

INTRODUCTION TO SOLID WASTE LAWS AND REGULATIONS IN THE STATE OF MISSISSIPPI

Section 1

Mark Williams
Class 1 Rubbish Operators Training Class



Mississippi Department of Environmental Quality

- MDEQ is charged with conserving, managing, developing and protecting the natural resources of the State.
- The agency established to provide technical assistance and support to the Commission and the Permit Board.
- MDEQ currently has almost 400 employees at five different office locations.

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MDEQ Reporting Hierarchy



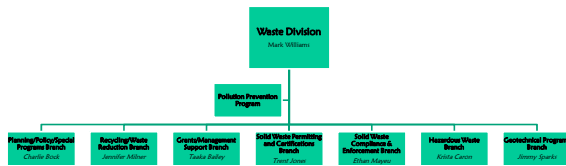
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Commission and Permit Board

- **Commission on Environmental Quality**
 - Adopts Regulations and Policies
 - Enforces Rules and Regulations
 - Conducts Studies of State's Resources
 - Other Duties as directed by State Legislature
- **Environmental Quality Permit Board**
 - Issues Environmental Permits for air, water, waste and other activities in the state.

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Waste Division



MDEQ Waste Division and Program Areas

- Solid Waste Policy, Planning and Programs Branch;
- Recycling and Waste Reduction Branch
- Solid Waste Grants Management and Management Support Branch;
- Solid Waste Permitting and Certification Branch;
- Solid Waste Compliance and Enforcement Branch;
- Hazardous Waste Management Branch
- Geotechnical Programs Branch
- Pollution Prevention Program and Enhance

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Other MDEQ Divisions

- Field Services Division (NRO, CRO, SRO, Lab);
- Environmental Permits Division
 - 401/Storm water Branch
- Environmental Compliance and Enforcement Division
 - 401/Storm water Branch
 - Enforcement Branch

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Overview of Solid Waste Laws and Regulations

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State Solid Waste Laws

- Miss. Code Ann. Section 17-17-1, *et seq.*, the Mississippi Solid Waste Disposal Law of 1974
 - 17-17-13 – provides an on-site disposal exemption
 - 17-17-17 – unauthorized dumping is unlawful and dumping must cease and the dump closed
 - 17-17-29 – penalty provisions for Commission
 - 17-17-37 – point of ownership of wastes

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State Solid Waste Laws

- Miss. Code Ann. Section 17-17-1, *et seq.*, the Mississippi Solid Waste Disposal Law of 1974 (continued)
 - 17-17-63 – created the Corrective Action Trust Fund;
 - 17-17-65 – created the Local Governments Solid Waste Assistance Fund;
 - 17-17-67 – felony offense for improper hazardous waste disposal;

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State Solid Waste Laws

- Miss. Code Ann. Section 17-17-1, *et seq.*, the Mississippi Solid Waste Disposal Law of 1974 (continued)
 - 17-17-201, *et seq.* – Solid Waste Planning Act
 - 17-17-219 – Annual Reporting Requirements and Solid Waste Disposal Fees
 - 17-17-301, *et seq.* – Regional Solid Waste Authority Act
 - 17-17-401, *et seq.* – laws on waste tires, batteries

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State Solid Waste Laws

- Miss Code Ann. Section 49-17-1, *et. seq.*, “the Mississippi Air and Water Pollution Control Law”
 - 49-17-3 – Statement of Conservation Policy;
 - 49-17-28 to -29 – sets up Permit Board and Permitting Process;
 - 49-17-29 – prohibits placement of wastes in such manner to pollute air and water.
 - 49-17-31 *et seq.* – sets up Commission and Civil Enforcement Process;

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State Solid Waste Laws

- Miss Code Ann. Section 49-31-1, *et seq.*, “the Mississippi Multimedia Pollution Prevention Act”
 - 49-31-5 – policy of the state to reduce wastes and recycle at least 25% of waste stream;
 - 49-31-11 – Commission to coordinate recycling among local governments
 - 49-31-15 – all state agencies, universities, and community colleges must recycle, reduce wastes

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State Solid Waste Laws

- Section 21-27-205 thru -211 of the Mississippi Code Annotated originally known as the Municipal and Domestic Water and Wastewater System Operator’s Certification Act of 1992.

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Other Solid Waste and Environmental Laws

- Section 97-15-29 thru 31 of the Mississippi Code Annotated also known as the Felony Dumping Act or Midnight Dumping Act;
- Section 19-5-105 & Section 21-19-11 of Miss. Code Ann. regarding local governments clean up of private property;
- Other State Laws including Brownfields law, UST laws, Oil and Gas laws, Wildlife Conservation laws, etc.

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Solid Waste Laws and Regulations

- Mississippi Nonhazardous Solid Waste Management Regulations (Rule 11.4.1)
 - Section I describes applicability, exemptions and definitions;
 - Section II describes requirements and procedures for obtaining a solid waste management permit;
 - Section III describes the applicable location or siting criteria; and
 - Section VI describes the operating requirements for rubbish sites.

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Mississippi Solid Waste Regulations

- Evaluation Criteria for Local Solid Waste Management Plans (Rule 11.4.2);
- Grant Regulations for Waste Tire and Solid Waste Assistance Funds (Rule 11.4.3);
- Mississippi Waste Tire Management Regulations (Rule 11.4.4);
- Mississippi Waste Tire Transportation Regulations (Rule 11.4.5);

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Mississippi Solid Waste Regulations

- Nonhazardous Corrective Action Trust Fund Regulations (Rule 11.4.6);
- Nonhazardous Solid Waste Disclosure Regulations (Rule 11.4.7)
- Regulations for Certification of Operators of Solid Waste Disposal Facilities (Rule 11.4.8);
- Regulations for Beneficial Use of Solid Wastes (Rule 11.4.9); and
- Mississippi Air & Water Pollution Control Regulations.

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Other Laws and Regulations

- Title 40 Code of Federal Regulations (CFR) Parts 257 and 258 (Subtitle D wastes)
- National Emission Standards for Hazardous Air Pollutants NESHAP (asbestos)
- Toxic Substances Control Act (TSCA) (PCB-containing wastes)
- RCRA Subtitle C, the Mississippi Hazardous Waste Management Regulations (including the Universal Waste Rule)

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Other Laws and Regulations

- Rules on Animal Carcass Disposal – Mississippi Board of Animal Health
- Medical Waste Regulations – State Department of Health
- Rules for Oil and Gas Exploration and Production Wastes – State Oil and Gas Board
- Regulations Governing Waste Stations along State Highways – Mississippi Department of Transportation
- Other state and federal rules (OSHA, DOT, USDA, etc.)

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Other Guidance Documents

- Architectural Debris Guidance Document
- Solid Waste Enforcement Officers: Duties and Procedures;
- Guidance(s) for Developing and for Amending Local Solid Waste Management Plans;
- Guidance(s) for Waste Tire and White Goods Collection Programs;
- Electronics Waste web resources, documents and brochures; and
- MDEQ Medical Waste Fact Sheet.

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Class I Rubbish Operator Certification Requirements

- Section 21-27-205 requires that each Class I rubbish site in the state must have a certified operator in order to operate.
- Section 21-27-211 allows the Commission to create reciprocal arrangements with other states that have similar certification programs.
- State Regulations for Certification of Operators of Solid Waste Disposal Facilities sets the standards and procedures for obtaining certification.

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Class I Rubbish Operator Certification Requirements (continued)

- Operator must file an application for a Certificate of Competency with MDEQ that demonstrates the following:
 - Applicant is a graduate of an accredited high school or has an equivalent GED;
 - Applicant has one year of experience operating a rubbish site or other comparable, related experience; and
 - Applicant has passed a written examination developed and prepared by the Commission.

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Class I Rubbish Operator Certification Requirements (continued)

- A Certificate of Competency for a Class I Rubbish Site Operator is valid for 3 years from the date of issuance.
- The Commission may deny a Certificate for persons who fail to meet the requirements, who falsify information, or who provide an incomplete application.
- In order to renew the Certificate, an application must be submitted demonstrating that 24 hours of CEUs have been earned over the 3-year period.

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Class I Rubbish Operator Certification Requirements (continued)

- If a site loses the certified operator, written notice must be provided to MDEQ within 7 days of the person leaving the site operations.
- The site operator has 180 days to obtain another certified operator;
- The certified operator for the site must have direct supervision over and be personally responsible for the daily operation and maintenance of the rubbish site.

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Overview of Solid Waste Terms, Definitions, and Information

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What is solid waste?

Solid waste

means any garbage, or refuse, sludge from a wastewater treatment plant, water supply treatment plant, or air pollution control facility and other discarded material, including solid, liquid, semi-solid, or contained gaseous material resulting from industrial, commercial, mining, and agricultural operations, and from community activities, but does not include solid or dissolved materials in domestic sewage, solid or dissolved materials in irrigation return flows or industrial discharges that are point sources subject to permit under 33 U.S.C. 1342 , or source, special nuclear, or by-product material as defined by the Atomic Energy Act of 1954, as amended (68 Stat. 923).

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What is hazardous waste?

Hazardous waste

In regulatory terms, a RCRA ***hazardous waste*** is a waste that appears on one of the four hazardous wastes lists (F-list, K-list, P-list, or U-list), or exhibits at least one of four hazardous characteristics. Hazardous waste is regulated under the Resource Conservation and Recovery Act (RCRA) Subtitle C. The universe of hazardous wastes is large and diverse. Hazardous wastes can be liquids, solids, contained gases, or sludges. They can be the by-products of manufacturing processes or simply discarded commercial products, like cleaning fluids or pesticides.

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What are the *characteristics* of a *hazardous waste*?

Toxicity

(TCLP levels for metals, volatiles, semi-volatiles, pesticides/herbicides)

Ignitability*

(flashpoint < 140 °F)

Corrosivity*

(pH ≤ 2 or ≥ 12.5)

Reactivity

(cyanide- or sulfide-based or reacts with water)

* Characteristic does not apply to a solid material.

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What is municipal solid waste?

Municipal solid waste (MSW)

under state law, means any nonhazardous solid waste resulting from the operation of residential, commercial, governmental, industrial, or institutional establishments, except oil field exploration and production wastes and sewage sludge.

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What is rubbish?

Rubbish

a subset of solid wastes defined by statute as any non-putrescible solid wastes (excluding ashes) consisting of both combustible and noncombustible wastes. Combustible rubbish includes paper, rags, carton, wood, furniture, rubber plastics, yard trimmings, leaves and similar material. Noncombustible rubbish includes glass, crockery, metal, and like material which will not burn at ordinary temperatures (not less than 1,600 °F).

For additional guidance, see page 82 of the Mississippi Nonhazardous Waste Management Regulations.

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What is putrescible waste?

Putrescible waste

is any solid waste that is capable of being decomposed by micro-organisms with sufficient rapidity to cause nuisances from odors or gases.

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What is industrial waste?

Industrial waste

solid wastes generated by manufacturing or industrial processes that are not hazardous wastes regulated under Subtitle C of RCRA.

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Industrial wastes include....

- ***Industrial process wastes*** includes materials such as sawdust, sludges, ashes, wood chips, wood cut-offs, ashes, lime muds, foundry sands, shredder residue, off-spec raw material, and unusable product
- ***Extraction or clean-up wastes*** such as contaminated soil and debris from spills, leaks, or un-contained discharges
- ***Miscellaneous wastes*** like floor sweepings, cleaning solvents and solutions, empty containers, packaging materials, and equipment maintenance wastes

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What is a special waste?

Special waste

a “non-regulatory” term that is generally used to recognize certain solid waste streams or subsets of a waste stream that require special or extraordinary circumstances or conditions in managing and disposing of the wastes.

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Special wastes include...

- Certain ***architectural debris*** (also known as construction and demolition debris, or “C&D”) such as asbestos, lead-based paint debris, fluorescent light bulbs, light ballasts, treated wood products, paint cans, and other materials;
- ***Automotive wastes*** such as tires, used oil and filters, batteries, etc;
- ***Extraction or clean-up wastes*** such as contaminated soil and debris from spills, leaks or un-contained discharges;

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Special wastes include.... (continued)

- Certain ***industrial process wastes*** that may require special handling conditions such as treatment or solidification;
- ***Medical wastes*** such as syringes, vials, blood-soaked materials, pathological wastes, and pharmaceuticals; and
- ***Other special wastes*** that might include empty containers, maintenance wastes, CESQG wastes, electronic wastes, universal wastes, animal carcasses, NORM wastes, etc.

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What is leachate?

Leachate

means a liquid that has passed through or emerged through solid wastes and contains soluble, suspended, or miscible materials removed from such waste.

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What is an aquifer?

Aquifer

means an underground layer or geological formation (gravel, sands, silts, sandstone, other rock), group of formations, or portion of a formation capable of yielding significant quantities of groundwater to wells or springs.

