Department of Energy

Ohio Field Office
Fernald Area Office
P. O. Box 538705
Cincinnati, Ohio 45253-8705
(513) 648-3155

JUL 2 7 1999

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Mr. James A. Saric, Remedial Project Manager
U.S. Environmental Protection Agency
Region V, SRF-5J
77 West Jackson Boulevard
Chicago, IL 60604-3590

DOE0975-99

Mr. Tom Schneider, Project Manager
Ohio Environmental Protection Agency
401 East 5th Street
Dayton, OH 45402-2911

Dear Mr. Saric and Mr. Schneider:

ADDITIONAL SAMPLING OF SOIL PILE 7 AND SAMPLING OF SOIL PILE HRD-002 IN SUPPORT OF OPERABLE UNIT 1 FIRST LOADOUT OPERATIONS

References:

1) "Project Specific Plan for Sampling and Analysis of First Waste Load-out Materials for Operable Unit 1, Revision 0," dated December 1998

2) "Final First Load-out Work Plan for Operable Unit 1," dated February 1999

3) Letter, J.W. Reising, DOE-FEMP to J.A. Saric, U.S. EPA and Thomas Schneider, OEPA, "Transmittal of Soil Pile 7 Sampling and Analysis Information," dated April 26, 1999

This letter provides information detailing the sampling and analysis approach and material transfer strategy for the contents of Soil Pile HRD-002. This information is provided to support the continuation of first waste load-out operations under Operable Unit 1 (OU1) HRD-002 was not specifically identified in the referenced Project Specific Plan (PSP) (Reference #1) for in-situ characterization as part of the first waste load-out operations. However, in the interest of ensuring substantive progress, HRD-002 has been selected as an appropriate source of material to support the continuation of first waste load-out operations.

Recycled and Recyclable

A description of HRD-002 and the detailed sampling and analysis approach are provided in the enclosed Variance/Field Change Notice to the referenced PSP (Reference #1). In general, the sampling and analysis protocols defined for HRD-002 are consistent with the overall characterization approach established in the PSP for materials designated for first waste load-out. However, due to the specific physical characteristics of HRD-002, the following changes to the sample collection methods will be employed:

1) Previous sampling attempts on HRD-002 using the Geoprobe and manual sampling methods have been unsuccessful due to the large concentration of gravel and stone on the surface of the pile.

2) To address this situation, sample collection will be accomplished using a track hoe to open a series of four, approximately equally spaced, trenches across the pile from which samples will be collected.

3) Samples for radiological and Toxic Characteristic Leachage Procedure (TCLP) organic analyses will be selected based on field screening results using a Geiger-Mueller detector and photoionization detector respectively within each trench.

The analytical regime and sampling frequency (number of samples per cubic yard of material) are the same as (or greater than) those specified in the PSP.

As noted on the enclosed figure, HRD-002 is located in the northeast corner of the former production area, just north of the Haul Road. The plan is to haul this material from HRD-002 to the IT facilities by dump truck. From HRD-002, the trucks will proceed south to the Haul Road, then proceed west to the road which separates SP-7 from Soil Pile 6, and north from there along the route used to haul SP-7 materials to the IT facilities. In support of these excavation and transfer efforts, dust control will be managed consistent with the First Load-out Work Plan. Storm water/erosion controls will essentially be the same as those in the First Load-out Work Plan, with the exception of the hauling activities on the Haul Road, which will be managed consistent with other hauling that takes place on the Haul Road.

Following the characterization of HRD-002, characterization activities will begin on the remaining portions of SP-7 not previously characterized for first load-out. These materials are located at the east end of SP-7 where active waste placement continued, while the west end of SP-7 was isolated and characterized for first waste load-out (Reference #3). In preparation for characterizing the east end of SP-7, active waste placement will be shifted to the west end of SP-7 in the area previously characterized and excavated under first waste load-out. The material at the east end of SP-7 will be isolated and configured to support an identical sampling approach to that used on the west end of SP-7. A sampling grid will be placed over the pile with random sampling locations selected. The Geoprobe

and/or manual sampling methods will be used with the same screening methods, sampling frequency and analytical regime as that used on the west end of SP-7. Information providing the final sample number, sample locations, and target sample intervals will be faxed to the agencies following the final configuration of the material.

If you have any questions regarding this matter, please contact Dave Lojek at (513) 648-3127.

Sincerely,

Johnny Reising

Johnny W. Reising
Fernald Remedial Action
Project Manager

FEMP:Hall

Enclosures

cc w/enclosures:
N. Hallein, EM-42/CLOV
J.S. Hall, OH/FEMP
G. Jablonowski, USEPA
T. Schneider, OEPA-Dayton (three copies of enclosure)
F. Bell, ATSDR
M. Schupe, HSI Geo Trans
R. Vandegrift, ODH
F. Barker, Tetra Tech
D. G. Ansara, FDF/52-1
M. Cherry, FDF/90
D. G. Dalga, FDF/52-1
R. T. Fellman, FDF/52-1
T. D. Hagen, FDF/65
M. Jewett, FDF/52-2
AR Coordinator, FDF/78

cc w/o enclosures:
A. Tanner, OH/FEMP
D. A. Lojek, OH/FEMP
T. Hagen, FDF/65-2
J. Harmon, FDF/90
R. Heck, FDF/2
S. Hinnefeld, FDF/31
T. Walsh, FDF/65-2
F. L. Johnston, FDF/52-2
S. Lorenz, FDF/52-8
M. Morris, FDF/52-1
D. Smith, FDF/52-1
G. Stephens, FDF/52-1
D. Zdelar-Bush, FDF/52-1
ECDC, FDF/52-7

VARIANCE / FIELD CHANGE NOTICE	V/F# 60500PSP02-7
/BS NO.: 60500-PSP-0002 Rev. 0	Page 1 of 12
ROJECT TITLE: PSP for Sampling/Analysis of OU1 First Waste Loadout Materials	Date: 7/22/99

ARIANCE / FIELD CHANGE NOTICE (Include justification):

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This variance describes the specific sampling and analysis requirements for characterizing Soil Pile HRD-002 as part of the waste acceptance criteria demonstration process for off-site disposal of waste materials at the Envirocare facility.

HRD-002 is located in the northeast corner of Soil Remediation Area 3, between the OSDF Haul Road and the Operable Unit 1 Rail Yard (See Figures 1 and 2). The approximately 950 cubic yards of contaminated soil and material in the stockpile originated from construction of the OSDF Haul Road in 1997 (see Figure 3). During road construction, soil was excavated to a depth of approximately two feet from an area north of Building 69 (the former D&D building). During excavation activities, material suspected to be greensalt and metal debris with high surface radioactivity (up to 120K dpm) were discovered and subsequently placed into the stockpile. The excavation area encompassed portions of an existing gravel road which accounts for the relatively high concentration of gravel and rock observed on the surface of the stockpile (part of the excavation area is shown in Figure 3). The gravel and rock on the stockpile surface have impeded previous sampling attempts and therefore the modified sampling approach presented below will be utilized for HRD-002.

