TETRA TECH

October 30, 2007

Mr. Matt Huyser
On-Scene Coordinator
U. S. Environmental Protection Agency, Region 4
61 Forsyth Street, SW, 11th Floor
Atlanta, GA 30303

Subject: **Final Removal Action Support Work Plan**
Industrial Metal Alloys
Winston-Salem, Forsyth County, North Carolina
EPA Identification No. NCN000409780
EPA Contract No. EP-W-05-054 (START III, Region 4)
Technical Direction Document No. TTEMI-05-001-0039

Dear Mr. Huyser:

The Tetra Tech Superfund Technical Assessment and Response Team (START) is submitting the final work plan to provide removal action support for the Industrial Metal Alloys (IMA) site located in Winston-Salem, Forsyth County, North Carolina. The proposed technical approach and cost estimate have been prepared in accordance with the U.S. Environmental Protection Agency (EPA) Performance Work Statement dated December 29, 2005. The initial budget estimate to provide technical support for the IMA site is $56,564.66. Tetra Tech requests a technical direction document (TDD) amendment for the following:

Total cost estimate	**$56,564.66**
Budget provided to date	**-$10,000.00**
Cost amendment request	**$46,564.66**

The cost estimate information contained in Appendix A of the work plan is confidential business information. Please contact me at (678) 775-3095 or Andrew Johnson at (678) 775-3100, if you have any questions or comments regarding the work plan.

Sincerely,

Didi Fung, EIT
Tetra Tech START III Project Manager

Andrew F. Johnson
Tetra Tech START III Program Manager

Enclosures

cc: Katrina Jones, EPA Project Officer
Darryl Walker, EPA Alternate Project Officer
Deborah Hoover, EPA Contract Officer
Lynette Rocke, EPA Contract Specialist
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FINAL
REMOVAL ACTION SUPPORT WORK PLAN

INDUSTIAL METAL ALLOYS
WINSTON-SALEM, FORSYTH COUNTY, NORTH CAROLINA

EPA IDENTIFICATION No. NCN000409780

Revision 0

Prepared for

U.S. ENVIRONMENTAL PROTECTION AGENCY
Region 4
Atlanta, GA 30303

Contract No.	:	EP-W-05-054
TDD No.	:	TTEMI-05-001-0039
Date Prepared	:	October 30, 2007
EPA Task Monitor	:	Matthew Huyser
Telephone No.	:	(404) 562-8934
Prepared by	:	Tetra Tech
START III Project Manager	:	Didi Fung, EIT
Telephone No.	:	(678) 775-3095

Prepared by	Reviewed by	Approved by
Yuen-Chang (Didi) Fung, EIT START III Project Manager	Brian Croft START III Technical Reviewer	Andrew F. Johnson START III Program Manager

CONTENTS

APPENDICES

TABLES

1.0 INTRODUCTION

Tetra Tech received Technical Direction Document (TDD) No. TTEMI-05-001-0039 under Contract No. EP-W-05-054 on June 22, 2007, from the U.S. Environmental Protection Agency (EPA) to conduct removal oversight (RO) activities at the Industrial Metal Alloys (IMA) site located in Winston-Salem, Forsyth County, North Carolina. RO activities under the TDD will focus on the property, surrounding residential and commercial property, and an unnamed stream that is being evaluated by the EPA Region 4 Emergency Response and Removal Branch (ERRB). The IMA property consists of about 1.06 acres of land. The surrounding properties consist of one commercial and four residential lots. The small unnamed stream borders the southern IMA property line and travels about 0.9 mile before flowing into another unnamed stream.

Tetra Tech conducted conflict of interest (COI) screening after receiving the TDD on July 5, 2007. Tetra Tech has determined that no COI exists for the IMA site.

This work plan describes Tetra Tech's technical approach, project personnel, deliverables and project schedule, quality control (QC), and cost estimate for completing RO activities under the TDD. The primary purposes of the RO are to (1) document the removal activities, (2) ensure the potentially responsible party's (PRP) Removal Action Work Plan (RAWP) is adhered to, and (3) conduct split sampling with a representative quantity of the PRP's samples collected throughout the removal action activities. Appendix A provides a cost estimate. Appendix B provides the procedures for collecting samples for confirmation and disposal analysis. The scope of work and site background information is discussed below.

