2783

CHESAPEAKE BAY FOUNDATION
Saving a National Treasure

November 30, 2009

Via email and first class mail

Environmental Quality Board
P.O. Box 8477
Rachel Carson State Office Building, 16th Floor
400 Market Street
Harrisburg PA 17101-2301
regcomments@state.pa.us

RE: Proposed Chapter 102 Regulations

Dear Environmental Quality Board:

On behalf of the Chesapeake Bay Foundation (CBF), we respectfully submit the following comments on the proposed Chapter 102 regulations.

CBF is the largest nonprofit organization dedicated to the protection and restoration of the Chesapeake Bay, its tributaries, and its resources. With the support of over 240,000 members, our staff of scientists, attorneys, educators, and policy experts work to ensure that policy, regulation, and legislation are protective of the quality of the Chesapeake Bay and its watershed.

CBF is a signatory to the comments submitted by the Pennsylvania Campaign for Clean Water, and incorporates by reference those comments. We raise the following additional comments on the proposed rulemaking for your consideration.

1. **An additional subsection should be added to Section 102.4(b)(4) to ensure that disturbance to native topsoil is minimized.**

Section 102.4(b)(4) sets forth the basic standards for planning and implementing earth disturbances under Section 102.4(b). A critical element to minimizing erosion and sedimentation and stormwater runoff is minimizing the disturbance of native soils. To ensure this practice is employed in design, planning, and implementing earth disturbance projects, a Section 102.4(b)(4)(vi) should be added stating "Minimize native topsoil disturbance."

2. Add an additional requirement in Section 102.4(b)(5) for Erosion and Sedimentation Control (E&S) Plan drawings to include specific natural features.

Perhaps the greatest key to ensuring that development projects are designed and constructed in a manner that is protective of rivers and streams is to carefully limit disturbance of natural features that provide good natural stormwater management and incorporate them into the site design and stormwater management controls. Thus the E&S Plan should requiring detailed drawings and narrative describing all natural features, particularly those important for managing stormwater. The regulation should list natural features with specificity to ensure each plan contains them. For example:

> *The E&S Plan must contain drawings and narrative which describe the following:*
>
> . . .
>
> *Natural features, including but not limited to:*
>
> - *Location and dominant species of significant vegetation patches, including tree stands, meadows, and riparian buffers*
> - *Soil type and structure*
> - *Prime farmland, unique farmland, or farmland of statewide importance. Locations of prime farmland soils, unique soils, and/or soils of statewide importance*
> - *Locations of undisturbed and previously disturbed soils*
> - *Direction of overland water flow on-site, predevelopment*
> - *Locations of water resources*
> - *Assessment and regulatory status of onsite waterbodies (i.e., unassessed, unimpaired, impaired) and designated uses protected (e.g., WWF, CWF, HQ, EV)*
> - *Locations for all laydown and storage areas, haul roads and construction vehicle access, temporary utilities and construction trailers, and parking*
> - *Describe how areas of all soils will be protected from compaction (e.g., vehicle traffic or storage)*

- *Describe treatment details for soils requiring organic matter restoration, including the type, source, and expected volume of materials (e.g., compost amendments, mulch, topsoil, etc.) where applicable*

- *Outline the footprint of construction buildings, parking, storage areas, and roads*

3. A requirement to inspect best management practices (BMPs) before predictable storm events should be added to the BMP maintenance program required by Section 102.4(b)(5)(x).

While the requirements to inspect BMPs after storm events and repair malfunctioning BMPs is good, this provision does not necessarily ensure that BMPs are functioning appropriately prior to predicted rainfall events. If BMPs are failing onsite, it is of little ecological significance to require the inspection of BMPs after the fact. This provision should be expanded to require visual inspection of E&S BMPs one (1) business day prior to a predicted storm events reasonably expected to generate runoff.

In addition, the current language does not define the required timeframe in which inspection must occur after rain events. Importantly, it does not require the permit holder to report noncompliance findings to DEP or the conservation districts. Similar requirements are contained in the State of Washington's construction stormwater general permit.[1] To that end, we recommend adding the following requirement:

> *In the instance where E&S BMPs have failed, the permittee must report noncompliance findings to DEP or the conservation districts within one (1) business day.*

4. Narrative and numeric turbidity limits must be included as discharge limits for earth disturbances under Section 102.4(b).

