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

November 1, 1995

Fac/Perm/Co ID #	Date	Doc ID#
7801	7/29/2011	DIN 4609

Mr. Gary W. Ahlberg, P.E.
Project Engineer
ARG Engineering, Inc.
P.O. Box 5336
Raleigh, N.C. 27650

Re: Assessment Monitoring at the Wilson County Municipal Solid Waste Landfill (Permit #98-01).

Dear Mr. Ahlberg,

This letter is in response to your October 3, 1995 correspondence in which a summary of the initial Appendix II monitoring results, laboratory test results and future recommendations regarding the monitoring system was included.

The recent purchase of adjacent property for an extended buffer zone will be beneficial to the County. However, the compliance boundary can not be redefined until the additional property is incorporated into the landfill boundaries.

On a separate issue, further investigation of the contamination in the vicinity of MW-3 is required. Several questions exist, such as, location of the waste boundary in that area, influence of the canal/ditch on surficial ground water flow and discharge, and direction of ground water flow (for optimal placement of future down gradient monitoring wells). At this time MW-3 should not be abandoned nor be removed from the monitoring program.

An updated topographic map which includes a delineation of the newly acquired property and the proposed locations for the future monitoring wells will be essential in evaluating the issues above.

ARG ENGINEERING, INC.
ENVIRONMENTAL ASSESSMENT & REMEDIATION SPECIALISTS

OCT 1995
Received
Solid Waste
Section

October 3, 1995

VIA Courier

Mr. Mark Poindexter
NC DEHNR - Division of Solid Waste Management
Solid Waste Section
P.O. Box 27687
Raleigh, NC 27650-7687

RE: INITIAL APPENDIX II MONITORING RESULTS
WILSON COUNTY MSWLF
WILSON, NORTH CAROLINA

Dear Mr. Poindexter:

ARG Engineering, Inc. is pleased to submit the following report in behalf of Wilson County. According to 15A NCAC 13B .1634 (d)(1), this report provides a copy of the analytical data for the initial assessment monitoring event and a notification identifying the Appendix II constituents detected at the site. Furthermore, this report provides Wilson County's plans for future sampling and compliance with the Assessment Monitoring Program.

Attached is the Chain of Custody and laboratory analytical report prepared by Environment 1, Inc. of Greenville, North Carolina. Environment 1 sampled six wells on July 7, 1995 and subsequently, analyzed the samples for Appendix II parameters. The analytical methods used include the individual metals tests listed in the report, 8270-Acid Base/Neutral Organics, 8260-Purgeable Organics, 8150-Chlorinated Herbicides, and 8080-Organochlorine Pesticides and PCBs.

For the current six well monitoring system, the detected Appendix II parameters were limited to purgeable organics and were only present in MW-3. Table 1 provides a list of the parameters detected by Method 8260, including the levels and limits of detection.

In accordance with .1634 (d)(2), the existing groundwater monitoring system will be sampled and analyzed for Appendix I constituents and the Appendix II constituents listed in Table 1. This monitoring event will be scheduled prior to October 7, 1995. Following receipt of all analytical data, a semi-annual monitoring report will be prepared that incorporates the enclosed Appendix II data.

According to the April 1994 Transition Plan for the facility, the proposed detection monitoring system incorporates a potential well nest and one additional Type II well installations. Through a recent property acquisition, Wilson County has extended the buffer zone to implement the Water Quality Monitoring Plan defined in the Transition Plan. The new monitoring wells will be constructed at two locations designated MW-6 and MW-7.

The need for a nested well at location MW-6 will be determined first by advancing an exploratory

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boring to a depth of approximately 60 feet. This boring will be used to identify a hydraulically conductive zone below the water table, and below any confining or semi-confining layers to the depth of investigation. If separate monitoring zones are not observed, the Type III well will be omitted. The exploratory boring will be grouted and properly abandon. The new wells redefine the MSWLF compliance boundary, replacing existing well MW-3.

Should the Solid Waste Section have any questions or comments concerning the monitoring system activities outlined in this report, please call me at 828-9552.

Sincerely,

Gary W. Ahlberg, PE
Project Engineer

cc: Bobby Lutfy-SWS
G. Steven Clayton
Facility Operating Record

- The Compliance boundary can not be redefined until
  - the additional property is incorporated into the Landfill Facility boundaries,
- Further investigation is needed of the contamination in the vicinity of well MW-3, regardless of the (future) decision made on redefining the compliance boundary.