1.1 SCOPE OF WORK

EPA issued TDD No. TTEMI-05-001-0039 to conduct RO activities at the IMA site, EPA Identification No. NCN000409780. Tetra Tech will complete the following tasks and activities under this TDD:

- Task 1: Prepare Work Plan and a Heath and Safety Plan (HASP)
- Task 2: Conduct RO Activities
- Task 3: Prepare RO Report
- Task 4: Conduct Data Management and Validation
- Task 5: Conduct Project Management

Tetra Tech's technical approach for each task is discussed in Section 2.0 of this work plan.

1.2 BACKGROUND INFORMATION

The IMA site is located at 20 East Acadia Avenue in Winston-Salem, Forsyth County, North Carolina. Specifically, the site is located at latitude 36.0716° north and longitude 80.2395° west. Site elevations range from 830 to about 850 feet above mean sea level. The IMA site encompasses about 1.06 acres in a predominantly residential area of Winston-Salem, North Carolina. The IMA site is bounded on the north by an abandoned gravel lot; on the west and south by residential properties and small businesses; and on the east by Colter Electric storage yard and a local construction company.

From 1956 to approximately 1976, the IMA Company, a solder manufacturing facility, was owned and operated by Milton and Vera Goldberg. From 1976 to 1993, the property was leased and operated again for solder manufacturing by Taracorp, Inc. In January 2005, NK Holdings, LLC was formed and is the corporate successor to Taracorp, Inc. Based on a 1955 deed, the current owner of the IMA site is the North Carolina School of the Arts Foundation, Inc.

The site was discovered by the State of North Carolina during a review process and referred to EPA following a site reconnaissance and sampling event. EPA conducted a removal assessment on July 11 and 12, 2005. The results of the assessment indicated inorganic contamination. The chemicals of concern are lead, arsenic, antimony, chromium, copper, and mercury.

2.0 TECHNICAL APPROACH

Tetra Tech will perform the five tasks listed in Section 1.1 to complete RO activities for the IMA site. The technical approach and assumptions used by Tetra Tech to prepare the cost estimate are described below. If additional tasks are identified, Tetra Tech will notify the EPA project and contract officers and request additional funding and approval before beginning tasks not specified in this work plan.

2.1 TASK 1: PREPARE WORK PLAN AND HEALTH AND SAFETY PLAN

Tetra Tech has prepared this work plan and cost estimate for the IMA site in accordance with the Performance Work Statement dated December 29, 2005, the TDD, and additional direction provided by EPA Task Monitor and On-Scene Coordinator Matthew Huyser. The work plan is based on conversations at the EPA with the Task Monitor on July 20, 2007 and the PRP's RAWP.

Tetra Tech has prepared a site-specific HASP for use during field activities. The HASP identifies potential hazards and levels of personal protective equipment to be worn by personnel conducting on-site field activities. The HASP also outlines all proposed safety protocols to be followed during field activities and identifies the nearest medical center to the site in case an accident occurs. The HASP was reviewed and approved by the Tetra Tech regional health and safety officer. The HASP will be updated if any field conditions change or additional information is discovered during the RO and field sampling activities. A copy of the approved HASP will be available on site during all field activities. All activities for Task 1 will be conducted as non-field labor.

2.2 TASK 2: CONDUCT REMOVAL OVERSIGHT ACTIVITIES

All field activities will be conducted in accordance with the Performance Work Statement dated December 29, 2005, and the EPA Region 4 Science and Ecosystem Support Division "Environmental Investigations Standard Operating Procedures and Quality Assurance Manual" (EISOPQAM), dated November 2001. In addition to the EISOPQAM procedures for sample collection, Appendix B presents additional detail on achieving the best possible sample preparation and homogenization for target analyte list (TAL) metals analysis (EPA SW-846 Method 6010B) as well as toxic characteristic leaching procedure TAL metals analysis (EPA SW-846 Method 1311). These preparations will, in turn, provide a more accurate fixed laboratory analytical result.

The removal activities are expected to be conducted over an 8-week period, and work is expected to be conducted on an 8-hour per day schedule. The proposed field oversight and sampling team is provided in Section 3.0 of this work plan. Tetra Tech will conduct equipment decontamination both before and after sampling. Removal activities are scheduled for the middle of October 2007 to the middle of December 2007.

