DOE F 1325.8

United States Government

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Department of Energy

memorandum

ER/1289 0716/REV/A

DATE: MAR 8 1991

REPLY TO ATTN OF: A. John Ahlquist (EM-452)

SUBJECT: Review Comments for "Report of the Phase 1 RCRA Facility Investigation of the Mixed Waste Landfill" - SNLA

TO: Albert R. Chernoff, MSD, AL

The DOE-HQ Southwestern Area, On-Site Remediation Branch has completed review of the subject document and attached are the review comments. If you have any questions, please contact me on FTS 233-8184.

A. John Ahlquist
Chief
On-Site Remediation Branch
Division of Southwestern Area Programs
Office of Environmental Restoration

cc: Rich Sena, ERPO, AC
J. Garcia, ERPO, AC

Bob Knowlton

Comments on Phase 1 RCRA Facility Investigation of the Mixed Waste Landfill

Pg 3-8 Para 3
It seems strange that you had so much trouble driving water off from the silica gel. Recommend you contact the Environmental Surveillance Group (HSE-8) at LANL. If my recollection is correct, they routinely heat silica gel from environmental tritium air samplers at Los Alamos, without the problems you describe.

Pg 3-9 Para 6, Lines 4 & 5
It would appear from Figure 3-3 that samples from grids H4 and H5 could have been taken unless the fill from the trench was piled there. Also if J5 and L5 were inaccessible, why were I5, K5 and M5 not inaccessible?

Pg 3-11 Para 3
How were the number and location of soil borings/subsurface samples defined? Were RCRA guidance documents used for this determination?

Pg 3-11 Para 3, Line 7
I expect the word "and" after the acronym RFI is a typo

Pgs 3-15 through 32
Were PID readings taken at each drilling or only on those drillings that mentioned PID results. If there were readings on all drillings why weren't the results discussed?

Pgs 3-15
Suggest this information be included in Appendix A

Pg 3-20 Para 2, Line 2
Line discusses a work plan. If this is listed in the References, identify it.

Pg 3-22 Para 2, Line 2
Suggest you include the word "from" after the word "removed" and make the sentence read as follows "samples were removed from the sampler and the ends screened for organic..."

Pg 3-23 Para 3, Line 7 also Pg 5-22
HNu is really HNU

DOE F 1325.7 (8-83)

Exception to SF 14, Approved by NARS, June 1978

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Mark Stahr

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8. DATE 3/7/91

9. TO
1. Rich Sena, ALO
2. George Laskar, ALO
Fax FTS 845-6714

3. John Andrews, KAO
Fax FTS 845-6867

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TO:	INITIALS	DATE
1. Leah Dever, EH-221, 3G-092	[signature]	3-7
2. Rich Sena, ALO		
3. cc: John Andrews, KAO		
4. John Sands, EM-45		

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	COMMENT		FOR YOUR INFORMATION		SIGNATURE

REMARKS

Phase 1 RCRA Facility Investigation (RFI) for the Mixed Waste Landfill, Sandia National Laboratories, Albuquerque

Attached are EH-221 comments on the SNLA Mixed Waste Landfill RFI, Phase 1. If you have any questions, please give me a call.

FROM: MTS Mark T. Stahr, EH-221

ROOM # - BLDG.
3G-092, Forrestal
PHONE #
FTS 896-7879

GENERAL COMMENTS

This phase 1 RFI presents preliminary information characterizing the RCRA Corrective Action status of the Mixed Waste Landfill (MWL) at Sandia National Laboratories (SNL) in Albuquerque, New Mexico. The data presented consist of air, surface soil and subsurface soil measurements of radionuclides and subsurface soil measurements only of volatile and semi-volatile chemicals, and metals. Although this report follows closely the workplan, a major issue with both documents is that they do not place this work in the context of the complete RFI. Although EPA guidance clearly indicates a phased approach is necessary for many of the complex issues present at RCRA Corrective Action sites, the Work Plan is supposed present the complete scope of the investigation. Some of the comments are based on not knowing the full scope.

Three deficiencies which were identified include: 1) that the soil sampling thus far performed is inadequate to determine whether contamination has migrated under the capped portions of the site despite indications that such migration is possible, 2) that there is no information on depth to groundwater, groundwater flow direction, or groundwater data, and 3) although beryllium and lead were detected in the subsurface soils at concentrations 3 (Be) to 100 (Pb) times background, there are no water, air or surface soil measurements of these metals which allow exposure to them to be assessed. These deficiencies are discussed in more detail below.

