Sand and Gravel General Permit

Portable Facilities
Monitoring Plan
Employee Training
Stormwater Pollution Prevention Plan
Erosion and Sediment Control Plan
Spill Plan

November 1999
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Sand and Gravel General Permit

Washington State requires a permit to discharge wastewater to waters of the state. Since wastewater includes stormwater and waters of the state include groundwater as well as surface water, nearly all facilities require a discharge permit. The sand and gravel general permit provides permit 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.

The permit authorizes wastewater discharges to waters of the state of Washington subject to the permit conditions. Permit conditions require the permit holder to provide environmental protection through best management practices and wastewater treatment.

Best management practices (BMPs) are physical, structural, or managerial practices designed to prevent or reduce pollutants in the discharge. Typical BMPs include channeling stormwater to prevent mixing with process water, coverage of chemicals, and containment of spills.

Wastewater treatment alters the character of the wastewater before discharge and it is required as necessary to achieve compliance. Examples of treatment often used to comply with permit conditions include pH adjustment of concrete wastewater and solids settling of stormwater before discharge to surface water.

This booklet provides general guidance on what facilities require coverage but does not examine all aspects of permit requirements. The permittee is responsible for reading the full text of the permit and complying with all applicable permit requirements.

Permit Required

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
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.

Facilities Not Covered

Since a general permit is designed to provide environmental protection under conditions typical for the covered industry group, it will not be appropriate in 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. Facilities that are ineligible for coverage under the general permit will typically require an individual permit.

Any facility that falls within the covered activities (SIC codes) should apply for coverage. Ecology will determine if the general permit is appropriate or not. You will be notified and provided with the appropriate application form if conditions require an individual permit.

Why a General Permit

A general permit is very similar to an individual wastewater discharge permit except it is written for a group of facilities that are very similar in processes and wastewater characteristics. A single permit that looks the same for all facilities is produced rather than a separate permit tailored to each individual facility. This results in savings of time and money for both Ecology and for the permitted facility.

Permit Fees

Washington State law requires Ecology to collect permit fees to cover the costs of wastewater discharge permit administration. Permit fees are set by rule development and are found in Chapter 173-224 WAC. Since fee amounts can change with time, please consult the WAC or call Ecology for the current amount.

The fee rule also includes a provision for fee reduction based on economic hardship. Criteria for fee reduction and the amount of the reduction may change over time. You are encouraged to consult the fee rule, Chapter 173-224 WAC or call Ecology to determine if your operation is eligible for a fee reduction based on economic hardship.

Application for Coverage

The sand and gravel general permit has an application for coverage and instructions designed specifically for this permit. Please contact the "Permit Coordinator" at the appropriate Ecology Regional Office (see back cover) to obtain the application. Be sure to request the application for the sand and gravel general permit.

Duty to Reapply

The current sand and gravel general permit will expire on August 6, 2004. Before that time, a revised permit will be developed and issued. All facilities with permit coverage are required to reapply for coverage 180 days before the expiration date. It is the permittee's responsibility to reapply by February 3, 2004. Failure to reapply is a violation of permit conditions and will result in a penalty.

Portable Facilities

The sand and gravel general permit now provides coverage for a portable facility. Portable activities include concrete batch plants, asphalt batch plants, and rock crushers. A portable with permit coverage can operate anywhere in Washington State but must comply with permit conditions just like a permanent site.

This booklet provides general guidance on permit coverage for portable facilities but does not examine all aspects of coverage for these facilities. The permittee is responsible for reading the full text of the permit and complying with all applicable permit requirements.

What are Portables

Coverage as a portable can apply to any equipment that conducts short-term asphalt batch, concrete batch, or rock crusher operations. Short-term mean less than one year at a location. An extension of six months is possible when there is less than a year of actual operation but delays result in the equipment remaining at the site for more than one year.

Portable coverage is not intended to provide an alternative to site coverage for ongoing activities. As an example, a site that has more or less continuous asphalt batch activities, even though these activities are by different portables, is expected to have asphalt batch as a part of site coverage. Or, a concrete batch portable that returns to the same site year after consecutive year is not considered short-term and coverage should be for a permanent concrete batch site.

When Coverage is Required

A portable operation is required to have coverage for the portable whenever it operates at a location that does not have permit coverage for that activity. This includes sites that would not typically require coverage under the sand and gravel general permit. The only exception would be for portables that operate on forestland producing product for forest management activities. These sites only require permit coverage if there is a conveyance of discharge to surface water.

Coverage for a portable is not required when the site already has coverage for that activity. For example, a site may include asphalt batch operation as a part of the site permit even though the owner does not maintain an asphalt batch plant at the site. When the site has included coverage of the activity, the permittee must notify Ecology that the batch operation will occur but separate coverage by the portable is not required.