Tetra Tech will conduct oversight and sampling activities as requested by the EPA Task Monitor and in the TDD. Field activities are expected to include the collection of split soil and sediment samples from the IMA facility and surrounding residential and commercial properties to determine whether those properties have been remediated to the site-specific cleanup standard (SSCS) of 400 milligrams per kilogram (mg/kg) for lead discussed in the PRP's RAWP. Field activities will also include the use of X-ray fluorescence equipment to screen the soil during the removal process using the historical lead screening criterion of 280 mg/kg, which represents 70 percent of the lead SSCS discussed in the Settlement Agreement and Order on Consent. Tetra Tech will adjust the lead screening criterion, if

necessary, as the PRP's data set grows and it becomes possible to more accurately determine the correlation of lead concentration between the screenings and fixed laboratory analytical results and if approved by the EPA Task Monitor. Consideration will be given to the comparison of the split sample results and their variability. Tetra Tech will work closely with the EPA Task Monitor to document the decision flow used to confirm or question the PRP's results.

Tetra Tech will provide written and photographic documentation of all field activities. Tetra Tech will also provide geographic information system (GIS) documentation of sampling locations and pertinent site features using a global positioning system (GPS) unit. GIS support will involve the preparation of site maps and figures. Maps generated for the project generally will be prepared in an ArcGIS format. ArcGIS enables the GIS specialist to electronically gather data in the field and easily upload the data into the mapping software for map preparation.

Activities under Task 2 will be conducted as non-Level A field labor as well as non-field labor. Non-field labor will be limited to preparing for the oversight and sampling activities, making travel arrangements, procuring equipment and supplies, restocking of equipment and supplies after the oversight and sampling activities, and GIS support.

2.3 TASK 3: PREPARE REMOVAL OVERSIGHT REPORT

Tetra Tech will prepare a draft RO report with specific contents described below:

- Introduction
- Site Background
- Removal Oversight Activities
- Summary and Conclusion
- Appendix A – Figures
- Appendix B – Tables (analytical data summary tables)
- Appendix C – Logbook notes
- Appendix D – Photographic log
- Appendix E – Laboratory data validation reports
- Appendix F – Table of witnesses

Analytical data summary tables (Appendix B of the draft RO report) will compare concentrations of hazardous constituents detected in split media samples to those detected in the PRP samples. Contaminant concentrations in soil samples will be compared to the SSCS. Data tables will highlight any analyte detected at concentrations greater than or equal to their respective SSCS.

The draft RO report will be submitted to the EPA Task Monitor within 30 business days of receipt of the complete analytical data set. The EPA Task Monitor will have 30 business days to provide comments. Tetra Tech will revise the report and submit copies of the final RO report to EPA within 15 business days after receiving comments on the draft report. Draft and final RO reports will be submitted to EPA on compact disc in portable document format. A hard copy will also be included in the submittal.

All documents generated under this TDD are the property of EPA and will be retained as part of EPA files. After EPA accepts the final RO report, Tetra Tech will prepare and submit all closeout forms and check the RO files to make certain that all documents generated during the performance period of the RO TDD are assembled. Upon request, all documents generated under the TDD will be inventoried and submitted to EPA or to an EPA-designated location at the time of project closeout and preparation of the acknowledgement of completion, or the cancellation of the TDD. All activities for Task 3 will be conducted as non-field labor.

2.4 TASK 4: CONDUCT DATA MANAGEMENT AND VALIDATION

Tetra Tech will procure an appropriate level data package that meets the standards of the EPA Contract Laboratory Program. A rapid turn around time will be requested from the laboratory. Once data packages are received from the laboratory, Tetra Tech will review the packages for completeness. Tetra Tech will also conduct a full data validation on a percentage of the analytical data package and a less complete review of the remaining packages. Full data validation will be conducted on full data packages (which include all raw data) and the lower level reviews may be conducted on either full or summary data packages. Data validation reports (Appendix E of the draft RO report) will be submitted for each data package received from the laboratory. Once the validation is complete, Tetra Tech will upload the data into the project database using the electronic data delivery files received from the laboratory that conducted the analysis. Tetra Tech will implement a quality assurance and quality control (QA/QC) process for data management support which will include a random QA/QC comparison between the data contained in the database, the electronic data deliverables, and hard copy analytical data packages. All activities for Task 4 will be conducted as non-field labor.

