

April 30, 1992

Project No. 5016.06.0007
Subcontract No. 90-XT2-V6665-1
Document No. L-3255

Mr. Larry Maassen
Los Alamos National Laboratory
P.O. Box 1663
MS M992
Los Alamos, NM 87545

Information in Support of the TA-35, TSL-125
Surface Impoundment Closure

Dear Mr. Maassen:

Enclosed herein is additional data in support of the TA-35, TSL-125 surface impoundment closure. Per your request, we have responded to two additional components of the New Mexico Environment Department (NMED) "Notice of Deficiency: TA-35 Building 125 Surface Impoundment Closure Plan and Report" (NM0890010515) dated March 9, 1992. The notice requests a summary of the location, media, and analytical parameters (by class, e.g. volatiles, semivolatiles, etc.) for each sample taken to characterize the unit. We have prepared two summary tables identifying the requested data. The first table (Table 1) represents those samples that were collected prior to closure activities. The second table (Table 2) lists those samples that were collected during the closure of the impoundment.

We have also included copies of the figures that show the sample locations indicated on the tables. The figures were obtained from the "Closure Certification Report, TA-35 TSL-125 Surface Impoundment" (July 31, 1991, Benchmark Environmental Corporation). Figure 5-4 showing the corehole locations has been revised based on a review by Phil Fresquez, EM-8, Waste Site Studies Section, who conducted the corehole sampling. The revised figure is enclosed and identified as Figure 5-4, Revision 1. This figure replaces Figure 5-4 in the closure report.

In addition, we have evaluated the selection of constituents for analysis for the corehole sampling by EPA SW-846, Method 8270. The NMED Notice of Deficiency requested that we provide rationale for excluding any constituents from analysis by EPA Method 8270 and for excluding metals from corehole sampling. As stated in the Laboratory's initial response to the Notice of Deficiency (April, 1992), metals were not analyzed in the corehole sampling because no metals were detected in the previous sampling events. The target compound list of semivolatiles was utilized for analysis by EPA Method 8270 during the closure based on the understanding of process knowledge and chemical usage at the TA-35, TSL-125 site. As indicated in Benchmark's letter to Larry Maassen, EM-13, Environmental Restoration (April 14, 1992), process knowledge and chemical usage at TA-35, TSL-125 during the active



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life of the impoundment did not indicate that any 40 CFR Part 261, Appendix VIII semivolatiles have been used at TA-35, TSL-125. Therefore, analysis of the target compound list of Appendix VIII semivolatile constituents should provide the appropriate level of certainty for the absence of these constituents in the impoundment.

The U.S. EPA Office of Solid Waste and Emergency Response (OSWER) Policy Directive 9476.00-18 (May 12, 1989) provides guidance on demonstrating the Equivalence of Part 265 clean closures with those clean closures performed pursuant to 40 CFR 264. This guidance states that, "the Agency believes that it may be possible to exclude some hazardous constituents from consideration based on knowledge of past activities at the unit." It further states that, "equivalency demonstrations that consider all the hazardous constituents that may reasonably be expected to be in or derived from the wastes managed in the unit may be acceptable in lieu of the full list of Appendix VIII constituents." We believe that the sampling and analyses conducted for semivolatile constituents considered all the hazardous constituents that could have reasonably been expected to be in or derived from wastes in the surface impoundment.

The NMED Notice of Deficiency also requested a Quality Assurance/Quality Control (QA/QC) summary on the adequacy of the analyses and the decontamination demonstration. The information regarding the adequacy of the analyses is described and summarized in the closure report, Section 5.0, "Soil Removal, Sampling and Analytical Results, and Risk Assessment" (Benchmark, July 1991). This section describes sampling locations and procedures, as well as analytical results and the adequacy of the analyses. Additional information on the adequacy of the analyses is indicated on the QA/QC analytical data sheets in Enclosure 4 of the closure plan. Decontamination procedures addressing waste removal procedures and decontamination and removal procedures for the floor trough and piping are summarized in Sections 2.0 and 3.0 of the closure plan.

If you require any additional information regarding the closure activities or report, please feel free to contact us.

Sincerely,



Rita Carnes
Principal Investigator



Barb Graves
Environmental Scientist

cc: Mary Lou Leonard, Benchmark Environmental Corporation, w/o enclosures
David McInroy, EM-8, MS K490
Phil Fresquez, EM-8, MS K490
Christine Othart, Materials Management Division
Central File

TABLE 1
SUMMARY OF LOCATION, MEDIA, AND ANALYTICAL PARAMETERS FOR
SAMPLING PRIOR TO SURFACE IMPOUNDMENT CLOSURE TA-35, TSL-125

