State of North Carolina
Department of Environment,
Health and Natural Resources
Division of Solid Waste Management

James B. Hunt, Jr., Governor
Jonathan B. Howes, Secretary
William L. Meyer, Director

DEHNR

December 20, 1995

MEMORANDUM

| Fac/Perm/Co ID # | Date | Doc ID# |
|---|---|---|
| 92-09 | 7/19/2011 | DIN 14420 |

TO: Greg Eades

FROM: Bobby Lutfy BL

RE: Second Hydrogeologic Review Of The Transition Plan For The North Wake County Landfill (Permit # 92-09)

The review of Camp Dresser & McKee's December 18, 1995 submittal responding to Brad Atkinson's letter of March 23, 1995 indicates the hydrogeologic concerns in the Transition Plan for the North Wake County Landfill have been addressed in a satisfactory manner. The Local Area Study and Water Quality Monitoring Plan portions of the Transition Plan for the North Wake County Landfill appear to be satisfactory. Therefore, based upon the hydrogeologic review, the Transition Plan can be approved.

P.O. Box 27687, Raleigh, North Carolina 27611-7687 Telephone 919-733-4996 FAX 919-715-3605
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**CDM** Camp Dresser & McKee

*environmental services*

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Raleigh, North Carolina 27612
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DEC 1995
Received
Solid Waste
Section

December 18, 1995

Mr. Bobby Lufty
Hydrogeologist
Solid Waste Section
Division of Solid Waste Management
North Carolina Department of Environment,
Health, and Natural Resources
Post Office Box 27687
Raleigh, North Carolina 27611-7687

Subject: Response to Comments
Technical Review Comment Letter #2 - Local Area Study & Water Quality Monitoring Plan
North Wake Landfill Transition Plan, Permit No. 92-09

Dear Mr. Lufty:

This letter has been prepared in response to the North Carolina Department of Environment, Health, and Natural Resources (NCDEHNR) second technical review letter dated March 23, 1995 for the referenced project.

In order to assist in the Solid Waste Section's review of this response letter, this submittal has been formatted to present the NCDEHNR's comment (in bold type) followed immediately by Camp Dresser & McKee's (CDM) response. In making revisions to the contents of the report, CDM has included a revision date in the lower left-hand corner of each revised page of the attached supporting documents. Also, a vertical line (bar) in the right margin has been used to delineate those portions of the supporting documents that have been modified as part of this response.

We trust these responses and associated support documentation are sufficient for your review. If you have any additional questions, please do not hesitate to call. We appreciate your assistance in reviewing this Transition Plan document for the North Wake Landfill facility.

Sincerely,

CAMP DRESSER & McKEE

Timothy D. Grant

Timothy D. Grant, P.G.

NORTH CAROLINA LICENSED SEAL 412 GEOLOGIST TIMOTHY DAVID GRANT

Timothy D. Grant

12-18-95

cc: Phil Carter, Director, Wake County SW Management Division
Joseph F. Wiseman, Jr., P.E., CDM

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LOCAL AREA STUDY

#1. **a. Submit a revised copy of Sheet C-1 which defines the aerial limits of the existing disposal area.**

**b. Submit a revised copy of page 4-4 which includes the landfill and the gas pumps at the office as potential sources of contamination.**

RESPONSE

a. As requested, Sheet C-1 has been revised to show the above features. A copy of revised Sheet C-1 is attached.

b. The text on page 4-4 has been revised accordingly. A copy of revised page 4-4 is attached.

SAMPLING AND ANALYSIS PLAN (SAP)

#2. **Submit a revised copy of page 12-8 which updates the method for volatile organic compound analysis form the unapproved method 524.2 to approved methods 8240 or 8260.**

**Submit a revised copy of Table 12-2 which updates the analytical methods to those approved by the Solid Waste Section. Approved methods are defined in the Section's June 24, 1994 and January 18, 1995 memos regarding water quality sampling to Owners and Operators of MSWLFs.**

RESPONSE

a. The text on page 12-8 has been revised accordingly. A copy of revised page 12-8 is attached.

b. Revised copies of Tables 12-2 and 12-3 are attached as part of this response in compliance with the Section's June 24, 1994 and January 18, 1995 memos.

