

**WBS DICTIONARY  
CONTROL ACCOUNT/CHARGE NUMBER**



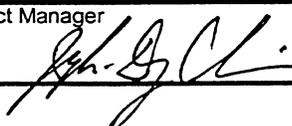
U.S. DEPARTMENT OF ENERGY  
 WORK BREAKDOWN STRUCTURE DICTIONARY  
 PART II - ELEMENT DEFINITION

1. PROJECT TITLE  FEMP (DEFENSE)	2. DATE OF CONTRACT  12/01/2000
3. IDENTIFICATION NUMBER  DE-AC24-01OH20115	4. INDEX LINE NO.  54
5. WBS ELEMENT CODE  1.1.G.H	6. WBS ELEMENT TITLE  AREA 4B SOIL REMEDIATION
7. APPROVED CP NO.  NEW PER CP# FY01-0115-0006-00	8. DATE OF CHANGES  09/05/2001
9. SYSTEM DESIGN DESCRIPTION  CERCL/ACA	10. BUDGET AND REPORTING NUMBER  EW05H3060
11. ELEMENT TASK DESCRIPTION	
<p><b><u>a. ELEMENTS OF COST:</u></b></p> <p>Labor          Materials          Subcontracts          ODCs</p> <p><b><u>b. TECHNICAL CONTENT:</u></b></p> <p>Area 4B comprises approximately 28 acres and lies in the SW quadrant of the former Production Area. The area is bounded by the Plant 1 Pad and Building 71 loading dock to the north, B Street and the east side of the Lab Building to the east, the south side of the Lab Building and Pilot Plant to the south and the Production Area fence line to the west.</p> <p><b><u>c. SCOPE OF WORK:</u></b></p> <p>The scope of work for these activities is defined in control account G4B1 Area 4B Soil Remediation. Key subjects in this account are Title III services, site preparation, at-and below-grade excavation, interim restoration, excavation control monitoring, certification activities, onsite treatment of soil contaminated with hazardous organic compounds and offsite waste disposition.</p> <p>NOTE: Predesign activities and Title I/II services are included in control account G3B1.</p> <p>Work specifically excluded from this account is as follows:</p> <ul style="list-style-type: none"> <li>- Staff labor charged to GPM1</li> <li>- Predesign characterization studies</li> <li>- Title I/II engineering services</li> <li>- Engineering services for the design and construction of the OSDF</li> <li>- Post-remediation monitoring, maintenance and storm water management</li> </ul>	

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9. SYSTEM DESIGN DESCRIPTION  CERCL/ACA	10. BUDGET AND REPORTING NUMBER  EW05H3060
11. ELEMENT TASK DESCRIPTION <ul style="list-style-type: none"><li>- Post-closure documentation</li><li>- Natural Resource Restoration activities</li><li>- All remedial work described in other PBS06 control accounts</li><li>- Area 10 (Soils Corridor)</li><li>- All centralized services</li></ul>	

**WORK SCOPE DEFINITION  
(Control Account)**

1. PROJECT TITLE <b>FEMP (DEFENSE)</b>		2. DATE <b>09/05/2001</b>	Page 1
3. WBS ELEMENT CODE <b>1.1.G.H</b>	4. WBS ELEMENT TITLE/NAME <b>AREA 4B SOIL REMEDIATION</b>		
5. PERFORMING DIV/DEPARTMENT CODE <b>49</b>	6. ORIGINATOR NAME/PHONE <b>JD CHIOU/648-3726</b>	7. WBS ELEMENT MANAGER <b>JD CHIOU</b>	
8. BUDGET AND REPORTING NUMBER <b>EW05H3060</b>	9. BUDGET TITLE <b>SOILS</b>		
10. ORIGINAL SCOPE? / CHANGE TO WORK SCOPE? / NEW SCOPE? <b>NEW PER CP# FY01-0115-0006-00</b>		11. ESTIMATED START / COMPLETION DATE <b>6/05 - 4/10</b>	
12. TASK IDENTIFICATION (CONTROL ACCOUNT) <b>G4B1</b>	13. TASK DESCRIPTION (ONE LINE) <b>AREA 4B SOILS REMEDIATION</b>		
<p>14. ELEMENT TASK DESCRIPTION</p> <p><b><u>a. ELEMENTS OF COST:</u></b></p> <p>Labor Materials Subcontracts ODCs</p> <p><b><u>b. TECHNICAL CONTENT:</u></b></p> <p>Area 4B comprises approximately 28 acres and is enclosed by 2nd Street to the north, B Street to the east, the production area fence line to the west, and the Pilot Plant and Laboratory Building to the south and southeast.</p> <p><b><u>c. SCOPE OF WORK:</u></b></p> <p>The scope of work for these activities is further defined in the following charge numbers:</p> <p>G4B13 - Area 4B Title III G4B14 - Area 4B Site Prep/Excavation G4B17 - Area 4B Exc Control/Certification G4B18 - Area 4B Offsite Waste Disposition G4B19 - Area 4B Onsite Waste Treatment</p> <p><b><u>d. WORK SPECIFICALLY EXCLUDED:</u></b></p> <p>Staff labor charged to GPML</p>			
Project Manager 	Control Account Manager 	Control Team Manager 	

**WORK SCOPE DEFINITION  
(Control Account)**

1. PROJECT TITLE <b>FEMP (DEFENSE)</b>		2. DATE <b>09/05/2001</b>	Page 2
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12. TASK IDENTIFICATION (CONTROL ACCOUNT) <b>G4B1</b>	13. TASK DESCRIPTION (ONE LINE) <b>AREA 4B SOILS REMEDIATION</b>		

14. ELEMENT TASK DESCRIPTION

**Predesign characterization studies covered in control account GCJ3**

**Title I/II engineering services covered in control account GCRD**

**Engineering services for the design and construction of the OSDF**

**Post-remediation monitoring, maintenance and stormwater management**

**Post-closure documentation**

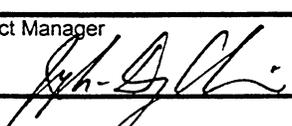
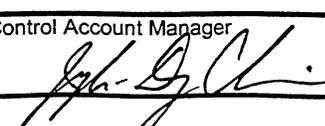
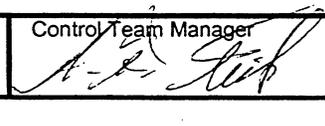
**Natural Resource Restoration activiteis**

**All remedial work described in other PBS06 control accounts**

**Area 10 (Soils Corridor)**

**All centralized services**

**WORK SCOPE DEFINITION**  
(Work Package)

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12. TASK IDENTIFICATION (WORK PACKAGE) <b>G4B13</b>	13. TASK DESCRIPTION (ONE LINE) <b>AREA 4B TITLE III</b>		
14. ELEMENT TASK DESCRIPTION			
<p><b><u>a. ELEMENTS OF COST:</u></b></p> <p>Labor Material Subcontracts</p> <p><b><u>b. TECHNICAL CONTENT:</u></b></p> <p>Area 4B comprises approximately 28 acres and is enclosed by 2nd Street to the north, B Street to the east, the production area fence line to the west, and the Pilot Plant and Laboratory Building to the south and southeast.</p> <p>Title III work involves engineering oversight of the excavation work, preparation and approval of DCNs, assistance with RCIs and NCRs, completion of safety walkthroughs, preparation of the yearly completion report, as-built drawings and close-out report, and the submittal of all records to ECDC.</p> <p>Drivers that affect the cost and schedule of this work include EPA/OEPA review cycles on DCNs, an excessive number of rain days, and unexpected discovery of large areas of undocumented contamination.</p> <p><b><u>c. SCOPE OF WORK:</u></b></p> <p>Title III engineering services for Area 4B consist of two tasks: Excavation Support and Prepare Final Documents.</p> <p><b>Excavation Support:</b></p> <p>Review and modify construction subcontract and work plans, as needed Prepare and approve DCNs</p>			
Project Manager 	Control Account Manager 	Control Team Manager 	

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12. TASK IDENTIFICATION (WORK PACKAGE) <b>G4B13</b>	13. TASK DESCRIPTION (ONE LINE) <b>AREA 4B TITLE III</b>		

14. ELEMENT TASK DESCRIPTION

Provide information for RCIs  
Respond to and close out NCRs  
Perform safety walkthroughs and attend safety briefings, as needed  
Prepare the yearly completion report  
Submit project records to ECDC and maintain copies in project file  
Perform project management and control activities

**Prepare Final Documents:**

Complete as-built drawings  
Prepare the close-out report  
Submit project records to ECDC and maintain copies in project file  
Perform project management and control activities

**d. WORK SPECIFICALLY EXCLUDED:**

All other charge numbers under control account G4B1  
Excavation, certification, waste treatment and disposition

All other control accounts under PBS 06  
Area 1, Area 2, Area 3A, Area 3B, Area 4A, Area 5, Area 6, Area 7, Area 8, Area 9, stream corridors

All other PBS accounts  
PBS 01, PBS 02, PBS 03, PBS 04, PBS 05, PBS 07, PBS 08, PBS 09,  
PBS 10, PBS 11, PBS 12

All activities associated with other PBS elements

All activities associated with other PBS-06 control accounts.