SAMPLE IDENTIFICATION	DATE	LOCATION	MEDIA	DEPTH	ANALYTICAL PARAMETERS
86.05274	09/08/86	Surface Impoundment	Oil/Water	Directly from Impoundment	PCBs
86.05286	12/04/86	~ 450 below rim (into Ten Site Canyon)	Soil	Grab - Surface	PCBs
86.05287	12/04/86	~ 20 below rim (into Ten Site Canyon)	Soil	Grab - Surface	PCBs
86.05288	12/04/86	At confluence of Ten Site Canyon rim and spill path	Soil	Grab - Surface	PCBs
87.01842	07/29/87	Surface Impoundment	Oil	Directly from Impoundment	PCBs
Coliwasa Composite	06/09/88	Surface Impoundment	Liquid/Sludge	Directly from Impoundment	Volatile and semivolatile organics, metals, PCBs, radionuclide activity
88.00353	06/20/88	~ 5 ft. below rim of impoundment along fall line of overflow (Location A, Figure 2-4)	Soil	Grab - Surface	Volatile organic compounds
88.00354	06/20/88	~ 30 ft. below rim of impoundment along fall line of overflow (Location B, Figure 2-4)	Soil	Grab - Surface	Volatile organic compounds
88.00355	06/20/88	~ 60 ft. below rim of impoundment along fall line of overflow (Location C, Figure 2-4)	Soil	Grab - Surface	Volatile organic compounds
88.00356	06/20/88	~ 20 ft. below confluence of fall line and stream channel (Location D, Figure 2-4)	Soil	Grab - Surface	Volatile organic compounds
88.00357	06/20/88	~ 100 ft. below confluence of fall line and stream channel (Location E, Figure 2-4)	Soil	Grab - Surface	Volatile organic compounds
Downstream Surface Water	06/29/88	Approximately a quarter mile downstream of the impoundment	Water	Surface	Volatile organic compounds

Source: Closure Certification Report, TA-35, TSL-125 Surface Impoundment, July 31, 1991, Benchmark Environmental Corporation.

TABLE 2
SUMMARY OF LOCATION, MEDIA, AND ANALYTICAL PARAMETERS FOR
SAMPLING DURING CLOSURE OF TA-35, TSL-125

EVENT	SAMPLE ID AND LOCATION	DATE	MEDIA	SAMPLE DEPTH	ANALYTICAL PARAMETERS
Liner Decontamination Verification	125L-1, Figure 4-1	6/89	Soil	6 - 8"	Volatile organics, semivolatile organics, PCBs, metals
	125L-2, Figure 4-1	6/89	Soil	6 - 8"	Volatile and semivolatile organics, PCBs, metals
	125L-3, Figure 4-1	6/89	Soil	6 - 8"	Volatile and semivolatile organics, PCBs, metals
	125L-4, Figure 4-1	6/89	Soil	6 - 8"	Volatile and semivolatile organics, PCBs, metals
	125L-5, Figure 4-1	6/89	Soil	6 - 8"	Volatile and semivolatile organics, PCBs, metals
	125L-6, Figure 4-1	6/89	Soil	6 - 8"	Volatile and semivolatile organics, PCBs, metals
	125L-7, Figure 4-1	6/89	Soil	6 - 8"	Volatile and semivolatile organics, PCBs, metals
	125L-8, Figure 4-1	6/89	Soil	6 - 8"	Volatile and semivolatile organics, PCBs, metals
	125L-8, Figure 4-1	6/89	Soil	6 - 8"	Volatile and semivolatile organics, PCBs, metals
	125L-10, Figure 4-1	6/89	Soil	6 - 8"	Volatile and semivolatile organics, PCBs, metals
	125L-11, Figure 4-1	6/89	Soil	6 - 8"	Volatile and semivolatile organics, PCBs, metals
	125L-12, Figure 4-1	6/89	Soil	6 - 8"	Volatile and semivolatile organics, PCBs, metals
Phase I - Soil Removal	125SL-1, Figure 5-1	10/89	Soil	3 - 5'	Volatile organics
	125SL-2, Figure 5-1	10/89	Soil	3 - 5'	Volatile organics
	125SL-3, Figure 5-1	10/89	Soil	3 - 5'	Volatile organics
	125SL-4, Figure 5-1	10/89	Soil	3 - 5'	Volatile organics
Phase II - Additional Soil Removal (Verification Sampling)	125FS-1, Figure 5-2	11/89	Soil	10 - 15'	Volatile and semivolatile organics, PCBs, metals
	125FS-2, Figure 5-2	11/89	Soil	10 - 15'	Volatile and semivolatile organics, PCBs, metals
	125FS-3, Figure 5-2	11/89	Soil	10 - 15'	Volatile and semivolatile organics, PCBs, metals
	125FS-4, Figure 5-2	11/89	Soil	10 - 15'	Volatile and semivolatile organics, PCBs, metals
	125FS-5, Figure 5-2	11/89	Soil	10 - 15'	Volatile and semivolatile organics, PCBs, metals

**TABLE 2 (CONTINUED)
SUMMARY OF LOCATION, MEDIA, AND ANALYTICAL PARAMETERS FOR
SAMPLING DURING CLOSURE OF TA-35, TSL-125**

