Stormwater Compliance at Solid Waste Facilities in Maryland
Presented by:

Jason L. Baer
Matthew Sheils

Maryland Environmental Service
In 1972, Congress amended the Federal Water Pollution Control Act (i.e., the Clean Water Act) to prohibit the discharge of any pollutant to waters of the U.S from point sources.

The exception to this discharge prohibition is if the pollutant is authorized by a NPDES (National Pollutant Discharge Elimination System) permit.

Stormwater Pollution Prevention Plans (SWPPPs) were mandated by the Water Quality Act of 1987 for specific industries and operations.

These classes of industries and operations covered by general and individual NPDES permits are now required to develop SWPPPs and implement Best Management Practices (BMPs) to prevent stormwater contamination.
02-SW GENERAL PERMIT

- Permitted discharge of STORMWATER from sites associated with Industrial Activity
- Did NOT include discharge from any actual industrial process, wastewater, or wash-water
- The permit required the preparation of a SWPPP and implementation of Best Management Practices (BMPs) in accordance with the Plan
- The permit did not require submission of the SWPPP or contain corrective action requirements, penalties, etc.
- The permit did not include provisions for sampling or inspection, other than the minimum routine quarterly inspections required under the SWPPP
12-SW GENERAL PERMIT OVERVIEW

• Generally consistent with the EPA Multi-Sector General Discharge Permit
• Applies varying standards for different industrial sectors based on types of contaminants potentially present – applicability dictated by Standard Industrial Classification (SIC) Code
• Requires submission of SWPPP to the regulatory agency
• Includes requirements for sampling and / or visual inspection of discharges
• Establishes benchmarks for discharges that are linked to corrective action requirements
• Requires reporting of sample results
• Contains defined penalties
12-SW GENERAL PERMIT OVERVIEW

- Sites with sampling requirements for discharges must meet numerical benchmarks
- Exceedence of benchmark is NOT a violation of permit
- If average of monitoring for 4 quarters is below benchmark the site can stop benchmark monitoring
- If average of monitoring for 4 quarters is above benchmark the site must implement corrective actions and improve BMPs until such time that benchmarks are achieved
- Violations can occur for:
  - Failure to conduct inspection, sampling, reporting, etc
  - Failure to document corrective action plan
  - Failure to implement corrective action plan
HOW DOES THIS IMPACT THE SOLID WASTE SECTOR?

Types of Sites Impacted:

- Landfills – Sector L
- Transfer Stations – Sector L
- MRFs / Recycling Centers – Sector N
- Scrap Yards – Sector N
- Composting Sites – Sector C
- Wood-waste / Yard-waste Sites – Sector A
- Hazardous Waste TSDFs – Sector K
• Includes three (3) subsectors:
  - L1 – All Landfills (active and closed)
  - L2 – All Landfills (active only)
  - L3 – Closed Landfills (without refuse disposal permit and / or with previous 02-SW permit coverage)

• Applicable Benchmarks:
  - L1 – Total Suspended Solids (TSS)
  - L2 – Total Iron
  - L3 – No benchmark

• Sector-specific Inspections:
  - Active Sites – Weekly
  - Inactive Sites – Quarterly

• Must conduct quarterly inspections & visual monitoring
TRANSFER STATIONS – SECTOR L

• Considered “ancillary to the activity” of solid waste disposal by MDE so must follow Sector L, not Sector P (Land Transportation, Material Handling, and Warehousing)

• Subject to L1 subsector requirements

• MDE provided guidance that L2 Benchmark not required for transfer station activity (despite site being “active”)

• Applicable Benchmarks:
  - L1 – Total Suspended Solids (TSS)

• Often collocated with other industrial activities, such as recycling, which are subject to other sector-specific requirements

• Must conduct quarterly inspections & visual monitoring
MATERIALS RECOVERY FACILITIES & RECYCLING CENTERS – SECTOR N

- Applicable Subsectors:
  - N1 – Non-Source-Separated Recyclables (aka “Dirty MRF”)
  - N2 – Source-Separated Recyclables (aka “MRF,” “Single Stream,” “Dual Stream’)

- Applicable Benchmarks:
  - N1 – COD, TSS, Total Aluminum, Total Copper, Total Iron, Total Lead, & Total Zinc
  - N2 – No Benchmarks

- Must employ sector-specific BMPs for handling and storage of recyclables
- Must conduct quarterly inspections & visual monitoring
SCRAP YARDS – SECTOR N

• Applicable Subsector:
  □ N1 – Non-Source-Separated Recyclables

• Applicable Benchmarks:
  □ N1 – COD, TSS, Total Aluminum, Total Copper, Total Iron, Total Lead, & Total Zinc

• Must employ sector-specific BMPs for handling and storage of recyclable materials

• Must include provisions for stormwater management for outdoor storage

• Must include provisions for handling of residual liquids, non-recyclable materials, etc.

