

**PROJECT SPECIFIC PLAN
WAC ATTAINMENT OF COLLAPSED SOIL
IN PADDY'S RUN**

**FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
FERNALD, OHIO**



OCTOBER 1997

**U.S. DEPARTMENT OF ENERGY
FERNALD AREA OFFICE**

**20540-PSP-0001
REVISION 0**

000001

VARIANCE / FIELD CHANGE NOTICE

V/F No. 60.03.73.01-1

PROJECT TITLE: PSP - WAC Attainment of Collapsed Soil in Paddy's Run (Rev. 0)

Date: 10/8/97

VARIANCE / FIELD CHANGE NOTICE (Include Justification): Document 20540-PSP-0001)

1) This variance/field change notice specifies additional sampling in the soil contamination area within segment 2 as identified in Figure 1-1 in the PSP. The soil contamination area is in the vicinity of a tree root that was removed from the soil slough area within the Paddys Run stream channel.

Four soil samples will be collected from 0-6" based on the highest radiological survey readings in the area of the former tree root mass and based on visual selection by the Project Manager. Samples will be collected based on procedure SMPL-01 and as directed by the Field Sampling Lead. The samples will be identified as follows:

- A7PRCS-19-1-R
- A7PRCS-20-1-R
- A7PRCS-21-1-R
- A7PRCS-22-1-R

Due to immediate excavation following the sample collection, the sample location coordinates will be estimated using field tape measurements from known reference survey points.

A new Target Analyte List (TAL PRES-E) applies to these samples and consists of the following:

Gamma Spectroscopy (ASL B)

Gas Proportional Counting (ASL B)

- U-235
- U-238
- Total Uranium
- Ra-226
- Ra-228

Tc-99

All samples will be analyzed at the onsite laboratory.

Justification:

The analytical data is needed to identify the radioisotopes that comprise the soil contamination that has fallen from the upper stream bank for purposes of WAC attainment.

2) This variance/field change notice specifies the collection of HPGe gamma measurements within segment 2 as identified in Figure 1-1 in the PSP. Measurements will be collected on Detector 30716 as records 880, 881, and 882. They will be labeled as PRFTA (Paddys Run Fallen Tree Area) #1 (1 meter - record 880; one foot - record 881) and PRFTA #2 (one meter- record 882).

Justification:

The HPGe data is needed to determine the isotopes of concern for physical sampling..

ORIGINAL

REQUESTED BY: Mike Frank *MF*

Date: October 8, 1997

X IF REQD	VARIANCE/FCN APPROVAL	DATE	X IF REQD	VARIANCE/FCN APPROVAL	DATE
X	QUALITY ASSURANCE <i>R. R. R. R. R.</i>	10-8-97	X	PROJECT MANAGER <i>Thomas J. C. J. C.</i>	10-8-97
	DATA QUALITY MANAGEMENT		X	SOEP SAMPLING & CHANGING <i>John M. Dupuis</i>	10/8/97
<i>X MF</i>	ANALYTICAL CUSTOMER SUPPORT		<i>1</i>	OTHER <i>John M. Dupuis</i>	10/8/97
	OTHER			OTHER	

VARIANCE/FCN APPROVED [X] YES [] NO

REVISION REQUIRED: [] YES [x] NO

DISTRIBUTION

PROJECT MANAGER:	DOCUMENT CONTROL: Michelle Tudor	OTHER:
QUALITY ASSURANCE:	OTHER:	OTHER:
FIELD MANAGER:	OTHER:	OTHER:

VARIANCE / FIELD CHANGE NOTICE

V/F No. 50.03.73.01-2

Page 1 of 2

Date: 10/10/97

PROJECT TITLE: PSP - WAC Attainment of Collapsed Soil in Paddy's Run (Rev. 0)

VARIANCE / FIELD CHANGE NOTICE (Include justification):

Document 20540-PSP-0001)

Variance:

This variance/field change notice documents that additional HPGe readings were collected on 10/9/97 in segment 2 (as identified in Figure 1-1 in the PSP). The readings under this variance represent the POST-excavation HPGe readings. Measurements were collected on Detector 30716 as records 885 and 886. They were labeled as PRFTA1G-1 (Paddys Run Fallen Tree Area (1 meter - record 885) and PRFTA2G-2 (1 meter- record 886). This variance ties to Variance 50.03.73.01-1, the PRE-excavation samples and HPGe readings.

JHW
10/13/97

Justification:

This variance/field change notice specifies the collection of HPGe gamma measurements within segment 2 as identified in Figure 1-1 in the PSP, to ensure the radium contaminated soil from beneath the tree root had been removed. Excavation occurred on 10/8/97

REQUESTED BY: Joan White

JHW

Date: October 10, 1997

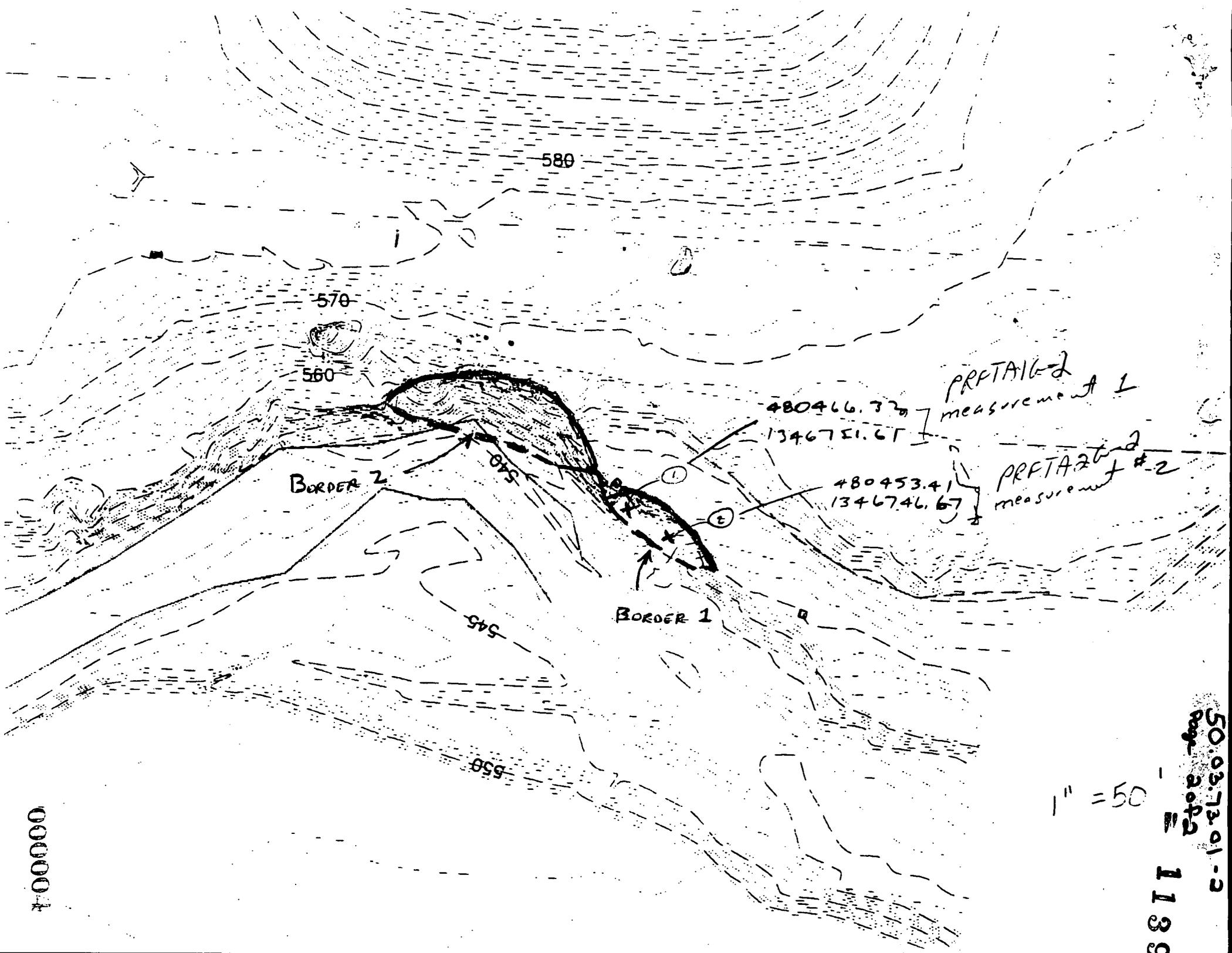
X IF REQD	VARIANCE/FCN APPROVAL	DATE	X IF REQD	VARIANCE/FCN APPROVAL	DATE
X	QUALITY ASSURANCE <i>J White</i>	10-13-97	X	PROJECT MANAGER <i>Thomas C. J. D.</i>	10-10-97
	DATA QUALITY MANAGEMENT		X	SCEP SAMPLING & CHARACTERIZATION <i>Joan White</i>	10-10-97
	ANALYTICAL CUSTOMER SUPPORT		X	SCEP CHARACTERIZATION <i>Joan White</i>	10-10-97
	OTHER			OTHER	