Specific comments:

Page 2-1 The information on precipitation should be made more specific to the landfill site. Based on the information given on page 2-1 and on the contour information present in Figure 2-1, reviewers could conclude that it is likely to be between 8 and 10 inches, but that conclusion (if it is correct) should be stated in the report.

Page 2-8 The statement "In 1969, results from 10 soil cores sampled to depths of 25 to 50 feet at 5 locations around the perimeter of the MWL indicated that there was no radionuclide migration from the site." needs to be modified (e.g., change "...indicated that there was no..." to "detected no..."). Such an investigation alone is not sufficient to justify the conclusion. With only perimeter soil samples one would also have to have groundwater information showing no trace of radionuclide contamination down gradient from the site in order to ensure that the subsurface sampling had not missed a cone of contamination within the perimeter which had reached

groundwater and migrated off site below the 50 foot vertical depth of the deepest angled sample (See attached figures).

Page 3-1 Section 3.1, Review of the Scope of Work: The information presented in this report does not fully "determine if contamination has migrated from the landfill..." or fully "characterize the nature and probable extent of any contaminants." Information on precipitation, depth to groundwater, groundwater contours and groundwater sampling data would be a prerequisite to completely performing such a determination. This statement should be modified to indicate that only contamination through air and unsaturated soil were examined. Furthermore, conclusions/assumptions such as air, surface and subsurface soils being "the major migratory pathways of contaminant flow" need either to be fully documented and justified, or placed in the context that additional analysis will take place in Phase 2.

Page 3-19 Please check the information on SB-17. Should it not be 45oW? The given direction, "N5oW", would not lead the borehole under trench D.

Page 5-14 Please explain why "Only subsurface soil samples... were submitted for analyses for volatile organic compounds and semi-volatile organic compounds." Similar explanation is probably needed to explain why subsurface soils were examined only for metals. For the metals, in particular, the lack of surface soil data could have important implications for the exposure assessment.

Page 5-15 Appendix E is mentioned, but was not included in the RFI. Only Appendices A and B are present.

Page 5-18 Tables 5-8a to 5-11 Listing only the concentration range does not give a complete picture. Statistics on background sampling would be helpful, similar to Table 5-5 (page 5-10). The number of samples analyzed to result in the ranges given should be indicated, preferably as the fraction (no. positive/no. analyzed).

Page 6-3 Section 6.2 Conclusions: Although tritium may be the primary contaminant of concern, both beryllium and lead exceed recorded background levels. This should be noted and discussed. Since the metals were only evaluated in subsurface soils some discussion of the implications of finding them in subsurface soils for their possible presence in surface soils should be included in the exposure discussion given subsequently.

Section 6.2.1 Exposure. It cannot be concluded from the data available that the tritium contamination is "limited to the vadose zone immediately surrounding the site." The boreholes drilled do not fully characterize the potential contamination plume. As shown in the attached figures, data from the samples taken cannot rule out a cone shaped contaminant plume beneath the site which could encounter ground-water and be transported beyond the confines of the site. In addition, the areas under trenches A through G may not have been fully characterized by the samples taken. Depending on the distance to groundwater and the direction of groundwater flow, contamination could be migrating from the classified area under the caps of these trenches.

