

CIVIL/SANITARY/ENVIRONMENTAL ENGINEERS

**Municipal  
Services**

SITE PLANNING/SUBDIVISIONS



**Engineering  
Company, P.A.**

SUBSURFACE UTILITY ENGINEERING (SUE)

June 30, 2008

Jaclyne Drummond, Hydrogeologist Permitting Branch  
Solid Waste Section  
Division of Waste Management  
North Carolina Department of Environmental and Natural Resources  
401 Oberlin Road, Suite 150  
Raleigh, NC 27605



Re: Selection of Remedy  
Wayne County Permit #96-01

Dear Ms. Drummond:

Enclosed you will find the Selection of Remedy for the Wayne County C&D Landfill over MSW Landfill permit #96-01. As per request, one hard copy is included. An electronic copy is included with the Corrective Action Plan. It should be noted that because remediation with landfill gas extraction has already been implemented and select monitored natural attenuation is a minimal expense that can be incorporated in the operation expense there is no line item for Corrective Measures on the financial assurance test.

Feel free to contact us by phone at (919) 772-5393, should you have any questions or comments regarding this report.

Sincerely,  
MUNICIPAL ENGINEERING SERVICES CO., P.A.

Ethan J. Caldwell, P.G.  
Professional Geologist

Enclosures

Cc: Tim Rodgers -- Wayne County

**RECEIVED**

JUN 26 2008

Municipal Engineering Services  
Company, PA



**North Carolina Department of Environment and Natural Resources  
Division of Waste Management  
Solid Waste Section**

**North Carolina Solid Waste Groundwater Corrective Action Permit Modification Application**

Pursuant to 15A NCAC 13B .1636, "Within 14 days of selecting a remedy, the permittee shall submit an application to modify the permit describing the selected remedy to the Division for evaluation and approval." The application shall include the demonstrations necessary to comply with the financial assurance requirements set forth in Paragraph (d) of Rule .1628.

Please attach the following: (1) a copy of the minutes from the public meeting discussing the Assessment of Corrective Measures, (2) a signed resolution/proclamation/document adopting the remedy, (3) a site map designating locations of groundwater monitoring wells and surface water monitoring locations that will be impacted by the remedy, (4) any draft conceptual schematics/figures/plans relating to the selected remedy, (5) a list of any required registrations, permits, and approvals, (6) a copy of most recent permit issued by the Solid Waste Section, and (7) an amendment to the Financial Assurance Mechanism, including a break-down of the cost estimates for closure, post-closure and corrective action.

Send the application and attachments to NCDENR-DWM, Solid Waste Section, Compliance Unit, 1646 Mail Service Center, Raleigh, NC 27699-1646. This application and any documents attached to this application are "Public Records" as defined in NC General Statute 132-1. As such, these documents are available for inspection and examination by any person upon request (NC General Statute 132-6).

Please type or print all information legibly.

**I. Site Identification**

Permit Number: 96-01

Solid Waste Rule Designation (.0500 or .1600): .1600

Facility Name: Wayne County Construction and Demolition Landfill

Facility Physical Address: 460 S. Landfill Road (SR 1129)

City: Dudley

Zip: 28333

County: Wayne

Waste Type: Closed MSW

**II. Owner and Operator Information**

Check box, if owner and operator are the same.

**Owner**

Name: Wayne County (Tim Rogers - Solid Waste Director)

Address: 460 B South Landfill Road, Dudley, NC 28333

Phone Number: (919) 689-2994

**Operator**

Name: \_\_\_\_\_

Address: \_\_\_\_\_

Phone Number: \_\_\_\_\_

**III. Groundwater Corrective Action**

Selected remedy (include addition lines if needed):

(1) Methane Vapor Extraction - Already Implemented

(2)

(3)

Contingency Plan A: Monitored Natural Attenuation

Contingency Plan B: Bioventing

**IV. Financial Assurance**

Financial Assurance Mechanism: Financial Test - Already Incorporated

Total Cost Estimate for 30 Years (based upon ACM): \$ 0.00

**V. Project Schedule (upon Division approval)**

Approximate Date of Remedy Construction Completion (if applicable): 05/01/2002

Approximate Date of Implementation of Remedy: 05/01/2002

Approximate Date of Baseline Sampling Completion (if applicable): 5/1/2004

Approximate Date of First Remedy Performance and Effectiveness Report Submittal: On Going

**VI. Environmental Consultant**

Consulting Company: Municipal Engineering Services Company

Address: P.O. BOX 97 Garner, NC 27303

Phone Number: (919) 772-5393

**VII. Signatures**

To the best of my knowledge, the information reported and statements made in this North Carolina Solid Waste Groundwater Corrective Action Permit Modification Application are true and correct. I am aware that there are significant penalties for making any false statement, representation, or certification including the possibility of fine and imprisonment.