EVENT	SAMPLE ID AND LOCATION	DATE	MEDIA	SAMPLE DEPTH	ANALYTICAL PARAMETERS
Phase II - Additional Soil Removal (Verification Sampling) (continued)	125FS-6, Figure 5-2	11/89	Soil	10 - 15'	Volatile and semivolatile organics, PCBs, metals
	125FS-7, Figure 5-2	11/89	Soil	10 - 15'	Volatile and semivolatile organics, PCBs, metals
	125FS-8, Figure 5-2	11/89	Soil	10 - 15'	Volatile and semivolatile organics, PCBs, metals
	125FS-9, Figure 5-2	11/89	Soil	10 - 15'	Volatile and semivolatile organics, PCBs, metals
	125FS-10, Figure 5-2	11/89	Soil	10 - 15'	Volatile and semivolatile organics, PCBs, metals
	125FS-11, Figure 5-2	11/89	Soil	10 - 15'	Volatile and semivolatile organics, PCBs, metals
Phase III - Backfill Verification Sampling	125F-1, Figure 5-3	12/89	Soil	Backfill	Volatile organics
	125F-2, Figure 5-3	12/89	Soil	Backfill	Volatile organics
	125F-3, Figure 5-3	12/89	Soil	Backfill	Volatile organics
Phase IV - Corehole Sampling	125-1-5', Figure 5-4	12/90	Soil	Corehole - 5'	Volatile and semivolatile organics, total petroleum hydrocarbons
	125-1-10', Figure 5-4	12/90	Soil	Corehole - 10'	Volatile and semivolatile organics, total petroleum hydrocarbons
	125-1-15', Figure 5-4	12/90	Soil	Corehole - 15'	Volatile and semivolatile organics, total petroleum hydrocarbons
	125-1-20', Figure 5-4	12/90	Soil	Corehole - 20'	Volatile and semivolatile organics, total petroleum hydrocarbons
	125-1-25', Figure 5-4	12/90	Soil	Corehole - 25'	Volatile and semivolatile organics, total petroleum hydrocarbons
	125-1-30', Figure 5-4	12/90	Soil	Corehole - 30'	Volatile and semivolatile organics, total petroleum hydrocarbons

