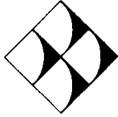


3

Johnston Co.

51032004



51-03

G.N. RICHARDSON & ASSOCIATES

Engineering and Geological Services

January 27, 2003

Mr. Jim Barber
Branch Head
NC DENR - DWM - Solid Waste Permitting
401 Oberlin Road, Suite 150
Raleigh, NC 27605



**RE: Update of Permitting Issues
Johnston County Landfill Facility
Smithfield, North Carolina**

Dear Jim:

G.N. Richardson & Associates, Inc. (GNRA) would like to update you on the current status of several key permitting issues at Johnston County's landfill facility. Now that construction is complete on the Phase 4A - Cell 1 landfill unit and the County has started operations, we would like to meet with you soon to discuss the following items:

1. Phase 5 Leachate Recirculation System:

The final permitted leachate recirculation galleries have recently been installed in the Phase 5 landfill unit. GNRA and Johnston County are assembling data on the operation of the facility since the facility began use of the initial galleries in late 2001. This information will be prepared in report format and forwarded to you in the near future.

2. Phase 5 Long-Term Interim Cover:

Currently the County is completing waste placement operations in the Phase 5 landfill unit. GNRA plans prepare a request to allow a long-term interim cover (nominal 24-inch soil cover) over this landfill unit as part of the continued use and monitoring of the leachate recirculation system.

3. Future C&D Landfill Options:

GNRA has reviewed the available options for the future disposal of C&D waste at the site once the vertical expansion on top of Phase 4 is complete. These options include the use of the top of the Phases 1 and 2 landfill unit (Recall that this is a landfill unit that stopped receiving waste in 1992 but was closed with an upgraded cover system along with the Phase 3 and Phase 4 landfill units, which received waste in 1993 and after.) and the use of Borrow Area A. For discussion, please

Mr. Jim Barber
January 27, 2003
Page 2

find attached two drawings which show conceptual base and top of waste grades for a C&D landfill unit developed in a portion of Borrow Area A. We wish to discuss with you the feasibility of using one or both of these areas for future C&D disposal.

Should you have any questions or comments, please contact us at your earliest convenience. We look forward to discussing these issues with you further.

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



Pieter K. Scheer, P.E.
Project Manager

Attachments (Conceptual C&D Landfill Base and Top of Waste Grades)

cc: Tim Broome, Johnston County
Haywood Phthisic, Johnston County
Rick Proctor, Johnston County
Ed Mussler, NCDWM
Greg Richardson, GNRA

Johnston County
POST OFFICE BOX 1049
SMITHFIELD, N. C. 27577

Rick J. Hester
County Manager
(919) 989-5100
FAX (919) 989-5179



March 24, 2003

Mr. Jim Barber, Solid Waste Branch Head
NCDENR-Division of Waste Management
1646 Mail Service Center
Raleigh, N.C. 27699-1646

Dear Mr. Barber:

The purpose of this correspondence is to provide information requested regarding Johnston County's current permitted construction and demolition disposal capacity. We have approximately 42,000 cubic yards of air space remaining which translates into 270 working days or 45 weeks. By January 31, 2004, the current permitted air space will be utilized.

Your cooperation and assistance in permitting the next construction and demolition cell on a schedule consistent with our needs will be greatly appreciated. If you have any questions, please do not hesitate to contact me, my staff, or G.N. Richardson & Associates.

Sincerely,

Rick J. Hester
County Manager

cc: Timothy G. Broome, P.E.
Haywood M. Phthisic, III
Rick Proctor
Dr. Gregory Richardson, P.E.



Michael F. Easley, Governor
William G. Ross Jr., Secretary
North Carolina Department of Environment and Natural Resources
Alan W. Klimek, P.E. Director
Division of Water Quality

December 20, 2004

Timothy G. Broome, P.E., Director of Infrastructure and Engineering
Johnston County
Department of Public Utilities
PO Box 2263
Smithfield, NC 27577

Subject: Permit No. WQ0019631
Johnston County
Conjunctive Use at the Johnston County Landfill
Reclaimed Water Utilization System
Johnston County

Dear Mr. Broome:

In accordance with your modification request received March 22, 2004, and subsequent additional information received May 27, 2004, we are forwarding herewith Permit Number. WQ0019631, dated December 20, 2004, to Johnston County for the continued operation of the subject wastewater treatment and reclaimed water utilization system. This permit modification is for the purpose of adding two (2) additional spray fields and 135,000 GPD to the already existing spray system.

This permit shall be effective from the date of issuance until March 31, 2007, shall void Permit No. WQ0019631 issued June 13, 2003, and shall be subject to the conditions and limitations as specified therein. Please pay particular attention to the monitoring requirements in this permit. Failure to establish an adequate system for collecting and maintaining the required operational information will result in future compliance problems.

If any parts, requirements, or limitations contained in this permit are unacceptable, you have the right to request an adjudicatory hearing upon written request within thirty (30) days following receipt of this permit. This request must be in the form of a written petition, conforming to Chapter 150B of the North Carolina General Statutes, and filed with the Office of Administrative Hearings, 6714 Mail Service Center, Raleigh, NC 27699-6714. Unless such demands are made this permit shall be final and binding.

One set of approved plans and specifications is being forwarded to you. If you need additional information concerning this matter, please contact Michelle McKay at (919) 715-6187.

Sincerely,

Alan W. Klimek, P.E.

cc: Johnston County Health Department
Raleigh Regional Office, Aquifer Protection Section
Technical Assistance and Certification Unit
[Redacted] of Waste Management, Solid Waste Section
Aquifer Protection Central Files
LAU Files

One North Carolina
Naturally

Aquifer Protection Section
Internet: h2o.enr.state.nc.us

1636 Mail Service Center
2728 Capital Boulevard

Raleigh, NC 27699-1636
Raleigh, NC 27604

Phone (919) 733-3221
FAX (919) 715-6048

Customer Service
1-877-623-6748

NORTH CAROLINA
ENVIRONMENTAL MANAGEMENT COMMISSION
DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES
RALEIGH
WASTEWATER TREATMENT AND RECLAIMED WATER UTILIZATION PERMIT

In accordance with the provisions of Article 21 of Chapter 143, General Statutes of North Carolina as amended, and other applicable Laws, Rules, and Regulations

PERMISSION IS HEREBY GRANTED TO

Johnston County
Johnston County

FOR THE

construction and continued operation of a 401,918 GPD (266,918 GPD previously permitted and an additional 135,000 GPD) reclaimed water utilization system, consisting of spray irrigation onto 17 (15 previously permitted) individual spray fields/zones totaling 286.24 acres at the Johnston County Landfill, to serve Johnston County with no discharge of wastes to the surface waters, pursuant to the application received March 22, 2004 and subsequent additional information received by the Division, and in conformity with the project plan, specifications, and other supporting data subsequently filed and approved by the Department of Environment and Natural Resources and considered a part of this permit.

This permit shall be effective from the date of issuance until March 31, 2007, shall void Permit No. WQ0019631 issued June 13, 2003, and shall be subject to the following specified conditions and limitations:

I. PERFORMANCE STANDARDS

1. The reclaimed water utilization facilities shall be effectively maintained and operated at all times so that there is no discharge to the surface waters, nor any contamination of ground waters, which will render them unsatisfactory for normal use. In the event that the facilities fail to perform satisfactorily, including the creation of nuisance conditions or failure of the irrigation area to adequately assimilate the wastewater, the Permittee shall take immediate corrective actions including those actions that may be required by the Division of Water Quality or the Division of Waste Management, Solid Waste Section, such as:
 - a. the temporary or permanent termination of those spray irrigation zones not performing satisfactorily, causing nuisance conditions, or failing to assimilate the wastewater, and
 - b. the construction of additional or replacement wastewater treatment and disposal facilities.
2. The issuance of this permit shall not relieve the Permittee of the responsibility for damages to surface water or ground water resulting from the operation of this facility.

3. Diversion or bypassing of the untreated wastewater from the treatment facilities is prohibited.
4. The following buffers shall be maintained:
 - a. 100 feet between wetted areas and water supply wells,
 - b. 100 feet between wetted areas and waters classified as SA,
 - c. 25 feet between wetted areas and surface waters not classified as SA,
 - d. 100 feet between wastewater treatment units and wells,
 - e. 50 feet between reclaimed water storage/irrigation ponds and property lines, and
 - f. 50 feet between wastewater treatment units and property lines.

Some of the buffers specified above may not have been included in previous permits for this waste treatment and disposal system. These buffers are not intended to prohibit or prevent modifications, which are required by the Division, to improve performance of the existing treatment facility. These buffers do, however, apply to modifications of the treatment and disposal facilities that are for the purpose of increasing the flow that is tributary to the facility. These buffers do apply to any expansion or modification of the irrigation areas and apply in instances in which the sale of property would cause any of the buffers now complied with, for the treatment and disposal facilities, to be violated. The applicant is advised that any modifications to the existing facilities will require a permit modification.

5. Public access to the irrigation sites shall be controlled during active site use. Such controls may include the posting of signs showing the activities being conducted at each site. A sign shall be posted in plain sight in the clubhouse showing these activities.
6. This permit shall become void if the Division of Waste Management, Solid Waste Section terminates the spray irrigation modification of Permit 51-02. This permit in no way alleviates the Permittee from any additional spray irrigation restrictions and/or obligations placed on them by the Solid Waste Section in the form of future permit modifications.
7. This permit cannot be altered in any way (with the exception of simple permit renewal) without prior approvals from the Division of Water Quality and from the Division of Waste Management, Solid Waste Section.

II. OPERATION AND MAINTENANCE REQUIREMENTS

1. The facilities shall be properly maintained and operated at all times.
2. Upon classification of the wastewater treatment and irrigation facilities by the Water Pollution Control System Operators Certification Commission (WPCSOCC), the Permittee shall designate and employ a certified operator to be in responsible charge (ORC) and one or more certified operator(s) to be back-up ORC(s) of the facilities in accordance with 15A NCAC 8G .0201. The ORC shall visit the facilities in accordance with 15A NCAC 8G .0204 or as specified in this permit and shall comply with all other conditions specified in these rules.
3. A suitable, year-round vegetative cover shall be maintained on the irrigation areas. The reclaimed wastewater may also be utilized on non-vegetative areas to establish seed beds or sprig beds, to nurture vegetative growth and to expedite and enhance land restoration/reclamation/and erosion control efforts.
4. Irrigation shall not be performed during inclement weather or when the ground is in a condition that will cause runoff.
5. Adequate measures shall be taken to prevent wastewater runoff from the irrigation field.

6. The application rate shall not exceed a cumulative loading of over any twelve (12) month period as given by the following table. The instantaneous application rate not to exceed 0.3 inches per hour.

Field #	Crop	Max. Irrigation Rate (in/yr)	Acres	Max. Annual Application (gal/yr)
1	Trees	20	32.35	17,568,800
2	CB*	20	54.73	29,723,100
3	CB*	16	10.44	4,535,900
4	CB*	16	6.03	2,619,800
5	Grass	16	24.11	10,475,000
6	Grass/Trees	14	8.82	3,353,000
7	Grass/Trees	14	5.15	1,957,800
8	Grass/Trees	14	28.97	11,013,200
9	Grass/Trees	15	2.35	957,200
10	Grass/Trees	15	6.91	2,814,500
Livestock Area & Forest Service Area	Grass	15	5.9	2,403,200
Roadway Dust Control Area	Grass/Dirt Road	15	6.7	2,729,000
Closed LF Cells 1 & 2	Grass	5	15.9	2,158,800
Closed LF Cell 3	Grass	5	11.26	1,528,800
Closed LF Cell 4	Grass	5	26.42	3,587,100
Closed LF Cell 5	Grass	5	27.52	15,695,000
Borrow Area C	Grass	8	12.68	33,580,000
		Totals:	286.24	146,700,200

CB* Coastal Bermuda hay, overseed with annual rye as a winter crop

Only those spray irrigation fields (zones) specified above and delineated in the approved Plans can be irrigated with reuse quality wastewater. Spray irrigation of reuse quality wastewater onto tracks of land not specified above is not approved, and can only be approved with permit modification.

7. No type of wastewater other than that from the Central Johnston County Regional wastewater treatment facility shall be irrigated onto the irrigation area.
8. If a spray irrigation field has been modified such that the ground topography has been altered (from borrow operations, for example) compared to the approved Plans, then spray irrigation activities may only be reinstated at the altered field with permit modification because of the altering of the ground topography. Such a permit modification application must be accompanied by a re-evaluation of the soils and groundwater of the altered field.

III. MONITORING AND REPORTING REQUIREMENTS

1. Any monitoring (including groundwater, surface water, soil or plant tissue analyses) deemed necessary by the Division to insure surface and ground water protection will be established and an acceptable sampling reporting schedule shall be followed.
2. Adequate records shall be maintained by the Permittee tracking the amount of wastewater disposed. These records shall include, but are not necessarily limited to the following information:
 - a. date and time of irrigation,
 - b. volume of wastewater irrigated,
 - c. zone irrigated,
 - d. length of time zone is irrigated,
 - e. continuous weekly, monthly, and year-to-date hydraulic (inches/acre) loadings for each zone,
 - f. weather conditions, and
 - g. maintenance of cover crops.
3. Three (3) copies of all operation and disposal records (as specified in condition III 2) on Form NDAR-1 shall be submitted monthly on or before the last day of the following month to the Division of Water Quality at the address below. One (1) copy of all operation and disposal records (as specified in condition III 2) on Form NDAR-1 shall be submitted monthly on or before the last day of the following month to the Division of Waste Management at the address below:

Division of Water Quality
1617 Mail Service Center
Attn: Information Processing Unit
Raleigh, North Carolina 27699-1617

Division of Waste Management
Solid Waste Section
Compliance Hydrogeologist
1646 Mail Service Center
Raleigh, North Carolina, 27699-1646A

4. **Noncompliance Notification:**

The Permittee shall report by telephone to the Raleigh Regional Office, telephone number (919) 571-4700, as soon as possible, but in no case more than 24 hours or on the next working day following the occurrence or first knowledge of the occurrence of any of the following:

- a. Any occurrence at the wastewater treatment facility which results in the treatment of significant amounts of wastes which are abnormal in quantity or characteristic, such as the dumping of the contents of a sludge digester; the known passage of a slug of hazardous substance through the facility; or any other unusual circumstances.
- b. Any process unit failure, due to known or unknown reasons, that render the facility incapable of adequate wastewater treatment such as mechanical or electrical failures of pumps, aerators, compressors, etc.
- c. Any time that self-monitoring information indicates that the facility has gone out of compliance with its permit limitations.

Occurrences outside normal business hours may also be reported to the Division's Emergency Response personnel at telephone number (800) 662-7956, (800) 858-0368, or (919) 733-3300. Persons reporting such occurrences by telephone shall also file a written report in letter form within five (5) days following first knowledge of the occurrence. This report must outline the actions taken or proposed to be taken to ensure that the problem does not recur.

IV. GROUNDWATER REQUIREMENTS

1. The following monitoring wells shall be sampled every month proceeding through the start-up of waste disposal operations, and thereafter every month for the parameters listed below:

DWQ monitoring wells: DWQ-MW-1
 DWQ-MW-2
 DWQ-MW-3

Landfill monitoring wells: CDLMW-5
 MW-3
 MW-5-1
 MW-5-2
 MW-5-10
 PZ-3

Sampling Parameter List: Water Level

The depth to water in each well shall be measured from the surveyed point on the top of the casing. The measuring points (top of well casing) of all monitoring wells shall be surveyed relative to a common datum.

All reports and documentation GW-59 shall be mailed to the following two addresses:

Division of Water Quality
1617 Mail Service Center
Attn: Information Processing Unit
1636 Mail Service Center
Raleigh, North Carolina 27699-1636

Division of Waste Management
Solid Waste Section
Compliance Hydrogeologist
1646 Mail Service Center
Raleigh, NC 27699-1646

(Note: Updated blank forms (GW-1 and GW-59) may be downloaded from the Groundwater Section's website at <http://gw.ehnr.state.nc.us/> or requested from the Aquifer Protection Section at 1636 Mail Service Center, Raleigh, NC 27699-1636.

The results of the sampling and analysis must be received on Form GW-59 (Groundwater Quality Monitoring: Compliance Report Form) by the Division of Water Quality, Information Processing Unit and the Division of Waste Management, Solid Waste Section, on or before the last working day of the month following the sampling month. The data of all groundwater sampling analyses required by the permit conditions must be reported using the most recent GW-59 form along with attached copies of the laboratory analyses.

2. Waste application activities shall not occur when the vertical separation between ground surface and the water table is less than one (1) foot. Verification of the water table elevation can be confirmed by water level readings obtained from the monitor wells near the site or auger boring(s), which must be done within 24 hours, prior to application of wastewater. Any open borings must be properly filled with native soil, prior to application to decrease the chance of any waste contaminating the groundwater.
3. The compliance boundary and review boundary for wastewater disposal systems are specified by 15A NCAC 2L. For systems utilizing reclaimed water, 15A NCAC 2H .0219(k) specifies that both the compliance boundary and review boundary shall be established at the property line. An exceedance of groundwater quality standards at or beyond the compliance boundary is subject to immediate remediation action in addition to the penalty provisions under North Carolina General Statute, 143-215.6A(a)(1).
4. Any groundwater quality monitoring, as deemed necessary by the Division of Water Quality, Groundwater Section or by the Division of Waste Management, Solid Waste Section, shall be provided.

V. INSPECTIONS

1. Adequate inspection, maintenance, and cleaning shall be provided by the Permittee to insure proper operation of the subject facilities.
2. The Permittee or his designee shall inspect the wastewater treatment and disposal facilities to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of wastes to the environment, a threat to human health, or a nuisance. The Permittee shall keep an inspection log or summary including at least the date and time of inspection, observations made, and any maintenance, repairs, or corrective actions taken by the Permittee. This log of inspections shall be maintained by the Permittee for a period of three years from the date of the inspection and shall be made available upon request to the Division or other permitting authority.
3. Any duly authorized officer, employee, or representative of the Division may, upon presentation of credentials, enter and inspect any property, premises or place on or related to the disposal site or facility at any reasonable time for the purpose of determining compliance with this permit; may inspect or copy any records that must be maintained under the terms and conditions of this permit, and may obtain samples of groundwater, surface water, or leachate.

VI. GENERAL CONDITIONS

1. This permit shall become voidable unless the facilities are constructed in accordance with the conditions of this permit, the approved plans and specifications, and other supporting data.
2. This permit is effective only with respect to the nature and volume of wastes described in the application and other supporting data.
3. This permit is not transferable. In the event there is a desire for the facilities to change ownership, or there is a name change of the Permittee, a formal permit request must be submitted to the Division accompanied by an application fee, documentation from the parties involved, and other supporting materials as may be appropriate. The approval of this request will be considered on its merits and may or may not be approved.
4. Failure to abide by the conditions and limitations contained in this permit may subject the Permittee to an enforcement action by the Division in accordance with North Carolina General Statute 143-215.6A to 143-215.6C.
5. The issuance of this permit does not exempt the Permittee from complying with any and all statutes, rules, regulations, or ordinances which may be imposed by other government agencies (local, state, and federal) which have jurisdiction, including but not limited to applicable river buffer rules in 15A NCAC 2B.0200, erosion and sedimentation control requirements in 15A NCAC Chapter 4 and under the Division's General Permit NCG010000, and any requirements pertaining to wetlands under 15A NCAC 2B .0200 and 2H .0500.
6. The Permittee shall retain a set of approved plans and specifications for the subject facility for the life of the project.
7. The Permittee shall pay the annual administering and compliance fee within thirty days of being billed by the Division. Failure to pay the fee accordingly may cause the Division to initiate action to revoke this permit as specified by 15 NCAC 2H .0205 (c)(4).

8. The Permittee, at least six (6) months prior to the expiration of this permit, shall request its extension. Upon receipt of the request, the Commission will review the adequacy of the facilities described therein, and if warranted, will extend the permit for such period of time and under such conditions and limitations as it may deem appropriate.

Permit issued this the 20th day of December, 2004

NORTH CAROLINA ENVIRONMENTAL MANAGEMENT COMMISSION



Alan W. Klimek, P.E., Director
Division of Water Quality
By Authority of the Environmental Management Commission

Permit Number WQ0019631

Permit No. WQ0019631
December 20, 2004

ENGINEER'S CERTIFICATION

_____ Partial _____ Final

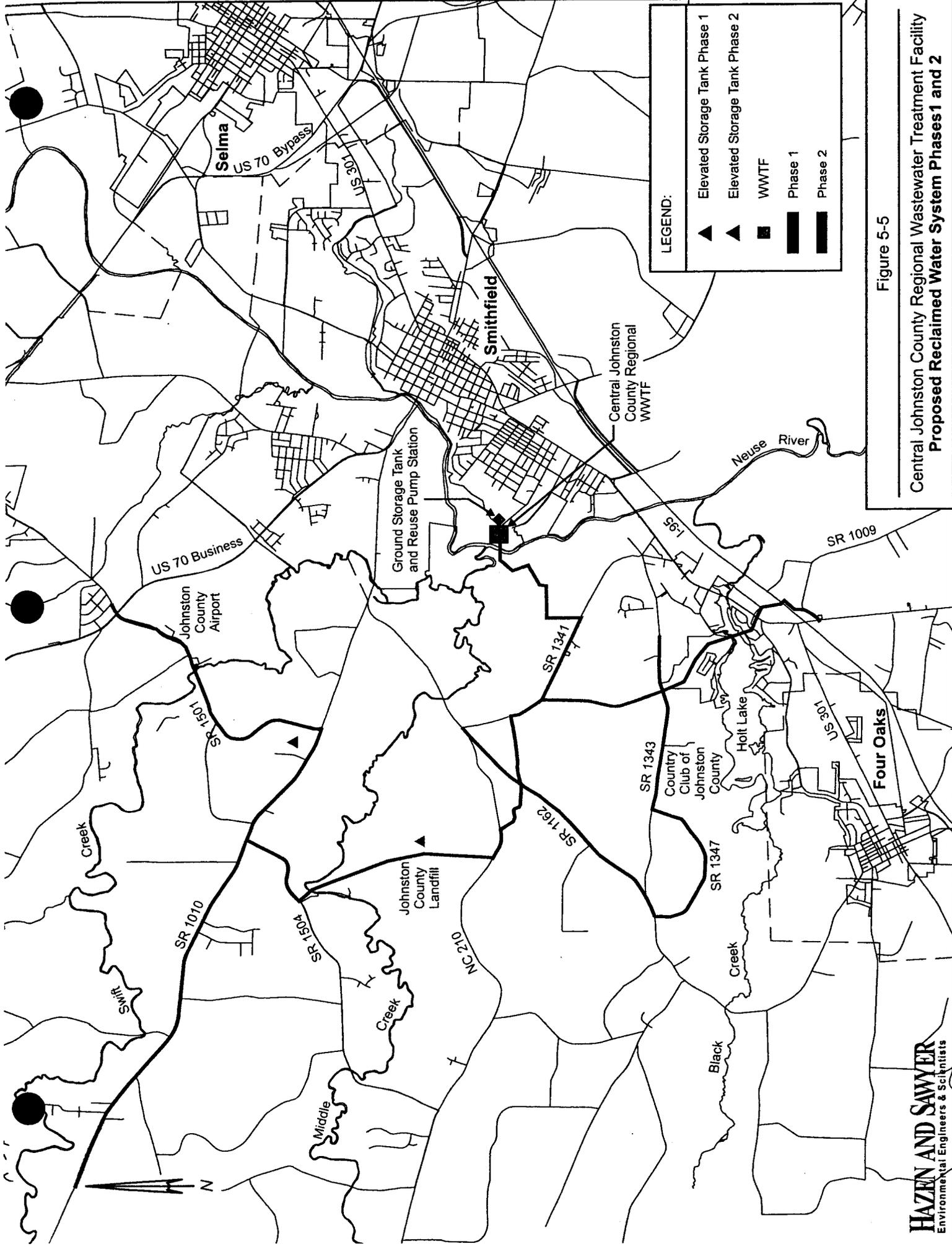
I, _____, as a duly registered Professional Engineer in the State of North Carolina, having been authorized to observe (periodically, weekly, full time) the construction of the project,

_____, _____
Project Name *Location and County*

for the Permittee hereby state that, to the best of my abilities, due care and diligence was used in the observation of the construction such that the construction was observed to be built within substantial compliance and intent of this permit, the approved plans and specifications, and other supporting materials.

Signature _____ Registration No.

Date _____

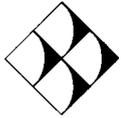


LEGEND:

- ▲ Elevated Storage Tank Phase 1
- ▲ Elevated Storage Tank Phase 2
- WWTF
- ▬ Phase 1
- ▬ Phase 2

Figure 5-5

Central Johnston County Regional Wastewater Treatment Facility
Proposed Reclaimed Water System Phases 1 and 2



G.N. RICHARDSON & ASSOCIATES

Engineering and Geological Services

March 11, 2004

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

**RE: Request for Permit Modification - Revised Operations Manual - Appendix E
Irrigation of Reclaimed Wastewater
Johnston County Landfill - Permit No. 51-03
Smithfield, North Carolina**

Dear Ed:

On behalf of Johnston County, G.N. Richardson & Associates, Inc. (GNRA) would like to submit for your review two (2) copies of a revised Appendix E to the currently approved operations manual for the County's landfill facility, which covers the irrigation of reclaimed wastewater. Appendix E has been revised to add Borrow Area C (Field 11) and the Phase 5 interim landfill cap as additional irrigation areas and to allow year-round irrigation on Fields 1, 2, and 3. Appendix E has also been revised for other minor changes since the original plan was approved (contact address information, etc.).

Note that the County has made a formal application to the Division of Water Quality for approval of these changes to their current Wastewater Treatment and Reclaimed Water Utilization Permit. This application contains detailed information on the new irrigation areas.

Should you have any questions or require clarification, please contact us at your earliest convenience.

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

Pieter K. Scheer, P.E.
Project Manager



Attachment: Revised Appendix E (x 2)

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



FAX COVER SHEET

DIVISION OF WASTE MANAGEMENT SOLID WASTE SECTION

DATE: December 20, 2002

TO: Rick Proctor

FAX NO: 919.989.7152

FROM: Ed mUssler

PAGES (INCLUDING THIS COVER SHEET) 10

Rick here is the Phase 4A permit to operate. Merry Christmas.
ED

Ed

*IF YOU HAVE NOT RECEIVED ALL OF THE PAGES INDICATED, OR IF THE
TRANSMISSION IS INCOMPLETE, PLEASE CALL (919) 733-0692.*

FAX RESPONSE NUMBER- (919) 733-4810

Ed Mussler
12/20/02

**PHASE 4A CELL 1
PRE-OPERATIONS MEETING**

LANOFE:ll FAY -
919 989 7152
CX

AGENDA

1. Review of Landfill Liner and Leachate Collection Systems

A. Landfill Base:

- a 12 inch thick compacted soil liner ($k \leq 1 \times 10^{-5}$ cm/sec.);
- a 40 mil LLDPE textured geomembrane (secondary) liner;
- geonet drainage media (leak detection system - LDS);
- geosynthetic clay liner (GCL);
- a 60 mil HDPE textured geomembrane (primary) liner;
- a 12 inch thick layer of No. 78 Stone (leachate collection and recovery (LCR) system);
- a layer of Type GT-S geotextile (6 oz/sy non-woven);
- a 12 inch thick layer of protective cover soil; and
- a 20 mil polyethylene geomembrane (geosynthetic rain cover - GRC)

B. Landfill Side (Piggyback) Slopes:

- 40 mil LLDPE geomembrane;
- geonet drainage media (LDS);
- GCL;
- 60 mil HDPE geomembrane;
- geonet drainage media (LCR system);
- a 24 inch thick layer of protective cover soil; and
- GRC

2. Review of Key Operations Requirements/Activities

A. Cell Activation (Section 2.5.2.2 of Operations Manual):

- Remove Geosynthetic Rain Cover (GRC) from area to be activated and document per form in Appendix C of Operations Manual (Note that GRC may be folded or rolled and possibly used again if desired. Also, sand bags removed should be placed closely along newly created edges to limit wind uplift potential).
- If the GRC is not removed up to a gravel column, place a small berm ahead of the toe of the active area.
- When removing GRC from gravel columns, leave geotextile in place until ready to place waste directly on gravel (this limits siltation of the gravel column) (document per form in Appendix C).

B. Placement of Initial Lift (Section 2.5.2.3 of Operations Manual):

- Use select waste free of long or large pieces of waste.
- Use a spotter near the working face to look for waste which could push through 2 feet of soil/stone and damage the liner system.
- Place the initial lift a minimum of 4 feet thick.
- Use the same procedures for placing waste against side slopes (note that waste should be placed against side slopes in fairly horizontal lifts.).

C. General Operations:

- The placement/compaction/covering of waste will be very similar to the current Phase 5 operations.

D. Separation of Stormwater/Leachate:

- Maximize by limiting stormwater contact with waste.
- This part of the operation relies heavily on the use of the GRC until the fill height progresses to promote flow out of the cell from soil covered exterior slopes.
- Stormwater collected on top of the GRC at the north end of Cell 1 will need to be pumped out of the cell into Sediment Basin 5A using a temporary pump (Note that during larger storms, stormwater may overtop the north berm and flow into Drainage Channel No. 6 and on to Sed. Basin 5A).

E. Leachate Collection Sump/Pump Operation:

- Leachate generated in Cell 1 flows to the north end and is collected in the sump.
- 2 side riser pumps are used to pump the leachate to the storage lagoon (flow quantity is measured via a flowmeter).

F. Leak Detection System Operation:

- The leak detection system (LDS) is designed to collect leachate which should leak through the upper geomembrane and GCL;
- Leakage is collected in one of the leak detection trenches or in the leak detection sump (1 side riser pump). This flow is routed to the leak detection pump station.
- 2 pumps in the pump station are used to pump the leachate to the storage lagoon (flow quantity is measured via a flowmeter).
- Phase 4A (approx. 30 acres) is designed with an Action Leakage Rate (ALR) of 3,000 gallons/day (gpd). Cell 1 is about 16 acres and, thus, should have << 1,600 gpd.

- The quantity of leachate collected in the LDS needs to be monitored to verify that the ALR is not exceeded. The initial reading of the LDS flow meter should be recorded at the time of initial waste placement and checked and recorded once/day until it can be established that the flow is small enough to warrant checking/recording over a longer period (say once/week).

Wind on raincoat -
erosion -

document removal of cover = pipes

Keep pipe clean.

Johnston County

DEPARTMENT OF PUBLIC UTILITIES

POST OFFICE BOX 2263

SMITHFIELD, N.C. 27577

(919) 989-5075

SEP 2002

September 16, 2002

Ms. Charlotte Jesneck, Section Head
Inactive Hazardous Sites Branch
NCDENR-Division of Solid Waste
401 Oberlin Road – Suite 150
Raleigh, N.C. 27605

Dear Ms. Jesneck:

The purpose of this correspondence is to follow up on our conversation on Thursday, August 22, concerning an old landfill site at the Johnston County Wastewater Treatment Facility. As I mentioned in our telephone conversation, we have also discussed this issue with Ed Mussler and Mark Fry with the Division of Solid Waste.

The Town of Smithfield built the wastewater treatment plant in the early 1960's. The ownership of the plant was transferred to the County in the late 1970's as part of the treatment facility becoming a regional system. The Town used an area north of the plant site as a non-permitted MSW landfill during the 1960's into the mid 1970's. The town still maintains ownership of the disposal area but a portion of the property obtained by the County had debris buried on it.

In 1992-93, the plant was expanded on the north end (**Phase 1**). We encountered a small amount of debris on the western part of the construction area. The debris was removed and transported to the County's MSW landfill. Approximately 500 cubic yards of debris was removed and replaced with suitable fill for the construction of concrete structures.

The County began another expansion (**Phase 2**) of the wastewater facilities in June, 2001 and once again encountered debris from the former landfill operation in the path of the expansion. Approximately 8,300 tons were excavated and transported to the County's lined landfill. All debris within the limits of the new plant construction was removed, suitable earth fill was placed in the excavated area, and all groundwater encountered during the excavation was pumped into and treated through the wastewater treatment plant. Ground water was not a significant problem due to the drought conditions we are experiencing in this area.



Ms. Charlotte Jesneck
Page 2

The County plans additional expansions (**Phase 3**) in the near future that will require excavation and removal of any previously deposited debris we may encounter to accommodate the construction of additional wastewater treatment facilities on County property.

We have attached a site plan depicting the excavation areas for your review. Would you please advise if our actions in removing and relocating the encountered MSW have been appropriate and if we are compliant with State and Federal laws and regulations?

If you have any questions, require additional information, or would like to make a site visit, please do not hesitate to contact me.

Sincerely,



Haywood M. Phthisic, III
Director of Operations

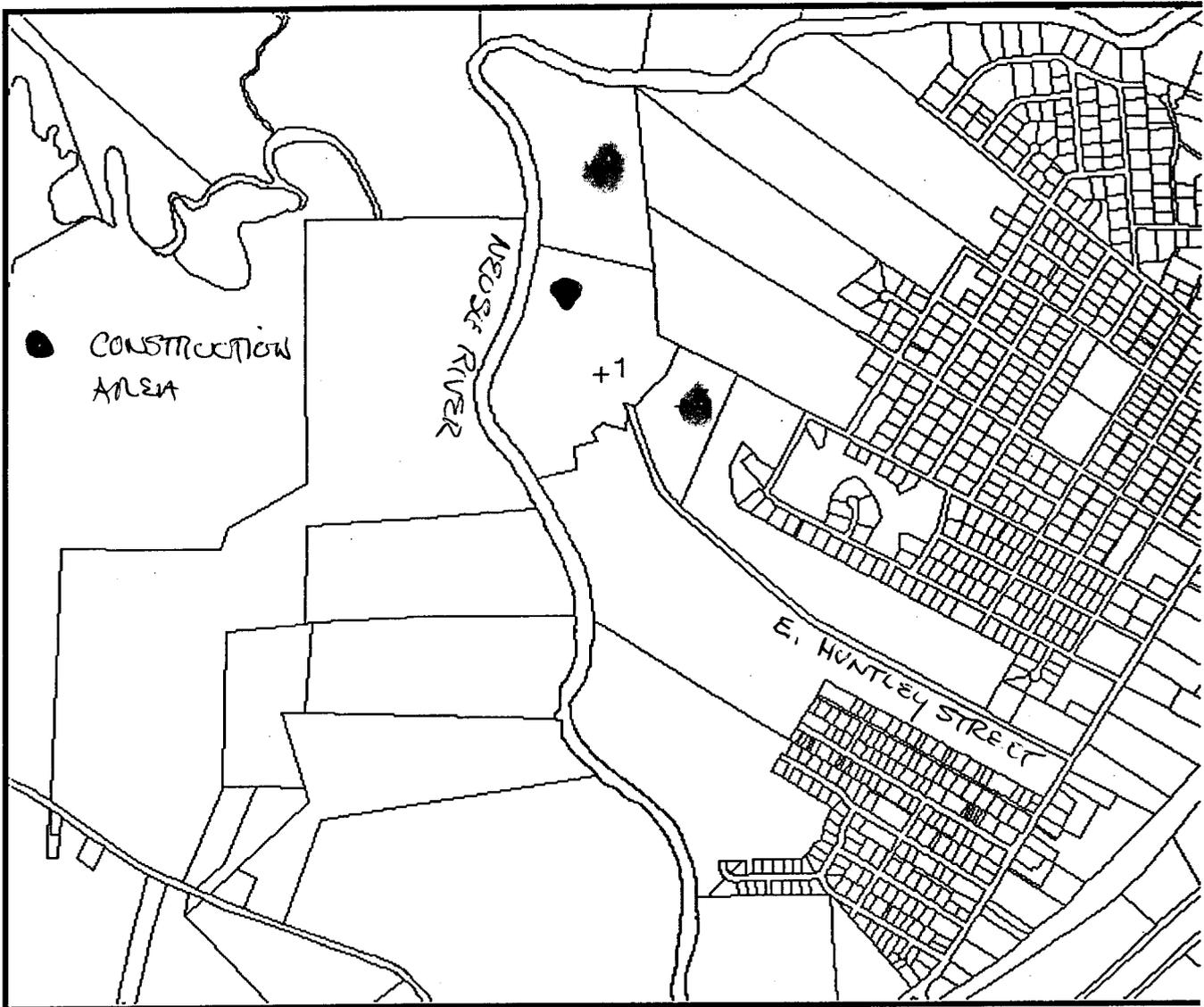
Attachments

cc: Rick Proctor
Timothy G. Broome, P.E.
Mark Payne
Mark Fry, DWM
Jim Coffey, DWM

~~Ed [unclear]~~

*** DISCLAIMER ***

Johnston County assumes no legal responsibility for the information represented here.



some layers not displayed because of scale

1	Query Result
NAD27	NC State Plane Coordinate System
X Coordinate	2186539.42
Y Coordinate	637386.26
PARNUM	15099006
NCPIN	1683-67-4850
MAPSHEET	168307
OWNERNAME	COUNTY OF JOHNSTON
ADDR1	Not Available

ADDR2	P O BOX 1049
ADDR3	Not Available
CITY	SMITHFIELD
STATE	NC
ZIP	275770000
BOOK	1186
PAGE	0377
ACREAGE	34.260000
RVALUE	54820
MVALUE	54820
LASTMOD	09-JAN-01
	Owner Name
NAD27	NC State Plane Coordinate System
X Coordinate	2186477.16
Y Coordinate	639191.88
PARNUM	15099006G
NCPIN	1683-69-4128
MAPSHEET	168307
OWNERNAME	TOWN OF SMITHFIELD
ADDR1	Not Available
ADDR2	116 SOUTH FOURTH STREET
ADDR3	Not Available
CITY	SMITHFIELD
STATE	NC
ZIP	275770000
BOOK	Not Available
PAGE	Not Available
ACREAGE	39.000000
RVALUE	27300
MVALUE	27300
LASTMOD	09-JAN-01
	Owner Name
NAD27	NC State Plane Coordinate System
X Coordinate	2187255.46
Y Coordinate	637106.08
PARNUM	15099006N
NCPIN	1683-77-2067

MAPSHEET	168311
OWNERNAME	TOWN OF SMITHFIELD
ADDR1	Not Available
ADDR2	116 SOUTH FOURTH STREET
ADDR3	Not Available
CITY	SMITHFIELD
STATE	NC
ZIP	275770000
BOOK	Not Available
PAGE	Not Available
ACREAGE	15.660000
RVALUE	37580
MVALUE	37580
LASTMOD	09-JAN-01

Subject: Johnston Daily Cover

Date: Mon, 17 Jun 2002 15:35:06 -0400

From: Edward Mussler <Ed.Mussler@ncmail.net>

To: joan@gnra.com

Joan, attached is a word perfect letter that I am waiting for Jim Coffey to approve. I t should be in the mail tomorrow (Tuesday). Let me know if there are any questions
ed mussler

 Wood Fiber as ADC Review Letter.wpd	Name: Wood Fiber as ADC Review Letter.wpd Type: WordPerfect 7 Document (application/x-unknown-content-type-WP7Doc) Encoding: base64
---	---

North Carolina
Department of Environment and Natural Resources

Division of Waste Management

Michael F. Easley, Governor
William G. Ross Jr., Secretary
Dexter R. Matthews, Director
June 17, 2002



Ms. Joan A. Smyth, P.G.
G.N. Richardson & Associates
425 N. Boylan Avenue
Raleigh, NC 27603

Re: Wood Fiber for Alternate Daily Cover and Final Cover Material, Johnston County
Landfill, Permit Number 51-03.

