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Los Alamos
NATIONAL LABORATORY
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ACTION REQUIRED

IRM-RMMSO

Official Correspondence Form

Name:	U1101910
Title:	Notice of Disapproval Bandelier Tuff Unit 4 Background Study Report LANL EPA ID NM0890010515 HWB-LANL-11-069
Date Received:	10/13/2011
Addressee Name:	M. Graham, ADEP
Originator:	J. Kieling, NMED
Action Item Description:	Permittees must respond to these comments no later than 11/30/2011
Action Due Date:	11/30/2011
Responsible for Action:	Search Graham, Michael J
Responsible Office:	ADEP
Distribution:	Michael J. Graham Isaac E. RichardsonIII C. A. Beard David J. McInroy Phoebe K. Suina William Z. Alexander Tina M. Sandoval Charles F. McMillan Richard A. Marquez Deborah K. Woitte James C. Cantwell Anthony R. Grieggs Paul Henry Scotty Jones

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NEW MEXICO
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Acting Deputy Secretary

EP2011-5470

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

October 11, 2011

George J. Rael, Assistant Manager
Environmental Projects Office
Department of Energy / National
Nuclear Security Administration
Los Alamos Site Office
Los Alamos, NM 87544

Michael J. Graham, Associate Director
Environmental Programs
Los Alamos National Security, LLC
P.O. Box 1663, MS M991
Los Alamos, NM 87545

RE: NOTICE OF DISAPPROVAL
BANDELIER TUFF UNIT 4 BACKGROUND STUDY REPORT
LOS ALAMOS NATIONAL LABORATORY
EPA ID #NM0890010515
HWB-LANL-11-069

Dear Messrs. Rael and Graham:

The New Mexico Environment Department (NMED) has received the United States Department of Energy (DOE) and the Los Alamos National Security, LLC (LANS) (collectively, the Permittees) *Bandelier Tuff Unit 4 Background Study Report*, dated September 2011 and referenced by LA-UR-11-5179/EP2011-0286. NMED hereby issues this notice of disapproval with following comments.

1. The metals data for the background study are representative of leachable element concentrations, and the analytical methods used in the current study appear consistent with the methods used in the original background study report. The results for the metals, provided in Table 4.1-1, and the discussion of these data presented in Section 4.1.1 of the report, indicate that the Qbt 4 data are essentially the same as the previously established background. It is not clear how this determination was made. It appears that a statistical evaluation of the data was not conducted and, since the Qbt 4 data were not significantly above the established background levels, it was assumed that the Qbt 4 was representative of the existing background data. However, in reviewing at the data in both

Tables 4.1-1 (metals) and 4.1-5 (radionuclides), the Qbt 4 data appear to actually be lower than the established background levels (with the exception of the data in Tables 4.1-2 and 4.1-6). Clarify how it was determined that the new Qbt 4 data are actually reflective of the established background data. For example, did the Permittees make this determination after conducting statistical comparisons between the data sets.

2. In Section 5.0, there is mention of previously collected data that was analyzed using X-ray fluorescence (XRF) and that these data indicated higher concentrations than the established background. As part of the Qbt 4 study, samples at the bottom of the borings were collected and analyzed using XRF. The Work Plan for Determining Background Concentrations of Inorganic Chemicals in Unit 4 of the Bandelier Tuff (Work Plan, p 5) stated that "[s]amples will also be submitted for analysis using X-ray fluorescence (XRF) to collect data to compare with historical XRF total metal analysis data to Qbt 4." It is not clear whether a comparison was conducted between the two XRF datasets. The Permittees must discuss how the Qbt 4 XRF data compared to the past data referred to in this Section.

3. It is not clear how the conclusion was made that the results from XRF confirm that the Qbt 4 data are representative of the existing background data. Explain what the data were compared to in deriving this conclusion.

4. The report indicates that in accordance with the Work Plan, selected samples would be collected from only un-weathered tuff.

    a. In reviewing the Work Plan, there is no mention that samples will be biased to assessing only un-weathered tuff nor does the Work Plan specify any targeted sampling of tuff in various stages of weathering or how the degree of weathering was determined. Explain why only un-weathered material was sampled.

    b. If weathered tuff was encountered frequently at Technical Area (TA) 49 and the sample results obtained from these locations are possibly elevated due to the weathering and breakdown of the tuff, explain why the Qbt 4 sampling effort did not include collecting samples representative of all stages of weathering of the tuff or at least include the collection of samples reflective of the various conditions at TA-49.

    c. As noted in the conclusion, the background data set should bound concentrations reflective of weathered tuff. Since the Qbt 4 data are not different from the existing background data, explain how will this bounding be determined.

5. Given that the results of the Qbt 4 study are inconclusive for evaluating the elevated levels of inorganic constituents at TA-49, the Permittees must either propose additional evaluation, such as geochemical analyses, or use the previously established background levels for Qbt 4.

The Permittees must respond to these comments no later than **November 30, 2011**. Please contact Neelam Dhawan of my staff at (505) 476-6042 should you have any questions.

Sincerely,

John E. Kieling
Acting Chief
Hazardous Waste Bureau

cc: J. Kieling, NMED HWB
D. Cobrain, NMED HWB
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File: LANL, Background Study Report for Bandelier Tuff Unit Qbt 4, 2011
LANL-11-069

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