



BILL RICHARDSON
GOVERNOR

State of New Mexico
ENVIRONMENT DEPARTMENT

Hazardous Waste Bureau
2905 Rodeo Park Drive East, Building 1
Santa Fe, New Mexico 87505-6303
Telephone (505) 428-2500
Fax (505) 428-2567
www.nmenv.state.nm.us



RON CURRY
SECRETARY

DERRITH WATCHMAN-MOORE
DEPUTY SECRETARY

**CERTIFIED MAIL
RETURN RECEIPT REQUESTED**

March 22, 2005

David Gregory, Federal Project Director
Los Alamos Site Office
Department of Energy
528 35th Street, Mail Stop A316
Los Alamos, NM 87544

G. Pete Nanos, Director
Los Alamos National Laboratory
P.O. Box 1663, Mail Stop A100
Los Alamos, NM 87545

**RE: APPROVAL WITH MODIFICATIONS
INVESTIGATION WORK PLAN FOR MATERIAL DISPOSAL AREA C, SOLID
WASTE MANAGEMENT UNIT 50-009, AT TECHNICAL AREA 50, REVISION 1
LOS ALAMOS NATIONAL LABORATORY, EPA ID #NM0890010515
HWB-LANL-03-005**

Dear Messrs. Gregory and Nanos:

The New Mexico Environment Department (NMED) has reviewed the *Investigation Work Plan for Material Disposal Area C, Solid Waste Management Unit 50-009, at Technical Area 50, Revision 1* referenced by LA-UR-03-8201, ER2003-0696 and dated November 2003. NMED hereby approves the work plan with the modifications described in this letter. Modifications to the work plan and Historical Investigation Report (HIR) must be submitted as revisions to the work plan with redline strikeout of all edits. If the Permittees fail to implement the modifications, NMED will automatically rescind this approval.

The Permittees must document in the Investigation Report for MDA C (Report) all activities conducted pursuant to this approval, including the modifications outlined in this letter. In addition, all required supplemental information specified in this letter must be submitted to NMED within 30 days of receipt of this letter. The Investigation Report, summarizing the results



9029

of work plan implementation, must be submitted by December 15, 2005.

General Comments:

- 1) The Permittees must provide borehole construction diagrams for boreholes 50-09100 and 50-10131.
- 2) The Permittees must provide a brief description of investigation, sampling or analytical methods and procedures in documents submitted to NMED that includes sufficient detail to evaluate the quality of the acquired data in accordance with Section IX.A, Standard Operating Procedures, of the March 1, 2005 Consent Order (Order).

Specific Comments:

1) Section 1.0, Introduction, Footnote 1, page 1:

Permittees' Statement: "This document contains data on radioactive wastes, including source, special nuclear, and byproduct material. The management of these materials is regulated under the Atomic Energy Act and is specifically excluded from regulation under the Resource Conservation and Recovery Act and the New Mexico Hazardous Waste Act. These data are provided to the New Mexico Environment Department for informational purposes only."

NMED Comment: There is no need to include the disclaimer regarding radioactive waste data in this section or on the title page of the document. As part of the Order, the Permittees agreed to voluntarily test for, and report on radionuclides, as detailed in a letter from Everet Beckner, NNSA Deputy Director, to NMED Secretary Ron Curry, dated August 26, 2004.

2) Section 2.3, Relationship to Other SWMUs and AOCs, page 4:

Permittees' Statement: "The only SMWU and/or AOC within close proximity that potentially could have affected MDA C is SWMU 50-006(c)."

NMED Comment: The Permittees must provide a map showing the location of SWMU 50-006(c) and its proximity to MDA C. The Permittees must also explain why the other surrounding SWMUs and AOCs (Figure ES-2, LANL 1992, 07672) could not or have not affected MDA C. (Submit to NMED within 30 days of receipt of this letter)

3) Section 2.4, Contaminant Transport Mechanisms and Potential Receptors, page 4:

NMED Comment: The Permittees must consider colloids as a mode of contaminant transport at MDA C. (address in the MDA C Investigation Report)

4) Section 2.7.2, Phase 1 RFI Field Investigations, page 7, paragraph 1:

Permittees' Statement: "The subsurface samples were field-screened at approximately 5-ft intervals for radioactivity, high explosives (HE), and VOCs and submitted to a mobile radiological analysis laboratory. Samples were collected at approximately 20-ft intervals and submitted for off-site contract laboratory analysis for TAL metals and cyanide, radionuclides, and SVOCs. With the exception of samples from boreholes 50-09100 and 50-09102, 24 subsurface samples were also analyzed for VOCs and PCBs/pesticides."

