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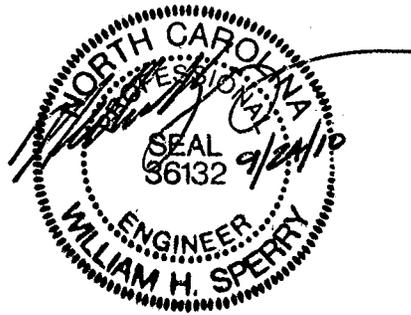
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SOLID WASTE SECTION
ASHEVILLE REGIONAL OFFICE

CLOSURE AND POST-CLOSURE PLAN
MSW LANDFILL
MADISON COUNTY, NORTH CAROLINA

WILLIAM H. SPERRY, PE



Engineering • Planning • Finance
Asheville, North Carolina

September 2010

09.00729

**CLOSURE & POST-CLOSURE PLAN
MADISON COUNTY MSW LANDFILL
MADISON COUNTY, NORTH CAROLINA**

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Madison County Landfill, Permit #58-03, Madison County

CLOSURE AND POST-CLOSURE PLAN

Madison County MSW Landfill

1.0 CLOSURE PLAN

1.1 Madison County MSW Landfill

The Madison County MSW Landfill, covering an area of approximately 3.7 acres ceased the disposal of waste material in January 2004 and has been closed and capped in accordance with the approved Closure Plan. The final cross-section of the cap system consisted of a minimum one-foot layer of compacted on-site soils (intermediate cover), a compacted clay liner with a minimum thickness of 18 inches and a maximum permeability of 1.0×10^{-5} cm/sec, a 40-mil LLDPE textured geomembrane, a double-sided 6 ounce geocomposite drainage layer, and a vegetative supportive layer with a minimum thickness of 24 inches. The top six inches of the vegetative supportive layer will be suitable for sustaining native plant growth. The methane gas removal system was installed according to the approved Closure Plan. This facility is now in Post-Closure status in accordance with the conditions outlined in the Post-Closure Plan.

1.2 Leachate Lagoon

The existing leachate lagoon/surface impoundment will be removed from service and all liquid waste and waste residues removed from the impoundment and leachate collection lines designated to be removed. All liquid wastes and waste residues will be properly handled and disposed of in accordance with applicable Federal and State requirements.

Once all liquid wastes and waste residues have been removed and properly disposed of, the system components (liners, etc.) will be removed and properly disposed of.

Soils immediately below the system components (liners, etc.) will be tested to ensure the soils have not been contaminated. If soils below the system components have become contaminated, the Solid Waste Section will be notified and corrective actions undertaken to remediate any contaminated areas.

If the soils immediately below the system components are found not to be contaminated then the impoundment will be backfilled with onsite soils and graded to match the surrounding topography. Surface water drainage from the backfilled impoundment will be directed to an existing stormwater management basin prior to discharging offsite.

1.2.1 Closure Schedule

Notification to the Solid Waste Section

Prior to beginning closure of the Madison County Leachate Lagoon, the County will notify the Solid Waste Section of the intent to close the Leachate Lagoon.

Begin Closure

Madison County will begin closure activities of the Leachate Lagoon once permission is received from the Solid Waste Section.

Completion of Closure

Madison County will complete closure activities of the Leachate Lagoon in accordance with the Closure Plan within 180 days following the beginning of closure. Extensions of the closure period may be granted by the Division if the owner or operator demonstrates that closure will, of necessity, take longer than 180 days and the County has taken and will continue to take all steps to prevent threats to human health and the environment from the unclosed Leachate Lagoon.

Certification

Following closure, Madison County shall notify the Solid Waste Section that the closure has been completed in accordance with the Closure Plan and noted in the operating record.

2.0 POST CLOSURE PLAN

2.1 Inspections

Inspections of the final cover will be performed according to the table below and the condition of the facility will be recorded with notes, maps, and photographs. Since Madison County intends to operate the Landfill Facility after the MSW landfill has reached capacity, landfill personnel will be on-site to perform inspections on a frequent basis.

The inspection will take notice of:

1. Eroded banks
2. Patches of dead vegetation
3. Animal burrows
4. Subsidence (settlement)
5. Cracks along the cover.

The inspector will note the condition of:

1. Concrete catch basins and stormwater control facilities
2. Leachate collection and removal pipes
3. Gas monitoring wells
4. Water monitoring wells

Areas showing subsidence, cracking, signs of erosion or damage are to be repaired immediately.

Schedule of Inspections

Years (following closure)	Minimum Inspections	Yearly
0-2	4	
2-30	2	

2.2 Maintenance

The vegetative cover will be trimmed at least two times a year. In the early stages of development, fertilization will be applied annually as needed.

Vegetative growth around gas collection wells and leachate manhole risers will be cleaned away and all wells will be clearly marked to prevent accidental damage.

2.3 Monitoring

Explosive gas monitoring will take place on a quarterly basis according to the procedural outline contained in the Operation Plan.

Surface and ground water testing will take place semiannually or as directed by the Division of Solid Waste.

The leachate will also be sampled semi-annually to determine the quality and constituents present. Leachate will be analyzed for Appendix 1 constituents as well as BOD, COD, phosphate, nitrate, sulfate, and pH.

2.4 Leachate collection and treatment

Until it can be demonstrated that leachate concentrations become low enough so as not to pose a threat to human health or the environment, leachate collection and treatment shall continue. Such a demonstration should address direct exposures of leachate releases to ground water, surface water or seeps. Indirect effects, such as accumulated leachate adversely affecting the chemical, physical, and structural containment systems that prevent leachate release, also should be addressed in the demonstration.

