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JON GOLDSTEIN  
Deputy Secretary

**CERTIFIED MAIL - RETURN RECEIPT REQUESTED**

April 22, 2008

David Gregory, Federal Project Director  
Department of Energy  
Los Alamos Site Office  
528 35<sup>th</sup> Street, Mail Stop A316  
Los Alamos, New Mexico 87544

David McInroy  
Remediation Services Deputy Project Director  
Los Alamos National Security, LLC  
P.O. Box 1663, Mail Stop J591  
Los Alamos, New Mexico 87545

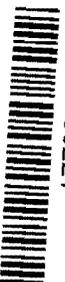
**RE: NOTICE OF DISAPPROVAL CORRECTIVE MEASURES EVALUATION  
REPORT, INTERMEDIATE AND REGIONAL GROUNDWATER  
CONSOLIDATED UNIT 16-021(C)-99  
LOS ALAMOS NATIONAL LABORATORY  
EPA ID# NM0890010515  
LANL-HWB-07-027**

Dear Messrs. Gregory and McInroy:

The New Mexico Environment Department (NMED) is in receipt of the Department of Energy and the Los Alamos National Security, LLC (collectively the Permittees) document entitled *Corrective Measures Evaluation Report, Intermediate and Regional Groundwater, Consolidated Unit 16-021(c)-99* dated August 2007 and referenced by LA-UR-07-5426 and EP2007-0381 (hereafter, CME). In general, the CME lacks the data necessary data crucial to evaluate remedies capable of effectively controlling and remediating the contaminant plumes in intermediate and regional groundwater. The Permittees acknowledge in the CME that the information currently available is insufficient to assess whether the preferred remediation alternative (full-scale pump and treat system) is feasible. NMED issues this Notice of Disapproval (NOD) and provides the following comments and requirements:

**Supplemental Investigation Work Plan:**

1. In order to acquire sufficient data to develop and evaluate remedies and support the preferred remedy, the Permittees must submit a supplemental investigation work plan (SIWP). The



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SIWP must propose work to further characterize the extent of the intermediate and regional contaminant plumes. Specifically, the SIWP must include measures to further assess regional and intermediate aquifer hydraulic properties and groundwater flow rates, further assess high explosive (HE) degradation rates, provide recommendations for additional monitoring well coverage, and provide recommendations for the replacement of any current wells deemed unsuitable for inclusion in a groundwater monitoring network. The monitoring network must be designed and constructed to produce groundwater monitoring data representative of aquifer conditions and measure the performance of any remedy or combination of remedies proposed in the CME. The SIWP must propose testing of both the intermediate and regional aquifers, and collection of site-specific data for use in evaluating the feasibility of remedy implementation for all of the remedial alternatives proposed in the CME. The Permittees may include proposals for treatability studies, in the SIWP, for the preparation of a revised CME.

2. The Permittees identify many uncertainties associated with the conceptual model, but provide little specific information as to how these uncertainties will be addressed or resolved. The required SIWP must propose actions to reduce or eliminate these uncertainties and the conceptual model must be revised accordingly.

#### **Revised CME**

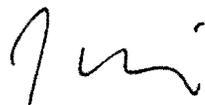
3. The Permittees must develop and submit for review and approval a revised CME that includes the results of the SIWP.
4. The CME must include a detailed discussion, based on additional literature research, of the toxicity of the degradation products of the contaminants of potential concern (COPCs) and HE compounds identified (e.g., MNX, TNX).
5. The CME must include a summary discussion of the detection efficiency and quality of the well screens available to reliably detect all COPCs released from the vicinity of 16-021(c)-99 that may have affected intermediate and regional groundwater. The discussion must be based on the TA-16 well evaluation, the well screen assessment, and any other available information.
6. The CME indicates that the HE compounds RDX and TNT are the only COPCs identified for the site. Other contaminants, such as volatile and semi-volatile organic compounds, barium, and MNX were identified in previous investigations and monitoring. For example, MNX concentrations detected in R-25 are greater than the screening level and must therefore be addressed in the CME. All detected compounds must be included as COPCs and addressed in the revised CME. The Permittees must include provisions for remediation of all COPCs that are present in intermediate and regional groundwater detected at concentrations above the clean-up levels specified in Section VIII.A.I of the March 2005 Consent Order (Order).

