

5103Permit2005 - Batch No.____

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Johnston Co.

51032005



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

August 1, 2005

Mr. Haywood Phthisic
Director of Public Utilities
Johnston County
P.O. Box 2263
Smithfield, NC 27577

RE: Permit 51-03, Johnson County Landfill- Permit to Operate, Phase 4A, Cell 2 and C&D Vertical Expansion

Dear Mr. Phthisic,

Enclosed please find the facility permit, permit to operate for Phase 4A, Cell 2 and the vertical expansion of the C&D area atop cell 4 of the Johnston County Landfill. Please review the permit carefully. According to 15A NCAC 13B .0203(d), by beginning construction and receiving waste in the cells, the applicant shall be considered to have accepted the conditions of the permit.

If there are any questions either about the permit or its conditions or questions which arise during operation of the facility please contact us. The Waste Management Specialist for the facility is Ben Barnes. Mr. Barnes is based at the Raleigh Regional Office and his phone number is 919.571.4700. If there are any questions concerning this approval, please contact our office. Our number is 919.508.8500.

Sincerely

Edward F. Mussler, III
Environmental Engineer
Solid Waste Section

cc: File
John Crowder DWM
Ben Barnes, DWM
Pieter Scheer, GNRA

1646 Mail Service Center, Raleigh, North Carolina 27699-1646
Phone 919-508-8500 \ 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 NO: 51-03

Part 2-Permit to Operate

Date of Original Issue: April 3, 2002

(Permit 51-03 and C&D Phase 4A)

Date of Permit Amendment: December 20, 2002

(Cell 1, Phase 4A)

Date of Permit Amendment: August 1, 2005

(Cell 2, Phase 4A)

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STATE OF NORTH CAROLINA
DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES
DIVISION OF WASTE MANAGEMENT
1646 MAIL SERVICE CENTER, RALEIGH NC 27699
MUNICIPAL SOLID WASTE LANDFILL FACILITY PERMIT

JOHNSTON COUNTY

is hereby issued a PERMIT TO OPERATE a

MUNICIPAL SOLID WASTE LANDFILL FACILITY,

MUNICIPAL SOLID WASTE LANDFILL UNIT, PHASE 4A, CELL 2

located on N.C.S.R. 1503, Johnston County, 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.

Donald J. Barber, Supervisor
Permitting Branch
Solid Waste Section

1646 Mail Service Center, Raleigh, North Carolina 27699-1646
Phone 919-508-8500 \ FAX 919-733-4810 \ Internet <http://wastenotnc.org>

ATTACHMENT 3

Approved Documents

PART I: GENERAL FACILITY CONDITIONS

1. Permit to Operate 51-02, issued August 6, 1997, modified March 27, 2001
2. Permit to Operate 51-01, Amended January 22, 2002
3. Permit to Construct 51-02 December 22, 1995