2.5 Planned use and personal contact

Preliminary proposals for the planned use of the facility, following closure are inconclusive. No definite plan has been determined as of yet. Most likely, the area will be restricted to landfill maintenance personnel only, thus insuring little or no damage to the final cap system. The person to contact regarding the facility during the Post-Closure period is:

Mr. Jim Huff, Solid Waste Director
Madison County Solid Waste Department
271 Craig Rudisill Road
Marshall, North Carolina 28753
Telephone (828) 649-2311

2.6 Water Quality Monitoring Plan

Please see Section 12 of the Transition Plan that was submitted by Madison County on April 4, 1994 as well as a report by Bunnell-Lammons Engineering titled, "Environmental Monitoring Plan 5 Acre Expansion Area" dated July 23, 2003. This includes discussion of the existing monitoring system, proposed monitoring system, additional well construction, water level monitoring, aquifer testing, and groundwater sampling and analysis.

2.7 Engineer's Certification

Following completion of the post-closure care period, Madison County shall notify the Solid Waste Section that a certification, signed by the project engineer verifying that post-closure care has been completed in accordance with this post-closure plan, has been placed in the operating record

3.0 UNDERGROUND LEACHATE STORAGE TANK CLOSURE PLAN

Madison County shall complete the closure activities outlined in this plan within 180 days after liquid collection has ceased.

- A. At closure, all liquid waste and waste residue shall be removed from the underground tank, connecting lines, and the secondary containment systems if required. All solid waste removed shall be properly handled and disposed of according to Federal and State requirements. All connecting lines shall be disconnected and securely capped, plugged or removed.

- B. If groundwater surrounding the tank is found to be contaminated the Solid Waste Section will be notified and the tank and surrounding contaminated soil shall be removed and appropriately disposed of. Other corrective actions will be undertaken as required to remediate any contaminate plume that may exist.
- C. If groundwater surrounding the tank is found not to be contaminated then the tank may either be filled with a solid inert material, such as clean sand or concrete slurry and all access ways permanently sealed or the tank may be removed and properly disposed of. If the tank is removed, the resulting excavation shall be backfilled with onsite soil and graded to match the surrounding topography.

4.0 FINANCIAL ASSURANCE

The Financial Assurance provision of Subtitle D provides that owner and operators of Municipal Solid Waste Landfills (MSWLF) must provide for certain minimum measures to insure that the funds to meet the requirements of the regulations governing closure, post-closure and corrective action activities are available in the event that these actions are not taken by the owner or operator. The regulations addressing financial assurance are embodied in North Carolina Rule .1628.

4.1 NORTH CAROLINA RULE .1628

In general, Rule .1628 provides that the owner and/or operator must:

1. Provide accurate cost estimates for the closure and post-closure care.
2. Select a mechanism for demonstrating financial assurance.
3. Maintain the selected mechanism in compliance with the provisions of Rule .1628 throughout the period for which the owner/operator is subject to the provisions of Subtitle D and Rule .1628.

The Rule provides for the following alternative mechanisms for demonstrating financial assurance:

1. Trust Fund.
2. Surety bond Guaranteeing Payment or Performance.
3. Letter of Credit.
4. Insurance.
5. Capital Reserve Fund.
6. Local Government Financial Test.
7. Multiple Mechanisms.

Madison County has reviewed the requirements associated with each of these mechanisms and assessed the costs related to their use as the County's financial assurance mechanism. Although the relative cost of these mechanisms does not appear to vary significantly, there are various factors associated with their availability and practicality, which make certain of the mechanisms less attractive than others.

4.2 LOCAL GOVERNMENT FINANCIAL TEST

Therefore, Madison County has elected to adopt the Local Government Financial Test. The Local Government Financial Test is attractive because the County's sound financial condition makes passing the test quite feasible. Madison County has not had any difficulties passing the Local Government Financial Test in recent years and there are not any circumstances that would indicate that this would change. A copy of the Local Government Financial Assurance Test for FY 2010 as approved by the North Carolina Department of Environment and Natural Resources is included in Appendix A.

APPENDIX A

Local Government Financial Assurance Test for FY 2010



North Carolina Department of Environment and Natural Resources

Daxter Matthews, Director

Division of Waste Management

Beverly Eaves Ferdue, Governor
Dae Freeman, Secretary

March 19, 2010

Darlyne Rhinehart
Finance Officer
PO Box 579
Marshall, NC 28753

Re: Local Government Financial Assurance Test for FY 2010
Madison County Landfill, Permit #58-03, Madison County

Dear Ms. Rhinehart:

The Solid Waste Section has approved your financial mechanism dated March 17, 2010, for closure and post-closure costs.

Madison County Landfill Permit #58-03

	#58-036 MSW	#58-03 C&D
Closure Costs	\$ 0.00	\$337,500.00
Post Closure Costs	\$ 569,969.00	\$375,450.00
Corrective Action	\$ 0.00	\$ 0.00
Total	\$ 596,969.00	\$712,950.00

Total *\$1,282,919.00*

Thank you for your cooperation in providing me your financial assurance mechanism in a timely manner. Please contact me at (919) 508-8502, if you have any questions or concerns.

Sincerely,

Donald Herndon
Compliance Officer
Solid Waste Section

cc: Madison County Solid Waste Director
Andrea Keller, Environmental Senior Specialist
Allen Gaither, Permitting Engineer

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