



GARY E. JOHNSON
GOVERNOR

State of New Mexico
ENVIRONMENT DEPARTMENT
Hazardous & Radioactive Materials Bureau
2044 Galisteo
P.O. Box 26110
Santa Fe, New Mexico 87502
(505) 827-1557
Fax (505) 827-1544



MARK E. WEIDLER
SECRETARY

EDGAR T. THORNTON, III
DEPUTY SECRETARY

**CERTIFIED MAIL
RETURN RECEIPT REQUESTED**

July 1, 1996

Mr. Michael J. Zamorski
Acting Area Manager
Kirtland Area Office
US Department of Energy
P.O. Box 5400
Albuquerque, New Mexico 87185-5400

SS

RE: Notice of Deficiency: RCRA Facility Investigation Work Plan
for OU-1332, Foothills Test Area, Sandia National Laboratories

Dear Mr. Zamorski:

Staff have completed review of the RCRA Facility Investigation Work Plan for OU-1332, Foothills Test Area, Sandia National Laboratories. Several deficiencies in the Work Plan were noted. These deficiencies are addressed in an enclosure (Attachment I) which contains technical comments on the Work Plan. These comments incorporate NMED determination on comments by the New Mexico Environment Department DOE Oversight Bureau, your responses to the November 2, 1995 comments of the US Environmental Protection Agency (EPA), and EPA's additional comments of March 25, 1996. Attachment II, which contains comments which may pertain to other submittals as well, is also enclosed.

Please submit final changes to the Work Plan in response to these comments within 30 days of receipt of this letter. These changes should be provided on replacement pages to the Work Plan.

Please contact Stephanie Kruse at 827-1561 or Bob Sweeney at 827-1558 if you have any questions or comments.

Sincerely,

Benito J. Garcia, Chief

Hazardous and Radioactive Materials Bureau

SNL 1031



Mr. Michael J. Zamorski
July 1, 1996
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Enclosures

xc: Bob Sweeney, NMED/HRMB
Neil Weber, NMED/DOE-OB
Ron Kern, NMED/DOE-OB
John Gould, DOE
Rarilee Conway, DOE
David Neleigh, EPA
SNL - HSWA file

ATTACHMENT I

NEW MEXICO ENVIRONMENT DEPARTMENT (NMED)
TECHNICAL COMMENTS

SANDIA NATIONAL LABORATORIES (SNL/NM)
APRIL 1995 RCRA FACILITY INVESTIGATION WORK PLAN
FOR OPERABLE UNIT 1332, Foothills Test Area

ITEM

GENERAL COMMENTS

1. Non-hazardous materials, debris and remnants of structures exist at each of the sites. (See attached Table 1, which lists miscellaneous non-hazardous materials at 23 locations.) Please discuss in the work plan the disposition of these materials.
2. Field screening techniques should not be used exclusively in selecting sample locations for laboratory analysis. Although field screening may be used to guide an investigation, site characterization should be based on laboratory analytical data. Field screening should not be used to direct sampling for constituents that may not be co-located. Instead a representative set of samples will need to be collected and analyzed following Level III protocols. The samples should be analyzed for the specific Contaminants of Concern (COCs) identified at each site: metals, VOCs, SVOCs, and PCBs. Gross α , gross β , and gamma radiation should be analyzed in the laboratory using a low background proportional counter, and radionuclides evaluated by laboratory gamma spectrometry.

SPECIFIC COMMENTS

EXECUTIVE SUMMARY

3. **Page i, Paragraph 3, "One of the SWMU ER sites (ER Site 28-Mine Shafts) is proposed for administrative no further action (NFA). Five of the SWMUs (ER Sites 15, 19, 27, 66, and 67) are proposed for administrative NFA based on confirmatory sampling."**
Please explain what is meant by the term "administrative" as

used here in reference to No Further Action proposals. ER Site 28, Mine Shafts, is being proposed for NFA after a minimum of sampling (according to the NFA proposal, two samples were collected for gamma spectroscopy analysis). The other five sites are being proposed for administrative NFA, also after sampling. In none of these cases, is NFA being proposed for strictly "administrative" reasons. The term should be dropped, unless there is a justifiable reason for using it. Cross reference this section to Section 4.1.3.1 "SWMUs Proposed for NFA." It appears that the requirements for (and definition of) an administrative NFA is the three criteria listed in this section. This should be explicitly stated.