NMED Comment: According to the borehole logs included in Appendix C of this work plan, samples were not taken at 20-ft intervals. For example, in borehole 50-09100, samples were obtained at approximately 20-foot intervals for the first 71 feet. Following the sample taken at 71-feet, only one sample was taken from the 112.5-ft to 113.5-ft interval. No other samples were collected except at a depth of 160.5-feet.

A full analytical suite was not performed on all subsurface samples submitted for laboratory analysis during the RFI field investigations. A full suite will therefore be required as part of the investigation. See NMED specific comment #23 letter F, below.

5) Section 2.7.3, Phase 1 RFI Results, pages 7-8, paragraph 1 & 2:

Permittees' Statement:

a) Releases of radionuclides to historical surface soils were largely covered with crushed tuff in 1984. Elevated concentrations of americium-241 and isotopic plutonium in surface soils in the northeast area of MDA C are likely related to releases from MDA C prior to placement of crushed tuff on the surface of the site in 1984. The extent of current surface radionuclide contamination is defined.

b) Lead and silver were the only metals detected at concentrations above their respective BVs in surface soil and fill. Statistical analyses in Appendix D indicate that the range of values is almost identical to background. There are sporadic detects of SVOCs and Aroclor-1254 and Aroclor-1280, but no defined pattern and no evidence for a widespread release of organic chemicals from MDA C were found. The extent of current surface inorganic and organic chemical contamination is defined.

NMED Comment: If clean crushed tuff was placed over MDA C in 1984, there should not be any detects of radionuclides, inorganic, or organic chemicals in surface sampling data, especially from 0-6 in. Also, there would not necessarily be a consistent pattern of contaminants in fill or soils from fill. The Permittees must explain why there are detects of metals, radionuclides, SVOCs, Aroclor-1254 and Aroclor-1280 in surface samples that were collected from clean crushed tuff cover. (Submit to NMED within 30 days of receipt of this letter)

Paragraph 4

Permittees' Statement: "During the Phase I RFI, 333 subsurface core samples were screened in the field for alpha and beta/gamma radioactivity, and 67 of these samples were submitted for laboratory analysis of radionuclides. Results of the screening analyses are summarized in Table B-18."

NMED Comment: Table B-18 lists 390 samples and 57 of these samples were not field-screened. This leaves 315 total samples that were field-screened. The Permittees must explain how they determined that 333 samples were field-screened. The Permittees must also explain why there were 57 samples that were not screened at all. This information must be included in a revised Historical Investigation Report (HIR). The revised HIR must be submitted within 180 days of receipt of this letter.

6) Section 2.7.3.2, Data Interpolation and Identification of Investigation Objectives, Nature and Extent of Subsurface Contamination, page 13, paragraph 4:

Permittees' Statement: "Historic records indicate that chemicals were burned in the Chemical Pit, however, and may have formed dioxins and furans. Therefore, dioxins and furans will be added to the analytical suite for subsurface tuff samples to be collected beneath Pit 6 and the Chemical Pit in accordance with this work plan."

NMED Comment: See NMED specific comment #23 letter F, below.

7) Section 3.2.2.2, Groundwater, page 21:

Permittees' Statement: "To date, data obtained indicate that dry mesas such as Mesita del Buey show no evidence of perched aquifers"

NMED Comment: This claim is wholly unsubstantiated. In fact, perched groundwater was encountered under MDA L at 592 feet. (Refer to the letter from LANL to NMED, dated April 7, 1995 titled "Notification of groundwater encountered below Material Disposal Area L"). In addition, the drilling logs in Appendix C indicate "wet" and "moist" zones suggesting the possible existence of perched groundwater.

Based on the recent discovery of perched groundwater at approximately 750 ft at TA-55 the Permittees are required to submit all borings logs associated with CMR replacement to NMED within 30 days of receipt of this letter. Based on review of the borings logs, NMED may require additional investigation pursuant to Section IV.C.3.c.iv of the Order.

8) Section 3.2.2.2, Groundwater, Regional Aquifer, page 22, paragraph 4:

Permittees' Statement: "Estimates of groundwater transport velocity will be evaluated more

accurately using the existing aquifer model (Nylander et al. 2003, 76059), which takes into account the three-dimensionality of the groundwater flow paths, spatial distribution of recharge along the canyons, time-variation of PM-5 pumping rates, medium heterogeneity, etc. To date, such small-scale model analysis for PM-5 has not been performed.”

