



Department of Energy

**Ohio Field Office
Fernald Closure Project
175 Tri-County Parkway
Springdale, Ohio 45246
(513) 648-3155**



FEB 14 2005

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

DOE-0157-05

Mr. Thomas Schneider, Project Manager
Ohio Environmental Protection Agency
Southwest District Office
401 East Fifth Street
Dayton, Ohio 45402-2911

Dear Mr. Saric and Mr. Schneider:

**TRANSMITTAL OF PROJECT SPECIFIC PLAN FOR IN-SITU SAMPLING OF
REMAINING WASTE PIT MATERIAL FOR ENVIROCARE'S WASTE ACCEPTANCE
CRITERIA, WASTE PIT REMEDIAL ACTION PROJECT, FERNALD CLOSURE
PROJECT**

The purpose of this letter is to transmit a Project Specific Plan (PSP) for In-Situ Sampling of Remaining Waste Pit Material For Envirocare's Waste Acceptance Criteria for the Waste Pits Remedial Action Project at the Fernald Closure Project, for your agency's review and approval.

This PSP is a sampling plan for in-situ characterization of the pit waste material remaining in the Waste Pits, designed to provide data to support Envirocare waste acceptance criteria. In-situ sampling will facilitate railcar load-out of the remaining material for offsite shipment, without specific sampling and analysis of the material at the loadout bins in the railcar load-out facility, except for certain selected geophysical parameters.

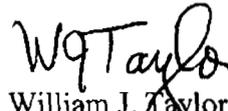
Mr. James A. Saric
Mr. Thomas Schneider

-2-

DOE-0157-05

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

Sincerely,


William J. Taylor
Director

FCP:Lojek

Enclosure: As Stated

cc w/enclosure:

J. Reising, OH/FCP

G. Jablonowski, USEPA-V, SR-6J

T. Schneider, OEPA-Dayton (three copies of enclosure)

F. Bell, ATSDR

M. Cullerton, Tetra Tech

M. Shupe, HSI GeoTrans

R. Vandegrift, ODH

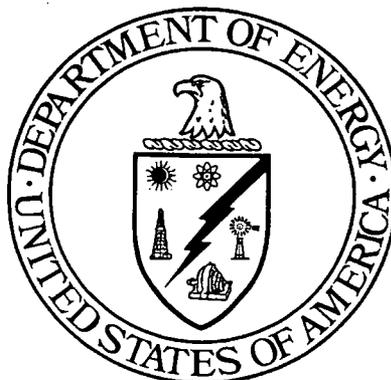
D. Pleva, Fluor Fernald, Inc./MS1

AR Coordinator, Fluor Fernald, Inc./MS78

**PROJECT SPECIFIC PLAN
FOR IN-SITU SAMPLING OF REMAINING WASTE PIT MATERIAL
FOR ENVIROCARE'S WASTE ACCEPTANCE CRITERIA**

WASTE PITS PROJECT

**FERNALD CLOSURE PROJECT
FERNALD, OHIO**



JANUARY 2005

U.S. DEPARTMENT OF ENERGY

10000-PSP-0005

Rev 0

PROJECT SPECIFIC PLAN FOR IN-SITU SAMPLING OF REMAINING
WASTE PIT MATERIAL
FOR ENVIROCARE'S WASTE ACCEPTANCE CRITERIA

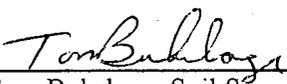
Document Number 10100-PSP-0005

Rev 0

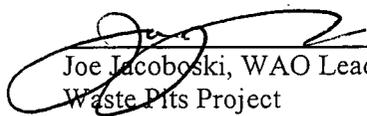
APPROVAL:


Dennis Dalga, Project Manager
Waste Pits Project

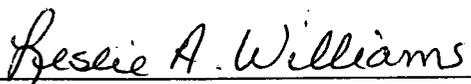
01-20-05
Date


Tom Buhrlage, Soil Sampling Manager
Demolition, Soil and Disposal Project

1/20/05
Date


Joe Jacoboski, WAO Lead
Waste Pits Project

01/20/05
Date


Leslie Williams, Quality Control
Waste Pits Project

1/20/05
Date

FERNALD CLOSURE PROJECT

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

TABLE OF CONTENTS

| | <u>Page</u> |
|---|-----------------------|
| List of Acronyms | iii |
| List of Figures | ii |
| List of Tables..... | ii |
| | |
| 1.0 Introduction | 1-1 |
| 1.1 Purpose and Scope | 1-2 |
| 1.2 Variance/Field Change Notice (V/FCN) Documentation | 1-2 |
| 1.3 Key Personnel | 1-2 |
| 2.0 Area-Specific Work | 2-1 |
| 2.1 Sampling Area Background | 2-1 |
| 2.2 Remaining Pit Waste Characterization Sampling Design..... | 2-1 |
| 2.2.1 Determination of WAC COCs | 2-2 |
| 2.2.2 Sampling Design for Envirocare WAC | 2-2 |
| 2.2.3 Sampling Strategy..... | 2-3 |
| 3.0 Instrumentation and Techniques..... | Sections 3 and 4 |
| 4.0 Predesign - Field Methods..... | Sections 3 and 4 |
| 4.1 Real-Time Activities..... | Sections 3 and 4 |
| 4.2 Sample Collection Methods..... | Sections 3 and 4 |
| 4.3 Physical Sample Identification | Sections 3 and 4 |
| 5.0 Excavation Control Measures..... | Sections 5 and 6 |
| 6.0 Precertification | Sections 5 and 6 |
| 7.0 Quality Assurance/Quality Control Requirements | Sections 7 through 11 |
| 7.1 Quality Control Samples - Real-Time Measurements and Physical Samples..... | Sections 7 through 11 |
| 7.2 Data Validation | Sections 7 through 11 |
| 7.2.1 Physical Sample Data Validation..... | Sections 7 through 11 |
| 7.2.2 Real-Time Data Verification/Validation (Not Applicable) | Sections 7 through 11 |
| 7.3 Applicable Documents, Methods and Standards | Sections 7 through 11 |
| 7.4 Surveillances..... | Sections 7 through 11 |
| 7.5 Implementation and Documentation of Variance/Field Change Notices (V/FCN)..... | Sections 7 through 11 |
| 8.0 Safety and Health | Sections 7 through 11 |
| 9.0 Equipment Decontamination | Sections 7 through 11 |
| 10.0 Disposition of Wastes..... | Sections 7 through 11 |
| 11.0 Data Management..... | Sections 7 through 11 |
| 11.1 Real-Time (Not Applicable) | Sections 7 through 11 |
| 11.2 Physical Samples | Sections 7 through 11 |

