

Environmental Protection Agency - Final Rule

Effluent Limitation Guidelines for the Construction and Development Point Source Category



The **United States Environmental Protection Agency (EPA)** finalized effluent limitation guidelines (ELG) and New Source Performance Standards (NSPS) for the Construction and Development (C&D) category on December 1, 2009. The goal of the rule is to establish technology based minimum requirements in order to reduce the amount of sediment, turbidity, Total Suspended Solids and other pollutants present in stormwater discharges from C&D sites. While streams and rivers naturally carry sediment loads, discharges from construction activity can elevate those loads to levels above that present in the undisturbed watershed. Excess sediment loading can cause aquatic ecosystem degradation, increased drinking water treatment costs and impairment of recreational uses. The new ELG apply to all C&D sites currently required to obtain a National Pollutant Discharge Elimination System (NPDES) permit for construction discharges.

The EPA, through the Clean Water Act, is authorized to issue an NPDES permit for pollutant discharges from a point source such as stormwater associated with construction activity. The EPA typically transfers permit issuance to authorized states, as is the case in Colorado. Colorado handles the distribution of these permits through the Colorado Discharge Permit System (CDPS) and currently requires a permit for any C&D site disturbing greater than one acre of existing vegetation.

Current CDPS permits for construction stormwater discharges require a Stormwater Management Plan that utilizes proper structural and nonstructural Best Management Practices (BMP) to reduce the amount of pollutants exiting the site. There are currently no monitoring requirements or effluent limitation standards for discharges from construction activity. The new rule establishes maximum turbidity levels from certain construction sites and will therefore require CDPHE to implement monitoring standards into the construction stormwater discharge permit.

Applicability of Effluent Limitation Guidelines

- Permitting authorities (CDPHE) are responsible for implementation and enforcement of the new regulation
- This regulation establishes the minimum requirements. CDPHE may require more stringent effluent limitations
- Non-Numeric Effluent Limitations
 - All C&D sites will be required to meet non-numeric effluent limitations for stormwater discharge, upon renewal of the Colorado Construction General Permit
- Numeric Effluent Limitations
 - Construction sites with disturbed areas greater than 20 acres are required to sample and monitor discharges from the site and meet a maximum daily discharge of 280 NTU, by August 2011
 - Construction sites with disturbed areas greater than 10 acres are required sample and monitor discharges from the site and meet a maximum daily discharge of 280 NTU, by February 2014
- Sites are exempt from the numeric effluent limitation on days where the total precipitation exceeds the local 2 year, 24-hours storm



Effluent Limitation Guidelines Summary

Non-Numeric Effluent Limitations

Non-numeric effluent limitations will apply to all permitted C&D sites, regardless of disturbed area. The first intent of the non-numeric effluent limitations is to prevent mobilization of sediment and other pollutants through proper planning and implementation of erosion control measures. The second intent is to control mobilized pollutants through effective sediment control techniques. The EPA recommends that C&D facilities can minimize the discharge of pollutants by:

- Controlling stormwater volume and velocities
- Controlling peak flowrates and total stormwater volume
- Minimizing the amount of exposed soil during construction
- Designing, implementing and maintaining proper erosion and sedimentation structural BMPs
- Maximizing infiltration by providing natural buffers around surface waters and directing stormwater runoff to vegetated areas
- Preserving existing topsoil and minimize compacting of disturbed soils

The EPA intends to allow the individual permitting authorities (i.e. CDPHE) flexibility on how they intend to implement the NPDES requirements. This flexibility will give the applicant the ability to choose what BMPs they would like to implement based on specific site parameters or overall cost considerations. Applicants are required to properly design, install and maintain erosion and sedimentation control measures to limit the discharge of pollutants from the site.

