

**APPENDIX D3  
SOIL CONFIRMATION SAMPLING PLAN**

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## PREFACE

This appendix includes an annotated outline that identifies potential content for a Soil Confirmation Sampling Plan. This outline is not intended to be prescriptive and should be adjusted as appropriate for the site-specific conditions.

This outline is for guidance only, and is applicable on a case-by-case basis. Some elements of the outline may apply to your site, while other elements may not. Additional elements than are addressed by this outline may also be needed.

## INTRODUCTION

Soil confirmation sampling at metals-impacted sites is performed for two main purposes.

- (1) Following a removal action, soil at the base and sides of the excavation is sampled to demonstrate that the removal has met the cleanup objectives and that contaminants are not left in place at concentrations exceeding the approved cleanup goals.
- (2) Excavated soils are characterized to support the decision regarding appropriate disposal or reuse and to determine whether any treatment is necessary.

This appendix provides an annotated outline that may assist with the development of a site-specific Soil Confirmation Sampling Plan. In addition, the following references may be useful in developing the plan.

EPA. 2002. Guidance on Choosing a Sampling Design for Environmental Data Collection, for Use in Developing a Quality Assurance Project Plan, EPA QA/G-5S. EPA/240/R-02/005. December. [www.epa.gov/quality/qa\\_docs.html](http://www.epa.gov/quality/qa_docs.html)

EPA. 2006. Guidance on Systematic Planning Using the Data Quality Objective Process, EPA QA/G-4. EPA/240/B-06/001. February. [www.epa.gov/quality/qa\\_docs.html](http://www.epa.gov/quality/qa_docs.html)

EPA. 2006. Data Quality Assessment: A Reviewer's Guide, EPA QA/G-9R. EPA/240/B-06/002. February. [www.epa.gov/quality/qa\\_docs.html](http://www.epa.gov/quality/qa_docs.html)

EPA. 2006. Data Quality Assessment: Statistical Methods for Practitioners, EPA QA/G-9S. EPA/240/B-06/003. February. [www.epa.gov/quality/qa\\_docs.html](http://www.epa.gov/quality/qa_docs.html)

ITRC. 2003. Technical and Regulatory Guidance for the Triad Approach: A New Paradigm for Environmental Project Management. December. [www.itrcweb.org/Documents/SCM-1.pdf](http://www.itrcweb.org/Documents/SCM-1.pdf)

Depending on site-specific circumstances and/or the site cleanup process, the Soil Confirmation Sampling Plan can be included as an appendix to a document (e.g., Excavation, Disposal, and Restoration Plan), incorporated into a document (e.g., Removal Action Workplan), or prepared as a standalone document. The content of the plan should be adjusted accordingly.

## ANNOTATED OUTLINE FOR SOIL CONFIRMATION SAMPLING PLAN

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- 5.0 CONFIRMATION SAMPLE COLLECTION FOR WASTE CHARACTERIZATION
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  - 5.3 Sample Locations
  - 5.4 Sampling Requirements
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    - 5.5.1 General Sample Collection Procedures
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- 8.0 CONCLUSIONS AND RECOMMENDATIONS
- 9.0 HEALTH AND SAFETY PLAN
- 10.0 REFERENCES

### TABLES

- Historical Site Sampling Results
- Project Cleanup Goals and Regulatory Criteria
- Sampling Schedule
- [Other appropriate tables]

### FIGURES

- Site Location Map
- Map of Planned Removal Areas
- Sampling Grid
- Intended Locations for Soil Confirmation Samples
- [Other appropriate figures]

### APPENDICES

- Field Sampling Plan (FSP)<sup>1</sup>
- Quality Assurance Project Plan (QAPP)<sup>1</sup>
- Health and Safety Plan
- Statistical Methodology
- Grid System Layout Methodology
- Correspondence and Regulatory Approvals
- [Other appropriate appendices]

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<sup>1</sup> Annotated outlines for the FSP and QAPP are provided in Appendix A2.