PART II: MUNICIPAL SOLID WASTE LANDFILL CONDITIONS

1. *Johnston County Subtitle D Landfill Phase 5, Permit 51-02, Construction Quality Assurance and As-Built Certification for Permit-to-Operate.* Prepared by: McKim & Creed Engineers, P.A., Cary, North Carolina. McKim & Creed Project No.0358-0060.OR. March 1997. 3 Volumes.
2. *Johnston County Subtitle D Landfill CQA, AS-BUILT, and Revised Engineering Plan.* Prepared by: McKim & Creed Engineers, P.A., Cary, North Carolina. McKim & Creed Project No.0358-0060.OR. March 1997. 14 sheets.
3. *Johnston County Landfill, Phase 5, Permit 51-02, Johnston County, North Carolina, Survey and As-Built Plans.* Prepared and Certified By: F. Donald Lawrence, NCRLS No. L-1290, Monroe, N.C., Provided by: Ground Improvement Techniques, Inc., Contractor, Submitted by: McKim & Creed. March 1997. 7 sheets.
4. Letter Grimes to Fry, Requesting approval of Alternative Daily Cover, Tarpomatic. Includes Brochure. July 27, 1998
5. *Leachate Recirculation Plan. Johnston County MSW Landfill- Phase 5. Johnston County, North Carolina.* Prepared for: Johnston County Department of Public Utilities. 204 S. Second Street, Smithfield, NC 27577. Prepared by: G.N. Richardson & Associates, Inc. Raleigh, NC. May 2000 as amended through February 2001.
6. *Construction Quality Assurance Report. Johnston County MSW Landfill- Phase 4A- Cell .1. Johnston County, North Carolina.* Prepared for: Johnston County Department of Public Utilities. 309 E. Market Street, Smithfield, NC 27577. Prepared by: G.N. Richardson & Associates, Inc. Raleigh, NC. December 2002. 2 volumes
7. *Construction Quality Assurance Report. Johnston County MSW Landfill- Phase 4A- Cell-2. Johnston County, North Carolina.* Prepared for: Johnston County Department of Public Utilities, Smithfield, NC. Prepared by: G.N. Richardson & Associates, Inc. Raleigh, NC. July 2005.

PART III: CONSTRUCTION AND DEMOLITION LANDFILL CONDITIONS

1. *Permit Modification Application. Johnston County C&D Landfill Vertical Expansion. Johnston County, North Carolina.* Prepared For: Johnston County Department of Public Utilities, 204 E. Second Street. Smithfield, North Carolina, 27577. Prepared By: G.N. Richardson & Associates, Inc. 425 N. Boylan Avenue, Raleigh, North Carolina 27603. January 2002. (Amendment #2, Area 4A Permit 51-01)

FACILITY PERMIT NO: 51-03

Part 2-Permit to Operate

Date of Original Issue: April 3, 2002

(Permit 51-03 and C&D Phase 4A)

Date of Permit Amendment: December 20, 2002

(Cell 1, Phase 4A)

Date of Permit Amendment: August 1, 2005

(Cell 2, Phase 4A)

Page 3

2. *Permit Modification Application. Johnston County C&D Landfill Vertical Expansion. Johnston County, North Carolina.* Prepared For: Johnston County Department of Public Utilities, Smithfield, NC. Prepared By: G.N. Richardson & Associates, Inc., Raleigh, NC. December 2003, Revised July 2005.

PART IV: LAND CLEARING AND INERT DEBRIS LANDFILL CONDITIONS (NOT APPLICABLE)

PART V: YARD WASTE CONDITIONS (NOT APPLICABLE)

PART VI: MISCELLANEOUS TREATMENT AND PROCESSING FACILITIES CONDITIONS

1. Division of Water Quality Permit NO. WQ0019631, Johnston County, Conjunctive Use at the Johnston County Landfill, Reclaimed Water Utilization System, SRF Project Number CS370560-07. March 27, 2002

ATTACHMENT 4

Conditions of Permit to Operate

PART I:

GENERAL FACILITY CONDITIONS

1. This permit shall be reviewed, pursuant to 15A NCAC 13B.0201(e). This permit expires five (5) years from the original issuance date of this permit, on December 20, 2007. No later than September 2, 2007, Johnston County shall submit to the Solid Waste Section, for review, an amendment to the permit prepared in accordance with 15A NCAC 13B .1603(a)(2), or a permit modification prepared in accordance with 15A NCAC 13B .1603(a)(3), as applicable.

Operation of the Construction and Demolition Debris Vertical Expansion will be subject to review on or before December 20, 2007, as per 15A NCAC 13B .0201. Modifications to the unit or its operation may be required in accordance with rules in effect at the time of review.