Dear Ms. Smyth,

Sometime ago you contacted the Solid Waste Section (Section) with respect to using some wood fiber material, from International Paper, as alternate daily cover and as a soil amendment in the final cover at the Johnston County Landfill. In May of 2002 you faxed me a copy of your correspondence. I apologize for the delay in responding to your request.

The Section has dealt with this material and similar requests from other MSWLF's in the past. While you submitted some old TCLP data indicating non-detectable results, you should be aware that analysis do exist that indicate that some trace metals and small amounts of formaldehyde exist in the material that has been tested to date. This is an extremely large pile of material and International Paper has been working with both Region IV EPA and the North Carolina Superfund Section, for years, to determine how best to handle this material and any cleanup of the site that may be necessary. Agronomic data on the material also indicates that the material may require significant additional soil preparation, such as lime and extra nitrogen addition, to ensure that an adequate vegetative cover can be established at closure.

These disclosures being made, the Section would consider further processing of your request should you so desire. The material could be used at the facility and stockpiled either in the cell, on intermediate cover, or at an alternate location away from groundwater monitoring wells, that you would propose to the section. Proper sedimentation and erosion control of the pile would be needed as well as possible dust suppression measures.

The material that the Section has seen indicates that it is mostly wood fibers. Its use as an alternate daily cover would need to be tested in a pilot for at least 90 days. The purpose of the trial would be to determine the optimum ratio of material to native soil to use as alternate daily cover. Recent history at landfills that have used mulch, from hurricane debris, as alternate daily cover have shown it to be inadequate to suppress fires equivalent to that of a six inch soil cover. Consequently the Section is reevaluating the use of the material, particularly with respect to the amount and frequency of traditional soil cover.

1646 Mail Service Center, Raleigh, North Carolina 27699-1646
Phone: 919-733-0692 \ FAX: 919-733-4810 \ Internet: www.enr.state.nc.us/

The Section would approve incorporation of the material into a final cover. The county would need to provide more specifics as to the amount of the material to be added to the required vegetative layer of the final cover, and how it is proposed to be blended and placed in the final cover, prior to its use. Pending the results of more frequent laboratory testing of the material, particularly from the middle and bottom of the pile, the use of the material outside the limits of the liner system is not approved.

If you desire to proceed with a trial demonstration of this material as ADC then you should contact your Waste Management Specialist, Ben Barnes, to conduct and monitor the trial. If you have any further questions regarding the approval for use of the wood fibers, or the conditions set forth in this letter, please contact the Section. The phone number is 919.733.0692 ext 343. Mr. Barnes may be reached at the Raleigh Regional Office of DENR. His number is 919.571.4700.

Sincerely,



Edward Mussler, P.E.
Environmental Engineer
Solid Waste Section

cc:(via email)

Haywood Phthisic, Johnston County
Pieter Scheer, GNRA
Jim Barber, DWM
Mark Fry, DWM
Ben Barnes, DWM

G.N. RICHARDSON & ASSOCIATES

MEMORANDUM

TO: Distribution

FROM: Pieter K. Scheer, P.E.
G.N. Richardson & Associates

DATE: June 5, 2002

SUBJECT: Johnston County
Johnston County MSW Landfill - Phase 4A - Cell 1
Construction Meeting Summary - May 23, 2002

On May 23, 2002, a construction meeting was held at the Johnston County Landfill. The purpose of the meeting was to discuss construction progress and future stages of construction. The following is a summary of major topics discussed during the meeting:

Attendees:

Rick Proctor, Johnston County
Michael Keen, Johnston County
Clay Carter, ES&J
Wilbert Spell, ES&J
Mike Smith, Geotechnics
Jason Ray, Geotechnics
Pieter Scheer, GNRA

Current Progress:

ES&J is working on the placement of structural fill on the east side slope at the south end of the site and is working on overexcavation activities near the middle of Cell 1 moving to the north. The west side slope at the south end and Sediment Basin 5A at the north end are almost complete. ES&J has completed the first lift of the compacted soil liner test fill.

Planned Construction Activities:

ES&J plans to continue with structural fill placement and overexcavation activities and will be starting construction of landfill gas (LFG) collection trenches soon. ES&J plans to complete the test fill for the compacted soil liner soon.

Related to the construction of the LFG collection trenches, Mr. Scheer requested that ES&J check the grade on the west slope nearest the south end to ensure that slopes were not steeper than 3H:1V.

Schedule

Mr. Scheer distributed copies of ES&J's latest schedule update. The updated schedule was discussed by the group.

Mr. Keen and Mr. Scheer both thought the updated schedule better reflected ES&J's plans based on discussions at the last construction meeting (5/16/02).

ES&J stated that they plan to work on the upcoming Memorial Day holiday.

Other Items

ES&J stated that they should have their water meter hooked up tomorrow and will provide a load count of the quantity of water they have used thus far.

Mr. Spell asked what the allowance should be for geosynthetics thickness when determining the thickness of the protective cover. Subsequent to the meeting, Mr. Scheer reviewed this question further. Considering the following thicknesses, 0.05 feet will cover the thickness of the geosynthetics (LLDPE geomembrane = 0.04 inches; geonet drainage media = 0.25 inches; GCL = 0.2 inches; HDPE geomembrane = 0.06 inches; Total = 0.55 inches = 0.05 feet). Note that the 2 foot minimum thickness of the protective cover can include geosynthetics placed above the 60 mil HDPE geomembrane.

CQA Testing

Mr. Smith and Mr. Ray stated that density tests on structural fill are currently going well and initial Protor information has been generated on the clay for the compacted soil liner.

CQA Meeting for Compacted Soil Liner

Mr. Scheer went over a review of specification and CQA requirements for the soil liner based on the attached agenda.

ES&J has completed the first lift of the soil liner test fill which is being constructed inside Cell 1. As the test fill area is below subgrade elevations, the test fill will not be part of the finished soil liner.

Mr. Smith stated that 2 to 3 days would be needed to get preliminary results from permeability testing of undisturbed samples. Testing will be performed in Raleigh.

Mr. Carter asked if he could leave the subgrade for the soil liner up to about 0.15 feet low as long as the top of the soil liner was at least at design grades. Mr. Scheer stated that this would be fine and will help to ensure that the minimum thickness of 12 inches for the soil liner is met.

Previous Action Items:

1. Ms. Carroll followed up on submittal of the proposed survey grid.
2. ES&J revised their construction schedule.
3. ES&J revised their pay application cover sheet.
4. Mr. Scheer is preparing a work plan for changes to Sediment Basin No. 3.

Action Items:

1. ES&J to check the grade on the west slope at the south end of Cell 1.

Next Meeting:

The next meeting will be held Tuesday June 4th at 10 a.m.

If you should have any questions, comments, or revisions concerning these minutes, please notify us as soon as possible.

Attachment (Soil Liner CQA Meeting Agenda)

Construction Meeting Summary - May 23, 2002

June 5, 2002

Page 3 of 3

cc: Distribution:

Tim Broome, Johnston County
Haywood Phthisic, Johnston County
Rick Proctor, Johnston County
Mike Keen, Johnston County
David Page, ES&J
Sandra Carlisle-Carroll, ES&J
Clay Carter, ES&J
Wilbert Spell, ES&J
Stacey Smith, GNRA
Byron Hackney, GNRA

SOIL LINER CQA MEETING

AGENDA

1. Review of Specification Requirements (Tech. Specification Section 02251)

Test Fill Construction:

- Tentative location/Timeframe
- Record survey of test fill subgrade (if in cell)
- Size: 20' x 50' Min.
- Depth: 2 - 6" compacted lifts
- Same materials and equipment to be used in main construction

Construction of Compacted Soil Liner (CSL):

- Confirmation of test fill must be complete before beginning
- Subgrade prep. and proof-roll
- Loose CSL placed in max. thickness of compaction feet (or penetration depth) (first lift placed thicker to avoid subgrade contamination - o.k.)
- Clod size $\leq 3/4$ inches (may require breakdown prior to compaction)
- Rock fragments: 1.5" below finished CSL surface; 0.5" in finished CSL surface
- Compaction Requirements: $\geq 95\%$ Std. Proctor; 2-6% wet of optimum; $k \leq 1 \times 10^{-5}$ cm/sec; 12" min. finished thickness (0.15 foot overbuild allowed)
- Protection of CSL from rain and desiccation (i.e. smooth drum roll)
- Scarify surface prior to placement of subsequent lifts or if material is determined to be too dry
- Holes in CSL - patch with compacted CSL or sodium bentonite compacted and hydrated
- Surveying: Verify thickness and slope of CSL on site grid coordinates

2. Review of CQA Requirements (CQA Manual Section 4.0)

Performance of Control Tests on CSL material (Testing Underway)

Approval of CSL subgrade (visual and review of survey information)

CQA Testing:

- CQA testing in accordance with CQA Manual
- Timeframe for turnaround of CQA tests



Johnston County
 Department of Public Utilities
 (919) 989-5075
 (919) 934-7174 FAX

- For Your Information
- Please Advise/Respond
- Please Confirm

TO: _____ DATE: 4/19/02

FROM: _____

SUBJECT: JOHNSTON COUNTY LANDFILL S/4TH-111 STREET
(PRECONSTRUCTION MEETING)

Michael Keel	Johnston County	795-0031
David Page	ES+J	910-567-6138
Tom Mills	Johnston Co	934-4576
Clay Carter	ES+J	(910) 850-5399
Wilbert Spill	ES+J	(910) 567-6138
Peter Scheer	GNRA	(919) 828-0577
Stacey Smith	GNRA	(919) 828-0577
Tam Broom	Johnston Co	919-989-5075
Ed Mussler	Solid Waste Section	919-733-0692 x343
JIM BARBER	DIV. OF WASTE MNGT.	910-486-1541 EXT: 343
Rick Proctor	Johnston County	934-4576
JASON RAY	GEO TECHNICALS	919-876-0405
Hayward Phyllis	Johnston County	919-989-5075
Ben Barnes	NCDENR SWS	919-571-4700

COPY:

Johnston County

FEB 18th, 2003

MEETING AT SWS OFFICES.

① Ed Mussler DWM.

Haywood Phylisic

Johnston County

Lin' Broome

" "

Bobby Luffy DWM

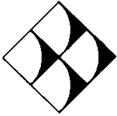
Cheryl Micks DWM

Peter Scheer GNRA

Greg Richardson GNRA

JIM BARBER DWM

919-733-0692 EXT: 255



G.N. RICHARDSON & ASSOCIATES
Engineering and Geological Services

December 7, 2000

Mr. Ed Mussler, P.E.
North Carolina DENR
Division of Waste Management
Solid Waste Section
1646 Mail Service Center
Raleigh, NC 27699 - 1646



RE: Wood Fiber for Alternate Daily Cover and Final Cover Material
Johnston County Landfill
Smithfield, North Carolina

Dear Mr. Mussler:

As you know, the Johnston County Landfill currently uses soil for daily cover and will be using soil for their final cover on the landfill in Smithfield, North Carolina. Currently, there is an International Paper plant in Spring Hope, North Carolina that has a stockpile of wood fiber at their plant. Johnston County would like permission to use this wood fiber as alternate daily cover and as a soil supplement for their final cover. A TCLP analysis of a samples from this stockpile indicate non-detectable results. A copy of this analysis is attached for your review.

We understand there may be concern of fire hazards with the use of this material as alternate daily cover, therefore we plan to use soil one day per week as the daily cover. The wood fiber would be placed as daily cover in the same manner as the soil, and in 6-inch thick lifts daily. This material will also yield necessary organic material to the landfill for successful leachate recirculation and biodegradation of waste.

For the final cover usage, all requirements for the final cover permeabilities will be met. This material will simply be used as a supplement to soils for construction.

If you have any questions, or require further information, please contact me at your earliest convenience.

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

Joan A. Smyth

Joan A. Smyth, P.G.
Project Hydrogeologist

cc: Rick Proctor - Johnston County

To: Mr. Mark Telfer - IP DPD

From: Conan Fitzgerald

Office: Raleigh

Date: January 8, 1999

Subject: TCLP Sample Collection Procedures

On November 19, 1998 samples of the wood fiber pile at International Paper's Spring Hope facility were collected. Each of the samples were analyzed for the full Toxicity Characteristic Leaching Procedure (TCLP) list of parameters. The following describes the sample collection procedures and the results of the analysis.

To collect samples which would be representative of the fiber pile, six locations were selected for sampling. Each location was selected using pre-existing sampling points generated during the Expanded Site Investigation (ESI) in April of 1997. Four of the sample points were selected adjacent to a prior ESI sample location and were given the same sample ID number (i.e. FP-01). Two of the sample locations were selected between ESI sample locations, and were thus given a name combining the two locations (i.e. FP-15 was between FP-10 and FP-5. See the attached map for the approximate locations of each of the sample locations.

At each selected sample location, a test pit was excavated using a backhoe to a depth of between nine and ten feet. Samples of the resulting stockpile were collected at various locations and depths within the stockpile to create a composite sample representative of the entire depth of the excavation. The samples were composited together in a decontaminated stainless steel bowl, and then transferred to laboratory supplied sample containers. The test pits were then backfilled with the stockpiles and compacted in one to two foot lifts.

Samples were packed with ice and shipped via overnight courier to the analytical laboratory. TCLP analysis was conducted for volatile organic compounds, semi-volatile organic compounds, pesticides, herbicides, and metals including mercury. A copy of the analytical report is attached. The detection limits for each analysis were equal to or less than the corresponding RCRA toxicity standard. None of these compounds were detected in the TCLP extract of any of the samples.

CDF:cdf

AVANNAH LABORATORIES
 & ENVIRONMENTAL SERVICES, INC.

Roche Avenue • Savannah, GA 31404 • (912) 354-7858 • Fax (912) 352-0165

LOG NO: S8-87227
 Received: 20 NOV 98
 Reported: 16 DEC 98

Mr. Conan Fitzgerald
 Woodward-Clyde Consultants, Inc.
 3109 Poplarwood Court, Suite 301
 Raleigh, NC 27604

Project: 0600055101.01/SPRING HOUSE
 Sampled By: Client
 Code: 171681216
 Page 1

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , SOLID OR SEMISOLID SAMPLES	DATE/ TIME SAMPLED				
87227-1	FP-01					
87227-2	FP-02	11-19-98/0840				
87227-3	FP-09	11-19-98/0915				
87227-4	FP-37	11-19-98/0940				
87227-5	FP-4	11-19-98/1007				
		11-19-98/1029				
PARAMETER	87227-1	87227-2	87227-3	87227-4	87227-5	
Volatiles in TCLP Extract (8260)						
Benzene (TCLP), mg/l	<0.020	<0.020	<0.020	<0.020	<0.020	
Carbon tetrachloride (TCLP), mg/l	<0.020	<0.020	<0.020	<0.020	<0.020	
Chlorobenzene (TCLP), mg/l	<0.020	<0.020	<0.020	<0.020	<0.020	
Chloroform (TCLP), mg/l	<0.020	<0.020	<0.020	<0.020	<0.020	
1,2-Dichloroethane (TCLP), mg/l	<0.020	<0.020	<0.020	<0.020	<0.020	
1,1-Dichloroethylene (TCLP), mg/l	<0.020	<0.020	<0.020	<0.020	<0.020	
Methyl ethyl ketone (TCLP), mg/l	<0.20	<0.20	<0.20	<0.20	<0.20	
Tetrachloroethylene (TCLP), mg/l	<0.020	<0.020	<0.020	<0.020	<0.020	
Trichloroethylene (TCLP), mg/l	<0.020	<0.020	<0.020	<0.020	<0.020	
Vinyl chloride (TCLP), mg/l	<0.040	<0.040	<0.040	<0.040	<0.040	
Surrogate - Toluene-d8	100 %	100 %	100 %	99 %	99 %	
Surrogate - 4-Bromofluorobenzene	102 %	103 %	107 %	109 %	105 %	
Surrogate - Dibromofluoromethane	102 %	102 %	101 %	100 %	102 %	
TCLP (1311) Sec. 7.3	11.26.98	11.26.98	11.26.98	11.26.98	11.26.98	
Extraction Date						
Date Analyzed	12.01.98	12.01.98	12.01.98	12.01.98	12.01.98	
Dilution factor	1.0	1.0	1.0	1.0	1.0	
Batch ID	1M1201	1M1201	1M1201	1M1201	1M1201	
Clock ID	1M1201	1M1201	1M1201	1M1201	1M1201	

LOG NO: S8-87227
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Mr. Conan Fitzgerald
 Woodward-Clyde Consultants, Inc.
 3109 Poplarwood Court, Suite 301
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Project: 0600055101.01/SPRING HOUSE
 Sampled By: Client
 Code: 171681216
 Page 2

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , SOLID OR SEMISOLID SAMPLES	DATE/ TIME SAMPLED
87227-1	FP-01	11-19-98/0840
87227-2	FP-02	11-19-98/0915
87227-3	FP-09	11-19-98/0940
87227-4	FP-37	11-19-98/1007
87227-5	FP-4	11-19-98/1029

PARAMETER	87227-1	87227-2	87227-3	87227-4	87227-5
Pesticides in TCLP Extract (8080)					
Chlordane (TCLP), mg/l	<0.025	<0.025	<0.025	<0.025	<0.025
Endrin (TCLP), mg/l	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Heptachlor (TCLP), mg/l	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
Heptachlor epoxide (g-BHC) (TCLP), mg/l	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
Methoxychlor (TCLP), mg/l	<0.025	<0.025	<0.025	<0.025	<0.025
Toxaphene (TCLP), mg/l	<0.25	<0.25	<0.25	<0.25	<0.25
Heptachlor epoxide (TCLP), mg/l	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
Surrogate-TCX	62 %	61 %	62 %	60 %	60 %
TCLP (1311) Sec. 7.2	11.23.98	11.23.98	11.23.98	11.23.98	11.23.98
Extraction Date					
Extraction Date (Extract)	11.24.98	11.24.98	11.24.98	11.24.98	11.24.98
Date Analyzed	11.26.98	11.26.98	11.26.98	11.26.98	11.26.98
Dilution factor	1.0	1.0	1.0	1.0	1.0
Batch ID	11240	11240	11240	11240	11240
Instrument ID	SGKECD	SGKECD	SGKECD	SGKECD	SGKECD

LOG NO: S8-87227
Received: 20 NOV 98
Reported: 16 DEC 98

Mr. Conan Fitzgerald
Woodward-Clyde Consultants, Inc.
3109 Poplarwood Court, Suite 301
Raleigh, NC 27604

Project: 0600055101.01/SPRING HOUSE
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Page 3

REPORT OF RESULTS

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87227-3	FP-09	11-19-98/0915
87227-4	FP-37	11-19-98/0940
87227-5	FP-4	11-19-98/1007
		11-19-98/1029

PARAMETER	87227-1	87227-2	87227-3	87227-4	87227-5
Semivolatiles in TCLP Extract (8270)					
Cresol (ortho) (TCLP), mg/l	<0.050	<0.050	<0.050	<0.050	<0.050
Cresol m & p (TCLP), mg/l	<0.050	<0.050	<0.050	<0.050	<0.050
Cresol o,m,p (TCLP), mg/l	<0.050	<0.050	<0.050	<0.050	<0.050
1,4-Dichlorobenzene (TCLP), mg/l	<0.050	<0.050	<0.050	<0.050	<0.050
2,4-Dinitrotoluene (TCLP), mg/l	<0.050	<0.050	<0.050	<0.050	<0.050
Hexachlorobenzene (TCLP), mg/l	<0.050	<0.050	<0.050	<0.050	<0.050
Hexachlorobutadiene (TCLP), mg/l	<0.050	<0.050	<0.050	<0.050	<0.050
Hexachloroethane (TCLP), mg/l	<0.050	<0.050	<0.050	<0.050	<0.050
Nitrobenzene (TCLP), mg/l	<0.050	<0.050	<0.050	<0.050	<0.050
Pentachlorophenol (TCLP), mg/l	<0.25	<0.25	<0.25	<0.25	<0.25
2,4,5-Trichlorophenol (TCLP), mg/l	<0.050	<0.050	<0.050	<0.050	<0.050
2,4,6-Trichlorophenol (TCLP), mg/l	<0.050	<0.050	<0.050	<0.050	<0.050
Pyridine (TCLP), mg/l	<0.25	<0.25	<0.25	<0.25	<0.25
Surrogate-2FP	78 %	90 %	92 %	84 %	94 %
Surrogate-PHL	76 %	80 %	80 %	74 %	84 %
Surrogate-NBZ	80 %	84 %	88 %	76 %	84 %

LOG NO: S8-87227
Received: 20 NOV 98
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Mr. Conan Fitzgerald
Woodward-Clyde Consultants, Inc.
3109 Poplarwood Court, Suite 301
Raleigh, NC 27604

Project: 0600055101.01/SPRING HOUSE
Sampled By: Client
Code: 171681216

REPORT OF RESULTS

Page 4

LOG NO	SAMPLE DESCRIPTION , SOLID OR SEMISOLID SAMPLES	DATE/ TIME SAMPLED				
87227-1	FP-01					
87227-2	FP-02	11-19-98/0840				
87227-3	FP-09	11-19-98/0915				
87227-4	FP-37	11-19-98/0940				
87227-5	FP-4	11-19-98/1007				
		11-19-98/1029				
PARAMETER	87227-1	87227-2	87227-3	87227-4	87227-5	
Surrogate-2FBP	84 %	88 %	92 %	80 %	92 %	
Surrogate-TBP	76 %	84 %	88 %	78 %	92 %	
Surrogate-TPH	56 %	72 %	72 %	64 %	80 %	
TCLP (1311) Sec. 7.2 Extraction Date	11.23.98	11.23.98	11.23.98	11.23.98	11.23.98	
Extraction Date (Extract)	11.24.98	11.24.98	11.24.98	11.24.98	11.24.98	
Date Analyzed	12.04.98	12.04.98	12.04.98	12.04.98	12.04.98	
Dilution factor	1.0	1.0	1.0	1.0	1.0	
Batch ID	1124A	1124A	1124A	1124A	1124A	
Instrument ID	MSG5970	MSG5970	MSG5970	MSG5970	MSG5970	
Herbicides in TCLP Extract (8150)						
2,4-D (TCLP), mg/l	<0.025	<0.025	<0.025	<0.025	<0.025	
2,4,5-TP Silvex (TCLP), mg/l	<0.025	<0.025	<0.025	<0.025	<0.025	
Surrogate-2,4-Dichloropheny 1 acetic acid (DCAA)	105 %	90 %	90 %	90 %	85 %	
TCLP (1311) Sec. 7.2 Extraction Date	11.23.98	11.23.98	11.23.98	11.23.98	11.23.98	
Extraction Date (Extract)	11.25.98	11.25.98	11.25.98	11.25.98	11.25.98	
Date Analyzed	11.30.98	11.30.98	11.30.98	12.01.98	12.01.98	
Dilution factor	1.0	1.0	1.0	1.0	1.0	
Batch ID	1125N	1125N	1125N	1125N	1125N	
Instrument ID	SGMECD	SGMECD	SGMECD	SGMECD	SGMECD	

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LOG NO	SAMPLE DESCRIPTION , SOLID OR SEMISOLID SAMPLES	DATE/ TIME SAMPLED				
87227-1	FP-01					
87227-2	FP-02	11-19-98/0840				
87227-3	FP-09	11-19-98/0915				
87227-4	FP-37	11-19-98/0940				
87227-5	FP-4	11-19-98/1007				
		11-19-98/1029				
PARAMETER	87227-1	87227-2	87227-3	87227-4	87227-5	
Metals in TCLP Extract (6010)						
Arsenic (TCLP-6010), mg/l	<0.20	<0.20	<0.20	<0.20	<0.20	
Barium (TCLP-6010), mg/l	<1.0	<1.0	<1.0	<1.0	<1.0	
Cadmium (TCLP-6010), mg/l	<0.10	<0.10	<0.10	<0.10	<0.10	
Chromium (TCLP-6010), mg/l	<0.20	<0.20	<0.20	<0.20	<0.20	
Copper (TCLP-6010), mg/l	<0.20	<0.20	<0.20	<0.20	<0.20	
Selenium (TCLP-6010), mg/l	<0.50	<0.50	<0.50	<0.50	<0.50	
Silver (TCLP-6010), mg/l	<0.10	<0.10	<0.10	<0.10	<0.10	
TCLP (1311) Sec. 7.2	11.23.98	11.23.98	11.23.98	11.23.98	11.23.98	
Extraction Date						
Preparation Date	11.25.98	11.25.98	11.25.98	11.25.98	11.25.98	
Date Analyzed	11.28.98	11.28.98	11.28.98	11.28.98	11.28.98	
Dilution factor	1.0	1.0	1.0	1.0	1.0	
Batch ID	11250	11250	11250	11250	11250	
Mercury in TCLP Extract (7470)						
Mercury (TCLP-7470), mg/l	<0.020	<0.020	<0.020	<0.020	<0.020	
TCLP (1311) Sec. 7.2	11.23.98	11.23.98	11.23.98	11.23.98	11.23.98	
Extraction Date						
Preparation Date	11.25.98	11.25.98	11.25.98	11.25.98	11.25.98	
Date Analyzed	11.25.98	11.25.98	11.25.98	11.25.98	11.25.98	
Dilution factor	1.0	1.0	1.0	1.0	1.0	
Batch ID	1125R	1125R	1125R	1125R	1125R	

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LOG NO	SAMPLE DESCRIPTION , SOLID OR SEMISOLID SAMPLES	DATE/ TIME SAMPLED
87227-1	FP-01	11-19-98/0840
87227-2	FP-02	11-19-98/0915
87227-3	FP-09	11-19-98/0940
87227-4	FP-37	11-19-98/1007
87227-5	FP-4	11-19-98/1029

PARAMETER	87227-1	87227-2	87227-3	87227-4	87227-5
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LOG NO	SAMPLE DESCRIPTION , SOLID OR SEMISOLID SAMPLES	DATE/ TIME SAMPLED
87227-6	FP-15	11-19-98/1050
PARAMETER	87227-6	
Volatiles in TCLP Extract (8260)		
Benzene (TCLP), mg/l		<0.020
Carbon tetrachloride (TCLP), mg/l		<0.020
Chlorobenzene (TCLP), mg/l		<0.020
Chloroform (TCLP), mg/l		<0.020
1,2-Dichloroethane (TCLP), mg/l		<0.020
1,1-Dichloroethylene (TCLP), mg/l		<0.020
Methyl ethyl ketone (TCLP), mg/l		<0.20
Dichloroethylene (TCLP), mg/l		<0.020
Trichloroethylene (TCLP), mg/l		<0.020
Vinyl chloride (TCLP), mg/l		<0.040
Surrogate - Toluene-d8		99 %
Surrogate - 4-Bromofluorobenzene		111 %
Surrogate - Dibromofluoromethane		107 %
TCLP (1311) Sec. 7.3 Extraction Date		11.26.98
Date Analyzed		12.01.98
Dilution factor		1.0
Batch ID		2M1130
Clock ID		2M1130

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REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , SOLID OR SEMISOLID SAMPLES	DATE/ TIME SAMPLED
87227-6	FP-15	11-19-98/1050
PARAMETER	87227-6	
Pesticides in TCLP Extract (8080)		
Chlordane (TCLP), mg/l	<0.025	
Endrin (TCLP), mg/l	<0.0050	
Heptachlor (TCLP), mg/l	<0.0025	
Lindane (g-BHC) (TCLP), mg/l	<0.0025	
Methoxychlor (TCLP), mg/l	<0.025	
Toxaphene (TCLP), mg/l	<0.25	
Heptachlor epoxide (TCLP), mg/l	<0.0025	
surrogate-TCX	63 %	
TCLP (1311) Sec. 7.2 Extraction Date	11.23.98	
Extraction Date (Extract)	11.24.98	
Date Analyzed	11.26.98	
Dilution factor	1.0	
Batch ID	11240	
Instrument ID	SGKECD	

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LOG NO	SAMPLE DESCRIPTION , SOLID OR SEMISOLID SAMPLES	DATE/ TIME SAMPLED
87227-6	FP-15	11-19-98/1050
PARAMETER	87227-6	
Semivolatiles in TCLP Extract (8270)		
Cresol (ortho) (TCLP), mg/l		<0.050
Cresol m & p (TCLP), mg/l		<0.050
Cresol o,m,p (TCLP), mg/l		<0.050
1,4-Dichlorobenzene (TCLP), mg/l		<0.050
2,4-Dinitrotoluene (TCLP), mg/l		<0.050
Hexachlorobenzene (TCLP), mg/l		<0.050
Hexachlorobutadiene (TCLP), mg/l		<0.050
Hexachloroethane (TCLP), mg/l		<0.050
Hexachlorobenzene (TCLP), mg/l		<0.050
Pentachlorophenol (TCLP), mg/l		<0.25
2,4,5-Trichlorophenol (TCLP), mg/l		<0.050
2,4,6-Trichlorophenol (TCLP), mg/l		<0.050
Pyridine (TCLP), mg/l		<0.25
Surrogate-2FP		78 %
Surrogate-PHL		84 %
Surrogate-NBZ		96 %
Surrogate-2FBP		84 %
Surrogate-TBP		107 %
Surrogate-TPH		68 %
TCLP (1311) Sec. 7.2 Extraction Date		11.23.98
Extraction Date (Extract)		11.24.98
Date Analyzed		12.04.98
Dilution factor		1.0
Batch ID		1124A
Instrument ID		MSJ5971

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LOG NO	SAMPLE DESCRIPTION , SOLID OR SEMISOLID SAMPLES	DATE/ TIME SAMPLED
87227-6	FP-15	11-19-98/1050
PARAMETER		87227-6
Herbicides in TCLP Extract (8150)		
2,4-D (TCLP), mg/l		<0.025
2,4,5-TP Silvex (TCLP), mg/l		<0.025
Surrogate-2,4-Dichlorophenyl acetic acid (DCAA)		85 %
TCLP (1311) Sec. 7.2 Extraction Date		11.23.98
Extraction Date (Extract)		11.25.98
Date Analyzed		12.01.98
Dilution factor		1.0
Batch ID		1125N
Instrument ID		SGMECD
Metals in TCLP Extract (6010)		
Arsenic (TCLP-6010), mg/l		<0.20
Barium (TCLP-6010), mg/l		<1.0
Cadmium (TCLP-6010), mg/l		<0.10
Chromium (TCLP-6010), mg/l		<0.20
Lead (TCLP-6010), mg/l		<0.20
Selenium (TCLP-6010), mg/l		<0.50
Silver (TCLP-6010), mg/l		<0.10
TCLP (1311) Sec. 7.2 Extraction Date		11.23.98
Preparation Date		11.25.98
Date Analyzed		11.28.98
Dilution factor		1.0
Batch ID		1125O

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LOG NO	SAMPLE DESCRIPTION , SOLID OR SEMISOLID SAMPLES	DATE/ TIME SAMPLED
87227-6	FP-15	11-19-98/1050
PARAMETER	87227-6	
Mercury in TCLP Extract (7470)		
Mercury (TCLP-7470), mg/l	<0.020	
TCLP (1311) Sec. 7.2 Extraction Date	11.23.98	
Preparation Date	11.25.98	
Date Analyzed	11.25.98	
Dilution factor	1.0	
Batch ID	1125R	

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LOG NO	SAMPLE DESCRIPTION , QC REPORT FOR LIQUID SAMPLES	DATE/ TIME SAMPLED
87227-7	Extract Fluid Method Blank	
PARAMETER		87227-7
Volatiles in TCLP Extract (8260)		
Benzene (TCLP), mg/l		<0.020
Carbon tetrachloride (TCLP), mg/l		<0.020
Chlorobenzene (TCLP), mg/l		<0.020
Chloroform (TCLP), mg/l		<0.020
1,2-Dichloroethane (TCLP), mg/l		<0.020
1,1-Dichloroethylene (TCLP), mg/l		<0.020
Methyl ethyl ketone (TCLP), mg/l		<0.20
1,1,2-Trichloroethylene (TCLP), mg/l		<0.020
1,1-Dichloroethylene (TCLP), mg/l		<0.020
Vinyl chloride (TCLP), mg/l		<0.040
Surrogate - Toluene-d8		99 %
Surrogate - 4-Bromofluorobenzene		102 %
Surrogate - Dibromofluoromethane		104 %
TCLP (1311) Sec. 7.3 Extraction Date		11.26.98
Date Analyzed		12.01.98
Dilution factor		1.0
Batch ID		1M1201
Clock ID		1M1201

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REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , QC REPORT FOR LIQUID SAMPLES	DATE/ TIME SAMPLED
87227-7	Extract Fluid Method Blank	
PARAMETER		87227-7
Pesticides in TCLP Extract (8080)		
Chlordane (TCLP), mg/l		<0.025
Endrin (TCLP), mg/l		<0.0050
Heptachlor (TCLP), mg/l		<0.0025
Lindane (g-BHC) (TCLP), mg/l		<0.0025
Methoxychlor (TCLP), mg/l		<0.025
Toxaphene (TCLP), mg/l		<0.25
Heptachlor epoxide (TCLP), mg/l		<0.0025
surrogate-TCX		55 %
TCLP (1311) Sec. 7.2 Extraction Date		11.23.98
Extraction Date (Extract)		11.24.98
Date Analyzed		11.26.98
Dilution factor		1.0
Batch ID		11240
Instrument ID		SGKECD

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LOG NO	SAMPLE DESCRIPTION , QC REPORT FOR LIQUID SAMPLES	DATE/ TIME SAMPLED
87227-7	Extract Fluid Method Blank	
PARAMETER		87227-7
Semivolatiles in TCLP Extract (8270)		
Cresol (ortho) (TCLP), mg/l		<0.050
Cresol m & p (TCLP), mg/l		<0.050
Cresol o,m,p (TCLP), mg/l		<0.050
1,4-Dichlorobenzene (TCLP), mg/l		<0.050
2,4-Dinitrotoluene (TCLP), mg/l		<0.050
Hexachlorobenzene (TCLP), mg/l		<0.050
Hexachlorobutadiene (TCLP), mg/l		<0.050
1,1-Dichloroethane (TCLP), mg/l		<0.050
Methylnitrobenzene (TCLP), mg/l		<0.050
Pentachlorophenol (TCLP), mg/l		<0.25
2,4,5-Trichlorophenol (TCLP), mg/l		<0.050
2,4,6-Trichlorophenol (TCLP), mg/l		<0.050
Pyridine (TCLP), mg/l		<0.25
Surrogate-2FP		84 %
Surrogate-PHL		90 %
Surrogate-NBZ		104 %
Surrogate-2FBP		84 %
Surrogate-TBP		105 %
Surrogate-TPH		96 %
TCLP (1311) Sec. 7.2 Extraction Date		11.23.98
Extraction Date (Extract)		11.24.98
Date Analyzed		12.04.98
Dilution factor		1.0
Batch ID		1124A
Instrument ID		MSJ5971

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LOG NO	SAMPLE DESCRIPTION , QC REPORT FOR LIQUID SAMPLES	DATE/ TIME SAMPLED
87227-7	Extract Fluid Method Blank	
PARAMETER		87227-7
Herbicides in TCLP Extract (8150)		
2,4-D (TCLP), mg/l		<0.025
2,4,5-TP Silvex (TCLP), mg/l		<0.025
Surrogate-2,4-Dichlorophenyl acetic acid (DCAA)		110 %
TCLP (1311) Sec. 7.2 Extraction Date		11.23.98
Extraction Date (Extract)		11.25.98
Date Analyzed		11.30.98
Dilution factor		1.0
Instrument ID		1125N
Metals in TCLP Extract (6010)		
Arsenic (TCLP-6010), mg/l		SGMECD
Barium (TCLP-6010), mg/l		<0.20
Cadmium (TCLP-6010), mg/l		<1.0
Chromium (TCLP-6010), mg/l		<0.10
Lead (TCLP-6010), mg/l		<0.20
Selenium (TCLP-6010), mg/l		<0.20
Silver (TCLP-6010), mg/l		<0.50
TCLP (1311) Sec. 7.2 Extraction Date		<0.10
Preparation Date		11.23.98
Date Analyzed		11.25.98
Dilution factor		11.28.98
Batch ID		1.0
		11250

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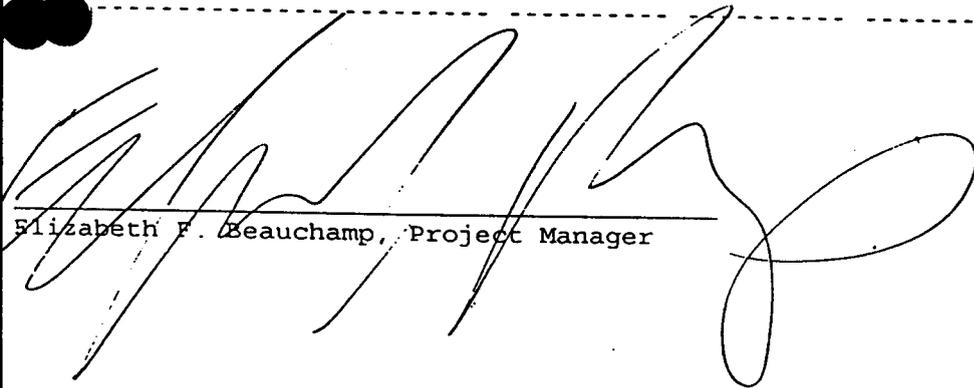
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LOG NO	SAMPLE DESCRIPTION , QC REPORT FOR LIQUID SAMPLES	DATE/ TIME SAMPLED
87227-7	Extract Fluid Method Blank	
PARAMETER		87227-7
Mercury in TCLP Extract (7470)		
Mercury (TCLP-7470), mg/l		<0.020
TCLP (1311) Sec. 7.2 Extraction Date		11.23.98
Preparation Date		11.25.98
Date Analyzed		11.25.98
Dilution factor		1.0
Batch ID		1125R



Elizabeth F. Beauchamp, Project Manager



SAVANNAH LABORATORIES
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ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

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PROJECT REFERENCE		PROJECT NO.	P.O. NUMBER	REQUIRED ANALYSES		PAGE	OF
Spring Ave		0600055101.01	PHONE 919 850-1511	TCLP VOH TCLP SV PAT TCLP HCB, MTHA			
PROJECT LOC. (State)	SAMPLER(S) NAME	PHONE	FAX	NONAQUEOUS LIQUID (oil, solvent, etc)			
NC	Conan Fitzgerald	919 850-1511	919 890-0217	AIR			
CLIENT NAME	CLIENT PROJECT MANAGER			SOLID OR SEMISOLID			
Woodward-Clyde	B. Beauchamp			AQUEOUS (WATER)			
CLIENT ADDRESS (CITY, STATE, ZIP)				2 1 NUMBER OF CONTAINERS SUBMITTED			
3109 Poplarwood CT Suite 301				REMARKS			
Raleigh NC 27604				Date Due: _____			
SAMPLE	DATE	TIME	SL NO.	SAMPLE IDENTIFICATION	MATRIX TYPE	DATE	TIME
	11/19/98	8:40		FP-01	✓		
	11/19/98	9:15		FP-02	✓		
	11/19/98	9:40		FP-09	✓		
	11/19/98	10:07		FP-37	✓		
	11/19/98	10:29		FP-4	✓		
	11/19/98	10:50		FP-15	✓		
RELINQUISHED BY: (SIGNATURE)		DATE	TIME	RELINQUISHED BY: (SIGNATURE)		DATE	TIME
<i>[Signature]</i>		11/19/98		<i>[Signature]</i>		11/19/98	14:40
RECEIVED BY: (SIGNATURE)		DATE	TIME	RECEIVED BY: (SIGNATURE)		DATE	TIME
<i>[Signature]</i>		11/20/98	9:03	<i>[Signature]</i>			
RECEIVED FOR LABORATORY BY: (SIGNATURE)		DATE	TIME	LABORATORY USE ONLY		LABORATORY REMARKS:	
<i>[Signature]</i>		11/20/98	9:03	SL LOG NO. 58-87227			
				CUSTODY INTACT		CUSTODY SEAL NO. <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	



October 11, 1996

M&C 0358-0060.OR(CQAAC)

Mr. Ed Mussler, PE
Solid Waste Section
NCDEHNR
P O Box 27687
Raleigh, NC 27611-7687

ENGINEERS

SURVEYORS

ARCHITECTS

PLANNERS

**RE: GEOTEXTILE CUSHION IN JOHNSTON COUNTY LANDFILL
PERMIT 51-02**

Dear Ed:

Pursuant to your conversation today with Dr. C.J. Poran, please find enclosed a letter report by ENSOL Corporation (ENSOL) describing the geotextile cushion field test including analysis of the results (Tables 1 and 2 of that report).