VARIANCE/FCN APPROVED YES NO

REVISION REQUIRED: YES NO

DISTRIBUTION

PROJECT MANAGER:	DOCUMENT CONTROL: Michelle Tudor	OTHER:
QUALITY ASSURANCE:	OTHER:	OTHER:
FIELD MANAGER:	OTHER:	OTHER:



000004

1" = 50'

50:03:73.01-3
Page 2 of 2
1130

VARIANCE / FIELD CHANGE NOTICE

V/F: 50.03.73.01-3

WBS NO.: 50.03.73.01 / 20540-PSP-0001

Page 1 of 1

PROJECT TITLE: PSP-WAC Attainment of Collapsed Soil in Paddys Run (Rev. 0)

Date: 10/16/97

VARIANCE / FIELD CHANGE NOTICE (Include justification):

Field Change Notice:

1. This variance/field change notice specifies a change in the soil sampling and analyses in segment 2, as identified in Figure 1-1 in the PSP.

Samples 10 through 14 will be collected for radium-226 (Segment 2) to determine if the soil in the area is below the FRL for this constituent. A TAL list will be added for radium-226, and will be titled TAL PRFR-E using GAMMA Spectroscopy (ASL B).

In addition, Table B-1 of Appendix B will be revised to show that the target analytes for samples 10 through 14 change from total uranium and technetium-99 to radium-226.

2. Additional changes were indicated by the OEPA for the following:

- A. Split samples will be collected for samples 2, 8, 12, and 16 for the OEPA
- B. The sentence on line 22 of page 2-1 will be changed from "Four samples" to Samples "10 through 14."
- C. The second to the last word on Line 11, page 2-1 will be changed from "and" to "or."

Justification:

The soil contamination area in the vicinity of the tree root was removed from the soil slough area within the Paddys Run Stream channel such that the potential for material exceeding the on-site WAC was removed. Removal of this material was confirmed with the use of the HPGe.

REQUESTED BY: J.D. Chiou

Date: 10/10/97

X IF REQD	VARIANCE/FCN APPROVAL	DATE	X IF REQD	VARIANCE/FCN APPROVAL	DATE
X	QUALITY ASSURANCE <i>R. J. J. [Signature]</i>	10-16-97	X	PROJECT MANAGER <i>[Signature]</i>	10-17-97
	DATA QUALITY MANAGEMENT		X	FIELD MANAGER <i>[Signature]</i>	10/16/97
X	ANALYTICAL CUSTOMER SUPPORT <i>Bill Whiterman</i>	10/16/97	X	Characterization Lead: <i>Eva Dupuis</i>	10/16/97
	OTHER		X	Char. And Amp. Mgr. <i>[Signature]</i>	10/16/97

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

DISTRIBUTION

PROJECT MANAGER:	DOCUMENT CONTROL: Esther Dittmer	OTHER:
QUALITY ASSURANCE:	OTHER:	OTHER:
FIELD MANAGER:	OTHER:	OTHER:

ORIGINAL

VARIANCE / FIELD CHANGE NOTICE

V/F No. 60.03.73.01-6

PROJECT TITLE: PSP-WAC Attainment of Collapsed Soil in Paddy's Run (Rev. 0)

Date: 10/27/97

VARIANCE / FIELD CHANGE NOTICE (Include justification):

20540-PSP-0001

- 1) This variance provides justification for collection of soil samples from 0"-6" in the collapsed soil versus 6"-12" for sampling points located on the steep slope. The PSP states that soil should be collected from the 6"-12" interval for representativeness.

Justification:

For the sample points located on the sloped area of collapsed soil, the 0"-6" interval will be collected due to the poor working surface (footing)

- 2) During field sampling, one sample location was relocated (#6) and one sample location was added to the PSP. The relocated point #6 was moved approximately six feet east which placed it one foot from the sediment (sand) and collapsed soil interface; a soil sample was collected from beneath the sand from 14" -20". The additional sample location, identified as #23, was located approximately ten feet to the southeast of original point #6 onto the collapsed soil slope.

The new locations will be surveyed to determine the x, y, and z coordinates which will be forwarded to the data management contact.

Justification:

The original location of point #6 was comprised of sediment (sand) down to a depth of at least three feet which prevented a deeper excavation in search of soil. The new sample location on the collapsed soil bank (#23) is biased to the former location of a door that was previously found on the bank and removed.

REQUESTED BY: Mike Frank

Date: November 19, 1997

X IF REQD	VARIANCE/FCN APPROVAL	DATE	X IF REQD	VARIANCE/FCN APPROVAL	DATE
X	QUALITY ASSURANCE <i>[Signature]</i>	11-26-97	X	PROJECT MANAGER <i>[Signature]</i>	11-19-97
	DATA QUALITY MANAGEMENT		X	SEEP SAMPLING & CHARACTER. MGR. <i>[Signature]</i>	11/19/97
	ANALYTICAL CUSTOMER SUPPORT		X	OTHER <i>[Signature]</i>	11/19/97
	OTHER			OTHER	

VARIANCE/FCN APPROVED [X] YES [] NO

REVISION REQUIRED: [] YES [x] NO

DISTRIBUTION

PROJECT MANAGER:	DOCUMENT CONTROL: Michelle Tudor	OTHER:
QUALITY ASSURANCE:	OTHER:	OTHER:
FIELD MANAGER:	OTHER:	OTHER:

VARIANCE / FIELD CHANGE NOTICE

V/F No. 50.03.73-01-6

WBS NO.: 50.03.73.01

Page 1 of 1

PROJECT TITLE: PSP WAC Attainment of Collapsed Soil in Paddys Run

Date: 12/1/97

VARIANCE / FIELD CHANGE NOTICE (Include justification):

Document 20540-PSP-0001

Change Table B-1:

In Table B-1 in the Sample Number 8 row, the metals Sample Identification is labeled A7PRCS-9-2-M. This Sample Identification needs to change to A7PRCS-8-1-M.

Justification:

Typo correction.

ORIGINAL

REQUESTED BY: V. Huff

Date: 12/1/97

X IF REQD	VARIANCE/FCN APPROVAL	DATE	X IF REQD	VARIANCE/FCN APPROVAL	DATE
X	QUALITY ASSURANCE <i>[Signature]</i>	12-4-97	X	PROJECT MANAGER <i>[Signature]</i>	12-3-97
X	DATA MANAGER <i>[Signature]</i>	12/2/97	X	FIELD MANAGER <i>[Signature]</i>	12-2-97
X	CHARACTERIZATION LEAD <i>[Signature]</i>	12/2/97		OTHER	
	OTHER			OTHER	

VARIANCE/FCN APPROVED YES NO

REVISION REQUIRED: YES NO

DISTRIBUTION

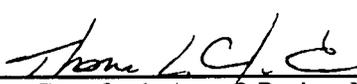
PROJECT MANAGER:	DOCUMENT CONTROL: Esther Dittmer	OTHER:
QUALITY ASSURANCE:	OTHER:	OTHER:
FIELD MANAGER:	OTHER:	OTHER:

