



**DRAFT HIGH MOISTURE CONTENT WASTE MANAGEMENT PLANS  
AT SOLID WASTE FACILITIES  
GUIDANCE DOCUMENT  
June 2020**

**PURPOSE**

This document is intended to clarify the design and operational (D&O) plan requirements for municipal solid waste landfills (MSWL) and industrial landfills in Georgia where a significant portion (greater than 5% by weight) of the waste stream consists of waste with a moisture content that could negatively affect the stability of the subject facility.

**LEGAL AUTHORITY**

391-3-4-.07(6) High Moisture Content Waste Management Plans: “Owners or operators of MSWLs and Commercial Industrial Landfills must incorporate a High Moisture Content Waste (HMCW) management plan into the facility's Design and Operational Plan by major modification before the initial receipt of HMCW if planning to accept greater than 5% HMCW by weight. MSWLs and Commercial Industrial Landfills that accepted High Moisture Content Waste before the effective date of the Rule and will continue to accept HMCW greater than 5% by weight after the effective date must incorporate a HMCW management plan into the facility's Design and Operational Plan by minor modification as part of the facility’s permit review required by 391-3-4-.02.”

**BACKGROUND**

Due to instances of waste mass instability and leachate management issues at various disposal facilities throughout Georgia, the Rules for Solid Waste Management have been amended (proposed at this time) to include a requirement for a high moisture content waste (HMCW) management plan to be included in a permitted facility’s D&O plan. HMCW compacts well and can form a low permeability layer within the waste mass hindering the downward percolation of leachate to the leachate collection system. The result of this hindered leachate flow can be elevated pore pressures within the waste mass contributing to instability. In addition, many HMCW streams have a low shear strength that provides little resistance to sliding and movement. Polymers used in the clarification process of wastewater treatment facilities further reduce the shear strength of the associated waste. This waste can form a viscous layer that may become a failure plane for instability events.

**APPLICABILITY**

The following facilities defined in Rule 391-3-4-.01 that are active are subject to the requirements of this guidance:

- Municipal Solid Waste Landfills (MSWL)
- Private Industry Solid Waste Disposal Facilities

**Exceptions**

Permitted solid waste facilities that receive 5% or less by weight of their total waste stream as HMCW are exempt from the requirements of Rule 391-3-4-.07(6) and this guidance.

**Components of HMCW Management Plans**

1. Define high moisture content waste and disposal limits
  - a. Waste with a moisture content greater than 40% by weight (weight of liquid / total weight of sample), non-hazardous liquids, and bulk solidification agents
  - b. Place a restriction to the highest percentage of HMCW allowed (based on site-specific conditions and stability analysis) over a 30-day rolling average. Should a higher percentage of HMCW be accepted, a demonstration must be made (which includes field investigations) that elevated pore pressures are not adversely affecting the stability of the facility.
2. Operational Practices. Provide operational best management practices to ensure landfill stability and odor control. These practices include, but are not limited to:
  - a. Using thin lift placement of sludge to ensure thorough blending with MSW
  - b. Limiting the location of blended MSW/HMCW to beyond 50 feet or more of the outside edge of slope
  - c. Avoiding “pocket fills” of HMCW to be covered by a bridge lift of MSW
  - d. Avoiding HMCW placement in known areas of instability and leachate outbreaks
  - e. Placing daily cover over the working face at the end of each operational day
  - f. Removing daily cover prior to incorporating HMCW into the waste mass
3. Leachate Management Plan
  - a. Detail leachate outbreak repair practices. These practices include, but are not limited to:
    - i. Removing the material associated with the leachate outbreak, backfilling, and repairing the clay infiltration layer
    - ii. Installing stone trenches and/or drains to send leachate down to the leachate collection system
    - iii. Installing temporary sumps to remove leachate
  - b. Document in the facility operating record all temporary or permanent infrastructure
  - c. Specify the installation of caissons along the approximate locations of gas extraction wells to facilitate vertical percolation of leachate to the leachate collection system
  - d. Conduct daily inspections and promptly repair leachate collection sumps. This includes, but is not limited to:
    - i. Monitoring leachate levels to ensure compliant levels in sumps
    - ii. Ensuring there are no leaks present
    - iii. Confirming pumps are operating properly
    - iv. Reporting issues/observations to the general manager