TABLE 2 (CONTINUED)
SUMMARY OF LOCATION, MEDIA, AND ANALYTICAL PARAMETERS FOR
SAMPLING DURING CLOSURE OF TA-35, TSL-125

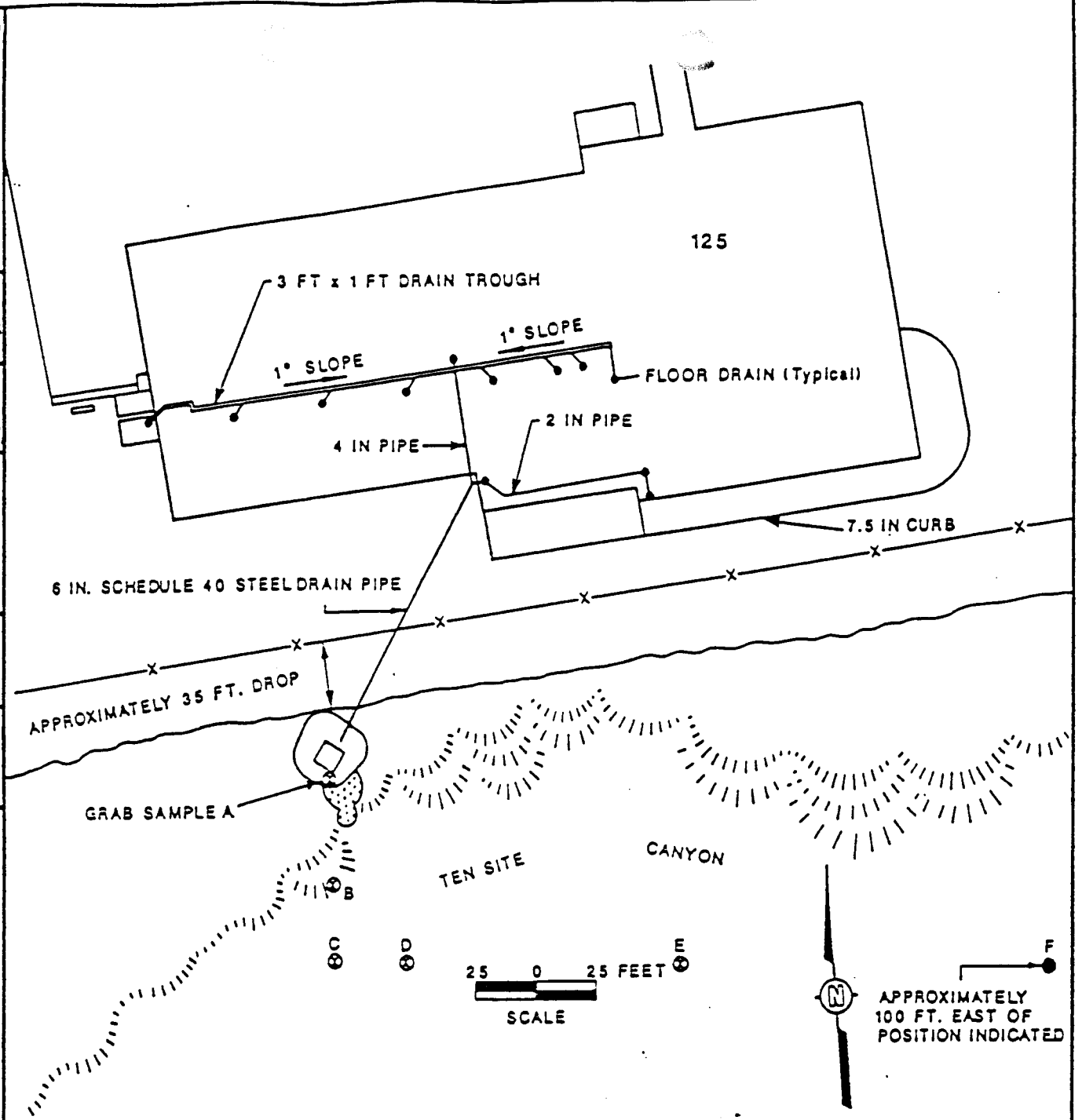
EVENT	SAMPLE ID AND LOCATION	DATE	MEDIA	SAMPLE DEPTH	ANALYTICAL PARAMETERS
Phase IV - Corehole Sampling (continued)	125-1-35', Figure 5-4	12/90	Soil	Corehole - 35'	Volatile and semivolatile organics, total petroleum hydrocarbons
	125-1-40', Figure 5-4	12/90	Soil	Corehole - 40'	Volatile and semivolatile organics, total petroleum hydrocarbons
	125-1-45', Figure 5-4	12/90	Soil	Corehole - 45'	Volatile and semivolatile organics, total petroleum hydrocarbons
	125-1-50', Figure 5-4	12/90	Soil	Corehole - 50'	Volatile and semivolatile organics, total petroleum hydrocarbons
	125-1-55', Figure 5-4	12/90	Soil	Corehole - 55'	Volatile and semivolatile organics, total petroleum hydrocarbons
	125-2-5', Figure 5-4	12/90	Soil	Corehole - 5'	Volatile and semivolatile organics, total petroleum hydrocarbons
	125-2-10', Figure 5-4	12/90	Soil	Corehole - 10'	Volatile and semivolatile organics, total petroleum hydrocarbons
	125-2-15', Figure 5-4	12/90	Soil	Corehole - 15'	Volatile and semivolatile organics, total petroleum hydrocarbons
	125-2-20', Figure 5-4	12/90	Soil	Corehole - 20'	Volatile and semivolatile organics, total petroleum hydrocarbons
	125-2-25', Figure 5-4	12/90	Soil	Corehole - 25'	Volatile and semivolatile organics, total petroleum hydrocarbons
	125-2-30', Figure 5-4	12/90	Soil	Corehole - 30'	Volatile and semivolatile organics, total petroleum hydrocarbons
	125-2-35', Figure 5-4	12/90	Soil	Corehole - 35'	Volatile and semivolatile organics, total petroleum hydrocarbons
	125-2-40', Figure 5-4	12/90	Soil	Corehole - 40'	Volatile and semivolatile organics, total petroleum hydrocarbons

TABLE 2 (CONTINUED)
SUMMARY OF LOCATION, MEDIA, AND ANALYTICAL PARAMETERS FOR
SAMPLING DURING CLOSURE OF TA-35, TSL-125

EVENT	SAMPLE ID AND LOCATION	DATE	MEDIA	SAMPLE DEPTH	ANALYTICAL PARAMETERS
Phase IV - Corehole Sampling (continued)	125-2-45', Figure 5-4	12/90	Soil	Corehole - 45'	Volatile and semivolatile organics, total petroleum hydrocarbons
	125-2-50', Figure 5-4	12/90	Soil	Corehole - 50'	Volatile and semivolatile organics, total petroleum hydrocarbons
	125-2-55', Figure 5-4	12/90	Soil	Corehole - 55'	Volatile and semivolatile organics, total petroleum hydrocarbons

Source: Closure Certification Report, TA-35, TSL-125 Surface Impoundment, July 31, 1991, Benchmark Environmental Corporation.