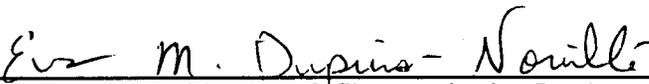
PROJECT SPECIFIC PLAN WAC ATTAINMENT OF COLLAPSED SOIL IN PADDY'S RUN

Project Number: 50.03.73.01

Revision: 0
October 6, 1997

APPROVAL:


 _____ 10-7-97
 Tom Crawford, Area 3 Project Manager Date
 Soil Characterization and Excavation Project


 _____ 10/7/97
 Eva Dupuis-Nouille, Area 3 Characterization Lead Date
 Soil Characterization and Excavation Project


 _____ 10/7/97
 Joan White, Sampling and Characterization Manager Date
 Soil Characterization and Excavation Project


 _____ 10-7-97
 Reinhard Friske, Quality Assurance Date
 Soil Characterization and Excavation Project

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

Fluor Daniel Fernald
P.O. Box 538704
Cincinnati, Ohio 45253-8704

TABLE OF CONTENTS

1.0	Introduction	1-1
1.1	Background	1-1
1.2	Purpose	1-1
1.3	Scope	1-1
1.4	Key Personnel	1-2
2.0	Sampling Program	2-1
2.1	Soil Sample Collection	2-2
2.2	Equipment Decontamination	2-3
2.3	Borehole Abandonment	2-4
2.4	Sample Identification	2-4
3.0	Sample Analysis	3-1
4.0	Quality Assurance/Quality Control Requirements	4-1
4.1	Quality Control Samples	4-1
4.2	Project Requirements for Surveillances	4-1
4.3	Field Changes to the Field Implementation Plan	4-1
4.4	Applicable Procedures and References	4-2
5.0	Health and Safety	5-1
6.0	Disposition of Wastes	6-1
7.0	Data Management	7-1
Appendix A	Data Quality Objectives	
Appendix B	Soil Samples Collected for the Investigation of Collapsed Soil into Paddy's Run	
Appendix C	Target Analyte Lists	

LIST OF TABLES

Table 1-1	Key Personnel
Table 3-1	Sampling and Analytical Requirements

LIST OF FIGURES

Figure 1-1	Existing Soil Boring Locations Along the East Bank of Paddys Run
Figure 1-2	Location of Collapsed Soil and Proposed Sampling Locations

LIST OF ACRONYMS AND ABBREVIATIONS

ASL	Analytical Support Level
AWWT	Advanced Wastewater Treatment
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
COC	constituent of concern
D&D	Decontamination and Dismantlement
dpm	disintegrations per minute
DQO	Data Quality Objective
DOE	U.S. Department of Energy
EM	Environmental Monitoring
EPA	U.S. Environmental Protection Agency
FACTS	Fernald Analytical Customer Tracking System
FAL	Field Activity Log
FEMP	Fernald Environmental Management Project
FRL	final remediation level
GPC	gas-proportional count
kg	kilogram
L	liter
mg	milligram
OEPA	Ohio Environmental Protection Agency
OSDF	On-Site Disposal Facility
OU	operable unit
pCi/g	picocuries per gram
PSP	Project Specific Plan
PWID	Project Waste Identification Document
QA/QC	Quality Assurance/Quality Control
RCRA	Resource Conservation and Recovery Act
RCT	Radiological Control Technician
RI/FS	Remedial Investigation/Feasibility Study
RWP	Radiological Work Permit
SCEP	Soil Characterization and Excavation Project
SCQ	Sitewide CERCLA Quality Assurance Project Plan
SED	Sitewide Environmental Database
SEP	Sitewide Excavation Plan
TAL	target analyte list
TCLP	Toxicity Characteristic Leaching Procedure
V/FCN	Variance/Field Change Notice
WAC	waste acceptance criteria
WDSS	Waste Disposition Support Services

1.0 INTRODUCTION

1.1 BACKGROUND

Surface water has eroded a portion of the eastern stream bank in Paddys Run within Remediation Area 7, west of Silos 1 and 2. Approximately 1700 cubic feet of soil have collapsed into the edge of the stream bed in two distinct segments (see Figure 1-1), with Segment 1 to the north containing a slightly larger volume. Before implementing a certification program and engineering controls to stabilize the stream bank, the Area Project Team plans to remove this collapsed soil and dispose of it in the On-site Disposal Facility (OSDF). In order to place soil in the OSDF, it must first be subjected to Waste Acceptance Criteria (WAC) attainment sampling for technetium-99 and total uranium, the Area 7 WAC constituents of concern (COCs). Lead and chromium must also be considered for WAC attainment because portions of the collapsed soil were identified to include one of the six potential RCRA areas listed in the OU5 ROD. If identified as Resource Conservation and Recovery Act (RCRA) characteristic waste, this soil cannot be placed into the OSDF, according to agreements between the Department of Energy (DOE) and the Environmental Protection Agency (EPA).

1.2 PURPOSE

There are two purposes for the investigation to be conducted under this project-specific plan (PSP). The first is to obtain characterization data necessary to determine if technetium-99 and total uranium are present at concentrations above WAC. This will be accomplished by collecting fourteen randomly selected soil samples and analyzing for technetium-99 and total uranium. Secondly, the samples will undergo Toxicity Characteristic Leaching Procedure (TCLP) analysis for lead and chromium to determine if RCRA characteristic material is present within Segment 1 (Figure 1-1). Four biased samples will also be collected to bound the identified sample location where characteristic concentration are indicated. TCLP analyses will determine if the soil collapsed into Paddys Run is acceptable for placement into the OSDF or if it is to be shipped off site for treatment and disposal.

1.3 SCOPE

This PSP describes the sample collection and analysis activities associated with the collapsed soil in the eastern stream bank of Paddys Run west of the Silos. All soil sampling and analysis activities will be consistent with the Sitewide Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Quality Assurance Project Plan (SCQ), Sections 3.3.4.1 and 3.3.4.3 of the Sitewide Excavation Plan (SEP) and Data Quality Objective (DQO) SL-048, Rev. 1 (see Appendix A).

1.4 KEY PERSONNEL

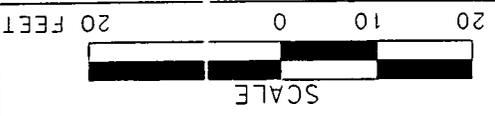
Key DOE, Soil Characterization and Excavation Project (SCEP) and Environmental Monitoring (EM) personnel responsible for performance of the project are listed in Table 1-1.

**TABLE 1-1
KEY PERSONNEL**

TITLE	PRIMARY	ALTERNATE
DOE Contact	Kathi Nickel	Rob Janke
Area 3 Project Manager	Tom Crawford	Dave Russell
Area 3 Characterization Lead	Eva Dupuis-Nouille	Joan White
SCEP Sampling and Characterization Manger	Joan White	Mike Frank
Field Sampling Lead	Mike Frank	Tom Buhrlage
Surveying Lead	Jim Schwing	Dean Shanklin
Waste Disposition Contact	John Muskopf	Ken Belgrave
Laboratory Contact	Bill Westerman	Al Bacon
Data Validation Contact	Jeanie Rogers	Jim Cross
Data Management Contact	Jeff Maple	Susan Marsh
Quality Assurance Contact	Reinhard Friske	Harold Swiger
Health and Safety Contact	Jack Patrick	Lewis Weideman