Based on these results and ENSOL's analysis, McKim & Creed would like to request approval of the Solid Waste Section to eliminate the cushion from under work pads and haul routes. Such elimination will be considered acceptable in conjunction with the strict Specifications detailing construction procedures of the leachate pipes, drainage layer, operational cover and other associated components. In any case "Rub strips" under the leachate collection pipes will be installed according to the Specifications.

Your prompt response will be greatly appreciated. Please do not hesitate to contact me at 233-8091 or Dr. Poran at 233-0407 if you have any questions.

Best regards.

Sincerely,

MCKIM & CREED ENGINEERS, P.A.

Tom Wainwright, PE
Project Engineer

SUITE 117

BUILDING 1

5625 DILLARD ROAD

CARY, NC 27511

PHONE 919/233-8091

FAX 919/233-8031

Attachment: ENSOL's report

cc: Dr. C. J. Poran (ENSOL)

ENSOL CORPORATION

ENGINEERING SOLUTIONS

5625 Dillard Road, Suite 117
Cary, NC 27511, USA
Telephone: 919.233.0407
Fax: 919.510.4500
INTERNET: cjp@ix.netcom.com

October 11, 1996

M&C 0358-0060.OR(CQAAC)

Mr. Tom Wainwright, PE
McKim & Creed
5625 Dillard Road, Suite 117
Cary, NC 27511

RE: PRELIMINARY TEST RESULTS OF GEOTEXTILE CUSHION

Dear Tom:

Please find Tables 1 and 2 enclosed herewith with analysis of preliminary test results by JLT of the HDPE specimens from the field test. JLT's preliminary results are shown in Appendix A. A complete report on test procedures will be submitted with the hard copy of JLT's results to the Solid Waste Section (SWS) at the North Carolina Department of Environment, Health, and Natural Resources (NCDEHNR) with the subgrade and clay liner submittal. However, a brief description of the field test is included in the following.

Field Test

The field test was performed on September 19, 1996 in general accordance with the Specifications, the 60 mil Poly-Flex HDPE liner was subject to actual construction loads of a wide-track Caterpillar D-6 bulldozer that was used for spreading and leveling the 78M stone drainage layer and the operational cover. The test pad consisted of two sections: "Y" section with Amoco 4508 geotextile cushion; and, "N" section without the geotextile cushion. The actual width of the test sections was about 20 feet.

Following test pad construction, a Caterpillar articulated truck model D400D was used to apply 100 axle loads (50 passes). At the completion of these passes the HDPE liner was carefully exposed, and examined. Samples "Y" and "N" were then cut out of the areas that were under the truck wheels load. Sample "C" was cut out of the control (unused) portion of the HDPE roll.

Fifteen specimens (each 14 x 14 inch size) were cut for each for each of the three samples and machine direction (MD) was marked on each specimen. For the "Y" and "N" specimens the MD arrow also indicated the upper side of the liner during the test. The specimens were shipped to JLT for testing that is briefly described in the following:

JLT's Laboratory Testing

JLT loaded each of the twelve specimens of Samples "Y" and "N" in a hydrostatic load cell to simulate service conditions (e.g., placed on compacted clay liner, with and without a geotextile cushion between the overlaying drainage stone layer and the specimen, respectively). An hydrostatic pressure of 100 psi was applied on top of the 6-inch thick drainage stone layer in the cell for 24 hours. This pressure is three (3) times the maximum overburden anticipated in this facility. JLT staff examined each "Y" and "N" specimen after removal from the hydrostatic load cell. All three samples were then tested for wide-width strength (ASTM D-4885) to strain levels that substantially exceeded yield. JLT's preliminary results (shown in Appendix A) were analyzed, as follows.

Analysis of JLT's Preliminary Test Results

Based on the analysis shown in Tables 1 and 2, the following conclusions are made:

- Sample "Y" (with the cushion): Generally, the yield strength of "Y" appears to be unaffected by the severe loading conditions when compared to Sample "C" (control). The strain at yield is only slightly lower than Sample "C". However, a mean value of 19.7% is only 1.2% less than Sample "C".
- Sample "N" (without the cushion): Generally, the yield strength of "N" appears to be almost unaffected by the severe loading conditions when compared to Sample "C" and "Y" (2% and 4% less, respectively). The average strain at yield is 18.6% which is significantly higher than 13% (strain at yield required in the specifications). This strain at yield is only slightly less when compared with 20.9% and 19.7% for Samples "C" and "Y", respectively, indicating a possible small effect of increased brittleness of the sample without the geotextile cushion under such severe loading conditions.

Based on these conclusions please be advised on the following recommendations:

- The effect of the severe loading conditions on the wide-width test results of Sample "N" compared to Samples "Y" and "C" appears to be relatively small. Based on these results, the geotextile cushion may be eliminated with the exception of "rub strips" noted in the Specifications.
- Contingent on SWS approval you could consider to eliminate the cushion from under work pads and haul routes provided that construction procedures of the leachate pipes, drainage layer, operational cover and other associated components must be performed strictly according to the Specifications.

Should JLT revise any test results in their final hard-copy report which is due shortly, I will advise you immediately in case that these changes affect any of the above mentioned conclusions or recommendations. Please do not hesitate to contact me if you have any questions.

Sincerely,

ENSOL Corporation



Chaim J. Poran, PhD, PE
President

Attachment: Table 1: Analysis of JLT's preliminary test results
Appendix A: JLT's preliminary results

Table 1. Preliminary Summary of the Geotextile Cushion Field Test Results

Ratio Description	Sample C (Control)		Sample Y (W. Cushion)		Sample N (W.O. Cushion)	
	Peak Load	Strain @ Yield	Peak Load	Strain @ Yield	Peak Load	Strain @ Yield
Machine Direction (MD)	1,378	22.2	NA	NA	1,252	26.7
	1,367	24.4	1,402	20.6	1,365	17.3
	1,330	25.6	1,343	19.6	1,230	17.3
	1,342	23.3	1,412	17.6	1,336	17.8
	1,329	21.8	1,430	19.6	1,225	17.6
	1,329	18.9	1,406	16.9	1,220	19.5
Cross Direction (CD)	1,386	22.2	1,441	20.0	1,465	16.2
	1,421	20.0	1,365	20.6	1,430	16.9
	1,443	17.6	1,342	19.6	1,311	17.8
	1,367	18.0	1,449	17.6	1,448	17.3
	1,389	20.0	1,450	19.6	1,434	17.8
	1,504	17.3	1,441	25.0	1,462	20.5
MD Mean (MM)	1,346	22.7	1,398	18.9	1,271	19.4
MD SDEV (MSD)	22	2.3	33	1.5	63	3.7
CD Mean (CM)	1,418	19.2	1,414	20.4	1,425	17.8
CD SDEV (CSD)	50	1.9	48	2.5	58	1.5
Total Mean (TM)	1,382	20.9	1,407	19.7	1,348	18.6
Total SDEV (TSD)	53	2.7	41	2.2	99	2.8

Table 2. Statistical Ratio Analysis of Preliminary Test Results from Table 1

Ratio Description	Sample C (Control)		Sample Y (W. Cushion)		Sample N (W.O. Cushion)	
	Peak Load	Strain @ Yield	Peak Load	Strain @ Yield	Peak Load	Strain @ Yield
MM/(MM of "C")	1.00	1.00	1.04	0.83	0.94	0.85
MSD/(MSD of "C")	1.00	1.00	1.53	0.66	2.91	1.58
CM/(CM of "C")	1.00	1.00	1.00	1.06	1.00	0.93
CSD/(CSD of "C")	1.00	1.00	0.96	1.31	1.16	0.78
MM/(MM of "Y")	0.96	1.20	1.00	1.00	0.91	1.03
MSD/(MSD of "Y")	0.65	1.51	1.00	1.00	1.90	2.38
CM/(CM of "Y")	1.00	0.94	1.00	1.00	1.01	0.87
CSD/(CSD of "Y")	1.04	0.77	1.00	1.00	1.20	0.60
TM/(TM of "C")	1.00	1.00	1.02	0.94	0.98	0.89
TSD/(TSD of "C")	1.00	1.00	0.77	0.79	1.87	1.03
TM/(TM of "Y")	0.98	1.06	1.00	1.00	0.96	0.94
TSD/(TSD of "Y")	1.30	1.27	1.00	1.00	2.43	1.30

APPENDIX A
PRELIMINARY WIDE-WIDTH TEST RESULTS
OF GEOTEXTILE CUSHION

By JLT, October 8, 1996

ENSOL
CORPORATION

J&L Testing Company, Inc.

938 South Central Avenue
Canonsburg, PA 15317
1-800-746-4406
(412) 746-4441
Fax: (412) 745-4261

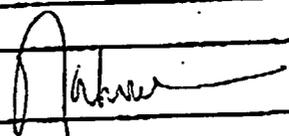
10-8-96 CJP

YOU SHOULD RECEIVE (4) PAGE(S), INCLUDING THIS COVER SHEET. IF YOU DO NOT RECEIVE ALL THE PAGES. PLEASE CALL (800) 746-4406.

Date:	10-7-96
Company:	McKeem & Creed ENCS
To:	DR C J. PORAN, PE

Fax:	919 233 8031
Phone:	919 233 8091
From:	DR. MAHRU SHETIMA, PE

COMMENTS: SUMMARY CURVES for SAMPLE "C" (MD & CD)
SUMMARY CURVES for SAMPLE "N" (MD)

Signature: 

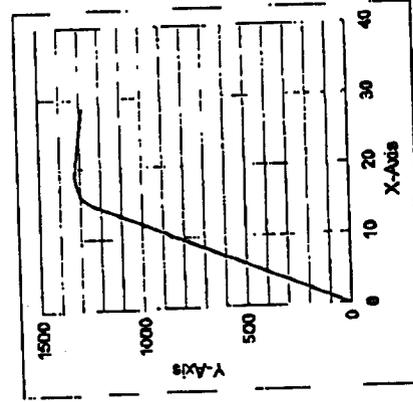
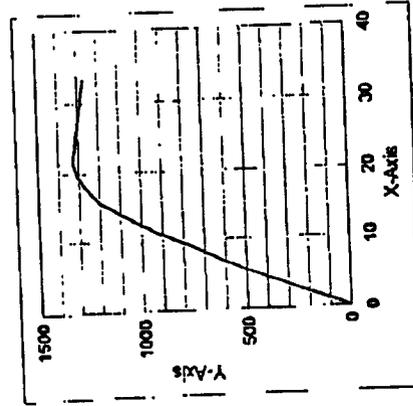
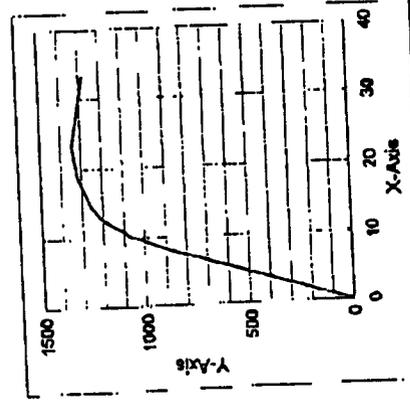
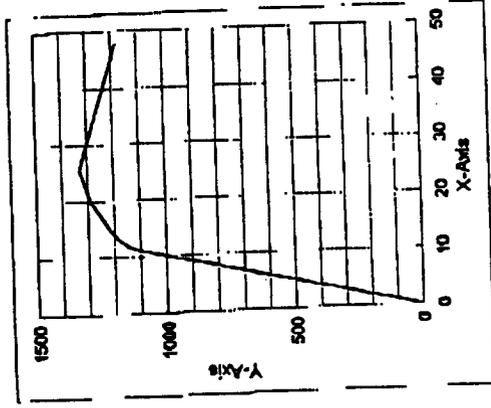
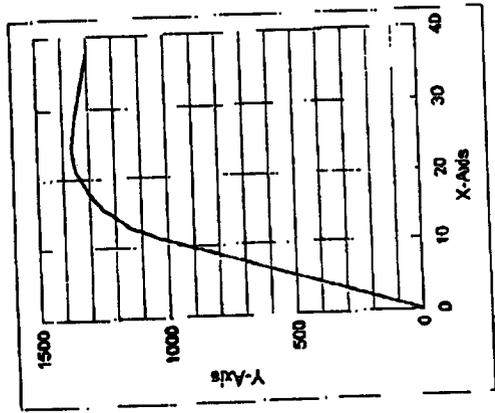
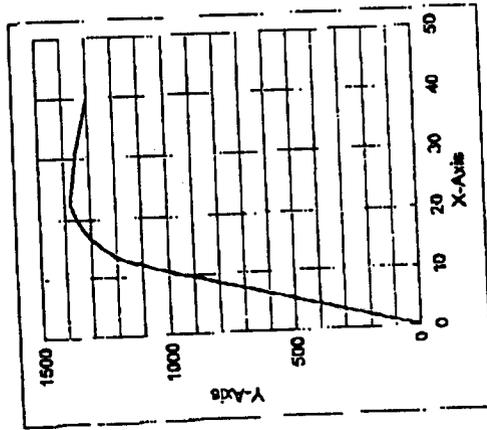
The information contained in this facsimile transmission is privileged and confidential, intended only for the use of the individual or entity named above. If the reader of this message is NOT the intended recipient, you are hereby notified that any dissemination, distribution or copy of this communication is strictly prohibited. If you have received this communication in error, please immediately notify us by telephone. Thank you.

fax

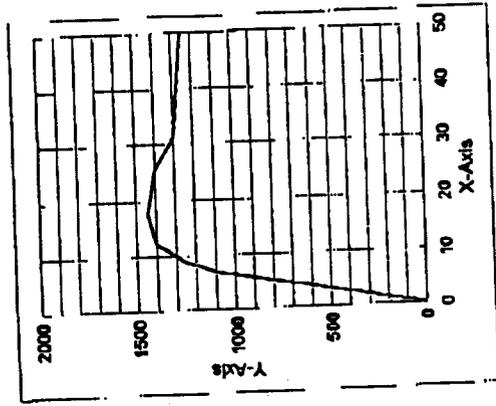
TRANSMISSION

SAMPLE "C" (MD)

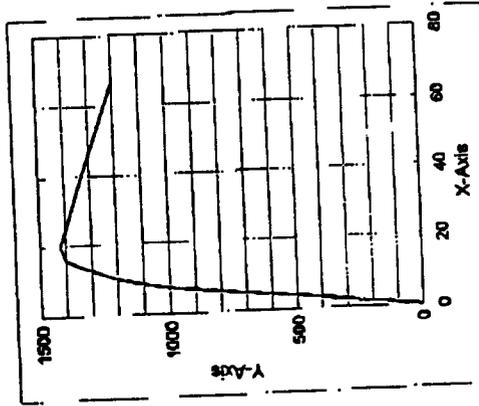
JOHNSTON COUNTY LANDFILL



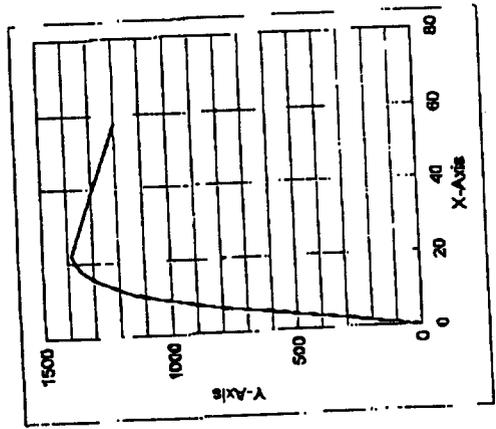
JOHNSTON COUNTY LANDFILL



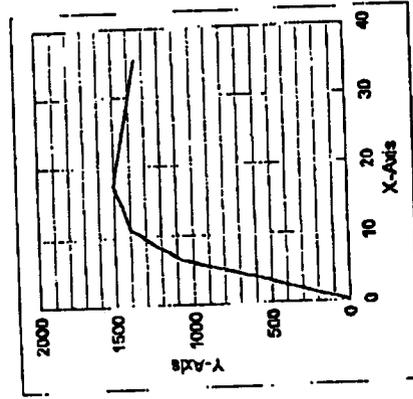
PEAK LOAD, lb 1443.0
STRAIN @ PEAK, % 17.6



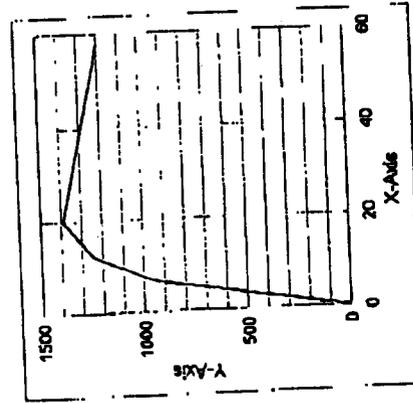
PEAK LOAD, lb 1421.0
STRAIN @ PEAK, % 20.0



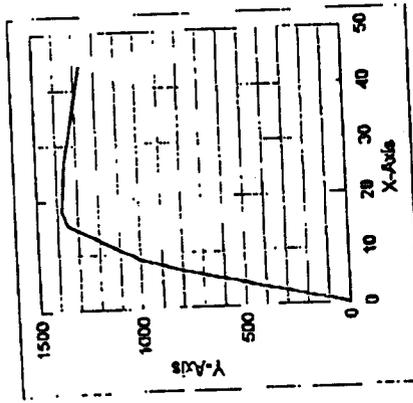
PEAK LOAD, lb 1386.0
STRAIN @ PEAK, % 22.2



PEAK LOAD, lb 1504
STRAIN @ PEAK, % 17.3



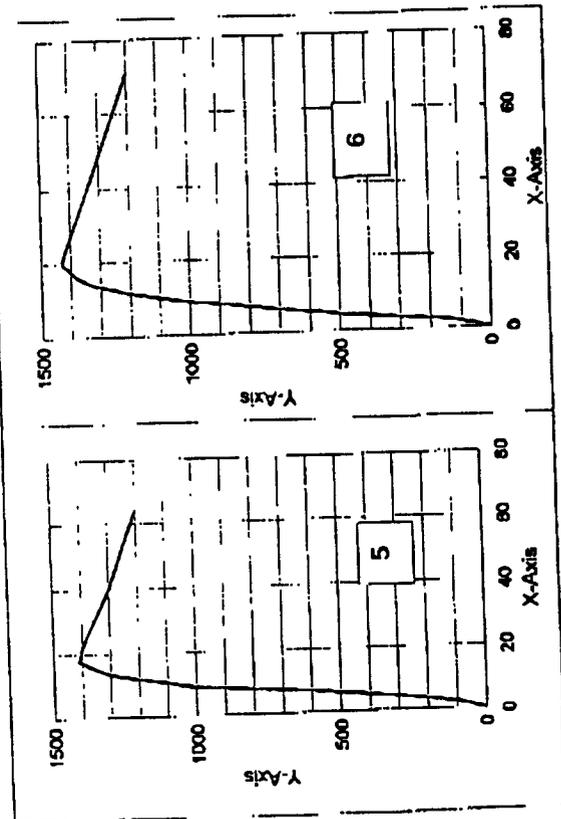
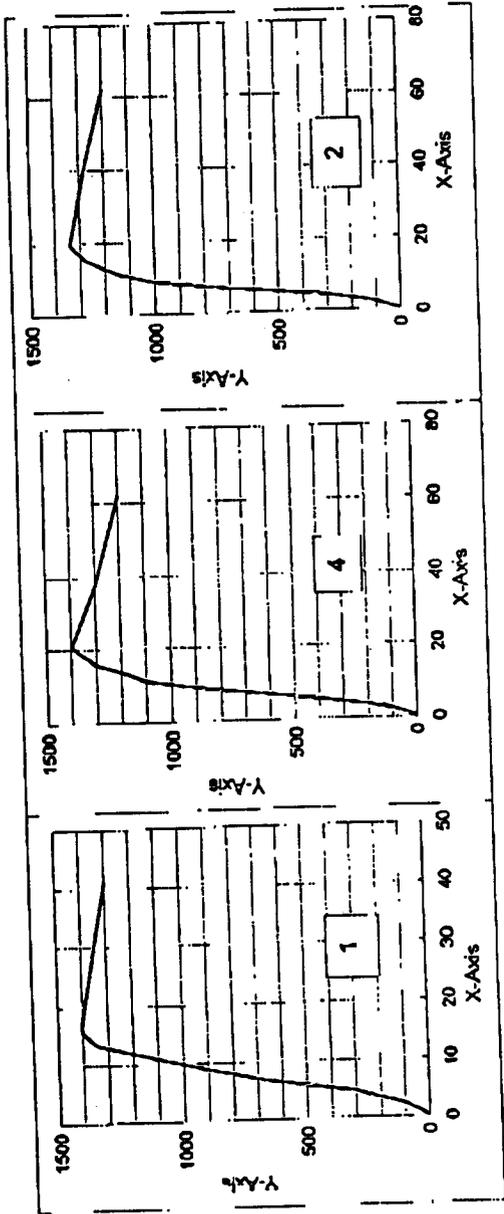
PEAK LOAD, lb 1389
STRAIN @ PEAK, % 20



PEAK LOAD, lb 1376.0
STRAIN @ PEAK, % 18.0

SAMPLE "Y" (MD)

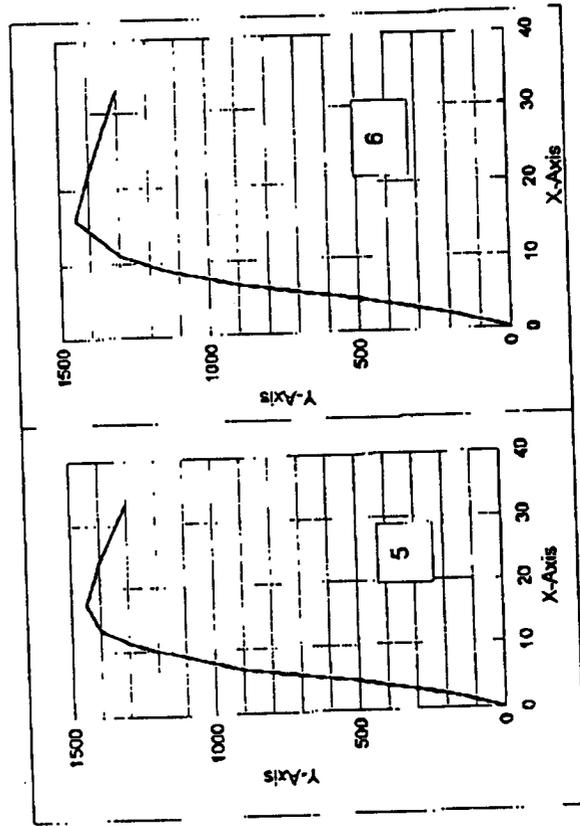
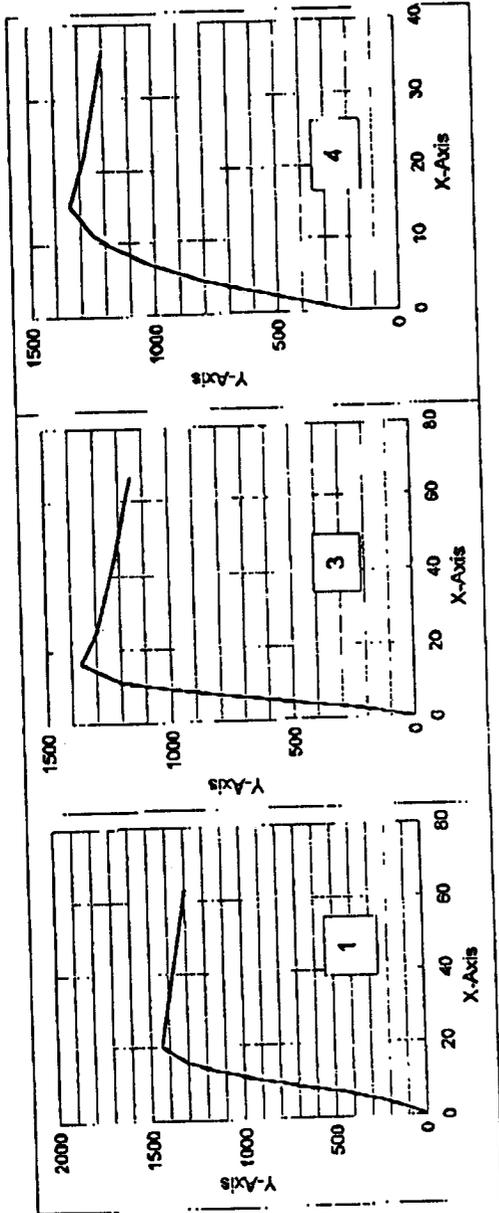
JOHNSTON COUNTY LANDFILL



REPLICATE NO.	PEAK LOAD lb	STRAIN @ PEAK %
1	1406.0	16.9
2	1402.0	20.6
3	1342.5	19.6
4	1411.5	17.6
5	1430.7	19.6

SAMPLE "Y" (CD)

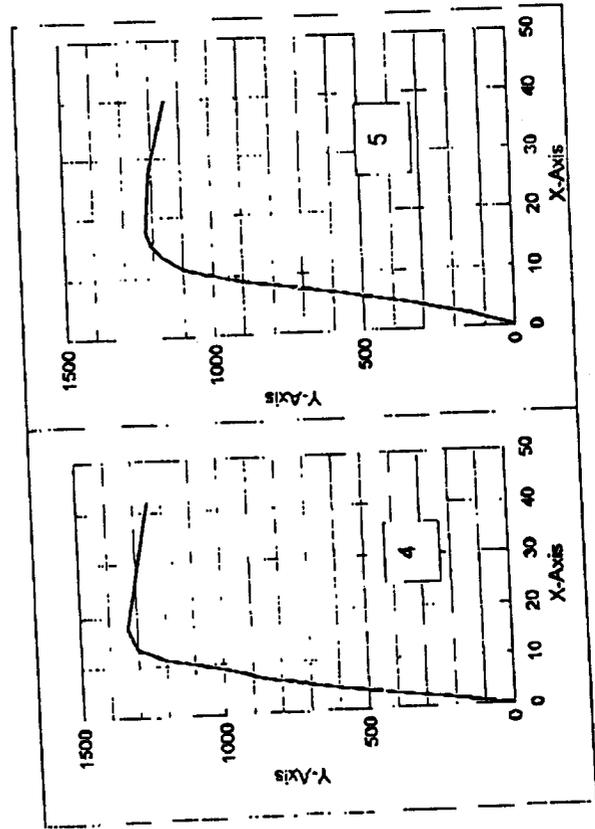
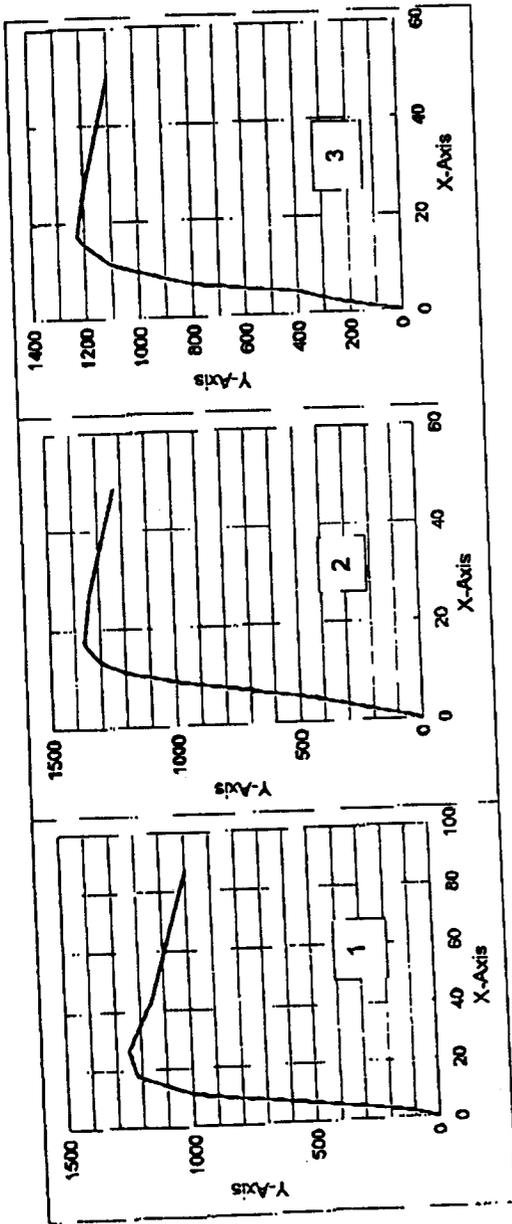
JOHNSTON COUNTY LANDFILL



REPLICATE NO.	PEAK LOAD lb	STRAIN @ PEAK %
1	1440.5	20.0
3	1365.0	20.6
4	1341.5	19.6
5	1448.7	17.6
6	1449.5	19.6
2	1440.5	25.0 %

SAMPLE "N" (MD)

JOHNSTON COUNTY LANDFILL

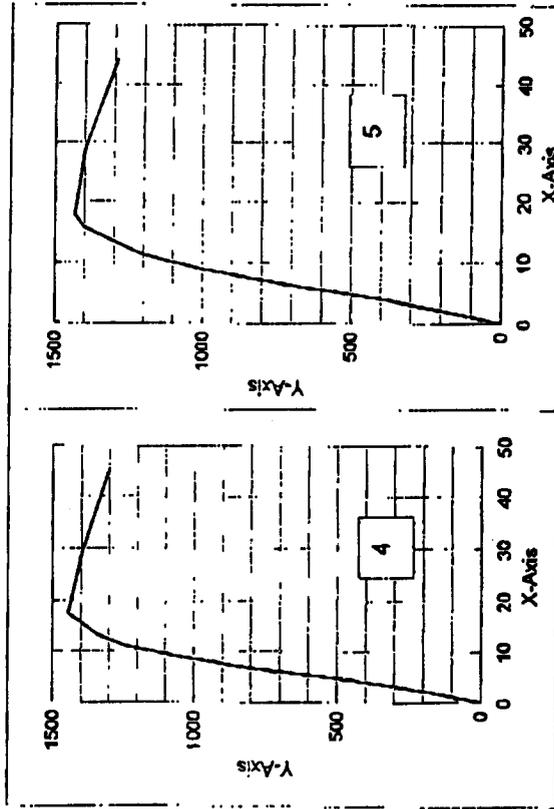
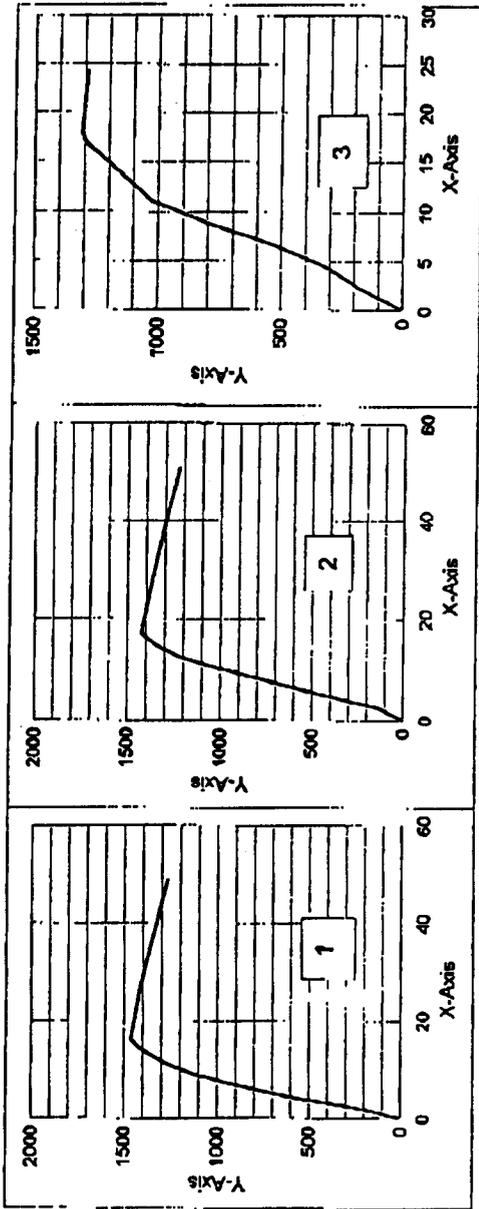


REPLICATE NO.	PEAK LOAD lb	STRAIN @ PEAK %
1	1251.7	26.7
2	1364.7	17.3
3	1229.7	17.3
4	1335.7	17.8
5	1225.0	17.6
6	1220.2	19.5

