MDE **Maryland Department of the Environment**

12-SW General Permit

for Stormwater Discharges Associated With Industrial Activity (Tentative Determination)

Overview for Public Hearing

MARYLAND

History of Stormwater Permit

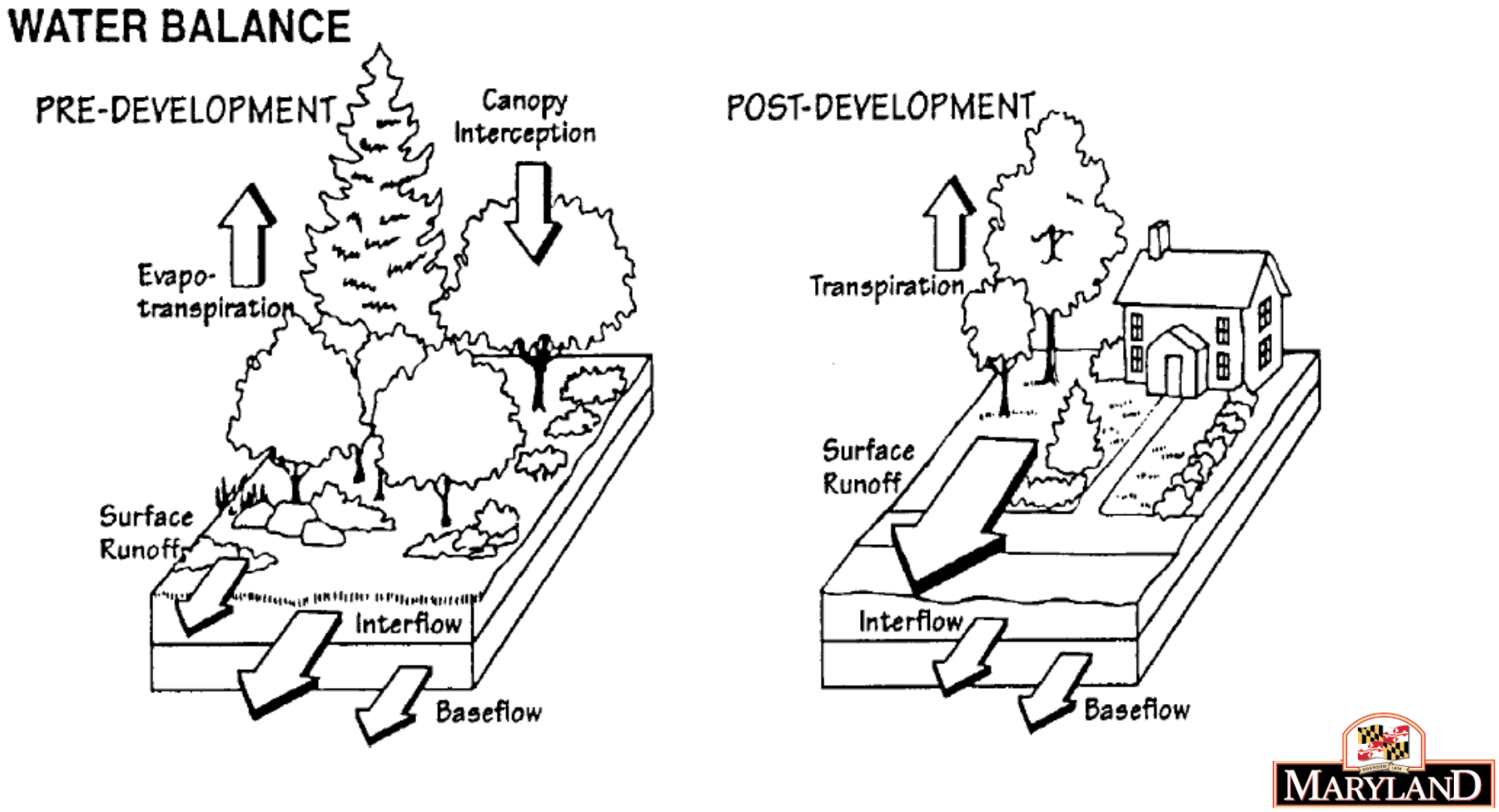
- The **Clean Water Act** (CWA or the Act) establishes a comprehensive program
  - "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters."
  - "also seeks to attain 'water quality which provides for the protection and propagation of fish, shellfish and wildlife.'"
- The **Water Quality Act of 1987** (WQA) directed the EPA to develop a phased approach to regulate stormwater discharges under the NPDES permit program.
- EPA published a final regulation on November 16, 1990, establishing permit application requirements for **"stormwater discharges associated with industrial activity"**.
- EPA issues stormwater permits for many states, which is referred to as the Multi-Sector General Permit (MSGP).

