

## NPDES MS4 for Emergency Responders

by:  
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April 9, 2015



## AGENDA

1. Why are we here??
2. Abbreviations
3. Background
4. Six Minimum Control Measures (MCM's)
5. Other Permit Conditions:
  - a) Chesapeake Bay Pollutant Reduction Plans
  - b) Total Maximum Daily Load (TMDL) Plans



## Why are we here??

Appendix A of the PAG-13 Permit / MCM #6 / BMP #3 states

Any municipal employee or contractor shall receive training to include public works staff, code enforcement staff, engineering staff, administrative staff, elected officials, police and fire responders, volunteers, and contracted personnel. Training topics should include operation, inspection, maintenance and repair activities associated with any of the municipal operations / facilities identified under BMP #1. Training should cover all relevant parts of the permittee's overall stormwater management program that could affect municipal operations, such as illicit discharge detection and elimination, construction sites, and ordinance requirements.



## ABBREVIATIONS

• BMP	Best Management Practice
• CBPRP	Chesapeake Bay Pollutant Reduction Plan
• CWA	Clean Water Act
• DCCD	Dauphin County Conservation District
• LID	Low Impact Development
• MCM	Minimum Control Measure
• MOU	Memorandum of Understanding
• MS4	Municipal Separate Storm Sewer System
• NPDES	National Pollutant Discharge Elimination System
• O&M	Operation and Maintenance
• PA DEP	Pennsylvania Department of Environmental Protection
• TMDL	Total Maximum Daily Load
• UA	Urbanized Area
• US EPA	United States Environmental Protection Agency



## BACKGROUND

1. 1972 amendments to the CWA prohibited the discharge of any pollutant to waters of the United States from a point source unless the discharge is authorized by a National Pollutant Discharge Elimination System (NPDES) permit.



## BACKGROUND

1. 1987 amendments to the CWA mandated that EPA develop a tiered implementation strategy for the NPDES Storm Water Program
2. Phase I of the program was implemented in 1990 and it regulated Medium and Large Municipal Separate Storm Sewer Systems (MS4s).
  - a) Medium MS4: An incorporated place with a population between 100,000 and 250,000 (Allentown and Erie).
  - b) Large MS4: An incorporated place with a population greater than 250,000 (Philadelphia and Pittsburgh)



## BACKGROUND

1. Phase II was published as a final rule on December 8, 1999, and it expanded permit requirements to small MS4s in Urbanized Areas (UAs).
2. This rule required states to have MS4 permits in place by March 10, 2003.
3. Pa issued its Small MS4 General Permit (PAG-13) on March 8, 2003, and it expired at Midnight on March 9, 2008.



## BACKGROUND

4. The permit was extended 6 times, until it was announced in [41 Pa.B. 5042] the September 17, 2011 Pa Bulletin that a revised PAG-13 was issued.
5. The new permit effective date is March 16, 2013.



## What Must Be Done?

### A. Six Minimum Control Measures:

1. Public Education & Outreach
2. Public Involvement/Participation
3. Illicit Discharge Detection and Elimination (IDDE)
4. Construction Site SW Runoff Control
5. Post-Construction SWM in New and Re-Development Activities
6. Pollution Prevention and Good Housekeeping for Municipal Operations



## What Must Be Done?

1. Chesapeake Bay Pollutant Reduction Plan
2. Total Maximum Daily Load (TMDL) Plan



## MCM #1

### Public Education & Outreach

1. Develop and Maintain a Public Education and Outreach Program (PEOP).
2. Maintain a list of target audiences like schools, residents, businesses, employers, etc.



## MCM #1

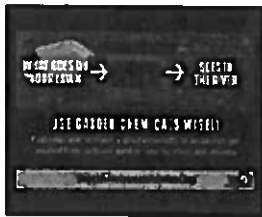

### Public Education & Outreach

3. Publish annually at least one flyer, newsletter, pamphlet, etc. with SW educational info.
4. Distribute SW educational materials to target audiences using a variety of methods.



### MCM #1


#### Public Education & Outreach

### MCM #2

#### Public Involvement/Participation


1. Develop a written Public Involvement and Participation Plan (PIPP).
2. Provide adequate public notice and opportunities for input prior to ordinance adoption.



### MCM #2



#### Public Involvement/Participation

3. Regularly solicit public involvement from Target audiences.
  - a) Conduct at least one public meeting per year.
  - b) Document and report activities of public participation.



