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MAY 2012
NMED Hazardous Waste Bureau

National Nuclear Security Administration
Los Alamos Site Office, MS A316
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Los Alamos, New Mexico 87544
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Date: MAY 18 2012
Refer To: EP2012-0101

John Kieling, Bureau Chief
Hazardous Waste Bureau
New Mexico Environment Department
2905 Rodeo Park Drive East, Building 1
Santa Fe, NM 87505-6303

Subject: Response to Approval with Modification for the Completion Report for Regional Aquifer Well R-64

Dear Mr. Kieling:

The purpose of this letter is to request that the New Mexico Environment Department (NMED) consider a withdrawal of the requirement to prepare a rehabilitation work plan for regional aquifer well R-64 by May 31, 2012, as required in NMED's March 30, 2012, letter, approval with modification for the completion report for regional aquifer well R-64.

The March 30, 2012, letter addressed two issues with well R-64. The first is a concern the well may not have been constructed according to the approved design and that a lower transition sand layer may have been omitted, allowing bentonite to migrate into the well's filter pack. The second issue is the presence of bentonite in a sample collected during the purging of the well before one of the early sampling events and the potential impact this could have on the usability of the well for the required monitoring.

Regarding the first issue, well design has evolved over the years, and a lower transition sand has not been used in recently drilled wells. Omitting transition sand during well construction has not negatively impacted previous wells. The memorandum concerning the R-64 well design, sent to NMED before well construction, did not include a transition sand layer and was approved by NMED as submitted. Therefore, Los Alamos National Laboratory (the Laboratory) believes the well was constructed as designed and approved, and the design is technically appropriate.

The second issue, the presence of bentonite in an early purge water sample, is the primary issue with the well and is the basis for concern with the design in the first issue. The Laboratory believes the presence of bentonite in the early purge water samples is because the well was minimally developed and tested at a rate of 2 gallons per minute (gpm) but then purged and sampled at a rate of 5 gpm.

After receipt of the March 30, 2012, letter, Laboratory personnel reviewed the option of additional development at higher pumping rates and consulted with NMED staff on a plan to conduct additional pumping of R-64 at 5 gpm. NMED staff agreed that additional pumping at up to 5 gpm could not harm the well and might result in the removal of bentonite. On April 19, 2012, the Laboratory began to pump well R-64 at 5 gpm; additional pumping was conducted between April 23 and 25, 2012. Turbidity measurements, pumping volumes, and pumping levels for this effort are presented in the attachment to this letter.

The additional development effort has dramatically reduced turbidity in the well to values consistently below the required 10 nephelometric turbidity units (NTU), with final turbidity values typically well below 5 NTU. This additional pumping effort removed approximately 6625 gal. of water over 4 days, and it appears the well is now adequately developed for use at 5 gpm during sampling. These data are the basis for the Laboratory's proposal for a withdrawal of the requirement for a work plan for additional rehabilitation at R-64.

The Laboratory proposes, instead, that R-64 be placed back on a schedule for four additional full-suite characterization rounds, beginning in June 2012. Based on turbidity data collected during the recent additional development effort at R-64, it is anticipated that turbidity levels in water purged from R-64 should meet the stability criteria of <10 NTU, and field parameters should stabilize within the 3 to 6 casing volumes (CVs) of purging allowed per the Environmental Programs Directorate Standard Operating Procedure, Groundwater Sampling (EP-DIV-SOP-20032). However, the Laboratory proposes that if turbidity is >10 NTU after 6 CVs, the well will be purged for up to 12 CVs, while monitoring turbidity and field parameters, to obtain a representative sample. If turbidity reaches <10 NTU and parameters stabilize before reaching 12 CVs, a sample will be collected. If turbidity is still >10 NTU or the other field parameters have not stabilized, a sample will still be collected upon reaching 12 CV, and NMED will be notified. Should turbidity data show indications of ongoing issues with the well, additional discussion will be held with NMED to determine the appropriate path forward.

Thank you for your consideration of this matter. If you have any questions, please contact Ted Ball at (505) 665-3996 (tedball@lanl.gov) or Lance Woodworth at (505) 665-5820 (lance.woodworth@nnsa.doe.gov).

Sincerely,

B. G. Schappell for MJG

Michael J. Graham, Associate Director
Environmental Programs
Los Alamos National Laboratory

Sincerely,

Peter Maggiore, Assistant Manager
Environmental Projects Office
Los Alamos Site Office

MG/PM/CD/TB:sm

Attachment: Turbidity Results for R-64 (LA-UR-12-21147)

Cy: (w/att.)
Laurie King, EPA Region 6, Dallas, TX
Steve Yanicak, NMED-DOE-OB, MS M894
Lance Woodworth, DOE-LASO, MS A316
Ted Ball, MS J590
William Alexander, EP-BPS, MS M992
Public Reading Room, MS M992 (hard copy)
RPF, MS M707 (electronic copy)

Cy: (w/o att.)
Tom Skibitski, NMED-OB, Santa Fe, NM (date-stamped letter emailed)
Annette Russell, DOE-LASO (date-stamped letter emailed)
Craig Douglass, EP-CAP, MS M996 (date-stamped letter emailed)
Michael J. Graham, ADEP, MS M991 (date-stamped letter emailed)