APPENDICES

- Appendix A Target Analyte Lists
- Appendix B Boring Table for In-Situ Characterization of Remaining Pit Waste For Envirocare WAC

LIST OF TABLES

Table 2-1 Physical Sample Analytical Requirements

LIST OF FIGURES

Figure 1-1 Location of Remaining Pit Waste In Waste Storage Area and Proposed Boring Locations For Characterization

LIST OF ACRONYMS AND ABBREVIATIONS

| | |
|-----------------|--|
| ASL | analytical support level |
| AWWT | Advanced Wastewater Treatment (Facility) |
| CERCLA | Comprehensive Environmental Response, Compensation and Liability Act |
| COC | constituent of concern |
| D&D | Decontamination and Demolition |
| DOE | U.S. Department of Energy |
| DQO | Data Quality Objective |
| DSDP | Demolition, Soil and Disposal Project |
| EMS | Excavation Monitoring System |
| FACTS | Fernald Analytical Computerized Tracking System |
| FCP | Fernald Closure Project |
| FPA | Former Production Area |
| GPS | global positioning system |
| LAN | Local Area Network |
| µg/L | micrograms per Liter |
| MDL | minimum detection level |
| mg/kg | milligrams per kilogram |
| mg/L | milligrams per Liter |
| NaI | sodium iodide |
| OSDF | On-Site Disposal Facility |
| PCB | polychlorinated biphenyls |
| pCi/g | picoCuries per gram |
| PID | photoionization detector |
| ppm | parts per million |
| PSP | Project Specific Plan |
| QA/QC | Quality Assurance/Quality Control |
| RWP | Radiological Work Permit |
| SCQ | Sitewide CERCLA Quality Assurance Project Plan |
| SED | Sitewide Environmental Database |
| SEP | Sitewide Excavation Plan |
| SP-7 | Soil Pile 7 |
| SVOC | semi-volatile organic compound |
| TAL | Target Analyte List |
| TCLP | Toxicity Characteristic Leaching Procedure |
| V/FCN | Variance/Field Change Notice |
| VOC | volatile organic compound |
| WAC | Waste Acceptance Criteria |
| WAO | Waste Acceptance Organization |
| WPP | Waste Pits Project (formerly WPRAP - Waste Pits Remedial Action Project) |
| yd ³ | cubic yards |

1.0 INTRODUCTION

This Project Specific Plan (PSP) describes additional data collection activities necessary to support the profile characterization for the Envirocare of Utah waste acceptance criteria (WAC) of the remaining pit waste material from the Fernald Waste Pits Area to be shipped offsite. Sampling will be conducted to provide data for in-situ characterization of this material, thus significantly reducing the time, effort, and expense of the current process of sampling and analysis of the waste in discrete bin lots prior to loadout into railcars for shipment offsite.

Two types of material remain in the Waste Pits for offsite shipment to Envirocare of Utah. One is waste material contained in irregular piles in Waste Pit 1, Waste Pit 3, and the Burn Pit. The material in Waste Pit 3 consists of Pit 3 waste material along with smaller quantities of waste material from the various other pits. The volume of this material is estimated to be 30,000 cubic yards, or approximately 45,000 tons of material. Waste Pit 1 and the Burn Pit each have an estimated 2,000 cubic yards of remaining waste material. Figure 1-1 depicts the locations of the remaining pit waste.

The other material from the Waste Pits Area that remains to be excavated and shipped offsite is the uppermost layer of pit liner material from Waste Pits 1, 2, 3, the Burn Pit, and the Clearwell. As required in the OU-1 Record of Decision (ROD), this material will consist of a minimum of six inches of liner material and may be deeper, as determined by visual and in-situ screening at the time of excavation. The volume of this material is estimated to be 20,000 cubic yards, or approximately 30,000 tons of material.

This sampling activity will be conducted in two phases. The first will be conducted around the end of January on the remaining piled pit waste, as this material is more accessible during winter weather conditions. The second phase will consist of sampling of the remaining pit liner material. Completion of this effort will be conducted as field conditions permit. The current document will be for the first phase of sampling. Specific locations and activities of the second phase of sampling will be detailed in a supplement to this PSP.

