site specific conditions at a facility are not typical of the industry group or are beyond the scope of the proposed general permit. Special Condition S1.D. identifies specific situations where facilities are excluded from coverage under the proposed general permit and may require coverage under an individual permit.

Special Condition S2, Coverage Requirements, describes how to obtain coverage as authorized under WAC 173-226-200. Public notice requirements, SEPA compliance and effective date of coverage are also covered under S2. There are some differences in application requirements for new facilities versus existing facilities. Special Condition S2 defines new and existing facilities and coverage requirements.

In addition to typical site coverage, S2 provides for coverage of portable facilities. Under the current permit, portable operations (rock crushing, concrete batch, asphalt batch) could only

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operate at a site if the site permit included coverage for those activities. Site owners could include these activities with their application for coverage even though they did not typically engage in them. These activities were “inactive” until a portable was scheduled and then the Permittee could “activate” the portable activity in their permit by notifying Ecology. This option still exists in the proposed permit.

However, if a site did not anticipate coverage for these other activities, then the portable had to obtain a separate permit for the site or not set up at that site, or operate without permit coverage. The proposed permit allows a portable facility to obtain coverage under the general permit. Coverage will only apply to the specific portable equipment but will provide coverage at all sites where the portable operates. Portable facilities must operate at each site under the same permit conditions and requirements as a permanent operation. The proposed permit will require a 10-day notice before beginning at a new site and will require the submission of an Ecology approved form. The form will identify the dates and location of the work and also verify that the Permittee can operate at the site under compliance with the terms and conditions of permit coverage. Ecology reserves the right to deny operation at a site where a portable operation cannot adequately assure compliance with the permit.

## **BACKGROUND INFORMATION**

### *DESCRIPTION OF THE INDUSTRY GROUP*

#### **MINING ACTIVITIES**

There are currently about 660 permits issued by Ecology that include mining activities covered under this general permit. According to the Washington Division of Geology and Earth Resources Information Circular 87, in 1991 there were approximately 1,750 mines, quarries, and borrow pits in the state. Of these, approximately 900 were permitted by the Department of Natural Resources (DNR). There were an estimated 350 state or local government-operated mines that did not have active mining permits, 200 mines less than 3 acres in size, and 300 mines on federal lands. DNR data in 1998 indicate that DNR has active permits for 778 sand and gravel mines, 345 rock quarries, 11 clay mines, six silica mines, four diatomaceous earth (diatomite) mines, seven dolomite mines, and four limestone mines.

DNR permits for mining are issued to facilities where surface disturbances are greater than 3 acres (Chapter 78.44 RCW). The coverage of this proposed general permit is not restricted on the basis of disturbed acreage. The intent of this proposed general permit is to require effective and enforceable water quality management practices. Potential adverse water quality impacts from these operations are independent of the size of the facility. Thus, this proposed general permit does not set an exclusion based on disturbed acreage.

Mining activities typically begin by removal of the overburden to expose the desired material. Removing topsoil and disturbing the land surface has a number of consequences that increase the potential for adverse consequences to surface and ground water quality. Removing the vegetative cover and disturbing the soil makes the area more susceptible to erosion. Stormwater will readily suspend the exposed soil and carry it to nearby surface water. Sediment can be very harmful to the health of aquatic life and surface water bodies. Vegetation and soil also serve to protect ground water from pollutants. They provide filtration, chemical and physical reactions,

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and biological activity that often will remove pollutants before they can enter ground water. Therefore mining activities which remove vegetation and topsoil will typically make underlying ground water more vulnerable to pollution.

### MINE PROCESS WATER

Some use of water is necessary at most mining-related facilities. In mining operations, water may be used in the mining, processing, handling, or transporting of the mined material. This water is categorized as process water. Most process water results from dust control or washing and screening mined rock products. Water may also be used to clean truck tires and wheels and prevent tracking of mud and dirt onto public paved roads.

In addition to these easily identified sources of wastewater, many other activities at a mining facility can impact ground water and surface water quality and will be considered in this proposed general permit. These activities include wastewater from concrete truck cleanup, asphalt truck release agent application, equipment maintenance, and spills or leaks from tanks and equipment. Facilities at which many activities take place, from mining through batch plant operations, generate the greatest volume of wastewater and have the most varied sources of potential water contamination.

Rock crushers are often used in the mining process to provide material that meets job specifications. Processing the material may also include washing. While rock crushers are often a permanent component of a site, there are portable facilities that move from location to location. There is often very little lead-time before these portables must begin operation at a site and they are typically only at the site for a short period. The short notice and transient nature of these facilities create different permitting considerations for these facilities but they must still be able to assure compliance with permit conditions. Whether permanent or portable, rock crushers may generate process water and require best management practices for stormwater management.

### MINE DEWATERING WATER

Mine dewatering water is a type of wastewater generated at some mining facilities which is not a direct result of using water to accomplish a processing function. This water is incidental to the mining operation and includes water that seeps into the mine or accumulates due to precipitation into the mine. Suspended solids may be the only contaminant requiring treatment in these circumstances. Water entering the mine site and subsequently becoming commingled with process water becomes process water and is subject to process water requirements.

### CONCRETE BATCH PLANTS

Concrete batch plant operations (both permanent and portable) are commonly associated with sand and gravel mining. There are currently about 150 permits under the sand and gravel general permit that include concrete batch operations. An operator typically controls the batching or mixing process from a central control room. Solid components are metered by weight while water and chemical admixtures are metered by volume. Dry materials may be added to a truck from overhead silos and mixed with water in the truck or they may be premixed at the facility and transferred to the truck wet. Truck capacities typically range from 5-12 cubic meters.



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After loading, the truck may move to a wash area where an overhead spray or a hose is used to wash down the truck exterior. 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. The truck drum must be washed out to avoid setting of concrete in the drum. Water is added to the drum, the drum is rotated and discharged to a wash water collection basin. Settled process water is often used for drum washout.

The truck washout area must discharge to a lined pond. The current sand and gravel general permit required permittees to change from an infiltration pond without treatment to a lined pond. Containment and treatment was necessary because untreated process water resulting from concrete batch operations has a high pH, typically in the range of 11 to 12. There is also concern that admixtures commonly used in concrete production might introduce chemicals of concern such as nitrates into the wastewater. The current permit included monitoring for nitrates.

Many facilities now totally reuse their process water after treating it to settle or separate out solids. The gravel and fines from the settled solids can be reused. Facilities that discharge process water typically must treat it to adjust pH before discharge. Lined ponds must also be cleaned out periodically. There is a potential problem with facilities that deposit the sludge from these ponds on the ground without cover and without containment of leachate. The leachate from the sludge may have a high pH and constitute a violation of Special Condition **S13**, Solid Waste Disposal.

Batch plants are often located in conjunction with gravel mining operations. This increases the potential for pollutants to affect underlying ground water. Trucks, loaders and other equipment are common on site. Spills and leaks from associated equipment in the manufacturing and delivery process pose a significant potential to contaminate waters of the state. In addition to good housekeeping and best management practices to minimize spills and leaks, facilities often channel wash water and stormwater to avoid contamination or remove oil by skimming it off the surface or through use of oil/water separators.

Portable concrete batch plants pose the same environmental concerns as permanent facilities. However, there is often very little lead-time before they must begin operation at a site and they are typically only at the site for a short period. The short notice and transient nature of these facilities create different permitting considerations for these facilities but they must still be able to assure compliance with permit conditions for concrete batch plants.

### **HOT MIX ASPHALT PLANTS**

The manufacture of asphalt concrete paving mixtures by hot mix asphalt plants (portable plants and central mix plants) are associated with sand and gravel mining. There are currently about 120 permits under the sand and gravel general permit that include hot mix asphalt operations. Sand and gravel are heated and dried in a rotary drier and then placed in a mixing hopper and mixed with hot asphalt cement. The asphalt concrete is then usually dumped into a truck for transport to the job site.

The particulate emissions from this process are controlled by air pollution control equipment. Two basic types of systems remove the dust particles. A baghouse removes the particles in a dry state and has become the most common removal system in Washington State. Although minor quantities of water may be added to the collected dry material to make it more manageable, there



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is no discharge of process water from these systems. Typically the collected dust (fines) is reused in the manufacture of asphalt. The other type of system, wet scrubbers, uses water to capture the dust. Water sprays remove the air pollutants but transfer them to the resulting wastewater. The amount of water needed in a wet collection system may range from 50 to 200 gallons per minute. The wastewater must be discharged to a lined pond or holding tank. The water from the pond/tank is typically reused in the scrubber after settling the particulate matter. Even after treatment, this process water cannot be discharged to surface water but may be infiltrated to ground. The settled particulate matter may be returned to the asphalt manufacturing process.

When the fines from a baghouse or wet scrubber are not reused or cannot be completely reused, disposal becomes an issue. Land application of this material may be acceptable but testing should be conducted to determine if more restrictive disposal options are required.

Except for cleaning within maintenance shop areas, delivery trucks are not typically washed on site but do receive a release agent applied to the bed of the truck before loading with asphalt. An application area is provided with a raised platform and spray nozzles. There are many release agents available but most of those currently in use are not petroleum based. Traditionally diesel was used and it is still in use at some facilities. Best management practices are practiced to control and collect spillage of release agents.

Batch plants are often located in conjunction with gravel mining operations. This increases the potential for pollutants to affect underlying ground water. Trucks, loaders and other equipment are common on site. Spills and leaks from associated equipment in the manufacturing and delivery process pose a significant potential to contaminate waters of the state. In addition to good housekeeping and best management practices to minimize spills and leaks, facilities often channel stormwater to avoid contamination or remove oil by skimming it off the surface or through use of oil/water separators.

Portable hot mix asphalt batch plants pose the same environmental concerns as permanent facilities. However, there is often very little lead-time before they must begin operation at a site and they are typically only at the site for a short period. The short notice and transient nature of these facilities create different permitting considerations for these facilities but they must still be able to assure compliance with permit conditions for asphalt batch plants.

### STORMWATER

In some areas of the state, stormwater is a significant source of water at a facility. All parts of the state will occasionally receive significant rainfall events. Implementation of best management practices (BMPs) for stormwater management is required by the proposed permit. The most important BMP that relates to stormwater is minimization of the amount of stormwater which contacts products and raw materials or flows or falls into an area of active processing or process water storage.

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Stormwater falling on a site may become polluted by dissolving or eroding material it contacts. Three types of stormwater have been defined for this proposed general permit. Segregation of stormwater types is essential in minimizing treatment requirements. Two types of stormwater require no treatment while another type may require treatment. BMPs directly or indirectly apply to all three types.

**Type 1 Stormwater:** Stormwater falling on undisturbed, natural areas, or completely reclaimed areas should remain clean and require no treatment. So long as this stormwater reaches waters of the state without contacting any machinery, product or raw material piles or other water which has contacted such material, the stormwater is not considered to be associated with industrial activity. This type of stormwater is classified as Type 1 stormwater for this proposed general permit.

**Type 2 Stormwater:** Stormwater on a portion of a site that has been disturbed, as for example land cleared in preparation for mining or other industrial activity, is classified as Type 2 stormwater until industrial activity such as mining, processing or manufacturing occurs. BMPs addressing erosion and sediment control are required in the proposed permit.

**Type 3 Stormwater:** Stormwater falling on the part of a site where manufacturing, processing, active storage, or mining takes place is classified as Type 3 stormwater. Type 3 stormwater is virtually the same as the federally defined "stormwater associated with industrial activity." This type of stormwater has the greatest potential to become contaminated prior to discharge to waters of the state. BMPs to prevent contamination of stormwater by industrial pollutants are required in the proposed permit.

## *PERMIT STATUS*

The current sand and gravel general permit was issued on July 6, 1994 and became effective on August 6, 1994. There are currently a few more than 800 facilities with coverage under this general permit. The previous permit placed effluent limitations on turbidity, total suspended solids, and pH. Additional monitoring for parameters of concern was required after 36 months of coverage. These parameters included total petroleum hydrocarbons, nitrate, chloride, sulfate, alkalinity, total dissolved solids, and oil and grease.

The current permit also included a compliance schedule to develop and implement a stormwater pollution prevention plan (SWPPP), develop and implement an erosion and sediment control plan (ESCP), and comply with lined pond requirements. BMPs and capital improvements to implement the SWPPP and ESCP were to be completed no later than April 4, 1996. Lined process water impoundments for concrete and asphalt batch plants were to be completed no later than October 4, 1997.

## *SUMMARY OF COMPLIANCE WITH THE PREVIOUS PERMIT*

Nearly all of the facilities covered under this general permit have received at least one site visit and have received technical assistance to come into compliance with the terms and conditions of the current permit. Because of the large number of permittees, repeat visits have been concentrated on those facilities with known problems. Since most facilities had no experience with a wastewater discharge permit before coverage under the sand and gravel general permit,

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many non-compliance issues during the first years of coverage were related to failure to understand permit requirements. There were around 350 warning letters and calls, mostly to prompt permittees to submit discharge monitoring reports as required by the current permit. In addition to warnings there were about 80 notices of violation/correction, 20 orders, and 30 civil penalties issued.

Since the current permit included a compliance schedule, data from discharge monitoring reports (DMRs) during the first years of the current permit are not representative of how well the industry is doing with BMPs and treatment facilities in place. Therefore, only DMR data since January 1997 were evaluated for compliance with the current permit limits. DMR data during this time period was not available for all permitted sites. Sites that were inactive during this period most likely did not submit any monitoring reports.

The current permit set limits on pH for discharges to ground water, in the range of 6.5 to 8.5, and for discharges to surface water, in the range of 6.0 to 9.0. Approximately 150 permittees had at least one apparent violation of pH. This amounted to 41 violations out of 961 data entries ( $\approx 4\%$ ) for surface water discharge and 611 out of 5084 data entries ( $\approx 9\%$ ) for discharge to ground water. Concrete batch plants account for about 62% of the apparent violations, asphalt batch plants about 15%, and all other categories about 23%.

All discharges of process water to surface water had a limit for total suspended solids. The limit for the industrial sand category was 25 mg/l monthly average and all other categories were 40 mg/l monthly average. There were no violations from the two industrial sand facilities. There were 25 apparent violations in the other categories from 10 facilities.

All discharges to surface water had a limit for turbidity of 50 NTU. This included process water, mine dewatering water, and stormwater. About 42 permittees had at least one violation of turbidity. This amounted to 112 apparent violations out of 648 data entries ( $\approx 17\%$ ).

### *WASTEWATER CHARACTERIZATION*

Characterization of the wastewater is considered for the industry as a whole and is based on discharge monitoring data submitted to Ecology from January 1, 1997 through January 1, 1999. The proposed wastewater discharge was characterized for the following parameters:

**Table 1: Wastewater Characterization**

Parameter	# Samples	Mean	Standard Deviation	#>Mean	%>Mean	Standard Deviation	Standard Deviation	Standard Deviation	Standard Deviation
						#>+1	%>+1	#>+2	%>+2
Cl	303	41.1 mg/l	89.5	69	23%	17	6%	8	3%
NO3-N	338	1.77 mg/l	12.19	40	12%	2	1%	2	1%
pH (SWS)	961	7.51 S.U.	0.87	421	44%	105	11%	22	2%
pH (GWS)	5084	7.75 S.U.	0.91	2269	45%	444	9%	228	4%
SO4	308	65.4 mg/l	118.6	62	20%	27	9%	16	5%
TDS	377	380 mg/l	481	101	27%	37	10%	23	6%
TPH	824	0.862 mg/l	4.047	166	20%	34	4%	8	1%
TSS	220	28.5 mg/l	93.8	33	15%	8	4%	7	3%
Turbidity	648	88.0 NTU	441.8	75	12%	15	2%	12	2%

### *Discharge Characteristics*

The wastewater discharges from the facilities covered under this general permit are almost always intermittent or batch discharges. The size of facility covered will range from facilities discharging only as a result of precipitation to large integrated sand and gravel mines with associated manufacture of concrete discharging on a daily basis. There is a high variation of wastewater generation from site to site. The total quantity of effluent discharged is substantially reduced when settled water is reused for processing and washing.

Potential adverse water quality impacts can be caused by processes or conditions that result from a facility discharging water containing or characterized by some combination of the following: elevated pH; excessive suspended solids; elevated dissolved solids; petroleum products; elevated biochemical oxygen demand (BOD); or elevated nitrate concentration. The table below summarizes pollutants that may be present in the water discharged from various on-site sources:

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Contaminant	Source
Hydrocarbons (oil and grease, hydraulic fluid, and fuels)	Spills or leaks from equipment and storage tanks Maintenance shop Hot mix asphalt plant wet scrubber Delivery truck and equipment washing, release agent application
Nitrate	Blasting residues Concrete admixtures
Turbidity Suspended solids Dissolved solids	Processing wastes Seepage from working face Stormwater runoff and runoff from disturbed areas Washing, screening, or crushing rock Stripping and digging operations Runoff from overburden, waste piles, and stockpiles Dust suppression Wet scrubber wastes Vehicle washing and cleanout
Alkalinity (high pH)	Concrete truck wash water Concrete batch plant water
Chlorides	Concrete admixtures
Sulfates	Concrete admixtures
Ligninsulfonate	Dust suppression

Most of the listed contaminants have sources common to all the activities covered under the proposed permit. Some parameters such as sulfates, however, are only associated with specific industrial activities. All the covered activities have stormwater discharge, many also have process water discharge, and a few have mine dewatering water discharge. It is important for the permittee to recognize the sources of contaminants and implement specific treatment technologies and BMPs for the type of discharge. Segregating process water from stormwater and relatively clean mine dewatering water, for example, can reduce the volume of water that requires treatment before discharge. Likewise, source control BMPs such as covered storage areas can reduce treatment requirements by preventing contamination.

