

University of California  
 Environmental Restoration Project MS M992  
 Los Alamos, New Mexico 87545  
 505-667-0808/FAX 505-665-4747



U.S. Department of Energy  
 Los Alamos Area Office, MS A316  
 Environmental Restoration Program  
 Los Alamos, New Mexico 87544  
 505-667-7203/FAX 505-665-4504

Date: December 21, 1998  
 Refer to: EM/ER:98-481



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

**SUBJECT: RESPONSE TO THE NOD ON THE RSI FOR THE STABILIZATION PLAN FOR IMS AND BMPS FOR TA-49, PRSs 49-001 (b, c, d, and g)**

Dear Mr. Garcia:

Enclosed is the Los Alamos National Laboratory's response to the Hazardous and Radioactive Materials Bureau's (HRMB) Notice of Deficiency (NOD), dated November 25, 1998, on the Request for Supplemental Information (RSI) for the Stabilization Plan for Implementing Interim Measures (IMs) and Best Management Practices (BMPs) at Technical Area (TA) 49, Potential Release Sites (PRSs) 49-001 (b, c, d, and g).

A brief chronology of events leading to the NOD are outlined as follows:

- June 1998 HRMB requested that the TA-49 stabilization plan for PRSs 49-001(b,c,d, and g) be implemented as an IM.
- July 14, 1998 the Stabilization Plan for Implementing IMs and BMPs at PRS 49-001 (b,c,d, and g) was submitted to Dr. Robert S. Dinwiddie of the Resource Conservation and Recovery Act (RCRA) Permits Management Program with a request to review the document to identify the areas that HRMB believes qualify as IMs and to provide implementing direction and approval.
- August 11, 1998 HRMB issued a RSI on the Stabilization Plan.
- September 10, 1998 the Laboratory submitted its response to the RSI to Mr. Benito Garcia of the HRMB. The response included the requested contingency plan as Attachment A: *Contingencies For Reducing Soil Moisture Content At Potential Release Sites 49-001(b,c,d, and g)*.
- November 25, 1998 the Laboratory received a NOD on the RSI for the Stabilization Plan of Implementing IMs and BMPs at TA-49, PRSs 49-001(b,c,d, and g).



4025

Hsua LANL 5/1144/49 / 49-001(a-g) [MDA-AB]

7

December 21, 1998

After the Laboratory's review of the NOD, it was determined that the comments specifically address information contained in the document *Contingencies For Reducing Soil Moisture Content At Potential Release Sites 49-001(b,c,d and g)* that was submitted as new information in response to the RSI (refer to NMED comment number 3). The comment in the RSI indicated "LANL shall provide a contingency plan (with schedule) that describes an alternate solution if an increase in moisture content under the temporary cover, including fill and clay, occurs." The Laboratory believes it adequately responded to this request by providing the plan. The Laboratory is perplexed by the mechanism chosen (i.e., a NOD) to address HRMB's issues and comments on the newly submitted contingency plan. It has been our understanding that a RSI is used to address issues or comments on newly provided information and that NODs would only be issued in the event the Laboratory fails to adequately resolve comments or issues previously raised in a RSI or where there is a clear deficiency relative to a regulatory requirement.

The Department of Energy and the University of California request that NMED provide rationale for their comments so that we can better understand the basis for the RSI or the NOD, to evaluate the scope of resources needed to address the issues, and to assist us in adequately responding to the specific regulatory requirement or driver.

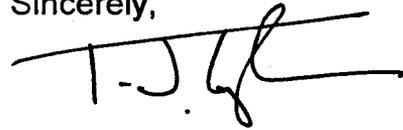
As discussed in the December 14, 1998 monthly meeting, in the interests of efficiency, the Laboratory would appreciate that any new issues or comments that HRMB wants addressed, be dealt with initially by telephone and/or meetings rather than through the NOD mechanism. If you desire to discuss the subject of this letter, please contact Dave McInroy at (505) 667-0819 or Joe Mose at (505) 667-5808.

Sincerely,



Julie A. Canepa, Program Manager  
LANL/ER Project

Sincerely,



Theodore J. Taylor, Program Manager  
DOE/LAAO

JC/TT/JW/gt

Enclosure: Response to Notice of Deficiency

Mr. Benito Garcia  
EM/ER:98-481

-3-

December 21, 1998

Cy (w/enc.):

M. Buksa, EM/ER, MS M992  
J. Mose, LAAO, MS A316  
D. Neleigh, EPA, R.6, 6PD-N  
S. Rae, ESH-18, MS K497  
T. Taylor, LAAO, MS A316  
T. Trujillo, DOE-AL, MS A906  
J. White, ESH-19, MS K490  
S. Dinwiddie, NMED-HRMB  
J. Parker, NMED-HRMB  
G. Saums, NMED-SWQB  
S. Yanicak, NMED-AIP, MS J993  
EM/ER File (CT# C612), MS M992  
RPF, MS M707

Cy (w/o enc.):