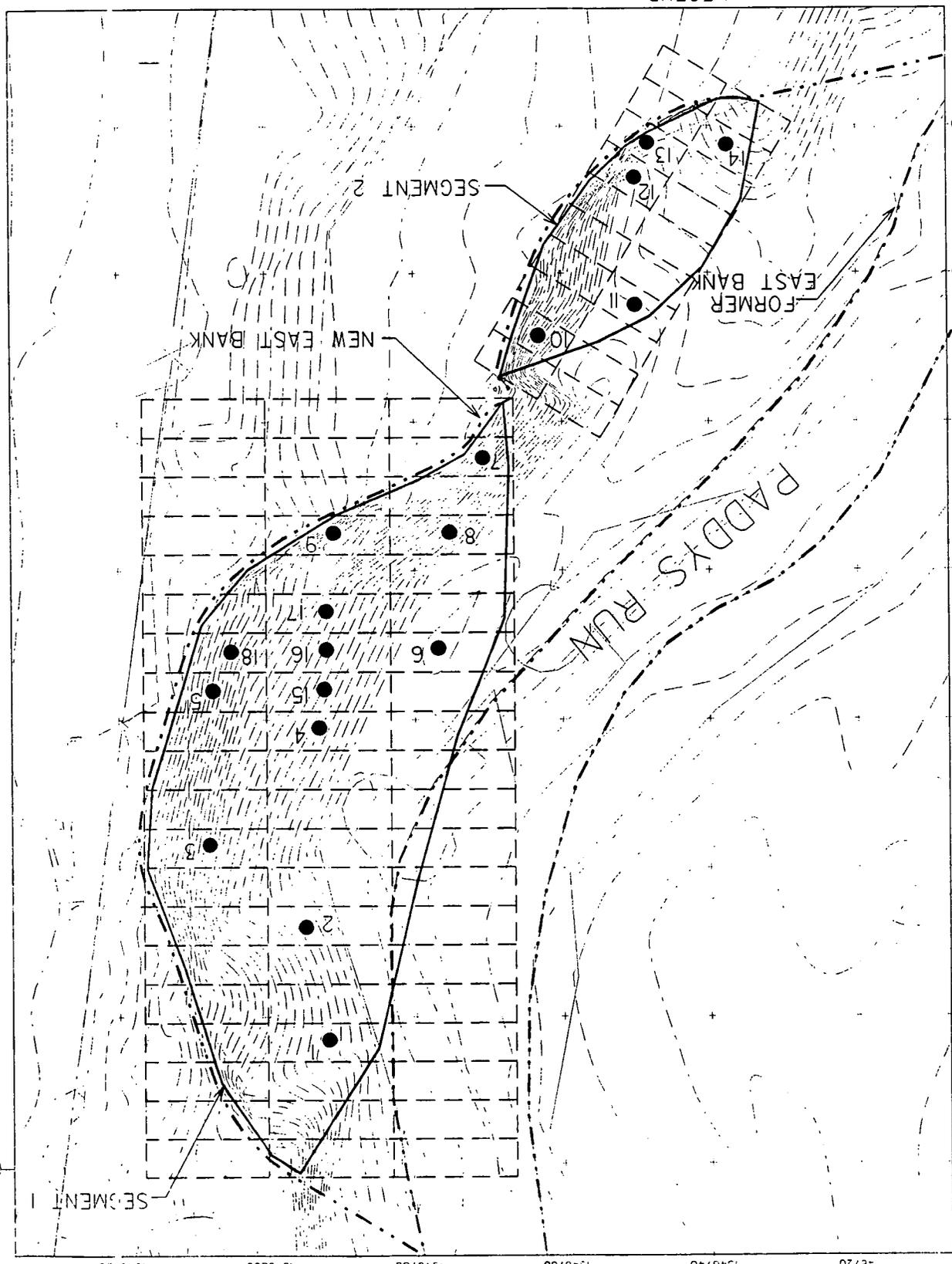
MAP OF SOIL COLLAPSED INTO PADDYS RUN AND RANDOM WAC SAMPLE LOCATIONS
FIGURE 1-1.

DRAFT



● SAMPLE LOCATION
 COLLAPSED SOIL BOUNDARY

LEGEND:



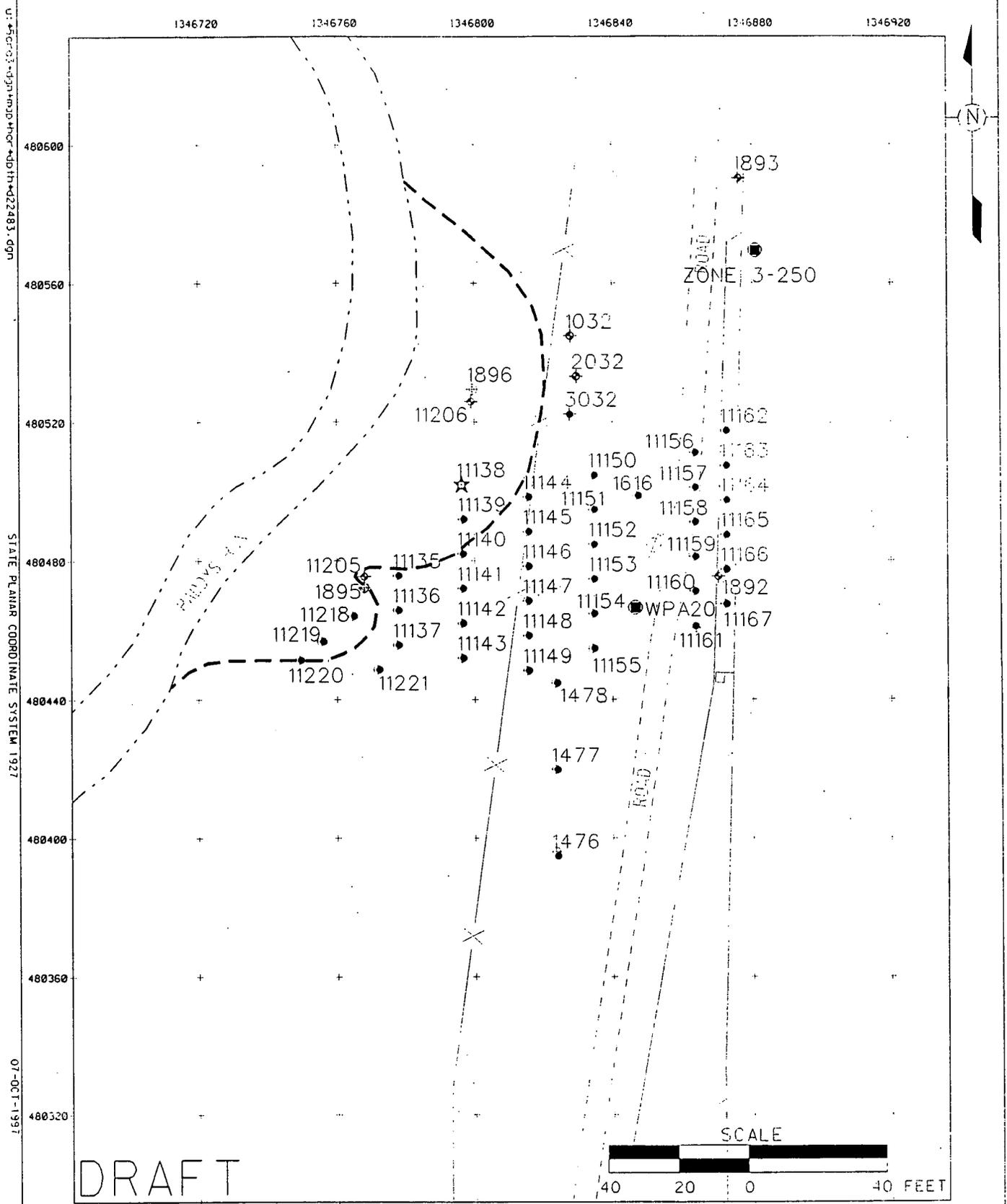
180+40
180+60
180+80
180+00
180+20
180+40
180+60
180+80

STATE PLANAR COORDINATE SYSTEM 1983

07-OCT-1997

1346720 1346740 1346760 1346780 1346800 1346820





- LEGEND:**
- SOIL BORING LOCATION
 - SURFACE SOIL SAMPLING LOCATION
 - ☆ IDENTIFIED POTENTIAL CHARACTERISTIC SOIL
 - ESTIMATED NEW STREAM BANK

FIGURE 1-2. EXISTING SOIL BORING LOCATIONS ALONG THE EAST BANK OF PADDYS RUN

2.0 SAMPLING PROGRAM

During the Remedial Investigation/Feasibility Study (RI/FS), soil samples were collected in the area where the embankment has collapsed. This evaluation indicated that no exceedences of the WAC for technetium-99 and total uranium were found in this immediate area. However, to provide further assurance that the collapsed soil meets the OSDF WAC, samples will be collected and analyzed for total uranium and technetium-99. The samples collected from Segment 1 of the collapsed soil will also be analyzed by the TCLP for lead and chromium. Fourteen samples were identified to characterize the soil that collapsed into Paddy's Run.