The general information that is routinely addressed in a PSP can be found in 20300-PSP-0011, *Project Specific Plan Guidelines for General Characterization for Sitewide Soil Remediation*. While this PSP has section headings similar to a full-length PSP, where the information in the section is identical to the information in the General PSP, 20300-PSP-0011, a reference to this General PSP is made, and the information is not repeated.

1.1 PURPOSE AND SCOPE

The purpose of this PSP is to provide specific direction regarding the in-situ sampling and analysis of remaining waste pit material to obtain the required density of samples and analytical data to evaluate this waste against the Envirocare WAC prior to offsite shipment.

This PSP is not considered a work authorization document (for implementation of fieldwork) per SH-0021, Work Permits. Work authorization documents directing the implementation of fieldwork, per SH-0021, may include applicable Environmental Services procedures, Fluor Fernald work permits, Radiological Work Permit (RWP), penetration permits, and other applicable permits.

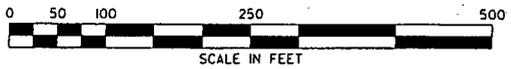
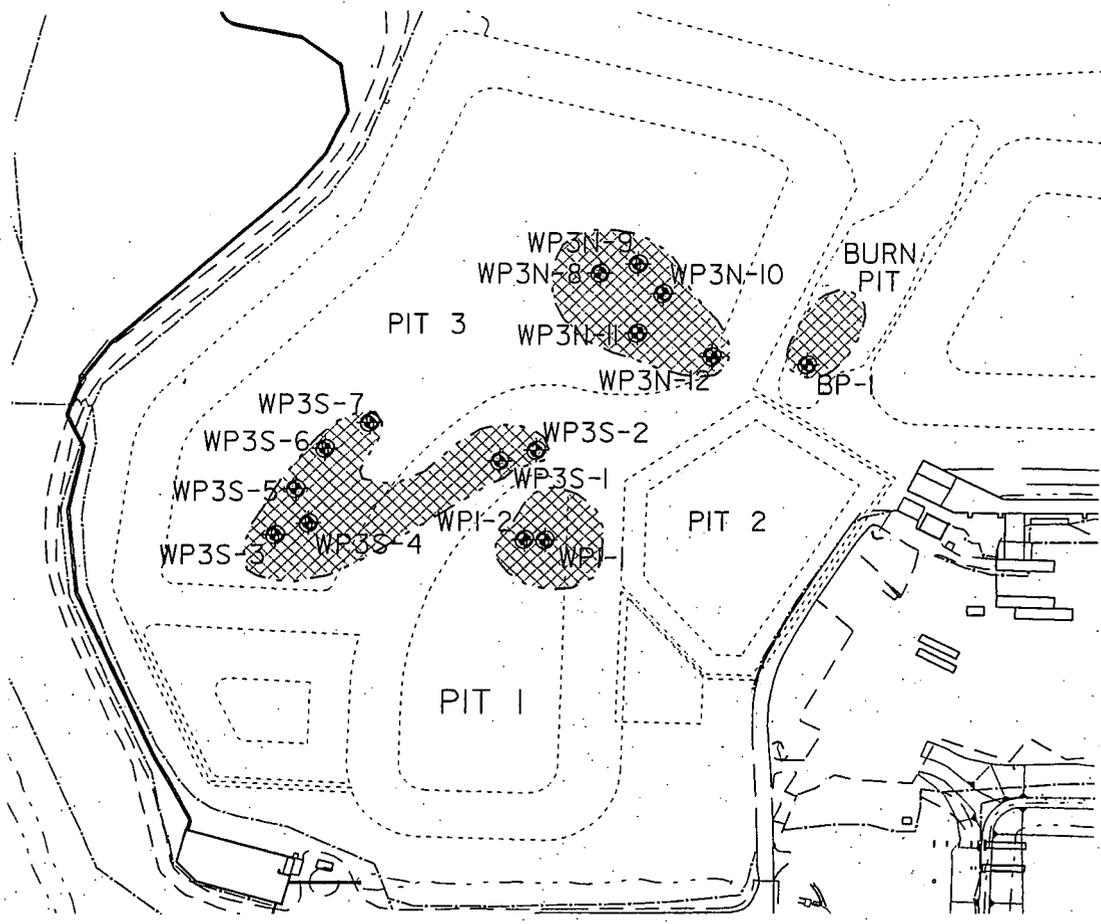
1.2 VARIANCE/FIELD CHANGE NOTICE (V/FCN) DOCUMENTATION

Field conditions may arise that warrant a different decision process for evaluating the remaining Waste Pits Area material for the Envirocare WAC. Factors that will be considered under special circumstances include safety of the workers, cost effectiveness, the need for a timely response, and impending weather conditions. In the event that a change in the characterization approach is needed, the Characterization Manager or designee must prepare a Variance/Field Change Notice (V/FCN). The completed V/FCN must contain the signatures of all affected organizations, which at a minimum includes the Project Manager, Characterization Manager, Waste Acceptance Organization (WAO), and Quality Assurance/Quality Control (QA/QC) but may also include Soil Sampling and/or the Analytical Program Manager, as appropriate. A time-critical variance may be obtained in cases where expedited approval is needed to avoid costly project delays. In the case of a time-critical variance, verbal or written approval (electronic mail is acceptable) must be received from the Characterization Manager and from QA/QC prior to implementing the variance. The completed approved V/FCN form must be completed within seven working days after the time-critical variance is approved. Changes to the PSP will also be noted in the applicable Field Activity Logs.

