NCDENR
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

December 23, 2004

Mr. Allen Stowe
Duke Power
EC11E / 526 South Church Street
Charlotte, NC 28202-1802

Subject: Preliminary Comments regarding Site Suitability
Craig Road Ash Landfill

Dear Mr. Stowe,

The following documents are under review for this proposed landfill site suitability.

1) Site Suitability Study Craig Road Ash Landfill Duke Power - Belews Creek Steam Station Belews Creek, North Carolina S&ME Project No. 1356-03-544 Prepared for Duke Power, Prepared by S&ME dated July 28, received August 4, 2004.
2) Compliance Demonstration Craig Road Ash Landfill Duke Power - Belews Creek Steam Station Belews Creek, North Carolina S&ME Project No. 1356-03-544, Prepared for Duke Power, Prepared by S&ME dated August 5, 2004, received August 9, 2004.

This review is according to and is referenced to the *15A NCAC 13B Solid Waste Management Rules* Section .0503 and .0504. Following are preliminary comments regarding the application for site suitability. There are several issues which may determine that the design of a unlined landfill will not be possible at this site and/or in the footprint as shown on the plans.

This site as shown by the geological data is underlain by fractured rock, Gneiss and Schist. There are several areas of the proposed landfill footprint, primarily on ridges and knobs, where the groundwater flows in the rock. These areas are on the north side of the footprint and within the compliance boundary (see borings OW-1B-15, B-1B-26, B1B-25, B-1B-7, OW-1B-14) close to the proposed sediment basin, and at the center of the landfill (borings B-1B-8, B-1B-30, B-1B-45). Three major issues need to be resolved.
1. Groundwater flow through the rock was not modeled. 2. The area of rock at the north side of the landfill cannot be adequately monitored or be used to monitor the flow groundwater from within unconsolidated soils. 3. Geophysical data is needed to show if there are dikes in the area of the footprint.

Modeling of Rock

Bedrock is within 4 feet of the basegrade of the landfill (B-1B-30) and (B-1B-8). The input data for MYGRT (Table 23) and Modflow (Table 26) show that only Saprolite and Partially

Weathered Rock [PWR] values were used with this modeling. Concentrations of contaminants when moving within fractured rock, due to the fact that there is no attenuation or dilution, would not significantly decrease. Therefore the levels would be close to the levels shown at the bottom of the unsaturated zone (see Figures 28 through 32) at the compliance boundary.

Concentrations at the 4 feet below landfill were modeled using Kd values derived from a mixture of Saprolite and PWR (Page 4 of Compliance Demonstration). The basegrade at the location of B-1B-08 is in PWR. Please use the worst case scenario (I believe that would be the Kd value derived from PWR) as input in models.

Monitoring

The footprint may need to be adjusted in order to monitor the groundwater within the unconsolidated soils.

Dikes

Further investigation is needed in order to determine the extent of diabase dikes in the vicinity of the landfill

Please contact me regarding these questions. I can be reached at 919-733-0692 extension 345 or by email at ellen.lorscheider@ncmail.net. Additional comments will be forthcoming from me as I continue this review for Site Suitability.

Sincerely,

Ellen B. Lorscheider

Ellen B. Lorscheider
Permitting Hydrogeologist

Cc: Bill Miller, Duke
Geof Little, SWS
Jim Barber, SWS