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Exclusions to the Nonhazardous Solid Waste Management Regulations

- Hazardous wastes subject to Subtitle C of RCRA;
- Domestic sewage or industrial wastewater that passes through treatment works;
- Solid wastes generated through harvesting crops or raising of animals which is returned to the soil as a conditioner;
- Rubbish that is legitimately used, reused, or recycled or reclaimed, except for waste that is composted or wastes that may result in endangerment to the environment;

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Exclusions (continued)

- Solid wastes that have been determined by MDEQ to be suitable for "beneficial use;"
- Solid wastes used in legitimate beneficial fill projects;
- Solid wastes generated in silviculture activities (such as timber harvesting slash and land-clearing debris), whenever such wastes are left onsite;
- Solid wastes processed on the same property on which wastes are generated in a processing facility owned and operated by the generator;

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Exclusions (continued)

- Solid wastes that have been determined by the Permit Board to not constitute an endangerment to the environment or public health and that are disposed on the site of generation. Excluding household garbage or continuous waste disposal;
- Mining overburden returned to the mine site;
- Wastes subject to underground injection well rules; and
- Oil and gas exploration and production wastes, except for commercial management of these wastes.

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Hierarchy of Landfill Types

- Municipal Solid Waste Landfills (can accept most any type of non-hazardous solid waste)
- Non-Municipal Solid Waste Landfills (includes industrial and special waste landfills)
- Class I Rubbish Disposal Facilities (for construction and demolition debris and other rubbish)
- Class II Rubbish Disposal Facilities (for more inert types of rubbish)
- Beneficial fill sites (fill use of non-soluble, non-decomposable Class II rubbish in a fill of less than 1 acre for a duration of less than 120 days).

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Municipal Solid Waste Landfill



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Industrial Sludge Landfill



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Industrial Landfill



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Other Types of Solid Waste Management Facilities

- Land Application Facilities
- Processing & Treatment Facilities
- Waste Transfer Stations
- Waste Composting Facilities

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Land Application Site



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Solid Waste Processing Facility



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Solid Waste Transfer Stations



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Waste Composting Facility



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Waste Composting Facility



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Questions?



SOLID WASTE PLANNING AND PERMITTING PROCEDURES

Section 2

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Solid Waste Planning by Local Governments

- Every local government (counties) must develop and maintain a 20-year solid waste management plan describing how the local government intends to manage solid wastes.
- A county may join together with other counties in a Regional Solid Waste Authority to develop a regional plan or may develop its own individual plan.
- Each municipality must either join the county or regional authority in the development of the plan or must develop its own individual plan.

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Why is Local Planning Important for the Rubbish Site Operator?

- There is a statutory moratorium on issuance of solid waste permits in counties that do not have approved solid waste plans.
- Your site must be included in the local solid waste plan in order to get a permit from MDEQ.
- The approved local plan sets the maximum disposal capacity or area for the disposal site.
- The approved local plan sets the service area of the disposal site.
- The planning process can result in additional requirements or conditions on the rubbish site.

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Other Possible Local Conditions

- Additional set-back restrictions
- Operating or permitting restrictions
- Host community fees
- Other community services
- Site aesthetic conditions
- Local road litter controls/clean-up

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Plan Components Include:

- Inventory of sources, composition & quantities of waste and projections of waste to be generated over a 20-year period;
- Plans for municipal waste including: garbage, rubbish, yard waste and municipal sludge;
- Provisions for Commercial & Industrial Waste Management;
- Special Waste Management including: C&D, bulk liquid wastes, waste tires, HHW, white goods, agricultural wastes, and other.

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Plan Components include:

- Strategy for achieving 25% waste reduction;
- Illegal dumping prevention and enforcement plan;
- Identification of all existing solid waste facilities including size, location, service area, etc.
- Identification of new or expanded facilities and a determination of need for such facilities;

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**Plan Components include
(continued):**

- Emergency debris management plan;
- Estimation of costs to local government and method of financing those costs;
- Plans and schedule for meeting any projected short fall in waste capacity;
- Other information the Commission may require.

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Plan Development Procedures

- Apply to MDEQ for Grant Support
- Select Planning Consultant/Contact
- Hold pre-planning Meeting with MDEQ
- Solicit Upfront Public Input
- Collect Information and Develop Plan Content

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Plan Public Participation Procedures

- Advise adjacent property owners to any new facility proposed;
- Advise adjacent counties of the new proposed plan;
- Advise the public through two consecutive public notices; and
- Hold a public hearing on the plan.

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Plan Adoption Procedures

- Revise and finalize plan based on consideration of public comments;
- Adopt a resolution(s) approving the solid waste plan.
- Submit completed plan to MDEQ for review;
- MDEQ identifies deficiencies for correction;
- MDEQ presents completed plan to Commission on Environmental Quality for approval.

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Amending an Approved Plan for a New or Expanded Site

- Before applying for a permit from MDEQ, a new site or an expansion of an existing site must be included in the solid waste plan.
- If the new site or the expansion of an existing site is not recognized in the plan, the operator must file a request with the local government for inclusion in the plan.

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Amending an Approved Plan for a New or Expanded Site (continued)

- The request to the local government to amend the plan must include the following:
 - Applicant Information
 - Facility Information (location, size/capacity, service area, waste type, etc.)
 - Demonstration of Need
 - Other information requested by the local government

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Amending an Approved Plan for a New or Expanded Site (continued)

- The Demonstration of Need must address the following information:
 - Verify that the facility meets local needs (evaluating volume of waste generated and existing area disposal capacity)
 - Local Zoning Compliance
 - Consistency with Waste Reduction Strategy
 - Consistency of Service Area
 - Need for Replacing Other Facilities

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Amending an Approved Plan for a New or Expanded Site (continued)

- Local government makes preliminary decision to consider including facility;
- Prepares information for public review;
- Publishes notices and notify adjacent landowners and adjacent counties;
- Holds Public Hearing and Considers Comments;
- Makes decision on Amendment Request.

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Amending an Approved Plan for a New or Expanded Site (continued)

- If the decision is to include the facility, the local government must do the following:
 - Adopt a resolution approving amendment;
 - Prepare replacement pages of the plan;
 - Prepare a determination of need;
 - Submit request to MDEQ for review;
 - May present information to Commission;

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Amending an Approved Plan for a New or Expanded Site (continued)

- The Commission reviews the information and makes a decision on the request:
 - Fully Approve
 - Deny Request
 - Grant Conditional Approval identifying deficiencies
- The Commission’s decision is appealable first to the Commission and then to local Chancery Court.

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Basic Solid Waste Permitting Requirements

- A Solid Waste Management Permit is required for any solid waste management or disposal facility (except for those exclusions).
- Any person seeking a permit for a solid waste facility must have the facility included in the local solid waste plan first.

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Why is Permitting Important for the Rubbish Site Operator?

- The permitting process determines the technical disposal area limits (vertical and horizontal).
- The permitting process determines any specific location or set back restrictions.
- The permitting process determines the operating standards for the site.
- The permitting process reveals local issues and concerns from residents near the site.

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Basic Solid Waste Permitting Requirements

- A Class I rubbish facility can apply for coverage under the Statewide General Permit for Class I Rubbish Sites or may be required to obtain an individual solid waste permit.
 - All individual permits are required to go to public notice at a minimum.
 - A public hearing would be held on an individual permit if there is sufficient local interest.
 - Permit coverages under the statewide general permit do not have require a public participation process.

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Reasons For Individual Permit

- Site-Specific Design Requirements
- Site-Specific Operating Requirements
- Site-Specific Monitoring Requirements
- Site-Specific Location or Setback Requirements
- Significant Public Opposition to the Proposed Site.

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Permit Application Contents

- General Applicant Information
- Land Ownership Information
- General Facility Information
- Topographical Map of Proposed Site
- Describe/depict the Disposal Area
- Demonstrate Compliance with Siting Criteria
- Local Planning and Zoning Compliance
- Adjacent Land Owner Information

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Permit Application Contents (continued)

- Proposed Plan of Operation
- Cross-Sectional Drawings of the Disposal Site
- Geologic and Liner Design Information
- Closure and Post-Closure Plan
- A disclosure statement for private companies or contract operators
- Other information deemed necessary by the Permit Board

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Other Environmental Permits

- Storm Water Permit Coverage
 - Statewide Industrial Storm Water General Permit for Industrial Activities
 - Individual Storm Water Permit
 - Previous historic coverages issued under Baseline, Construction Storm Water, and Land Disposal General Permits
- Mining Permit
 - Issued by the MDEQ Office of Geology
- Wetlands Permit
 - Section 404 Wetlands Permit Issued by the US Army Corps of Engineers
 - 401 Water Quality Certification Issued by MDEQ

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MDEQ Permit Review Process

- MDEQ requests all permit applications for the project to be submitted simultaneously.
- Upon receipt, MDEQ will send a letter acknowledging receipt of permit applications.
- MDEQ reviews applications and identifies deficiencies to the applicant.
- Upon correction of deficiencies, MDEQ finalizes a preliminary decision on permits.
- If needed a public notice is published for 30-day period.

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MDEQ Permit Review Process

- If needed, MDEQ holds a public hearing in the area of the proposed site.
- MDEQ considers public comments and makes a recommendation to the Permit Board.
- Permit Board makes a decision to issue or deny the Permits.
- Permit Board's decisions are appealable administratively and legally.

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Other Permitting Considerations

- All applications must be signed by an duly authorized representative of the applicant.
- The permit applicant is responsible for acquiring sufficient interest in the permit property.
- Permit transfers must be approved by Permit Board.
- The Permit Board can apply other conditions or restrictions to a Class 1 rubbish site that are not normally required of these sites.

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Other Permitting Considerations

- Any solid waste management facility that does not have a permit and that is not excluded under a valid exclusion in the regulations is considered an **unauthorized dump**.
- Any site that is an unauthorized dump is required to be closed by removal of the wastes or on site burial. The person(s) responsible for creating such unauthorized dumps is subject to enforcement actions by MDEQ as well as local criminal enforcement agencies.

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Storm Water Permitting Requirements

- Rubbish sites must obtain National Pollutant Discharge Elimination System (NPDES) permit for storm water discharge from the site
- Two types:
 - *Statewide Industrial Storm Water General Permit for Industrial Activities*
 - *Individual Storm Water Permit*

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Industrial Storm Water General Permit

- Submit application for permit coverage to MDEQ including NOI form and SWPPP.
- Permit coverage must be maintained throughout lifetime of facility.
- Requires periodic updates with MDEQ.
- The current Industrial Storm Water General Permit was issued on December 10, 2020. Those previously covered under the Baseline GP should have received a notice and instructions on applying for re-coverage.

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Industrial Storm Water General Permit

- Design and operate your storm water system in compliance with your approved SWPPP.
- Inspect storm water management controls and outfalls after rainfall events that cause a discharge and at least weekly in areas that are not stabilized.
- Maintain recordkeeping system for inspections.
- Submit an annual comprehensive site inspection and SWPPP Evaluation Report Form by Jan. 28th.
- Modify and update your SWPPP as needed.

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Individual Storm Water Permit

- May be requested when MDEQ or the applicant wants certain site-specific standards to be applied to their operations.
- Submit application for permit coverage to MDEQ that includes NOI form and SWPPP.
- The individual storm water permit is a 5-year permit. Normally the individual storm water permit is considered when an individual solid waste permit is also being issued.

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Individual Storm Water Permit

- Design and operate your storm water system in compliance with your approved SWPPP.
- Routinely inspect the storm water system on a frequency that is required by the permit to ensure effectiveness of SWPPP design and implementation.
- Maintain recordkeeping system for inspections of the SWPPP system.

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Individual Storm Water Permit

- MDEQ may establish site-specific discharge limits and sampling requirements for the facility based on the site-specific conditions.
- Report to MDEQ on your SWPPP, your inspections and your monitoring as required by the permit, normally on an annual basis.
- Modify and update your SWPPP as needed to reflect changes in the conditions at your site.

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Mining Permits

- Mining Permits are issued by the MDEQ's Office of Geology
- Permit are not required for:
 - Excavations made by the owner of land where the materials removed are transported to another location on that same land without using any public highway, road or street, and where the distance between the excavation and the location where the materials are deposited does not exceed five (5) miles; provided, that the owner of such land has the legal right to the materials; and
 - Mining operations affect four (4) acres or less.
- Separate Mining operations on the site must also be covered under a SWPPP and appropriate storm water permit coverage;

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Financial Assurance

- Financial Assurance requirements for closure and post-closure care for class I rubbish sites are under consideration and review.
- Financial Assurance is a demonstration that an owner will be able to pay for required closure and post-closure care activities and any corrective action that might become necessary through an appropriate financial mechanism.

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Financial Assurance

- Ensures proper long term financial planning by an owner so that sites will be closed properly and maintained
- Written, site specific closure and post-closure care cost estimates are prepared prior to starting facility operations for the approval of MDEQ.
- Upon approval of MDEQ of the cost estimates, the owner must provide a financial mechanism in the amount of the cost estimates.