The regulations as proposed do not contain any quantitative standards to controlling sediment pollution from construction sites. Rather, they merely require the "implementation and maintenance E&S BMPs are required to minimize the potential for accelerated erosion and sedimentation." In addition, the PADEP Erosion and Sediment Pollution Control Manual (No. 363-2134-008), referenced within the regulations, is not designed to meet quantitative discharge standards or

---

[1] Washington State: www.ecy.wa.gov/pubs/9937.pdf. For a description of the effectiveness of the State of Washington's contractor inspection and 24 hour response time requirements see: "Evaluation of Washington's Construction Stormwater General Permit prepared by EnviroVision Corp., February, 2007.

requirements. Rather, it lists *possible* BMPs, together with their precise specifications and application methodologies. No performance standards or objectives are prescribed. No preferences or requirements or even evaluative, step-wise processes for choosing among BMPs are set. The manual is merely a laundry list of BMPs that the Commonwealth recognizes as potentially useful in a variety of settings.

On November 23, 2009, the U.S. Environmental Protection Agency finalized Effluent Limitation Guidelines that include numeric turbidity limits for construction sites expressed in Nephelometric Turbidity Units (NTUs).[2] At a minimum, the Chapter 102 regulations must include the numeric and other effluent limit standards as set forth in the federal rule.

As a general rule of law, state environmental regulations must at a minimum be as protective as federal regulations, but may provide more stringent standards if necessary to protect the environment. We believe that the following additional regulations must be added to ensure that effluent limits for construction activities are protective of receiving water bodies.

First, the regulations should require a "no visible off-site discharge" standard as a first line of defense for all construction sites returning an NDPES permit. Such a visually based requirement is easy to use by citizens, inspectors, and contractors.

Second, numeric turbidity standards for construction activities that are more stringent than the federal rule should be required. Research has shown that it is entirely possible to reach turbidity limits of 25-75 NTUs using well-designed, well-installed, and well-maintained E&S BMPs. The numeric turbidity standards applicable to all sites should be established with this range in mind.

In addition, more stringent numeric turbidity standards should be required for construction activities in impaired watersheds, including the Chesapeake Bay watershed. There is a well understood correlation between prevention of turbidity/sedimentation and prevention of phosphorus entering Pennsylvania streams and the Chesapeake Bay. Phosphorus is often found bound to soil particles and is transported via sediment-laden discharges from construction sites, among other sources. A significant reduction in sediment/turbidity is therefore crucial to the prevention of phosphorus induced pollution. In short, turbidity limits serve as an important and quantifiable means for measuring whether construction sites are contributing to local and regional water quality impairment and degradation.

---

[2] Nephelometric Turbidity Units (NTU) are an accepted method of measuring the impact of construction sediments on instream resources. See extended discussion of the impact of turbidity and typical construction turbidity levels in *Watershed Protection Techniques*, Center for Watershed Protection, 2(3):393-444. Other general construction permits now contain some iteration of turbidity limits, including those for North Caroline, Georgia, the State of Washington, Vermont, Oregon, and California. See USEPA collation on the use of NTU by the states at: http://www.epa.gov/waterscience/criteria/sediment/appendix3.pdf.

Accordingly, we recommend the following numeric turbidity standards for all regulated construction activities under Chapter 102:

- 150 NTU as an instantaneous maximum limit for rainfall events of less than 1 inch for all regulated sites.
- 50 NTU as a monthly average limit for all regulated sites not in impaired watersheds.
- 13 NTU as a monthly average limit for all regulated sites in impaired watersheds, including all sites in the Chesapeake Bay watershed.

If these limits are exceeded, a detailed assessment of site conditions and remedial actions along with enforcement should be imposed.

5. **The acreage threshold for permitting requirements for timber harvesting and road maintenance activities should be revised from 25 acres to 5 acres.**

Timber harvesting and road maintenance activities of 25 acres can result in significant amounts of earth disturbance and potential for erosion and stormwater runoff. As an example, assuming a 12 foot width road and the 25 acre threshold, this means that only projects which disturb an excess of 17.2 miles in length will be required to obtain a permit. The threshold should be revised to be 5 acres or greater, so that regulation of these projects is captured and consistency with other regulated sectors is achieved.