## 1.0 INTRODUCTION

*Instructions: A confirmation sampling plan for soils will generally be a smaller and more focused document than characterization workplan or excavation plan documents. If the confirmation plan is a stand-alone document, this section should be more comprehensive.*

*Describe the site location, description, and history. Identify the purpose, scope and objective of the confirmation sampling. Identify the responsible agency, project organization, and responsibilities.*

- 1.1 SITE LOCATION, DESCRIPTION, AND HISTORY
- 1.2 PURPOSE, SCOPE, AND OBJECTIVES OF CONFIRMATION SAMPLING
  - 1.2.1 Demonstrate Removal of Soil Exceeding Cleanup Goals
  - 1.2.2 Waste Characterization
- 1.3 RESPONSIBLE AGENCY
- 1.4 PROJECT ORGANIZATION AND RESPONSIBILITIES

## 2.0 SUMMARY OF EXISTING SITE DATA

*Instructions: Briefly summarize the existing site data. Identify the estimated nature and extent of contamination. Include figures that support the discussion.*

## 3.0 SUMMARY SOIL REMOVAL ACTIONS

*Instructions: Describe the soil removal actions to be taken prior to confirmation sampling. Identify the cleanup goals and regulatory criteria. Support the discussion with appropriate figures (e.g., a figure showing the estimated vertical and lateral extent of the excavation). Describe the approach to excavation activities and confirmation sampling (e.g., sequencing of excavation, confirmation sampling, laboratory turnaround time, data evaluation and decision to backfill excavation).*

- 3.1 SUMMARY OF SOIL REMOVAL OBJECTIVES
  - 3.1.1 Extent of Excavation
  - 3.1.2 Waste Characterization
  - 3.1.3 [Other Appropriate Subsections]
- 3.2 CLEANUP GOALS AND REGULATORY CRITERIA
- 3.3 ROLE AND TIMING OF CONFIRMATION SAMPLING IN THE DECISION PROCESS

#### 4.0 CONFIRMATION SAMPLE COLLECTION FROM EXCAVATED AREAS

*Instructions: Describe the sampling design that will be used to confirm that soil excavation efforts have removed soil exceeding cleanup goals. Provide the objectives and rationale for sample locations and frequencies for both the excavation floor and sidewalls. If applicable, describe the method for establishing a sampling grid. Identify the sampling requirements (e.g., discrete or composite samples). Provide general sample collection and preservation procedures, and analytical methods. Reference the applicable FSP.*

- 4.1 SAMPLING OBJECTIVES
- 4.2 SAMPLING DESIGN AND RATIONALE
- 4.3 SAMPLE LOCATIONS AND DEPTHS
  - 4.3.1.1 Excavation Floor
  - 4.3.1.2 Sidewalls
- 4.4 SAMPLING REQUIREMENTS
- 4.5 SAMPLING AND ANALYSIS
  - 4.5.1 General Sample Collection Procedures
  - 4.5.2 Laboratory Analytical Methods
  - 4.5.3 Quality Assurance/Quality Control

#### 5.0 CONFIRMATION SAMPLE COLLECTION FOR WASTE CHARACTERIZATION

*Instructions: Describe the sample collection methods for characterizing excavated soil prior to disposal or reuse and to identify the need for treatment prior to disposal. Indicate the sample collection frequency and rationale. Identify the sample requirements (e.g., discrete or composite samples). Provide general sample collection and preservation procedures, and analytical methods. Reference the applicable FSP.*

- 5.1 SAMPLING OBJECTIVES
- 5.2 SAMPLING DESIGN AND RATIONALE
- 5.3 SAMPLE LOCATIONS
- 5.4 SAMPLING REQUIREMENTS
- 5.5 SAMPLING AND ANALYSIS
  - 5.5.1 General Sample Collection Procedures
  - 5.5.2 Laboratory Analytical Methods
  - 5.5.3 Quality Assurance/Quality Control

#### 6.0 DATA QUALITY OBJECTIVES

*Instructions: Describe the data quality objectives (DQOs), including analytical issues (e.g., method detection limits), quality assurance and quality control (QA/QC) limitations on data, reproducibility, accuracy and precision, and other issues related to objectives of the confirmation sampling. Reference the applicable QAPP.*

## 7.0 DATA EVALUATION

*Instructions: Describe how the data will be evaluated (1) to support the decision to continue or stop the excavation and (2) to determine appropriate disposal or reuse of excavated soil and identify any treatment requirements. Include detailed descriptions of how the cleanup goals will be applied, the statistical evaluations that will be performed, and any other methods to be used. If appropriate, include decision matrices and/or flow charts to assist with the decision process.*

- 7.1 DETERMINATION OF ADEQUACY OF EXCAVATION
- 7.2 DETERMINE DISPOSAL, REUSE, AND TREATMENT REQUIREMENTS FOR EXCAVATED SOIL

## 8.0 REPORT

*Instructions: Describe the format and schedule for reporting the confirmation sampling and data analysis results. Include all the elements of a standard investigation report, including conclusions and recommendations based on the data and data analysis.*

## 9.0 HEALTH AND SAFETY PLAN

*Instructions: A health and safety plan for confirmation sampling activities should be included as a separate section or appendix.*

## 10.0 REFERENCES

*Instructions: List all references cited in the plan.*