NMED Comment: Numerically modeled behavior (e.g., Sections 3.2.2 and 3.2.2.2) of contaminants and moisture in the subsurface cannot be verified or reproduced by the NMED, the public, or other stakeholders. More importantly, field data indicating that contaminants have migrated in the subsurface are more reliable than numerical models in determining the nature and extent of contamination. NMED considers such models to be unreliable, unverifiable and therefore irrelevant in this case, and the Permittees should therefore remove such references in the Investigation Report.

9) Section 3.2.2.3, Vadose Zone, page 22, paragraph 2:

Permittees' Statement: “Although welded tuffs also have fractures, they are generally less abundant than in welded tuffs.”

NMED Comment: The Permittees must correct this statement, if it is included in the Investigation Report, to read “Although non-welded tuffs also have fractures, they are generally less abundant than in welded tuffs.”

10) Section 4.0, Scope of Activities, page 23:

NMED Comment: The Permittees shall include a description of all proposed activities related to Investigation-Derived Waste (IDW) management and disposal in accordance with Section IX.A (Standard Operating Procedures) of the Order (See General Comment #2). All IDW shall be contained and characterized in accordance with Section IX.B.2.b.iv of the Order. (Submit to NMED within 30 days of receipt of this letter)

11) Section 4.1, MDA C Investigation Activities, page 23:

NMED Comment: See NMED specific comment #23 for a detailed description of investigation activities.

The final bullet in this section refers to groundwater samples being collected if perched water is encountered. If perched water is encountered in any of the boreholes, a groundwater monitoring well construction plan must be submitted to NMED for approval within 15 days of borehole and sampling completion. Groundwater monitoring wells must be installed in accordance with Section IV.C.3.c.viii of the Order.

12) Section 4.2.1, Number, Locations, and Depth of Boreholes, page 27, paragraph 2:

Permittees' Statement: "The maximum depth at which Phase I radionuclides were detected beneath Pit 6 was 80 ft bgs. The proposed borehole depths of 140 ft to 150 ft (approximately twice the vertical depth of the Phase I RFI boreholes) will be sufficient to establish the vertical extent of contamination beneath Pit 6 with respect to concentrations relative to background or a decreasing concentrations gradient (Appendix G). This approach exceeds the requirements in Section IV.C.3.c.iii, Item 6, of the NMED Order for boreholes to extend 25 ft below the depth of contamination detected in previous investigations."

NMED Comment: The boreholes beneath Pit 6 are angled. Angled boreholes are generally not a preferable method for determining extent of contamination. All boreholes completed beneath Pit 6 (50-09101, 50-09107, 50-09108, 50-09109, 50-09110) have radionuclide detects in the deepest samples (~80-82 ft bgs) obtained in each borehole. The proposed number, depth and angle of the boreholes are not sufficient to determine the extent of contamination beneath Pit 6. (See NMED specific comment #23, letter A for a description of borehole locations). The Permittees shall advance all borings to the depths required in specific comment #23 letter A and Section IV.C.3.c.iii of the Order. NMED does not accept extrapolation of detected contaminant concentrations in this case.

13) Section 4.2.2 Subsurface Vapor Sampling, pages 27-28:

NMED Comment: Two boreholes (50-09100 and 50-10131) have been sampled for pore-gas VOCs. VOC contamination is present at many depths and at the bottom of both of these boreholes. Neither the lateral nor vertical extent of the vapor plume has been determined. The highest TCE contamination was encountered at the bottom of borehole 50-09100 at 316 feet; the maximum concentration of TCE detected in this borehole was always below a depth of 200 feet. The concentrations of TCE and PCE are relatively constant in borehole 50-10131 to 200 feet and are present at detectable levels at the bottom of the borehole at 315 feet. Proposed Borehole M is located near 50-09100. The total depth of 800 feet is likely to be adequate to assess the vertical extent of the contaminant plume in the northeast portion of the site. However, the data collected from borehole M will not be sufficient to determine the vertical extent of contamination for the entire 11.8 acre-site. (See NMED specific comment #23, letter A)

There are no plans to sample the existing pore-gas monitoring boreholes 50-09100 and 50-10131 in conjunction with sampling of the new boreholes. NMED does not believe, and the data do not support a conclusion that the nature of the contaminant plume in the existing boreholes has been defined. The Permittees must sample all ports in boreholes 50-09100 and 50-10131 for VOCs and tritium in accordance with the requirements of the Order, the DOE letter from Everett Beckner to Secretary Curry, dated August 26, 2004, and the scope of activities in accordance with Section IV.C.3.v of the Order.