The historical analytical data from the OSDF Haul Road footprint and additional areas to the north and south of the footprint is included as Table 1. The material comprising the HRD-002 soil pile was excavated from the Haul Road footprint and did not encompass the additional area to the north and south as illustrated in Figure 3. This is significant due to two total lead analytical results of 123 mg/kg and 162 mg/kg south of the footprint which were not excavated for placement in the HRD-002 soil pile. In summary, the historical data demonstrates that total uranium is the only primary contaminant of concern with analytical results as high as 2,908 mg/kg.

HRD-002 Sampling Design

The sampling and analysis protocols defined in this variance are consistent with the overall characterization approach established in the PSP for materials designated for first waste loadout under Operable Unit 1 with the exception of the sample collection strategy. The analytical regime and sampling frequency (number of samples per cubic yard of material) are the same as those specified in the PSP. However, sampling and screening methods have been modified from those specified in sections 2.3 and 2.4 of the PSP to accommodate the specific physical characteristics of HRD-002. These modifications are defined in subsequent sections of this variance.

Based on the sampling frequency guidelines of the PSP and the HRD-002 volume of 950 cubic yards, four samples will be collected from the soil pile for gamma-emitting radionuclides, TCLP inorganics and pH, and TCLP organics. The four samples will be collected in a biased manner [based on field screening using a photoionization detector (PID) and beta-gamma meter] from four locations as described below. The four TCLP organic samples to be collected exceed the frequency requirements for the soil pile volume but are necessary to provide a statistical basis for manifesting the material. The remaining parameters, as summarized in Table 2 and Table 3, will be collected based on either a random selection or biased selection dependent on the individual parameter. The biased approach, where applicable, is based on the field screening criteria described in subsequent sections. As stated in the PSP, these sampling frequencies are based on Envirocare's most intensive oversight railcar sampling frequency as a conservative measure.

The analytical parameters and number of samples are summarized in Table 2 including sample preservation specifications. Table 3 summarizes the sample locations, identifiers, and analyses required from the four trench locations. Target Analyte Lists "A" through "K", including the required sample volume/mass for each container, are provided in Table 4. All analyses will be performed by an off-site laboratory contracted to IT Corporation, the WPRAP remediation contractor with one exception. One total inorganics sample will be analyzed by the FDF on-site laboratory as described below.

(continued on following page....)

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REQUESTED BY: Robert Fellman/Mark Cherry DATE: 7/22/99

X IF REQD	VARIANCE/FAN APPROVAL	DATE	X IF REQD	VARIANCE/FAN APPROVAL	DATE
X	QUALITY ASSURANCE	7/23/99	X	PROJECT MANAGER	7-22-99
	DATA QUALITY MANAGEMENT		X	FIELD SAMPLING MANAGER	7-22-99
X	ANALYTICAL CUSTOMER SUPPORT	7/22/99		WAO	
	OTHER		X	SAMPLING & DATA LEAD	7/22/99

VARIANCE/FCN APPROVED [X]YES [ ]NO REVISION REQUIRED: [ ]YES [x]NO

DISTRIBUTION

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PROJECT MANAGER:	DOCUMENT CONTROL: Jeanie Rosser	OTHER:
QUALITY ASSURANCE:	OTHER:	OTHER:

Continued from Page 1

SAMPLE COLLECTION METHODS AND FIELD SCREENING

Due to the nature and configuration of the HRD-002 soil pile, the methods described below supercede the requirements included in the PSP unless otherwise noted.

Based on recent sampling attempts and visual inspections of the HRD-002 soil pile, the pile's surface consists largely of gravel and rock which precludes the use of manual or Geoprobe® sampling methods. The sampling will be accomplished using a backhoe or trackhoe to excavate four trenches across the pile (north-south orientation) equally spaced over the pile's length. The excavated trenches through the soil pile will afford the opportunity for examination and screening of the exposed soil in the trench for biased sample selection.

The trackhoe or backhoe will excavate a trench with sloped or benched sidewalls with the width at the trench base being approximately the width of the excavator bucket. The soil pile has a maximum height of five feet and an average crest height of approximately four feet. Due to possible limitations on the reach of the trackhoe/backhoe, the minimum cross-section length to be excavated across the pile is three-fourths of the pile's width at each excavation location. For example, if the pile width is 40 feet at the point of trenching, then a 30-foot trench is acceptable since it is impractical for the excavator to maneuver over the surface of the pile due to the possibility of contaminating the excavator's tracks/wheels. Also, access on the north side of the pile is very limited due to the existing fence line's proximity to the pile.

The four trench locations will be selected in the field prior to sampling by the Field Sampling Lead based on a combination of equal spacing along the pile's length and equipment accessibility. The planned trench locations will be marked and surveyed by field surveying personnel prior to the start of excavation. The coordinates and elevation determined at the center point of the planned trench location will serve as the sample location reference. During trench excavation and sampling, a competent person will specify and inspect the sidewall benching or slope requirements per SPR 9-4, "Excavations". The excavated soil from each trench will be uniformly spread on the existing soil pile adjacent to the trench in accordance with the requirements of SPR 9-4.

All samples will be collected using clean, stainless steel scoops or trowels per procedure SMPL-01, *Solids Sampling*.

PID Screening and Sample Selection

The samples selected for analysis of organic compounds will be based on PID field soil screening. Field screening for volatile organic compounds (VOCs) will be performed within each trench immediately following completion of the excavation as described below. As a general rule, the PID aerial coverage will be a minimum of 1 ft^2 for every 1 yd^2 of exposed surface area within the trench. Each trench is expected to have approximately 12-16 yd^2 of soil exposed. The PID survey will be performed as close as possible to the soil surface (i.e., within 3 inches). Although significant VOCs are not expected in the soil pile, visual observations of the soil will also be used to guide the PID survey to monitor areas that may have a potential for VOC contamination (saturated or high moisture zones, etc). Additionally, the

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cavated soil will be visually observed for suspect VOC contamination, and if encountered, the PID walk-over survey ll include this soil component.

e soil zone within each trench (or excavated from the trench) yielding the highest PID walk-over survey reading (or or sed on visual inspection) will be sampled for the following analysis:

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1) Field headspace PID measurement (in accordance with the PSP)
2) TCLP VOCs (TAL D) and TCLP semi-VOCs (TAL D)
3) A "contingency" PCB sample will be collected for potential laboratory analysis pending the determination of the highest PID area within the entire soil pile.

ıe TCLP organics samples will be collected from just beneath the soil surface to avoid the recently exposed soil otential loss of VOCs). Note that the walk-over survey result drives the decision of which sample will be submitted to e laboratory; the headspace data is for informational purposes only.

ɔur TCLP organic samples will be collected from the entire HRD-002 pile (one from each of the four trenches). If no ɔove-background levels of VOCs are detected with the PID from any trench area, then the sample for organic ɔmpound analysis will be selected based on visual observations of the soil in each trench. Large gravel (i.e., ·avel/rock >1 inch diameter) and debris (i.e., metal, wood) should be excluded from the soil samples since they are ɔt representative of the pile's bulk contamination.