Maryland's General Permit

- Maryland is a delegated State and has authority to issue NPDES permits.
- **Maryland issued** our own permit for "stormwater discharges associated with industrial activity" **in 1992**, to meet the CWA requirements.
- Permits **expire every 5 years** and must be re-issued.
- The General Permit 02-SW expired on November 30, 2007, but is **administratively extended**.
- This proposed 12-SW permit would replace the 02-SW, and is largely based on the MSGP.

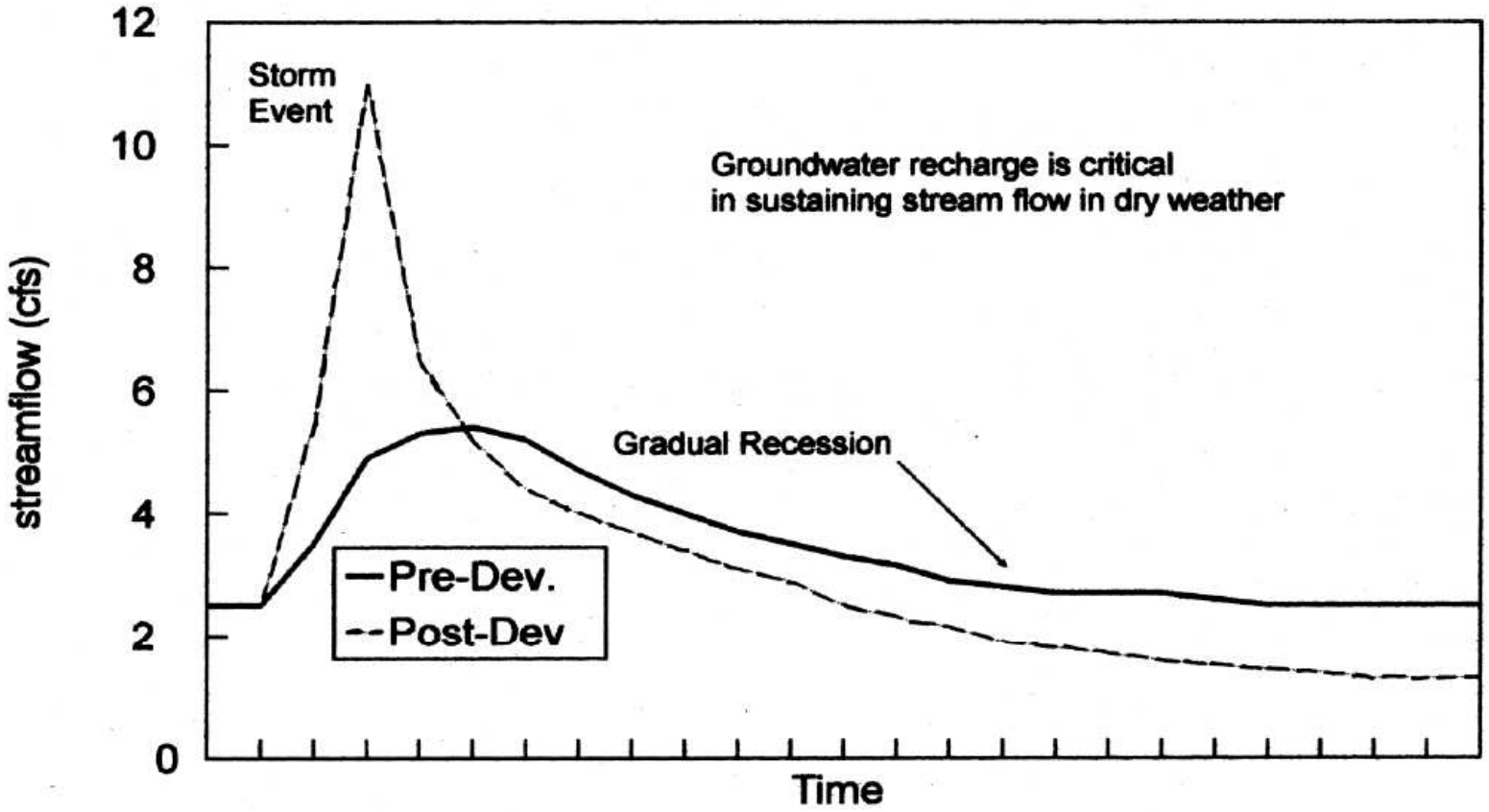
What is the Big Deal?