If a V/FCN is required, the Characterization Manager will document the change and requirements through the V/FCN process in accordance with Section 7.5 of the 20300-PSP-0011, *Project Specific Plan Guidelines for General Characterization for Sitewide Soil Remediation*.

1.3 KEY PERSONNEL

Reference Section 1.4 of 20300-PSP-0011, *Project Specific Plan Guidelines for General Characterization for Sitewide Soil Remediation*. The WAO lead contact will be Joe Jacoboski for this PSP. Also, Dennis Dalga, the Project Manager of the WPP should be added to this list.



LOCATION OF REMAINING PIT WASTE IN WASTE STORAGE AREA
& PROPOSED BORING LOCATIONS FOR CHARACTERIZATION

FIGURE 1-1

2.0 AREA-SPECIFIC WORK

2.1 SAMPLING AREA BACKGROUND

The Waste Storage Area at the FCP covers approximately 38 acres and is located west of the Former Production Area (Figure 1-1). Designated as Operable Unit (OU) 1 during the Remedial Investigation/Feasibility Study (RI/FS), this area consists of Waste Pits 1 through 6, the Burn Pit, and the Clearwell. The various components of OU1 were constructed from 1952 (Waste Pit 1) through 1979 (Waste Pit 6) and were used to store waste products generated by the FCP uranium refinement process.

The remaining pit waste in the Waste Storage Area includes material from the following sources: 1) Waste Pit 1, for which the main sources of waste were filter (trailer) cakes from Plant 8, graphite, bricks, and miscellaneous solids from Plant 5, chemical trap material and other miscellaneous drummed materials; 2) Waste Pit 2, for which the most significant sources of waste were trailer cake and general sump sludge; 3) Waste Pit 3, largely containing lime-neutralized radioactive raffinate concentrate from Plant 8 and the General Sump, along with slurried waste from Plant 2/3; 4) the Burn Pit, used to burn materials such as laboratory chemicals, oils, low-level contaminated combustible material, and non-contaminated waste when the Sewage Treatment Plant incinerator was inoperable.

This sampling plan is designed to provide data to support *in situ* characterization for the Envirocare WAC of the pit waste material remaining in the Waste Storage Area. This effort will facilitate railcar loadout of this material for offsite shipment without requiring sampling and analysis (except for certain selected geophysical parameters) of the material in the existing railcar loadout facility.

This sampling plan currently will cover sampling and analysis only of pit waste material remaining in the Waste Storage Area. Portions of the waste pit liner material to be shipped to Envirocare will be characterized under a separate supplement to this PSP.

2.2 REMAINING PIT WASTE CHARACTERIZATION SAMPLING DESIGN

The sampling activities conducted to evaluate the remaining pit waste for Envirocare's WAC will be performed under the guidelines of Section 4.0 of 20300-PSP-0011, *Project Specific Plan Guidelines for General Characterization for Sitewide Soil Remediation*, which addresses the standard sample collection and handling methods.

Because the terrain of the areas to be sampled is not suitable for the Geoprobe sampling device, boreholes will be dug using a tracked backhoe excavator, operated under the direction of Shaw E&I personnel. The

backhoe will remove waste material in one-foot lifts. From each designated one-foot sample, Fluor sampling technicians will do all necessary screening and collection of samples. If necessary to expedite sampling, the trackhoe operator may place each bucket of soil containing the target soil sample interval in a specific location to enable the sampling personnel to field screen and containerize the soil while the operator proceeds with excavation of the next soil sample interval. Waste material sampled in this manner shall be placed on a clean piece of plastic to avoid cross-contamination.

2.2.1 Determination of WAC COCs

Compliance with the Envirocare WAC and the Waste Profile Record established for WPP must be demonstrated for any waste materials shipped from the FCP to Envirocare for disposal. Therefore, WPP's defined list of constituents of concern (COCs) is applicable to all pit waste material. Characterization for certain selected geophysical WAC will require measurement at the time of shipment.

The Envirocare WAC COCs are as follows:

Radiological COCs

- Uranium-234, Uranium-235, Uranium-238, Total Uranium
- Radium-226, Radium-228
- Thorium-230, Thorium-232
- Cesium-137
- Americium-241
- Neptunium-237
- Potassium-40

Chemical COCs

- pH (for 10% of samples; one random interval from nine borehole locations)
- Arsenic, Barium, Cadmium, Chromium, Lead, Mercury, Selenium, Silver, and Zinc by Toxicity Characteristic Leaching Procedure (TCLP) analysis.
- Total Beryllium (for DOE monitoring data)
- If Photoionization Detector (PID) field screening limit of 1,472 parts per million (ppm) is exceeded, then analyze for the TCLP organics and PCBs list.

2.2.2 Sampling Design for Envirocare WAC

The prescribed sampling density applied to WPP bin sampling is one sample per 600 tons of material [or approximately 400 cubic yards (yds³)] based on the *WPRAP* (now WPP) *Sampling and Analysis Plan for Waste Pit Materials, Shaw E&I Project No. 773481 (Revision 1)*. The volume of remaining pit waste was calculated to be approximately 34,000 yd³. This volume translates into 85 radiological/metals [Target Analyte List (TAL) A] samples required to align with the sampling density applied to typical WPP wastes since commencement of operations in 1999. Sample analytical requirements are specified in Table 2-1 and constituents for each TAL are listed in Appendix A.

