

## Technical Memorandum

### *Point Sources of Sediment in the Non-Tidal Marsh Run 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 02140503) Marsh Run watershed. Detailed allocations are provided for those point sources included within the Marsh Run 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 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 are no wastewater facilities within the Marsh Run watershed that have TSS limits in their permits.

NPDES 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. The stormwater category in the Marsh Run watershed includes Phase I and Phase II MS4 permits as well as “Other NPDES Regulated Stormwater”. Other NPDES Regulated Stormwater permits include general stormwater discharges from industrial facilities and construction sites. All permits included in the WLA calculations are listed in Table 1.

Sediment WLAs are estimated using a watershed model. The watershed model chosen for the non-tidal Marsh Run 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

**FINAL**

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 all of the applicable NPDES stormwater permits in the Marsh Run watershed. Table 2 provides the distribution of the NPDES Regulated Stormwater WLA in the Marsh Run watershed amongst the permits identified in Table 1.

**Table 1: Marsh Run Watershed NPDES Stormwater Permits**

<b>NPDES Permit #</b>	<b>Facility Name</b>	<b>NPDES Regulated Stormwater WLA Sector</b>
MDR055500	Washington County	County Phase II MS4
MD0068276	State Highway Administration	SHA Phase I MS4
MDR055500	Hagerstown	Municipal Phase II MS4
MDR055501	State and Federal Phase II MS4	State and Federal Phase II MS4
MDR002498	C. William Hetzer, Inc	Other NPDES Regulated Stormwater
MDRC	MDE General Permit to Construct	Other NPDES Regulated Stormwater

**Table 2: Marsh Run Sediment TMDL Allocations for NPDES Regulated Stormwater WLAs**

<b>NPDES Regulated Stormwater Sector</b>	<b>NPDES #</b>	<b>Baseline Load (ton/yr)</b>	<b>WLA (ton/year)</b>	<b>Reduction (%)</b>	<b>MDL (ton/day)</b>
Washington County Phase II MS4	MDR055500	779	316	59	0.30
State Highway Administration Phase I MS4	MD0068276	180	74	59	0.11
Hagerstown Municipal Phase II MS4	MDR055500	343	136	60	0.07
State and Federal Phase II MS4	MDR055501	33	13	61	0.01
“Other NPDES Regulated Stormwater”	N/A	9	9	0	0.01
<b>TOTAL</b>		<b>1,344</b>	<b>548</b>	<b>59</b>	<b>0.5</b>

## FINAL

## REFERENCES

Baldwin, A. H., S. E. Weammert, and T. W. Simpson. 2007. *Pollutant Load Reductions from 1985-2002*. College Park, MD: Mid Atlantic Water Program.

CFR (Code of Federal Regulations). 2012. *40 CFR 130.2(i)*.  
[http://edocket.access.gpo.gov/cfr\\_2011/julqtr/40cfr130.2.htm](http://edocket.access.gpo.gov/cfr_2011/julqtr/40cfr130.2.htm) (Accessed April, 2012).

MDE (Maryland Department of the Environment). 2011. *CBP P5.3.2 Land-Use and MDE Urban Source Sector Delineation - Development Methodology*. Baltimore, MD: Maryland Department of the Environment.

\_\_\_\_\_. 2009. *Maryland's NPDES Municipal Stormwater Permits – Phase I*.  
[http://www.mde.state.md.us/Programs/WaterPrograms/SedimentandStormwater/storm\\_gen\\_permit.asp](http://www.mde.state.md.us/Programs/WaterPrograms/SedimentandStormwater/storm_gen_permit.asp) (Accessed December, 2009).

USEPA (U.S. Environmental Protection Agency). 2010a. *Chesapeake Bay Total Maximum Daily Load for Nitrogen, Phosphorus, and Sediment*. Annapolis, MD: U.S. Environmental Protection Agency, Chesapeake Bay Program Office. Also available:  
<https://www.epa.gov/chesapeake-bay-tmdl/chesapeake-bay-tmdl-document>

\_\_\_\_\_. 2010b. *Chesapeake Bay Phase 5.3 Community Watershed Model*. Annapolis, MD: U.S. Environmental Protection Agency, Chesapeake Bay Program Office. Also available at  
[http://www.chesapeakebay.net/what/programs/modeling/phase\\_5.3\\_watershed\\_model](http://www.chesapeakebay.net/what/programs/modeling/phase_5.3_watershed_model)