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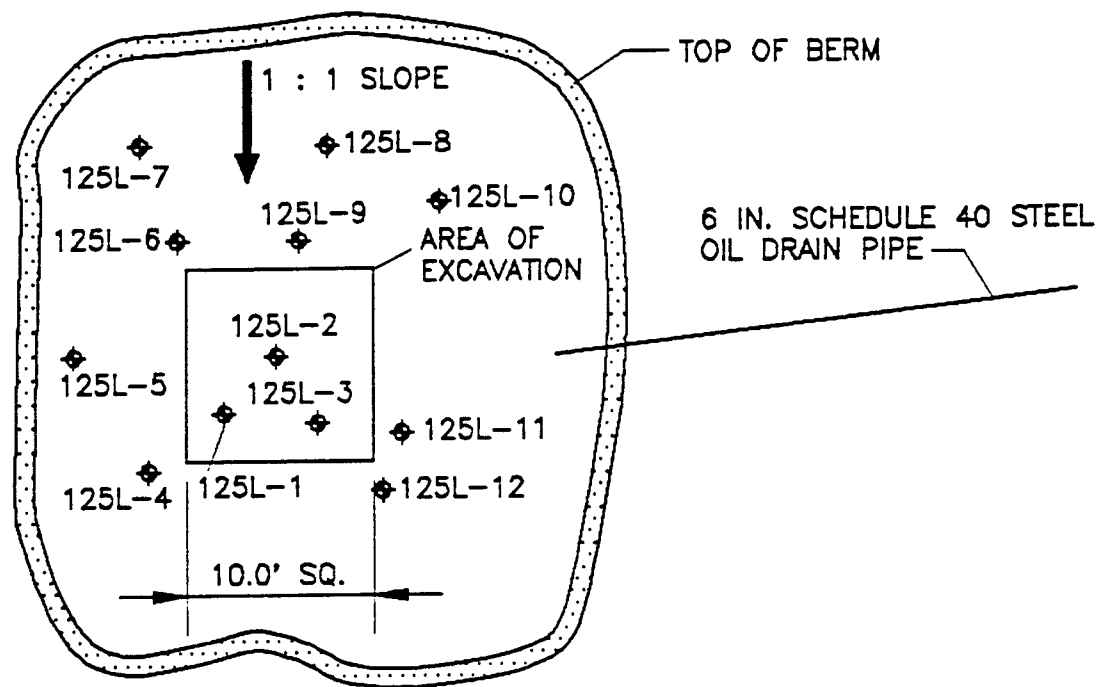
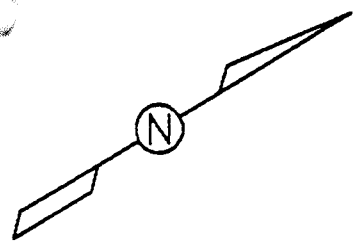
KEY

- SURFACE WATER SAMPLE LOCATION (APPROXIMATE)
- X— FENCE
- ⋄ CLIFF
- ⊙ APPROXIMATE AREA OF SOIL CONTAMINATION
- ⊕ SOIL SAMPLE LOCATION (APPROXIMATE)

FIGURE 2-4
TA-35-TSL-125
SURFACE IMPOUNDMENT
AND SAMPLE LOCATIONS
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LOS ALAMOS, NEW MEXICO



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PLAN VIEW

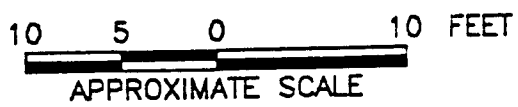
FIGURE 4-1

SOIL SAMPLE LOCATIONS
IMMEDIATELY BELOW GUNITE LINER

TA-35-TSL-125
SURFACE IMPOUNDMENT

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LOS ALAMOS NATIONAL LABORATORY
LOS ALAMOS, NEW MEXICO



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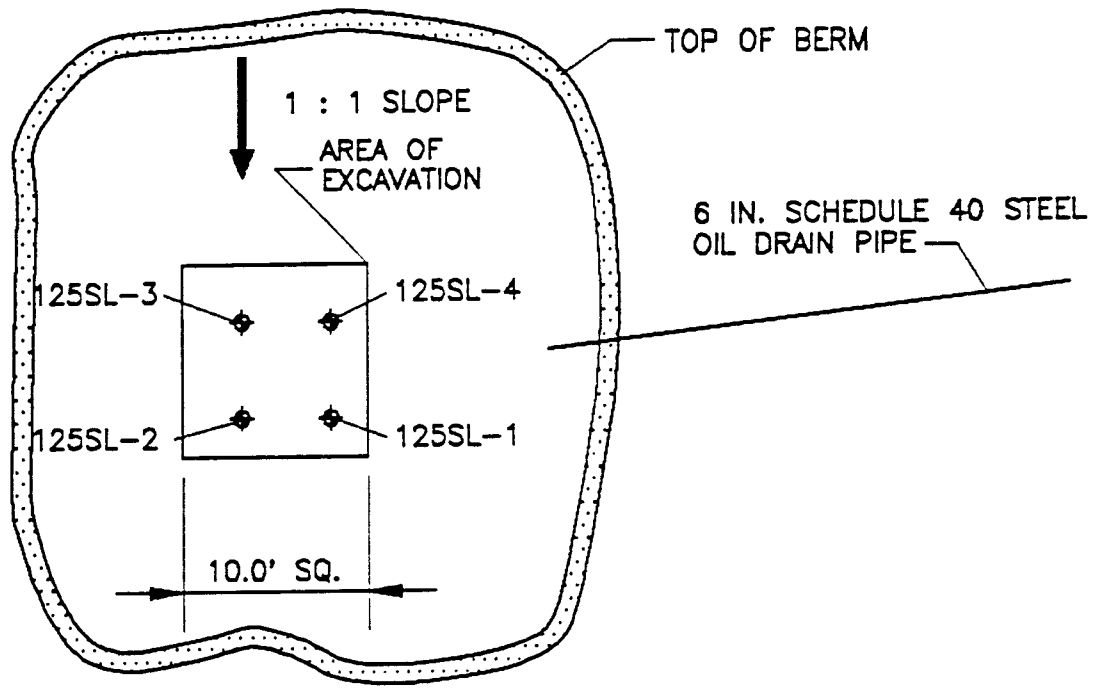
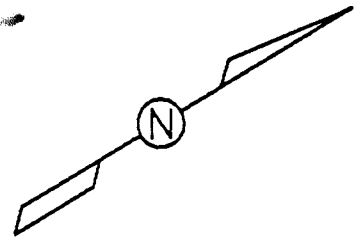
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PLAN VIEW

