



Permit No.	Date	Document ID No.
60-04	March 10, 2009	6987

CORPORATE EHS SERVICES

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**March 10, 2009**  
Solid Waste Section  
Asheville Regional Office

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Charlotte, NC 28202

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March 6, 2009

Mr. Larry Frost  
Regional Engineer  
NC Department of Environment and Natural Resources  
Solid Waste Section  
Asheville Regional Office  
2090 US Highway 70  
Swannanoa, NC 28778

Subject: Duke Energy Carolinas, LLC – McGuire Nuclear Station  
Mecklenburg County, North Carolina  
Lined Solid Waste Landfill  
Permit # 60-04  
Permit to Operate Five Year Renewal  
Permit to Operate Phase 3 &4

Dear Mr. Frost:

Duke Energy is herein requesting a five year permit to operate renewal for the McGuire Nuclear Station Lined Landfill and is requesting the opening of Phase III and IV to receive wastes. Attached, per your request, are: McGuire Nuclear Station's Landfill Operations Manual, McGuire Nuclear Station's Groundwater Monitoring Program Sampling and Analysis Plan, a map of the McGuire Nuclear Station Landfill footprint showing the location of the groundwater monitoring wells, and copies of the annual topographical and volume calculation maps for the McGuire Landfill.

If you have any questions or concerns regarding this request, please contact me at (980) 373-6707.

Sincerely,

Andrew F. Tinsley  
Waste and Remediation Management  
Corporate EHS

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Attachments (hardcopy and cd)

SOLID WASTE SECTION  
ASHEVILLE REGIONAL OFFICE



CORPORATE EHS SERVICES

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Solid Waste Section

Asheville Regional Office

# McGuire Nuclear Station Landfill Operations Manual



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## *McGuire Nuclear Station Landfill Operations Manual*

### **1.0 Description and Responsibilities**

#### **1.1 Introduction**

1.1.1 This Manual outlines processes and proper procedures for the operation of the McGuire Site Lined Landfill Expansion, North Carolina Permit 60-04. This Manual is designed to assist personnel in performing various tasks assigned to them associated with landfill operations.

1.1.2 This is a working document and will be updated when necessary, and reviewed at least annually by the Landfill Manager and/or Corporate Environmental.

#### **1.2 Description**

##### 1.2.1 General

The landfill site is located off Highway 73 in Huntersville, North Carolina. The landfill access road is located across from the McGuire Nuclear Station entrance. The landfill comprises approximately five (5) acres with a drainage volume of approximately 140,000 cubic yards. The general function of the landfill is to contain sanitary, construction, and special wastes, and allow any leaching of wastes from the landfill to be monitored via a leachate collection system prior to discharging to a chemical treatment pond.

The expected useful life of the landfill is approximately twenty years. Projected annual volumes of waste for disposal in the landfill are as follows:

- 1) Stabilized, dewatered, conventional wastewater treatment.  
600 cubic yards.
- 2) Non-hazardous wastes from petroleum spills.  
2000 cubic yards.
- 3) Empty barrels and cans, construction debris, asbestos and normal trash.  
800 cubic yards
- 4) Obsolete, expired chemicals  
400 cubic yards

##### 1.2.2 Landfill Proper

1.2.2.1 The landfill proper consists of approximately a five acre basin. The entire basin is lined with a high density polyethylene (HDPE) 60 mil liner. A layer of crushed gravel and sand compose a drainage blanket for the bottom and the side slopes of the landfill. Protecting the drainage blanket, a 16 oz. geotextile filter fabric lies between the drainage blanket and one foot of operational cover.

## *McGuire Nuclear Station Landfill Operations Manual*

- 1.2.2.2 The basin is divided into four subcells which function as independent disposal sites. Each cell is contained by a clay divider berm at the lowermost end of each basin. The clay berms will segregate the active and the inactive cells.
- 1.2.2.3 Inside each clay berm is a HDPE water stop which is fused to the liner to provide additional protection against contaminated leachate infiltration.
- 1.2.3 Leachate Collection System
  - 1.2.3.1 The leachate collection system is designed to collect rainwater that falls directly onto the active landfill cell and other liquids which may percolate through the landfill. The rainfall and leachate collected in the landfill are routed to the leachate collection pond. To prevent runoff from large rainfall events from overflowing the leachate collection pond, flow into the pond is controlled by throttling the valve in the leachate collection line.
  - 1.2.3.2 From the leachate collection pond, the leachate is pumped to the Initial Holdup Pond at McGuire Nuclear Station, where it is included in the wastewater treatment process.
  - 1.2.3.3 HDPE manholes separate each subcell of the leachate collection system within the landfill basin.

### **1.3 Responsibilities**

- 1.3.1 The Landfill Manager is responsible for environmental compliance and operation (including but not limited to waste collection, erosion control, maintenance, and land management). The Landfill Manager is also responsible for interfacing with Corporate Environmental and regulatory agencies. The Landfill Manager will also provide up-to-date landfill regulatory information to other responsible groups. The Landfill Manager will ensure adequate training for all landfill personnel is provided. The Landfill Manager will conduct the monthly inspection of the landfill site, and document all remedial actions.
- 1.3.2 Corporate Environmental is responsible for obtaining all needed permits and waste approvals and acting as an interface with regulatory agencies. Additional functions include the submittal of required reports and renewal of permits. They will also interface with Radiation Protection to obtain any regulatory approvals for low-level radioactive waste.
- 1.3.3 Conventional Hydro Stations/Upper Catawba Hydro Maintenance is responsible for all erosion control, grass mowing, land management, maintenance, and waste collection as directed by the Landfill Manager.
- 1.3.4 Conventional Hydro Stations/Upper Catawba Hydro Utility Crew will be responsible for providing heavy equipment operators to conduct daily covering operation as directed by the Landfill Manager.

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- They will also be needed for construction of the cell berms, sediment basin maintenance, erosion control, and road maintenance
- 1.3.5 Facility and Real Estate Services will also be responsible for providing the proper individuals to perform surveying at the landfill. Surveying will be required during asbestos or sludge disposal. Surveying may also be required as deemed necessary by the Landfill Manager or Corporate Environmental.
  - 1.3.6 DE Scientific Services is responsible for collection and analysis of groundwater, surface water, and leachate samples. These samples must be analyzed for parameters listed in the operating permit. These results and recommendations must be provided to MNS Environmental Management and Corporate Environmental. Scientific Services is also responsible for the development of any additional monitoring wells that may be necessary. Scientific Services will also provide updates as necessary to the Groundwater Sampling and Analysis Plan and the Post-Closure Groundwater Monitoring Plans.
  - 1.3.7 MNS Radiation Protection is responsible for providing radiological surveys of all low-level radwaste material.
  - 1.3.8 MNS Chemistry is responsible for adequately treating all leachate from the leachate collection system to meet the NPDES permit requirements.
  - 1.3.9 MNS Safety is responsible for ensuring safe practices are employed in the operation and maintenance of the landfill. Other groups shall involve them as necessary and appropriate for operations, maintenance, training, sampling, and other activities to ensure compliance with various OSHA requirements.
  - 1.3.10 MNS Security is responsible for ensuring overall security of the Landfill. Security will not allow unauthorized personnel to enter the landfill without prior approval from the Landfill Manager. Security will also include the Landfill in their routine rounds at least once per shift. If anything appears out of the ordinary, they will immediately report the incident to the Landfill Manager. Security will also inspect the level in the leachate collection pond. If the level is above the high level mark, the Landfill Manager will be immediately notified.