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Financial Assurance

- Corrective action cost estimates are prepared only when a release is detected.
- Cost estimates must be adjusted annually during the active life of the unit/facility to account for inflation.
- All cost estimates are calculated based upon hiring a third party to perform the required action.
- MDEQ is currently working to determine those sites for which Financial Assurance may be required.


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Types of Financial Assurance Mechanisms

- Trust Funds
- Surety Bonds
- Letters of Credit
- Other financial mechanisms proposed by the owner/operator
- Some combination of mechanisms

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QUESTIONS?



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SITING CONSIDERATIONS AND CRITERIA

Section 3

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Important Because:

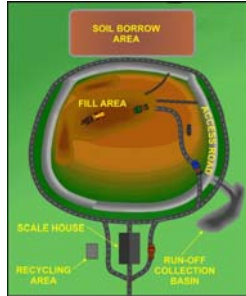
- Operators must maintain compliance with siting criteria at existing permitted sites.
- New sites or expansions into new areas must be designed in compliance with current regulations.

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PRACTICAL SITING CONSIDERATIONS

Available Land Area

- Site must be large enough to meet buffer requirements.
- Site should be large enough to operate and expand to meet current and future disposal needs.



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Available Land Area (cont.)

- Site should have enough capacity to operate long term and offset the permitting, construction, and closure costs.



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Local Land Use and Zoning

- Site should be in compliance with any local land use or zoning ordinances.
- Site should be consistent with local land use in surrounding area.
- Resolve land use issues early before investing substantial resources in property.



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Impact to Community



Consider potential impact to community facilities and residential areas.



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Impact to Community (cont.)

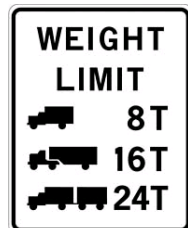
- Noise,
- Odor,
- Dust,
- Wind-blown debris,
- Aesthetics,
- Vectors,
- Property values



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Other Conditions

- Road and bridge weight restrictions, and
- Traffic and road safety.



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Available Soil Cover

- Must cover waste biweekly and provide a final cover.
- If suitable onsite soils are not available, consider cost to import soils from offsite or alternative cover materials.



Class I Rubbish Operator Training

Topography and Surface Water Hydrology

- Site topography should allow for construction of waste areas at reasonable cost.
- Surface water should be able to drain from site with minimal construction of ditches, etc.
- Don't want excess water from the landfill draining onto neighboring property or vice versa.
- Area should not be prone to flooding.

Class I Rubbish Operator Training

Geologic Conditions

- Natural soils underlying the area should not allow any potential contamination from the landfill to easily pass through.
- The uppermost aquifer should be sufficiently deep to minimize the potential for groundwater contamination.



Class I Rubbish Operator Training

REGULATORY SITING CRITERIA

Regulatory Siting Criteria

- “New rubbish sites” means completely new site or new expansion to an existing site.
- If your site is already permitted, it must comply with the siting criteria in effect at the time the permit was issued.

Class I Rubbish Operator Training

Floodplains

- Use current Flood Insurance Rate Map (FIRM) to determine if proposed site is within floodplain or floodway
- If portion of site within floodway as indicated on FIRM, owner should provide letter of map revision (LOMR) to FEMA that demonstrates that proposed rubbish site area
 - Won't restrict the flow,
 - Won't reduce the temporary water storage, and
 - Won't cause washout of wastes

Class I Rubbish Operator Training

Floodplains (cont.)

- Owner shall submit with application:
 - Copy of approved LOMR
 - Other floodplain demonstrations as required by MDEQ



Class I Rubbish Operator Training

Wetlands

- New rubbish sites cannot be located in wetlands without special approval
- Identify waters during site selection
- If unavoidable and permits required, approval is from:
 - Inland: US Army Corps of Engineers
 - Coastal: MS Department of Marine Resources



Class I Rubbish Operator Training

Unstable Areas

- Must demonstrate that if a site is located in an unstable area, the design includes measures so that the facility structures will not be compromised. Examples of unstable areas include:
 - Highly compressible soils and boggy areas,
 - Seismically active areas,
 - Mined areas, and
 - Large backfilled areas.



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Hydrocarbon and Water Wells

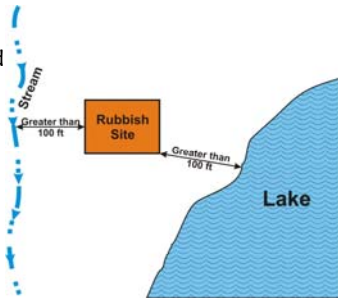
- Rubbish sites cannot be located where an active or inactive well is located beneath the disposal area, unless the well was properly plugged.



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Surface Water

- New rubbish sites may not be located within 100 feet of the banks of any river, stream, lake or reservoir, or coastal water.



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Surface Water Drainage Areas

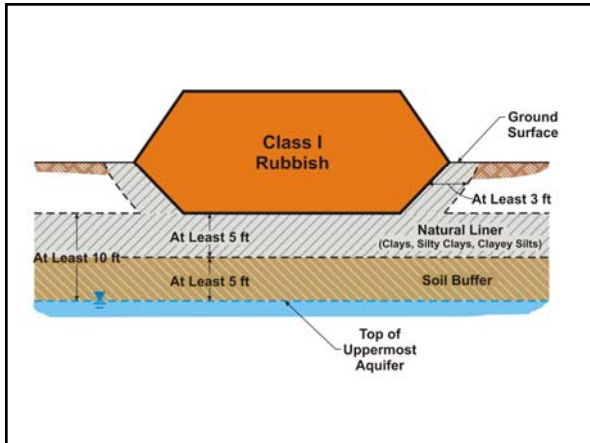
- Rubbish sites cannot be located in areas that may have recurring washout of waste (not in a natural surface water drainage channel).

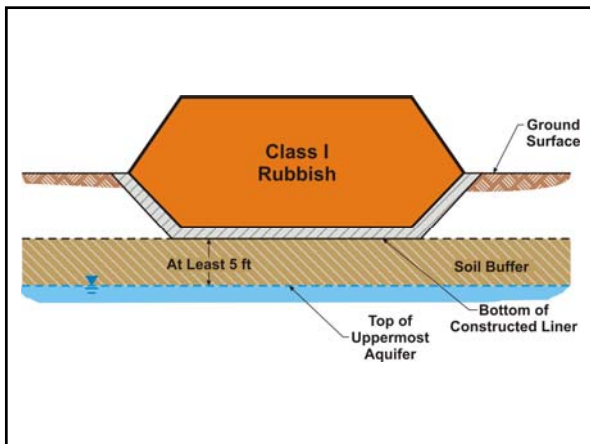
Class I Rubbish Operator Training

Geology

- New rubbish sites must meet the 5-foot separation requirement from the uppermost aquifer.

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Threatened or Endangered Species

- Rubbish sites cannot be located in an area that may affect:
 - A federally listed threatened or endangered species, unless in compliance with US Fish and Wildlife Service requirements.
 - A state-listed threatened or endangered species, unless in compliance with Mississippi Department of Wildlife, Fisheries, and Parks requirements.



Class I Rubbish Operator Training

Historical and Archaeological Areas

- Rubbish sites cannot be located where they might significantly and adversely impact cultural resources:
 - Cultural resources would be defined as those listed in, or eligible to be listed in the National Register of Historic Places.
 - If the impact can be appropriately mitigated, the location may be allowed.



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Parks and Recreational Areas

- Rubbish sites cannot be located within ½ mile of the following areas, without written consent of the area's management:
 - A national-, state-, county-, or city-designated park, or
 - An outdoor recreational area, such as a golf course or swimming pool, owned by a city, county, or other public agency.



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Forest, Wilderness, Wildlife Management, and Natural Areas

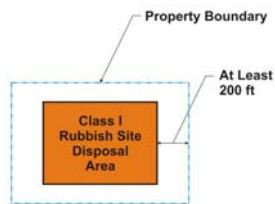
- Rubbish sites cannot be located in any of the following areas, without written consent of the area's management:
 - National areas, as designated by a federal agency;
 - State areas, as designated by the Mississippi Department of Wildlife, Fisheries, and Parks.



Class I Rubbish Operator Training

Property Line Setbacks (Buffer Zones)

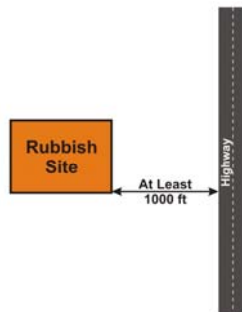
- New rubbish sites must have a 200-ft buffer zone between the edge of the actual disposal area and the property line.
 - With adequate screening that hides the view of the facility, the width of the buffer zone may be reduced to 150 ft.



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Aesthetics and Visibility

- New rubbish sites must be located so that the actual disposal area is at least 1,000 ft from the edge of any interstate or primary highway.
- Distance may be reduced if the facility is not visible from the highway or is located in an industrial area.



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Local Government Regulations/ Solid Waste Management Plans

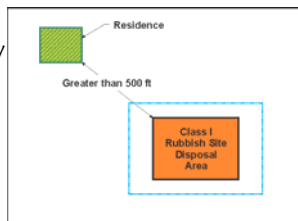
- Locations of new rubbish sites must not conflict with city or county regulations or ordinances.
- Site location must be consistent with any local or regional solid waste plans.



Class I Rubbish Operator Training

Noise Factors

- New rubbish sites may not be located within 500 ft from a single-family home.
- Distance may be less than 500 ft from the home if owner consents to the smaller distance or if applicant can show noise levels will be within acceptable limits.



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Noise Factors (cont.)

- Acceptable noise levels from normal operations are:
 - An 8-hour TWA of not more than 65 decibels between 7 am and 7 pm (day time), and
 - An 8-hour TWA of not more than 55 decibels between 7 pm and 7 am (night time).



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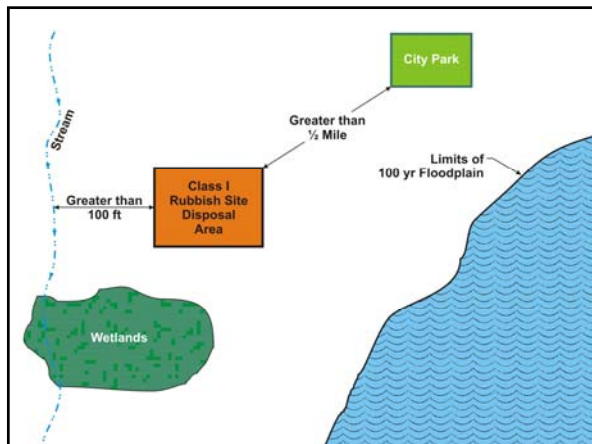
Other Criteria as Determined by the Permit Board

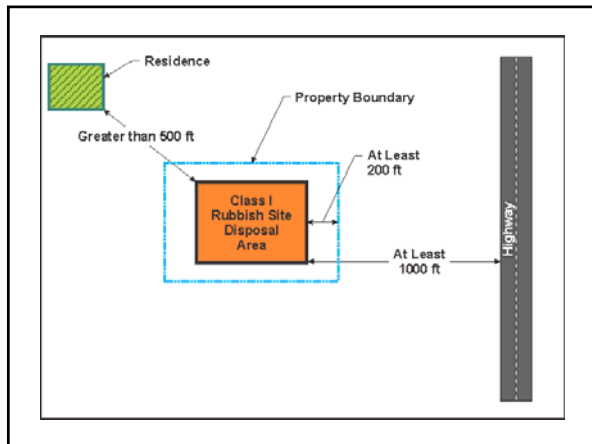
- On a site-specific basis, the Permit Board may require that rubbish sites meet other restrictions or requirements.
- These restrictions or requirements would be at the Permit Board's discretion if special consideration is warranted and particularly if members of the public raise concerns.

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Class I Rubbish Operator Training





Recordkeeping of Siting Compliance

- Documentation relating to compliance with siting criteria must be filed at the site or another approved location until otherwise directed by MDEQ.
- Documentation that siting criteria do not apply to a facility must also be kept on file.
- These records must be available to MDEQ upon request.



Class I Rubbish Operator Training

QUESTIONS??



DESIGN CRITERIA

Section 4

Trent Jones
Class I Rubbish Operators Training Class



Design Criteria

- Design criteria for Class I Rubbish Landfills includes:
 - The bottom liner system
 - The final cover system
 - The facility's stormwater management system

Class I Rubbish Operator Training

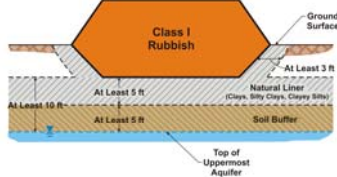
Bottom Liner Systems

- Natural/in situ liner systems
- Constructed liner systems
- Combination of both

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Natural/In Situ Liner Systems

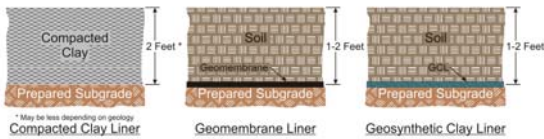
- Includes clays, silty clays, clayey silts of low permeability (1×10^{-5} cm/sec).
- Must extend at least **5 feet below** bottom and **3 feet laterally** of disposal area.