### MCM #2



#### Public Involvement/Participation

### MCM #3

#### Illicit Discharge Detection and Elimination (IDDE)


1. Develop and Implement a written program:
  - a) Must include dry weather field screening of outfalls.

### MCM #3


#### Illicit Discharge Detection and Elimination (IDDE)

2. Develop and maintain a map, including all outfalls and surface waters.
  - a) Show entire storm sewer system, including roads, inlets, piping, swales, watershed boundaries, etc.




**MCM #3**  
**Illicit Discharge Detection and Elimination (IDDE)**

3. Prioritize, conduct, and record outfall screening.
  - a) Must screen at least 40% of outfalls annually.
  - b) If dry weather flow found:
    - i. Check color, turbidity, solids, odor, adverse impacts in proximity; and if positive collect samples.



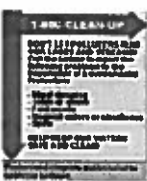

**MCM #3**  
**Illicit Discharge Detection and Elimination (IDDE)**

4. Enact a SWM ordinance from Act 167 (2005 or later), DEP's model ordinance, or one that satisfies all EPA requirements.
5. Annually provide educational outreach to stakeholders.



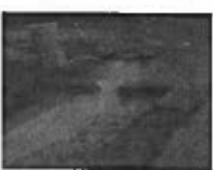

**MCM #3**  
**Illicit Discharge Detection and Elimination (IDDE)**

6. Setup a SW reporting mechanism (phone and/or internet)
7. Respond to and document complaints.


**MCM #4**  
**Construction Site SW Runoff Control**

1. Develop and Implement a program for permitting, inspecting, and enforcing the installation of E&S controls.


**MCM #4**  
**Construction Site SW Runoff Control**

2. Enact, implement, and enforce an ordinance for the installation of E&S controls.
3. Develop and implement requirements for controlling waste at construction sites.
4. Develop and implement procedures for receipt of public inquiries.



**MCM #5**  
**Post-Construction SWM in New and Re-Development Activities**

1. Develop a written procedure for implementation.
  - a) Refer to Pa SW BMP Manual for guidance.
2. Require the implementation of BMPs designed to meet pre-development conditions.




**MCM #5**  
**Post-Construction SWM**  
**in New and Re-Development Activities**

3. Ensure controls are installed to minimize WQ impacts.






**MCM #5**  
**Post-Construction SWM**  
**in New and Re-Development Activities**

4. Enact, implement, and enforce an ordinance.
5. Develop and implement measures to encourage LID in new and redevelopment.





**MCM #5**  
**Post-Construction SWM**  
**in New and Re-Development Activities**

6. Ensure adequate O&M of all PCSM BMPs.



**MCM #6**  
**Pollution Prevention and Good Housekeeping for Municipal Operations**

1. Identify and document all activities and facilities w/ potential impact.
2. Develop, implement, and maintain an O&M program for facilities.
3. Develop and implement an employee training program.


**MCM #6**  
**Pollution Prevention and Good Housekeeping for Municipal Operations**

4. Tanks should be under cover and placed on an impervious surface.

**MCM #6**  
**Pollution Prevention and Good Housekeeping for Municipal Operations**

5. Place overfill prevention equipment on Underground Storage Tanks (USTs).
6. Watch fuel transfer constantly and discourage "topping off".



**MCM #6****Pollution Prevention and Good Housekeeping for Municipal Operations****7. Control spills immediately.**

- a) Small spills can be cleaned up with rags and larger spills can be cleaned with dry absorbent material such as kitty litter, straw or sawdust.


**K&W**  
WASTEWATER MANAGEMENT
**MCM #6****Pollution Prevention and Good Housekeeping for Municipal Operations**

- 8. Cleaning / absorptive materials to be kept near tanks for cleanups together with an instruction sheet for handling spills.
- 9. Avoid cleaning fueling areas with running water. Consider using a damp cloth on the pumps and a damp mop on the pavement.

**K&W**  
WASTEWATER MANAGEMENT
**MCM #6****Pollution Prevention and Good Housekeeping for Municipal Operations**

- 10. Put leaking vehicles coming in for service under cover or immediately place drip pans under them.
- 11. Maintain written records of vehicle maintenance.


**K&W**  
WASTEWATER MANAGEMENT
**MCM #6****Pollution Prevention and Good Housekeeping for Municipal Operations**

- 12. Place oil filters in a funnel over the waste oil recycling or disposal collection tank.
- 13. Liquid waste tanks should be routinely checked for leaks.


