

MEMO

Permit no 5803

JIM PATTERSON ✓

DATE: 04/12/95

TO: FILE LULA MELTON

SUBJECT: MADISON Co. C&D

Jim Brown of Madison Co. called to

inform us that MW-7 has been sampled, and sample shipped to LAB, SATISFYING PRE-Operation Condition.

MW-2 (upgradient well for MSWLF and C&D unit) will be sampled during Spring SEMI-ANNUAL EVENT IN TWO WEEKS.

LAB reports for all wells, A C&D SET AND A MSW SET, will be submitted together in about a month.

From: JIM PATTERSON

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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

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To Jim Brown	From Grey Eades	
Co. Madison Co.	Co. SWS	
Dept.	Phone #	
Fax # 704-649-2311	Fax #	

DEHN

November 2, 1995

Mr. Thomas Beggs
Law Environmental, Inc.
P.O. Box 240674
Charlotte, N.C. 28224

RE: Hydrogeologic Review Of The Water Quality Monitoring Plan Of
The Transition Plan For The Madison County Landfill, # 58-03

Dear Mr. Beggs,

The Solid Waste Section Hydrogeologic Unit has reviewed the Transition Plan for the Madison County Landfill. There are a few items that need additional clarification or changes. Please address the following questions and comments:

- On page 12-9, while the field equipment blank should be sampled for all of the Appendix I constituents, it is only necessary to analyze the trip blank for the organic parameters.
- Also on page 12-9, statistical analyses are required for all detected constituents, not just those that exceed the N.C. Groundwater Standards. All detected data should also be compared to the Groundwater Standards.
- In Table 3, Appendix I Constituent List, there are currently no proposed groundwater standards for Antimony, Beryllium, Cobalt, Thallium, or Vanadium. The earlier document that referenced proposed standards for these constituents was in error.
- Some of the inorganic data included in the Transition Plan Report was done using analytical methods that are not consistent with current Solid Waste Section policies. For the Solid Waste Section laboratory certification requirements and approved analytical methods for Appendix I constituents, please refer to the Memos to MSWLF Owners and Operators dated June 24, 1994 and January 18, 1995.

Mr. Thomas Beggs
Law Environmental, Inc.
Madison County Transition Plan
Page 2

- The total depth and screened interval for well MW-3 shown on the well schematic diagram is different from that shown on the Well Construction Record.
- The MSWLF Owner or Operator is required to report the direction and rate of ground-water flow for each well for each sampling event. In order to calculate the ground-water flow rate, in-situ hydraulic conductivity tests must be done for each monitoring well. Also, an effective porosity value representative of the formation materials for each monitoring well must be determined. The hydraulic conductivity and effective porosity values (along with the horizontal gradient values) are then used to calculate the ground-water velocity (rate) at each well location. This information has not yet been submitted to the Solid Waste Section.
- The Solid Waste Section has not received water quality data for the Madison County Lined Landfill since 1994. That data did not include the direction and rate of ground-water flow, a comparison of the data to the Groundwater Standards, or a statistical evaluation of the detected constituents.
- According to the data on file in the Solid Waste Section office, several of the metals were detected at levels that exceed the Groundwater Standards in several of the monitoring wells. Therefore according to the Solid Waste Management Rules, .1633(c), Madison County was responsible within 90 days to either sample all wells for the Appendix II constituents or make a demonstration that the exceedences to the Standards are due to sampling or laboratory error, or due to natural variability.

Madison County needs to supply the sampling and analyses data, ground-water flow direction and rate data, statistical analyses, and demonstration report or Appendix II monitoring data as soon possible in order to remain in compliance with the Solid Waste Management Rules.

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



MEMORANDUM

To: Lula Melton

Date: March 14, 1995

From: Jim Bateson *JTB*

cc: Bobby Lutfy

RE: Proposed Madison Co. C&D Permit Application; Hydrogeology
Revision to Existing Permit No. 58-A

The hydrogeological unit of the Permitting Branch of the Solid Waste Section has reviewed the March 2, 1995 and March 10, 1995 responses of Law Environmental, Inc. concerning the above referenced permit application. The application now satisfies those requirements of the Solid Waste Management Rules regarding the hydrogeological aspects of the proposed unit.

LULA NELSON

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

March 9, 1995

Mr. Thomas F. Beggs, P.E.
Law Environmental, Inc.
P.O. Box 240674
Charlotte, NC 28224-0674

RE: Proposed Construction and Demolition Landfill
Revision to Existing Permit # 58A
Madison County, North Carolina

Dear Mr. Beggs:

I have reviewed the March 2, 1995 revisions to the above referenced permit application submitted by your office. The permit application needs several amendments before a final review can be completed:

1. Drawing 3 of the March 2, 1995 submittal shows the proposed northeast edge of LCID waste to be 15 feet from the property boundary. The map legend description of the shaded area within this boundary, "LCID Waste in 200-ft Buffer to Property Line", suggests that the area within 100 feet of the property line is no longer proposed to contain only clean earth fill, as described in the original permit application of May 6, 1994. The Solid Waste Section will permit LCID landfills only with a minimum 100-ft. buffer between waste and property boundaries. Drawing 3 of the recent submittal needs to be revised to indicate that no LCID waste is to be placed in the 100-ft. buffer.
2. Since there is to be only one downgradient monitoring site for the proposed C&D landfill, the Solid Waste Section considers the location and well design for that site to be critical. Proposed monitoring well MW-7 is located such that it may be recharged by groundwater flowing from the spur on the west of the proposed C&D footprint, rather than, predominantly, from the groundwater flowing beneath the footprint. The Section requests that the well be located near the axis of the draw which bisects the footprint. Given your explanation that the catchment basin is to be full only during storm events, proximity to this basin is not considered to be of concern to the Section.