2. In the event of conflicts between this Permit to Operate and previously issued conditions, the conditions of this Permit to Operate shall supersede previously issued conditions.
3. The solid waste management units within this facility shall conform to all operating procedures described in the approved plans, 15A NCAC 13B, and the conditions specified herein.
4. Additional conditions and revision of the approved documents or changes during the operation of the landfill require approval by the North Carolina Solid Waste Section.
5. On or before August 1 of each year, the Johnston County shall report the amount of waste received (in tons) at this facility and disposed of in the landfill units to the Solid Waste Section, on forms prescribed by the Section. The reporting period shall be for the previous year, beginning July 1 and ending on June 30. This report shall include the following information:
 - a. The tons of waste received and disposed of, compiled on a monthly basis by county, city, or transfer station of origin and by specific waste type if diverted to a specific unit within the permitted facility.
 - b. A physical measurement of the volume of air space used in the lined MSW shall be performed during the second quarter of the calendar year. The volume in cubic yards and date of the measurement shall be included in the report.
 - c. The amount of waste, in tons, from scale records, disposed of in the lined MSW cells since August 6, 1997 through the date of the annual volume determination.
 - d. The completed report shall be forwarded to the Regional Waste Management Specialist for the facility. A copy of the completed report shall be forwarded to the County Manager of each county from which waste was received.

6. Ground water quality at this facility is subject to the "Classifications and Water Quality Standards Applicable To The Groundwater of North Carolina", 15A NCAC 2L. This includes, but is not limited to, provisions for detection monitoring, assessment, and corrective action.

**PART II:
MUNICIPAL LANDFILL UNIT SPECIFIC CONDITIONS**

GENERAL CONDITIONS

1. This permit approves the operation of Cell 2 of Phase 4A of the municipal solid waste landfill unit as well as the on-site environmental management and protection facilities as described in the approved plans. Operation of future Phases or Cells will require written permission from the Division and will be subject to the conditions of the Part 1- Permit to Construct 51-03, issued April 3, 2002.
2. Phase 4A, Cells 1 and 2 are approved for operation of a five year permitted gross disposal capacity of approximately 1,051,850 cubic yards, consistent with the final contours as shown on sheet 34 of Document 2, Part II, Attachment 1. The facility has a total gross design capacity of approximately 5,660,000 cubic yards. Gross capacity is the volume calculated from the top of protective cover through the top of the final cover, consistent with the approved contours. Approximately 1,929,456 cubic yards has been constructed and a permitted for phases 5 and 4A, Cells 1 and 2. The remaining gross volume of the facility is 3,730,734 cubic yards in Phases 4A, cell 3, and Phases 6-8.

The landfill will be constructed in four additional phases, Phase 4A, Cell 3 and Phases 6-8. Construction of cells within each phase shall be in accordance with the Division approved plans. This permit to operate does not approve operation or construction of additional phases or cells outside of Phase 4A, Cells 1 and 2.

3. This capacity is based on an average annual disposal rate of approximately 78,000 tons (approximately 250 tons per day based on 312 operating days per year) facility total as set forth in Part II, Document 1, Attachment 1. The landfill is permitted to receive solid waste generated by and in Johnston County, North Carolina, consistent with local government waste management plans(s) and with local government approval and as defined in North Carolina General Statutes 130A-290(a)(35), except where prohibited by the North Carolina General Statutes Article 9 of Chapter 130A and rules adopted by the Commission for Health Services.

MONITORING AND REPORTING

4. Ground water monitoring at this unit shall be as prescribed by the appropriate requirements of 15A NCAC 13B .1630-.1637 and the approved monitoring plan.
5. A readily accessible unobstructed path shall be cleared and maintained so that four-wheel drive vehicles may access monitoring well locations at all times.