4. Page iii, Paragraph 3, "Level I/II on-site field-screening or on-site laboratory analyses of samples will be conducted to assist in the selection of critical samples for laboratory analyses. An off-site analytical laboratory facility will provide Level III/IV data for use in baseline risk assessment."

On-site field-screening or on-site laboratory analyzed samples should not be used solely to support critical future site RFI action decisions. Critical samples for Level III/IV data are required for supporting decisions as to the adequate level of characterization of the site, proposals for no further action (NFA), or the need for further investigation within the guidelines of the RFI. If analyses are performed by an on-site laboratory, a minimum of 20% of the total analyses performed must be confirmed by a fixed off-site laboratory following EPA Contract Lab Protocols in order to support these critical decisions.

Section 3.0

5. Page 3-3, Table 3-1 Summary of Environmental Setting of OU 1332 ER Sites, and Page 3-11, 3.6.1, Ground-Water Hydrology, Paragraphs 1 and 2

Columns need to be added to this table showing the following: (1) distance to nearest monitoring well or spring, (2) elevation (ft. above M.S.L.) of the water table or piezometric surface at the nearest monitoring well or spring, and (3) the date of the referenced water level measurement. In addition, add rows to include wells listed on Page 3-11, Paragraph 2, Sentence 1, that provide information on the ground-water conditions at OU 1332. An additional table is required to show all the well and spring data on water table elevations, screened intervals, dates of measurements, etc.

6. **Page 3-11, 3.6.1 Ground-Water Hydrology, Paragraph 2; "In 1994, the SWHCP will install wells..."**
It is not clear whether the referenced wells are on Target Road North and Target Road South. If so, they should be shown on Figure 3-3 and in Table 3-1. See comment five.

Section 4.0

7. **Pages 4-4 and 4-5, Section 4.1.3.1 SWMUs Proposed for NFA and Table 4-1.**
Site 28 is proposed for an "administrative" NFA. NMED, however, has concern about some potentially contaminated material in Mine Shaft 28-2. To support an NFA proposal, confirmatory samples and a surface radiation survey should be conducted in the areas inside the mine where this material occurs.

Section 5.0

8. **Page 5-2, 5.1.2 Voluntary Corrective Measures, Table 5-1**
No explanation is included for the 60% survey coverage for surface radiation at Site 87. Please include an explanation in this section as to why less than two-thirds of this site was surveyed.
9. **Page 5-2, 5.1.3 Contingency Sampling**
Both here and in Chapter 4 the Work Plan should outline the decision logic and procedures that will be used to decide whether groundwater monitoring will be required at OU 1332 ER Sites (i.e., sites with low precipitation/infiltration or other physical features that would indicate the likelihood of groundwater contamination to be very low).
10. **Page 5-8, Figure 5-1d, "Arroyo Sediment Sample Locations"; Page 5-19, Figure 5-4, Decision Logic for Sampling Activities at ER Site 8 "Arroyo Channel Sediment"; Page 5-20, 5.2.6.2 Intrusive Sampling, Arroyo Channel Sediment.**
Sediment sample locations, within the main arroyo down gradient of debris pile Y, should begin at the southern edge of the debris pile instead of 300 ft downstream of the pile. In addition, the local main arroyo flows past the debris area approximately 100 feet to the west. If COCs are mobilized from the pile, they would likely follow the smaller drainages that emanate directly from the debris pile before flowing into the main arroyo. For these reasons grab samples in addition to those taken in the main arroyo should be collected between the debris pile and the main arroyo. These additional grab samples should be collected from the sediment in the bottom of the smaller drainage features. Please add this language to the work plan.

11. **Page 5-17, 5.2.5, Voluntary Corrective Measures and Page 5-22 Area of Open Burning.**
Clarify if the VCM will include removal of material at the area of open burning (Features PP and RR), or if soil samples will be taken from beneath the burn piles to assess potential leaching of COCs into the soil. See General Comment 2. Laboratory analytical samples should be taken in addition to field screening samples. Additionally, the features PP & RR are found on Figure 5-1d, not Figure 5-1b as stated in this section.