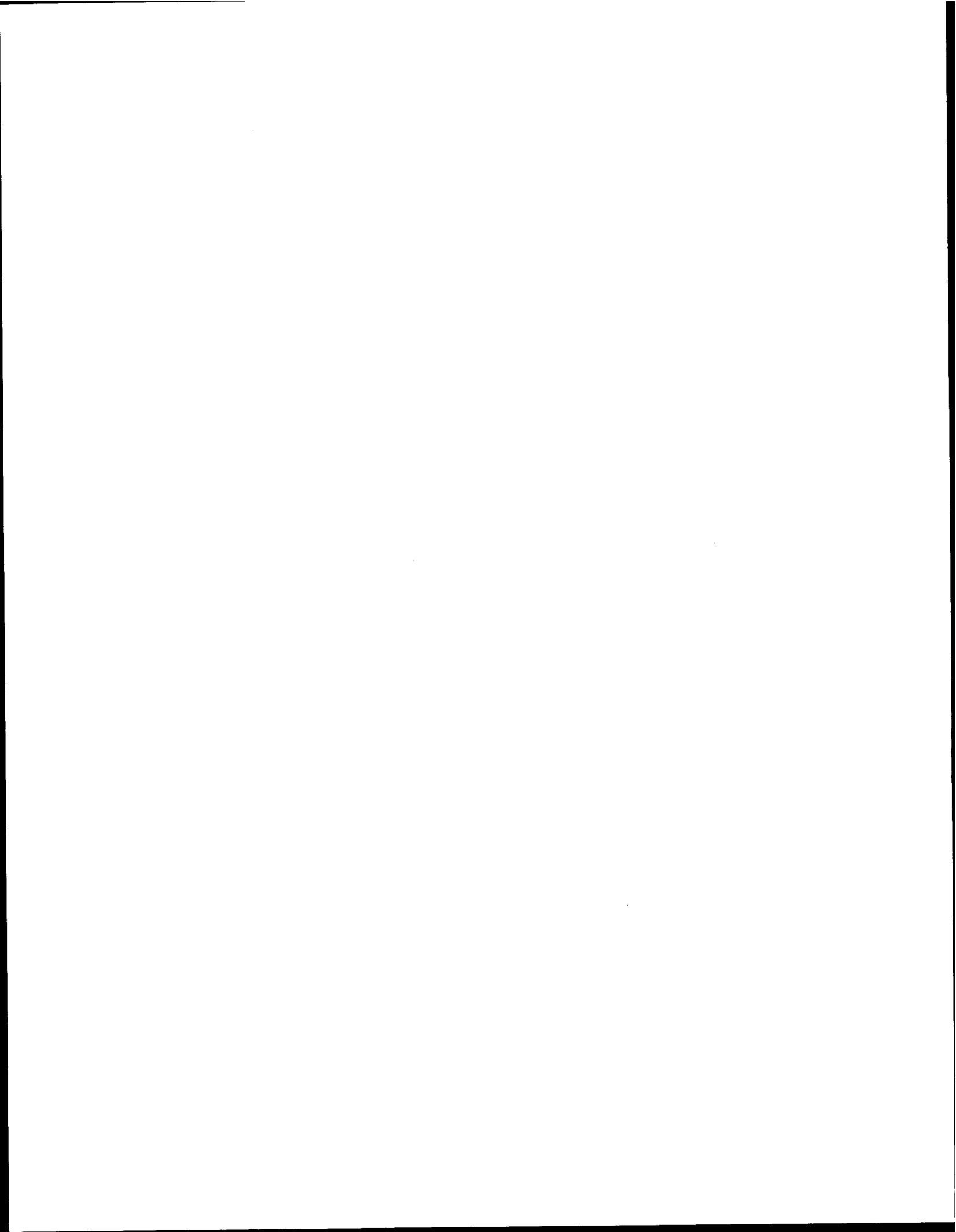
JSCTSNUM.WK4

JOHNSTON COUNTY LANDFILL

SAMPLE "N" (CD)



REPLICATE NO.	PEAK LOAD lb	STRAIN @ PEAK %
1	1465.2	16.2
3	1429.7	16.9
4	1310.7	17.8
5	1447.7	17.3
6	1434.2	17.8
2	1462.2	20.5





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

April 28, 2004

Mrs. Joan A. Smyth, P.G.
G.N. Richardson and Associates, Inc.
14 N. Boylan Avenue
Raleigh, N.C. 27603

Re: Continued Ground-water Assessment at the Johnston County MSW Landfill and Proposed C&D Landfill, Permit Number 51-01

Dear Mrs. Smyth,

The Solid Waste Section has reviewed your recent submittal of April 13, 2004, regarding continued ground-water assessment in the proposed C&D Landfill area at the Johnston County MSW Landfill facility. Overall the plan appears satisfactory. Conditional approval is granted in accordance with the following conditions:

- Based upon Figure No. 1, it appears the proposed deep monitoring wells on the South side of the dike (those wells to be used as part of the pumping test) are to be located about 50 to 60 feet from the dike. If possible it would be better to locate these two wells somewhat closer to the dike. I realize that the location of the dike is not precise and that it is important to maintain the relative location of these wells in relationship with other wells and the dike. However to the extent reasonable, it would be better to try to locate these wells a little closer to the dike.
- At this time it is difficult to determine where future monitoring wells may be needed. The suitability of this area for C&D waste disposal has not yet been established. And the influence of the dike(s) on ground-water flow is not yet clear. This being said, it appears that two of the proposed shallow wells are in relatively good locations. Generally we try to avoid locating monitoring wells downgradient of sedimentation basins. Therefore it would be better to locate the proposed well shown at the Northeast corner of the sed basin to a location about 100 to 120 feet South of the location currently proposed, to a location just East of the sed basin and immediately North of the proposed C&D disposal area.
- It is not clear which wells are to be monitored for aquifer response as part of the pumping test. Certainly the deep well to be pumped and the other two deep wells in this area should be monitored. Wells PZ-5, PZ-6, PZ-7, MW-5A, and the new shallow well near the sed basin as referenced above should be monitored. If most of these wells show a response, then perhaps wells further out should also be checked, such as wells PZ-3A, PZ-4, and PZ-8.

1646 Mail Service Center, Raleigh, North Carolina 27699-1646
Phone 919-733-4996 \ FAX 919-715-3605 \ Internet <http://wastenotnc.org>

Mrs. Joan Smyth
Johnston Co. Landfill
Page 2

- Although the times proposed for the pumping test and recovery test would appear to be sufficient, if there has not been adequate aquifer response or if significant response is still occurring, then these times may need to be extended.

The Solid Waste Section approves the April 13, 2004, plan for additional ground-water assessment in the area of the proposed C&D Landfill area at the Johnston County MSW Landfill facility in accordance with the conditions stated in this letter. If you have any questions, please call me at (919) 733-0692, ext. 258.

Sincerely,

Bobby Lutfy

Bobby Lutfy
Hydrogeologist
Solid Waste Section

Cc:	Jim Barber	Solid Waste Section
	Mark Poindexter	Solid Waste Section
	Ed Mussler	Solid Waste Section
	Jaclynn Drummond	Solid Waste Section
	Cheryl Marks	Superfund Section
	Haywood Phthisic	Johnston County



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

November 5, 2003

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

Re: Groundwater Assessment at the Johnston County Municipal Solid Waste Landfill and proposed C&D area. Permit No. 51-01.

Dear Mr. Phthisic,

The Solid Waste Section is in receipt of the groundwater assessment/geophysical report dated October 2003, submitted on behalf of Johnston County by G.N. Richardson and Associates. A more detailed evaluation was required to determine the extent of the groundwater contamination in the area of the proposed construction and demolition debris landfill (C&D). Additional information is needed to complete the review so a determination can be made concerning the use of this area for the proposed C&D. The following questions and comments require a response.

The introduction states ground water monitoring has been on going since 1994. When did routine groundwater monitoring begin and the subsequent assessment monitoring?

A total of 49 borings are reported as advanced at this site but the boring locations shown on Figure 1 do not reflect that number. Some of the geologic logs for these borings are reported to be included in Appendix A but were omitted.

There are two monitoring locations labeled PZ-3 one is located in the proposed C&D area and the other is near Phase 1 & 2. Provide some additional identification so the well locations can be easily recognized from one another.

Monitoring location MW-4B seems to be at a lower elevation than what is provided on Figure 3. A change in elevation will also impact the reported water table elevation as well as the vertical hydraulic gradient reported for MW-4b and MW-4d nest included on Table 3.

1646 Mail Service Center, Raleigh, North Carolina 27699-1646
Phone 919-733-4996 \ FAX 919-715-3605 \ Internet <http://wastenotnc.org>

Topographic lines included on Figure 3, shows PZ-1 at a lower elevation than PZ-1A. Review piezometer locations PZ-1 and PZ-1A and indicate the corrections.

It appears the vertical gradients were calculated incorrectly. Please use the midpoints of the saturated portion of the two piezometer screens of the nested wells when making this calculation. Well screen elevations appear to be calculated incorrectly.

Also on Table 3 monitoring locations MW-7b and MW-7d have vertical gradients included but in the text PZ-7b and PZ-7d are reported. It appears the PZ reference was inadvertently used, please correct. The Section agrees these wells are located too far apart to provide any meaningful data. Please drop the vertical gradients calculated from the MW-7's from Table 3 and the text.

Groundwater velocities included in the text are site wide but Table 3 is limited to the C&D area. The focus of this part of the assessment is on the C&D area so groundwater velocities in this area should be used.

The piezometer locations between the Magnetometer Survey on Figure 2 of and the Ground Water Potentiometric Surface Map on Figure 3 are different. Please reconcile and include the approximate diabase dike locations from both magnetometer surveys on the figure with the corrected potentiometric surface.

Is the anomaly reported in the recent geophysical survey one large or two small dikes? What effect does the dike(s) in the C&D area have on groundwater flow?

Boring logs for piezometers PZ-4, PZ-5, and PZ-6 indicate groundwater coming out of the augers during drilling. How does this information fit with apparent diabase dike reported in the most recent geophysical investigation?

When was MW-5A installed? Please provide the boring log for this monitoring well.

Correspondence records indicate a proposed change in the assessment monitoring, however it is not clear which wells were determined to be included in sampling. Please include a list of the assessment and/or monitoring wells to be included and the monitoring frequency for these locations so this can be reviewed and updated.

Why were piezometers PZ-9 and PZ-9d omitted from the sampling analysis? There is some data for these piezometers in Table 5 but nothing is included in Appendix D. The Chain of Custody Record shows they were excluded from the August 2003 sampling event.

Table 5 does not include all the detected parameters included in the laboratory report. Include all constituents detected on this table and correct the table to accurately reflect the analysis reported by the laboratory. Also there are some piezometers and monitoring wells not included in this table. Laboratory results show there are both inorganic and organic analytes with concentrations greater than the groundwater standard. This information should be reflected in the table as well as the text.

Provide a historical summary of all wells that have had both inorganic and organic detects during the on going assessment.

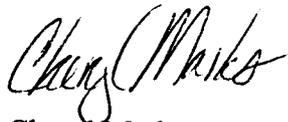
References to Phase 5 should be excluded from this study.

We encourage your consultant to arrange a meeting with the Solid Waste Section to discuss the concerns outlined in this letter. If you have any questions you may contact either Bobby Lutfy at (919) 733-0692 extension 258 or Cheryl Marks at extension 342.

Sincerely,



Bobby Lutfy
Hydrogeologist
Solid Waste Section



Cheryl Marks
Hydrogeologist
Environmental Compliance, SWS

cc: Jim Barber, Solid Waste Section
Mark Poindexter, Field Operations Branch, Solid Waste Section
Ed Mussler, Solid Waste Section
Mark Fry, Fayetteville Regional Office
Joan Smyth, G.N. Richardson & Associates
Central File

WELL CONSTRUCTION RECORD

North Carolina - Department of Environment and Natural Resources - Division of Water Quality - Groundwater Section

WELL CONTRACTOR (INDIVIDUAL) NAME (print) Ronald Barron CERTIFICATION # 2091
 WELL CONTRACTOR COMPANY NAME Engineering Tectonics PHONE # (336) 751-6991
 STATE WELL CONSTRUCTION PERMIT# _____ ASSOCIATED WQ Permit # _____
 (if applicable) (if applicable)

1. WELL USE (Check Applicable Box): Residential Municipal/Public Industrial Agricultural
 Monitoring Recovery Heat Pump water Injection other If other, list use: MW-3A

2. WELL LOCATION:
 Nearest Town: Smithfield County Johnston
680 County Home Road, 27577
 (Street Name, Number, Community, Subdivision, Lot No., Zip Code)

Topographic/Land setting
 Ridge Slope valley Flat
 (check appropriate box)

Latitude/Longitude of well location

n/a

(degrees/minutes/seconds)

Latitude/Longitude source: GPS Topographic map
 (check box)

3. OWNER Johnston Co. Utility Department
 Address 680 County Home Road
 (Street or Route No)
Smithfield NC 27577
 City or Town State Zip code
919-934-4576
 Area Code-Phone number

DEPTH DRILLING LOG
 From To Formation Description

4. DATE DRILLED 12-9-2002

5. TOTAL DEPTH 14.0

6. DOES WELL REPLACE EXISTING WELL? YES NO

7. STATIC WATER LEVEL Below Top of Casing: _____ FT.
 (Use " " if Above Top of Casing)

8. TOP OF CASING IS 3 FT. Above Land Surface
 Top of casing terminated at or below land surface requires a variance in accordance with 15A NCAC 2C.0118.

9. YIELD (gpm): n/a METHOD OF TEST n/a

10. WATER ZONES (depth): n/a

LOCATION SKETCH

Show direction and distance in miles from at least two State Roads or County Roads. Include the road numbers and common road names.

11. DISINFECTION: Type _____ Amount _____
 12. CASING: Wall Thickness _____

From	To	Depth	Diameter	Weight/Ft	Material
From +3	To 4.0	Ft 2	sch 40	PVC	
From _____	To _____	Ft _____	_____	_____	_____
From _____	To _____	Ft _____	_____	_____	_____

13. GROUT: Depth Material Method
 From 0.0 To 2.0 Ft Grout Pumped
 From _____ To _____ Ft _____

14. SCREEN: Depth Diameter Slot Size Material
 From 14.0 To 4.0 Ft 2 in .010 in PVC
 From _____ To _____ Ft _____ in _____ in _____

15. SAND/GRAVEL PACK: Depth Size Material
 From 14.0 To 3.0 Ft #3 Sand
 From 3.0 To 2.0 Ft 3/8 Bentonite

16. REMARKS _____

I DO HEREBY CERTIFY THAT THIS WELL WAS CONSTRUCTED IN ACCORDANCE WITH 15A NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER

Ronald F. Barron For Engineering Tectonics 12/11/02
 SIGNATURE OF PERSON CONSTRUCTING THE WELL DATE

Submit the original to the Division of Water Quality, Groundwater Section, 1636 Mail Service Center - Raleigh, NC 27699-1636 Phone No. (919) 133-3221, within 30 days.

Joan Smyth

From: "Kevin Shields" <kevin.shields@mail.co.johnston.nc.us>
To: "Joan Smyth" <joan@gnra.com>
Cc: "Rick Proctor" <rick.proctor@mail.co.johnston.nc.us>
Sent: Monday, December 23, 2002 1:48 AM
Subject: Phase 4A Groundwater & Well Measurements

Joan:

Last Friday, 12/20/02, I measured and sampled the two new monitoring wells, 8A & 17. Here are the in-house results:

MW # 8A:

Depth to Water - 4.06 ft. - From T.O.C.
Depth to Bottom of Well - 17.18 ft. - From T.O.C.
Elevation from top of casing to ground level - 2.98 ft.
Temperature - 15.83 degrees Fahrenheit
Specific Conductivity - 396.00 uS/cm
pH - 6.18

17.18
- 4.06

13.12

MW # 17:

Depth to Water - 18.94 ft. - From T.O.C.
Depth to Bottom of Well - 32.46 ft. - From T.O.C.
Elevation from top of casing to ground level - 1.14 ft.
Temperature - 18.80 degrees Fahrenheit
Specific Conductivity - 403.00 uS/cm
pH - 5.33

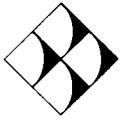
32.46
- 18.94

13.52

I'll send you the formal report later on today or tomorrow.

Thanks,

Kevin



G.N. RICHARDSON & ASSOCIATES

Engineering and Geological Services

December 23, 2002

Mr. Bobby Lutfy
NCDENR
Solid Waste Section
1646 Mail Service Center
Raleigh, North Carolina 27699-1646



RE: Monitoring Well Installation
Johnston County Landfill Phase 4A
Smithfield, North Carolina

Dear Mr. Lutfy:

On December 9-10, 2002, G. N. Richardson and Associates, Inc. (GNRA) installed two monitoring wells for the Phase 4A landfill (MW-8a and MW-17). These well locations are shown (approximately) on the attached **Figure 1**.

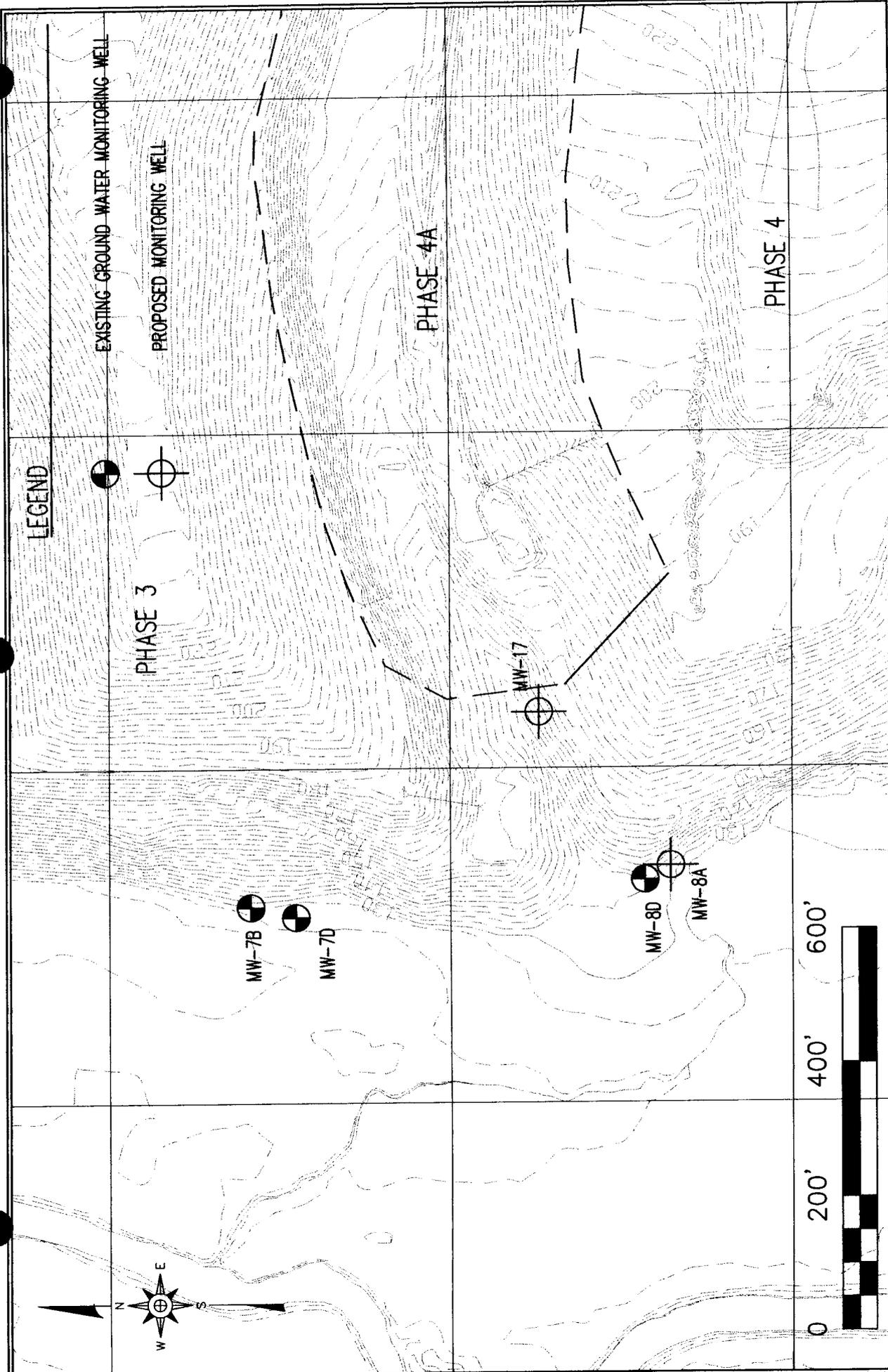
Each well was drilled using Hollow Stem Auger methods and was completed with a 10-foot section of 0.010 slot PVC screen with solid PVC riser. The annular space was completed with sand pack to a height of 1-2 feet above the screened interval, above which was placed a hydrated 2-foot thick layer of bentonite. The annular space was completed with grout to the surface. Each well was completed with a steel outer casing and locking cap. The boring logs and well completion records are attached for your review.

Ground water level measurements were collected at the time of sampling (Friday, December 20, 2002). The depth of the water table below the ground surface was 1.08 feet in MW-8A, and 17.80 feet in MW-17.

If you have any questions, or require additional information, please contact me at your earliest convenience.

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

Joan A. Smyth, P.G.
Project Hydrogeologist



G.N. RICHARDSON & ASSOCIATES, INC.
Engineering and Geological Services
 14 N. Boylan Avenue Raleigh, North Carolina
 (919)-828-0577 Fax:(919)-828-3899 www.gnra.com

DRAWN BY: C.T.J.	CHECKED BY: J.A.S.	SCALE: AS SHOWN	FIGURE NO. 1
DATE: DEC. 2002	PROJECT NO. JOHN-14	FILE NAME JOHN-A0274	

**PHASE 4A
 MONITORING WELL LOCATIONS**



G. N. Richardson & Associates, Inc.

425 North Boylan Avenue, Raleigh NC 27603
(919) 828-0577

FIELD BOREHOLE LOG

BOREHOLE NUMBER **MW-8a**

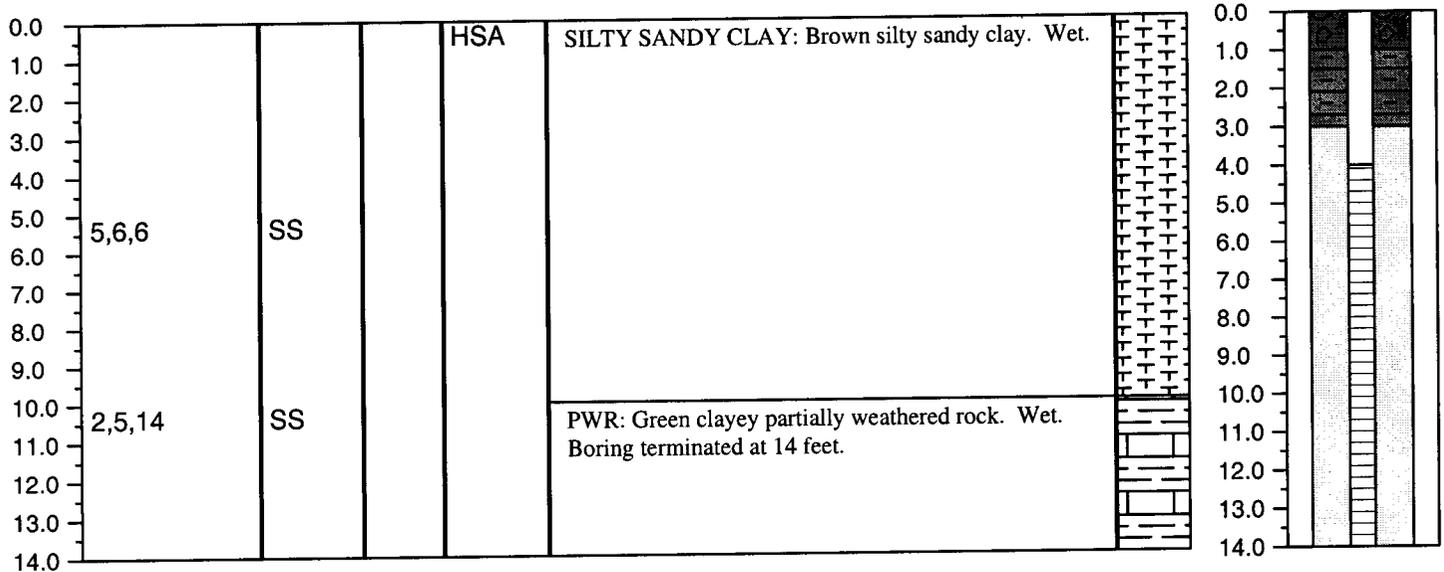
Page 1 of 1

PROJECT NAME: **Johnston County Phase 4A Landfill**
LOCATION: **Smithfield, NC**
DRILLING CO: **Engineering Tectonics, P.A.**
DRILLING METHOD: **HSA**
FIELD PARTY: **R. Barron**
GEOLOGIST: **J. Smyth & B. Hackney**
DATE BEGUN: **12/9/02** COMPLETED: **12/10/02**

TOTAL DEPTH: **14**
GROUND SURFACE ELEVATION: **NA**
TOP OF CASING ELEVATION:

STATIC WATER LEVEL (BLS)		
Depth (ft)	NA	
Time	NA	
Date	NA	

DEPTH	BLOW COUNT	SAMPLING METHOD	RECOVERY	DRILL METHOD	DESCRIPTION	LITHOLOGY	DEPTH	WELL INSTALLATION
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G. N. Richardson & Associates, Inc.
 425 North Boylan Avenue, Raleigh NC 27603
 (919) 828-0577

FIELD BOREHOLE LOG

BOREHOLE NUMBER **MW-17**

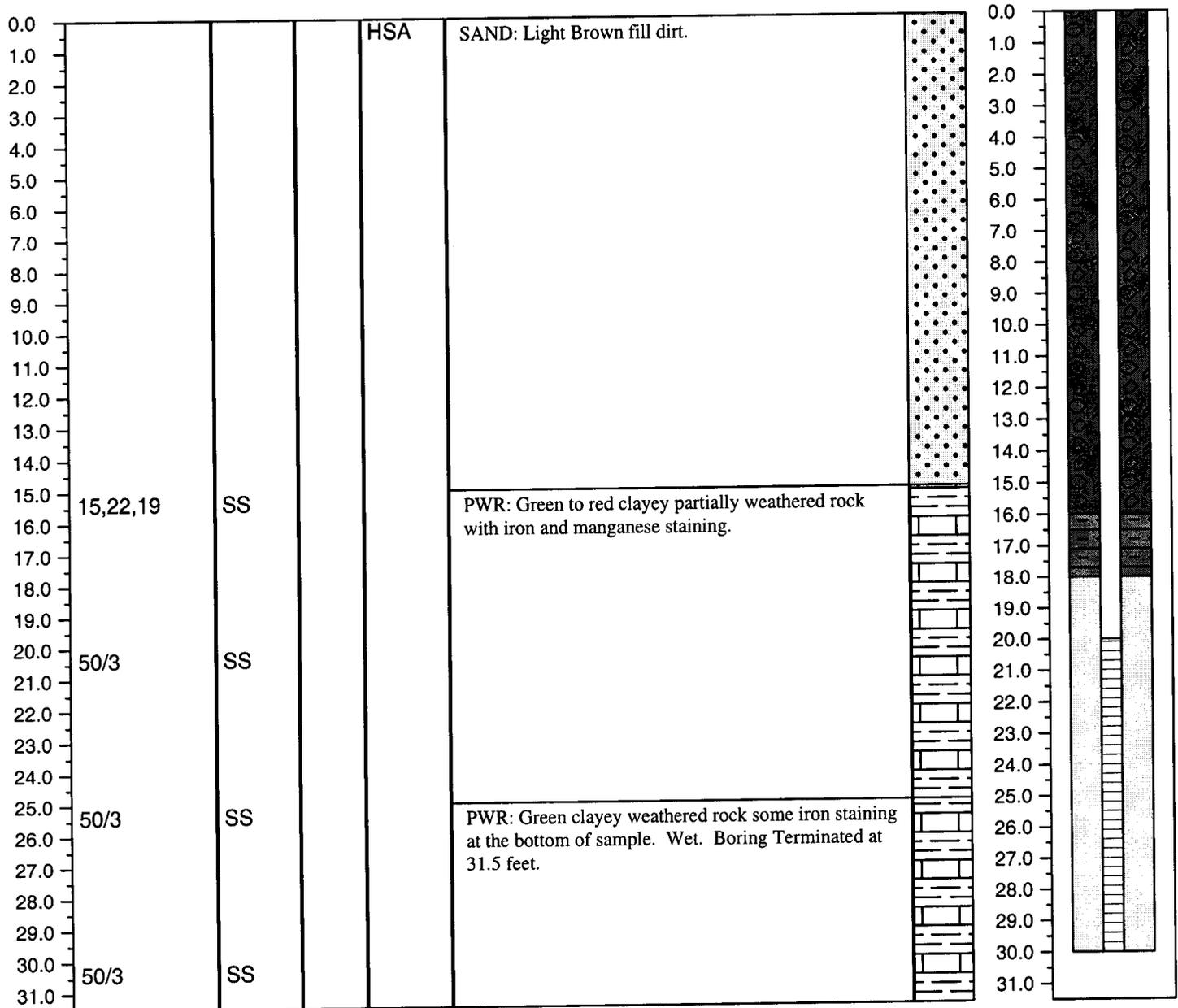
Page 1 of 1

PROJECT NAME: **Johnston County Phase 4A Landfill**
 LOCATION: **Smithfield, NC**
 DRILLING CO: **Engineering Tectonics, P.A.**
 DRILLING METHOD: **HSA**
 FIELD PARTY: **R. Barron**
 GEOLOGIST: **J. Smyth & B. Hackney**
 DATE BEGUN: **12/9/02** COMPLETED: **12/9/02**

TOTAL DEPTH: **31.5**
 GROUND SURFACE ELEVATION: **NA**
 TOP OF CASING ELEVATION:

STATIC WATER LEVEL (BLS)		
Depth (ft)	NA	
Time	NA	
Date	NA	

DEPTH	BLOW COUNT	SAMPLING METHOD	RECOVERY	DRILL METHOD	DESCRIPTION	LITHOLOGY	DEPTH	WELL INSTALLATION
-------	------------	-----------------	----------	--------------	-------------	-----------	-------	-------------------



MW-8A

WELL CONSTRUCTION RECORD

North Carolina - Department of Environment and Natural Resources - Division of Water Quality - Groundwater Section

WELL CONTRACTOR (INDIVIDUAL) NAME (print) Ronald Barron CERTIFICATION #
WELL CONTRACTOR COMPANY NAME Engineering Tectonics PHONE # ()
STATE WELL CONSTRUCTION PERMIT# ASSOCIATED WQ Permit #
(if applicable) (if applicable)

1. WELL USE (Check Applicable Box): Residential [] Municipal/Public [] Industrial [] Agricultural []
Monitoring [x] Recovery [] Heat Pump water Injection [] other [] If other, list use:

2. WELL LOCATION:
Nearest Town: Smithfield County Johnston
(Street Name, Numbers, Community, Subdivision, Lot No., Zip Code)

Topographic/ Land setting
[] Ridge [] slope [] valley [] Flat
(check appropriate box)
Latitude/Longitude of well location

3. OWNER Johnston County Landfill
Address County Home Road
Smithfield NC
City or Town State Zip code

(degrees/minutes/seconds)
Latitude/Longitude source: [] GPS [] Topographic map
(check box)

4. DATE DRILLED 12/10/02
5. TOTAL DEPTH 14 feet

Table with columns DEPTH and DRILLING LOG. DEPTH: From 0 - 10 feet, To 10 - 14 feet. DRILLING LOG: Formation Description Silty sandy clay, Partially Weathered Rock.

6. DOES WELL REPLACE EXISTING WELL? YES [x] NO []
7. STATIC WATER LEVEL Below Top of Casing: FT.
(Use "+" if Above Top of Casing)
8. TOP OF CASING IS na FT. Above Land Surface
Top of casing terminated at/or below land surface requires a variance in accordance with 15A NCAC 2C.0118.
9. YIELD (gpm): METHOD OF TEST
10. WATER ZONES (depth):

11. DISINFECTION: Type Amount
12. CASING: Wall Thickness . Material

LOCATION SKETCH
Show direction and distance in miles from at least two State Roads or County Roads. Include the road numbers and common road names.

13. GROUT: Depth Diameter Method
14. SCREEN Depth Diameter Slot Size Material
15. SAND/GRAVEL PACK Depth Size Material

16. REMARKS

I DO HEREBY CERTIFY THAT THIS WELL WAS CONSTRUCTED IN ACCORDANCE WITH 15A NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER

SIGNATURE OF PERSON CONSTRUCTING THE WELL DATE

MW-17

WELL CONSTRUCTION RECORD

North Carolina - Department of Environment and Natural Resources - Division of Water Quality - Groundwater Section

WELL CONTRACTOR (INDIVIDUAL) NAME (print) Ronald Barron CERTIFICATION #

WELL CONTRACTOR COMPANY NAME Engineering Tectonics PHONE # ()

STATE WELL CONSTRUCTION PERMIT# ASSOCIATED WQ Permit # (if applicable) (if applicable)

1. WELL USE (Check Applicable Box): Residential [] Municipal/Public [] Industrial [] Agricultural [] Monitoring [x] Recovery [] Heat Pump water Injection [] other [] If other, list use:

2. WELL LOCATION: Nearest Town: Smithfield County Johnston (Street Name, Numbers, Community, Subdivision, Lot No., Zip Code)

Topographic/ Land setting [] Ridge [x] slope [] valley [] Flat (check appropriate box) Latitude/Longitude of well location (degrees/minutes/seconds)

3. OWNER Johnston County Landfill Address County Home Road Smithfield NC City or Town State Zip code

Latitude/Longitude source: [] GPS [] Topographic map (check box)

Table with columns: DEPTH (From, To), DRILLING LOG (Formation Description). Rows include 0-10 feet (Silty sandy clay), 10-14 feet (Partially Weathered Rock).

4. DATE DRILLED 12/10/02

5. TOTAL DEPTH 14 feet

6. DOES WELL REPLACE EXISTING WELL? YES [x] NO []

7. STATIC WATER LEVEL Below Top of Casing: FT. (Use "+" if Above Top of Casing)

8. TOP OF CASING IS na FT. Above Land Surface Top of casing terminated at/or below land surface requires a variance in accordance with 15A NCAC 2C.0118.

9. YIELD (gpm): METHOD OF TEST

10. WATER ZONES (depth):

11. DISINFECTION: Type Amount

Table for CASING: Columns: From, To, Depth, Diameter or Weight/Ft., Material. Rows for 0-4 ft, 2-inch diameter.

LOCATION SKETCH Show direction and distance in miles from at least two State Roads or County Roads. Include the road numbers and common road names.

Table for GROUT: Columns: From, To, Depth, Material, Method. Row for 0-1 foot depth.

Table for SCREEN: Columns: From, To, Depth, Diameter, Slot Size, Material. Row for 4-14 ft depth, 2 inch diameter, 0.010 inch slot size.

Table for SAND/GRAVEL PACK: Columns: From, To, Depth, Size, Material. Row for 3-14 ft depth.

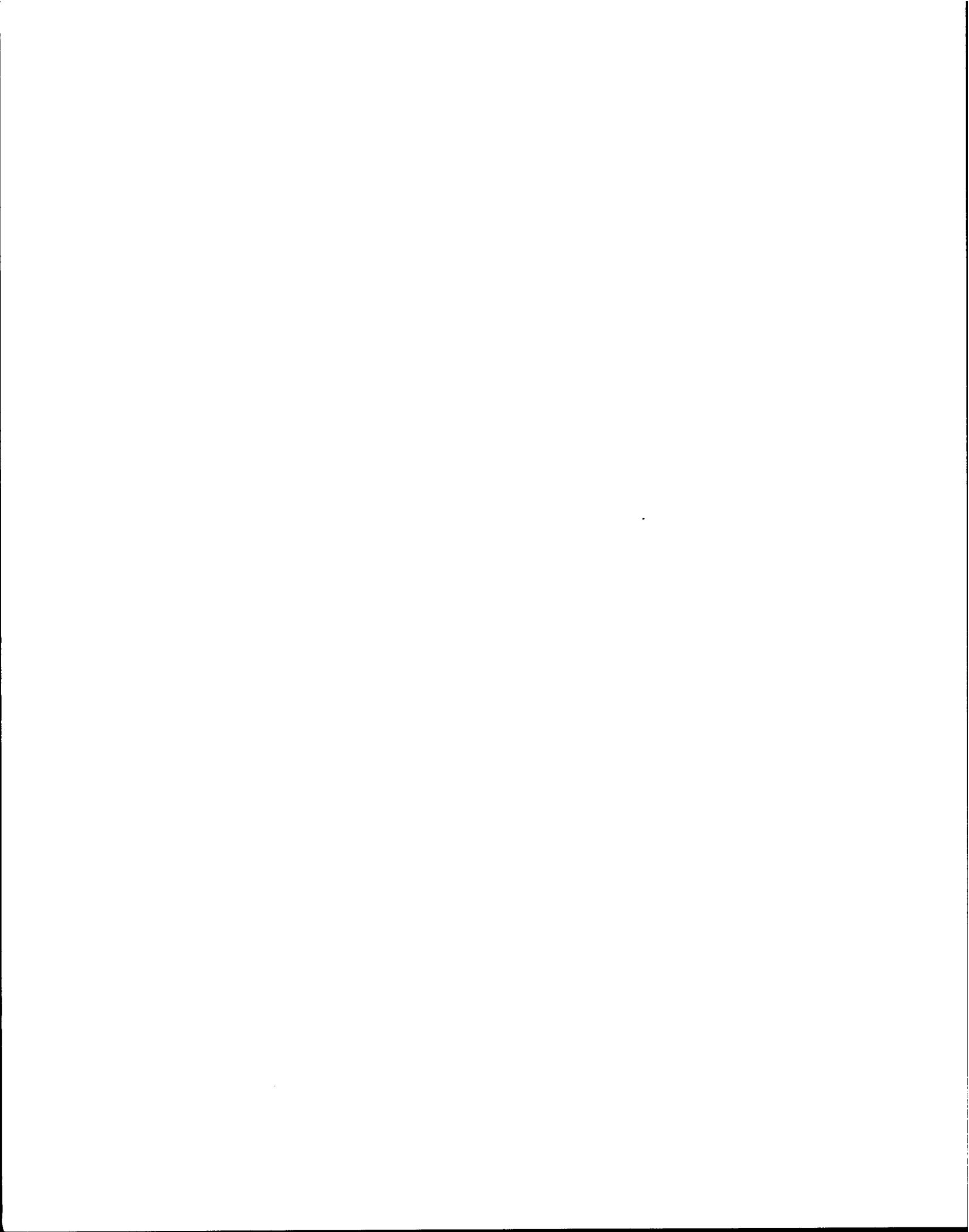
16. REMARKS

I DO HEREBY CERTIFY THAT THIS WELL WAS CONSTRUCTED IN ACCORDANCE WITH 15A NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER

SIGNATURE OF PERSON CONSTRUCTING THE WELL DATE

Submit the original to the Division of Water Quality, Groundwater Section, 1636 Mail Service Center - Raleigh, NC 27699-1636 Phone No. (919) 133-3221, within 30 days.