**WORK SCOPE DEFINITION**  
(Work Package)

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8. BUDGET AND REPORTING NUMBER <b>EW05H3060</b>	9. BUDGET TITLE <b>SOILS</b>
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10. ORIGINAL SCOPE? / CHANGE TO WORK SCOPE? / NEW SCOPE? <b>NEW PER CP# FY01-0015-0006-00</b>	11. ESTIMATED START / COMPLETION DATE <b>10/05 - 1/10</b>
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12. TASK IDENTIFICATION (WORK PACKAGE) <b>G4B14</b>	13. TASK DESCRIPTION (ONE LINE) <b>AREA 4B SITE PREP/EXCAVATION</b>
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14. ELEMENT TASK DESCRIPTION

**a. ELEMENTS OF COST:**

Labor  
Subcontracts

**b. TECHNICAL CONTENT:**

Perform remedial construction activities for Area 4B.

The project boundaries are as follows:

North by Plant 1 Pad and Building 71 Loading Dock

East by B Street and the East side of the Lab Building

South by the south side of the Lab Building and the Pilot Plant

West by Production Area fence line

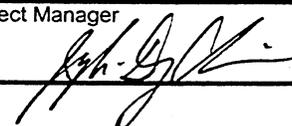
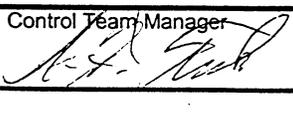
**c. SCOPE OF WORK:**

Provide site preparation activities prior to the start of excavation.  
Activities included but not limited to are as follows:

Provide and deliver all required permits.

Establish work limits and excavation boundaries.

Establish construction support areas and work areas.

Project Manager 	Control Account Manager 	Control Team Manager 
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12. TASK IDENTIFICATION (WORK PACKAGE) <b>G4B14</b>	13. TASK DESCRIPTION (ONE LINE) <b>AREA 4B SITE PREP/EXCAVATION</b>		
14. ELEMENT TASK DESCRIPTION			
<p>Connect all utilities into construction support area.</p> <p>Establish surface water management controls.</p> <p>Provide excavation and removal of all above FRL soil and at and below grade concrete and utilities from Area #4B and transportation to the On-site Disposal Facility, SP-7 or other designated staging area in accordance with certified construction drawings, specifications and other subcontract requirements. Additional related activities and services within this scope of work are as follows:</p> <p>Erosion and sediment control during construction</p> <p>Installation and/or relocation of fencing during construction</p> <p>Equipment, material and support facilities rented/procured for project use</p> <p>Dewatering as necessary during construction</p> <p>Dust Control within designated work area.</p> <p>Decontamination of equipment</p> <p>Matrixed and subcontracted labor directly associated with construction</p> <p>Specific work to be addressed includes:</p> <p>Size reduce, excavate, load and haul at and below grade concrete, utilities, and debris associated with the Impacted Material Haul Road to OSDF as Category 2.</p> <p>Excavate, load and haul impacted soils to the OSDF as Category 1.</p> <p>Cut area utility isolation trenches and plug storm water and sanitary sewers.</p> <p>Interim Restoration Grading.</p> <p>Perform Post-Excavation activities.</p>			

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12. TASK IDENTIFICATION (WORK PACKAGE) <b>G4B14</b>	13. TASK DESCRIPTION (ONE LINE) <b>AREA 4B SITE PREP/EXCAVATION</b>		

14. ELEMENT TASK DESCRIPTION

**d. WORK SPECIFICALLY EXCLUDED:**

Placement in OSDF

Seeding / Vegetation beyond interim restoration

Road construction

Title I/II design services

Performing and/or managing Title III services

Sampling and testing of waste materials during remediation

Monitoring and maintenance of the remediated area after remediation

Offsite disposal of materials exceeding the waste acceptance criteria for on-site disposal

Treatment of lead containing soil

Centralized Personnel, Radiological controls, and Safety management during remedial construction

All activities associated with other PBS elements

All activities associated with other PBS-06 control accounts.



**WORK SCOPE DEFINITION**  
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8. BUDGET AND REPORTING NUMBER <b>EW05H3060</b>	9. BUDGET TITLE <b>SOILS</b>
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10. ORIGINAL SCOPE? / CHANGE TO WORK SCOPE? / NEW SCOPE? <b>NEW PER CP# FY01-0015-0006-00</b>	11. ESTIMATED START / COMPLETION DATE <b>6/05 - 4/10</b>
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12. TASK IDENTIFICATION (WORK PACKAGE) <b>G4B17</b>	13. TASK DESCRIPTION (ONE LINE) <b>AREA 4B EXC CONTROL/CERTIFICATION</b>
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14. ELEMENT TASK DESCRIPTION

**a. ELEMENTS OF COST:**

Labor  
Materials  
Subcontracts

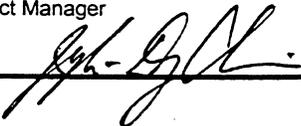
**b. TECHNICAL CONTENT:**

The content of this document applies to the soil characterization program at the FEMP specific to area characterization, sampling, and analytical work performed by and for the Soil Disposal Facility Project in Area 4B. It is a summary for area-specific characterization efforts that will be conducted in defined areas of excavation and lesser environmentally impacted areas that may not be excavated, but will require monitoring, sampling, and analytical testing. The characterization efforts are intended to provide information that may be required to supplement the remedial design and to support the remedial action that will result in compliance with the Final Remediation Levels (FRLs) published in the OU5 ROD. The Area 4B physical boundaries are described in Section 4 of the Fluor Fernald Closure Plan Basis of Estimate (20300-PL-0005).

Drivers of the work are CERCLA, RCRA, the EPA Amended Consent Agreement (ACA), Sitewide Excavation Plan (SEP), and the signed Record of Decision (ROD) for OU5.

**c. SCOPE OF WORK:**

The content of this document applies to the soil characterization program at the FEMP specific to area characterization, sampling, and analytical work performed by and for the Soil Disposal Facility Project in Area 4B. It is a summary for

Project Manager 	Control Account Manager 	Control Team Manager 
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12. TASK IDENTIFICATION (WORK PACKAGE) <b>G4B17</b>	13. TASK DESCRIPTION (ONE LINE) <b>AREA 4B EXC CONTROL/CERTIFICATION</b>		

14. ELEMENT TASK DESCRIPTION

area-specific characterization efforts that will be conducted in defined areas of excavation and lesser environmentally impacted areas that may not be excavated, but will require monitoring, sampling, and analytical testing. The characterization efforts are intended to provide information that may be required to supplement the remedial design and to support the remedial action that will result in compliance with the Final Remediation Levels (FRLs) published in the OU5 ROD. The Area 4B physical boundaries are described in Section 4 of the Fluor Fernald Closure Plan Basis of Estimate (20300-PL-0005).