6. **More than 7 days notice prior to commencement of construction is necessary to allow for the preconstruction meeting required under Section 102.5(e).**

While we believe that requiring a preconstruction meeting is a good idea, the minimum 7 day notice requirement is too short. Given current conservation district and DEP staffing concerns and the workload of E&S and stormwater program staff, it is unreasonable to assume a meeting can be scheduled and familiarity with the plans can occur within such a timeframe. A 10 business day minimum is more realistic; 15 days is reasonable and appropriate.

7. **Add an additional requirement in Section 102.8(f) for post-construction stormwater management (PCSM) Plan drawings to include specific natural features.**

As discussed in comment 2 above, it is of critical importance to carefully limit disturbance of natural features that provide good natural stormwater management and incorporated them into site design. The same list of specific natural features that must be included in E&S Plans should also be incorporated into PCSM Plans.

Thus Section 102.8(f) should be revised to ensure that PCSM Plans and drawings include the same list of specific natural features as suggested in comment 2 above.

8. **The volume control standards set forth in Section 102.8(g) should be complemented with clear standards that require the mimicking of predevelopment hydrology.**

The proposed regulations incorporate Control Guideline 1 (CG-1) from DEP's Stormwater BMP Manual for controlling volume (manage the net change for storms up to and including the 2-year/24-hour storm event when compared to preconstruction runoff volume). However, the 2-year/24-hour volume control standard alone will not ensure protection of receiving streams, particularly as it relates to pollutant load of the runoff and stream bank and channel protection of receiving streams. Application of this standard can and has resulted in conventional development proposing large infiltration basins or other centralized stormwater management BMPs, which can result in over infiltration of stormwater and continued point source concentration and release of flows, to the detriment of receiving streams. The concentration of flows results in continued pollutant loads from the developed landscape and additional load of sediment being released from stream banks downstream from concentrated point sources of stormwater runoff.

In order to achieve protection of rivers and streams from stormwater runoff, the Chapter 102 regulations must require developers to implement true low impact development (LID). Thus the volume control standards must be complemented by a requirement that all regulated development projects be carried out in a manner so as to mimic the predevelopment hydrology on the site. Further, the regulations should mandate the use of the LID (environmental site design) process throughout all phases of the project, from site selection and planning to design to implementation, so that stormwater runoff is minimized through limiting disturbance and where created it is managed and treated at the source.

9. **Post-construction requirements should also include a requirement of no net increase in pollutants from development proposed in impaired watersheds.**

As described in more detail in the Pennsylvania Campaign for Clean Water comments to which we are a signatory, the federal Clean Water Act requires that DEP not issue permits for new discharges in impaired watersheds that cause or contribute to the impairment and, for watersheds where Total Maximum Daily Loads (TMDLs) have been approved, NPDES permits are consistent with the waste load allocations (WLAs) set forth in the TMDL.

To be consistent with these federal law requirements, Chapter 102 must establish as a PCSM standard in Section 102.8 that construction activities in impaired watersheds

shall achieve no net increase in discharge of pollutants, unless the increase is consistent with a WLA for future growth as provided within an approved TMDL.

10. Additional post-construction stormwater management requirements should be added to Section 102.8 in order to minimize pollution from development sites.

The following additional requirements should be added to Section 102.8 to ensure that development proceeds in a manner that is protective of the Commonwealth's rivers and streams.[3]

a. Minimize site disturbance in design and construction.

On all areas of previously undisturbed soils or soils with minimal soil disturbance as identified in the site assessment map, disturbance should be limited to the following:

- 40 feet beyond final building perimeter
- 10 feet beyond surface walkways, patios, surface parking, and utilities less than 12 inches in diameter
- 15 feet beyond primary roadway curbs and main utility branch trenches
- 25 feet beyond constructed areas with permeable surfaces (such as pervious paving areas, stormwater detention facilities, and playing fields) that requires additional staging areas in order to limit compaction in the constructed area.
- Designate the remaining previously undisturbed area on site as *vegetation and soil protection zones.*
- Soils with minimal disturbance must be restored to meet minimum organic matter content requirements but need not be included within vegetation and soil protection zones.

Vegetation and soil protection zones (VSPZ) must meet the following requirements:

- Construction impacts from overall site development shall not decrease the capacity of the VSPZ to support the desired vegetation. For example, construction activities outside of the VSPZ should not change drainage patterns and microclimate effects within the VSPZ.
- VSPZ shall be protected with a fence or other physical barrier that cannot be easily moved that protects the zones during construction from equipment parking and traffic, storage of materials, and other construction activities.
- All construction and maintenance personnel shall be educated about the locations and protective measures of the VSPZ.