2.5 TASK 5: CONDUCT PROJECT MANAGEMENT

All site-related project management activities will occur under the TDD, including day-to-day planning and monitoring of Tetra Tech support personnel, coordination with EPA, and tracking of project schedule

and costs. Tetra Tech will submit weekly Removal Cost Management System (RCMS) 1900-55 forms and a monthly progress report (MPR) to the EPA Task Monitor, project officer, and contract officer. The RCMS 1900-55 forms will indicate costs incurred to date for the TDD, in addition to any pending other direct costs, including, but not limited to, travel and equipment rental charges. Tetra Tech also will submit MPRs that provide a detailed list of charges invoiced on a monthly basis. To the best of its ability and for ease in cost reconciliation, Tetra Tech will ensure that the charges in the weekly RCMS 1900-55 forms match the MPRs. Any charges that appear in the weekly RCMS 1900-55 forms, but are not invoiced by the end of the reporting period will be indicated as a budget variance in the MPR. Any changes in the budget or schedule for the TDD will be reflected in the MPR. The MPR also will address activities conducted during the reporting period, issues encountered, and activities and estimated costs anticipated for the next reporting period. All activities for Task 5 will be conducted as non-field labor.

3.0 PROJECT PERSONNEL

Didi Fung will serve as the project manager and will conduct all project oversight activities. Mr. Fung also will serve as the primary contact between EPA personnel and Tetra Tech project staff. Table 1 summarizes project support staff and their roles on the project. Additional support staff or specialists may be needed to assist with portions of the project and deliverables required under this TDD.

TABLE 1
PROJECT PERSONNEL

Personnel	Labor category	Field or Non-field	Project Role
Didi Fung	Principal Professional	Field and Non-field	Project Manager
Brian Malone	Senior Scientist	Field	Field Team Leader
TBD	Junior Scientist	Field and Non-field	GIS Specialist/Field Team Member
Wendy Wallace	Junior Scientist	Non-field	RCMS Specialist

Notes:

GIS Geographical information system
RCMS Removal Cost Management System
TBD To be determined

4.0 DELIVERABLES AND PROJECT SCHEDULE

Tetra Tech will prepare RO deliverables for the IMA site in accordance with the project schedule proposed in Table 2.

TABLE 2
DELIVERABLES AND PROJECT SCHEDULE

Deliverable	Due Date or Date Delivered
Conflict of interest screening	2 weeks after receipt of the TDD
Site-specific work plan and cost estimate (final)	October 30, 2007
Site maps and figures	As requested
Site-specific health and safety plan	July 2, 2007, and prior to field sampling event
Draft removal oversight report	30 business days after receipt of complete analytical data set
Final removal assessment report	15 business days after receipt of comments on draft report
RCMS 1900-55 reports	Weekly throughout the course of the project
Monthly progress report	20th of every month

Notes:

TDD Technical direction document
RCMS Removal Cost Management System

5.0 QUALITY CONTROL

Tetra Tech will review all deliverables for technical accuracy and completeness during all stages of the TDD. QC checks of TDD activities will be performed internally by the quality assurance manager or by a senior technical specialist who has QC experience and is not directly associated with the TDD. The internal QC checks for the assignment will ensure adherence to Tetra Tech's work plan and to regional QC guidance.

6.0 COST ESTIMATE

The estimated costs for this TDD are presented by task in Appendix A. The cost estimate also presents the cost by job level and labor category for each task.

APPENDIX A

COST ESTIMATE

(1 Page)