INITIAL BASELINE SAMPLING REPORT (October 1994)

#4. **a. Provide field data from all monitoring wells for pH, temperature and specific conductance for the March and the May/June sampling events. Field data for these parameters for the respective sampling events is to be included with all future submittals of sampling reports.**

**b. Incorrect analytical methods were used for antimony, beryllium, cadmium, chromium, cobalt, selenium, silver, zinc, and for all volatile organic compounds. Additionally, incorrect PQLs were used for antimony, beryllium, cadmium and selenium. All future**

**analytical work should be done according to the directives of the June 24, 1994 and the January 18, 1995 memos. The methodologies, PQLs, and detectable constituents of future analytical work will determine if resampling for some constituents will be necessary.**

c. **Multiple constituents were detected above the North Carolina 2L Groundwater Standards in the groundwater samples from the March and the May/June sampling events. Assessment monitoring will be necessary after the baseline sampling is completed.**

RESPONSE

a. Field data for pH, specific conductance and temperature have been provided for all the sampling events in Table 2-1 of the North Wake Sanitary Landfill Baseline Sampling Report (submitted to the SWS on April 7, 1995). A copy of this table is attached.

b. The groundwater samples collected by CDM on May 6, 1994 and May 31, 1994 were analyzed for Volatile Organic Compound using EPA Method 524.2. Detection limits for this method are lower than for SW-846 Methods 8260 or 8240. Both Method 524.2 and the SW-846 methods are EPA approved analytical methods and both use gas chromatograph/mass spectrometer. The samples collected by the Wake County Health Department on April 15, 1994, May 11, 1994, June 10/August 25, 1994, and October 3, 1994 were analyzed by Method 8240.

   The metals were analyzed using SW-846 EPA Method 6010. Following a secondary review of individual laboratory testing results for each monitoring well, it was discovered that the PQL for antimony was actually 0.030 mg/l (30 ppb), which is in-line with the PQL listed in the memorandum. The results for sample NW-MW-1 (first page of results, Appendix E, North Wake Sanitary Landfill Initial Baseline Sampling Report, Oct. 1994), however, reveal a detection limit of 0.300 mg/l (300 ppb), which is higher than acceptable by one order of magnitude. Noting this discrepancy in the results presented for well sample NW-MW-1 leads us to believe that a typographical error must have occurred in presenting the results, thus the detection limit for antimony had been correctly applied.

   Therefore, using Method 6010, only the detection limits for beryllium, cadmium and selenium were above the detection limits outlined in the memorandums. The detection limit for beryllium, cadmium, and selenium was 0.005, 0.050, and 0.100, respectively. The acceptable SWS PQLs for each metal are 0.002, 0.001, and 0.020 mg/l, respectively.

c. Wake County has initiated assessment monitoring. Results have been submitted to the Solid Waste Section.

North Wake Landfill - 96 waste loads screened over a 12 month period. This will include 8 loads per month. During the 12 month period each of the six days that the landfill is open for operation will be a sampling day at least twice except for Saturday which only needs to be a sampling day at least once during the year. Of the 96 load total, a minimum of 26 will be industrial waste loads, a minimum of 26 manufacturing waste loads, and a minimum of 26 will be business or commercial loads. The exact days and loads to be sampled will remain random to reduce any attempts to avoid being sampled.

Feltonsville Landfill - 80 waste loads will be screened over a 12 month period. This will include 6 to 8 loads per month. During the 12 month period each of the six days that the landfill is open for operation will be a sampling day at least twice except for Saturday which only needs to be a sampling day at least once during the year. Of the 80 load total, a minimum of 20 will be industrial waste loads, a minimum of 20 manufacturing waste loads, and a minimum of 20 will be business or commercial loads. The exact days and loads to be sampled will remain random to reduce any attempts to avoid being sampled.

## 9.2 Screening the Wasteloads

Waste loads selected for random screening will be diverted to the designated waste screening area where the driver will be questioned about the loads contents before it is deposited onto the screening area. The waste screening form will be completed for all loads selected for screening. Upon answering the necessary question for the waste screening form and unloading the waste load, the driver and truck may be released. Because this load has been randomly selected for waste screening, the release of the driver and vehicle is not intended to imply the County accepts the waste load.

The waste will be spread over the area for observation using a hand-rake or similar piece of equipment. Containers and drums that are not easily identifiable or whose contents cannot be seen should be opened only by properly trained waste screening personnel using adequate personal protective equipment (PPE), as approved by OSHA. Upon verification that the solid waste is acceptable, Wake County will officially accept it for disposal. It is then transferred by landfill staff to the working face for disposal.

All wastes suspected of being hazardous will be handled and stored as hazardous until proven otherwise. All hazardous and prohibited waste testing at the landfill will be conducted by Wake County Emergency Management or other registered hazardous waste contractor hired by the County Solid Waste Management Division.