Drivers of the work are CERCLA, RCRA, the EPA Amended Consent Agreement (ACA), Sitewide Excavation Plan (SEP), and the signed Record of Decision (ROD) for OU5.

**d. WORK SPECIFICALLY EXCLUDED:**

All other charge numbers under control account G4B1

Excavation, certification, waste treatment and disposition

All other control accounts under PBS 06

Area 1, Area 2, Area 3A, Area 3B, Area 4A, Area 5, Area 6, Area 7, Area 8, Area 9, stream corridors

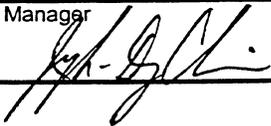
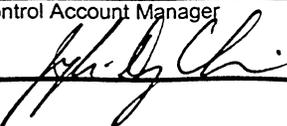
All other PBS accounts

PBS 01, PBS 02, PBS 03, PBS 04, PBS 05, PBS 07, PBS 08, PBS 09,  
PBS 10, PBS 11, PBS 12

All activities associated with other PBS elements

All activities associated with other PBS-06 control accounts.

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12. TASK IDENTIFICATION (WORK PACKAGE) <b>G4B18</b>	13. TASK DESCRIPTION (ONE LINE) <b>AREA 4B OFFSITE WASTE DISPOSITION</b>		
14. ELEMENT TASK DESCRIPTION			
<p><b><u>a. ELEMENTS OF COST:</u></b></p> <p>Labor Materials Subcontracts</p> <p><b><u>b. TECHNICAL CONTENT:</u></b></p> <p>The content of this document applies to waste disposition activities at the FEMP specific to work performed by and for the Soil Disposal Facility Project in Area 4B. It is a summary for area-specific waste disposition efforts for waste that does not meet the On Site Disposal Facility (OSDF) Waste Acceptance Criteria (WAC) and will require packaging, loading, shipping, and disposal at an approved offsite disposal facility. Offsite treatment of waste materials that do not meet the offsite disposal facility's WAC may be required prior to disposal and is also covered under this account. The waste disposition efforts are intended to result in compliance with the OU5 Record of Decision (ROD). The Area 4B physical boundaries are described in Section 5 of the Fluor Fernald Closure Plan Basis of Estimate (20300-PL-0005).</p> <p>Drivers of the work are CERCLA, RCRA, the EPA Amended Consent Agreement (ACA), Sitewide Excavation Plan (SEP), and the signed Record of Decision (ROD) for OU5.</p> <p><b><u>c. SCOPE OF WORK:</u></b></p> <p>The scope of this document covers the offsite disposition of at and below grade soil and/or other waste materials that have been identified throughout the characterization and remedial action process. The waste disposition activities covered under this account include the following tasks:</p>			
Project Manager 	Control Account Manager 	Control Team Manager 	

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5. PERFORMING DIV/DEPARTMENT CODE <b>49</b>	6. ORIGINATOR NAME/PHONE <b>JD CHIOU/648-3726</b>	7. WBS ELEMENT MANAGER <b>JD CHIOU</b>	
8. BUDGET AND REPORTING NUMBER <b>EW05H3060</b>	9. BUDGET TITLE <b>SOILS</b>		
10. ORIGINAL SCOPE? / CHANGE TO WORK SCOPE? / NEW SCOPE? <b>NEW PER CP# FY01-0015-0006-00</b>		11. ESTIMATED START / COMPLETION DATE <b>8/05 - 12/09</b>	
12. TASK IDENTIFICATION (WORK PACKAGE) <b>G4B18</b>	13. TASK DESCRIPTION (ONE LINE) <b>AREA 4B OFFSITE WASTE DISPOSITION</b>		
14. ELEMENT TASK DESCRIPTION <p>Review existing data and engineering drawings</p> <p>Perform data management functions within SDFP</p> <p>Develop final reports</p> <p>Campaign Planning</p> <p>Purchase or rental of appropriate containers</p> <p>Package soil and/or other waste materials into containers</p> <p>Repackaging, or over-packing</p> <p>Container movements within the FEMP</p> <p>Loading containers on/in appropriate conveyance</p> <p>Shipping to offsite disposal facility</p> <p>Offsite waste treatment to meet offsite WAC</p> <p><b><u>d. WORK SPECIFICALLY EXCLUDED:</u></b></p> <p>Pre-design work</p> <p>Excavation control characterization</p> <p>Precertification / certification activities</p> <p>Waste treatment activities</p> <p>Construction or remediation</p> <p>Development of engineering plans, drawings, or specifications</p>			

**WORK SCOPE DEFINITION**  
(Work Package)

<b>1. PROJECT TITLE</b>  FEMP (DEFENSE)		<b>2. DATE</b>  09/06/2001	Page 3
<b>3. WBS ELEMENT CODE</b>  1.1.G.H	<b>4. WBS ELEMENT TITLE/NAME</b>  AREA 4B SOIL REMEDIATION		
<b>5. PERFORMING DIV/DEPARTMENT CODE</b>  49	<b>6. ORIGINATOR NAME/PHONE</b>  JD CHIOU/648-3726	<b>7. WBS ELEMENT MANAGER</b>  JD CHIOU	
<b>8. BUDGET AND REPORTING NUMBER</b>  EW05H3060	<b>9. BUDGET TITLE</b>  SOILS		
<b>10. ORIGINAL SCOPE? / CHANGE TO WORK SCOPE? / NEW SCOPE?</b>  NEW PER CP# FY01-0015-0006-00		<b>11. ESTIMATED START / COMPLETION DATE</b>  8/05 - 12/09	
<b>12. TASK IDENTIFICATION (WORK PACKAGE)</b>  G4B18	<b>13. TASK DESCRIPTION (ONE LINE)</b>  AREA 4B OFFSITE WASTE DISPOSITION		
<b>14. ELEMENT TASK DESCRIPTION</b>  Land surveying, staff, or equipment  Real Time Scanning (HPGe, RSS, RTRAK), staff, or equipment  Characterization personnel covered under GPM14  Centralized services and/or equipment  Onsite waste treatment  All activities associated with other PBS elements  All activities associated with other PBS-06 control accounts.			



**WORK SCOPE DEFINITION**  
(Work Package)

1. PROJECT TITLE <b>FEMP (DEFENSE)</b>		2. DATE <b>09/06/2001</b>	Page 1
3. WBS ELEMENT CODE <b>1.1.G.H</b>	4. WBS ELEMENT TITLE/NAME <b>AREA 4B SOIL REMEDIATION</b>		
5. PERFORMING DIV/DEPARTMENT CODE <b>49</b>	6. ORIGINATOR NAME/PHONE <b>JD CHIOU/648-3726</b>	7. WBS ELEMENT MANAGER <b>JD CHIOU</b>	
8. BUDGET AND REPORTING NUMBER <b>EW05H3060</b>	9. BUDGET TITLE <b>SOILS</b>		
10. ORIGINAL SCOPE? / CHANGE TO WORK SCOPE? / NEW SCOPE? <b>NEW PER CP# FY01-0015-0006-00</b>		11. ESTIMATED START / COMPLETION DATE <b>11/06 - 5/08</b>	
12. TASK IDENTIFICATION (WORK PACKAGE) <b>G4B19</b>	13. TASK DESCRIPTION (ONE LINE) <b>AREA 4B ONSITE WASTE TREATMENT</b>		

14. ELEMENT TASK DESCRIPTION

**a. ELEMENTS OF COST:**

Labor  
Subcontracts

**b. TECHNICAL CONTENT:**

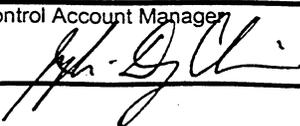
The content of this document applies to waste treatment activities at the FEMP specific to work performed by and for the Soil Disposal Facility Project in Area 4B. It is a summary for area-specific physical or chemical waste treatment efforts of material that does not meet either the On Site Disposal Facility (OSDF) Waste Acceptance Criteria (WAC) or the offsite disposal facility's WAC. The treatment will reduce the contaminant levels to comply with disposal WAC. The waste treatment efforts are intended to result in compliance with the OU5 Record of Decision (ROD). The Area 4B physical boundaries are described in Section 5 of the Fluor Fernald Closure Plan Basis of Estimate (20300-PL-0005).