---

[3] The soil preservation and amendment requirements discussed below are taken from the Sustainable Sites Initiative standards finalized this year. This document provides an excellent guide to proper stormwater management standards based on low impact development goals and objectives. See Sustainable Sites Initiative. 2009. *The Sustainable Sites Initiative: Guidelines and Performance Benchmarks 2009.* American Society of Landscape Architects, the Lady Bird Johnson Wildflower Center, and the United States Botanic Garden.

- VSPZ boundaries for trees shall extend out from the trunk, to a distance of 2 feet radius (measured at ground level) per inch of diameter at breast height (DBH) or the full lateral extent of the actual root system as determined by ground penetrating radar.
- VSPZ boundaries for shrubs shall extend out from the stem to twice the radius of the shrub. VSPZ boundaries for herbaceous vegetation shall extend to encompass the diameter of the plant.

To demonstrate that the designated site disturbance boundaries are not exceeded for areas of previously undisturbed soils and soils of minimal disturbance, the regulations should require the permittee to provide a copy of the construction drawings along with information on the site's baseline conditions including information from the site assessment. The extent of all VSPZs should be shown on the drawings. The permittee should also provide a narrative to describe how VSPZs will be preserved during construction (e.g., fence or other physical barrier that cannot be easily moved) and describe efforts to educate all construction personnel about the location and protective measures of the protective zones.

b. Preserve all soils and vegetation designated as special status

The regulations should include requirements to protect soils designated by the U.S. Department of Agriculture's Natural Resources Conservation Service (NRCS) as prime farmland, unique farmland, or farmland of statewide importance to conserve for future generations the most productive farmland in the United States.

The following requirements for sites with healthy soils and soils with minimal soil disturbance as identified in the site assessment should be added:

- No soils defined by the NRCS as prime farmland, unique farmland, or farmland of statewide importance shall be stripped from an off-site location for importation to the site.
- At least 95 percent of all prime farmland, unique farmland, or farmland of statewide importance on a site must be designated as a *vegetation and soil protection zone (VSPZ).*

The regulations should further require the following documentation as part of the plan submission requirements:

Provide site plans showing the location of any on-site soils that have been designated by NRCS as prime farmland, unique farmland, or farmland of statewide importance and the location of new development. Indicate the extent of all vegetation and soil protection zones to demonstrate that at least 95 percent of the total surface area of these soils is protected. Provide a narrative to describe how vegetation and soil protection zones will be preserved during construction (e.g., fence or other physical barrier that cannot be easily moved) and describe efforts to educate all construction personnel about the location and protective measures of the protective zones.

Provide a copy of the section of the site maintenance plan that describes the on-going management activities to protect the integrity of the vegetation and soil protection zones. For any imported soil, provide documentation indicating the source location of the soil and proof the soil is not designated as prime farmland, unique farmland, or farmland of statewide importance.

c. Restore soils disturbed during construction

The regulations should require amendment of 100 percent of the soils disturbed during construction with a mature, stable compost material such that the top 12 inches of soil (at a minimum) contain at least 3 percent organic matter or organic matter levels and organic matter depth are comparable to the site's reference soil. The use of sphagnum peat or organic amendments that contain sphagnum peat is prohibited.

Compost utilized for soil restoration should meet or exceed:

- A carbon to nitrogen ratio no greater than 25:1; however, higher C:N ratios may be acceptable if specified by a qualified professional to be more appropriate for the type of vegetation to be established.
- U.S. EPA in the 40 CFR Part 503 Biosolids Rule, section 503.13 table 3 "Pollutant Concentrations," or any applicable state or local regulations.
- No detectable weed seeds or invasive plant propagules.

These requirements should apply to all soil areas that are disturbed or compacted during construction, except in areas of prime farmland, unique farmland, or farmland of statewide importance which require a VSPZ.

The following documentation should be required to be submitted to demonstrate compliance soil amendment requirements:

Provide site plans indicating the full extent of planned disturbed area, including pre-development soil type, texture, and organic matter.

Upon NOT, provide documentation (such as receipts from soil/compost/amendments supplier) to demonstrate that techniques to restore soil occurred. Provide soil test results to demonstrate appropriate levels of organic matter have been achieved.