### **1.4 Normal Operating Hours**

Normal landfill operating time is Wednesdays from 8:30 AM to 2:00 PM. Profiled roll-off materials or straight shipments to the landfill on days other than Wednesdays must be approved by the Landfill Manager or his designee one week prior to the shipment. Landfill operations are contingent upon weather conditions



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### **2.0 Waste Collection**

#### **2.1 Waste Acceptance**

- 2.1.1 Before any waste can be disposed in the MNS landfill, it must be profiled to enter the landfill (see [Attachment III](#)). Those wastes acceptable for disposal in the landfill are listed in [Table 2.1](#). Non-hazardous waste listed in [Table 2.2](#) will not be disposed in the landfill.
- 2.1.2 Other wastes; such as, empty containers (not 30 or 55 gallon drums) , asbestos, sludges, and other construction debris will be disposed of in the site landfill. Only non-recyclable, non-hazardous solid waste will be disposed in the site landfill, as specified in the permit application and permit. No liquid waste shall be disposed in the landfill.

#### **2.2 Weighing Waste**

- 2.2.1 Truck scales have been installed at the MNS Site Garage for the purpose of weighing all waste before disposal in the landfill.
- 2.2.2 On or before August 1 each year, the Landfill Manager and Corporate Environmental shall report to the State, for the previous year beginning July 1 and ending June 30, the amount and type of solid waste received by the landfill. A copy of the report shall also be submitted to Mecklenburg County Environmental Protection.

#### **2.3 Transportation**

Precautions must be taken to prevent spillage, leakage, or blowing of waste during transport and burial. If waste is blown, the debris shall be picked up immediately.

#### **2.4 Disposal**

- 2.4.1 The loaded truck must enter the landfill basin from the ramp. All drivers must take extreme caution due to the steepness of the ramp. Waste materials shall be placed against the active working face of the active cell in such a manner as to take the least amount of space, as directed by the Landfill Manager.
- 2.4.2 As the waste is removed from the truck, it should be closely inspected by the Landfill Manager, Landfill Operators and/or Transporters to ensure acceptance. Any waste which should not be disposed in the landfill must be removed immediately. The Landfill Manager will initiate an investigation of the problem and take appropriate actions.

#### **2.5 Asbestos Disposal**

Asbestos containing materials (<1% and /or > 1% Chysotile) may be disposed of in the landfill. Asbestos packaged in accordance with 40 CFR 61 may be disposed of separately and apart from other solid waste.

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### 2.5.1 Asbestos Transportation

In N.C., An Asbestos Manifest must accompany each truckload of asbestos. A chain-of-custody form must also accompany each load. These documents must be signed by the Landfill Operator. These completed forms must be forwarded to Corporate Environmental to be retained on file or routed accordingly.

### 2.5.2 Asbestos Waste Disposal

2.5.1 If any amount of asbestos waste is received for disposal that is improperly enclosed, uncovered, not double bagged, or mislabeled, immediately inform the Landfill Manager. Do not unload the truck.

2.5.2 The bags of asbestos must be placed together in the active landfill cell. Immediately after unloading the asbestos, it must be covered with six inches of soil in a manner so that the asbestos does not become airborne.

2.5.3 The Landfill Manager must arrange surveying of the disposal so that burial coordinates are recorded. This record shall include the station coordinates and elevations. These records shall be forwarded to Corporate Environmental for file retention.

## **2.6 *WC Sludge Disposal***

2.6.1 Dewatered sludge from the MNS Conventional Wastewater Initial Holdup Pond (WC) that has been processed will be disposed in the landfill. This sludge is primarily made up of diatomaceous earth and is slightly radioactive. Laboratory analysis of the WC sludge must be conducted prior to disposal into the landfill.

2.6.2 Extremely low-level radioactive waste must have written approval from the North Carolina Department of Environment and Natural Resources, Division of Radioactive Protection prior to disposal in the landfill. The radioactive materials must then be disposed in accordance with the applicable permit and the current radioactive materials license.

2.6.3 The exact disposal location will be determined by the Landfill Manager. Before placement of the sludge into the landfill, a radiological survey will be performed by MNS Radiation Protection. Immediately after placing the dewatered sludge in the landfill, it must be covered with six inches of daily cover material. Ultimately, this sludge must possess a total of two feet of cover soil, including final cover. The final closure cap will satisfy this cover requirement.

## **2.7 *Empty Container Disposal***

2.7.1 All containers must be emptied as much as possible prior to disposal in the landfill. No "free liquids" or any liquids that can be poured can be placed in the landfill. All liquid materials must be removed from the container using the practices commonly employed to remove materials from that type of

## *McGuire Nuclear Station Landfill Operations Manual*

container, e.g., pouring, pumping, and aspirating. A container that has held a compressed gas is empty when the pressure in the container approaches atmospheric.

- 2.7.2 All pesticide and herbicide containers must be triple rinsed before they are discarded or as directed on the pesticide/herbicide container label. The rinse water should be placed into the sprayer and used as product application. This requirement is the responsibility of the licensed pesticide applicator.
- 2.7.3 Thirty and fifty-five gallon metal drums that are still in good condition are to be collected and shipped to a drum re-conditioner. Empty drums that cannot be reconditioned and/or recycled should be crushed at the location of their generation and placed in the site's recycled steel bin. Drums are not to be placed in the MNS lined landfill, unless specific approval is granted by the Landfill Manager or his designee. In this circumstance, each drum must be crushed before placing it in the active cell. Then the crushed drum can be buried with the rest of the waste.
- 2.7.4 Under no condition should any container which does not meet the definition of "empty" be picked up and transported to the landfill. Notify the Landfill Manager where the non-empty containers are located.

### **2.8 *Petroleum Product Clean-Up Residue Disposal***

- 2.8.1 Non-PCB oil contaminated materials; such as, oil contaminated soil, oil pads, filters, rags, booms, shrubs, brush, and oil absorbent material can be disposed in the landfill. Materials contaminated with oil and diesel fuel which does not contain any free liquids may also be disposed of in the landfill.
- 2.8.2 Petroleum product spill clean-up residues can be treated as loose materials and used to fill voids between other wastes. Oil contaminated soil has been approved for use as alternate daily cover as described in [Section 3.3](#).
- 2.8.3 Spill clean-up residues other than oil or diesel must be evaluated by Corporate Environmental before disposing in the landfill.

### **2.9 *Surplus Chemical Product Disposal***

All non-hazardous excess, obsolete, or expired (surplus) chemical products destined for disposal in the landfill must have the approval of Environmental Protection/Waste Management.

### **2.10 *Laboratory and Non-Laboratory Fish Waste***

Duke Energy Scientific Services laboratory fish waste may be disposed in the MNS Landfill, as well as non-laboratory fish waste.



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**Table 2.1**

**WASTES PERMITTED FOR LANDFILL DISPOSAL**

<b><u>TYPE</u></b>	<b><u>COMMENTS/OPTIONS</u></b>
Asbestos	<a href="#">See Section 2.5</a>
Insulation (Non-Asbestos)	<a href="#">See Section 2.5</a>
Conventional Wastewater Sludge (WC)	<a href="#">See Section 2.6</a>
Empty Containers	<a href="#">See Section 2.7</a>
Petroleum Product Spill Cleanup Materials	<a href="#">See Section 2.8</a>
Oil Contaminated Materials (filters, rags, brush, shrubs)	<a href="#">See Section 2.8</a>
Fish Waste	<a href="#">See Section 2.10</a>
Non-Hazardous Excess, Obsolete, Expired Chemicals	<a href="#">Corporate Environmental Approval Required</a>



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**Table 2.2**

**WASTES NOT TO BE ROUTINELY DISPOSED IN MNS SITE LANDFILL**

<u>TYPE</u>	<u>COMMENTS</u>
Wood	Demolition Landfill
Wooden Poles	Wooden Pole Recycler
<u>Metal (e.g. thirty and fifty-five gallon metal drums)</u>	Scrap Metal Recycle Dealer
Concrete/Brick	Demolition Landfill/Beneficial Fill
Asphalt	Recycle/Beneficial Fill
Tires	Recycle
Yard Waste	Composting
Land Clearing Debris	Demolition Landfill/Compost
White Goods (Appliances)	County Recycling Center
Cardboard	Recycle
Office paper	Recycle
Sawdust	Recycle
Aluminum Cans	Recycle
Reusable Pallets	Recycle
Reusable Cable Reels	Recycle
Railroad Cross Ties	Landscaping/Employee Sale
Unusable Cross Ties	Demolition Landfill
Reusable Drums	Drum Re-conditioner

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### **3.0 Landfill Operation**

#### **3.1 General**

This section describes the normal day-to-day operation of the McGuire Site Landfill.

