



SUSANA MARTINEZ  
Governor

JOHN A. SANCHEZ  
Lieutenant Governor

la  
NEW MEXICO  
ENVIRONMENT DEPARTMENT

ENTERED

*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](http://www.nmenv.state.nm.us)



DAVE MARTIN  
Cabinet Secretary

BUTCH TONGATE  
Deputy Secretary

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

November 22, 2011

George J. Rael, Assistant Manager  
Environmental Projects Office  
Department of Energy/National  
Nuclear Security Administration  
Los Alamos Site Office  
3747 West Jemez Road, MS A316  
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: APPROVAL WITH MODIFICATION  
PHASE II INVESTIGATION WORK PLAN  
THREEMILE CANYON AGGREGATE AREA  
LOS ALAMOS NATIONAL LABORATORY  
EPA ID #NM0890010515  
HWB-LANL-11-044**

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) *Phase II Investigation Work Plan for Threemile Canyon Aggregate Area, Revision 1* (IWP), dated October 2011 and referenced by LA-UR-11-6156/EP2011-0349 and the response to the Notice of Disapproval (NOD). NMED hereby issues this Approval with the following modifications. The numbers correspond to the NOD comments issued on September 30, 2011.

**Specific Comment 1a:**

Barium was detected at the concentration of 407 mg/kg in a soil sample collected from 3-0-3.4 ft below ground surface (bgs) at location 12-610694 which is above the background value (BV) of 295 mg/kg. Barium was detected at the concentration of 136 mg/kg in a shallower sample (0-0.7

34927



ft bgs) at the same location indicating an increasing trend. The NOD response states that the vertical extent is defined because barium concentrations are below the maximum soil background concentration of 410 mg/kg. However, the detected concentration in the deeper sample is above the BV and indicates an increasing trend. In general two samples are not sufficient to define a trend for the vertical extent of contamination. The IWP proposes to collect additional samples at locations 12-610694, 1a-1, and 1a-2 to define the extent of contamination of several other inorganic chemicals. Barium analyses must be included for these samples to confirm that the vertical and lateral extent of barium contamination is defined at the site.

**Specific Comment 6c:**

The vertical extent of copper is not defined at location 15-610748. The detected concentrations of copper decreased with depth from 36,400 mg/kg (0-1 ft bgs) to 622 mg/kg (3-4 ft bgs), which is significantly higher than the background value of 14.7 mg/kg for copper. The IWP proposes to collect samples from the 5-6 ft and 9-10 ft bgs at location 15-610748 to define the vertical extent of lead. Samples collected from this location must also be analyzed for copper to define the vertical extent of copper contamination.

**Specific Comment 10b:**

The NOD comment stated that the vertical extent of cadmium must be defined at location 36-610824 because the concentrations increased with depth at this location. In response to the NOD comment, the Permittees state that the vertical extent of cadmium is defined at this location because the detected concentrations are below the maximum soil BV of 2.6 mg/kg. Two samples are not enough to determine a trend for the vertical extent of contamination specifically when the concentrations indicate an increasing trend. In addition, concentrations of several other inorganic chemicals also increased with depth at this location indicating that there is a potential of contamination at depths greater than 2-3 ft bgs. The IWP proposes to collect samples at this location from 3-4 ft, 5-6 ft, and 9-10 ft bgs to define the vertical extent of copper, cyanide, and mercury contamination. Cadmium analysis must be included in the analytical suite to confirm that the vertical extent is defined at location 36-610824.

As proposed in the IWP, the investigation report must be submitted no later than **August 31, 2013**. All submittals (including maps and tables) must be in the form of two paper copies and one electronic copy in accordance with Section XI.A of the Order.

Messrs. Rael and Graham  
November 22, 2011  
Page 3

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: D. Cobrain, NMED HWB  
N. Dhawan, NMED HWB  
S. Yanicak, NMED DOE OB, MS J993  
T. Skibitski, NMED DOE OB  
L. King, EPA 6PD-N  
P. Maggiore, DOE LASO, MS A316  
W. Woodworth, DOE-LASO, MS A316  
J. McCann, EP-CAP, MS M992

File: LANL, Threemile Canyon Aggregate Area Phase II IWP, 2011.  
LANL 11-044