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Constructed Liner Systems

- Recompacted clayey soils, or
- Synthetic liner approved by MDEQ



Class I Rubbish Operator Training

Which Liner Applies to Your Site?

- Perform a geologic investigation of site
- Drill sufficient number of soil borings to determine types of soils and depth to groundwater
- Collect and analyze soils for physical characteristics
 - Grain Size
 - Moisture Content
 - Atterberg Limits
 - In Situ Permeability
 - Proctor Tests

Class I Rubbish Operator Training

Sieve Analysis

- Set of sieves with decreasing mesh sizes
- Used to determine soil type based on percentage of granular material
- Data used with Atterberg Limits to determine soil classification



Class I Rubbish Operator Training

Atterberg Limits

- Atterberg Limits are determined by two tests to find the liquid limit (LL), the plastic limit (PL), and the plasticity index (PI)
- The higher the PI, the higher the clay content

Class I Rubbish Operator Training

Proctor Test

- Used to determine the moisture and density relationship of soil
- Data used for compaction of soils during construction



Class I Rubbish Operator Training

Permeability

- Permeability is the rate of flow of a liquid through a soil
- Two tests: flexible-wall and rigid-wall
- **Flexible-wall** is for fine-grained soils (clays and silt) and takes days to perform
- **Rigid-wall** is for coarse-grained soils (gravel and sand) and is a quick test



Class I Rubbish Operator Training

Compacted Clay Liners

- CCLs are most common type of constructed liner
- Typically least expensive
- Can be difficult to construct to meet regulatory requirements
- May be difficult to find consistent sources of soil onsite

Class I Rubbish Operator Training

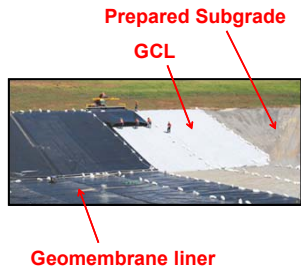
CCL Design Considerations

- Thickness will depend on the results of the geotechnical investigation
- Recommended soil criteria:
 - Classification of CL, CH, or SC
 - Have plasticity index (PI) greater than 10
 - Have greater than 80% passing the #4 sieve (sand size)
 - Have greater than 30% passing the #200 sieve (silt size)
 - Maximum clod size of 4 inches in diameter
 - Meet permeability requirement when compacted to a specific density

Class I Rubbish Operator Training

Synthetic Liners

- Geomembrane liner or geosynthetic clay liner (GCL)
- Typically are used when:
 - onsite soils are inadequate and cost to haul soils from offsite is too expensive
 - When facility needs to be constructed quickly



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Geomembrane Liners

- Synthetic membranes made of HDPE or PVC
- HDPE 60-mil thick most common
- Requires specialty contractor
- Faster installation than CCL
- Requires protective soil cover (1 to 2 feet thick)



Class I Rubbish Operator Training

Geomembrane Design Issues

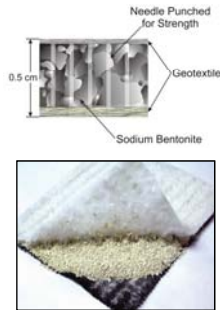
- Loading on liner due to weight of equipment, waste, and soil
- Slope stability
- Uplift forces for exposed liner systems
- Anchorage
- Pipe penetrations



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Geosynthetic Clay Liners

- Synthetic liner made of clay material (sodium bentonite)
- Two types: Geomembrane and Geotextile
- Can be installed by most contractors or onsite personnel
- Quick installation
- Requires protective soil cover (1 - 2 ft)



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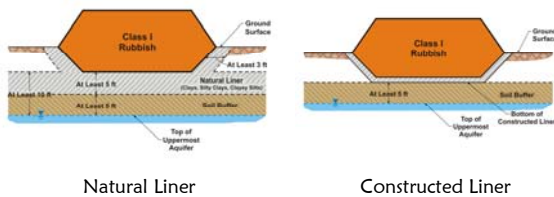
GCL Design Issues

- Compatibility with leachate and soils
- Slope stability
- Hydrated versus non-hydrated performance
- Bearing capacity when hydrated
- Pipe penetrations

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Groundwater Separation

- Regardless of the type of liner system, the bottom liner must be at least **5 feet above** the uppermost aquifer



Class I Rubbish Operator Training

Permit Application Requirements for Bottom Liner Design

- Drawings depicting layout of landfill disposal area and proposed depth of excavation
- Details of liner system
- Information on site geology and geotechnical data of onsite soils

Class I Rubbish Operator Training

Final Cover System

- Two-foot thick soil layer consisting of two components: the **infiltration layer** and the **erosion layer**, or
- An alternate system design as approved by MDEQ.

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Final Cover Layout

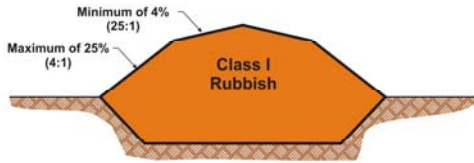
- **Erosion Layer:** 6-inch thick soil (topsoil) layer capable of sustaining vegetative growth.
- **Infiltration Layer:** 18-inch thick clayey soil layer with permeability less than or equal to bottom liner system or natural soils, but no greater than 1×10^{-5} cm/sec.



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Slope Requirements

- Final cover slopes shall be:
 - **Maximum** of 25% (4H:1V)
 - **Minimum** of 4% (25H:1V)



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Permit Application Requirements for Final Cover Design

- Drawings depicting final height and grade of landfill at closure,
- Details of final cover system, and
- MDEQ may require slope stability analysis

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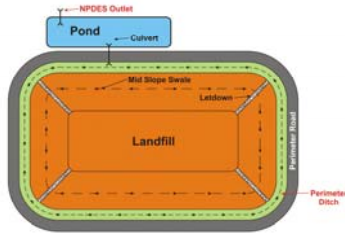
Stormwater Management System

- Designed to protect environment
- Prevents run-on into active portion of landfill
- Collect and control runoff to prevent discharge of pollutants

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Typical Stormwater Management System

- Mid-slope swales,
- Letdown structures,
- Culverts,
- Ditches, and
- Ponds.



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Design of Stormwater Management System

- Determine required design storm event
- Calculate runoff volumes for closed condition
- Size ditches, culverts, letdowns, and ponds based on design storm

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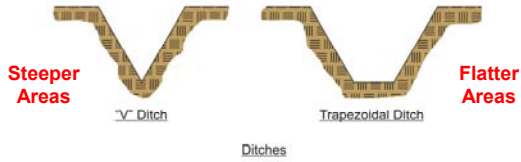
Stormwater Management Design Issues

- System will be constructed as facility develops
- Consider maintenance in design and selection of materials
- Facilities should be designed for worse case condition
- **Pond design should include methods to collect sediment**

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Stormwater Ditches

- Size and shape will depend on hydraulic analysis
- Typically “V”-shaped or trapezoidal shaped



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Stormwater Ditches



Grass-Lined Ditch
(Lower Flow)



Riprap-Lined Ditch
(Higher Flow)

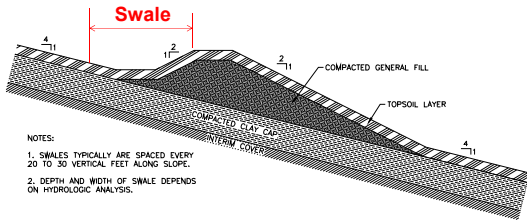
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Mid-Slope Swales

- Can Be “Tack-On” or Bench/Terrace Type
- Purpose Is To Reduce the Effective Slope Length
- “Tack-On” Swales (**More Common**):
 - Offers the advantage of increased air space and ease of post-settlement adjustment
 - Typically designed with a 3 to 4% slope to letdowns/chutes
 - Need to provide slope protection on steep exterior slopes and possibly in the drainage area

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Mid-Slope Swale



NOTES:
 1. SWALES TYPICALLY ARE SPACED EVERY 20 TO 30 VERTICAL FEET ALONG SLOPE.
 2. DEPTH AND WIDTH OF SWALE DEPENDS ON HYDROLOGIC ANALYSIS.

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Mid-Slope Swale



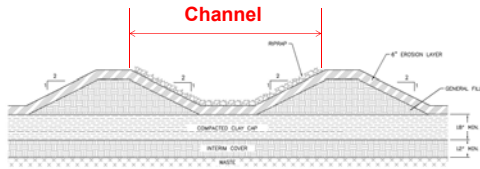
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Letdown Channels or Chutes

- Convey collected surface water from the top of the containment facility and mid-slope swales
- Handle the aggregate flow of many swales at the full side slope angle
- Flow velocities will commonly exceed 15 fps and hard and/or soft armoring systems must be used
- Care must be given to the outlet of letdowns where they meet perimeter swales or ponds such as energy dissipation devices

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Stormwater Letdown



NOTES:
1. DEPTH AND WIDTH OF LETDOWN WILL DEPEND OF HYDRAULIC ANALYSIS.
2. LINING OF LETDOWN CAN BE RIPRAP OR SYNTHETIC MATERIAL.

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Letdown Channel



Rip Rap-Lined



Grouted Rip Rap

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Stormwater Ponds

- Ponds are used to collect stormwater prior to release from the facility
- General purpose is to allow sediment to settle
- Design of the pond depends on the anticipated flow and the overall purpose of the pond
- Most common problem of pond design is that they are too small for the intended purpose or the flow pattern is too short

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Ponds



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QUESTIONS??



FACILITY PREPARATION

Section 5

Ross Williams
Class I Rubbish Operators Training Class



Common Initial Construction Activities

- Storm water management system components
- Management of land-clearing debris
- General facility components
- Abandonment of soil borings
- Waste cell construction and CQA

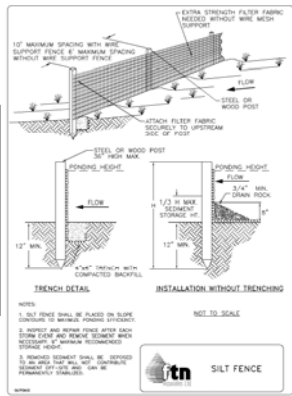
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Construction of Storm Water Management System

- Typical first steps:
 - Acquire NPDES permit from MDEQ
 - Baseline Storm Water General Permit
 - Individual Storm Water Permit
 - Land Disposal Storm Water General Permit
 - Install erosion control devices and storm water BMPs

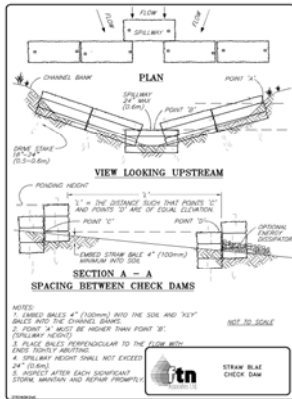
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Silt Fence



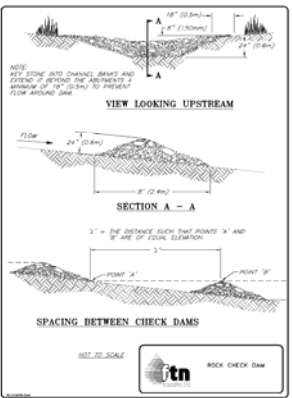
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Hay Bale Check Dam



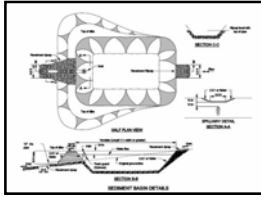
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Rock Check Dam



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Temporary Sediment Trap



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Construction Storm Water Monitoring Requirements

Baseline Storm Water Permit

- Maintain site in accordance with SWPPP
- Inspect at least monthly, or after any rain event
- Inspections are recorded on form and kept on file
- Samples from outfall not required unless discharges to 303(d)-Listed Impaired Waterbody
- Annual comprehensive inspection and SWPPP evaluation
- Submit annual report to MDEQ by January 28th

Individual Storm Water Permit

- Design and operate storm water system in accordance with approved SWPPP
- Inspect system per frequency listed in permit
- Inspections are recorded on form and kept on file
- Permit will list discharge limits and sampling requirements
- Submit annual report to MDEQ as required by permit

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Management of Land-Clearing Debris

- May begin after storm water BMPs are installed
- Any harvestable timber may be removed and sold
- Type of equipment used depends on vegetation
- Material typically pushed into piles and dried
- Piles are burned onsite, hauled offsite to composting facility, or placed in completed disposal area

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Land Clearing



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Burning of Land-Clearing Debris

- May be done if allowed by local officials and MDEQ
- Pay attention to local fire restrictions or prohibitions
- Must meet MDEQ Air Emissions Regulations
 - 500-yd setback from residence if done **without** forced air system
 - 50-yd setback from residence if done **with** forced air system
 - 500-yd setback from **airport or runways** unless written approval to be closer



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Other Facility Components

- All-weather access roads
- Permanent storm water control facilities (ditches, culverts, ponds)
- Perimeter fencing or berms to limit access
- Buildings – administrative, maintenance shop, scale house (optional)



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Abandonment of Soil Borings

- Any borings from geological investigation not used for groundwater monitoring or water supply must be properly abandoned in accordance with state regulations.