### *Selection of Pollutant Parameters*

The previous permit included limits for turbidity, pH, and total suspended solids. Additional monitoring was required for oil and grease, total petroleum hydrocarbons, alkalinity, total dissolved solids, nitrates, chlorides, and sulfates. Based on the collected data, only turbidity, pH, total suspended solids, and total dissolved solids were shown to be pollutants of concern and will be included in the revised permit. Temperature has been added as a parameter of concern for discharges to surface water. Temperature, turbidity, iron and manganese were also considered as potential parameters of concern for impacts on ground water quality.

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**pH** extremes are toxic to fish and unsuitable for ground water used as a drinking water source. High pH wastewater is common in concrete batch plants (SIC Code 3273, Ready-Mixed Concrete) due to the soluble cement constituents in washwater. Values up to 12.5 pH units are reported in the literature. Muriatic (hydrochloric) acid is occasionally used in cleaning operations. Low pH water can result from rain water interacting with exposed surfaces in some hard rock quarries. The data demonstrate that within the activities covered under this permit, both high and low pH extremes do occur on occasion. All discharges will require monitoring for pH.

**Total Suspended Solids (TSS)** include organic and inorganic materials present in wastewater from sand, cement, and fines as a result of water used to sort and wash materials. These materials include sand, silt, and clay. Stormwater may also contain significant levels of TSS. These solids may settle out rapidly or be suspended in water for a time. While in suspension, TSS increases the turbidity of the water, reduces light penetration and impairs the photosynthetic activity of aquatic plants, thereby contributing to oxygen depletion. TSS can kill fish and shellfish through abrasive injury or clogging of gills and respiratory passages. Excessive TSS can destroy aquatic habitats by coating the bottom with sediment. Because TSS is a known and common pollutant in discharges associated with the industries covered under this general permit, it was selected as a parameter of concern. All surface water dischargers are required to monitor for TSS.

**Turbidity** of water is related to the amount of suspended and colloidal matter contained in the water. It reduces the clarity and penetration of light. Turbidity is an indirect measure of total suspended solids. The data demonstrate that turbidity in discharges to surface water continues to pose a potential problem. Because turbidity is a known and common pollutant in discharges associated with the industries covered under this general permit, it was selected as a parameter of concern. All surface water dischargers are required to monitor for turbidity.

Drinking water is a major beneficial use of ground water. In drinking water, turbidity is considered an aesthetic contaminant and indicates increased potential for other contaminants. Ground water standards do not allow significant degradation of background levels of contaminants in ground water nor can a discharge cause ground water to exceed maximum contamination levels (MCLs). The MCL for turbidity is 1 NTU. Mining operations often discharge highly turbid water to infiltration ponds. It is possible for this turbidity to be carried a significant distance through the aquifer but typically it will travel only a short distance. One site studied in Oregon had a turbidity plume that resulted in levels of 5 NTU or more in wells up to 6,000 feet from the site. The aquifer consisted of unconsolidated alluvial fan gravels of very high permeability and a background level of about 2 NTU.

Sand and gravel mining impacts on ground water turbidity were explored in a report, *The Direct and Cumulative Effects of Gravel Mining on Ground Water Within Thurston County, Washington* (Robert Mead, Thurston County Public Health and Social Services Department.) Although the report recognized the potential to impact ground water turbidity and expressed concern about disposal of highly turbid wash water into gravel pit ponds, the only example of significant contamination was the site in Oregon. While there is the potential for site specific concern, the typical sites covered by this permit do not appear to pose a threat to ground water turbidity and discharge limits or turbidity monitoring will not be included for discharges to ground water. The proposed permit under special condition S14.C., Compliance With Standards,



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provides the basis for Ecology to require installation of ground water monitoring wells if site specific conditions warrant it.

**Total Dissolved Solids (TDS)** are a gross measure of the amount of soluble pollutants in the wastewater. TDS can be detrimental to aquatic organisms in fresh water systems and unless significant and immediate dilution is available, it may cause unacceptable degradation. TDS can also contaminate ground water and violate drinking water standards. Because the data suggest that discharges from concrete batch plants can have elevated levels of TDS, these facilities will be required to monitor their process water discharges for TDS. There is also evidence that discharges of process water from asphalt batch plant wet scrubbers can have high levels of TDS. These discharges will also require monitoring for TDS.

**Iron and Manganese** are regulated in drinking water to avoid unpleasant tastes and stains. These substances can be found in association with mined materials but are typically in their stable oxidized state and are not readily soluble. Mining activities do not typically create the conditions that would alter this state and cause iron and manganese enter ground water. Low pH is one condition that could result in dissolving iron and manganese but the permit limit of 6.5 to 8.5 for ground water discharges should be protective. Therefore, monitoring for iron and manganese is not required in the proposed permit.

**Oil and grease** includes thousands of organic compounds with varying physical and chemical properties. Oil and grease exhibit an oxygen demand. Oil may adhere to fish gills or coat and destroy algae or other plankton. Oil will also taint the flesh of fish and shellfish. Some types of oils have been found to be toxic to aquatic organisms at concentrations as low as 0.1 mg/l. The current general permit required sampling and laboratory analysis for oil and grease. The data from this monitoring suggest that ongoing sampling is not necessary. The new permit will not include sampling discharges for oil and grease but does emphasize best management practices to prevent oil and grease from becoming part of any wastewater discharge. The permit also requires visual monitoring for the presence of an oil sheen.

**Total Petroleum Hydrocarbons (TPH)** are often considered a subset of oil and grease. TPH measurements exclude that portion of oil and grease which consists of animal and plant oils and fats. Petroleum derived fuels and oils, the more toxic constituents, are measured by the TPH test. The TPH test also quantifies the lighter types of fuels, such as gasoline and diesel fuel, which escape detection in the usual oil and grease test. The existing general permit required sampling and laboratory analysis for total petroleum hydrocarbons. The data from this monitoring suggest that ongoing sampling is not necessary. The new permit will not include sampling discharges for TPH but does emphasize best management practices to prevent petroleum hydrocarbons from becoming part of any wastewater discharge. The permit also requires visual monitoring for the presence of an oil sheen.

**Temperature** increases and decreases for process water, mine dewatering water, and stormwater are primarily a result of ambient air temperature and solar influences. Processing by the facilities covered under this permit does not typically transfer significant thermal energy. Temperature decreases have not been identified as a significant environmental concern but there are more than 300 rivers in the state that are listed for water quality temperature excursions as a result of high temperatures. The temperature of discharges to surface water during the warm weather months are therefore a concern. The temperature of discharges to ground water, are not expected to be



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of concern under most conditions because temperature is quickly modified by the thermal inertia of aquifer materials and the effect of dilution. The proposed permit will require monitoring of temperature for all discharges to surface water during the warm weather months. No monitoring of temperature is required for discharges to ground water.

**Alkalinity** is the sum total of components in the water that tend to elevate the pH of the water above a value of about 4.5. Examples of materials that increase the alkalinity are carbonates, bicarbonates, phosphates, and hydroxides. Excessive alkalinity in water supplies is undesirable due to the shift in availability of certain metal ions. Concrete batch operations could result in wastewater with high alkalinity. The data collected under the existing permit do include some high levels of alkalinity. However, these high levels are also associated with high levels of TDS and since monitoring for TDS is required, no additional monitoring for alkalinity will be required in this permit. The proposed permit does include a condition to require a ground water impact study where discharges consistently exceed 500 mg/l TDS. The impact study may include monitoring alkalinity levels.

**Chlorides** are regulated due to the effect excessive chlorides have on the taste of drinking water. Chlorides may be found in wastewater associated with concrete batch operations. The data collected under the existing permit have only a couple high levels of chlorides and do not suggest that industry wide monitoring for chlorides should continue. The proposed permit does include a condition to require a ground water impact study where discharges consistently exceed 500 mg/l TDS. The impact study may include monitoring chloride levels.

**Sulfates** are regulated due to the laxative effect they have when present in high concentrations in drinking water. Sulfates may be found in wastewater associated with concrete batch operations. The data collected under the existing permit do include some high levels of sulfates. However, these high levels are also associated with high levels of TDS and since monitoring for TDS is required, no additional monitoring for sulfates will be required in this permit. The proposed permit does include a condition to require a ground water impact study where discharges consistently exceed 500 mg/l TDS. The impact study may include monitoring sulfate levels.

**Nitrate** was also considered as a parameter of concern. Mining operations that employ blasting have the potential for nitrate contamination. Nitrates might also be found in wastewater associated with concrete batch operations. The existing permit required monitoring for nitrates. The data from this monitoring indicate that nitrates are not found at levels of concern and therefore the proposed permit will not require monitoring for nitrates.

### *SEPA COMPLIANCE*

The coverage of existing facilities under this proposed general permit is exempt from the procedures mandated under the State Environmental Policy Act (WAC 197-11-855). The exemption does not apply to any new source dischargers. A new source discharger is any facility, except portable facilities, that was not in operation before August 6, 1994<sup>1</sup>, the effective date of the original sand and gravel general permit. Portable rock crushers, portable concrete batch plants, and portable asphalt batch plants are considered a new source discharger if they

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<sup>1</sup> This is the effective date of the current permit. By definition in WAC 173-226-030, a new operation is one that begins operation on or after the effective date of the general permit.

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were not in operation before August 6, 1999<sup>1</sup>. A new source discharger must complete the SEPA process prior to application for coverage under the proposed general permit.

Any existing facility planning a significant process change must submit a new application for coverage to modify their permit and demonstrate that the proposed change has complied with SEPA review. A significant process change for this industry group would be any modification of the facility that would change the characteristics of the discharge or include for coverage a new activity (SIC) that was not previously covered. There are no easily defined thresholds for what constitutes a change in the characteristics of the discharge other than when a facility adds a new activity (SIC) such as a concrete batch plant to their permitted activities. Other changes are not so easily defined. For instance, a change in the characteristics of the discharge is not necessarily just a change in the volume of the discharge. However, if a modification of the facility resulted in a discharge to surface water where previously no surface water discharge occurred, then a permit modification and SEPA review would likely be required. Facilities should notify their permit manager of any planned change and the potential to impact their wastewater discharge. The permit manager will determine if a permit modification and SEPA review is required.

### **PROPOSED PERMIT LIMITATIONS**

Federal and State regulations require that effluent limitations set forth in a NPDES permit must be either technology-based or water quality-based. Technology-based limitations are based upon the treatment methods available to treat specific pollutants. Technology-based limitations are set by regulation or developed on a case-by-case basis (40 CFR 125.3, and Chapter 173-220 WAC). Water quality-based limitations are based upon compliance with the Surface Water Quality Standards (Chapter 173-201A WAC), Ground Water Standards (Chapter 173-200 WAC), Sediment Quality Standards (Chapter 173-204 WAC) or the National Toxics Rule (Federal Register, Volume 57, No. 246, Tuesday, December 22, 1992). The more stringent of these two limits must be chosen for each of the parameters of concern. Each of these types of limits is described in more detail below.

### **BACKGROUND**

The sand and gravel general permit provides coverage for discharges to ground water as well as to surface water. About 150 permittees have a discharge to surface water and about 650 permittees only discharge to ground. Permittees on the west side of the mountains are much more likely to have a surface water discharge than those on the east side. Although water quality concerns for the state's ground water and surface water are not truly separate and distinct, there are potential differences in the fate of pollutants traveling to ground water versus direct discharge to surface water. Some of these differences are reflected in the current permit with additional monitoring parameters for those discharges to surface water (e.g. turbidity). Because of these differences, water quality-based considerations will consider ground water discharges and surface water discharges separately.

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<sup>1</sup> This is the intended effective date of the proposed permit. Portable facilities were not included as a separate category in the current permit. Therefore, the effective date of the proposed permit applies to these facilities.

### *TECHNOLOGY-BASED EFFLUENT LIMITATIONS*

The federal government evaluated many categories of dischargers as a result of the directives of the CWA. Section 301(b) requires the achievement of effluent limitations for point sources which are based on the application of the best practicable control technology currently available (BPT) and the best available demonstrated control technology (BCT) which will result in reasonable further progress toward the national goal of eliminating the discharge of all pollutants. The results of the evaluations for the categories covered by this general permit were published by USEPA as "Final Development Document for Effluent Limitations Guidelines and Standards for the Mineral Mining and Processing Industry" (July, 1979), "Guidance Development Document Effluent Limitations Guidelines and New Source Performance Standards for Concrete Products Point Source Category" (February, 1978), "Development Document for Proposed Effluent Guidelines and New Source Performance Standards for the Paving and Roofing Materials (Tar and Asphalt)" (September, 1974), and a related category "Development Document for Proposed Effluent Limitations Guidelines and New Source Performance Standards for the Cement Manufacturing Point Source Category" (August, 1973). The information contained in these documents, the federal requirements for the Mineral Mining Category and the Asphalt Concrete Subcategory, Suspended Solids Removal in the Crushed Stone Industry (August, 1982), and analyses of the data submitted on recent DMRs from permitted facilities form the basis for the technology-based effluent limits of this proposed general permit. State law requires all wastewater be treated with all known, available and reasonable treatment (AKART). This State technology-based requirement may be more stringent than federal requirements. The proposed permit limitations on TSS in process water and quarry water are based on AKART. EPA BPT limitations are imposed on pH in process and dewatering discharges.

### *COMMON LIMITATIONS ON PH*

The limitation on the pH of discharges is derived from the federal effluent guidelines (40 CFR Part 436., Mineral Mining and Processing Point Source Category). All subcategories who may discharge must do so within the range of 6 to 9 pH units. This proposed general permit applies the same limit to discharges from concrete batch plants. The costs and benefits of pH adjustment are presented in the "Development Document for Concrete Products." Discharges in violation of this limit would likely result in violations of water quality standards, prohibited by this permit and state regulation (WAC 173-201A). The limitation represents BPT for dischargers covered under this proposed general permit.

### *PROCESS WASTEWATER AND MINE DEWATERING*

The limitation on discharges of total suspended solids (TSS) is derived from the requirement to recycle wastewater from the federal effluent guidelines 40 CFR Part 436, Mineral Mining and Processing Point Source Category, 40 CFR Part 443, Subpart B, Paving and Roofing Materials Point Source Category, Asphalt Concrete Subcategory, discharge data records, and the report Suspended Solids Removal in the Crushed Stone Industry.

The BPT requirement to recycle wastewater necessitates a system to direct wastewater to a common area in order to prepare the water for reuse. The water must be treated to remove the

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solids which would otherwise clog piping, damage pumping equipment, and contaminate the product.

The EPA report Suspended Solids Removal in the Crushed Stone Industry was examined to ascertain the degree of effluent reduction capability within the industry. The pollution control technology examined was settling and recycle or reuse. The report summarized a variety of conditions and waste streams and the attainable TSS limit for each. The nonrain categories are appropriate for consideration of the process wastewater since the proposed general permit requires that stormwater should be segregated from process water unless the facility can treat stormwater to the process wastewater limits. The level of effluent quality attainable for non-rainfall conditions, including all facilities and all wastewater streams (excluding stormwater) is reported as a monthly average TSS of 38 mg/l and a maximum daily TSS of 80 mg/l. The limit proposed for most categories of this proposed general permit is 40 mg/l average monthly TSS and 80 mg/l maximum daily TSS.

The TSS encountered in the process water has a rapid settling rate. TSS removal efficiencies range from 90% with very dilute waste streams to over 99% for the typical process waste streams. Despite the relatively high TSS loadings, the material settles easily, and the limits of 40/80 mg/l TSS will be satisfied so long as adequate settling time and proper design and operation are maintained.

Monthly average limits and daily maximum limits are constructed that alert the facility and Ecology to instances where pollution prevention has failed. The limits recognize that occasional excursions in excess of the average can occur. Ecology, consistent with federal policy and regulation, has chosen to specify limits that define the limit of performance that can reliably be achieved. However, when only one sample is taken in a given month, that sample becomes the monthly average, subject to the more restrictive monthly average limit.

Hot mix asphalt plants and facilities covered under the industrial sand category must meet more stringent effluent guidelines established as BPT and BAT by the federal government. Asphalt Concrete facilities, in accordance with 40 CFR Part 443, Subpart B, must not discharge any process wastewater pollutants to surface waters of the state.

