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**U. S. Department of Energy**  
 Los Alamos Area Office, MS A316  
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Date: March 6, 1997  
 Refer to: EM/ER:97-046

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

**SUBJECT: RESPONSE TO THE NOD FOR TA-0, PRS 0-030(g) RFI REPORT (FORMER OPERABLE UNIT 1071)**

Dear Mr. Garcia:

Enclosed is a copy of the Los Alamos National Laboratory's response to the New Mexico Environment Department's Notice of Deficiency (NOD) concerning Technical Area 0, Potential Release Site 0-030(g) Resource Conservation and Recovery Act Facility Investigation Report. A certification form signed by the appropriate officials is also enclosed. The enclosed response repeats each comment from the NOD for convenience in reviewing.

Please contact Garry Allen at (505) 667-3394 or Bonnie Koch at (505) 665-7202 if you have any questions regarding the response to the NOD.

Sincerely,

Jorg Jansen, Program Manager  
 LANL/ER Project

Sincerely,

Theodore J. Taylor, Program Manager  
 DOE/LAAO

JJ/TT/rfr

- Enclosures: (1) Response to NOD for TA-0, PRS 0-030(g) RFI Report  
 (2) Certification



Cy (w/ encs.):

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N. Naraine, DOE-HQ, EM-453  
D. Neleigh, EPA, R.6, 6PD-N (2 copies)  
L. Roberts, EPA, 6EN-AT  
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EM/ER File (CT #C125), MS M992  
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## CERTIFICATION

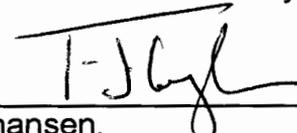
I certify under penalty of law that these documents and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violation.

Document Title: Response to the NOD for TA-0, PRS 0-030(g) RFI Report

Name:  Date: 3-6-97  
Jorg Jansen, Program Manager  
Environmental Restoration Project  
Los Alamos National Laboratory

or

Tom Baca, Program Director  
Environmental Management  
Los Alamos National Laboratory

Name:  Date: 3/7/97  
Mathew Johansen,  
Acting Assistant Area Manager of  
Environment Projects  
DOE-Los Alamos Area Office

or

Theodore J. Taylor, Program Manager  
Environment Restoration Program  
DOE-Los Alamos Area Office

**RESPONSE TO NOTICE OF DEFICIENCY  
FOR TECHNICAL AREA 0, POTENTIAL RELEASE SITE 0-030(g)**

**NMED COMMENT**

**2.3 Hydrology**

LANL makes the statement that contamination from this site cannot affect ground water, which is not substantiated by information in the paragraph. When in operation this outfall may have affected surface water in Acid Canyon, then may have infiltrated alluvial ground water which may be interconnected to other perched zones. LANL might substantiate the statement that this site probably did not affect the main aquifer.

**LANL RESPONSE:**

The outfall drainage from Potential Release Site (PRS) 0-030(g) drained down a steep bedrock slope (45 degrees) that is thinly mantled with leaf and pine needle litter. It is highly unlikely that any significant infiltration occurred on such a steep slope. Most of the outfall discharge entered a small (less than a meter wide) bedrock channel. Although the channel widens slightly within the next 200 ft, it continues to guide the flow along a bedrock floor to within 100 ft of its intersection with the channel in Acid Canyon. It is unlikely that there would be appreciable time for infiltration to occur along this steep bedrock-floored channel. In addition, there are no areas along the channel where ponding could occur, indicating that infiltration to a significant depth is highly unlikely. Therefore, any infiltration sufficient to impact an alluvial aquifer or the main aquifer would have occurred beneath Acid Canyon, which carried significantly more effluent than that released from PRS 0-030(g). Acid Canyon is part of the Canyons Field Unit, and it will be evaluated during that field investigation.

**NMED COMMENT**

**3.2 Methods for Comparing Site Data with Background Data, p. 15**

NMED does not agree with the use of an upper tolerance limit (UTL) for each background constituent (based on the estimated 95% upper confidence bound of the 99th percentile of the constituent's background concentration distribution) was calculated, the actual conclusions reached for this site would not be modified based on a recalculation of the UTL values.

**LANL RESPONSE:**

The Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) Report for PRS 0-030(g) was prepared in September 1995. At that time, the Los Alamos National Laboratory (LANL) Environmental Restoration (ER) Project conducted background comparisons using upper tolerance limits (UTLs) based on 95% upper confidence bounds on the 99th percentile of the concentration distributions. After discussion with Environmental Protection Agency (EPA) Region 6, an agreement was reached to use the current UTLs, which are based on the 95% upper confidence bounds on the 95th percentile.

A new background comparison was conducted following current LANL ER Project guidelines for background comparisons, including both comparison with UTLs(95%, 95%) and more appropriate statistical tests for evaluating the differences between concentration distributions. The results of this evaluation are discussed below.