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Cell Construction and CQA

- New disposal areas must be constructed per permit drawings and construction plans
- Construction can be done by qualified onsite personnel or hired contractor
- CQA is performed by **independent** consultant or firm
- CQA is **not required** for natural liners, but is **recommended** by MDEQ; it **is required** for constructed liners

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CQA of Cell Construction

- Includes:
 - Monitoring excavation
 - Monitoring construction of bottom liner system (if necessary)
 - Conducting tests (field and laboratory) of constructed liner
 - Surveying of completed bottom liner system
 - Preparing and submitting summary report of construction activities to MDEQ at least 2 weeks prior to start of disposal activities

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Cell Preparation

- Construction staking of cell limits with permanent markers:
 - Minimum of 3 feet high
 - Concrete, metal, or treated wood posts
 - Permanent
 - Installed prior to receipt of wastes
 - Certified by licensed land surveyor
- Excavation of overburden soils for disposal area
- Stockpile soils for cover soils, general fill material, or liner or cap material
- Survey to verify depth and grades of bottom

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Natural/In Situ Liner Systems

- Permit will state if additional testing of bottom soils is required
- May include collection of soil samples for in situ permeability analysis or other physical characteristics

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Constructed Liner Systems

- Some sites require constructed bottom liner, sidewall liner, or combination of constructed and natural liner systems
- Design of constructed liner system depends on site geology and available soils
- Constructed liner may be soil or synthetic

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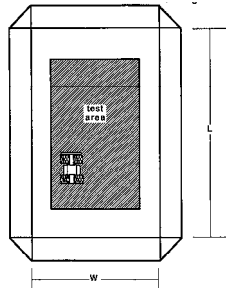
CCL Construction Considerations

- Construction can be by facility personnel or hired contractor
- Construction must be monitored and documented by an independent CQA firm or consultant
- Prior experience with compacted clay liners is important when selecting contractor/CQA consultant

Class I Rubbish Operator Training

CCL Test Pad

- Consider for inexperienced contractor
- Helps determine construction methods and types of equipment to use



L = long enough for equipment to reach operating speed in test area (50' - 100')
W = 4 equipments widths wide (30' - 50')

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CCL Construction Sequence

Hauling and Spreading Soil



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CCL Construction Sequence

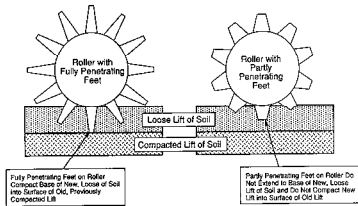
Adjust Moisture



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CCL Construction Sequence

Compacting Soil



Class I Rubbish Operator Training

CCL Construction Sequence

Compact Soils Using Proper Equipment



Too clogged – not blending

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CCL Construction Sequence

- Test lift for density and moisture
- Typically done with nuclear densometer
- Test on grid (i.e., 1/10,000 sf, or one every 100 ft)



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CCL Construction Sequence

- Collect permeability samples when density and moisture tests pass
- Use Shelby tubes
- Sample on grid (i.e., 1/40,000 sf, or one every 200 ft)



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CCL Construction Sequence

- Repeat construction of compacted lift for remaining lifts
- Survey completed liner system
- Prepare and submit CQA report



Class I Rubbish Operator Training

CCL Construction Issues

- Consider construction of test pad
- Select proper compaction equipment
- Maintain proper moisture (typically 0% - 4% above optimum moisture)
- Protect completed lift to minimize desiccation
- Typical construction costs range \$3.00 to \$8.00 per cubic yard or \$0.33 to \$0.89 per square foot

Class I Rubbish Operator Training

Synthetic Liner Systems

- May be approved for alternative liner system
- Includes HDPE or GCL liners
- Used when onsite soils are inadequate and too expensive to import soils
- HDPE liners require specialty contractors
- GCLs can be installed by onsite personnel or contractor

Class I Rubbish Operator Training

Synthetic Liner System Construction Sequence

- Verify subgrade
- Place liner on bottom and sidewalls and seam together
- If using HDPE liner, test liner system in field and laboratory
- Install soil cover above synthetics
- Survey for verification purposes
- Prepare and submit CQA report

Class I Rubbish Operator Training

Geomembrane Construction Issues

- Important to select experienced contractor and CQA consultant
- Very intensive field-testing
- Subgrade must be prepared properly
- CQA consultant needs to monitor all installation and seaming activities
- Typical construction costs range from \$0.40 to \$0.55 per square foot

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Geomembrane Deployment



Roll liner onto prepared surface



Place liner in anchor trench at top of slope

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Geomembrane Seaming



Class I Rubbish Operator Training

Geomembrane Testing



Class I Rubbish Operator Training

Geomembrane Destructive Testing



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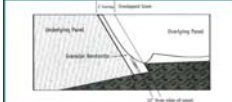
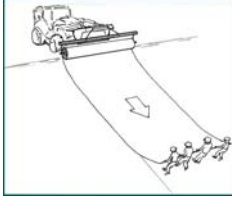
GCL Construction Issues

- Important to select experienced contractor and CQA consultant
- Subgrade must be prepared properly
- Installation is faster and easier than geomembrane liners
- Typical construction costs range from \$0.65 to \$0.85 per square foot

Class I Rubbish Operator Training

GCL Installation

- Pull material or roll material with specialized equipment and lay on subgrade.
- Panels should overlap at least 12 inches, but 24 inches is recommended.
- Granular bentonite is placed between the panels to provide "seam."



Class I Rubbish Operator Training

GCL Installation



Rolling out GCL on prepared surface

Spreading soil over GCL with low-ground pressure equipment



Class I Rubbish Operator Training

QUESTIONS??



ALLOWABLE AND UNAUTHORIZED WASTES FOR RUBBISH SITES

Section 6



Mark Williams
Class I Rubbish Operators Training Class

Allowable Rubbish Wastes

- Construction and demolition debris (wood, metal, etc.)
- Brick, mortar, concrete, stone, and asphalt
- Cardboard boxes
- Natural vegetation (trees, limbs, stumps, leaves, etc.)
- Furniture
- Appliances (other than refrigerators and air conditioners) without motors
- Plastic, glass, crockery, and metal, except containers
- Sawdust, wood shavings, and wood chips
- Other similar wastes as approved by MDEQ

Class I Rubbish Operator Training

Unauthorized Wastes

- Any contaminated acceptable wastes
- Paint, paint buckets, oil containers, and chemical containers
- Engines, motors, whole tires, and all types of batteries
- Medical wastes
- Toxic or hazardous wastes
- Regulated asbestos and asbestos-containing materials
- Bulk fabric or paper loads, refrigerators, AC, cut or shredded tires, and any metal, glass, or paper container unless approved by MDEQ
- Liquids, sludges, and contaminated soils
- Household garbage

Class I Rubbish Operator Training

Waste Approvals By MDEQ

- Submit a Special Waste Profile Form with supporting information describing:
 - Generator Information
 - Generating Process
 - Waste Description and Characterization – analysis, MSDS sheets, physical sample, etc.
 - Proposed Disposal Frequency/Amounts
 - Description of how waste characteristics are consistent with the definition of rubbish wastes.
 - Description of any special management provisions

Class I Rubbish Operator Training

Special Waste Management

- Asbestos-containing materials (ACM)
 - Only ACM from single-family residences allowed (non-regulated sources).
 - May include: ceiling tiles, drywall joint compounds, resilient floor coverings and mastic, asphalt roofing, cement siding, and transite board shingles.
 - If you are not certain whether a material contains asbestos or not, manage it as if it does.

Class I Rubbish Operator Training

Special Waste Management

- Asbestos-containing materials (ACM)
 - Manage ACM in a manner that avoids direct contact between compaction equipment and the waste.
 - Recommended that ACM be placed at the bottom (toe) of the slope of the disposal area or in a separate disposal area if possible.
 - Recommended that ACM be covered with soil or other acceptable wastes by the end of the working day.

Class I Rubbish Operator Training

Special Waste Management

- Lead-based paint (LBP) wastes
 - Lead limited in residential paints in 1978.
 - Only demolition debris with lead coatings allowed, no abatement wastes (such as chips, sludge, blasting grit, etc.).
 - Materials with lead paint coatings are still allowed to be salvaged and reused.
 - Sites are encouraged to cover large volumes lead paint debris more frequently.

Class I Rubbish Operator Training

Special Waste Management

- Gypsum Wallboard
 - Commonly known as sheet rock, drywall, gypsum board, or wallboard.
 - Wallboard is allowed for disposal at rubbish sites but may have special management considerations.
 - When disposed in a rubbish site, wallboard can produce a foul smelling hydrogen sulfide gas.
 - Recommended that sites receiving large quantities of wallboard cover as often as possible to inhibit odors.

Class I Rubbish Operator Training

Special Waste Management

- Fluorescent light bulbs
 - Fluorescent light bulbs are prohibited from disposal at a Class I rubbish site.
 - Light bulbs from residences or exempt generators may be disposed at an MSW landfill.
 - Light bulbs destined for recycling can be exempt from many hazardous waste rules.
 - If you are left with bulbs from a load, attempt to contain the bulbs in containers that are structurally sound. If you know the source, have them remove the bulbs for proper disposal. If not, you may have to dispose of the bulbs.

Class I Rubbish Operator Training

Special Waste Management

- Small polychlorinated biphenyl (PCB) capacitors and fluorescent light ballasts
 - Small capacitors found in air conditioners, heat pumps, furnaces, light ballasts, microwaves, refrigerators, etc.
 - Light ballasts produced before 1978 may contain more than 50 ppm of PCBs.
 - Capacitors and ballasts are not acceptable for disposal at Class I rubbish sites.

Class I Rubbish Operator Training

Special Waste Management

- Treated lumber or wood debris
 - Generally includes CCA-, creosote-, or PCP-treated wood.
 - Treated wood from residential or small demolition projects is generally acceptable.
 - Disposal of large amounts of treated wood debris should be proposed to MDEQ for consideration.
 - Off-spec or newly manufactured treated wood products are prohibited from disposal.

Class I Rubbish Operator Training

Special Waste Management

- Whole waste tires
 - Waste tires must be processed by cutting into two doughnut-shaped halves, cutting into four equal pieces or shredding or grinding into multiple pieces.
 - A rubbish site must be approved for disposal of processed waste tires before acceptance.
 - A rubbish site that stores or collects 100 or more waste tires must obtain authorization from MDEQ as a waste tire collection site.

Class I Rubbish Operator Training

Special Waste Management

- Electronic wastes
 - Includes computer systems, laptops, televisions, cell phones, fax machines, and other similar items.
 - Primary concern is lead in the cathode ray tube, mercury in fluorescent tubes, and heavy metals in the circuit boards.
 - Residential items may be disposed in a municipal solid waste landfill or recycled.
 - If stored for recycling, maintain the quality of the material (particularly for computers).

Class I Rubbish Operator Training

Reasons for Screening Unauthorized Wastes

- Rubbish sites should prevent unauthorized wastes to:
 - Ensure that the potential solubility of disposed wastes is not increased within the rubbish site.
 - Minimize potential contaminants to stormwater.
 - Minimize potential contaminants to groundwater and potential generation of landfill gas.
 - Prevent odors, vectors and other potential nuisance.
 - Prevent safety hazards for site workers from disposal of unauthorized wastes.

Class I Rubbish Operator Training

QUESTIONS??