Industrial sand facilities, in accordance with 40 CFR Part 436, Subpart D, must recycle at least a portion of the wastewater and not exceed the following limitations for discharge of process water and mine dewatering: 45 mg/l TSS daily maximum and 25 mg/l TSS for a monthly average.

The previous permit established a surface water discharge water quality-based limit for turbidity of 50 NTU. In most instances, this limit was more protective of the water quality than TSS. While the data are not sufficient to replace TSS monitoring with turbidity monitoring, they are sufficient to reduce the frequency of TSS monitoring in favor of turbidity testing.

### *Stormwater Discharge Conditions*

The TSS in stormwater from these facilities must be controlled by BMPs. As with all wastewater discharges, the technology-based requirements and water quality-based requirements must be satisfied. The BMPs such as detention and housekeeping are based on the federal determination that such BMPs constitute BAT/BCT for stormwater at this time (FR 40974, August 16, 1991).

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If permittees are unable to separate stormwater from process water, such commingled water will be considered process water. The proposed general permit requires permittees to identify and control pollution sources that may affect stormwater by development and implementation of a Stormwater Pollution Prevention Plan. The pollutant control, inspections, and standard provisions of this proposed general permit include specific requirements, as well as references to technical guidance. Each discharger will be able to select BMPs best suited for reducing the pollutants in its stormwater on the basis of site-specific conditions.

### *Design Storm*

The proposed permit requires that all control measures are designed to manage the volume of water associated with the design storm. The design storm means the maximum volume of water resulting from the 10 year 24 hour precipitation event. The term "10 year 24 hour precipitation event" is the maximum 24 hour precipitation event with a probable reoccurrence interval of once in 10 years. The maximum volume of water is the total from all areas contributing runoff to the individual treatment facility without consideration of loss of water from processes such as infiltration. In addition to designing for the volume of water associated with the design storm, other treatment options, such as the use of settling aides may be necessary. The intent, however, is that control measures must be designed so that they are not overwhelmed by the volume of water from a storm event equal to the design storm. Problems that might result from too much water for control measures to handle should be very infrequent; certainly no more frequent than the occurrence of the design storm.

### *Non-Water Quality Environmental Impacts*

The effects of these treatment and control technologies on air pollution and noise pollution are usually small and not of any significance. Noise generated by water pumping equipment is insignificant when compared to the noise generated by the mining, sorting, and manufacturing processes.

Settling process water and stormwater to remove solids often produces large amounts of solid waste. When the solid waste is composed of silts and soils it will typically be nonhazardous. These waste are easily disposed of since mineral mining properties are often large and space for land disposal is readily available. Inert materials may also be used for backfill at mines. These "wastes" may in fact be a marketable by-product. Since these industries have sufficient space and earth moving capabilities, they manage it with greater ease than most other industries.

Sludges that form in settling ponds used for pH control, however, may require special attention to disposal options. Reuse of the sludge is the preferred option but where that is not practical, it may be acceptable to spread these solids over a large area. Storing the sludge in a pile that allows leachate to infiltrate to ground or discharge to surface water may be unacceptable. These solid wastes should be analyzed for proper designation prior to disposal.

### *SURFACE WATER QUALITY-BASED EFFLUENT LIMITATIONS*

In order to protect existing water quality and preserve the designated beneficial uses of Washington's surface waters, WAC 173-201A-060 states that waste discharge permits shall be conditioned such that the discharge will meet established Surface Water Quality Standards. The Washington State Surface Water Quality Standards (Chapter 173-201A WAC) is a state

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regulation designed to protect the beneficial uses of the surface waters of the state. Surface water quality-based effluent limitations may be based on an individual waste load allocation (WLA) or on a WLA developed during a basin wide total maximum daily loading study (TMDL).

### NUMERICAL CRITERIA FOR THE PROTECTION OF AQUATIC LIFE

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

### NUMERICAL CRITERIA FOR THE PROTECTION OF HUMAN HEALTH

The U.S. EPA has promulgated 91 numeric water quality criteria for the protection of human health that are applicable to Washington State (EPA 1992). These criteria are designed to protect humans from cancer and other disease and are primarily applicable to fish and shellfish consumption and drinking water from surface waters.

### NARRATIVE CRITERIA

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

### ANTIDegradation

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

The permit has been conditioned to implement the surface water quality standards and protect receiving water from degradation. A general permit, however, provides coverage for an industry group and site-specific conditions may exist that are not adequately addressed by the general permit. In these situations, either an administrative order or application for an individual permit may be necessary to protect the receiving water.

The proposed permit has a water quality-based limit for turbidity. This limit was set assuming a dilution factor of 10 and a background turbidity level of 0 NTU. Under typical discharge



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conditions for this industry group, the resulting 50 NTU limit should be protective. However, if Ecology determines a facility's discharge may be exceeding state surface water quality standards, the proposed permit requires a receiving water study. A Permittee will be required to apply for an individual permit when general permit conditions are not adequate to address site-specific conditions.

### CRITICAL CONDITIONS

Surface water quality-based limits are derived for the waterbody's critical condition, which represents the receiving water and waste discharge condition with the highest potential for adverse impact on the aquatic biota, human health, and existing or characteristic water body uses. Precise determination is very site-specific and not readily accommodated in a general permit. The determination of a dilution factor for water quality-based considerations considered an estimate of the influence of critical conditions industry wide.

### MIXING ZONES

The Water Quality Standards allow the Department of Ecology to authorize mixing zones around a point of discharge in establishing surface water quality-based effluent limits. Both "acute" and "chronic" mixing zones may be authorized for pollutants that can have a toxic effect on the aquatic environment near the point of discharge. The concentration of pollutants at the boundary of these mixing zones may not exceed the numerical criteria for that type of zone. Mixing zones can only be authorized for discharges that are receiving all known, available, and reasonable methods of prevention, control and treatment (AKART) and in accordance with other mixing zone requirements of WAC 173-201A-100.

A mixing zone is typically based on site-specific characteristics such as the type of water body (e.g. river, lake, ocean) and a mixing zone study or the flow, width and depth of the receiving water. A general permit, however, is not intended to address site-specific conditions but provide coverage for an industrial group based on common characteristics. The proposed permit does allow a mixing zone but limits will be calculated based on an industry wide estimate rather than site-specific values. No mixing zone is authorized by this industry wide estimate, however, that would violate the allowable size and location specified in the mixing zone requirements of WAC 173-201A-100.

### SURFACE WATER QUALITY CRITERIA

Applicable criteria are defined in Chapter 173-201A WAC for aquatic biota. Criteria for some parameters consider the type of water body (e.g., lake, stream, ocean) and the quality of the water body (e.g., extraordinary, fair). A general permit must consider the typical discharge conditions and cannot readily accommodate site specific variables. Discharges to surface water for this industry group are most likely to be Class A freshwater and criteria for these discharges are summarized below:

pH	6.5 to 8.5 standard units
Turbidity	less than 5 NTU above background



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

Pollutant concentrations in the proposed discharge may exceed water quality criteria with technology-based controls which Ecology has determined to be AKART. A mixing zone is authorized in accordance with the geometric configuration, flow restriction, and other restrictions for mixing zones in Chapter 173-201A WAC. The mixing zone authorized in this general permit is established as a ratio of one part wastewater discharge to nine parts surface water or a dilution factor of 10 in the chronic mixing zone. There were no parameters of concern that required consideration of acute effects.

The water quality-based pH limits are in the range of 6.5 to 8.5 standard units. Considering typical receiving water conditions and a dilution factor of 10, the technology-based limits of in the range of 6.0 to 9.0 are more restrictive than water quality-based limits for pH.

The water quality-based turbidity criteria for Class A waters is less than 5 NTU above background. Allowing a dilution factor of 10 and a background level of 0 NTU in the receiving water, a water quality-based limit of 50 NTU was assigned. A technology-based limit for turbidity has not been determined. The quantity and quality of the data submitted to date under the current permit are not sufficient to establish a technology-based standard for this industry group. Therefore the proposed permit sets a turbidity limit of 50 NTU based on water quality-based criteria.

### WHOLE EFFLUENT TOXICITY

The Water Quality Standards for Surface Waters require that the effluent not cause toxic effects in the receiving waters. Many toxic pollutants cannot be detected by commonly available detection methods. However, toxicity can be measured directly by exposing living organisms to the wastewater in laboratory tests and measuring the response of the organisms. Toxicity tests measure the aggregate toxicity of the whole effluent, and therefore this approach is called whole effluent toxicity (WET) testing.

Toxicity caused by unidentified pollutants is not expected in the effluent from this discharge as determined by the screening criteria given in Chapter 173-205 WAC. Therefore, no whole effluent toxicity testing is required in this permit. Ecology may require effluent toxicity testing in the future if it receives information that toxicity may be present in this effluent.

### HUMAN HEALTH

Washington's water quality standards now include 91 numeric health-based criteria that must be considered in NPDES permits. These criteria were promulgated for the state by the U.S. EPA in its National Toxics Rule (Federal Register, Volume 57, No. 246, Tuesday, December 22, 1992).

Ecology has determined that the discharge from this industry group is unlikely to contain chemicals regulated for human health,

### SEDIMENT QUALITY

Ecology has promulgated aquatic sediment standards (Chapter 173-204 WAC) to protect aquatic biota and human health. These standards state that Ecology may require Permittees to evaluate the potential for the discharge to cause a violation of applicable standards (WAC 173-204-400).

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Ecology has determined through a review of the discharge characteristics that this discharge has no reasonable potential to violate the Sediment Management Standards.

### *GROUND WATER QUALITY LIMITATIONS*

Ecology has promulgated Ground Water Quality Standards (Chapter 173-200 WAC) to protect beneficial uses of ground water. Permits issued by Ecology shall be conditioned in such a manner so as not to allow violations of those standards (WAC 173-200-100). In accordance with WAC 173-200-060(1), the point of compliance with ground water standards is in the ground water as near and directly down-gradient from the pollutant source as is feasible. Since monitoring wells are not required by the proposed permit, the point of compliance with ground water quality standards shall be any point within an unlined impoundment pond or other point of discharge to ground water.

Ground water quality standards have established a pH limit of in the range of 6.5 to 8.5 standard units. As this limit is more restrictive than the technology-based limit of in the range of 6.0 to 9.0 standard units, the water quality-based limit will be assigned for discharges to ground water.

The discharge monitoring data reported under the current permit suggest that discharges of process water from concrete batch plants often have high levels of total dissolved solids (TDS). It is unclear, however, if these discharges are a threat to ground water and have the potential to violate ground water standards. A study of discharge from wet scrubbers at asphalt batch plants indicated this discharge also had the potential to exceed 500 mg/l TDS. Monitoring for TDS will therefore continue for these facilities but a limit will not be included in the proposed permit. A ground water impact study may be required when TDS consistently exceeds 500 mg/l and this study may include monitoring wells to directly measure the impact and compliance with ground water standards.

The characteristics that make sand and gravel resources valuable, also makes them productive aquifer systems. Over three-quarters of the population of the state depends on ground water as its principal source of drinking water. The high quality ground water associated with unconsolidated glacial deposits near the surface are as valuable as is the gravel that comprise them. The use of an infiltration basin, dry well, drainfield, unlined settling lagoon, or similar means of disposal is likely to adversely affect ground water when pollution prevention measures are not practiced. Spills and leakage of petroleum products are of significant concern. The proposed permit requires a visual inspection of points of discharge to ground water and the elimination of any oil sheen at these points of discharge. An appropriate spill response, best management practices to minimize spills and leaks, and prompt and thorough cleanup must be employed to prevent petroleum contamination of ground water.

The proposed permit specifically limits activities at active and inactive sites to those that are typical of the covered industrial operation and consistent with the SIC designation. Other activities that can result in a discharge or contaminate stormwater are not authorized unless covered under a separate wastewater discharge permit. This includes such activities as composting and storage of materials that are not associated with the authorized activity. Permittees are also required to take reasonable steps to manage their inactive sites to prevent unauthorized use of these sites. Reasonable steps may include signage, security measures, and periodic inspections of these sites. Unauthorized use includes the obvious activity of dumping

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garbage but can also include use by recreational vehicles that may undo BMPs designed to minimize erosion.

### *COMPARISON OF EFFLUENT LIMITS WITH THE EXISTING PERMIT*

There have been no changes in effluent limits in the proposed permit. The review of data from monitoring requirements in the current permit did not suggest that additional limits were applicable. Data did confirm that existing limits are necessary and should be continued.

### **MONITORING REQUIREMENTS**

Monitoring, recording, and reporting are required (WAC 173-220-210 and 40 CFR 122.41) to verify that the treatment process is functioning correctly and the effluent limitations are being achieved. Permittees that discharge to surface water are also required to monitor temperature during the summer months to determine if there is any reasonable potential to violate water quality temperature standards. Discharges associated with concrete batch plant process water must also monitor for total dissolved solids. The monitoring schedule is detailed in the proposed permit under Special Condition S.4. Specified monitoring frequencies take into account the quantity and variability of the discharge, the treatment method, past compliance by the industry as a whole, significance of pollutants, and cost of monitoring.

### *REPRESENTATIVE SAMPLING*

Monitoring is intended to verify how well control measures are working to assure compliance with discharge limits. The proposed permit requires that monitoring must be representative of the operating conditions at a site and the nature of discharges that occur.

Representative sampling of discharges to ground water does not mean that all ponds and puddles that occur onsite must be sampled. It does mean that the Permittee must identify how many samples are necessary to accurately represent discharge conditions. If all the ponds and puddles onsite have the same pH, one sample will typically be representative of the site. If pH at ponds and puddles in one area of a site are typically higher or lower than the rest of the site, more than one sample must be taken. The proposed permit requires a monitoring plan. The plan should include documentation of the testing conducted by the Permittee to determine representative sampling for their site. The Permittee should periodically conduct additional sampling to assure that their monitoring plan provides representative sampling.

Stormwater discharges to surface water pose another problem for representative sampling. Since storm events are not under the control of the Permittee, discharges may occur at any time of day or night and with varying intensity. The intent of monitoring for turbidity is to determine if control measures are adequate to control discharge turbidity. To achieve this sampling should be conducted during a major storm event when control measures are most stressed. Since this cannot be predicted in advance, the proposed permit requires two samples a month, increasing the odds that some samples will be taken during the most significant storm events of a month. It is acceptable for the Permittee to sample twice during one storm event if the duration of the storm event is sufficient to allow at least 24 hours between sampling.

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### *LAB ACCREDITATION*

With the exception of certain parameters the proposed permit requires all monitoring data to be prepared by a laboratory registered or accredited under the provisions of Chapter 173-50 WAC, *Accreditation of Environmental Laboratories*. Testing pH is one of the parameters that does not require lab accreditation but does require a pH meter that is accurate to a tenth of a pH standard unit. It may be in the best interest of a facility to obtain accreditation to do some additional testing onsite. Becoming accredited to conduct turbidity tests, for instance, may be a cost saving and provide timely information for improving the quality of their wastewater discharge. However, if a facility does receive accreditation for one or more parameters, then it is necessary to receive accreditation for pH also. Information on accreditation can be obtained from the Department of Ecology lab accreditation program at (360) 895-4649. In addition to the steps to become accredited, they can also provide advice on complying with testing requirements and appropriate equipment.

## **OTHER PERMIT CONDITIONS**

### *TRAINING REQUIREMENTS*

It is the Permittee's responsibility to implement and comply with the terms and conditions of the proposed permit. This responsibility includes training staff as necessary to assure compliance with the permit. The Permittee should review all staff duties and responsibilities and identify those functions that require training in permit requirements. The proposed permit specifically requires employee training in pollution prevention practices and spill response and cleanup procedures. Creating employee awareness and appreciation of the permit requirements is critical to successfully implement permit conditions. This is particularly true when compliance depends on best management practices rather than treatment systems as is typical in the proposed permit.

### *REPORTING AND RECORDKEEPING*

Special Condition S6., Reporting and Recordkeeping Requirements, are based on the authority to specify any appropriate reporting and recordkeeping requirements to prevent and control waste discharges (WAC 173-226-090).

Various permit conditions require the Permittee to notify Ecology in writing (e.g. notification of change in permit status.) The permit does not specify any special mailing instructions. However, it is the Permittee's responsibility to assure that Ecology receives notification in a timely fashion. If Ecology does not receive notification as required by the permit, the Permittee will be out of compliance. It may be in the Permittee's best interest to use certified mail or other documented delivery service whenever notifying Ecology as required by the permit.

### *DISCHARGE WATER MANAGEMENT*

The proposed permit requirements under S7, Discharge Water Management, are based on good engineering practices and water quality concerns. Lined impoundments are required where process water discharge has a significant potential to contaminate ground water. These impoundments must be constructed and maintained to prevent leakage. The impoundments and other devices to control pollutants must be built to contain the statistically derived stormwater

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event with a probable reoccurrence interval of once in ten years (design storm). This is consistent with federal regulations regarding these industries.