Figure 1.1 Water Balance at a Developed and Undeveloped Site
(Source: Schueler, 1987)



Impacts on Stream Flow

Decline in Stream Flow Due to Diminished Groundwater Recharge



Hot Spots

Stormwater hotspots are areas which produce higher concentrations of pollutants than normally found in urban runoff.

Who is Covered?

Facilities with stormwater discharges:

a) associated with industrial activity

(defined in Appendix E)

b) from a primary industrial activity

(identified in Appendix A)

OR facilities that are notified by MDE as eligible for coverage under Sector AD.

Industrial Activity Includes

- industrial plant yards;
- immediate access roads and rail lines used or traveled by carriers of raw materials, manufactured products, waste material, or byproducts used or created by the facility;
- material handling sites; refuse sites;
- sites used for the application or disposal of process waste waters;
- sites used for the storage and maintenance of material handling equipment;

Industrial Activity also Includes

- sites used for residual treatment, storage, or disposal;
- shipping and receiving areas;
- manufacturing buildings;
- storage areas (including tank farms) for raw materials, and intermediate and final products;
- and areas where industrial activity has taken place in the past and significant materials remain and are exposed to stormwater.

Industrial Activity Excludes:

- Areas located on plant lands separate from the plant's industrial activities, such as office buildings and accompanying parking lots as long as the **drainage from the excluded areas is not mixed** with stormwater drained from the above described areas.

Primary Industrial Activity-Sectors

Sector A – Timber Products	**Sector P** – Land Transportation
Sector B – Paper and Allied Products Manufacturing	**Sector Q –** Water Transportation
Sector C – Chemical and Allied Products Manufacturing	**Sector R** – Ship and Boat Building or Repairing Yards
Sector D – Asphalt Paving and Roofing Materials Manufactures and Lubricant Manufacturers	**Sector S** – Air Transportation Facilities
Sector E – Glass, Clay, Cement, Concrete, and Gypsum Product Manufacturing	**Sector T** – Treatment Works
Sector F – Primary Metals	**Sector U** – Food and Kindred Products
Sector G – Not currently covered in this permit.	**Sector V** – Textile Mills, Apparel, and other Fabric Products Manufacturing
Sector H – Not currently covered in this permit.	**Sector W** – Furniture and Fixtures
Sector I – Oil and Gas Extraction and Refining	**Sector X** – Printing and Publishing
Sector J – Not currently covered in this permit.	**Sector Y** – Rubber, Miscellaneous Plastic Products, and Miscellaneous Manufacturing Industries
Sector K – Hazardous Waste Treatment Storage or Disposal	**Sector Z** – Leather Tanning and Finishing
Sector L – Landfills and Land Application Sites	**Sector AA –** Fabricated Metal Products
Sector M – Automobile Salvage Yards	**Sector AB** – Transportation Equipment, Industrial or Commercial Machinery
Sector N – Scrap Recycling Facilities	**Sector AC –** Electronic, Electrical, Photographic and Optical Goods
Sector O – Steam Electric Generating Facilities	**Sector AD –**Designated by the Department

Application Process

- Within 90 days of reissuance, you must submit a completed Notice of Intent (NOI), updated Stormwater Pollution Prevention Plan (SWPPP) and fee.
- NOI will require some additional information relating to the impervious surface calculations.
- NOI will require you to determine if discharging to an impaired stream.

