



Duke Energy Corporation
Marshall Steam Station
FGD Residue Landfill
Facility Permit No: 18-09
Permit to Operate
November 21, 2006
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NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES
Dexter R. Matthews, Director

Division of Waste Management

Michael F. Easley, Governor
William G. Ross Jr., Secretary

STATE OF NORTH CAROLINA
DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES
DIVISION OF WASTE MANAGEMENT

INDUSTRIAL SOLID WASTE LANDFILL FACILITY
PERMIT NO. 18-09

DUKE ENERGY CORPORATION
is hereby issued a

PERMIT TO OPERATE
the
Marshall Steam Station Flue Gas Desulfurization (FGD) Residue Landfill
Phase 1, Cell 1

Located in Catawba County and located off of NC 150 via Steam Plant Road (SR 1847) just west of Lake Norman in Terrell, North Carolina, in accordance with Article 9, Chapter 130A, of the General Statutes of North Carolina and all rules promulgated thereunder and subject to the conditions set forth in this permit. The facility is located and described by the legal description found in the approved application.

Edward F. Mussler, III, P.E.,
Permitting Branch Supervisor
Solid Waste Section

ATTACHMENT 1
Permitting History

INDUSTRIAL WASTE LANDFILL FACILITY: PERMIT NO. 18-09	ISSUANCE DATE
Original Permit to Construct	April 12, 2006
Modification PTC: HDPE Liner and Cap System	May 22, 2006
Permit to Operate: Phase 1, Cell 1	November 17, 2006

ATTACHMENT 2

List of Documents

1. *FGD Residue Landfill Permit Application Site Suitability Information* August 29, 2003 Volume 1 15A NCAC 13B .0503 (1) and .0504 (1) Requirements and Responses received Construction Plan Application September 3, 2003.
2. *FGD Residue Landfill Permit Application Site Suitability Information* August 29, 2003 Volume 2 Hydrogeologic Study S&ME Project 1264-02-578 received September 3, 2003.
3. *Compliance Demonstration Report* dated March 31, 2004 received April 6, 2004. for Phase 1 dated March 2004 received April 2, 2004.
4. *FGD Residue Landfill Permit Application Site Suitability Information* October 29, 2004 Volume 1 Addendum 1 Hydrogeologic Study S&ME Project 1264-02-578 received November 18, 2004.
5. *FGD Residue Landfill Permit Application Site Suitability Information* October 29, 2004 Volume 2 Addendum 1 Hydrogeologic Study S&ME Project 1264-02-578 received November 18, 2004.
6. *FGD Residue Landfill Permit Application .0503(2)(d)(ii)(A) Compliance Demonstration Report*. Addendum November 12, 2004 received November 18, 2004.
7. Response to Comments: Marshall Steam Station FGD Industrial Landfill Permit to Construct dated January 6, 2005 received January 7, 2005. Including a Drawing set, Sheets M-6024-01.00 through MM6451.01-0004.001.
8. *Construction Plan Application (Volume One and Two)*. Prepared by: Chas. H. Sells, Inc., Mooresville, NC. Prepared for: Duke Energy Marshall Steam Station, Catawba County, NC. December 15, 2005 revised through March 30, 2006. Including Revised Drawing set, MM6451.00-000.001 through MM6451.00-0014.001
9. *Flue Gas Desulfurization (FGD) Residue Landfill Permit Application - .0503(2)(d)(ii)(A) Compliance Demonstration Report*. Prepared by Chas. H. Sells, Inc., Mooresville, NC. Prepared for Duke Energy Marshall Steam Station, Catawba County, NC. December 15, 2005 revised through March 23, 2006.
10. *Technical Specifications for Construction*. Prepared by Chas. H. Sells, Inc., Mooresville, NC. Prepared for Duke Energy Marshall Steam Station, Catawba County, NC. December 15, 2005.

