NEW MEXICO
ENVIRONMENT DEPARTMENT

Hazardous Waste Bureau

2905 Rodeo Park Drive East, Building 1
Santa Fe, New Mexico 87505-6303
Phone (505) 476-6000 Fax (505) 476-6030
www.nmenv.state.nm.us

BILL RICHARDSON
Governor

DIANE DENISH
Lieutenant Governor

RON CURRY
Secretary

JON GOLDSTEIN
Deputy Secretary

ENTERED

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

October 15, 2009

David Gregory
Federal Project Director
Los Alamos Site Office
Department of Energy
3747 West Jemez Road, Mail Stop A316
Los Alamos, NM 87544

David McInroy
Remediation Services Deputy Project Director
Los Alamos National Laboratory
Environmental Programs, MS M992
Los Alamos, NM 87545

RE: SECOND NOTICE OF DISAPPROVAL
PHASE II INVESTIGATION REPORT FOR MATERIAL DISPOSAL AREA C,
SOLID WASTE MANAGEMENT UNIT 50-009, AT TECHNICAL AREA 50
LOS ALAMOS NATIONAL LABORATORY (LANL),
EPA ID #NM0890010515
HWB-LANL-09-017

Dear Messrs. Gregory and McInroy:

The New Mexico Environment Department (NMED) has received the United States Department of Energy (DOE) and the Los Alamos National Security, L.L.C.'s (LANS) (collectively, the Permittees) *Response to the Notice of Disapproval for the Phase II Investigation Report for Material Disposal Area C, Solid Waste Management Unit 50-009, at Technical Area 50* (Response) and the *Phase II Investigation Report for Material Disposal Area C, Solid Waste Management Unit 50-009, at Technical Area 50, Revision 1* (Report), dated October 2009 and referenced by LA-UR-09-6266/EP2009-0215.

Pursuant to Section III.M.2 of the March 1, 2005 Order on Consent (Order), NMED disapproves the Response and the Report because some responses do not sufficiently address or are unresponsive to NMED's NOD comments dated August 31, 2009.

NMED directs the Permittees to submit a Phase III Investigation Work Plan as described in the **Direction** section of this letter. Rather than submitting a revised Report, NMED provides the

32106

following comments on the Response and the Report.

General Comments:

3. The intent of NMED's comment was not to eliminate the relevant information in Appendix F, but to combine all information related to data analysis in one section to facilitate NMED's review of the Report. In the Response, the Permittees assert that Appendix F has been included in all previous reports. Until this recent review, NMED had not made a direct comparison of the Permittees' current investigation report format to Section XI.C of the Order. Section XI.C (specifically Sections XI.C.9.a through XI.C.9.l) of the Order provides the requirements for discussing site contamination in investigation reports. Section 6.0 (Site Contamination) and 7.0 (Conclusions) of the Report appear to satisfy the requirements of Sections XI.C.9.a through XI.C.9.l and Section XI.C.10 (Conclusions), respectively. There is no requirement in the Order for the equivalent of the Report's Appendix F. In the future, the Permittees must combine Section 6.0 and Appendix F (as Section 6.0) of the Report to facilitate NMED's review of the document.

Specific Comments:

5. Executive Summary, page v, paragraph 4:

The Permittees' state in their response that "[t]he definition of the vertical extent of VOC contamination does not require vertical extent to be defined in every borehole used to characterize the site." NMED has required vertical extent be defined in every borehole at other sites at the Laboratory (e.g., DP Aggregate, MDA U, and MDA V) and Section IV.C.3.iii of the Order specifically states, "[t]he borings shall be advanced a minimum of 25 ft below the deepest detected vapor-phase, soil, rock, or groundwater contamination as detected by field screening or previous investigations, whichever is deeper." The Permittees may have decreasing trends; however, the deepest samples collected from boreholes 50-24771/50-603471, 50-24783/50-603472, 50-24813, 50-603467, and 50-603063 all contained concentrations of TCE above the Permittees' own proposed target level of 2100 $\mu g/m^3$. The Permittees will address this comment in the Phase III Investigation Work Plan described in NMED's **Direction** below.

7. Section 3.4.5, Collection of Pore-Gas Samples, page 9, paragraph 3:

No explanation is given for why the 60 minute purge was determined to be longer than necessary to purge the entire collection system when collecting vapor samples. The Permittees must always describe their methods and rationale for determining purge times in work plans and reports where vapor-sampling is proposed.

8. Section 5.3, Cleanup Standards, page 18, paragraph 1:

Although it is appropriate for the Permittees to compare analytical data to background values, residential SSLs/SALs, and industrial SSLs/SALs, it is not appropriate for the Permittees to conduct a risk assessment in the Report because extent of contamination is not defined at the site and NMED has not approved a risk scenario for MDA C.

