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Date: MAY 18 2010
Refer To: EP2010-0243

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

Subject: Request Extension of Time for the Completion of Well R-3

Dear Mr. Bearzi:

Los Alamos National Laboratory (the Laboratory) requests an extension to July 15, 2010, to complete regional aquifer well R-3. In the October 14, 2009, letter to the New Mexico Environment Department (NMED) regarding the proposed integrated well-installation schedule, the Laboratory proposed a completion date of May 31, 2010. NMED approved this date in its November 2, 2009, letter. However, because problems arose in the drilling of well R-3, the Laboratory will not be able to meet the May 31, 2010, completion date for the reasons described below.

Delays in drilling well R-3 were caused by lost drill tooling downhole, resulting in the abandonment of the first borehole, an unexpected large volume of discharge water in the shallowest portion of both the abandoned and replacement boreholes, and swelling clay in the replacement borehole.

On April 27, 2010, in the first borehole, the drillers reached 600 ft with a pilot hole. The borehole sloughed in to 530 ft, leading to the decision to ream out the hole to 23-in. diameter to accommodate one or more strings of drill casing. Multiple strings of casing would have provided stability through this unstable zone (530 to 600 ft) and protection through an unfavorable clay interval below, while maintaining a sufficient borehole diameter to reach our target depth. On April 28, 2010, while reaming out the hole to 23 in., the downhole assembly became stuck at 117 ft. Repeated attempts to retrieve the tooling were made using standard industry methods. On April 30, 2010, the Laboratory decided to abandon further attempts to retrieve the bit and elected instead to start a new hole.

The new hole is located on the same drill pad and within 15 ft of the abandoned hole. Drilling is currently underway and when a 620-ft depth was reached, approximately 100,000 gal. of drilling fluid was contained in three on-site pits. This volume represents approximately 10 times the

typical volume generated for 620 ft of drilling. Drilling had to be suspended to prepare two additional pits. Once the additional pits were prepared, 18-in. casing was placed in the hole to a depth of 627 ft. Open-hole drilling then continued with a 17-in. bit to the current depth of 744 ft. Since the clay (617–744 ft) appeared to be stable, the Laboratory elected to advance the hole using 12-in. casing advance. The 12-in. casing became stuck in the clay at 21 ft. below the bottom of the 18-in. casing. The Laboratory requested and received permission from NMED to use drilling mud to advance through this clay interval before switching to the approved flooded-reverse method.

The Laboratory has not encountered such a range of adverse drilling conditions before; therefore, does not have a firm basis for estimating a date of completion. In light of this uncertainty, the Laboratory anticipates drilling will be completed by the middle of June and the well completed by July 15, 2010. If drilling challenges persist, the Laboratory will notify NMED by the end of June 2010, and will propose a new estimated date of completion. If you have any questions, please contact Ted Ball at (505) 665-3996 (tedball@lanl.gov) or Ed Mignardot (505) 665-7758 (emignardot@doeal.gov).

Sincerely,

for

Bruce Schappell, Associate Director
Environmental Programs
Los Alamos National Laboratory

Sincerely,

Everett Trollinger, Project Director
Environmental Operations
Los Alamos Site Office

MG/DG/AB/TB/ME:sm

Cy: Laurie King, EPA Region 6, Dallas, TX
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