TA-36

Los Alamos
NATIONAL LABORATORY

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Date: July 10, 2002
Refer to: RRES-DO:02-037

Mr. John Young, Corrective Action Project Leader
Permits Management Program
NMED – Hazardous Waste Bureau
2905 Rodeo Park Drive East
Building 1
Santa Fe, NM 87505-6303

**SUBJECT: SAMPLING NOTIFICATION FOR WELL R-32 and R-23**

Dear Mr. Young:

The Groundwater Protection Program will begin drilling two boreholes, R-32 and R-23 approximately 1350-1400 feet deep each, for the installation of two regional groundwater characterization wells. R-32 will begin drilling approximately July 12, 2002. R-23 will begin drilling approximately July 19, 2002. These wells are located in Pajarito Canyon. These wells are being installed as part of the Laboratory's Groundwater Protection Program (LAAME:6BK-010; ESH-18/WQH-97-0014).

Samples will be collected during drilling as shown in the enclosed tables. If you have any questions, please contact me at (505) 665-4681.

Sincerely,

Charles L. Nylander

Charles Nylander, Program Manager
Groundwater Protection Program

CN/RB/th

Enclosure: Sampling Activities at R-32 and R23

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Cy:
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C. Nylander, RRES-DO, MS M992
S. Pearson, RRES/WQH, MS M992
S. Rae, RRES/WQH, MS K497
L. King, US EPA (2 copies)
B. Enz, OLASO, MS A316
M. Johansen, OLASO, MS A316
E. Trollinger, OLASO, MS A316
M. Leavitt, NMED-GWQB
E. Frank/N. Dhawan, NMED-HWB
J. Keiling, NMED-HWB
V. Maranville, NMED-HWB
J. Young, NMED-HWB (1 extra copy of Attachment)
J. Parker, NMED-DOE OB
S. Yanicak, NMED-DOE OB, MS J993
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RRES/WQH File, MS M992
IM-5, MS A150
RPF, MS M707, (ER2002-0474)

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## Well R-32 and R-23
## Sampling of Cuttings and Core

| Sample Description | Test | Sample Frequency |
|---|---|---|
| **Coring** | | |
| Core | Anions and moisture | Target depths: 10,20,30,40,50,75, 150,200,300 and 400 ft, but terminating after the top 50 ft of Cerros del Rio Basalt is penetrated |
| Core | Tritium | Target depths: 10,20,30,40,50,75, 150,200,300 and 400 ft, but terminating after the top 50 ft of Cerros del Rio Basalt is penetrated |
| Core | Radiological screening for gross alpha, beta, and gamma (for off-site transport of samples) | Every 50 ft |
| Core | Radionuclides | Target depths: 10,20,30,40,50,75, 150,200,300 and 400 ft, but terminating after the top 50 ft of Cerros del Rio Basalt is penetrated |
| Core | Metals | Target depths: 10,20,30,40,50,75, 150,200,300 and 400 ft, but terminating after the top 50 ft of Cerros del Rio Basalt is penetrated |
| Core | Stable Isotopes | Target depths: 10,20,30,40,50,75, 150,200,300 and 400 ft, but terminating after the top 50 ft of Cerros del Rio Basalt is penetrated |
| **Drilling** | | |
| Cuttings | Bulk cuttings systematically collected for archival purposes and for supplemental sample needs | One sample every cuttings run (nominally every 5 ft), beginning at the bottom of the core hole |
| Cuttings | Sieved cuttings for lithology description, binocular microscope examination | One sample every cuttings run (nominally every 5 ft), including over drilling the core hole. Normally, an unsieved sample, a >10 mesh sample, and a > 30 mesh sample every cuttings run |
| Cuttings | Sieved cuttings for XRD, XRF, petrography | One >10-mesh sample every cuttings run (nominally every 5 ft); finer sizes or bulk split will be substituted where >10-mesh size can not be obtained |
| Cuttings | Radiological | Up to 5 samples for the entire borehole within water-bearing zones; Sample location to be determined by the geochemistry task leader |
| Cuttings | Metals and Anions | Up to 5 samples for the entire borehole within water-bearing zones; sample location to be determined by the Geochemistry Task Leader |

Note: N/A = Not applicable

## Well R-14
## Sampling and Analysis of Groundwater

| Estimated Number of Water Samples | Analysis | Filtered Through Acetate 0.45 Micrometer |
|---|---|---|
| Up to 3 perched and 2 regional | Metals (dissolved) | Yes |
| Up to 3 perched and 2 regional | Anions (dissolved) | Yes |
| Up to 3 perched and 2 regional | Tc-99 | No |
| Up to 3 perched and 2 regional | γ spec, $^{241}Am$, $^{137}Cs$, $^{238,239,240}Pu$, $^{234,235,238}U$, $^{90}Sr$ | No |
| Up to 3 perched and 2 regional | Stable isotopes ($^{18}O/^{16}O$, D/H) | No |
| Up to 3 perched and 2 regional | Stable isotopes ($^{15}N/^{14}N$) | No |
| Up to 3 perched and 2 regional | Tritium(1) | No |
| Up to 3 perched and 2 regional | Tritium (low level or direct counting)(1) | No |
| Up to 3 perched and 2 regional | Gross α,β ,γ (for off-site shipping) | No |
| Up to 3 perched and 2 regional | TUICPMS(2) | Yes |
| Up to 3 perched and 2 regional | TKN | No |
| Up to 3 perched and 2 regional | $ClO_4^-$ | Yes |
| Up to 3 perched and 2 regional | VOC's | No |

(1) Initially analyze tritium using liquid scintillation. If activity is less than 300 pCi/l, analyze archival sample using direct counting or electrolytic enrichment at University of Miami.
(2) TUICPMS = total uranium inductively coupled plasma mass spectrometry.
(3) No preservation for $ClO_4^-$; $Br^{-1}$, $Cl^{-1}$, $F^{-1}$, $SO_4^{-2}$; and $PO_4^{-3}$.

**Well R-32 and R-23**
**Parameters to be Measured in the Field When Sampling Groundwater**

| Measurement | Precision[1] |
|---|---|
| pH | ±0.02 |
| Specific conductance | ±1 µmho/cm (25 °C) |
| Temperature | ±1 °C |
| Turbidity (nephelometric) | ±1 NTU[2] |

(1) Precision with which measurement shall be recorded
(2) NTU = Nephelometric turbidity unit