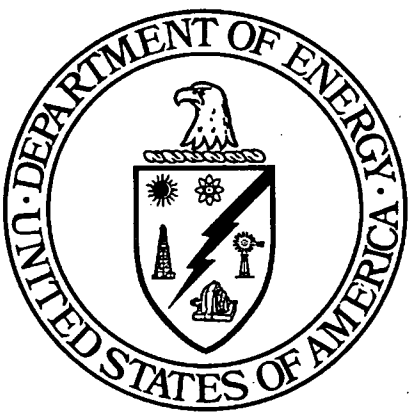
PROJECT SPECIFIC PLAN
FOR 1987
HPGe CONFIRMATORY MEASUREMENT AT THE ON-SITE DISPOSAL FACILITY

WASTE ACCEPTANCE ORGANIZATION

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
FERNALD, OHIO



INFORMATION ONLY

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U.S. DEPARTMENT OF ENERGY
FERNALD AREA OFFICE

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PROJECT SPECIFIC PLAN FOR HPGe CONFIRMATORY MEASUREMENT AT THE ON-SITE DISPOSAL FACILITY 1987

Project Number: 60500-PSP-0001
Revision: 0
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Prepared for: U.S. Department of Energy

Fernald Field Office
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APPROVAL:

12-03-98
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LIST OF ACRONYMS AND ABBREVIATIONS

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ASL	Analytical Support Level
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
DQO	Data Quality Objective
FDF	Fluor Daniel Fernald, Inc.
HPGe	High Purity Germanium detection system
OEPA	Ohio Environmental Protection Agency
OSDF	On-Site Disposal Facility
PSP	Project Specific Plan
QA/QC	quality assurance/quality control
RTIMP	Real-Time Instrumentation Measurement Program
SCQ	Sitewide CERCLA Quality Assurance Project Plan
VR/FCN	Variance Request/Field Change Notice
WAC	waste acceptance criteria
WAO	Waste Acceptance Organization

1.0 INTRODUCTION

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On October 14, 1998, a small amount of visible process residue was discovered in Cell 1 of the On-Site Disposal Facility (OSDF). This Project Specific Plan (PSP) describes the activities to be conducted in response to similar future incidents. Following excavation of visible process residue (e.g., yellow cake, green salt, and black oxide), the high purity Germanium (HPGe) measurements collected under this plan will be used to confirm there are no concentrations above the total uranium waste acceptance criteria (WAC) remaining in the excavated area.

The HPGe measurements will be collected in accordance with the Sitewide Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Quality Assurance Project Plan (SCQ).

1.1 PROJECT OBJECTIVES

The objective of this PSP is to provide HPGe measurements to confirm no residual above-WAC total uranium concentrations remain following excavation of visible process residue from soil or soil-like material placed in the OSDF. These HPGe measurements will supplement visual observation/inspection of the material being excavated. This data will be used by the Waste Acceptance Organization (WAO) to demonstrate whether the soil or soil-like material meets the total uranium WAC for the OSDF.

1.2 SCOPE

The scope of this PSP is to collect HPGe measurements of residual soil following excavation of visible process residue in the OSDF. This PSP addresses the acquisition of survey data and HPGe in situ gamma spectrometry data, data deliverables and documents generated from these measurements, field quality assurance/quality control (QA/QC), and management of generated data. Total uranium is the only WAC constituent of concern addressed in this PSP.

1.3 KEY PERSONNEL

Key personnel responsible for conducting work in accordance with this PSP are listed in Table 1-1.