- 3.1.1 This operation described in this section will not supersede the N.C. Solid Waste Management Rules, 15A NCAC 13B, nor N.C. Permit Number 60-04. Landfill operation and maintenance activities shall be carried out in such a manner as not to have any adverse effects upon the landfill proper, nor the environment outside the landfill.
- 3.1.2 Safe working practices must be used at all times during operation, maintenance, monitoring or any other activities. The McGuire Site Safety group should be contacted when in doubt about safe working practices or any unusual conditions.
- 3.1.3 Blowing paper and other debris must be controlled. All blown trash must be collected and buried immediately. Previously landfilled wastes that have been uncovered must be recovered with suitable cover by the end of the working day on which it was found uncovered. In general, conditions must not be maintained that promote the habitation and production of insects or rodents.

#### **3.2 Access and Security**

- 3.2.1 The entire landfill site is enclosed with an six foot high chain-linked fence, with three strands of barbed wire. All gates must remain locked at all times except during operation, maintenance, monitoring and other necessary activities.
- 3.2.2 The warning signs, located on each gate must remain in good condition at all times. "No Trespassing" signs which are located along the fence perimeter must also remain in good condition. Access to the landfill is limited to authorized personnel only. Those persons include the Landfill Manager, operators, maintenance personnel, monitoring personnel, and Environmental Protection Staff. Others may be granted access to the landfill, if accompanied by authorized persons.

#### **3.3 Daily Cover**

- 3.3.1 Waste materials shall be placed against the active working face of the active cell in such a manner as to take the least amount of space as directed by the Landfill Manager. The waste shall be restricted to the smallest area feasible and compacted as densely as practical using the landfill heavy equipment. Each day during operation, all waste must be covered with at least six (6) inches of soil and compacted. The slope of the waste must not exceed 3:1 ratio. It is very important not to use more than 6 inches of daily cover to conserve valuable landfill space.
- 3.3.2 In lieu of soil, two types of alternate daily cover may be utilized: oil contaminated soil and a TYPAR blanket. The Landfill Manager will ensure that the oil contaminated soil contains no free liquids. The

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Landfill Manager will also ensure that no ignition sources are in close proximity to the oil contaminated soil. Oxidizers and other potentially chemically incompatible substances will be segregated from this contaminated soil. All oil contaminated soil that is used for cover will be placed in the active portion of the landfill while awaiting use. When feasible, the oil contaminated soil will be sown with vegetative cover to facilitate the bioremediation process.

- 3.3.3 The TYPAR blanket will be used as temporary cover. The use of the TYPAR blanket is not allowed to cover asbestos. The TYPAR blanket is to be secured to prevent the uncovering of the material in the landfill. The blanket shall be secured by placing weights or sandbags on top of the blanket. No solid waste shall be placed on top of the TYPAR blanket. Prior to adding more material to the landfill for disposal, the TYPAR blanket shall be pulled back to prevent inadvertent tearing. The Landfill Manager will inspect the TYPAR blanket for tears on a monthly basis and will initiate procurement of a new blanket as needed.
- 3.3.4 "Special" wastes, such as asbestos and WC sludge must be covered immediately once it is placed in the landfill basin. These wastes do not require compaction.
- 3.3.5 Waste must always be covered in a manner as to prevent rainwater runoff from entering an active cell. Any rainwater falling in an active cell must be treated through the leachate collection system.
- 3.3.6 The equipment operators must routinely inspect each cell clean-out to ensure clogging has not occurred. The cell drains provide a flow path for storm water in the inactive cells that does not percolate into the collection system. In an active cell, the cell drain provides a similar function, but only until it is covered.
- 3.3.7 Before covering the drain, remove the grill and replace it with a cap. Capping the drain will prevent silt fines from getting into the collection system.
- 3.3.8 No equipment shall be driven directly on the geotextile fabric. At all times there should be a minimum of twelve (12) inches of operational cover on top of the geotextile fabric. The Landfill Manager should be contacted in the event of erosion problems inside the basin.
- 3.3.9 Areas which are not utilized for 12 months or more must be covered with at least one (1) foot of intermediate cover. The Landfill Manager will direct such activities.

### **3.4 *Opening a New Cell***

Written permission must be obtained from the NC DENR Solid Waste Section prior to placing waste into a new cell.

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### **4.0 System Maintenance**

To ensure proper operation of the landfill, a considerable amount of preventive maintenance is required. The Landfill Manager will ensure the necessary maintenance is conducted in a timely fashion.

#### **4.1 Leachate Collection System**

All maintenance activities listed below are the responsibility of MNS Facilities Management, or as directed by the Landfill Manager.

##### 4.1.1 Pumps (2)

The pumps must be routinely dismantled, inspected, and maintained.

##### 4.1.2 Clean Out of Leachate Lines

To ensure proper operation, the leachate lines should be cleaned out at least once per year, at a minimum. The lines should be flushed with water and allowed to drain to the leachate collection basin.

##### 4.1.3 Operation of Leachate Valve

The leachate collection system shut off valve is located near the leachate pond. This valve must remain throttled as shown on drawing during routine operations and be closed only for emergency repairs to the leachate collection system.

#### **4.2 Control Wiring**

A monthly inspection of the control panels and operating parameters must be performed to ensure proper operation.

#### **4.3 Power Wiring**

A monthly inspection of power panels, switches, etc., must be performed to ensure proper operation.

#### **4.4 Service Water System**

A monthly inspection of the water system valves in the pump house and pumps alarm system must be performed to ensure proper operation.

#### **4.5 Alarm System**

A monthly inspection of the alarms at the landfill must be performed to ensure proper operation.

**NOTE:** The Landfill Manager is responsible for ensuring all inspections are conducted. Please refer to the Monthly Inspection Sheet ([Attachment 1](#)).

#### **4.6 Standpipe Extension in Each Cell**

Standpipe installation for each cell consists of using 8 inch (4100 SDR 11) plastic piping with schedule 40

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plastic couplings. Ensure holes are drilled into the piping before assembly and installation. Wrap the piping with silt fence material, and then fabricate a wire basket with a 6-inch opening extending away from the pipe. Wrap the wire basket with slit fence material, and then add washed stone inside and outside the basket to stabilize the standpipe. Continue this process as the level of each active cell increases to ensure liquids (primarily rainwater) are appropriately filtered before being discharged into the leachate system.

### **5.0 General Site Maintenance**

To ensure proper operation of the landfill general site maintenance will be required. The Landfill Manager will ensure that all maintenance activities are completed as necessary and in a timely fashion. The Landfill Manager must also ensure that only qualified personnel conduct these maintenance activities.

#### **5.1 Basin Access Ramp**

To maintain vehicle access inside the basin for unloading waste, the access ramp must be maintained to permit access to the landfill in most weather conditions.

Extreme caution must be observed due to the steep slope of the access road.

#### **5.2 Sediment Basins (3)**

All sediment basins must be inspected monthly and after each significant rainfall. When the basins become 50% (1.5 feet) filled with sediment, they must be cleaned out and the stone replaced and new vegetation seeded, as directed by the Landfill Manager. The overflow must be free of any debris that will cause clotting.

#### **5.3 Erosion Control**

##### 5.3.1 Diversion Control Ditches

The landfill site has approximately 3000 linear feet of ditches to control erosion from the stockpile areas and around the basin. The ditches must be inspected monthly and after a significant rainfall and repaired as necessary.