STANDARD OPERATION REQUIREMENTS FOR RUBBISH SITES

Section 7

Ethan Mayeu
Class I Rubbish Operators Training Class



Rubbish Site Operational Issues

- Typical equipment
- Management of incoming wastes
- Waste placement and compaction
- Management of storm water and soil erosion
- General site maintenance
- Site and employee safety

Class I Rubbish Operator Training

Landfill Equipment

- Types and quantities vary depending on waste types and quantities
- General functions are:
 - Waste movement and compaction
 - Earth movement and compaction
 - General support

Class I Rubbish Operator Training

Waste Handling Equipment

- Includes dozers and compactors
- Used to spread and compact waste
- Smaller facilities typically only have dozers
- Larger facilities have both kinds



Class I Rubbish Operator Training

Earth-Moving Equipment

- Depends on facility's needs and operator preference
- **Types:** Dozers, backhoes, trackhoes, dump trucks, tractors with pans, graders
- **Various functions:** Excavation, hauling soil, spreading & compacting soil, road building & maintenance, building & maintaining storm water control facilities



Class I Rubbish Operator Training

General Support Equipment

- Tractors with bush-hogging equipment
- Storm water pumps
- Pickup and flatbed trucks
- General maintenance equipment



Class I Rubbish Operator Training

Sufficient Supply of Equipment

- Must have necessary amount onsite to fulfill daily operations
- Purchase, lease, or rent depending on needs
- Financial decision to own or lease

Class I Rubbish Operator Training

Certified and Trained Employees

- Have necessary number of employees to properly operate
- Cross-train operators on equipment and operations
- Employees should be trained for safe operation of equipment

Class I Rubbish Operator Training

Equipment Maintenance

- Important for efficiency and overall safety
- Develop maintenance schedule for each piece of equipment
- Manufacturers can provide information on maintenance
- Poor maintenance may damage or reduce the life of equipment or unsafe conditions for operators

Class I Rubbish Operator Training

Visual Inspection of Loads

- Rubbish facility must screen incoming waste loads
- Use a designated, trained spotter
- Refuse loads with too much unauthorized wastes
- Remove any unauthorized wastes from working face
- Randomly inspect bagged wastes
- Educate public on unauthorized wastes
- Place sign at facility entrance listing allowable and prohibited wastes

Class I Rubbish Operator Training

General Waste Disposal Issues

- Incoming waste loads shall be directed to the working face via signs or site personnel
- Loads must be disposed in designated areas
- Waste cannot be placed in standing water
- Disposal operations must be managed by a certified operator
- Facility must provide a safe environment for waste disposal

Class I Rubbish Operator Training

Waste Placement and Compaction

- Reduces operational and compliance problems
- Waste placement depends on:
 - Types,
 - Quantities, and
 - Frequency of waste delivered to site

Class I Rubbish Operator Training

Working Face Limits

- Size of working face is determined by:
 - Daily volume and types of wastes
 - Quantity and type of disposal vehicles
 - Quantity and type of operating equipment
 - Appropriate lift thickness
 - Site access and egress
 - Site topography

Class I Rubbish Operator Training

Example Working Face Size Determination

- Small facility receives about 50 cubic yards per day from 10 or fewer haulers
- Feasible working face is 50 feet by 50 feet and 5 feet deep
- Allows for 2 weeks of disposal before covering
- Increase area if traffic increases for safety purposes

Class I Rubbish Operator Training

Working Face Considerations

- Develop size that won't fill too quickly
- Should be large enough for compaction equipment to make necessary passes
- Too small of an area may cause safety concerns
- Manage in a manner to minimize compliance issues

Class I Rubbish Operator Training

Working Face Examples



Good



Not Good



Class I Rubbish Operator Training

Compaction Equipment

- Equipment selection depends on:
 - Types of waste received
 - Quantity of waste received per day
 - Frequency and number of disposal vehicles per day
 - Depth of lift thickness



Class I Rubbish Operator Training

Purpose of Compaction of Waste

- Conserves disposal volume of landfill
- Promotes storm water runoff
- Helps prevent fires

Class I Rubbish Operator Training

Compaction Operations

- Waste dumped at toe or top of slope
- Compaction equipment spreads, pushes waste upslope or downslope, and compacts material
- Spread waste to be able apply proper compaction effort:
 - Too thin – inefficient
 - Too thick – not enough compaction effort
- Makes proper number of passes

Class I Rubbish Operator Training

Compaction of Bulky Wastes

- Separate out bulky wastes or materials not easily compacted
- Place at toe of slope of working face
- Cover with wastes or soil that compactor can run over to minimize damage to equipment

Class I Rubbish Operator Training

Waste Spreading



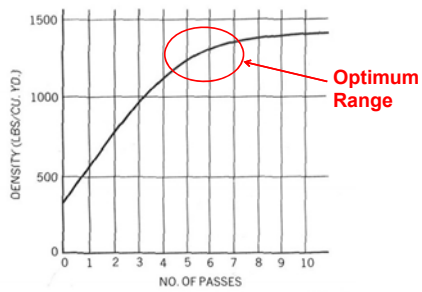
Class I Rubbish Operator Training

Waste Compaction



Class I Rubbish Operator Training

Compaction and Density of Waste



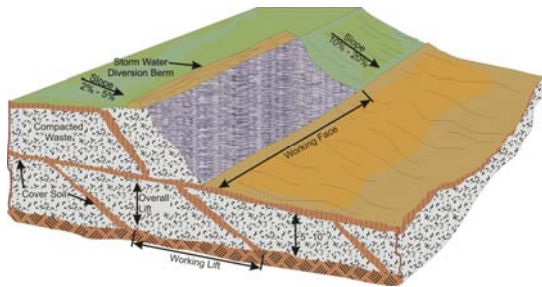
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Lift Thickness

- **Lift** is the thickness of waste in an area
- **Working lift** is waste in active uncovered area
- **Overall lift** is thickness of waste across breadth of cell

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Working and Overall Lift



Class I Rubbish Operator Training

Determining Lift Thickness

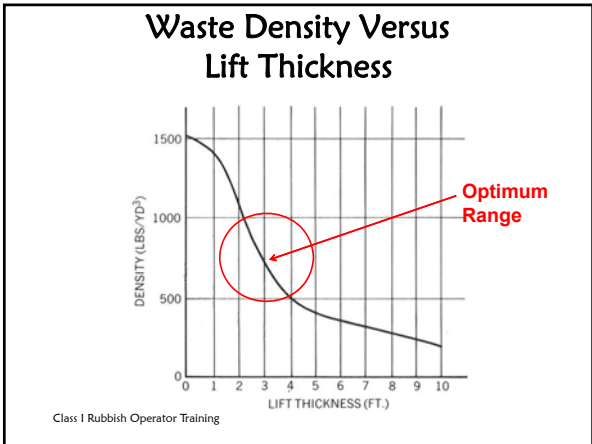
- Depends on:
 - Daily volume of waste,
 - Type of waste,
 - Type of compaction equipment,
 - Frequency of compaction of waste, and
 - Slope of working face

Class I Rubbish Operator Training

Lift Thickness Considerations

- Maximize thickness to use less soil cover
- Make working lift thin enough to achieve proper compaction
- Overall lift should be 5 to 10 feet thick

Class I Rubbish Operator Training



Slope and Contouring

- Important for operation and compliance
- Too steep reduces compaction efficiency
- Too shallow increases ponding of water

Class I Rubbish Operator Training

Typical Slopes

- Depends on compaction equipment
- Dozers operate in the range of 0 to 10%
- Compactors operate in range of 0 to 20%
- Use minimum of 2 to 5% to allow for proper drainage

Class I Rubbish Operator Training

Sloping Waste



Dump waste at toe
(or top) of slope

Spread and
compact waste up
(or down) slope



Class I Rubbish Operator Training

Cover Requirements

- Minimum requirement is 6 inches of earthen material **every 2 weeks or less**
- MDEQ may require more frequent application
- Operator should apply at rate that reduces compliance problems
- MDEQ may consider alternate cover materials under certain circumstances

Class I Rubbish Operator Training

Purpose of Cover

- Prevents and controls windblown and scattered litter
- Minimizes generation of contaminated storm water
- Prevents fires and serves as fire break
- Inhibits odor problems
- Helps with sloping wastes

Class I Rubbish Operator Training

MDEQ Recommendations for Cover Material

- Maintain a written record of cover application
- Have adequate source of cover material
- Maintain readily accessible cover material source or stockpile for:
 - Inclement weather
 - Equipment failure
 - Absence of site personnel

Class I Rubbish Operator Training

Covering Waste



Keep soil stockpile near active working area

Cover waste and grade to drain



Class I Rubbish Operator Training

Storm Water Management

- Facilities must manage storm water in accordance with NPDES permit
- Critical component of facility operations
- Monitoring and reporting requirements
- Compliance with SWPPP
- Manage storm water run-on and runoff

Class I Rubbish Operator Training

Management of Storm Water Run-On

- Minimize run-on to reduce runoff, erosion, and leachate production
- Includes diversion ditches and berms
- Placed upgradient of landfill and active operations

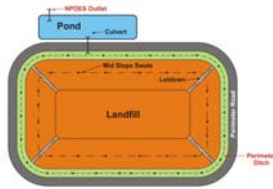


Diversion berms

Class I Rubbish Operator Training

Management of Storm Water Runoff

- Run-off affected by landfill activities must be managed by storm water management system
- Includes:
 - Perimeter ditches
 - Mid-slope swales
 - Letdowns
 - Ponds



Class I Rubbish Operator Training

Typical Storm Water Issues for Landfills

- Erosion of biweekly, intermediate, and final cover soils or soil borrow areas
- Excess sediment in conveyance facilities
- Sediment in storm water ponds
- Exceeding NPDES discharge limits



Class I Rubbish Operator Training

Best Management Practices (BMPs)

- Short or long term devices/actions to prevent soil erosion
- Can be source-controlled or action-controlled
- Types include:
 - temporary,
 - vegetative,
 - structural, and
 - permanent

Class I Rubbish Operator Training

Controlling Soil Loss

- Variety of methods for controlling soil loss:
 - Establishment of thick vegetation
 - Drainage conveyances
 - Short- and long-term erosion control products
 - Silt fencing
 - Hay or rock check dams
 - Silt traps/basins

Class I Rubbish Operator Training

Establishing Vegetation

- Select vegetation suitable to region and application
- Proper seedbed preparation is critical
- Soil amendments can improve establishment and longevity
- Seeding or sod
- Maintenance is important

Class I Rubbish Operator Training

Vegetated Cover



Well established vegetation

Poor vegetative cover = **EROSION**



Class I Rubbish Operator Training

Drainage Conveyances

- Drainage conveyances concentrate runoff and reduce erosion of slopes
- Dimensions and components of system depend on hydraulic analysis
- Must be maintained on a frequent basis to perform properly

Class I Rubbish Operator Training

Erosion Control Products

- Two types:
 - **Short-term (LESS than 6 months):** typically degradable natural or synthetic materials
 - **Long-term (MORE than 6 months):** non-degradable natural or synthetic materials

Class I Rubbish Operator Training

Short-Term Erosion Control Systems

- Used to enhance vegetation growth and protect newly seeded areas from environmental forces such as:
 - wind,
 - rain, and
 - intense sunlight.

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Short-Term Erosion Control Systems

- Systems typically include:
 - Hay/straw/hydraulic mulches
 - Biaxially oriented process (BOP) nets
 - Erosion control mats (ECM) or blankets (ECB)

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Hay/Straw Mulches



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Erosion Control Mats



Class I Rubbish Operator Training

Erosion Control Mat Failure



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Long-Term Erosion Control Systems

- Long-term erosion control systems are used principally in areas when the velocity and duration of surface water flow exceeds the capacity of mature vegetation.
- There are two basic types of long-term erosion control systems:
 - **Soft** armoring systems: various geosynthetic erosion control materials, and
 - **Hard** armoring systems: riprap, concrete, geosynthetic materials, or a combination.

Class I Rubbish Operator Training

Hard Armored Ditches



Class I Rubbish Operator Training

Silt Fencing

- A **temporary** and inexpensive method to control soil erosion
- Typically used until permanent erosion control (vegetation) is established
- Used on side slopes of landfills and upgradient side of drainage conveyances

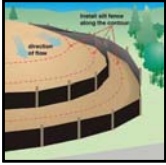
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Silt Fencing (cont.)