The Permittees shall clarify the intent to instrument boreholes for monitoring of contaminants in pore gas. It is unclear whether the proposed boreholes will be completed as pore-gas monitoring wells, set up as temporary monitoring points, or left as open boreholes. (See NMED specific comment #23, letters B & C) (Submit to NMED within 30 days of receipt of this letter)

14) Section 4.2.3, Field-Screening, page 29, paragraph 1:

NMED Comment: NMED reminds the Permittees that the units of a photoionization detector (PID) are parts per million (ppm); not parts per million per volume (ppmv), the two are not equivalent. Concentrations reported for vapor phase monitoring are chemical-specific and are calculated using specific chemical information. A PID gives a quantitative indicator of VOCs.

The Permittees also state in this section that use of a PID would be an ineffective field screening method for VOCs. NMED recognizes that detection of VOCs in tuff using a PID is unlikely in this application at any significant distance from the disposal units; therefore, the Permittees must replace field screening of soil samples with collection and field screening of vapor samples at each sampling interval.

15) Section 4.2.4, Analytical Suites, page 30, paragraph 4:

NMED Comment: See NMED specific comment #23, letter F for analytical suite requirements.

16) Section 5.0, Investigation Methods, page 31:

NMED Comment: The Permittees shall describe all methods for conducting the proposed activities during the investigation. The work plan lists the Standard Operating Procedures (SOPs) to be followed during the investigation. The Permittees shall provide descriptions of investigation, sampling, and analytical methods and procedures to be employed in documents submitted to NMED in accordance with Section IX.A, Standard Operating Procedures, of the Order. (Submit to NMED within 30 days of receipt of this letter)

17) Section 5.1.3, Collection of Pore-Gas Samples, page 33:

Permittees' Statement: "Pore-gas samples will be collected using a straddle packer to isolate discrete depths within the borehole. Each interval will be purged prior to sampling until measurements of carbon dioxide and oxygen are stable and representative of subsurface conditions."

NMED Comment: See NMED specific comment #23, letter E, below.

18) Section 5.2.2, Collection of Pore-Gas Samples for Borehole M, page 34:

Permittees' Statement: "The subsurface vapor sample at TD will be collected only if the conditions for purge-gas stabilization according to LANL-ER-SOP-6.31 are met."

NMED Comment: The Permittees shall provide a detailed description of sample collection, preservation, and preparation methods for laboratory analysis for both VOCs and tritium. (Submit to NMED within 30 days of receipt of this letter)

See NMED specific comment # 23, letter E for vapor sampling requirements.

19) Section 6.1, Pore-Gas Sampling, page 36, paragraph 4:

Permittees' Statement: "Before the required sampling is performed, boreholes 50-09100 and 50-10131 are screened with the B&K multigas monitor."

NMED Comment: The Permittees must describe the procedures and limitations of the B&K multigas monitor. (Submit to NMED within 30 days of receipt of this letter). The B & K multigas monitor does not measure total VOCs; therefore, a PID must also be used for field screening of vapor samples.

20) Section 7.0, Schedule, page 37:

NMED Comment: The Permittees must submit the monitoring well construction plan to NMED within 15 days of borehole and sampling completion if perched groundwater is detected.

21) Table 2, Summary of Maximum Depth of Detections for Inorganic Chemicals and Radionuclides in Phase I RFI Boreholes at MDA C, page 68:

NMED Comment: The Permittees must indicate the samples on this table that were analyzed from curated core. The samples from curated core were not analyzed for all constituents and the holding times were exceeded. A footnote shall be added to the bottom of the table reflecting this. (Include in the MDA C Investigation Report)

There is a discrepancy between the tritium value reported in Table 2 for the tuff sample collected from the 112-115-foot depth interval in borehole 50-09108 and the value for the same sample described in the "Response to NOD: TA-50, Part B, Permit Application, Rev.2.0". The value in Table 2 is reported as 1,660 pCi/mL; however, the permit application notes that the tritium concentration for this sample was 1,660,000 pCi/g, which was the maximum tritium concentration measured at site. The Permittees should correct the incorrect document. NMED requests voluntary submittal of the corrected data.

There is no basis for utilizing Fallout Values (FV) for radionuclides at depth.

22) Table 3, Summary of Proposed Borehole Sampling, page 69:

NMED Comment: See NMED specific comment #23, letters B-E for borehole sampling requirements.

23) Table 4, Summary of Proposed Alternatives to NMED Order Specifications and Justifications for Alternatives, pages 71-74:

NMED Comment: Table 4, Summary of Proposed Alternatives to NMED Order Specifications and Justifications for Alternatives, did not provide adequate justifications for alternatives to the work required in the Order, with the exception of specific borehole locations. The Permittees stated in a letter dated December 23, 2004 and received on January 7, 2005, that boreholes could not be drilled between Pits 1-4 based on their AB review. While NMED does not question the AB review, NMED rejects the Permittees' unsubstantiated statement that the "proposed and Phase I boreholes are sufficient to meet objectives" (Work Plan, Table 4 Item 1). Also, Section 4.2.1 of the work plan states the Permittees' opinion on what data will be acquired from each boring but does not explain why the proposed locations are more appropriate than the required locations.

