

Technical Memorandum

Point Sources of Sediment in the Non-Tidal Upper Chester River Watershed

The U.S. Environmental Protection Agency (USEPA) requires that Total Maximum Daily Load (TMDL) allocations account for all sources of each impairing pollutant (CFR 2012). This technical memorandum identifies the point sources of sediment in the Maryland 8-Digit (MD 021300510) Upper Chester River watershed. Detailed allocations are provided for those point sources included within the Upper Chester River Wastewater Wasteload Allocation (WLA) and National Pollutant Discharge Elimination System (NPDES) Stormwater WLA. The State reserves the right to allocate the TMDLs among different sources in any manner that is reasonably calculated to protect aquatic life from sediment related impacts.

The Upper Chester River Watershed sediment TMDL is presented in terms of an average annual load established to ensure the support of aquatic life. WLAs have been calculated for NPDES regulated individual municipal permits, general mining permits, and the general permit for stormwater discharges from construction sites in the Upper Chester River watershed. The permits can be grouped into two categories, wastewater and stormwater.

The wastewater category includes those loads generated by continuous discharge sources whose permits have total suspended solids (TSS) limits (i.e., contributors to the watershed sediment load). Wastewater permits that do not meet these conditions are considered *de minimis* in terms of the total watershed sediment load. There is one municipal wastewater facility within the Upper Chester River watershed that has TSS limits in its permits. The WLA for the wastewater permit is calculated based on their TSS limit and corresponding flow information (See Sections 2.2.2 and 4.6 of the main report for further details).

The stormwater category in the Upper Chester River watershed includes only general Phase II stormwater permits. NPDES regulated Phase II stormwater permits in this watershed include a general mining permit and general construction permits.¹ This aggregate WLA is referred to as the “Other NPDES regulated stormwater” WLA. These stormwater permits are regulated based on Best Management Practices (BMPs) and do not include TSS limits. In the absence of TSS limits, the baseline loads for these NPDES regulated stormwater discharges are calculated using the nonpoint source loads from the urban land use within the watershed. The associated WLAs are calculated by applying reductions to the urban land use loads. These calculations are described in more detail below.

In order to use a reference watershed approach for this TMDL, sediment loads are estimated using a watershed model. The watershed model chosen for the non-tidal Upper Chester River

¹ The MDE MS4 general discharge permit for small municipalities (NPDES #MDR055500) is in the process of being reissued. Queen Anne’s County will be included in the new permit, but there are no acres in the Upper Chester River Watershed that will be impacted. Kent County will not be included in the new permit.

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Sediment TMDL was the Chesapeake Bay Program Phase 5.3.2 (CBP P5.3.2) watershed model 2009 Progress Scenario *edge-of-stream* (EOS) sediment loads. Within this TMDL, the NPDES regulated stormwater baseline sediment loads are represented by the urban land-use EOS loads associated with the NPDES stormwater permits within the watershed. Urban land-use EOS loads are calculated within the CBP P5.3.2 watershed model as a product of the land use area, land use target *edge-of-field* (EOF) loading rate, and loss from the EOF to the main channel (i.e., sediment delivery factor). BMP data and reduction efficiencies are then subsequently applied to calculate the final EOS loads (USEPA 2010b). Further details regarding general nonpoint source sediment load calculations can be found in Section 2.2.1 of the main report.

In order to calculate the NPDES stormwater WLA, MDE further refined the CBP P5.3.2 urban land-use. For any given watershed, the refined CBP P5.3.2 land-use contains the specific level of detail needed to determine individual WLAs for Phase I jurisdictional MS4s, the State Highway Administration (SHA) Phase I MS4, and Phase II jurisdictional MS4s, and an aggregate WLA for “Other NPDES Regulated Stormwater” entities. The methods used by MDE to refine the CBP P5.3.2 urban land-use are described within MDE’s documentation, *CBP P5.3.2 Land-Use and MDE Urban Source Sector Delineation - Development Methodology* (MDE 2011).

Table 1 identifies the individual wastewater facilities that contribute to the watershed sediment load and provides the aggregate baseline load and allocation assigned to these facilities. Table 2 identifies all of the applicable NPDES stormwater permits in the Upper Chester River watershed. Table 3 provides the distribution of the NPDES Regulated Stormwater WLA in the Upper Chester River watershed amongst the permits identified in Table 2. There are no wastewater or stormwater permits in the Delaware Chester River.

Table 1: Upper Chester River Sediment TMDL Wastewater Point Source WLAs

Facility Name	NPDES #	Permit Type	Baseline Load (ton/yr)	WLA (ton/yr)	Reduction (%)	MDL (ton/day)
Sudlersville WWTP	MD0020559	Municipal	10	10	0	0.1

Table 2: Upper Chester River Watershed NPDES Stormwater Permits

NPDES Permit #	Facility Name	NPDES Regulated Stormwater WLA Sector
MDG498073	Massey Pit	Other NPDES Regulated Stormwater
MDRC	MDE General Permit to Construct	Other NPDES Regulated Stormwater

Table 3: Upper Chester River Sediment TMDL Allocations for NPDES Regulated Stormwater WLAs

NPDES Regulated Stormwater Sector	NPDES #	Baseline Load (ton/yr)	WLA (ton/year)	Reduction (%)	MDL (ton/day)
"Other NPDES Regulated Stormwater"	N/A	15	15	0	0.1

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REFERENCES

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