Coverage Exemption

"No Exposure Certification" Requires:

1. no potential for the stormwater discharged…to be exposed to pollutants,
2. And discharge into watersheds without water quality impairments for nutrients or suspended solids.

MDE

The evolution of stormwater management requirements

MARYLAND

Pollution Prevention (02-SW)

- Stormwater Pollution Prevention Plan (SWPPP) **describes and ensures** the implementation of practices used to reduce pollutants in stormwater discharges.
  - Map with potential sources and controls to deal with them.
  - Summary of sampling points.
  - Identify Pollution Prevention Team**.**
  - Plans and records of Employee Training.
- Amendment of plan required when there was a new **potential for discharge** or if the Plan proved to be **ineffective**.

Best Management Practices (BMP)

- Prevent or reduce pollution by:
  - schedules of activities
  - prohibitions of practices
  - maintenance procedures, and
  - other management practices.
- Control plant site runoff, spillage or leaks or drainage by:
  - treatment requirements,
  - operating procedures, and
  - other practices.

Stormwater Management

Development of a description of stormwater management controls (or BMPs) appropriate for the facility, and implementation of such controls.

a. A preventive maintenance program

b. Good housekeeping

c. Spill prevention and response procedures

d. Prevent sediment and erosion

Storm water management…

e. Identification of traditional stormwater management practices (practices other than those which control the generation or source(s) of pollutants) used to divert, **infiltrate, reuse, or otherwise manage stormwater** runoff in a manner that reduces pollutants in storm water discharges from the site.

f. Visually inspection requirements

g. Facility record requirements

12-SW Base Requirements

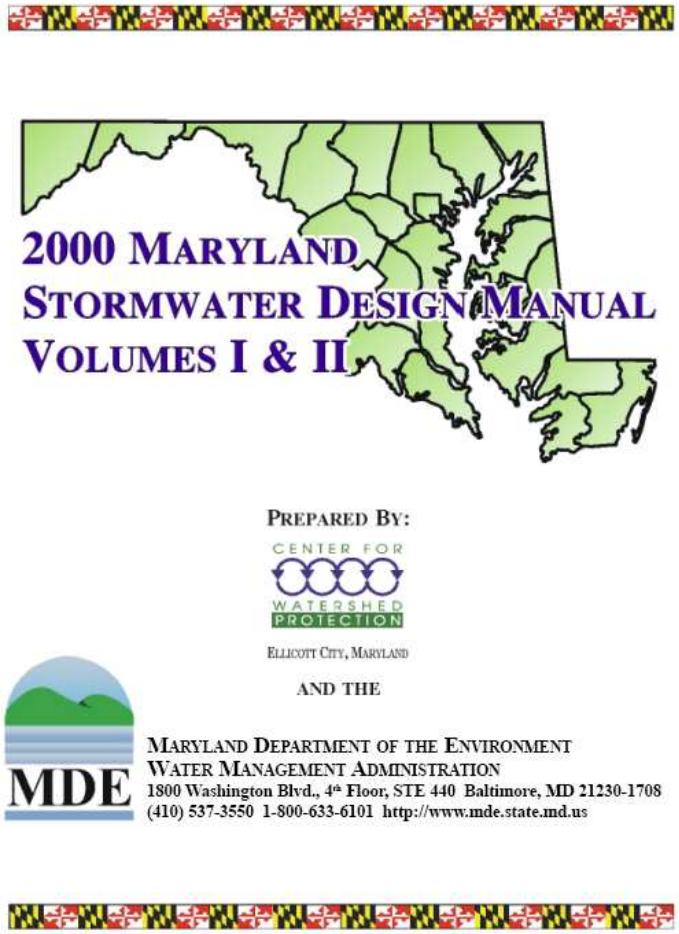
- SWPPP requirement continued
- Practices developed should be continued
  - Good housekeeping
  - Preventative maintenance
  - Spill prevention
  - Visual inspection
  - Record requirements
- Term ‘Minimize’ used often.
  - reduce and/or eliminate to the extent achievable using control measures (including best management practices) that are technologically available and economically practicable and achievable in light of best industry practice.

