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TA16
NEW MEXICO
ENVIRONMENT DEPARTMENT

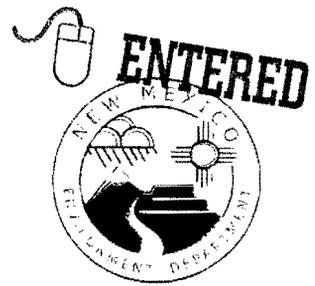
Hazardous Waste Bureau

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Secretary

SARAH COTTRELL
Deputy Secretary

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

May 10, 2010

George J. Rael
Environmental Operations Manager
Los Alamos Site Office
Department of Energy
3747 West Jemez Road, MS A316
Los Alamos, NM 87544

Michael Graham
Associate Director Environmental Programs
Los Alamos National Security, L.L.C.
P.O. Box 1663, MS 991
Los Alamos, NM 87545

**RE: REPLACEMENT OF THE MULTI-SCREENED MONITORING WELL R-25
LOS ALAMOS NATIONAL LABORATORY
EPA ID#NM0890010515
HWB-LANL-MISC-GW**

Dear Messrs Rael and Graham:

The New Mexico Environment Department (NMED) has determined that multi-screened monitoring well R-25, located at Technical Area 16 (TA)-16, must be replaced with a new regional aquifer monitoring well. Well R-25 is currently referenced as part of the monitoring network proposed in the United States Department of Energy (DOE) and the Los Alamos National Security, L.L.C.'s (collectively, the Permittees) Corrective Measures Evaluation for intermediate and regional groundwater at Consolidated Unit 16-021(c)-99 (Unit). Due to well construction deficiencies, regional aquifer screens five through nine at R-25 are not suitable for monitoring the regional aquifer with respect to contaminant releases from the Unit. In addition, the current condition of intermediate aquifer screens one and two at R-25 renders these screens incapable of effectively monitoring the high-explosives contaminant plume present at these depths.

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Construction deficiencies at R-25 include:

- Prior to the placement of the filter pack and bentonite seals, 1,934 feet of well casing was inadvertently dropped to the bottom of the borehole, damaging the screens and compromising the blank casing between the screens. Screen 3 was damaged so severely that a cement plug had to be installed between the screen and the borehole wall.
- The annular seal from 50 to 610 feet below ground surface (bgs) was dry-placed with bentonite mixed with 20/40 sand at a 1:1 ratio. The seal is inadequate and not compliant with industry standards.
- The annular seal may be compromised due to the presence of 70 feet of 13 3/8 inch drill casing left in place from 508 - 578 feet bgs.
- The annular seal between screens 6 and 7 may be compromised due to the presence of 52 feet of one-inch tremie pipe at a depth of 1,532 – 1,584 feet bgs, which is approximately 10 feet from the upper filter pack at screen 7.
- Fine sand collars or sand buffers were not installed below screen one or above screen four.

The use of numerous types of drilling fluids and additives may have compromised the quality or representativeness of samples collected at R-25. Such additives included bentonite, cellophane, nylon, MAG fiber (mineral fiber), TORKease (polymer), QUIK-FOAM, EZ-MUD (polymer), LIQUI-TROL (cellulosic polymer), MF-1 (polyacrylamide), N-SEAL (soluble mineral fiber), PAC-L (polyanionic cellulose), and soda ash. After the well was installed, a cement removal agent (sodium acid pyrophosphate) was used at each screen which may have altered the mineralogy and hydraulic properties of the aquifer material adjacent to the screens. In addition, the perched groundwater zones and the regional aquifer from approximately 1,300 to 1,900 feet bgs were in hydraulic communication for approximately two years which also may have compromised the ability to obtain representative groundwater samples.

The Permittees must submit a work plan for the installation of a replacement well for R-25 no later than **June 18, 2010**. The work plan must include a proposed schedule for installation of the replacement well. NMED will establish a due date for submittal of a work plan to plug and abandon R-25 or selected screens in R-25, as appropriate, after installation of the replacement well. All submittals (including maps) must be in the form of two paper copies and one electronic copy in accordance with Section XI.A of the March 1, 2005 Compliance Order on Consent.

Messrs. Rael and Graham
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Please contact Michael Dale (505) 661-2673 should you have any questions.

Sincerely,



James P. Bearzi
Chief
Hazardous Waste Bureau

BRZ:md

cc: D. Cobrain, NMED HWB
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File: 2010 LANL TA-16. SWMU 16-021(c)-99 (Intermediate and Regional Groundwater)