

6.0 Permit Requirements

C. Source Identification

Sources of pollutants in stormwater runoff shall be identified and linked to specific water quality impacts on a watershed basis. This process shall be used to develop watershed restoration plans that effectively improve water quality. The following information shall be submitted in geographic information system (GIS) format with associated tables as required in PART IV of this permit.

1. Storm drain system: major outfalls, inlets, and associated drainage areas;
2. Urban best management practices (BMP): stormwater management facility data including locations and delineated drainage areas;
3. Impervious surfaces: delineated controlled and uncontrolled impervious areas;
4. Monitoring locations: locations established for chemical, biological, and physical monitoring of watershed restoration efforts and the *2000 Maryland Stormwater Design Manual* or other innovative stormwater management technologies approved by MDE; and
5. Watershed restoration: restoration project descriptions and locations.

PART IV. PROGRAM REVIEW AND ANNUAL REPORTING OF PROGRESS

A. Annual Reporting

2. To further judge the effectiveness and progress of implementing this permit, the following information shall be submitted on databases (in a format) consistent with Attachment A. Annually, except where noted, the following shall be submitted:
 - a. Storm drain system mapping (PART III. C.1.);
 - b. Urban BMP locations (PART III. C.2);
 - c. Impervious surfaces (PART III. C.3);
 - d. Watershed restoration project locations (PART III. C.5);
 - e. Chemical monitoring (PART III. C.4. and PART III. H.1);
 - f. Illicit Discharge Detection and Elimination activities (PART III. E.4);
 - g. Responsible personnel certification information (PART III. E.3)
 - h. Grading permit information – quarterly (PART III. E.3); and
 - i. Fiscal analyses – cost for NPDES related implementation (PART III. I.)

This section describes the Geographic Information System (GIS) data layers and the databases submitted with the Annual Report. The GIS data layers are described in

Section 6.1. Section 6.2 describes the databases that have been created for the NPDES Report, along with data sources and limitations.

6.1 Source Identification – Geographic Information System Data Layers

6.1.1 Storm Drain System

The storm drain system GIS data layers were submitted with the previous years' report. These data layers represent the Baltimore County storm drain system based on a set of keysheets maintained prior to the development of GIS. The layer was created by a consultant based on the keysheets and available aerial photography. The data layer is incomplete and does not extend north to the Hunt Valley area of the County. In addition, there are errors in the depiction of the storm drain system, with some systems having no outfalls.

The GIS data layer for the storm drain system is currently being updated. A pilot project is currently underway to develop the layer in the Jones Falls watershed. This pilot project is intended to assure the data layer captures the needs of all county agencies that utilize the storm drain information.

The storm drain system is also represented by two files for the outfall locations, outfall_maj and outfall_min. The drainage areas to the major outfalls are presented in the outfall_drainage.lyr file. These three files can be found on the accompanying CD under Data/GIS Datalayers/Storm Drain Layer.

The storm drain cleaning program database can be found under Data/Storm Drain Cleaning. It contains a file listing the acronyms used in the database along with the Access97 formatted Storm_Drain_Cleaning.mdb data file.

6.1.2 Urban Best Management Practices

The urban best management practices are represented by two data layers, SWM_Locations2011.shp and SWMDrainage2011.shp. These layers are located under Data/GIS Datalayers/Urban Best Management Practices. The locations layer displays the locations of the stormwater management facilities as a point, while the drainage area layer displays the drainage areas to built facilities.

The location data layer will have errors due to coordinates either being missing or wrong. Some of this is historical, as until 2000 the County required engineers to submit drawings based on the Baltimore County coordinate system. Conversion to Maryland State Plan resulted in errors.

6.1.3 Impervious Surfaces

The impervious surfaces in Baltimore County are represented by two separate data layers, facilities_building_poly and trans_road_poly. These layers are located under Data/GIS Datalayers/Impervious Surfaces. The layers were created based on aeriels flown 2005. The building data layer includes all residential, commercial, and industrial buildings. It also includes sheds, barns and other accessory structures. The roads data layer includes all roads and parking lots. It does not include driveways, except in rural areas. Sidewalks are not depicted.

This data layer is based on the 2005 aeriels and represents an update of the previously submitted impervious surfaces data layers, which were based on aeriels flown in 1995-1997.

6.1.4 Monitoring Locations

Monitoring locations for Baltimore County are presented in the three separate files, one for chemical monitoring, one for biological monitoring, and one for geomorphological monitoring. The files are located under Data/GIS Datalayers/Monitoring Locations, with a separate file folder for each type of monitoring.

6.1.5 Watershed Restoration

Two data layers are submitted with this report. The file cip.shp displays the locations of the various Capital Restoration Projects along with their type and their status. Cip_drainage_new.shp presents the drainage area to the various restoration projects. This layer is used to calculate the pollutant load reductions that result from restoration efforts associated with stormwater management facility conversions and stormwater management facility retrofits. It is also used to determine the amount of impervious area addressed by restoration activities. It is located under Data/GIS datalayers/Watershed Restoration.

6.2 Databases

All databases can be found on the accompanying CD under the file folder named Data. Each type of monitoring has its own folder under the Data folder.

6.2.1 Chemical Data

Six databases are included with this report. One database contains the tidal water monitoring data (Tidal_10.xls), a second contains the baseflow monitoring data (Baltimore County Baseflow_10.xls), while a third contains the storm event and baseflow monitoring data from Scotts Level Branch and Powder Mill (Scott'sLevel_PowderMill_10.xls). Also included is the database containing the Scotts Level Branch in-stream gage data and the calculated pollutant concentrations and loads at 15 minute intervals. This database is split into four separate Excel files due to the size of the files. The final database contains the calculated EMCs for each storm at the Scotts Level Branch in-stream monitoring site.

6.2.2 Biological Data

The random point biological data is presented in an Access97 database titled – Benthic EDAS 2010.mdb. This Access application was created by Tetra Tech, Inc for the specific purposed of calculating biological and habitat metric data in accordance with the Maryland Biological Stream Survey (MBSS) protocols. The database contains biological macroinvertebrate, fish assemblage, and habitat data collected by Baltimore County from 2003 through 2010. Also included in this directory is the fish data collected from the Prettyboy brook trout study (Fish_Prettyboy.mdb, see section 9.5 for the data results), fish data collected from Scotts Level Branch and Powder Mill Run (Fish_Scotts.mdb), and fish data collected at restoration sites (Fish_Restoration.mdb).

6.2.3 Geomorphological Data

Four Excel spreadsheet files contain the geomorphological data. These files are:

- Scotts Level 2011.xls – This file contains data from the 20 cross section in Scotts Level Branch, including the overlay charts from previous years, and the calculations of cut/fill volumes
- WRCX 2011.xls – Contains the cross section data for Windlass Run
- WR pebble.xls – Contains pebble count data for Windlass Run
- Powder Mill 2011.xls – Contains the cross section data for Powder Mill Run

6.2.4 Illicit Discharge Detection and Elimination

The results from the illicit discharge monitoring are presented since the inception of the program in Illicit Connection Major Outfalls.mdb for major outfall. We have initiated screening of the minor outfalls and have developed a separate database to track the results (Illicit Connections Minor Outfalls.mdb). Also included in this folder is the draft revision to the Illicit Connection Standard Operating Procedures that updates the original SOP developed in 1996.

6.2.5 Responsible Personnel Certification Information

A database of Responsible Personnel Certification has not been submitted with this report. The information is displayed in Appendix 2-1.

6.2.6 Grading Permit Information

Grading permit information is submitted on a quarterly basis and has not been resubmitted with this report.