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Los Alamos National Laboratory

UNIVERSITY OF CALIFORNIA



Environmental Restoration Project
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Date: February 25, 1998
Refer to: EM/ER:98-055

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FEB 1998

Mr. Benito Garcia
NMED-HRMB
P.O. Box 26110
Santa Fe, NM 87502

SUBJECT: CANYONS FOCUS AREA DRILLING AND WELL INSTALLATION FOR WELL R-12

Dear Mr. Garcia:

The Canyons Focus Area will be drilling 1 borehole for installation of a deep (930 ft), regional groundwater characterization well, R-12, in Sandia Canyon. This activity will begin on or about March 9, 1998, and go through approximately June 30, 1998. The location of the well is at the eastern boundary of the Los Alamos National Laboratory, west of State Road 4, and north of East Jemez Road.

The design and placement of this well will provide water-quality and water-level data for characterization of the regional aquifer as well as any intermediate-depth perched zones present. Well R-12 is also designed to collect hydrologic, geochemical, and geologic data to contribute to the characterization of the vadose zone, potential intermediate-depth groundwater, and regional aquifer in this part of the Laboratory. Approximately 21 core samples will be collected for geotechnical and contaminant characterization, and 13 core samples will be collected for hydrologic characterization. In addition, approximately 10 core samples will be collected for geologic characterization. Up to 7 groundwater samples will be collected at depths and frequencies determined in the field, based on occurrences of saturated zones. Analytes include stable isotopes, major cations and anions, trace metals, dissolved organic carbon, organic compounds, tritium, ⁹⁰Sr, ¹³⁷Cs, ²⁴¹Am, and Pu and U isotopes. Borehole measurements will be collected using color camera and geophysical tools including caliper, natural gamma, EMI, magnetic susceptibility, fluid resistivity and temperature, gamma density, and neutron (thermal/epithermal). Air permeability tests will be conducted which include total borehole anemometry and straddle-packer air permeability. Slug tests will also be conducted in selected zones of saturation and pressure transducers will be installed to record water levels.

Samples will be collected as shown in the table on the next page.

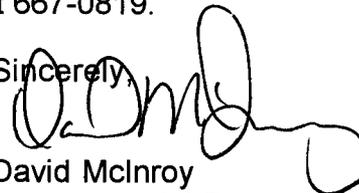
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SAMPLING INFORMATION			
Location	Number of Samples	Sample Type	Analyses
Well R-12	21	Core (Contaminants)	Gross Radiological Screening Radionuclides ³ H, ⁹⁰ Sr, ¹³⁷ Cs, ²⁴¹ Am, ²³⁴ U, ²³⁵ U, ²³⁸ U, ²³⁸ Pu, and ^{239/240} Pu Inorganics (Full Suite) Cl, Br, SO ₄ , NO ₃ VOCs (based on field screening) SVOCs (based on field screening)
Well R-12	21	Core (Geotechnical)	Selected core samples will be analyzed for some or all of the following. Particle size and texture (<2mm) In-Situ Water Content Porosity (<2mm) Particle Density (<2mm) Bulk Density Sat. Hydraulic Conductivity by Air and Water Water Retention Curve
Well R-12	13	Core (Geochem. and Hydrologic)	Stable Isotopes Unsaturated Flow Apparatus
Well R-12	10	Core (Geologic)	Mineralogy (as needed) Modal Petrography (as needed) Chemistry (as needed)
Well R-12	7 (max.)	Groundwater	Major Cations and Anions (dissolved) Trace Elements and Metals (dissolved) Trace Elements and Metals (total) Nutrients-Nitrogen Species (dissolved) Radionuclides (dissolved) Radionuclides (total) Stable Isotopes Tritium Tritium (low level) Dissolved Organic Carbon Total Organic Carbon VOCs SVOCs

If you have any questions, please contact me at 667-0819.

Sincerely,



David McInroy
Environmental Restoration Project

DM/rfr

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