Drivers of the work are CERCLA, RCRA, the EPA Amended Consent Agreement (ACA), Sitewide Excavation Plan (SEP), and the signed Record of Decision (ROD) for OU5.

**c. SCOPE OF WORK:**

The scope of this document covers the onsite waste treatment of at and below grade soil and/or other waste materials that have been identified throughout the characterization and remedial action process to be above disposal WAC. The waste treatment activities covered under this account include the following tasks:

Review existing data and engineering drawings

Project Manager 	Control Account Manager 	Control Team Manager 
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**WORK SCOPE DEFINITION**  
(Work Package)

1. PROJECT TITLE <b>FEMP (DEFENSE)</b>		2. DATE 09/06/2001	Page 2
3. WBS ELEMENT CODE <b>1.1.G.H</b>	4. WBS ELEMENT TITLE/NAME <b>AREA 4B SOIL REMEDIATION</b>		
5. PERFORMING DIV/DEPARTMENT CODE 49	6. ORIGINATOR NAME/PHONE JD CHIOU/648-3726	7. WBS ELEMENT MANAGER JD CHIOU	
8. BUDGET AND REPORTING NUMBER EW05H3060	9. BUDGET TITLE SOILS		
10. ORIGINAL SCOPE? / CHANGE TO WORK SCOPE? / NEW SCOPE? NEW PER CP# FY01-0015-0006-00		11. ESTIMATED START / COMPLETION DATE 11/06 - 5/08	
12. TASK IDENTIFICATION (WORK PACKAGE) G4B19	13. TASK DESCRIPTION (ONE LINE) AREA 4B ONSITE WASTE TREATMENT		

14. ELEMENT TASK DESCRIPTION

Procure contractor

Prepare Request for Proposal

Perform data management functions within SDFP

Develop final reports

Develop plans

Treatment operations

Site preparation for treatment pad

Benchscale testing / verification of treatment process

Physical sampling

Laboratory analysis

Sample shipping for off-site analysis

**d. WORK SPECIFICALLY EXCLUDED:**

Pre-design work

Excavation control characterization

Precertification / certification activities

Construction or remediation

Development of engineering plans, drawings, or specifications

Land surveying, staff, or equipment

**WORK SCOPE DEFINITION**  
(Work Package)

1. PROJECT TITLE <b>FEMP (DEFENSE)</b>		2. DATE <b>09/06/2001</b>	Page 3
3. WBS ELEMENT CODE <b>1.1.G.H</b>	4. WBS ELEMENT TITLE/NAME <b>AREA 4B SOIL REMEDIATION</b>		
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12. TASK IDENTIFICATION (WORK PACKAGE) <b>G4B19</b>	13. TASK DESCRIPTION (ONE LINE) <b>AREA 4B ONSITE WASTE TREATMENT</b>		

14. ELEMENT TASK DESCRIPTION

**Real Time Scanning (HPGe, RSS, RTRAK), staff, or equipment**

**Characterization personnel covered under GPM14**

**Centralized services and/or equipment**

**Offsite waste treatment**

**Waste shipping**

**All activities associated with other PBS elements**

**All activities associated with other PBS-06 control accounts.**



## **SECTION 8**

### **1.0 NARRATIVE**



1. PROJECT TITLE: SOILS EXCAVATION	2. DATE: 09/10/01	3. PBS#: 06
4. WBS ELEMENT CODE: 1.1.G.H.	5. WBS ELEMENT TITLE: AREA 4B SOILS REMEDIATION	
6. CAM NAME/ PHONE: JYH-DONG CHIOU/ 3726	7. CAM SIGNATURE:	
8. ORIGINAL/ CHANGE SCOPE/ PER CP#:	9. CONTROL ACCOUNT: G4B1	

## SECTION 8: G4B1 – AREA 4B SOILS REMEDIATION

### 1.0 NARRATIVE

#### 1.1 OVERVIEW

This Closure Plan defines the scope of work required to plan, develop, execute, manage and administer the Area 4B remedial activities under PBS-06 (WBS 1.1.G.H; control account G4B1). The control account is divided into the following charge numbers: G4B13, Title III Design; G4B14 Site Preparation and Excavation; G4B17, Excavation Monitoring and Certification; G4B18, Off-site Waste Disposition; and G4B19, On-site Waste Treatment. Remedial activities will remove all impacted soil and at- and below-grade structures to prepare the area for certification and, ultimately, final restoration activities. The external assumptions and drivers that effect the work and descriptions of the physical area and remedial tasks are discussed below.

#### 1.2 ASSUMPTIONS/EXCEPTIONS

##### 1.2.1 Assumptions

- DOE maintains full baseline funding levels as defined in the closure contract.
- The SDFP restarts in FY2004 with most of the current personnel or personnel with equivalent experience.
- The time consuming, non-technical, and low-value-added requirements and practices are simplified or eliminated, including: Project Execution Plan (PEP), data quality objectives (DQO), project review, Technical Review Board (TRB), Contract Review Board (CRB), safety start-up review (SSR), etc.
- New requirements or procedures are not implemented unless a cost/schedule evaluation indicates they are needed.
- The contractors will prepare the Safe Work Plan, travelers, penetration permits, field logs, lock and tag records, QA/QC documents, placement planning, coordination and tracking, etc.
- Radiation-control and security requirements will be simplified or eliminated.

- SDFP are cross-trained to perform safety and health, industrial-hygiene, and radiation-control tasks.
- SDFP will self perform Title III engineering services.
- Other PBSs that provide matrixed and centralized personnel to this work scope maintain adequate and competent resources to perform the work identified in Section 1.5.
- Services currently provided by the geoprobe sampling crew, on-site analytical laboratory and SED data entry personnel are maintained.
- All inorganic and radiological COCs (except strontium-90) will be analyzed at the on-site laboratory.
- All D&D activities in 4B are complete by start of excavation in 1stQ of FY2006.
- An area-isolation trench is placed around Area 4B prior to excavation.
- Perched water is not present in quantities that require a significant change to the designed 2:1 slopes.
- Excavation monitoring consists of scanning the entire area after concrete and gravel pads are removed and one-third of the area after each of 3 lifts to account for contamination zones. This equates to a scanning acreage of twice the initial acreage.
- Above-WAC soil contaminated with organic COCs is treated on site and placed in the OSDF or staged at SP-7 until shipped off site.
- CDLs are developed concurrent with excavation activities.
- Certification field activities begin during the last quarter of excavation activities.
- Statistical tests conducted on the analytical results will follow the pass/fail guidance in the SEP.
- Staffing needs identified in Manpower Plan (Section 3.0) are met to deal with preparation of plans and start-up activities associated with excavation of 4A.
- PBS-06 staff will not be required to perform additional closure plan work after DOE approves the plan.
- Internal and DOE review of a Project Specific Plan (PSP) is performed in one week.

- The EPA/OEPA review and comment period for the PSPs, Certification Design Letter or Certification Report is one month.
- EPA/OEPA will review and approve significant PSP Variance/Field Change Notices (V/FCNs) in 7 days for precertification PSPs and 15 days for certification PSPs.
- EPA/OEPA will review and approve Design Change Notices (DCNs) within 7 days of receipt and CDLs prior to the start of the last quarter of excavation.
- Radiation-control and break trailers used for Area 3B are used during Area 4B remediation.
- Electric pumps in certification buffer corridor are fed from overhead lines provided by site utilities group.
- Maintenance activities associated with the buffer corridor are assigned to adjacent areas undergoing remediation after Title III activities cease.
- AWWT operates and maintains pumps in buffer corridor after they are installed and pass start-up process.

#### 1.2.2 Exclusions

- All activities associated with other PBS elements
- All activities associated with other PBS-06 control accounts.

#### 1.2.3 Government-Furnished Equipment/Services

None.