This condition addresses the use of chemical additives for wastewater treatment or erosion control. Typically these include chemicals to enhance solids settling in retention ponds or promote soil stabilization. Many of these chemicals are used in the drinking water industry and therefore are typically considered to be “safe”. However, some do demonstrate aquatic toxicity and others have not even been tested to determine aquatic toxicity. The proposed permit includes restrictions on the use of these chemicals to minimize the potential for any harmful effects on water quality from their use.

Direct discharge of wastewater from a hot mix asphalt plant or a concrete batch plant into an aquifer is prohibited in order to protect drinking water supplies. Wastewater from maintenance shop is regulated to prevent discharge of pollutants.

The use of ligninsulfonate is restricted due to the high biochemical oxygen demand (BOD) of the material and the potential for polluting ground water or surface water from road runoff. Otherwise, a BOD limitation and monitoring would be required to restrict its pollution potential in surface water and ground water.

This condition also regulates the discharge to gravel pit ponds. Gravel is often extracted below the water table and when extraction is completed, a pond remains behind. Some facilities then use the pond as a settling basin for stormwater and/or process water. However, gravel pit ponds may be considered as waters of the state. Untreated stormwater and process water would not likely meet surface water criteria for turbidity. This sets up a potential conflict because the addition of sediment laden wastewater adds fines to the gravel pond which can be a desirable part of reclamation. The fines help seal the pit and in more shallow areas provide a substrate for plants. As a part of a reclamation plan, using the pond as a settling basin may be desirable. The proposed permit defines the period of reclamation as part of the mining process and authorizes solids settling in the pond as long as it is part of an approved reclamation plan.

### *STORMWATER POLLUTION PREVENTION PLAN*

All facilities must have a completed Stormwater Pollution Prevention Plan (SWPPP). The SWPPP must be retained on-site or within reasonable access to the site and available, upon request, to Ecology. The SWPPP must be developed and implemented to identify and control stormwater pollution by industrial activities. The objectives include: elimination of commingling of process water and stormwater, implementation of best management practices (BMPs), and the prevention of the violation of water quality standards. The proposed permit requires ongoing wet and dry season investigations to determine if there is commingling of stormwater with process water.

Best management practices (BMPs) are a very significant part of complying with permit conditions. BMPs include schedules of activities, prohibitions of practices, maintenance procedures, and other physical, structural and/or managerial practices to prevent or reduce the pollution of waters of the State. BMPs include treatment systems, operating procedures, and practices used to control plant site runoff, spillage or leaks, sludge or waste disposal, and drainage from raw material storage. In this permit, BMPs are further categorized as operational, source control, erosion and sediment control, and treatment.

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Operational BMPs include a schedule of activities, prohibition of practices, maintenance procedures, employee training, good housekeeping, and other managerial practices to prevent or reduce the pollution of waters of the state. These activities do not require construction of pollution control devices but are very important to a successful SWPPP. Employee training, for instance, is critical to achieving timely and consistent spill response. Prohibitions might include field repair work on equipment but certainly would include intentional draining of crankcase oil on the ground. Good housekeeping and maintenance schedules help prevent incidents that could result in the release of pollutants. Operational BMPs represent a very cost-effective way to control pollutants and protect the environment.

Source control BMPs include physical, structural, or mechanical devices or facilities intended to prevent pollutants from entering stormwater. A few examples of source control BMPs are erosion control practices, maintenance of stormwater facilities, construction of roofs over storage and working areas, and direction of equipment wash water and similar discharges to the sanitary sewer or a dead end sump. Source control BMPs are likely to include a capital investment but are cost effective compared to cleaning up pollutants after they have entered stormwater.

The previous BMPs are designed to prevent pollutants from entering stormwater to begin with. However, even with a very aggressive and successful program, stormwater may still require treatment to achieve compliance with permit conditions. Treatment BMPs are BMPs intended to remove pollutants from stormwater. A few examples of treatment BMPs are detention ponds, oil/water separators, biofiltration, and constructed wetlands<sup>1</sup>.

The proposed permit requires BMPs to control and treat stormwater. It also requires BMPs that prevent stormwater contamination. Specific source control BMPs as described in Volume IV of Ecology's *Stormwater Management Manual (SWMM)* for the *Puget Sound Basin* (or revised version of this manual), are required where they apply. The Permittee may choose to implement either the BMP found in Ecology's SWMM or an equivalent BMP. Where BMPs listed in available references are not adequate, the operator may design innovative BMPs that achieve compliance with the proposed permit. The SWPPP shall identify appropriate BMPs and a discussion of how and where they are implemented at the facility.

The permit also requires the Permittee to store additional information in the SWPPP. The Permittee must record the results of visually monitoring surface water discharges for impact on turbidity and monitoring visually for oil sheen in the SWPPP. Storm water inspection reports are also to be kept with the SWPPP. The intention is that the SWPPP becomes a useful document for the Permittee, providing useful information on stormwater control strategy and results.

All facilities must also have a completed Erosion and Sediment Control Plan (ESCP). The ESCP must be retained on-site or within reasonable access to the site and available, upon request, to Ecology. Permittees are required to select, install, and maintain appropriate BMPs. In the BMP Reference section at the end of this fact sheet are citations for publications that may be useful as guides in selecting appropriate BMPs. Permittees may select or design BMPs not discussed in those references if they are substantially equivalent and appropriate for their situations.

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<sup>1</sup> Developing a constructed wetland can be an effective way to treat stormwater. However, wetlands constructed for treatment of stormwater are not eligible for use as compensatory mitigation for authorized impacts to regulated wetland systems.



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The discharge of stormwater to any sanitary sewer is prohibited. This is necessary to limit both the dilution of sanitary wastewater and the hydraulic loading of sanitary sewers and treatment plants.

### *SPILL PLAN*

It is typical for the industrial activities covered under this permit to include storage of chemicals that have the potential to cause water pollution if accidentally released. Fuel, hydraulic fluid and other petroleum products are commonly stored onsite and heavy equipment and trucks contain significant quantities of these materials. Spills can and do happen at these sites. As discussed previously, mining sites are particularly vulnerable to ground water contamination. This permit requires the Permittee to develop best management plans to prevent accidental release of these substances and to respond quickly to clean up spills that do occur. These requirements are consistent with section 402(a)(1) of the Federal Water Pollution Control Act (FWPCA) and RCW 90.48.080. The Permittee must develop, implement, and maintain a spill plan to prevent the accidental release of pollutants to state waters and to minimize damages if such a spill occurs. This plan must be kept onsite or within reasonable access to the site and made available to Ecology upon request.

### *SOLID WASTE DISPOSAL*

The Permittee is required to properly dispose of solid wastes and comply with the applicable solid and hazardous waste regulations (Chapters 173-303 and 173-304 WAC). Collection, separation, and settling are some of the techniques for controlling stormwater or process water that may result in the generation of solid wastes. The solid waste from the activities covered under this permit will most often contain no hazardous waste materials and may be used as soil or fill material. However, it is the Permittee's responsibility to verify that the solid waste is properly identified, handled and disposed of. Solid waste from concrete truck washout for instance, may have a high pH and leachate from stock piles of this material may have a potential to pollute waters of the state. The small particulate matter (fines) that is removed from air emissions during the production of asphalt may contain pollutants of concern and should be evaluated for toxic substances to determine appropriate disposal options.

### *GENERAL CONDITIONS*

General Conditions are based directly on state and federal law and regulations and have been standardized for all individual industrial NPDES permits issued by Ecology.

Condition G1 requires the Permittee to comply with the terms and conditions of the proposed permit. Condition G2 requires the Permittee to properly operate and maintain all pollution control facilities and systems. Condition G3 requires the Permittee to control its production in order to maintain compliance with its permit. Condition G4 requires the Permittee to inform Ecology of any wastewater system bypass. Condition G5 requires the Permittee to allow Ecology to access the treatment system, production facility, and records related to the proposed permit. Condition G6 requires the Permittee to submit a new application for coverage prior to implementing significant changes in covered activities. Condition G8 specifies conditions for modifying, suspending or terminating the permit. Condition G9 requires the permittee to notify Ecology when facility changes may require modification or revocation of permit coverage.



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Condition G10 states that Ecology will modify or revoke and reissue the permit to conform to more stringent toxic effluent standards or prohibitions. Condition G11 incorporates by reference all other requirements of 40 CFR 122.41 and 122.42. Condition G12 prohibits the Permittee from using the permit as a basis for violating any laws, statutes or regulations. Condition G13 notifies the Permittee that additional monitoring requirements may be established by Ecology. Condition G14 requires the payment of permit fees. Condition G15 prohibits the reintroduction of removed substances back into the effluent. Condition G16 allows the Permittee to request their general permit coverage be replaced by an individual permit. Conditions G17 and G18 relate to permit renewal and transfer. Condition G19 describes the penalties for violating permit conditions. Condition G20 requires responsible officials or their designated representatives to sign submittals to Ecology. Condition G21 defines appeal options for the terms and conditions of the general permit and of coverage under the proposed permit by an individual discharger. Condition 22 invokes severability of permit provisions.

### **SMALL BUSINESS ECONOMIC IMPACT STATEMENT**

A small business economic impact statement (SBEIS) was prepared for the current general permit. Since only relatively minor changes exist between the current permit and the proposed permit, the original SBEIS provides sufficient review of economic impact factors. The SBEIS includes evaluations of the economic impacts to these industries based on cost estimates available from USEPA as well as other sources.

### **PERMIT ISSUANCE PROCEDURES**

#### *PERMIT MODIFICATIONS*

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

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

#### *RECOMMENDATION FOR PERMIT ISSUANCE*

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

### **REFERENCES FOR TEXT AND APPENDICES**

#### *BMP REFERENCES*

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Applied Hydrology and Sedimentology for Disturbed Areas. Oklahoma Technical Press, Stillwater, Oklahoma.

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Recommended Waste Management Practices for the Ready Mix Concrete Industry in British Columbia. March, 1990

### Goldman, S.J.,

Erosion and Sediment Control Handbook. McGraw Hill Publishing Co., New York, New York.

### Spokane County

Guidelines for Stormwater Management. Spokane County Engineers Office, North 811 Jefferson St., Spokane, WA 99260

### United States Environmental Protection Agency

NPDES Stormwater Sampling Guidance Document. USEPA Document 833-B-92-001, July 1992

Development Document for Effluent Limitations Guidelines and Standards, Mineral Mining and Processing Industry, Point Source Category, USEPA Document 440/1-76/059b, July 1979

Guidance Development Document Effluent Limitations Guidelines and New Source Performance Standards for Concrete Products, Point Source Category. USEPA Document 440/1-78/090, February 1978

### Urbanas, Ben and Peter Stahre

Stormwater. Prentice Hall, Des Moines, Iowa

### Washington State Department of Natural Resources, Division of Geology and Earth Resources

Best Management Practices for Reclaiming Surface Mines in Washington and Oregon, Revised Edition 1997, Open File Report 96-2.

### Washington State Department of Ecology

Stormwater Management Manual for the Puget Sound Basin, Publication 91-75

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### *GENERAL REFERENCES*

Environmental Protection Agency (EPA)

1975. Development Document for Effluent Limitations Guidelines and New Source Performance Standards for the Paving and Roofing Materials. EPA 440/1-75/049a.
1975. Development Document for Interim Final Effluent Limitations Guidelines and New Source Performance Standards for the Minerals for the Construction Industry Vol. I. EPA 440/1-75/059.
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1979. Development Document for Effluent Limitations Guidelines and Standards for the Mineral Mining and Processing Industry. EPA 440/1-76/059b.
1992. National Toxics Rule. Federal Register, V. 57, No. 246, Tuesday, December 22, 1992.
1991. Technical Support Document for Water Quality-based Toxics Control. EPA/505/2-90-001.
1988. Technical Guidance on Supplementary Stream Design Conditions for Steady State Modeling. USEPA Office of Water, Washington, D.C.
1985. Water Quality Assessment: A Screening Procedure for Toxic and Conventional Pollutants in Surface and Ground Water. EPA/600/6-85/002a.
1983. Water Quality Standards Handbook. USEPA Office of Water, Washington, D.C.

Mead, Robert D.

1995. The Direct and Cumulative Effects of Gravel Mining on Ground Water Within Thurston County, Washington. Thurston County Public Health and Social Services Department.

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

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

Washington State Department of Ecology.

1994. Permit Writer's Manual. Publication Number 92-109

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

1979. In-stream Deoxygenation Rate Prediction. Journal Environmental Engineering Division, ASCE. 105(EE2). (Cited in EPA 1985 op.cit.)

## **APPENDIX A--PUBLIC INVOLVEMENT INFORMATION**

Ecology has tentatively determined to reissue the sand and gravel general permit to the industries listed under "Permit Coverage" on page 1 of this fact sheet. The proposed permit contains conditions and effluent limitations which are described in the rest of this fact sheet.

On June 15, 1998, Ecology announced that it intended to update and reissue the NPDES and state waste discharge general permit known as the sand and gravel general permit. A letter was sent to current permittees, construction materials mining operations as identified from Department of Natural Resources data, interested parties identified in the initial permit issuance, and to parties with standing requests for Ecology announcements. The announcement was also included in Ecology's Summer edition of *Confluence* and posted under Ecology's home page on the Internet. The mailing included a response card allowing recipients to request updates on permit developments and to volunteer for the advisory group.

Ecology will publish a Public Notice of Draft (PNOD) on May 5, 1999 in the State Register, the Spokesman Review, the Seattle Daily Journal of Commerce, the Daily Olympian, and the Yakima Herald Republic to inform the public that the draft permit and fact sheet are available for review. The notice will also be mailed to all parties identified above as interested parties. Interested persons are invited to submit written comments regarding the draft permit. The draft permit, fact sheet, and related documents are available for inspection and copying between the hours of 8:00 a.m. and 5:00 p.m. weekdays, by appointment, at Ecology's regional offices listed below. Written comments should be mailed to:

Keith Johnson, Water Quality Program  
Department of Ecology  
PO Box 47600  
Olympia, WA 98504-7600

Ecology will also conduct a workshop and public hearing at four locations around the state. Any interested party may comment on the draft permit or testify at a public hearing on this draft permit. Written comments must be submitted within the thirty (30) day comment period to the address above. Public notice regarding the hearing will be circulated at least thirty (30) days in advance of the hearing. People expressing an interest in this permit will be mailed an individual notice of hearing (WAC 173-220-100).

Comments should reference specific text followed by proposed modification or concern when possible. Comments may address technical issues, accuracy and completeness of information, the scope of the facility's proposed coverage, adequacy of environmental protection, permit conditions, or any other concern that would result from issuance of this permit.

Ecology will consider all comments received within thirty (30) days from the date of public notice of draft indicated above, in formulating a final determination to issue, revise, or reconsider the proposed permit. Ecology's response to all significant comments is available upon request and will be mailed directly to people expressing an interest in this permit.

Further information may be obtained from Ecology by telephone, (360) 407-6442, or by writing to the address listed above.

## *FACT SHEET*

This permit and fact sheet were written by Keith Johnson. Regional office locations are:

Southwest Regional Office  
Water Quality Program  
300 Desmond Drive  
Lacey, Washington  
Phone: (360) 407-6280

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

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

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

## **APPENDIX B--GLOSSARY**

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

**AKART**-- An acronym for “all known, available, and reasonable methods of treatment”.

**Ambient Water Quality**--The existing environmental condition of the water in a receiving water body.

**Ammonia**--Ammonia is produced by the breakdown of nitrogenous materials in wastewater. Ammonia is toxic to aquatic organisms, exerts an oxygen demand, and contributes to eutrophication. It also increases the amount of chlorine needed to disinfect wastewater.

**Average Monthly Discharge Limitation** --The average of the measured values obtained over a calendar month's time.

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

**BOD<sub>5</sub>**--Determining the Biochemical Oxygen Demand of an effluent is an indirect way of measuring the quantity of organic material present in an effluent that is utilized by bacteria. The BOD<sub>5</sub> is used in modeling to measure the reduction of dissolved oxygen in a receiving water after effluent is discharged. Stress caused by reduced dissolved oxygen levels makes organisms less competitive and less able to sustain their species in the aquatic environment. Although BOD is not a specific compound, it is defined as a conventional pollutant under the federal Clean Water Act.

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

**Chlorine**--Chlorine is used to disinfect wastewaters of pathogens harmful to human health. It is also extremely toxic to aquatic life.

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

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

**Compliance Inspection - Without Sampling**--A site visit for the purpose of determining the compliance of a facility with the terms and conditions of its permit or with applicable statutes and regulations.

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**Compliance Inspection - With Sampling**--A site visit to accomplish the purpose of a Compliance Inspection - Without Sampling and as a minimum, sampling and analysis for all parameters with limits in the permit to ascertain compliance with those limits; and, for municipal facilities, sampling of influent to ascertain compliance with the 85 percent removal requirement. Additional sampling may be conducted.