Thirteen boring locations are planned for sampling the remaining pit waste based on the depth and area of material, the accessible surface area of the waste, the contours and/or pile thickness, and the feasibility of successful collection of the required number of samples in a timely manner without prolonged delays. The 13 boring locations are approximately evenly spaced across the surface of the four areas where remaining pit waste is stored. Two contingency boring locations have also been selected to allow for additional sample collection if the first 13 boring locations do not provide 85 sample intervals. This boring design is intended to ensure that the samples collected are as representative as possible given the aforementioned constraints.

Based on 13 boring locations and the pit waste depth at each, one sample will be collected from most 12-inch intervals through the material to achieve the required 85 samples. Figure 1-1 illustrates the locations of the 13 borings, along with two contingency locations. The depth and number of samples planned from each location are listed in Appendix B.

2.2.3 Sampling Strategy

Organics Field Screening

A PID will be utilized to screen all soil cores for organics to determine if the established WPP waste profile limit of 1,472 ppm headspace reading is exceeded on any sample. The headspace screening and follow-on actions will be performed as follows:

- 1) Immediately after removal of the one-foot interval from the borehole, the exposed surface area of the waste in the trackhoe bucket (or wherever the material is placed for sample collection) will be surveyed with a PID.

- 2) The highest PID response interval from each boring location will be placed into an 8 oz. glass jar for headspace analysis until it is half full; if there is no PID reading above background, then select a random interval.
- 3) Environmental Services Procedure EQT-04, Photoionization Detector will be followed for obtaining the level of volatile organics in the headspace with one exception. The minimum time allowed for the sample to set at ambient temperature (>60°F but not in direct sunlight) prior to the insertion of the PID shall be 30 minutes.
- 4) If the PID reading exceeds 1,472 ppm a lab sample will be collected for selected TCLP organics plus PCBs from the same depth interval.

The WPRAP procedure for PID headspace screening has been reviewed and found to be sufficiently comparable to the EQT-04, Photoionization Detector procedure.

Radiological Field Screening

Although PID screening requirement for organics will be required, radiological field screening will not. For purposes of meeting the Envirocare WAC, no material can exceed TCLP limits, but meeting the Envirocare radiological WAC is based on a calculated statistical mean value determined from the analytical results of RANDOMLY selected samples from each loadout bin. Thus randomly collected samples in the field will be aligned with the bin sampling methodology currently used for rad characterization.

Each boring will be completed to the designated depth below the surface unless refusal due to debris is encountered on repeated attempts. If refusal is encountered during advancement of the boring, at least two additional attempts should be made within 15 feet of the original boring location and documented in the Field Activity Log. If it is necessary to relocate soil borings in excess of 15 feet from the original location, a V/FCN will be completed to document this change.

To protect the integrity of the pit liners the lowest depth of each of the borings is designed to be no closer than two feet from the waste pit liner material. If the backhoe operator detects any indication of clay liner material, digging at that location is to be terminated and the WPP Project Director shall be notified.

**TABLE 2-1
 PHYSICAL SAMPLE ANALYTICAL REQUIREMENTS**

| TAL/Analytes (ASL B) | Sample Matrix | Lab | Preservation | Holding Time | Container Type | Minimum Sample Mass (wet) |
|---|------------------------|----------|--|--------------------------|--|---|
| TAL A* Radiological (pCi/g) pH (9 samples only) TCLP Metals (mg/L) Total Beryllium | Solid | On-site | Cool 4°C (for metals) | 12 months | Appropriate Size Plastic or Glass | 300 grams |
| | | Off-site | | 6 months (Hg 28 days) | | |
| TAL B (as required) Total PCBs (mg/kg) | Solid | Off-site | Cool 4°C | 14 days | Appropriate Size Glass | 60g** |
| TAL C (as required) TCLP VOCs (mg/L) | Solid | Off-site | Cool to 4° C | 14 days | Glass jar w/Teflon-lined lid. Fill to minimize headspace | 1, 60mL** (minimum size) |
| TAL D (as required) TCLP SVOC/Pests (mg/L) | Solid | Off-site | Cool to 4° C | 14 days | 1 Glass w/Teflon-lined lid. | 200g Fill to** minimize headspace |
| TAL E trip blank (as required) VOCs (µg/L) | Liquid (trip blank) | Off-site | Cool to 4° C H ₂ SO ₄ to pH<2 | 14 days | 3-40 ml glass w/Teflon-lined lid. | 120ml Fill to minimize headspace |

* Offsite and Onsite analytical portions of TAL A sample will be separated after delivery to Shaw E&I laboratory.
 **One sample per group of 20 samples shipped to an off-site laboratory shall be identified on the Chain of Custody/Request for Analysis forms as "designated for laboratory QC" and will consist of three times the volume listed.

ASL - analytical support level
 µg/L - micrograms per Liter
 mg/kg - milligrams per kilogram
 mg/L - milligrams per Liter
 pCi/g - picoCuries per gram
 SVOC - semi-volatile organic compound

3.0 INSTRUMENTATION AND TECHNIQUES

No real-time radiological scanning is required under this PSP; therefore, the required subsections for this section per 20300-PSP-0011 are not listed.

4.0 PREDESIGN – FIELD METHODS

Reference the corresponding section of 20300-PSP-0011, *Project Specific Plan Guidelines for General Characterization for Sitewide Soil Remediation* for each of the following sections:

4.1 REAL-TIME ACTIVITIES

Real-time activities are not applicable to this PSP.

4.2 SAMPLE COLLECTION METHODS

Refer to Section 4.2 of 20300-PSP-0011, *Project Specific Plan Guidelines for General Characterization for Sitewide Soil Remediation*.

