



5400 Glenwood Avenue, Suite 300  
Raleigh, North Carolina 27612  
tel: 919 787-5620  
fax: 919 781-5730



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<i>Z. Barbee</i>	4/12/10	10332

April 9, 2010

Mr. Zinith Barbee  
Solid Waste Section  
North Carolina Department of Environment  
and Natural Resources  
401 Oberlin Road  
Suite 150  
Raleigh, North Carolina 27605-1350

Subject: Landfill Gas Monitoring Plan for the Proposed C&D Landfill  
Buncombe County Solid Waste Management Facility  
Permit to Construct Application  
Substantial Amendment and Phase 5  
Response to Review Comments from DENR Doc ID 10094  
Permit No. 11-07

Dear Mr. Barbee:

Camp Dresser & McKee (CDM), on behalf of Buncombe County, is pleased to submit this letter in response to the comments received in your letter dated March 31, 2010 (Doc ID 10094). This letter contains responses and revisions as they apply to the Landfill Gas Monitoring Plan, specifically discussions pertaining to monitoring in on-site structures.

CDM has revised Section 3.2.2 of the Landfill Gas Monitoring Plan as follows: "In addition to methane, hydrogen sulfide will also be measured in the on-site structures (Maintenance Building, Scale House, Administration Building). If landfill gas levels detected at the monitoring wells exceeds the LEL or if detected landfill gas levels exceed 25% of the LEL in the on-site structures, the technician shall immediately follow the action plan presented in Section 4.1." Revised Section 3.2.2 is attached. Please replace page 3-2 of the Revised Landfill Gas Monitoring Plan.

CDM has also revised the Landfill Gas Monitoring Form to include the on-site structures (Maintenance Facility, Scale House, and Administration Building). A revised Landfill Gas Monitoring Form is attached.





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We hope that you find that the additional information and revisions provided in this letter sufficient to answer your questions and address your comments. If you have any questions, please do not hesitate to contact me at (919) 787-5620 or by email at colonemf@cdm.com.

Very truly yours,

Mathew F. Colone, P.G.  
Camp Dresser & McKee

cc: Ed Mussler, SWS  
Mark Poindexter, SWS  
Allen Gaither, SWS Asheville Regional Office  
Andrea Keller, SWS Asheville Regional Office  
Jerry Mears, Buncombe County  
Kristy Smith, Buncombe County  
Kenton Yang, CDM  
File



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groundwater data in fractured bedrock or other indicators such as distressed vegetation indicate that a landfill gas migration problem may exist, additional deeper monitoring wells may be installed to assess gas migration.

All landfill gas monitoring wells were constructed in accordance with the North Carolina Well Construction Standards described in 15A NCAC 2C and were completed with locking above grade protective covers and 2-foot by 2-foot concrete pads. Following installation, the wells will be surveyed to State Plane coordinates. The wellhead caps will be fitted with a stopcock type fitting that is of sufficient quality to facilitate sampling in accordance with industry and federal standards. Figure 3-2 includes a typical landfill gas monitoring well detail.

Flooded wells will be replaced with dry wells, if necessary.

### 3.2.2 LFG Monitoring

An initial landfill gas reading for % methane, % lower explosive limits for methane, % carbon dioxide, and % oxygen was collected from each of the newly installed landfill gas monitoring wells with a GEM-2000 landfill gas monitoring meter or similar 24-hours after installation. Following the initial reading, readings will be collected from each well on a quarterly basis. A GEM-2000 landfill gas meter or equivalent and an Industrial Scientific M-40 4-gas meter or equivalent will be used to monitor landfill gas in the wells. The 4-gas meter will be attached to the exhaust port of the GEM-2000. The GEM-2000 will detect CH<sub>4</sub>, CO<sub>2</sub>, O<sub>2</sub>, and the 4-gas meter will detect CH<sub>4</sub> LEL, H<sub>2</sub>S (ppm), CO (ppm), and % O<sub>2</sub>. In addition to methane, hydrogen sulfide will also be measured in the on-site structures (Maintenance Building, Scale House, Administration Building). If landfill gas levels detected at the monitoring wells exceeds the LEL or if detected landfill gas levels exceed 25% of the LEL in the on-site structures, the technician shall immediately follow the action plan presented in Section 4.1.

Given the historical groundwater data at the C&D site, it is not anticipated that well flooding will be an issue. If, however, it is determined that a well is flooded above the well screen elevation, that well will not be sampled and a new dry well will be installed in its place.

## 3.3 Record Keeping

All readings will be recorded on a standard landfill gas monitoring log form. A sample landfill gas monitoring log is provided at the end of this section. This form or similar will be used. These forms will be reviewed by the landfill supervisor or the County's environmental consultant and placed on file at the landfill with other landfill records. These readings should be available for review by the State upon request.

LANDFILL GAS MONITORING DATA SHEET

Monitoring Locations	% CH4	% CH4 LEL	H2S (ppm)	%CO2	%O2	%N (balance gas)	Within Compliance		Landfill Supervisor Contacted		Well Condition
							Yes	No	Yes	No	
M-10											
M-11											
Maintenance Building											
Scale House											
Administration Building											
Comments and Observations:											
Landfill Supervisor Actions Taken:											



North Carolina Department of Environment and Natural Resources

Division of Waste Management

Dexter R. Matthews  
Director

Beverly Eaves Perdue  
Governor

Dee Freeman  
Secretary

March 31, 2010

Mr. Jerry Mears  
Buncombe County Solid Waste Manager  
85 Panther Branch Road  
Alexander, North Carolina 28701

Subject: Landfill Gas Monitoring Plan for the Proposed C & D Landfill  
Buncombe County Solid Waste Management Facility  
Permit to Construct Application, Substantial Amendment and Phase 5, Permit 11-07  
Doc ID 10094

Dear Mr. Mears:

The Solid Waste Section (SWS) completed its second technical review of the Landfill Gas Monitoring Plan (plan). Camp, Dresser & McKee (CDM) submitted the plan, which has been entered into the SWS record as Doc ID 9949. Hydrogen sulfide (H<sub>2</sub>S) or any toxic or explosive gas migrating from the proposed C&D landfill will reach the nearby structures before detected in distant wells at the existing MSW. Therefore, include sampling in the structures in the plan for the C&D. CDM explained in its letter, dated March 5, 2010 (Doc ID 9940) that sampling is already conducted in the structures but not for H<sub>2</sub>S. Making sampling in the structures part of the plan and including H<sub>2</sub>S among the sampled constituents will meet the specification in Regulation 15A NCAC 13B .0544(d)(1)(A) that addresses monitoring "in on-site facility structures". A sentence or two explaining the revision can be included somewhere in Section 3.2 or where you feel is logical. After this revision, a plan reflecting the change should be submitted for approval.

If you have questions, I can be reached at [zinith.barbee@ncdenr.gov](mailto:zinith.barbee@ncdenr.gov) or at 919-508-8401.

Sincerely,

Zinith Barbee  
Hydrogeologist  
Solid Waste Section

cc: Kenton J. Yang      Camp, Dresser & McKee  
Allen Gaither          Environmental Engineer, SWS  
Andrea Keller          SWS/ARO  
Ed Mussler              SWS Permitting Branch  
Mark Poindexter       SWS Compliance Branch  
Central File