.adiological Screening and Sample Selection

he four samples selected for radiological analysis by gamma spectroscopy (TAL A), percent U-235 (TAL F) and TCLP ıorganics (TAL B) will be selected based on field radiological screening of soils. Since there is no field screening vailable for inorganic contaminants, it will be collected from the radiological sampling point for the sake of simplicity. Vithin each trench, the soil zone having the highest beta-gamma reading will be selected for laboratory analysis (a total ·f four samples collected from the entire pile). Also, the soil zone having the highest beta-gamma reading will be ampled for TAL C analysis (alpha spectroscopy). This will require that a "contingency" alpha spectroscopy sample be ·ollected from each trench and then the sample having the highest beta-gamma field activity of the entire pile will be ·elected for analysis

·ield radiological screening of the exposed soil surface within each trench will be performed using a Geiger-Mueller ɔeta-gamma detector combined with a rate meter (frisker). As a general rule, the radiological survey aerial coverage vill be a minimum of 1 ft^2 for every 1 yd^2 of exposed surface area within the trench. The radiological screening should ɔe biased to areas of potential radiological contamination based on visual observations. However, fragments of metal ınd other debris should be avoided during screening and sample collection since this material is usually not expected to ɔe representative of the bulk contamination of the pile, which predominantly consists of soil and gravel. Furthermore, arge gravel should be excluded from the soil samples (i.e., gravel/rock >1 inch diameter).

Miscellaneous Sample Selection

One soil sample is required from the entire HRD-002 soil pile for each of the following analysis: total inorganics (TAL K), Paint Filter Liquids Test (TAL H), reactive cyanide and sulfide (TAL G), and a 5-point proctor density. The laboratory destinations are provided in Table 2. The total inorganics sample, Paint Filter Liquids Test, and reactive cyanide and sulfide sample has been randomly designated to be collected from trench #3 since there is no visual or field screening method for these parameters. The proctor density sample will consist of a composite sample by collecting approximately 13 pounds of soil/rock from each trench. Each 13-pound sample will be combined for a total of approximately 52 pounds of soil to form the proctor density sample. Alpha/beta samples are required for each sample shipped to an off-site laboratory for pre-shipment screening purposes.

Sample Identification

The sample identifiers for the HRD-002 are summarized in Table 3 for each analytical sample. The prefix for all samples will be *HRD2-x-y* where *x* is the Trench Number and *y* is the analyte group.

JUSTIFICATION

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The WPRAP project requires that the HRD-002 soil pile be characterized for the Envirocare waste acceptance criteria prior to excavation and processing for shipment as part of the OU! First Waste Loadout program.