Permit Compliance Issues

The sand and gravel general permit requires a monitoring plan, stormwater pollution prevention plan (SWPPP), an erosion and sediment control plan (ESCP), and a spill plan. Portable facilities must also complete these planning documents. The challenge for portables is to create plans that will meet the requirements of each specific site where it will operate. Since the equipment setup and most discharge sources should remain the same, it is recommended that “template” plans be written. When a specific site is identified, the template can be tailored with the specific conditions for that site. For example the SWPPP could include standard language for covered areas of chemicals at all sites that does not require changing. Best management practices (BMPs) to control stormwater, however would require updating each time to accommodate site specific differences. Likewise the monitoring plan and ESCP would be a combination of standard practices for all sites and practices that must be updated for each specific site. The spill plan is not as subject to site specific conditions and may not require modification for each site.

Many of the same BMPs for permanent facilities will be required for portables but designed to be more portable. For example, secondary containment for diesel tanks can be accomplished by using 35-45 mil polypropylene. This can be carried with the plant and installed using an excavation and perimeter berm or using “ecology blocks” or jersey barriers for side-walls. Other techniques may include provisions for the

hasty blockage of culverts or drainage ditches in case of a large spill. Spill cleanup supplies should be available and drip pans should be used for mobile refueling.

There is an additional requirement for portable rock crushers. Coverage for the portable rock crusher is not intended to be a substitute for permit coverage of a mining site. At each site the portable must comply with one of the following four options:

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

Site Restoration

The general permit requires portable operations to restore the site after the operation has been completed. The “Notice of Intent to Begin Operation” requires a description of site conditions before setting up, site alterations to accommodate the operation, and actions that will be taken to restore the site when leaving.

The general rule of site restoration is that the site should look much the same after a portable completes operation and moves on, as it did before operation began. Where access roads and a level setup site already exist, very little may be required beyond removal of equipment. If however, the site requires earth moving to level the site and the construction of access roads, greater attention to restoration of the site will likely be required.

Application for Coverage

The sand and gravel general permit has an application for coverage and instructions designed specifically for portable facilities. Please contact the “Permit Coordinator” at the Ecology Regional Office closest

to your business office (see back cover) to obtain the application. Be sure to request the application for the sand and gravel general permit - portable facilities.

Notice to Begin Operation

The permit requires the permittee to notify Ecology of a portable operation at least 10 days before beginning. A notification form and instructions have been developed for this purpose. This form provides information about the site where the portable will operate. Approval by Ecology is not required before beginning operation unless you receive notification from Ecology that additional information or environmental protection is necessary before operation begins.

Permit Fees

Washington State law requires Ecology to collect permit fees to cover the costs of wastewater discharge permit administration. A separate fee category is included for portables. Permit fees are set by rule development and are found in Chapter 173-224 WAC. Since fee amounts can change with time, please consult the WAC or call Ecology for the current amount.

The fee rule also includes a provision for fee reduction based on economic hardship. Criteria for fee reduction and the amount of the reduction may change over time. You are encouraged to consult the fee rule, Chapter 173-224 WAC or call Ecology to determine if your operation is eligible for a fee reduction based on economic hardship.

Monitoring Plan

The sand and gravel general permit limits pollutants in discharges and requires monitoring of discharges to measure pollutant levels. The permit also requires the permittee to develop a monitoring plan and conduct representative sampling. This booklet provides general guidance on what to include in the monitoring plan, goals and procedures for representative sampling, implementing the monitoring plan, reviewing the plan over time, and reporting to Ecology.

This booklet does not examine every aspect of permit requirements identified under Special Condition S5. *Monitoring Plan*. The permittee is responsible for reading the full text of the permit and complying with all applicable permit requirements.

Mapping Your Site

Prepare a map of your site. The map should be scaled large enough to easily identify places where water collects, production areas, stock-piles, buildings, and parking areas. At a minimum, the map should locate:

- Processing areas
- Water treatment ponds
- Discharge sampling points
- Mining activities
- Material stockpiles
- Chemical storage areas
- Buildings
- Parking areas
- Any process water conveyance
- Any stormwater conveyance

The map should also include nearby features of importance such as streams, lakes, or water supply wells. It may be necessary to develop more than one map in order to capture both onsite and offsite features of importance.

Identifying Monitoring Points

The monitoring plan must identify and provide basic information about each monitoring point. There must be sufficient monitoring points to provide representative sampling of all discharges onsite (see discussion on representative sampling below). Each monitoring point must be located on the site map and labeled. The label can be a name or number, but must be different for each monitoring point. You must use this monitoring point label whenever you report monitoring information to Ecology. The label becomes the official identifier of the monitoring point.