7. In the revised CME, the Permittees must demonstrate that all wells and well screens used for contaminant characterization, as well as those proposed for groundwater monitoring, produce reliable and representative groundwater samples. The Permittees must complete any approved rehabilitation, replacement, and installation of groundwater monitoring wells and demonstrate that the wells provide valid data either prior to recommendation of a remedy or as part of a proposed remedy. If the approved rehabilitation, replacement, or installation is not complete, then the Permittees must propose contingencies to correct any problems with the ability of a well or well screen to produce representative data.
8. The revised CME must provide references and citations for the hydraulic conductivities identified in bullet #11 on page 8 of the CME.
9. Bullet #5 on page 9 of the CME identifies a compilation of existing well data that was used to develop average permeability values for the intermediate and regional aquifers at TA-16. The Permittees must discuss, identify, and provide all sources of information for the cited permeability values in the revised CME.
10. It appears that the Permittees calculated a single, average permeability value for both the intermediate and regional aquifers. The Permittees must provide the methodology and adequate justification for averaging the data to calculate one permeability value for these distinct aquifers.
11. The Permittees must propose to conduct aquifer tests on wells R-18, R-25b R-25c, CdV-37-1(i), CdV-16-3(i), and R-27i in the SIWP to provide the site-specific hydraulic properties of the intermediate and regional aquifers for use in the development of the revised CME.
12. The Permittees propose using CdV-16-1(i), CdV-16-2(i)r, R-18, CdV-R-15-3 and CdV R-37-2, in addition to the new wells to be drilled in 2008, to monitor the effectiveness of the selected remedy. The Permittees must provide justification that the vertical coverage of the proposed wells is capable of yielding reliable and representative samples from both the shallow and deep portions of the intermediate and regional aquifers, and is capable of detecting all COPCs, HE degradation products, and other indicator parameters that may be used to assess the success of the selected remedy.
13. During the assessment of remediation alternatives (Table 5.4-1, page 71 and Section 5.3, page 15 of the CME), the Permittees assigned varying weights to several of the factors (e.g., technical practicability, effectiveness, human health, ecological "protectiveness", cost). Section V.D.V.b of the Order requires that the factors be balanced in proposing a preferred alternative. The Permittees must therefore use a balanced weighting of the criteria used in remedy selection in the revised CME or propose an alternative approach for NMED review and approval.

14. The Permittees cite the high cost of drilling as reason for an "unfavorable rating" for the vertical ground water recovery remediation technology. NMED considers standard drilling costs in the evaluation of remedial alternatives.

The SIWP must be submitted to NMED by June 30, 2008. A revised CME following the procedures outlined in Section VII.D of the Order, including a redline/strike out version, must be submitted to NMED for review and approval by the date established in the SIWP approval. The SIWP must be prepared in general accordance with the reporting requirements outlined in Section XI of the Order and all submittals must be in the form of two paper copies and one electronic copy in accordance with Section XI.A of the Order. Should you have any questions please contact John Young of my staff at (505) 476-6038.

Sincerely,



James Bearzi  
Chief  
Hazardous Waste Bureau

cc: D. Cobrain, NMED HWB  
K. Roberts, NMED HWB  
H. Shen, NMED HWB  
J. Young, NMED HWB  
T. Skibitski, NMED DOE-OB  
S. Yanicak, NMED DOE OB  
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M. Johansen, DOE LASO, MS A316  
G. Rael, DOE LASO, MS A316  
S. Stiger, LANL, ENV, MS J591  
D. Hickmott, LANL, EP-CAP, MS M992

File: Reading and LANL TA-16 (260 Outfall, 16-021(c)-99)