GW-1 REV. 07/2001





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

April 20, 2004

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

RE: Permit Modification, Revised Operations Manual, Appendix E, Irrigation of Reclaimed Wastewater, Johnston County Landfill, Permit No. 5103

Dear Mr. Phthisic,

The Division of Waste Management, Solid Waste Section (Section) has reviewed the revised irrigation plan for reclaimed wastewater at the Johnston County landfill. The revision was submitted by your consultant, G.N.Richardson & Associates of Raleigh, NC. The revised Appendix E of the approved facility operations plan is hereby approved for implementation at the facility. The revised Appendix will be included in the approved list of documents in the part 2- Permit to Operate, Appendix 3, of Permit Number 5103.

Johnston County currently copies the Section with testing results on the reclaimed wastewater. It is the Section's understanding that the test results are submitted as a condition of the county's permit from the Division of Water Quality. Effective immediately, as a condition to meet the requirements of the Water Quality Permit, Johnston County should not submit the testing data to the Solid Waste Section. The data should be placed in the facility operation record, where it would be available for inspection by Section personnel should it be warranted, or as part of a routine facility audit.

The approved modification to the irrigation operation plan includes provisions for potentially spray irrigating on Fields 1,2,and 3 on a year round basis. Johnston County should use its best judgment as to whether this is an activity that is acceptable at the facility. The approval to spray irrigate reclaimed wastewater at facility permit number 5103 is granted solely for that purpose and does not grant nor imply any future rights with respect to permitting future landfill phases. Should hydrogeologic conditions or the groundwater levels change then the landfill design will have to be adjusted to ensure compliance with the Solid Waste Management Rules effective at the time of the permitting. Similarly, should groundwater-monitoring wells

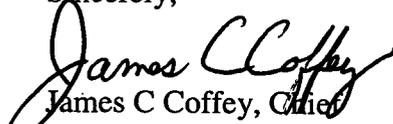
1646 Mail Service Center, Raleigh, North Carolina 27699-1646
Phone 919-733-0692 \ FAX 919-733-4810 \ Internet <http://wastenotnc.org>

Mr. Haywood Phthisic
Johnston County , Spray Irrigation Permit Modification
April 20, 2004
Page 2 of 2

provide evidence of contamination, the facility will be required to perform the assessment monitoring and corrective action as required under Section 1600 of the rules.

If there are any questions concerning approval, please contact the Section at 919.733.0692. Ed Mussler may be reached at extension 343, and his email is ed.mussler@ncmail.net.

Sincerely,


James C Coffey, Chief
Solid Waste Section

cc: Pieter Scheer, GNRA
Ed Mussler DWM
Mark Fry, DWM
Ben Barnes, DWM

NON-DISCHARGE APPLICATION REPORT SPRAY IRRIGATION SITE(S)

THERE ARE TWO APPLICATION FIELDS PER PAGE. USE ADDITIONAL PAGES AS NEEDED.

PERMIT NUMBER: WQ 0019632

MONTH: February

YEAR: 2004

FACILITY NAME: Johnston County Reclaimed Water Utilization System

COUNTY: Johnston

Formulas:

Daily Loading (Inches) = [Volume Applied (gallons) x 0.1336 (cubic feet/gallon) x 12 (inches/foot)] / [Area Sprayed (acres) x 43,560 (square feet/acre)] OR
= Volume Applied (gallons) / [Area Sprayed (acres) x 27,152 (gallons/acre-inch)]

Maximum Hourly Loading (Inches) = Daily Loading (Inches) / [Time Irrigated (minutes) / 60 (minutes/hour)]

Monthly Loading (Inches) = Sum of Daily Loadings (Inches)

12 Month Floating Total (Inches) = Sum of this month's Monthly Loading (Inches) and previous 11 month's Monthly Loadings (Inches)

Average Weekly Loading (Inches) = (Monthly Loading (Inches/month) / Number of days in the month (days/month)) x 7 (days/week)

Did Irrigation Occur At This Facility:					Did Irrigation Occur On This Field:				Did Irrigation Occur On This Field:				
Yes: <input type="checkbox"/> No: <input checked="" type="checkbox"/>					Yes: <input type="checkbox"/> No: <input checked="" type="checkbox"/>				Yes: <input type="checkbox"/> No: <input checked="" type="checkbox"/>				
					FIELD NUMBER:				FIELD NUMBER:				
					AREA SPRAYED (acres):				AREA SPRAYED (acres):				
					COVER CROP:				COVER CROP:				
					PERMITTED HOURLY RATE (Inches):				PERMITTED HOURLY RATE (Inches):				
					PERMITTED YEARLY RATE (Inches):				PERMITTED YEARLY RATE (Inches):				
					DATE	WEATHER CONDITIONS			Storage Lagoon Free-board feet	Volume Applied gallons	Time Irrigated minutes	Daily Loading inches	Maximum Hourly Loading inches
Weather Code*	Temperature at application (°F)	Precipitation Inches											
1	PC	40	NA	NA									
2	PC	49	NA	NA									
3	R	48	0.51	NA									
4	CI	50	NA	NA									
5	PC	46	NA	NA									
6	R	68	0.67	NA									
7	R	62	0.07	NA									
8	PC	45	NA	NA									
9	CI	44	0.02	NA									
10	CI	52	NA	NA									
11	PC	51	NA	NA									
12	R	45	0.63	NA									
13	PC	56	NA	NA									
14	R	52	0.15	NA									
15	R	45	0.3	NA									
16	PC	38	NA	NA									
17	Sn	31	0.06	NA									
18	Sn	49	0.17	NA									
19	C	64	NA	NA									
20	C	67	NA	NA									
21	PC	65	NA	NA									
22	PC	58	NA	NA									
23	PC	51	NA	NA									
24	CI	56	NA	NA									
25	PC	50	NA	NA									
26	CI	37	NA	NA									
27	Sn	41	0.48	NA									
28	SI	59	0.1	NA									
29	PC	64	NA	NA									
30													
31													
Total Gallons/Monthly Loading (Inches)					0		0.00		0		0.00		
12 Month Floating Total (Inches)													
Average Weekly Loading (Inches)							0				0		

* Weather Codes: C-clear, PC-partly cloudy, CI-cloudy, R-rain, Sn-snow, SI-sleet

Spray Irrigation Operator in Responsible Charge (ORC): Kenneth C. York Phone: 919-631-3895

ORC Certification Number: 26366 Check Box If ORC Has Changed:

Mail ORIGINAL and TWO COPIES to:
ATTN: Non-Discharge Compliance Unit
DENR
Division of Water Quality
1617 Mail Service Center
RALEIGH, NC 27699-1617



(SIGNATURE OF OPERATOR IN RESPONSIBLE CHARGE)
BY THIS SIGNATURE, I CERTIFY THAT THIS REPORT IS ACCURATE AND COMPLETE TO THE BEST OF MY KNOWLEDGE.

NON-DISCHARGE APPLICATION REPORT
SPRAY IRRIGATION SITE(S)

Facility Status:

Please indicate (by inserting Y(es) or N(o) in the appropriate box) whether the facility has been compliant with the following permit requirements: (Note: if a requirement does not apply to your facility put (NA) in the compliant box.)

- | | Compliant (Y,N) |
|--|---------------------------------|
| 1. The application rate(s) did not exceed the limit(s) specified in the permit. | <input type="text" value="NA"/> |
| 2. Adequate measures were taken to prevent wastewater runoff from the site(s). | <input type="text" value="NA"/> |
| 3. A suitable vegetative cover was maintained on the site(s) in accordance with the permit. | <input type="text" value="NA"/> |
| 4. All buffer zones as specified in the permit were maintained during each application. | <input type="text" value="NA"/> |
| 5. The freeboard in the treatment and/or storage lagoon(s) was not less than the limit(s) specified in the permit. | <input type="text" value="NA"/> |

If the facility is non-compliant, please explain in the space below the reason(s) the facility was not in compliance with its permit. Provide in your explanation the date(s) of the non-compliance and describe the corrective action(s) taken. Attach additional sheets if necessary.

"I certify, under penalty of law, that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that all qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations."

Haywood M. Phthisic, III 3-03-04
(Signature of Permittee)* Date

Haywood M. Phthisic, III
(Name of Signing Official-Please print or type)

Johnston County Department of Public Utilities
(Permittee-Please print or type)

Director of Operations
(Position or Title)

P.O. Box 2263

919-989-5075
(Phone Number)

31-Mar-07
(Permit Exp. Date)

Smithfield, NC 27577
(Permittee Address)

* If signed by other than the permittee, delegation of signatory authority must be on file with the state per 15A NCAC 2B.0506 (b)(2)(D).

NON DISCHARGE WASTEWATER MONITORING REPORT

PERMIT NUMBER: WQ0019632

MONTH: February YEAR: 2004

FACILITY NAME: Johnston Co. Reclaimed Water Utilization Syst.

COUNTY: Johnston

Flow Monitoring Point: Effluent: <input checked="" type="checkbox"/> Influent: <input type="checkbox"/>																	
Parameter Monitoring Point: Effluent: <input checked="" type="checkbox"/> Influent: <input type="checkbox"/> Surface Water (SW): <input type="checkbox"/> SW Code/Name:																	
Was There Effluent Flow For This Month Generated At This Facility: Yes: <input type="checkbox"/> No: <input checked="" type="checkbox"/>																	
DATE	Operator Arrival Time 2400 Clock	Operator Time On Site HRS	ORC on Site? Y/N	50050	00400	50060	00310	00610	00530	31616							
				Daily Rate (Flow) into Treatment System GALLONS	pH UNITS	Residual Chlorine UG/L	BOD-5 20°C MG/L	NH3-N MG/L	TSS MG/L	Fecal Coliform (Geo-metric Mean*) /100ML							
1																	
2																	
3																	
4																	
5																	
6																	
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28																	
29																	
30																	
31																	
Average				#DIV/0!	#####	#####	#####	#####	#####	#####	#NUM!						
Daily Maximum				0	0	0	0	0	0	0	0						
Daily Minimum				0	0	0	0	0	0	0	0						
Monthly Limit(s)																	
Composite (C) / Grab (G)																	

Operator in Responsible Charge (ORC): Kenneth C. York Grade: SI Phone: 919-631-3895

Check Box If ORC Has Changed: ORC Certification Number: 26366

Certified Laboratories (1): Environment 1 (2): Johnston County WWTP Laboratory

Person(s) Collecting Samples: Jason Volker

Mail ORIGINAL and TWO COPIES to:
 ATTN: Non-Discharge Compliance Unit
 DENR
 Division of Water Quality
 1617 Mail Service Center


 (SIGNATURE OF OPERATOR IN RESPONSIBLE CHARGE)
 BY THIS SIGNATURE, I CERTIFY THAT THIS REPORT IS ACCURATE
 AND COMPLETE TO THE BEST OF MY KNOWLEDGE.

NON DISCHARGE WASTEWATER MONITORING REPORT**Facility Status:**

Please answer the following question:

1. Does all monitoring data and sampling frequencies meet permit requirements?

Compliant (Y,N)

 Y N

If the facility is **non-compliant**, please explain in the space below the reason(s) the facility was not in compliance with its permit. Provide in your explanation the date(s) of the non-compliance and describe the corrective action(s) taken. Attach additional sheets if necessary.

"I certify, under penalty of law, that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that all qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations."

Haywood M. Phthisic, III 3-04-04
 (Signature of Permittee)* Date

Haywood M. Phthisic, III
 (Name of Signing Official-Please print or type)

Johnston County Department of Public Utilities
 (Permittee-Please print or type)

Director of Operations
 (Position or Title)

P.O. Box 2263

919-989-5075
 (Phone Number)

31-Mar-07
 (Permit Exp. Date)

Smithfield, NC 27577
 (Permittee Address)

Parameter Codes:

01002 Arsenic	31504 Coliform, Total	00600 Nitrogen, Total	00929 Sodium
01022 Boron	00094 Conductivity	00630 NO2&NO3	00931 SAR
00310 BOD5	01042 Copper	00620 NO3	00745 Sulfide
01027 Cadmium	00300 Dissolved Oxygen	00556 Oil-Grease	70295 TDS
00916 Calcium	31616 Fecal Coliform	WQ09 PAN (Plant Available)	00010 Temperature
00940 Chloride	01051 Lead	00400 pH	00625 TKN
50060 Chlorine, Total Residual	00927 Magnesium	32730 Phenols	00680 TOC
01034 Chromium	71900 Mercury	00665 Phosphorus, Total	00530 TSS/TSR
00340 COD	00610 NH3asN	00937 Potassium	00076 Turbidity
	01067 Nickel	00545 Settleable Matter	01092 Zinc

Parameter Code assistance may be obtained by calling the Water Quality Compliance/Enforcement Unit at (919) 733-5083 ext. 529.

The monthly average for Fecal Coliform is to be reported as a GEOMETRIC mean. Use only the units designated in the reporting facility's permit for reporting data.

* If signed by other than the permittee, delegation of signatory authority must be on file with the state per 15A NCAC 2B.0506 (b)(2)(D).

NON-DISCHARGE APPLICATION REPORT SPRAY IRRIGATION SITE(S)

THERE ARE TWO APPLICATION FIELDS PER PAGE. USE ADDITIONAL PAGES AS NEEDED.

PERMIT NUMBER: WQ 0019631

MONTH: January

YEAR: 2004

FACILITY NAME: Johnston County Reclaimed Water Utilization System

COUNTY: Johnston

Formulas:

Daily Loading (Inches) = [Volume Applied (gallons) x 0.1336 (cubic feet/gallon) x 12 (inches/foot)] / [Area Sprayed (acres) x 43,560 (square feet/acre)] OR

= Volume Applied (gallons) / [Area Sprayed (acres) x 27,152 (gallons/acre-inch)]

Maximum Hourly Loading (Inches) = Daily Loading (Inches) / [Time Irrigated (minutes) / 60 (minutes/hour)]

Monthly Loading (Inches) = Sum of Daily Loadings (Inches)

12 Month Floating Total (Inches) = Sum of this month's Monthly Loading (Inches) and previous 11 month's Monthly Loadings (Inches)

Average Weekly Loading (Inches) = [Monthly Loading (Inches/month) / Number of days in the month (days/month)] x 7 (days/week)

Did Irrigation Occur At This Facility:				Did Irrigation Occur On This Field:				Did Irrigation Occur On This Field:				
Yes: <input type="checkbox"/>		No: <input checked="" type="checkbox"/>		Yes: <input type="checkbox"/>		No: <input type="checkbox"/>		Yes: <input type="checkbox"/>		No: <input type="checkbox"/>		
				FIELD NUMBER:				FIELD NUMBER:				
				AREA SPRAYED (acres):				AREA SPRAYED (acres):				
				COVER CROP:				COVER CROP:				
				PERMITTED HOURLY RATE (Inches):				PERMITTED HOURLY RATE (Inches):				
PERMITTED YEARLY RATE (Inches):				PERMITTED YEARLY RATE (Inches):				PERMITTED YEARLY RATE (Inches):				
DATE	WEATHER CONDITIONS			Storage Lagoon Free-board feet	Volume Applied gallons	Time Irrigated minutes	Daily Loading inches	Maximum Hourly Loading inches	Volume Applied gallons	Time Irrigated minutes	Daily Loading inches	Maximum Hourly Loading inches
	Weather Code*	Temperature at application (°F)	Precipitation inches									
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
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23												
24												
25												
26												
27												
28												
29												
30												
31												
Total Gallons/Monthly Loading (Inches)					0		0.00		0		0.00	
12 Month Floating Total (Inches)												
Average Weekly Loading (Inches)							0				0	

* Weather Codes: C-clear, PC-partly cloudy, CI-cloudy, R-rain, Sn-snow, SI-sleet

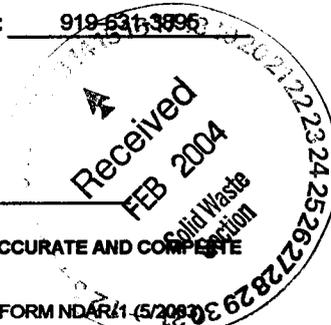
Spray Irrigation Operator In Responsible Charge (ORC): Kenneth C. York Phone: 919-631-3995

ORC Certification Number: 26366 Check Box If ORC Has Changed:

Mail ORIGINAL and TWO COPIES to:
ATTN: Non-Discharge Compliance Unit
DENR
Division of Water Quality
1617 Mail Service Center
RALEIGH, NC 27699-1617

Kenneth C. York
(SIGNATURE OF OPERATOR IN RESPONSIBLE CHARGE)

BY THIS SIGNATURE, I CERTIFY THAT THIS REPORT IS ACCURATE AND COMPLETE TO THE BEST OF MY KNOWLEDGE.



NON-DISCHARGE APPLICATION REPORT
SPRAY IRRIGATION SITE(S)

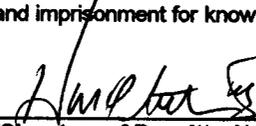
Facility Status:

Please indicate (by inserting Y(es) or N(o) in the appropriate box) whether the facility has been **compliant** with the following permit requirements: (Note: if a requirement does not apply to your facility put (NA) in the compliant box.)

- | | Compliant (Y,N) |
|--|---------------------------------|
| 1. The application rate(s) did not exceed the limit(s) specified in the permit. | <input type="text" value="NA"/> |
| 2. Adequate measures were taken to prevent wastewater runoff from the site(s). | <input type="text" value="NA"/> |
| 3. A suitable vegetative cover was maintained on the site(s) in accordance with the permit. | <input type="text" value="NA"/> |
| 4. All buffer zones as specified in the permit were maintained during each application. | <input type="text" value="NA"/> |
| 5. The freeboard in the treatment and/or storage lagoon(s) was not less than the limit(s) specified in the permit. | <input type="text" value="NA"/> |

If the facility is **non-compliant**, please explain in the space below the reason(s) the facility was not in compliance with its permit. Provide in your explanation the date(s) of the non-compliance and describe the corrective action(s) taken. Attach additional sheets if necessary.

"I certify, under penalty of law, that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that all qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations."

 2-10-04
(Signature of Permittee)* Date

Johnston County Department of Public Utilities
(Permittee-Please print or type)

P.O. Box 2263

Smithfield, NC 27577
(Permittee Address)

Haywood M. Phtthisic, III
(Name of Signing Official-Please print or type)

Director
(Position or Title)

919-989-5075
(Phone Number)

31-Mar-07
(Permit Exp. Date)

* If signed by other than the permittee, delegation of signatory authority must be on file with the state per 15A NCAC 2B.0506 (b)(2)(D).

GROUNDWATER QUALITY MONITORING: COMPLIANCE REPORT FORM

Please Print Clearly or Type

Mail Original to: **DEPARTMENT OF ENVIRONMENT & NATURAL RESOURCES**
WATER QUALITY DIVISION, GROUNDWATER SECTION
 1635 MAIL SERVICE CENTER
 RALEIGH, NC 27899-1535
 Phone: (919) 733-3221

FACILITY INFORMATION
 Facility Name: JOHNSON COUNTY LANDFILL
 Permit Name (if different): JOHNSON COUNTY RESOURCES WATER UTILIZATION SYSTEM
 Facility Address: 680 COUNTY HOME RD
SMITHFIELD, NC 27577
 County: JOHNSON
 Contact Person: KENNETH C. BOWYER (Site) Telephone #: 919-651-3895
 Well Location/ Site Name: DWQ-MU-1 No. of Wells to be Sampled: 2 (from Permit)

Well Identification Number (from Permit): DWQ-MU-1
 Well Depth: 80 ft. Well Diameter: 2 in.
 Screened Interval: 80.0 ft. to 10.0 ft.
 Depth to Water Level: 20.22 ft. below measuring point.
 Measuring Point (M.P.) is: 3.35 ft. above land surface. Relative M.P. Elevation in ft.: 213.81
 Gallons of water pumped/balled before sampling: N/A Date sample collected: 1-19-04
 Field analysis: pH N/A, Specific Conductance N/A umhos
 Temp. N/A °C, Odor N/A Appearance N/A

For Groundwater Treatment Systems
 Check One: Influent (99)
 Effluent (99)

PERMIT #: WQ 00196 31 EXPIRATION DATE: APRIL 31, 2007
 Non-Discharge UIC
 NPDES
 TYPE OF PERMITTED OPERATION BEING MONITORED
 Lagoon Remediation: Infiltration Gallery
 Spray Field Remediation: _____
 Rotary Distributor Land Application of Sludge
 Other: _____

NOTE: Values should reflect dissolved and colloidal concentrations.

Date sample analyzed: _____
 Laboratory Name: _____
 Certification No. _____

PARAMETERS (Samples for metals were collected: unfiltered _____ YES _____ NO _____ and field-acidified _____ YES _____ NO _____)

COD _____ mg/l
 Coliform: MF Fecal _____ /100ml
 Coliform: MF Total _____ /100ml
 (Note: Use MPN method for highly turbid samples)
 Dissolved Solids: Total _____ mg/l
 pH (when analyzed) _____ units
 TOC _____ mg/l
 Chloride _____ mg/l
 Arsenic _____ mg/l
 Grease and Oils _____ mg/l
 Phenol _____ mg/l
 Sulfate _____ mg/l
 Specific Conductance _____ umhos
 Total Ammonia _____ mg/l
 TKN as N _____ mg/l

Nitrite (NO₂) as N _____ mg/l
 Nitrate (NO₃) as N _____ mg/l
 Phosphorus: Total as P _____ mg/l
 Orthophosphate _____ mg/l
 Al - Aluminum _____ mg/l
 Ba - Barium _____ mg/l
 Ca - Calcium _____ mg/l
 Cd - Cadmium _____ mg/l
 Chromium: Total _____ mg/l
 Cu - Copper _____ mg/l
 Fe - Iron _____ mg/l
 Hg - Mercury _____ mg/l
 K - Potassium _____ mg/l
 Mg - Magnesium _____ mg/l
 Mn - Manganese _____ mg/l

Ni - Nickel _____ mg/l
 Pb - Lead _____ mg/l
 Zn - Zinc _____ mg/l
 Ammonia Nitrogen _____ mg/l
 Other (Specify Compounds and Concentration Units) _____

ORGANICS: (GC,GC/MS,HPLC)
 (Specify test and method #. Attach lab report.)
 Report Attached? Yes _____ (1) No _____ (0)
 VOC _____ : method # _____
 _____ : method # _____
 _____ : method # _____

I certify that, to the best of my knowledge and belief, the information submitted in this report is true, accurate, and complete, and that the laboratory analytical data was produced using approved methods of analysis by a North Carolina DWO (formerly DEW) certified laboratory. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.

Harold M. Pytkisic, III DIRECTOR OF OPERATIONS
 Permittee (or Authorized Agent) Name and Title - Please print or type
Harold M. Pytkisic
 Signature of Permittee (or Authorized Agent)
2-10-04
 (Date)

GROUNDWATER QUALITY MONITORING: COMPLIANCE REPORT FORM

Please Print Clearly or Type

FACILITY INFORMATION

Facility Name: JOHNSTON COUNTY LANDFILL

Permit Name (if different): JOHNSTON COUNTY HEALTHY WATER UTILIZATION SYSTEM

Facility Address: 680 COUNTY HOME ROAD

SMTHERLAND (Small) PC 27577 County: JOHNSTON

Contact Person: KENNETH C. YUWYK (Small) (Title) Dir Telephone #: 919-651-3895

Well Location/ Site Name: DWR-MW-3 No. of Wells to be Sampled: 9 (from Permit)

Well Identification Number (from Permit): DWR-MW-3

Well Depth: 42 ft. Well Diameter: 2 in.

Screened Interval: 42.0 ft. to 32.0 ft.

Depth to Water Level: 45.0 ft. below measuring point.

Measuring Point (M.P.) Is: 222 ft. above land surface. Relative M.P. Elevation In ft.: 182.85

Gallons of water pumped/balled before sampling: N/A Date sample collected: 1-19-04

Field analysis: pH 4.8, Specific Conductance N/A uMhos

Temp. N/A °C, Odor N/A Appearance N/A

For Groundwater Treatment Systems

Check One: Infiltrant (98)

Effluent (99)

Mail Original

to: DEPARTMENT OF ENVIRONMENT & NATURAL RESOURCES
WATER QUALITY DIVISION, GROUNDWATER SECTION
1836 MAIL SERVICE CENTER
RALEIGH, NC 27699-1538 Phone: (919) 733-3221

PERMIT #: WQ 0019631 EXPIRATION DATE: MAY 31, 2007

Non-Discharge UIC

NPDES UIC

TYPE OF PERMITTED OPERATION BEING MONITORED

Lagoon Remediation: Infiltration Gallery

Spray Field Remediation: _____

Rotary Distributor Land Application of Sludge

Other: _____

NOTE: Values should reflect dissolved and colloidal concentrations.

Date sample analyzed: _____

Laboratory Name: _____

Certification No. _____

PARAMETERS (Samples for metals were collected unfiltered _____ YES _____ NO _____ and field acidified _____ YES _____ NO _____)

COD _____ mg/l

Coliform: MF Fecal _____ /100ml

Coliform: MF Total _____ /100ml

(Note: Use MPN method for highly turbid samples)

Dissolved Solids: Total _____ mg/l

pH (when analyzed) _____ units

TOC _____ mg/l

Chloride _____ mg/l

Arsenic _____ mg/l

Grease and Oils _____ mg/l

Phenol _____ mg/l

Sulfate _____ mg/l

Specific Conductance _____ uMhos

Total Ammonia _____ mg/l

TKN as N _____ mg/l

Nitrite (NO₂) as N _____ mg/l

Nitrate (NO₃) as N _____ mg/l

Phosphorus: Total as P _____ mg/l

Orthophosphate _____ mg/l

Al - Aluminum _____ mg/l

Ba - Barium _____ mg/l

Ca - Calcium _____ mg/l

Cd - Cadmium _____ mg/l

Chromium: Total _____ mg/l

Cu - Copper _____ mg/l

Fe - Iron _____ mg/l

Hg - Mercury _____ mg/l

K - Potassium _____ mg/l

Mg - Magnesium _____ mg/l

Mn - Manganese _____ mg/l

Ni - Nickel _____ mg/l

Pb - Lead _____ mg/l

Zn - Zinc _____ mg/l

Ammonia Nitrogen _____ mg/l

Other (Specify Compounds and Concentration Units)

ORGANICS: (GC/GCMS/HPLC)

(Specify test and method #. Attach lab report.)

Report Attached? Yes _____ (1) No _____ (0)

VOC _____

_____ : method # = _____

_____ : method # = _____

_____ : method # = _____

I certify that, to the best of my knowledge and belief, the information submitted in this report is true, accurate, and complete, and that the laboratory analytical data was produced using approved methods of analysis by a North Carolina DWM (formerly DEM) certified laboratory. I am aware that there are significant penalties for submitting false information, including the possibility of fines, and imprisonment for knowing violations.

HYUNDO M. ALTHUSIC, III DIRECTOR OF OPERATIONS

Permittee (or Authorized Agency Name and Title - Please print or type)

M. W. YUWYK

Signature of Permittee (or Authorized Agent)

2-10-04 (Date)

SUBMIT FORM ON YELLOW PAPER ONLY

GROUNDWATER QUALITY MONITORING: COMPLIANCE REPORT FORM

Facility Name: JOHNSTON COUNTY LANDFILL Please Print Clearly or Type

Permit Name (if different): JOHNSTON COUNTY HEALTHY WATER UTILIZATION SYSTEM

Facility Address: 680 COUNTY HOME RD

City/State/Zip: SMITHFIELD, NC 27577 County: JOHNSTON

Contact Person: KENNETH C. BERRYMAN Telephone #: 919-631-3895

Well Location/ Site Name: COLUM-5 No. of Wells to be Sampled: 2

Well Identification Number (from Permit): COLUM-5

Well Depth: 20.0 ft. Well Diameter: 2 in.

Screened Interval: 20.0 ft. to 5.0 ft.

Depth to Water Level: 6.94 ft. below measuring point.

Measuring Point (M.P.): Is: 2.35 ft. above land surface. Relative M.P. Elevation in ft.: 214.25

Gallons of water pumped/balled before sampling: N/A Date sample collected: 1-19-04

Field analysis: pH N/A, Specific Conductance N/A Appearance N/A

Mail Original to: DEPARTMENT OF ENVIRONMENT & NATURAL RESOURCES
WATER QUALITY DIVISION, GROUNDWATER SECTION
1636 MAIL SERVICE CENTER
RALEIGH, NC 27699-1636 Phone: (919) 733-3221

PERMIT #: WQ 0019631 EXPIRATION DATE: 04/14/05

Non-Discharge UIC

NPDES

TYPE OF PERMITTED OPERATION BEING MONITORED

Lagoon Remediation: Infiltration Gallery

Spray Field Land Application of Sludge

Rotary Distributor Other:

NOTE: Values should reflect dissolved and colloidal concentrations.

Date sample analyzed:

Laboratory Name:

Certification No.

PARAMETERS (Samples for metals were collected: unfiltered YES NO and field acidified YES NO)

COD mg/l

Coliform: MF Fecal /100ml

Coliform: MF Total /100ml

(Note: Use MPN method for highly turbid samples)

Dissolved Solids: Total mg/l

pH (when analyzed) units

TOC mg/l

Chloride mg/l

Arsenic mg/l

Grease and Oils mg/l

Phenol mg/l

Sulfate mg/l

Specific Conductance uMhos

Total Ammonia mg/l

TKN as N mg/l

Nitrite (NO₂) as N mg/l

Nitrate (NO₃) as N mg/l

Phosphorus: Total as P mg/l

Orthophosphate mg/l

Al - Aluminum mg/l

Ni - Nickel mg/l

Pb - Lead mg/l

Zn - Zinc mg/l

Ammonia Nitrogen mg/l

Other (Specify Compounds and Concentration Units)

ORGANICS: (GC,GC/MS,HPLC)

(Specify test and method #. Attach lab report.)

Report Attached? Yes (1) No (0)

VOC : method #

 : method #

 : method #

I certify that, to the best of my knowledge and belief, the information submitted in this report is true, accurate, and complete, and that the laboratory analytical data was produced using approved methods of analysis by a North Carolina DWQ (formerly DEM) certified laboratory. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.

Signature of Authorized Agent: Harold M. Pittsick III Signature of Operator: DIRENN DE OPERATIONS

Permittee (or Authorized Agent Name and Title - Please print or type) Harold M. Pittsick III Date: 2-16-04

Signature of Permittee (or Authorized Agent) (Date)

SUBMIT FORM ON YELLOW PAPER ONLY

GROUNDWATER QUALITY MONITORING: COMPLIANCE REPORT FORM

Please Print Clearly or Type

Mail Original to:

DEPARTMENT OF ENVIRONMENT & NATURAL RESOURCES
WATER QUALITY DIVISION, GROUNDWATER SECTION
1636 MAIL SERVICE CENTER
RALEIGH, NC 27699-1636 Phone: (919) 733-3221

PERMIT #: WQ 00196 31 UIC: _____

EXPIRATION DATE: 4/4/04 5/2/07

Non-Discharge _____

NPDES _____

TYPE OF PERMITTED OPERATION BEING MONITORED

Lagoon Remediation: Infiltration Gallery

Spray Field Land Application of Sludge

Rotary Distributor Other: _____

NOTE: Values should reflect dissolved and colloidal concentrations.

Date sample analyzed: _____

Laboratory Name: _____

Certification No. _____

FACILITY INFORMATION

Facility Name: JOHNSON COUNTY LANDFILL

Permit Name (if different): JOHNSON COUNTY RESIDUAL WATER UTILIZATION SYSTEM

Facility Address: 680 COUNTY HOME ROAD

SMITHFIELD, NC 27577 County: JOHNSON

Contact Person: KENNETH C. SUMMY Telephone #: 919-631-3895

Well Location/ Site Name: PIEZOMETER # 3 No. of Wells to be Sampled: 2

Well Identification Number (from Permit): PZ-3

Well Depth: 1782 ft. Well Diameter: 3 in.

Screened Interval: N/A ft. to N/A ft.

Depth to Water Level: 8.54 ft. below measuring point.

Measuring Point (M.P.): Is: 246 ft. above land surface. Relative M.P. Elevation In Ft.: 121.91

Gallons of water pumped/bailed before sampling: N/A Date sample collected: 1-19-04

Field analysis: pH N/A, Specific Conductance N/A umhos

Temp. N/A °C, Odor N/A Appearance N/A

PARAMETERS (Samples for metals were collected unfiltered _____ YES _____ NO _____ and field-acidified _____ YES _____ NO _____)

COD _____ mg/l

Coliform: MF Fecal _____ /100ml

Coliform: MF Total _____ /100ml

(Note: Use MPN method for highly turbid samples)

Dissolved Solids: Total _____ mg/l

pH (when analyzed) _____ units

TOC _____ mg/l

Chloride _____ mg/l

Arsenic _____ mg/l

Grease and Oils _____ mg/l

Phenol _____ mg/l

Sulfate _____ mg/l

Specific Conductance _____ uMhos

Total Ammonia _____ mg/l

TKN as N _____ mg/l

Nitrite (NO₂) as N _____ mg/l

Nitrate (NO₃) as N _____ mg/l

Phosphorus: Total as P _____ mg/l

Orthophosphate _____ mg/l

Al - Aluminum _____ mg/l

Ba - Barium _____ mg/l

Ca - Calcium _____ mg/l

Cd - Cadmium _____ mg/l

Chromium: Total _____ mg/l

Cu - Copper _____ mg/l

Fe - Iron _____ mg/l

Hg - Mercury _____ mg/l

K - Potassium _____ mg/l

Mg - Magnesium _____ mg/l

Mn - Manganese _____ mg/l

Ni - Nickel _____ mg/l

Pb - Lead _____ mg/l

Zn - Zinc _____ mg/l

Ammonia Nitrogen _____ mg/l

Other (Specify Compounds and Concentration Units)

ORGANICS: (GC, GC/MS, HPLC)

(Specify test and method #. Attach lab report.)

Report Attached? Yes _____ (1) No _____ (0)

VOC _____

_____ : method # _____

_____ : method # _____

_____ : method # _____

I certify that, to the best of my knowledge and belief, the information submitted in this report is true, accurate, and complete, and that the laboratory analytical data was produced using approved methods of analysis by a North Carolina DWMQ (formerly DEM) certified laboratory. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.