12-SW Provides Better Guidance:

- for updating your **SWPPP,**
- when to "**infiltrate, reuse, or otherwise manage stormwater**" with regards to existing impervious surfaces or "restoration of impervious surfaces,"
- and on Control Measures and Effluent Limits including industry **sector specific** practices.

Design Manual

- Design Manual provides engineering guidance for when to "**infiltrate, reuse, or otherwise manage stormwater**".



Important definition(s)

Impervious Surface Treatment:

- Implementing the requirements for stormwater management as prescribed in the Department's "2000 Maryland Stormwater **Design Manual**, Volumes I & II" or the Design Manual for impervious area.
- The manual spells out both design and implementation requirements using appropriately sized Best Management Practices or Environmental Site Design, based upon designs that treat the volume from **one inch of rainfall**.
- This treatment may also include equivalent practice(s) used to comply with the control measures of this permit if they result in the capture and treatment of the volume from **one inch of rainfall**.

Facilities developed since 2002 would have been required to build to these standards.

Important definition(s)

Impervious Surface Restoration:

Treatment of impervious surfaces which are not currently designed to treat runoff with stormwater management as prescribed in the Department's "Maryland Stormwater Design Manual, Volumes I & II" or the Design Manual, based upon designs that treat the volume from one inch of rainfall.

Phase 1 municipal permits have restoration requirements.

Restoration Requirements

- Restore an area equal to at least 20% of the untreated impervious surface at your facility.
- You may consider any untreated impervious surface on your facility.

Facility Example

- Manufacturing building and storage areas.

Volume Calculation

Sizing Criteria	Description of Stormwater Sizing Criteria
Water Quality Volume (WQ_v) (acre-feet)	$WQ_v = [(P)(R_v)(A)]/12$ P= rainfall depth in inches and is equal to 1.0" in the Eastern Rainfall Zone and 0.9" in the Western Rainfall Zone (Fig. 2.1), R_v = volumetric runoff coefficient, and A = area in acres.

Site Area = Total Drainage Area (A) = 3.0 ac

Impervious Area = 1.9 ac; I= 1.9/3.0 = 63.3%
Rv = 0.05 + (63.3)(0.009) = 0.62

Compute WQv
WQv = [(1.0″)(Rv)(A)]/12
= [(1.0″)(0.62)(3.0ac)]/12×(43560 ft^2 / acre)
= **6752 ft^3**

Restoration Alternative

- With approval from your local jurisdiction you may restore an **equivalent amount** of untreated impervious surface off-site or by arranging for your local jurisdiction to perform the off-site restoration.

Restoration Schedule

- Submit a plan to implement restoration within six (6) months of obtaining coverage.
- Complete the restoration within four (4) years from the date you file an NOI.

Industry Specific Measures

INDUSTRIAL STORMWATER FACT SHEET SERIES
Sector L: Landfills and Land Application Sites

may destroy spawning grounds or the bottom fauna upon which fish feed. In addition, while they remain in suspension, suspended solids can increase turbidity, reduce light penetration, and impair the photosynthetic activity of aquatic plants.

The activities, pollutant sources, and associated pollutants detailed in Table 1A and 1B are commonly found at landfills and land application sites. It is important to note that the occurrence and levels of pollutants other than TSS in stormwater discharges are dependent on the types of wastes deposited/applied and facility design and operation (including use of stormwater management/treatment practices).

