



North Carolina Department of Environment and Natural Resources

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Governor

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Secretary

December 17, 2014

G. David Garret, PG, PE
SCS Engineers
2520 Whitehall Park Drive
Suite 450
Charlotte, NC 27273

Ref: Design Hydrogeological Report Preliminary Review Comments (DIN 22488)
Permit Application: Expansion of Lake Norman C&D Landfill (Phases 3 and 4)
Lincoln County NC
Permit #55-04

Dear David:

I have conducted a review of the referenced design hydrogeological report submitted by SCS Engineers (dated July 16, 2014) for Republic Services' Lake Norman Construction & Demolition landfill located in Lincoln County. The plan was submitted as part of the permit to construct application to expand the landfill - Phases 3 and 4 (DIN 21087). The design hydro report describes the subsurface characterization of Phases 3 and 4 and also updates the groundwater monitoring plan and landfill gas monitoring plan for the facility.

Upon review, I have identified several items in the Design Hydro Plan which require some clarification and/or revision. These comments and questions are discussed as follows:

General Comment on Groundwater Monitoring

The current groundwater monitoring consists of four wells: one upgradient (MW-1) and three downgradient wells (MW1, MW2, MW3). The three downgradient wells are all along the northwest waste boundary between the landfill and Forney Creek. The landfill sits on a narrow NW-SE trending ridge with two intermittent streams running parallel on either side of the ridge. While flow northwest toward Forney Creek appears to be the predominant groundwater flow direction, groundwater also flows radially off the ridge to the north-northwest and west-southwest toward the unnamed tributaries bordering either side of the ridge. Groundwater contour maps presented in the report (Drawings C3-C5), as well as statements in the text (Section 1.9 GW Contour Maps), supports this observation.

Accordingly, groundwater flowing toward the unnamed tributaries could bypasses the downgradient wells potentially resulting in gaps in the current groundwater monitoring network. Please advise on what measures will be advanced to address this.

Ref: 15A NCAC 13B .0544 Monitoring Plans & Requirements for C&DLF Facilities, (b)(1)(B) and (b)(3)(A).

Comments on Report Content

Figures

Figure 5 – Digital Ortho & Topo Map:

This figure is presented at a scale that does not discern the detail discussed in the text. Please provide this figure, or add another figure, at a smaller scale that better portrays landfill site in context with more immediate surroundings.

Section 1.2.3 Springs, Seeps & GW Discharge Features:

It's not clear whether the two unnamed streams that flow into Forney Creek are intermittent and/or perennial . Please advise.

Section 1.12 Summary Report:

See comment above concerning the existing groundwater monitoring network.

Section 2.1.2 Relevant Point of Compliance:

The locations of the current compliance wells (mw-1, mw-2, mw-3, & mw-4) meet the requirements of the Rules. Please note for future reference that the 'relevant point of compliance' for C&DLF facilities is defined as no more than 250 feet from the waste boundary, or at least 50 feet within the facility property boundary, whichever is closer to the waste boundary. The Division can also consider hydrogeological and other characteristics of the site in determining the POC. *Ref: 15A NCAC 13B .0544(b)(1)(B).*

NOTE: This is for your information only and no revisions to the report are required.

Section 2.6 GW Flow Regime:

The two unnamed streams immediately bordering the landfill to the southwest and north-northwest are thought to be intermittent and would therefore presume to be discharge points only seasonally during high groundwater conditions. Please advise on how, and whether, the nature of these streams affects groundwater flow.

Section 3.4 Gas Control Plan:

Include note of monitoring of hydrogen sulfide (H₂S) in the LFG plans and forms.

Appendix 8 – Water Quality SAP:

For consistency and completeness, update and add to the attachment list the November 5, 2014 Memo concerning electronic data submittals (pdf is attached for your use).

Appendix 9 – LFG Monitoring Plan:

- 1.3 Regulatory Requirements: add action limits for hydrogen sulfide (4% by volume for 100 LEL and 1% by volume for 25% LEL, respectively).
- 2.0 LFG Monitoring. Update subsection to include H₂S along with methane.
- 4.0 Record Keeping & Reporting. Update to include H₂S monitoring.
- 5.0 Contingency Plan. Update to include H₂S monitoring.
- LFG Monitoring Data Form. Update to add column for H₂S.

I believe these comments are fairly straight forward and can be worked out to meet final approval of the design hydro portion of the permit. Larry Frost (SWS Permitting Engineer) is the lead on this permit and we will be working together to help you meet all requirements to get final approval. In the meantime, I await your response so I can complete the design hydro review. If you would care to discuss prior to responding, please do not hesitate to contact me at (919) 707.8258.

Sincerely,



W Perry Sugg, PG
Permitting Hydrogeologist
Solid Waste Section

Cc: Mike Gurley, Republic Services
Ed Mussler, SWS Permitting Branch Head
Larry Frost, SWS Permitting Engineer