The Permittees' proposed and Phase 1 boreholes are not sufficient to meet the aforementioned objectives at MDA C. Angled boreholes will not provide adequate information regarding vertical contamination beneath the pits. The highest levels of contamination will most likely be from the base of each pit to at least approximately 20-ft below that depth. Angled boreholes will not be able to reach this critical zone because the borehole must begin a significant distance from the edge of the pit so that the augers do not penetrate the pit while drilling at a 45° angle. The starting distance from the edge of the pit combined with a 45° drilling angle forces the borehole to pass beneath the probable zone of highest contamination. Therefore, vertical extent cannot be defined and characterization data will not be comprehensive.

Therefore, the Permittees must complete work at MDA C in accordance with NMED's requirements and specifications as follows:

A) Borehole Locations: 33 boreholes total: 4 horizontal borings advanced beneath Pits 1-4 either beneath the long axes of the pits or at 150 ft intervals perpendicular to the long axes of the pits; the horizontal borings must be drilled at depths of approximately 30 feet bgs, this will correspond to ~ 5 ft below the estimated depth of the Pits; 28 vertical borings to 25 ft below the deepest detected contamination in accordance with Section IV.C.3.c.iii of the Order; one boring advanced to approximately 800 feet bgs to evaluate for the presence of vapor-phase contamination and intermediate perched groundwater. (See attached map for vertical borehole locations)

The boreholes must be drilled within 10 ft of the nearest known location/feature and as close to the proposed location as possible. If access to a location is impossible because of the presence of utilities or structures, or other obstacles, arrangements must be made to drill as close as possible to the proposed location. See attached map for vertical boring locations (based on Figure 3 of the work plan).

The 4 horizontal boreholes proposed by NMED beneath Pits 1-4 are intended to characterize both liquid and vapor phase releases of contaminants from the pits given that boreholes cannot be drilled between waste disposal Pits 1-4. The 28 vertical boreholes advanced to depths required in the Order, and the requirements in letters B-F below, are intended to ascertain the lateral and vertical extent of contamination, characterize the nature of contamination, determine if contaminant migration has occurred, and provide a 3-dimensional view of the contamination plume beneath MDA C.

The size of the site alone warrants more than 14 boreholes to characterize contamination and define extent. The combined width of Pits 1-4 is approximately 200-ft. The length of these pits is approximately 550 ft-600 ft. Pit 5 is approximately 600 ft long and 100 ft wide. Pit 6 is approximately 550 ft long and 100 ft wide. As a reminder, Section IV.C.3.c.iii of the Order requires that boreholes be advanced directly adjacent to the down-slope end of each pit, at the lowest base elevation point of each disposal pit, at the corners of each disposal pit, at 100-ft intervals along the sides of disposal pits 1-6, at 70-ft intervals along the sides of the chemical pit, at the ends of each shaft row, at 50-ft intervals along each shaft row, and adjacent to the locations of the strontium-90 disposal shaft. NMED estimates that this could be as many as 50 boreholes. However, data provided by the Permittees suggests that 33 borings in the locations shown on the attached map may be adequate.

B) Sampling Intervals: Samples of both soils/tuff and subsurface air must be collected every 10' for the first 60 ft of drilling bgs, then at 20 ft intervals to depths of 200 bgs and 30 foot intervals to total depth (TD). Samples must be obtained from the TD of each borehole. Samples from the intervals identified in Section IV.C.3.c.iv of the Order must be submitted for laboratory analysis.

C) Sampling Methods: Collect vapor samples from selected intervals in SUMMA canisters for laboratory analysis of VOCs using EPA Method TO-15 or equivalent method and determine percent moisture. Sample selection must be based on the vapor field screening results, or other evidence of potential contamination (e.g. presence of surge beds).

D) Field Screening: Field screening of soil/tuff samples must be conducted at each sample interval to TD. Field screening for vapor phase VOCs and tritium also must be completed at the same intervals. NMED understands that the Permittees will voluntarily field screen for radionuclides in accordance with the DOE letter from Everet Beckner, to NMED Secretary Ron Curry, dated August 26, 2004. Samples obtained at depths less than 60 ft bgs that are submitted for laboratory analysis must be field-tested for HE. If the Permittees can demonstrate that HE is

not present beneath the pits at depths less than 60 ft, NMED will not require the Permittees to analyze samples collected at deeper intervals for HE.