Anthony M. Pitts, III Director of Operations

Permittee (or Authorized Agency Name and Title - Please print or type) Waste Management

Signature of Permittee (or Authorized Agent) _____ Date: 2-16-04

GROUNDWATER QUALITY MONITORING: COMPLIANCE REPORT FORM

Please Print Clearly or Type

Mail Original
 TO: DEPARTMENT OF ENVIRONMENT & NATURAL RESOURCES
 WATER QUALITY DIVISION, GROUNDWATER SECTION
 1635 MAIL SERVICE CENTER
 RALEIGH, NC 27698-1635 Phone: (919) 733-3221

FACILITY INFORMATION
 Facility Name: TOLLESTON COUNTY LANDFILL
 Permit Name (if different): TOLLESTON COUNTY HEALTH AND WASTE UTILIZATION SYSTEM
 Facility Address: 680 COUNTY HOME ROAD
SMITHFIELD (TOWN) NC 27577 County TOLLESTON
 Contact Person: KENNETH C. SUMMY (S) Telephone #: 919-634-3895
 Well Location/ Site Name: MW-3 No. of Wells to be Sampled: 2 (from Permit)

Well Identification Number (from Permit): MW-3
 Well Depth: 30.0 ft. Well Diameter: 2 in.
 Screened Interval: 30.0 ft. to 80.0 ft.
 Depth to Water Level: 20.82 ft. below measuring point.
 Measuring Point (M.P.) Is: 1.9 ft. above land surface. Relative M.P. Elevation in ft.: 235.03
 Gallons of water pumped/dialed before sampling: N/A Date sample collected: 1-19-04
 Field analysis: pH N/A, Specific Conductance N/A umhos
 Temp. N/A °C, Odor N/A Appearance N/A

For Groundwater Treatment Systems
 Check One: Influent (98)
 Effluent (99)

PERMIT #: WQ 00196 31 EXPIRATION DATE: MARCH 31, 2007
 Non-Discharge _____ UIC _____
 NPDES _____
 TYPE OF PERMITTED OPERATION BEING MONITORED
 Lagoon _____ Remediation: Infiltration Gallery
 Spray Field _____ Remediation: _____
 Rotary Distributor _____ Land Application of Sludge
 Other: _____

NOTE: Values should reflect dissolved and colloidal concentrations.
 Date sample analyzed: _____
 Laboratory Name: _____
 Certification No. _____

PARAMETERS (Samples for metals were collected unfiltered _____ YES _____ NO _____ and field acidified _____ YES _____ NO _____)

COD _____ mg/l
 Coliform: MF Faecal _____ /100ml
 Coliform: MF Total _____ /100ml
 (Note: Use MPN method for highly turbid samples)
 Dissolved Solids: Total _____ mg/l
 pH (when analyzed) _____ units
 TOC _____ mg/l
 Chloride _____ mg/l
 Arsenic _____ mg/l
 Grease and Oils _____ mg/l
 Phenol _____ mg/l
 Sulfate _____ mg/l
 Specific Conductance _____ umhos
 Total Ammonia _____ mg/l
 TKN as N _____ mg/l

Nitrite (NO₂) as N _____ mg/l
 Nitrate (NO₃) as N _____ mg/l
 Phosphorus: Total as P _____ mg/l
 Orthophosphate _____ mg/l
 Al - Aluminum _____ mg/l
 Ba - Barium _____ mg/l
 Ca - Calcium _____ mg/l
 Cd - Cadmium _____ mg/l
 Chromium: Total _____ mg/l
 Cu - Copper _____ mg/l
 Fe - Iron _____ mg/l
 Hg - Mercury _____ mg/l
 K - Potassium _____ mg/l
 Mg - Magnesium _____ mg/l
 Mn - Manganese _____ mg/l

Ni - Nickel _____ mg/l
 Pb - Lead _____ mg/l
 Zn - Zinc _____ mg/l
 Ammonia Nitrogen _____ mg/l
 Other (Specify Compounds and Concentration Units) _____

ORGANICS: (GC/GCMS/HPLC)
 (Specify test and method #: Attach lab report.)
 Report Attached? Yes _____ (1) No _____ (0)
 VOC _____ : method # _____
 _____ : method # _____
 _____ : method # _____

I certify that to the best of my knowledge and belief, the information submitted in this report is true, accurate, and complete, and that the laboratory analytical data was produced using approved methods of analysis by a North Carolina DWQ (formerly DEW) certified laboratory. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violators.

Harold M. Pytkisic, III Director of Operations
 Permittee (or Authorized Agent) Name and Title - Please print or type
M. D. J. Jr.
 Signature of Permittee (or Authorized Agent)
 2-10-04 (Date)

GROUNDWATER QUALITY MONITORING: COMPLIANCE REPORT FORM

FACILITY INFORMATION

Please Print Clearly or Type

Facility Name: JOHNSON COUNTY LANDFILL
 Permit Name (if different): JOHNSON COUNTY HEALTHY WATER UTILIZATION SYSTEM
 Facility Address: 680 COUNTY HOME ROAD
SMITHFIELD (Town) NC 27577 County JOHNSON
 Contact Person: KENNETH C. YUARK (Title) Telephone #: 919-651-3895
 Well Location/ Site Name: MW-5-2 No. of Wells to be Sampled: 9 (From Permit)

Well Identification Number (from Permit): MW-5-2
 Well Depth: 22.5 ft. Well Diameter: 2 in.
 Screened Interval: 22.5 ft. to 2.5 ft.
 Depth to Water Level: 5.40 ft. below measuring point.
 Measuring Point (M.P.) Is: 2.25 ft. above land surface. Relative M.P. Elevation In ft.: 206.77
 Gallons of water pumped/balled before sampling: N/A Date sample collected: 1-9-04
 Field analysis: pH N/A, Specific Conductance N/A umhos
 Temp. N/A °C, Odor N/A Appearance N/A

PARAMETERS (Samples for metals were collected unfiltered) YES NO and field acidified YES NO

COD _____ mg/l
 Coliform: MF Fecal _____ /100ml
 Coliform: MF Total _____ /100ml
 (Note: Use MPN method for highly turbid samples)
 Dissolved Solids: Total _____ mg/l
 pH (when analyzed) _____ units
 TOC _____ mg/l
 Chloride _____ mg/l
 Arsenic _____ mg/l
 Grease and Oils _____ mg/l
 Phenol _____ mg/l
 Sulfate _____ mg/l
 Specific Conductance _____ umhos
 Total Ammonia _____ mg/l
 TKN as N _____ mg/l

Nitrite (NO₂) as N _____ mg/l
 Nitrate (NO₃) as N _____ mg/l
 Phosphorus: Total as P _____ mg/l
 Orthophosphate _____ mg/l
 Al - Aluminum _____ mg/l
 Ba - Barium _____ mg/l
 Ca - Calcium _____ mg/l
 Cd - Cadmium _____ mg/l
 Chromium: Total _____ mg/l
 Cu - Copper _____ mg/l
 Fe - Iron _____ mg/l
 Hg - Mercury _____ mg/l
 K - Potassium _____ mg/l
 Mg - Magnesium _____ mg/l
 Mn - Manganese _____ mg/l

NI - Nickel _____ mg/l
 Pb - Lead _____ mg/l
 Zn - Zinc _____ mg/l
 Ammonia Nitrogen _____ mg/l
 Other (Specify Compounds and Concentration Units)

ORGANICS: (GC, GC/MS, HPLC)
 (Specify test and method #. Attach lab report.)
 Report Attached? Yes (1) No (0)
 VOC : method # = _____
 : method # = _____
 : method # = _____

Mail Original DEPARTMENT OF ENVIRONMENT & NATURAL RESOURCES
 WATER QUALITY DIVISION, GROUNDWATER SECTION
 1636 MAIL SERVICE CENTER RALEIGH, NC 27699-1636 Phone: (919) 733-3221

PERMIT #: WQ 00196 31 EXPIRATION DATE: MARCH 31, 2007
 Non-Discharge _____ UIC _____
 NPDES _____
 TYPE OF PERMITTED OPERATION BEING MONITORED
 Lagoon
 Spray Field
 Rotary Distributor
 Land Application of Sludge
 Other: _____
 Remediation: Infiltration Gallery
 Remediation: _____
 Land Application of Sludge

NOTE: Values should reflect dissolved and colloidal concentrations.
 Date sample analyzed: _____
 Laboratory Name: _____
 Certification No. _____

I certify that, to the best of my knowledge and belief, the information submitted in this report is true, accurate, and complete, and that the laboratory analytical data was produced using approved methods of analysis by a North Carolina DWO (formerly DEM) certified laboratory. I am aware that there are significant penalties for submitting false information, including the possibility of fines, and imprisonment for knowing violations.

Harold M. Pitts, III Director of Operations
 Permittee (or Authorized Agent) Name and Title - Please print or type
[Signature]
 Signature of Permittee (or Authorized Agent)
2-10-04 (Date)

SUBMIT FORM ON YELLOW PAPER ONLY

GROUNDWATER QUALITY MONITORING: COMPLIANCE REPORT FORM

FACILITY INFORMATION

Please Print Clearly or Type

Facility Name: JOHNSTON COUNTY LANDFILL
 Permit Name (if different): JOHNSTON COUNTY RESLANDING WATER UTILIZATION SYSTEM
 Facility Address: 680 COUNTY HOME ROAD
SMTHERS, NC 27577
 County: JOHNSTON
 Telephone #: 919-631-3895
 Contact Person: KENNETH C. BUNYARK (City) (State)
 Well Location/ Site Name: MW-5-1 No. of Wells to be Sampled: 2 (from Permit)

Well Identification Number (from Permit): MW-5-1
 Well Depth: 31.7 ft. Well Diameter: 3 in.
 Screened Interval: 31.7 ft. to 16.7 ft.
 Depth to Water Level: 23.18 ft. below measuring point.
 Measuring Point (M.P.): 2.22 ft. above land surface. Relative M.P. Elevation in ft.: 231.7
 Gallons of water pumped/balled before sampling: N/A Date sample collected: 1-19-04
 Field analysis: pH N/A, Specific Conductance N/A uMhos
 Temp. N/A °C, Odor N/A Appearance N/A

DEPARTMENT OF ENVIRONMENT & NATURAL RESOURCES
 WATER QUALITY DIVISION, GROUNDWATER SECTION
 1636 MAIL SERVICE CENTER
 RALEIGH, NC 27699-1636 Phone: (919) 733-3221

Mail Original to:

PERMIT #: WQ 0019631 EXPIRATION DATE: MAY 31, 2007
 Non-Discharge: _____ UIC: _____
 NPDES: _____
 TYPE OF PERMITTED OPERATION BEING MONITORED
 Lagoon Remediation: Infiltration Gallery
 Spray Field Remediation:
 Rotary Distributor Land Application of Sludge
 Other: _____

NOTE: Values should reflect dissolved and colloidal concentrations.

Date sample analyzed: _____
 Laboratory Name: _____
 Certification No. _____

PARAMETERS (Samples for metals were collected unfiltered)	YES	NO	and field-acidified	YES	NO
COD	_____	_____	_____	_____	_____
Coliform: MF Fecal	_____ /100ml	_____	_____	_____	_____
Coliform: MF Total	_____ /100ml	_____	_____	_____	_____
(Note: Use MPN method for highly turbid samples)					
Dissolved Solids: Total	_____ mg/l	_____	_____	_____	_____
pH (when analyzed)	_____ units	_____	_____	_____	_____
TOC	_____ mg/l	_____	_____	_____	_____
Chloride	_____ mg/l	_____	_____	_____	_____
Arsenic	_____ mg/l	_____	_____	_____	_____
Grease and Oils	_____ mg/l	_____	_____	_____	_____
Phenol	_____ mg/l	_____	_____	_____	_____
Sulfate	_____ mg/l	_____	_____	_____	_____
Specific Conductance	_____ uMhos	_____	_____	_____	_____
Total Ammonia	_____ mg/l	_____	_____	_____	_____
TKN as N	_____ mg/l	_____	_____	_____	_____
Nitrite (NO ₂) as N	_____ mg/l	_____	_____	_____	_____
Nitrate (NO ₃) as N	_____ mg/l	_____	_____	_____	_____
Phosphorus: Total as P	_____ mg/l	_____	_____	_____	_____
Orthophosphate	_____ mg/l	_____	_____	_____	_____
Al - Aluminum	_____ mg/l	_____	_____	_____	_____
Ba - Barium	_____ mg/l	_____	_____	_____	_____
Ca - Calcium	_____ mg/l	_____	_____	_____	_____
Cd - Cadmium	_____ mg/l	_____	_____	_____	_____
Chromium: Total	_____ mg/l	_____	_____	_____	_____
Cu - Copper	_____ mg/l	_____	_____	_____	_____
Fe - Iron	_____ mg/l	_____	_____	_____	_____
Hg - Mercury	_____ mg/l	_____	_____	_____	_____
K - Potassium	_____ mg/l	_____	_____	_____	_____
Mg - Magnesium	_____ mg/l	_____	_____	_____	_____
Mn - Manganese	_____ mg/l	_____	_____	_____	_____
Ni - Nickel	_____ mg/l	_____	_____	_____	_____
Pb - Lead	_____ mg/l	_____	_____	_____	_____
Zn - Zinc	_____ mg/l	_____	_____	_____	_____
Ammonia Nitrogen	_____ mg/l	_____	_____	_____	_____
Other (Specify Compounds and Concentration Units)	_____	_____	_____	_____	_____
ORGANICS: (GC, GC/MS, HPLC)	_____	_____	_____	_____	_____
(Specify test and method #. Attach lab report.)	_____	_____	_____	_____	_____
Report Attached? Yes <u>(1)</u> No <u>(0)</u>	_____	_____	_____	_____	_____
VOC	_____	_____	_____	_____	_____
method # = _____	_____	_____	_____	_____	_____
method # = _____	_____	_____	_____	_____	_____
method # = _____	_____	_____	_____	_____	_____

I certify that, to the best of my knowledge and belief, the information submitted in this report is true, accurate, and complete, and that the laboratory analytical data was produced using approved methods of analysis by a North Carolina DWQ (formerly DEM) certified laboratory. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.

RAYMOND M. PHIBBS, III DIRECTOR OF OPERATIONS
 Permittee (or Authorized Agent) Name and Title - Please print or type
[Signature]
 Signature of Permittee (or Authorized Agent)
 Date: 2-10-04 (Date)

GROUNDWATER QUALITY MONITORING: COMPLIANCE REPORT FORM

Please Print Clearly or Type

Mail Original to:
DEPARTMENT OF ENVIRONMENT & NATURAL RESOURCES
WATER QUALITY DIVISION, GROUNDWATER SECTION
1636 MAIL SERVICE CENTER
RALEIGH, NC 27699-1636
Phone: (919) 733-3221

Facility Name: JOHNSON COUNTY LANDFILL

Permit Name (if different): JOHNSON COUNTY RESIDUAL WATER UTILIZATION SYSTEM

Facility Address: 680 COUNTY HOME RD

SMITHFIELD (State) NC 27577 County JOHNSON

Contact Person: KENNETH C. QUAYNOR (Title) Telephone #: 919-631-3895

Well Location/ Site Name: MU-5-10 No. of Wells to be Sampled: 2 (from Permit)

Well Identification Number (from Permit): MU-5-10

Well Depth: 86.1 ft. Well Diameter: 2 in.

Screened Interval: 86.1 ft. to 11.1 ft.

Depth to Water Level: 23.48 ft. below measuring point.

Measuring Point (M.P.): is: 2.16 ft. above land surface. Relative M.P. Elevation in ft.: 202.88

Gallons of water pumped/bailed before sampling: N/A Date sample collected: 1-19-04

Field analysis: pH N/A, Specific Conductance N/A umhos

Temp. N/A °C, Odor N/A Appearance N/A

For Groundwater Treatment Systems
Check One: Influent (98)
 Effluent (99)

PERMIT #: WQ 00196 31 EXPIRATION DATE: 04/14/05
Non-Discharge UIC
NPDES
TYPE OF PERMITTED OPERATION BEING MONITORED
 Lagoon Remediation: Infiltration Gallery
 Spray Field Remediation: _____
 Rotary Distributor Land Application of Sludge
Other: _____

NOTE: Values should reflect dissolved and colloidal concentrations.

Date sample analyzed: _____
Laboratory Name: _____
Certification No. _____

PARAMETERS (Samples for metals were collected unfiltered _____ YES _____ NO _____ and field-acidified _____ YES _____ NO _____)

COD _____ mg/l	Nitrite (NO ₂) as N _____ mg/l
Coliform: MF Fecal _____ /100ml	Nitrate (NO ₃) as N _____ mg/l
Coliform: MF Total _____ /100ml	Phosphorus: Total as P _____ mg/l
(Note: Use MPN method for highly turbid samples)	Orthophosphate _____ mg/l
Dissolved Solids: Total _____ mg/l	Al - Aluminum _____ mg/l
pH (when analyzed) _____ units	Ba - Barium _____ mg/l
TOC _____ mg/l	Ca - Calcium _____ mg/l
Chloride _____ mg/l	Cd - Cadmium _____ mg/l
Arsenic _____ mg/l	Chromium: Total _____ mg/l
Grease and Oils _____ mg/l	Cu - Copper _____ mg/l
Phenol _____ mg/l	Fe - Iron _____ mg/l
Sulfate _____ mg/l	Hg - Mercury _____ mg/l
Specific Conductance _____ umhos	K - Potassium _____ mg/l
Total Ammonia _____ mg/l	Mg - Magnesium _____ mg/l
TKN as N _____ mg/l	Mn - Manganese _____ mg/l

Ni - Nickel _____ mg/l
Pb - Lead _____ mg/l
Zn - Zinc _____ mg/l
Ammonia Nitrogen _____ mg/l
Other (Specify Compounds and Concentration Units)

ORGANICS: (GC/GCMS,HPLC)
(Specify test and method #. Attach lab report.)
Report Attached? Yes _____ (1) No _____ (0)
VOC
: method # = _____
: method # = _____
: method # = _____

I certify that, to the best of my knowledge and belief, the information submitted in this report is true, accurate, and complete, and that the laboratory analytical data was produced using approved methods of analysis by a North Carolina DWM (formerly DEM) certified laboratory. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.

ARVIND M. ARTHUR, III DIRECTOR OF OPERATIONS
Permittee (or Authorized Agent) Name and Title - Please print or type
Arvind M. Arthur, III
Signature of Permittee (or Authorized Agent) Arvind M. Arthur, III
Date 2-10-04
(Date)

NON-DISCHARGE APPLICATION REPORT SPRAY IRRIGATION SITE(S)

THERE ARE TWO APPLICATION FIELDS PER PAGE. USE ADDITIONAL PAGES AS NEEDED.

PERMIT NUMBER: WQ 0019632 MONTH: January YEAR: 2004

FACILITY NAME: Johnston County Reclaimed Water Utilization System COUNTY: Johnston

Formulas:

Daily Loading (Inches) = [Volume Applied (gallons) x 0.1336 (cubic feet/gallon) x 12 (Inches/foot)] / [Area Sprayed (acres) x 43,560 (square feet/acre)] OR
 = Volume Applied (gallons) / [Area Sprayed (acres) x 27,152 (gallons/acre-inch)]

Maximum Hourly Loading (Inches) = Daily Loading (Inches) / [Time Irrigated (minutes) / 60 (minutes/hour)] Monthly Loading (Inches) = Sum of Daily Loadings (Inches)

12 Month Floating Total (Inches) = Sum of this month's Monthly Loading (Inches) and previous 11 month's Monthly Loadings (Inches)

Average Weekly Loading (Inches) = [Monthly Loading (Inches/month) / Number of days in the month (days/month)] x 7 (days/week)

Did Irrigation Occur At This Facility: Yes: <input type="checkbox"/> No: <input checked="" type="checkbox"/>				Did Irrigation Occur On This Field: Yes: <input type="checkbox"/> No: <input type="checkbox"/>				Did Irrigation Occur On This Field: Yes: <input type="checkbox"/> No: <input type="checkbox"/>				
				FIELD NUMBER:				FIELD NUMBER:				
				AREA SPRAYED (acres):				AREA SPRAYED (acres):				
				COVER CROP:				COVER CROP:				
				PERMITTED HOURLY RATE (Inches):				PERMITTED HOURLY RATE (Inches):				
PERMITTED YEARLY RATE (Inches):				PERMITTED YEARLY RATE (Inches):				PERMITTED YEARLY RATE (Inches):				
DATE	WEATHER CONDITIONS			Storage Lagoon Free-board feet	Volume Applied gallons	Time Irrigated minutes	Daily Loading inches	Maximum Hourly Loading inches	Volume Applied gallons	Time Irrigated minutes	Daily Loading inches	Maximum Hourly Loading inches
	Weather Code*	Temperature at application (°F)	Precipitation inches									
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
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20												
21												
22												
23												
24												
25												
26												
27												
28												
29												
30												
31												
Total Gallons/Monthly Loading (Inches)				0		0.00			0		0.00	
12 Month Floating Total (Inches)												
Average Weekly Loading (Inches)						0					0	

* Weather Codes: C-clear, PC-partly cloudy, CI-cloudy, R-rain, Sn-snow, SI-sleet

Spray Irrigation Operator In Responsible Charge (ORC): Kenneth C. York Phone: 919-631-3895

ORC Certification Number: 26366 Check Box if ORC Has Changed:

Mail ORIGINAL and TWO COPIES to:
 ATTN: Non-Discharge Compliance Unit
 DENR
 Division of Water Quality
 1617 Mail Service Center
 RALEIGH, NC 27699-1617


 (SIGNATURE OF OPERATOR IN RESPONSIBLE CHARGE)
 BY THIS SIGNATURE, I CERTIFY THAT THIS REPORT IS ACCURATE AND COMPLETE TO THE BEST OF MY KNOWLEDGE.

NON-DISCHARGE APPLICATION REPORT
SPRAY IRRIGATION SITE(S)

Facility Status:

Please indicate (by inserting Y(es) or N(o) in the appropriate box) whether the facility has been **compliant** with the following permit requirements: (Note: if a requirement does not apply to your facility put (NA) in the compliant box.)

1. The application rate(s) did not exceed the limit(s) specified in the permit.

Compliant (Y,N)

2. Adequate measures were taken to prevent wastewater runoff from the site(s).

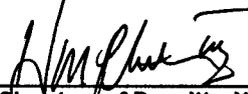
3. A suitable vegetative cover was maintained on the site(s) in accordance with the permit.

4. All buffer zones as specified in the permit were maintained during each application.

5. The freeboard in the treatment and/or storage lagoon(s) was not less than the limit(s) specified in the permit.

If the facility is **non-compliant**, please explain in the space below the reason(s) the facility was not in compliance with its permit. Provide in your explanation the date(s) of the non-compliance and describe the corrective action(s) taken. Attach additional sheets if necessary.

"I certify, under penalty of law, that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that all qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations."



(Signature of Permittee)* 2-10-04
Date

Haywood M. Phthisic, III

(Name of Signing Official-Please print or type)

Johnston County Department of Public Utilities

(Permittee-Please print or type)

Director

(Position or Title)

P.O. Box 2263

919-989-5075

(Phone Number)

31-Mar-07

(Permit Exp. Date)

Smithfield, NC 27577

(Permittee Address)

* If signed by other than the permittee, delegation of signatory authority must be on file with the state per 15A NCAC 2B.0506 (b)(2)(D).

NON DISCHARGE WASTEWATER MONITORING REPORT

PERMIT NUMBER: WQ0019632 MONTH: January YEAR: 2004
 FACILITY NAME: Johnston Co. Reclaimed Water Utilization Syst. COUNTY: Johnston

Flow Monitoring Point: Effluent: <input checked="" type="checkbox"/> Influent: <input type="checkbox"/>														
Parameter Monitoring Point: Effluent: <input checked="" type="checkbox"/> Influent: <input type="checkbox"/> Surface Water (SW): <input type="checkbox"/> SW Code/Name:														
Was There Effluent Flow For This Month Generated At This Facility: Yes: <input type="checkbox"/> No: <input checked="" type="checkbox"/>														
DATE	Operator Arrival Time 2400 Clock	Operator Time On Site HRS	ORC on Site? Y/N	50050	00400	50060	00310	00610	00530	31616				
				Daily Rate (Flow) into Treatment System GALLONS	pH UNITS	Residual Chlorine UG/L	BOD-5 20°C MG/L	NH3-N MG/L	TSS MG/L	Fecal Coliform (Geo-metric Mean*) /100ML				
1														
2														
3														
4														
5														
6														
7														
8														
9														
10														
11														
12														
13														
14														
15														
16														
17														
18														
19														
20														
21														
22														
23														
24														
25														
26														
27														
28														
29														
30														
31														
Average				#DIV/0!	#####	#####	#####	#####	#####	#####	#NUM!			
Daily Maximum				0	0	0	0	0	0	0	0			
Daily Minimum				0	0	0	0	0	0	0	0			
Monthly Limit(s)														
Composite (C) / Grab (G)														

Operator In Responsible Charge (ORC): Kenneth Clay York Grade: SI Phone: 919-631-3895
 Check Box if ORC Has Changed: ORC Certification Number: 26366
 Certified Laboratories (1): Environment 1 (2): Johnston County WWTP Laboratory
 Person(s) Collecting Samples: Jason Volker

Mail ORIGINAL and TWO COPIES to:
 ATTN: Non-Discharge Compliance Unit
 DENR
 Division of Water Quality
 1617 Mail Service Center

Kenneth C. York

 (SIGNATURE OF OPERATOR IN RESPONSIBLE CHARGE)
 BY THIS SIGNATURE, I CERTIFY THAT THIS REPORT IS ACCURATE
 AND COMPLETE TO THE BEST OF MY KNOWLEDGE.

NON DISCHARGE WASTEWATER MONITORING REPORT

Facility Status:

Please answer the following question:

1. Does all monitoring data and sampling frequencies meet permit requirements?

Compliant (Y,N)

Y

If the facility is **non-compliant**, please explain in the space below the reason(s) the facility was not in compliance with its permit. Provide in your explanation the date(s) of the non-compliance and describe the corrective action(s) taken. Attach additional sheets if necessary.

"I certify, under penalty of law, that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that all qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations."

Haywood M. Phthisic, III 2-10-04
 (Signature of Permittee)* Date

Haywood M. Phthisic, III
 (Name of Signing Official-Please print or type)

Johnston County Department of Public Utilities
 (Permittee-Please print or type)

Director of Operations
 (Position or Title)

P.O. 2263

919-989-5075
 (Phone Number)

31-Mar-07
 (Permit Exp. Date)

Smithfield, NC 27577
 (Permittee Address)

Parameter Codes:

01002 Arsenic	31504 Coliform, Total	00600 Nitrogen, Total	00929 Sodium
01022 Boron	00094 Conductivity	00630 NO2&NO3	00931 SAR
00310 BOD5	01042 Copper	00620 NO3	00745 Sulfide
01027 Cadmium	00300 Dissolved Oxygen	00556 Oil-Grease	70295 TDS
00916 Calcium	31616 Fecal Coliform	WQ09 PAN (Plant Available)	00010 Temperature
00940 Chloride	01051 Lead	00400 pH	00625 TKN
50060 Chlorine, Total Residual	00927 Magnesium	32730 Phenols	00680 TOC
	71900 Mercury	00665 Phosphorus, Total	00530 TSS/TSR
01034 Chromium	00610 NH3asN	00937 Potassium	00076 Turbidity
00340 COD	01067 Nickel	00545 Settleable Matter	01092 Zinc

Parameter Code assistance may be obtained by calling the Water Quality Compliance/Enforcement Unit at (919) 733-5083 ext. 529.

The monthly average for Fecal Coliform is to be reported as a GEOMETRIC mean. Use only the units designated in the reporting facility's permit for reporting data.

* If signed by other than the permittee, delegation of signatory authority must be on file with the state per 15A NCAC 2B.0506 (b)(2)(D).

NON-DISCHARGE APPLICATION REPORT SPRAY IRRIGATION SITE(S)

THERE ARE TWO APPLICATION FIELDS PER PAGE. USE ADDITIONAL PAGES AS NEEDED.

PERMIT NUMBER: WQ 0019631 MONTH: February YEAR: 2004

FACILITY NAME: Johnston County Reclaimed Water Utilization System COUNTY: Johnston

Formulas:

Daily Loading (Inches) = [Volume Applied (gallons) x 0.1336 (cubic feet/gallon) x 12 (Inches/foot)] / [Area Sprayed (acres) x 43,560 (square feet/acre)] OR
= Volume Applied (gallons) / [Area Sprayed (acres) x 27,152 (gallons/acre-inch)]

Maximum Hourly Loading (Inches) = Daily Loading (Inches) / [Time Irrigated (minutes) / 60 (minutes/hour)] Monthly Loading (Inches) = Sum of Daily Loadings (Inches)

12 Month Floating Total (Inches) = Sum of this month's Monthly Loading (Inches) and previous 11 month's Monthly Loadings (Inches)

Average Weekly Loading (Inches) = [Monthly Loading (Inches/month) / Number of days in the month (days/month)] x 7 (days/week)

Did Irrigation Occur At This Facility:					Did Irrigation Occur On This Field:				Did Irrigation Occur On This Field:			
Yes: <input type="checkbox"/> No: <input checked="" type="checkbox"/>					Yes: <input type="checkbox"/> No: <input checked="" type="checkbox"/>				Yes: <input type="checkbox"/> No: <input checked="" type="checkbox"/>			
					FIELD NUMBER:				FIELD NUMBER:			
					AREA SPRAYED (acres):				AREA SPRAYED (acres):			
					COVER CROP:				COVER CROP:			
					PERMITTED HOURLY RATE (Inches):				PERMITTED HOURLY RATE (Inches):			
WEATHER CONDITIONS					PERMITTED YEARLY RATE (Inches):				PERMITTED YEARLY RATE (Inches):			
					DATE	Weather Code*	Temperature at application (°F)	Precipitation (Inches)	Storage Lagoon Free-board (feet)	Volume Applied (gallons)	Time Irrigated (minutes)	Daily Loading (Inches)
1	PC	40	NA	NA								
2	PC	49	NA	NA								
3	R	48	0.51	NA								
4	CI	50	NA	NA								
5	PC	46	NA	NA								
6	R	68	0.67	NA								
7	R	62	0.07	NA								
8	PC	45	NA	NA								
9	CI	44	0.02	NA								
10	CI	52	NA	NA								
11	PC	51	NA	NA								
12	R	45	0.63	NA								
13	PC	56	NA	NA								
14	R	52	0.15	NA								
15	R	45	0.3	NA								
16	PC	38	NA	NA								
17	Sn	31	0.06	NA								
18	Sn	49	0.17	NA								
19	C	64	NA	NA								
20	C	67	NA	NA								
21	PC	65	NA	NA								
22	PC	58	NA	NA								
23	PC	51	NA	NA								
24	CI	56	NA	NA								
25	PC	50	NA	NA								
26	CI	37	NA	NA								
27	Sn	41	0.48	NA								
28	SI	59	0.1	NA								
29	PC	64	NA	NA								
30												
31												
Total Gallons/Monthly Loading (Inches)					0		0.00		0		0.00	
12 Month Floating Total (Inches)												
Average Weekly Loading (Inches)							0				0	

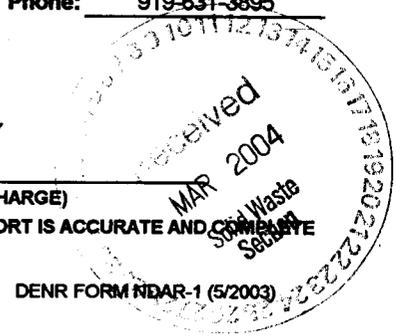
* Weather Codes: C-clear, PC-partly cloudy, CI-cloudy, R-rain, Sn-snow, SI-sleet

Spray Irrigation Operator in Responsible Charge (ORC): Kenneth C. York Phone: 919-631-3895

ORC Certification Number: 26366 Check Box if ORC Has Changed:

Mail ORIGINAL and TWO COPIES to:
ATTN: Non-Discharge Compliance Unit
DENR
Division of Water Quality
1617 Mail Service Center
RALEIGH, NC 27699-1617

Kenneth C. York
(SIGNATURE OF OPERATOR IN RESPONSIBLE CHARGE)
BY THIS SIGNATURE, I CERTIFY THAT THIS REPORT IS ACCURATE AND COMPLETE
TO THE BEST OF MY KNOWLEDGE.



**NON-DISCHARGE APPLICATION REPORT
SPRAY IRRIGATION SITE(S)**

Facility Status:

Please indicate (by inserting Y(es) or N(o) in the appropriate box) whether the facility has been **compliant** with the following permit requirements: (Note: if a requirement does not apply to your facility put (NA) in the compliant box.)

- | | |
|--|--|
| 1. The application rate(s) did not exceed the limit(s) specified in the permit. | Compliant (Y,N)
<input type="text" value="NA"/> |
| 2. Adequate measures were taken to prevent wastewater runoff from the site(s). | <input type="text" value="NA"/> |
| 3. A suitable vegetative cover was maintained on the site(s) in accordance with the permit. | <input type="text" value="NA"/> |
| 4. All buffer zones as specified in the permit were maintained during each application. | <input type="text" value="NA"/> |
| 5. The freeboard in the treatment and/or storage lagoon(s) was not less than the limit(s) specified in the permit. | <input type="text" value="NA"/> |

If the facility is **non-compliant**, please explain in the space below the reason(s) the facility was not in compliance with its permit. Provide in your explanation the date(s) of the non-compliance and describe the corrective action(s) taken. Attach additional sheets if necessary.

"I certify, under penalty of law, that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that all qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations."

Haywood M. Phthisic, III 3-03-04
 (Signature of Permittee)* Date

Haywood M. Phthisic, III
 (Name of Signing Official-Please print or type)
Director of Operations
 (Position or Title)

Johnston County Department of Public Utilities
 (Permittee-Please print or type)

919-989-5075 31-Mar-07
 (Phone Number) (Permit Exp. Date)

P.O. Box 2263
Smithfield, NC 27577
 (Permittee Address)

* If signed by other than the permittee, delegation of signatory authority must be on file with the state per 15A NCAC 2B.0506 (b)(2)(D).

SUBMIT FORM ON YELLOW PAPER ONLY

GROUNDWATER QUALITY MONITORING: COMPLIANCE REPORT FORM

FACILITY INFORMATION

Please Print Clearly or Type

Facility Name: JOHNSON COUNTY LANDFILL
 Permit Name (if different): JOHNSON COUNTY RECLAIMED WATER UTILIZATION SYSTEM
 Facility Address: 680 COUNTY HOME ROAD
SMTHERS (City) NC 27577 County: JOHNSON
 Contact Person: KENNETH C. BUNYON Telephone #: 919-631-3895
 Well Location/ Site Name: MW-5-10 No. of Wells to be Sampled: 2 (from Permit)

Well Identification Number (from Permit): MW-5-10
 Well Depth: 26.1 ft. Well Diameter: 2 in.
 Screened Interval: 26.1 ft. to 11.1 ft.

Depth to Water Level: 12.50 ft. below measuring point.
 Measuring Point (M.P.): 2.16 ft. above land surface. Relative M.P. Elevation in ft.: 222.88
 Gallons of water pumped/bailed before sampling: N/A Date sample collected: 2-18-04
 Field analysis: pH N/A, Specific Conductance N/A uMhos
 Temp. 14 °C, Odor N/A Appearance N/A

For Groundwater Treatment Systems
 Check One: Influent (98)
 Effluent (99)

Mail Original to:

DEPARTMENT OF ENVIRONMENT & NATURAL RESOURCES
 WATER QUALITY DIVISION, GROUNDWATER SECTION
 1636 MAIL SERVICE CENTER
 RALEIGH, NC 27689-1636 Phone: (919) 733-3221

PERMIT #: WQ 0019631 EXPIRATION DATE: MM-YY 31, 2007
 Non-Discharge: _____ UIC: _____
 NPDES: _____
 TYPE OF PERMITTED OPERATION BEING MONITORED
 Lagoon _____ Remediation: Infiltration Gallery
 Spray Field _____ Remediation: _____
 Rotary Distributor _____ Land Application of Sludge
 Other: _____

NOTE: Values should reflect dissolved and colloidal concentrations.

Date sample analyzed: _____
 Laboratory Name: _____
 Certification No. _____

PARAMETERS (Samples for metals were collected unfiltered. YES NO and field-acidified YES NO)

COD _____ mg/l	Nitrite (NO ₂) as N _____ mg/l	Ni - Nickel _____ mg/l
Coliform: MF Fecal _____ /100ml	Nitrate (NO ₃) as N _____ mg/l	Pb - Lead _____ mg/l
Coliform: MF Total _____ /100ml	Phosphorus: Total as P _____ mg/l	Zn - Zinc _____ mg/l
(Note: Use MPN method for highly turbid samples)	Orthophosphate _____ mg/l	Ammonia Nitrogen _____ mg/l
Dissolved Solids: Total _____ mg/l	Al - Aluminum _____ mg/l	Other (Specify Compounds and Concentration Units) _____
pH (when analyzed) _____ units	Ba - Barium _____ mg/l	
TOC _____ mg/l	Ca - Calcium _____ mg/l	
Chloride _____ mg/l	Cd - Cadmium _____ mg/l	
Arsenic _____ mg/l	Chromium: Total _____ mg/l	
Grease and Oils _____ mg/l	Cu - Copper _____ mg/l	
Phenol _____ mg/l	Fe - Iron _____ mg/l	
Sulfate _____ mg/l	Hg - Mercury _____ mg/l	
Specific Conductance _____ uMhos	K - Potassium _____ mg/l	
Total Ammonia _____ mg/l	Mg - Magnesium _____ mg/l	
TKN as N _____ mg/l	Mn - Manganese _____ mg/l	

ORGANICS: (GC/GCMS,HPLC)
 (Specify test and method #. Attach lab report.)
 Report Attached? Yes (1) No (0)
 VOC : method # _____
 : method # _____
 : method # _____

I certify that, to the best of my knowledge and belief, the information submitted in this report is true, accurate, and complete, and that the laboratory analytical data was produced using approved methods of analysis by a North Carolina DWO (formerly DEM) certified laboratory. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.

RAYMOND M. PHTHISIC, III DIRECTOR OF OPERATIONS
 Permittee (or Authorized Agent) Name and Title - Please print or type
Raymond M. Phtisic, III
 Signature of Permittee (or Authorized Agent)
 (Date) 3-03-04

SUBMIT FORM ON YELLOW PAPER ONLY

GROUNDWATER QUALITY MONITORING: COMPLIANCE REPORT FORM

FACILITY INFORMATION

Please Print Clearly or Type

Facility Name: JOHNSTON COUNTY LANDFILL
 Permit Name (if different): JOHNSTON COUNTY RESLAND WATER UTILIZATION SYSTEM
 Facility Address: 680 COUNTY HOME ROAD
SALTHERS RD (Street) 27577 County: JOHNSTON
 Contact Person: KENNETH C. (BAIN) YORK Telephone #: 919-631-3895
 Well Location/ Site Name: MW-5-1 No. of Wells to be Sampled: 9 (from Permit)

Well Identification Number (from Permit): MW-5-1
 For Groundwater Treatment Systems

Well Depth: 31.7 ft. Well Diameter: 2 in.
 Screened Interval: 31.7 ft. to 16.7 ft.