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

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

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

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

**Engineering Report**--A document which thoroughly examines the engineering and administrative aspects of a particular domestic or industrial wastewater facility. The report shall contain the appropriate information required in WAC 173-240-060 or 173-240-130.

**Fecal Coliform Bacteria**--Fecal coliform bacteria are used as indicators of pathogenic bacteria in the effluent that are harmful to humans. Pathogenic bacteria in wastewater discharges are controlled by disinfecting the wastewater. The presence of high numbers of fecal coliform bacteria in a water body can indicate the recent release of untreated wastewater and/or the presence of animal feces.

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

**Industrial Wastewater**--Water or liquid-carried waste from industrial or commercial processes, as distinct from domestic wastewater. These wastes may result from any process or activity of industry, manufacture, trade or business, from the development of any natural resource, or from animal operations such as feed lots, poultry houses, or dairies. The term includes contaminated stormwater and, also, leachate from solid waste facilities.

**Major Facility**--A facility discharging to surface water with an EPA rating score of > 80 points based on such factors as flow volume, toxic pollutant potential, and public health impact.



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**Maximum Daily Discharge Limitation**--The highest allowable daily discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. The daily discharge is calculated as the average measurement of the pollutant over the day.

**Method Detection Level (MDL)**--The minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is above zero and is determined from analysis of a sample in a given matrix containing the analyte.

**Minor Facility**--A facility discharging to surface water with an EPA rating score of < 80 points based on such factors as flow volume, toxic pollutant potential, and public health impact.

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

**National Pollutant Discharge Elimination System (NPDES)**--The NPDES (Section 402 of the Clean Water Act) is the Federal wastewater permitting system for discharges to navigable waters of the United States. Many states, including the State of Washington, have been delegated the authority to issue these permits. NPDES permits issued by Washington State permit writers are joint NPDES/State permits issued under both State and Federal laws.

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

**Quantitation Level (QL)**-- A calculated value five times the MDL (method detection level).

**Responsible Corporate Officer**-- A president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy- or decision-making functions for the corporation, or the manager of one or more manufacturing, production, or operating facilities employing more than 250 persons or have gross annual sales or expenditures exceeding \$25 million (in second quarter 1980 dollars), if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures (40 CFR 122.22).

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

**Total Suspended Solids (TSS)**--Total suspended solids is the particulate material in an effluent. Large quantities of TSS discharged to a receiving water may result in solids accumulation. Apart from any toxic effects attributable to substances leached out by water, suspended solids may kill fish, shellfish, and other aquatic organisms by causing abrasive injuries and by clogging the gills and respiratory passages of various aquatic fauna. Indirectly, suspended solids can screen out light and can promote and maintain the development of noxious conditions through oxygen depletion.

**State Waters**--Lakes, rivers, ponds, streams, inland waters, underground waters, salt waters, and all other surface waters and watercourses within the jurisdiction of the state of Washington.

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

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

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

## APPENDIX C--ADVISORY GROUP

An advisory group was formed from volunteers to provide information, comments, and suggestions relevant to rewriting the sand and gravel general permit. Although Ecology had the responsibility to implement the applicable law and write the permit, the advisory group had a significant role in improving the quality and completeness of the finished permit. The participants were expected to put forth positive suggestions and criticism based on their personal knowledge and expertise and to provide representation of the larger community, for example; local government perspective, environmental advocates, or impacts to large or small businesses that are covered by this permit. The advisory group met four times:

September 29, 1998	Lacey, Washington	Orientation and Presentation of Issues
November 18, 1998	Yakima, Washington	Issues and Concerns Discussion
January 11, 1999	Lacey, Washington	Review of Draft Permit
February 8, 1999	Bellevue, Washington	Final Review of Draft permit

Members were selected to provide as balanced a representation of the interested parties as possible from those that volunteered. More than 70 individuals had indicated an interest in serving on the advisory group but the group was limited to 17 participants to maintain a manageable and participatory size. Geographical location, experience in sand and gravel issues, and ability to represent a larger constituency were considered in the selection. The members of the advisory group were:

Name	Address	Comments
<b>Randy Baer</b> (509) 248-6823 superior@ewa.net	Superior Asphalt & Concrete PO Box 10268 Yakima, WA 98909	Randy is an environmental/compliance manager for Superior Asphalt & Concrete; responsible for compliance with air, water, and mining permits.
<b>Robin Boynton</b> (425) 333-6494 robin98@earthlink.net	E King Co Grnd Wtr Advisory PO Box 1265 Carnation, WA 98014	Robin seeks healthy coexistence of gravel pits and environment; has actively worked with citizens and government on these issues.
<b>David Davidson</b> (360) 988-2057	City of Sumas PO Box 9 Sumas, WA 98295	David represents small municipal water systems and is involved with well-head protection and water resource issues.
<b>Dorain Dexter</b> (509) 786-7363 DARDEX@bentonrea.com	DEXTER PO Box 165 Prosser, WA 99350	Dorain is a consultant providing permitting and planning services for sand & gravel, concrete, and asphalt sites, 20 to 250 acres.
<b>David Freels</b> (509) 689-2415	Godbey Red-E-Mix Concrete Box 505 Brewster, WA 98812	David is an owner/operator of a small facility in eastern Washington and has served on local government.
<b>Keith Grundie</b> (509) 773-4616 keithg@co.klickitat.wa.us	Klickitat County Road Dept 228 W Main MS CH-19 Goldendale, WA 98620	Keith works for Klickitat County Roads and provides a county perspective on aggregate and permit issues.

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<b>Robin Hansen</b> (425) 867-1234 rnelson@cadmaninc.com	Cadman Inc. PO Box 97038 Redmond, WA 98073	Robin is an environmental/compliance manager and has implemented the permit for a number of Cadman facilities; member of the WACA Environmental Committee.
<b>Doris Johnson</b> (509) 586-3646 (360) 354-5409	Johnson Gravel 739 South Tacoma Place Kennewick, WA 99336	Doris represents small facilities, is an owner/operator of a gravel pit in Whatcom County, and has experience as a legislator.
<b>Rick Langley</b> (360) 674-3131 ext. 102	Fred Hill Materials 8430 SW Barney White Rd Port Orchard, WA 98366	Rick is the VP-Administration for Fred Hill Materials; has implemented the permit at small facilities; member of the WACA Environmental Committee.
<b>Jana McDonald</b> (509) 533-0238 corporate@centralpremix.com	Central Pre-Mix Concrete Co PO Box 3366 Spokane, WA 99220	Jana is an environmental/compliance manager responsible for a number of Central Pre-Mix facilities around the state.
<b>David Norman</b> (360) 902-1439 Dave.Norman@wadnr.gov	DNR Geology Division PO Box 47007 Olympia, WA 98504-7007	Dave represents Dept of Natural Resources, a state agency with regulatory responsibilities for mining activities.
<b>Doug Pierce</b> (360) 705-7812	Dept of Transportation PO Box 37358 Olympia, WA 98504-7358	Doug is an administrator for DOT road maintenance. DOT is a permittee and concerned with construction raw materials and waste materials.
<b>Mark Solomon</b> (509) 838-4912 msolomon@landscouncil.org	The Lands Council 517 S Division Spokane, WA 99202	Mark is the executive director of The Lands Council, a non-profit forest conservation organization, with 15 years of experience in the implementation of the Clean Water Act.
<b>Lesa Starkenburg</b> (360) 354-7822	Attorney at Law 115 Front Street Lynden, WA 98264	Lesa is an attorney for extraction companies and is active in the Whatcom Sand & Gravel Association.
<b>Scott Morrison</b> (360) 407-6292 smor461@ecy.wa.gov	Dept of Ecology PO Box 47775 Olympia, WA 98504-7775	Scott represents Ecology's regional offices that implement the permit.
<b>Trevin Taylor</b> (360) 374-5695 trevin@olyphen.com	Quileute Indian Tribe PO Box 187 LaPush, WA 98350	Trevin is a timber, fish and wildlife biologist for the Quileute Tribe and will represent environmental concerns important to the Tribe.
<b>Paul Ward</b> (509) 865-6262 ward@yakama.com	Yakama Nation, Fisheries PO Box 151 Toppenish, WA 98948	Paul is with the Fisheries Program of the Yakama Nation, active in the protection and enhancement of river water quality.

## APPENDIX D--RESPONSE TO COMMENTS

Ecology announced the draft sand and gravel general permit and fact sheet on May 5, 1999. The public comment period ended on June 15, 1999. Four public hearings were held: Spokane, June 7, 1999; Yakima, June 8, 1999; Bellevue, June 11, 1999; and Lacey, June 14, 1999. A synopsis of the comments received and the public testimony provided is provided below along with Ecology's response. Quotation marks are used wherever the exact text of the comment or testimony is used.

### Permit Revisions:

- **Table of Contents** was updated to include the missing third level headings.

- **S1.D.1.d.** was:

Any facility that is not covered by a DNR reclamation permit and uses materials that are not inert for reclamation or backfill; or

Changed to:

Any facility that uses materials that are not inert for reclamation or backfill and **also** is not covered by a DNR reclamation permit; or

- **S2.A.2.** was:

All new facilities... No discharge is authorized until Ecology issues coverage.

Changed to:

All new facilities... No discharge is authorized until **the effective date of permit coverage as provided in Special Condition S2.E.**

- **S2.A.3.** was:

Any existing facilities... No discharge is authorized until Ecology issues coverage. ...

Changed to:

All existing facilities... No discharge is authorized until **the effective date of permit coverage as provided in Special Condition S2.E.** ...

- **S2.G. Portable Facilities** was:

An owner and/or operator of a portable concrete batch plant, portable asphalt batch plant, or portable rock crusher may apply for coverage under this general permit for the portable facility. Coverage will apply only to the specific portable facility identified in the application for coverage **and will authorize operation of** the portable facility throughout the state subject to the following requirements:

## FACT SHEET

1. **A portable facility will be authorized to operate** at a site for a limited time, not to exceed one (1) year...

Changed To:

An owner and/or operator of a portable concrete batch plant, portable asphalt batch plant, or portable rock crusher may apply for coverage under this general permit for the portable facility. Coverage will apply only to the specific portable facility identified in the application for coverage. **Permit coverage is provided for the portable facility at sites throughout the state subject to the following requirements:**

1. **Coverage of the portable facility** at a site is for a limited time, not to exceed one (1) year...

- Added definition for **total dissolved solids (TDS)**

*Total Dissolved Solids (TDS)* means those solids that are capable of passing through a glass fiber filter (1.0 - 1.5 µm) and dried to a constant weight at 180 degrees centigrade.

- Added definition for **turbidity**

*Turbidity* means the clarity of water as expressed by nephelometric turbidity units (NTU) and measured with a calibrated turbidimeter.

## Comments and Responses:

### S1. Permit Coverage

**Comment 1:** (S1.) Several comments asserted that permit language should be added stating that facilities that have zero discharge are not required to obtain permit coverage. “A facility that collects all its process and stormwater and has no discharge (e.g., an impervious facility) should not fall within the coverage of this general permit.”

**Response:** The title of the permit states that it is a “...PERMIT FOR PROCESS WATER, STORMWATER, AND MINE DEWATERING WATER DISCHARGES...” with the intended implication that the general permit is for facilities with a discharge. The purpose of the permit “inclusion” and “exclusion” language is to identify within the universe of facilities that have a discharge and may require a permit, which ones are appropriate for coverage under the sand and gravel general permit. There is no value added to state that a facility that has no legal requirement for a permit is excluded from coverage. Additionally, it is unclear whether “zero discharge” actually means no discharge and no potential to discharge. Permit language will not attempt to resolve the issue of whether a site meets the legal test of a discharge or potential discharge subject to a wastewater discharge permit. No change to the permit.

**Comment 2:** (S1.D.1.a.) An addition to this provision was proposed “per WAC 173-154-050” to broaden the exclusion from coverage language. It would be changed to: “The facility has a pit design that will intercept more than one aquifer; or in any multiple aquifer system, where it is determined the uppermost aquifer or upper aquifer zone



cannot safely sustain permanent damage through depletion or an impairment of the beneficial use of the ground water arising from a modification of the water quality and quantity.”

**Response:** WAC 173-154-050 deals with impacts resulting from ground water withdrawals. It has no direct bearing on wastewater discharge requirements. The permit excludes from coverage any facility where the pit design will intercept more than one aquifer because there are no permit conditions to address the potential of one aquifer to contaminate another independent of the potential of mining activities to cause pollution. The permit, however, does provide protection of ground water from pollution resulting from the mining activities and hence protects any lower level aquifers that may be naturally connected. The permit also excludes from coverage any facility that “would impair adjacent water rights as a result of pit operations lowering the water table.” While Ecology appreciates the concern expressed by the comment, we do not believe that it would add to the effectiveness of the permit. No change to the permit.

**Comment 3:** (S1.D.1.b. and S1.D.1.c.) “Eventually all waters (soon) will have plans and restrictions (TMDL). Not industry exclusive pollutants. ... Ecology MUST consider cumulative water quality problems. Against state law to pollute already impaired waters.” Comment proposes to broaden the exclusion from coverage language in these provisions to: (S1.D.1.b.) “The facility discharges to a water body that is impaired, through cumulative testing, by at least one or combination of pollutants.” (S1.D.1.c.) “Any facility that discharges to a water body listed pursuant to Section 303(d) of the Clean Water Act.”

**Response:** There may be some misunderstanding about how S1.D.1.b. and S1.D.1.c. address the concerns of a listed water body or one regulated through Total Maximum Daily Load (TMDL) allocations. A water body is listed under the Clean Water Act Section 303(d) when there is evidence that its beneficial uses are threatened or impaired by one or more pollutants. The listing is for specific parameters (pollutants). Likewise, a TMDL is typically conducted to address the specific parameters that threaten the beneficial use of the water body. Requirements to restore beneficial uses may be more restrictive discharge limits for the identified parameters than would typically be applied. Such specialized restrictions would be out of the scope of this general permit.

There are specific pollutants of concern associated with those facilities covered under the sand and gravel general permit. These parameters (pollutants) were identified based on an analysis of industry activities and include pH, petroleum products, and suspended solids. When the parameters (pollutants) of the listed water body or water body subject to TMDL allocations coincide with parameters of concern identified for this industry, then coverage under the general permit is excluded unless the conditions in the general permit are sufficiently protective. Additional environmental protection would not result from requiring an individual permit for parameters not identified by the TMDL or Section 303(d) listing of a water body because the general permit conditions are protective and consistent with legal requirements. No change to the permit.

**Comment 4:** (S1.D.1.d.) It was not clear what the intent was of this exclusion and whether “control plan” means the same as “environmentally sensitive”.

**Response:** This provision only applies to facilities that discharge to receiving water bodies that are covered by a control plan. As defined in the permit, “Control plans may be total maximum daily load (TMDL) determinations, restrictions for the protection of endangered species, ground water management plans, or other legally binding limitations.” The type of facility that would be excluded under this provision is one where the discharge contains a pollutant that is restricted by the control plan and the general permit is not restrictive enough to meet the requirements of the control plan. Although these water bodies are likely, environmentally sensitive, control plan is referring to an action that applies pollutant limits to a water body or water system. No change to the permit.

**Comment 5:** (S1.F.) It is inappropriate for Ecology to tie permit cancellation to release of the reclamation bond by Department of Natural Resources (DNR). “...we do not agree Ecology has any authority in determining when reclamation is complete or can attach the satisfaction of the DNR reclamation bond to permit coverage termination.” Additionally, the process of DNR reclamation bond release can be very protracted and it is unrelated to the purpose of the wastewater discharge permit. Cancellation of permit should not require release of reclamation bond and Ecology should not make reclamation determinations for sites not covered by DNR. Please indicate the legal authority for these permit requirements.

**Response:** The activity of developing an area (removing vegetation and topsoil) and mining makes that area more vulnerable to pollutants. To simply cease operation does not remove that vulnerability. Only after reclamation, when the site is completely stabilized and restored will Ecology’s legal obligation to protect the waters of the state under chapter 90.48 RCW be satisfied. Since DNR reclamation plans are designed to provide the environmental protection and site stabilization and thereby protect waters of the state, the release of the reclamation bond is a very appropriate and efficient means to identify when Ecology’s water quality concerns have been satisfied and to cancel the permit. It should be noted that during this time, the site can be listed as “inactive” and subject only to a minimal wastewater discharge fee and require no discharge monitoring and reporting.

Ecology also has a legal obligation to protect the waters of the state under chapter 90.48 RCW at those facilities that are 3 acres or less and not subject to a DNR reclamation plan. It is true that RCW 78.44.050 delegates exclusive authority to DNR for the regulation of surface mine reclamation. However, this RCW does not alter or preempt any provisions of the state water pollution control laws. Restoration of the site is still required to protect the state’s waters and allow cancellation of the permit. In the absence of DNR oversight, the Ecology permit manager must determine when site restoration is complete. No change to the permit.

