

EPA's New Construction and Development Effluent Guidelines

On December 1, 2009, EPA published in the Federal Register the final effluent guidelines and standards for the Construction and Development Industry (40 CFR part 450). These regulations include Best Practicable Control Technology currently available (BPT), Best Conventional Pollutant Control Technology (BCT), Best Available Technology Economically Achievable (BAT), and New Source Performance Standards (NSPS) limitations governing construction site stormwater discharges. The BCT requirements are the same as the BPT and the NSPS requirements are the same as the BAT requirements.

The regulations will take effect in three phases - February 1, 2010, August 1, 2011, and February 2, 2014. The BPT limitations, which are for sites that will disturb 1 acre or more of soils, will need to be included into new or reissued construction stormwater permits issued after February 1, 2010. The BPT regulations are generally standard construction site Best Management Practices that are presently required of all construction sites in Kansas except for the requirement that stormwater discharged from basins and impoundments must utilize, if feasible, outlet structures that withdraw stormwater from the surface.

The two BAT phases of the regulations will be the biggest challenge as it includes stormwater discharge turbidity monitoring with a 280 NTU (nephelometric turbidity unit) daily average limitation for construction sites that will disturb 20 acres or more of soil at one time beginning August 1, 2011, and for sites that will disturb 10 acres or more of soil at one time beginning February 2, 2014. Please note that the 20 and 10 acre areas include non-contiguous areas within the construction site or common plan of development. In other words, the 20 and 10 acre discharge requirements apply when the total soil disturbance within the entire construction site exceed the 20 and 10 acres of soil disturbance at one time and the areas of soil disturbance do not need to discharge into one common drainage point but only need to add up to 20 or 10 acres. Conversely, when stabilization reduces the amount of total soil disturbance to less than 20 or 10 acres, the numeric turbidity limitation no longer applies.

The federal requirements that take effect on the above dates only take effect when a permit is issued or reissued after February 1, 2010. The Notice of Intent (NOI) authorizations issued to discharge stormwater under the Kansas Stormwater Runoff from Construction Activities General Permit are not technically considered permits. However, the Kansas General Permit when reissued and any individual construction stormwater permit issued need to include these new requirements. Since the Kansas Stormwater Runoff from Construction Activities General Permit expires December 31, 2011 both the February 1, 2010 Best Management Requirements and the August 1, 2011 discharge limitations for 20 acre soil disturbance projects will take effect in Kansas when the Kansas Stormwater Runoff from Construction Activities General Permit is reissued and goes into effect (scheduled for January 1, 2012). The February 2, 2014 requirements for 10 acre soil disturbances will be incorporated into the general permit to automatically take effect on February 2, 2014.

Projects that are issued authorizations under the current construction stormwater general permit will be required to comply with the terms and conditions of the new general permit upon issuance or apply for an individual permit. Therefore, projects that have 20 acres or more

disturbed at one time on the date the Kansas construction stormwater general permit is issued will be required to begin monitoring discharges and meet the 280 NTU average daily effluent limitation. The numeric effluent limitation does not apply on any day there is a discharge from a storm event that is larger than the local 2 year 24 hour storm. For Kansas that would be about a 2.2 inch rainfall in far northwest Kansas and about 4.0 inches in far southeast Kansas.

Turbidity in stormwater discharges can be controlled to less than 280 NTU by treating the stormwater entering a sedimentation basin with a settling agent. The typical settling agents include Polyacrylamide (PAM), Polyaluminum Chloride, Chitosan, Alum, and Gypsum. These products added to the stormwater flow reduce the charges on the colloidal clay suspensions allowing them to flocculate and settle in the sediment basin.

The polyacrylamide (PAM) is a polymer already used in a couple of states and the North Carolina web site has information on approved PAM products at: <http://portal.ncdenr.org/web/wq/ws/su> and click on approved polyacrylamide (PAMS) information under “helpful information”. Many years ago acrylamide grout, used for plugging groundwater leaking into sewer lines and manholes, was banned by EPA due to worker safety concerns. Although acrylamide is a neurotoxin, polyacrylamide is not, but it does have some aquatic toxicity so use needs to be closely watched and adding a lot more is not necessarily better. However, there are very small amounts of acrylamide within the polyacrylamide but at the dosages applied to enhance particle settling there is not a concern. Contractor employee handling education safety will need to be emphasized. The chitosan (pronounced kite-o-san) is a cationic biopolymer derived from chitin (pronounced kai-tin) which is a natural substance found in the shells of lobsters and other shellfish and they both resemble cellulose in structure.

The settling agents can be obtained and applied in either a liquid or solid form. The liquid form can be applied using a metering pump or spraying on the surface of a sediment basin or disturbed soil area. Solid settling agent infused blocks or bags can be used upstream of a sediment basin or check dams to apply the settling agent as the stormwater runs over the blocks and through the infused settling agent media in the bags. Chemical addition to control turbidity levels in stormwater runoff from construction sites is new to Kansas. Consultants, contractors, and municipal stormwater staff may want to gain some experience in its application before required permit compliance becomes mandatory.

A lot more information including the published federal register notice with a significant amount of preamble discussion as well as the new regulations can be located at the following website: <http://www.epa.gov/waterscience/guide/construction/>.

In addition to some minor changes to incorporate the BPT requirements, the sediment basin discharge requirements, and the turbidity limitations, additional information on monitoring frequencies, procedures, and equipment, will need to be incorporated into the Kansas Stormwater Runoff from Construction Activities General Permit upon reissuance. We will be evaluating the general permit that EPA will need to issue for states and territories that do not have NPDES delegation and incorporating appropriate parts into the Kansas general permit.