#### 1.2.4 Applicable Requirements

- OU3 and OU5 RODs
- Sitewide CERCLA Quality Assurance Plan
- CDL and CR reviewed and approved by EPA/OEPA
- Dust control measures are implemented during excavation and hauling.
- Real time scan between every excavation lift in above-WAC and above-FRL excavations (i.e., no real time scan if excavation is simply to remove structures).
- Remove excavation water from 24 hour/10-year event within 72 hours.
- Perform 5:1 grading for interim restoration after certification.

- If technetium-99, PCE, TCE, and/or DCE are present at levels that exceed the OSDF WAC, physical samples must be taken along the side slopes and footprints of the above-WAC excavation to confirm their removal prior to initiating below-WAC excavation activities.
- Frisker and/or PID monitoring by radiation control and/or H&S is performed in accordance with applicable DOE and regulatory standards.

#### 1.2.5 Applicable Technical Guidance

- Sitewide Excavation Plan
- Waste Acceptance Criteria for the On-site Disposal Facility
- Impacted Materials Placement Plan for the On-site Disposal Facility
- There is a SSR for the pumps in the certification buffer area.
- Visual monitoring of all excavations by WAO.
- Excavation water with PCE, TCE or DCE above 50 ug/L goes to AWWT for Phase II treatment.
- Certification units are sized to one acre, or 800 linear feet for a utility trench cut below the designed excavation grade.
- A precertification scan with HPGe instruments is conducted prior to the collection of certification samples.

#### 1.2.6 Disposal, Treatment, Containers, Utilities

- Organically-contaminated soil that does not meet the OSDF or Envirocare WAC will be treated successfully on site and then disposed in the OSDF or staged at SP-7 until shipped off site.
- Soil and debris that do not meet the OSDF radiological or physical WAC are placed at SP-7 until shipped to Envirocare.
- Special materials, as defined in the OSDF WAC Plan, will be packaged and shipped to the Nevada Test Site.
- Electric, water and communication utilities are provided to the radiation control and break trailers by infrastructure support.
- Electric tie-in points for pumps in buffer corridor are provided by infrastructure support.

- Subcontractor hired to treat soil obtains air permit and any other regulatory permits required for operation of the treatment equipment.
- A propane tank will be rented for the duration of the soil treatment.

### 1.3 DRIVERS

- Congressional funding of DOE EM Projects
- Completion of D&D activities For Buildings 64 and 65.
- Congressional funding of DOE EM Projects
- EPA/OEPA review cycles
- DOE review cycles
- Excessive number of rain days
- Discovery, during excavation, of large areas of undocumented contamination.

### 1.4 PROJECT PHYSICAL DESCRIPTION

Remediation Area 4B comprises approximately 28 acres and lies in the SW corner of the former Production Area. This area contains the surface and subsurface structures associated with the former Pilot Plant, Laboratory Building, and Plants 1, 2/3 and 8. The area is bounded by the Plant 1 Pad and Building 71 loading dock to the north, B St and the east side of the Lab Building to the east, the south side of the Lab Building and Pilot Plant to the south and the Production Area fence line to the west.

Remedial activities in Area 4B are being carried out in accordance with the OU3 and OU5 RODs, with the primary objective being the removal of all soil contaminated at levels above established FRLs and all at- and below-grade structures. When the remedial actions are completed, the certified area will be graded to 5:1 slopes and seeded according to the Natural Resource Restoration Plan. Predesign characterization work and the Title I/II design were completed in Spring of 2001. Each charge account associated with the remediation of Area 4B is summarized in Section 1.5.

### 1.5 PROJECT PLAN/TECHNICAL SCOPE AND QUANTIFICATION

Area 4B charge numbers under control account G4B1 (PBS-06, WBS 1.1.G.H) consist of Title III Design (G4B13), Site Preparation/Excavation (G4B14), Excavation Monitoring/Certification (G4B17), Off-site Waste Disposition (G4B18) and On-site Waste Treatment (G4B19).

#### 1.5.1 G4B13.- Title III Design

Title III design activities will focus on the development and approval of design change notices (DCNs) as field activities progress, and the preparation of closure documents after excavation is complete. The activities and deliverables are placed into two tasks:

- 1) Excavation Support and
- 2) Prepare Final Documents.

A major technical risk identified for this scope of work is the EPA/OEPA review and approval process for DCNs. Contingencies that can be used to mitigate this risk include a reduction in the number of DCNs and a shorter review and approval cycle.

The Task activities and deliverables will be completed primarily by project staff from the management, engineering, surveying, construction and administrative disciplines, and these personnel will charge their labor hours to PBS-06 control account GPM1. Only matrixed and subcontracted labor, as identified in below, will use the charge account G4B13. Detail on manpower loading needed to execute this scope of work is provided in Section 3.0. The charge account for G4B13 will be closed out when the interim restoration of Area 4B is completed.

1) Task #1 - Excavation Support

1.1) Plan/Scope

Excavation support is the link between engineering design and the execution of the construction work. Prior to initiating construction work, the construction subcontract will be placed and work plans will be completed to meet the needs of Area 4B excavation work. Field and design changes that develop during construction activities must be documented and approved to maintain the record between the CFC drawings and final as-built drawings. If needed, the engineering and construction staff must respond to and close out non-conformance reports. Specific activities and deliverables under this work scope include:

- Review and modify construction subcontract and work plans, if needed.
- Prepare and approve design change notices (DCNs).
- Provide information for requests for clarification of information (RCIs).
- Respond to and close out non-conformance reports (NCRs).
- Perform safety walkthroughs and attend safety briefings, as needed.
- Prepare the Yearly Completion Report
- Submit project records to ECDC and maintain copies in project file.
- Perform project management and control activities.

Deliverables associated with the above scope include: DCNs to the project, EPA/OEPA and ECDC; RCIs to the construction crew; NCRs to the cognizant QA officer; the Yearly Completion Report to the project; and all records to ECDC.

The scope of work identified above will be executed using subcontracted, matrixed, centralized and projectized personnel. Distribution of the work, and the plan for executing the scope, is described for each division of personnel.

*Subcontracted Personnel*

CADD support is required to modify drawings affected by DCNs. Subcontract costs will be charged to G4B13.

*Matrixed Personnel*

Environmental, Safety, Health and Quality Integration, Quality Control Operations, and Radiological Protection Operations will perform DCN reviews, if applicable. Project Controls will provide cost and schedule support. Personnel from these organizations will use charge number G4B13.

*Centralized Personnel*

Document Control/Procedure Management will assign document numbers, maintain the project file and distribute controlled documents. They will also be used when procedural matters need attention. Information Management will provide the project with computer hardware and software needs. Waste Acceptance Organization will review the DCNs, if applicable. Personnel from these organizations will use their functional area charge numbers.

*Projectized Personnel*

The work plans will be prepared by project staff from the management, engineering, construction and administrative disciplines, and these personnel will charge their labor hours to PBS-06 control account GPM1. Management will ensure that engineering and construction personnel work together to develop the necessary DCNs. A yearly completion report will be prepared by engineering and construction personnel at the end of the construction season to document the performance of the work, the lessons learned, and quantities delivered to the OSDF and other disposition localities.

1.2) Quantification

Table 1 summarizes the quantities and/or deliverables anticipated for Task 1. Per the direction of senior management, 3 safety walkthroughs will be performed each month. Based on the number of DCNs, RCIs, and NCRs for previous Title III work, it is estimated that there will be 100 DCNs, 20 RCIs, and 10 NCRs. The project engineer will approve and sign all DCNs after regulatory approval is obtained. A yearly completion report will be prepared to status the excavation progress.

TABLE 1  
 Quantities for Task 1: Excavation Support

ITEM	QUANTITY
Safety Walkthroughs	99
Design Change Notice (DCN)	100
Request for Clarification of Information (RCI)	20
Non-Conformance Report (NCR)	10
Yearly Completion Report	2

2) Task #2: Prepare Final Documents

2.1) Plan/Scope

After the completion of excavation activities, as-built drawings will be prepared and a close-out report will be developed. The close out report will be filed after interim restoration activities are completed in the certified area. Specific activities and deliverables include:

- Complete the as-built drawings.
- Prepare the Closeout Report.
- Submit project records to ECDC and maintain copies in project file.
- Perform project management and control activities.