TABLE 1-1
KEY PERSONNEL FOR HPGe CONFIRMATORY MEASUREMENT AT THE OSDF

TITLE	PRIMARY
Waste Acceptance Organization Manager	Sue Lorenz
On-Site Disposal Facility Placement Lead	Perry Richardson
Waste Acceptance Organization Excavation Project Lead	Linda Barlow
Real-Time Instrumentation Measurement Program Field Lead	Dave Allen
On-Site Disposal Facility Construction Lead	Kevin Harbin
On-Site Disposal Facility Safety and Health Lead	Jeff Middaugh
Quality Assurance	Frank Thompson
Real-Time Instrumentation Measurement Program Manager	Joan White

2.0 HPGe CONFIRMATORY MEASUREMENT

Data collection during HPGe confirmatory measurement in the OSDF will consist of the following processes:

- WAO notification of visible process residue in the OSDF to the Ohio Environmental Protection Agency (OEPA)
- WAO determination that HPGe measurement is needed
- HPGe measurement
- WAO determination for additional HPGe measurements
- Displaying collected HPGe data
- Tracking and managing the HPGe confirmatory measurement data.

2.1 REQUEST FOR HPGe MEASUREMENT

The Fluor Daniel Fernald, Inc. (FDF) WAO Manager will notify the OEPA when visible process residue is discovered in the OSDF. Simultaneously, the WAO OSDF Lead or the WAO Excavation Projects Lead will inform the Real-Time Instrumentation Measurement Program (RTIMP) Field Supervisor when visible process residue is discovered in soil or soil-like material placed into the OSDF. While the visible residue is being excavated, RTIMP personnel will initiate mobilization of personnel and equipment in anticipation of collecting HPGe measurements. The on-duty WAO field representative (identifiable by a blue triangular WAO label on the back of the orange safety vest) will identify the area of concern when RTIMP personnel arrive in the active OSDF cell.

2.2 COLLECTION OF HPGe DATA

Following excavation of visible process residue in the cell (minimum of 1 cubic yard), an HPGe measurement will be taken in the excavated area. The WAO OSDF Placement Lead or the WAO Excavation Project Lead or designees will decide whether additional HPGe measurements are warranted. If the HPGe total uranium concentration is below 928 parts per million at a detector height of either 15 or 31 centimeters or 400 ppm at a 1 meter detector height, no additional excavation or HPGe measurement may be necessary.

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Residual soil or soil-like material concentrations will be measured using in situ gamma spectroscopy equipment (HPGe), consistent with Data Quality Objective (DQO) SL-051 and the User Guidelines, Measurement Strategies, and Operational Factors for Deployment of In-Situ Gamma Spectrometry at the Fernald Site (herein referred to as the User's Manual), 20701-RP-0006, Rev. B, July 1998. The HPGe will be configured to use the most appropriate detector height for the applicable field of view with an acquisition time of 5 minutes to allow for different physical configurations of excavated areas. No duplicate HPGe measurements will be taken under this PSP due to the expected infrequency of process residue discovery in the OSDF.

Surface moisture readings (used to correct data prior to mapping) will be collected with a direct moisture measurement prior to collection of HPGe measurements. Field moisture measurements are discussed in detail in Sections 3.8 and 5.2 of the User's Manual. One surface moisture measurement will be collected and recorded at each HPGe measurement location.

2.3 TRACKING/MANAGING DATA COLLECTION

All HPGe measurements will be assigned a unique identification for data tracking purposes. There are three essential components in the numbering scheme:

- OSDF cell number
- lift within the cell.

Using these guidelines, an example unique identification scheme is presented below:

OSDF-2-4-XG

where:

OSDF = location

2 = OSDF cell number (or current active cell)

4 = lift number

X = next sequential gamma measurement

G = gamma measurement.

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The OSDF HPGe Confirmatory Measurement Form [FS-F-5552 (attached as Appendix B) contains relevant information pertaining to the data collection, characterization review of the data, and WAO acceptance of the characterization. The instructions for using this form are printed on the form. The RTIMP Field Lead and WAO representatives or designees will complete this form for each HPGe measurement. The original forms will be placed in the WAO project files as part of the reports section.

3.0 QUALITY ASSURANCE REQUIREMENTS

The HPGe data collection will be performed in accordance with the requirements in the latest revision of the SCQ and the SCQ Addendum. The DQO for HPGe confirmatory measurement under this plan is identified in DQO SL-051 (attached as Appendix A).