- The frequency of a row of silt fence along a slope depends on the anticipated velocity of the runoff
- **Proper installation is critical** for intended performance
- Inspections and repair to the fencing are important after rain events

Class I Rubbish Operator Training

Silt Fence



Silt Fence Failure



Class I Rubbish Operator Training

Hay Bale or Rock Check Dams

- Check dams are used in drainage conveyances to trap sediment and to reduce the velocity of the flow
- Hay bale check dams are used for short term installations and rock check dams are used for long term installations
- Frequency of the check dams depends on the slope of the channel, the anticipated sediment load, and the flow velocity
- Proper installation is critical for intended performance
- Inspections and repair to the hay bales, rock, or channel are important after rain events

Class I Rubbish Operator Training

Temporary Check Dam



Hay Bale Check



Straw Wattle Check

Class I Rubbish Operator Training

Rock Check Dam



Class I Rubbish Operator Training

Check Dam Failure



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Silt Traps or Basins

- Traps and basins are used to collect sediment for removal
- Typically placed immediately before a pond or an outlet
- Design of trap depends on anticipated sediment load and frequency of removal of sediment
- Can be temporary or permanent

Class I Rubbish Operator Training

Improving Storm Water Pond Performance

- To improve the performance of an existing pond:
 - Use sediment trap/basin prior to inlet
 - Install baffle curtain
 - Increase size of the pond
 - Use chemicals to settle solids
 - Use mechanical methods to improve discharge quality



Class I Rubbish Operator Training

Maintenance of Storm Water Control System

- Inspect system in accordance with SWPPP and permit
- Repair or replace damaged BMPs
- Remove collected sediment and debris from ditches and culverts
- Dredge sediment from ponds
- Improve areas consistently damaged



Class I Rubbish Operator Training

General Site Maintenance

- Management of windblown litter
- Maintenance of facility roads
- Maintenance of final cover
- Maintenance of facility buildings
- Maintenance of site security system
- Develop schedule and checklist for maintenance

Class I Rubbish Operator Training

Windblown Litter

- Windblown and scattered litter shall be collected **daily**
- Collected litter shall be placed in working face
- Facilities with high amounts of paper waste should use litter fences
- Collect litter along access road to the site as well



Class I Rubbish Operator Training

Facility Road Maintenance

- Facilities are required to have sufficient all-weather access roads to the active disposal area
- Keep adequate supply of granular material on hand to maintain roads
- Keep roads well-groomed and well-drained



Class I Rubbish Operator Training

Final Cover Maintenance

- Inspect cover at least monthly and after each large rain event
- Repair bare areas, rills, and gullies
- Seed areas with poor vegetative cover in spring or fall
- Cut grass on frequent basis to establish thicker stand of grass
- Inspect and repair storm water control facilities (mid-slope swales and letdowns)

Class I Rubbish Operator Training

Facility Building Maintenance

- Inspect buildings on a scheduled basis
- Inspect for employee safety and general operation
- Repair or replace items that may cause safety concerns



Class I Rubbish Operator Training

Site Security System Maintenance

- Inspect system on scheduled basis
- Repair or replace areas that have been breached or are damaged
- If security issues persist, consider alternate methods to control the problem

Class I Rubbish Operator Training

Safety Issues at Landfills

- Landfill sites have many types of safety hazards
- Assess job site and determine potential hazards
- Develop procedures to prevent accidents
- Use warning signs and devices

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Reporting and Investigating Accidents

- Report accidents promptly
- Prompt action ensures that steps are taken to correct problem
- Investigation of accident helps determine methods to prevent in future

Class I Rubbish Operator Training

Potential Hazards

- Landfill facilities have a variety of hazards including:
 - Various types of heavy equipment
 - Constant traffic flow of various types of vehicles
 - Inclement weather
 - Working around waste materials
 - Dust and airborne materials

Class I Rubbish Operator Training

Hazard Abatement Procedures

- Recommended developing procedures to address:
 - Traffic control
 - Scavenging and salvaging
 - Personal protective equipment (PPE)
 - Operations safety
 - Fire prevention and control
 - Emergencies

Class I Rubbish Operator Training

Traffic Control

- Develop traffic patterns that provide safe operations
- Direct customers to designated disposal areas
- May need to provide separate disposal dumping area for residents
- Access roads must be well-maintained



Class I Rubbish Operator Training

Scavenging and Salvaging Wastes

- **Not allowed** in active disposal area
- Provide separate areas for recyclable/compostable materials

Class I Rubbish Operator Training

Personal Protective Equipment

- Typical PPE used at landfills includes:
 - Safety glasses
 - Face shields
 - Hard hats
 - Ear plugs
 - Gloves
 - Safety boots (steel toes and shanks)
 - Respiratory devices

Class I Rubbish Operator Training

Operations Safety

- Operators working in active disposal area should be aware of:
 - Uncontrolled dust
 - Differing flows and direction of traffic
 - Various operating equipment
 - Various slopes
 - Variety of materials

Class I Rubbish Operator Training

Fire Prevention and Control

- If a fire occurs, attempt to control by:
 - Covering it with soil,
 - Removing, spreading, and covering it with soil, or
 - Using fire extinguisher equipment (if small fire)
- Contact local fire department and possibly MDEQ if cannot be contained

Class I Rubbish Operator Training

Emergency Procedures

- Develop written set of emergency procedures
- Educate all employees of procedures
- Conduct safety meetings
- Post emergency numbers and contact information for easy access for all employees

Class I Rubbish Operator Training

QUESTIONS??



RECORDKEEPING AND REPORTING FOR RUBBISH SITES

Section 8

Charles Bock
Class 1 Rubbish Operators Training Class



Recordkeeping and Reporting

Rubbish sites are required to keep records and to file reports by the Mississippi Code Section 17-17-219 and Rule 1.6 of the Mississippi Nonhazardous Solid Waste Management Regulations.

Class 1 Rubbish Operator Training

Recordkeeping

- For each load, the site must record the following information:
 - the name of hauler
 - the source of waste
 - the type of waste, and
 - the weight of solid waste in tons



Class 1 Rubbish Operator Training

Recordkeeping

Determining Tonnage

- Use of scales (on-site or off-site)
- Use of MDEQ Conversion Factors
- For routine incoming waste loads, an alternate conversion factor may be developed.
 - Consistent characteristics
 - Based on certified weight loads
 - Approved by MDEQ

Class 1 Rubbish Operator Training

Recordkeeping

Determining Tonnage

Use of MDEQ Conversion Factors:

- Determine the volume of each waste load
- Determine the type of waste in each load
- Select the most appropriate conversion factor
- Record the estimated weight in tons

Class 1 Rubbish Operator Training

Recordkeeping

Conversion Factors

TYPE OF RUBBISH WASTE	TONS/CUBIC YARDS
LIGHT LANDSCAPING WASTE (leaves, grass clippings and prunings)	0.2
LAND CLEARING VEGETATIVE DEBRIS (large limbs, stumps, tree trunks)	0.5
LIGHT CONSTRUCTION & DEMOLITION DEBRIS (mixed glass, metal, drywall, sawdust, etc.)	0.25
HEAVY CONSTRUCTION & DEMOLITION DEBRIS (concrete, asphalt, brick, demolition rubble, etc.)	1.0

Class 1 Rubbish Operator Training

Conversion Factor Exercise

A roll-off container is brought to the ABC rubbish site. Upon inspection, the container is determined to contain approximately 20 cubic yards of light landscaping wastes. Using the MDEQ conversion factors, determine the estimated weight in tons for this incoming load.

Class 1 Rubbish Operator Training

Conversion Factor Exercise

To determine the estimated weight of the waste load, multiply the waste volume by the appropriate conversion factor:

$$20 \text{ cubic yards} \times 0.2 \text{ tons/cubic yard} = 4 \text{ tons}$$

Class 1 Rubbish Operator Training

Conversion Factor Exercise

ABC Construction is remodeling an abandoned residential property. They bring one full 10-cubic-yard truck of limb trimmings and landscaping waste and one load of demolition waste that contains wood, glass, drywall, insulation scraps, and other similar wastes in a full 20-cubic-yard roll-off container. Approximately 1 cubic yard of paint cans and other unauthorized wastes are removed from the roll-off container by the driver and not dumped at the site. Considering these facts and the MDEQ recommended conversion rates, calculate the total estimated weight in tons of the two incoming loads from ABC Construction.

Class 1 Rubbish Operator Training

Conversion Factor Exercise

To determine the estimated weight of the waste load, determine the volume of wastes to be disposed and multiply that by the appropriate MDEQ conversion factor:

Load 1:
10 cubic yards x 0.2 = 2 tons

Load 2:
20 cubic yards - 1 cubic yard of material removed =
19 cubic yards

19 cubic yards X 0.25 tons/cubic yards = 4.75 tons

Total: 2 tons + 4.75 tons = 6.75 tons

Class 1 Rubbish Operator Training

Recordkeeping

Other recordkeeping requirements:

- Records maintained onsite (preferably)
- Records available for inspection by MDEQ
- Records kept for 3 years at a minimum
- Records of siting criteria compliance and other information required to be kept as well.



Class 1 Rubbish Operator Training

Reporting

What sites are required to file reports?

Class 1 Rubbish Operator Training

Reporting

- All rubbish sites are required to file a report to MDEQ by February 28th. MDEQ provides reminders to all rubbish sites with valid permits in January of each year.
- All commercial rubbish sites are required to file a report to the Mississippi Department of Revenue (MDR), due by July 15th. MDR sends its reporting forms out in May of each year.

Class 1 Rubbish Operator Training

Reporting to MDEQ

A report is due to MDEQ by February 28th containing the following information:

- Total amount of waste managed at the facility during the preceding calendar year (in tons);
- Total amount of in-state (listed by county)
- Total amount of out-of-state waste (listed by state)
- Total amount of waste disposed (in tons);
- Estimated remaining capacity in acreage or cubic yards and estimated remaining life in years; and
- Updated disclosure statement.

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New MDEQ Reporting Method

- Have transitioned from paper form submittal to online submittal through Re-TRAC Connect
- While online reporting voluntary for CY18 reports, mandatory starting with CY19 reports
- Allows entry of data and uploading of additional required documents
- Provides several benefits for MDEQ and regulated community and streamlines the reporting process
- More information available at:
www.mdeq.ms.gov/solid-waste-reporting

Class 1 Rubbish Operator Training

Switching from...

WASTE DISPOSAL INFORMATION

1. List the total amount of waste disposed within the permitted disposal area by source:

SOURCE	In-State Tons	Out-of-State Tons	Total Tons
Tons of waste disposed			

2. In the spaces provided below or on a separate sheet if necessary, list the source of rubbish waste disposed by county and state of origin and indicate the total amount of waste received from each county/state in tons.

County	State	Tons

County	State	Tons

3. State law requires that each load of waste received for disposal be recorded and reported in units of tons. Check the box below that most accurately describes how the tonnage was determined. (Check all that apply)

To...

WASTE DISPOSAL INFORMATION

1. List the total amount of waste disposed within the permitted disposal area by source:

SOURCE	IN STATE *	OUT OF STATE *	TOTAL
Tons of Waste Disposed			

2. In the table below, list the source of rubbish waste disposed by county and state of origin and indicate the total amount of waste received from each county/state in tons.

COUNTY *	STATE *	TONS *
	Mississippi	20

ADD

Total Tons by State/County:

3. State law requires that each load of waste received for disposal be recorded and reported in units of tons. Check the box below that most accurately describes how tonnage was determined. (Check all that apply) *

Weight scales

Conversion Factors

Reporting to the Department of Revenue

- Commercial rubbish sites are required to file a report with MDR. A commercial site is defined as a site that accepts waste for disposal from more than one generator not owned by the facility owner or for compensation.

Reporting to the Department of Revenue

The report is due before July 15th and generally includes:

- The total amount of waste disposed (in tons);
- Total fees (\$1.00 per ton) owed for wastes disposed at the site for the preceding calendar year;
- Any out-of-state reciprocal fee levied;
- An explanation of any exemptions claimed.

Class 1 Rubbish Operator Training

Reporting to the Department of Revenue

The state disposal fee doesn't apply to certain waste streams by statute:

- Oil field exploration and production wastes;
- Sewage sludge; or
- Rubbish waste managed separately from household waste and not managed for compensation.

Class 1 Rubbish Operator Training

Uses of the Solid Waste Fees

The state solid waste disposal fees that are collected are used in various ways:

- Administration and activities of the MDEQ solid waste programs;
- Solid Waste Assistance and Planning Grant awards to local governments;
- Nonhazardous Solid Waste Corrective Action Trust Fund.

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Other Recordkeeping and Reporting Considerations

Some rubbish sites may also be required to maintain records or submit reports on:

- Stormwater management,
- Groundwater monitoring,
- Air monitoring, and/or
- Other information or wastes as required by permit.

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Other Recordkeeping and Reporting Considerations

If you are involved in recording and compiling information for annual reports, please remember the following:

- Complete/respond to all questions/blanks,
- Remember that total property area and disposal area are different,
- Provide explanations where necessary, and
- Double-check the reporting form.

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Questions?



RECYCLING AND REUSE AT RUBBISH SITES

Section 9

Mark Williams
Class I Rubbish Operators Training Class



Definitions

- **Recycling** – process where materials are collected and processed for manufacture or use in other products.
- **Reuse** – materials are used (with and without processing) in beneficial application other than production of other products.

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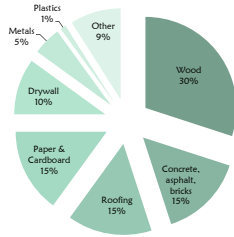
Four Basic Steps to Recycling Rubbish Materials

1. Recyclable or reusable materials are collected and separated.
2. Collected materials are processed.
3. Materials are shipped offsite for manufacturing or reusable materials for beneficial use.
4. New products are sold to consumers or recycled materials are legitimately reused.