The monitoring plan must provide the following information about each monitoring point:

- Monitoring point label (name)
- Type of discharge (process water, mine dewatering water, or stormwater)
- Receiving water (surface or ground water)
- Activities (SIC codes) that may influence the discharge
- Parameters monitored (pH, TDS, turbidity, TSS, temperature)
- Frequency of monitoring

The permit includes Appendix B - Monitoring Requirements. This appendix is designed to help you identify what parameters must be monitored at each point of discharge and how frequently monitoring must occur. For additional assistance, call Ecology.

Representative Sampling

The permittee is responsible for providing representative sampling of all discharges to ground and to surface water. Discharges to ground water include unlined ponds, infiltration trenches, and any place that water collects before draining into the ground. Surface water includes lakes, rivers, ponds, streams, inland waters, saltwaters, estuaries, wetlands, stormwater drainage systems, and all other surface waters and water courses within the jurisdiction of the state of Washington.

Sampling Not Required

Water contained in lined treatment ponds that are constructed in accordance with Permit Special Condition S7.B. *Lined Impoundment Required* do not require monitoring. Only water released from the lined pond to ground or surface water requires monitoring.

Discharges to Ground Water

The permit requires pH monitoring of all discharges to ground water. Discharges of process water by concrete batch or asphalt batch plants must also be monitored for total dissolved solids. Your monitoring program must be flexible enough to take into account there may not be sufficient water available for sampling on any given day. Providing alternative sampling times, perhaps based on the occurrence of rainfall events onsite, is a good way to avoid this shortcoming in a plan. "No Discharge" means there was no discharge to sample during the entire reporting period. Sampling practices must be flexible enough to take advantage of storm events when they happen.

pH Monitoring: The permittee is expected to conduct pH monitoring onsite. Most often this will require acquisition of a pH meter. The pH meter must be maintained and calibrated in accordance with operating instructions. All discharges to ground of process water, mine dewatering water, and stormwater must be monitored for pH. This does not mean that every place that water collects (e.g., every puddle) onsite must be sampled. It does mean that the reported pH values must be representative of the site.

Representative sampling is not an average of values and it is not a mixing of samples from several locations and then measuring the pH. It means that you have undertaken a process to determine how many sampling sites are necessary to be representative of the site. Sampling is conducted at these representative sites.

To arrive at representative sampling, you must consider all the places that water typically collects. You need to take pH measurements at these locations and note what facility activities (SIC codes) may impact the water. An analysis of the pH values and associated activities

form the basis for determining the number of sample sites necessary for representative sampling of discharges to ground water. You should consider:

1. How similar are the contributing site conditions?

If the different sample points are all from stockpile runoff, one sample point may be sufficient. If some sample points are located around the concrete batch plant and others around gravel stockpiles, then two sample points will likely be required.

2. How similar are the pH measurements?

If multiple samples all have a uniform pH value, then one sample point may be selected as representative. Uniform here means a variation of less that 0.5 pH units with no value in violation of the pH ground water limit.

The monitoring plan must include a description of how you determined what point or points to sample.

Total Dissolved Solids Monitoring (TDS): The permit requires that process water from concrete batch plants and asphalt batch plants be collected in lined ponds. All discharges of process water from the lined pond to ground must be monitored for TDS. Samples should not typically be taken directly from the lined pond. If possible, take a sample of the wastewater discharge after any additional treatment such as pH adjustment and just before it contacts ground.

Oil Sheen: The permit also requires a visual inspection for oil sheen at all discharges to ground. When water is present, there should be daily visual inspection in areas of the facility where employees and equipment are present. In portions of the facility where personnel and equipment are not active, visual inspections should be consistent with the frequency of personnel entering that area, but not less than once a month when water is present.

Discharges to Surface Water

All discharges to surface water require monitoring. While representative sampling in discharges to ground emphasized finding representative sampling points, representative sampling in surface water discharges emphasizes identification of the most appropriate time to sample (see below). Monitoring parameters include pH, turbidity, total suspended solids (process water and mine dewatering water), temperature (summer months only), and total dissolved solids (concrete batch process water only).

Parameters such as temperature and turbidity can vary considerably over the duration of a discharge and from one discharge event to another. Monitoring frequency can be increased (e.g., weekly, daily, continuous) to capture a complete picture of this variation or you can identify the values you are most interested in and schedule monitoring to increase the odds of measuring those values. Monitoring frequency in the sand and gravel general permit relies in part on conducting sampling at the most appropriate time.

Turbidity and TSS: Sampling should be conducted when discharge turbidity and suspended solids are likely to be greatest.

Temperature: Sampling should be conducted when discharge temperature is likely to be highest.

pH: Maximum and minimum values are of interest.

TDS: Sampling should be conducted to capture the highest values.