3.1 SURVEILLANCE

WAO has the ultimate responsibility for the quality of the work processes and the results of the monitoring activities covered by this plan. The Soil and Water Division Quality Assurance (QA) representative will conduct independent assessments of the work process and operations by conducting surveillances. The assessments will encompass technical and procedural requirements of this plan and the SCQ. Surveillances will be implemented by monitoring/observing ongoing project activities and work areas to verify conformance to specified requirements. Surveillances will be planned and documented according to the SCQ.

3.2 IMPLEMENTATION OF FIELD CHANGES

If field conditions require changes or variances, verbal approval must be obtained from the WAO OSDF Placement Lead or the WAO Excavation Project Lead, the RTIMP Manager, and the QA representative before the changes can be implemented (electronic mail is acceptable). Changes to the PSP will be noted in the applicable field activity logs and on a Variance Request/Field Change Notice (VR/FCN) form. QA must receive the completed VR/FCN (which includes the signatures of the WAO OSDF Placement Lead or the WAO Excavation Project Lead, RTIMP Manager, and the QA representative) within seven working days of the granting of the verbal approval.

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4.0 HEALTH AND SAFETY

All work performed on this project will be performed in accordance to applicable project procedures, RM-0020 (Radiological Control Requirements Manual), RM-0021 (Safety Performance Requirements Manual), FDF Work Permit, Radiological Work Permit, and other applicable permits. Concurrence with all applicable safety permits is required by all personnel in the performance of their assigned duties.

All personnel involved in the collection of HPGe measurements will be briefed on the Contractor Safe Work Plan for the OSDF and the briefing will be documented. Personnel who do not receive a briefing on these requirements will not participate in the execution of real-time activities related to the completion of assigned project responsibilities.

All emergencies shall be reported immediately by dialing 911 or radio "CONTROL".

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5.0 DATA MANAGEMENT

All data will be generated electronically for real-time WAC determination; data will receive internal quality control evaluation prior to reporting. The HPGe data for this PSP will be collected at analytical support level (ASL) A. No duplicate measurements are required for ASL A. Data verification will be conducted in the field by Real-Time Instrumentation Measurement Program personnel. Electronic field data will be downloaded at a minimum of once daily to the appropriate database (e.g., real-time archive files, Sitewide Environmental Database, Integrated Information Management System).

The WAO OSDF Placement Lead or the WAO Excavation Project Lead will be notified by the RTIMP Field Lead or designee when HPGe measurements do not meet data QC checklist criteria. The WAO Lead will determine whether additional HPGe measurements are required.

Copies of the OSDF HPGe Confirmatory Measurement Form will be forwarded to WAO; originals will be placed in the WAO project files. RTIMP will maintain all the real-time electronic files.

6.0 APPLICABLE DOCUMENTS, METHODS, AND STANDARDS

HPGe confirmatory measurement activities for the OSDF as described in this plan shall follow the requirements outlined in the following documents, procedures, and standard methods:

- Sitewide Excavation Plan
- Waste Acceptance Criteria Attainment Plan
- Impacted Materials Placement Plan
- Sitewide CERCLA Quality Assurance Project Plan (SCQ) and Addendum (Appendix H, In-Situ Gamma Spectrometry QA/QC Program, August 1998)
- User Guidelines, Measurement Strategies, and Operational Factors for Deployment of In-Situ Gamma Spectrometry at the Fernald Site (User's Manual), 20701-RP-0006, Revision B (July 1998)
- ADM-16 In Situ Gamma Spectrometry Quality Control Measurement
- EQT-22 High Purity Germanium Detector In Situ Efficiency Calibration
- EQT-23 Operation of ADM Series Analyzers with Gamma Sensitive Detectors
- EQT-32 Troxler 3440 Series Surface Moisture/Density Gauge - Calibration, Operation, and Maintenance
- EQT-39 Zeltex Infrared Moisture Meter
- 20300-PL-002 Real-Time Instrumentation Measurement Program Quality AssurancePlan
- RM-0020 Radiological Control Requirements Manual