##### 5.3.2 Creek Crossing

The landfill entrance road crosses a creek with approximately 2500 square feet of riprap. This crossing must be maintained to prevent erosion. This crossing must be inspected monthly and after a significant rainfall. The riprap must be repaired or replaced as necessary.

#### **5.4 Ground Cover Maintenance**

5.4.1 Adequate ground cover must be maintained along the entrance road and inside the landfill basin to prevent erosion. The grass must be mowed so that erosion can be easily detected and corrected as soon as possible.

5.4.2 A monthly inspection of the site is required to prevent and detect any erosion problems. Any

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problems found must be repaired as soon as possible.

- 5.4.3 All ground cover maintenance will be conducted by Conventional Hydro Stations/Upper Catawba Utility Crew, as directed by the Landfill Manager. All roadway maintenance will also be conducted by Conventional Hydro Stations/Upper Catawba Utility Crew, as directed by the Landfill Manager.

5.4.3.1 Mowing

The landfill site has approximately 15 acres of grass which will require weekly mowing, or as deemed necessary by the Landfill Manager.

5.4.3.2 Proper Cover

Approximately 10 acres of the 15 total acres is on a steep slope. The grass inside the landfill basin must be well maintained to ensure adequate one foot of operational cover. Should this grass die, erosion will occur and clog the leachate collection system.

5.4.3.3 Fertilizer and Lime Program

A semi-annual fertilizer and lime program is necessary to provide the adequate soil nutrients to maintain the grass. The Landfill Manager will make the necessary arrangements for the fertilizer and lime application. Fertilizer and lime must not be applied within 20 feet of the groundwater monitoring wells. The Landfill Manager will document and file all fertilizer/lime applications. This documentation shall include: type of fertilizer/lime used, application area and rate of application, name of applicator, and date of application.

5.4.3.4 Watering

This grass inside the landfill basin is growing in only a foot of soil; therefore, the soil will dry out quickly during the hot summer months. Consequently, to maintain the grass, frequent watering will be required in summer. The Landfill Manager will ensure that the grass is watered as needed.

5.4.3.5 Pesticide Applications

Prior to any pesticide/herbicide application, the Landfill Manager must be notified. Only licensed applicators shall apply pesticides. Pesticides should not be applied within 20 feet of the groundwater monitoring wells.

## **5.5 Security Fence**

- 5.5.1 The landfill basin, leachate pond, sedimentation ponds, and operational cover material is completely surrounded by a 4000 linear six feet high with three strains of barbed wire chain-linked fence. The fence provides access with five double vehicle gates and one personnel gate. All gates must remain locked, except when work is going on inside its perimeter. It is the responsibility of all landfill workers to lock all gates when they leave.

## *McGuire Nuclear Station Landfill Operations Manual*

- 5.5.2 TRANSCO Pipe Company must have access to their right-of-way pipeline by multiple locking the selected gates.
- 5.5.3 Those employees who have been issued a key must keep control of their keys at all times. Those employees needing access to the landfill must contact the Landfill Manager.
- 5.5.4 "No Trespassing" and the landfill information signs must be maintained on the fence. The Landfill Manager will replace the signs as needed.
- 5.5.5 A monthly inspection is required to ensure the integrity of the fence and to control unauthorized access points. This inspection must also include the appropriate signage.

### **5.6 Roadways**

- 5.6.1 The landfill entrance road is approximately two miles. The road must be maintained by applying stone and fine grade, as necessary. There are also two roads, approximately 600 feet in length to the groundwater monitoring wells that must also be maintained in this fashion.
- 5.6.2 The grass along the entrance must also be maintained in the same manner as the basin grass, including a fertilizer and lime program.
- 5.6.3 A monthly inspection of culverts, ditches, etc., is required and all problems repaired, as necessary.

## **6.0 Monitoring and Sampling Program**

### **6.1 Purpose**

To describe the monitoring and sampling programs related to the operation, maintenance and closure of the landfill. All groundwater monitoring and sampling will be conducted by Duke Energy Scientific Services.

### **6.2 Leachate Collection System Monitoring Program**

All monitoring and sampling will be performed in accordance the landfill permit and the sampling/analysis plan.

## **7.0 Inspections**

- 7.1 To ensure proper operation and maintenance, a monthly inspection will be conducted by the Landfill Manager. The Landfill Manager will note any problems detected during the inspection on the inspection sheet. If necessary, the problem must be described. Any corrective action will also be noted on the same inspection sheet along with the date of the remedial operation. Please see [Attachment 1](#) for the Monthly Inspection Sheet.
- 7.2 Mecklenburg County Environmental Protection conducts a monthly inspection of the landfill. The Landfill Manager and/or the Corporate Environmental or designee must accompany County and State inspectors. All



## *McGuire Nuclear Station Landfill Operations Manual*

problems noted by the regulatory agencies must be corrected as soon as possible.

### **8.0 Closure Plan**

#### ***8.1 Closure/Post Closure***

Closure of the MNS landfill will be performed in accordance with the landfill permit and the closure and post-closure care plans.



McGuire Nuclear Station Landfill Operations Manual

ATTACHMENT 1

MCGUIRE LINED LANDFILL / MONTHLY INSPECTION SHEET

Inspector's Name: \_\_\_\_\_

Date / Time: \_\_\_\_\_

1. Access

- a. Access Road: Graded, Erosion Free \_\_\_\_\_
- b. Access Road Ditches: Mowing, Erosion Free \_\_\_\_\_
- c. Creek Crossing: Unobstructed, Mowing \_\_\_\_\_

2. Leachate Pond

- a. Access Road: Graded, Erosion Free \_\_\_\_\_
- b. Gate Access: Locked and Secure \_\_\_\_\_
- c. Pond Level: Below Stand Pipe Level \_\_\_\_\_
- d. Liner Integrity: Secure and Free of Cracks \_\_\_\_\_
- e. Life Preserver: Present, Good Condition \_\_\_\_\_
- f. Information Signs: *DANGER, AUTHORIZED ONLY*  
In Place and Good Condition \_\_\_\_\_
- g. Leachate Inlet: Cover In Place \_\_\_\_\_
- h. Control Panel: Main Switch in Alternate Mode  
ETM \_\_\_\_\_ 1 hrs.                      ETM \_\_\_\_\_ hrs
- i. Control Wiring: Integrity Intact \_\_\_\_\_
- j. Pump Seal Water: Verified Flow \_\_\_\_\_
- k. Alarm System: Functional \_\_\_\_\_
- l. General Appearance: Rust, Insulation, Leaks, etc. \_\_\_\_\_

3. Main Entrance

- a. Gate Access: Locked and Secure \_\_\_\_\_



McGuire Nuclear Station Landfill Operations Manual

b. Access Road: Graded, Erosion Free \_\_\_\_\_

MCGUIRE LINED LANDFILL / MONTHLY INSPECTION SHEET Continued

c. Silt Basin #2: Level < 13" \_\_\_\_\_
Erosion \_\_\_\_\_
Overflow Clear \_\_\_\_\_
General Appearance \_\_\_\_\_

d. Basin Ramp: Access in Good Condition \_\_\_\_\_

e. Daily Cover: 6" Minimum \_\_\_\_\_
No Standing Water \_\_\_\_\_
Free of Blowing Trash \_\_\_\_\_

f. Alternate Cover: TYPAR Blanket Intact, Weighted \_\_\_\_\_
Oily Soil - No Free Liquids \_\_\_\_\_
No Ignition Sources \_\_\_\_\_
Stored in Active Cell \_\_\_\_\_

g. Clean-Out Pipes: Free of Debris \_\_\_\_\_

h. Cell Berms: Trash Below Berm \_\_\_\_\_
Erosion Free and Grassed \_\_\_\_\_

4. Basin

a. Cell 1 Active / Inactive / Closed General Appearance \_\_\_\_\_
b. Cell 2 Active / Inactive / Closed General Appearance \_\_\_\_\_
c. Cell 3 Active / Inactive / Closed General Appearance \_\_\_\_\_
d. Cell 4 Active / Inactive / Closed General Appearance \_\_\_\_\_