Permit limits for pollutants in discharges are set to protect the environment. The permittee implements best management practices and treatment to assure that wastewater discharges will comply with permit limits. Monitoring is conducted to demonstrate how successful the BMPs and treatment are. In order for monitoring to make the demonstration, however, the samples must be taken when the potential for system failure is greatest.

This is similar to proving that concrete meets the specified strength requirements. A representative cylinder of concrete is subjected to a cylinder compression strength test, compressed until it fails, demonstrating the strength of the concrete. The trick for monitoring is determining the best time to take a sample that will best test the effectiveness of BMPs and treatment.

Representative sampling for process water and mine dewatering water discharges should not present a difficult problem. These discharges can be easily anticipated, characteristics of discharge known, and sampling scheduled to capture a representative sample.

Discharges that result from stormwater, however, are less predictable and subject to significant variability both in quantity and quality of the discharge. Storm intensity, volume, and duration, as well as site conditions (e.g., saturation of soils, antecedent storms, increased activity, and unexpected erosion) can markedly influence the quantity and quality of stormwater. Therefore, it is recommended that you visually inspect the discharge during several major storm events (those 0.5 inches or more of rain in 24 hours). Pay attention to how the discharge quality (e.g., turbidity, temperature) varies over the duration of storms. Use these observations to determine the best time to obtain a representative sample and include your observations and sampling strategy in your monitoring plan.

Laboratory Analysis

You must follow accepted procedures for handling and shipping samples. If you use an accredited lab for analysis they can assist you in this. They will typically provide you with sampling containers and shipping materials. Make them aware of when you must submit your report to Ecology.

Discharge Monitoring Report

The permit requires that you report test results once a quarter using the discharge monitoring report developed by Ecology. Reports must be received by Ecology no later than January 15 (October, November, December), April 15 (January, February, March), July 15 (April, May, June), and October 15 (July, August, September), for each reporting period or partial reporting period of coverage. All concrete and asphalt batch plants and all active mine sites must submit the report. (Note: All mine sites are considered active unless Ecology has received notification of inactive status.) Even if there were no discharges during the reporting period, you must still file the report. Failure to report is a violation of permit conditions and can result in an enforcement action.

Periodic Plan Review

The permit requires that you review the monitoring plan on at least an annual basis. Conditions can change over time but you are still responsible for representative sampling. Periodically take pH readings around the site. Be observant of site conditions and the visual quality of discharges. Even if you find no need to alter the monitoring plan, record that decision and the date in your monitoring plan.

Employee Training

Employee training is critical to compliance with the conditions and requirements of the sand and gravel general permit. Permit conditions specifically require that employees receive training on the monitoring plan, stormwater pollution prevention plan, and the spill plan. This does not include only those employees with direct responsibility to implement permit conditions, it applies to **all** employees that work at a site. All new employees should receive training as soon as possible after beginning at the site and all employees must receive a refresher course at least annually. Training should include:

- What to do if you observe a spill.
- What are the basic permit require ments?
- How do you enhance environmental protection on the job?
- How to report potential problems.

Employees must also receive any specialized training necessary for their specific tasks. For example, a person that is responsible for refueling vehicles or may on occasion refuel vehicles as part of their job, must receive instruction in best management practices required for onsite fueling.

This booklet provides general guidance on developing an employee training plan but does not examine every aspect of permit requirements for training. The permittee is responsible for reading the full text of the permit and complying with all applicable permit requirements.

Develop a Training Plan

"The permittee will provide annual training of employees on the Stormwater Pollution Prevention Plan that emphasizes spill response, good housekeeping, and material management practices." (Permit Special Condition S9.B.3.d.)

Best management practices (BMPs) are a major requirement of the sand and gravel general permit. A training plan should identify all the BMPs applied at a facility, what employees have primary responsibility for applying and maintaining these practices, and what other employees should know to assure the success of these BMPs.

Example: The training plan may identify as a BMP a berm that prevents Type 2 stormwater from entering the active mine site. The site manager may then be identified as the person responsible for creating and maintaining the berm. While training for the site manager may be obvious, all other employees should also receive training on the purpose of the berm and reporting any observed breach of that berm.

The training plan should also identify how employees will receive training. Will there be written material for employees? Will the employees receive verbal instructions, view videos? When will new employees receive training and when will existing employees receive a refresher course? Will employee training include a test on training effectiveness?

Responding to a Spill

"All employees shall receive appropriate training to assure that spills are reported and responded to appropriately." (Permit Special Condition S12.D.)

A permitted facility has most likely invested time and money to provide physical protection against spills of materials that could harm the environment. Equally important is the protection afforded by well trained employees. Employees must know the procedure for reporting a spill. If they are expected to initiate a response they require training in that response. Employees should know where spill response materials are kept and the importance of maintaining ready access to these materials

Employees are a tremendous resource. They will cover all parts of the site in the course of their duties. If they are trained to look for and report problems or potential problems, they become a major component of the spill prevention and cleanup strategy.