ER Site 58

12. **Page 5-27, Table 5-4 Site features at ER Site 58.**
Clarify what will be done with features not covered in the work plan. See General Comment 1 and attached Table 1 of this review.

Because of limited background information concerning the nature and use of the borehole, Feature OO, SNL/NM must propose a plan to sample the bottom of the open borehole prior to its abandonment. The borehole should then be plugged appropriately to prevent its serving as a conduit for the flow of fluids.

13. **General Comment for Section 5.3 ER Site 58.**

The work plan must include a location map and description of building 9805, the former HE assembly building for ER Site 58 activities. Refer to Proposals for No Further Action, August 1995, ER Site 92, Page 2-3, Figure 2-1, "1/32-Scale-Model Pressure Vessel (on former foundation for Building 9805-assigned to ER Site 58)," Page 24, Figure 2-2a, and Page 2-6, Paragraph 1 for examples of suitable map and description.

NMED has been informed by DOE OB staff that during a site visit on December 20, 1995, the foundation of Building 9805 was found to contain an open floor drain. NMED requests SNL to sample the floor drain sump and/or septic system and analyze the material for HE, barium, nitrate, and SVOCs.

14. **General Comment for Section 5.3 ER Site 58.** SNL/NM must provide information regarding the ownership and use of the above ground tank northeast of Features D and W (Figure 5-1b). NMED is concerned this may be a new tank and still in use.

Subgroup 1: Tests with Cased Explosives Detonated at Ground Level

15. **Page 5-33, Paragraph 6; Feature F former shot tank location.**
When was the shot tank removed and by whom?
16. **Page 5-37, Paragraph 3; "The conclusion that SNL/NM does not need to sample for HE at sites... will be validated at ER Sites 58 and 66 in OU 1332."**
The work plan must outline an explosives residue sampling plan for Subgroup 1, if the hypothesis proposed by the above statement is not confirmed by data collected at Site 58, Subgroup 2 and 3, and 66. In addition, Table 5-7 must incorporate this change.

Subgroup 2: Burn Test

17. **Page 5-49, Paragraph 2; "The missile trap structure observed in historical aerial photographs is no longer present." and Paragraph 4 "Waste Disposal and Cleanup Practices"** Please provide the missile trap removal date. This could be determined or estimated from aerial photos.
18. **Page 5-54, 5.3.5.4.1 Objectives and Technical Approach, "Judgmental samples..."**
In addition to the random sampling, samples should also be taken where staining, discoloration or elevated radioactivity ($>1.3 \times$ Background) is detected. The samples should be analyzed for constituents in accordance with the same logic as followed for the random samples. If elevated radiological readings trigger a sample to be taken, then it should be analyzed not only for radioactive isotopes, but also metals, HE, VOCs, and SVOCs.
19. **Page 5-54, Burn Tests, Paragraph 2, Table 5-9; "Soil borings will be collected at the center of each burn pit..."**
Due to the size of Feature B, the investigation of this pit must include 4 soil borings with samples collected as described in the work plan. Borehole samples at all burn test locations should be analyzed in the laboratory for gross α , gross β , and gamma radiation using a low background proportional counter, and radionuclides evaluated by laboratory gamma spectrometry.
20. **Page 5-59, Missile Trap (Feature I) Pallets; "One soil sample will be taken from under each pallet at a depth of 0 to 6 in."**
Samples must be screened for radiological contamination and additional sampling conducted wherever elevated readings ($>1.3 \times$ Background) are found.

Subgroup 4: Tests with Uncased Explosives Detonated Above Ground Level

21. **Page 5-75, Paragraph 3; "The conclusion that SNL/NM does not need to sample for HE at sites...will be validated at ER Sites 58 and 66 in OU 1332."**
The work plan must provide an explosives residue sampling plan for Subgroup 4, if the hypothesis proposed in the statement above is not confirmed by data collected at Site 58, Subgroup 2 and 3, and 66. In addition, Table 5-7 must incorporate this change.