5. Manways (When Applicable)

a. Covers: In Place and Secure \_\_\_\_\_
b. Piping: Free of Leaks \_\_\_\_\_
#4 IS CONFINED SPACE ENTRY \_\_\_\_\_

6. Sprinkler System: Operational \_\_\_\_\_

7. Silt Basin #1: Drainage Pipe \_\_\_\_\_



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Free of Debris	_____
Level < 18"	_____
Erosion	_____

MCGUIRE LINED LANDFILL / MONTHLY INSPECTION SHEET Continued

Overflow Clear	_____
General Appearance	_____

8. **Fencing:** Integrity \_\_\_\_\_

9. **Signs:** In Place & Good Condition \_\_\_\_\_

10. **Soil Storage Area:** Erosion \_\_\_\_\_

Grassed \_\_\_\_\_

11. **Silt Basin #3** Level < 18" \_\_\_\_\_

Erosion \_\_\_\_\_

Overflow Clear \_\_\_\_\_

General Appearance \_\_\_\_\_

Comments:

---



---



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---



---

Corrective Actions: \_\_\_\_\_

Signature: \_\_\_\_\_

## *McGuire Nuclear Station Landfill Operations Manual*

### ATTACHMENT II

#### McGuire Landfill Waste Management Guidelines

**NOTE:** If your waste has been previously approved, go to [Section B Approved Waste](#).

#### Section A. Waste Not Previously Approved

##### 1. The waste generator/shipper:

- Determines the material cannot be re-used, recycled or disposed as construction/demolition waste.
- Completes a Solid Waste Disposal Form ([Attachment III](#)) or provides information through emails and phone calls, including, if available:
  - ⇒ MSDS
  - ⇒ Chemical Fact sheets
  - ⇒ TCLP or other analytical data
- Submits requests to Corporate Environmental

##### 2. Corporate Environmental:

- Reviews the Solid Waste Disposal Form (profile) and evaluates the material regarding the following criteria:
  - ⇒ Hazardous?
  - ⇒ Contain free liquid?
  - ⇒ Affect leachate?
  - ⇒ Acceptable for MNS landfill?
  - ⇒ Is MNS Landfill the lowest cost option for the generator?

##### **If Approved:**

- Forwards profile information to the Corporate Environmental Technical Assistant, who assigns a profile number and informs the generator that waste has been approved for landfill.

##### **If Not Approved:**

- Corporate Environmental will contact the generator and obtain approval for alternate disposal method.

## *McGuire Nuclear Station Landfill Operations Manual*

### **Section B. Approved Waste**

**1. The waste generator/shipper:**

- Identifies the MNS Landfill profile number.
- Completes the Non-Hazardous Waste Manifest Form ([Attachment IV](#)) and **attaches a copy of the manifest to the container.**
- Ensures the container contents are described on the container.
- Indicates on the container that the material is to be disposed of in the MNS Landfill.
- Marks / labels the container as Non-Hazardous.
- Marks the container with the Profile Number

**2. Waste / Manifest received at the Toddville Facility**

- Toddville's Waste Operator verifies that the non-hazardous waste manifest that is attached to the container matches the contents of the container (s).
- Toddville's Waste Operator timely loads non-hazardous waste in Toddville's secure roll-off.
- Toddville's Environmental Coordinator or Waste Operator attaches the copies of the manifests that describe the material placed in the roll-off to the roll-off manifest going to the MNS Landfill. Toddville's Environmental Coordinator or Waste Operator will adjust the weight of the roll-off manifest to account for materials placed into the roll-off.

**3. Corporate Environmental Technical Assistant:**

- Picks up manifests that have been placed in the Manifest Drop Box on a weekly basis.
- Updates the MNS Landfill Waste Spreadsheet / Database with shipment information.
- Assigns profiles numbers for a newly approved waste stream and notifies the generator.
- Retains non-hazardous manifests for 50 years.

### **Section C: Specific Waste Streams**

**Oily Soil from Spill Crews:**

**1. Oil Spill Crew**

- Inspects load to ensure all waste is acceptable
  - ⇒ Separates clean soil from oil pads
  - ⇒ Completes the non-hazardous manifest

## *McGuire Nuclear Station Landfill Operations Manual*

- Transports to MNS landfill
  - ⇒ Places absorbent material and trash under cover
  - ⇒ Places any clean soil in cover soil pile
  - ⇒ Places soil with debris into waste area
- Ensures gate is locked
- Places completed manifest in Manifest Drop Box



*McGuire Nuclear Station Landfill Operations Manual*

**ATTACHMENT III**

**MNS Landfill Solid Waste Disposal Form (Profile)**

APPROVAL NO. \_\_\_\_\_

Date Submitted: \_\_\_\_\_

Date Approved: \_\_\_\_\_

<b>Description of waste:</b>				
<b>Submitted by:</b>		<b>Section/dept:</b>		
<b>Phone number:</b>		<b>Facility:</b>		
<b>Reason for disposal or reuse request (can this be surplus?)</b>				
<b>Total weight (tons/lbs/yd<sup>3</sup>)</b>		<b>Container size:</b>		<b>Number of containers:</b>
<b>Type Container:</b> _____ (A) Metal Drum (B) Plastic Drum (C) Fiber Drum (D) Bag (E) Tote Bin (F) Dump Truck (G) Rolloff (H) Other				
<b>Physical description:</b>				
<b>Constituents:</b> (debris, oil, solvent, chemical, etc.)	<b>Relative Percent:</b>	Product manufacturer:	Phone No:	
		Address:		
		Vendor/supplier:	Phone No:	
		Address		
		Commodity ID Number:	MSDS Number:	
		Current location on site:	Estimated date of shipment/desired shipping sate:	
<b>COLOR</b>	<b>ODOR</b>	<b>SPILL CLEANUP</b>	<b>SOLID</b>	<b>SEMI-SOLID</b>
Free Liquids (yes) (no)		Analysis Attached : (yes) (no)		
Is this excess, obsolete or expired? (yes) (no)				



McGuire Nuclear Station Landfill Operations Manual

ATTACHMENT IV

McGuire Site Landfill NON-HAZARDOUS WASTE MANIFEST

McGuire Site Landfill
Permit #60-04

\*\*\*NOTE: Please submit a separate manifest for multiple addresses, if loads are in different counties.\*\*\*

SUBMITTED BY: L.C. WILLIAMS SECTION/DEPT: PD FIELD SUPPORT

PHONE NUMBER: FACILITY: VARIOUS SPILL LOCATIONS

Table with 4 columns: DESCRIPTION OF WASTE (OIL SPILL WASTE), PROFILE NUMBER, NET WEIGHT, CONTAINER TYPE\*. Rows include OILY SOIL (DES0001) and COVER SOIL (CLEAN) (DES0002).

\*Dump truck, drum, bag, etc.