Communicating Permit Goals and Responsibilities

"Employees will receive training on what is included in the monitoring plan and how facility activities relate to monitoring requirements." (Permit Special Condition S5.B.2.)

Employees that understand the goals and responsibilities of the permit help ensure successful permit implementation and compliance. It makes them a part of the process and can have the beneficial side effect of increased morale. Training should include information on:

- What monitoring is required.
- What permit limits apply to the site.
- How do you accomplish good housekeeping onsite?
- Why environmental protection is good business.

Training should cover the permit monitoring requirements. The permit has different requirements based on what type of water is discharged. Employees should know that process water is any water that comes into direct contact or results from the production or use of any raw material or product. They should know that process water is generally considered to have a greater potential threat to the environment and therefore the permit requires more monitoring of process water. Informed employees can help assure that pollution prevention measures succeed, suggest creative ways to improve water management onsite, and alert managers to potential problems.

Employee Participation

Perhaps the most important part of the training will be providing the employee with the understanding that they are an important part of providing environmental protection and compliance with coverage under the sand and gravel general permit. There are two key elements to employee participation:

- Employees must know how and to whom they can report problems and solutions. Employees should be encouraged to become active players in permit compliance.
- Employees need to know that their actions matter. Spilling even small amounts of petroleum on the ground can add up over time. Knowing the importance of pollution prevention and maintaining a clean site changes the way employees act. Environmental protection is a learned behavior.

Training Summary

The precise content of training must be tailored to the specific conditions at the site. The number of employees, the complexity of the site, and how the facility achieves compliance with permit coverage all make a difference in what information training must include. However, all training should include the following elements:

- Provide the employees with an overview of permit requirements and actions the facility takes to comply with the permit.
- Identify the best management practices that have been implemented at the facility. In addition to specific instructions for those with primary responsibility for BMP maintenance, make sure all employees understand the purpose and mechanism for each BMP.
- Detail specifics on spill response and reporting. All employees must know what they are to do if they observe a spill.
- Emphasize the importance of employee participation. Employees must feel that they are a part of environmental protection and that their employer believes it is an important part of doing business.

Stormwater Pollution Prevention Plan

The sand and gravel general permit requires the permittee to develop and maintain a stormwater pollution prevention plan (SWPPP). The SWPPP must contain information on all the best management practices (BMPs) and structures that control and treat Type 3 stormwater.

Type 3 Stormwater means stormwater discharges from 1) industrial plant yards; 2) immediate access roads and rail lines used or traveled by carriers of raw materials, manufactured products, waste material, or by-products used or created by the facility; 3) material handling sites; 4) sites used for the storage and maintenance of material handling equipment; 5) sites used for residual treatment, storage, or disposal; 6) shipping and receiving areas; 7) storage areas for raw materials or intermediate and finished products at active sites; and 8) areas where industrial activity has taken place in the past and significant materials remain that are exposed to stormwater. If type 3 stormwater commingles with process water, it becomes process water.

Water as precipitation hits the ground relatively clean and pure. The goal is to keep the stormwater as clean as possible by preventing contact between the stormwater and contaminants. Where contamination does occur, such as when run-on stormwater already has a sediment load or where the site adds sediment to the stormwater, the stormwater must be treated before discharge. The SWPPP is the document that lays out how you will achieve the goal and meet the permit requirement for keeping stormwater clean.

This booklet provides general guidance on permit requirements and useful information for permit compliance. It does not examine every aspect of permit requirements identified under Special Condition S9. *Stormwater Pollution Prevention Plan* and S11. *Stormwater Inspec-*

tions. The permittee is responsible for reading the full text of the permit and complying with all applicable permit requirements.

Permit Requirements

The permit includes a list of specific items that must be included in the SWPPP. These items include:

Site Map: The site map must identify the stormwater drainage areas and discharge points as well as industrial activities that may impact stormwater. This site map for the SWPPP and for the Monitoring Plan can be the same map as long as it includes the required information to satisfy both requirements.

Inventory of Materials: The inventory of materials must list all of the types of materials handled at the site (for example: cement and cement admixtures, petroleum products, gravel piles, recycle storage) that can be exposed to precipitation or run-off. Note: this inventory of materials can also be used in the spill plan.

Site Operation: List all site management practices that prevent or reduce the introduction of pollutants into stormwater. Operational BMPs do not include construction of pollution control devices but do include scheduling and prohibiting activities to minimize potential pollutants, conducting routine maintenance, keeping the site clean, inspecting the site regularly, and providing employees with SWPPP training.