US EPA - REGION 4
START III CONTRACT
CONTRACT No. EP-W-05-054
Task Order No. 001
TDD No. TTEMI-05-001-0039

G&A 1 **0.00%**
G&A 2 **7.22%**

INDUSTRIAL METAL ALLOY
COST ESTIMATE

Hours Distribution

CLIN	LEVEL A FIELD LABOR Description	Unit	Hrly Rate	Hours	Extended	Sub-Total	Task 1	Task 2a	Task 2a	Task 3	Task 4	Task 5	Task 6	Total	LOE Distribution
Clin 1001	Principal Professional	hr	$101.75	0	$0.00	$0.00	0	0	0	0	0	0	0	0	#DIV/0!
Clin 1002	Senior Scientist	hr	$86.40	0	$0.00	$0.00	0	0	0	0	0	0	0	0	#DIV/0!
Clin 1003	Junior Scientist	hr	$60.21	0	$0.00	$0.00	0	0	0	0	0	0	0	0	#DIV/0!
Clin 1004	Senior Engineer	hr	$81.39	0	$0.00	$0.00	0	0	0	0	0	0	0	0	#DIV/0!
Clin 1005	Junior Engineer	hr	$69.59	0	$0.00	$0.00	0	0	0	0	0	0	0	0	#DIV/0!
Clin 1006	IT Professional	hr	$0.00	0	$0.00	$0.00	0	0	0	0	0	0	0	0	#DIV/0!
Clin 1007	IT Technician	hr	$0.00	0	$0.00	$0.00	0	0	0	0	0	0	0	0	#DIV/0!
Clin 1008	Senior Technician	hr	$64.97	0	$0.00	$0.00	0	0	0	0	0	0	0	0	#DIV/0!
Clin 1009	Junior Technician	hr	$0.00	0	$0.00	$0.00	0	0	0	0	0	0	0	0	#DIV/0!
Clin 1010	Contract Administrators	hr	$0.00	0	$0.00	$0.00	0	0	0	0	0	0	0	0	#DIV/0!
	Sub-Total Labor			**0**	**$0.00**	**$0.00**	0	0	0	0	0	0	0	0	#DIV/0!
							#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	

CLIN	NON-LEVEL A FIELD LABOR Description	Unit	Hrly Rate	Hours	Extended	Sub-Total	Task 1	Task 2a	Task 2b	Task 3	Task 4	Task 5	Task 6	Total	LOE Distribution
Clin 1001A	Principal Professional	hr	$90.98	0	$0.00	$0.00	0	0	0	0	0	0	0	0	0.0%
Clin 1002A	Senior Scientist	hr	$78.04	286	$22,319.44	$22,319.44	0	86	200	0	0	0	0	286	100.0%
Clin 1003A	Junior Scientist	hr	$48.53	0	$0.00	$0.00	0	0	0	0	0	0	0	0	0.0%
Clin 1004A	Senior Engineer	hr	$73.46	0	$0.00	$0.00	0	0	0	0	0	0	0	0	0.0%
Clin 1005A	Junior Engineer	hr	$58.81	0	$0.00	$0.00	0	0	0	0	0	0	0	0	0.0%
Clin 1006A	IT Professional	hr	$0.00	0	$0.00	$0.00	0	0	0	0	0	0	0	0	0.0%
Clin 1007A	IT Technician	hr	$57.95	0	$0.00	$0.00	0	0	0	0	0	0	0	0	0.0%
Clin 1008A	Senior Technician	hr	$55.22	0	$0.00	$0.00	0	0	0	0	0	0	0	0	0.0%
Clin 1009A	Junior Technician	hr	$0.00	0	$0.00	$0.00	0	0	0	0	0	0	0	0	0.0%
Clin 1010A	Contract Administrators	hr	$0.00	0	$0.00	$0.00	0	0	0	0	0	0	0	0	0.0%
	Sub-Total Labor			**286**	**$22,319.44**	**$22,319.44**	0	86	200	0	0	0	0	286	100.0%
							0.0%	30.1%	69.9%	0.0%	0.0%	0.0%	0.0%	$78.04	

CLIN	NON-FIELD LABOR Description	Unit	Hrly Rate	Hours	Extended	Sub-Total	Task 1	Task 2a	Task 2b	Task 3	Task 4	Task 5	Task 6	Total	LOE Distribution
Clin 1001B	Principal Professional	hr	$90.66	24	$2,175.84	$2,175.84	8	0	0	8	0	8	0	24	15.2%
Clin 1002B	Senior Scientist	hr	$78.04	118	$9,208.72	$9,208.72	40	0	0	40	30	8	0	118	74.7%
Clin 1003B	Junior Scientist	hr	$48.53	0	$0.00	$0.00	0	0	0	0	0	0	0	0	0.0%
Clin 1004B	Senior Engineer	hr	$73.46	0	$0.00	$0.00	0	0	0	0	0	0	0	0	0.0%
Clin 1005B	Junior Engineer	hr	$58.81	0	$0.00	$0.00	0	0	0	0	0	0	0	0	0.0%
Clin 1006B	IT Professional	hr	$67.26	0	$0.00	$0.00	0	0	0	0	0	0	0	0	0.0%
Clin 1007B	IT Technician	hr	$59.14	0	$0.00	$0.00	0	0	0	0	0	0	0	0	0.0%
Clin 1008B	Senior Technician	hr	$55.22	0	$0.00	$0.00	0	0	0	0	0	0	0	0	0.0%
Clin 1009B	Junior Technician	hr	$43.01	16	$688.16	$688.16	0	0	0	0	0	16	0	16	10.1%
Clin 1010B	Contract Administrators	hr	$61.50	0	$0.00	$0.00	0	0	0	0	0	0	0	0	0.0%
	Sub-Total Labor			**158**	**$12,072.72**	**$12,072.72**	48	0	0	48	30	32	0	158	100.0%
							30.4%	0.0%	0.0%	30.4%	19.0%	20.3%	0.0%	$76.41	