NAME (Driver's Name) SIGNATURE DELIVERY DATE

LOCATION NAME:

STREET ADDRESS:

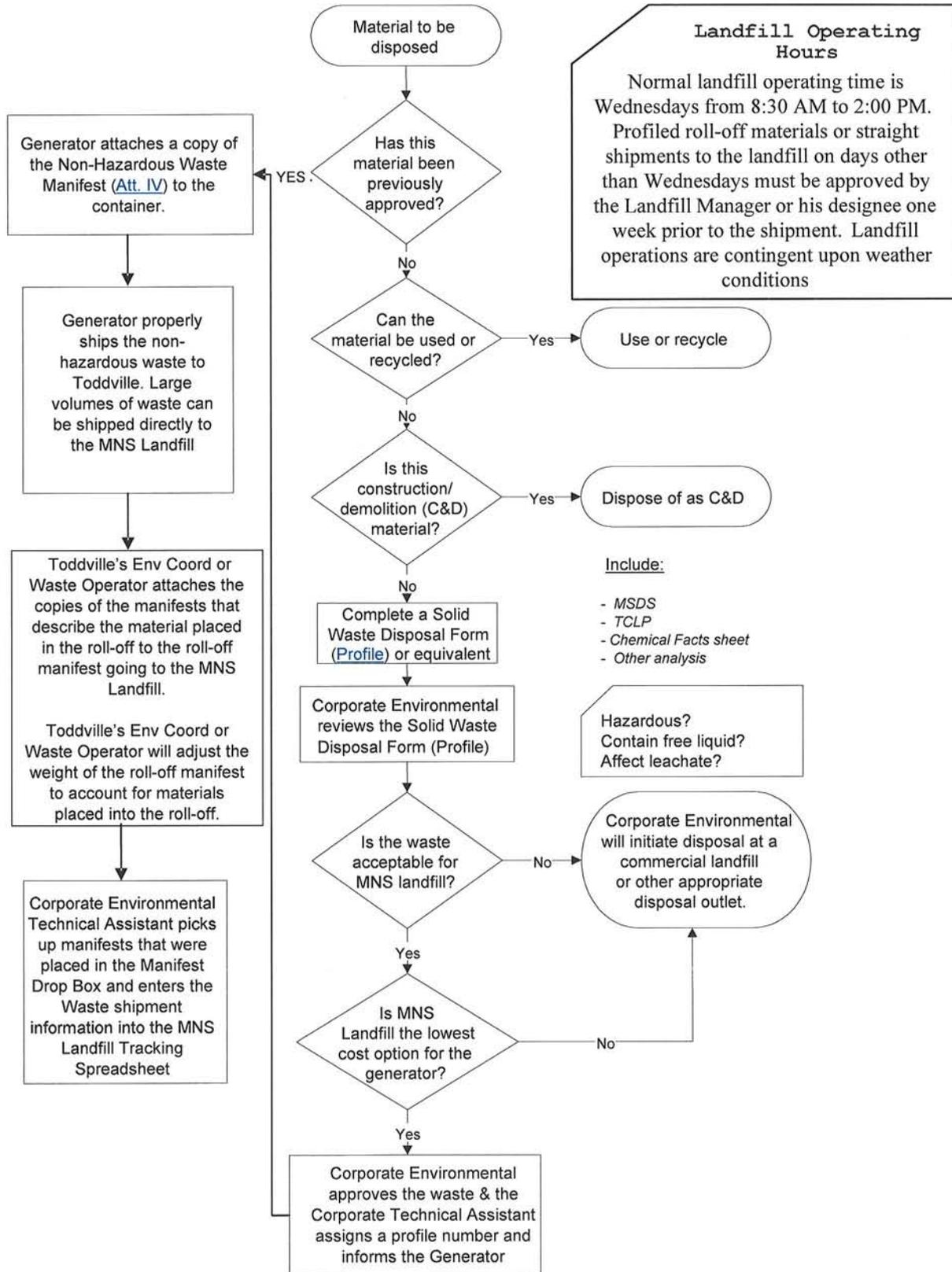
CITY AND STATE:

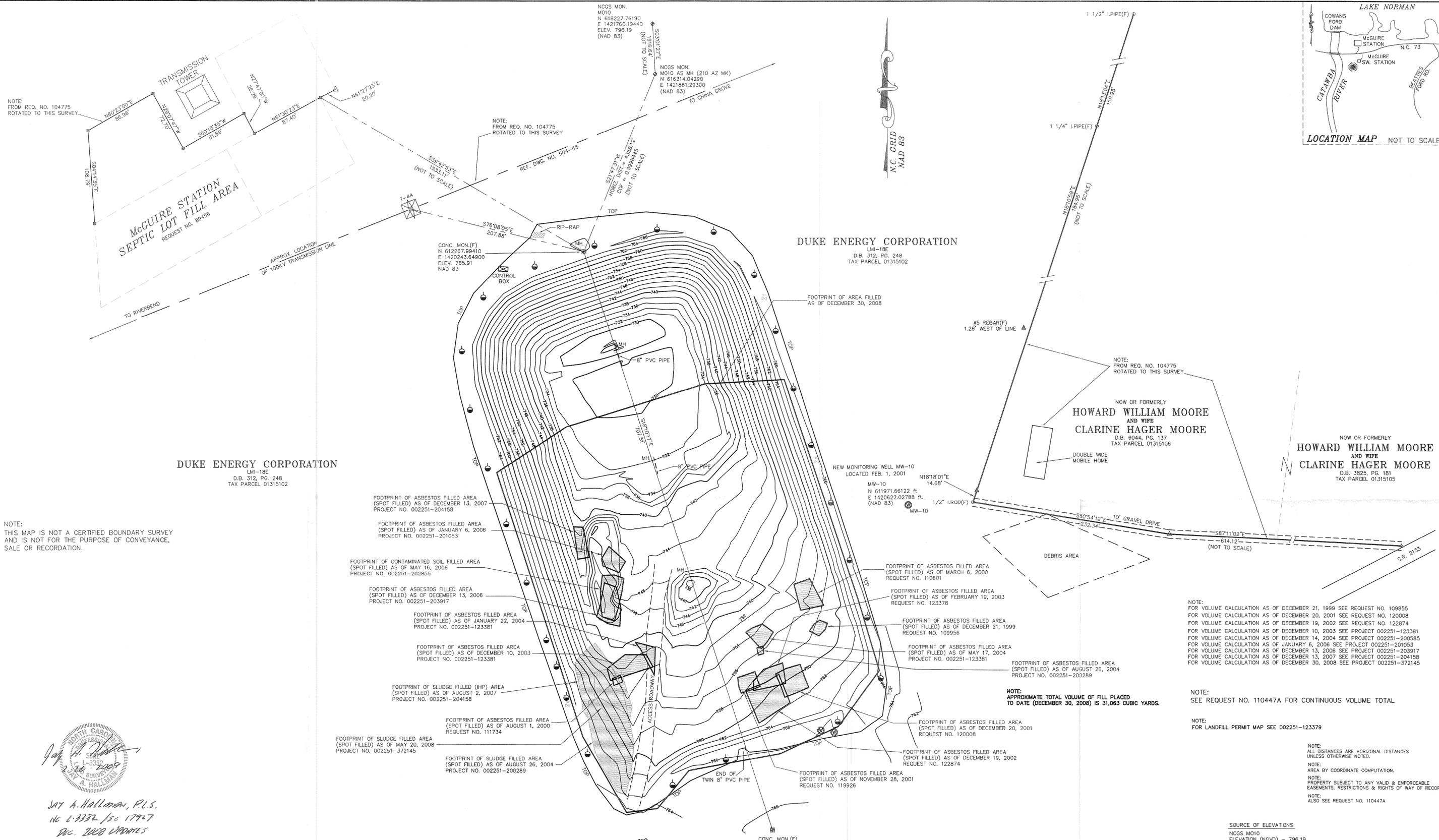
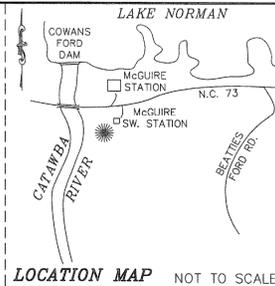
COUNTY:

COMMENTS:

## ATTACHMENT V

### MNS Landfill Operations Flowchart





NOTE:  
FROM REQ. NO. 104775  
ROTATED TO THIS SURVEY.

NOTE:  
FROM REQ. NO. 104775  
ROTATED TO THIS SURVEY.

NOTE:  
FROM REQ. NO. 104775  
ROTATED TO THIS SURVEY.