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APPENDIX A

OSDF HPGe CONFIRMATORY MEASUREMENT FORM (FS-F-5552)

OSDF HPGe CONFIRMATORY MEASUREMENT FORM

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1. OSDF Information

Cell / Lift: _____/_____

Incident Date: _____ Confirmatory Measurement Date: _____

2. Data Collection

HPGe Unit No: _____

Calibration Acceptable: ☐ Yes Calibration Date: _____

Note: If not in calibration, do not use equipment until calibration is acceptable

3. HPGe

Data Report attached? ☐ Yes ☐ No

List of Data Points:

Data Verification Checklist attached? ☐ Yes ☐ No

This signature indicates the data generated for this special material area by this equipment on this day is correct and valid within the confines of equipment performance and as defined in PSP #: 60500-PSP-0001 (revisions)

_____ _____
(Signature) (Signature Date)

4. WAO

Reviewed attached documentation for completeness ☐ Yes

This signature indicates that the defined special material area within the OSDF has been excavated.

_____ _____
(Signature) (Signature Date)

Instructions:

Section 1	Enter the Cell Number and Lift Number of the special material area, the date of the incident, and the date of HPGe confirmatory measurement.
Section 2	Enter the identification number for the HPGe detector used. If equipment is not in calibration, do not use until calibration is acceptable. Check yes to indicate that the calibration is acceptable and enter the date the calibration was performed. If more than one unit is used, a separate sheet for each unit number must be used.
Section 3	Check yes or no if an HPGe data report is attached. List all the data points associated with the identified lift. Check yes or no if the data verification checklist is attached. If the data verification checklist is not attached, explain why. Sign and date.
Section 4	Check yes after the complete documentation package has been reviewed. The cognizant WAO OSDF representative's signature and date indicates that the special material area has been excavated.

NOTES:

Section 1 will be completed by WAO OSDF representative.
Sections 2 and 3 will be completed by the RTIMP representative.
Section 4 will be completed by the WAO OSDF representative.

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APPENDIX B

DATA QUALITY OBJECTIVE SL-051, REV. 1

Control Number _____

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Fernald Environmental Management Project

Data Quality Objectives

Title: Excavation Monitoring For Total Uranium Waste Acceptance Criteria (WAC)

Number: SL-051

Revision: 1

Final Draft: 6/15/98

Contact Name: Keith Nelson

Approval: William D. Kelley Date: 6-15-98
William D. Kelley
DQO Coordinator

Approval: Alan D. Thiyken Date: 6-15-98
Alan D. Thiyken for J. D. Chiou
SCEP Project Director

Rev. #	0	1					
Effective Date:	6/09/98						

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DATA QUALITY OBJECTIVES
Excavation Monitoring for Total Uranium Waste Acceptance Criteria (WAC)

Members of Data Quality Objectives (DQO) Scoping Team

The members of the scoping team included individuals with expertise in QA, analytical methods, field construction, statistics, laboratory analytical techniques, waste management, waste acceptance, data management, and excavation monitoring.

Conceptual Model of the Site

Fernald Environmental Management Project (FEMP) remediation includes the construction of an on-site disposal facility (OSDF) to be used for the safe permanent disposal of materials at or above the site final remediation levels (FRLs), but below the waste acceptance criteria (WAC) for constituents of concern (WAC COCs). The WAC concentrations for several constituents, including total uranium, were developed using fate and transport modeling, and were established to prevent a breakthrough of unacceptable levels of contamination (greater than a specified Maximum Contaminant Level to the underlying Great Miami Aquifer) over a 1000-year period of OSDF performance. The WAC for total uranium and other area-specific WAC COCs as referenced in the Operable Unit 5 (OU5) and Operable Unit 2 (OU2) Records Of Decision (RODs), the Waste Acceptance Plan for the On-Site Disposal Facility (WAC Plan), and the OSDF Impacted Materials Placement Plan (IMPP), must be achieved for all soil and soil-like materials that have been identified for disposal in the OSDF.