E) Subsurface Vapor-Phase Monitoring Methods: For VOC field screening, the Permittees must isolate the base of the boreholes at each sampling interval and purge the subsurface air in sufficient quantities to ensure that formation air is sampled. The Permittees must use a PID equipped with an 11.7 eV lamp for VOC screening and also measure percent carbon dioxide and oxygen. NMED understands that the Permittees will collect vapor samples from each interval using silica gel cartridges in series for analysis of tritium using EPA Method 114 (NESHAP Part 61, Appendix B) or equivalent method.

The proposed deep borehole, identified as borehole M in the work plan, was estimated to reach approximately 400 ft with hollow-stem auger drilling methods. Due to the subsurface conditions, air rotary drilling would be employed once auger drilling is no longer practicable. The Permittees must use appropriate methods to ensure that quality subsurface air samples are obtained to the TD of each borehole, if air rotary drilling methods are employed. The Permittees must ensure the boreholes are left open and contamination migration between zones does not occur. In accordance with Section IV.C.3.c.v of the Order, the Permittees must submit a long-term subsurface vapor monitoring and sampling work plan to NMED for approval after the investigation results have been reported to NMED.

F) Analytical Suite: The Permittees did not provide an adequate explanation as to why a full analytical suite would not be analyzed on subsurface samples. A full analytical suite (SVOCs, pH, HE, PCBs, dioxins, furans, nitrates, perchlorate, TAL metals, and cyanide) must be performed on all soil and tuff samples submitted for laboratory analysis. NMED agrees with the Permittees that pore gas analysis for VOCs can be used in lieu of laboratory analysis.

24) Table 5, Comparison of Borehole Locations Specified in November 26, 2002 NMED Order and Existing and Proposed Boreholes, pages 75-78:

NMED Comment: See NMED specific comment # 23, letter A, below.

25) Appendix B: Historical Investigation Report, page B-1:

NMED Comment: Sections B-2.0, B-3.0, and B-4.0 of the Historical Investigation Report are confusing and repetitive. In the future, the Permittees shall combine the text in these 3 sections and the text in Appendix D to provide efficient summaries of the activities, results, and data interpretation for each type of historical investigation that was conducted. For example, the work plan describes the subsurface investigation in one section, reviews the data from the investigation in another section, interprets the data in another section, and analyzes the data in a separate appendix. Combining all of the information about each type of investigation into one comprehensive and complete section will make the document easier to read and understand.

26) Section B-1.1.1: MDA C Disposal Pit Inventory, page B-2:

NMED Comment: The RFI Work Plan for OU 1147 notes that mercury was disposed in Pit 5, but it is not listed as a constituent in the description of Pit 5 in this section. The Permittees must explain this discrepancy. (Submit to NMED within 30 days of receipt of this letter)

27) Section B-2.3, Subsurface Investigations, page B-12, paragraph 1:

Permittees' Statement: "Field screening results were not used to select samples because gross alpha, beta, or gamma activity in the core did not exceed local background levels. Results of core sample field screening using the PID showed no VOCs in the core at concentrations exceeding readings in ambient air (Table B-18). A review of sample collection log results of core samples screened with field spot-test kits indicated no high explosives (HE) detections in any of the 5-ft intervals of core collected at MDA C (Table B-18)."

NMED Comment: While field screening may not have been used to select samples, the borehole log for 50-09107 reported a field tritium screening level of 49,964 pCi/L at 55 feet. This sample appears to exceed background levels.

This section also notes that core samples were field tested for HE and VOCs. These results are not noted on the borehole logs nor are they included in the data submitted with the work plan. The Permittees shall provide all available screening and analytical data in the revised MDA C HIR. (The revised HIR must be submitted within 180 days of receipt of this letter.)

28) Figures and Tables in the Historical Investigation Report:

NMED Comment: Some of the historical data is not usable. NMED requires the background information and data to determine the amount of further data collection that is needed to complete the investigation of the site. Tables include some data and sample identification numbers but no corresponding figure with the corresponding identification numbers, making the data meaningless. The Permittees shall present the detections of contaminants encountered during previous investigations in table format, with accompanying figures showing identifiable sample locations. Examples of this are Figure B-3 (Phase I RFI surface sample locations at MDA C-1995) and Figure B-6 (Locations of tritium probe and biota samples (submitted to ARS) collected in 2003 at MDA C). Figure B-3 ID numbers must correlate with the ID numbers and data in Tables B-10, B-12, and B-14. Figure B-6 ID numbers must correlate with the ID numbers and data in Tables B-7 and B-8. (This information must be included in a revised HIR. The revised HIR must be submitted within 180 days of receipt of this letter.)