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4. Leachate Release Protocol
  - a. Define leachate release to mean the release of leachate outside the lined area of the facility
  - b. Reference how the release will be contained and mitigated in accordance with the facility's most recent stormwater pollution prevention plan (SWPPP)
  - c. Detail specific procedures to be implemented to mitigate the impact of released leachate. These procedures include, but are not limited to:
    - i. Stopping the potential source of leachate
    - ii. Estimating the amount of leachate released
    - iii. Evaluating the extent of the release
    - iv. Installing diversion berms
    - v. Excavating soil
    - vi. Testing soil
    - vii. Notifying EPD's Solid Waste Management Program and Watershed Protection Branch, as appropriate
5. Odor Control Plan
  - a. List best management practices used to control odors at the facility
  - b. Detail how odor complaints will be managed, including:
    - i. Maintaining a complaint log
    - ii. Conducting an investigation
    - iii. Detailing how the odor was addressed if the complaint is verified to be coming from the landfill
    - iv. Documenting mitigation activities
6. Stability Monitoring and Reporting
  - a. Perform weekly inspections of waste slopes and areas of concern
    - i. Record on a form and keep in the facility operating record for a minimum of 5 years
    - ii. The form shall contain, at a minimum:
      1. Placement lift thickness
      2. Proper horizontal compaction
      3. Proper mixing of MWL/HMCW
      4. Instances of plastic liners limiting incorporation/mixing
      5. Removal of daily or intermediate cover
      6. Sliver fill
      7. Benching into slopes
      8. Gas seepage
      9. Leachate seepage
      10. Ponding of leachate and/or stormwater on lined area
      11. Insufficient or breached stormwater controls
      12. Large areas that do not promote positive drainage
      13. Inoperable or low flow from leachate and gas condensate sumps
  - b. Document additional observations by landfill staff in the operating record as they occur and report them to the general manager. These include, but are not limited to:

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- i. Wet areas of the landfill
  - ii. Leachate outbreaks and/or releases
  - iii. Gas outbreaks
  - iv. Uneven slope surfaces due to the waste being too wet to grade properly
  - v. Uneven slope surfaces due to differential settlement and/or sloughs to the slope
  - vi. Liquid blowing out of gas wells
  - vii. Increased odors
  - viii. Bent leachate collection pipes and/or gas stickups on the side slopes of the facility
  - ix. Cracking of waste cover soils parallel with the toe of slope or in a crescent moon shape. Discontinuous 1/8" wide cracks shall be reported to a geotechnical engineer if they collectively extend over a length of 100 ft.
  - x. Scarps or dropouts of the waste mass
  - xi. Bulging
  - xii. Sliding of soils over the toe of slope
- c. The facility's general manager will be provided copies of the inspection reports and shall follow up with a professional geotechnical engineer, licensed to practice in the State of Georgia.
- i. Within 24 hours of observing slope movements or bulges, and/or when the facility is advised by the geotechnical engineer that corrective measures are required to improve the stability of the existing MSW and/or HMCW/MSW mass, the landfill will notify EPD's Solid Waste Management Program and provide details of the movement observed or measured, and the analysis to be performed.
  - ii. Within 30 days of this official notification to EPD, the facility will notify EPD of the immediate corrective measures that are to be implemented and a schedule for implementation. Long-term corrective measures and implementation schedules shall be submitted as a minor modification to the permit within 60 days of official notification to EPD.

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William Cook, Manager  
Solid Waste Management Program

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Date