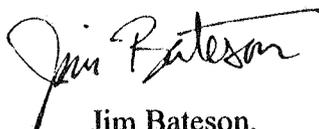
Mr. Thomas Beggs
March 9, 1995
Page 2.

2. (cont.)

Also, given that groundwater flow may be concentrated in a fractured, partially weathered zone just above bedrock, a monitoring well at this one site needs to intercept both the top of the surficial aquifer and the zone just above bedrock. If depth to bedrock is great enough such that one well with a 15-foot screen cannot accomplish this, then the Section will request the installation of a well nest. The initial borehole should be advanced to auger refusal. After obtaining a stabilized water level reading, your geologist should consult with the Section before proceeding with installation.

Please feel free to call me if you have any questions about this permit application.

Sincerely,



Jim Bateson,
Hydrogeologist
Solid Waste Section

cc: Mr. Jim Brown, Madison County Solid Waste Director
Ms. Lula Melton, Solid Waste Section
Mr. Bobby Lutfy, "
Mr. James Patterson, "

LULA MELTON

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

January 26, 1995

Mr. Thomas F. Beggs, P.E.
Law Environmental, Inc.
P.O. Box 240674
Charlotte, NC 28224-0674

RE: Permit Application (Revision to Existing Permit No. 58A)
Proposed Construction and Demolition Landfill
Madison County, North Carolina
Law Environmental Project No. 56-8550

Dear Mr. Beggs:

This letter is in response to our telephone conversation of January 24th, during which, along with Mr. Jim Brown, we discussed the Solid Waste Section's response of November 22nd, 1994 to the above referenced permit application. You informed me that three additional boreholes had been drilled in the draw through the center of the proposed footprint, and that water level readings had been obtained several times over the past month. You also mentioned that the construction plan was to be modified such that no excavation would be proposed.

If no excavation is planned for the site, and if wet season groundwater elevations, as indicated by readings from the new borings, are sufficiently low, then the Section feels that questions about vertical separation between waste and seasonal high groundwater levels can be addressed without any further hydrogeological study. Before the Section can complete its technical review of the application, an addendum to the application, containing the following information, needs to be submitted:

1. A new construction plan showing the revised bottom grades and the locations and elevations of the three new boreholes.
2. Piezometer construction details for the three new locations, and a table of all new water level readings, to include readings from several of the older piezometers at the facility, preferably those nearest to the proposed C&D unit.
3. A brief discussion of projected long term variation of seasonal high groundwater levels for the site. This can be done with reference to the detailed discussion of the subject included in the previous permit application for the entire facility.

Thomas F. Beggs, P.E.
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4. A brief discussion about the likelihood that the three new boreholes are located in that part of the footprint with the least vertical separation between groundwater and the surface.

Because groundwater quality of the proposed C&D landfill needs to be monitored separately and distinctly from that of the existing municipal facility, a separate monitoring plan needs to be submitted for the C&D permit application to be complete. In previous discussions, the Section has indicated that an existing upgradient monitoring well for the municipal landfill would suffice as a background well for the proposed C&D facility. Given that the proposed C&D site is confined to one small drainage and groundwater basin, the section feels that one downgradient sampling point might suffice. The monitoring plan may need to include more than one proposed monitoring well, however, because of the following constraints:

5. The Section normally issues permits for landfill units of five years of projected capacity, and a downgradient well needs to be located within the compliance boundary of the facility, no more than 250 feet from the projected edge of waste at that time. The edge of the footprint estimated to accommodate five years of projected fill needs to be indicated on the amended construction plan.
6. The Section is reluctant to permit monitoring wells immediately adjacent to a sedimentation basin, due to concern about dilution of the groundwater by water percolating from the basin. This concern is less critical for wells that are not downgradient from a sedimentation basin.
7. Monitoring wells are probably best located near the axes of drainage features at this site. The possibility exists that drainage features represent areas of greater fracture permeability in bedrock and in partially weathered rock, and would be the areas to expect a concentration of flow downgradient from the site.

The monitoring plan needs to include proposed sampling frequency and procedures, as well as analytical protocols. *Sampling and Analysis Requirements* of the Solid Waste Section for C&D Landfills, recently revised, is attached. Criteria for construction specifications of the proposed monitoring wells need to be noted, possibly with reference to subsurface conditions indicated by logs from previous borings nearby. The following paragraph is included for your reference:

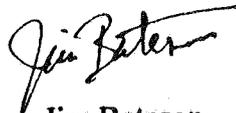
Thomas F. Beggs, P.E.
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In addition to the basic design requirements of the N.C. Well Construction Standards, 15A NCAC 2C, the Solid Waste Section has certain requirements for the location and design of monitoring wells at landfills. In order to limit dilution of chemical constituents and to limit possible spread of contamination, well screens should normally not exceed 15 feet in length. The sand filter pack should extend no more than one foot below the screen or two feet above the screen. Generally shallow monitoring wells are screened at the water table with a 15 foot screen set so that the top of the screen is just above the seasonal high water table. Where groundwater may reach levels of less than five feet below ground surface, tops of screens need to be set at five feet in order to accommodate adequate seals to prevent surface water inflow. Deeper wells are generally constructed with ten foot well screens.

The monitoring plan needs to be sealed by a North Carolina Licensed Professional Geologist.

If information addressing the above issues is submitted, the Solid Waste Section can complete its technical review of the permit application, and a visit to the site may be unnecessary. If you or Mr. Brown have any questions, or if you feel that a site visit would yet be useful, please call me at (919) 733-0692.

Sincerely,



Jim Bateson
Hydrogeologist
Solid Waste Section

cc: Mr. Jim Brown,
Madison County Solid Waste Director

Bobby Lutfy, Solid Waste Section