

# Technical Memorandum

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## *Significant Nutrient Point Sources in the Swan Creek Watershed*

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EPA requires that Total Maximum Daily Load (TMDL) allocations account for all significant sources of the impairing pollutant or pollutants. The TMDL analysis for Swan Creek addresses the total nitrogen (TN) and total phosphorus (TP) loads during the low-flow conditions (May – October) and average annual flow conditions. This technical memorandum identifies, in detail, the significant surface water discharges of TN & TP used as modeling input when computing the TMDL. Maryland Department of the Environment (MDE) expressly reserves the right to allocate the loads among different sources in any manner that is reasonably calculated to achieve water quality standards.

There are two point sources contributing nutrient loads to the Swan Creek, the **City of Aberdeen Wastewater Treatment Plant (WWTP)** and the **Swan Harbour Dell WWTP**. Waste load allocations have been made to these two sources based on their approved water and sewerage plan discharge flow. Table 1 and Table 2 below provide the allocation of the nutrients - nitrogen and phosphorus - attributed to the point sources in the Swan Creek during the Swan Creek Eutrophication Model (SCEM) simulation for low flow and average annual flow conditions.

**Table 1**  
**Loads Attributed to Significant Point Sources Used to Compute the Low-Flow TMDL (May – October)**

TMDL\*

<i>Point Source Name</i>	<i>Permit Number</i>	<i>Nutrient Loads (lbs/month)</i>		<i>Flow (MGD)</i>	<i>Concentration (mg/l)</i>	
		<b>TN</b>	<b>TP</b>		<b>TN</b>	<b>TP</b>
City of Aberdeen	MD0021563	10,027	652	4.0	10	0.65
Swan Harbour Dell	MD0023043	314	75	0.05	25	6

\* With 40% nonpoint source nitrogen and phosphorus reduction.

**Table 2**  
**Loads Attributed to Significant Point Sources Used to Compute the Average Annual Flow TMDL**

TMDL

<i>Point Source Name</i>	<i>Permit Number</i>	<i>Nutrient Loads (lbs/year)</i>		<i>Flow (MGD)</i>	<i>Concentration (mg/l)</i>	
		<b>TN</b>	<b>TP</b>		<b>TN</b>	<b>TP</b>
City of Aberdeen	MD0021563	120,324	7,820	4.0	10	0.65
Swan Harbour Dell	MD0023043	3,768	904	0.05	25	6

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The nutrient limits for point sources, reflected in the TMDL analysis, are designed to protect local water quality. It is likely, however, that future Chesapeake Bay Agreement nutrient reduction goals will entail more ambitious point source nutrient limits to protect the water quality of the bay. Non point sources were estimated on the basis of observed in-stream data (low flow condition) and 10 years average of regional nutrient loading data provided by EPA Chesapeake Bay Program (average annual flow condition). The nonpoint source loads used in the model account for both “natural” and human-induced components.