Following current LANL ER Project guidelines, the Quantile test and the Gehan modification to the Mann-Whitney test, both of which account reasonably for nondetects, were used in this evaluation. The Gehan test is best suited for assessing complete shifts in distribution (i.e., cases in which the site concentration distribution is greater than the background concentration distribution), and the Quantile test is better suited for assessing partial shifts (i.e., cases in which the site concentration distribution consists of some values that are elevated and some that are consistent with background). Using these tests, most types of differences between distributions can be captured. Observed significance levels (p-values) for these tests are reported for decision-making purposes. If a p-value is less than some small probability, typically 0.05, then there is some reason to suspect that there is a difference between the background and site distributions; otherwise, no difference is indicated.

In the RFI Report for PRS 0-030(g), the chemicals identified as having concentrations greater than UTLs were chromium, mercury, nickel, thallium, and uranium. Of these, thallium was reported incorrectly in the RFI report at a maximum detected concentration of 1.15 mg/kg. The correct maximum detected concentration of thallium is 0.3 mg/kg, which is below the background screening value for thallium (1 mg/kg). Therefore, thallium is eliminated as a chemical of potential concern (COPC). When compared to current UTLs, site concentrations of calcium, cyanide, lead, and zinc were also identified as exceeding UTLs. Therefore, the chemicals detected at concentrations greater than current UTLs are calcium, chromium, cyanide, lead, mercury, nickel, uranium, and zinc. The results for each of these chemicals using current UTLs are presented in Table 1.

In summary, when appropriate statistical tests and UTLs are used for background comparison, the following changes occur: Cyanide is carried forward to the screening assessment, and nickel, thallium, and uranium are eliminated as COPCs.

In the RFI report, uranium was evaluated as a radionuclide (in terms of isotopic uranium) in the multiple chemical evaluation (MCE). When uranium is removed from the MCE, the radionuclides included in the MCE still do not pose an unacceptable human health risk. Nickel and thallium were included in the MCE for noncarcinogens, and cyanide, which was detected at concentrations below the screening action level (SAL), must be added to the MCE for noncarcinogens. Removing nickel and thallium from the MCE results in a total normalized value of 0.01. Adding cyanide, which has a normalized value of 0.0002, does not change the total normalized value of 0.01. Therefore, the noncarcinogens included in the MCE still do not pose an unacceptable human health risk.

**TABLE 1  
RESULTS FOR ANALYTES EXCEEDING CURRENT BACKGROUND UTLs  
AT PRS 0-030(g)**

ANALYTE	UTL (mg/kg)	SAMPLES WITH CONCENTRATIONS EXCEEDING UTLs	GEHAN TEST P-VALUE	QUANTILE TEST P-VALUE	CARRIED FORWARD TO SCREENING ASSESSMENT
Calcium	6 120	1 out of 7	0.97	0.42	No
Chromium	19.3	4 out of 9	0.23	0.02	Yes
Cyanide	n/a <sup>a</sup>	All samples <sup>b</sup>	Not conducted <sup>c</sup>	Not conducted	Yes
Lead	23.3	3 out of 19	0.31	0.06	No
Mercury	0.1 <sup>d</sup>	10 out of 19	Not conducted	Not conducted	Yes
Nickel	15.2	2 out of 9	0.93	0.56	No
Uranium	5.45	1 out of 11	0.99	0.68	No
Zinc	50.8	1 out of 7	0.52	0.43	No

<sup>a</sup> n/a = No UTL is available for cyanide. The detection limit is used as a background screening value.

<sup>b</sup> Cyanide was reported in all samples at concentrations ranging from 0.141 to 0.325 mg/kg.

<sup>c</sup> Analyte was not subjected to further statistical tests because background data are not available (cyanide), or are inadequate to support other tests (mercury).

<sup>d</sup> Value is the only detected concentration of mercury in the background samples.

Based on these results, LANL concurs with New Mexico Environment Department (NMED) that the actual conclusions for PRS 0-030(g) do not change based on the recalculation of UTL values.

#### **NMED COMMENT**

##### **3.4 Comparison with Ecotoxicological Screening Action Level, p. 18**

LANL must reevaluate the ecological risk from this site based on agreements with NMED. The ecological risk approach outlined here was not approved by NMED or EPA prior to NMED being authorized for Corrective Action. Reevaluation, and submission of Eco-Risk evaluation, must take place within ninety (90) days of receiving final guidance from NMED on the factors to be considered in the Ecological Risk Assessment.

#### **LANL RESPONSE:**

LANL concurs and will further assess the ecological risk associated with PRS 0-030(g) once final guidance is received regarding the ecological exposure unit methodology.