6. A field log book which details all development, sampling, repair, and all other pertinent activities associated with each monitoring well and all sampling activities associated with each surface water and leachate sampling location shall be kept as part of the permanent facility record.
7. Records of all ground-water, surface water and leachate analytical data shall be kept as part of the permanent facility record.
8. Ground water monitoring wells and surface water sampling locations must be sampled for Appendix I constituents at least semi-annually according to the specifications outlined in the approved water quality monitoring plan and the current policies and guidelines of the Section in effect at the time of sampling.
9. Reports of the analytical data for each water quality sampling event shall be submitted to the Section within 60 days of the respective sampling event. Analytical data shall be submitted in a manner prescribed by the Section.
10. The four independent samples which comprise the initial baseline sampling event shall be collected from each ground water monitoring well and the report shall be submitted to the Section within six months after issuance of the Permit to Operate.
11. Untreated leachate shall be sampled and analyzed at least semi-annually concurrently with the ground and surface water sampling. The leachate shall be analyzed for all Appendix I constituents, pH, specific conductance, BOD, COD, sulfates, nitrates, and phosphates. Test results shall be submitted to the Section along with ground and surface water test results.
 - a. Leachate is approved for recirculation in Phase V. Additional leachate sampling shall be in accordance with the plan approved in Document 5, Part II, Attachment 3.

OPERATIONAL CONDITIONS

12. The landfill unit shall conform to all operating requirements described in the approved plans, 15A NCAC 13B .1626, and the conditions specified herein.
13. The use of tarps and the "Tarpomatic" system as an alternative daily cover is approved. Its use shall be in accordance with Document 5 of Part 2, Attachment 3. Soil cover shall be applied at a minimum of one time per week in accordance with Rule .1626 (2). Soil shall be applied more frequently, if needed, to control nuisance, odor or vectors
 - a. The use of other or different alternate daily cover requires approval, prior to implementation, by the Solid Waste Section. Requests for alternative daily cover approval must include a comprehensive use and demonstration of the effectiveness plan developed according to Section guidelines and consistent with the approved plan. Plans which are approved by the Section will be incorporated into, and made a part of, the approved documents found in Attachment 3.

14. A leachate recirculation demonstration project is approved in Phase 5. Leachate may be recirculated in accordance with the plan as identified in Attachment 3, Part II, Document 5. Upon completion of a 120 day trial period, a report shall be submitted in accordance with the approved plan. The trial period shall commence when leachate is first recirculated. The 120 day trial period does not include planning and construction time prior to the introduction of leachate into the cell. Recirculation may continue during the report preparation and review phase, unless otherwise directed by the division.
 - a. The use of leachate recirculation as a leachate management tool during the Post-Closure care period requires approval, by the Solid Waste Section, prior to implementation. Additional engineering demonstrations and operational plans may be necessary. Such demonstrations and plans shall be developed, incorporated into the final Closure and Post-Closure plan, and submitted to the Solid Waste Section for approval prior to implementation. Plans which are approved by the Section will be incorporated into, and made a part of, the approved documents found in Attachment 3.
15. The landfill facility is permitted to co-dispose of wastewater treatment sludge generated within the facility's approved service area, and subject to the terms and procedures of the approved plan.
16. Closure or partial closure of any MSWLF unit shall be in accordance with the Closure Plans described in the approved plans and 15A NCAC 13B .1629. Final Closure Plans shall be submitted to the Division at least 90 days prior to implementation. Closure and Post-closure financial instruments shall be updated annually pursuant to 15A NCAC 13B .1628.

PART III:

CONSTRUCTION AND DEMOLITION DEBRIS UNIT SPECIFIC CONDITIONS

1. The Phase 4A C&D unit vertical expansion is approved for a disposal capacity of approximately 568,000 cubic yards consistent with the approved contours as shown by Drawing S2 (Final Cover Plan), Document 2, Part III, Attachment 3. This capacity is based on an average disposal rate of approximately 75 tons per day, increasing 25 tons per day annually.
2. Operation of the C& D unit shall be in accordance with 15A NCAC 13B .0505, the approved plan, and the following specific conditions:
 - a. Waste Acceptance and Disposal:

The C&D unit is permitted to receive the following waste types:

- 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;
- C. Asphalt in accordance with G.S. 130A-294(m); and
- 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.