Depth to Water Level: 23.16 ft. below measuring point.
 Measuring Point (M.P.): 232 ft. above land surface. Relative M.P. Elevation in ft.: 232.17

Gallons of water pumped/bailed before sampling: N/A Date sample collected: 2-18-04

Field analysis: pH N/A, Specific Conductance N/A uMhos
 Temp. N/A °C, Odor N/A Appearance N/A

Mail Original

TO:

DEPARTMENT OF ENVIRONMENT & NATURAL RESOURCES
 WATER QUALITY DIVISION, GROUNDWATER SECTION
 1636 MAIL SERVICE CENTER
 RALEIGH, NC 27699-1636 Phone: (919) 733-3221

PERMIT #: WQ 0019631 EXPIRATION DATE: APR 31, 2007
 Non-Discharge _____ UIC _____
 NPDES _____

TYPE OF PERMITTED OPERATION BEING MONITORED

Lagoon _____ Remediation: Infiltration Gallery
 X Spray Field _____ Remediation: _____
 Rotary Distributor _____ Land Application of Sludge
 Other: _____

NOTE: Values should reflect dissolved and colloidal concentrations.

Date sample analyzed: _____
 Laboratory Name: _____
 Certification No. _____

PARAMETERS (Samples for metals were collected unfiltered, YES NO and field-acidified YES NO)

COD _____ mg/l	Nitrite (NO ₂) as N _____ mg/l	Ni - Nickel _____ mg/l
Coliform: MF Fecal _____ /100ml	Nitrate (NO ₃) as N _____ mg/l	Pb - Lead _____ mg/l
Coliform: MF Total _____ /100ml	Phosphorus: Total as P _____ mg/l	Zn - Zinc _____ mg/l
(Note: Use MPN method for highly turbid samples)	Orthophosphate _____ mg/l	Ammonia Nitrogen _____ mg/l
Dissolved Solids: Total _____ mg/l	Al - Aluminum _____ mg/l	Other (Specify Compounds and Concentration Units) _____
pH (when analyzed) _____	Ba - Barium _____ mg/l	
TOC _____ mg/l	Ca - Calcium _____ mg/l	
Chloride _____ mg/l	Cd - Cadmium _____ mg/l	
Arsenic _____ mg/l	Chromium: Total _____ mg/l	
Grease and Oils _____ mg/l	Cu - Copper _____ mg/l	
Phenol _____ mg/l	Fe - Iron _____ mg/l	
Sulfate _____ mg/l	Hg - Mercury _____ mg/l	
Specific Conductance _____ uMhos	K - Potassium _____ mg/l	
Total Ammonia _____ mg/l	Mg - Magnesium _____ mg/l	
TKN as N _____ mg/l	Mn - Manganese _____ mg/l	

ORGANICS: (GC, GC/MS, HPLC)

(Specify test and method #. Attach lab report.)
 Report Attached? Yes (1) No (0)
 VOC : method # _____
 : method # _____
 : method # _____

I certify that, to the best of my knowledge and belief, the information submitted in this report is true, accurate, and complete, and that the laboratory analytical data was produced using approved methods of analysis by a North Carolina DWO (formerly DEIM) certified laboratory. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.

HAYWOOD M. PHTHISIC, III DIRECTOR OF OPERATIONS
 (Signature of Authorized Agent) Name and Title - Please print or type
Haywood M. Phtisic, III
 (Signature of Permittee (or Authorized Agent))
3-03-04
 (Date)

SUBMIT FORM ON YELLOW PAPER ONLY

GROUNDWATER QUALITY MONITORING: COMPLIANCE REPORT FORM

FACILITY INFORMATION

Please Print Clearly or Type

Facility Name: JOHNSTON COUNTY LANDFILL
 Permit Name (if different): JOHNSTON COUNTY RESOLVED WATER UTILIZATION SYSTEM
 Facility Address: 680 COUNTY HOME ROAD
SALTSBURG, NC 27577
 County: JOHNSTON
 Contact Person: KENNETH C. BUNYAK Telephone #: 919-631-3895
 Well Location/ Site Name: MW-3 No. of Wells to be Sampled: 9 (from Permit)

Well Identification Number (from Permit): MW-3
 For Groundwater Treatment Systems

Well Depth: 30.0 ft. Well Diameter: 2 in.
 Screened Interval: 30.0 ft. to 20.0 ft.
 Influent (98)
 Effluent (99)

Depth to Water Level: 20.96 ft. below measuring point.
 Measuring Point (M.P.) is: 1.9 ft. above land surface. Relative M.P. Elevation in ft.: 235.03
 Gallons of water pumped/bailed before sampling: N/A Date sample collected: 8-8-04
 Field analysis: pH N/A, Specific Conductance N/A uMhos
 Temp. N/A °C, Odor N/A Appearance N/A

Mail Original

to:

DEPARTMENT OF ENVIRONMENT & NATURAL RESOURCES
 WATER QUALITY DIVISION, GROUNDWATER SECTION
 1636 MAIL SERVICE CENTER
 RALEIGH, NC 27699-1636 Phone: (919) 733-3221

PERMIT #: WQ 0019631 EXPIRATION DATE: APRIL 31, 2007
 Non-Discharge _____ UIC _____
 NPDES _____

TYPE OF PERMITTED OPERATION BEING MONITORED

Lagoon _____ Remediation: Infiltration Gallery
 Spray Field _____ Remediation: _____
 Rotary Distributor _____ Land Application of Sludge
 Other: _____

NOTE: Values should reflect dissolved and colloidal concentrations.

Date sample analyzed: _____

Laboratory Name: _____

Certification No. _____

PARAMETERS (Samples for metals were collected unfiltered. YES _____ NO _____ and field-acidified YES _____ NO _____)

COD _____ mg/l	Nitrite (NO ₂) as N _____ mg/l	Ni - Nickel _____ mg/l
Coliform: MF Fecal _____ /100ml	Nitrate (NO ₃) as N _____ mg/l	Pb - Lead _____ mg/l
Coliform: MF Total _____ /100ml	Phosphorus: Total as P _____ mg/l	Zn - Zinc _____ mg/l
(Note: Use MPN method for highly turbid samples)	Orthophosphate _____ mg/l	Ammonia Nitrogen _____ mg/l
Dissolved Solids: Total _____ mg/l	Al - Aluminum _____ mg/l	Other (Specify Compounds and Concentration Units) _____
pH (when analyzed) _____ units	Ba - Barium _____ mg/l	
TOC _____ mg/l	Ca - Calcium _____ mg/l	
Chloride _____ mg/l	Cd - Cadmium _____ mg/l	
Arsenic _____ mg/l	Chromium: Total _____ mg/l	
Grease and Oils _____ mg/l	Cu - Copper _____ mg/l	
Phenol _____ mg/l	Fe - Iron _____ mg/l	
Sulfate _____ mg/l	Hg - Mercury _____ mg/l	
Specific Conductance _____ uMhos	K - Potassium _____ mg/l	
Total Ammonia _____ mg/l	Mg - Magnesium _____ mg/l	
TKN as N _____ mg/l	Mn - Manganese _____ mg/l	

ORGANICS: (GC/GCMS,HPLC)

(Specify test and method #. Attach lab report.)

Report Attached? Yes (1) No (0)

VOC _____ : method # _____

_____ : method # _____

_____ : method # _____

I certify that, to the best of my knowledge and belief, the information submitted in this report is true, accurate, and complete, and that the laboratory analytical data was produced using approved methods of analysis by a North Carolina DWO (formerly DEM) certified laboratory. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.

MAYNARD M. PHTHISIC, III DIRECTOR OF OPERATIONS
 Permittee (or Authorized Agent) Name and Title - Please print or type

[Signature]
 Signature of Permittee (or Authorized Agent)

3-03-04
 (Date)

GROUNDWATER QUALITY MONITORING: COMPLIANCE REPORT FORM

FACILITY INFORMATION

Please Print Clearly or Type

Facility Name: JOHNSTON COUNTY LANDFILL
 Permit Name (if different): JOHNSTON COUNTY RESIDUAL WATER UTILIZATION SYSTEM
 Facility Address: 680 COUNTY HOME ROAD
SALISBURY, NC 27577
 County: JOHNSTON
 Contact Person: KENNETH C. BUNYARK Telephone #: 919-631-3895
 Well Location/ Site Name: COLMAN-5 No. of Wells to be Sampled: 9 (from Permit)

Well Identification Number (from Permit): COLMAN-5
 Well Depth: 20.0 ft. Well Diameter: 2 in.
 Screened Interval: 20.0 ft. to 5.0 ft.

Depth to Water Level: 6.52 ft. below measuring point.
 Measuring Point (M.P.): 2.35 ft. above land surface. Relative M.P. Elevation in ft.: 214.28
 Gallons of water pumped/bailed before sampling: NA Date sample collected: 2-18-04
 Field analysis: pH 7.4, Specific Conductance NA uMhos
 Temp. NA °C, Odor NA Appearance NA

Mail Original to:

DEPARTMENT OF ENVIRONMENT & NATURAL RESOURCES
 WATER QUALITY DIVISION, GROUNDWATER SECTION
 1636 MAIL SERVICE CENTER
 RALEIGH, NC 27699-1636 Phone: (919) 733-3221

PERMIT #: WQ 0019031 EXPIRATION DATE: 09/14/05
 Non-Discharge _____ UIC _____
 NPDES _____

TYPE OF PERMITTED OPERATION BEING MONITORED

Lagoon _____ Remediation: Infiltration Gallery
 Spray Field _____ Remediation: _____
 Rotary Distributor _____ Land Application of Sludge
 Other: _____

NOTE: Values should reflect dissolved and colloidal concentrations.

Date sample analyzed: _____
 Laboratory Name: _____
 Certification No. _____

PARAMETERS (Samples for metals were collected unfiltered. YES _____ NO _____ and field-acidified YES _____ NO _____)

COD _____ mg/l	Nitrite (NO ₂) as N _____ mg/l	Ni - Nickel _____ mg/l
Coliform: MF Fecal _____ /100ml	Nitrate (NO ₃) as N _____ mg/l	Pb - Lead _____ mg/l
Coliform: MF Total _____ /100ml	Phosphorus: Total as P _____ mg/l	Zn - Zinc _____ mg/l
(Note: Use MPN method for highly turbid samples)	Orthophosphate _____ mg/l	Ammonia Nitrogen _____ mg/l
Dissolved Solids: Total _____ mg/l	Al - Aluminum _____ mg/l	Other (Specify Compounds and Concentration Units) _____
pH (when analyzed) _____	Ba - Barium _____ mg/l	
TOC _____	Ca - Calcium _____ mg/l	
Chloride _____ mg/l	Cd - Cadmium _____ mg/l	
Arsenic _____ mg/l	Chromium: Total _____ mg/l	
Grease and Oils _____ mg/l	Cu - Copper _____ mg/l	
Phenol _____ mg/l	Fe - Iron _____ mg/l	
Sulfate _____ mg/l	Hg - Mercury _____ mg/l	
Specific Conductance _____ uMhos	K - Potassium _____ mg/l	
Total Ammonia _____ mg/l	Mg - Magnesium _____ mg/l	
TKN as N _____ mg/l	Mn - Manganese _____ mg/l	

ORGANICS: (GC/GCMS,HPLC)

(Specify test and method #. Attach lab report.)
 Report Attached? Yes (1) No (0)
 VOC : method # _____
 : method # _____
 : method # _____

I certify that, to the best of my knowledge and belief, the information submitted in this report is true, accurate, and complete, and that the laboratory analytical data was produced using approved methods of analysis by a North Carolina DWM (formerly DEM) certified laboratory. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.

HAYWOOD M. PHTHISIC, III DIRECTOR OF OPERATIONS
 Permittee (or Authorized Agent) Name and Title - Please print or type

[Signature]
 Signature of Permittee (or Authorized Agent)

3-03-04
 (Date)

SUBMIT FORM ON YELLOW PAPER ONLY

GROUNDWATER QUALITY MONITORING: COMPLIANCE REPORT FORM

FACILITY INFORMATION

Please Print Clearly or Type

Facility Name: JOHNSTON COUNTY LANDFILL
 Permit Name (if different): JOHNSTON COUNTY SELLABLE WATER UTILIZATION SYSTEM
 Facility Address: 680 COUNTY HOME ROAD
SALISBURY, NC 27577 County: JOHNSTON
 Contact Person: KENNETH C. YORK Telephone #: 919-634-3895
 Well Location/ Site Name: 048-M4-3 No. of Wells to be Sampled: 9 (from Permit)

Well Identification Number (from Permit): 048-M4-3
 For Groundwater Treatment Systems
 Check One: Influent (98) Effluent (99)

Well Depth: 42.0 ft. Well Diameter: 2 in.
 Screened Interval: 42.0 ft. to 32.0 ft.
 Depth to Water Level: 13.62 ft. below measuring point.
 Measuring Point (M.P.) is: 1.22 ft. above land surface. Relative M.P. Elevation in ft.: 152.55
 Gallons of water pumped/bailed before sampling: N/A Date sample collected: 2-28-04
 Field analysis: pH 7.8, Specific Conductance N/A uMhos
 Temp. 11.8 °C, Odor N/A Appearance N/A

Mail Original to:

DEPARTMENT OF ENVIRONMENT & NATURAL RESOURCES
 WATER QUALITY DIVISION, GROUNDWATER SECTION
 1636 MAIL SERVICE CENTER
 RALEIGH, NC 27609-1636 Phone: (919) 733-3221

PERMIT #: WQ 00196 31 EXPIRATION DATE: MAY 31, 2007
 Non-Discharge _____ UIC _____
 NPDES _____
 TYPE OF PERMITTED OPERATION BEING MONITORED
 Lagoon _____ Remediation: Infiltration Gallery
 Spray Field _____ Remediation: _____
 Rotary Distributor _____ Land Application of Sludge
 Other: _____

NOTE: Values should reflect dissolved and colloidal concentrations.

Date sample analyzed: _____
 Laboratory Name: _____
 Certification No. _____

PARAMETERS (Samples for metals were collected. unfiltered. YES ___ NO ___ and field-acidified YES ___ NO ___)

COD _____ mg/l	Nitrite (NO ₂) as N _____ mg/l	Ni - Nickel _____ mg/l
Coliform: MF Fecal _____ /100ml	Nitrate (NO ₃) as N _____ mg/l	Pb - Lead _____ mg/l
Coliform: MF Total _____ /100ml	Phosphorus: Total as P _____ mg/l	Zn - Zinc _____ mg/l
(Note: Use MPN method for highly turbid samples)	Orthophosphate _____ mg/l	Ammonia Nitrogen _____ mg/l
Dissolved Solids: Total _____ mg/l	Al - Aluminum _____ mg/l	Other (Specify Compounds and Concentration Units) _____
pH (when analyzed) _____ units	Ba - Barium _____ mg/l	
TOC _____ mg/l	Ca - Calcium _____ mg/l	
Chloride _____ mg/l	Cd - Cadmium _____ mg/l	
Arsenic _____ mg/l	Chromium: Total _____ mg/l	
Grease and Oils _____ mg/l	Cu - Copper _____ mg/l	
Phenol _____ mg/l	Fe - Iron _____ mg/l	
Sulfate _____ mg/l	Hg - Mercury _____ mg/l	
Specific Conductance _____ uMhos	K - Potassium _____ mg/l	
Total Ammonia _____ mg/l	Mg - Magnesium _____ mg/l	
TKN as N _____ mg/l	Mn - Manganese _____ mg/l	

ORGANICS: (GC, GC/MS, HPLC)
 (Specify test and method #. Attach lab report.)
 Report Attached? Yes (1) No (0)
 VOC : method # = _____
 : method # = _____
 : method # = _____

I certify that, to the best of my knowledge and belief, the information submitted in this report is true, accurate, and complete, and that the laboratory analytical data was produced using approved methods of analysis by a North Carolina DWO (formerly DEM) certified laboratory. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.

HAYWOOD M. PHTHISIC, III DIRECTOR OF OPERATIONS
 Permittee (or Authorized Agent) Name and Title - Please print or type
Haywood M. Phtthisic
 Signature of Permittee (or Authorized Agent)
3-03-04 (Date)

SUBMIT FORM ON YELLOW PAPER ONLY

GROUNDWATER QUALITY MONITORING: COMPLIANCE REPORT FORM

FACILITY INFORMATION

Please Print Clearly or Type

Facility Name: JOHNSTON COUNTY LANDFILL
 Permit Name (if different): JOHNSTON COUNTY RESLANDO WATER 47142470W SYSTEM
 Facility Address: 680 COUNTY HOME ROAD
SMITHFIELD, NC 27577
 County: JOHNSTON
 Contact Person: KENNETH C. (phon) YORK Telephone #: 919-631-3895
 Well Location/ Site Name: 02B-MW-1 No. of Wells to be Sampled: 9 (from Permit)

Well Identification Number (from Permit): 02B-MW-1
 Well Depth: 20 ft. Well Diameter: 3 in.
 Screened Interval: 20.0 ft. to 10.0 ft.
 Depth to Water Level: 9.60 ft. below measuring point.
 Measuring Point (M.P.) is: 3.35 ft. above land surface. Relative M.P. Elevation in ft.: 213.81
 Gallons of water pumped/bailed before sampling: NA Date sample collected: 2-28-04
 Field analysis: pH NA, Specific Conductance NA uMhos
 Temp. NA °C, Odor NA Appearance NA

For Groundwater Treatment Systems

Check One: Influent (98)
 Effluent (99)

Mail Original to:

DEPARTMENT OF ENVIRONMENT & NATURAL RESOURCES
 WATER QUALITY DIVISION, GROUNDWATER SECTION
 1636 MAIL SERVICE CENTER
 RALEIGH, NC 27699-1636 Phone: (919) 733-3221

PERMIT #: WQ 0019631 EXPIRATION DATE: MAR-31-2007
 Non-Discharge _____ UIC _____
 NPDES _____
 TYPE OF PERMITTED OPERATION BEING MONITORED
 Lagoons _____ Remediation: Infiltration Gallery
 Spray Field _____ Remediation: _____
 Rotary Distributor _____ Land Application of Sludge
 Other: _____

NOTE: Values should reflect dissolved and colloidal concentrations.

Date sample analyzed: _____
 Laboratory Name: _____
 Certification No. _____

PARAMETERS (Samples for metals were collected unfiltered)	YES	NO	and field-acidified	YES	NO
COD	_____	_____	Nitrite (NO ₂) as N	_____	_____
Coliform: MF Fecal	_____ /100ml	_____	Nitrate (NO ₃) as N	_____	_____
Coliform: MF Total	_____ /100ml	_____	Phosphorus: Total as P	_____	_____
(Note: Use MPN method for highly turbid samples)			Orthophosphate	_____	_____
Dissolved Solids: Total	_____ mg/l	_____	Al - Aluminum	_____	_____
pH (when analyzed)	_____ units	_____	Ba - Barium	_____	_____
TOC	_____ mg/l	_____	Ca - Calcium	_____	_____
Chloride	_____ mg/l	_____	Cd - Cadmium	_____	_____
Arsenic	_____ mg/l	_____	Chromium: Total	_____	_____
Grease and Oils	_____ mg/l	_____	Cu - Copper	_____	_____
Phenol	_____ mg/l	_____	Fe - Iron	_____	_____
Sulfate	_____ mg/l	_____	Hg - Mercury	_____	_____
Specific Conductance	_____ uMhos	_____	K - Potassium	_____	_____
Total Ammonia	_____ mg/l	_____	Mg - Magnesium	_____	_____
TKN as N	_____ mg/l	_____	Mn - Manganese	_____	_____
			Ni - Nickel	_____	_____
			Pb - Lead	_____	_____
			Zn - Zinc	_____	_____
			Ammonia Nitrogen	_____	_____
			Other (Specify Compounds and Concentration Units)	_____	_____
			ORGANICS: (GC, GC/MS, HPLC)		
			(Specify test and method #. Attach lab report.)		
			Report Attached? Yes <u>(1)</u> No <u>(0)</u>		
			VOC		
			: method # =		
			: method # =		
			: method # =		

I certify that, to the best of my knowledge and belief, the information submitted in this report is true, accurate, and complete, and that the laboratory analytical data was produced using approved methods of analysis by a North Carolina DWQ (formerly DEM) certified laboratory. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.

Harold M. Pithisic, III DIRECTOR OF OPERATIONS
 Permittee (or Authorized Agent) Name and Title - Please print or type
Alan M. Black
 Signature of Permittee (or Authorized Agent)
3-03-04 (Date)

NON-DISCHARGE APPLICATION REPORT SPRAY IRRIGATION SITE(S)

THERE ARE TWO APPLICATION FIELDS PER PAGE. USE ADDITIONAL PAGES AS NEEDED.

PERMIT NUMBER: WQ 0019631

MONTH: March

YEAR: 2004

FACILITY NAME: Johnston County Reclaimed Water Utilization System

COUNTY: Johnston

Formulas:

Daily Loading (Inches) = [Volume Applied (gallons) x 0.1336 (cubic feet/gallon) x 12 (inches/foot)] / [Area Sprayed (acres) x 43,560 (square feet/acre)] OR
= Volume Applied (gallons) / [Area Sprayed (acres) x 27,152 (gallons/acre-inch)]

Maximum Hourly Loading (Inches) = Daily Loading (Inches) / [Time Irrigated (minutes) / 60 (minutes/hour)]

Monthly Loading (Inches) = Sum of Daily Loadings (Inches)

12 Month Floating Total (Inches) = Sum of this month's Monthly Loading (Inches) and previous 11 month's Monthly Loadings (Inches)

Average Weekly Loading (Inches) = [Monthly Loading (Inches/month) / Number of days in the month (days/month)] x 7 (days/week)

Did Irrigation Occur At This Facility:					Did Irrigation Occur On This Field:				Did Irrigation Occur On This Field:			
Yes: <input type="checkbox"/> No: <input checked="" type="checkbox"/>					Yes: <input type="checkbox"/> No: <input checked="" type="checkbox"/>				Yes: <input type="checkbox"/> No: <input checked="" type="checkbox"/>			
					FIELD NUMBER:				FIELD NUMBER:			
					AREA SPRAYED (acres):				AREA SPRAYED (acres):			
					COVER CROP:				COVER CROP:			
					PERMITTED HOURLY RATE (Inches):				PERMITTED HOURLY RATE (Inches):			
					PERMITTED YEARLY RATE (Inches):				PERMITTED YEARLY RATE (Inches):			
DATE	WEATHER CONDITIONS				Volume Applied gallons	Time Irrigated minutes	Daily Loading Inches	Maximum Hourly Loading Inches	Volume Applied gallons	Time Irrigated minutes	Daily Loading Inches	Maximum Hourly Loading Inches
	Weather Code*	Temperature at application (°F)	Precipitation Inches	Storage Lagoon Free-board feet								
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
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17												
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20												
21												
22												
23												
24												
25												
26												
27												
28												
29												
30												
31												
Total Gallons/Monthly Loading (Inches)					0		0.00		0		0.00	
12 Month Floating Total (Inches)												
Average Weekly Loading (Inches)							0				0	

* Weather Codes: C-clear, PC-partly cloudy, CI-cloudy, R-rain, Sn-snow, SI-sleet

Spray Irrigation Operator In Responsible Charge (ORC): Kenneth C. York Phone: 919-631-3895

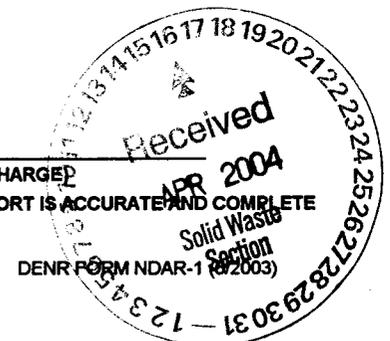
ORC Certification Number: 26366 Check Box If ORC Has Changed:

Mail ORIGINAL and TWO COPIES to:
ATTN: Non-Discharge Compliance Unit
DENR
Division of Water Quality
1617 Mail Service Center
RALEIGH, NC 27699-1617

Kenneth C. York

(SIGNATURE OF OPERATOR IN RESPONSIBLE CHARGE)

BY THIS SIGNATURE, I CERTIFY THAT THIS REPORT IS ACCURATE AND COMPLETE TO THE BEST OF MY KNOWLEDGE.



GROUNDWATER QUALITY MONITORING: COMPLIANCE REPORT FORM

Please Print Clearly or Type

FACILITY INFORMATION
 Facility Name: JOHNSON COUNTY LANDFILL
 Permit Name (if different): JOHNSON COUNTY YELLOW WATER UTILIZATION SYSTEM
 Facility Address: 680 COUNTY HOME ROAD
SMITHFIELD (Town) NC 27577 County JOHNSON
 Contact Person: KENNETH C. YOUNG (Title) Telephone #: 919-631-3895
 Well Location/ Site Name: DUQ-MW-1 No. of Wells to be Sampled: 9 (from Permit)
 Well Identification Number (from Permit): DUQ-MW-1
 Well Depth: 20 ft. Well Diameter: 2 in.
 Screened Interval: 20.0 ft. to 10.0 ft.
 Depth to Water Level: 9.94 ft. below measuring point. Relative M.P. Elevation in ft.: 213.51
 Measuring Point (M.P.): Is. 3.36 ft. above land surface.
 Gallons of water pumped/balled before sampling: 118 Date sample collected: 3-18-04
 Field analysis: pH 7.14, Specific Conductance 114 umhos
 Temp. 11.4 °C, Odor 114 Appearance 114 umhos

For Groundwater Treatment Systems
 Check One: Influent (98)
 Effluent (99)

Mail Original to: DEPARTMENT OF ENVIRONMENT & NATURAL RESOURCES
 WATER QUALITY DIVISION, GROUNDWATER SECTION
 1636 MAIL SERVICE CENTER RALEIGH, NC 27699-1636 Phone: (919) 733-3221
 PERMIT #: WQ 0019031 EXPIRATION DATE: MARCH 31, 2007
 Non-Discharge UIC
 NPDES
 TYPE OF PERMITTED OPERATION BEING MONITORED
 Lagoon Remediation: Infiltration Gallery
 Spray Field Remediation:
 Rotary Distributor Land Application of Sludge
 Other:

NOTE: Values should reflect dissolved and colloidal concentrations.
 Date sample analyzed:
 Laboratory Name:
 Certification No.

PARAMETERS (Samples for metals were collected unfiltered)

COD	mg/l	YES	NO	and field acidified	YES	NO
Coliform: MF Fecal	/100ml					
Coliform: MF Total	/100ml					
(Note: Use MPN method for highly turbid samples)						
Dissolved Solids: Total	mg/l					
pH (when analyzed)	units					
TOC	mg/l					
Chloride	mg/l					
Arsenic	mg/l					
Grease and Oils	mg/l					
Phenol	mg/l					
Sulfate	mg/l					
Specific Conductance	umhos					
Total Ammonia	mg/l					
TKN as N	mg/l					

Nitrite (NO ₂) as N	mg/l					
Nitrate (NO ₃) as N	mg/l					
Phosphorus: Total as P	mg/l					
Orthophosphate	mg/l					
Al - Aluminum	mg/l					
Ba - Barium	mg/l					
Ca - Calcium	mg/l					
Cd - Cadmium	mg/l					
Chromium: Total	mg/l					
Cu - Copper	mg/l					
Fe - Iron	mg/l					
Hg - Mercury	mg/l					
K - Potassium	mg/l					
Mg - Magnesium	mg/l					
Mn - Manganese	mg/l					

Ni - Nickel	mg/l					
Pb - Lead	mg/l					
Zn - Zinc	mg/l					
Ammonia Nitrogen	mg/l					
Other (Specify Compounds and Concentration Units)						

ORGANICS: (GC/GCMS, HPLC)
 (Specify test and method #. Attach lab report.)
 Report Attached? Yes (1) No (0)
 VOC : method # =
 : method # =
 : method # =

I certify that, to the best of my knowledge and belief, the information submitted in this report is true, accurate, and complete, and that the laboratory analytical data was produced using approved methods of analysis by a North Carolina DWMQ (formerly DEM) certified laboratory. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.

Permittee (or Authorized Agent) Name and Title - Please print or type
Anthony M. Althoff, III Director of Operations
 Signature of Permittee (or Authorized Agent) [Signature] (Date)

GROUNDWATER QUALITY MONITORING: COMPLIANCE REPORT FORM

Please Print Clearly or Type

FACILITY INFORMATION

Facility Name: JOHNSON COUNTY LANDFILL
 Permit Name (if different): JOHNSON COUNTY RELLAND WATER UTILIZATION SYSTEM
 Facility Address: 680 COUNTY HOME RD
SMITHFIELD (line1) NC 27577 County JOHNSON
 Contact Person: KENNETH C. YUWIK (line2) Telephone #: 919-631-3895
 Well Location/ Site Name: SWQ-MW-3 No. of Wells to be Sampled: 2 (from Permit)
 Well Identification Number (from Permit): SWQ-MW-3
 Well Depth: 42 ft. Well Diameter: 4 in.
 Screened Interval: 42.0 ft. to 34.0 ft.
 Depth to Water Level: 11.06 ft. below measuring point.
 Measuring Point (M.P.): Is: 2.72 ft. above land surface. Relative M.P. Elevation in ft.: 52.65
 Gallons of water pumped/balbed before sampling: N/A Date sample collected: 3-8-04
 Field analysis: pH N/A, Specific Conductance N/A umhos
 Temp. N/A °C, Odor N/A Appearance N/A

For Groundwater Treatment Systems
 Check One: Influent (98)
 Effluent (99)

Mail Original to: DEPARTMENT OF ENVIRONMENT & NATURAL RESOURCES
 WATER QUALITY DIVISION, GROUNDWATER SECTION
 1636 MAIL SERVICE CENTER
 RALEIGH, NC 27699-1636 Phone: (919) 733-3221

PERMIT #: WQ 0019031 EXPIRATION DATE: MAY 31, 2007
 Non-Discharge UIC
 NPDES
 TYPE OF PERMITTED OPERATION BEING MONITORED
 Lagoon Remediation: Infiltration Gallery
 Spray Field Remediation:
 Rotary Distributor Land Application of Sludge
 Other:

NOTE: Values should reflect dissolved and colloidal concentrations.

Date sample analyzed:
 Laboratory Name:
 Certification No.

PARAMETERS (Samples for metals were collected; unfiltered)	YES	NO	and field acidified	YES	NO
COD mg/l					
Coliform: MF Fecal /100ml					
Coliform: MF Total /100ml					
(Note: Use MPN method for highly turbid samples)					
Dissolved Solids: Total mg/l					
pH (when analyzed) units					
TOC mg/l					
Chloride mg/l					
Arsenic mg/l					
Grease and Oils mg/l					
Phenol mg/l					
Sulfate mg/l					
Specific Conductance umhos					
Total Ammonia mg/l					
TKN as N mg/l					
Nitrite (NO ₂) as N mg/l					
Nitrate (NO ₃) as N mg/l					
Phosphorus: Total as P mg/l					
Orthophosphate mg/l					
Al - Aluminum mg/l					
Ba - Barium mg/l					
Ca - Calcium mg/l					
Cd - Cadmium mg/l					
Chromium: Total mg/l					
Cu - Copper mg/l					
Fe - Iron mg/l					
Hg - Mercury mg/l					
K - Potassium mg/l					
Mg - Magnesium mg/l					
Mn - Manganese mg/l					
Ni - Nickel mg/l					
Pb - Lead mg/l					
Zn - Zinc mg/l					
Ammonia Nitrogen mg/l					
Other (Specify Compounds and Concentration Units)					
ORGANICS: (GC,GC/MS,HPLC)					
(Specify test and method #. Attach lab report.)					
Report Attached? Yes	(1)	No	(0)		
VOC	: method # =				
	: method # =				
	: method # =				

I certify that, to the best of my knowledge and belief, the information submitted in this report is true, accurate, and complete, and that the laboratory analytical data was produced using approved methods of analysis by a North Carolina DWQ (formerly DEM) certified laboratory. I am aware that there are significant penalties for submitting false information, including the possibility of fines, and imprisonment for knowing violations.

Permittee (or Authorized Agent) Name and Title - Please print or type
HYUNDO M. RYTHISIC, III DIRECTOR OF OPERATIONS
 Signature of Permittee (or Authorized Agent) [Signature] (Date)

SUBMIT FORM ON YELLOW PAPER ONLY

GROUNDWATER QUALITY MONITORING: COMPLIANCE REPORT FORM

FACILITY INFORMATION

Please Print Clearly or Type

Facility Name: JOHNSON COUNTY LANDFILL
 Permit Name (if different): JOHNSON COUNTY RESIDUAL WATER UTILIZATION SYSTEM
 Facility Address: 680 COUNTY HOME ROAD
SMITHFIELD (Site) NC 27577 County JOHNSON
 Contact Person: KENNETH C. SMITH (Site) Telephone #: 919-631-3895
 Well Location/ Site Name: COLUM-5 No. of Wells to be Sampled: 9
 Well Identification Number (from Permit): COLUM-5
 Well Depth: 20.0 ft. Well Diameter: 2 in.
 Screened Interval: 20.0 ft. to 5.0 ft.
 Depth to Water Level: 6.40 ft. below measuring point.
 Measuring Point (M.P.): Is: 2.35 ft. above land surface. Relative M.P. Elevation in ft.: 24.28
 Gallons of water pumped/bailed before sampling: N/A Date sample collected: 3-18-94
 Field analysis: pH N/A, Specific Conductance N/A umhos, Appearance N/A
 Temp. N/A °C, Odor N/A

For Groundwater Treatment Systems
 Check One: Influent (98)
 Effluent (99)

Mail Original to:

DEPARTMENT OF ENVIRONMENT & NATURAL RESOURCES
 WATER QUALITY DIVISION, GROUNDWATER SECTION
 1636 MAIL SERVICE CENTER
 RALEIGH, NC 27699-1636 Phone: (919) 733-3221

PERMIT #: WQ 00190 31 EXPIRATION DATE: MAY 31, 2007
 Non-Discharge UIC
 NPDES
 TYPE OF PERMITTED OPERATION BEING MONITORED
 Lagoon Remediation: Infiltration Gallery
 Spray Field Remediation:
 Rotary Distributor Land Application of Sludge
 Other:

NOTE: Values should reflect dissolved and colloidal concentrations.

Date sample analyzed: _____
 Laboratory Name: _____
 Certification No. _____

PARAMETERS (Samples for metals were collected unfiltered)	YES	NO	and field acidified	YES	NO
COD	mg/l			mg/l	
Coliform: MF Fecal	/100ml			mg/l	
Coliform: MF Total	/100ml			mg/l	
(Note: Use MPN method for highly turbid samples)					
Dissolved Solids: Total	mg/l			mg/l	
pH (when analyzed)	units			mg/l	
TOC	mg/l			mg/l	
Chloride	mg/l			mg/l	
Arsenic	mg/l			mg/l	
Grease and Oils	mg/l			mg/l	
Phenol	mg/l			mg/l	
Sulfate	mg/l			mg/l	
Specific Conductance	umhos			mg/l	
Total Ammonia	mg/l			mg/l	
TKN as N	mg/l			mg/l	
Nitrite (NO ₂) as N				mg/l	
Nitrate (NO ₃) as N				mg/l	
Phosphorus: Total as P				mg/l	
Orthophosphate				mg/l	
Al - Aluminum				mg/l	
Ba - Barium				mg/l	
Ca - Calcium				mg/l	
Cd - Cadmium				mg/l	
Chromium: Total				mg/l	
Cu - Copper				mg/l	
Fe - Iron				mg/l	
Hg - Mercury				mg/l	
K - Potassium				mg/l	
Mg - Magnesium				mg/l	
Mn - Manganese				mg/l	
Ni - Nickel				mg/l	
Pb - Lead				mg/l	
Zn - Zinc				mg/l	
Ammonia Nitrogen				mg/l	
Other (Specify Compounds and Concentration Units)					
ORGANICS: (GC/GCMS,HPLC)					
(Specify test and method #. Attach lab report.)					
Report Attached? Yes	(1)	No	(0)		
VOC	method # =				
	method # =				
	method # =				

I certify that, to the best of my knowledge and belief, the information submitted in this report is true, accurate, and complete, and that the laboratory analytical data was produced using approved methods of analysis by a North Carolina DWQ (formerly DEM) certified laboratory. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.