11. *Construction Quality Assurance Program*. Prepared by Chas. H. Sells, Inc., Mooresville, NC. Prepared for Duke Energy Marshall Steam Station, Catawba County, NC. Including revised copy of Drawing MM6451.00-0007.001, Revision B. January 16, 2006.
12. *Operation and Maintenance Plan*. Document No. MM6451.00-0000-001. Prepared by: Chas. H. Sells, Inc. Prepared for Duke Energy Steam Station. Revision 1, March 2006.
13. *Volumes I, II, and III-Construction Quality Assurance Report* Prepared by: Chas. H. Sells, Inc. Prepared for Duke Energy Steam Station. October 2006.

ATTACHMENT 3

Conditions of the Permit

General Facility Conditions

1. The landfill is permitted to receive solid waste generated solely by Duke Energy as described in the approved plan and as defined in G.S. 130A-290 (a)(35) except where prohibited by North Carolina General Statutes Article 9 of Chapter 130A, and rules adopted by the Commission for Health Services. This landfill is permitted to receive FGD by-product from the Duke Energy Company, LLC Allen Plant located in Gaston County and the Duke Energy Company, LLC Cliffside Plant located in Rutherford County, in accordance with the revised zoning letter dated 9 November 2004 from Catawba County
2. This permit approves the Facility Plan that defines the comprehensive development of the facility including the total industrial solid waste landfill capacity, the industrial solid waste stream, all onsite solid waste management facilities and related facility infrastructure in accordance with 15 NCAC 13B .0503-.0504.
 - a. The approved plans are described in Attachment 2, "Approved Documents."
 - b. Where discrepancies may exist, the most recent approved submittal and Conditions of Permit shall govern.
3. The facility has a total permitted gross design volume of 2,190,000 cubic yards (measured from the top of the protective cover to the top of final cover) consistent with the landfill capacity requested and approved in the Facility Report submitted with the Permit to Construct Application, Appendix I. This permit approves the operation of Phase I, Cell 1 only. Phase 1 consists of approximately:
 - a. 4.8 acres,
 - b. 751,200 cubic yards of total gross volume (from the top of the protective cover to the top of final cover), and
 - c. 608,472 tons for the 5-year planning period. The cumulative waste tonnage for the period is based on design waste receipts of 950 tons per day for 304 operating days per year.
4. Modifications to the facility may be required in accordance with rules in effect at the time of review of the request.
5. The facility is subject to the requirements of all applicable sections of the most recent version of the North Carolina Solid Waste Management Rules 15A NCAC 13B and the specific conditions contained herein.
6. This facility permit is issued under the criteria set forth in 15A NCAC 13B .0504(g)(i) and (ii). Any facility changes that are in conflict with the criteria established may require a new permit.

7. This permit is subject to review on November 21, 2011, pursuant to 15A NCAC 13B .0201(e). No later than August 21, 2011, the owner or operator shall submit to the Solid Waste Section an amendment to the permit or a permit modification, as applicable. Duke Energy Corporation-Marshall Steam Station shall submit an amendment to this permit pursuant to 15A NCAC 13B .0504 for any subsequent phase of development.
8. All sedimentation/erosion control activities shall be conducted in accordance with the Sedimentation Control Act codified at 15 NCAC 4. Native vegetation shall be established on the completed Industrial Solid Waste Landfill unit in accordance with 15A NCAC 13B .0505 (3)(b)(c).
9. Groundwater quality at this facility is subject to the "Classification and Water Quality Standards Applicable to the Groundwaters of North Carolina," 15A NCAC 2L. This includes, but is not limited to, the provisions for detection monitoring, assessment, and corrective action.
10. Should this industrial solid waste landfill facility be sold, leased, conveyed, or transferred in any manner, the deed or other instrument of transfer shall contain in the description section in no smaller type than that used in the body of the deed or instrument a statement that the property has been used as a sanitary landfill and a reference by book and page number to the recordation of the permit.
11. This permit is not transferable.

