

## Technical Memorandum

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### ***Significant Phosphorus and Sediment Point Sources in the Prettyboy and Loch Raven Reservoir Watersheds***

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The U.S. Environmental Protection Agency requires that Total Maximum Daily Load (TMDL) allocations account for all significant sources of each impairing pollutant. This technical memorandum identifies, in detail, the significant surface water discharges of phosphorus (TP) in the Prettyboy and Loch Raven Reservoir watersheds and sediment in the Loch Raven Reservoir watershed used in computing the TMDLs. The Maryland Department of the Environment (MDE) expressly reserves the right to allocate the TMDLs among different sources in any manner that is reasonably calculated to achieve water quality standards.

Waste load allocations have been made to NPDES-regulated wastewater treatment plants (WWTP), municipal separate stormwater dischargers (MS4), and other regulated dischargers in the Prettyboy and Loch Raven Reservoir watersheds. The Manchester WWTP is the only wastewater treatment plant contributing phosphorus loads in the Prettyboy Reservoir watershed and Hampstead WWTP is the only wastewater treatment plant contributing phosphorus in the Loch Raven Reservoir watershed. It also contributes sediment to the Loch Raven Reservoir watershed. Two MS4s discharge phosphorus to the Prettyboy Reservoir watershed: Baltimore County and Carroll County. These same two MS4s, as well as Harford County, also discharge phosphorus and sediment to the Loch Raven Reservoir watershed. In addition to the WWTP and MS4s, there are three small permittees which discharge sediment to the Loch Raven Reservoir watershed.

Wasteload allocations to the WWTPs have been made based on permitted flow and concentrations. Baltimore County, Carroll County, and Harford County are all covered under NDPES Phase I stormwater permits. Annual waste load allocations have been made to these stormwater dischargers based on the Gunpowder Falls Watershed HSPF Model. The stormwater phosphorus and sediment loads account for contributions from developed land. The land use information was based on 1997 Maryland Department of Planning data. Wasteload allocations for smaller permittees were based on permitted concentrations and the maximum reported flow 1996-2005.

Table 1A shows the allocation of total phosphorus loads attributed to point sources in the Prettyboy Reservoir watershed. Table 1B shows the allocation of both phosphorus and sediment loads attributed to point sources in the Loch Raven Reservoir watershed.

**Table 1A**  
**Total Phosphorus Loads Attributed to Point Sources in the Prettyboy Reservoir**  
**Nutrient TMDL**

| Point Source Name | Permit Number | Nutrient Loads (lbs/year) | Flow (MGD) | Concentration (mg/l) |
|-------------------|---------------|---------------------------|------------|----------------------|
|                   |               | TP                        |            | TP                   |
| Manchester WWTP   | MD0022578     | 506                       | 0.5*       | 1.0 mg/l             |
| Baltimore County  |               | 862                       |            |                      |
| Carroll County    |               | 1,572                     |            |                      |
| Total             |               | 2,940                     |            |                      |

\* Discharges are only permitted December 1 - March 31.

**Table 1B**  
**Total Phosphorus and Sediment Loads Attributed to Point Sources in the Loch Raven Reservoir Nutrient and Sediment TMDLs**

| Point Source Name | Permit Number |               |                      | Flow (MGD)             | Concentration (mg/l) |                      |
|-------------------|---------------|---------------|----------------------|------------------------|----------------------|----------------------|
|                   |               | TP (lbs/year) | Sediment (tons/year) |                        | TP                   | Sediment             |
| Hampstead         | MD0022446     | 823           | 41                   | 0.9                    | 0.3                  | 30                   |
| Texas Quarry      | MD0000175     | N/A           | 59                   | 1.0 (003)<br>1.4 (008) | N/A                  | 15 (003)<br>17 (008) |
| MD National Guard | MD0067687     | N/A           | 0.05                 | 0.0002                 | N/A                  | 60                   |
| Gray and Sons     | MD00063568    | N/A           | 0.02                 | 0.001                  | N/A                  | 30                   |
| Baltimore County  |               | 20,753        | 1,023                |                        |                      |                      |
| Carroll County    |               | 401           | 80                   |                        |                      |                      |
| Harford County    |               | 33            | 6                    |                        |                      |                      |
| Total             |               | 22,010        | 1,210                |                        |                      |                      |