FIGURE 5-1

SOIL SAMPLE LOCATIONS THREE TO FIVE FEET BELOW GUNITE LINER

TA-35-TSL-125
SURFACE IMPOUNDMENT

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LOS ALAMOS, NEW MEXICO

10 5 0 10 FEET



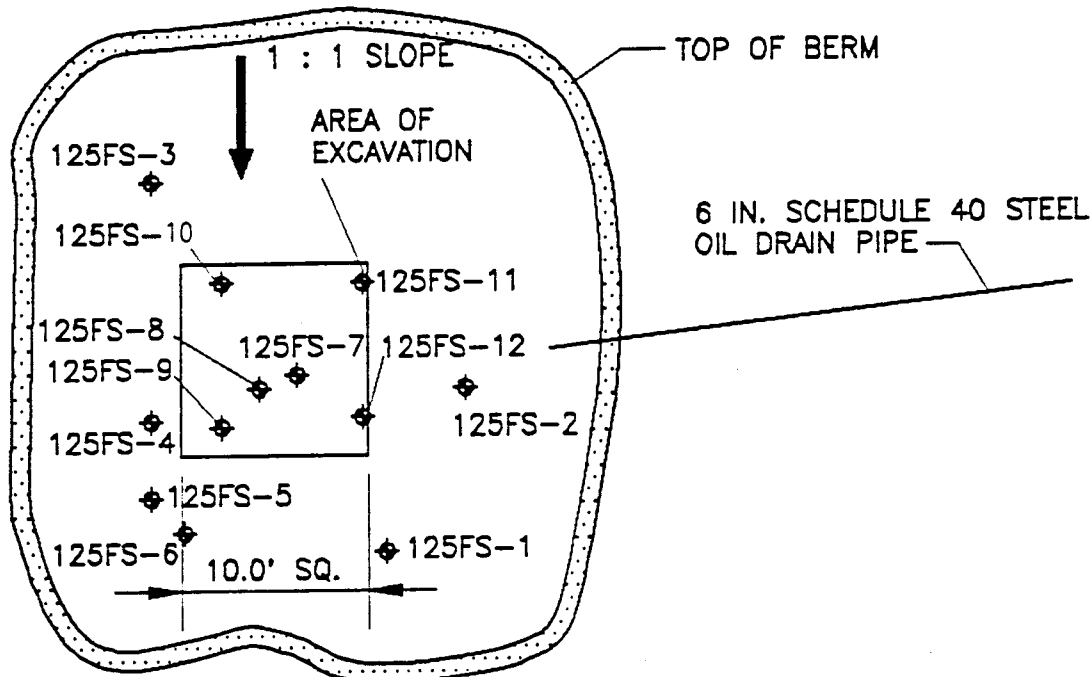
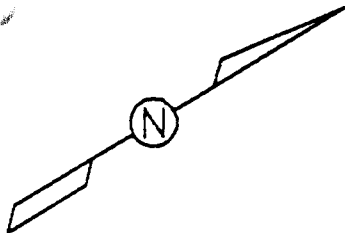
APPROXIMATE SCALE