Permittee (or Authorized Agent) Name and Title - Please print or type
Harold M. Pytholic, III Director of Operations
 Signature of Permittee (or Authorized Agent) _____ (Date)

GROUNDWATER QUALITY MONITORING: COMPLIANCE REPORT FORM

FACILITY INFORMATION

Please Print Clearly or Type

Facility Name: JOHNSON COUNTY LANDFILL
 Permit Name (if different): JOHNSON COUNTY WASTE UTILIZATION SYSTEM
 Facility Address: 680 COUNTY HOME RD
SMITHFIELD (Street) NC 27577 County JOHNSON
 Contact Person: KENNETH C. BERRYMAN (Title) Telephone #: 919-631-3895
 Well Location/ Site Name: PIC ZONETER #3 No. of Wells to be Sampled: 9 (from Permit)
 Well Identification Number (from Permit): 12-3
 Well Depth: 17.82 ft. Well Diameter: 2 in.
 Screened Interval: N/A ft. to N/A ft.
 Depth to Water Level: 2.85 ft. below measuring point.
 Measuring Point (M.P.): Is: 2.85 ft. above land surface. Relative M.P. Elevation in ft.: 194.91
 Gallons of water pumped/balled before sampling: N/A Date sample collected: 3-18-04
 Field analysis: pH N/A, Specific Conductance N/A uMhos
 Temp. N/A °C, Odor N/A Appearance N/A

For Groundwater Treatment Systems
 Check One: Influent (98)
 Effluent (99)

Mail Original to: DEPARTMENT OF ENVIRONMENT & NATURAL RESOURCES
 WATER QUALITY DIVISION, GROUNDWATER SECTION
 1636 MAIL SERVICE CENTER
 RALEIGH, NC 27699-1636 Phone: (919) 733-3221

PERMIT #: WQ 0019631 EXPIRATION DATE: MAY 31, 2007
 Non-Discharge UIC
 NPDES
 TYPE OF PERMITTED OPERATION BEING MONITORED
 Lagoon Remediation: Infiltration Gallery
 Spray Field Remediation:
 Rotary Distributor Land Application of Sludge
 Other:

NOTE: Values should reflect dissolved and colloidal concentrations.
 Date sample analyzed: _____
 Laboratory Name: _____
 Certification No. _____

PARAMETERS (Samples for metals were collected, unfiltered, _____ YES _____ NO and field acidified _____ YES _____ NO)

COD _____ mg/l	Nitrite (NO ₂) as N _____ mg/l	Ni - Nickel _____ mg/l
Coliform: MF Faecal _____ /100ml	Nitrate (NO ₃) as N _____ mg/l	Pb - Lead _____ mg/l
Coliform: MF Total _____ /100ml	Phosphorus: Total as P _____ mg/l	Zn - Zinc _____ mg/l
(Note: Use MPN method for highly turbid samples)	Orthophosphate _____ mg/l	Ammonia Nitrogen _____ mg/l
Dissolved Solids: Total _____ mg/l	Al - Aluminum _____ mg/l	Other (Specify Compounds and Concentration Units)
pH (when analyzed) _____ units	Ba - Barium _____ mg/l	
TOC _____ mg/l	Ca - Calcium _____ mg/l	
Chloride _____ mg/l	Cd - Cadmium _____ mg/l	
Arsenic _____ mg/l	Chromium: Total _____ mg/l	
Grease and Oils _____ mg/l	Cu - Copper _____ mg/l	
Phenol _____ mg/l	Fe - Iron _____ mg/l	
Sulfate _____ mg/l	Hg - Mercury _____ mg/l	
Specific Conductance _____ uMhos	K - Potassium _____ mg/l	
Total Ammonia _____ mg/l	Mg - Magnesium _____ mg/l	
TKN as N _____ mg/l	Mn - Manganese _____ mg/l	

ORGANICS: (GC, GC/MS, HPLC)
 (Specify test and method #. Attach lab report.)
 Report Attached? Yes _____ (1) No _____ (0)
 VOC : method # = _____
 : method # = _____
 : method # = _____

I certify that, to the best of my knowledge and belief, the information submitted in this report is true, accurate, and complete, and that the laboratory analytical data was produced using approved methods of analysis by a North Carolina DWQ (formerly DEM) certified laboratory. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.

HYUNDOO M. AITHISIC, III DIRECTOR OF OPERATIONS
 Permittee (or Authorized Agent) Name and Title - Please print or type
 Signature of Permittee (or Authorized Agent)
 (Date)

GROUNDWATER QUALITY MONITORING: COMPLIANCE REPORT FORM

FACILITY INFORMATION

Please Print Clearly or Type

Facility Name: JDHUSTON COUNTY LANDFILL
 Permit Name (if different): JDHUSTON COUNTY RESIDUAL WATER UTILIZATION SYSTEM
 Facility Address: 680 COUNTY HOME ROAD
SMITHFIELD (Site) NC 27577 County JDHUSTON
 Contact Person: KENNETH C. BARRY (Site) WORK (Site) Telephone #: 919-631-3895
 Well Location/ Site Name: NW-3 No. of Wells to be Sampled: 9 (From Permit)
 Well Identification Number (from Permit): NW-3
 Well Depth: 30.0 ft. Well Diameter: 2 in.
 Screened Interval: 30.0 ft. to 20.0 ft.
 Depth to Water Level: 20.66 ft. below measuring point.
 Measuring Point (M.P.): Is: 1.9 ft. above land surface. Relative M.P. Elevation In ft.: 235.03
 Gallons of water pumped/balled before sampling: N/A Date sample collected: 3-18-04
 Field analysis: pH 7.8, Specific Conductance N/A umhos
 Temp. 11.8 °C, Odor N/A Appearance N/A

For Groundwater Treatment Systems
 Check One: Influent (98)
 Effluent (99)

Mail Original to: DEPARTMENT OF ENVIRONMENT & NATURAL RESOURCES
 WATER QUALITY DIVISION, GROUNDWATER SECTION
 1636 MAIL SERVICE CENTER RALEIGH, NC 27699-1636 Phone: (919) 733-3221

PERMIT #: WQ 0019631 EXPIRATION DATE: MARCH 31, 2007
 Non-Discharge UIC
 NPDES
 TYPE OF PERMITTED OPERATION BEING MONITORED
 Lagoon Remediation: Infiltration Gallery
 Spray Field Remediation: _____
 Rotary Distributor Land Application of Sludge
 Other: _____

NOTE: Values should reflect dissolved and colloidal concentrations.
 Date sample analyzed: _____
 Laboratory Name: _____
 Certification No. _____

PARAMETERS (Samples for metals were collected, unfiltered, YES and field acidified YES NO)

COD _____ mg/l	Nitrite (NO ₂) as N _____ mg/l	Ni - Nickel _____ mg/l
Coliform: MF Fecal _____ /100ml	Nitrate (NO ₃) as N _____ mg/l	Pb - Lead _____ mg/l
Coliform: MF Total _____ /100ml	Phosphorus: Total as P _____ mg/l	Zn - Zinc _____ mg/l
(Note: Use MPN method for highly turbid samples)	Orthophosphate _____ mg/l	Ammonia Nitrogen _____ mg/l
Dissolved Solids: Total _____ mg/l	Al - Aluminum _____ mg/l	Other (Specify Compounds and Concentration Units)
pH (when analyzed) _____ units	Ba - Barium _____ mg/l	
TOC _____ mg/l	Ca - Calcium _____ mg/l	
Chloride _____ mg/l	Cd - Cadmium _____ mg/l	
Arsenic _____ mg/l	Chromium: Total _____ mg/l	
Grease and Oils _____ mg/l	Cu - Copper _____ mg/l	
Phenol _____ mg/l	Fe - Iron _____ mg/l	
Sulfate _____ mg/l	Hg - Mercury _____ mg/l	
Specific Conductance _____ umhos	K - Potassium _____ mg/l	
Total Ammonia _____ mg/l	Mg - Magnesium _____ mg/l	
TKN as N _____ mg/l	Mn - Manganese _____ mg/l	

ORGANICS: (GC/GCMS/HPIC)
 (Specify test and method #. Attach lab report.)
 Report Attached? Yes (1) No (0)
 VOC : method # = _____
 : method # = _____
 : method # = _____

I certify that, to the best of my knowledge and belief, the information submitted in this report is true, accurate, and complete, and that the laboratory analytical data was produced using approved methods of analysis by a North Carolina DWQ (formerly DEM) certified laboratory. I am aware that there are significant penalties for submitting false information, including the possibility of fines, and imprisonment for knowing violations.

Signature of Permittee (or Authorized Agent) HERMAN M. PHTHISIC, III DIRECTOR OF OPERATIONS
 Signature of Permittee (or Authorized Agent) Herbert M. Phtisic
 Permittee (or Authorized Agent) Name and Title - Please print or type

SUBMIT FORM ON YELLOW PAPER ONLY

GROUNDWATER QUALITY MONITORING: COMPLIANCE REPORT FORM

Please Print Clearly or Type

Mail Original to: DEPARTMENT OF ENVIRONMENT & NATURAL RESOURCES
WATER QUALITY DIVISION, GROUNDWATER SECTION
1636 MAIL SERVICE CENTER
RALEIGH, NC 27699-1636 Phone: (919) 733-3221

FACILITY INFORMATION
Facility Name: JOHNSON COUNTY LANDFILL
Permit Name (if different): JOHNSON COUNTY WASTE WATER UTILITY SYSTEM
Facility Address: 680 COUNTY HOME RD
SMITHFIELD, NC 27577
County: JOHNSON
Contact Person: KENNETH C. YOUNG (20) Telephone #: 919-634-3895
Well Location/ Site Name: MW-5-1 No. of Wells to be Sampled: 2 (from Permit)

Well Identification Number (from Permit): MW-5-1
Well Depth: 31.7 ft. Well Diameter: 2 in.
Screened Interval: 31.7 ft. to 16.7 ft.
Depth to Water Level: 23.4 ft. below measuring point.
Measuring Point (M.P.): is: 2.42 ft. above land surface. Relative M.P. Elevation in ft.: 233.17
Gallons of water pumped/bailed before sampling: N/A Date sample collected: 3-8-04
Field analysis: pH N/A, Specific Conductance N/A umhos
Temp. N/A °C, Odor N/A Appearance N/A

For Groundwater Treatment Systems
Check One: Influent (98)
 Effluent (99)

PERMIT #: WQ 00196 31 EXPIRATION DATE: March 31, 2007
Non-Discharge UIC
NPDES
TYPE OF PERMITTED OPERATION BEING MONITORED
 Lagoon Remediation: Infiltration Gallery
 Spray Field Remediation:
 Rotary Distributor Land Application of Sludge
 Other:

NOTE: Values should reflect dissolved and colloidal concentrations.

Date sample analyzed: _____
Laboratory Name: _____
Certification No. _____

PARAMETERS (Samples for metals were collected unfiltered)	YES	NO	and field acidified	YES	NO
COD	_____	_____	_____	_____	_____
Coliform: MF Fecal	_____	_____	_____	_____	_____
Coliform: MF Total	_____	_____	_____	_____	_____
(Note: Use MPN method for highly turbid samples)					
Dissolved Solids: Total	_____	_____	_____	_____	_____
pH (when analyzed)	_____	_____	_____	_____	_____
TOC	_____	_____	_____	_____	_____
Chloride	_____	_____	_____	_____	_____
Arsenic	_____	_____	_____	_____	_____
Grease and Oils	_____	_____	_____	_____	_____
Phenol	_____	_____	_____	_____	_____
Sulfate	_____	_____	_____	_____	_____
Specific Conductance	_____	_____	_____	_____	_____
Total Ammonia	_____	_____	_____	_____	_____
TKN as N	_____	_____	_____	_____	_____
Nitrite (NO ₂) as N	_____	_____	_____	_____	_____
Nitrate (NO ₃) as N	_____	_____	_____	_____	_____
Phosphorus: Total as P	_____	_____	_____	_____	_____
Orthophosphate	_____	_____	_____	_____	_____
Al - Aluminum	_____	_____	_____	_____	_____
Ba - Barium	_____	_____	_____	_____	_____
Ca - Calcium	_____	_____	_____	_____	_____
Cd - Cadmium	_____	_____	_____	_____	_____
Chromium: Total	_____	_____	_____	_____	_____
Cu - Copper	_____	_____	_____	_____	_____
Fe - Iron	_____	_____	_____	_____	_____
Hg - Mercury	_____	_____	_____	_____	_____
K - Potassium	_____	_____	_____	_____	_____
Mg - Magnesium	_____	_____	_____	_____	_____
Mn - Manganese	_____	_____	_____	_____	_____
Ni - Nickel	_____	_____	_____	_____	_____
Pb - Lead	_____	_____	_____	_____	_____
Zn - Zinc	_____	_____	_____	_____	_____
Ammonia Nitrogen	_____	_____	_____	_____	_____
Other (Specify Compounds and Concentration Units)	_____	_____	_____	_____	_____
ORGANICS: (GC,GC/MS,HPLC)					
(Specify test and method #: Attach lab report.)					
Report Attached? Yes	_____	_____	(1)	No	_____
VOC	_____	_____	method # =	_____	(0)
	_____	_____	method # =	_____	
	_____	_____	method # =	_____	

I certify that, to the best of my knowledge and belief, the information submitted in this report is true, accurate, and complete, and that the laboratory analytical data was produced using approved methods of analysis by a North Carolina DWQ (formerly DENR) certified laboratory. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.

RAYMOND M. PITHISIC, III DIRECTOR OF OPERATIONS
Permittee (or Authorized Agent) Name and Title - Please print or type
W. P. [Signature]
Signature of Permittee (or Authorized Agent)

GROUNDWATER QUALITY MONITORING: COMPLIANCE REPORT FORM

Please Print Clearly or Type

Mail Original to:

DEPARTMENT OF ENVIRONMENT & NATURAL RESOURCES
WATER QUALITY DIVISION, GROUNDWATER SECTION
1636 MAIL SERVICE CENTER
RAL EIGH, NC 27699-1636
Phone: (919) 733-3221

FACILITY INFORMATION

Facility Name: JOHNSON COUNTY LANDFILL
 Permit Name (if different): JOHNSON COUNTY RESLANDS WATER UTILIZATION SYSTEM
 Facility Address: 680 COUNTY HOME RD
SMITHFIELD (Site) NC 27577 County JOHNSON
 Contact Person: KENNETH C (Site) YUWK (Site) Telephone #: 919-631-3895
 Well Location/ Site Name: MW-5-2 No. of Wells to be Sampled: 2 (From Permit)

For Groundwater Treatment Systems
 Check One: Influent (98)
 Effluent (99)

Well Identification Number (from Permit): MW-5-2
 Well Depth: 22.5 ft. Well Diameter: 2 in.
 Screened Interval: 22.5 ft. to 2.5 ft.
 Depth to Water Level: 5.32 ft. below measuring point.
 Measuring Point (M.P.): is: 2.28 ft. above land surface. Relative M.P. Elevation in ft.: 206.77
 Gallons of water pumped/balled before sampling: N/A Date sample collected: 3-18-04
 Field analysis: pH N/A, Specific Conductance N/A umhos
 Temp. N/A °C, Odor N/A Appearance N/A

PERMIT #: WQ 00196 31 EXPIRATION DATE: MAY 31, 2007
 Non-Discharge UIC
 NPDES
 TYPE OF PERMITTED OPERATION BEING MONITORED
 Lagoon
 Spray Field
 Remediation: Infiltration Gallery
 Rotary Distributor
 Land Application of Sludge
 Other: _____
 NOTE: Values should reflect dissolved and colloidal concentrations.
 Date sample analyzed: _____
 Laboratory Name: _____
 Certification No. _____

PARAMETERS (Samples for metals were collected unfiltered _____ YES _____ NO and field acidified _____ YES _____ NO)

COD	mg/l	Nitrite (NO ₂) as N	mg/l
Coliform: MF Fecal	/100ml	Nitrate (NO ₃) as N	mg/l
Coliform: MF Total	/100ml	Phosphorus: Total as P	mg/l
(Note: Use MPN method for highly turbid samples)		Orthophosphate	mg/l
Dissolved Solids: Total	mg/l	Al - Aluminum	mg/l
pH (when analyzed)	units	Ba - Barium	mg/l
TOC	mg/l	Ca - Calcium	mg/l
Chloride	mg/l	Cd - Cadmium	mg/l
Arsenic	mg/l	Chromium: Total	mg/l
Grease and Oils	mg/l	Cu - Copper	mg/l
Phenol	mg/l	Fe - Iron	mg/l
Sulfate	mg/l	Hg - Mercury	mg/l
Specific Conductance	umhos	K - Potassium	mg/l
Total Ammonia	mg/l	Mg - Magnesium	mg/l
TKN as N	mg/l	Mn - Manganese	mg/l

Ni - Nickel	mg/l
Pb - Lead	mg/l
Zn - Zinc	mg/l
Ammonia Nitrogen	mg/l
Other (Specify Compounds and Concentration Units)	

ORGANICS: (GC,GC/MS,HPLC)
 (Specify test and method #. Attach lab report.)
 Report Attached? Yes (1) No (0)
 VOC : method # = _____
 : method # = _____
 : method # = _____

I certify that, to the best of my knowledge and belief, the information submitted in this report is true, accurate, and complete, and that the laboratory analytical data was produced using approved methods of analysis by a North Carolina DWMQ (formerly DENM) certified laboratory. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.

RAYMOND M. PITHUISIC, III DIRECTOR OF OPERATIONS
 Permittee (or Authorized Agent) Name and Title - Please print or type
Ray M. Pithuisic
 Signature of Permittee (or Authorized Agent) (Date)

SUBMIT FORM ON YELLOW PAPER ONLY

GROUNDWATER QUALITY MONITORING: COMPLIANCE REPORT FORM

Please Print Clearly or Type

Facility Name: JOHNSON COUNTY LANDFILL
 Permit Name (if different): JOHNSON COUNTY SOLID WASTE WTLR 4774247W SYSTEM
 Facility Address: 680 COUNTY ROAD 27577 County: JOHNSON
 (City) SMITHFIELD (State) NC (Zip) 27577 Telephone #: 919-631-3895
 Contact Person: KENNETH C. YUWAK (Title) (21) No. of Wells to be Sampled: 9
 Well Location/ Site Name: MW-5-10 (from Permit)
 Well Identification Number (from Permit): MW-5-10
 Well Depth: 26.1 ft. Well Diameter: 2 in.
 Screened Interval: 26.1 ft. to 11.1 ft.
 Depth to Water Level: 14.78 ft. below measuring point.
 Measuring Point (M.P.): 216 ft. above land surface. Relative M.P. Elevation in ft.: 302.6
 Gallons of water pumped/balled before sampling: N/A Date sample collected: 3-28-04
 Field analysis: pH N/A, Specific Conductance N/A umhos
 Temp. N/A °C, Odor N/A Appearance N/A

For Groundwater Treatment Systems
 Check One: Influent (98)
 Effluent (99)

Mail Original to: DEPARTMENT OF ENVIRONMENT & NATURAL RESOURCES
 WATER QUALITY DIVISION, GROUNDWATER SECTION
 1835 MAIL SERVICE CENTER
 RALEIGH, NC 27699-1638 Phone: (919) 733-3221

PERMIT #: WQ 00190631 EXPIRATION DATE: MARCH 31, 2007
 Non-Discharge UIC
 NPDES
 TYPE OF PERMITTED OPERATION BEING MONITORED
 Lagoon Remediation: Infiltration Gallery
 Spray Field Remediation:
 Rotary Distributor Land Application of Sludge
 Other:

NOTE: Values should reflect dissolved and colloidal concentrations.

Date sample analyzed:
 Laboratory Name:
 Certification No.

PARAMETERS (Samples for metals were collected unfiltered)	YES	NO	and field acidified	YES	NO
COD	mg/l				
Coliform: MF Fecal	/100ml				
Coliform: MF Total	/100ml				
(Note: Use MPN method for highly turbid samples)					
Dissolved Solids: Total	mg/l				
pH (when analyzed)	units				
TOC	mg/l				
Chloride	mg/l				
Arsenic	mg/l				
Grease and Oils	mg/l				
Phenol	mg/l				
Sulfate	mg/l				
Specific Conductance	umhos				
Total Ammonia	mg/l				
TKN as N	mg/l				
Nitrite (NO ₂) as N	mg/l				
Nitrate (NO ₃) as N	mg/l				
Phosphorus: Total as P	mg/l				
Orthophosphate	mg/l				
Al - Aluminum	mg/l				
Ba - Barium	mg/l				
Ca - Calcium	mg/l				
Cd - Cadmium	mg/l				
Chromium: Total	mg/l				
Cu - Copper	mg/l				
Fe - Iron	mg/l				
Hg - Mercury	mg/l				
K - Potassium	mg/l				
Mg - Magnesium	mg/l				
Mn - Manganese	mg/l				
Ni - Nickel	mg/l				
Pb - Lead	mg/l				
Zn - Zinc	mg/l				
Ammonia Nitrogen	mg/l				
Other (Specify Compounds and Concentration Units)					

ORGANICS: (GC/GCMS,HPLC)
 (Specify test and method #. Attach lab report.)
 Report Attached? Yes (1) No (0)
 VOC
 : method # =
 : method # =
 : method # =

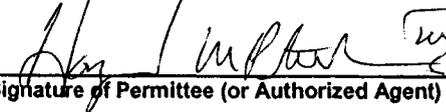
I certify that, to the best of my knowledge and belief, the information submitted in this report is true, accurate, and complete, and that the laboratory analytical data was produced using approved methods of analysis by a North Carolina DWO (formerly DEM) certified laboratory. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.

APPROVED BY: AMY ANNA M. ALTHUISIC, III DIRECTOR OF OPERATIONS
 Permittee (or Authorized Agent) Name and Title - Please print or type
Heidi M. Platt
 Signature of Permittee (or Authorized Agent) (Date)

GW-59A COMPLIANCE REPORT FORM

Permit # WQ 0019631

(Submit one each monitoring period with GW-59 forms.)

1	Enter date monitoring results were due. (<u>N/A</u>) Will this monitoring report (GW-59 and GW-59A) be submitted after the established due date? <u>OUR PERMIT REQUIRES THAT WE MONITOR GROUNDWATER ELEVATIONS MONTHLY</u>	YES	NO ✓
2	Was any required information missing on the GW-59 report forms?	YES	NO
If the answer to question 1 or 2 is "YES", list in the space provided below the well identification number(s) and explain the problems encountered in obtaining the required information.			✓
3	Are any of the monitor wells in need of repair or maintenance (damaged casing, unlocked or missing cap, missing identification plate, area overgrown, etc.)? If the answer is "Yes", contact the Regional Office for guidance.	YES	NO ✓
4	Are any monitored constituents equal to or above the established standards?	YES	NO
If the answer to question 4 is "NO", skip to section 8. If the answer to question 4 is "YES" list the affected wells individually with constituent(s) and concentration(s) exceeding standards in the space provided below:			✓
5	For the constituents identified in question 4 above, have standards been exceeded previously for the same constituent(s) in the same well(s) in the last two years?	YES	NO
If the answer to question 5 is "NO", skip to section 8. If the answer to question 5 is "YES", list in the space provided below, each well with constituent(s) exceeding standards, concentration(s) reported, and sample collection date for each occurrence (for the last two years).			
6	Are the monitoring wells listed in section 5 located at or beyond the review boundary?	YES	NO
If the answer is "YES", a groundwater quality problem may be occurring. CONTACT THE REGIONAL OFFICE IMMEDIATELY FOR GUIDANCE. If the answer is "NO", monitoring wells may be improperly located; contact the Regional Office.			
7	Is the permittee implementing previously approved actions required by the Division involving this groundwater quality problem?	YES	NO
If the answer to question 7 is "YES", describe those actions in the space provided below. If the answer to question 7 is "NO", <u>contact the Regional Office within 90 days; an evaluation may be required to determine the impact the waste disposal system is having at the review and compliance boundaries surrounding this facility. Failure to do so may subject the permittee to a Notice of Violation, fines, and/or penalties.</u>			
8	The person completing this portion (GW-59A) of the monitoring report should sign below and submit this form with GW-59 forms for required wells to the address provided at the top of the current GW-59 form. I hereby acknowledge that the above information was evaluated and the information submitted in this report (Compliance Report GW-59A) is true and complete to the best of my knowledge.		
 _____ Signature of Permittee (or Authorized Agent)		_____ Date	

**NON-DISCHARGE APPLICATION REPORT
 SPRAY IRRIGATION SITE(S)
 THERE ARE TWO APPLICATION FIELDS PER PAGE. USE ADDITIONAL PAGES AS NEEDED.**

PERMIT NUMBER: WQ 0019632

MONTH: March

YEAR: 2004

FACILITY NAME: Johnston County Reclaimed Water Utilization System

COUNTY: Johnston

Formulas:

Daily Loading (Inches) = [Volume Applied (gallons) x 0.1336 (cubic feet/gallon) x 12 (inches/foot)] / [Area Sprayed (acres) x 43,560 (square feet/acre)] OR

= Volume Applied (gallons) / [Area Sprayed (acres) x 27,152 (gallons/acre-inch)]

Maximum Hourly Loading (Inches) = Daily Loading (Inches) / [Time Irrigated (minutes) / 60 (minutes/hour)]

Monthly Loading (Inches) = Sum of Daily Loadings (Inches)

12 Month Floating Total (Inches) = Sum of this month's Monthly Loading (Inches) and previous 11 month's Monthly Loadings (Inches)

Average Weekly Loading (Inches) = [Monthly Loading (Inches/month) / Number of days in the month (days/month)] x 7 (days/week)

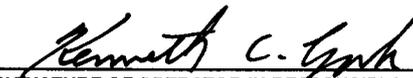
Did Irrigation Occur At This Facility:					Did Irrigation Occur On This Field:				Did Irrigation Occur On This Field:			
Yes: <input type="checkbox"/> No: <input checked="" type="checkbox"/>					Yes: <input type="checkbox"/> No: <input checked="" type="checkbox"/>				Yes: <input type="checkbox"/> No: <input checked="" type="checkbox"/>			
					FIELD NUMBER:				FIELD NUMBER:			
					AREA SPRAYED (acres):				AREA SPRAYED (acres):			
					COVER CROP:				COVER CROP:			
					PERMITTED HOURLY RATE (Inches):				PERMITTED HOURLY RATE (Inches):			
D A T E					PERMITTED YEARLY RATE (Inches):				PERMITTED YEARLY RATE (Inches):			
					Weather Code*	Temperature at application (°F)	Precipitation (Inches)	Storage Lagoon Free-board (feet)	Volume Applied (gallons)	Time Irrigated (minutes)	Daily Loading (Inches)	Maximum Hourly Loading (Inches)
1												
2												
3												
4												
5												
6												
7												
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Total Gallons/Monthly Loading (Inches)					0		0.00		0		0.00	
12 Month Floating Total (Inches)												
Average Weekly Loading (Inches)							0				0	

* Weather Codes: C-clear, PC-partly cloudy, CI-cloudy, R-rain, Sn-snow, SI-sleet

Spray Irrigation Operator In Responsible Charge (ORC): Kenneth C. York Phone: 919-631-3895

ORC Certification Number: 26366 Check Box if ORC Has Changed:

Mail ORIGINAL and TWO COPIES to:
 ATTN: Non-Discharge Compliance Unit
 DENR
 Division of Water Quality
 1617 Mail Service Center
 RALEIGH, NC 27699-1617


 (SIGNATURE OF OPERATOR IN RESPONSIBLE CHARGE)
 BY THIS SIGNATURE, I CERTIFY THAT THIS REPORT IS ACCURATE AND COMPLETE TO THE BEST OF MY KNOWLEDGE.

NON DISCHARGE WASTEWATER MONITORING REPORT

PERMIT NUMBER: WQ0019632 MONTH: March YEAR: 2004
 FACILITY NAME: Johnston County Reclaimed Water Utilization Syst COUNTY: Johnston

Flow Monitoring Point: Effluent: <input checked="" type="checkbox"/> Influent: <input type="checkbox"/>														
Parameter Monitoring Point: Effluent: <input checked="" type="checkbox"/> Influent: <input type="checkbox"/> Surface Water (SW): <input type="checkbox"/> SW Code/Name:														
Was There Effluent Flow For This Month Generated At This Facility: Yes: <input type="checkbox"/> No: <input checked="" type="checkbox"/>														
DATE	Operator Arrival Time 2400 Clock	Operator Time On Site HRS	ORC on Site? Y/N	50050	00400	50060	00310	00610	00530	31616				
				Daily Rate (Flow) into Treatment System GALLONS	pH UNITS	Residual Chlorine UG/L	BOD-5 20°C MG/L	NH3-N MG/L	TSS MG/L	Fecal Coliform (Geo-metric Mean*) /100ML				
1														
2														
3														
4														
5														
6														
7														
8														
9														
10														
11														
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27														
28														
29														
30														
31														
Average				#DIV/0!		####	####	####	####	####	#NUM!			
Daily Maximum				0	0	0	0	0	0	0	0			
Daily Minimum				0	0	0	0	0	0	0	0			
Monthly Limit(s)														
Composite (C) / Grab (G)														

Operator in Responsible Charge (ORC): Kenneth C. York Grade: SI Phone: 919-631-3895
 Check Box if ORC Has Changed: ORC Certification Number: 26366
 Certified Laboratories (1): Environment 1 (2): Johnston County WWTP Laboratory
 Person(s) Collecting Samples: Jason Volker

Mail ORIGINAL and TWO COPIES to:
 ATTN: Non-Discharge Compliance Unit
 DENR
 Division of Water Quality
 1617 Mail Service Center

Kenneth C. York
 (SIGNATURE OF OPERATOR IN RESPONSIBLE CHARGE)
 BY THIS SIGNATURE, I CERTIFY THAT THIS REPORT IS ACCURATE
 AND COMPLETE TO THE BEST OF MY KNOWLEDGE.

NON DISCHARGE WASTEWATER MONITORING REPORT

Facility Status:

Please answer the following question:

1. Does all monitoring data and sampling frequencies meet permit requirements?

Compliant (Y,N)

Y

If the facility is **non-compliant**, please explain in the space below the reason(s) the facility was not in compliance with its permit. Provide in your explanation the date(s) of the non-compliance and describe the corrective action(s) taken. Attach additional sheets if necessary.

"I certify, under penalty of law, that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that all qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations."



 (Signature of Permittee)* Date

Haywood M. Phthisic, III

 (Name of Signing Official-Please print or type)

Johnston County Department of Public Utilities

 (Permittee-Please print or type)

Director of Operations

 (Position or Title)

P.O. Box 2263

919-989-5075

 (Phone Number)

31-Mar-07

 (Permit Exp. Date)

Smithfield, NC 27577

 (Permittee Address)

Parameter Codes:

01002 Arsenic	31504 Coliform, Total	00600 Nitrogen, Total	00929 Sodium
01022 Boron	00094 Conductivity	00630 NO2&NO3	00931 SAR
00310 BOD5	01042 Copper	00620 NO3	00745 Sulfide
01027 Cadmium	00300 Dissolved Oxygen	00556 Oil-Grease	70295 TDS
00916 Calcium	31616 Fecal Coliform	WQ09 PAN (Plant Available)	00010 Temperature
00940 Chloride	01051 Lead	00400 pH	00625 TKN
50060 Chlorine, Total Residual	00927 Magnesium	32730 Phenols	00680 TOC
	71900 Mercury	00665 Phosphorus, Total	00530 TSS/TSR
01034 Chromium	00610 NH3asN	00937 Potassium	00076 Turbidity
00340 COD	01067 Nickel	00545 Settleable Matter	01092 Zinc

Parameter Code assistance may be obtained by calling the Water Quality Compliance/Enforcement Unit at (919) 733-5083 ext. 529.

The monthly average for Fecal Coliform is to be reported as a GEOMETRIC mean. Use only the units designated in the reporting facility's permit for reporting data.

* If signed by other than the permittee, delegation of signatory authority must be on file with the state per 15A NCAC 2B.0506 (b)(2)(D).

4/20/04
frc

APPROVED
DIVISION OF WASTE MANAGEMENT
SOLID WASTE SECTION
DATE 4-20-04 BY [Signature]
PTO 5103 A3 PVI
DOOZ

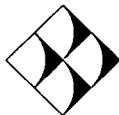
**Operations Manual
Appendix E: Irrigation of Reclaimed Wastewater**

**Johnston County Landfill Facility
Johnston County, North Carolina**

Prepared for:
Johnston County
Department of Public Utilities

**January 2002
Revised: March 2004**

PERMIT ISSUE DOCUMENTS



G.N. Richardson & Associates, Inc.
Engineering and Geological Services
14 N. Boylan Avenue
Raleigh, North Carolina 27603

**JOHNSTON COUNTY
JOHNSTON COUNTY LANDFILL FACILITY**

**OPERATIONS MANUAL
APPENDIX E: IRRIGATION OF RECLAIMED WASTEWATER**

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FIGURES

Figure 1 Landfill Site Irrigation Plan

**JOHNSTON COUNTY
JOHNSTON COUNTY LANDFILL FACILITY**

**OPERATIONS MANUAL
APPENDIX E: IRRIGATION OF RECLAIMED WASTEWATER**

1.0 OVERVIEW

This Operations Manual Addendum was prepared for the Johnston County MSW Landfill located off of Highway 210 on County Home Road for the purpose of describing the operation of an irrigation system for reclaimed wastewater, which is proposed for the site. The system will be owned and operated by Johnston County.

2.0 CONTACT INFORMATION

All correspondence and questions concerning the operation of the reclaimed wastewater irrigation system should be directed to the appropriate County personnel listed below:

Johnston County Department of Public Utilities
309 E. Market Street, P.O. Box 2263
Smithfield, NC 27577
Phone: (919) 209-8333 (Downtown); (919) 934-4576 (Landfill)
Fax: (919) 934-7174 (Downtown); (919) 989-7152 (Landfill)

Solid Waste Manager:	Rick Proctor
Public Utilities Director:	Haywood Phthisic
Director of Engineering:	Tim Broome, P.E.

3.0 IRRIGATION SYSTEM OPERATION

3.1 Areas to be Irrigated

Areas to be irrigated and order of priority (1 being the highest) include the following:

Priority 1:

- Wooded area behind (south and east of) NC Forest Service building (Field 1) (Not on Solid Waste Permit Site);
- Agricultural fields to the south and west of the landfill office (Field 2) (majority not on Solid Waste Permit Site);
- Area behind (west of) landfill office (Fields 3 & 4); and
- Wooded area south of the leachate storage lagoon (future Phase 7 and Phase 8 area) (Fields 6, 7, & 8).

Priority 2:

- Closed landfill areas on Phase 1&2, 3, 4, and 5 (LF Cap 1&2, LF Cap 3, LF Cap 4, and LF Cap 5).

Priority 3:

- Inactive borrow areas (Fields 5, 9, 10, & 11).

In addition to these areas, the County plans to use reclaimed wastewater for the control of dust within the facility and around the County livestock arena (not on Solid Waste Permit Site). **Figure 1** presents the location of the various planned irrigation areas.

3.2 Periods of Operation

The irrigation system will be operated during the months of April through October with the exception of Fields 1, 2, and 3. In addition, irrigation will be discontinued on any day that rainfall exceeds 0.2 inches.

For Fields 1, 2, and 3, irrigation will be year-round. A winter cover crop, such as annual rye, will be used as required. No irrigation will take place during freezing temperatures. Equipment will be drained as required to prevent problems due to freezing temperatures.

3.3 Irrigation Amounts

Irrigation amounts off the landfills will be in accordance with the agronomic rates determined for the landfill site (based on "wettest" year amounts) in an analysis performed by Robert Evans, Ph.D., P.E. of N.C. State University and entitled "Hydrologic Wastewater Reuse Irrigation Analysis for Johnston County". Irrigation amounts on the landfill final covers will be in accordance with HELP model evaluations performed by G.N. Richardson & Associates. A tabulation of these amounts is given in **Table 1**. Restrictions to these amounts are as stated herein. Note that based on site monitoring of the irrigation program (see **Section 3.5**), future increases to these amounts may be allowed.

3.4 Irrigation Restrictions

3.4.1 Monitoring Wells

No irrigation will occur within 100 feet of an actively monitored site monitoring well.

3.4.2 Closed Landfill Areas

Irrigation over closed landfill areas shall only take place over closed areas which have at least 2 feet of soil cover or at least 1.5 feet of soil cover and a synthetic barrier.

3.4.3 Future Landfill Areas

Irrigation over areas designated as future landfill areas (or areas within 300 feet of future landfill areas) will be discontinued within 2 years before the anticipated start of construction for that area unless it is demonstrated by use of piezometers, monitoring wells, or other method (see **Section 3.5**) that irrigation rates are not creating an artificial rise in groundwater levels. Closed landfill areas, if to be lined over as part of a future landfill area (i.e. Phases 6, 7, & 8) may be irrigated in accordance with **Section 3.4.2** within 2 years prior to construction.

3.4.4 Borrow Areas

No irrigation will be performed in active borrow areas. Irrigation may be performed in inactive borrow areas as long as the ground surface is prepared to promote vegetation (soil type, nutrients, etc.).

3.5 Site Monitoring of Irrigation Program

In order to monitor the effect of the irrigation program both to ground water quality and to the ground water table a monitoring program will be implemented. This program will consist of two elements. One will be the addition of sampling and testing of the treated irrigation water as part of the regular Spring and Fall ground water sampling/testing events already performed as part of site operations. After sampling, the irrigation water will be tested for the same detection monitoring parameters as for the other site samples.

In addition, the second element of the monitoring program will be the installation of piezometers in each future landfill area to be irrigated (i.e. Phases 6, 7, and 8). At a minimum, one piezometer will be installed roughly in the central portion of the proposed future landfill phase before irrigation can begin over that area. The water elevations in these piezometers will be measured and recorded both during the spring and fall, concurrent with regular site ground water monitoring, and in the mid-summer. These levels will be evaluated in order to determine if there appears to be a rise in ground water elevations due to the irrigation activities. Should ground water elevations be maintained within a couple of feet of initial levels or levels that might otherwise be considered normal considering other factors such as weather, etc., the irrigation amounts for that area may be increased. Likewise, if there appears to be a significant (more than a couple of feet) increase in ground water elevation, which cannot be otherwise explained, irrigation activities in this area will be reduced or suspended. Also, as stated in **Section 3.4.3**, irrigation in future landfill areas will be halted at least two years prior to planned

construction activities in that area.

3.6 System Maintenance and Inspections

Inspection of the irrigation system during periods of operation will be performed by landfill staff on a weekly basis for the closed landfill areas. Other areas may be inspected less frequently, but not less than once per month. As much of the proposed system will be above ground, inspection for damaged piping, valves, sprinklers, etc. will be done on a mostly visual basis. Should maintenance be required to any portion of the irrigation system, that part of the system will be shut off until adequate repairs are made.

Table 1: Recommended Irrigation Amounts

Field Type	Max. Daily Application Rate cm/day (inch/day)	Annual Application Rate cm/year (inch/year)
Field with Trees	0.60 (0.25)	36 (14)
Field with Grass	0.60 (0.25)	40 (16)
Landfill Final Cover ¹	0.25 (0.1)	12 (5)
Fields 1 and 2	0.60 (0.25)	50 (20)

Note:

- 1) At a rate less than that which would cause saturation of the upper 9 inches of soil cover. This will be controlled by the use of soil moisture devices, which will automatically shut off the irrigation system if the upper 9 inches becomes saturated.