## 9.3 Procedures

Figure 2 presents a flow chart/decision tree summarizing the procedures that will be followed for the waste screening and procedures to be followed if

**Table 10-1**

**Closure Cost Estimate**
**North Wake Existing Landfill**

| *Work Item* | *Quantity* | *Unit Price* | *Cost* |
|---|---|---|---|
| FINAL COVER | | | |
| Grade Subgrade | 22 | $1,000.00/acre | $ 22,000 |
| Haul Cover Material | 101,860 | 5.00/cy | 509,300 |
| Back Fill & Compact: | | | |
| 18" barrier layer[1] | 64,000 | 3.00/cy | 192,000 |
| 6" erosion layer[1] | 21,360 | 3.00/cy | 64,100 |
| Terrace Service Roads | 16,500 | 3.00/cy | 49,500 |
| Seeding and Fertilizing | 106,500 | 0.45/sy | 47,900 |
| STORMWATER MANAGEMENT CONTROLS | | | |
| Grade ditches | 8,900 | 0.21/cy | 1,900 |
| Install Downdrains | | | |
| 12" diameter | 530 | 12.00/ft | 6,400 |
| 15" diameter | 580 | 15.40/ft | 8,900 |
| 18" diameter | 710 | 17.00/ft | 12,100 |
| 24" diameter | 900 | 24.00/ft | 24,300 |
| Construct Berms | 1600 | 3.00/cy | 4,800 |
| LANDFILL GAS MANAGEMENT | | | |
| Gas Vents (10 @ Ave. Depth of 80) | 800 | 80.00/v.f. | 64,000 |
| Gas Monitor Wells (10 @ Ave. Depth of 24) | 240 | 40.00/v.f. | 9,600 |
| SURVEY | 22 | $350.00/acre | 7,700 |

[1] Assumed a compaction factor of 20%

**Table 10-1**

**Closure Cost Estimate**
**North Wake Existing Landfill**
**(continued)**

| *Work Item* | *Quantity* | *Unit Price* | *Cost* |
|---|---|---|---|
| MOBILIZATION and DEMOBILIZATION | Lump Sum | $ 25,000 | 25,000 |
| LABOR COSTS[2] | Lump Sum | $ 300,000 | 300,000 |
| *Subtotal* | | | $1,349,500 |
| Eng. Services and CQA (7%) | | | 94,465 |
| Contingency (15%) | | | 202,425 |
| **TOTAL** | | | **$1,646,400** |

(2) Labor costs include CQA/CQC ($100,000), Engineering Construction Management ($150,000), and Construction Labor ($50,000).

**Table 10-2**

**30-Year Post Closure Care Cost Estimate**
**North Wake Existing Landfill**

| *Work Item* | *Quantity* | *Unit Price* | *Cost* |
|---|---|---|---|
| Post-Closure Admin. | Lump Sum | | $200,000 |
| Monitoring | | | |
| 6 groundwater wells sampled and analyzed bi-annually for 30 years | 360 | $700/event | 252,000 |
| 2 surface water locations sampled and analyzed bi-annually for 30 years | 120 | 600/event | 72,000 |
| 10 landfill gas wells sampled and analyzed bi-annually for 30 years | 600 | 200/event | 120,000 |
| Maintenance | | | |
| Fencing | 30 | 1,000/year | 30,000 |
| Stormwater Control Structures (grading, remove silt, add riprap, etc.) | 30 | 2,500/year | 75,000 |
| Final Cover System (erosion and settlement repair, plug seeps, revegetation) | 30 | 3,000/year | 90,000 |
| Groundwater and Gas Monitor Wells | 30 | $2,000/year | 60,000 |
| *Subtotal* | | | $899,000 |
| Contingency (15%) | | | 134,850 |
| **TOTAL** | | | **$1,033,900** |

# Section 12
# Drainage Control and Water Protection Requirements

## 12.1 Surface Water Diverted From Operational Area

In accordance with 15A NCAC 13B .1626 (8) (a), surface water shall be diverted from the operational area. In order to divert surface runoff around the working face, a temporary diversion berm shall be installed on the top of the current lift, up-gradient from the working face. The drainage area between the temporary berm and the working face shall not exceed one acre. The diverted water shall be spread as uniformally as possible to minimize erosion of the landfill cover. Any erosion of the landfill cover shall be promptly repaired. Temporary diversion berms that are no longer needed shall be promptly removed and the area regraded to promote uniform runoff of surface water and to minimize erosion.

## 12.2 Surface Shall Not Be Impounded Over Waste

In accordance with 15A NCAC 13B .1626 (8) (b), surface water shall not be impounded over or in waste. Completed areas shall be adequately sloped at a minimum of 2% to allow surface water runoff in a controlled manner.

