

## How to Monitor Storm Water Runoff for Compliance with your NPDES Permit

These instructions are based on the Oregon storm water NPDES program (now administered by DOGAMI). While the timings and reporting forms may vary from state-to-state, the sample collection, handling and processing instructions are valid everywhere. The included data form can also be used either for your own ease of record keeping or for submittal with your compliance reports to the responsible agency in your area.

Please let us know if you need additional assistance or expert advice. We're here to help you focus on running your business while remaining environmentally responsible.

### What:

The storm water NPDES Permit issued to aggregate operators may have the following requirements (your specific permit may differ):

Parameter	Frequency	Type
Turbidity	Weekly	Visual <sup>1</sup>
Oil Sheen	Weekly	Visual <sup>2</sup>
pH	Twice / year	Grab <sup>3</sup>
Settleable Solids	Twice / year	Grab
Total Suspended Solids	Twice / year	Grab

### Notes:

- <sup>1</sup> Whenever a muddy discharge is detected in the storm water discharge during the weekly visual observation, it shall be sampled for settleable solids.

- <sup>2</sup> Whenever a visible oil sheen is detected in a storm water discharge during a required weekly visual observation, it shall be sampled for oil and grease.
- <sup>3</sup> Whenever wastes or wastewaters containing Portland Cement are discharged into an unsealed pond, the pH of the pond shall be checked after each occurrence.

To comply with the storm water permit, you need to sample twice each year (Oregon) or quarterly (Washington). The sample dates must be at least 60 days apart. One of the sample dates must be in the autumn month when the rains begin. This is designed to see if materials accumulated during the dry summer months are flushed away when runoff begins. These samples are the "grab" type for solid materials and pH (acidity or alkalinity).

Each week when a storm event produces runoff, look at the water leaving the site to see if it appears muddy or oily. You can use the supplied form to record these observations and document that you are in compliance with the permit's monitoring requirements.

Monitoring is required only at sites which have been active some time during the previous 12 months.

During all periods when **process wastewater** is being generated or stored at the site, you need to inspect all waste handling, treatment, and disposal facilities and any adjacent streams above and below the mining or processing operation at least weekly. You may use the supplied form to record these observations.

DEQ or Ecology can request your monitoring records to verify compliance with both monitoring requirements and water quality standards. You are required by DEQ and Ecology to tabulate the monitoring data and submit it to the appropriate Regional Office by July 1 of each year. You must also keep these records for at least 5 years.

### Where:

Because all sampling should be representative of the discharge, you should make your visual observations and collect the grab samples at (or near) the point where the storm water leaves your site. For example, if you have a detention pond or settling basin with a riser pipe, look at the water surface around the pipe and collect the samples right next to the pipe.

If there is much water leaving your site, it would also be to your benefit to visually check the stream, lake, or estuary where the water ends up after leaving your place of operation.

When you have more than one settling basin or detention pond on your property, samples taken at the outlet of each one will indicate how well your **Storm Water Pollution Control Plan (SWPCP)** is working.

#### **How:**

The three parameters which need to be analyzed by a laboratory must be collected in specially-cleaned containers. Call the laboratory a few days before you plan to take the samples and they will send the containers to you. Make sure that you get a set of containers for each site you need to have analyzed.

You will probably receive 3 containers: 2 plastic and 1 brown glass. The plastic containers are for Total Suspended Solids (TSS), Settleable Solids, and pH. The glass bottle is for the oil and grease sample and contains a small amount of concentrated hydrochloric acid as a preservative. Take care not to spill the acid on you or into the water.

Take the samples at or near the point where the storm water leaves your site. If there is a riser pipe or weir at the outlet, take the sample close to the pipe or weir. Otherwise, collect the sample near the surface. Avoid stirring up the bottom because you will add sediments to the water which would not normally be there.

Before filling the bottle, while the label is still dry, fill in the requested information: your company name ("Client"), the date, time, and your initials ("Collector"), the collection site ("Field I.D."), the words "storm water" ("Media"), and either "TSS/pH" or "SS" for "Analysis Requested" (one plastic bottle for each analysis). Use a pencil or waterproof pen; ballpoint pen ink will run when the label gets wet.

Open the bottle and move it, top up and at an angle, under the surface of the water. This lets the air escape while the bottle fills. If the water depth is very shallow you may need to hold the bottle on its side. Move the bottle up and down (or back and forth) in the water to get a representative sample. When the bottle is completely filled (that is, there is no air at the neck), reach under the water and replace the cap. The settleable solids sample needs a full liter of water, that is, a completely filled container. The other sample (TSS/pH) will also not change if there is no air in the bottle.

Oil and grease is lighter than water and floats on the surface. This sample should be taken right at the surface by lowering the brown glass bottle at an angle and letting surface water flow in to it. When filling this bottle, take care to not spill or wash the acid out of it.

Fill in the Chain of Custody Agreement which came with the sample containers. Instructions are printed on the back of the form. Samples should be analyzed as soon as possible after collection. If you are shipping the samples back to the laboratory, UPS or the US Postal Service should be able to get them back overnight. If you have concerns about shipping delays, use an overnight delivery service or a courier. The person who packs and ships the samples should sign the top line in the column, "Relinquished by:" and fill in the date and time. Keep the client copy of the Agreement and put the laboratory's copy in the package with the water samples.

When the laboratory returns the analytical report, check the values to be sure they are within permit limits, then file the report with the other permit records (such as the data sheet of weekly visual observations and any records of accidents).

Copies of these records should accompany your annual report to the permitting agency to demonstrate both your compliance with the monitoring requirements of the NPDES storm water discharge permit and the proper functioning of your SWPCP.

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