**K&W**  
WASTEWATER MANAGEMENT
**MCM #6****Pollution Prevention and Good Housekeeping for Municipal Operations**

- 14. Dispose of liquid waste properly, NOT DOWN AN INLET!




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WASTEWATER MANAGEMENT
**MCM #6****Pollution Prevention and Good Housekeeping for Municipal Operations**

- 15. If possible, utilize commercial car washes. Commercial car washes typically recycle wash water or direct it to a wastewater treatment plant.
- 16. An indoor area where wash wastewater can be recycled or directed to treatment is best.


**K&W**  
WASTEWATER MANAGEMENT

**MCM #6**  
**Pollution Prevention and Good Housekeeping for Municipal Operations**


17. Use designated cleaning areas on gravel, grass or other permeable surfaces. This allows for some filtration before entering the ground water.

**MCM #6**  
**Pollution Prevention and Good Housekeeping for Municipal Operations**

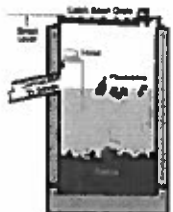
18. Educate and remind employees of pollution prevention practices.

- a) Display signs
- b) Material Safety Data Sheets



**MCM #6**  
**Pollution Prevention and Good Housekeeping for Municipal Operations**

1. Inspect each catch basin at least once annually to determine if it needs cleaning and note / repair as necessary.

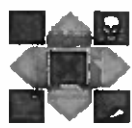


**MCM #6**  
**Pollution Prevention and Good Housekeeping for Municipal Operations**


19. When inspecting stormwater facilities, be sure to fill out an Inspection/Maintenance Checklist.

- a) This provides a written record of inspections and maintenance operations to comply with NPDES MS4 permits.

20. Dispose of sediment and debris removed from catch basins in a proper manner.



**Questions**



**Dauphin County  
Emergency Management Agency**

Stephen Libhart, Director:

- County's Response Capabilities
- Hazardous Materials



## EMERGENCY RESPONSE TRAINING FACT SHEET

Based on Title 29 of the Code of Federal Regulations (29 CFR) 1910.120, Hazardous waste operations and emergency response.

### CHEMICAL SPILLS YOU CAN HANDLE YOURSELF

Principal investigators, employees, and students working in research labs should be aware that required safety training for lab workers includes emergency response training

Emergency training applies to building evacuation procedures during fires and explosions, recognition of system alarms, and appropriate action in the event of spills of hazardous materials in the lab. Lab workers must receive training to distinguish between the types of spills they can handle on their own and those spills that are classified as "MAJOR." Major spills dictate the need for outside help.

Lab workers are qualified to clean-up spills that are "minor." A minor spill is defined as a spill that does not pose a significant safety or health hazard to employees in the immediate vicinity nor does it have the potential to become an emergency within a short time frame. Lab workers can handle minor spills because they are expected to be familiar with the hazards of the chemicals they routinely handle during an "average" workday. If the spill exceeds the scope of the lab workers' experience, training or willingness to respond, the workers must be able to determine that the spill cannot be dealt with internally.

Emergency assistance is provided by EHS and the University Hazardous Materials Team. Spills requiring the involvement of individuals outside the lab are those exceeding the exposure one would expect during the normal course of work. Spills in this category are those which have truly become emergency situations in that lab workers are overwhelmed beyond their level of training. Their response capability is compromised by the magnitude of the incident. Emergencies such as this involve:

- the need to evacuate employees in the area
- the need for response from outside the immediate release area
- the release poses, or has potential to pose, conditions that are immediately dangerous to life and health
- the release poses a serious threat of fire and explosion
- the release requires immediate attention due to imminent danger
- the release may cause high levels of exposure to toxic substances
- there is uncertainty that the worker can handle the severity of the hazard with the personal protective equipment (PPE) and equipment that has been provided and the exposure limit could be exceeded easily
- the situation is unclear or data is lacking regarding important factors.

Depending on the circumstances, what begins as a minor spill could at some point escalate into a major emergency. Responding lab workers must monitor changing conditions. Again, lab-specific training must cover how to tell the difference!