If soil sample analyses show technetium-99 activity to be above the WAC of 29.1 pCi/g, and total uranium concentration above the WAC of 1030 mg/kg, the collapsed soil that fails WAC will be delineated and segregated for off-site disposal. Also, if TCLP results of soil samples collected in Segment 1 indicate the presence of RCRA characteristic material (TCLP results above 5.0 mg/L for lead and 5.0 mg/L for chromium), the Segment 1 collapsed soil that fails WAC will be delineated and segregated for special handling under RCRA, with a second round of sampling. The Characterization Lead will review all analytical results and direct the collection of additional soil sampling, as necessary, and document additional sampling on a Variance/Field Change Notice (V/FCN).

Eighteen samples will be collected from the soil that has collapsed along the new eastern escarpment of Paddys Run, west of Silos 1 and 2. Twelve of the samples will be collected from Segment 1 of the collapsed soil, and six will be collected from Segment 2. Four samples are biased to bound the potentially RCRA characteristic sample location. Due to the nature of the soil collapse, it was observed that the former surface soil has approximately remained at the surface of collapsed soil where potential contamination would be present. Visual observation of the escarpment shows that a subsurface source of contamination is unlikely because there is no fill material present. Therefore, all samples will be collected at a depth of 6 to 12 inches for this investigation, and must consist entirely of the loose, collapsed soil, which is the only soil of interest for WAC attainment under this PSP. A field geologist will inspect each sample upon collection to verify that this is the case. All samples will be analyzed for technetium-99 using a gas-proportional count (GPC) method and for total uranium using the BromoPADAP method.

Samples collected from Segment 1 will also be analyzed for lead and chromium by the TCLP, because boring 11138 revealed concentrations of lead and chromium above potentially characteristic concentrations using the twenty times rule. The remaining borings shown on Figure 1-1 indicate that the area is bounded to the east, south, and north as a potential concern for RCRA. Therefore, only the portion of soil which has collapsed into the stream surrounding boring 11138 will be analyzed for lead and chromium. If analytical results indicate concentrations unsuitable for placement into the OSDF, additional samples will be collected to delineate the volume of soil that fails WAC or exceeds characteristic concentrations. Appendix B summarizes the proposed initial boring locations for this investigation.

2.1 SOIL SAMPLE COLLECTION

Sample locations will be surveyed and identified with flags prior to sample collection. The surveyor will record the Northing and Easting coordinates of the sample locations, as well as the surface elevations. Samples will be collected at the locations shown on Figure 1-1 using a hand auger or stainless steel shovel or trowel. Sample collection will be consistent with SMPL-01, Solids Sampling. The sampling device will be used to remove soil down to 6 inches (the top depth of the sample to be collected), then a clean sampling device will be used to collect the 6"-12" sample, to prevent cross contamination.

After samples are collected from Segment 1, they will be homogenized and placed into two separate 500 ml glass or plastic sample containers in accordance with SMPL-01. The contents placed into the container identified with -R in the sample number will be used for the analysis of technetium-99 and total uranium, while the soil in the container identified with -M in the sample number will be cooled to 4°C in the field prior to analysis of lead and chromium by the TCLP. Soil collected from Segment 2 will be homogenized, then placed into one 500 ml glass or plastic sample container (identified with -R in the sample number). As identified in Appendix B, one duplicate sample will be collected at location 7. Each sample container will be assigned a unique sample identification number according to Section 2.3, as listed in Appendix B.

At several locations, sample volumes will be split with the Ohio Environmental Protection Agency (OEPA) for their independent analyses. When this is the case, the sample will be split according to Section 6.6 of SMPL-21, Collection of Field Quality Control Samples. An additional 120 ml sample

container will also be filled with the soil of these split samples, then submitted to the on-site laboratory for an beta/gamma screening prior to the OEPA removing the samples from site.

If soil sample recovery is poor or limited over the selected sample interval, or the sample contains any native soil, the field geologist may designate the shallower 0"-6" sample interval for analysis. This change must be noted on the field activity log (FAL). If surface or subsurface obstacles prevent sample collection at any of the original locations identified in Appendix B, or an insufficient volume of loose collapsed soil is present, the location may be moved up to three feet in radius from the original location, and the distance and direction moved will be noted on the field activity log. If the new location is greater than three feet from the originally planned sample point, the change will be documented on a V/FCN form.

Customer sample numbers and Fernald Analytical Customer Tracking System (FACTS) identification numbers will be assigned to all samples collected. The sample labels will be completed with sample collection information, and technicians will complete a Field Activity Log (FAL), Sample Collection Log, and Chain of Custody/Request for Analysis, which are to be completed in the field prior to submittal of the samples. Samples collected under this PSP will be taken to the controlled side of the on-site laboratory for processing due to their uncertain composition.

2.2 EQUIPMENT DECONTAMINATION

Field Technicians will ensure that sampling equipment has been decontaminated prior to transport to the field site. Equipment will be decontaminated between collection of sample intervals, and again after the sampling performed under this PSP is completed. Decontamination is performed to protect worker health and safety, and also prevents the introduction of contaminants from sampling equipment to subsequent soil samples. Equipment that comes into contact with the sample will be decontaminated at Level II (Section K.11, SCQ) in the field, or at the Decontamination and Dismantlement (D&D) facility. Clean disposable wipes may be used to replace air-drying of the equipment.

2.3 BOREHOLE ABANDONMENT

Any excess sample volume will be replaced into the boreholes. Otherwise, the boreholes are not required to be backfilled, but will be allowed to physically collapse.

2.4 SAMPLE IDENTIFICATION

Each sample container will be assigned a unique sample identification not to exceed 20 characters, as follows:

A7PRCS-Location-Depth-Analytical Suite-QC,

where:

- A7PRCS* = Sample collected from the Area 7 Paddy's Run collapsed soil
- Location* = Sampling location number
- Depth* = Sample depth (1=0-6", 2=6-12", etc.)
- Analytical Suite* = "R" designates radiological analysis, "M" indicates metal analysis with TCLP.
- QC* = Quality control sample. A "D" indicates a duplicate sample if applicable. A "S" indicates a sample split with the EPA. The rinsate sample will be identified with A7PRCS-R-X.

Therefore, the duplicate sample collected from location 7, 6"-12" deep, and analyzed for lead and chromium (TCLP) would be identified as A7PRCS-7-2-M-D.

3.0 SAMPLE ANALYSIS

Upon arrival at the on-site laboratory, soil from the 120 ml containers will undergo beta/gamma screening to enable the OEPA to take their portion of the split samples off-site. The contents of each sample container identified with "-R" will be prepared for gas proportional counting (GPC) analysis of technetium-99, and for BromoPADAP analysis of total uranium, according to SW846. The method detection limit for technetium-99 must be 3 pCi/g, or 10% of the technetium-99 FRL of 29.1 pCi/g. Additionally, each sample container identified with "-M" in the sample identification will be prepared for TCLP analysis of lead and chromium, according to SW846. All analyses will take place at the on-site laboratory to Analytical Support Level (ASL) B. Refer to the SCQ for additional information on ASLs. Refer to Appendix C for the Target Analyte Lists. Table 3-1 identifies the sampling and analytical requirements.

TABLE 3-1
 SAMPLING AND ANALYTICAL REQUIREMENTS

ANALYTE/ TAL (Appx. C)	METHOD	SAMPLE MATRIX	LAB	ASL	PRESERVE	HOLDING TIME	CONTAINER
Total Uranium & Technetium-99 TAL A	BromoPADAP and GPC	Solid	On-site	B	None	6 months	500 ml Glass or Plastic
Lead & Chromium/ TAL B	TCLP	Solid	On-site	B	Cool to 4°C	6 months	500 ml Glass or Plastic
Total Uranium/ TAL C	BromoPADAP	Rinsate	On-site	B	None	6 months	1 liter polyethylene
Technetium-99/ TAL D	GPC	Rinsate	On-site	B	None	6 months	1 liter polyethylene

4.0 QUALITY ASSURANCE/QUALITY CONTROL REQUIREMENTS

4.1 QUALITY CONTROL SAMPLES

Duplicate samples will be collected at a minimum of 1 per 20 samples and analyzed at ASL B. Rinsate samples will be collected at a minimum of 1 per 20 samples. Sampling tools will be decontaminated in the field. Field blanks will not be collected unless conditions are conducive to cross contamination, at the discretion of the Characterization Lead. Trip blanks will not be collected, as volatile organics are not a target analyte. Per SCEP requirements, 100% of the ASL B data will contain a certificate of analysis, and in addition, 10% of the results will be validated to ASL B.