4.3 PHYSICAL SAMPLE IDENTIFICATION

Refer to Section 4.3 of 20300-PSP-0011, *Project Specific Plan Guidelines for General Characterization for Sitewide Soil Remediation* for general physical sample identification guidelines. A detailed description for identifying physical samples specific to Envirocare WAC sampling of remaining pit waste follows:

A6-: Sample collected from Area 6.

Location Designator: The Location Designator is a waste pit source identifier and sequential boring number (e.g., BP-1, WP1-1 or 2, WP3S-1 through WP3S-7, and WP3N-8 through WP3N-12). Multiple boreholes at one sample location (due to subsurface refusal) will be identified with A, B, C suffix and so on (e.g., 1A, 1B)

Δ: The ^ is placed between the location designator and the depth interval. When used, the information to the left of this symbol identifies the boring number and allows the automatic assignment of the boring identification number to be transferred to the appropriate field/table in the Sitewide Environmental Database (SED). The ^ is not used if the sample does not have coordinates such as trip blanks, a “-” is used instead.

Depth Interval Designator: This number indicates the one-foot depth interval of the sample from the waste pile surface. For example, “1” = 0-1-foot interval, “2” = 1-2-foot interval, and so on, as listed in the Appendix B sample identifiers.

Analysis Type: RM = radionuclides/metals
P = Total PCBs (if required)
TB = Trip Blank for VOCs (if organics analysis is required)
TL = TCLP VOCs (if required)

TS = TCLP SVOCs/Pesticides/Herbicides (if required)

An example sample ID would be A6-WP3S-4^2-R/M, which represents a sample from the second 1 foot interval from boring location WP3S-4 to be analyzed for radiological and metal constituents (i.e., TAL A)

5.0 EXCAVATION CONTROL MEASURES

Excavation control sampling or real-time radiological scanning is not required under this PSP for the remaining pit waste material, therefore the required subsections for this section per 20300-PSP-0011 are not applicable and are not listed.

6.0 PRECERTIFICATION

Precertification activities are not applicable to this PSP for the remaining pit waste material; therefore, the required subsections for this section per 20300-PSP-0011 are not listed.

7.0 QUALITY ASSURANCE/QUALITY CONTROL REQUIREMENTS

Reference the corresponding section of 20300-PSP-0011, *Project Specific Plan Guidelines for General Characterization for Sitewide Soil Remediation* for each of the following sections:

7.1 QUALITY CONTROL SAMPLES - REAL-TIME MEASUREMENTS AND PHYSICAL SAMPLES

7.2 DATA VALIDATION

7.2.1 Physical Sample Data Validation

In addition to the requirements in the 20300-PSP-0008 document, each laboratory release will be reported as a full data package to enable the project to validate each release at ASL B. Field data package(s) will be validated.

7.2.2 Real-Time Data Verification/Validation (Not Applicable)

7.3 APPLICABLE DOCUMENTS, METHODS AND STANDARDS

7.4 SURVEILLANCES

7.5 IMPLEMENTATION AND DOCUMENTATION OF VARIANCE/FIELD CHANGE NOTICES (V/FCN)

8.0 SAFETY AND HEALTH

Reference the corresponding section of 20300-PSP-0011, *Project Specific Plan Guidelines for General Characterization for Sitewide Soil Remediation* for this section.

The configuration of the remaining pit waste piles warrants a discussion of personnel and vehicle safety measures required to be employed during sampling work associated with this PSP. Vehicles and sampling personnel will operate under the direction of the Shaw E&I excavation manager and not perform sample collection activities within 12 feet of the top surface edge of any part waste piles due to the potential for material slides or personnel falls. Extra caution will be exercised whenever working around an operating trackhoe, especially ensuring that all personnel within the operating range of the trackhoe have visual contact with the operator.

9.0 EQUIPMENT DECONTAMINATION

Reference the corresponding section of 20300-PSP-0011, *Project Specific Plan Guidelines for General Characterization for Sitewide Soil Remediation* for this section.

10.0 DISPOSITION OF WASTES

Reference the corresponding section of 20300-PSP-0011, *Project Specific Plan Guidelines for General Characterization for Sitewide Soil Remediation* for this section.

11.0 DATA MANAGEMENT

Reference the corresponding section of 20300-PSP-0011, *Project Specific Plan Guidelines for General Characterization for Sitewide Soil Remediation* for each of the following sections:

11.1 REAL-TIME (NOT APPLICABLE)

11.2 PHYSICAL SAMPLES

APPENDIX A

TARGET ANALYTE LISTS

**APPENDIX A
 TARGET ANALYTE LISTS**

TAL A – RAD/METALS/CHEM (Rad: Shaw on-site lab; metals/pH/% moisture: offsite)

| Analyte | MDL (soil) |
|------------------------|-------------------------|
| Uranium-234 | Best Achievable (pCi/g) |
| Uranium-235 | Best Achievable (pCi/g) |
| Uranium-238 | Best Achievable (pCi/g) |
| Total Uranium | 8.2 mg/kg |
| Thorium-230 | 100 pCi/g |
| Thorium-232 | 1.0 pCi/g |
| Radium-226 | 1.0 pCi/g |
| Radium-228 | 1.0pCi/g |
| Cesium-137 | 1.0pCi/g |
| Technetium-99 | 2.9 pCi/g |
| Americium-241 | 1.0 pCi/g |
| Neptunium-237 | 1.0 pCi/g |
| Potassium-40 | 1.0 pCi/g |
| | |
| TCLP Arsenic | 0.5 mg/L |
| TCLP Barium | 10 mg/L |
| TCLP Cadmium | 0.1 mg/L |
| TCLP Chromium | 0.5 mg/L |
| TCLP Lead | 0.5 mg/L |
| TCLP Mercury | 0.02 mg/L |
| TCLP Selenium | 0.1 mg/L |
| TCLP Silver | 0.5 mg/L |
| TCLP Zinc | 1.0 mg/L |
| | |
| PH (nine samples only) | NA |