EHS employees have received in-depth training qualifying them for emergency response beyond the level of minor spills. They are prepared to answer calls which exceed the training scope of lab workers. Lab workers are encouraged to play it safe and contact EHS for clean-up assistance when in doubt about the status of a spill. EHS assistance is available 24 hours a day, seven days a week. **EHS: 865-6391**

### ALL SPILLS THAT REQUIRE OUTSIDE INTERVENTION

**A. Emergency Response Procedures.** Call 911 to report fires, explosions, medical emergencies, and hazardous material spills. Dispatch will contact EHS and appropriate emergency response personnel at anytime to respond to hazardous material spills.

An *Incident Report* form must be completed for each emergency incident involving laboratories.

Following a "MAJOR" incident, EHS responders may determine, based on the circumstances of the spill or release, that clean-up of the site can be handled by lab workers or other University employees (under the direction of the lab supervisor or EHS

In the event that EHS is called to a "minor" spill (i.e., lab workers have been conservative in assessing hazard and assumed worst case), EHS representatives will participate in or oversee the clean-up to support the lab workers. In both of these cases where clean-up becomes a lab responsibility, EHS can provide clean-up supplies and equipment, personal protective equipment (to the level of training of the workers), and safety instructions.

### GENERAL UNIVERSITY EMERGENCY INFORMATION

#### A. Building Emergency and Evacuation.

In the event of a fire, hazardous material release, or other hazardous situation requiring emergency, the person who discovers the emergency will:

- evacuate the zone
- activate the fire alarm, if needed
- call Police Services and report the incident
- assist emergency personnel by providing information regarding location of the incident, origin, and persons involved.

The person who discovers the emergency shall not be placed in imminent danger.

**C. Incident (Accident) Reporting.** All laboratory incidents shall be reported to EHS, including minor spills, fires, or injuries. Laboratory incidents shall be investigated. The supervisor shall be responsible for implementing corrective action to prevent repeat incidents.

In the event of worker injury, the immediate supervisor of the injured employee must fill out the First Report of Injury

**D. Signs.** The following signs and labels are required for all laboratories in University facilities:

- A "Laboratory Information" sign shall be posted outside all laboratories, either on the outside of the door or on the wall beside the door. This sign provides information on specific hazards in the lab and telephone numbers of responsible faculty and staff. The information shall be updated as necessary.
- An "Emergency and Laboratory Safety Phone numbers" sign shall be posted in a prominent location inside the lab, near the door or telephone. This sign provides emergency numbers in case of an emergency.
- A label bearing the University Police emergency number shall be placed on each telephone in the lab.



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## Emergency Spill Response

Quick Tips #146

### Introduction

Emergency spill response is an important part of a company's safety and health program. Well-prepared companies keep a plan of action and the appropriate cleanup supplies on hand in case. A simplified action plan for spill response might look like this:

- Evacuate personnel from the immediate area of the spill.
- Identify the spilled material(s).
- Notify the spill-response team.
- Barricade the spill area and notify others in surrounding areas.
- Extinguish or disconnect all sources of ignition and contact the fire department if the chemical is flammable.
- Don the appropriate personal protective equipment.
- Contain the spill.
- Clean up the spill.
- Dispose of the spill in accordance with local, state and federal regulations.

The Hazardous Waste Operations and Emergency Response Standard (HazWOPER) contains requirements for cleanup operations; corrective actions involving cleanup operations; voluntary cleanup operations; operations conducted at treatment, storage and disposal facilities; and emergency-response operations for hazardous wastes. The HazWOPER Standard, 29 CFR 1910.120, requires the following with regard to spill control:

- (j)(1)(vii) U.S. Department of Transportation specified salvage drums or containers and suitable quantities of proper absorbent must be kept available and used in areas where spill, leaks or ruptures might occur.
- (j)(1)(viii) Where major spills might occur, a spill-containment program, which is part of the employer's safety and health program required in paragraph (b) of this section, must be implemented to contain and isolate the entire volume of the hazardous substance being transferred.

When developing a spill-containment program, you should have certain tools on hand and ready to use in case an emergency spill occurs. Spill-containment tools can include drain protectors, drain plugs, drum plugs, neutralizers and sorbents.

### Sorbent Forms

Booms are cylindrical and vary in length and width. Booms are used to control and contain spills. Some booms contain spills on water, and can be connected together and deployed onto the water as a large spill barrier.

Socks or mini booms are cylindrical and vary in length and width. This form of sorbent is typically used in facility spill response or maintenance applications. Socks can be used to contain spills or can be placed around machinery or other equipment to contain leaks.