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V/FLN 60500-PSP-02-

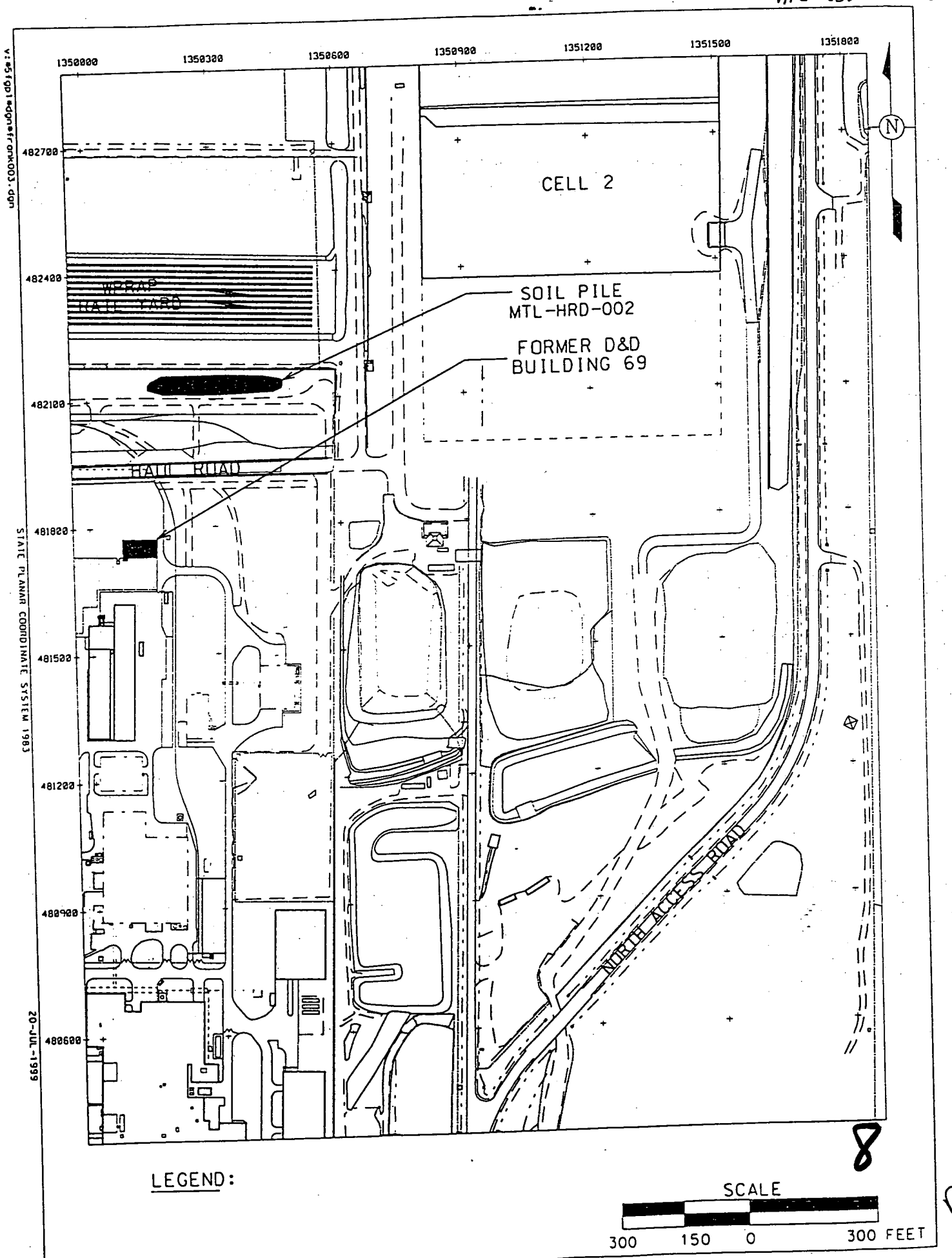

FIGURE 1 LOCATION MAP FOR SOIL PILE MTL-HRD-002

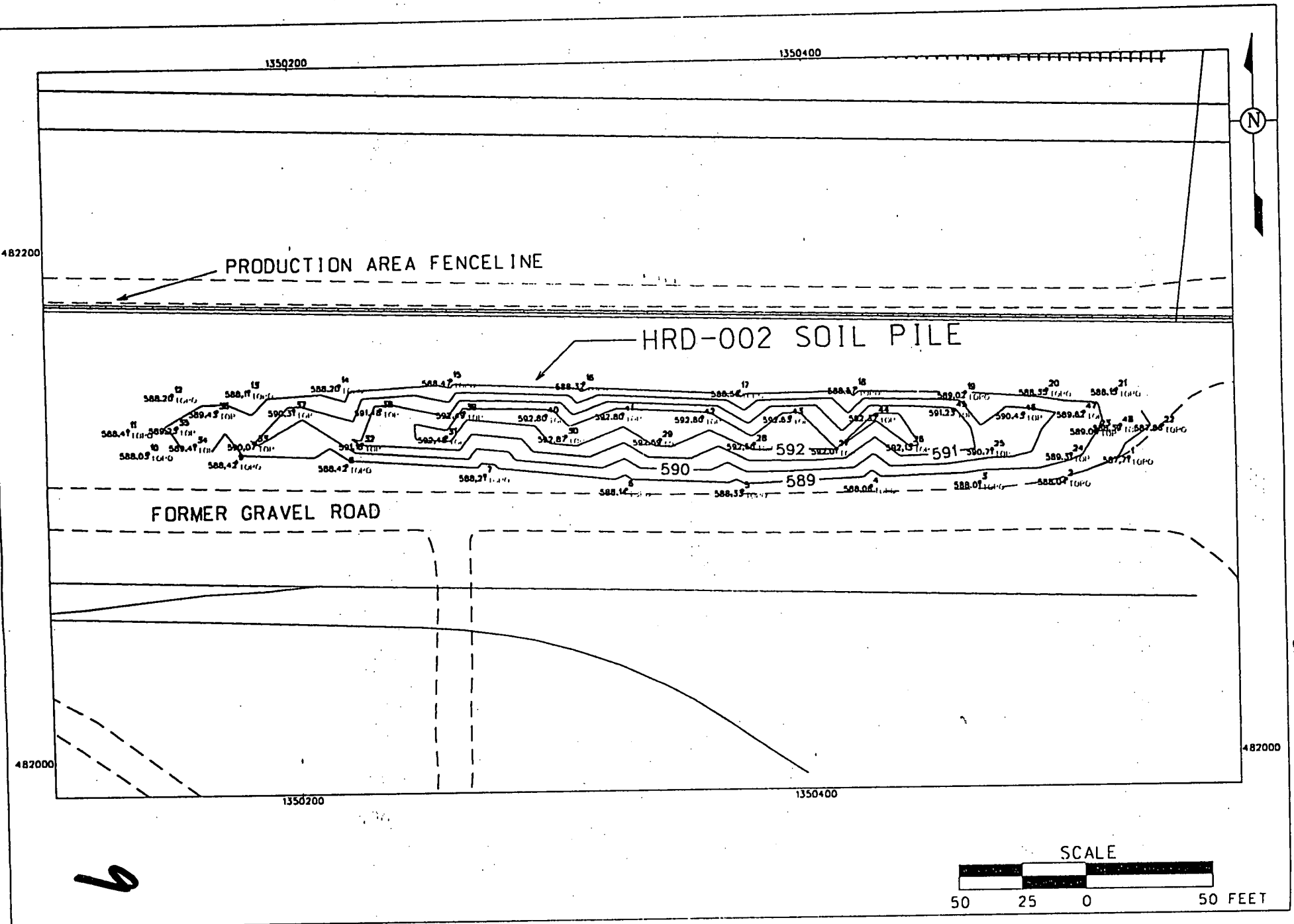

FIGURE 2. HRD-002 SOIL PILE CONTOURS

v1e2fm12dgn=na_pile2.dgn
STATE PLANAR COORDINATE SYSTEM 1927

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	DG	DG TYPE	LOCATION ID	STA#	SAMPLE ID	NORTHING	EASTING	TDEPTH	BDEPTH	PARAMETER	RESULT	UNITS	QUAL	GRID	ASSIGN DATE
001	DG00150	RIFS-HISTORICA	SMA-5		099268	481858.57	1350499.577	0	0.5	1,1-Dichloroethene	12	ug/kg	U	O17-42	6/8/1998
001	DG00150	RIFS-HISTORICA	SMA-4		099269	481843.067	1350282.918	0	0.5	1,1-Dichloroethene	12	ug/kg	U	O17-41	6/8/1998
-001	DG00150	RIFS-HISTORICA	036		020108	481829.419	1350480.967	1	2.5	1,1-Dichloroethene	6	ug/kg	UNV	O17-42	6/8/1998
-001	DG00150	RIFS-HISTORICA	SMA-5		099268	481858.57	1350499.577	0	0.5	4-Nitroaniline	2000	ug/kg	U	O17-42	6/8/1998
-001	DG00150	RIFS-HISTORICA	SMA-4		099269	481843.067	1350282.918	0	0.5	4-Nitroaniline	1900	ug/kg	U	O17-41	6/8/1998
-001	DG00150	RIFS-HISTORICA	SMA-5		099268	481858.57	1350499.577	0	0.5	Bromodichloromethane	-12	ug/kg	U	O17-42	6/8/1998
-001	DG00150	RIFS-HISTORICA	SMA-4		099269	481843.067	1350282.918	0	0.5	Bromodichloromethane	12	ug/kg	U	O17-41	6/8/1998
-001	DG00150	RIFS-HISTORICA	036		020108	481829.419	1350480.967	1	2.5	Bromodichloromethane	6	ug/kg	UNV	O17-42	6/8/1998
-001	DG00150	RIFS-HISTORICA	SMA-4		099269	481843.067	1350282.918	0	0.5	Lead	162	mg/kg	-	O17-41	6/8/1998
-001	DG00150	RIFS-HISTORICA	SMA-5		099268	481858.57	1350499.577	0	0.5	Lead	123	mg/kg	-	O17-42	6/8/1998
-001	DG00150	RIFS-HISTORICA	036		020104	481829.419	1350480.967	1	2.5	Lead	7.8	mg/kg	NV	O17-42	6/8/1998
-001	DG00150	RIFS-HISTORICA	036		020105	481829.419	1350480.967	1	2.5	Lead	7.8	mg/kg	NV	O17-42	6/8/1998
-001	DG00150	RIFS-HISTORICA	1277		018663	481988.075	1350008.847	0	0.5	Technetium-99	5.09	pCi/g	J	O17-32	6/8/1998
-001	DG00150	RIFS-HISTORICA	1280		018729	481907.426	1350193.967	0	0.5	Technetium-99	4.79	pCi/g	J	O17-32	6/8/1998
-001	DG00150	RIFS-HISTORICA	SMA-4		099269	481843.067	1350282.918	0	0.5	Technetium-99	2.86	pCi/g	NV	O17-41	6/8/1998
-001	DG00150	RIFS-HISTORICA	SMA-5		099268	481858.57	1350499.577	0	0.5	Technetium-99	1	pCi/g	UNV	O17-42	6/8/1998
-001	DG00150	RIFS-HISTORICA	SMA-5		099268	481858.57	1350499.577	0	0.5	Trichloroethene	12	ug/kg	U	O17-42	6/8/1998
-001	DG00150	RIFS-HISTORICA	SMA-4		099269	481843.067	1350282.918	0	0.5	Trichloroethene	12	ug/kg	U	O17-41	6/8/1998
-001	DG00150	RIFS-HISTORICA	036		020108	481829.419	1350480.967	1	2.5	Trichloroethene	6	ug/kg	UNV	O17-42	6/8/1998
-001	DG00150	RIFS-HISTORICA	SP-23		92-178-5129	481899.419	1350446.967	0	0.5	Uranium, Total	2907.914944	mg/kg	NV	O17-42	6/8/1998
-001	DG00150	RIFS-HISTORICA	SP-24		92-178-5132	481899.42	1350495.966	0	0.5	Uranium, Total	1678.324342	mg/kg	NV	O17-42	6/8/1998
