Pennsylvania Department of Transportation

Comments on the Draft Indian Creek Existing Sediment Loads Report

August 25, 2017

1. MS4s should be allocated sediment loads only from land uses in areas over which their operators exercise regulatory authority. Under Pennsylvania’s common enemy rule, landowners have a legal right to reasonably discharge stormwater through natural channels. This means that MS4 operators cannot always prevent upstream property owners from discharging stormwater into their MS4s. If the upstream property is outside the MS4 operator’s regulatory authority, the MS4 operator may have no means of limiting that property’s sediment load to the MS4. The solution is to allocate sediment loads based on regulatory authority boundaries (i.e., political boundaries) rather than sewershed boundaries. Under this approach, PennDOT would be allocated land uses within the state highway right-of-way regardless of whether that portion of highway discharges stormwater to the highway MS4 or to a local MS4. The local municipality, however, would be allocated land uses outside the highway right-of-way, even if those properties discharge stormwater to the highway MS4. This also solves the absence of sewershed boundary information.
2. PennDOT recommends that EPA consider scientific study of the Indian Creek watershed to establish the TMDL instead of relying upon a reference watershed approach. A scientific study of the sediment level actually necessary to achieve the standard would make the resulting TMDL much stronger and more legally defensible. The referenced watershed approach is a useful tool for establishing levels sufficient to implement applicable water quality standards, but it does not provide a scientific basis for establishing the level necessary to implement the standards.
3. PennDOT recommends that EPA reconsider the use of Birch Run as a reference watershed for establishing the Indian Creek TMDL. EPA’s selection of Birch Run will make this TMDL vulnerable to legal challenge. Section 303(d)(1)(C) of the Clean Water Act requires EPA to establish the TMDL at a “a level necessary to implement the applicable water quality standards with seasonal variations and a margin of safety which takes into account any lack of knowledge concerning the relationship between effluent limitations and water quality.” 33 U.S.C. §1313(d)(1)(C) (emphasis added.) Birch Run is classified as an exceptional value water. See Preliminary Draft Existing Loads Report, at p. 11. See also 225 Pa. Code 93.9f (Drainage List F). This means that DEP has determined that Birch Run’s water quality exceeds the levels necessary to support propagation of fish, shellfish, and wildlife and recreation on the water. See 25 Pa. Code §93.1 (defining “exceptional value waters” and “high quality waters”) and §93.4b (explaining that, to qualify as an exceptional value water, a stream must qualify as a high quality water). A TMDL established by reference to such a watershed arguably fails to comply with Section 303(d)(1)(C); the TMDL will be stricter than necessary to implement the applicable water quality standards. The selection of Birch Run also greatly reduces the prospects of an amicable resolution. Amicable resolution will be difficult regardless, but the task will be far more difficult if EPA attempts to force stakeholders to reduce sediment to exceptional value levels.
4. If EPA continues to rely on Birch Run as a reference watershed, then EPA should not add an explicit margin of safety to the resulting TMDL. The selection of an exceptional value water as the reference watershed would incorporate an implicit margin of safety.
5. PennDOT’s review of the draft report raised several questions about the data acquisition and science behind the Indian Creek sediment model . PennDOT offers the following recommendations to address these questions.
   1. The MRLC/NLCD land data was not deemed adequate for the Indian Creek watershed, and instead a data layer provided by Franconia Township was used and extrapolated over the entire Indian Creek watershed. The report should discuss efforts by EPA to find land use data from the other municipalities in the watershed. The report should also discuss the source of land use data for the Birch Run watershed and validation of the data as a good fit.
   2. The year the dam was built on Indian Creek should be reported to be sure that the influence of dam building activities is not present in data used for calibration.
   3. The two weather stations, Sellersville and Graterford, are not located in a reasonable proximity to the Birch Run watershed. Sellersville was selected as the primary source and supplemented with data from the Graterford weather station. EPA should do a comparison of data from both sites to verify that the Graterford station is an adequate substitute for Sellersville station and that the data set is representative of the Indian Creek watershed.
   4. The sediment model uses Generalized Watershed Loading Functions, which are known to be very sensitive to certain input parameters and can provide vastly different results when used with different reference watersheds. Stream gages used for calibration of the Indian Creek and Birch Run watersheds include other contributing streams such that the resulting sediment model may not be descriptive of the watershed of interest. The sediment model has a calibration period and no verification period; both calibration and verification steps are necessary for model acceptance. Calibration factors such as evaporation cover coefficients provide the opposite of the expected trend, and December through February evaporation cover coefficients are higher than any recommended values for Birch Run. EPA should conduct further verification to address suspect calibration factors in the model.
6. EPA should account for the beneficial effects of Pennsylvania’s “20% meadow rule” when calculating future sediment loads. The 20% meadow rule is a minimum criterion of the PCSM Plan stormwater analysis required for NPDES stormwater construction permits. The rule states: “When the existing project site contains impervious area, 20% of the existing impervious area to be disturbed must be considered meadow in good condition or better, except for repair, reconstruction or restoration of roadways or rail lines, or construction, repair, reconstruction, or restoration of utility infrastructure when the site will be returned to existing condition” - 25 Pa. Code §102.8(g)(2)(ii). Over time, as future redevelopment occurs, this rule will reduce untreated impervious surfaces in the watershed and, thereby, reduce sediment loading to and generated within Indian Creek.
7. PennDOT recommends that EPA add a discussion of expected sediment reductions from the agriculture sector to the report. Although only 27.1 percent of the watershed, agricultural land uses account for 57.1 percent of the existing sediment load. See Preliminary Draft Existing Loads Report, at pp. 4, 35. Both DEP and the Pennsylvania Department of Agriculture have programs designed to control or reduce sediment discharge from agriculture. The report should discuss reductions expected from those programs, and other expected load reductions from the agricultural sector, so that EPA can account for them when establishing the TMDL.