**Comment 6:** (S1.F.) There was also a concern that this condition did not fully cover termination of coverage: “a facility that is able to effect a zero discharge (e.g., recycles 100% of its water or discharges all water to a sanitary sewer) should have a process for termination of coverage. This permit provision should be expanded to provide procedural steps to terminate coverage at those facilities that have achieved zero discharge.”

**Response:** S1.F. conditions the cancellation of a permit for a site that intends to permanently cease operation. The comment proposes expanding the intent to include canceling the permit for a facility that implements “zero discharge”. This proposal is related to Comment 1 and the response to Comment 1 also applies here. The permit addresses the requirements for facilities with a discharge. There is no special language required in the permit to allow cancellation of a permit if the legal requirement for a discharge permit no longer exists. If the facility is modified to discharge completely to a sanitary sewer, a discharge still exists and there are state and federal pretreatment requirements. There is still a permit requirement and the modification may be problematic as WAC 173-216-060(b)(vii) prohibits discharge of stormwater to a sanitary sewer. No change to the permit.

**Comment 7:** “S1.D.d. A facility is Excluded from coverage when Not covered by a DNR reclamation permit. However, in S1F Termination of coverage is defined for facilities Not covered by a DNR reclamation permit. How can a facility request termination of coverage when it is Excluded from coverage?”

**Response:** There is an apparent miscommunication here. S1.D.1.d. excludes from coverage any facility that is not covered by a DNR reclamation permit **and** uses materials that are not inert for reclamation or backfill. The exclusion here relates to sites where both conditions exist; the use of materials that are not inert **and** not subject to DNR reclamation. When DNR is in charge of reclamation, this exclusion is not required. Sites not subject to DNR reclamation must either use inert materials for reclamation or backfill (thus eligible for coverage under the general permit) or they must request an individual permit that can address the use of materials that are not inert. S1.F. defines the requirements for termination of permit coverage for facilities that are covered by a DNR reclamation plan and those not subject to DNR reclamation. Revision of the permit language might improve readability and clarity and therefore S1.D.1.d. will be changed to read: “Any facility that uses materials that are not inert for reclamation or backfill **and** also is not covered by a DNR reclamation permit;”

## S2. Coverage Requirements

**Comment 8:** “Our Association believes that receiving water quality should not be limited to industry specific pollutants. We believe that DOE has an ethical responsibility to the people of the state who depend on ground water for their potable drinking water. By limiting receiving water quality to industry specific pollutants, Ecology may be inadvertently applying (cumulatively) more "Load" to a water supply than it can take. We understand that TMDLs are in the development stages and are not implemented into the permitting process to date. But the technology and knowledge are understood and should be a part of this permitting process. In the best interests of "Public Health and Safety" and "The Protection of the Environment", Ecology, as the known expert on water quality, must set the proper parameters to ensure the future availability of clean, safe drinking water to the people of the State.”

The comment proposes adding additional language: “When an applicant applying for a new proposal covered under the general permit. Receiving water quality must be addressed, at the applicants expense. If it is found that the receiving water cannot, in the

interests of public health and safety and protection of the environment, sustain any further "Load" or the potential "Load" of the proposal. The applicant shall be placed on a pending "Load" list and may proceed with the proposal only when the receiving waters have been found capable of sustaining the proposed activity.”

**Response:** The permit as written does not authorize any discharge that diminishes the beneficial uses of the receiving water. This applies both to discharges to ground water and to surface water. The permit includes the necessary requirements to protect the waters of the state under typical conditions and excludes from coverage those sites where special circumstances require more stringent permit conditions (see response to Comment 3). The application for coverage requires sufficient information to determine if the applicant is appropriate for coverage under the general permit. New facilities must comply with SEPA before permit coverage can be issued and must notice their application for coverage. Parties that believe coverage under the general permit is not appropriate for a specific facility can so inform Ecology. They can also appeal a decision by Ecology to issue coverage to a specific facility. Issues about locating a facility at a specific site, however, are best addressed during SEPA review and are outside of the scope of the permit. The permit conditions the wastewater discharge by facilities that have been sited and otherwise approved for operation. No change to the permit.

**Comment 9:** (S2.A.2. and S2.A.3.) “The statement in each of these provisions that ‘No discharge is authorized until Ecology issues coverage’ is inconsistent with S2.E.1. provision which provides for automatic coverage on the 31st day following either receipt by Ecology of the completed application or the end of the public comment period. This provision is also inconsistent with the automatic coverage provisions regarding general set forth in WAC 173-226-200(2). This statement should be modified to indicate that a discharge is authorized upon the effective date of coverage as provided in S2.E.1. The sentence should read that: No discharge is authorized until the effective date of permit coverage as provided in S2.E.1.”

**Response:** No inconsistency was intended but the comment convincingly argues that the intent is not clear and subject to misinterpretation. The proposed change will be implemented and the modified portion of S2.A.2. and S2.A.3. will read:

No discharge is authorized until **the effective date of permit coverage as provided in Special Condition S2.E.**

**Comment 10:** (S2.B. and S2.C.) There is concern that the use of ‘significant process change’ in these conditions is not well defined and could lead to unwarranted public notice and SEPA requirements. The permit defines significant process change as ‘Significant process change for this industry group will be any modification of the facility that would change the characteristics of the discharge or include for coverage a new activity (SIC) that was not previously covered.’ “The lack of definition of ‘significant process change’ in the permit or within statute is alarming. Without clear and concise guidelines or improved definitions, this single aspect of the permit undermines the intent and integrity of the general permit by definition. Based upon the determination of the permit manager in each region, for any given facility, the predictability of a general permit is lost. It is the intent of a general permit to apply common standards statewide to

certain defined activities of a given industry. It is for this reason the discretionary application should be narrowed not broadened, as they are applicable to many entities. We urge you to remove any ambiguity in the permit content and remove the subjectivity of decision making by permit managers as it can be construed as arbitrary and subject to individual permittee appeal.”

**Response:** These conditions comply with regulatory requirements found in WAC 173-226-130(5) and WAC 173-226-200(3)(f). The pertinent regulatory language is “...for operations previously under permit for which an increase in volume or change in the character of the effluent is requested over that which was previously authorized...”. In addition, federal law, 40 CFR Part 122.41(L)(1)(i-ii), requires notice when “...alteration or addition could significantly change the nature or increase the quantity of pollutants...” The permit implements the law through requirements triggered by “significant process change”. Ecology agrees that the definition of significant process change found in the permit is open to interpretation but we believe it provides the appropriate framework for evaluating a change and making a determination. It is the permittee’s responsibility to notify Ecology of proposed changes that could result in a change in the characteristics of the discharge and it is Ecology’s responsibility to determine if the proposed change constitutes “significant process change”.

Ecology permit managers do share information and meet on occasion to address issues such as what constitutes significant process change. At a recent meeting permit managers agreed to the following guidance:

The test is the potential of a change in operations to impact the environment. Some changes such as addition of industrial activity (SIC) or addition of a new type of discharge are typically considered a significant process change. Other changes at a facility typically require case by case evaluation.

If a permittee does not agree with an Ecology decision, they may request reconsideration and all decisions may be appealed. It may not be a perfect system but to replace “best professional judgement” by defining exactly what changes are a significant process change will not be perfect either. No change to the permit.

**Comment 11:** (S2.G.) “The permit authorizes the discharge, not the operation of the portable facility. Please change ‘authorized to operate’ to authorized to discharge.”

**Response:** The point of this comment is well taken. The language will be changed to read as follows:

An owner and/or operator of a portable concrete batch plant, portable asphalt batch plant, or portable rock crusher may apply for coverage under this general permit for the portable facility. Coverage will apply only to the specific portable facility identified in the application for coverage. Permit coverage is provided for the portable facility at sites throughout the state subject to the following requirements:

The language of S2.G.1. will also be changed from ‘A portable facility will be authorized to operate at a site for a limited time, not to exceed one (1) year...’, to:

Coverage of the portable facility at a site is for a limited time, not to exceed one (1) year...

**Comment 12:** There were comments suggesting that permits for individual sites could be replaced by one permit for a portable where the sites were only worked one at a time and in connection with the portable. “If somebody owns a couple pits that are permitted and the only thing he does in there, for instance, is crushing and mining and he permits his crusher, can he have those site permits cancelled?”

**Response:** Although none of these comments were suggesting a change to the permit, the concept was expressed several times and represents a significant misunderstanding of the intent of coverage for portable operations. For portable concrete and asphalt batch plants, coverage is only applicable to the concrete and asphalt production and does not provide coverage for any mining activity where the batch operation sets up. Portable rock crushing coverage may extend to associated mining activity but only for the period of time the rock crushing activity takes place. In addition, at every site where the portable rock crusher operates, the permit requires the permittee to comply with one of the following:

- a. Provide Ecology with documentation that there is no mining or other activity at the site subject to coverage under this permit, or
- b. Provide Ecology with documentation that the site has coverage, or
- c. Notify Ecology and the land owner in writing that the site appears to require coverage under the sand and gravel general permit, or
- d. When operation of the portable is completed, return overburden, reseed, and stabilize the site to minimize soil *erosion* and encourage natural vegetation.

Coverage for portable rock crushers is not intended to circumvent permit requirements for mining operations. It is intended only to apply permit coverage and requirements to portable crushing activities that did not fit well under the options provided by the previous permit. Activity by a permitted portable at a mining site does replace permit requirements for the mining site.

### S3. Discharge Limitations

**Comment 13:** (S3.A.) The surface water discharge limit of 50 NTU is not acceptable as a maximum. At certain times of the year, receiving waters of the state exceed 50 NTU and permittees should only be required to comply with surface water quality standards. “I’d like to point out water quality standards state of Washington specify the turbidity, the limitations are such that when natural conditions exceed 50 NTU, discharge cannot increase that by 10 percent. ... the issue can be resolved by including a few amendatory words in the limitations stated in the general permit which would include the concept of being able to discharge a higher level when natural conditions prevail that are above 50 NTU.”



**Comment 14:** “The discharge turbidity limit of 50 NTU contained in the draft permit, is neither a water quality, nor, technology based limit. It is more stringent than the requirements of the Surface Water Quality Standards and does not provide compensation for background conditions. During flooding events, dischargers would be required to retain and treat flood water. This is an onerous situation for most retention facilities, guaranteeing violations. ... It is recommended the limits specified in the Water Quality Standard be substituted for ‘50 NTU’.”

**Comment 15:** (S3.A.) “...the original permit was based on the factor of tenfold dilution in the receiving waters and that’s how that 50 effluent limit was originally established for turbidity, the NTUs being 50 NTUs for surface water discharges. So therefore those facilities which do not have a tenfold dilution where they are discharging their effluent really were not intended to be covered by the general permit in the first place, and so therefore it’s important that those facilities that are currently covered by this general permit verify through sampling that they’re able to comply with water quality standards.”

**Response:** (comments 13, 14, and 15) A discharge permit, individual or general, cannot authorize a discharge in violation of surface water quality standards other than within the context of a compliance schedule to achieve water quality standards. An individual permit is able to address the site-specific conditions both in terms of the discharge and the receiving water and can readily implement compliance through permit conditions. A general permit, however, must define the characteristics of the discharge and receiving water of the targeted industry group as a whole and does not easily accommodate major differences in site-specific conditions. This makes applying water quality-based requirements to permit conditions a more difficult task.

The surface water quality standards limit turbidity in discharge water based on the type of receiving water. The types include, Class AA (extraordinary), Class A (excellent), Class B (good), Class C (fair), and Lake Class. There is no separate designation for wetlands but they are primarily to be protected through implementation of antidegradation procedures. Limits vary: a constant 5 NTU over background for Lake Class; 5 NTU over background or 10% over background when background exceeds 50 NTU for Class AA and Class A; 10 NTU over background or 20% over background when background exceeds 50 NTU for Class B and Class C. Regulation classifies some specific water bodies in chapter 173-201A but unclassified waters will most often default to Class A. Standards also allow the establishment of a mixing zone and the maximum size of the mixing zone is defined within site-specific conditions. Setting a turbidity limit in a general permit that applies to all facilities but takes into account all the site-specific variables of the regulation is a significant challenge.

One way to achieve that end would be to simply state the surface water quality standard as the limit and require the permittee to achieve that limit at the point of discharge (end of pipe). This approach would not provide for a dilution zone and would still require site-specific information such as receiving water background levels to determine compliance. This approach could be modified to include a dilution zone but then it would be necessary to take samples in the stream at the edge of the authorized dilution zone as well as upstream from the point of discharge. Unless there is complete mixing of the discharge and the receiving water within the dilution zone, identification of the

appropriate sampling point is problematic. Turbidity might provide an adequate marker to identify the discharge plume but that is a rather significant presumption and again, problematic. Instream sampling also requires greater expertise to perform correctly than point of discharge (end of pipe) sampling and has greater potential for safety issues. Although these approaches would most closely reflect the standards, they would implement a permit condition where every facility would have to sample and determine compliance based on site-specific considerations. This would result in significant complexity and uncertainty that is not desirable in a general permit.

The approach taken for the sand and gravel permit was to make some assumptions about discharge conditions that were conservative enough to provide environmental protection but not unreasonable. A dilution zone was authorized providing a dilution factor of 10 (9 to 1 dilution). It was also assumed that at times background turbidity could be zero. The Class A standard of 5 NTU over background was used. This resulted in the turbidity limit of 50 NTU  $([0 \text{ NTU 'background'} + 5 \text{ NTU}] \times 10 \text{ 'dilution factor'})$  at the point of discharge (end of pipe). This provided a very straight forward approach consistent with the constraints of a general permit that addresses a group of related facilities and must apply a single set of requirements that are achievable and proportionate to the environmental risk. Sampling requirements are simplified and compliance easily determined.

This approach does not allow for site-specific consideration of discharge or receiving water conditions. A permittee that believes this is unacceptable for their discharge conditions may request an individual permit. Likewise, where site-specific conditions indicate there is insufficient dilution to comply with surface water quality standards, a receiving water study may be required to determine if the permittee can comply with standards. Ecology does not believe that the permit should be modified to try to accommodate site-specific variability. No change to the permit.

**Comment 16:** (S3.A.) “The draft permit includes a mixing zone provision for discharges to surface waters, which allows the discharges to be in excess of state surface water quality standard for turbidity and pH.” There are discharges to surface water bodies that “have the potential to impact treaty-protected fisheries resources that are both culturally and economically important to the Tribe.” The permit is not sufficiently protective and “areas that provide critical salmon habitat for Puget Sound chinook and other threatened species should be excluded from coverage under the general permit, because in these areas site-specific information should be used to determine water quality-based permit limits.” There was no discussion about how the general permit will meet requirements under the Endangered Species Act. “Because the general permit will be issued under authority for a federal program, this draft permit should be subjected to federal consultation...”

**Response:** The proposed permit is written to comply with the surface water quality standards and is protective of the beneficial uses of the waters of the state of Washington. Mixing zones are allowed under chapter 173-201A WAC and the permit has set limits in accordance with mixing zone requirements. This is not an exceedance of standards. If it is determined for specific water bodies that the water quality standards are not sufficiently protective for endangered species and more restrictive requirements result,

the permit has language to address the situation. Special Condition S1.D.1.b. excludes from coverage any facility that discharges to a water body with a control plan that the general permit does not adequately address (includes restrictions for the protection of endangered species). Where special restrictions apply to a facility with coverage under this permit, General Condition G7 allows Ecology to revoke permit coverage and require application for an individual permit.

In a telephone conversation, the Environmental Protection Agency (EPA), Region 10 office, indicated that the state action of issuing a general permit would not be subject to consultation. Since there is no federal decision, there is no nexus that would trigger a consultation. The EPA does receive a copy of the draft permit for review and comment. However, the EPA does not “approve” the general permit. Authority to issue individual and general permits is delegated to the state. No change to the permit.

**Comment 17:** (S3.A. and S3.B.) DOE should take a closer look at the pH-testing requirement for sites that have asphalt activities and sand/gravel activities. It is a well known fact that concrete activities can contribute to an increase in pH, however, sites that do not have concrete activities should be given some reprieve in that testing.

**Response:** It is true that the concrete industry expects to have high pH in process water and often will have to treat wastewater to adjust the pH before discharge. Monitoring here is essential to verify that treatment has been effective. However, in reviewing data collected under the original permit, pH excursions were not limited to concrete manufacturing facilities. While the data alone are sufficient to justify ongoing monitoring, monitoring for pH is also a reasonably inexpensive way to provide an ongoing indicator of site stability. Changes in pH can result from a change in source materials or from changes in site management and can provide an “early warning” system for developing problems. Once a month monitoring is not an unreasonable requirement for discharges of process water. Since the pH of stormwater can be altered by materials on-site, monthly monitoring for discharge to surface water and quarterly monitoring for discharges to ground water are also reasonable. No change to the permit.