The as-built drawings and Closeout Report will be delivered to central engineering and all records will be filed with ECDC.

The scope of work identified above will be executed using subcontracted, matrixed, centralized and projectized personnel. Distribution of the work, and the plan for executing the scope, is described for each division of personnel.

*Subcontracted Personnel*

CADD support is required to prepare the as-built drawings. Subcontract costs will be charged to G4B13.

*Matrixed Personnel*

Project Controls will provide cost and schedule support. Personnel from these organizations will use charge number G4B13.

*Centralized Personnel*

Engineering Services will assist with the as-built drawings, closeout report and termination of the CADD subcontract, as needed. Document Control/Procedure Management will assign document numbers, maintain the project file and distribute controlled documents. Personnel from these organizations will use their functional area charge numbers.

*Projectized Personnel*

Project staff from the management, engineering, construction and administrative disciplines will charge their labor hours to PBS-06 control account GPM1. Management will ensure that engineering and construction personnel work together to complete the as-built drawings and closeout report. As-built drawings will be prepared after excavation is complete and the pumps are installed in the buffer area. The closeout report for the control account will be issued after completion of all certification and waste-management activities.

2.2) Quantification

Table 2 summarizes the quantities and/or deliverables anticipated for Task 2. Based on the percentage of drawings changed during previous construction activity, it is estimated that there will be 50 as-built drawings. A Close-out Report, for the engineering activities associated with the remediation of Area 4B, will be prepared during certification activities and will be completed after the interim-restoration grading (5H:1V slopes) of the certified area.

TABLE 2  
Quantities for Task 2: Prepare Final Documents

ITEM	QUANTITY
As-Built Drawings	50
Close-out Report	1

1.5.2 G4B14 - Site Preparation/Excavation

Prior to initiating the site preparation and excavation work, the excavation subcontract must be placed and all work plans must be completed to document the approach and controls that will govern the construction phase of the remediation. The work plans will be approved prior to excavation of Area 4A by engineering and construction disciplines to ensure integration occurs early in the project. This integration will continue with the parallel execution of site preparation, excavation and Title III activities. The activities and deliverables for this charge number are divided into the following tasks: 1) Site Preparation; 2) Excavation; 3) Control and Management; and 4) Interim Restoration.

Major technical risks include: the discovery of large volumes of perched water or encountering prohibited items in quantities that greatly exceed the estimated 25 yd<sup>3</sup>. A contingency that can mitigate the perched water risk involves maintaining sufficient dewatering pumps and working several areas concurrently.

The activities and deliverables discussed below will be completed primarily by project staff from the management, construction, surveying, engineering, waste disposition and administrative disciplines, and these personnel will charge their labor hours to PBS-06 control account GPM1. Only matrixed and subcontracted labor, as identified below, will use the charge account G4A14. Detail on manpower loading needed to execute this scope of work is provided in Section 3.0. The charge account for G4A14 will be closed out when construction personnel complete the interim-restoration grading.

1) Task #1 - Site Preparation

1.1) Plan/Scope

Site preparation activities integrate the final documentation process with field work associated with preparing the job site, and these activities must be completed prior to the start of excavation. Specific activities and deliverables include:

- Complete construction travelers, radiation work permit and penetration permit.
- Prepare the submittal log and cross-check to ensure all work plans and permits are in order.
- Procure materials and equipment, as needed.
- Perform clearing and grubbing, if needed.
- Survey and establish the site layout, work limits, area isolation trench, and excavation boundaries for above-WAC and RCRA/HWMU/UST areas.
- Cut area isolation trench and plug storm water and sanitary sewers.
- Establish access controls with radiological and construction fence and signage.
- Relocate radiation control point and change-out facilities.
- Establish the construction support areas: worker and visitor parking, laydown area for materials and equipment, refueling area, sealands for storage, portolets, and water coolers.
- Establish the work area: install the break/cool-down trailers, portolets, water coolers, special materials transfer area, dust control piping, water wells, haul routes and air monitors.
- Connect electric, telephone, water and communication utilities into construction support area.
- Establish surface-water management controls: silt fence, sediment traps and culvert installation.
- Submit project records to ECDC and maintain copies in project file.
- Perform project management and control activities.

The construction travelers, work permits and submittal log will be delivered to the project. All records will be delivered to ECDC.

The scope of work identified above will be executed with the construction subcontractor using matrixed, centralized and projectized personnel. Distribution of the work, and the plan for executing the scope, is described for each division of personnel.

#### *Subcontractor Work*

The subcontractor will install fencing, access controls and surface-water management structures and the special material transfer area will be prepared. After all work plans have been approved, the area-isolation trench will be cut around the perimeter of the area to provide added assurance that all energized utilities have been isolated (Note: it is not the intent of the area-isolation trench to serve as the primary method for isolating energized utilities, as infrastructure personnel and engineers will terminate all known water, electric and gas lines that enter the area prior to initiating this trenching activity). Subcontract costs will be charged to G4A14.

#### *Matrixed Personnel*

Environmental, Safety, Health and Quality Integration, Quality Control Operations, and Radiological Protection Operations will review and the procurement requisitions. Engineering Services will support the installation of utilities in support trailers. Personnel from these organizations will use charge number G4A14.

#### *Centralized Personnel*

Document Control/Procedure Management will assign document numbers, maintain the project file and distribute controlled documents. The Construction Support Contractor will assist with administrative aspects of the construction subcontract. Infrastructure Services will assist with the set-up and maintenance of the trailers and provide U/E support for penetration permits. Security/EM Services will provide access control and emergency response. Training will perform needed training for subcontractor personnel. Personnel from these organizations will use their functional area charge numbers.

#### *Projectized Personnel*

Project staff from the management, engineering, construction, survey and administrative disciplines will charge their labor hours to PBS-06 control account GPM1. Management and construction will work closely with the subcontractor and FEMP labor force to ensure all activities are performed in a safe and timely manner. Activities will begin with the set-up of the support trailers and utility hook-ups to these trailers. Electric lines will be required for all trailers for heat, lights and the radiation-control station. Water and sewer for showers will be needed for the change-out trailer, as the support building will no longer be present. Bottled drinking water will be provided in all trailers and portable toilets will be set-up outside of the radiation-control trailer. Project Controls will provide cost and schedule support.

### 1.2) Quantification

Table 3 summarizes the quantities and/or deliverables anticipated for Task 1. The traveler, permits and submittal log are based on previous submittals by construction contractors, and Fluor Fernald's decision to self-perform the excavation services. Due to safety being the number one site priority, 2,400 linear feet of trench will be cut to a depth

of 12 feet around the perimeter of Area 4A to provide a physical back-up for previous utility isolation activities. The quantities for fencing, signage, trailers, containers, water coolers, and portolets are based on previous construction work carried out at the site.

TABLE 3  
 Quantities for Task 1: Site Preparation

ITEM	QUANTITY
Construction Traveler	1
Radiation Work Permit	1
Penetration Permit	1
Submittal Log	1
Area Isolation Trench, linear feet	2,400
Silt Fence, linear feet	5,000
Radiological or Construction Fence, linear feet	5,000
Radiological or Construction Signs	100
Radiological Control Point/Change-Out Trailer	1
Break/Cool Down Trailer	1
Sealand Storage Containers	10
Water Coolers	10
Portolets	4

2) Task #2 - Excavation

2.1) Plan/Scope

Excavation activities will result in the removal of all above-FRL soil and at- and below-grade concrete and utilities. Per the guidance developed in the SEP, the above-WAC and RCRA contamination areas will be removed first to minimize cross-contamination. Concrete pads and foundations will be broken and removed using industry-standard cutting, crushing and loading equipment. Bulldozers, excavators and trucks will be used to remove the soil. Seasonal shutdown and post-excavation actions will also be performed under this task. Specific activities include:

- Size-reduce, excavate, load and haul at- and below-grade concrete and utilities to OSDF, SP-7 or the designated off-site staging area.
- Excavate, load and haul impacted soil to the OSDF, SP-7 or the designated off-site staging area.
- Identify, excavate, load containers and stage special materials at the special materials transfer area.