Source Control: The SWPPP must include a list of the physical, structural, and mechanical devices or facilities intended to prevent pollutants from entering stormwater. These BMPs may include channeling and berming to maintain separation of stormwater and process water. The permit also requires BMPs that comply with (or are equivalent to) Volume IV of Ecology's *Stormwater Management Manual for the Puget Sound Basin* (*Stormwater Management for Washington State* when it is released) for:

a. Fueling Stations - SWMM BMP S1.10
b. Vehicle/Equipment Washing and Steam Cleaning - SWMM BMP S1.20
c. Loading and Unloading Liquid Materials - SWMM BMP S1.30
d. Liquid Storage in Above-Ground Tanks - SWMM BMP S1.40
e. Container Storage of Liquids, Food Wastes or Dangerous Wastes - SWMM BMP S1.50
f. Outside Storage of Raw Materials, By-Products or Finished Products - SWMM BMP S1.60

Stormwater Treatment: If operational and source control BMPs are not sufficient to prevent contamination of stormwater, treatment may be necessary. Treatment BMPs may include: oil/water separators, biofiltration, infiltration basins, detention facilities, and constructed wetlands.

Stormwater Inspections: There must be at least one wet season inspection and one dry season inspection of all active mining sites and asphalt batch and concrete batch facilities. The primary purpose of the wet season inspection is to determine how well all SWPPP BMPs are working when exposed to a major storm event (e.g., do covered areas really keep out the rain, are there any unusual odors, etc.). The primary purpose of the dry season inspection is to inspect the stormwater drainage system for the presence of non-stormwater discharges. The results of these inspections must be written down and kept with the stormwater pollution prevention plan.

Typical BMPs

The SWPPP provides a list of the best management practices (BMPs) that are in place at a site to protect stormwater. The actual content of the SWPPP will vary depending on site-specific conditions. A "Pollution Prevention Team" for instance, would only be one person at a facility owned and operated by one individual. A facility that does not conduct refueling onsite would not include the refueling BMP. Some BMPs that will often be part of a SWPPP include:

Covered Storage: Chemicals stored outside should be covered so that rainfall does not become contaminated by contact with the chemical containers. The SWPPP should include this as a standard practice at the facility and the map should identify the covered storage areas.

Equipment Maintenance: The SWPPP should identify equipment that can spill or leak contaminants such as petroleum products. Provide an inspection and maintenance schedule for each piece of equipment that is identified.

Employee Training: The first line of defense will often be the employee that is onsite working. With proper training, employees can make a big difference in properly managing stormwater and protecting it from contamination.

Site Maintenance: Grading the site to provide even infiltration of rain and keeping the site clean will minimize contamination of stormwater.

Infiltration: Typically it will be desirable to infiltrate all or part of the stormwater that falls on a site. A grassy swale, infiltration trench, or a constructed wetland may provide adequate infiltration for all or most stormwater events. However, when stormwater has become contaminated with pollutants such as oil and grease, treatment may be required before infiltration.

Detention Pond: At sites that discharge stormwater to surface water, a detention pond will typically be required to control turbidity. Careful attention to pond dimensions and design is necessary to accommodate major storms and provide adequate settling.

Stormwater Management Manual

Stormwater Management Manual for the Puget Sound Basin - Volume IV Urban Land Use BMPs. This is a very good source of information on BMPs to include in the stormwater pollution prevention plan. In addition to the BMPs listed in Volume IV, Volume I provides information on developing a plan, Volume II provides BMPs for erosion and sediment control, and Volume III provides information on hydrologic analysis. This manual will be replaced by an updated version that will likely be available by July of 2000. The updated version will be a statewide manual: *Stormwater Management in Washington State.* The new manual will include updated BMPs and information to manage stormwater. The revised version, Volume IV, will include a BMP for mobile refueling. It is highly recommended that you obtain a copy of this manual and read through it.

Periodic Plan Review

The plan is not intended to just sit on the shelf after completion. The permit requires periodic review and updates to keep the plan current. The plan should also be used during employee training. Make sure the plan is a part of doing business at your site and do not waste the time spent on putting the plan together by relegating it to dust collection.

Erosion and Sediment Control Plan

The sand and gravel general permit requires the permittee to develop, maintain, and comply with their erosion and sediment control plan (ESCP). The ESCP must contain information on all the best management practices (BMPs) and structures that control Type 2 stormwater.

Type 2 Stormwater means stormwater from: 1) portions of a site where mining has temporarily or permanently ceased; 2) storage areas for stockpiles of raw materials or finished products; or, 3) portions of a site with exposed soils, cleared in preparation for mining or other industrial activity. If type 2 stormwater enters areas associated with type 3 stormwater, it becomes type 3 stormwater.

Properly managed, type 2 stormwater will typically not require treatment. However, type 2 stormwater cannot be allowed to discharge to surface water if it exceeds the turbidity limit. Visual monitoring is required and if turbidity is a problem, treatment may be required.