The extent of soil contamination requiring remediation was estimated and published in both the Operable Unit 5 and Operable Unit 2 Feasibility Studies (FS). These estimates were based on modeling analysis of available uranium data from soil samples collected during the Remedial Investigation (RI) efforts and from other environmental studies conducted at the FEMP. Maps outlining boundaries of soil contamination were generated for both the Operable Unit 5 and Operable Unit 2 FS documents by overlaying the results of the modeling analysis of uranium data with isoconcentration maps of other COCs. The soil contamination maps were further modified by conducting spatial analysis on the most current soil characterization data.

A sequential remediation plan has been presented which subdivides the FEMP into ten (10) independent remediation areas. Extensive historical sampling has demonstrated that in each of these 10 areas potentially above-WAC concentrations may not be present, may be limited to one WAC COC, or consist of a subset of WAC COCs. According to the Sitewide Excavation Plan (SEP) only WAC COCs

with a demonstrated or likely presence in an area will be evaluated during remedial design and implementation. This DQO will be used to define the WAC decision-making process using excavation monitoring instrumentation in areas where soil and soil-like material is being excavated and total uranium is a WAC COC.

1.0 Statement of Problem

Adequate information must be available to demonstrate excavated soils are acceptable or unacceptable for disposal in the OSDF, based on the total uranium WAC.

Available Resources

Time: WAC decision-making information of sufficient quality must be made available to the Project Manager (or designee), characterization representative, and Waste Acceptance Operations representative (decision makers) prior to excavation and disposition of soil and soil-like materials.

Project Constraints: WAC decision-making information must be collected and assimilated with existing manpower and instrumentation to support the remediation schedule. Successful remediation of applicable areas, including excavation and placement of soil and soil-like material in the OSDF, is dependent on the performance of this work.

Summary of the Problem

Excavated soil must be classified as either of the following:

1. Having concentrations of total uranium at or above the WAC, and therefore, unacceptable for disposal in the OSDF, or

2. Having concentrations of total uranium below the WAC, and therefore, acceptable for disposal in the OSDF.

2.0 Identify the Decision

Decision

The WAC decision-making process will result in the classification of defined soil volumes as either meeting or exceeding the 1,030 ppm total uranium WAC.

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Possible Results

1. A defined volume of soil has concentrations of total uranium at or above the WAC. This material is classified as unacceptable for placement in the OSDF, and will be identified, excavated, and segregated pending off-site disposition.

2. A defined volume of soil has concentrations of total uranium below the total uranium WAC. This soil is classified as acceptable for placement in the OSDF and is transported directly from the excavation to the OSDF for placement.

3.0 Identify Inputs That Affect the Decision

Required Information

The total uranium WAC published in the Waste Acceptance Criteria Attainment Plan for the OSDF, historical data, pre-design investigation data, and in-situ monitoring information collected prior to and during excavation are required to determine whether a specified volume of soil meets or exceeds the total uranium WAC.

Source of Informational Input

The list of sitewide OSDF WAC COCs identified in the OU2 and OU5 RODs and the WAC Plan will be referenced. Historical area specific data from the Sitewide Environmental Database (SED) will also be retrieved and evaluated for both radiological and chemical WAC constituents. This information will be utilized to determine area specific WAC COCs.

Non-invasive excavation monitoring in areas where total uranium is a WAC concern will involve measurements collected with mobile and/or stationary in-situ equipment such as the RTRAK and HPGe systems. These measurements will be collected from the surface of each excavation lift prior to excavation. Information compiled from this real-time monitoring will be assimilated and reviewed by decision makers to classify lifts or sections of lifts as either acceptable or unacceptable for placement in the OSDF.

