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Environmental Protection Division
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Date: August 12, 2010
Refer To: ENV-RCRA-10-160

Mr. James Bearzi
Hazardous Waste Bureau
New Mexico Environment Department
2905 Rodeo Park Drive East, Building 1
Santa Fe, NM 87505-6313

Dear Mr. Bearzi:

SUBJECT: REQUEST FOR "CONTAINED-IN" DETERMINATION FOR DRILLING FLUIDS AND ASSOCIATED CONTACT WASTE, FROM THE DRILLING OF INTERMEDIATE WELL R-47i

The Laboratory is requesting NMED Hazardous Waste Bureau use its authority under 20.4.1.200 NMAC §261.3(f) to determine that the drilling fluids and associated contact waste generated from the drilling of intermediate well R-47i, do not warrant management as F-listed hazardous waste, pursuant to the requirements of 20.4.1.200 NMAC §261.31 as long as contaminants are below the limits in the NMED-approved NOI Decision Tree for Land Application of *Drilling, Development, Rehabilitation and Sampling Purge Water Decision Tree – Revised* (March 2010).

The original scope of well R-47i was to drill and install a single-completion well in the regional aquifer to be called R-47. This well would be used to augment the TA-16 monitoring well network by providing a regional monitoring well northeast of the Technical Area 16 Building 260 (TA-16-260) outfall. Borehole R-47 was drilled to a total depth of 1350.5 ft bgs but during well installation there were complications that resulted in bentonite intrusion into the screen, and the decision was made by the Laboratory, NMED, and the DOE to abandon the lower portion of the borehole and to complete the well in the intermediate zone as well R-47i. The borehole was backfilled, and a 20-ft screen was placed between 840.0 and 860.6-ft bgs. The approximate volume of drilling fluid and contact waste produced during the drilling and completion of R-47i is:

- 5,000 gallons of drilling fluids located in a lined pit
- 10 cubic yards of contact waste (predominantly pit liner)

The drilling fluids have been characterized by direct sampling. Based on analytical results, the fluids are not characteristic wastes, but do contain low concentrations of butanone [2-]. Documentation regarding possible sources of the contamination was reviewed to identify the



source(s) of the potentially listed constituent. Based on document review and interviews with workers, a variety of F-listed solvents (including butanone [2-]) were discharged to the TA-16-260 outfall from cleaning operations at TA-16-260. The documentation did not identify F-listed sources other than spent solvents or any K-, P- or U-listed sources. Therefore, the only hazardous waste numbers that would be assigned to the drilling fluids and associated contact waste would be F005. Table 1 compares the detected butanone [2-] concentration to groundwater standards in accordance with Section VIII.A.1. of the Compliance Order on Consent:

- If both a Water Quality Control Commission (WQCC) groundwater standard (20.6.2.3.3103 NMAC) and an EPA Safe Drinking Water Act Maximum Contaminant Levels (MCL) (40 Code of Federal Regulations [CFR] §141.61) have been established for an individual substance, then the lower of the two standards is used.
- If a WQCC standard and/or MCL are not available for a contaminant, EPA tap water standards are used (40 CFR §268.40).

The maximum contaminant concentration of the F-listed constituent is less than these limits and, therefore, the drilling fluid meets the criteria for requesting a “contained in” determination in accordance with the NOI Decision Tree. If the contained in is approved, LANL proposes to land apply the drilling fluids, and manage the contact waste as non-hazardous, as long as these standards are met.

According to EPA documents and associated guidance, the authorized state may also make a determination on a case-specific basis as to how LDRs apply to the waste when a “contained-in” determination has been made. Because the maximum detected concentrations of butanone [2-] from the drilling of intermediate well R-47i is below the LDR treatment standard, as shown in Table 1, LANL also requests a determination from NMED that LDRs will not apply to these waste streams from R-47i so that the contact waste may be disposed of as nonhazardous waste and the drilling fluids may be land applied in accordance with the NMED-approved *Los Alamos National Laboratory Drilling, Development, Rehabilitation and Sampling Purge Water Decision Tree – Revised* (March 2010).

LANL believes that a “contained-in” determination for the butanone [2-] is appropriate because it would be protective of human health and the environment, and would allow for more cost-effective disposition of the IDW from drilling of intermediate well R-47i.

If you have any questions, please contact Jennifer Griffin, of my staff, at (505) 665-1824 or Gene Turner at (505) 667-5794.

Sincerely,

 DGL

for Anthony R. Grieggs
Group Leader
Water Quality & RCRA (ENV-RCRA) Group

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Table 1. Comparison of Potential F-Listed Organic Constituents Detected in the R-47i Drilling Fluids to WQCC, MCLs, and Land Disposal Restriction Treatment Standards

Contaminant	Media	Maximum Concentration (ug/L)¹	WQCC (ug/L) or MCLs(ug/L) Standards²	LDR Treatment Standard (ug/L)
Butanone [2-]	Liquid/Drilling Fluids	2.24	No Standard	280

¹ Significant figures vary but are shown as they appear in the Water Quality Database

² Note that EPA tap water standards were not available for any contaminants without 3101 standards and/or SDWA MCLs; therefore, EPA tap water standards were not used.