**Comment 18:** (S3.A. and S3.B.) The pH limits for surface water should be the same as it is for ground water. “... there is currently effluent limits for ground water that are different from the effluent on surface waters, and recognizing that extreme values of pH in surface waters can cause fish kills. I wanted to make sure that we reduce the effluent limit of pH to coincide with those limits that are required of ground water discharges. It is technologically feasible and the industry at large is having no trouble meeting those ground water criteria. Therefore, the industry at large can also accomplish the same degree of neutralization for surface water discharges and therefore I wanted to support the notion that the effluent limits for surface waters ought to be equivalent to and equal to the effluent limits for ground water.

**Comment 19:** (S3.A. and S3.B.) The pH limits for surface water and ground water should not be changed. These limits withstood the scrutiny of the stakeholder group that reviewed permit drafts and are appropriate.

**Response:** (comments 18 and 19) There certainly is a “feeling” of logic that suggests that pH limits should be the same for discharges to surface water as they are for

discharges to ground water. They are however, arrived at by separate determinations and these determinations can arrive at different values with no inherent conflict. The discharge to ground water limit of “in the range of 6.5 to 8.5 standard units was based on the water quality standards, chapter 173-200 WAC and is a water quality-based limit. The discharge to surface water limit of “in the range of 6.0 to 9.0 standard units” is a technology-based limit.

Federal and State regulations require that effluent limitations set forth in a NPDES permit must be either technology-based or water quality-based. Technology-based limitations are based upon the treatment methods available to treat specific pollutants. Technology-based limitations are set by regulation or developed on a case-by-case basis (40 CFR 125.3, and Chapter 173-220 WAC). Water quality-based limitations for surface water discharges are based upon compliance with the Surface Water Quality Standards (Chapter 173-201A WAC). The more stringent of these two limits must be chosen.

Water quality-based considerations were conducted using the spreadsheet modeling tool (pwsread.xls) that is commonly used by Ecology permit writers. This spreadsheet performs a calculation of pH for a mixture of two flows based on the procedure in EPA’s DESCONE program. Variables include the dilution factor, receiving water alkalinity and pH, and effluent (discharge) alkalinity and pH. Calculations were conducted allowing a dilution factor of 10, varying alkalinity for the receiving water between 50-200 mg CaCO<sub>3</sub>/L and pH values of 7.0 or 8.0., effluent alkalinity at a typical 150 mg CaCO<sub>3</sub>/L and effluent pH at either 6.0 or 9.0. Based on these calculations, technology-based limits of 6.0 to 9.0 would be at least as restrictive and in most cases more restrictive than water quality-based limits.

The technology-based limitation on the pH of discharges is derived from the federal effluent guidelines (40 CFR Part 436., Mineral Mining and Processing Point Source Category). All subcategories which discharge must do so within the range of 6 to 9 pH units. The general permit applied the same limit to discharges from concrete batch plants. The costs and benefits of pH adjustment are presented in the "Development Document for Concrete Products." Reconsideration of a federally developed technology-based limit is appropriate when the industrial processes have changed to the extent that the process and the pollutants produced are no longer accurately described or new treatment technology has been developed that may alter the conclusion. For this industry group, the processes are not significantly different and the treatment options for pH adjustment have not appreciably changed over time. The technology-based limitation in 40 CFR Part 436 would appear as valid today as when it was originally developed.

State law also addresses technology-based treatment and requires a discharger to apply “all known, available, and reasonable methods of treatment (AKART). AKART may result in more stringent requirements than federal effluent guidelines. However in chapter 173-201 WAC, Ecology determined that AKART for domestic wastewater facilities was “between 6.0 and 9.0 standard units”. Although we are dealing with a different type of industry, pH adjustment technology would be the same. A state-based AKART determination would appear to arrive at the same conclusion as the federal determination.

AKART may also be derived by consideration of the treatment performance of similar facilities. In examination of the data collected to date under the current permit, nearly half the facilities continue to have periodic pH excursions. Of those facilities with concrete batch activities, more than half experience periodic exceedences. At this time, the data are not supportive of a more restrictive AKART pH limit based on performance. Considering the federal and state regulatory precedent for a technology-based limitation for pH is in the range of 6.0 to 9.0 and the lack of convincing data to support a performance based AKART determination, the technology-based limit for surface water discharges, in the range of 6.0 to 9.0, will not be changed. No change to the permit.

**Comment 20:** (S3.A.5. and S4.C.) These two provisions deal with turbidity in surface water discharges. S3.A.5. allows a reduction in monitoring frequency when justified by performance. S4.C. requires a receiving water study when a discharge may be causing a violation of state surface water quality standards. Both provisions are broadly written allowing for subjective interpretation and variable implementation. “I do not have the confidence permit managers across the state will be making like decisions thus applying the GENERAL permit differently among a broad class of significantly similar permittees.” The permit should be more precise in defining what criteria will be used to determine if monitoring frequency will be reduced or a receiving water study required. The content of the receiving water study should also be clearly defined.

**Response:** This comment expresses concern about permit language that allows some flexibility in application of the permit conditions and would prefer precise definition. Ecology agrees with the comment implication that a general permit should provide statewide consistency in the regulation of those facilities covered under the general permit. Ecology also recognizes that absolute definition of all actions taken under the permit will not provide equity for the regulated community or for the environment.

S3.A.5. provides for a reduction in turbidity monitoring frequency based on performance. Performance, e.g. turbidity data, must support the conclusion that noncompliance in the future is highly unlikely and therefore reduced monitoring does not present an unacceptable risk to the environment. Itemizing all the factors to be considered and how they would be weighted to form a decision would add significant verbiage to the permit and would still likely fail to cover all the possibilities. As in the concern raised in Comment 10 about “significant process change”, Ecology permit managers do share information and develop guidance for consistent implementation of permit provisions. At a recent meeting of permit managers it was agreed that where possible (e.g. normally distributed data), a statistical analysis would provide the primary basis for this determination.

S4.C. requires a receiving water study based on the potential of a discharge to violate the state’s surface water quality standards. This permit condition is necessary because an assumption was made about available dilution in typical discharges to surface water (see response to comments 13, 14, and 15) that influence permit limits (Special Condition S3.). Since the permit cannot authorize violations of the surface water standards, identifying discharges where problems may exist is not only necessary but in the best interest of the Permittee. Ecology believes the potential to violate standards trigger for requiring a study is sufficiently precise. Like other determinations of this nature,



professional judgement is deemed more appropriate than including a finite list of weighted criteria and decision tree in the permit. Consistency in implementation, however, is a concern and Ecology permit managers have defined the significant factors that will be used in determining if a receiving water study is required.

- Screening indicates less than 9:1 dilution (dilution factor of 10)
- Receiving water environmentally significant (beneficial uses impaired)
- DMR turbidity at or near 50 NTU
- Historic knowledge of facility

The exact content of the receiving water study has been purposefully left open. Flexibility allows the permit manager to respond to site-specific conditions and work with the Permittee to provide the best solution. Permit managers have agreed that the study would include sampling above the point of discharge and below the point of discharge (not to exceed 300 feet below the point of discharge). The Permittee may propose a monitoring plan for the study or use the Ecology default of sampling within 24 hours of every storm event of 0.5 inches or more.

Ecology is committed to statewide consistency in the implementation of this general permit. However, consistency should not come at the expense of a reasonable application of best professional judgement and it does not mean ignoring legitimate regional differences such as area-specific environmental sensitivity or climatic differences. If a Permittee does not agree with an Ecology decision, they may request reconsideration and all decisions may be appealed. No change to the permit.

#### S4. Discharge Monitoring

**Comment 21:** (pertaining to frequency of monitoring for turbidity) "... how meaningful the data was [in the past] is somewhat questionable in my mind due to the infrequent nature of sampling. It also, in the past, has been not weather related and so I would like to at this point actively support the notion that samples of discharges to surface water should be collected when associated with precipitation events when there is likely to be problems."

**Response:** The goal of monitoring for turbidity is to measure how adequate the control measures (e.g. BMPs, treatment) are at controlling turbidity in the discharge. There typically are no major problems to sampling representative turbidity in discharges that result from process water. These discharges can easily be anticipated, characteristics of discharge known, and sampling timed to capture a representative sample. Discharges that result from stormwater, however, are less predictable and likely to have significant variability both in quantity and quality of the discharge. Storm intensity, storm duration, and site conditions (e.g. saturation of soils, antecedent storms, increased activity, unexpected erosion) can markedly influence the quantity and quality of stormwater. The highest levels of turbidity may even result during a rather mild storm if it were preceded by a very large storm. These conditions vary over time and can result in turbidity peaks. Representative sampling is intended to capture these peaks but the variability and spontaneity defy easy definition of when to sample.



The general permit therefore set a sampling frequency of twice a month. That frequency provides a sufficient number of data points to adequately represent turbidity. The permit does not attempt to define precisely when to take the sample in order to achieve representative sampling. Guidance on proper sampling procedures will be produced and distributed to permittees. It will define the goal of monitoring, how to assess discharge conditions and variability, and application of best professional judgement to arrive at sampling that will assure representative monitoring over time. This approach is consistent with the constraints of a general permit that addresses a group of related facilities and must apply a single set of requirements that are achievable and proportionate to the environmental risk. This approach also puts the burden on the permittee to identify and provide representative sampling for their site. It also has the added benefit of promoting the permittee to visually monitor their site on an ongoing basis and to become familiar with what conditions impact the quality of their discharge water. No change to the permit.

**Comment 22:** (pertaining to frequency of monitoring for turbidity, temperature, and pH.) “It seems prudent to focus monitoring efforts during the time of need rather than through out the year. For example, during the rainy season when soils are saturated and runoff rates are high (e.g. November through March) sampling twice a month for turbidity may be justified, otherwise, we believe that performing this monitoring on a quarterly basis would be more than adequate. Another example is pH. When a source of acidity or alkalinity from an industrial operation has been identified, like the manufacture of concrete or cement, it seems appropriate to monitor pH on a very frequent basis as suggested. In other situations, such as a typical sand and gravel mine, monitoring pH at the proposed frequency seems excessive. Soils in western Washington are generally acid and organic material continually adds to the acidity. Improper interpretation of the monitoring data has the potential to lead to unwarranted notices of violation or monetary penalties for water quality violations.”

“Lastly, the weekly temperature monitoring requirement appears to be excessive. During the months of July through September, a decrease in rainfall usually results in little or no discharge of storm water for many of these types of facilities so there is nothing to monitor. Those facilities that have a ‘base flow’ situation may warrant temperature monitoring at the suggested frequency during the summer season, but the requirement seems unwarranted for the majority of these types of facilities. It is our position that a better approach would be to require summer quarter temperature monitoring for typical sites which only discharge stormwater during significant storm events and an increased monitoring frequency for those facilities which have continuous or nearly continuous base flow discharging from them.”

**Response:** Monitoring frequencies are set to assure compliance with permit limits and conditions. The frequency also takes into account the environmental risk and the ability of the regulated community to execute the monitoring. In a general permit, requirements must also be broad based with little if any variation based on site-specific conditions.

Turbidity sampling frequency was largely addressed in the reply to Comment 21. The additional issue raised here is whether frequency should be reduced during the dry season. Besides the added complexity that results from changing requirements by the

season, the difficulty of achieving representative sampling does not support a drastic reduction from twice monthly to quarterly. With the more frequent sampling and increased confidence that the data are representative, a seasonal reduction could be considered. During this permit cycle, however, the data are not adequate to support such a proposal.

Monthly monitoring of pH for discharges to surface water hardly seems excessively frequent. The response to Comment 17 applies here as well. Although for many sites, there may be little or no variability in pH values, the data provide valuable assurance that site conditions are likely stable.

Monitoring for temperature is only required during the summer months; July, August, and September. It is expected that most facilities will have few if any discharges during the whole period; no discharge, no monitoring. However, when discharges do occur, weekly monitoring is the minimal. Temperature is likely to be variable over time and influenced by a variety of conditions. Frequency must be appropriate to describe what is happening. Monitoring for temperature is included in this permit to determine the potential of this industry group to impact the environment. This monitoring will result in an analysis of the data and eliminating monitoring or setting temperature limits may result in the next revision of the permit. It would be very unfortunate to have too little data to evaluate. Ecology believes the monitoring frequencies in this permit have been judiciously set, balancing environmental risk, discharge variability, and monitoring costs. No change to the permit.

**Comment 23:** (concerning monitoring of temperature) [I have concern about] “the warm water discharge of shoreline gravel pits into rivers in the Yakima Basin, which can create conditions conducive to exotic predators on salmonid juveniles (e.g., bass).” The permit should provide a limit to temperature impacts or other consequence when warm temperature readings are reported.

**Response:** The permit does not authorize violations of the state’s surface water quality standards. The Yakima River has a temperature limit set based on its classification in WAC 173-201A-130. If temperature monitoring of discharges to the Yakima River reveal the potential to violate this statutory limit, there is permit language to require compliance or else revoke coverage and require the permittee to submit an application for an individual permit. The permit does not set a limit because there were no data suggesting the industry as a group demonstrated a potential to violate temperature standards. Data were not available to be certain, however, and hence the monitoring requirement was added. Monitoring of surface water discharges will include subterranean discharges when there is an identifiable discrete conveyance such as a French drain. No change to the permit.

**Comment 24:** (S4.D.) The permit proposes a ground water impact study for dischargers with high levels of total dissolved solids. The provision lacks definition and leaves too much to subjective implementation. “The potential for study should be clearly and concisely documented giving permittees the ability to respond in discharge performance and evaluate practical mitigations.” “What additional evidence supports the

consideration of a ground water study when the same data has determined other effluents no longer need to be considered based on the data already gathered?”

**Response:** Total dissolved solids (TDS) are a gross measure of the amount of soluble pollutants in the wastewater. TDS can be detrimental to aquatic organisms in fresh water systems and unless significant and immediate dilution is available, it may cause unacceptable degradation. TDS can also contaminate ground water and violate drinking water standards. Data collected under permit requirements of the existing permit included a significant number of values from concrete batch plants with elevated levels of TDS. Elevated levels are those near or above 500 mg/L. There is also evidence that discharges of process water from asphalt batch plant wet scrubbers can have high levels of TDS. Therefore TDS monitoring of discharges of process water from concrete batch and asphalt batch plants is required under the revised permit.

A limit on TDS was not set in the permit because there are other factors then just the concentration of TDS that must be considered when evaluating the impact of TDS and potential treatment requirements. The permit purposefully did not define all the study components and requirements so that the study can be adaptive to specific sites, conditions, and data. Equity of implementation across the state will result from a coordinated effort by permit managers. The first year of the permit, will focus only on data collection and evaluation. This will also provide a period of time for Permittees to become familiar with the TDS levels in their discharge. After a year, a representative group of those with highest TDS levels will be selected to further characterize the discharge and consider options. Characterization will look at actual components of the TDS, potential for treatment, AKART, and alternate point of compliance. The results of this group would be used to develop a plan for the remaining facilities that are exceeding 500 mg/L. This process includes Permittee participation and options to resolve any identified environmental concerns. Ecology does not agree that this approach will unfairly limit the Permittee’s ability to “evaluate [and apply] practical mitigations”. No change to the permit.

**Comment 25:** (S4.D.) “Total dissolved solids are soluble materials found in water. They do not become pollutants unless their character or concentration impact the beneficial uses protected in the State’s Water Quality Standards. Brief review of available Eastern Washington ground water quality data, indicates TDS occurs commonly in the 200-300 mg/l range and, much higher. Hard water, requiring treatment prior to domestic and industrial use, is commonly found. The aquifer system in the Columbia River Basalt Group has increasing head with depth. Artesian water is commonly found bringing high concentration of dissolved solids to the more accessible shallow aquifers and surface water.

**Response:** The ground water standards were adopted to protect the existing and future beneficial uses of ground water [WAC 173-200-030(2)(a)]. At a minimum all ground water should be protected as a potential source of drinking water. Excess dissolved solids are objectionable in drinking water because of possible physiological effects, unpalatable mineral tastes, and higher costs as a result of corrosion or treatment. The state’s ground water standards established 500 mg/L as the criterion for total dissolved solids.

Ecology agrees that ground water around the state has variability in TDS levels. However, that variability does not alter the initial data gathering. The ground water impact study would be the appropriate time to consider background levels in the source water (water used for processing) and in the receiving water. Ecology fines no permit limit or condition that requires adjustment because the levels of naturally occurring TDS are variable. No change to the permit.

**Comment 26:** (S4.D.) The concept of a ground water impact study should be expanded. The comment includes a very specific list of study items. “New activities designated as 2951 asphalt paving mixtures and blocks and 3273 ready mix concrete and new activities proposed in areas which may be susceptible to ground water contamination shall be required to conduct a ground water impact study. The study shall be conducted by a third party under the direct supervision of a qualified engineer or hydrogeologist. The study shall identify the risk to the ground water proposed by the proposed activity. The scope of the study shall include, as a minimum, the following:” The proposal would require providing baseline information on the proposed site, the susceptibility to and consequences of aquifer contamination, aquifer recharge considerations, and site water use and impacts on other water uses.

