



April 18, 2017

Certified Mail 91 7199 9991 7037 4846 2566

Mr. Floyd Cotter, P.E., Project Manager
SCS Engineers
7311 West 130th Street, Suite 100
Overland Park, Kansas 66213

RE: NABORS Class 1 Landfill
ADEQ Review of the 2016 Quarterly Groundwater Monitoring Reports
Permit No: 0249-S1-R2 AFIN: 03-00051
Document ID: 71567 Cross Reference: 71485, 70754, 70613, 70062

Dear Mr. Cotter:

The Arkansas Department of Environmental Quality Office of Land Resources (ADEQ) Regulated Waste Operations has performed a technical review of the four quarterly groundwater monitoring reports (GWMRs) for 2016. These documents were provided to ADEQ by SCS Engineers through work associated with Contract Number 4600033394. After review, ADEQ has the following comments:

1. The GWMRs state that well NAB-1 is damaged approximately 68 feet below the top of casing and is no longer being sampled. Until repairs are made to the well, please sample the well NE-4. This well is located adjacent to NAB-1, but is screened deeper.
2. Section 2 of the GWMRs state that springs have been covered by landfill construction. Please state specifically to which springs the reports are referring within your response to these comments.
3. The GWMRs state: "The methods used to evaluate the groundwater data for statistically significant increases (SSIs) are based on statistical procedures outlined in the *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities (Unified Guidance, March 2009)* and ASTM D6312-98 *Standard Guide for Developing Appropriate Statistical Approaches for Groundwater Detection Monitoring Programs*." The methods used need to follow the Unified Guidance (EPA, 2009). Please state that all statistics performed for the data evaluation (including, but not limited to SSIs) follow the Unified Guidance.
4. Section 3.2.2 of the GWMRs state: "*Data evaluation consisted of the establishment of 95% Lower Confidence Limits (LCL), assuming that a minimum of four (4) background samples exist for each parameter and well detected during the Assessment Monitoring Program. If inadequate background data exists, sufficient background data will be collected to provide*

adequate sample size for statistical analysis. If the 95% LCL of one parameter exceeds action levels defined as Maximum Contaminant Levels (MCLs), if applicable, or a health-based alternate Groundwater Protection Standards (GWPS) as stipulated in Section 22.1205(d)(4), the site will conduct an Assessment of Corrective Measures in coordination with ADEQ."

Please change the wording of this paragraph to follow the Unified Guidance (EPA, 2009). A comment similar to this was made during the last ADEQ review of NABORS GWMRs (Document ID 69902). If a small number of data points are used in the confidence interval, the calculation should be using a lower value than 95% for the confidence level. While confidence intervals may be created using only four data points, a data set of eight or more is preferred if the concentrations are stable. If concentrations are trending, then confidence bands around the trend line should be used. If concentrations have shifted, then less than eight data points may be necessary. If less than eight data points are used in the construction of confidence intervals, then 95% (or 99%) are not appropriate confidence levels. The confidence level would be lower, as computed per the Unified Guidance (EPA 2009) Section 7.4.1 "False Positives and Statistical Power in Assessment" and Section 22.1.1 "Pre-Specifying Power in Compliance/Assessment." Please change the wording in the text to describe a statistical methodology consistent with the Unified Guidance.

5. The GWMRs state: *"An electronic database file is included with this report submittal."* Please include the historical groundwater database within the GWMRs. Please ensure that the database is in a format that is not excessive in size. A comment similar to this was made during the last ADEQ review of NABORS GWMRs (Document ID 69902). Based on other sites with similar amounts of data, the database should be less 200 pages (as opposed to 1,700 pages in a past report).
6. Appendix E: The graphs of concentrations from the site wells do not show data prior to 2011. Many wells at the site have concentration data prior to 2011. Please explain. Please show all data for site wells (including prior to 2011) in future GWMRs.

Please respond to these comments within thirty (30) calendar days of receipt of this letter. If you have any questions or comments, please contact me at (501) 682-0606 or by email at sadler@adeq.state.ar.us.

Sincerely,



Bill Sadler, P.G.
Geology Supervisor
Regulated Waste Operations
Office of Land Resources

cc: Dan McCullough, P.G., Chimney Rock Consulting
Dillion Baird, P.E., SCS Engineers

ADEQ

ARKANSAS
Department of Environmental Quality

REGULATED WASTE OPERATIONS, OFFICE OF LAND RESOURCES ROUTING SLIP

DATE: April 4, 2017

Subject: **NABORS Class 1 Landfill**
ADEQ Review of the 2016 Quarterly Groundwater Monitoring Reports

From: Bill Sadler

<u>Route in turn to:</u>	<u>Action Needed</u>	<u>Date Received</u>	<u>Date Reviewed</u>	<u>Initials</u>
WLee	<input checked="" type="checkbox"/> Concurrence <input checked="" type="checkbox"/> Review	<u>4/4/17</u>	<u>4/4/17</u>	<u>WLee</u>
JRich	<input checked="" type="checkbox"/> Concurrence <input checked="" type="checkbox"/> Review	<u>4-4-17</u>	<u>4-17-17</u>	<u>JR</u> <i>concur</i>
THynum	<input checked="" type="checkbox"/> Concurrence <input checked="" type="checkbox"/> Review	<u>4/18/17</u>	<u>4/18/18</u>	<u>TH</u> <i>w/comment</i>
	<input type="checkbox"/> Concurrence <input type="checkbox"/> Review	_____	_____	_____
	<input type="checkbox"/> Concurrence <input type="checkbox"/> Review	_____	_____	_____

***Note:** Marking the Concurrence box indicates the individual agrees with the applicable text as it relates to their individual discipline and Work Section (e.g., Engineer; Risk Assessor; Geology; Compliance; Policy/Management), as applicable. Marking the Review box indicates the individual has read the document.

Return to Bill Sadler for distribution

COMMENTS: