

**Response to the Direction to Modify the Voluntary Corrective Action Report  
for the Investigation and Remediation of Solid Waste Management Units 33-002(a-c)  
at Technical Area 33, EPA ID No: NM0890010515, HWB-LANL-09-072,  
Dated October 1, 2010**

**INTRODUCTION**

To facilitate review of this response, the New Mexico Environment Department's (NMED's) comments are included verbatim. The direction to modify letter presents comments on the July 2010 voluntary corrective action (VCA) report as well as directions for revising the investigation work plan for the Chaquehui Canyon Aggregate Area. The direction to modify letter does not require Los Alamos National Laboratory (LANL or the Laboratory) to respond to the comments on the VCA report or to revise the VCA report. Because these comments also relate to information presented in the investigation work plan, however, the Laboratory is providing responses indicating how these comments were addressed in the revised work plan. Similarly, responses to the directions are provided to show how the directions were addressed in the revised work plan. This response contains data on radioactive materials, including source, special nuclear, and byproduct material. Information on radioactive materials and radionuclides, including the results of sampling and analysis of radioactive constituents, is voluntarily provided to NMED in accordance with U.S. Department of Energy policy.

**COMMENTS**

**NMED Comment**

**1. Section 2.4.2, Summary of Previous Investigations, page 6:**

*The Permittees incorrectly indicated that antimony was detected above background values (BV) in a Phase II RCRA Facility Investigation (RFI). According to the Historical Investigation Report for Chaquehui Canyon Aggregate Area (HIR) the single reported detection of antimony was qualified as a nondetect.*

**LANL Response**

1. Although the text in the VCA report was incorrect, the investigation work plan correctly states that antimony was not detected above background value (BV), but the detection limit for antimony was greater than BV. No revision to the investigation work plan is needed.

**NMED Comment**

**2. Sections 6.1.3.1 Inorganic Chemicals, 6.1.3.2 Organic Chemicals, and 6.1.3.3 Radionuclides, pages 15-18:**

*In numerous instances the Permittees describe concentrations of analytes as "decreased laterally in the drain field." This circumstance is more accurately described as a decrease in concentrations along the drainline. Examples of inorganic chemicals that decreased in concentration laterally along the drainline are aluminum, arsenic, barium, calcium, lead, magnesium, selenium and vanadium. Examples of organic chemicals that decreased along concentration in the drainline are acenaphthene, acenaphthylene, Aroclor-1242, Aroclor-1254, benzo(a)anthracene, indeno(1,2,3-cd)pyrene, 2-methylnaphthalene and naphthalene.*

### **LANL Response**

2. Similar statements are not made in the investigation work plan, and no revision to the investigation work plan is needed.

### **NMED Comment**

#### **3. Section 6.1.3.1 Inorganic Chemicals, page 16:**

*The Permittees state that mercury was detected above the Qbt 3 BV at four locations. The correct number of locations where mercury was detected above the QBT 3 BV is five. The Permittees also stated that the concentration of mercury increased with depth at location 33-25093. The correct location is 33-25098.*

### **LANL Response**

3. Although the text in the VCA report is incorrect, the investigation work plan correctly states mercury was detected above the BV for tuff in five samples. The investigation work plan does not include text equivalent to that in the comment concerning vertical concentration trends. No revision to the investigation work plan is necessary.

### **NMED Comment**

#### **4. Section 6.2.2.2 Organic Chemicals in Tuff, page 20:**

*The Permittees state that four tuff (Qbt3) samples collected in SWMU 33-002(b) were analyzed for explosive compounds. Table 6.1-1 and laboratory reports in Appendix B indicate that ten tuff samples (two intervals at each of five locations) were analyzed for explosive compounds.*

### **LANL Response**

4. The investigation work plan does not contain a similar statement, and no revision to the investigation work plan is needed.

### **NMED Comment**

#### **5. Section 6.2.3.3 Radionuclides, page 24:**

*The Permittees state that Uranium-235/236 was detected above the BV at location 33-25125. Uranium-235/236 was also detected above the BV at location 33-25082.*

### **LANL Response**

5. The investigation work plan correctly states uranium-235/236 was detected above the tuff BV in two samples. No revision to the investigation work plan is needed.

## NMED Comment

### 6. **Figures 2.1-1, 6.2-1, 6.2-2, 6.2-3, 6.3-1, 6.3-2 and 6.3-3 and Plates 1, 2 and 3:**

*Figures and Plates indicate the locations of samples 33-24805, 33-24806 and 33-24807 collected at the depths of 5.0 to 7.0 feet below ground surface (bgs) on June 30, 2005 or July 1, 2005. According to the HIR those samples were analyzed for VOCs only and one analyte was detected. The samples are not listed in Table 6.1-1 (Samples Collected and Analyses Requested During 2005 VCA at SWMUs 33-002 (a-c)) nor are results included in Table 6.1-3 (Organic Chemicals Detected in 2005 VCA Confirmation Samples at SWMUs 33-002(a-c)).*

## LANL Response

6. During preparation of the VCA report, it was determined that samples collected at locations 33-24805, 33-24806, and 33-24807 were waste characterization samples collected prior to excavation of the drain field and seepage pits, rather than investigation samples, and should not have been presented in the referenced figures and plates. Tables 4.1-1 and 4.1-3, Figures 4.1-1, and 4.1-3 through 4.1-8, and Plates 2 through 4 in the investigation work plan have been revised to remove these sample locations and associated results.

## NMED Comment

### 7. **Table 6.1-3 Organic Chemicals Detected in 2005 VCA Confirmation Samples at SWMUs 33-002(1-c), page 66:**

*Analytical data indicate that trichloroethene was detected at 0.006 mg/kg in sample RE33-05-63232 collected at a depth of 2.0 to 2.5 ft bgs, location ID 33-25125. This value is missing from Table 6.1-3.*

## LANL Response

7. The detection of trichloroethene in sample RE33-05-63232 was inadvertently omitted from Table 6.1-3 of the VCA report and from Table 4.1-3 of the investigation work plan. The latter table has been revised to include this result.

## NMED Comment

### 8. **Appendix C**

*Analytical results and laboratory reports for Samples RE33-04-63227, -63228, -63229, -63239, -63231, and -63232 are missing from Appendix C.*

## LANL Response

8. The analytical results and laboratory reports for samples RE33-04-63227, -63228, -63229, -63230, -63231, and -63232 are included in Appendix C. Samples RE33-04-63227, -63229, and -63231 are included in the documentation for analytical request 3895S, and samples RE33-04-63228, -63230, and -63232 are included in the documentation for analytical request 3877S. This appendix was not included in the investigation work plan, and no revision to the investigation work plan is necessary.

## NMED Comment

9. **Section 6.1.1 VCA Activities at SWMU 33-002(s) page 13; Section 6.2.1 VCA Activities at SWMU 33-002(b) page 19; and Section 6.3.1 VCA Activities at SWMU 33-002(c) page 24:**

*The Permittees reported the depths of sample intervals obtained below the drainlines, septic tank excavation, inlets, outlets, and other locations. However, the Permittees did not include the depths of the drainlines, inlets, and outlets themselves. The depth below ground surface that the samples were collected is not clear. Depth of the drainlines and septic tank should have been included in the Report.*

## LANL Response

9. The sampling depths reported in the VCA report were generally depths below the bottoms of excavations rather than depths below ground surface. Tables 4.1-1 through 4.1-4, Figures 4.1-3 through 4.1-8, and Plates 2 through 4 in the investigation work plan have been revised to present the depths of the samples below ground surface.

## DIRECTIONS

### NMED Direction

1. **Proposed Activities, SWMU 33-002(a), SWMU 33-002(b) and SWMU 33-002(c):**

*The Permittees must review the list of sampling locations where the vertical extent of contamination has not been determined and propose additional samples at these locations to define the vertical extent.*

### LANL Response

1. The Laboratory reviewed the results of the VCA to identify the specific locations and constituents for which vertical extent is not defined at SWMUs 33-002(a-c). Section 4.1.1 of the investigation work plan was revised to summarize these results. Additional sampling at depths 3.0 to 4.0 ft below the deeper VCA sampling depth is proposed at each location. Samples from each location will be analyzed for all constituents for which vertical extent is not defined at that location.

### NMED Direction

2. **Proposed Activities, SWMU 33-002(a):**

*Where the vertical extent of contamination has not been determined the Permittees must propose to collect samples five feet below the removed piping (not 5 feet bgs) in accordance with Section DC.B.2.b.i of the Order, and at the fill/tuff interface.*

### LANL Response

2. At each VCA confirmation sampling location, the deeper of two confirmation samples was collected at a depth of 2.0 to 2.5 ft below the bottom of the excavation after the drainline had been removed. The investigation work plan was revised to propose the collection of additional samples 3.0 to 4.0 ft below

the deeper VCA sampling depth at each location where vertical extent is not defined. This interval will result in samples collected at least 5.0 ft below the bottom of the former drainlines.

#### **NMED Direction**

##### **3. Proposed Activities, SWMU 33-002(a):**

*The Permittees must include sampling and analyses of explosive compounds in the SWMU 33-002(a) drain field sampling locations (33-25097, -25098, -25108, -25109, -25110, -25111, -25112, -25113, -25114, -25115, -25115, and -25-116) that were not analyzed for explosive compounds during the 2005 investigations.*

#### **LANL Response**

3. The investigation work plan has been revised to include resampling of all locations at SWMUs 33-002(a-c) where samples had not been analyzed for explosive compounds during the VCA. At each location, samples will be collected at the depth of the deeper VCA sample and 3.0 ft to 4.0 ft below this depth.