Acceptable test methods for determining soil organic matter include the most current version of ASTM D2974 Test Methods for Moisture, Ash, and Organic Matter of Peat and Other Organic Soils and TMECC 05.07A Loss-On-Ignition Organic Matter Method.

d. Restore soils disturbed by previous development

The following requirements should be added for soils that have been disturbed by previous development. For previous development sites that will be re-vegetated in whole or part, amend 80 percent of the surface area previously disturbed during with a mature, stable compost material such that the top 12 inches of soil (at a minimum) contain at least 3 percent organic matter or organic matter levels and organic matter depth are comparable to the site's reference soil. The use of sphagnum peat or organic amendments that contain sphagnum peat is prohibited.

As required documentation:

Provide information on the site's baseline conditions to show the total surface area of soils disturbed by previous development that will be re-vegetated (i.e., areas without buildings and paved areas) and

Upon NOT, provide documentation (such as receipts from soil/compost/amendments supplier) to demonstrate that techniques to restore soil occurred. Provide soil test results to demonstrate appropriate levels of organic matter have been achieved.

Acceptable test methods for determining soil organic matter include the most current version of ASTM D2974 Test Methods for Moisture, Ash, and Organic Matter of Peat and Other Organic Soils and TMECC 05.07A Loss-On-Ignition Organic Matter Method.

The requirements apply to all soil areas that are disturbed or compacted during construction, except in areas of prime farmland, unique farmland, or farmland of statewide importance which require a VSPZ.

11. Section 102.11 should require the use of baffles in sedimentation basins and chemical flocculants as mandatory E&S BMPs.

Several E&S BMPs are so proven in their effectiveness to minimize sediment runoff that they should be required on every site. First, for those sites that require sedimentation basins, the regulations should require all such basins to employ either solid or porous baffles. Baffles lengthen the flow path of sediment-laden runoff captured in the basin, which can significantly increase the basins effectiveness at removing total suspended solids. [4]

Second, the regulations should require all sites to use of chemical flocculants to reduce turbidity, such as polyacrylamide, gypsum, or alum. Flocculants have been shown to be effective at removing small soil colloids from stormwater runoff when

---

[4] McLaughlin, Richard. 2005. *SoilFacts: Using Baffles to Improve Sediment Basins.* AGW-439-059. North Carolina Cooperative Extension.

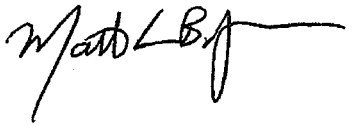
applied directly into sediment basins after each rain or incorporated into geotextile materials and coconut fiber. These chemicals have demonstrated no aquatic or sediment toxicity when applied in appropriate amounts.[5]

12. Units should be consistent throughout the document

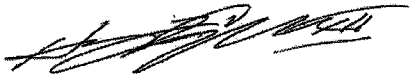
Finally, units should be used consistently throughout the document. For instance, Section 102.1's definition of NPDES Permit for Stormwater Discharges Associated with Construction Activities uses acres and hectares, while Section 102.4(b)(1) uses square feet and square meters.

Thank you for the opportunity to submit these comments.

Respectfully Submitted,



Matthew Royer
PA Staff Attorney



Harry Campbell
PA Science Advocate

cc: John Hines
Ken Murin
Meg Murphy

[5] McLaughlin, Richard. 2006. SoilFacts: Using Polyacrylamide (PAM) to Reduce Erosion on Construction Sites. AG-439-61. North Carolina Cooperative Extension.

2783

Chambers, Laura M.

From: Matthew Royer [MRoyer@cbf.org]
Sent: Monday, November 30, 2009 3:47 PM
To: EP, RegComments
Cc: Hines, John; Murphy, Margaret O; Murin, Kenneth
Subject: Chapter 102 Comments

Dear Environmental Quality Board:

Attached are the Chesapeake Bay Foundation's comments on the above referenced proposed regulation. CBF also joins in the comments submitted by the Pennsylvania Campaign for Clean Water, which will be transmitted to you separately.

Thank you for your attention to this matter and the opportunity to provide these comments.

Sincerely,

Matt Royer
Pennsylvania Attorney
Chesapeake Bay Foundation
The Old Waterworks Building
614 North Front Street, Suite G
Harrisburg, Pennsylvania 17101
phone: (717) 234-5550 ext. 207
fax: (717) 234-9632
mroyer@cbf.org
www.cbf.org