Methods of Analysis

The most practical measurement methods with the required resolution will be employed to determine total uranium levels in the evaluated material in relation to the not-to-exceed (NTE) total uranium WAC in applicable areas.

4.0 The Boundaries of the Situation

Spatial Boundaries

Domain of the Decision: The boundaries where excavation monitoring for total uranium will be used is limited to soils and/or soil-like materials in remediation areas where total uranium is a WAC COC, excavation is planned, and material is designated for disposition in the OSDF.

Population of Soils:

Includes all at-and below-grade material (soils and soil-like materials) impacted with total uranium potentially exceeding the WAC and planned for disposition in the OSDF.

Scale of Decision Making

Areas designated for excavation will be evaluated as to whether the soil or soil-like material is below or above the OSDF WAC for total uranium. Excavation monitoring will be conducted on each excavation lift. Based on the information obtained as a result of reviewing and modeling existing data coupled with newly acquired excavation monitoring information, a decision will be made whether an individual excavation lift, or portion of a lift, meets or exceeds the OSDF WAC for total uranium.

Temporal Boundaries

Time frame: Real-time excavation monitoring information must be acquired and processed in time for review and use in decision making prior to excavation and disposition of excavated material.

Time Constraints on Monitoring: The scheduling of WAC excavation monitoring is directly tied to the excavation schedule. WAC excavation monitoring will be performed and a disposition decision made prior to excavation of each designated lift. Acquired information must be processed and reviewed by the project decision-makers prior to disposition of the lift being monitored. Time limits to complete measurements are specified in the excavation subcontracts.

Practical Considerations: Weather, moisture, field conditions, and unforseen events affect the ability to perform excavation monitoring and meet the schedule. To maintain safe working conditions, excavation and construction activities will comply with all FEMP and project specific health and safety protocols.

5.0 Develop a Logic Statement

Parameter(s) of Interest

The parameter of interest is the concentration of total uranium in soil or soil-like material designated for disposition in the OSDF.

Waste Acceptance Criteria Concentration

The OSDF WAC concentration is 1,030 ppm for total uranium in soil and soil-like materials. This concentration is considered a NTE level for OSDF WAC attainment, and no analytical data point or real-time measurement, as defined by the instrument-specific threshold values, can meet or exceed this level in material destined for the OSDF.

Decision Rules

If excavation monitoring results are below the total uranium WAC for a specified volume of soil, then that soil is considered acceptable for final disposition in the OSDF. If monitoring results reveal soil concentrations at or above the total uranium WAC, as indicated by exceeding the instrument-specific threshold level, then the unacceptable soil must be delineated, removed, and segregated pending off-site disposal.

6.0 Limits on Decision Errors

Range of Parameter Limits

The area-specific total uranium soil concentrations anticipated in excavation areas will range from background levels (naturally-occurring soil concentrations) to concentrations greater than the total uranium WAC levels.

Types of Decision Errors and Consequences

Decision Error 1: This decision error occurs when the decision makers decide a specified volume of soil is below the WAC for total uranium, when in fact the uranium concentration in that soil is at or above the WAC. This error would result in soil or soil like material with concentrations above the WAC for total uranium being placed into the OSDF. Since the WAC is a NTE level, this error is unacceptable.

Decision Error 2: This decision error occurs when a volume of soil or soil like material is identified as above WAC, excavated, and sent for off-site disposition when the material is actually below the WAC for total uranium. This error would result in added costs due to the unnecessary segregation and off-site disposition of material that is acceptable for disposal in the OSDF.

True State of Nature for the Decision Errors

The true state of nature for Decision Error 1 is that the actual concentration of total uranium in a volume of soil is greater than the WAC. The true state of nature for Decision Error 2 is that the actual concentration of total uranium in a volume of soil is below the WAC. Decision Error 1 is the more severe error.