4.2 PROJECT REQUIREMENTS FOR SURVEILLANCES

Project management has ultimate responsibility for the quality of the work processes and the results of the sampling activities covered by this PSP. The FEMP Quality Assurance (QA) organization will conduct independent assessments of the work process and operations to assure the quality of performance. Assessment will encompass technical and procedural requirements of this PSP and the SCQ. Independent assessment will be performed by conducting a surveillance. As a minimum, one surveillance will be conducted during implementation of this PSP, consisting of monitoring/observing on-going project activity and work areas to verify conformance to specified requirements. Surveillance will be planned and documented according to Section 12.3 of the SCQ.

4.3 FIELD CHANGES TO THE FIELD IMPLEMENTATION PLAN

If changes or variances are needed due to field conditions, they cannot be implemented until verbal approval (electronic mail is acceptable) is obtained from the Characterization Lead and the QA representative. Changes to the PSP will be noted in the applicable field activity logs and on a Variance/Field Change Notice Form (V/FCN), as appropriate. QA must receive the completed V/FCN, which includes the signatures of the Area Manager, Characterization and Sampling Manager, Characterization Lead and QA Representative, within seven working days of the granting of the approval for the change.

4.4 APPLICABLE PROCEDURES AND REFERENCES

Work performed under this PSP will be conducted in accordance with the following procedures and documents:

- ADM-02, Field Project Prerequisites
- EQT-05, Geodimeter 4000 Surveying System - Operation, Maintenance, and Calibration
- SMPL-01, Solids Sampling
- SMPL-21, Collection of Field Quality Control Samples
- Sitewide CERCLA Quality Assurance Project Plan (SCQ)
- Sitewide Excavation Plan (SEP)

1
2
3
4
5
6
7
8
9
10
11

5.0 HEALTH AND SAFETY

Technicians will conform to precautionary surveys performed by personnel representing Industrial Hygiene and Radiological Control, as applicable. All work performed on this project will be performed in accordance to applicable Environmental Monitoring project procedures, RM-0020, Radiological Control Requirements Manual, RM-0021, Safety Performance Requirements Manual, Fluor Daniel Fernald (FDF) work permit, Radiological Work Permit (RWP), penetration permits, and other applicable permits. Concurrence with applicable safety permits is required by each technician in the performance of their assigned duties. A safety briefing will be conducted prior to the initiation of field activities.

Special Safety and Health requirements (fall protection; spotter, etc.) will be defined on the FDF work permit personal protective equipment page that will be generated for this work. These requirements will also be discussed in detail at the project safety briefing meeting.

Radiological Control Technicians (RCTs) in the field will provide the required radiological coverage for the performance of work under this plan. Radiological surveys performed by the RCT, in coordination with field activities (ex: sampling, equipment decontamination), will provide the data to evaluate area conditions and adequacy of controls for occupational exposure control purposes. Soil contamination will be handled consistent with the requirements of RP-0007, Radiological Posting and Access to Radiological Areas.

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21

6.0 DISPOSITION OF WASTES

During sampling activities, field personnel may generate small amounts of soil, water, and contact waste. Management of these waste streams will be coordinated with SCEP Waste Disposition Support Services (WDSS) through the Project Waste Identification Document (PWID) process. Soil will be spread at the point of origin, i.e., sampling locations. Generation of decontamination waters will be minimized in the field, and whenever possible, equipment will be decontaminated at a facility that discharges to the Advanced Wastewater Treatment (AWWT) facility through the stormwater collection system. Contact waste generation will be minimized by limiting contact with sample media, and by only using disposable materials which are necessary. This waste stream will be evaluated against dumpster criteria as identified in PWID 461. If it does not meet these criteria, an alternative means of disposal will be identified.

In the event that the soil is found to exceed 100,000 disintegrations per minute (dpm), the soil will be handled as high level waste for health and safety purposes. The handling and disposal of this waste will be consistent with RP-0007, Radiological Posting and Access to Radiological Areas.

7.0 DATA MANAGEMENT

A data management process will be implemented so information collected during the investigation will be properly managed following completion of the field activities. As specified in Section 5.1 of the SCQ, daily activities will be recorded on the Field Activity Log, with sufficient detail to be able to reconstruct a particular situation without reliance on memory. Sample Collection Logs will be completed according to Procedure ADM-02, Field Prerequisites.

Field documentation, such as the FAL, Sample Collection Log, and Borehole Abandonment Record will undergo an internal QA/QC review by the EM Sample Technicians. A second QA/QC review of the records will be performed by FEMP QA personnel. Copies of the records will then be generated and delivered to data entry personnel for input into the Oracle System. All of the analytical data will be validated to ASL D by the FEMP validation team, per requirements of the SEP and DQO SL-048, Rev. 1.

Analytical data will be entered into the FEMP Sitewide Environmental Database (SED) by Analytical Data Management personnel. Manual, double keyed, data entry will be performed and data entered will be compared to the original data sheets. Corrections will be made then initialed and dated as necessary. Hard-copy data reports and documents are kept in permanent storage in the project files. The electronic database is permanently archived in a neutral ASCII file format.

APPENDIX A
DATA QUALITY OBJECTIVES

Control Number _____

Fernald Environmental Management Project

Data Quality Objectives

Title: Delineating the Extent of Constituents of Concern in Pre-design Investigation and Remediation Sampling

Number: SL-048

Revision: 1

Final Draft: October 3, 1997

Contact Name: Eric Kroger

Approval: William D. Kelley
William D. Kelley
DQO Coordinator

Date: 10-3-97

Approval: JGW
for Joan White
Project Lead

Date: 10/03/97

Rev. #	0	1	2	3	4	5	6
Effective Date:	9/19/97						

DATA QUALITY OBJECTIVES

Delineating the Extent of Constituents of Concern in Pre-design Investigation and Remediation Sampling

Members of Data Quality Objectives (DQO) Scoping Team

The members of the DQO team include a project lead, a project engineer, a field lead, a statistician, a lead chemist, a sampling supervisor, and a data management lead.

Conceptual Model of the Site

Media is considered contaminated if the concentration of a constituent of concern (COC) exceeds the final remediation levels (FRLs). The extent of specific media contamination was estimated and published in the Operable Unit 5 Feasibility Study (FS). These estimates were based on kriging analysis of available data for media collected during the Remedial Investigation (RI) effort and other FEMP environmental characterization studies. Maps outlining contaminated media boundaries were generated for the Operable Unit 5 FS by overlaying the results of the kriging analysis data with isoconcentration maps of the other constituents of concern (COCs), as presented in the Operable Unit 5 RI report, and further modified by spatial analysis of maps reflecting the most current media characterization data. A sequential remediation plan has been presented that subdivides the FEMP into seven construction areas. During the course of remediation, areas of specific media may require additional characterization so remediation can be carried out as thoroughly and efficiently as possible. As a result, additional sampling may be necessary to accurately delineate a volume of specific media as exceeding a target level, such as the FRL or the Waste Attainment Criterion (WAC). Each individual Project-Specific Plan (PSP) will identify and describe the particular media to be sampled.

1.0 Statement of Problem

If the extent (depth and/or area) of the media COC contamination is unknown, then it must be defined with respect to the appropriate target level (FRL, WAC, or other specified media concentration).

2.0 Identify the Decision

Delineate the horizontal and/or vertical extent of media COC contamination in an area with respect to the appropriate target level.

3.0 Inputs That Affect the Decision

Informational Inputs - Historical data, process history knowledge, the modeled extent of COC contamination, and the origins of contamination will be required to establish a sampling plan to delineate the extent of COC contamination. The desired precision of the delineation must be weighed against the cost of collecting and analyzing additional samples in order to determine the optimal sampling density. The project-

specific plan will identify the optimal sampling density.