Operational Conditions

12. Operation of the Industrial Solid Waste Landfill shall be in accordance with Section .0505 of the Solid Waste Management Rules; the operating procedures described in the Approved Plan, Attachment 2, Document 12, and the following specific requirements.
13. The Industrial Solid Waste Landfill unit shall only receive the waste types that have been approved, flue gas desulfurization (FGD) gypsum and clarifier sludge defined as FGD residue material removed from the settling or clarifier stages of the associated waste water treatment facility.
14. No other waste will be disposed in this landfill without approval from the Division. No hazardous, liquid, or infectious waste shall be accepted or disposed in the FGD residue landfill.
15. Solid waste shall be covered in accordance with the Approved Plan or as necessary to prevent the site from becoming a nuisance or to mitigate conditions associated with dust, windblown materials, or excessive water infiltration. The Permittee may demonstrate to the Section alternate cover materials (ADC) and schedules of placement through the ADC program.
16. Areas that will not receive additional waste for 12 months or more, but where termination of operations has not occurred, shall be covered with a minimum of 1 foot of soil cover [15A NCAC 13B .0505(3)(b)] and stabilized with vegetative cover including the approved daily cover material.

17. The Industrial Solid Waste Landfill unit shall be adequately secured by means of gates, chains, berms, fences, or other security measures approved by the DWM to prevent unauthorized entry.
18. The access road to the Industrial Solid Waste Landfill unit shall be of all-weather construction and maintained in good condition.
19. Hydrogen sulfide (H₂S) will be tested (at a minimum semi-annually) as stated in the Approved Plan while the site is operating and during post closure.

Closure/Post-Closure Conditions

20. A closure and post-closure plan must be submitted for approval at least 90 days prior to closure or partial closure of any landfill unit. The plan must include all steps and measures necessary to close and maintain the Industrial Solid Waste Landfill unit in accordance with all rules in effect at that time. At a minimum, the plan shall address the following:
 - a. Design of a final cover system in accordance with the Approved Plan, or as required by the solid waste management rules in effect at the time of closure;
 - b. Construction and maintenance/operation of the final cover system and erosion control structures;
 - c. Surface water and ground water monitoring.

Monitoring and Reporting Conditions

21. The following are requirements relating to groundwater monitoring for the Industrial Solid Waste Landfill facility:
 - a. The permittee shall sample the monitoring wells semi-annually or as otherwise directed in writing by the SWS Hydrogeologist.
 - b. A readily accessible, unobstructed, path shall be maintained so that monitoring wells may be accessed using four-wheel drive vehicles.
 - c. A licensed geologist shall be present to supervise the installation of groundwater monitoring wells. The exact locations, screened intervals, and nesting of the wells shall be established after consultation with the SWS Hydrogeologist at the time of well installation.
 - d. Each monitoring well shall be surveyed and hydraulic conductivity and effective porosity values shall be established for each screened interval in order to develop groundwater flow characteristics.

- e. The owner or operator shall maintain a record of all monitoring events and analytical data. Reports of the analytical data for each water quality monitoring sampling event shall be submitted to DWM in a timely manner.
22. On or before August 1 annually, the permittee shall report the tons of waste received and disposed in the Industrial Solid Waste Landfill fill unit to the Solid Waste Section and to all counties from which waste was accepted on forms prescribed by the Section. Annual reporting information shall be as follows:
- a. The reporting period shall begin the previous July 1 and end June 30.
 - b. The annual report shall list the amount of waste received and landfilled in tons and be compiled:
 - i) On a monthly basis.
 - ii) By county, city or transfer station of origin.
 - iii) By specific waste type.
 - iv) By disposal location within the facility.
 - v) By diversion to alternative management facilities.
 - c. A copy of the completed report shall be forwarded to each county manager for each county from which waste was received at the facility.
 - d. A copy of the report and documentation that a copy of the report has been forwarded to all counties from which waste was accepted must be sent to the regional Waste Management Specialist by the date due on the prescribed annual report form.
23. All records required to be maintained by the owner or operator by regulation or permit shall be maintained on-site and made available to the SWS upon request.