- Perform construction management services: survey and track materials removed, create redlines, complete daily construction activity logs, respond to NCRs, prepare event discovery reports/final event reports, conduct safety briefings and walkdowns, and perform Root Cause Analysis, if needed.
- Perform seasonal shutdown and winterization: maintain surface water/erosion controls, perform dust control, complete equipment decontamination, remove water from excavations and seed/stabilize excavations and stockpiles, as required.
- Perform post-excavation activities: remove construction support area and work area features, remove utility runs, remove all fencing and signage, perform equipment decontamination and establish the certification perimeter and access control points.
- Submit project records to ECDC and maintain copies in project file.
- Perform project management and control activities.

Survey logs and material estimates, construction logs, NCR resolutions, safety briefings and walkdowns, and event reports will be delivered to the project manager. All project records will be delivered to ECDC.

The scope of work identified above will be executed with the construction subcontractor using matrixed, centralized and projectized personnel. Distribution of the work, and the plan for executing the scope, is described for each division of personnel.

#### *Subcontractor Work*

The subcontractor will be responsible for the safe removal of all soil, utility piping and reinforced concrete. Additionally, all maintenance and seasonal shut-down tasks will be performed by the contractor. Subcontract costs will be charged to G4B14.

#### *Matrixed Personnel*

Environmental, Safety, Health and Quality Integration, Quality Control Operations, and Radiological Protection Operations will review DCNs, if necessary. Radiological Protection Operations will also maintain radiation permits, perform RWP briefings, and conduct radiation surveys of contaminated materials and equipment. Environmental Compliance will assist with dust monitoring, if needed. Waste Generator Services will prepare and move containers and package special materials for off-site transportation, if needed. Personnel from these organizations will use charge number G4B14.

#### *Centralized Personnel*

Document Control/Procedure Management will assign document numbers, maintain the project file and distribute controlled documents. The Construction Support Contractor will assist in management of the subcontract. Infrastructure Services will maintain the trailers, provide porter services, transport VOC water to the AWWT, perform dust control, and maintain roads to OSDF and SP-7. Waste Acceptance Organization will review DCNs and perform waste manifestation activities. Security/EM Services will provide access control

and emergency response. Property Management will receive and log vendor materials, control government inventory and track government-owned property. Training will perform needed training for subcontractor personnel. Personnel from these organizations will use their functional area charge numbers.

*Projectized Personnel*

Project staff from the management, engineering, construction, survey, real time and administrative disciplines will charge their labor hours to PBS-06 control account GPM1. Management, engineering, and construction will work closely with the subcontractor and FEMP labor force to ensure all activities are performed in a safe and timely manner. Real time scans will be conducted over the contamination areas after each lift. Engineering and construction will prepare DCNs and obtain approval from the applicable functional areas. Survey crews will verify material quantities. Concrete pads and below-grade structures may be size-reduced for use as road-bed material in the OSDF. Piping will be removed and size-reduced to meet the OSDF WAC. Special materials, if found, will be loaded into containers provided by waste generator services and placed at the special material transfer area. Project Controls will provide cost and schedule support to the project manager.

2.2) Quantification

Table 4 summarizes the quantities and/or deliverables anticipated for Task 2. Per senior management, 3 safety walkthroughs will be conducted each month. The basis for the soil quantities is the SDFP spreadsheet *At- and Below-Grade Material Quantities*. Estimates for concrete, asphalt and piping debris were obtained from site drawings, with ten percent of the total piping volume assumed to be above-WAC. Piping volume is calculated from linear feet using a nominal 10-inch diameter. Above-WAC/RCRA soil to be treated contains PCE, TCE and DCE, and this soil will be disposed in the OSDF when successfully treated. Based on past excavation history, the quantity of special materials is estimated to be no greater than 25 cubic yards. A 5-gallon sample of soil will be obtained from the active excavation for every 10,000 cubic yards excavated, and this sample will be delivered to the OSDF for proctor testing.

TABLE 4  
 Quantities for Task 2: Excavation

ITEM	QUANTITY
Safety Walkthroughs	128
Concrete and Asphalt Debris, cubic yards	17,000
Piping Debris, cubic yards	1,200
Above-WAC Piping, cubic yards	140
Soil, cubic yards	750,000
Above-WAC Soil, cubic yards	11,000
Above-WAC/RCRA Soil to Treat, cubic yards	1,800
Special Materials, cubic yards	25
5-Gallon Proctor Sample	75

3) Task #3 - Control and Management

3.1) Scope/Plan

Control and management activities apply to the buffer corridor that surrounds the certification area, access and haul roads, and start-up activities associated with the pump stations. The majority of these activities will follow the excavation of impacted material. Specific activities and deliverables include.

- Install the pump stations in the buffer corridor and perform the Standard Start-up Review.
- Remove sediment from pump sumps located in the buffer corridor and designated sediment traps.
- Maintain surface-water management and erosion control structures.
- Remove water from excavations, as needed.
- Maintain haul roads and access roads.
- Provide dust control, as needed.
- Submit project records to ECDC and maintain copies in project file.
- Perform project management and control activities.

Documents and reports associated with the SSR process will be delivered to the SDFP and Aquifer Project. All records will be delivered to ECDC.

The scope of work identified above will be executed using the construction subcontractor, matrixed, centralized and projectized personnel. Distribution of the work, and the plan for executing the scope, is described for each division of personnel.

***Subcontractor Work***

The subcontractor will install pumps and perform maintenance activities in the buffer corridor. Two pump stations will be installed in the buffer corridor and the pumps will discharge to the nearest storm-water catch basin tied to the FEMP storm-water retention basins. Pumps in the buffer corridor will be configured to start and operate automatically at any time of the day, 365 days a year, and they must be capable of handling the 24-hour/10-year storm event. An SSR will be performed after installation and the system will be turned over to the Aquifer Project for operation and maintenance. Maintenance activities include erosion control on the 2:1 slopes and removal of the sump sediment from the pump stations. Subcontract costs will be charged to G4A14.

*Matrixed Personnel*

Environmental, Safety, Health and Quality Integration, Quality Control Operations, and Radiological Protection Operations will review DCNs, if necessary. Radiological Protection Operations will also maintain radiation permits and perform RWP briefings. Environmental Compliance will assist with dust monitoring, if needed. Project Controls will provide cost and schedule support. Personnel from these organizations will use charge number G4A14.

*Centralized Personnel*

Document Control/Procedure Management will assign document numbers, maintain the project file and distribute controlled documents. The Construction Support Contractor will assist in managing the construction subcontract. Infrastructure Services will perform dust control and maintain roads to OSDF and SP-7. Security/EM Services will provide access control and emergency response. Property Management will receive and log vendor materials, control government inventory and track government-owned property. Training will perform needed training for subcontractor personnel. Personnel from these organizations will use their functional area charge numbers.

*Projectized Personnel*

Project staff from the management, engineering, construction, survey, and administrative disciplines will charge their labor hours to PBS-06 control account GPM1. Management, engineering and construction will work closely with the subcontractor and FEMP labor force to ensure all activities are performed in a safe and timely manner. Prior to the certification of the interior part of Area 4B, a buffer corridor will be established around the perimeter of the certification area to control storm-water run-on. Project personnel will conduct an SSR for the pumps in the buffer corridor and turn the pump system over to the Aquifer Project after successful operation is demonstrated.

3.2) Quantification

Table 5 summarizes the quantities and/or deliverables anticipated for Task 3. The number of pump stations is based on the number of pump stations estimated in the Area 3A/4A IRDP for boundaries in Area 3A and 4A, and the length of the boundary between Area 7 and Area 4B. Construction management and the labor force will be responsible for the installation and start up of the pump system, maintenance of the slopes (2:1) and removal of sediment in pump sumps. After installing the pumps, construction management will conduct an SSR and demonstrate operational readiness prior to turning the system over to the Aquifer Project. It is assumed that slope maintenance and sediment removal will occur at the beginning and end of the construction season. After the closeout report has been filed for Cost Account G4A1, activities associated with maintaining the slopes and pump sumps in the buffer corridor will be transferred to the adjacent areas undergoing remediation (i.e., Area 7).