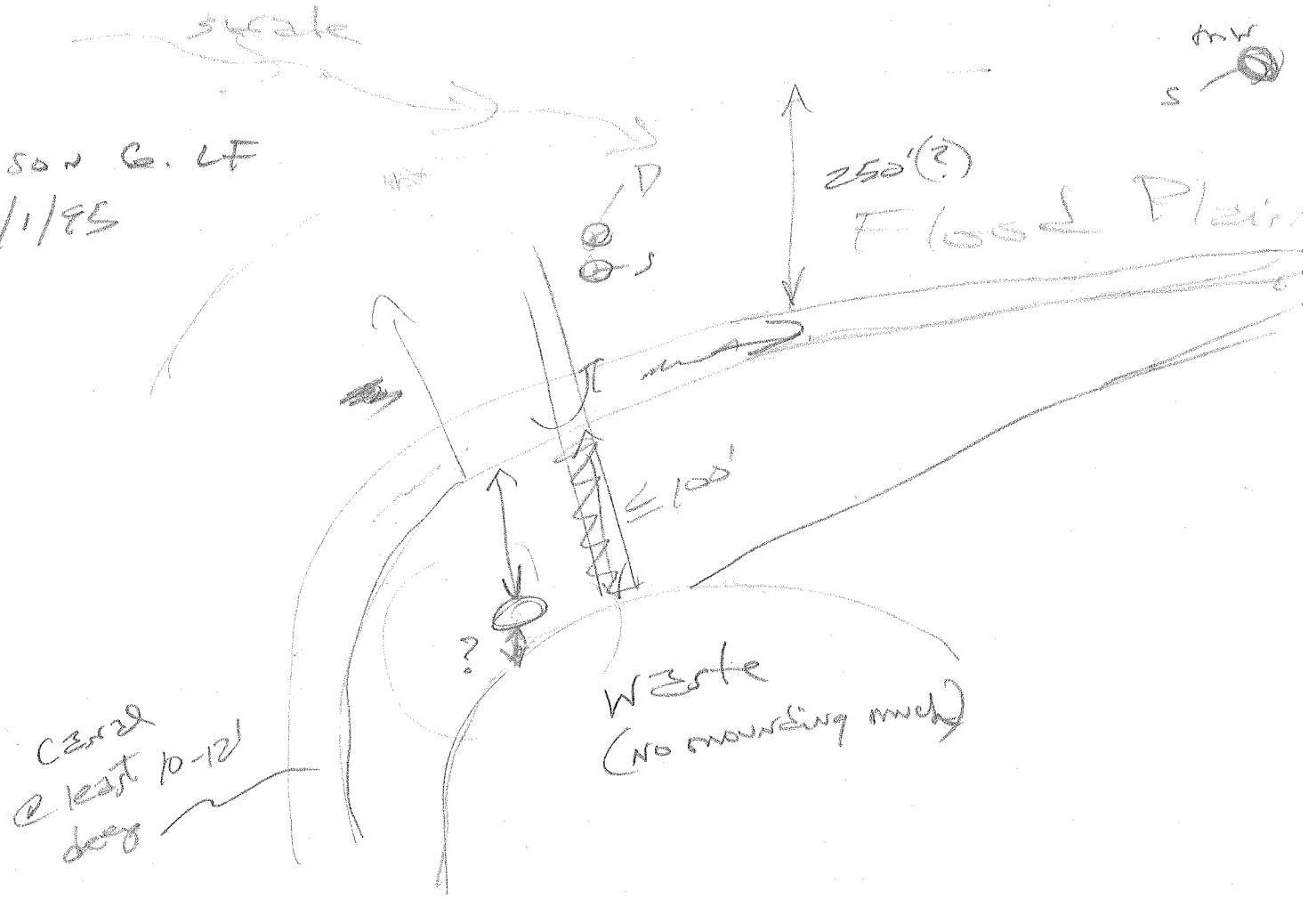
TABLE 1

Appendix II Detected Parameters List
Wilson County MSWLF

Parameter		Well #1A 101 7/7/95	DL	Well #2 201 7/7/95	DL	Well #3 301 7/7/95	DL	Well #4 401 7/7/95	DL	Well #5 501 7/7/95	DL	Well #8 801 7/7/95	DL
Methylene Chloride	ug/L	<10	<10	<10	<10	384	<10	<10	<10	<10	<10	<10	<10
1,1-Dichloroethane	ug/L	<5	<5	<5	<5	122	<5	<5	<5	<5	<5	<5	<5
cis-1,2-Dichloroethene	ug/L	<5	<5	<5	<5	23	<5	<5	<5	<5	<5	<5	<5
Benzene	ug/L	<5	<5	<5	<5	10	<5	<5	<5	<5	<5	<5	<5
Trichloroethene	ug/L	<5	<5	<5	<5	20	<5	<5	<5	<5	<5	<5	<5
Toluene	ug/L	<5	<5	<5	<5	5	<5	<5	<5	<5	<5	<5	<5
Tetrachloroethene	ug/L	<5	<5	<5	<5	37	<5	<5	<5	<5	<5	<5	<5
Ethylbenzene	ug/L	<5	<5	<5	<5	5	<5	<5	<5	<5	<5	<5	<5
Xylenes	ug/L	<5	<5	<5	<5	6	<5	<5	<5	<5	<5	<5	<5

DL: Detection Limit

Wilson G. LF
11/1/85



How close to waste is MW-3?
Does canal serve as discharge?
local GW flow in area of MW-3?
Location map of proposed locations for new MW
Updated topographic of property w/ nearly acquired property

MW-3 do not abandon.

State of North Carolina
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DEHNR

MEMORANDUM

To: Ed Mussler

Date: July 24, 1995

From: Jim Bateson JB

cc: Bobby Lutfy

RE: Wilson County Transition Plan; Hydrogeology
Permit #98-01

The Solid Waste Section Hydrogeologic Unit has reviewed the Local Area Study and Water Quality Monitoring Plan portions of the Transition Plan for the Wilson County Landfill. There appear to be several errors and omissions in these portions of the Transition Plan. Please have Wilson County's consultants address the following comments:

LOCAL AREA STUDY

- The 2000 ft. perimeter map does not have the location of survey control benchmarks clearly marked. Survey control needs to be established relative to at least one permanent onsite benchmark of known N.C. State Plane Coordinates, measured from a USGS benchmark of known NCSP coordinates. Coordinates for both the USGS and onsite benchmarks need to appear on either the 2000 ft. perimeter map or the site map. Monitoring wells will need to be surveyed relative to the onsite benchmark, and their NCSP coordinates need to appear on the Monitoring Plan map.

- The aerial photo needs to have a north arrow.

WATER QUALITY MONITORING PLAN