29) Figure B-7: Overlay of 2001/2002 geophysical surveys versus 1974 LASL engineering drawing to identify pit and shaft locations, page B-30:

NMED Comment: The locations of the boundaries are not revised for the Chemical Pit and Pit 6 on this figure. It appears from Figure B-6 that the 2001 Geophysical Survey encompassed the entire MDA C site. The Permittees shall include revised boundaries on Figure B-7 for the western portion of the site.

All figures in the Investigation Report must be based on the revised pit boundary locations as determined by the geophysical survey results. (Include in the MDA C Investigation Report)

30) Table B-4: Summary of Work Plan Specifications, Actual Fieldwork, and Rationale for Deviations:

The table does not state that the RFI Work Plan for OU 1147 borehole depths will be determined by the depths of contaminant plumes. The plan states that the boreholes will be advanced to two 5-ft sample intervals below detection (by field laboratory analysis) of contaminants. According to the borehole logs in Appendix C, the MRAL (Mobile Radiological Analysis Laboratory) detected tritium at the bottom interval of several of the boreholes drilled. However, the borings were not advanced past these detections. See NMED specific comment #23, letters A-E for a detailed scope of activities.

31) Appendix C: Borehole Logs:

NMED Comment: The Permittees shall provide a log for borehole 50-10131. NMED notes that borehole 50-10131 and borehole 50-09108 are the same; however, 50-10131 was advanced to a greater depth (315 feet total depth in 50-10131 versus 120 feet total depth in 50-09108). (Must be submitted to NMED within 30 days of receipt of this letter)

32) Appendix D: Statistical Analysis of Chemical Analytical Data from Material Disposal Area C:

NMED Comment: In the future the Permittees shall incorporate the information in this appendix into Appendix B. (See NMED specific comment #25)

33) Section D-3.2.1: Inorganic Chemicals, page D-5, paragraph 5:

Permittees' Statement: "As shown in the box plots, cyanide and mercury do not have a background data set for Qbt 2 and Qbt 3. Therefore, further statistical tests were run to identify whether or not any inorganic chemicals were elevated above background in the tuff. Cyanide and mercury data will be reviewed later in this section using other methods."

NMED Comment: These two constituents are not discussed again in this section. The Permittees shall provide a discussion of the cyanide and mercury data in the revised MDA C HIR. (The revised HIR must be submitted within 180 days of receipt of this letter.)

34) Figures D-25 and D-26: Pore-Gas data for tetrachloroethene and trichloroethene in borehole 50-10131, page D-32:

NMED Comment: The Permittees shall revise these figures to show the results from the samples collected from 315 feet in borehole 50-10131. PCE and TCE, as well as other constituents, were detected at 315 feet. (Submit to NMED within 30 days of receipt of this letter)

35) Appendix F, Investigation Derived Waste Management, page F-1:

Permittees' Statement: "Consistent with the US Environmental Protection Agency (EPA) "area of contamination" policy, environmental media are not considered to be waste (and, hence, not IDW) if they are returned to their point of origin. IDW generated during the investigation of MDA C will be managed to protect human health and the environment, comply with applicable regulatory requirements, and adhere to the Laboratory waste minimization goals."

NMED Comment: NMED does not approve the Permittees' plan for handling Investigation Derived Waste (IDW). Specifically, the Permittees may not return drill cuttings, decontamination water, Personal Protective Equipment (PPE), or other IDW to their point of origin. Rather, the Permittees must contain all IDW, and characterize it to ensure proper handling, including but not limited to, final disposal in accordance with Section IX.B.2.b.iv of the Order.

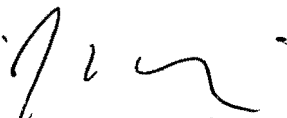
In their description of the methods and procedures used to characterize and manage all IDW, the Permittees may not substitute a reference to their SOPs for a description of its procedures (See General Comment #2).

Drill cuttings, purge and decontamination water, PPE, and all other IDW must be containerized and characterized prior to disposal. Each container of waste generated must be properly labeled immediately following containerization. All IDW must be sampled and analyzed for contaminants that are suspected or detected prior to or during investigation activities. All suspected radioactively contaminated waste/material should be sampled or surveyed for radionuclides. All IDW must be disposed of properly at an appropriate disposal facility. The methods used to store, control, and transport each waste type and classification must be included in the investigation report. (Also see NMED specific comment #10)

Messrs. Gregory and Nar
March 22, 2005
Page 15

Should you have any questions, please contact Kathryn Chamberlain at (505) 428-2546.