-001	DG00150	RIFS-HISTORICA	1505		000568	481866.048	1350394.667	0	0.5	Uranium, Total	1637	mg/kg	-	O17-41	6/8/1998
-001	DG00150	RIFS-HISTORICA	1505		000569	481866.048	1350394.667	0.5	1	Uranium, Total	1474	mg/kg	-	O17-41	6/8/1998
-001	DG00150	RIFS-HISTORICA	SP-20		92-178-5126	481941.421	1350519.966	0	0.5	Uranium, Total	1438.362783	mg/kg	NV	O17-42	6/8/1998
-001	DG00150	RIFS-HISTORICA	SP-19		92-178-5125	481940.42	1350470.966	0	0.5	Uranium, Total	1379.31319	mg/kg	NV	O17-42	6/8/1998
-001	DG00150	RIFS-HISTORICA	SP-72		92-178-5181	481942.418	1350278.967	0	0.5	Uranium, Total	1078.424463	mg/kg	NV	O17-41	6/8/1998
-001	DG00150	RIFS-HISTORICA	SP-29		92-178-5136	481858.419	1350470.967	0	0.5	Uranium, Total	779.40688	mg/kg	NV	O17-42	6/8/1998
-001	DG00150	RIFS-HISTORICA	SP-25		92-178-5133	481898.421	1350543.966	0	0.5	Uranium, Total	778.9455248	mg/kg	NV	O17-42	6/8/1998
-001	DG00150	RIFS-HISTORICA	002		020003	481929.419	1350380.966	0	1.5	Uranium, Total	667.4618146	mg/kg	J	O17-41	6/8/1998
-001	DG00150	RIFS-HISTORICA	SP-30		92-178-5137	481858.42	1350518.967	0	0.5	Uranium, Total	659.4172579	mg/kg	NV	O17-42	6/8/1998
-001	DG00150	RIFS-HISTORICA	SP-17		92-178-5121	481941.419	1350374.966	0	0.5	Uranium, Total	659.2449344	mg/kg	NV	O17-41	6/8/1998
-001	DG00150	RIFS-HISTORICA	SP-21		92-178-5127	481898.418	1350351.967	0	0.5	Uranium, Total	659.230465	mg/kg	NV	O17-41	6/8/1998
-001	DG00150	RIFS-HISTORICA	SP-22		92-178-5128	481899.419	1350399.967	0	0.5	Uranium, Total	629.2309753	mg/kg	NV	O17-41	6/8/1998
-001	DG00150	RIFS-HISTORICA	SP-16		92-178-5120	481941.418	1350327.966	0	0.5	Uranium, Total	628.3191914	mg/kg	NV	O17-41	6/8/1998
-001	DG00150	RIFS-HISTORICA	SP-28		92-178-5135	481858.419	1350423.967	0	0.5	Uranium, Total	599.4799971	mg/kg	NV	O17-42	6/8/1998
-001	DG00150	RIFS-HISTORICA	SP-34		92-178-5140	481816.419	1350495.967	0	0.5	Uranium, Total	539.5636367	mg/kg	NV	O17-42	6/8/1998
-001	DG00150	RIFS-HISTORICA	SP-32		92-178-5138	481816.418	1350398.968	0	0.5	Uranium, Total	479.5990447	mg/kg	NV	O17-41	6/8/1998
-001	DG00150	RIFS-HISTORICA	012		020033	481879.419	1350430.967	0	1	Uranium, Total	478.5742561	mg/kg	J	O17-42	6/8/1998
-001	DG00150	RIFS-HISTORICA	11230		073513	481866.539	1350399.447	0	0.5	Uranium, Total	473	mg/kg	NV	O17-41	6/8/1998
-001	DG00150	RIFS-HISTORICA	SP-27		92-178-5134	481858.418	1350375.967	0	0.5	Uranium, Total	449.4619464	mg/kg	NV	O17-41	6/8/1998
-001	DG00150	RIFS-HISTORICA	SP-18		92-178-5124	481940.42	1350422.966	0	0.5	Uranium, Total	419.5579374	mg/kg	NV	O17-42	6/8/1998
-001	DG00150	RIFS-HISTORICA	SP-13		92-178-5117	481983.42	1350447.966	0	0.5	Uranium, Total	419.5116411	mg/kg	NV	O17-42	6/8/1998
-001	DG00150	RIFS-HISTORICA	SP-70		92-178-5177	481983.417	1350205.966	0	0.5	Uranium, Total	419.4031321	mg/kg	NV	O17-41	6/8/1998