Pillows are rectangular and filled with sorbent media. They're used to clean up medium-sized spills. Place pillows under drip pans to eliminate overflow problems, or use as a precaution for a possible spill when transferring liquids.

Pads and sorbent rolls are flat, sorbent sheets available in unperforated rolls, perforated rolls or manufactured to a specific size, up to 300 feet long. Pads can be used to line shelves, catch leaks under machinery and clean up spills. Rolls can be cut to specific lengths for larger applications.

Loose or particulate sorbents are composed of sorbent media that is not contained in any type of pillow or mesh. Application of loose sorbents depends on the type of sorbent media used. Loose sorbents are typically used on small spills.

### Sorbent Categories

The three categories of sorbents are universal, petroleum and maintenance. These categories are made up of several sorbent materials, including synthetics such as polypropylene; inorganic materials, such as expanded silicates and clay; and organic materials, such as cellulose and wood fibers.

Universal sorbents are designed to absorb any liquid. They will absorb aggressive liquids such as acids and bases as well as non-aggressive liquids and solvents, such as cleaners, water-based fluids, gasoline and alcohols. Universal sorbents are made of polypropylene or expanded silicate materials.

Note: When cleaning up hydrofluoric acid, do not use an expanded silicate absorbent, because the expanded silicate material will react with the hydrofluoric acid. Instead, use a sorbent made of polypropylene.

Petroleum sorbents or "oil-only sorbents" are designed for absorption of oil and/or petroleum-based liquids. These sorbents are hydrophobic, which means they will not absorb water or water-based liquids. These can be deployed on water surfaces for emergency cleanup of spills, or used in maintenance applications for hydraulic and engine-oil cleanup. Petroleum sorbents are made of polypropylene or treated cellulose.

Maintenance sorbents absorb non-aggressive liquids commonly found in manufacturing/maintenance operations. These liquids include coolants, lubricants, oils and cutting fluids. Maintenance sorbents will pick up water-based as well as oil-based fluids. These sorbents are typically made of recycled materials, such as cotton, wool, cellulose or corncob. They can also be made of polypropylene, or a combination of the materials listed above.

### Sorbent Capacity

Sorbent capacity can be listed by the amount of weight it will absorb in relation to itself, "Absorbs 12 times its weight," or by its liquid capacity, "Absorbs 8 gal." For example, if a boom weighs 1 lb. and absorbs 12 times its weight, it will absorb 12 pounds of fluid. However, since all liquids don't weigh the same per gallon, the weight capacity of the sorbent actually varies from liquid to liquid. So perhaps a more accurate way to assess sorbent capacity is by how many gallons it will absorb or its liquid capacity. This amount will remain fairly static, regardless of the fluid weight. A boom that's 4 ft. long and 3 in. dia. will typically absorb 1 to 1 gallons of liquid. A pad that measures 16" x 20" and is 3/16" thick will absorb 28 to 32 fl. oz. Both of these examples are for polypropylene sorbents. Other materials may have different sorbent capacities.

### Commonly Asked Questions

**Q What is the difference between a sock, a dike and a boom?**

Socks are more moldable than dikes or booms. The skin is constructed of a lightweight, knit material. Socks are mainly used in maintenance applications for containing and absorbing liquids. Dikes do not mold or form around equipment as well as socks, but are more durable. Dikes are used for containing and absorbing small and large spills in open areas. Booms consist of a particulate-type absorbent covered with a porous fabric. Available in various diameters and lengths, booms are used for containing and absorbing large spills.

**Q Where can I find information on determining the absorbency rate of sorbents?**

Specially developed tests are used for calculating the sorbent-performance factors. The standard method of sorbent performance testing is described in detail in the American Society for Testing Materials (ASTM) standard F 716-82, the "Standard Methods of Testing Sorbent Performance of Adsorbents." Oil and water adsorption strength, buoyancy, absorbency and reusability are some of the tests included in the standards.

**Q Are there specific training requirements for personnel who respond to chemical spills?**

Yes. These requirements may be found in 29 Code of Federal Regulations 1910.120, Hazardous Waste Operations and Emergency Response.

**Q Where can I find information on determining the absorbency rate of sorbents?**

The handling, storage and disposal of these materials is governed by local, state and/or federal environmental regulations. It is the end user's responsibility to comply with the respective regulations.

### Source

29 CFR 1910.120, Hazardous Waste Operations and Emergency Response

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