



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 6

1445 ROSS AVENUE, SUITE 1200

DALLAS, TEXAS 75202

September 7, 1989

Albert Chernoff, Director  
Management Support Division  
U.S. Department of Energy  
Albuquerque Operations Office  
P.O. Box 5400  
Albuquerque, New Mexico 87115

Dear Mr. Chernoff:

We have reviewed the document entitled Work Plan for an Expanded Site Assessment at the Mixed Waste Landfill, received July 31, 1989. We have enclosed comments for your consideration. If you have any questions concerning our comments, please call me or your staff may call Bill Gallagher of my staff at (FTS) 255-6775.

Sincerely yours,

A handwritten signature in cursive script that reads "Allyn M. Davis".

Allyn M. Davis  
Director  
Hazardous Waste Management Division

Enclosure

## COMMENTS ON SANDIA NATIONAL LABORATORIES MIXED WASTE LANDFILL INVESTIGATION

**Preliminary Surveys:** It may be beneficial for Sandia to perform a soil-gas survey around the trenches of the mixed waste landfill. This survey should start near the trenches and progress outward laterally. This may locate where soil samples are needed initially. Also, it may be beneficial to have some soil profile or lithologic descriptions done around the mixed waste landfill. These descriptions could locate significantly different soil horizons or layers where contaminants could adhere to or restrictively accumulate due to differences in permeabilities or infiltration rates (such as clay and siltstone layers). This work would be especially helpful between the depths of 25 to 100 feet and could locate discrete sampling zones.

**Page 3-12; Soil Boring Locations:** Since the general lithology of the first 100 feet is comprised of sands and gravels and the soil profile description to 29 feet indicated no significant horizon changes, it is recommended that most (if not all) soil borings should be angled underneath all waste trenches (if physically and mechanically possible). Most of the liquid phase of the contaminants should migrate vertically downward, with a minimum horizontal component. These borings should also pick up lateral gas originating from the trenches. Also, due to the high probability of flow front being non-uniform or discontinuous (appeared to be the case in the chromic acid pits), slant drilling would more likely pick up contamination. Recommended locations for borings are shown on Figure 1 (these locations assume that no preliminary soil-gas or lithologic surveys were performed).

**Page 3-15; Sampling Collection:** During each 5 foot sampling interval, the core should be visually and soil-gas screened for contamination. If contamination is found by those screening methods, then sampling of the contaminated layers should occur, regardless of the previously pre-planned sampling intervals. Also a soil-gas reading should be done down the hole after each 5 or 10 foot sampling interval. Sampling intervals for chemical analysis should be no more than 1 foot, so that dilution of the sample will not occur. There should be no compositing of samples for chemical analysis. Most of the samples should concentrate on the zone immediately beneath the trenches (usually 25 feet) to approximately 75 feet. Figure 2 shows this sampling concept, including the discrete sampling intervals.

**Page 3-16; Chemical and Radiological Analysis:** Since it is unknown what types of waste, their quantities, and where these wastes were placed (which trenches), all soil samples should be analyzed for Appendix VIII constituents. This should include metals and explosives, plus nitrates. These additional constituents must meet the proper detection limits, sampling procedures, holding times and laboratory QA/QC.

**Page 3-18; Physical Characterization:** If possible, significant horizons or other lithologies should be detailed in the lab. Soil colors and macro-features such as cracks, fissures, or other possible contaminant flow paths should be described.

**Page 4-1; Documentation:** Sandia should ensure that proper records of all sampling locations, soil boring sampling intervals, and soil-gas screening results are documented so that they can be included in a report.

**GENERAL COMMENT:** It should be noted that this investigation is intended to determine whether there has been a release from the mixed waste landfill. Therefore, the majority of the borings (unless preliminary surveys indicate other locations) should be angled underneath the trenches, the most likely region where a release would be detected. Some vertical borings could be beneficial, especially in the area between trenches GFE and ABCD (See Figure 1). This investigation is considered phase 1, with possibly more investigations to follow, contingent on the results of the phase 1 investigation.

