

Step 1. Knowing the Stormwater Discharge Laws

What is every business, construction site and municipality have in common is the requirement to manage stormwater discharges into their watershed. The laws date back to the early 1940's with the Federal Water Pollution Control Act of 1948. First established for public health and navigation dealing with surface water quality. Later the laws expanded to:

- Water Quality Act of 1965
- EPA and Refuse Act of 1970
- Federal Water Pollution Control Act of 1972
 - Established Section 311 – Oil and Hazardous Substances
 - Section 312 – Marine Sanitation
 - Section 404 – Fill and Dredged Material
 - Section 402 – National Pollutant Discharge Elimination System NPDES
- National Resources Defense Council (NRDC) Consent Decree of 1976
 - 65 pollutant categories and 129 pollutants
 - 21 Industries identified for technology based controls
- The Clean Water Act of 1977
 - Amended the FWPCA to address water quality to waters of the US
 - Established Phase I and II rulemaking for industry, MS4 and construction permit requirements
- Water Quality Act of 1987
 - Defined requirements for States to identify waters that do meet water quality standards due to toxic substances
 - Establish limitations for individual discharges

NPDES Permit is defined under the Federal Register under 40 CFR 122.2 it defines discharges in two categories: Point Source and Non-Point sources. A point source is typically a discharge from a pipe, flume, channel etc. Non-point sources are those discharges that are from sheet flow run-off or non-discernable areas of discharge. Point source discharges can be from pollutants such as sediment, biological, sludge, chemical or solid wastes.

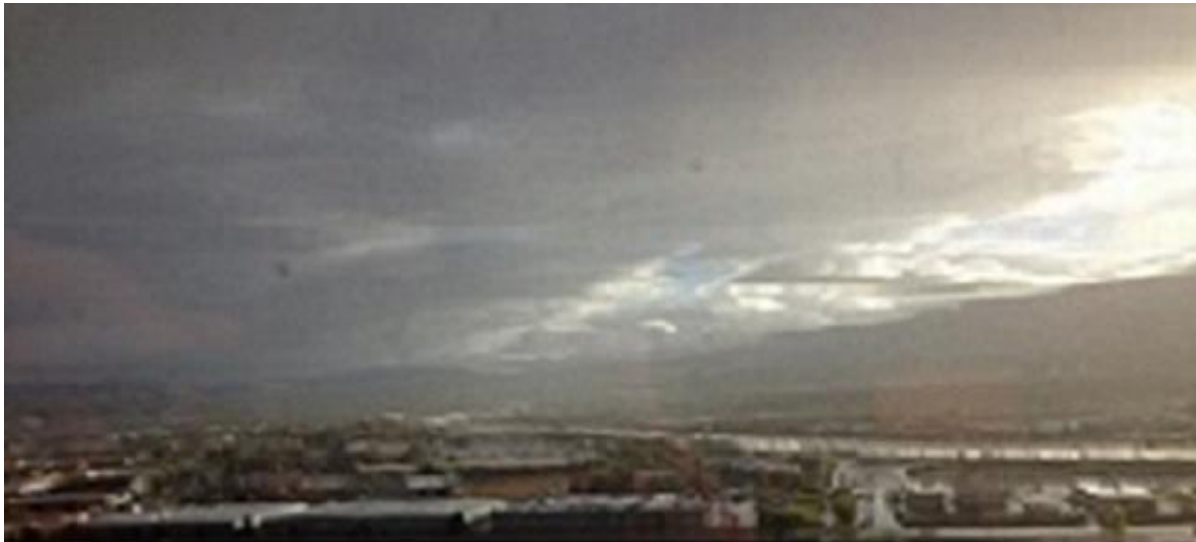


Step 2. Learn the Differences in Discharge Permits

Many construction sites are now required to obtain a Construction Stormwater Permit prior to commencement of grading for sites greater than 1 acre. The permits require a Stormwater Pollution Prevention Plan commonly referred to as a SWPPP. Prior to commencement of work the site owner, contractors or engineer must ascertain which jurisdiction the permit must be filed under.

The other type of permit applies to mainly industrial and certain commercial properties called an Industrial Stormwater Permit. These are commonly referred to a list of industrial facilities called the 11 category list. The federal regulation is under 40 CFR 122.26(b)(14)(i)-(xi) with business listings by Standard Industrial Classification (SIC). A SWPPP is required to be prepared for these permits as well.

Many municipalities are also governed by a permit known as a MS4 (Municipal Separate Storm Sewer Systems). These permits can require the municipality to perform stormwater discharge inspections of industries in their jurisdiction.



Step 3. Develop a Stormwater Pollution Prevention Plan

In brief the Stormwater Pollution Prevention Plan or SWPPP is typically needed for both the construction and industrial type of permits.

The plan is way to identify the facility location and its potential sources of discharges to the receiving waters downstream of the site. The plan is required to be managed and retained on site and is a living document.