Total Hours **444**

EQUIPMENT

	Description	Unit	Cost	No. of Units	Extended	G&A	Sub-Total
CLIN 2016	XRF Niton 300 (lead only)	mo	2,750.00	2.00	$5,500.00	$0.00	$5,500.00
					$0.00	$0.00	$0.00
					$0.00	$0.00	$0.00
					$0.00	$0.00	$0.00
					$0.00	$0.00	$0.00
					$0.00	$0.00	$0.00
					$0.00	$0.00	$0.00
					$0.00	$0.00	$0.00
					$0.00	$0.00	$0.00
	Sub-Total Equipment				**$5,500.00**		**$5,500.00**

MATERIALS

Description	Unit	Cost	No. of Units	Extended	G&A	Sub-Total
				$0.00	$0.00	$0.00
				$0.00	$0.00	$0.00
				$0.00	$0.00	$0.00
				$0.00	$0.00	$0.00
				$0.00	$0.00	$0.00
Sub-Total Materials				**$0.00**		**$0.00**

SUBCONTRACTORS

Description	Unit	Cost	No. of Units	Extended	G&A	Sub-Total
	ea			$0.00	$0.00	$0.00
	ea			$0.00	$0.00	$0.00
				$0.00	$0.00	$0.00
				$0.00	$0.00	$0.00
				$0.00	$0.00	$0.00
Sub-Total Subcontractors				**$0.00**		**$0.00**

ANALYTICAL SUBCONTRACTORS

Description	Unit	Cost	No. of Units	Extended	G&A	Sub-Total
Total lead (24h TAT)	ls	$30.00	50	$1,500.00	$108.30	$1,608.30
TCLP lead (3day TAT)	ls	$200.00	5	$1,000.00	$72.20	$1,072.20
				$0.00	$0.00	$0.00
				$0.00	$0.00	$0.00
				$0.00	$0.00	$0.00
Sub-Total Subcontractors				**$2,500.00**		**$2,680.50**

OTHER DIRECT COSTS

Description	Unit	Cost	No. of Units	Extended	G&A	Sub-Total
Meals (100% Per Diem)	day	$44.00	49.00	$2,156.00	$155.66	$2,311.66
Meals (75%Per Diem)	day	$33.00	10.00	$330.00	$23.83	$353.83
Hotel	day	$78.00	54.00	$4,212.00	$304.11	$4,516.11
Hotel Tax (~15%)	day	$11.70	54.00	$631.80	$45.62	$677.42
Fuel	wk	$100.00	8.00	$800.00	$57.76	$857.76
Airfare	@	$0.00	0.00	$0.00	$0.00	$0.00
Rental vehicle	Day	$80.00	59.00	$4,720.00	$340.78	$5,060.78
Mileage	mile	$0.445	0.00	$0.00	$0.00	$0.00
Shipping (Overnight Courier)	ls	$100.00	2.00	$200.00	$14.44	$214.44
Sub-Total ODCs				**$13,049.80**		**$13,992.00**

TOTAL TASK ORDER **$56,564.66**

Ave. Loaded $/Hr **$127.40**

Tasks

Task 1: Prepare Work Plan and Health and Safety Plan
Task 2a: Mobilization, demobilization, and overlap activities
Task 2b: Oversight activities
Task 4: Prepare Draft and Final Removal Oversight Report
Task 5: Data management and validation
Task 6: Project Management

Assumptions:

1 Start date begins the week of October 15, 2007 for 8 weeks
2 Work week is 3 day a week at 8 hr days (mob not included)
3 One FTE for oversight with additional FTE support for project when needed (kick off and overlap)
4 9 hr one-way mob time with overlap hours as needed
5 The total number of samples is estimated. Actual count will be based on field needs at unit rate.
6 Level 2 data package for analytical results
Level 4 data package maybe necessary in the beginning