• Also includes facilities that recycle liquid wastes

• Must conduct quarterly inspections & visual monitoring
WOOD / YARD-WASTE SITES – SECTOR A

- Sector A includes timber products & processing
- Does NOT contain sector-specific benchmarks
- Must include provisions for stormwater management for outdoor storage and general good housekeeping practices
- Does NOT include any processing of wood-waste materials into other materials, such as composting (Sector C)
COMPOSTING SITES – SECTOR C

• Sector C is “Chemicals and Allied Products”
• Based on SIC Code, compost falls under Subsector C1 – Agricultural Chemicals
• Subsector C1 includes Benchmarks:
  - Nitrate / Nitrite
  - Total Iron
  - Total Phosphorous
  - Total Lead
  - Total Zinc
• Must include provisions for stormwater management for outdoor storage of materials, good housekeeping, etc.
• Often collocated with Sector A
MDE “HOTSPOTS”

• MDE has identified several “hotspots”:
  - Vehicle Maintenance, Repair, and Fueling
  - Vehicle / equipment washing
  - Loading / unloading areas
  - Outdoor Storage

• Areas of increased enforcement action

• MDE has prepared guidance documents for the hotspots identified above

• Consider yourself “warned”
OTHER CONSIDERATIONS

• Collocated industrial activities
  • Sites often contain several regulated activities
  • Proper stormwater control, segregation / isolation, and outfall identification can strengthen sampling plan and potentially reduce costs
  • Beneficial to separate regulated versus non-regulated activities

• “Public Works” Facilities & salt domes – Sector AD

• On-site staff need to be trained in sampling, as well as compliance because contractors may not be able to meet strict sampling requirements under the permit

• Reporting must be accomplished through “NetDMR” online portal – NO paper DMRs will be accepted

• Spill Prevention, Control, and Countermeasure (SPCC) Plan and other environmental plans need to integrate with SWPPP
OTHER CONSIDERATIONS

• If your industrial activity changes or you add new regulated activities you need to file an amended NOI and submit a revised SWPPP

• Modifications to your industrial activity may have implications for your SPCC Plan and other environmental plans for the site

• Construction activities at your site are not covered by the 12-SW permit; coverage under the 14-GP permit for construction activity would be necessary
STORMWATER SAMPLING & INSPECTION
12-SW SAMPLING

• The new 12-SW permit regulates stormwater discharge.
• Sites may be required to take two quarterly water samples of their discharge per outfall.
  – Benchmark: sent for lab analysis
  – Visual Monitoring: used to fill out the “Visual Monitoring Form”
• Samples are to be taken within 30 minutes after the start of a measurable storm event.
WHEN TO SAMPLE

- During measurable storm events
  - Any storm event with an actual discharge
- Collect samples within 30 minutes of the beginning of a storm event.
  - All sampling must be done during a storm event that is at least 3 days after the previous storm event.
WHERE TO SAMPLE

- At the site outfalls. (Located on your site map)
- Before the discharge reaches the receiving waters.
- For a detention pond, sample the discharge out of the pond.
TYPES OF OUTFALLS

- Pipes
- Sheet flow
- Catch basis
- Drainage ditches
- Sewer Drains
SAMPLING LOGISTICS FOR DIFFERENT OUTFALLS

- Deepen existing ditch
- Remove grate from catch basin

*Above:* Deepening an existing ditch before a rain event can allow samples to be collected directly into bottles in some cases. Be careful not to stir up solids from the sides or bottom of the ditch.

*Above:* Runoff entering a catch basin can sometimes be collected directly into bottles by removing the grate and allowing the runoff to fall into the bottles.
SAMPLING LOGISTICS FOR DIFFERENT OUTFALLS

- Shallow ditch construction
- Concrete bump construction

**Above:** Overland flow from vegetated areas can be sampled by constructing a shallow ditch to intercept the runoff and a deepened area to place bottles to catch the runoff. This construction should be performed before a rain event.

**Above:** Overland flow on paved areas can be sampled by constructing asphalt or concrete bumps to collect and concentrate the flow. A box positioned below ground surface in the paved area or the edge of an unpaved area can provide a place to collect samples directly into bottles.
COMINGLED DISCHARGE

• Commingled discharges must be sampled before the discharge mixes with other runoff or the receiving waters.

  • Discharge is not mixed with receiving waters.
  • Okay to sample.

