Ritter, Christine

From: Ritter, Christine
Sent: Thursday, March 05, 2015 12:00 PM
To: 'Garrett, David'
Cc: Chao, Ming-tai
Subject: RE: A1 Sandrock Phase 2

March 5, 2015 DIN 23911

Comments on A-1 Sandrock CDLF Design Hydrogeological Report, Water Quality Monitoring Plan and Landfill Gas Monitoring Plan

As a result of the changed boundaries between the original Phase 2 location in the 2002 PTC application for the A-1 Sandrock CDLF and the proposed new Phase 2 boundary locations in the 2014 PTC application, a new Design Hydrogeologic Report (DHR) for the newly designated Phase 2 area must be submitted to the NC Solid Waste Section for review and approval. The previously submitted DHR does not satisfy the requirements, specifically .0538 (b) Design Hydrogeologic Report (1) (A) The investigation must provide adequate information to demonstrate compliance with the vertical separation and foundation standards; and (B) The report must include an investigation of the hydrogeologic characteristics of the upper most aquifer for the proposed phase of CDLF development . The existing 2002 DHR does not provide complete hydrogeological data specific to the newly proposed Phase 2 area. In the newly proposed Phase 2 area, there are no borings located /drilled for hydrogeological investigation inside the Phase 2 boundary area specifically in the top two-thirds portion of Phase 2A. Definition of vertical separation to groundwater, upper aquifer characteristics, and groundwater flow regime for this area are therefore not completely and thoroughly defined. Additional borings in this area may be required. An additional groundwater monitoring well in the area designated LG-7 on Drawing MP-1 may be required. The cross-sections provided in Drawing X-1 do not contain boring locations and do not characterize geology, hydrogeology, and more specifically do not characterize the vertical groundwater flow regime for the specific area now designated as Phase 2.

The NC Solid Waste Section is requiring a Design Hydrogeological Report for the area now designated as Phase 2 in accordance with 15A NCAC 13B .0538 and a geological and hydrogeological report must be submitted in the application for the Permit to Construct that satisfies the following requirements:

15A NCAC 13B .0538(b) Design Hydrogeologic Report.
(1) A geological and hydrogeological report must be submitted in the application for the Permit to Construct. This report must contain the information required by Subparagraph (2) of this Paragraph. The number and depths of borings required must be based on the geologic and hydrogeologic characteristics of the landfill facility. At a minimum, there must be an average of one boring for each acre of the investigative area. The area of investigation must, at a minimum, be the area within the unit footprint and unit compliance boundary, unless otherwise authorized by the Division. The scope and purpose of the investigation is as follows:
(A) The investigation must provide adequate information to demonstrate compliance with the vertical separation and foundation standards set forth in Items (2) and (5) of Rule .0540 of this Section.
(B) The report must include an investigation of the hydrogeologic characteristics of the uppermost aquifer for the proposed phase of C&DLF development and any leachate management unit(s). The purpose of this investigation is to provide more detailed and localized data on the hydrogeologic regime for this area in order to design an effective water quality monitoring system.

(2) The Design Hydrogeologic Report must provide, at a minimum, the following information:(A) the information required in Subparagraphs (a)(4) through (a)(12) of this Rule;
(B) the technical information necessary to determine the design of the monitoring system as required by Paragraph (b) of Rule .0544 of this Section;
(C) the technical information necessary to determine the relevant point of compliance as required by Part (b)(1)(B) of Rule .0544 of this Section;
(D) rock cores (for sites located in the piedmont or mountain regions) for which the numbers, locations, and depths are adequate to provide an understanding of the fractured bedrock conditions and ground-water flow characteristics of at least the upper 10 feet of the bedrock. Testing for the corings must provide, at a minimum, rock types, recovery values, rock quality designation (RQD) values, saturated hydraulic conductivity and secondary porosity values, and rock descriptions, including fracturing and jointing patterns, etc.;
(E) a ground-water contour map based on the estimated long-term seasonal high water table that is superimposed on a topographic map and includes the location of all borings and rock cores and the water table elevations or potentiometric data at each location used to generate the ground-water contours;
(F) a bedrock contour map (for sites located in piedmont or mountain regions) illustrating the contours of the upper surface of the bedrock that is superimposed on a topographic map and includes the location of all borings and rock cores and the top of rock elevations used to generate the upper surface of bedrock contours;
(G) a three dimensional ground-water flow net or several hydrogeologic cross-sections that characterize the vertical ground-water flow regime for this area;
(H) a report on the ground-water flow regime for the area including ground-water flow paths for both horizontal and vertical components of ground-water flow, horizontal and vertical gradients, flow rates, ground-water recharge areas and discharge areas;
(I) a report on the soils in the four feet immediately underlying the waste with relationsh ip to properties of the soil. Soil testing cited in Subparagraph (a)(4) of this Rule must be used as a basis for this discussion; and
(J) a certification by a Licensed Geologist that all borings which intersect the water table at the site have been constructed and maintained as permanent monitoring wells in accordance with 15A NCAC 02C .0108, or that the borings will be properly abandoned in accordance with the procedures for permanent abandonment of wells as delineated in 15A NCAC 02C .0113. All piezometers within the footprint area must be overdrilled to the full depth of the boring, prior to cement or bentonite grout placement, and the level of the grout within the boring must not exceed in height the elevation of the proposed basegrade.

Additionally, we have the following comments regarding the Water Quality Monitoring Plan and Landfill Gas Monitoring Plan for the A-1 Sandrock CDLF.

Water Quality Monitoring Plan:
The NC Solid Waste Section requires the sampling and analysis of Tetrahydrofuran (THF) in groundwater and surface water samples at all C&DLF facilities. Please revise the sampling parameter list to include THF. Please see the link to the NC Solid Waste Section portal for more information.
http://portal.ncdenr.org/c/document_library/get_file?uuid=78d3c90e-504a-4787-8851-7bcfdf960211&groupId=38361.

Landfill Gas Monitoring Plan:
Please revise the Landfill Gas Monitoring Plan to include monitoring of the newly proposed boundaries for Phase 2. The current LFG Monitoring Plan emphasizes Phase 1 of the CDLF as confirmed by this statement in the text of the Landfill Gas Monitoring Plan: "The monitored locations reflect the emphasis on the north and southeast sides of Phase 1, which is the only portion of the footprint that has been developed."

Please include an additional or revised monitoring plan for the area now designated as Phase 2. Please include Hydrogen Sulfide in the monitoring of landfill gas at all landfill gas monitoring locations at the C&DLF. Please include monitoring in all relevant structures. Please revise the landfill gas environmental monitoring form to include a column for the measurements/results of hydrogen sulfide.

If you have any questions, please contact me.

Thank you,

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From: Garrett, David [mailto:DGarrett@scsengineers.com]
Sent: Thursday, March 05, 2015 11:23 AM
To: Ritter, Christine
Subject: Re: A1 Sandrock Phase 2

Not too many comments, I hope. Thanks.

David Garrett PG PE
SCS Engineers Raleigh
Tel. 919-418-4375

"Ritter, Christine" <christine.ritter@ncdenr.gov> wrote:

I am reviewing it now and getting ready to send an email with comments hopefully later today.

From: Garrett, David [mailto:DGarrett@scsengineers.com]
Sent: Thursday, March 05, 2015 11:18 AM
To: Ritter, Christine; Chao, Ming-tai
Subject: A1 Sandrock Phase 2

Good morning, Christine. I'm checking to see if you have everything you need for the PTC review. It was icy when I sent it, and I want to make sure you received the submittals. Thanks.

David Garrett PG PE
SCS Engineers Raleigh
Tel. 919-418-4375