T. Baca, EM, MS J591  
A. Dorries, TSA-10, MS M992  
T. George, EM/ER, MS M992  
M. Kirsch, EM/ER, MS M992  
T. Longo, DOE-HQ, EM-453  
D. McInroy, EM/ER, MS M992  
G. Rael, AL-ERD, MS A906  
J. Vozella, LAAO, MS A316  
EM/ER File, MS M992  
Tracker, RM 604, MS M992

**Response to New Mexico Environment Department's  
Notice of Deficiency (NOD) for the RFI for the SP for  
Implementing Interim Measures and BMPs at  
TA-49, PRSs 49-001 (b,c,d, and g) (former OU 1144, FU 5)**

**INTRODUCTION**

To facilitate review of this response, the New Mexico Environment Department's (NMED's) comments are included verbatim. Los Alamos National Laboratory's (LANL's) responses follow each NMED comment.

**COMMENTS**

**NMED Comment**

1. *Page 4. Second bullet - monitoring results should be reported quarterly.*

**LANL Response**

1. Monitoring data will be reported quarterly to NMED as requested. Analysis and interpretations will be provided annually, as stated in LANL's plan, Contingencies for Reducing Soil Moisture Content at Potential Release Sites 49-001 (b,c,d, and g). This plan was included as Attachment A to LANL's September 10, 1998, responses to NMED's request for supplemental information (RSI) for the stabilization activities at Material Disposal Area (MDA) AB, Area 2.

**NMED Comment**

2. *Section 3.0 Criteria for implementing Contingency Actions: First paragraph, "A significant increase will be determined on the basis of projected risk." An increase in moisture is a measure of the effectiveness of the interim measure which may pose an increased risk. The effectiveness of the interim measure is based on the ability of the interim measure to control moisture. The volumetric increase of moisture would then be evaluated to assess the possible increase in risk due to increased moisture.*

*LANL/DOE shall provide the statistically methodology for determining increase in moisture.*

**LANL Response**

2. LANL will use a Student's *t* test to determine the statistical significance of observed trends in the monitoring data. This standard statistical methodology is currently being used at the Technical Area (TA) 54 radioactive waste disposal facility to compare actual trends in soil moisture content with moisture contents predicted in LANL's performance assessment modeling. The TA-54 moisture monitoring and analysis program is a close analog to the program planned for TA-49. The results of the TA-54 program are reported to Department of Energy on a routine basis.

The statistical analysis program will be applied at TA-49 to evaluate long-term trends in the moisture content in approximately the upper 12 feet of fill, soil, and tuff beneath the ground surface. It is planned to evaluate the monitoring results by stratigraphic horizon. The targeted horizons are (1) the

new fill material placed in 1998 to regrade the site (about 2 ft thick), (2) the old fill material beneath the former asphalt pad (about 3 ft thick), (3) the native soil beneath the fill materials (about 4 ft thick), and (4) the upper layer of competent tuff (about 3 ft thick). Data will be collected at 1-ft-depth intervals. Moisture data collected within each horizon will be averaged and entered into a database. The results for each horizon will be plotted against time, and a linear least-squares regression of the plotted data will be performed to determine the slope of the best-fit curve and the value of the correlation coefficient  $r$ . A positive slope will indicate an increasing moisture content, a zero slope will indicate no change, and a negative slope will indicate a decreasing moisture content. Because seasonal variations may mask the longer-term trends of interest in this analysis, two or more years of data may be required before statistical significance is obtained.

The Student's  $t$  test will be applied to the plotted data using a one-tailed 95% confidence level to evaluate the statistical significance of the least-squares linear fit correlation and the associated slope value. The Student's  $t$  test is described in standard statistics texts (see, for example, Snedecor and Cochran 1967, 62332, p. 59). The test is performed by calculating the value of a parameter  $tr$  corresponding to the field data. This parameter is a function of the number of data points and the calculated correlation coefficient  $r$ . The value of  $tr$  is then compared with the value of the  $t$  distribution corresponding to the one-tailed 95% confidence level. This critical value of  $t$  is called  $tc$ . If  $tr$  is greater than or equal to  $tc$ , the correlation is considered to be statistically significant and will trigger the conclusion that the moisture content is indeed increasing. If  $tr$  is less than  $tc$ , the correlation is not considered to be statistically significant.

Other elements of the planned monitoring program are described in LANL's plan, Contingencies for Reducing Soil Moisture Content at Potential Release Sites 49-001 (b,c,d, and g). This plan was included as Attachment A to LANL's September 10, 1998, responses to NMED's RSI for the stabilization activities at MDA AB, Area 2.

#### **NMED Comment**

- 3. Section 4.0 Alternative Contingency Actions: Page 7 first full paragraph. The decision to implement the final corrective measure as the contingency action based in part on the availability of funding is a consideration for the facility but is not a heavy weighting factor for the regulatory agency in the decision making process.*

#### **LANL Response**

3. This statement of NMED's regulatory decision-making process is acknowledged.

## REFERENCES

Snedecor, G.W., and W.G. Cochran, 1967. *Statistical Methods*, sixth edition, Iowa State University Press, Ames, Iowa. (Snedecor and Cochran 1967, ER ID 62332)