7.0 Design for Obtaining Quality Data

7.1 WAC Attainment Excavation Monitoring

WAC decision-making will be based on real-time excavation monitoring using the RTRAK and HPGe systems. The sodium iodide system's threshold value (or trigger level) of 721 ppm for total uranium (70% of the 1,030 ppm WAC concentration for soil) is by agreement with the USEPA. Readings are obtained by RTRAK measurements using a spectral acquisition time of 4 seconds, and a detector speed of 1 mile per hour (mph) for each measurement. These parameters achieve the required sensitivity, and are the best compromise of practical considerations such as tractor speed and time in the field. (For more detailed information reference the *RTRAK Applicability Study, 20701-RP-0003, Revision 1, PCN1, May 15, 1998.*) Thorium can cause interferences with the total uranium. Uranium results associated with Thorium values greater than 500 net counts per second will be reevaluated.

The HPGe system confirmation and delineation threshold value of 928 ppm for total uranium with a spectral acquisition time of 5 minutes (300 seconds) and variable detector heights will be used in soil and soil-like material. Lower (more conservative) threshold values may be defined in the PSP. (For more detailed information reference the *User Guidelines, Measurement Strageties, and Operational Factors for Deployment of In-Situ Gamma Spectrometry at the Fernald Site, 20701-RP-0006, Revision A, May 8, 1998.*)

Real-time monitoring of each excavation lift will be accomplished using the RTRAK. In areas inaccessible to the RTRAK, HPGe detectors will be used. In the event the monitoring data exceeds either trigger level (see above), the entire vertical thickness (3 ± 1 foot) of the areal extent of above-WAC material will be removed and segregated pending off-site disposal. Confirmation measurements using HPGe detectors may be performed. If directed by the characterization lead, the HPGe detectors will be placed directly over the zone of maximum activity identified by the RTRAK and an additional 5 minute measurement will be taken. If the HPGe confirmation measurement exceeds 928 ppm for total uranium, then additional HPGe measurements may be required for further horizontal delineation (detector height may be adjusted to increase the field of view).

7.2 Interpretation of Results

The results obtained from real-time monitoring for purposes of WAC attainment will be compared to the published OSDF WAC concentration for total uranium. If results are equal to or greater than the WAC concentration (as defined by exceeding the specific threshold value level), the decision makers may take one of the following actions:

- Determine that the entire unit volume or "lift" subjected to excavation monitoring is at or above WAC and requires segregation pending off-site disposal.
- Based on adequacy of existing information (including visual inspection), excavate and segregate the portion of the lift material that is at or above WAC pending off-site disposition.
- Perform additional real-time monitoring to more accurately delineate the areal extent of above-WAC contamination. Using this information, define the extent of removal efforts to be conducted.

7.3 QC Considerations

The following data management requirements will be met prior to evaluation of acquired WAC attainment information:

1) An excavation monitoring form will be completed and reviewed in the field.

2) WAC data and decision-making information will be assigned to respective soil profiles, so characterization and tracking information can be maintained and retrieved.

3) The mobile sodium iodide systems will generate ASL level A data. The HPGe detectors can provide either ASL level A or B data. In order for real time data to be

ASL B, it must meet the 10% data validation criterion in the SEP. Excavation monitoring data will be collected according to the applicable site procedures for the respective instrumentation.

4) When using the HPGe detectors, duplicate measurements will be taken at a frequency of one in twenty measurements or one per excavation lift, whichever is greater.