Action Levels - COCs must be delineated with respect to a specific action level, such as FRLs and On-Site Disposal Facility (OSDF) WAC concentrations. Specific media FRLs are established in the OU2 and OU5 RODs, and the WAC concentrations are published in the OU5 ROD. Media COCs may also require delineation with respect to other action levels that act as remediation drivers, such as Benchmark Toxicity Values (BTVs) and As Low As Reasonably Achievable (ALARA) levels.

4.0 The Boundaries of the Situation

Temporal Boundaries - Sampling must be completed within a time frame sufficient to meet the remediation schedule. Time frames must allow for the scheduling of sampling and analytical activities, the collection of samples, analysis of samples and the processing of analytical data when received.

Scale of Decision Making - The decision made based upon the data collected in this investigation will be the extent of COC contamination at or above the appropriate action level. This delineation will result in media contaminant concentration information being incorporated into engineering design, and the attainment of established remediation goals.

Parameters of Interest - The parameters of interest are the COCs that have been determined to require additional delineation before remediation design can be finalized with the optimal degree of accuracy.

5.0 Decision Rule

If existing data provide an unacceptable level of uncertainty in the COC delineation model, then additional sampling will take place to decrease the model uncertainty. When deciding what additional data is needed, the costs of additional sampling and analysis must be weighed against the benefit of reduced uncertainty in the delineation model, which will eventually be used for assigning excavation, or for other purposes.

6.0 Limits on Decision Errors

In order to be useful, data must be collected with sufficient areal and depth coverage, and at sufficient density to ensure an accurate delineation of COC concentrations. Analytical sensitivity and reproducibility must be sufficient to differentiate the COC concentrations below their respective target levels.

Types of Decision Errors and Consequences

Decision Error 1 - This decision error occurs when the decision maker determines that the extent of media contaminated with COCs above action levels is not as

extensive as it actually is. This error can result in a remediation design that fails to incorporate media contaminated with COC(s) above the action level(s). This could result in the re-mobilization of excavation equipment and delays in the remediation schedule. Also, this could result in media contaminated above action levels remaining after remediation is considered complete, posing a potential threat to human health and the environment.

Decision Error 2 - This decision error occurs when the decision maker determines that the extent of media contaminated above COC action levels is more extensive than it actually is. This error could result in more excavation than necessary, and this excess volume of materials being transferred to the OSDF, or an off-site disposal facility if contamination levels exceed the OSDF WAC.

True State of Nature for the Decision Errors - The true state of nature for Decision Error 1 is that the maximum extent of contamination above the FRL is more extensive than was determined. The true state of nature for Decision Error 2 is that the maximum extent of contamination above the FRL is not as extensive as was determined. Decision Error 1 is the more severe error.

7.0 Optimizing Design for Useable Data

7.1 Sample Collection

A sampling and analytical testing program will delineate the extent of COC contamination in a given area with respect to the action level of interest. Existing data, process knowledge, modeled concentration data, and the origins of contamination will be considered when determining the lateral and vertical extent of sample collection. The cost of collecting and analyzing additional samples, will be weighed against the benefit of reduced uncertainty in the delineation model. This will determine the sampling density. Individual PSPs will identify the locations and depths to be sampled, the sampling density necessary to obtain the desired accuracy of the delineation, and if samples will be analyzed by the on-site or off-site laboratory. The PSP will also identify the sampling increments to be selectively analyzed for concentrations of the COC(s) of interest, along with field work requirements. Analytical requirements will be listed in the PSP. The chosen analytical methodologies are able to achieve a detection limit capable of resolving the COC action level. For real-time methodologies, the field data will be used to bias the physical sampling necessary for COC delineation.

7.2 COC Delineation

The media COC delineation will use all data collected under the PSP, and if deemed appropriate by the Project Lead, may also include existing data obtained from physical samples, and if applicable, information obtained through real-time screening. The delineation may be accomplished through modeling (e.g. kriging) of the COC concentration data with a confidence limit specific to project needs that will reduce

the potential for Decision Error 1. A very conservative approach to delineation may be utilized, where the boundaries of the contaminated media are extended to the first known vertical and horizontal sample locations that reveal concentrations below the desired action level.

7.3 QC Considerations

Laboratory work will follow the requirements specified in the SCQ. If analysis is to be carried out by an off-site laboratory, it will be a Fluor Daniel Fernald approved full service laboratory. Laboratory quality control measures include a media prep blank, a laboratory control sample (LCS), matrix duplicates and matrix spike.

Typical Field QC samples are not required for ASL B analysis. However the PSPs may specify appropriate field QC samples for the media type with respect to the ASL in accordance with the SCQ, such as field blanks, trip blanks, and container blanks. All field QC samples will be analyzed at the associated field sample ASL. The frequency of field QC sampling is as follows: Duplicate samples will be taken at a minimum of one per 20 samples. Rinsates will be performed at a minimum of one per 20 on all field equipment that is re-used. Trip blanks will be taken at a minimum of one per shipping container when analyzing for volatile organic compounds (VOCs). For VOCs, container blanks will be taken at a minimum of one per Area and Phase per container type (i.e. stainless steel core liner/plastic core liner/Geoprobe tube) when using uncertified containers. Field blanks are not necessary for soil metal analysis, as it is unlikely in ambient field conditions to have metals cross contamination; however, the probability of cross contamination with liquid samples and semi-volatile organic compounds is much higher, therefore for liquid samples and samples that will be analyzed for semi-volatile organic compounds (SVOCs) field blanks will be taken at a minimum of one per 20 samples. ASL and validation requirements are as follows:

- Real-time data will be analyzed to ASL A, and no field QC samples are required.
- If physical samples are analyzed for Pre-design Investigations and/or Pre-certification delineations, 100% of the data will be analyzed per ASL B requirements. 90% of the data will require only a Certificate of Analysis, the other 10% will require the Certificate of Analysis and all associated QA/QC results, and will be validated to ASL B.
- If samples are analyzed for WAC Attainment and/or RCRA Characteristic Areas Delineation, 100% of the data will be analyzed and reported to ASL B. The ASL B package will include a Certificate of Analysis along with all associated QA/QC results. In addition, 10% of the data will be validated to ASL B.
- If delineation data are also to be used for Certification, all data will be analyzed and reported to ASL D, and 10% will be validated to ASL D. In addition, the data must meet the data quality objectives specified in the Certification DQO.

All data will undergo an evaluation by the Project Team, including a comparison for consistency with historical data. Deviations from QC considerations resulting from evaluating inputs to the decision from Section 3, must be justified in the PSP such that the objectives of the decision rule in Section 5 are met.

7.4 Independent Assessment

Independent assessment shall be performed by the FEMP QA organization by conducting surveillances. Surveillances will be planned and documented in accordance with Section 12.3 of the SCQ.

7.5 Data Management

Upon receipt from the laboratory, all results will be entered into the SED as qualified data using standard data entry protocol. The required ASL B data will undergo analytical validation by the FEMP validation team. A minimum of ten percent (10%) of field data will be validated by the FEMP QA validation team. The Project Manager will be responsible to determine data usability as it pertains to supporting the DQO decision of determining delineation of media COC's.

7.6 Applicable Procedures

Sample collection will be described in the PSP with a listing of applicable procedures. Typical related plans and procedures are the following:

- Sitewide Excavation Plan (SEP)
- Sitewide CERCLA Quality Assurance Project Plan (SCQ).
- SMPL-01, *Solids Sampling*
- SMPL-21, *Collection of Field Quality Control Samples*
- EQT-06, *Geoprobe® Model 5400 Operation and Maintenance*
- EQT-23, *Operation of ADCAM Series Analyzers with Gamma Sensitive Detectors*
- EQT-30, *Operation of Radiation Tracking Vehicle Sodium Iodide Detection System*

Data Quality Objectives
Delineating the Extent of Media Constituents of Concern

1A. Task/Description: Delineating the extent of contamination above the FRLs

1.B. Project Phase: (Put an X in the appropriate selection.)