If Owner and Operator are the same, please sign for Owner and type or write SAME for Operator.

**Owner**

Owner Name (Printed or Typed): Timothy W Rogers

Owner Signature: *Timothy W Rogers*

Date: 6-23-08

**Operator**

Operator Name (Printed or Typed): Same

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

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

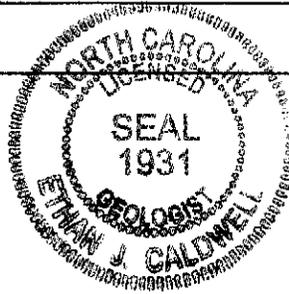
**NC Professional Geologist or NC Professional Engineer**

Name (Printed or Typed): ETHAN J. CALDWELL

Signature: *Ethan J Caldwell*

Date: 6-26-08

Affix NC Professional Geologist/Engineer Seal:





**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

January 25, 2006

Mr. Lloyd S. Cook, Supervisor  
Solid Waste Management  
Wayne County  
P.O. Box 227  
Goldsboro, NC 27533-0227

Re: Wayne County MSWLF, Modification for Construction and Demolition  
Landfill Unit, Permit Number 96-01, Wayne County

Dear Mr. Cook:

The Solid Waste Section hereby approves the modification of the referenced MSWLF Facility permit to allow the construction and operation of a CONSTRUCTION & DEMOLITION LANDFILL UNIT, in accordance with the approved construction plans dated March 10, 2005.

Please note operational conditions outlined on pages three through eight for the facility. The Waste Management Specialist for this facility is Ms. Mary Whaley and she can be reached in our Raleigh Regional Office at (919) 791-4310.

If you have any questions about this approval, please contact me at (919) 508-8498.

Sincerely,

James C. Coffey,  
Regional Engineer  
Solid Waste Section

cc: Ben Barnes  
Ed Mussler  
Wayne Sullivan, Municipal Engineering

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Phone 919-508-8400 \ FAX 919-733-4810 \ Internet: <http://wastenotnc.org>



**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

**Facility Permit Number: 96-01**  
Previous Modification Date: 01/23/01  
Modification Date: 01/25/06

**STATE OF NORTH CAROLINA**  
**DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES**

**DIVISION OF WASTE MANAGEMENT**

**1646 MAIL SERVICE CENTER: RALEIGH, NC 27699-1646**

**SOLID WASTE PERMIT**

**COUNTY OF WAYNE**

is hereby issued a permit to operate

Construction and Demolition Landfill Units:

Located on SR 1129 at the Wayne County Landfill, Dudley, Wayne County, 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.

Edward F. Mussler III  
CIT - Edward F. Mussler III, C. a US, G. a Division of Waste  
Management, OGI - Solid Waste Section  
I have reviewed this document and I am approving this document  
2006 01 24 10:10:37 -0800

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

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**Permit Number: 96-01**  
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**Modification Date: 01/25/06**  
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**SOLID WASTE PERMIT**  
**Permit to Operate**  
**Wayne County Landfill**  
**Construction and Demolition Debris Landfill Unit**

**CONDITIONS OF PERMIT:**

**GENERAL**

1. When this property is sold, leased, conveyed or transferred, 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.
2. This permit will be valid until July 1, 2008. Renewal and/or modifications to the permit shall be required in accordance with rules in effect at the time of review.
3. The approved plan is described by Attachment 1, "List of Documents for Approved Plan". Where discrepancies may exist, the most recent submittal and the Conditions of Permit shall govern. Some components of the approved plan are reiterated in the Conditions of Permit.
4. This permit is not transferable.
5. In accordance with 15A NCAC 13B, Rule .1628, the Financial Assurance Instrument shall accurately reflect the revised closure/post-closure costs for this facility and be reviewed and updated annually.
6. If during the operational life of the C&D unit it becomes apparent that the operations at the facility are impacting ground water adversely; the Solid Waste Section will require landfilling activities to cease and closure of the operating unit.