Sincerely,



James P. Bearzi
Chief
Hazardous Waste Bureau

JPB:kc

cc: K. Chamberlain, NMED HWB
D. Cobrain, NMED HWB
D. Pepe, NMED DOE OB
S. Yanicak, NMED DOE OB, MS J993
L. King, EPA 6PD-N
J. Ordaz, DOE LASO, MS A316
K. Hargis, LANL RRES/DO, MS M591
N. Quintana, LANL RRES-RS, MS M992
D. McInroy, LANL RRES-RS, MS M992
file: Reading and LANL TA-50, '05

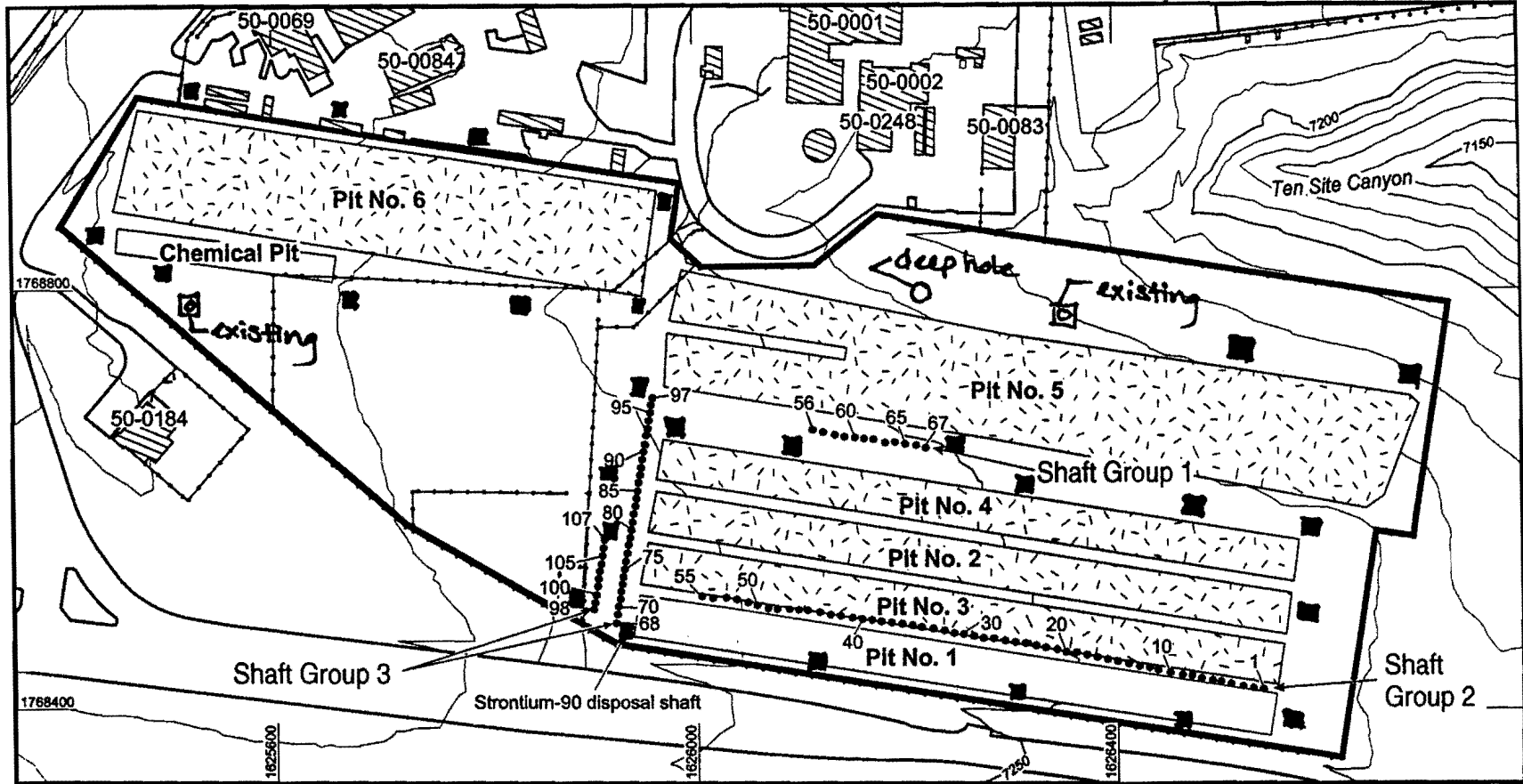


Figure 3. Locations of pits and shafts at MDA C

■ - NMED Vertical Borehole Locations