- As mentioned on page 45, tags will need to be added to the existing monitoring wells indicating that the wells are not for water supply and that the groundwater may contain hazardous materials. Also, repairs will need to be made on the ground surrounding wells MW-4 and MW-5 to protect the wells from surface water.

- The inner well cap needs to be vented.

- The Water Quality Monitoring Plan needs to contain a statement about sampling frequency. After the baseline sampling is complete, sampling needs to be done semiannually.

- Detection limits for antimony, beryllium, cadmium, cobalt and vanadium are higher than the required PQL's. Detection monitoring analyses need to meet the specifications of the June 24, 1994 and January 18, 1995 memorandums of the Solid Waste Section concerning water quality sampling at MSWLF's.

- Page 49 describes decontamination procedures for field equipment that are not recommended by the EPA. The approved method of field decontamination of water level indicators is a laboratory grade soap wash followed by a DI water rinse (steps 1, 2 and 3 of your decontamination procedures, rather than steps 3 through 5. The soap wash is preferred because even laboratory grade isopropyl alcohol is not 100% pure and because in the field there is insufficient time to properly air dry equipment cleaned with alcohol.

- It is a good policy to verify the total depth after sampling to see if the depth matches the depth of well indicated on the well tag. This also provides information on the condition of the well and alerts you to problems with siltation of the well, etc.

- No survey control for the monitoring wells has been reported. The monitoring wells must be accurately surveyed for horizontal and vertical control.

GROUNDWATER MONITOR WELL AND METHANE GAS PROBE SAMPLING REPORT
(First baseline sampling event, November, 1994)

- Many of the analytical methods employed were not those required in the sampling guidelines outlined in the June 24, 1994 memorandum to MSWLF Owners and Operators. Regular ICP methods (EPA 6010) are not approved for metals requiring low level certification. (Beryllium, chromium, cobalt, silver, and vanadium are metals requiring low level certification that were analyzed using ICP methods not approved by the Section for low level analysis.)