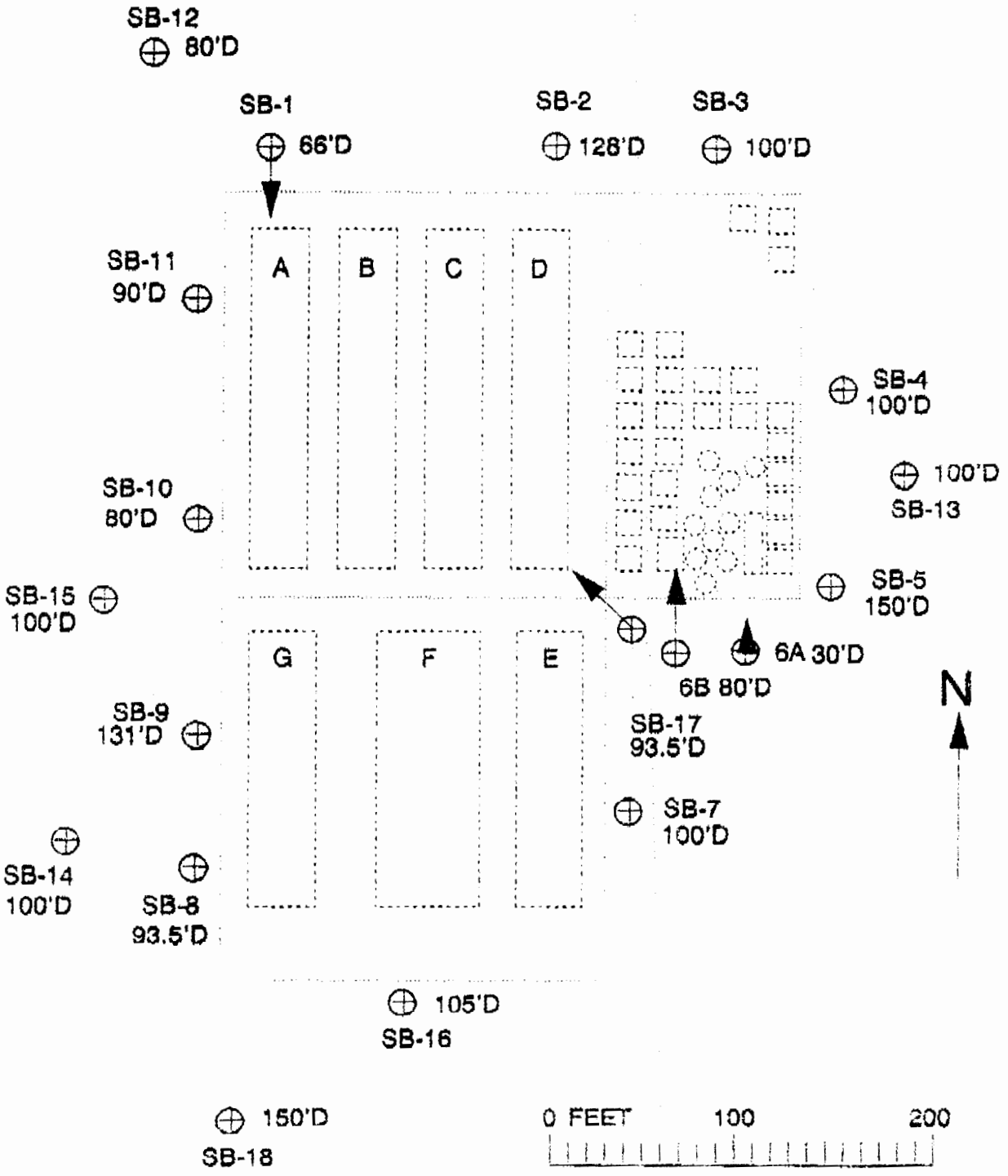
Sampling under the landfill to determine the depth of contamination in the vadose zone will become necessary at some time, at least in order to adequately plan and estimate the cost of any remedial action, especially considering that subsurface tritium contamination has been detected at points around the landfill's perimeter (see attached figures). The possibility of groundwater contamination under the landfill could also be addressed by such an approach.

Detection of lead and beryllium in subsurface soils at levels in excess of background samples should be included in this section.

Page 6-4 Figure 6-1 The conceptual model does not consider groundwater yet according to the Work Plan, "Data generated during the execution of this phase of field activities, coupled with data obtained during the monitoring well installation and the subsequent groundwater sampling program, will be used to develop a conceptual model of current site conditions." Please either indicate that the conceptual model developed here is preliminary and will be completed upon examination of the groundwater information, or explain why the current model is sufficient.

Page 6-5 Given that no characterization of groundwater hydrogeology is present in this RFI, it probably cannot be concluded that "the likelihood is low" that contaminants have reached groundwater.