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VIEW 160500-PSP-02-7

	DG	DG TYPE	LOCATION ID	STA#	SAMPLE ID	NORTHING	EASTING	TDEPTH	BDEPTH	PARAMETER	RESULT	UNITS	QUAL	GRID	ASSIGN DATE
D-001	DG00150	RIFS-HISTORICA	SMA-5		099268	481858.57	1350499.577	0	0.5	Uranium, Total	411.0374164	mg/kg	J	O17-42	6/8/1998
D-001	DG00150	RIFS-HISTORICA	SP-33		92-178-5139	481816.419	1350447.968	0	0.5	Uranium, Total	389.5574772	mg/kg	NV	O17-42	6/8/1998
D-001	DG00150	RIFS-HISTORICA	SP-35		92-178-5147	481816.42	1350542.967	0	0.5	Uranium, Total	299.7176543	mg/kg	NV	O17-42	6/8/1998
D-001	DG00150	RIFS-HISTORICA	1280		018729	481907.426	1350193.967	0	0.5	Uranium, Total	290.8808022	mg/kg	-	O17-32	6/8/1998
D-001	DG00150	RIFS-HISTORICA	1281		018763	481873.419	1350395.307	6	6.5	Uranium, Total	265	mg/kg	NV	O17-41	6/8/1998
D-001	DG00150	RIFS-HISTORICA	SP-15		92-178-5119	481983.421	1350543.965	0	0.5	Uranium, Total	260.6084214	mg/kg	NV	O17-42	6/8/1998
D-001	DG00150	RIFS-HISTORICA	1281		018751	481873.419	1350395.307	0	0.5	Uranium, Total	240	mg/kg	NV	O17-41	6/8/1998
D-001	DG00150	RIFS-HISTORICA	SP-14		92-178-5118	481983.421	1350495.965	0	0.5	Uranium, Total	230.753924	mg/kg	NV	O17-42	6/8/1998
D-001	DG00150	RIFS-HISTORICA	SMA-4		099269	481843.067	1350282.918	0	0.5	Uranium, Total	191.0357038	mg/kg	NV	O17-41	6/8/1998
D-001	DG00150	RIFS-HISTORICA	1505		000575	481866.048	1350394.667	3.5	4	Uranium, Total	190	mg/kg	-	O17-41	6/8/1998
D-001	DG00150	RIFS-HISTORICA	1277		018663	481988.075	1350008.847	0	0.5	Uranium, Total	176.4118957	mg/kg	-	O17-32	6/8/1998
D-001	DG00150	RIFS-HISTORICA	1505		000589	481866.048	1350394.667	10.5	11	Uranium, Total	174	mg/kg	-	O17-41	6/8/1998
D-001	DG00150	RIFS-HISTORICA	003		020006	481879.418	1350380.967	0	1	Uranium, Total	156	mg/kg	J	O17-41	6/8/1998
D-001	DG00150	RIFS-HISTORICA	SP-68		92-178-5175	481984.418	1350303.966	0	0.5	Uranium, Total	155.7866934	mg/kg	NV	O17-41	6/8/1998
D-001	DG00150	RIFS-HISTORICA	SP-69		92-178-5176	481983.418	1350255.966	0	0.5	Uranium, Total	143.7907858	mg/kg	NV	O17-41	6/8/1998
D-001	DG00150	RIFS-HISTORICA	SP-73		92-178-5182	481900.418	1350303.967	0	0.5	Uranium, Total	101.8439298	mg/kg	NV	O17-41	6/8/1998
D-001	DG00150	RIFS-HISTORICA	010		020027	481979.42	1350430.966	0	1	Uranium, Total	95.61919512	mg/kg	J	O17-42	6/8/1998
D-001	DG00150	RIFS-HISTORICA	004		020009	481829.418	1350380.968	0	1	Uranium, Total	93	mg/kg	J	O17-41	6/8/1998
D-001	DG00150	RIFS-HISTORICA	11230		073523	481866.539	1350399.447	5	5.5	Uranium, Total	56.8	mg/kg	NV	O17-41	6/8/1998
D-001	DG00150	RIFS-HISTORICA	1277		018672	481988.075	1350008.847	4.5	5	Uranium, Total	51	mg/kg	NV	O17-32	6/8/1998
D-001	DG00150	RIFS-HISTORICA	SP-12		92-178-5116	481983.42	1350399.966	0	0.5	Uranium, Total	38	mg/kg	NV	O17-41	6/8/1998
D-001	DG00150	RIFS-HISTORICA	1280		018750	481907.426	1350193.967	10.5	11	Uranium, Total	36	mg/kg	NV	O17-32	6/8/1998
D-001	DG00150	RIFS-HISTORICA	1505		000583	481866.048	1350394.667	7.5	8	Uranium, Total	27	mg/kg	-	O17-41	6/8/1998
D-001	DG00150	RIFS-HISTORICA	1281		018771	481873.419	1350395.307	10	10.5	Uranium, Total	19	mg/kg	NV	O17-41	6/8/1998
D-001	DG00150	RIFS-HISTORICA	1505		000571	481866.048	1350394.667	1.5	2	Uranium, Total	19	mg/kg	-	O17-41	6/8/1998
D-001	DG00150	RIFS-HISTORICA	1505		000572	481866.048	1350394.667	2	2.5	Uranium, Total	13	mg/kg	-	O17-41	6/8/1998
D-001	DG00150	RIFS-HISTORICA	11230		073517	481866.539	1350399.447	2	2.5	Uranium, Total	11	mg/kg	UNV	O17-41	6/8/1998
D-001	DG00150	RIFS-HISTORICA	1280		018733	481907.426	1350193.967	2	2.5	Uranium, Total	11	mg/kg	UNV	O17-32	6/8/1998
D-001	DG00150	RIFS-HISTORICA	11230		073533	481866.539	1350399.447	10	10.5	Uranium, Total	11	mg/kg	UNV	O17-41	6/8/1998
D-001	DG00150	RIFS-HISTORICA	1280		018739	481907.426	1350193.967	5	5.5	Uranium, Total	11	mg/kg	UNV	O17-32	6/8/1998
D-001	DG00150	RIFS-HISTORICA	1280		053303	481907.426	1350193.967	15	15.5	Uranium, Total	11	mg/kg	UNV	O17-32	6/8/1998
D-001	DG00150	RIFS-HISTORICA	1277		018667	481988.075	1350008.847	2	2.5	Uranium, Total	11	mg/kg	UNV	O17-32	6/8/1998
D-001	DG00150	RIFS-HISTORICA	004		020011	481829.418	1350380.968	2	3	Uranium, Total	8.395924309	mg/kg	J	O17-41	6/8/1998
D-001	DG00150	RIFS-HISTORICA	1505		000607	481866.048	1350394.667	19.5	20	Uranium, Total	6	mg/kg	-	O17-41	6/8/1998
D-001	DG00150	RIFS-HISTORICA	003		020008	481879.418	1350380.967	2	3	Uranium, Total	5	mg/kg	J	O17-41	6/8/1998
D-001	DG00150	RIFS-HISTORICA	012		020035	481879.419	1350430.967	2	3	Uranium, Total	4	mg/kg	J	O17-42	6/8/1998
D-001	DG00150	RIFS-HISTORICA	SMA-5		099268	481858.57	1350499.577	0	0.5	bis(2-Chloroisopropyl) ether	400	ug/kg	U	O17-42	6/8/1998
D-001	DG00150	RIFS-HISTORICA	SMA-4		099269	481843.067	1350282.918	0	0.5	bis(2-Chloroisopropyl) ether	400	ug/kg	U	O17-41	6/8/1998

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TABLE 2 - Analytical Summary for Soil Sampling

Analysis	Target Analyte Lists	No. of Analyses	Target Lab	Turn Around Time (Days)	Sample Wt. (wet)	Preserv-ative	Container Type (ml) [b]
Gamma Spec. Scan (30 minute count time) and % Moisture	TAL A	4	Off-site[a]	Determined by IT	300g	None	250 (G or P)[b]
Alpha Spec. Isotopic U, Isotopic Th, Ra-226	TAL C	1	Off-site[a]	Determined by IT	50g		
ICP-MS U-235	TAL F	4	Off-site[a]	Determined by IT	50g		
TCLP Inorganics + Zn and pH	TAL B	4	Off-site[a]	Determined by IT	200g	4°C	120 (G or P)
TCLP Organics (VOCs)	TAL D - VOCs	4	Off-site[a]	Determined by IT	25g	4°C	60 (G)
TCLP Organics (BNA /Herbicides/Pesticides)	TAL D -SVOCs	4	Off-site[a]	Determined by IT	175g/ 575g[c]	4°C	120/ 500 (G)[c]
PCB	TAL E	1	Off-site[a]	Determined by IT	200g	4°C	120 (G)
Reactive Cyanide and Sulfide	TAL G	1	Off-site[a]	ASAP upon Receipt by lab	150g	4°C	120 amber (G)
Paint Filter Liquids Test	TAL H	1	IT On-site	ASAP upon Receipt by lab	200g	4°C	120 (G or P)
5 Point Proctor Density	None	1	IT On-site	Determined by IT	50 lbs	seal soil in plastic bag	2, 5-gal. Steel
Total Inorganics	TAL K	1	FDF On-site	Determined by IT	150g	4°C	120 (G or P)
Alpha/Beta Screen	None	one for each sample location	FDF On-site	1 day	20g	None	120 (G or P)
Trip Blanks (VOCs)	TAL J	1-3	Off-site[a]	Determined by IT	40 ml	H_2SO_4 to pH<2, 4°C	40 mL vials (3)

[a] Off-site analysis requiring alpha/beta screen prior to shipment.

[b] G = Glass, P = Plastic

[c] The 500 ml container will be substituted for the 120 ml container at the one sample location were a QC sample will be collected.