- Field tests were not reported for monitoring wells MW-1A, 2, 8, 3 and surface water points SW-3, 4, and 5.

- Samples from MW-4 and MW-5 were not analyzed for antimony, beryllium, cobalt, copper, nickel, thallium or vanadium.

- Because of the above listed deficiencies in the first baseline sampling event, the data collected cannot be included in the statistical analyses used to establish the baseline values for future comparison. Analyses of the samples from the first event were done at a different laboratory, using different methods with different PQL's than those used for subsequent events. This makes it difficult to incorporate them into the statistical analyses and still expect meaningful results.

ADDENDUM TO THE WATER QUALITY MONITORING PLAN
(Baseline Sampling Statistical Analysis, April 1995)

Analytical methods employed for the second, third, and fourth baseline sampling events, plus the methods employed for the statistical analyses, meet the requirements of the Solid Waste Management Rules. However, another baseline sampling event will need to be performed, for the reasons given above, and the statistical analyses to establish baseline values redone. The new statistical analyses will need to incorporate the new sampling data, in place of the data from the first event, along with the data from the second, third, and fourth event.

GROUNDWATER MONITOR WELL AND METHANE GAS PROBE INSTALLATION REPORT (March 27, 1995)

- Monitoring wells MW-6a, 6b, and 7, plus gas probe GP-3, will need to be installed before transition plan can be approved. What is the status of the efforts to acquire additional property on the margins of the current site boundary?

- Hydraulic conductivities, water levels based on surveyed well elevations, and the computed gradients, flow velocities and directions need to be provided for each monitoring well included in the detection monitoring system. These determinations were not provided for monitoring wells MW-4 and MW-5. This information will also need to be provided for MW-6a, 6b, and 7 after they are installed.

- The effective porosity value used for computation of groundwater flow velocities at four wells at the facility was an average number based on laboratory tests of bulk samples obtained from "MW-10, 11, and 13". These wells do not appear on plans submitted in the report. Porosity determinations need to be made on materials representing the screened intervals of each monitoring well in the monitoring system. Total porosity and effective porosity values for the lithology at the screened depth for <u>each</u> monitoring well in the system need to be obtained somehow. Computations of flow velocities at each well need to be based on the porosity determination specific to that well. Documentation for any laboratory work needs to be submitted. A plan showing the locations of all monitoring wells at or near the site, including MW-10, 11, and 13 (and MW-12?), needs to be provided, along with Well Completion Records and boring logs for these wells.

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May 15, 1995

Mr. G. Steven Clayton
Wilson County Department of Solid Waste Management
P.O. Box 1728
Wilson, NC 27893

Re: Technical Review, Wilson County Transition Plan - Permit No. 98-01

Dear Mr. Clayton:

The NC Division of Solid Waste Management, Solid Waste Section (Section) has completed a technical review of the engineering portion of the above referenced Transition Plan application submitted by Environmental Investigations, P.A., on behalf of Wilson County. The section hydrogeologist will review the Water Quality Monitoring Plan of the Transition Plan and will request any additional water monitoring information or geology needed upon completion of his review.

The Section's engineering review involved evaluating the Wilson County Transition Plan with respect to the North Carolina Solid Waste Management Rules (15A NCAC 13B.1600). Based on its preliminary review, the Section needs the following additional information.

Section 1.0- Introduction

1. The Transition Plan states that it is anticipated that a site study for a new facility will be submitted by March 1996. Does this schedule still hold? Wilson County (or the Authority) should allow two (2) years for review of an application and one (1) year for construction of a lined facility.
2. 1.2- The plan is unclear as to whether or not all of the residences within 2000' of the landfill are on city water. [.1629(b)(2)(A)]

Section 2.0- Existing Conditions

1. Please provide a summary of the facility's compliance record (ie. inspection reports) for the past five(5) years. [.1629(b)(2)(C)(ii)]

2. 2.5.2- How will Wilson County improve landfill conditions in Area 1B in order to meet the compliance requirements for methane gas? [.1629(b)(2)(C)(iii)]

Section 3.0- Operations Plan

1. 3.1.2- This section includes an estimation of the capacity need of 6858 cubic yards per week. Please describe in more detail how this figure was arrived at. [.1629(b)(2)(B)]
2. 3.1.3- How will the base lift beginning at Area 1B correct inadequate drainage conditions?