9. Section 7.2.1, Nature and Extent of Contamination in Tuff, Inorganic Chemicals in Tuff, page 22, paragraph 1:

In reference to the metals concentrations detected in the Tschicoma Formation, the Permittees state in their response that "[i]t is possible, therefore, that the interval sampled may have been more highly weathered than if it had been collected deeper in the formation." The Permittees imply that the sample collected at the top of the formation was weathered. The borehole logs do not indicate any evidence of weathered material at the top of the Tschicoma. Furthermore, the Permittees were asked to discuss the characteristics of the formation which may have resulted in elevated concentrations of metals but instead the Permittees discussed EPA extraction method 3050. The Permittees will address this comment in the Phase III Investigation Work Plan described in NMED's **Direction** below.

11. Section 7.3.2, Nature and Extent of Contamination in Subsurface Pore-Gas, Tritium in Subsurface Pore-Gas, page 23:

Decreasing trends in contaminant concentrations do not always define the extent of contamination. For example, tritium was detected at a concentration of 52,700 pCi/L in borehole 50-603383 at 450-feet (the total depth of the borehole); therefore, the vapor-phase tritium plume is not defined at that location. The Permittees will address this comment in the Phase III Investigation Work Plan described in NMED's **Direction** below.

16. Section B-5.4, Total Depth Determination, page B-5:

The approved Work Plan stated that "drilling would continue in 50-ft intervals until concentrations were below the target levels of 2100 $\mu g/m^3$ for TCE and 3800 $\mu g/m^3$ for PCE." If during the course of investigation activities the Permittees discovered that TCE screening was not a useful indicator in determining total depth of boreholes, the Permittees should have notified NMED, obtained NMED's approval, and provided an explanation in the Report. The Permittees took none of these actions. That PCE may show a stronger correlation between screening results and final analytical data, as the Permittees assert, does not change the requirements of the approved Work Plan, especially if the Permittees didn't notify NMED of this finding. The Permittees will address this comment in the Phase III Investigation Work Plan described in NMED's **Direction** below.

20. Appendix G, Risk Assessments:

The Permittees assert that evaluation of the potential for vapor intrusion is unnecessary. Although there are no buildings within the boundary of MDA C, there are several buildings within 100 ft of the solid waste management unit (SWMU). Additionally, the CMMR Building, located approximately 300 ft west of the site, contains several below-ground facilities. The vapor intrusion pathway is complete and must therefore be evaluated. Once the extent of contamination is defined at MDA C, the Permittees must include the vapor intrusion scenario in any human health risk assessment.

Direction:

Because the Permittees did not provide additional information about the Tschicoma (TT) Formation and because the extent of vapor-phase organics is not defined, the Permittees must submit a Phase III Investigation Work Plan which includes drilling two groundwater monitoring wells; one additional vapor-monitoring well, and extending boreholes 50-24771, 50-603472, and 50-603468 to determine the vertical extent of vapor-phase contamination at MDA C.

Vapor- Monitoring Wells:

One new vapor-monitoring well must be drilled at the approximate location identified on the attached map. The Permittees must also extend boreholes 50-24771, 50-603472, and 50-603468. NMED acknowledges that these boreholes have been completed as vapor-monitoring wells; therefore, the Permittees must drill new boreholes within 25 ft of each existing borehole. The required vadose-zone boreholes shall be drilled to a depth at which field derived and fixed-lab analytical results from core samples are below the target criteria of 2100 $\mu g/m^3$ for TCE and 3800 $\mu g/m^3$ for PCE as proposed in the Permittees' Work Plan approved by NMED on August 13, 2007. After reaching total depth, the borehole shall be video logged in order to determine depth locations where fractures and stratigraphic and lithologic unit contacts occur. Open-hole pore gas/vapor samples between inflatable packers shall be collected from each borehole. Packers shall be positioned at 50 foot (ft) intervals beginning 100 ft below ground surface in each borehole and at depths above and below where fractures and contacts are identified. Each borehole shall be logged for moisture content. Surface casing with a lockable cap shall be installed at each borehole. The boreholes shall be left open for use in future investigations, monitoring-well installation, and/or potential remediation points.

Groundwater Wells:

Two regional-aquifer monitoring wells shall be installed at the approximate locations shown on the attached map. Open-hole drilling shall be conducted to a depth approximately 100 feet above the regional aquifer water table or to a depth where the borehole remains competent and stable. The boreholes shall then be video logged in order to target fracture zones and stratigraphic and unit contacts for pore gas sampling using packers to isolate these features. Pore gas samples collected between packers shall also be collected at 50 ft intervals beginning 100 ft below ground surface. Full suite geophysical logging shall also be conducted in each borehole prior to re-entering the borehole for continued drilling to the regional aquifer. Each regional aquifer monitoring-well will be constructed with two 10 ft stainless-steel screens, one intersecting at a depth just below the regional water table and one intersecting a depth suggested by fast-pathway permeable strata but at a depth not exceeding 100 ft below the regional water table.

The Permittees shall investigate and monitor any perched intermediate groundwater encountered during the drilling of the vadose zone and regional aquifer boreholes. With prior approval, intermediate aquifer monitoring wells may be installed within the original borehole or by drilling an additional borehole.