Numeric Effluent Limitations

C&D sites with disturbed acreage of greater than 10 acres at any given time will be required to monitor and regulate stormwater discharges in order to ensure that turbidity levels within the site's runoff are less than 280 NTU. Turbidity was chosen as the pollutant as it can be easily measured in the field with a hand held turbidimeter. Other pollutants (such as TSS) require laboratory testing and analysis. The EPA, through research presented in this rule, believes that maximum daily effluent limitation of 280 NTU for construction sites greater than 10 acres is both technologically and economically achievable.

The EPA recommends the implementation of Passive Treatment Systems (PTS) in order to help meet the numerical effluent limitations. PTS rely on settling and filtration in order to remove sediment, turbidity and other pollutants, and may employ the use of flocculants or polymers to aid the settling process. These polymers can be applied in liquid or solid form at multiple points within the treatment train. For instance, liquid polymer can be introduced into a channel upstream of a sediment basin through a metering pump or sprayed directly onto the surface of a basin. Solid polymers can be introduced into drainage swales through the use of polymer gel socks or "floc blocks" in conjunction with straw wattles or check dams to reduce stormwater velocities and enhance settling.

C&D facilities are exempt from meeting the maximum daily limit on days where the total precipitation is greater than the local 2 year, 24 hour storm. The reasoning behind this is during larger storm events, controls might be overwhelmed by the large amount of stormwater, therefore making the effluent limitation more difficult to meet. Accordingly, C&D facilities required to meet the numeric limitations must also implement the erosion and sedimentation controls required by the non-numeric effluent limitations. During large storm events the non-numeric limitations become the only form of erosion and sedimentation control and are therefore essential to all construction sites, regardless of impacted area.



Passive Treatment Systems



25, 100, 500, 1000, 2000
Turbidity Level (NTU)



Sediment Basin with
Silt Fence Filtration



Typical Application
of Solid Flocculant



Turbidity Reduction with
Polymer Addition

Implementation of Effluent Limitation Guidelines

Implementation of non-numeric effluent limitations is effective immediately. The EPA is phasing the numeric effluent limitations over four years in order to allow the individual permitting authorities ample time to develop monitoring requirements and enforcement parameters. Construction sites disturbing greater than 20 acres at a time will be required to meet the numeric effluent limitations within 18 months of the final rule publication. C&D sites impacting greater than 10 acres at any point during construction will be required to meet the numeric effluent limitation requirements within four years of the final rule publication.

The final rule will not be fully implemented until the individual state and EPA general permits have expired, and new general permits are issued with the new effluent limitation guidelines. CDPHE is planning to incorporate the requirements of this rule into its CGP when it is up for renewal in June of 2012.

Conclusions

The erosion and sedimentation control requirements described in the non-numeric effluent limitations do not appear to differ greatly from CDPHE's existing permit requirements for stormwater discharges associated with construction activity. Conversations with CDPHE have revealed that they anticipate minimal changes to their permit requirements for C&D sites impacting 10 acres or less.

In contrast, numeric monitoring requirements for construction stormwater discharges as part of a permit regulation is a new concept for the EPA and CDPHE. The EPA's final rule does not dictate specific requirements with regards to sampling location, frequency, monitoring methods and maximum turbidity level (if more stringent than 280 NTU). However, the EPA is mandating monitoring requirements as part of CDPHE's new Construction General Permit. It is the responsibility of CDPHE to specify the requirements and procedures used to gather representative samples and to verify adequate monitoring is occurring. In order to incorporate the monitoring and enforcement parameters into CDPHE's new CGP, a great deal of discussion and research will need to occur over the next two years.

The EPA and CDPHE anticipate that many applicants will attempt to circumvent the numerical effluent standards by phasing construction in a manner that disturbs less than 10 acres of land at a time. Construction phasing is a nonstructural BMP suggested by both the EPA and CDPHE; however, it has not been implemented by many large developments in the past. These new regulations give the developer the option to phase their construction activity, or incorporate passive treatment systems within their stormwater management plans. The EPA's research shows that either method provides decreased sediment loading on the nation's rivers and streams.



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