APPENDIX B

SAMPLE PREPARATION PROCEDURES
FOR CONFIRMATION AND DISPOSAL ANALYSIS

(4 Pages)

APPENDIX B

INDUSTRIAL METAL ALLOYS
SAMPLE PREPARATION PROCEDURES
FOR CONFIRMATION AND DISPOSAL ANALYSIS

CONFIRMATION SOIL SAMPLES ANALYZED FOR TOTAL METALS OR THE CHEMICALS OF CONCERN METALS

RECOMMENDATIONS: If slag is present in the confirmation sample matrix, further excavation in the associated grid is recommended. Regardless, process the sample matrix as described below.

1. Collect a split sample with the potentially responsible party (PRP).

Comments: Observe the PRP during sample collection to ensure that each aliquot from the area is not discriminated based on particle size. Ensure that larger particle sizes that end up in the spoon do not get excluded. The goal is to collect material that is representative of the area with respect to particle size and the density and distribution of content.

2. The next step in this procedure depends on the dryness of the sample collected. Follow Step 2a for dry samples or 2b for wet samples.

2a. If the sample is dry, strain the sample through a 1/4-inch sieve. Use a bowl to receive the material passing through the sieve. Homogenize the material collected in the bowl as you sieve. The material not passing through the sieve is probably either soil clods, rock, or slag. Once the first sieving is complete, place the material that did not pass through the sieve into a second bowl. Use the back of a spoon to break up the soil clods and crush the rock and slag pieces into as small a particle size as possible. Strain this portion again and repeat the spoon-crushing and sieving steps until only difficult-to-crush rock and slag remains.

Any rock or slag that does not pass through the sieve must be crushed using the crusher: a stainless-steel proctor mold (crucible), a fabricated stainless-steel piston (pestle), and a 5-pound hammer. Use the crusher to reduce the particle sizes to as small as is practical, and at least small enough to pass through the sieve. Limiting the number of hammer blows before re-sieving is not important for this step.

When all of the sample material has passed through the sieve, combine the crushed material with the rest of the sample and re-homogenize well. Again, overmix rather than undermix. Send the sample to the procured laboratory for analysis.

2b. If the sample is wet to the point that it would be difficult to sieve, use the following procedure. Place the sample in a large stainless-steel bowl. Mix the sample well and use the back of a spoon to thoroughly break up the soil clods and crush the rock and slag pieces into as small a particle size as possible. As you mix and crush, remove solid particles that are not reducible to a small size using the spoon. Place these particles in a separate bowl. The goal is to segregate from the bulk sample most of the particles that would probably not pass through the sieve.

Crush oversize particles using the crusher to reduce the particle size to as small as is practical, and at least small enough to pass through the sieve. Limiting the number of hammer blows is not important. Using the crusher and the sieve, crush the particles until all of them are reduced into pieces that will pass through the sieve. When all of the material has passed through the sieve, combine the crushed and sieved material with the rest of the sample and re-homogenize well. Again, overmix rather than undermix. Fill one 8-ounce glass jar with the material and deliver it to the procured laboratory for analysis.

STOCKPILE DISPOSAL SAMPLES ANALYZED BY THE TOXICITY CHARACTERISTIC LEACHING PROCEDURE FOR METALS

1. Collect a spilt sample with the PRP.

Comments: The aliquot collection should be timed evenly to coincide with the size of the stockpile. Ensure that each aliquot from the stockpile is not discriminated based on particle size and that the larger particle sizes that end up in the spoon do not get excluded. The goal is to collect material that is representative of the entire pile with respect to particle size and the density and distribution of content.

2. After all aliquots are collected for a sample, use the 3/8-inch sieve to screen the entire sample.

Comments: Use a second bowl to receive the material passing through the 3/8-inch sieve. Homogenize the sample in the second bowl as you sieve. The material not passing through the sieve is probably either soil clods, rock, or slag. Once sieving is complete, place the material that did not pass through the sieve back into the original sample bowl. Use the back of the spoon to break up the soil clods in this bowl. Strain this portion again, and repeat the spoon-crushing and sieving steps (if necessary) until only difficult-to-crush rock or slag remains.