Section 3.2- Operational Requirements

The Operations Plan, prepared in accordance with .1626 should be a manual suitable for use by any landfill personnel. More detail in general is needed, with the following items being specifically addressed.

1. 3.2.1.1-Waste Types- Table 1A, the list of major industries using the landfill, is missing. Please provide this Table.
2. 3.2.1.2-Waste Screening Program- Random inspections (inflections) is misspelled. Who will conduct hazardous waste training? The plan should include a provision to notify the Section within 24 hours of the attempted disposal of unauthorized waste. [.1626(1)(a)]
3. Did the facility accept and if so what are the provisions for handling animal waste and spoiled foods? Additionally, how is asbestos dealt with at the landfill? [.1626(1)(c&d)]
4. 3.2.2- Optional Cover Requirements- The plan should state that at least 6 inches of cover be applied at the end of each operating day. [.1626(2)(a)]
5. How frequent is soil applied as a firebreak? [.1626(2)(b)]
6. How does the alternative daily cover deal with vectors, fires, odors, blowing litter and scavenging without being a threat to human health and environment? [.1626(2)(b)]
7. 3.2.3-Disease Vector Control- Please expand on how you will use cover to control disease vectors. Also, discuss what alternatives are available if the cover doesn't work. [.1626(3)(a)]
8. 3.2.4-Explosive Gas Monitoring- A statement needs to be included stating that the concentration of methane gas can not exceed 25% of the lower explosive limit (LEL) at the facility. Additionally, please include an emergency response plan for when excessive levels are measured. Show all sampling locations on Figure 1 and provide more detail about the testing procedure. [.1626(4)]
9. 3.2.5-Air Criteria- Include more information on detecting and the handling of "hot loads". A statement also needs to be included that all fires will be reported to the Section within 24 hours with a written notification submitted within 14 days. [.1626(5)]
10. 3.2.6-Access and Safety- This section needs to be expanded to include more detail on safety, security, access roads, dust control, signs etc. [.1626(6)]
11. 3.2.9-Liquids Restriction- Information pertaining to the Paint Filter Test and the proper interpretation of the results needs to be explained. [.1626(9)(c)(i)]
12 3.2.11-Lift Construction and Work Zones- Proper operation at the working face should be further explained including the compaction method, lift size, number of passes, depth to spread waste, etc. How is blowing litter, run-off and inclement weather dealt with during operations at the working face. [.1626(11)]

Section 4.0 - Closure Plan

1. 4.2.2- Construction Requirements- Table 2 is referred to in the text, but is not included with the plan. Is any subgrade preparation required prior to CCL placement? What is the lift size for clay placement? [.1627(c)(3)]
2. A statement needs to be included that CCL placement shall begin within 30 days of the last receipt of waste. [.1627(c)(5)]
3. The original cap specifications were changed from an 18" vegetative layer to a 12" layer. The entire text should be reviewed for consistency. (i.e see §4.2.1).
4. In light of the changes in the closure cap system, are the cost estimates still accurate? Do the costs include shrinkage factors for the CCL? What is the breakdown between material costs, transportation and construction of the earthwork?

Section 5.0- Post-Closure Plan

1. What is the end use of the property?
2. More detail needs to be included with respect to the inspection/ maintenance schedule (i.e. table or chart). [.1627(d)(1)]
3. Maintenance costs need to be broken down into their individual components.
4. Please include the notification requirement of §.1627(c)(8) in the plan.

When submitting revisions to the Transition Plan, the changed pages should be clearly identified with a revision date in either the footer of the header. It is not necessary to submit five (5) copies of revisions or facility drawings, at this time. Two (2) copies will suffice. When the Transition Plan is finalized a total of five (5) copies will be needed. These comments are intended to expedite the review of the referenced application, and in no way do they restrict the Section's right to request additional information following the technical review process. We are available by phone and fax to help clarify this letter.

Sincerely,

Greg Eades

Greg Eades
Environmental Engineer

cc: Ed Mussler
Terry Dover
Bob Barnes
Asa Rogerson, Environmental Investigations