PLAN VIEW


SB-12
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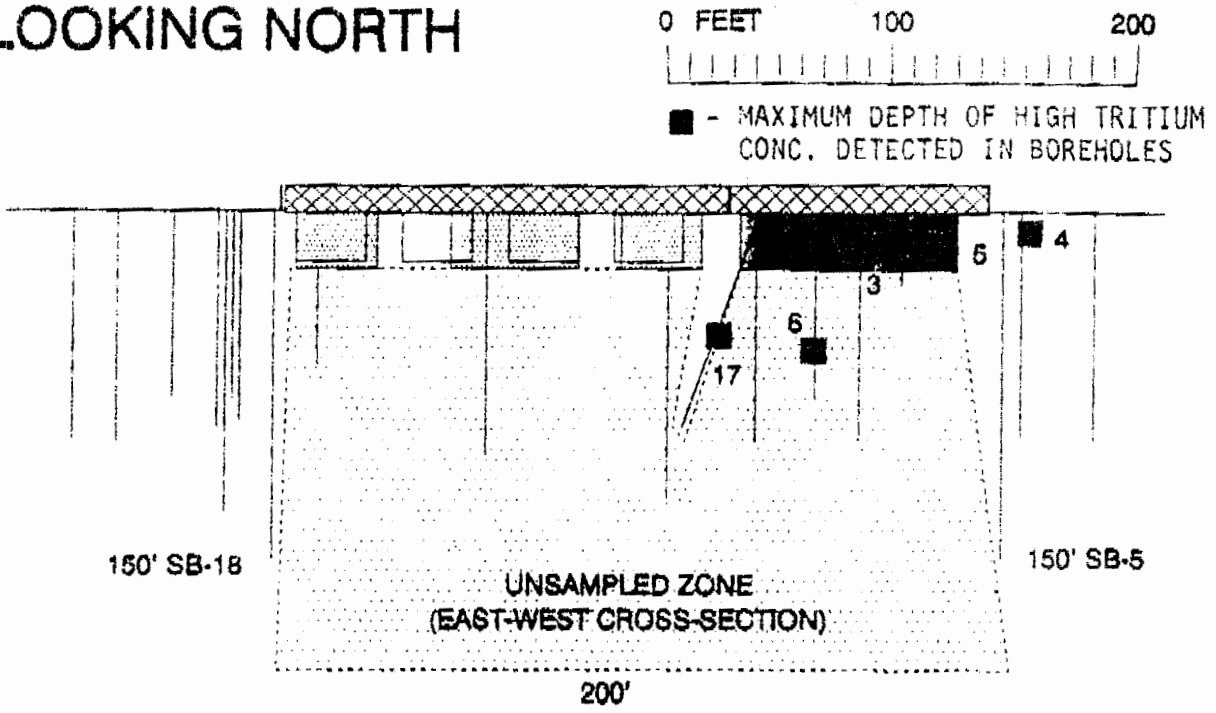
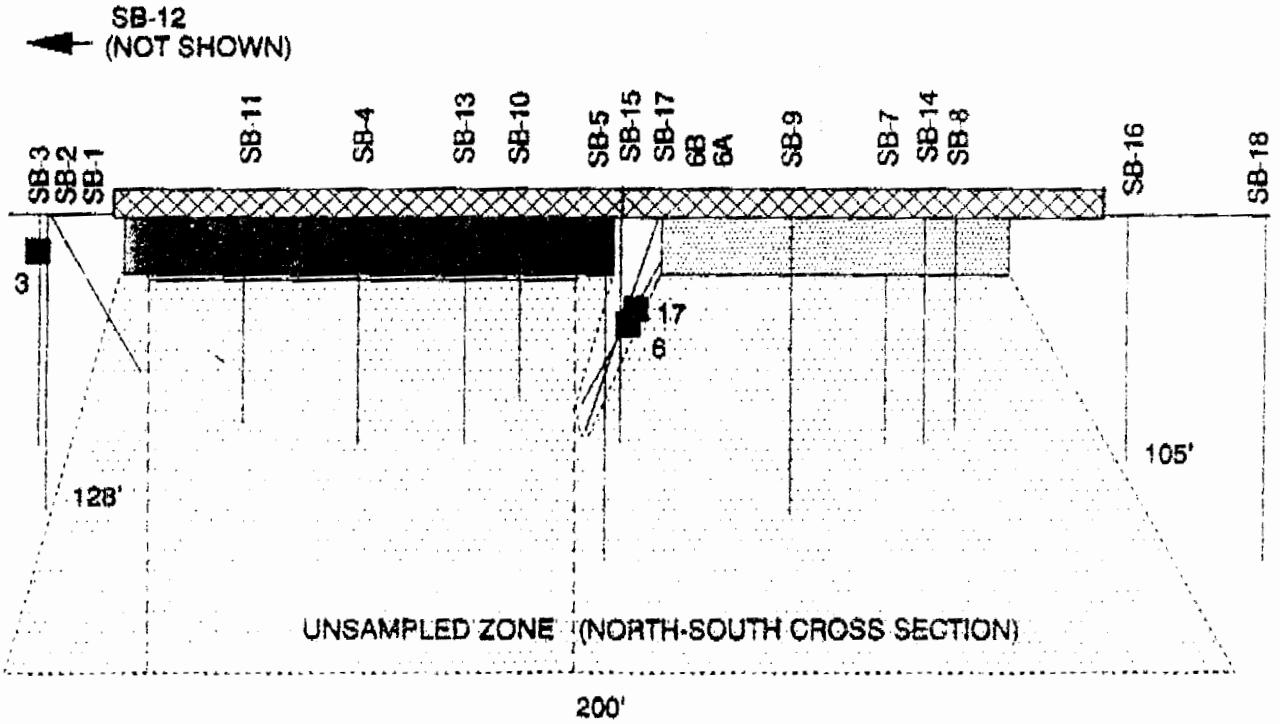
LOOKING NORTH



HOW DEEP IS THE WATER TABLE?

LOOKING EAST



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