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TABLE 3 - HRD-002 SAMPLE IDENTIFICATION AND LOCATIONS

Trench Number	Northing	Easting	Required TAL Samples	Basis for Sample Selection	Sample ID
1	TBD	TBD	A and F (gamma spec. and %U-235)	Highest field beta-gamma	HRD2-1-R
			C ("contingency " alpha spec.)[a]	Highest field beta-gamma	HRD2-1-R
			B (TCLP Inorg.)	Highest field beta-gamma	HRD2-1-TM
			Proctor composite	Random	HRD2-PD
			TAL D (TCLP organics)	Highest PID survey result[b]	HRD2-1-TV HRD2-1-TS
			E ("contingency" PCB sample)[c]	Highest PID survey result	HRD2-1-P
2	TBD	TBD	A and F (gamma spec. and %U-235)	Highest field beta-gamma	HRD2-2-R
			C ("contingency " alpha spec.)[a]	Highest field beta-gamma	HRD2-2-R
			B (TCLP Inorg.)	Highest field beta-gamma	HRD2-2-TM
			Proctor composite	Random	HRD2-PD
			TAL D (TCLP organics)	Highest PID survey result[b]	HRD2-2-TV HRD2-2-TS
			E ("contingency" PCB sample)[c]	Highest PID survey result	HRD2-2-P
3	TBD	TBD	A and F (gamma spec. and %U-235)	Highest field beta-gamma	HRD2-3-R
			C ("contingency" alpha spec.)[a]	Highest field beta-gamma	HRD2-3-R
			B (TCLP Inorg.)	Highest field beta-gamma	HRD2-3-TM
			Proctor composite	Random	HRD2-PD
			TAL D (TCLP organics)	Highest PID survey result[b]	HRD2-3-TV HRD2-3-TS
			E ("contingency" PCB sample)[c]	Highest PID survey result	HRD2-3-P
			G (reactive cyanide/sulfide)	Random/center of trench	HRD2-3-CS
			K (total inorganics)	Random/center of trench	HRD2-3-M
			H (paint filter liquid test)	Random/center of trench	HRD2-3-PFLT

Notes:

[a] The one alpha spectroscopy (TAL C) sample having the highest beta-gamma reading from the entire soil pile will be submitted for analysis.

[b] The TCLP organics sample (TAL D) from each trench (total of four) will be based on either the highest above-bkgd. PID survey result (if any) or a visual inspection (if no PID readings above background).

[c] The one PCB sample (TAL E) will be collected based on either the highest above-bkgd. PID survey result or a visual inspection (if no PID readings above background).

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TABLE 3 (continued) - IIRD-002 SAMPLE IDENTIFICATION AND LOCATIONS

Trench Number	Northing	Easting	Required TAL Samples	Basis for Sample Selection	Sample ID	Notes
4	TBD	TBD	A and F (gamma spec. and %U-235)	Highest field beta-gamma	HRD2-4-R	
			C ("contingency " alpha spec.)[a]	Highest field beta-gamma	HRD2-4-R	
			B (TCLP Inorg.)	Highest field beta-gamma	HRD2-4-TM	
			Proctor composite	Random	HRD2-PD	
			TAL D (TCLP organics)	Highest PID survey result[b]	HRD2-4-TV HRD2-4-TS	
			E ("contingency" PCB sample)[c]	Highest PID survey result	HRD2-4-P	

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TABLE 4

TARGET ANALYTE LISTS FOR HRD-002 SOIL PILE

TAL A (4 samples – IT Off-site Contract Lab)

Gamma Spectrometry Scan / Percent Moisture (300 grams): 30-minute count time identification of all peaks using multiple library searches

TAL B (4 samples - IT Off-site Contract Lab)

TCLP Inorganics and pH (200 grams): Arsenic, Barium, Cadmium, Chromium, Lead, Mercury, Selenium, Silver, Zinc, pH

TAL C (1 sample - Off-site IT Contract Lab)

Alpha Spectrometry (5 grams): Isotopic uranium, Isotopic thorium, Radium-226

TAL D (4 samples - Off-site IT Contract Lab)

TCLP Organics (60 grams/120 grams/500 grams): Endrin, Lindane, Methoxychlor, Toxaphene, 2,4-D, 2,4,5-TP (Silvex), Benzene, Carbon Tetrachloride, Chlordane, Chlorobenzene, Chloroform, o-Cresol, m-Cresol, p-Cresol, Cresol, 1,4-Dichlorobenzene, 1,2-Dichloroethane, 1,1-Dichloroethylene, 2,4-Dinitrotoluene, Heptachlor (and its epoxide), Hexachlorobenzene, Hexachlorobutadiene, Hexachloroethane, Methyl ethyl ketone, Nitrobenzene, Pentachlorophenol, Pyridine, Tetrachloroethylene, Trichloroethylene, 2,4,5-Trichlorophenol, 2,4,6-Trichlorophenol, Vinyl chloride

TAL E (1 sample - Off-site IT Contract Lab)

Polychlorinated biphenyls (200 grams): Aroclor 1016, Aroclor 1221, Aroclor 1232, Aroclor 1242, Aroclor, 1248, Aroclor 1254, Aroclor 1260

TAL F (4 samples - Off-site IT Contract Lab)

ICP/MS (5 grams): Uranium-235 (wt %)

TAL G (1 sample - Off-site IT Contract Lab)

Reactive cyanide and sulfide (150 grams)

TAL H (1 sample - IT On-site Lab)

Paint Filter Liquids Test (200 grams)

[TAL I is not assigned – no longer needed due to all samples analyzed at an off-site lab]

TAL J (1-3 samples - Off-site IT Contract Lab)

Total Volatiles (3 x 40 mL vials) for Trip Blanks: Vinyl chloride, 1,1-dichloroethylene, Chloroform, 1,2-dichloroethane, Methyl ethyl ketone, Carbon tetrachloride, Trichloroethylene, Benzene, Tetrachloroethylene, Chlorobenzene

TAL K (1 sample – FDF On-site Lab)

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Total Inorganics (150 grams): Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Nickel, Potassium, Selenium, Silver, Sodium, Vanadium, Zinc, pH