In general terms the Construction SWPPP must contain the following contents:

- Identify the site operators
- Stormwater management team
- Site activities
- Emergency related activities and description of the occurrence
- Site description
 - Site area, material storage, general and detailed maps, soils, percent impervious, ...
 - Maps defining activities, storage areas, buffer zones, ingress and egress, potential pollutant sources, flow directions, material storage and stabilization areas
- Receiving waters
- Identifying impaired waters
- Stormwater control measures
- Summary of potential pollutant sources
- Spill Prevention and Response procedures
- Waste Management procedures
- Documentation requirements
- SWPPP Updates
- Deficiencies in the SWPPP
- Procedures for inspection, maintenance and corrective action

Many of the same elements of the construction SWPPP are contained within the Industrial SWPPP. The list above is a generalization of what is required and details of the permit content can vary with each jurisdiction. The permit applicant must download from their jurisdictional area and provide the detailed information requested within the plans.

Step 4. Understand Typical Stormwater Controls

Typically a new construction site has 2 ways of controlling run-off sediment from the site and in most SWPP plans those controls are needed.

Erosion Controls

These site controls are typically soil stabilization methods which must be addressed during the site grading process. It's the methods that are used to prevent erosion in the first place and are the most difficult to schedule with site construction phasing. These controls often consist of cover materials in portions of the site not currently being developed.

- Contour grading
- Straw wattles parallel to the contour
- Straw mulch

Sediment Controls

Sediment controls work with erosion controls to prevent discharges off-site. If the erosion control fails the sediment controls will retain that soil on the site boundary. Sediment controls may include trackout measures at the site ingress and egress on a construction as well as industrial site. Some examples of sediment controls are:

- Silt fencing
- Gravel bags
- Straw wattles
- Rumble strips or gravel

Non-stormwater Controls

This stormwater control is to prevent the discharge of chemicals on the industrial or construction site. Typical controls require that chemicals are stored inside a building, with secured lids, or on secondary containment. An active control would be the use of spill kits which are comprised of absorbents, oil booms and absorbent pads near sources that could cause leaks on the site and eventually run-off in a rain event.

Other controls can be related to management practices at the site such as routine sweeping and trash collection. In addition, routine scheduled pick up of hazardous and solid waste can greatly reduce the potential for non-stormwater discharge events of occurring.

Step 5. Conduct Effective Site Inspections

Site inspections are required with the stormwater permits to make sure that the Control Measures are in place and are working effectively. Site controls that are used, worn and damaged over time are not effective and could result in offsite discharges and/or fines from regulatory inspections.

Construction Sites

Construction site Control Measures are inspected at least weekly or soon after a rainfall event. The inspections must be logged and corrective actions noted and scheduled. Everyone on the job site is responsible for reporting damaged and depleted site controls. The repairs must be done in a timely manner and especially if more rain is forecasted in the near future. Inspection reports must be kept with the SWPPP and the documentation kept on site and available for workers and inspectors. A site inspection must encompass the entire site each time and especially at locations where offsite discharge can occur.

Industrial Sites

An industrial site generally has quarterly and annual site inspections, but can be done more often. The inspections are primarily for noting the integrity of the Control Measure condition and whether or not the control is damaged, or has become non effective due to lack of maintenance or use. Some typical Control Measure failures include:

- Trackout controls are no longer effective causing sediment to leave the site
- Secondary containment facilities are not emptied and do not have sufficient over flow volume
- Labels are missing on chemical containers or stored outside of their secondary containment
- Absorbents are full of oil and left on the ground
- Vehicles are not maintained and leaking fluids
- Loose trash is blown around and receptacles are not covered.

Site inspections must be thorough and documented in SWPPP. Corrective actions must be addressed in the report and completed in a timely manner.

Step 6. Train Employees Effectively

One of the most over looked requirements in the stormwater plan is employee training. Employees must be part of the SWPPP as everyone on the job site is responsible for maintaining and reporting Control Measure problems.

An effective employee training plan is one where they understand where housekeeping rules apply whether it is for construction or industrial site activities. They need to know where the SWPPP is located, the nearest spill control, what to do if there is a spill, who to contact in case there is a release or report a damaged Control Measure.

The training program might include a tailgate or safety meeting each morning reminding employees where the Control Measures are located especially on a construction site where these controls are often moved as the site develops. The training could also involve a site walk through or scheduling employees to attend webinars or in person training classes. The employees must sign a training record and have it kept in the SWPPP plan.

Stormwater management is everyone's responsibility to ensure an effective way to keeping the site within compliance.

Step 6. Keep Good Records

The stormwater pollution prevention plan is a “living” document. It changes when there are inspection, training records, personnel, incidents or where other site control measures have changed.

The SWPPP must be kept on site, complete and readily available to staff, workers and inspectors. The records must include the permit, emergency contacts, plans and maps of the site where Control Measures are located.

Documentation of an incident such as a discharge of sediment, solid waste, hazardous waste or other industrial chemicals must be kept in the plan and what corrective measures were taken to prevent the occurrence from happening again.

Each jurisdiction may require that other permit related documents be included in the SWPPP and the responsibility of the permittee must ensure that those requirements are met.

