



North Carolina Department of Environment and Natural Resources  
Division of Waste Management

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Dexter R. Matthews  
Director

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Secretary

July 3, 2013

Sent via Email - [cstahl@maconnc.org](mailto:cstahl@maconnc.org)

Mr. Chris Stahl  
Solid Waste Director  
Macon County Department of Solid Waste Management  
109 Sierra Drive  
Franklin, North Carolina 28734

Re: Closed Highlands C&D Landfill Gas Assessment  
Macon County  
Permit No. 57-04  
Doc ID No. 19221

Dear Mr. Stahl,

The Solid Waste Section (Section) has reviewed the landfill gas investigation for the closed Highlands C&D Landfill submitted to Troy Harrison on April 29, 2011. While the results did not indicate the presence of landfill gas at the monitoring points, it is requested that an explanation of how and why the points were chosen be provided. Rule 15A NCAC 13B .0503(2)(a) and closure letters/permits require that the concentration of explosive gases generated by the landfill shall not exceed twenty-five percent of the explosive limit for the gases in on-site structures (excluding gas control or recovery system components); and the lower explosive limit for the gases at the property boundary. It is logical to monitor for the gases to verify the rule requirement. Monitoring of landfill gases is needed during the post-closure care period. The contemporary state of practice for developing monitoring systems, for either landfill gas or water quality, is to design the monitoring system based on site specific factors. The type and location of monitoring points must be determined based on soil conditions, hydrogeologic conditions under and surrounding the facility, hydraulic conditions on and surrounding the facility, the location of facility structures and property boundaries, and the location of all off-site structures adjacent to property boundaries.

The Section requests the submittal of a Landfill Gas (LFG) Assessment Workplan. The workplan should identify where, why and how the installation of semi-permanent temporary LFG wells are proposed, their location on a map and construction depth. It is likely that these wells would need to be drilled/augured greater than three feet. Time and experience from similar facilities in North Carolina indicate that the depth of the LFG wells should be near the bottom of waste elevation or just above the water table, whichever comes first. The LFG wells may be

installed using 1” PVC piping and PVC slotted screen where the screen interval spans majority of the unsaturated zone. Each well should be equipped with a stopcock valve or a quick connect system to ensure a closed loop during sampling.

This assessment should take into account the different geologic zones on site. Landfill gas migration takes the path of least resistance. Therefore, sandy soils and fractured bedrock will be the preferential pathways. The on-site structures should be properly monitored with the possibility of installing a permanent monitor equipped with an alarm.

Upon receipt of this new LFG Assessment Workplan, the Section will conduct a technical review. No field work shall be conducted until this workplan is approved by the Section.

Please contact me at (919) 707-8253 or via email [Elizabeth.werner@ncdenr.gov](mailto:Elizabeth.werner@ncdenr.gov) if you have any questions or concerns regarding this letter. Thank you in advance for your anticipated cooperation in this matter.

Sincerely,

Elizabeth S. Werner  
Permitting Hydrogeologist  
Solid Waste Section

Cc: Michael Scott – Section Chief, SWS  
Ed Mussler – Permitting Branch Head, SWS  
Allen Gaither – Permitting Engineer, SWS  
Troy Harrison – Environmental Specialist, SWS  
Ervin Lane – Compliance Hydrogeologist, SWS