MDL - minimum detection level

TAL B – Total PCBs (off-site lab)

| Analyte | MDL (soil) |
|------------|------------|
| Total PCBs | 0.01 mg/kg |

TAL C - TCLP VOC (off-site lab)

| Analyte | MDL (mg/L) |
|----------------------|------------|
| 1,2-Dichloroethane | 0.05 |
| 2,4-dinitrotoluene | 0.013 * |
| Benzene | 0.05 |
| Carbon Tetrachloride | 0.05 |
| Chlorobenzene | 10 |
| Chloroform | 0.06 |
| 1,1-Dichloroethylene | 0.07 |
| Methyl ethyl ketone | 20 |
| Tetrachlorethylene | 0.07 |
| Trichloroethylene | 0.05 |
| Vinyl Chloride | 0.02 |

* Best achievable

TAL D - TCLP SVOA & Pesticides (off-site lab)

| Analyte | MDL (mg/L) |
|-----------------------|------------|
| 2,4,5-trichlorophenol | 40 |
| 2,4,6-trichlorophenol | 0.2 |
| 1,4-Dichlorobenzene | 0.75 |
| Hexachlorobenzene | 0.013 * |
| Hexachlorobutadiene | 0.05 |
| Hexachloroethane | 0.3 |
| Methoxychlor | 1.0 |
| Nitrobenzene | 0.2 |
| Pentachlorophenol | 10 |
| o-Cresol | 20 |
| m-Cresol | 20 |
| p-Cresol | 20 |
| | |
| Chlorodane | 0.003 |
| 2,4-D | 1 |
| Endrin | 0.002 |
| Heptachlor | 0.0008 |
| Lindane | 0.04 |
| Pyridine | 0.5 * |
| Toxaphene | 0.05 |
| 2,4,5-TP (Silvex) | 0.1 |

* Best Achievable

TAL E Trip Blank VOC (off-site lab)

| Analyte | MDL (mg/L) |
|----------------------|------------|
| 1,2-Dichloroethane | 0.05 |
| 2,4-dinitrotoluene | 0.013 * |
| Benzene | 0.05 |
| Carbon Tetrachloride | 0.05 |
| Chlorobenzene | 10 |
| Chloroform | 0.06 |
| 1,1-Dichloroethylene | 0.07 |
| Methyl ethyl ketone | 20 |
| Tetrachlorethylene | 0.07 |
| Trichloroethylene | 0.05 |
| Vinyl Chloride | 0.02 |

* Best achievable

APPENDIX B

**BORING TABLE FOR IN-SITU SAMPLING OF REMAINING
WASTE PIT MATERIAL FOR ENVIROCARE'S WAC**

**APPENDIX B
 BORING TABLE FOR IN-SITU CHARACTERIZATION OF REMAINING PIT WASTE FOR
 ENVIROCARE WASTE ACCEPTANCE CRITERIA**

| Boring ID | Depth Interval | Sample ID | TAL | Northing | Easting |
|-----------|----------------|----------------|-----|----------|-----------|
| A6-BP-1 | 2-3' | A6-BP-1^3-RM | A | 481680.9 | 1347126.7 |
| | 6-7' | A6-BP-1^7-RM | A | | |
| | 10-11' | A6-BP-1^11-RM | A | | |
| | 14-15' | A6-BP-1^15-RM | A | | |
| | 18-19' | A6-BP-1^19-RM | A | | |
| A6-WP1-1 | 0-1' | A6-WP1-1^1-RM | A | 481491.0 | 1346858.8 |
| | 4-5' | A6-WP1-1^5-RM | A | | |
| | 8-9' | A6-WP1-1^9-RM | A | | |
| A6-WP1-2 | 2-3' | A6-WP1-2^3-RM | A | 481491.6 | 1346837.3 |
| | 6-7' | A6-WP1-2^7-RM | A | | |
| A6-WP3-2 | 0-1' | A6-WP3-2^1-RM | A | 481588.4 | 1346848.7 |
| | 1-2' | A6-WP3-2^2-RM | A | | |
| | 2-3' | A6-WP3-2^3-RM | A | | |
| | 3-4' | A6-WP3-2^4-RM | A | | |
| | 4-5' | A6-WP3-2^5-RM | A | | |
| A6-WP3-3 | 1-2' | A6-WP3-3^2-RM | A | 481496.9 | 1346581.0 |
| | 3-4' | A6-WP3-3^4-RM | A | | |
| | 5-6' | A6-WP3-3^6-RM | A | | |
| | 6-7' | A6-WP3-3^7-RM | A | | |
| | 7-8' | A6-WP3-3^8-RM | A | | |
| | 8-9' | A6-WP3-3^9-RM | A | | |
| | 10-11' | A6-WP3-3^11-RM | A | | |
| | 11-12' | A6-WP3-3^12-RM | A | | |
| | 13-14' | A6-WP3-3^14-RM | A | | |
| 14-15' | A6-WP3-3^15-RM | A | | | |
| A6-WP3-4 | 1-2' | A6-WP3-4^2-RM | A | 481509.3 | 1346615.3 |
| | 3-4' | A6-WP3-4^4-RM | A | | |
| | 4-5' | A6-WP3-4^5-RM | A | | |
| | 6-7' | A6-WP3-4^7-RM | A | | |
| | 7-8' | A6-WP3-4^8-RM | A | | |
| | 8-9' | A6-WP3-4^9-RM | A | | |
| | 10-11' | A6-WP3-4^11-RM | A | | |
| | 11-12' | A6-WP3-4^12-RM | A | | |
| | 14-15' | A6-WP3-4^15-RM | A | | |
| | 15-16' | A6-WP3-4^16-RM | A | | |
| A6-WP3-5 | 1-2' | A6-WP3-5^2-RM | A | 481546.7 | 1346601.7 |
| | 3-4' | A6-WP3-5^4-RM | A | | |
| | 5-6' | A6-WP3-5^6-RM | A | | |
| | 6-7' | A6-WP3-5^7-RM | A | | |