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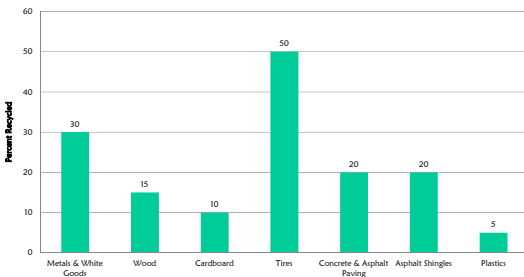
Typical Composition of Rubbish Wastes (US Averages)

- Wood
- Concrete, asphalt, bricks, rocks
- Roofing
- Paper and cardboard
- Drywall
- Metals
- Plastics
- Other



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Average US Recycling Rates for Typical Rubbish Materials



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Metals and White Goods

- Separate from waste stream
- Store properly
- May have to remove refrigerant, PCBs, oils, and other chemicals



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Wood Wastes

- Clean vegetative debris and clean wood
- Chipped and/or mulched – piles must be less than 12 ft in height
- Screen to remove treated or painted materials
- Processed material may be sold as mulch or boiler fuel



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Wood Shredder

- Equipment typically is expensive to purchase and maintain
- Costs can be shared with other sites, cities, or counties in planning area
- Select equipment based on materials to be processed and ultimate use



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Cardboard

- Clean cardboard is separated and properly stored
- Baled on or offsite and sent to be recycled



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Tires

- Sites may be waste tire collection center
- Tires may be removed from waste stream
- Properly manage tires
- May be eligible for grants from MDEQ
- If more than 100 tires, must have proper permits



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Concrete and Asphalt

- Collect and properly stockpile
- Crush for use as aggregate or road material



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Asphalt Shingles

- Store at site for recovery by asphalt production companies
- Grinding may not occur unless approved by MDEQ
- An asbestos sampling plan must be submitted for grinding operations



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Compost Operations

- Composting operations may be conducted onsite
- Need MDEQ approval
- Compostable materials include vegetative debris and untreated wood wastes
- Maximum windrow height is 12 ft
- Operations can be:
 - Low level: static/passive or infrequently turned piles or windrows
 - Intermediate level: mechanical or temperature-based management
 - High level: in-vessel or aerated static piles or windrows



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Operational Issues

- Operations **must be included** in the facility Operation Plan
- Facility drawings must identify operation areas
- SWPPP must address operations
- Operations must not interrupt disposal traffic or cause other safety issues for facility traffic and operations

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Operational Issues (cont.)

- Manage stockpiles, composting/processing, and storage areas to prevent compliance issues:
 - Fires
 - Litter and windblown wastes
 - Nuisance
 - Uncontrolled runoff of contaminants

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Operational Issues (cont.)

- Operations may be located over closed areas with MDEQ approval
- Operations should be covered under other permits as necessary:
 - Storm water (NPDES)
 - Waste Tire Management Regulations
 - Composting program requires MDEQ approval
- Properly manage stockpiles to protect materials

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Limitations of Program

- Collect and store only materials that have legitimate market
- Special equipment must be properly used and maintained
- Distribution of materials only to legitimate end users

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QUESTIONS??



FINAL CLOSURE AND POST-CLOSURE REQUIREMENTS

Section 10

Trent Jones
Class I Rubbish Operators Training Class



Closure

- The final cover must be installed within 30 days of reaching the final waste elevation in a disposal area.
- Depending on how the disposal facility has been designed and operated, closure of the site may be conducted:
 - In phases during operations of the facility, or
 - After the facility reaches its final permitted capacity.

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Closure (cont.)

- Closure must be in compliance with approved permit application:
 - Final elevation drawings
 - Details of proposed liner system
 - Slopes



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Final Cover

- Two feet of a low permeable earthen cover are required for rubbish sites, unless an alternate design is approved.
- MDEQ-recommended 2-ft cover:
 - 18 inches of earthen material with a permeability less than or equal to the permeability of the bottom liner or natural soils but no greater than 1×10^{-5} cm/sec, and
 - 6 inches of earthen material that can support vegetation.

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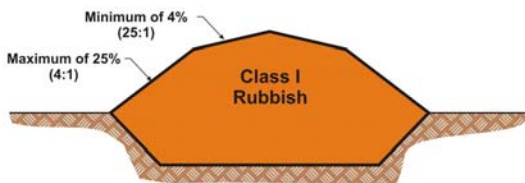
Final Cover



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Allowable Slopes

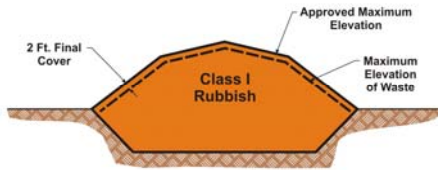
Slopes of the final cover system must be a minimum of 4% and a maximum of 25% (4 to 1), unless otherwise approved by MDEQ.



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Final Elevation

Elevation of the top of the final cover must not exceed the approved maximum elevation that is shown on the closure drawings in the permit application.



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Vegetation

- Following soil placement, a vegetative cover (grass) needs to be planted to prevent erosion.
- The type of vegetation that is planted should be suitable for:
 - the area and soils, and
 - season and growing conditions at the time.



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Cover Repair

Areas of erosion on closed areas should be repaired.



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Inactive Areas

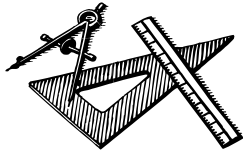
Areas of the site that have not been active or have not received wastes for 12 months need to be covered in this manner.



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Engineer's Certification of Closure

- For sites covered under Statewide General Permit for Class 1 Rubbish Sites or recent individual permits, closure shall be certified by independent PE.
- Certification shall include:
 - Thickness,
 - Type of materials, and
 - Final elevation.



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Agency Notification

Owner must notify MDEQ within 14 days of completing final closure of the site.



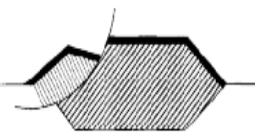
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MDEQ Recommendations for Closure

- For sites **NOT** covered under Statewide General Permit or recent individual permit, MDEQ recommends:
 - Operator contract with independent professional engineer to certify closure construction.
 - Particularly important if work is conducted by contractor – ensures work is done in accordance with permit and specifications.

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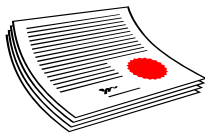
MDEQ Recommendations for Closure (cont.)



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MDEQ Recommendations for Closure (cont.)

- Record a property deed notation that includes:
 - Information that the area was used for waste disposal
 - A survey plat showing where waste was placed
 - The name of the owner
 - Years of operation
 - Potential restrictions on use of property



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MDEQ Recommendations for Post-Closure

- Conduct routine inspections and maintain the site
 - Repair & maintain cover (including reseeding)
 - Prevent runoff & run-on from damaging cover
 - Mow at least annually
 - Maintain ditches



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QUESTIONS??



COMPLIANCE AND ENFORCEMENT: MDEQ PROCEDURES AND POLICIES

Section 11

Ethan Mayeu
Class 1 Rubbish Operators Training Class



General Compliance Procedures

- Determination of Compliance/Noncompliance
- Classification of Apparent Violations
- Rule Citation Determined
- Enforcement Action

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General Compliance Procedures

Determination of Compliance/Noncompliance

- Inspections
- Records review
- Self-reporting by the permittee
- Referred by other division of MDEQ or other state agencies
- Complaints

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General Compliance Procedures

Classification of apparent violations

- MDEQ classifies apparent violations by media for appropriate enforcement actions.
 - Air
 - Water
 - Stormwater
 - Hazardous Waste
 - Solid Waste

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General Compliance Procedures

Rule Citation Determined

- Upon classifying the apparent violations by media for appropriate enforcement actions, the specific rule citation for each would be determined.
 - Plan of Operation
 - Operating Permit
 - State Regulation
 - State Law
 - Federal Law

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General Compliance Procedures

Enforcement Actions

- **Informal Enforcement Action:** When the enforcement process can end with the satisfactory review of the permittee's response to an NOV.
- **Formal Enforcement Action:** If the enforcement process requires the issuance of an order or scheduling a hearing before the Commission.

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Steps in the Enforcement Process

Enforcement process

1. Determination of Compliance/Noncompliance
- 2. Issue Notice of Violation (NOV) Letter**
3. Review permittee's response to NOV
4. Administrative Conference, if necessary
5. Negotiate an Agreed Order or schedule a hearing before the Commission or its delegated hearing officer, if necessary

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Steps in the Enforcement Process

Notice of Violation Letter

- Sent via certified mail
- Outline of apparent violations
- Request to resolve apparent violations
- Deadline to resolve apparent violations
- Permittee will be asked to submit a response in writing to MDEQ

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Steps in the Enforcement Process

Enforcement process

1. Identification of a Violation
2. Issue Notice of Violation (NOV) Letter
- 3. Permittee's Response to NOV**
4. Administrative Conference, if necessary
5. Negotiate an Agreed Order or schedule a hearing before the Commission or its delegated hearing officer, if necessary

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Steps in the Enforcement Process

Permittee's Response to NOV

- Provide a written response by deadline
- Provide possible causes of apparent violations
- Address ALL apparent violations
- Provide details on corrective actions
- Provide measures taken to prevent future occurrences
- Justify if you believe MDEQ's determination was incorrect

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Steps in the Enforcement Process

MDEQ's Review of Permittee's Response to NOV

- MDEQ reviews response
- Determination is made whether "No Further Action" is necessary
 - "No Further Action" letter sent to permittee
- Determination is made whether to proceed with formal enforcement action
 - An Administrative Conference is scheduled

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Steps in the Enforcement Process

Enforcement process

1. Identification of a Violation
2. Issue Notice of Violation (NOV) Letter
3. Review permittee's response to NOV
4. **Administrative Conference, if necessary**
5. Negotiate an Agreed Order or schedule a hearing before the Commission or its delegated hearing officer, if necessary

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Steps in the Enforcement Process

Administrative Conference – “Show Cause” Hearing

- Scheduled for severe, willful or repeat violations
- Sometimes is scheduled in the NOV letter
- Generally conducted at MDEQ offices
- Apparent violations will be discussed in detail
- Permittee allowed to “show cause”
- Possible penalties may be discussed

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Steps in the Enforcement Process

Enforcement process

1. Identification of a Violation
2. Issue Notice of Violation (NOV) Letter
3. Review permittee’s response to NOV
4. Administrative Conference, if necessary
5. Negotiate an Agreed Order or schedule a hearing before the Commission or its delegated hearing officer, if necessary

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Steps in the Enforcement Process

Agreed Order/Commission Hearing

Where violations are severe, continuous, willful, and egregious or where prior enforcement actions have been initiated

- Agreed Order
 - Generally offered in lieu of Commission hearing
 - Provisions for correcting alleged violations
 - Reduced monetary penalty to encourage settlement
 - Provided to permittee for review and consideration
 - Permittee must provide comments by specific date

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Steps in the Enforcement Process

Agreed Order/Commission Hearing

- Agreed Order (continued)
 - Signed Agreed Order provided to MDEQ for execution
 - Signature must be notarized
 - Original order must be returned (no photocopies)
 - A portion of proposed penalty may be held as stipulated penalty pending compliance
 - Supplemental Environmental Projects (SEPs) may be considered in lieu of assessment of full penalty

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Steps in the Enforcement Process

Considerations in Calculating Monetary Penalties

- Willfulness of the Violation
- Any damage to air, water, land or other natural resources of the state
- Cost of Restoration and abatement
- Economic Benefit
- Severity and Environmental Impact of the Violation
- Compliance History
- Whether the noncompliance was discovered or self reported
- Size of the Business/Local Government

(MS Code §17-17-29)

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Steps in the Enforcement Process

- Commission Hearing
 - Scheduled when a settlement cannot be reached between the permittee and MDEQ
 - Similar to a court proceeding
 - Permittee is advised to retain legal counsel
 - Reduced penalties generally are not considered
 - Commission will render a decision on the violations and assess penalties
 - Commission ruling must be appealed within 30 days

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Steps in the Enforcement Process

If violations are found that create an imminent threat to human health or the environment, or for other reasons, a Unilateral Order may be issued.

- Detail the violations at the site
- Provide provisions to correct the violations
- Provide deadlines by which the violations must be corrected.

Unilateral Orders do not contain penalties.

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Tips to Avoid Enforcement Actions!!

- Know and understand permits, approved applications, regulations, and laws
- Voluntary compliance at rubbish sites
- Report anticipated noncompliance to MDEQ
- Open communication with MDEQ
- Good working relationship with MDEQ
- When in doubt, call MDEQ!!

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NOV's Issued by Year

2011	27
2012	20
2013	26
2014	24
2015	33
2016	32

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Violations by Type

Calendar Years 2013 through 2016

- Total NOV's – 115
 - Unauthorized waste – 39
 - Inadequate Cover – 31
 - Other (unmarked boundaries, outside disposal area, over height, litter, etc.) – 38
 - Annual reports - 39

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Penalties Assessed by Year

2012	2013	2014	2015	2016
\$21,000	\$15,000	\$2,500	\$6,000	\$86,050
\$6,000	\$36,000	\$4,000	\$0 (UO)	\$75,000
\$3,000	\$6,500	\$4,000	\$40,000	\$4,000
\$5,600	\$26,000	\$8,000	\$4,000	\$12,000
\$0 (UO)	\$4,000		\$0	\$4,000
				\$3,000
				\$8,400

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Questions?

Jason Bridges
Mississippi Department of
Environmental Quality

jbridges@mdeq.ms.gov
 (601) 961-5721