This booklet provides general guidance on permit requirements and useful information for permit compliance. It does not examine every aspect of permit requirements identified under Special Condition S10. *Erosion and Sediment Control.* The permittee is responsible for reading the full text of the permit and complying with all applicable permit requirements.

Permit Requirements

The ESCP must include information about all the best management practices (BMPs) that are used to control type 2 stormwater and prevent erosion from adding sediment to the stormwater. BMPs must include:

Stabilization Practices: Stabilization practices help prevent erosion that contributes sediment to stormwater. Typical stabilization practices include seeding, mulching, geotextiles, sod stabilization, vegetative buffer strips, protection of trees, preservation of mature vegetation, and decreasing slope angles or lengths.

Structural Practices: Structural BMPs divert flows from exposed soils, store flows, or otherwise limit runoff and the discharge of pollutants from exposed areas of the site. Such practices may include silt fences, earth dikes, drainage swales, sediment traps, check dams, subsurface drains, pipe slope drains, level spreaders, storm drain inlet protection, rock outlet protection, reinforced soil retaining systems, gabions, and sediment basins.

Inspections: At ***active mine sites*** and all asphalt batch and concrete batch plants, you must conduct a visual inspection of all on-site erosion and sediment control measures at least once every seven days, and within 24 hours after any storm event of greater than 0.5 inches of rain per 24 hour period. Keep a log of these visual inspections, recording the date and pertinent observations (e.g., 12/7/99 - very heavy storm but no significant turbidity in runoff).

For ***inactive mine sites***, a Registered Professional Engineer or equivalent (e.g., Certified Professional Erosion and Sediment Control Specialist) must conduct an inspection every three years to determine if the site is in compliance with permit conditions. Although inactive mining sites are not subject to the same monitoring and reporting requirements as active mine sites, BMPs must be in place and adequate to comply with permit conditions. For example, any discharge to surface water must comply with the turbidity limit.

Typical BMPs

Temporary and Permanent Seeding: Exposed soil is highly subject to erosion. Seeding the area to develop a vegetative cover can significantly reduce erosion.

Protect Areas of Exposed Soil: Divert runoff from exposed soils. Dike or ditch the runoff, place a berm around the exposed area, or convey drainage through pipes or culverts. Runoff can be directed to a grass lined swale for infiltration.

Control Runoff Velocity: Slow down runoff to minimize its erosive capacity. Vegetative buffers, slope management, check dams, and filter fabric fences are a few of the ways that you can impact runoff velocity.

Minimize Channel Erosion: Use grass lined channels to convey water through the site. If grass alone cannot control erosion, consider the use of riprap. A pipe slope drain may also be used to move water down a steep slope.

Trap Sediment: Barriers and temporary ponds may be used to trap sediment. Straw bales, brush, and silt fences may be used as barriers to intercept sheet flow or low level, low energy channel flow and reduce the sediment load. Temporary ponds may also be used to trap sediment. These measures do not typically provide adequate control of turbidity and should not discharge directly to surface water.

Resource Materials

Best Management Practices for Reclaiming Surface Mines in Washington and Oregon. Available from the Washington Department of Natural Resources, Division of Geology and Earth Resources, (360) 902-1450. Although geared to mine reclamation, this document provides many useful examples of site management that will minimize erosion and control erosion.

Stormwater Management Manual for the Puget Sound Basin - Volume II Erosion and Sediment Control. This is a very good source of information on preventing erosion and controlling sediment in runoff. There are many useful management practices included in this volume. This document will be replaced by an updated version that will likely be available by July of 2000. The updated version will be a statewide

manual: *Stormwater Management in Washington State - Volume II Construction Stormwater Pollution Prevention.* Although titled construction stormwater, the contents are highly applicable to erosion and sediment control requirements of the sand and gravel general permit.

Periodic Plan Review

The plan is not intended to just sit on the shelf after completion. The permit requires periodic review and updates to keep the plan current. The plan should also be used during employee training. Make sure the plan is a part of doing business at your site and do not waste the time spent on putting the plan together by relegating it to dust collection.

Spill Plan

The sand and gravel general permit requires the permittee to develop and maintain a spill plan. The plan must identify the materials of concern, spill prevention measures, and spill response procedures. This booklet provides general guidance on permit requirements and useful information for permit compliance. It does not examine every aspect of permit requirements identified under Special Condition S12. *Spill Plan*. The permittee is responsible for reading the full text of the permit and complying with all applicable permit requirements.

Plan Requirements

Materials of Concern: Identify the materials of concern including equipment that may contain or transport these materials. The materials of concern will mostly be petroleum products that amount to 10 gallons or more. Other materials might include admixtures, cleaning solutions, paint, acid or alkaline solutions, antifreeze, and other liquid materials that amount to 10 gallons or more and have potential environmental concern. The inventory of materials created for the stormwater pollution prevention plan should already include these materials. Highlight those materials on this list and add a list of equipment that poses a spill threat.