## **NMED COMMENT**

### **4.3 Human Health Screening Assessment, p. 37**

LANL must evaluate the risk remaining at the site based on confirmation sampling or contaminants left in place. Based on the information presented, in the RFI Report, it does not appear that a human health risk remains at this site; however, an ecological risk assessment must be conducted, and the results submitted, within ninety (90) days of reaching an agreement on the approach by all involved parties, NMED, LANL, and EPA. No response required at this time.

### **LANL RESPONSE:**

The human health screening assessment included in the RFI Report for PRS 0-030(g) was based on the results of confirmation sampling. Results from samples representing soil that had been removed from the site were excluded from the analysis. As stated in the response to Deficiency 3, further ecological risk assessment will be conducted at PRS 0-030(g) once final guidance is received regarding the ecological exposure unit methodology.

## **NMED COMMENT**

NMED requires DOE/LANL to address all levels of polychlorinated biphenyls above 0.9 mg/kg in any drainage areas and decontamination will be completed to 0.5 mg/kg if those PCBs are in a watercourse. The surface drainage area will need to be included in the ecological risk assessment for this area. Any remediation activities at this site must address these values.

### **LANL RESPONSE:**

The basis for the values stated in the above deficiency, 0.9 and 0.5 mg/kg, is unclear. The screening action levels for PCBs in soil in the 1990 version of proposed Subpart S, Appendix A, was set at 0.09 ppm. However, EPA had intended to set the level at 1 ppm, based on the TSCA PCB Spill Cleanup Policy for residential land use.

As discussed in Section 4.3 of the RFI Report for PRS 0-030(g), PCBs were detected in one outfall sample at a concentration of 1.78 mg/kg (the sum of two detected values for Aroclor 1254 and Aroclor 1260 in sample AAB0275). This value is slightly greater than the SAL in use at that time (1 mg/kg). PCBs were detected in a second outfall sample immediately upstream from the first sample at a concentration of 0.297 mg/kg, suggesting that the extent of PCBs at concentrations greater than 1 mg/kg is limited. None of the other outfall samples collected as part of the original investigation were analyzed for PCBs. In response to this NOD, additional samples were collected along the drainage channel to further assess the extent of PCBs. The additional samples were generally collected as close to the original drainage channel samples as possible. These additional samples extended from the area above where the septic tank could have drained, to the confluence with Acid Canyon. These additional data, along with the original PCB data, are summarized in Table 2 and Figure 1 of this response.

As shown in Table 2, the maximum detected PCB concentration is 1.78 mg/kg (the sum of two detected values for Aroclor 1254 and Aroclor 1260 in sample AAB0275). None of the other values, including a sample collected in the immediate vicinity of sample AAB0275, contained PCBs at concentrations greater than 1 mg/kg (which, as stated previously, is the level LANL has understood is NMED's remediation level for PCBs in a water course). It should also be noted that PCB concentrations in samples collected above where the septic tank could have possibly drained were similar to concentrations detected in other samples from the drainage channel. These data indicate that the extent of PCBs exceeding 1 mg/kg in soil at PRS 0-030(g) is very limited, and also that the source of the PCBs detected in this drainage channel is possibly unrelated to releases from the septic tank. Therefore, no further action regarding PCBs is recommended at PRS 0-030(g). As stated in the response to Deficiency 3, further ecological risk assessment will be conducted at PRS 0-030(g) once final guidance is received regarding the ecological exposure unit methodology.

**NMED COMMENT**

LANL needs to provide the tabulated information from the confirmation sampling which was conducted in order to document completion of the excavation.

**LANL RESPONSE:**

The tabulated data from confirmation sampling are included in the RFI Report for PRS 0-030(g) as Appendix A, Tables A-2 through A-5.