**CONSTRUCTION AND OPERATION**

7. This permit is for development of the Wayne County Landfill Construction and Demolition Unit, in accordance with the approved drawings dated March 10, 2005.
8. This solid waste management facility is permitted to receive the following waste types:

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- a. Land-clearing debris as defined in G.S. 130A-290, specifically, solid waste which is generated solely from land-clearing activities, such as stumps, trees, etc.;
- b. Inert debris defined as solid waste which consists solely of material that is virtually inert, such as brick, concrete, rock and clean soil; and
- c. Asphalt in accordance with G.S. 130-294(m).
- d. Construction and demolition debris defined as solid waste resulting solely from construction, remodeling, repair or demolition operations on pavement, buildings, or other structures.
- e. C&D like waste that are similar to wastes typically found in the land clearing-inert debris and C&D waste streams consisting of wastes at this time: roofing shingle waste from the manufacturer, waste building materials from mobile home/modular home manufacturer and wooden pallets. Other wastes **MAY** be approved by the Division upon receipt of a written request with the specific waste type, how its generated, how much is generated; along with any additional information the Division may request to render a final decision on the disposal options for the waste.

Yard trash as defined in G.S. 130A-290, shall not be disposed in the landfill area. However, yard trash, along with land-clearing debris, may be accepted for processing in the Yard Waste Composting Area.

9. All sedimentation/erosion control activities will be conducted in accordance with the Sedimentation Control Act codified at 15 NCAC 4. Native vegetation shall be established on the completed landfill.
10. Operation of the C&D landfill units shall conform to the operating procedures described in the approved plan, in accordance with Section .1626 of the Solid Waste Management Rules, and in accordance with the following requirements:

**Waste Acceptance and Disposal**

- a. The facility shall accept only those solid wastes which it is permitted to receive.
- b. No municipal solid waste, hazardous waste, industrial waste, liquid waste or waste not characterized as LCID or C&D shall be accepted for disposal.
- c. The permittee shall implement a program at the facility for detecting and preventing the disposal wastes listed in item "b" of this section. The program shall include, at a minimum:
  - (i) Random inspections of incoming loads or other comparable procedures;
  - (ii) Records of any inspections;

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- (iii) Training of personnel to recognize hazardous and liquid wastes;
- (iv) Development of a contingency plan to properly manage any identified wastes listed in item "b" of this section; the plan must address identification, removal, storage, and final disposition of waste.

**11. Cover Material Requirements**

- a. Operational soil cover of at least six inches shall be placed at least once per week or when the active area reaches ½ acre in size or more often as necessitated by the nature of the waste so as to prevent the site from becoming a visual nuisance and to prevent fire, windblown materials, vectors or water infiltration.
- b. Areas which will not have additional waste placed on them for 12 months or more, but where final termination of operations has not occurred, shall be covered with a minimum of one foot of soil cover.
- c. After final termination of disposal operations at the site or major part thereof, or upon revocation of a permit, the fill areas shall be covered with a cap in accordance with .1627(c)(1) or .1627(c)(2) in accordance with the rules at the time of closure.

**12. Access and Safety**

- a. The facility shall be adequately secured by means of gates, chains, berms, fences, or other security measures approved by the DWM to prevent unauthorized entry.
- b. An attendant shall be on duty at the site at all times while it is open for public use to ensure compliance with operational requirements.
- c. The access road to the site shall be of all-weather construction and maintained in good condition.
- d. Dust control measures shall be implemented when necessary.
- e. Signs providing information on dumping procedures, the hours of operation, the permit number, and other pertinent information shall be posted at the site entrance.
- f. Signs shall be posted stating that no MSW, hazardous waste or liquid waste can be received.
- g. Traffic signs or markers shall be provided as necessary to promote an orderly traffic pattern to and from the discharge area and to maintain efficient operating conditions.
- h. The removal of solid waste from the facility is prohibited unless the owner/operator approves and the removal is not performed on the working face.

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- i. Barrels and drums shall not be disposed of unless they are empty and perforated sufficiently to ensure that no liquid or hazardous waste is contained therein, except fiber drums containing asbestos.
  - j. Open burning of solid waste is prohibited.
  - k. The concentration of explosive gases generated at the facility shall not exceed:
    - i. twenty-five percent of the limit for gases in site structures (excluding gas control or recovery system components; and
    - ii. the lower explosive limit for gases at the facility boundary.
13. **Erosion and Sedimentation Control**
- a. Adequate sedimentation and erosion control measures shall be practiced to prevent silt from leaving the site.
  - b. Adequate sedimentation and erosion control measures shall be practiced to prevent excessive on-site erosion.
  - c. Provisions for a vegetative ground cover sufficient to restrain erosion must be accomplished within 30 working days or 120 calendar days upon completion of any phase of C&D landfill development.
14. **Drainage Control and Water Protection Requirements**
- a. Surface water shall be diverted from the operational area.
  - b. Surface water shall not be impounded over or in waste.
  - c. A separation distance of at least four feet shall be maintained between waste and the ground-water table.
  - d. Solid waste shall not be disposed of in water.
  - e. Leachate shall be contained on site or properly treated prior to discharge. An NPDES permit may be required prior to discharge of leachate to surface waters.
15. All pertinent landfill operating personnel will receive training and supervision necessary to properly operate this C&D landfill unit in accordance with G.S. 130A-309.25 and addressed by memorandum dated 29 November 2000.
16. Ground water quality at this facility is subject to the classification and remedial action provisions referenced in Rule .1634 thru .1637 of 15A NCAC 13B.
17. 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 facility in accordance with all rules in effect at that time. At a minimum, the plan shall address the following:

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- a. Design of a final cover system; using the cap requirements outlined in Rule .1627(c)(1) or .1627(c)(2);
- b. Construction and maintenance/operation of the final cover system and erosion control structures;
- c. Surface water, ground water, and explosive gas monitoring.

