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Date: SEP 2 7 2010
Refer To: EP2010-0428

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

Subject: Deployment of Seismic Sensing Equipment in Groundwater Monitoring Well R-25c

Dear Mr. Kieling:

Several weeks ago, Los Alamos National Laboratory (Laboratory) staff spoke with staff of the New Mexico Environment Department Hazardous Waste Bureau regarding the deployment of seismic sensing equipment in well R-25c for the purpose of collecting critical data to quantify seismic hazards affecting Laboratory facilities.

Well R-25c is a dry perched intermediate monitoring location included in the fiscal year 2010 Interim Facility-Wide Groundwater Monitoring Plan (IFGMP). The Laboratory is currently monitoring for the presence of groundwater at this location on an hourly basis using a dedicated pressure transducer. Water-level data indicate the monitoring well has been dry since it was completed in September 2008. Because it is not anticipated that R-25c will show saturation in the near future, the Laboratory considers R-25c to be a good candidate in which to deploy the vertical seismic array.

The seismic project is being conducted by the Laboratory's Geophysics Group (Earth and Environmental Sciences 17 [EES-17]) in support of the Los Alamos Seismic Network (LASN), which monitors local earthquake activity for the Seismic Hazards Program. EES-17 contacted the Laboratory's Environmental Programs (EP) Directorate staff regarding the possible use of R-25c as a suitable location to deploy the vertical seismic array. LASN has no deep wellbore monitoring capability, and deployment of a vertical seismic array in a deep borehole is a high priority. The resulting data from the deployment of the array in R-25c will greatly improve the Laboratory's understanding of earthquake activity for the entire northern New Mexico region.

EES-17 personnel developed a work plan to deploy the vertical seismic array in well R-25c. EP staff have reviewed this work plan (attached), assessed the instrumentation planned for installation in R-25c, and found the installation will not prevent water-level monitoring as required in the 2010 IFGMP. EP approved the design of the vertical seismic array, which allows monitoring of the water level in the well using a pressure transducer. If conditions change and saturation is observed in R-

25c, the Laboratory will remove the seismic array to allow sampling of the well in accordance with the IFGMP. Removal of the seismic array would be fairly straightforward, if removal is necessary. If any saturation persists in R-25c, the Laboratory will prepare a work plan to install a dedicated sampling system in the well, and the seismic array would probably not be redeployed. Installation of the seismic array in R-25c is planned for September 22 to September 24, 2010.

If you have any questions, please contact Steve Paris at (505) 606-0915 (smparis@lanl.gov) or Hai Shen at (505) 665-5046 (hshen@doeal.gov).

Sincerely,

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

Sincerely,

George J. Rael, Manager
Environmental Projects Office
Los Alamos Site Office

MG/GR/DM/SP:sm

Attachment: Work Plan: Vertical Seismic Array Deployment at TA-16, Wellbore R-25c (LA-UR-10-6331)

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