## 12.3 Waste Shall Not Be Disposed Of In Water

In accordance with 15A NCAC 13B .1626 (8) (c), solid waste shall not be disposed of in water. The minimum four foot separation from the seasonal high groundwater table to the bottom of the liner system shall be maintained at all times.

## 12.4 Leachate Collection and Disposal

In accordance with 15A NCAC 13B .1626 (8) (d), leachate shall be contained on site or be properly treated prior to discharge. An NPDES Permit may be obtained prior to the discharge of leachate to surface waters.

## 12.5 Leachate Discharge

In accordance with 15A NCAC 13B .1626 (8) (e) (i), MSWLF units shall not cause a discharge of pollutants into waters of the United States, including wetlands, that violate any requirements of the Clean Water Act, including, but not limited to, the National Pollutant Discharge Elimination System (NPDES) requirements, pursuant to Section 402.

In accordance with 15A NCAC 13B .1626 (8) (e) (ii), MSWLF units shall not cause a discharge of a nonpoint source of pollution to waters of the United States, including wetlands, that violates any requirement of an area-wide or State wide water quality management plan that has been approved under Section 208 or 319 of the Clean Water Act, as amended.

# Section 13
# Liquid Restrictions

Liquid waste is defined as any waste material that is determined to contain "free liquid" as defined by Method 9095 (Paint Filter Liquids Test). A description of how to conduct a paint filter test is included in Section 13.3.

## 13.1 Bulk or Non Containerized Liquid Waste

In accordance with 15A NCAC 13B .1626 (9) (a) , bulk or containerized liquid waste may not be placed in a MSWLF unit unless:

- The waste is liquid household waste other than septic waste and waste oil.
- The waste is leachate or gas condensate from gas recovery derived from the MSWLF unit, whether it is a new or existing MSWLF unit or lateral expansion, is designed with a composite liner and leachate collection system per North Carolina Solid Waste Management Rules (Rule .162A).

## 13.2 Containerized Liquid Waste

In accordance with 15A NCAC 13B .1626 (9) (b), containers holding liquid wastes may not be placed in MSWLF units unless:

- The container is a small and similar in size to that normally found in household waste containing liquid waste,
- The container is designed to hold liquids for use other than storage; and,
- The waste is household waste.

## 13.3 Paint Filter Test

According to 40 CFR 264.314 and 265.314, the placement of any liquid which is not a hazardous waste in a landfill is prohibited unless the owner or operator of such landfill demonstrates to the Regional Administrator, or the Regional Administrator determines that:

- The only reasonably available alternative to the placement in such landfill is placement in a landfill or unlined surface impoundment, whether or not permitted or operating under interim status,which contains, or may reasonably be anticipated to contain, hazardous waste.
- Placement in such owner or operator's landfill will not present a risk of contamination of any underground source of drinking water.

State of North Carolina
Department of Environment,
Health and Natural Resources
Division of Solid Waste Management

James B. Hunt, Jr., Governor
Jonathan B. Howes, Secretary
William L. Meyer, Director

DEHNR

March 23, 1995

Mr. Phil Carter
P.O. Box 550
Solid Waste Department
Raleigh, NC 27602

RE: Technical Review of the Local Area Study and the Water Quality Monitoring Plan of the Transition Plan - North Wake MSWLF (Permit No. 92-09)

Dear Mr Carter,

A Technical Review of the Local Area Study and the Water Quality Monitoring Plan of the North Wake MSWLF Transition Plan has been completed. Additional information is needed to continue the review process.

The following comments are pursuant to the requirements of 15A NCAC 13B .1629 (b)(2)(A) and .1623 (b)(3) according to the directives in the Transition Plan Guidance Document. Portions of .1629 (b)(2)(A) and .1623 (b)(3) not addressed below should, at this time, be considered as having met the Technical Review requirements of the Transition Plan; however, additional information may be requested at a later date.

LOCAL AREA STUDY

Submit a revised copy of Sheet C-1 which defines the aerial limits of the existing disposal area.

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SAMPLING AND ANALYSIS PLAN (SAP)

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Provide field data from all monitoring wells for pH, temperature and specific conductance for the March and the May/June sampling events. Field data for these parameters for the respective sampling events is to be included with all future submittals of sampling reports.

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Multiple constituents were detected above the North Carolina 2L Groundwater Standards in the ground-water samples from the March and the May/June sampling events. Assessment monitoring will be necessary after the baseline sampling is completed.

Should you have any questions regarding this letter, please contact me at (919) 733-0692.

Sincerely,

Brad Atkinson

Brad Atkinson, Hydrogeologist
Solid Waste Section

c: Ed Mussler DSWM
Joe Wiseman CDM
Tim Grant CDM