b. Cover Material Requirements:

Waste shall be covered with six inches (6) of suitable cover at least once per week, or when the active working area reaches one-half acre ($\frac{1}{2}$) 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. Areas which will not receive additional waste on them for twelve months or more, but where final elevations have not been reached, shall be covered with one (1) foot of soil cover.

c. Monitoring Requirements:

Groundwater and surface water sampling and analysis shall conform to the specifications found in the approved plan. The existing groundwater monitoring system will be utilized for ground water monitoring for the C&D unit(s) in accordance with .1630 thru .1633. Assessment monitoring shall continue in accordance with Solid Waste Management Rules and any additional requirements set forth by Solid Waste Section Hydrogeologist.

3. Closure Requirements- The C& D unit shall be closed in accordance with the approved plan and the requirements of the Solid Waste Section at the time of closure. A final closure plan shall be submitted for review at least ninety (90) days prior to closure of any phase of the C&D landfill unit.

PART IV:

LAND CLEARING AND INERT DEBRIS UNIT SPECIFIC CONDITIONS (NOT APPLICABLE)

PART V:

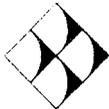
YARD WASTE UNIT SPECIFIC CONDITIONS

1. Yard waste operations shall be confined to the area identified by Sheet 3, Document 2, Part II Attachment 1. Relocation of yard waste areas will require written permission of the Solid Waste Section.
2. Operations shall conform to the requirements of Rules .1402 and .1406 of 15A NCAC 13 B.

FACILITY PERMIT NO: 51-03
Part 2-Permit to Operate
Date of Original Issue: April 3, 2002
(Permit 51-03 and C&D Phase 4A)
Date of Permit Amendment: December 20, 2002
(Cell 1, Phase 4A)
Date of Permit Amendment: August 1, 2005
(Cell 2, Phase 4A)
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PART VI:
MISCELLANEOUS TREATMENT AND PROCESSING UNIT SPECIFIC CONDITIONS
(Specify Unit Type)
SPRAY IRRIGATION UNIT-

1. Operation of the spray irrigation system at the landfill will be in accordance with the approved solid waste management operation plan, Document 1, Part II, Attachment 1.
2. Operation of the spray irrigation system will be in accordance with Water Quality Permit Number WQ0019631, Document 1, Part VI, Attachment 3.



G.N. RICHARDSON & ASSOCIATES
Engineering and Geological Services

July 28, 2005

Mr. Edward F. Mussler, III, P.E.
Environmental Engineer
NC DENR Division of Waste Management
401 Oberlin Road, Suite 150
Raleigh, North Carolina 27605

APPROVED
DIVISION OF WASTE MANAGEMENT
SOLID WASTE SECTION
DATE 8-1-03 BY JMK
5103 PTO
A3 P3 DOC2

RE: Johnston County Landfill
Request for Permit Modification (Original - December 2003; Revised - July 2005)
C & D Landfill Vertical Expansion Over Phase 4 MSW Landfill

Dear Ed:

On behalf of Johnston County, G.N. Richardson & Associates (GNRA) would like to submit an application to expand their existing construction and demolition debris (C&D) vertical expansion over closed portions of the Phase 4 MSW landfill disposal area at the Johnston County Landfill facility near Smithfield.

Proposed Modifications

Johnston County would like to expand their C&D unit over Phase 4 to ensure the maximum operation of this unit. The maximum limits of the proposed expansion are shown on **Drawing S2 (Final Cover Plan)** of the attached project drawings. The expansion will add approximately 213,900 cubic yards of gross volume to the last approved modification (January 22, 2002). The phasing of this expansion, as shown on **Drawing P1 (Phasing Plan)**, will allow the landfill to be able to be closed at any time with a minimal footprint and only minor required adjustments to the final slopes in preparation for closure.