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PLAN VIEW

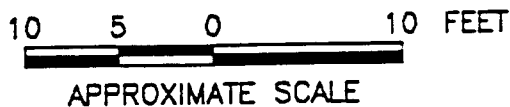
FIGURE 5-2

SOIL SAMPLE LOCATIONS
FINAL SOIL VERIFICATION SAMPLES

TA-35-TSL-125
 SURFACE IMPOUNDMENT

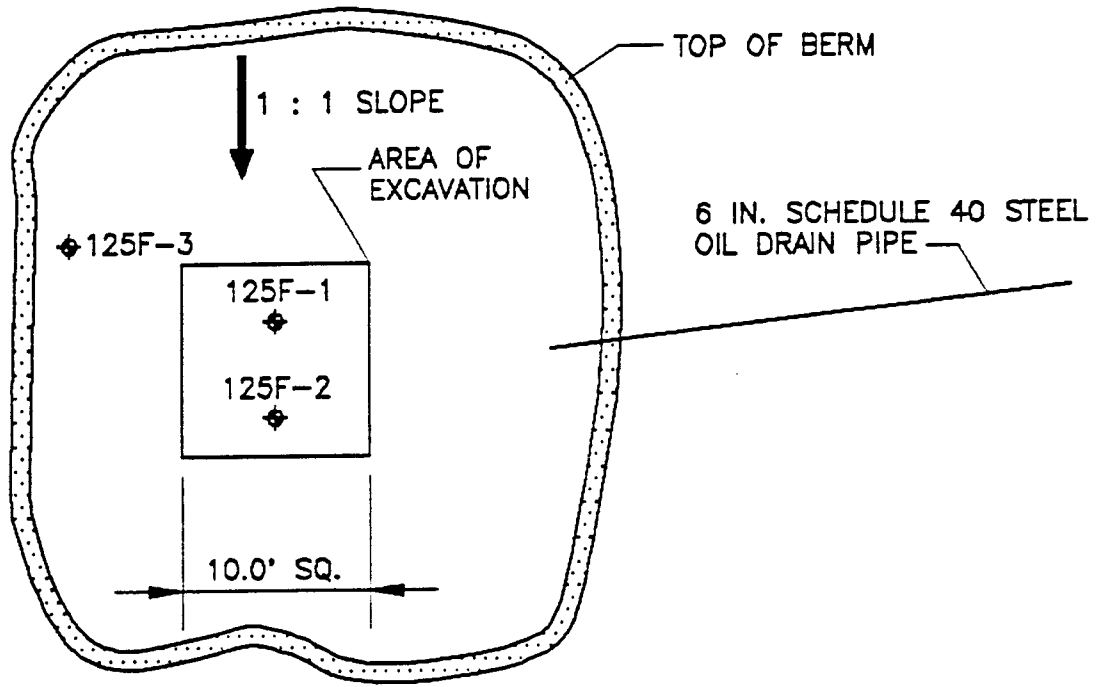
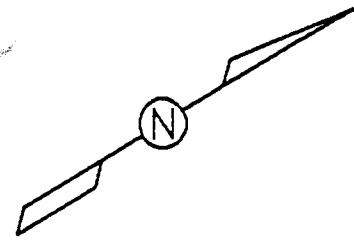
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PLAN VIEW

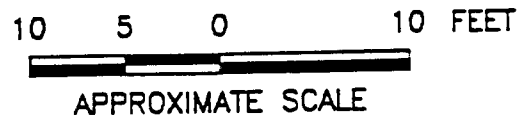
FIGURE 5-3

SOIL SAMPLE LOCATIONS
BACKFILL SAMPLES

TA-35-TSL-125
SURFACE IMPOUNDMENT

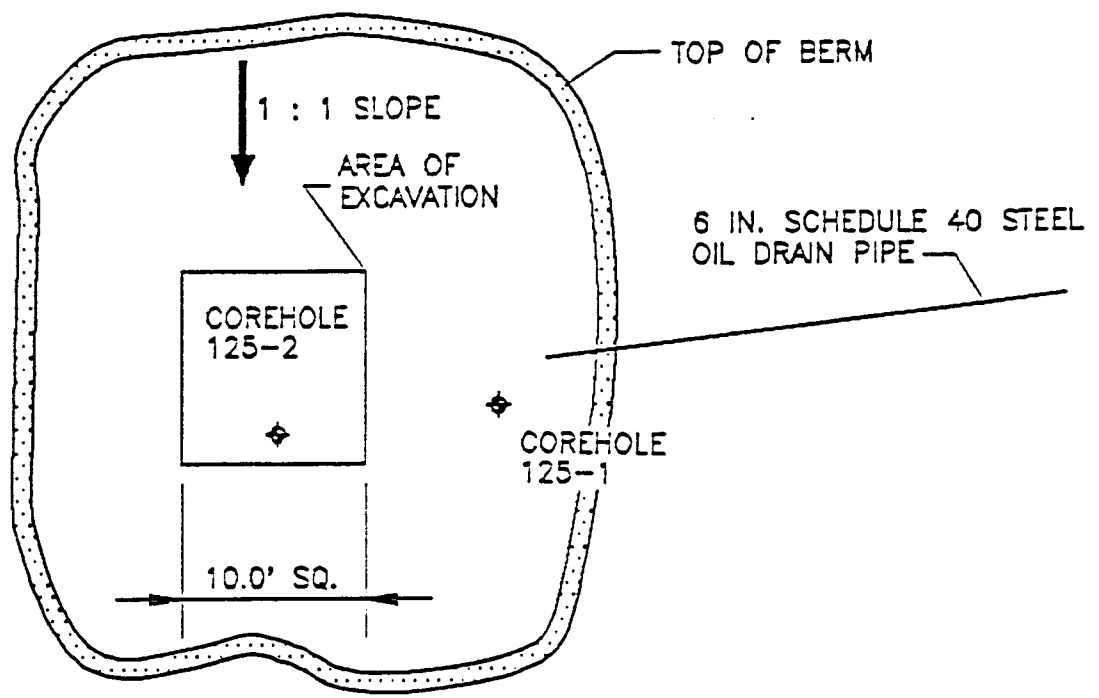
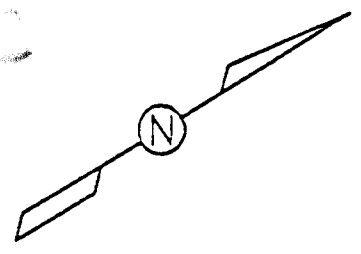
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APPROVED BY	EG
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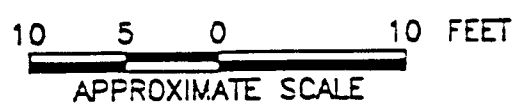
PLAN VIEW