NOTE:  
THIS MAP IS NOT A CERTIFIED BOUNDARY SURVEY  
AND IS NOT FOR THE PURPOSE OF CONVEYANCE,  
SALE OR RECORDATION.

NOTE:  
FOR VOLUME CALCULATION AS OF DECEMBER 21, 1999 SEE REQUEST NO. 109855  
FOR VOLUME CALCULATION AS OF DECEMBER 20, 2001 SEE REQUEST NO. 120008  
FOR VOLUME CALCULATION AS OF DECEMBER 19, 2002 SEE REQUEST NO. 122874  
FOR VOLUME CALCULATION AS OF DECEMBER 10, 2003 SEE PROJECT 002251-123381  
FOR VOLUME CALCULATION AS OF DECEMBER 14, 2004 SEE PROJECT 002251-200585  
FOR VOLUME CALCULATION AS OF JANUARY 6, 2006 SEE PROJECT 002251-201053  
FOR VOLUME CALCULATION AS OF DECEMBER 13, 2006 SEE PROJECT 002251-203917  
FOR VOLUME CALCULATION AS OF DECEMBER 13, 2007 SEE PROJECT 002251-204158  
FOR VOLUME CALCULATION AS OF DECEMBER 30, 2008 SEE PROJECT 002251-372145

NOTE:  
SEE REQUEST NO. 110447A FOR CONTINUOUS VOLUME TOTAL

NOTE:  
FOR LANDFILL PERMIT MAP SEE 002251-123379

NOTE:  
ALL DISTANCES ARE HORIZONTAL DISTANCES  
UNLESS OTHERWISE NOTED.  
NOTE:  
AREA BY COORDINATE COMPUTATION.  
NOTE:  
PROPERTY SUBJECT TO ANY VALID & ENFORCEABLE  
EASEMENTS, RESTRICTIONS & RIGHTS OF WAY OF RECORD.  
NOTE:  
ALSO SEE REQUEST NO. 110447A

SOURCE OF ELEVATIONS  
NCGS M010  
ELEVATION (NGVD) - 796.19

NOTE:  
THIS DRAWING SUPERSEDES REQ. NO. 104775  
JAN. 11, 2000 - SURVEY INFORMATION AS OF DEC. 21, 1999, ADDED  
MAR. 7, 2000 - SURVEY INFORMATION AS OF MAR. 6, 2000, ADDED  
DEC. 4, 2001 - SURVEY INFORMATION AS OF NOV. 28, 2001, ADDED  
JAN. 9, 2002 - SURVEY INFORMATION AS OF DEC. 20, 2001, ADDED  
JAN. 8, 2003 - SURVEY INFORMATION AS OF DEC. 19, 2002, ADDED  
FEB. 24, 2003 - SURVEY INFORMATION AS OF FEB. 19, 2003, ADDED  
DEC. 16, 2003 - SURVEY INFORMATION AS OF DEC. 10, 2003, ADDED  
JAN. 27, 2004 - SURVEY INFORMATION AS OF JAN. 22, 2004, ADDED  
MAY 27, 2004 - SURVEY INFORMATION AS OF MAY 17, 2004, ADDED  
SEPT. 15, 2004 - SURVEY INFORMATION AS OF AUG. 26, 2004, ADDED  
DEC. 17, 2004 - SURVEY INFORMATION AS OF DEC. 14, 2004, ADDED  
JAN. 23, 2006 - SURVEY INFORMATION AS OF JAN. 6, 2006, ADDED  
MAY 26, 2006 - SURVEY INFORMATION AS OF MAY 16, 2006, ADDED  
DEC. 15, 2006 - SURVEY INFORMATION AS OF DEC. 13, 2006, ADDED  
AUG. 7, 2007 - SURVEY INFORMATION AS OF AUG. 2, 2007, ADDED  
DEC. 17, 2007 - SURVEY INFORMATION AS OF DEC. 13, 2007, ADDED  
MAY 28, 2008 - SURVEY INFORMATION AS OF MAY 20, 2008, ADDED  
JAN. 22, 2009 - SURVEY INFORMATION AS OF DEC. 30, 2008, ADDED

DUKE ENERGY CAROLINAS, LLC  
McGUIRE NUCLEAR STATION

TOPOGRAPHIC MAP OF  
**McGUIRE LANDFILL AREA**

LEMLEY TOWNSHIP  
MECKLENBURG COUNTY, N.C.

BOOK NO. 2319 50 25 0 50 100 150 CREW: B. HOBBS  
DECEMBER 21, 1998 SCALE IN FEET DRAWN BY: WRM  
SCALE: 1" = 50' E.C. = 10,000'+

PROJECT NO. 2251 REQUEST NO. 105200A

**LEGEND**

—	LINES SURVEYED	---	LINES NOT SURVEYED
---	TIE LINES		
□	#4 REBAR (S)	⊙	SPRINKLER HEAD
■	#4 REBAR (F)	⊕	VALVE
△	#3 REBAR (F)	⊙	MONITORING WELL
▲	#5 REBAR (F)	⊙	MH ○ MANHOLE
⊙	CON. MON. (F)		



JAY A. HALLINAN, P.L.S.  
NC 3332 / 1/26/2009  
Dec. 2008 UPDATES



SURVEY AND MAP PREPARED BY:  
DUKE ENERGY CAROLINAS, LLC  
P.O. BOX 1007  
CHARLOTTE, N.C. 28201-1007  
TELEPHONE NO. (704)382-6662