The attached life expectancy calculations show that, based on the proposed filling sequence described above, the landfill expansion will last until approximately January, 2007. At that time, Johnston County intends to move C&D operations into a new lined C&D landfill unit to be permitted and constructed within Borrow Area A.

Also included in this plan is a request to allow the use of 30 mil textured LLDPE geomembrane as an alternate to the use of geosynthetic clay liner (GCL) in the final cover system of the landfill. The geomembrane, the same as generally used in closure of lined MSW landfills, will allow minimal infiltration through the final cover (similar to the GCL barrier already approved) and offers the County some additional flexibility in selecting the most cost effective system for closure. Infiltration calculations are provided in **Attachment A**. Because of this change and due to the time since the original permit in 1998, updated technical specifications and an updated CQA Manual are provided as **Attachments B and C**, respectively.

Mr. Edward F. Mussler, III, P.E.
July 28, 2005
Page 2

Revised Drawings and Erosion and Sedimentation Control Plan

Based on the modifications discussed above, updates to the permit for this facility include a revised erosion and sedimentation control plan (**Attachment D**) and a revised set of project drawings (**Attachment E**). The revised project drawings display revised erosion and sedimentation control information, revised details and cross sections, and the revised phasing plan.

Please contact us at your convenience with any further questions or comments which you may have on this permit application.

Sincerely,
G.N. Richardson & Associates, Inc.



Pieter K. Scheer, P.E.
Project Manager



- Attachments:
- A. Calculations
 - B. Technical Specifications
 - C. CQA Manual
 - D. Erosion & Sedimentation Control Plan
 - E. Permit Modification Drawings

cc: Haywood Phthisic, Johnston County
Rick Proctor, Johnston County
Tim Broome, Johnston County

PROJECT Johnston County - CDLF Expansion

SUBJECT Landfill Life Expectancy

SHEET 1 OF 4

JOB NO. JOHNSTON-21

DATE 12/5/03 (Rev. 7/28/05)

COMPUTED BY PKS

CHECKED BY _____

Objective

To determine the expected life of the proposed C&D expansion given the proposed contours and estimated waste acceptance rates.

Assumptions

1. Density of Waste.
2. Waste to Periodic Cover (i.e. daily and intermediate) Ratio.
3. Waste Generation/Disposal Rates

Analysis

AutoCAD was used to generate volumes.

LIFE.WPD



G.N. RICHARDSON & ASSOCIATES

Engineering and Geological Services

14 N. Boylan Avenue, Raleigh, NC 27603

Telephone: (919) 828-0577



G.N. Richardson & Associates

14 N. Boylan Avenue
Raleigh, NC 27603
Tel: 919-828-0577
Fax: 919-828-3899

Z/4

SHEET: JOHNSTON-21
JOB #: 7/28/05
DATE: PKS
BY:
CHKD BY:

**Johnston County C&D Landfill - Area 1 (Vertical Expn.)
Volume Study: Filling Rate & Density Calculations**

Density and Filling Rate Calculations:

Start Date	Period of Interest End Date	Total Time (years)	Volume Filled (cy)	Quantity of Waste Disposed (tons)	Waste Filling Rate* (lbs/cy)	Periodic Cover Assumed %	Periodic Cover Volume (cy)	Waste Volume (cy)	Waste Density** (lbs/cy)
4/1/1999	5/21/2004	5.14	343,193	187,514	1,093	10	34,319	308,874	1,214
5/22/2004	3/21/2005	0.83	48,788	25,654	1,052	10	4,879	43,909	1,169
								Avg. =	1,191

Notes:

*Waste Filling Rate = (Tons of Waste Disposed)/(Volume Filled).