  • Discharge is mixed with receiving waters.
  • Take sample at a point before the discharge mixes with the stream.
SAMPLING EQUIPMENT

- Nitrile Gloves
- Clean bottleware
- Visual Inspection Monitoring Form
- Clipboard, pen, and markers
- Sampling pole or other devices
- Cooler and ice for preserving the samples
HOW TO FILL SAMPLE BOTTLES

• Wear clean nitrile gloves while sampling.
• Use clean collection bottles.
• Keep your hands away from the bottle opening.
• Always hold the bottle with its opening facing upstream.
• Stand downstream of the sample if you need to step into the flow.
• Do NOT disturb sediments around the outfall
QUARTERLY VISUAL INSPECTIONS

• Ensures that no visible or odorous pollutants are discharged.
• Once each quarter you must collect a stormwater sample from each outfall
  – During a precipitation event
  – Within the first 30 minutes of a storm event
  – To be assessed visually
  – Take a picture to keep with your records
• The quarterly visual monitoring form should be used. (Located in your SWPPP Appendix)
  – The sample must be done during a storm event that is at least 3 days after the previous storm event.
# Quarterly Visual Monitoring Form

*Fill out a separate form for each outfall sampled.*

<table>
<thead>
<tr>
<th>Sample Location</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Quarter / Year</th>
<th>Date / Time Collected</th>
<th>Date / Time Examined</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Qualifying Storm Event?</th>
<th>Yes</th>
<th>No</th>
<th>Runoff Source:</th>
<th>Rainfall</th>
<th>Snowmelt</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Collector's Name &amp; Title</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Examiner's Name &amp; Title</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Parameter Description</th>
<th>Parameter Characteristics</th>
</tr>
</thead>
</table>

**1. Color**  
- Does the stormwater appear to have any color?  
  - Yes  
  - No (Clear)

**2. Clarity**  
- Is the stormwater clear?  
  - Yes  
  - No

**3. Oil Sheen**  
- Can you see a rainbow effect or sheen on the water surface?  
  - Yes  
  - No

**4. Odor**  
- Does the sample have an odor?  
  - Yes  
  - No

**5. Floating Solids**  
- Is there anything on the surface of the sample?  
  - Yes  
  - No

**6. Suspended Solids**  
- Is there anything suspended in the sample?  
  - Yes  
  - No

---

**Leave sample undisturbed for 30 minutes.**

**7. Settled Solids**  
- Is there anything settled on the bottom of the sample?  
  - Yes  
  - No

**8. Foam**  
- Does foam or material form on the top of the sample surface if you shake it?  
  - Yes  
  - No

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

---

**Stormwater Collector's Signature and Date:**

**Stormwater Examiner's Signature and Date:**

*Note – Sample should be collected and analyzed in a colorless glass or plastic bottle.*
• Collect the discharge in a test tube or clear sampling bottle.
• Do not try to assess water color by looking directly into the waterway.
  – Water depth, substrate condition, and sky color can all influence your perception of the water color.
2. Clarity

<table>
<thead>
<tr>
<th>Is the stormwater clear?</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
</table>

If not clear, which of the following best describes the clarity of the stormwater?

- Suspended Solids
- Milky/Cloudy
- Opaque
- Other:

![Image showing low and high turbidity](image.png)

Low Turbidity → High Turbidity
<table>
<thead>
<tr>
<th>3. Oil Sheen</th>
<th>Can you see a rainbow effect or sheen on the water surface?</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rainbow sheet</td>
<td>Floating oil globules</td>
<td>Other:</td>
</tr>
</tbody>
</table>

![Natural sheen](image)

![Synthetic sheen](image)

Floating oil globules
<table>
<thead>
<tr>
<th>Odor</th>
<th>General Causes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1  Rotten eggs/hydrogen sulfide (septic)</td>
<td>• Raw sewage, decomposing organic matter, lack of oxygen</td>
</tr>
<tr>
<td>2  Chlorine</td>
<td>• Wastewater treatment plant discharges, swimming pool overflow, industrial discharges</td>
</tr>
<tr>
<td>3  Sharp, pungent odor</td>
<td>• Chemicals or pesticides</td>
</tr>
<tr>
<td>4  Musty odor</td>
<td>• Presence of raw or partially treated sewage, livestock waste</td>
</tr>
<tr>
<td>5  Gasoline, petroleum</td>
<td>• Industrial discharge, illegal dumping of wastes, waste water</td>
</tr>
<tr>
<td>6  Sweet, fruity</td>
<td>• Commercial wash water, wastewater</td>
</tr>
<tr>
<td>7  Other (describe)</td>
<td></td>
</tr>
<tr>
<td>5. Floating Solids</td>
<td>Is there anything on the surface of the sample?</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------------------------------------------</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>Other:</td>
</tr>
<tr>
<td>6. Suspended Solids</td>
<td>Is there anything suspended in the sample?</td>
</tr>
<tr>
<td>--------------------</td>
<td>------------------------------------------</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
</tr>
</tbody>
</table>

- Suspended solids
After leaving the sample undisturbed for 30 minutes, inspect for settled solids.

<table>
<thead>
<tr>
<th>7. Settled Solids</th>
<th>Is there anything settled on the bottom of the sample?</th>
<th>Describe: (note type, size and material after sample is not disturbed for 30 minutes)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td></td>
<td>No</td>
<td></td>
</tr>
</tbody>
</table>

Settled solids
1. Leave the sample undisturbed for 30 minutes.

2. Shake the sample

3. Inspect for foam
Contact us

410-729-8370
jbaer@menv.com
msheil@menv.com