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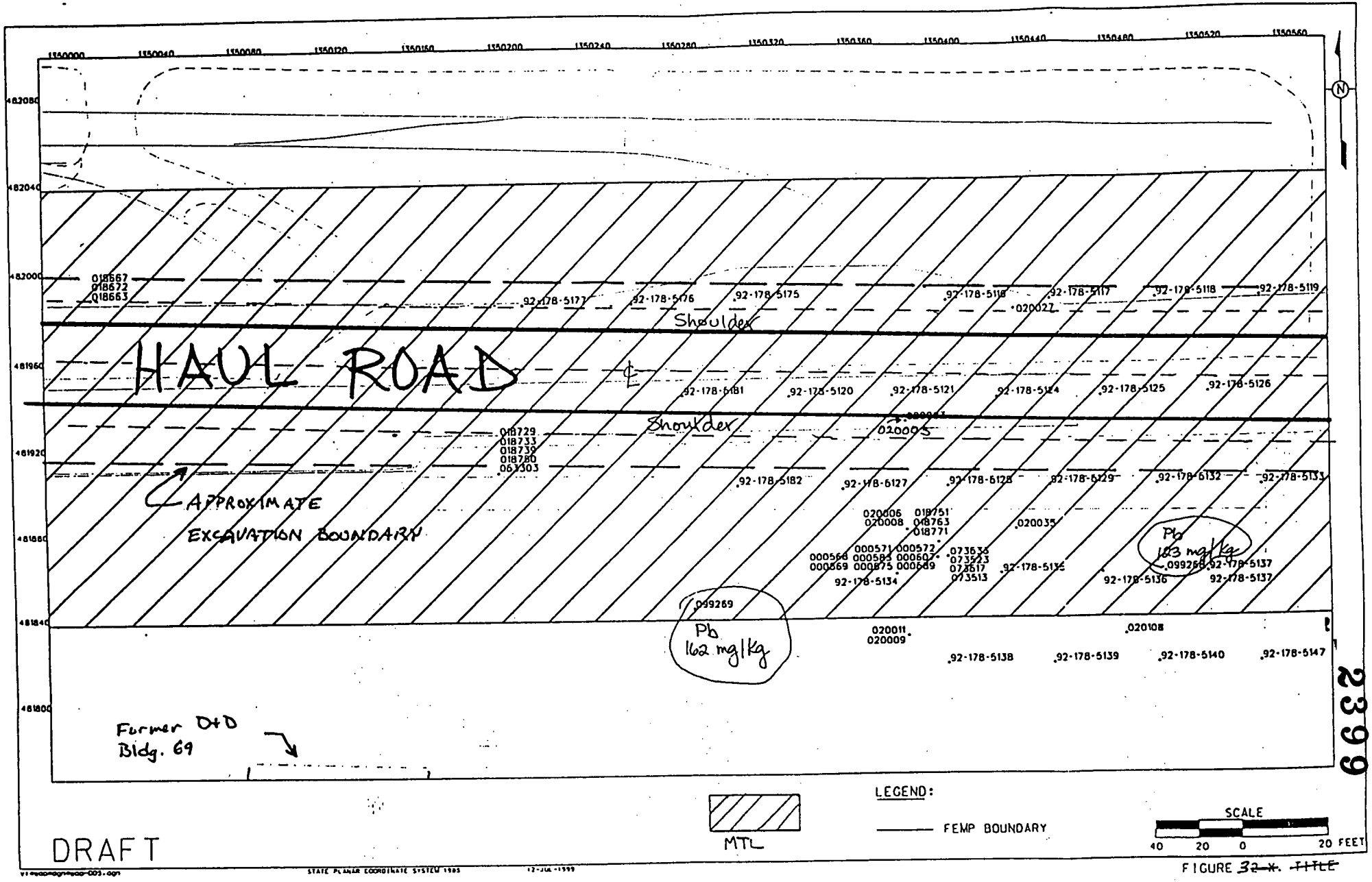

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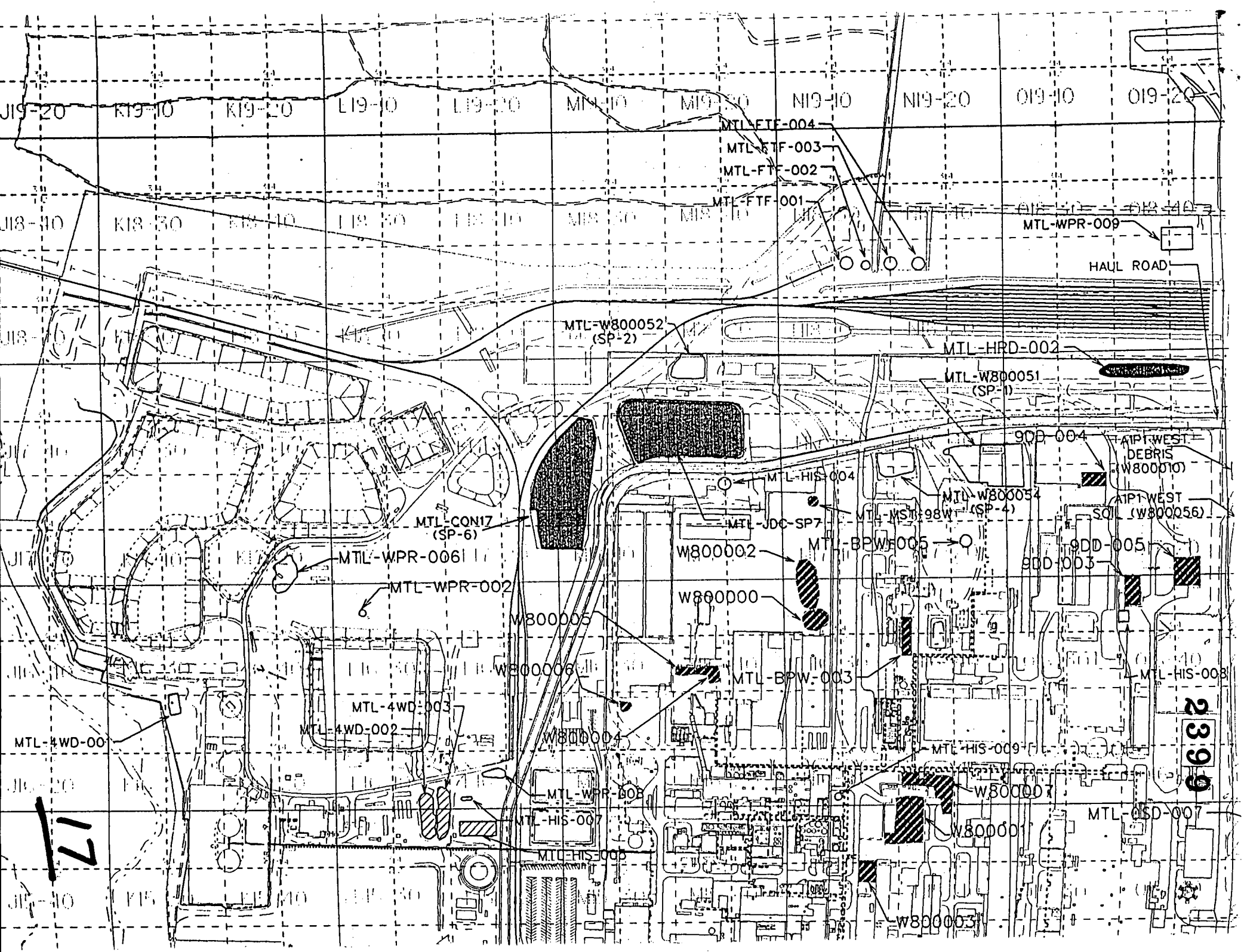
FIGURE 3: MTL AREA FOR DATA SUMMARIZED IN TABLE 1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K19-10
K19-20
L19-10
L19-20
M19-10
M19-20
N19-10
N19-20
O19-10
O19-20
J18-10
K18-30
MTL-FTF-004
MTL-FTF-003
MTL-FTF-002
MTL-FTF-001
MTL-WPR-009
HAUL ROAD
MTL-W800052
(SP-2)
MTL-HRD-002
MTL-W800051
(SP-1)
900-004
A1P1-WEST
DEBRIS
(W800010)
MTL-HIS-004
MTL-W800054
(SP-4)
A1P1-WEST
SOIL (W800056)
MTL-MST-98WT
MTL-JDC-SP7
MTL-CON17
(SP-6)
W800002
MTL-BPW-005
900-005
900-003
MTL-WPR-006
MTL-WPR-002
W800000
W800005
W800006
MTL-BPW-003
MTL-HIS-008
MTL-4WD-003
MTL-4WD-002
MTL-4WD-00
W800004
MTL-HIS-009
W800007
MTL-WPR-008
MTL-HIS-007
MTL-OSD-007
W800001
MTL-HIS-006
W800003
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2396