5847

| | | | | | |
|-----------|--------|-----------------|----------|----------|-----------|
| | 7-8' | A6-WP3-5^8-RM | 481590.4 | | |
| | 8-9' | A6-WP3-5^9-RM | A | | |
| | 10-11' | A6-WP3-5^11-RM | A | | |
| | 11-12' | A6-WP3-5^12-RM | A | | |
| | 12-13' | A6-WP3-5^13-RM | A | | |
| A6-WP3-6 | 0-1' | A6-WP3-6^1-RM | A | 481590.4 | 1346631.9 |
| | 2-3' | A6-WP3-6^3-RM | A | | |
| | 4-5' | A6-WP3-6^5-RM | A | | |
| | 6-7' | A6-WP3-6^7-RM | A | | |
| | 7-8' | A6-WP3-6^8-RM | A | | |
| | 8-9' | A6-WP3-6^9-RM | A | | |
| A6-WP3-7 | 0-1' | A6-WP3-7^1-RM | A | 481618.5 | 1346676.7 |
| | 1-2' | A6-WP3-7^2-RM | A | | |
| | 2-3' | A6-WP3-7^3-RM | A | | |
| | 3-4' | A6-WP3-7^4-RM | A | | |
| A6-WP3-8 | 0-1' | A6-WP3-8^1-RM | A | 481779.7 | 1346912.9 |
| | 1-2' | A6-WP3-8^2-RM | A | | |
| | 2-3' | A6-WP3-8^3-RM | A | | |
| | 3-4' | A6-WP3-8^4-RM | A | | |
| | 4-5' | A6-WP3-8^5-RM | A | | |
| A6-WP3-9 | 0-1' | A6-WP3-9^1-RM | A | 481789.6 | 1346951.8 |
| | 1-2' | A6-WP3-9^2-RM | A | | |
| | 2-3' | A6-WP3-9^3-RM | A | | |
| | 3-4' | A6-WP3-9^4-RM | A | | |
| | 4-5' | A6-WP3-9^5-RM | A | | |
| | 5-6' | A6-WP3-9^6-RM | A | | |
| | 6-7' | A6-WP3-9^7-RM | A | | |
| A6-WP3-10 | 0-1' | A6-WP3-10^1-RM | A | 481757.9 | 1346977.5 |
| | 1-2' | A6-WP3-10^2-RM | A | | |
| | 2-3' | A6-WP3-10^3-RM | A | | |
| | 3-4' | A6-WP3-10^4-RM | A | | |
| | 4-5' | A6-WP3-10^5-RM | A | | |
| | 6-7' | A6-WP3-10^7-RM | A | | |
| | 7-8' | A6-WP3-10^8-RM | A | | |
| | 8-9 | A6-WP3-10^9-RM | A | | |
| | 9-10' | A6-WP3-10^10-RM | A | | |
| A6-WP3-11 | 1-2' | A6-WP3-11^2-RM | A | 481715.4 | 1346951.7 |
| | 2-3' | A6-WP3-11^3-RM | A | | |
| | 3-4' | A6-WP3-11^4-RM | A | | |
| | 4-5' | A6-WP3-11^5-RM | A | | |
| | 5-6' | A6-WP3-11^6-RM | A | | |
| | 6-7' | A6-WP3-11^7-RM | A | | |
| | 7-8' | A6-WP3-11^8-RM | A | | |

5847

| | | | | | |
|--|--------|-----------------|---|----------|-----------|
| | 9-10' | A6-WP3-11^10-RM | A | | |
| | 10-11' | A6-WP3-11^11-RM | A | | |
| A6-WP3-1 (contingency boring location) | 0-1' | A6-WP3-1^1-RM | A | 481576.5 | 1346811.1 |
| | 1-2' | A6-WP3-1^2-RM | A | | |
| | 2-3' | A6-WP3-1^3-RM | A | | |
| | 3-4' | A6-WP3-1^4-RM | A | | |
| | 4-5' | A6-WP3-1^5-RM | A | | |
| A6-WP3-12 (contingency boring location) | 0-1' | A6-WP3-12^1-RM | A | 481689.9 | 1347028.7 |
| | 1-2' | A6-WP3-12^2-RM | A | | |
| | 2-3' | A6-WP3-12^3-RM | A | | |
| | 3-4' | A6-WP3-12^4-RM | A | | |
| | 4-5' | A6-WP3-12^5-RM | A | | |