

0101gw1218 97

NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES

DIVISION OF WASTE MANAGEMENT

Doc ID#	Date
DIN	05/08/09

hc

December 18, 1997

Mr. Robert C. Smith, County Manager
2701 West Elm Street
Graham, North Carolina 27253

RE: Preliminary Hydrogeologic Technical Review of the Design
Hydrogeologic Report -- Alamance County: Proposed Cell 2B for
Municipal Solid Waste, and Phase 2 of the Construction and Demolition
Debris Landfill.

Dear Mr. Smith,

A preliminary hydrogeologic review has been completed for the proposed Austin Quarter Road Facility for the proposed expansion submitted by Hazen and Sawyer. Please have Hazen and Sawyer respond to the following comments and questions:

Cell 2B

Page 10: Slug test data completed in the bedrock was analyzed utilizing confined condition methods. Piezometer construction records do not indicate well screens are located in a single water bearing fracture and no methods are given for isolating any water bearing fracture. The estimated effective porosity of three percent for the bedrock also seems to indicate interconnection of fractures. Slug test data calculated for hydraulic conductivities need to be re-evaluated for unconfined conditions.

Page 12: Seasonal high groundwater has not been determined. Include the water level measurements that have been recorded for the expansion area. Hydrographs of wells in the area, meteorological and climatological data also need to be included in the explanation for the seasonal high groundwater determination.

Page 13: An effective porosity ranging from 35 to 40 percent was estimated using laboratory results and soil characteristics. Porosities of 35 to 40 percent are generally clean sands or primary porosities. Provide information used for determining the effective porosity in calculating flow rates.



Page 14: Nest B-34/B-34A is reported to have an upward gradient on April 8, 1997 with subsequent vertical gradients with a downward vertical component. The location of the nested piezometers appear to be in a recharge area. It is unclear why this reading is indicating an upward component. Explain this apparent anomalous event.

Borrow areas located in future cells may impact characterization for design studies. Design hydrogeologic studies are to be conducted on generally undisturbed ground. Determination of the long term seasonal high groundwater and depths to top of rock is most accurate prior to any alteration of the topography. Removal of soil and stockpiling of soil cover can affect the accuracy of hydrologic studies. How will the estimated four foot separation and the groundwater regime be addressed prior to soil removal from the future cells?

C & D Expansion

A Construction and Demolition Debris Landfill is a sanitary landfill that has a defined waste stream and is subject to the .0500 rules. The hydrogeologic report does not include any discussion concerning the one and three-quarter acre lateral expansion for the construction and demolition debris landfill.

Water Quality Management Plan

Page 1: The purpose of monitoring well S51 is unclear. Is monitoring well S51 intended for use as background or release detection?

Page 2: The Design Hydrogeologic Report states the potentiometric surface recharge is beneath Cell 2B, wells S10 and S11 cannot be replaced with equivalent up-gradient wells. Upgradient or background wells are to represent the quality of the background groundwater that has not been affected by leakage from the waste unit. Background water is normally collected from a well or wells that are hydraulically upgradient of the waste management area. It may be preferable to install the background well in a location that is not as subject to abandonment for new cell construction. This type of well can be used as a facility background monitoring well for the life of the site.

Figure 1: Nested monitoring wells MW-8 do not appear to be in a position to detect a potential release from the sump area based on text and the potentiometric surface provided. The temporary sump in the northwest portion of the cell will also need to be monitored.

Sampling and Analysis Plan

Page 8: Line item 5 states a dedicated Teflon or stainless steel bailer may be used to remove water from the well. While a bailer can be dedicated to a given well, bailers are considered a part of a portable monitoring system. Bailers must be laboratory cleaned prior to field use. Field cleaning of bailers is not allowed.

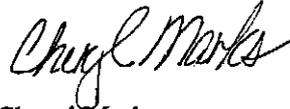
"A minimum of three casing volumes will be removed from wells..."
Purging may actually need to continue past three casing volumes if the pH and specific conductivity have not stabilized.

Page 9: Line item 7 states each groundwater monitoring well will have dedicated bailers. Since bailers are required to be laboratory cleaned, cross contamination between sampling wells is minimized and unlikely.

Page 16: "No equipment blanks are being proposed because each well will have dedicated sampling devices."
Pumps may be used in dedicated systems, however, when bailers are used in a portable system at least one equipment blank is required.

If Hazen and Sawyer have any questions regarding this memo, they may contact me at (919) 733-0692, extension 346.

Sincerely,



Cheryl Marks
Hydrogeologist
Solid Waste Section

cc: Ed Mussler, Solid Waste Section
Bobby Lutfy, Solid Waste Section
Mark Fry, SWS--Fayetteville
John Bove, Hazen and Sawyer