#### **MONITORING AND REPORTING REQUIREMENTS**

18. Ground-water monitoring wells and monitoring requirements for the C&D landfill units shall be in accordance with the monitoring system approved in the TRANSITION PLAN for the facility and these additional conditions:
  - a. Monitoring well design and construction shall conform to the specifications outlined in the, "North Carolina Water Quality Monitoring Guidance Document for Solid Waste Facilities".
  - b. A geologist shall be in the field to supervise well installation, if necessary. 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 for new monitoring wells.
  - c. For each new monitoring well constructed, a well completion record shall be submitted to DWM within 30 days upon completion.
  - d. Sampling equipment, procedures, and parameters shall conform to specifications outlined in the above-referenced guidance document, or the current guidelines established by DWM at the time of sampling and in accordance with the approved TRANSITION PLAN OR ASSESSMENT AND REMEDIATION PLAN.
  - e. In order to determine ground-water flow directions and rates, each monitoring well shall be surveyed, and hydraulic conductivity values and effective porosity values shall be established for the screened intervals for each new monitoring well.
  - f. The permittee shall sample the monitoring wells semi-annually or as directed by the SWS Hydrogeologist.
  - g. A readily accessible unobstructed path shall be initially cleared and maintained so that four-wheel drive vehicles may access the monitoring wells at all times.
19. The permittee 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.

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20. The permittee shall maintain a record of the amount of solid waste received at the facility, compiled on a monthly basis. Scales shall be used to weigh the amount of waste received.
21. On or before 1 August (or an earlier date as requested by the Solid Waste Section), and each year thereafter, the permittee shall report the amount of waste received (in tons) at this facility and disposed of in the landfill to the Solid Waste Section and to all counties from which waste was accepted, on forms prescribed by the Section. This report shall include the following information:
  - a. The reporting period shall be for the previous year, beginning 01 July and ending on 30 June;
  - b. The amount of waste received and landfilled in tons, compiled on a monthly basis, according to Condition 6 described above; and
  - c. Documentation that a copy of the report has been forwarded to all counties from which waste was accepted.
22. All records shall be maintained on-site and made available to the SWS upon request.
23. The Post-Closure plan approved in the TRANSITION PLAN shall be implemented and followed upon capping and closing the operating unit(s).

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## **ATTACHMENT 1**

### **List of Additional Documents for the Approved Transition Plan**

1. **Site and Construction Transition Plan modification application for the Wayne County, Permit # 96-01. Document titled "Construction and Demolition Landfill for Wayne County North Carolina", dated 2 December 1997 and received 12 December 1997.**
2. **Revised C&D landfill operations plan dated July 1999; received 5 October 1999. This amendment addresses the need for additional disposal capacity in phase II due to hurricane relate waste volumes.**
3. **Revised C&D landfill drawings dated 24 October 2000 and received 31 October 2000.**
4. **Revised Life Expectancy Calculations dated May 3, 2005, and permit drawings dated March 10, 2005**

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**Minutes of February 8, 2008  
Wayne County, North Carolina  
Assessment of Corrective Measures**

Meeting called to order at 2:00 pm

The following were present

- Ethan Caldwell – Municipal Engineering Services
- Wayne Sullivan – Municipal Engineering Services
- Lynn Hopkins – Wayne County Solid Waste
- Tim Rogers – Wayne County Solid Waste

Ethan Caldwell summarized the findings of the Assessment of Corrective Measures

- Low level contamination exists under the closed MSW landfill.
- Contamination has not traveled off site.
- Installation of the methane collection system has significantly decreased the contamination.
- Modeling indicates that contamination will continue to decrease and remain on site.
- Maintaining the wetland area, continual operation of methane collection, and natural attenuation should continue to remediate the limited low level contamination.

Tim Rogers indicated Wayne County is considering purchasing two adjacent properties.

Final selection of remedy will be determined based on implementation schedule, ease of implementation, and financial responsibility. A signed proclamation adopting the remedy will be prepared upon determination of remedy