FIGURE 5-4

COREHOLE LOCATIONS

TA-35-TSL-125
 SURFACE IMPOUNDMENT AND
 PROPOSED TEST HOLE LOCATIONS
 PREPARED FOR

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 LOS ALAMOS, NEW MEXICO



 **BENCHMARK**
 ENVIRONMENTAL CORPORATION

ENCLOSURE III

Los Alamos

Los Alamos National Laboratory
Los Alamos, New Mexico 87545

memorandum

TO: Larry Maassen, EM-13, MS M992

DATE: May 1, 1992

THRU: Ron Conrad, EM-8, MS K490 *rc*

MAIL STOP/TELEPHONE: K490/7-0815

FROM: Phil Fresquez, EM-8 *PF*

SYMBOL: EM-8:92-1136

SUBJECT: **FINAL CLOSURE SAMPLING BELOW FORMER WASTE OIL SURFACE
IMPOUNDMENT TSL-125 LOCATED AT TA-35**

On March 9, 1992, the New Mexico Environment Department (NMED) submitted to the Department of Energy (DOE) a Notice of Deficiency regarding the TA-35 Building 125 Surface Impoundment Closure Plan (NM0890010515). As part of a clean closure demonstration, a request was made to show that releases from surface impoundment TSL-125 to the surrounding area (or to surface waters) were below health based levels. The purpose of this memorandum, therefore, is to describe a sampling and analyses plan for the characterization of an area down gradient from surface impoundment TSL-125.

Seven sampling points were systematically located down an erosion channel from TSL-125 to a drainage channel in Ten Site Canyon with NMED personnel on April 16, 1992 (Figure 1). Two additional sampling points were located in the drainage channel up gradient and down gradient of TSL-125. All soil samples will be collected and processed according to the protocol described in SW-846. Standard Operating Procedure's that will be followed include: 1.01.02 Field Orientation Checklist, training; 1.02 Sampling Containers and Preservation; 1.04 Sample Control and Documentation; 1.05 Quality Assurance/Quality Control; 2.03 Protective Equipment; 2.07 Equipment Decontamination; 2.16 Screening Soil Samples for Alpha Emitters; and 6.09 Spade and Scoop Method. Sampling team members will include myself (Project manager), Richard Romero (sampler and safety and health officer) and Consuelo Montoya (QA/QC specialist). Level D Personal Protection Equipment will be worn.

At each sampling point soil surface samples will be collected with a Teflon scoop, placed into the appropriate containers, labeled, sealed with chain-of-custody tape, double bagged into Ziplock plastic containers, and transported in a locked

ice chest at 4°C. One replicate soil sample, one trip blank and one field blank will also be collected. The chemical constituents of concern and the sample containers they will be placed in area as follows:

Hazardous Substance List (HSL) metals....500-mL Nalgene bottle

Volatile Organic Compounds (VOC).....two 40-mL glass vials

Semivolatile Organic Compounds (SVOC)....250-mL wide mouth glass jar with a Teflon line lid.

Polychlorinated biphenyl compounds (PCB).40-mL amber glass vial

Total Petroleum Hydrocarbons (TPH's).....40-mL amber glass vial

Samples will be screened by EM-8 for gross alpha, beta and gamma radioactivity before they are submitted with chain-of-custody documentation to the Environmental Chemistry Group (EM-9) for analysis. Samples will be analyzed in accordance to EM-9's Quality Assurance for Health and Environmental Chemistry (LANL report LA-11637-MS).

All sample locations will be surveyed (by the New Mexico State Plane coordinate system) for future reference. Similarly, all records associated with this sampling effort will be filed to the ER records processing facility at the conclusion of the study. These records will include (1) the approved sampling plan (along with review comments), (2) chain-of-custody forms, (3) raw data, and (4) a report summarizing sampling activities.

Fig 1