7.4 Independent Assessment

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

7.5 Applicable Procedures

Real-time monitoring performed under the PSP shall follow the requirements outlined within the following procedures:

- ADM-16, In-Sutu Gamma Spectrometry Quality Control Measurements
- EQT-22, High Purity Germanium Detector In-Situ Efficiency Calibration
- EQT-23, Operation of ADCAM Series Analyzers with Gamma Sensitive Detectors
- EQT-30, Operation of Radiation Tracking Vehicle Sodium Iodide Detection System
- EQT-32, Troxler 3440 Series Surface Moisture/Density Gauge
- EQT-33, Real-Time Differential Global Positioning System Operation
- EQT-34, Radiation Scanning System
- 20300-PL-002, Real Time Instrumentation Measurement Program Quality Assurance Plan
- EW-1022, On-Site Tracking and Manifesting of Bulk Impacted Material

7.6 References

- Sitewide CERCLA Quality Assurance Project Plan (SCQ), FD-1000, May 10 1995

- Sitewide Excavation Plan, April 1998, 2500-WP-0028, Revision D Draft Final
- Waste Acceptance Criteria Attainment Plan for the On-Site Disposal Facility, January 1998, 20100-PL-0014, Rev. C Draft Final]
- Impacted Materials Placement Plan for the On-Site Disposal Facility, January 1998, 20100-PL-007, Revision 0
- Area 2, Phase 1 Southern Waste Units Implementation Plan for Operational Unit 2, October 1997, 2502-WP-0029, Revision C Draft
- RTRAK Applicability Study, May 1998, 20701-RP-0003, Revision 1
- User Guidelines, Measurement Strategies, and Operational Factors for Deployment of In-Situ Gamma Spectrometry at the Fernald Site, April 1998, 20701-RP-0006 Revision A

Data Quality Objectives
Excavation Monitoring for Total Uranium Waste Acceptance Criteria (WAC)

1A. Task/Description: Waste Acceptance Criteria Monitoring

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

RI ☐ FS ☐ RD ☐ RA ☒ R,A ☐ OTHER

1.C. DQO No.: SL-051 DQO Reference No.: N/A

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

Air ☐ Biological ☐ Groundwater ☐ Sediment ☐

Soil and Soil Like Material ☒

Waste ☐ Wastewater ☐ Surface water ☐ Other (specify) _____

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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 A ☐ B ☐ C ☐ D ☐ E ☐	Risk Assessment A ☐ B ☐ C ☐ D ☐ E ☐
Evaluation of Alternatives A ☐ B ☐ C ☐ D ☐ E ☐	Engineering Design A ☐ B ☐ C ☐ D ☐ E ☐
Monitoring during remediation activities A ☐ B ☐ C ☐ D ☐ E ☐	Other Waste Acceptance Evaluation A ☒ B ☒ C ☐ D ☐ E ☐

4.A. Drivers: Specific construction work plans, Applicable or Relevant and Appropriate Requirements (ARARs) and Operable Unit 2 and Operable Unit 5 Records of Decision (ROD).

4.B. Objective: To provide data for identification of soils for compliance with Waste Acceptance Criteria.

5. Site Information (Description):

The RODs specify that FEMP soils will be below the WAC for disposal in the OSDF. WAC determination will be necessary for site soils that are scheduled for excavation and potential OSDF disposition.

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	☐	Thorium, Moisture	
TOC	☐	Pesticides	☐		
TCLP	☐	PCB	☐		
CEC	☐				
COD	☐				

6.B. Equipment Selection and SCQ Reference:

ASL A RTRAK, HPGe SCQ Section: Section 3

ASL B HPGe SCQ Section: Section 3

ASL C _____ SCQ Section: _____

ASL D _____ SCQ Section: _____

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-051

7.B. Sample Work Plan Reference: The DQO is being established prior to completion of the PSP.

Background samples: SED

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

8.A. Field Quality Control Samples:

Trip Blanks	☐	Container Blanks	☐
Field Blanks	☐	Duplicate Measurements	☒*
Equipment Rinsate Samples	☐	Split Samples	☐
Preservative Blanks	☐	Performance Evaluation Samples	☐

Other (specify) _____

*For the HPGe detectors, duplicate measurements will be made every 1 in 20 or one per lift, whichever is greater.

8.B. Laboratory Quality Control Samples:

Method Blank	☐	Matrix Duplicate/Replicate	☐
Matrix Spike	☐	Surrogate Spikes	☐

Other (specify) Per method

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