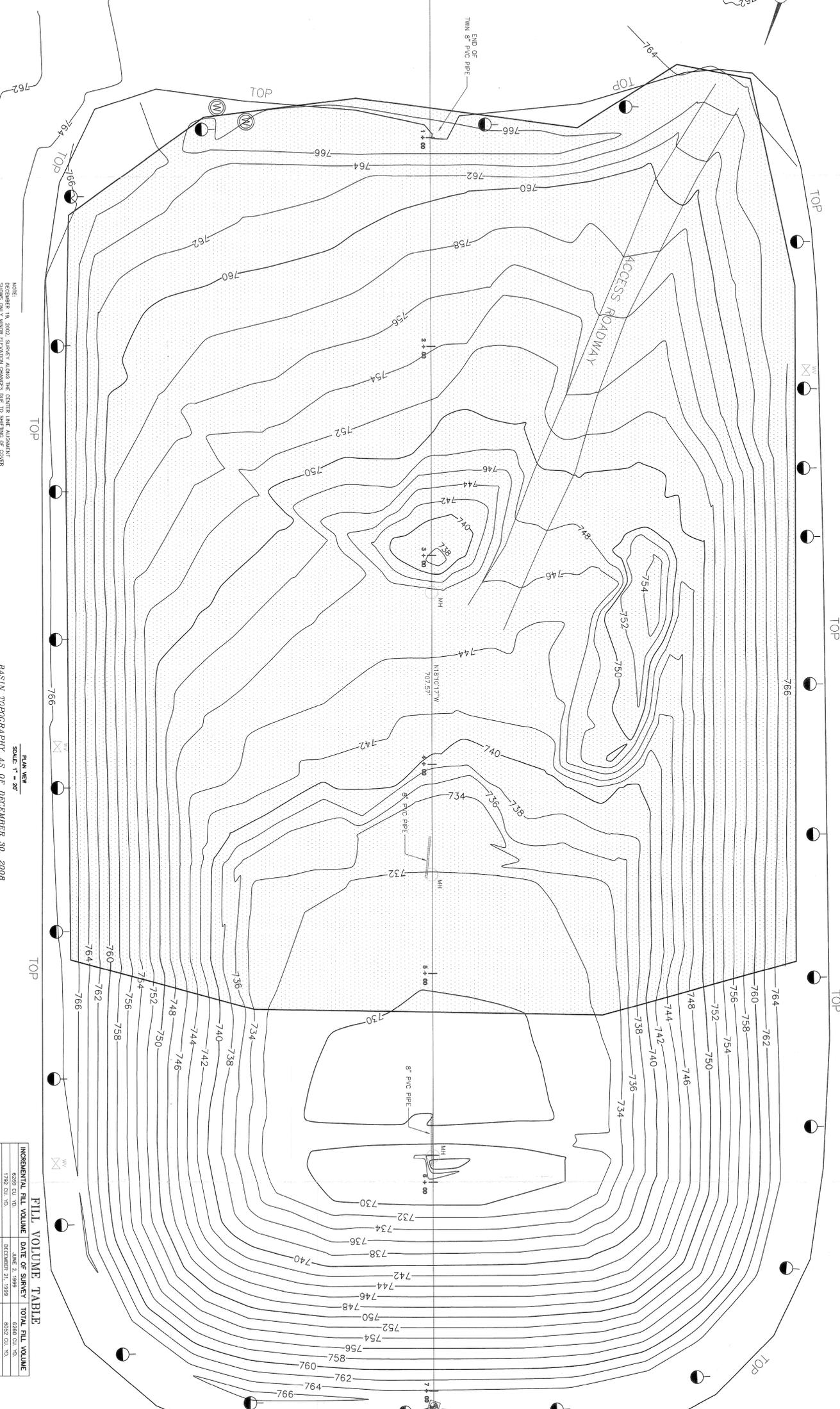
N.C. GRID  
NAD 83

LATER NOBMAN  
CATAWBA RIVER  
McGUIRE NUCLEAR STATION  
BEATES ROAD

CONC. MON.(F)  
N 8172267.98410  
E 1420243.64800  
ELEV. 757.15  
NAD 83

LOCATION MAP NOT TO SCALE

CONC. MON.(F)  
N 8172267.98410  
E 1420243.64800  
ELEV. 757.15  
(GROUND COORDINATES)



NOTE:  
ALL DISTANCES AND HORIZONTAL DISTANCES  
NOTED BY COORDINATE COMPUTATION.  
ELEVATIONS SUBJECT TO ANY CHANGE OF RECORD.  
NOTE: SEE REQUEST NO. 10290A.

LEGEND

LINE SURVEYED  
CONC. MON.(F)  
WELL  
MONITORING WELL  
MANHOLE  
CON. MON. (F)

NOTE:  
FOR VOLUME CALCULATION AS OF FEBRUARY 1, 2001, SEE REQUEST NO. 112850  
FOR VOLUME CALCULATION AS OF DECEMBER 30, 2001, SEE REQUEST NO. 123088  
FOR VOLUME CALCULATION AS OF DECEMBER 30, 2002, SEE PROJECT 002291-123088  
FOR VOLUME CALCULATION AS OF DECEMBER 30, 2003, SEE PROJECT 002291-123088  
FOR VOLUME CALCULATION AS OF JANUARY 6, 2006, SEE PROJECT 002291-20148 (2005 ANNUAL SURVEY)  
FOR VOLUME CALCULATION AS OF DECEMBER 13, 2007, SEE PROJECT 002291-20148 (2007 ANNUAL SURVEY)  
FOR VOLUME CALCULATION AS OF DECEMBER 30, 2008, SEE PROJECT 002291-20148 (2008 ANNUAL SURVEY)

MW-10 NEW MONITORING WELL  
FEB. 1, 2001

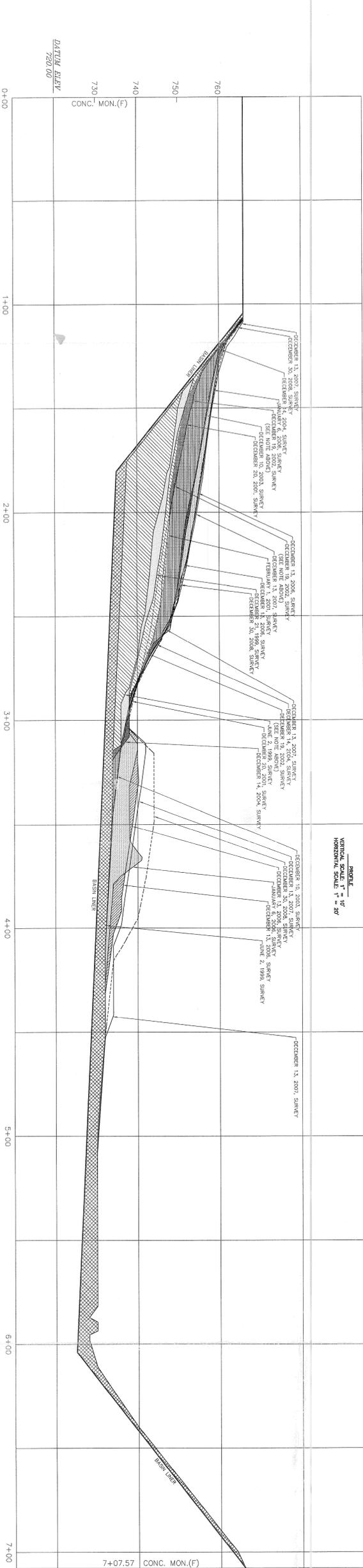
REVISIONS:  
2002 - DEC. 20, 2001 TOPS ADDED & PROFILE REVERSED  
2003 - DEC. 19, 2002 TOPS ADDED & PROFILE REVERSED  
2004 - DEC. 14, 2004 TOPS ADDED & PROFILE REVERSED  
2005 - JAN. 6, 2006 TOPS ADDED & PROFILE REVERSED (2005 ANNUAL SURVEY)  
2006 - DEC. 13, 2007 TOPS ADDED & PROFILE REVERSED (2007 ANNUAL SURVEY)  
2007 - DEC. 13, 2007 TOPS ADDED & PROFILE REVERSED (2007 ANNUAL SURVEY)  
2008 - DEC. 30, 2008 TOPS ADDED & PROFILE REVERSED (2008 ANNUAL SURVEY)

FILL VOLUME TABLE

INCREMENTAL FILL VOLUME	DATE OF SURVEY	TOTAL FILL VOLUME
1732 CU. YD.	DECEMBER 21, 1999	8022 CU. YD.
2880 CU. YD.	FEBRUARY 1, 2001	10,902 CU. YD.
598 CU. YD.	DECEMBER 30, 2001	11,500 CU. YD.
2095 CU. YD.	DECEMBER 30, 2002	13,595 CU. YD.
2238 CU. YD.	DECEMBER 30, 2003	15,833 CU. YD.
2537 CU. YD.	JANUARY 6, 2006	18,370 CU. YD.
4291 CU. YD.	DECEMBER 13, 2007	22,661 CU. YD.
3581 CU. YD.	DECEMBER 30, 2008	26,242 CU. YD.

BASIN TOPOGRAPHY AS OF DECEMBER 30, 2008  
PLAN VIEW  
SCALE: 1" = 20'

VERTICAL SCALE: 1" = 20'  
HORIZONTAL SCALE: 1" = 20'



DUKE ENERGY CAROLINAS, LLC  
McGUIRE NUCLEAR STATION  
TOPOGRAPHIC AND PROFILE MAP OF  
**McGUIRE LANDFILL AREA**  
LEMLEY TOWNSHIP  
MECKLENBURG COUNTY, N.C.

NO BOOK  
FEBRUARY 1, 2001  
SCALE: 1" = 20'

CREW: J. McAULEY  
DRAWN BY: WRM  
E.C. = 10,000+

PROJECT NO. 2251  
REQUEST NO. 110447A

SURVEY AND MAP PREPARED BY:  
DUKE ENERGY CAROLINAS, LLC  
QUARTER 1, INC. 1007  
TELEPHONE NO. (703) 952-6662

**Duke Energy**

John A. Hillman, PLS  
N.C. License No. 19927  
Date: 10/08/08

MECKLENBURG COUNTY  
N.C. REGISTERED PROFESSIONAL SURVEYOR  
No. 1007