3. Any rock or slag that does not pass through the sieve must be crushed using the crusher: a stainless-steel proctor mold (crucible), a fabricated stainless-steel piston (pestle), and a 5-pound hammer.

Comments: The intent is not to crush the rock or slag into a fine powder, but to reduce the particle sizes of the rock or slag so that it just barely passes through the 3/8-inch sieve. One recommended approach is to crush the rock and slag material using one or two blows with the hammer, re-sieve, and then repeat the crushing and sieving in this way until all material has passed through the sieve. Limiting the blows to one or two before each sieving should minimize the degree of pulverizing of the material beyond what is needed to just barely pass through the sieve.

4. Add the crushed and sieved rock and slag to the rest of the sample and re-homogenize well. The representativeness of the laboratory's results depends greatly on a highly homogenized sample. Because of this, err on the side of overmixing rather than undermixing.

5. Collect one 8-ounce glass jar of the homogenized soil and deliver it to the procured fixed laboratory for analysis.

EQUIPMENT RINSATE BLANKS

1. Collect one equipment rinsate blank sample for every 20 samples analyzed.

Comments: The equipment rinsate blank sample should be collected from equipment that has been processed through the entire decontamination procedure and has been wrapped for storage in aluminum foil. The next section describes decontamination procedures.

Collection Procedure: Unwrap and position one stainless-steel bowl under the deionized water container located in the decontamination room. Unwrap one stainless-steel spoon and turn the deionized water container valve on. Run the spoon under the tap. The water should fall into the pre-positioned stainless-steel bowl. Unwrap the sieve and all parts of the crusher and repeat the process with each piece of equipment, making sure that the rinse water is captured in the stainless-steel bowl. Try to collect a minimum of 500 milliliters (mL) of rinse water during this process. Carefully swish the water around in the bowl and pour it into a plastic container pre-preserved with nitric acid (HNO_3). Deliver this equipment rinsate blank to the laboratory for analysis for total lead or total metals of concern.

SAMPLING EQUIPMENT DECONTAMINATION PROCEDURES

Follow the steps below when decontaminating field sampling equipment. Batch as much equipment together in this process as possible. Start the process with a clean pair of gloves and change gloves before moving to the next stage (for example, going from Step 1 to Step 2).

1. Rough Rinse

Using the scrub brush and sponge in the rough rinse container filled with tap water, remove any caked-on material that remains on the sampling equipment.

Comments: Change the tap water in the rough rinse container as it becomes dirty. Tetra Tech will properly dispose of the used liquid.

2. Detergent Wash and Tap Water Rinse

Using the spray bottle marked “liquinox,” spray all surfaces of the sampling equipment. Using the scrub brush in the soap solution container, thoroughly scrub all surfaces.

Rinse the equipment with tap water by dipping the equipment in a basin of clean tap water.

Comments: Use only liquinox or other phosphate-free laboratory detergent. Change out the water used in the rinse basin as often as necessary to keep it relatively soap-free. Tetra Tech will properly dispose of the used soap and rinse liquids.

3. Deionized Water Rinse

Use the spray bottle containing deionized water to thoroughly rinse off the equipment. Be sure to spray all surfaces so that water flows off the surfaces. Tetra Tech will properly dispose of the used rinse liquid.

4. Pesticide Grade Isopropanol Rinse

Using the spray bottle containing propanol, spray all surfaces of the stainless-steel sampling equipment and allow it to dry on drying stools covered with fresh aluminum foil. Do not rinse polyvinyl chloride or plastic equipment with propanol; for these materials, skip this step.

Comments: Use pesticide-grade pesticide grade isopropanol only. Collect the used isopropanol in a separate container from all other wash and rinse solutions. When finished, transfer the used isopropanol to an aluminum pan. Place the pan in an open, sheltered area (preferably exposed to sunlight) where the isopropanol can evaporate. Remember, isopropanol is flammable!

5. Final Deionized Water Rinse

Make sure that the equipment is dry from the propanol rinse before conducting the final deionized water rinse. Use the spray bottle containing deionized water to thoroughly rinse the equipment. Be sure to spray all surfaces such that water flows off the surfaces. Place the equipment on the stools to dry.

Comments: As soon as the equipment is dry, wrap each piece with fresh aluminum foil. Do not allow time for dust to settle on the equipment before wrapping. Tetra Tech will properly dispose of the used rinse liquid.