Table 1A. Common Activities, Pollutant Sources, and Associated Pollutants at Landfills

Activity	Pollutant Source	Pollutant
Cover crop management	Applied chemicals	Fertilizers, pesticides, and herbicides
Outdoor chemical storage	Exposure of chemical material storage areas to precipitation	Various chemicals stored
Waste transportation	Waste tracking on-site and haul road, solids transport on wheels and exterior of trucks or other equipment	TSS, total dissolved solids (TDS), turbidity, floatable
Leachate collection	Uncontrolled leachate (commingling of leachate with runoff or run-on)	Iron, TSS, biochemical oxygen demand (BOD), ammonia, alpha terpineol, benzoic acid, p-Cresol, phenol, zinc, pH
Landfill operations	Exposure of waste at open face	BOD, TSS, TDS, turbidity
Exposed soil from excavating cells/trenches	Erosion	TSS, TDS, turbidity
Exposed stockpiles of cover material		
Inactive cells with final cover but not finally stabilized		
Daily or intermediate cover placed on cells or trenches		
Haul roads (including vehicle tracking of sedimentation)		
Vehicle/equipment maintenance	Fueling activities	Diesel fuel, gasoline, oil
	Parts cleaning	Solvents, oil, heavy metals, acid/alkaline wastes
	Waste disposal of oily rags, oil and gas filters, batteries, coolants, degreasers	Oil, heavy metals, solvents, acids
	Fluid replacement including hydraulic fluid, oil, transmission fluid, radiator fluids, and grease	Oil and grease, arsenic, lead, cadmium, chromium, chemical oxygen demand (COD), and benzene

- Guidance from EPA for each industry sector.

http://cfpub.epa.gov/npdes/stormwater/swsectors.cfm

Monitoring and Corrective Action Requirements

Monitoring Requirements

- Visual monitoring 4 times a year (one as part of annual assessment)
- Where local discharge is to an impaired water body the Department may impose additional monitoring requirements
- Benchmark monitoring for several industries

Visual Monitoring

Quarterly Visual Monitoring Form

Fill out a separate form for each outfall sampled.

Sample Location					
Quarter / Year:		**Date / Time Collected:**		**Date / Time Examined:**	
Qualifying Storm Event?	Yes No	**Runoff Source:**		Rainfall Snowmelt	
Collector's Name & Title					
Examiner's Name & Title					