As an alternative to the above direction, the Permittees may propose a remedial approach similar to that currently being implemented at MDA B at Technical Area (TA)-21.

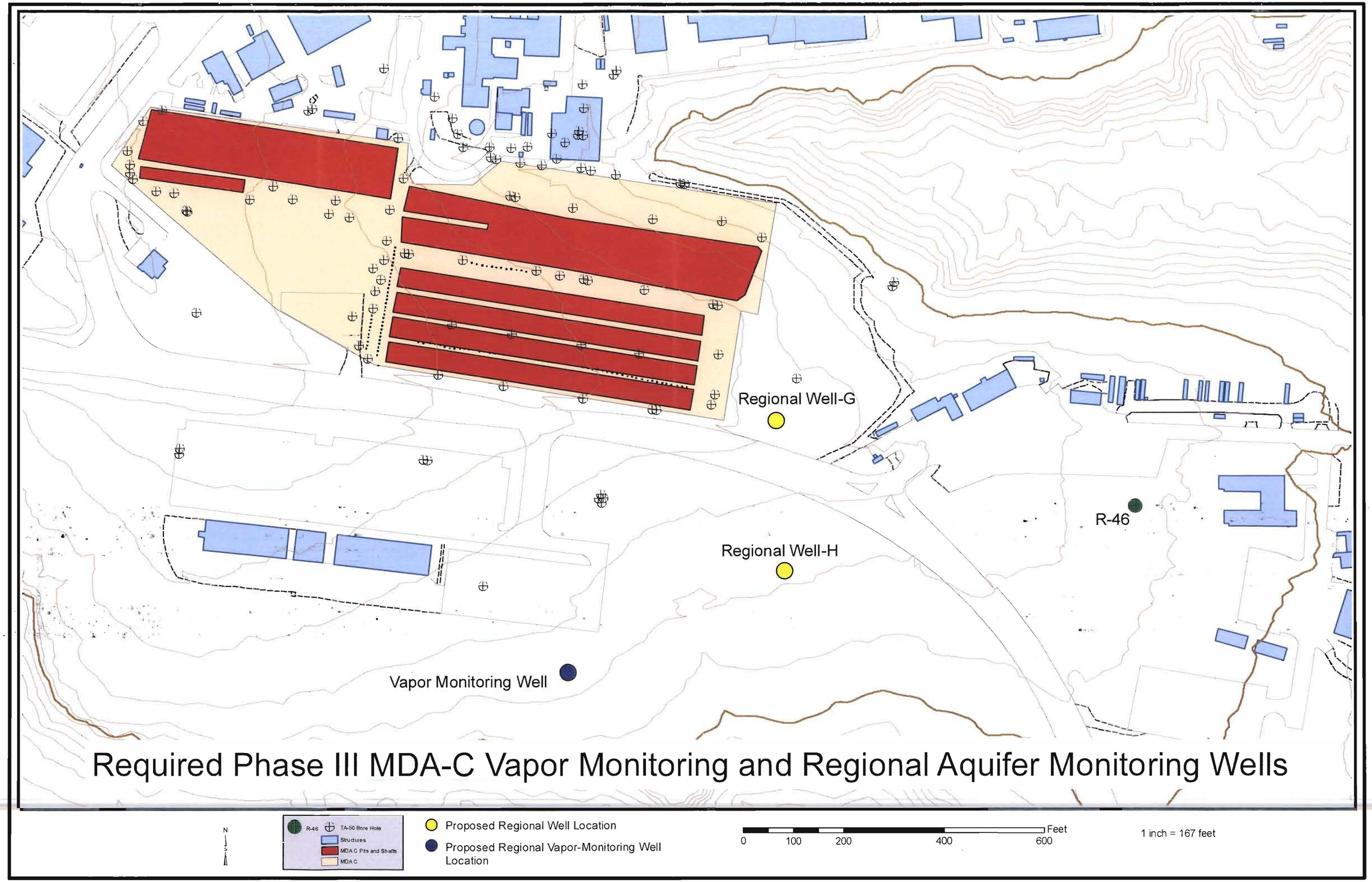
The Permittees must submit the Phase III Investigation Work Plan no later than February 8, 2010. All submittals (including maps) must be in the form of two paper copies and one electronic copy in accordance with Section XI.A of the March 1, 2005 Order on Consent (Order).

Please contact Kathryn Roberts of my staff at (505) 476-6041 should you have any questions.

Sincerely,

James P. Bearzi
Chief
Hazardous Waste Bureau

cc: D. Cobrain, NMED HWB
K. Roberts, NMED HWB
M. Dale, NMED HWB
S. Yanicak, NMED DOE OB, MS M894
T. Skibitski, NMED DOE OB
L. King, EPA 6PD-N
G. Rael, DOE LASO, MS A316
M. Graham ADEP, MS J591
File: LANL, 2009 TA-50 (SWMU 50-009)



Required Phase III MDA-C Vapor Monitoring and Regional Aquifer Monitoring Wells