

3.03

Construction Site Stormwater Management

Background

The principal effect land development activities have on the natural or geologic erosion process consists of exposing disturbed soils to precipitation and to surface storm runoff. Results from both field studies and erosion models indicate that erosion rates from construction sites are typically about an order of magnitude greater than row crops and several orders of magnitude greater than rates from well-vegetated areas such as forests or pastures. Stormwater discharges generated while construction activities are occurring have a potential for serious water quality impacts as well. A number of pollutants are preferentially absorbed onto mineral or organic particles found in fine sediment. The erosion and delivery of sediment into aquatic ecosystems is the primary pathway for delivering key pollutants such as nutrients (particularly phosphorous), metals, and organic compounds. In addition to the environmental impacts associated with sediment discharges, there are economic impacts as well. Obstruction of stream channels and navigable rivers by masses of deposited sediment reduces their hydraulic capacity which, in turn, causes an increase in subsequent flood crests and a consequent increase in the frequency of damaging storm events. Sediment fills drainage channels, especially along highways and railroads, and plugs culverts and storm drainage systems, thus necessitating frequent and costly maintenance. Other potential non-sediment pollutants associated with construction activities include fertilizers, pesticides, trace metals, concrete wash-out and miscellaneous construction wastes. The temporary practices included in the Sediment & Stormwater Plan are intended to control both sediment and non-sediment pollutants during the construction phase of the land disturbing activity. The most effective measures for controlling sediment are those that prevent erosion from occurring in the first place. Similarly, many non-sediment pollutants can best be controlled by excluding their exposure to rainfall.

Delaware Erosion & Sediment Control (ESC) Handbook

Unless granted prior approval by the Department or Delegated Agency as discussed at the project application meeting, all construction site stormwater management practices shall be consistent with the standards, specifications and details included in the current version of the Delaware Erosion & Sediment Control Handbook, including the DeIDOT and Tax Ditch Maintenance supplements.

An applicant proposing to use temporary control measures that are not included in the current Delaware ESC Handbook shall submit supporting documentation to the Department for determination as to its appropriateness for the proposed use.

Limits on Land Disturbance

Use of the standard details from the Delaware ESC Handbook for design of construction site stormwater management practices is limited to sites where no more than 20 acres will be disturbed at any one time.

Projects proposing to disturb more than 20 acres shall:

1. Phase the project such that no more than 20 acres are disturbed at any one time during the project; or
2. Prepare an engineered plan for controlling both sediment and stormwater runoff during the active construction phase. Construction Site Sediment and Stormwater control measures shall be designed to manage the runoff from the 2-YR storm event assuming a bare earth condition. Conveyance measures shall be designed to have adequate capacity for conveyance of flows in a non-erosive manner. Storage practices shall be designed to adequately contain the volume of the design storm event.

Maintenance of Construction Site Stormwater Management BMPs

The person(s) or entity responsible for maintenance of the temporary control measures during the active construction phase shall be clearly identified on the plan.

In cases where shared responsibilities are proposed (co-permittees), the plan shall include a table identifying the person(s) and/or entities responsible for maintenance of the various elements of the construction site stormwater management plan. Refer to the Guidance Document to support the Special Conditions for Storm Water Discharges Associated with Construction Activities for further information regarding co-permittee responsibilities (1.02.2).

Use of Best Available Technology (BAT) to Control Turbid Discharges

Sites that have been identified as problematic due to turbid discharges shall employ increasing levels of Best Available Technology (BAT) until the problem has been rectified. Such measures can include, but are not limited to:

1. Flocculation treatment
2. On-site re-use
3. Mechanical filtering
4. Flow diversion
5. Treatment trains
6. Other practices as approved by the Department

The Department's current policy on employing BAT to control turbid discharges is included as 3.03.1.