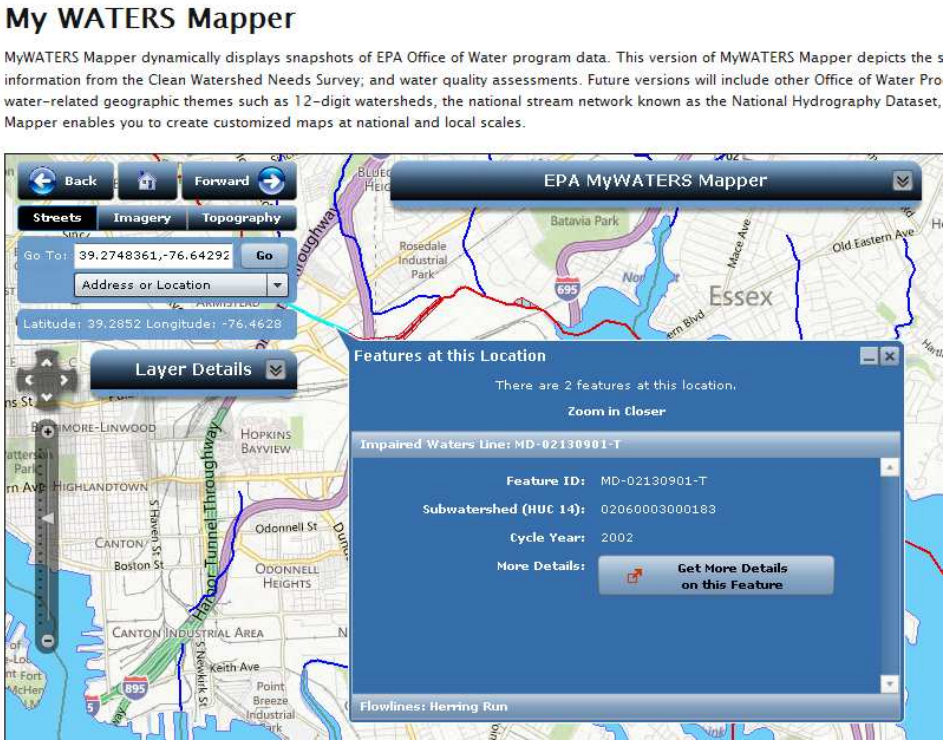
Parameter	Parameter Description	Parameter Characteristics
1. Color	Does the storm water appear to have any color? **Yes** **No (Clear)**	If Yes, describe: *Yellow Brown Red Gray Other:*
2. Clarity	Is the storm water clear? **Yes** **No**	If not clear, which of the following best describes the clarity of the storm water? *Suspended Solids Milky/Cloudy Opaque Other:*
3. Oil Sheen	Can you see a rainbow effect or sheen on the water surface? **Yes** **No**	Which best describes the sheen? *Rainbow sheet Floating oil globules Other:*
4. Odor	Does the sample have an odor? **Yes** **No**	If Yes, describe: *Chemical Musty Rotten Eggs Sewage Sour Milk Oil/Petroleum Other:*
5. Floating Solids	Is there anything on the surface of the sample? **Yes** **No**	If Yes, describe: *Suds Oily Film Garbage Sewage Water Fowl Excrement Other:*
6. Suspended Solids	Is there anything suspended in the sample? **Yes** **No**	Describe:
******Leave sample undisturbed for 30 minutes.******		
7. Settled Solids	Is there anything settled on the bottom of the sample? **Yes** **No**	Describe: (*note type, size and material after sample is not disturbed for 30 minutes*)
8. Foam	Does foam or material form on the top of the sample surface if you shake it? **Yes** **No**	Describe:

9. **If there are any visible indicators of pollution identify (1) where the pollution may come from and (2) any corrective actions taken.**

Includes how to evaluate each parameter such as color or clarity.

Tools for Impaired Waters

When submitting application, you may use EPA tool to determine if local stream is impaired.



http://cfpub.epa.gov/npdes/stormwater/tmdltool.cfm

Tools for Impaired Waters

To determine what the source of an impairment is, MDE website provides an interactive map.

http://www.mde.maryland.gov/programs/Water/TMDL/Integrated303dReports/303dmap/Pages/303d_map.aspx

Benchmark Monitoring

- Not effluent limitations; exceedance is not a permit violation.
- Monitoring helps determine overall effectiveness of control measures and when corrective actions are necessary.
- Online reporting quarterly is required for 4 full quarters.
- After collection of 4 quarterly samples, if the average of the 4 monitoring values:
  - does not exceed the benchmark, you have **fulfilled your monitoring requirements**
  - exceeds the benchmark, you must evaluate and make changes to control measures and **continue monitoring**

Benchmarks Selected

Agricultural Chemicals (SIC 2873-2879),
Automobile Salvage Yards
Scrap Recycling and Waste Recycling Facilities
Fabricated Metal Products

Table 2 - Sector M Benchmarks (Automobile Salvage Yards)

PARAMETER	Benchmark	Units	Frequency	Sample Type
Total Suspended Solids (TSS)	100	mg/L	4/year	Grab
Total Aluminum	0.75	mg/L	4/year	Grab
Total Iron	1.0	mg/L	4/year	Grab
Total Lead[1]	0.014	mg/L	4/year	Grab

[1] The benchmark values of some metals are dependent on water hardness. For these parameters, you must determine the hardness of the receiving water per Appendix C.

Corrective Actions

When something is wrong, you must address it and document what you did.

- You may have to notify the Department.
- You must complete and document these actions within the time limits.
- All corrective action documents must be stored onsite with your SWPPP.

Maryland Department of the Environment

Water Management Administration
Industrial and General Permits Division

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