RI FS RD RA R_vA OTHER

1.C. DQO No.: SL-048, Rev. 1 DQO Reference No.: _____

2. Media Characterization: (Put an X in the appropriate selection.)

Air Biological Groundwater Sediment Soil
Waste Wastewater Surface water Other (specify) _____

3. Data Use with Analytical Support Level (A-E): (Put an X in the appropriate Analytical Support Level selection(s) beside each applicable Data Use.)

Site Characterization Risk Assessment
A B C D E A B C D E
Evaluation of Alternatives Engineering Design
A B C D E A B C D E
Monitoring during remediation Other
A B C D E A B C D E

4.A. Drivers: Remedial Action Work Plans, Applicable or Relevant and Appropriate Requirements (ARARs) and the OU2 and/or OU5 Record of Decision (ROD).

4.B. Objective: Delineate the extent of media contaminated with a COC (or COCs) with respect to the action level(s) of interest.

5. Site Information (Description):

6.A. Data Types with appropriate Analytical Support Level Equipment Selection and SCQ Reference: (Place an "X" to the right of the appropriate box or boxes selecting the type of analysis or analyses required. Then select the type of equipment to perform the analysis if appropriate. Please include a reference to the SCQ Section.)

- 1. pH * 2. Uranium * 3. BTX
- Temperature * Full Radiological * TPH
- Specific Conductance * Metals * Oil/Grease
- Dissolved Oxygen * Cyanide
- Technetium-99 * Silica

- 4. Cations 5. VOA * 6. Other (specify)
- Anions BNA *
- TOC Pesticides *
- TCLP * PCB *
- CEC COD

*If constituent is identified for delineation in the individual PSP.

6.B. Equipment Selection and SCQ Reference:

Equipment Selection	Refer to SCQ Section
ASL A <u> X </u> <u> RTRAK / HPGe / XRF </u>	SCQ Section: <u> Not Applicable </u>
ASL B <u> X </u>	SCQ Section: <u> App. G Tables G-1&G-3 </u>
ASL C _____	SCQ Section: _____
ASL D <u> X </u>	SCQ Section: <u> App. G Tables G-1&G-3 </u>
ASL E _____	SCQ Section: _____

7.A. Sampling Methods: (Put an X in the appropriate selection.)

- Biased Composite Environmental Grab Grid
- Intrusive Non-Intrusive Phased Source

DQO Number: SL-048, Rev. 1

7.B. Sample Work Plan Reference: This DQO is being written prior to the PSPs.

Background samples: OU5 RI

7.C. Sample Collection Reference:

Sample Collection Reference: SMPL-01, EQT-06

8. Quality Control Samples: (Place an "X" in the appropriate selection box.)

8.A. Field Quality Control Samples:

Trip Blanks	<input checked="" type="checkbox"/>	*	Container Blanks	<input checked="" type="checkbox"/>	++
Field Blanks	<input checked="" type="checkbox"/>	+	Duplicate Samples	<input checked="" type="checkbox"/>	
Equipment Rinsate Samples	<input checked="" type="checkbox"/>		Split Samples	<input checked="" type="checkbox"/>	**
Preservative Blanks	<input type="checkbox"/>		Performance Evaluation Samples	<input type="checkbox"/>	
Other (specify)					

*For volatile organics only

** Split samples will be collected where required by EPA or OEPA.

+ Taken at the discretion of the Project Manager (if warranted by field conditions)

** One per Area and Phase per container type (i.e. stainless steel core liner/ plastic core liner/Geoprobe tube).

8.B. Laboratory Quality Control Samples:

Method Blank	<input checked="" type="checkbox"/>		Matrix Duplicate/Replicate.	<input checked="" type="checkbox"/>
Matrix Spike	<input checked="" type="checkbox"/>		Surrogate Spikes	<input type="checkbox"/>
Tracer Spike	<input type="checkbox"/>			

Other (specify) Per SCQ

9. Other: Please provide any other germane information that may impact the data quality or gathering of this particular objective, task or data use.

APPENDIX B

**SOIL SAMPLES COLLECTED FOR THE INVESTIGATION
OF COLLAPSED SOIL INTO PADDY'S RUN**

TABLE B-1
 SAMPLES COLLECTED FOR WAC SAMPLING OF COLLAPSED SOILS IN PADDY'S RUN

Sample Number	Located in Segment 1 or 2	Easting Coordinate	Northing Coordinate	Sample Identification	Target Analytes
1	Segment 1	1346791.7	480563.1	A7PRCS-1-2-R	Total U, Tc-99
				A7PRCS-1-2-M	TCLP Pb, Cr
2	Segment 1	1346794.8	480547.9	A7PRCS-2-2-R	Total U, Tc-99
				A7PRCS-2-2-M	TCLP Pb, Cr
3	Segment 1	1346807.7	480536.7	A7PRCS-3-2-R	Total U, Tc-99
				A7PRCS-3-2-M	TCLP Pb, Cr
4	Segment 1	1346792.9	480521.1	A7PRCS-4-2-R	Total U, Tc-99
				A7PRCS-4-2-M	TCLP Pb, Cr
5	Segment 1	1346807.3	480516.0	A7PRCS-5-2-R	Total U, Tc-99
				A7PRCS-5-2-M	TCLP Pb, Cr
6	Segment 1	1346776.9	480510.4	A7PRCS-6-2-R	Total U, Tc-99
				A7PRCS-6-2-M	TCLP Pb, Cr
7	Segment 1	1346770.8	480484.8	A7PRCS-7-2-R	Total U, Tc-99
				A7PRCS-7-2-M	TCLP Pb, Cr
				A7PRCS-7-2-R-D	Total U, Tc-99
				A7PRCS-7-2-M-D	TCLP Pb, Cr
8	Segment 1	1346775.4	480494.8	A7PRCS-8-2-R	Total U, Tc-99
				A7PRCS-9-2-M	TCLP Pb, Cr
9	Segment 1	1346790.8	480494.9	A7PRCS-9-2-R	Total U, Tc-99
				A7PRCS-9-2-M	TCLP Pb, Cr
10	Segment 2	1346763.2	480468.4	A7PRCS-10-2-R	Total U, Tc-99
11	Segment 2	1346750.0	480464.3	A7PRCS-11-2-R	Total U, Tc-99
12	Segment 2	1346750.0	480447.1	A7PRCS-12-2-R	Total U, Tc-99
13	Segment 2	1346748.1	480442.3	A7PRCS-13-2-R	Total U, Tc-99
14	Segment 2	1346737.4	480442.6	A7PRCS-14-2-R	Total U, Tc-99

TABLE B-1
 SAMPLES COLLECTED FOR WAC SAMPLING OF COLLAPSED SOILS IN PADDY'S RUN
 (Continued)

Sample Number	Located in Segment 1 or 2	Easting Coordinate	Northing Coordinate	Sample Identification	Target Analytes
15	Segment 1	1346792.2	480515.9	A7PRCS-15-2-R	Total U, Tc-99
				A7PRCS-15-2-M	TCLP Pb, Cr
16	Segment 1	1346791.9	480510.6	A7PRCS-16-2-R	Total U, Tc-99
				A7PRCS-16-2-M	TCLP Pb, Cr
17	Segment 1	1346791.9	480505.5	A7PRCS-17-2-R	Total U, Tc-99
				A7PRCS-17-2-M	TCLP Pb, Cr
18	Segment 1	1346804.8	480510.9	A7PRCS-18-2-R	Total U, Tc-99
				A7PRCS-18-2-M	TCLP Pb, Cr

APPENDIX C
TARGET ANALYTE LISTS
(TAL)

**TARGET ANALYTE LISTS
PADDY'S RUN COLLAPSED SOIL SAMPLING
Project Number 50.03.73.01**

TAL PRFS-A

BromoPADAP Method/ Gas Proportional Counting		
1	ASL B	Total Uranium
2	ASL B	Technetium-99

TAL PRFS-B

Toxicity Characteristic Leaching Procedure		
1	ASL B	Lead - AA/ICPMs
2	ASL B	Chromium - AA/ICPMs

TAL PRFS-C

BromoPADAP		
1	ASL B	Total Uranium

TAL PRFS-D

Gas Proportional Counting		
1	ASL B	Technetium-99

WAC Attainment/RCRA Sampling