Spill Response Procedures: Provide a detailed description of actions to take, and the order in which the actions should take place. At a minimum include:

- Notification procedures - names and phone numbers of those who must be notified. This will typically be the primary staff persons at the facility (include a back-up person) and agencies such as Ecology and the local sewer authority.
- Initial response procedures - actions to take immediately by whomever discovers the spill. May include different actions based on what has spilled.
- Spill cleanup procedures - what happens to material used to cleanup the spill and who assures that the cleanup is complete.
- Incident documentation - what reports are prepared and who will complete them.

Spill Prevention: Describe the steps that help prevent spills from happening and structures that contain or treat spills. Employee training and material handling procedures (e.g., fueling procedures) are examples of steps that help prevent spills. Concrete containment structures for fuel tanks and oil/water separators for road runoff are typical structures for containing or treating spills.

Basic BMPs

The following list of best management practices is only intended to cover some of the BMPs that should be part of your spill plan.

Training: Spill response will be most effective if all employees are trained to take appropriate and immediate action when they observe a spill. Company policy needs to support employee spill response and provide incentives to “do the right thing.” It can be very difficult to convince employees that they should respond to a spill on Friday at quitting time. Training must address the “why respond” as well as the how to respond.

Spill Response Materials: You are required to maintain spill response materials onsite. Providing a spill response shed for the bulk of materials and spill response “kits” on major equipment can be an effective strategy. This strategy can be enhanced by a logo or color of paint that readily identifies the location of spill response materials.

Covered Containment: Store barrels and other containers in a covered area with an impervious floor and berm. Pay attention to design and assure that the materials are easily accessed and used in the covered and contained area. If employees find it necessary to remove materials in order to use them, the value of covered containment is diminished. Make

the area easy to get into and out of. Allow room for easy access and use of the materials.

Covered Temporary Storage: Provide a covered area to collect material from spill cleanup. Small spills require cleanup but often do not produce enough material for transport to a permanent disposal site. Providing a covered temporary storage area for this waste material can make cleanup quicker and more efficient, encouraging employees to respond.

Post BMP Instructions: Post information on proper handling procedures and storage requirements at the area where the material is located. For example, fueling procedures should be posted at the fueling station. Spill response procedures and contact person should be posted with the spill response materials.

Scheduled Maintenance: Schedule vehicle maintenance to reduce spills. Hydraulic oil, transmission oil, and engine oil leaks from vehicles and equipment are one of the most common spills onsite. Preventative maintenance can reduce the quantity and frequency of these events.

Paved Surfaces and Drains: In areas where minor spills happen frequently such as fueling stations, an impervious surface will prevent immediate contamination of the ground. These areas should slope to a drain that will capture the contaminant. The drain should connect to a dead end sump or suitable treatment facility (e.g., oil/water separator for runoff from a fueling pad).

Periodic Plan Review

The plan is not intended to just sit on the shelf after completion. The permit requires periodic review and updates to keep the plan current. The plan should also be used during employee training. Make sure the plan is a part of doing business at your site and do not waste the time spent on putting the plan together by relegating it to dust collection.

Additional Information

If you need additional information, please contact the Permit Coordinator for your area. You can also visit the sand and gravel web site at:

www.wa.gov/ecology/wq/sand

Northwest Regional Office
Water Quality Program, Permit Coordinator
3190 - 160th Avenue SE, Bellevue, WA 98008-5452
(425) 649-7000 TDD: (425) 649-4259
For: King, Whatcom, Skagit, Snohomish, San Juan, Kitsap, and Island Counties

Southwest Regional Office
Water Quality Program, Permit Coordinator
P.O. Box 47775, Olympia, WA 98504-7775
(360) 407-6300 TDD: (360) 407-6306
For: Thurston, Clallam, Jefferson, Grays Harbor, Mason, Pierce, Lewis, Skamania, Wahkiakum, Cowlitz, Clark, and Pacific Counties

Central Regional Office
Water Quality Program, Permit Coordinator
15 West Yakima Avenue, Suite 200, Yakima, WA 98902-33887
(509) 575-2490 TDD: (509) 454-7673
For: Yakima, Benton, Klickitat, Chelan, Douglas, Kittitas, and Okanogan Counties

Eastern Regional Office
Water Quality Program, Permit Coordinator
N. 4601 Monroe, Suite 202, Spokane, WA 99205-1295
(509) 456-2926 TDD: (509) 458-2055
For: Spokane, Grant, Adams, Whitman, Ferry, Franklin, Stevens, Pend Oreille, Garfield, Columbia, Asotin, Lincoln, and Walla Walla Counties