**Response :** The comment appears to request information to determine whether a facility should be located at a specific site. If that is the intent, the proposal should be addressed within SEPA review and siting considerations. The sand and gravel general permit cannot dictate what items must be included for review by regulations that determine the siting of a new facility. It is a permit that authorizes the discharge of wastewater according to the terms and conditions in the permit.

The comment may instead, however, suggest that this information is necessary to determine if the legally sited facility should be eligible for coverage under the general permit. While the suggested studies and analysis would provide very interesting information, Ecology does not agree that this new requirement is necessary to implement the permit and determine if coverage should be issued to an applicant.

The permit assumes that all mining locations are located over sensitive and important ground water systems. The permit assumes that activities must be conditioned to protect ground water from contamination. Extensive best management practices (BMPs) are required by the permit to prevent pollutants from entering ground water. Spill prevention and spill response are required. The permit includes a limit on pH in discharges. Frequent visual monitoring of the site is required. Evidence of petroleum (oil sheen) requires a prompt response and documentation. Permit coverage is required at nearly all mining sites in the state to assure that these protective measures are in place and the state’s ground water resource protected. Ecology does not agree that the proposed addition to the ground water impact study would add to permit effectiveness or is necessary for permit implementation. No change to the permit.

**Comment 27:** (S4.E.) “Both concrete (SIC 3273) and asphalt (SIC 2951) facilities should be included on the list of inactive sites for which monitoring is not required. To the extent that some limited controls are necessary, Ecology could either impose BMPs or a round of monitoring sufficient to insure that effluent limitations are being met.”

**Response:** There are inherent differences between sites with only mining operations and those that have batch plants. A special inactive status for mining locations was included because it is not uncommon at mining sites to operate on a very intermittent basis. Many locations may not be used for years at a time. During this time, equipment and other sources of pollutants are typically removed and with appropriate BMPs in place there is limited potential to harm the environment. Under these conditions an inactive status with no sampling and reporting and minimal oversight was an appropriate balance of environmental risk and permit requirements.

Concrete and asphalt batch plants typically do not shut down for long periods of time and inactivity is a result of seasonal fluctuations in product demand. During inactive periods, equipment and materials are more likely to be kept onsite. Under conditions where monitoring is not possible, such as when the site is frozen, “no discharge” is acceptable on monitoring reports. Permittees should consult with their permit manager if other conditions such as impassable roads make monitoring unfeasible. No change to the permit.

**Comment 28:** (S4.F.) This comment also relates to the Fact Sheet discussion of oil & grease and total petroleum hydrocarbons (TPH) on page 12. “Since oil and grease and TPH are so toxic to aquatic life and potentially hazardous to groundwater, I question any de-emphasizing of the monitoring required. Visual monitoring for oil sheen on a self monitoring basis leaves too much latitude to develop laxness or lack of attention.”

**Response:** The data may not have been perfect but there was nothing in the data to suggest that continuing to require lab testing would make the picture any clearer. There is agreement that petroleum products are a pollutant of concern and there are many activities in this industry group that could result in petroleum contamination of the environment. The issue is the best way to address that risk and prevent contamination of the environment. The permit requires the permittee to exercise best management practices in any fueling of vehicles, provide coverage for any storage of petroleum products, and to implement measures to prevent spills, including employee training. In addition, the permit requires prompt cleanup of any spills and daily visual monitoring for oil sheen. Although visual monitoring does not result in a lab analysis for these substances, it places the emphasis on the active process of observing, responding to, and preventing petroleum contamination. We do not believe this is a de-emphasis but rather places emphasis and resources where it can do the most good for the environment. No change to the permit.

**Comment 29:** (S4.H.) There were a number of comments that suggested that the lab accreditation requirements were unfair for some parameters and counter productive. Onsite testing can provide better results than sending samples to a lab for analysis and they provide those results much quicker and at less expense. Allowing more types of basic testing without lab accreditation would result in better permit compliance. Where easy to use meters are available for taking direct readings, they should be allowed and without the certification requirement. Turbidity testing should not require lab accreditation. “Generally somebody that wants to do pH testing, they don’t need any type of certification, they just need an electronic meter and presume a certain amount of honesty. If you go and get certified for turbidity, for instance, then the permit says you



shall also get permitted for pH. I don't see where that helps the environment. That's another added financial burden, particularly to a small outfit and I see where there's no benefit at all except of course it does add to the DOE's [money received]."

**Response:** Ecology agrees that there are advantages and benefits to the immediate feedback of onsite testing and encourages Permittees to conduct their own testing where practical and feasible. Ecology also has an interest in assuring that monitoring data that are used to determine permit compliance are accurate and legally defensible. Therefore most monitoring requires lab accreditation. This requirement is a result of rule making, WAC 173-226-090 and WAC 173-220-210, and cannot be altered by the issuance of a wastewater discharge permit. Some parameters such as pH may be monitored and reported by the permittee without accreditation but turbidity is not one of them. WAC 173-226-290 also requires accreditation for pH if a facility becomes accredited for any other parameter such as turbidity. Permittees may choose to informally monitor turbidity without accreditation, acquire accreditation, or send all turbidity samples to an accredited lab for analysis. No change to the permit.

**Comment 30:** There were a number of comments that suggested language should be added to allow conductivity testing to be substituted for total dissolved solids testing. "Total dissolved solid laboratory technique is quite expensive and time consuming and it is possible and probable that a study can be performed by the permittee and/or the state of Washington to determine some sort of conductivity relationship with total dissolved solids and conductivity testing methods be substituted with approval on a case by case basis as a substitute test method for monitoring this particular characteristic of the water. The reason being that conductivity is not labor-intensive, not equipment-intensive, and should be able to very readily identify a correlation with total dissolved solids." Additionally it was pointed out that TDS testing must be done by an accredited lab but conductivity testing does not require accreditation and is less costly for the permittee.

**Response:** Monitoring total dissolved solids (TDS) is included in the permit because data indicated that some discharges have high levels of TDS and may exceed ground water quality standards. The ground water standards do not include a criterion for conductivity. Conductivity values could be used as a surrogate for TDS if there were an established relationship that could accurately indicate compliance with ground water standards for TDS.

There is a relationship between conductivity and TDS, and at some individual facilities measuring conductivity to indicate TDS could have merit. However, there would have to be a lengthy demonstration process to verify the level of reliability of the correlation between a conductivity measurement and a lab analysis for TDS. At the completion of this demonstration there would still be some level of error or uncertainty associated with any conductivity measurement that is then converted to a TDS value. This uncertainty makes any comparison with the ground water quality criterion of 500 mg/L difficult. The correlation can change with time as a result of changes in procedures and materials altering the characteristics of the effluent. The correlation is also likely to vary from site to site. Because there is significant uncertainty associated with the correlation over time and from site to site, it would be difficult to apply under a general permit. Ecology would certainly encourage any Permittee that would like to pursue this to establish a



demonstration project and collect the data. The data could then be presented for consideration during the next permit rewrite in five years. No change to the permit.

#### S6. Reporting and Recordkeeping Requirements

**Comment 31:** (S6.D.) “This provision would seemingly require a permittee to record and submit all field measurements of pH whether done with hand-held meters, in-line meters or meters attached to shutoff valves. Such readings are typically taken as a routine internal means of confirming pH levels. This permit provision would impose an unnecessary administrative burden regarding these routine checks and would be a disincentive for those facilities that take more frequent readings. Field measurements such as these should be excluded from this provision by adding the sentence: ‘Field measurements of pH including but not limited to litmus paper, portable meters or in-line meters are not subject to this provision.’”

**Response:** This permit provision is taken directly from federal requirements (40 CFR 122.41(l)(4)(ii)). However, it is important to remember the intent here. The concern is that if all values are not required, then the Permittee might only choose to do an “official” measurement after unofficially determining they were within compliance. Requiring all monitored values to be recorded also prevents picking and choosing that would statistically alter the representative nature of the monitoring. The intent, however, is not to require recording of all process control monitoring. In order to distinguish the different events, the Permittee must have clear separation of process control monitoring from monitoring for compliance so that process control monitoring cannot influence timing or frequency of compliance monitoring. If there are questions on how to implement separate monitoring, the Permittee should talk with the permit manager. No change to the permit.

#### S7. Discharge Water Management

**Comment 32:** (S7.I.) “This provision requires physical coverage of toxic materials is vague and, to the extent some requirement is necessary, this matter should instead be covered in the context of requirements for BMPs or the SWPPP. The list of materials includes several undefined terms such as “toxic materials” or “chemicals,” the latter of which could apply to any substance. The provision also does not specify when coverage and containment must be provided to these substances. For example, does containment apply at all times during the use or storage of these materials? To the extent that other programs that apply to the handling or storage of hazardous or toxic substances or solid wastes, the requirements of those programs should be referred to in the permit or incorporated. Further, the requirements for containment or coverage should be established for these materials either through BMPs or through the SWPPP based upon the particular materials in question and the risk they present if improperly handled or stored. The blanket requirement for containment and coverage is excessive.”

**Response:** This particular provision was also found in the existing general permit as Special Condition S5.E. Eliminating the provision without demonstrating that it is no longer needed would be inappropriate. Covering and containing of toxic materials is still a significant goal for pollution prevention and remains very appropriate for this industry group. There were many examples of sites that had improperly stored and dumped

materials in the past and some still do not adequately address this issue. The intent of this provision clearly focuses on proper management of toxic materials.

Comment 32 seems to be requesting a level of specificity that would easily transform the permit into a multi-volume operations manual. While “chemicals” can be broadly interpreted, within the context of “toxic materials” it can reasonably be limited to potentially toxic substances and not inert materials. Toxic substances are to be contained and covered to minimize the risk of accidental spill and environmental contamination. The storage of cement in a silo is covered storage and doesn’t require additional cover. The use of these materials might be appropriate in an area with no special protection or a roof overhead or a containment berm might be necessary. If a permittee is unclear they may consult with their permit manager.

It may be that this permit provision could be better located with the stormwater pollution prevention plan requirements. However, given the importance of properly maintaining toxic materials, redundancy is likely more desirable than undesirable. No change to the permit.

**Comment 33:** (S7.E.) “The strategy proposed in this paragraph converts an approved waste water treatment device, (settling pond), into a ‘water of the state’ by virtue of the presence of another permit requirement, (Reclamation Plan), administered by another State agency, (WDNR). The timing of this conversion is related to the ‘goals of the reclamation plan for that site’.” ... “A settling pond commonly used to provide treatment for settleable solids, is a legitimate waste water treatment device. The operation, maintenance, and discharge characteristics for public, industrial, and commercial waste water treatment devices are regulated through a waste discharge permit administered by the WDOE.” ... “The automatic conversion of a legitimate waste treatment device into a water of the state subject to Water Quality Standards, based on the completion of the ‘goals of the reclamation plan for that site’ would deny the continued use of the treatment device for its original purpose. Working, approved treatment devices are not easy to come by. It seems the Department of Ecology would want to preserve the functional benefits of such treatment devices and has a responsibility to regulate them.” ... “The process of adoption of a general permit for an industrial class(es), does not appear to be the appropriate process for modifying the Surface Water Quality Standards in the State of Washington.”

**Response:** There may be a miscommunication here. Special Condition S7.E. was not addressing a pond constructed as a wastewater treatment pond. It addresses ponds that result from mining. Mining is the authorized activity and when mining occurs below the water table or the resulting pit accumulates and retains water, the pond that results is a “waters of the state”. While mining, the water is treated as process water but once mining ceases, the legal issue of discharges complying with water quality standards must be answered.

There is no inherent right to redefine the mining pit pond (waters of the state) as a settling treatment pond. The permit addresses this issue because it may be a good reclamation practice and in the best interest of the environment to allow the discharge of highly turbid water to the mine pit pond. The fines in this turbid discharge help seal the pit and in

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more shallow areas provide a substrate for plants. As a part of a reclamation plan, using the pond as a settling basin may be desirable. Therefore the proposed permit works through the legal dilemma and defines the period of reclamation as part of the mining process. After mining operations cease, solids settling in the mine pit pond is authorized as long as it is part of an approved reclamation plan. No change to the permit.

### S9. Stormwater Pollution Prevention Plan

**Comment 34:** (S9.B.3.e.) "...there should be some sort of, maybe even an entire section or something in part of your permitting record keeping or in the general conditions having to do with ongoing training of employees and some way of documenting it and that would go along with some method of producing logs that would give an incident report if an employee did find something wrong out there because we all have some feeling that a lot of employers don't like to give their employees training..." "...annual training [is insufficient and] monthly would be more like it. Shorter meetings, not longer meetings. Again, going back to the problem of not enough training. It should be an ongoing thing."

**Response:** There is no disagreement about the importance of training. Ecology certainly would encourage Permittees to establish a training program that will assure that their employees will properly respond to spills and other site conditions as required by the permit. Guidance in the form a brochure information will also be produced that includes information on the goals and minimum content of employee training. The permit, however, is performance based and annual training is restrictive enough as the minimum level of training required. If employees are failing to respond properly to spills or other problems, it is the Permittee's responsibility to increase training as necessary to achieve compliance. No change to the permit.

### Appendix C - Definitions

**Comment 35:** "Total dissolved solids, (TDS) is absent from the definition section of the general permit."

**Comment 36:** "Turbidity is absent from the definition section of the general permit."

**Response:** (comments 35 and 36) The definition section was intended to define the significant terms used in the permit and total dissolved solids and turbidity certainly are significant terms. Definitions will be added.

### Other Permit Comments

**Comment 37:** The Table of Contents does not list all letters that are actually listed in the permit. For example, S1 in the Table of Contents lists items A-D, however, S1 in the permit text actually has A-F.

**Response:** S1. was modified so that all headings would appear in the table of contents. S11. Stormwater Inspections, S12. Spill Plan, and S14. Compliance with Standards were modified so that headings would appear in the table of contents.

**Comment 38:** There were a number of comments that did not find fault with the permit provisions but were concerned that the provisions were not adequately enforced by Ecology. “Take every precaution to ensure that monitoring plans are accurate, monitored by the Dept. of Ecology and violations swiftly enforced.” “My first concern is DOE’s reluctance to make on-site visits to nonpermitted sites that are reported to them.” There were several suggestions that the permit should include language prescribing enforcement actions for violations of permit conditions. “I think the enforcement arm is really lacking in this situation. You need people to get on-site more often. I think maybe in the permit we should have a listing of the fines and punishments for not complying with the permit”. There was also a suggestion that the permit should not allow coverage of facilities that had operated without a permit for longer than some specified period of time.

**Comment 39:** There was also concern that Ecology and other agencies fail to take responsibility for addressing problems. Some problems just continue without a satisfactory solution. “I don’t believe there should be mitigation for impacts that are detrimental to the environment, and I think a cease and desist order specification should be outlined in the permit.” “Again, with the particular situation we’ve been dealing with it seems that a lot of things have been evolving and through the evolution of the storm water drainage plan and erosion control plan, all these things are going to evolve, but from the language in the permit they should have been in place in the first place, and now they’re being allowed to evolve. We need to start off straight and stay straight.” “I think an addendum to the permit, a good one would be a complete detailing of the proponent’s liabilities in relation to the federal Clean Water Act...”

**Comment 40:** People with a permit seem to be at greater risk of actions against them by Ecology than those without a permit. “...a person with a permit can be cited twice for a same incident, ... If they don’t have a permit, they’re not violating a permit and for a incident they [cited only] once. I think that’s unfair and especially if somebody who’s not permitted at all. They go out and set a tank on the ground, they’re just told to fix it. Where again, a permittee could be cited for that. That’s only a example of how someone could be cited because they have a permit and not because they don’t.”

**Response:** (comments 38, 39, and 40) A specific enforcement response to noncompliance is not typically written into permits. There are instances, such as with whole effluent toxicity, where rule making established a specific response when testing resulted in toxicity of regulatory significance. However, when considering the appropriate response to most permit violations, best professional judgement is preferred. It is preferred because there are too many variables including diligence of the permittee to maintain compliance, the severity of noncompliance, frequency of noncompliance, and cause of noncompliance (e.g. negligence versus “act of god”). Identifying all the factors for consideration would be a monumental task and in the end would almost certainly be incomplete. The flexibility allows the enforcement officer to focus on the environment and seek the most constructive path to compliance.

It is not within the scope of a wastewater discharge permit to dictate workload allocations. While it is Ecology’s intent to respond to citizen complaints and to enforce legal requirements equitably, there are issues of how Ecology will spend its manpower resources to achieve the best environmental protection. The concerns about nonpermitted

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sites are noted and an increased effort to identify and permit these sites will be considered. While Ecology can issue fines for discharging without a permit, it is not a legal option to deny a permit solely on the basis of previous operation without a permit.

A wastewater discharge permit is issued to regulate discharges to waters of the state and for the most part have not been used as a vehicle to establish prescriptive enforcement measures. There is agreement that enforcement is a part of assuring compliance but enforcement flexibility is preferred over inflexible permit mandates. No change to the permit.