**NMED COMMENT**

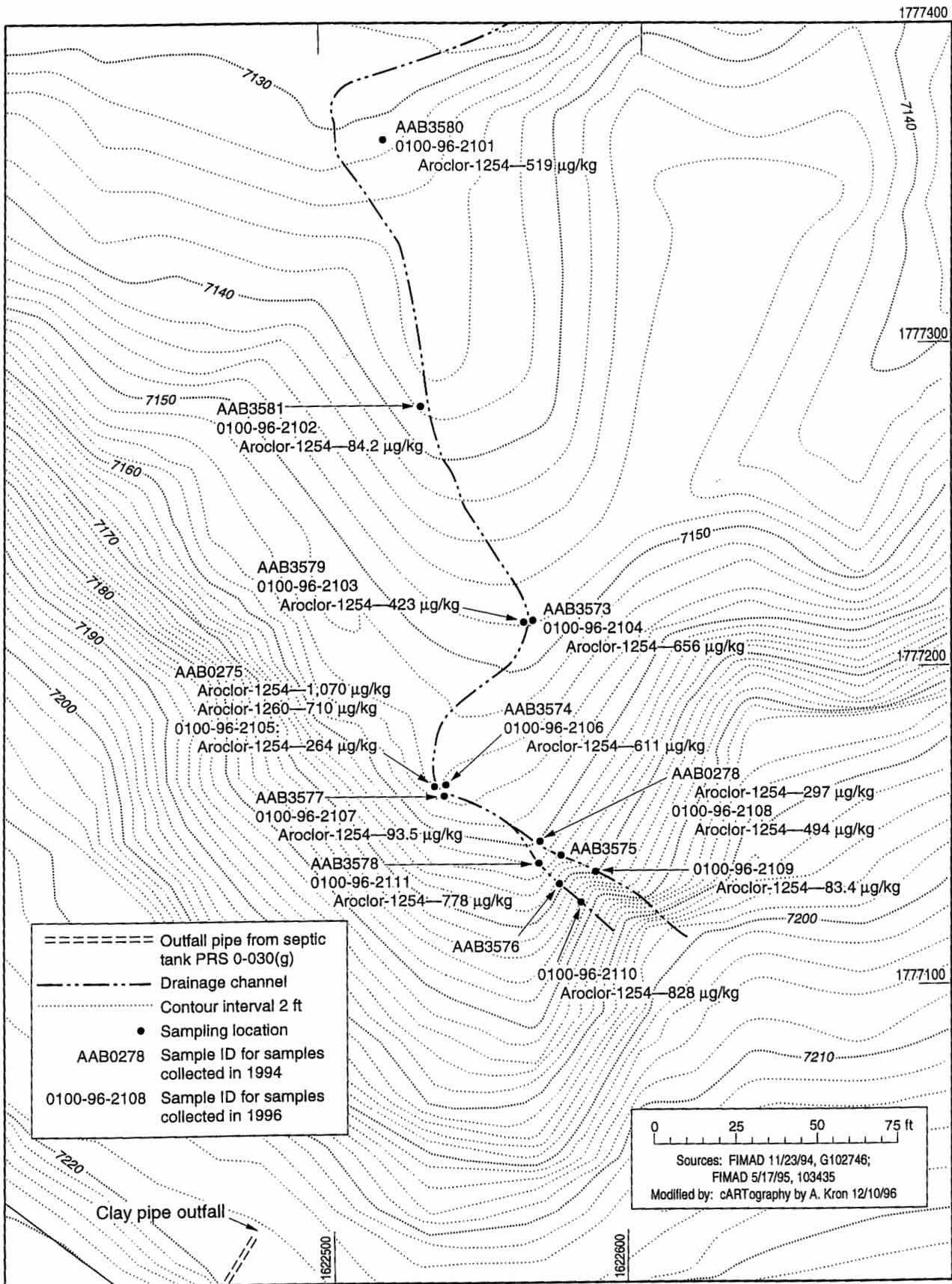
NMED also requires that raw lab data be submitted for verification of validation process.

**LANL RESPONSE:**

It is LANL's understanding that NMED has agreed that access to final data and associated quality assurance/quality control data through the Facility for Information Management, Analysis, and Display (FIMAD) is sufficient, and that hard copies of the raw data do not need to be included with RFI reports. Should problems with this access arise, the Department of Energy Oversight Bureau is available to help NMED personnel access these data as needed.

**TABLE 2  
SUMMARY OF PCB DATA FOR PRS 0-030(g)**

SAMPLE ID	ANALYTE	CONCENTRATION (mg/kg)	SAMPLE DESCRIPTION
Original RFI Samples			
AAB0275	Aroclor 1254 Aroclor 1260	1.070 0.710	Collected from fill material.
AAB0278	Aroclor 1254	0.297	Collected from old channel; related to fill material.
Samples Collected in Response to NOD			
0100-96-2101	Aroclor 1254	0.519	Collected from fill material.
0100-96-2102	Aroclor 1254	0.0842	Collected from new channel.
0100-96-2103	Aroclor 1254	0.423	Collected from new channel.
0100-96-2104	Aroclor 1254	0.656	Collected from old channel; related to fill material.
0100-96-2105	Aroclor 1254	0.264	Collected from fill material. Collected in vicinity of sample AAB0275.
0100-96-2106	Aroclor 1254	0.611	Collected from old channel; related to fill material.
0100-96-2107	Aroclor 1254	0.0935	Collected from beneath fill material.
0100-96-2108	Aroclor 1254	0.494	Collected from old channel; related to fill material. Collected in vicinity of sample AAB0278.
0100-96-2109	Aroclor 1254	0.0834	Collected from new channel. Collected above where septic tank could have drained.
0100-96-2110	Aroclor 1254	0.828	Collected from new channel. Collected above where septic tank could have drained.
0100-96-2111	Aroclor 1254	0.778	Collected from new channel.



Locations of samples with PCB analytical results in drainage below outfall at PRS 0-030(g).