# FIGURE 1

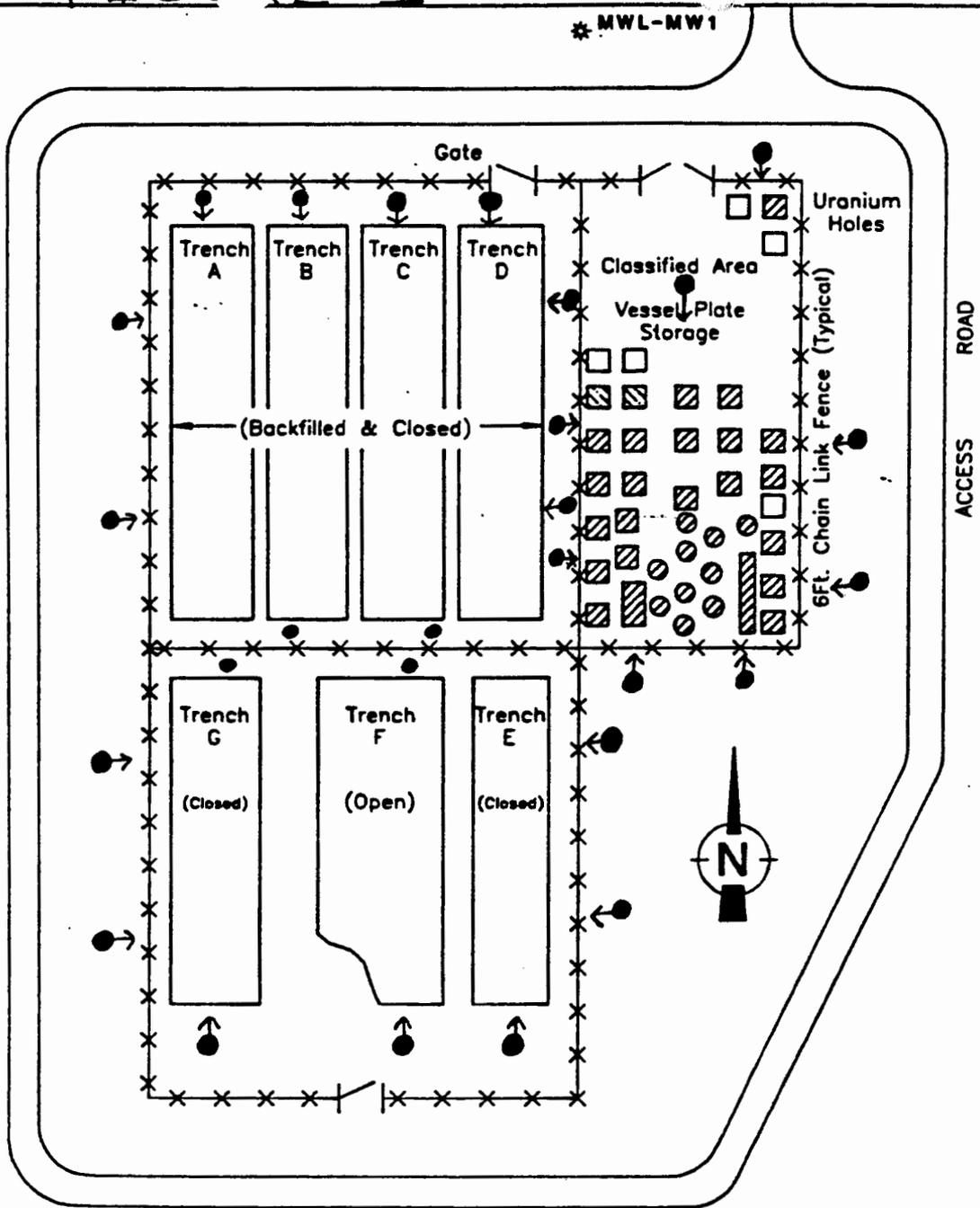


DIAGRAM NOT TO SCALE

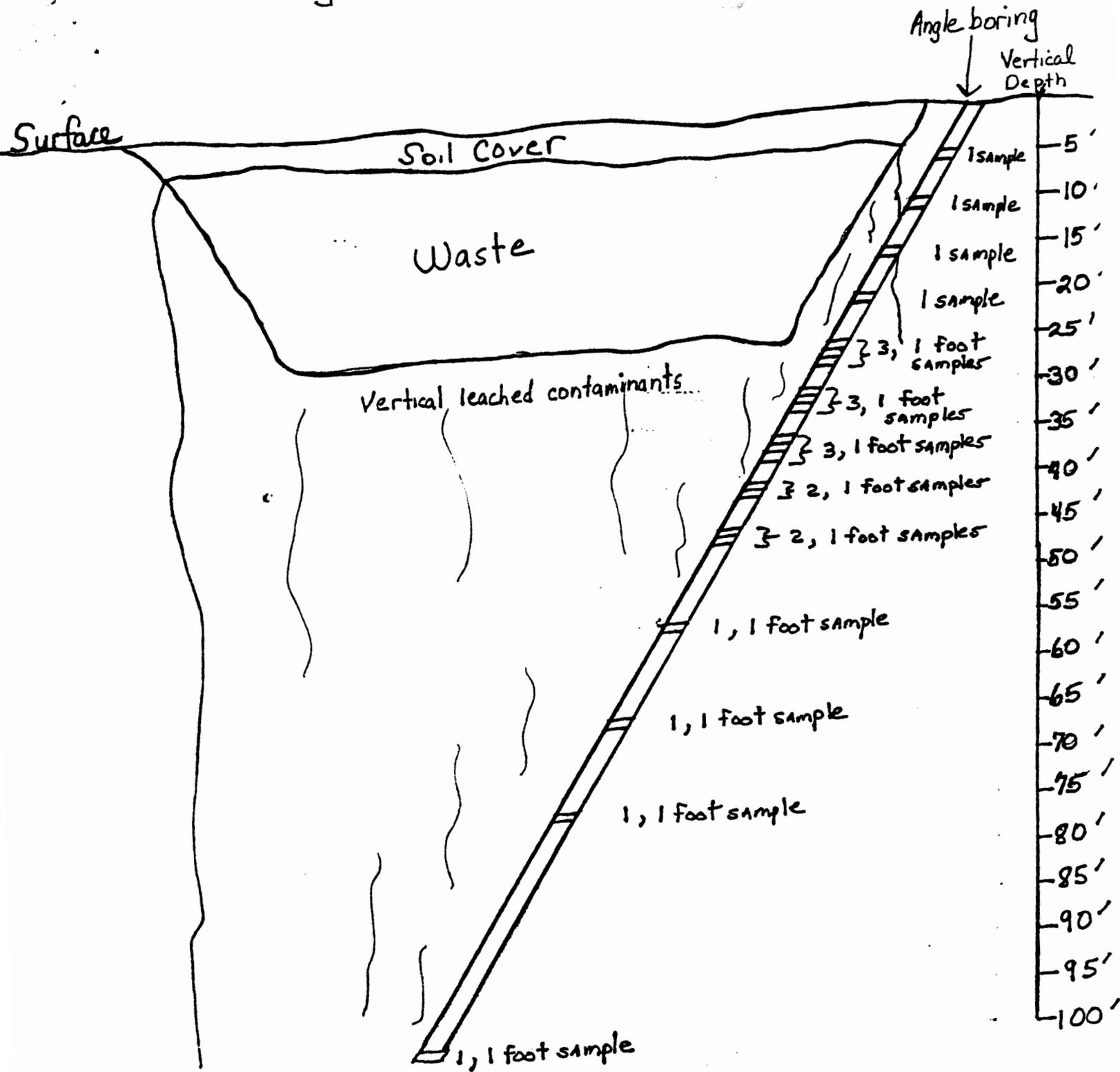
**LEGEND**

-  Backfilled, Not Capped
-  Filled and Capped
-  In Use
-  Existing Monitoring Well

 Recommended EPA borings (angled)  
 Vertical borings  
 recycled paper

SANDIA NATIONAL LABORATORIES ENVIRONMENTAL RESTORATION PROGRAM	
TITLE:  MIXED WASTE LANDFILL TASK AL-SA-RC-1	
ecology & environment, inc. ALBUQUERQUE, NEW MEXICO	FIG. 2-2
Date: 07/89 ecology and environment Drawn by: RSM Scale: NTS	

Figure 2



Each boring to 100 feet should include 21 individual sampling intervals, with 150 foot samples subject to Sandia discretion