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DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL
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Memorandum

DATE: March 24, 2009
TO: All Delegated Agencies
FROM: Randy Greer, Engineer VI
Sediment & Stormwater Program *RKG*
RE: Policy Memo
Employing BAT for Turbid Discharges
CC: Jamie Rutherford, Program Manager
Sediment & Stormwater Program Staff

Dear Delegated Agent,

The Department has received several requests recently for guidance on making recommendations when a turbid discharge condition occurs, even when traditional ESC practices have been implemented in accordance with an approved plan. This policy memo is intended to provide such guidance. It is important to understand that merely implementing an approved plan does not relieve a permittee from his/her obligation under the Federal Clean Water Act to take whatever measures are reasonably necessary to minimize environmental impacts associated with land development and construction activities.

Regulatory Background

Under the Federal Clean Water Act, stormwater runoff from construction activities is classified as an industrial discharge subject to the permitting requirements of the National Pollutant Discharge Elimination System (NPDES). The USEPA has developed a General Permit for these construction activities which is administered in Delaware through 7 Del. C. Chapter 60.

Since numeric effluent limits have not been established for this industrial class, the "Best Available Technology", or BAT, is the standard that is applied at the Federal level for managing stormwater runoff from construction activities. In order to be granted delegation authority for permitting industrial discharges, State regulations must be consistent with the Federal requirements. Part 2 of Section 9 – Special Conditions For Storm Water Discharges Associated With Construction Activities, of the *Regulations Governing the Control of Water Pollution* defines BAT as:

"a level of technology based on the very best (State of the art) control and treatment measures that have been developed or are capable of being developed and that are economically achievable within the appropriate industrial category."

In order to gain coverage under the General Permit program in Delaware, a permittee must have an approved Sediment & Stormwater Plan in accordance with the requirements of 7 Del. C. Chapter 40, and file a Notice of Intent (NOI) prior to any land disturbing activity. Therefore, the requirements under Chapter 60 and Chapter 40 are inextricably linked.

Regulatory Authority for Amending Deficient Plans

Part 2, Section 9.1.02.5.D.1.d Special Conditions For Storm Water Discharges Associated With Construction Activities, of the *Regulations Governing the Control of Water Pollution* requires a permittee to amend a plan whenever:

“The Plan proves to be ineffective in eliminating or significantly minimizing the discharge of pollutants, or in otherwise achieving the general objectives of controlling pollutants in storm water discharges with construction activity;”

In addition, the *Delaware Sediment & Stormwater Regulations*, Section 14.6 states that:

“The appropriate plan approval agency may require a revision to the approved plans as necessary due to differing site conditions.”

It is important to note that a permittee implicitly accepts these conditions if they wish to gain coverage under the General Permit program. If an individual does not wish to abide by any one of the conditions contained in the General Permit, they have the option to apply for an Individual Permit directly with USEPA.

Department Guidance on Addressing Turbid Discharges

It is the Department’s position that unless a site has taken all reasonable measures to employ BAT to reduce turbid discharges, the Sediment & Stormwater Plan must be revised accordingly. Therefore, the following actions should be taken when this situation occurs:

1. The CCR and/or agency site reviewer shall prepare an inspection report documenting the turbid discharge.
2. Whenever possible, the inspection report should be supported with photographic evidence, both on-site and off-site as applicable, of this discharge.
3. The inspection report shall state that the plan must employ BAT to address the turbid discharge condition. This may be addressed initially with appropriate field changes to the plan.
4. If previous attempts to control a turbidity problem through field changes have not been successful, the inspection report shall state that the owner must submit a revised plan to address the turbid discharge condition, along with a reasonable time limit to make such revision.
5. If the plan is not revised within the allowable time frame and continues to discharge turbid water, the site will be considered in violation.

BAT alternatives to be considered include, though are not limited to, flocculent application, on-site re-use, mechanical filtering, flow diversion, etc. While it may be helpful to include a note on the plan regarding use of Best Available Technology as necessary, the responsibility for choosing an appropriate solution lies with the permittee. In some cases, it may require a “treatment train” approach to meet the regulatory requirements. The Department recognizes that it is not reasonable to expect construction activities to have “zero impacts”. However, permittees must also recognize that there are often additional measures that can be taken when an approved plan does not adequately address those impacts.