**Waste Density = (Tons of Waste Disposed)/(Volume Filled - Volume of Periodic Cover).



G.N. Richardson & Associates

14 N. Boylan Avenue
Raleigh, NC 27603
Tel: 919-828-0577
Fax: 919-828-3899

SHEET: 314
JOB #: JOHNSTON-21
DATE: 7/28/05
BY: PKS
CHKD BY:

**Johnston County C&D Landfill - Area 1 (Vertical Expn.)
Volume Study: Life Expectancy Calculations**

Waste & Periodic Cover Parameters:

Annual Tonnage = 38,400 (Avg. Last 3 Fiscal Years - 01-02 through 03-04)
Waste Density (pcy) = 1,191 (From Filling Rate and Density Calcs.)
Waste Density (tcy) = 0.60
Percentage of Periodic Cover = 10

Volume Calculations:

Volume From AutoCAD (cy) = 180,753

Adjustment For Other Layers:

Area of Final Cover (Ac.) = 16.2
2 feet (Avg.) Final Cover = 52,272 cy
Sum = 52,272 cy

Volume of Waste and Periodic Cover (cy) = 128,481

Volume of Periodic Cover (cy) = 12,848

Volume of Waste (cy) = 115,633

Quantity of Waste (tons) = 68,859

Landfill Life Expectancy (years) =

(From 3/21/05)

≈ JAN, 2007

~~4/4~~
4/4

Johnston County Landfill

Project: land projects

Sun July 24 22:47:25 2005

Site Volume Table: Unadjusted

Cut yards	Fill yards	Net yards	Method
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Site: AIRSPACE CHANGED AREAS

MSW area volume represents latest aerial topo (I didn't know the date) vs. the 052104 topo with phase 4A cell 2 grades pasted in.

If you look at the isopach, a lot of the cut occurs around the perimeter of cell 2. As expected, the majority of the fill is in cell 1.

Stratum: msw area topo-052104-cell2-paste survey-msw-area
 12,817 200,019 187,202 (F) Composite
Ignore-Cell 2

MSW remaining represents latest survey vs. phase 4A fill sequence 2, (shown in figure 2).

Stratum: msw area remaining topo-052104-changed-areas-paste phase4a-fill-seq-3
 4,852 597,179 592,327 (F) Composite
Ignore-Perimeter

C&D area volume represents the two dates, latest (date unknown) vs. 052104.

The C&D volume is straight forward, fill is on top and west side.

Stratum: cd area topo-052104-cell2-paste survey-cd-area
 1,282 50,070 48,788 (F) Composite
OK

CD remaining represents latest survey vs. final cover grades, (shown in figure 2)

Stratum: cd area remaining topo-052104-changed-areas-paste cd-fcvr-120503
 7149 187902 180753 (F) Composite
OK



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

March 18, 2005

Mr. Pieter K. Scheer, P.E.
G.N. Richardson & Associates, Inc.
14 N. Boylan Avenue
Raleigh, NC 27603

RE: Permit Modification Application, Johnston County C&D Landfill Vertical Expansion.
Return of Document, Permit 5103.

Dear Pieter,

The Division of Waste Management, Solid Waste Section, received the above referenced application for the Johnston County C&D Landfill Vertical Expansion in December of 2003. The Section hydrogeologist asked that a more comprehensive hydrogeologic and groundwater assessment program be implemented and a report submitted to the Section to determine if the vertical expansion as proposed in the above application could be feasible. That work and associated regulatory review is ongoing.

The Section is returning the permit application to you. No action has been taken on the application as presented. Informal discussions with you have indicated that the ongoing hydrogeologic investigation will require that the submitted plan be revisited.

If you have any additional questions or need help, please feel free to call me at (919) 733-4996 Ext. 343. My email address is: Ed.Mussler@ncmail.net

Sincerely,

Edward F. Mussler III, PE
Environmental Engineer
Solid Waste Section

cc: Haywood Phthisic, Johnston County
Jim Barber, DWM
John Crowder, DWM
Ben Barnes, DWM
Bobby Lutfy DWM

1646 Mail Service Center, Raleigh, North Carolina 27699-1646
Phone 919-733-4996 \ FAX 919-733-4810 \ Internet <http://wastenotnc.org>