Subgroup 5: HALO Bunker Tests

22. **Page 5-78, 5.3.8.3 Conceptual Model, Paragraph 2; "The conclusion that SNL/NM does not need to sample for HE at sites...will be validated at ER Sites 58 and 66 in OU 1332."**
The work plan must provide an explosives residue sampling plan for Subgroup 5, if the hypothesis proposed in the statement above is not confirmed by data collected at Site 58, Subgroup 2 and 3, and 66. In addition, Table 5-7 must incorporate this change.

SUBGROUP 6: Underground Conduit System

23. **Page 5-85, Section 5.3.9.1 Description and History;**
The underground conduit, described as starting at the control bunker and labeled as Feature W, is on Figure 5-1b, not Figure 5-1d. Please correct the sentence.

ER Site 82, Old Aerial Cable Site

24. **Page 5-112, Paragraph 2; RUST Geotech, Inc. surface gamma radiation survey;**
The fourth anomaly detected in the January 1994 survey, thought to be due to finely dispersed radioactive contamination, is only referred to as being located in an arroyo. Please identify the location of this arroyo and show it on Figure 5-22. If the location of this anomalously high radioactivity can be accurately located, then it must be added to the list of sample locations (text and Table 5-21 on page 5-124). Three additional grab surface samples must be taken from 0-6 in. and analyzed for radiological and metal contaminants.

Table 1
Site Features at ER Site 58

Feature Location	Description
A	Three data transmission cables sticking out of the ground between two I-beams
C	Pit lined with 18 in. concrete blocks bolted together with metal plates. Soil is mounded to the top of blocks exterior, interior filled with dirt and tumbleweeds built to protect instrumentation during the Greenhouse tests.
D	Underground bunker, opening to the west (building 9800).
K	Concrete pad with a structure constructed out of 18-in. concrete blocks bolted together with metal plates. In the center of the structure is a metal room containing control/breaker boxes and a work bench.
M	Small dirt mound.
N	Concrete pad with metal square brackets bolted perpendicularly to the pad. An opening is located in the center of the pad that may be a wiring/instrumentation box.
N2	Concrete pad like N above with the same metal mounting areas but with no metal brackets installed.
P	Two concrete blocks of the type used for the force-on-structure test.
V	Trailer shelter with a sod-covered roof and wooden walls on the south and east. The shelter is open to the north and west.
W	Concrete firing bunker with a viewing slit in the south wall and metal armor on top (building 9801).
DD	Concrete corrugated sheeting debris (possibly containing asbestos).
EE	Six square concrete blocks.
GG	Two degraded concrete chunks.
HH	circuit box and end of buried electrical cable.
II	Electrical terminal board
JJ	A stack of approximately ten telephone poles.
KK	firing cable strung down arroyo

Table 1
Site Features at ER Site 58

Feature Location	Description
LL	Large scrap of rusted metal plate.
MM	Electronic components.
NN	Degraded Battery.
OO	Open borehole.
QQ	Rusted Metal Sheet.
Bldg. 9805	Concrete foundation of former Building 9805 not shown on map.

ATTACHMENT II
GENERAL COMMENTS
OU-1332 RCRA FACILITY INVESTIGATION WORK PLAN

1. Both Work Plan Appendix A, **Cultural Resources Survey Methodology for OU 1332 ER Sites**, and Work Plan Appendix B, **Sensitive Species Survey Methodology for OU 1332 ER Sites**, state that results are not presented because they are too sensitive to include in a public document. This material should be marked "Confidential" and provided to the Hazardous and Radioactive Materials Bureau.
2. The discussions of protection of human health and the environment in the text focus entirely on human health. These discussions should be expanded, as appropriate, to include the environment. Standards to protect the environment may be more stringent than human health standards.

The approach to protection of the environment should go beyond compilation of a list of sensitive species. EPA, in conjunction with both Los Alamos National Laboratory and Sandia National Laboratories, is developing an approach to environmental protection which looks at the whole food web for an area. This approach is important for SNL, especially in the more remote test areas such as OU-1332. Please discuss ecorisk in the text.

3. In Work Plan Appendix G, **SNL/NM Calculation of Hazard Indices and Risks from HE Detonation Test Soil Concentration Data Reported in U.S. Army Armament, Munitions, and Chemical Command Study (AAMCC January 1992)**, it is not clear what future land use scenario will be used. This should be clearly stated. Anything less than a residential land use should be discussed and justified, and will require a deed restriction.