TABLE 5  
 Quantities for Task 3: Control and Maintenance

ITEM	QUANTITY
Pump Stations	2
Safety Start-up Review	1
Sediment Removal, biannual	2
Slope Maintenance, biannual	2

4) Task #4 - Interim Restoration

4.1) Scope/Plan

Interim restoration occurs after the remediated area has been certified clean. The 2:1 slopes in the certified area will be graded to 5H:1V, using decontaminated equipment, and seeded. Specific activities include:

- Survey work limits and establish the access controls.
- Procure needed materials and equipment.
- Perform grading to reshape 2:1 slopes to 5:1 slopes.
- Seed 5:1 slopes.
- Submit project records to ECDC and maintain copies in project file.
- Perform project management and control activities.

All project records will be delivered to ECDC.

The scope of work identified above will be executed using subcontracted, matrixed, centralized and projectized personnel. Distribution of the work, and the plan for executing the scope, is described for each division of personnel.

***Subcontracted Personnel***

Labor required for the interim-restoration grading will be hired from local union halls. Job categories envisioned include foreman, laborer, and heavy-equipment operator. Subcontract costs will be charged to G4B14.

***Matrixed Personnel***

Acquisitions/Prime Contract Administration will be used to develop RFPs and procure subcontractor services. Environmental Compliance will assist with dust monitoring, if needed. Personnel from these organizations will use charge number G4B14.

***Centralized Personnel***

Document Control/Procedure Management will assign document numbers, maintain the project file and distribute controlled documents. The Construction Support Contractor will assist in placing the labor subcontract. Security/EM Services will provide access control and emergency response. Property Management will receive and log vendor materials,

control government inventory and track government-owned property. Training will perform needed training for subcontractor personnel. Personnel from these organizations will use their functional area charge numbers.

*Projectized Personnel*

Project staff from the management, engineering, construction, survey, and administrative disciplines will charge their labor hours to PBS-06 control account GPM1. Management, engineering and construction will work closely with the subcontracted labor force and FEMP labor force to ensure all activities are performed in a safe and timely manner. Project Controls will provide cost and schedule support.

4.2) Quantification

Table 6 summarizes the quantities and/or deliverables anticipated for Task 4. The number of walkthroughs is based on 3 walkthroughs a month, per senior management. An estimate on the amount of soil that must be reshaped is taken as 9 percent of the total soil excavated, which is the percentage calculated for the Area 3A/4A design. The acreage requiring seed is estimated as the initial acreage of Area 4B.

TABLE 6  
Quantities for Task 4: Interim Restoration

ITEM	QUANTITY
Safety Walkthroughs	6
Soil to Reshape, cubic yards	68,000
Acres to Seed	28

1.5.3 G4A17 - Excavation Monitoring/Certification

Monitoring and certification activities will occur in parallel to excavation activities. Each excavation lift, in zones of contamination, will be monitored for radium, thorium and uranium levels. Certification Design Letters (CDLs) will be prepared and submitted to EPA/OEPA for review and approval during excavation to minimize the time period between the end of excavation activities and the start of certification sampling. Likewise, all precertification scans will be completed as close as possible to the end of excavation activities. Specific activities and deliverables are summarized under the following tasks: 1) Excavation Monitoring; 2) Precertification; and 3) Certification.

Major technical risks include: using off-site laboratory services for analysis of organic COCs, insufficient access to the excavation area to begin certification, and EPA/OEPA review cycles for the CDLs and Certification Report (CR). Contingencies that can mitigate the risks include: develop on-site laboratory services for organic COCs, expedite excavation in Area 4A and negotiate shorter EPA/OEPA review cycles.

The task activities and deliverables will be completed primarily by project staff from the management, characterization, surveying, administrative and real time disciplines, and these personnel will charge their labor hours to PBS-06 control account GPM1. Only matrixed labor, as identified below, will use the charge account G4B17. Detail on manpower loading for this scope of work is provided in Section 3.0. The charge account for G4B17 will be closed when the CR report is approved by EPA/OEPA.

1) Task #1 - Excavation Monitoring

1.1) Scope/Plan

R1-  
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Excavation monitoring is the scanning of soil surfaces after each excavation lift to determine if ~~contamination hot spots exist with respect to radium, thorium and/or above-WAC levels of uranium~~ levels are present. Prior to performing the excavation monitoring, a PSP is developed to summarize the monitoring approach and frequency. If applicable, the PSP also addresses physical samples that need to be collected to confirm the removal of other COCs in above-WAC and RCRA areas. Specific activities and deliverables include:

- Perform RTRAK, RSS and/or HPGe measurements between each excavation lift.
- Verify removal of above-WAC uranium ~~and the absence of radium, thorium or uranium hot spots.~~
- Survey and flag ~~hot spot~~ above-WAC and sample locations, as needed, for HPGe measurements and the collection of physical samples.
- Conduct HPGe measurements on soil pads created from soil removed from the bottom of utility trenches.
- Submit project records to ECDC and maintain copies in project file.
- Perform project management and control activities.

R1-  
D-  
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Survey information and real time and laboratory data packages will be delivered to the project. All records will be delivered to ECDC.

The scope of work identified above will be executed using matrixed, centralized and projectized personnel. Distribution of the work, and the plan for executing the scope, is described for each division of personnel.

*Matrixed Personnel*

Infrastructure Services will support the operation of real time vehicles. Waste Generator Services will provide containers and package waste if special materials are discovered. Quality Assurance and Safety and Health will provide oversight, as needed. Personnel from these organizations are the only individuals who will use charge number G4A17.

*Centralized Personnel*

Document Control/Procedure Management will provide document numbers, filing support and issue controlled documents, as needed. Environmental Compliance will be consulted on an as-needed basis if RCRA issues become relevant to the work scope. The Waste Acceptance Organization will perform visual oversight of the monitoring and prepare waste manifestation forms, if needed. Information Management will provide computer hardware and software needs. Personnel from these organizations will use their functional area charge numbers.

*Projectized Personnel*

Most work will be completed by project staff from the management, characterization, survey, real time and administrative disciplines; and these personnel will charge their labor hours to PBS-06 control account GPM1. Management, characterization and real time staff will oversee the fieldwork. Excavation monitoring will be conducted under all removed concrete and gravel surfaces, in known contamination areas after each lift and whenever unexpected material is encountered. ~~In general, about half of the area will be covered by RTRAK and half with HPGe shots. HPGe shots will be conducted on soil removed from the bottom of utility trenches that are cut below the design grade. This soil will be placed in a circular pad adjacent to the trench prior to conducting the HPGe measurements.~~ Results from the real time survey will be delivered as maps that depict the estimated concentration or activity of radium, thorium and uranium. If unexpected or special materials are encountered, physical samples will be collected as part of the monitoring activities to screen for COCs not measured by the real time instruments. A survey team will document sample locations. Project Controls will provide cost and schedule support.

R1-  
D-  
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1.2) Quantification

Table 7 summarizes the quantities and/or deliverables anticipated for Task 1. Based on past experience, a single PSP will be sufficient to support excavation monitoring in Area 4B. Therefore, one DOE draft PSP, one DOE RTC package, one EPA/OEPA draft PSP, one EPA/OEPA RTC package, and one final PSP are required. Acres to be scanned during excavation will be estimated as twice the number of initial acres, and this assumes that a scan is conducted over the entire area after concrete and gravel is removed plus three lifts over 1/3 of the area to account for contamination zones. Maps for each of the RTRAK, RSS and HPGe measurements will be prepared for each lift. It is also estimated that there will be four hot spots and ten soil samples. The soil samples are assumed to be associated with the discovery of material that is prohibited from disposal in the OSDF. In general, the full suite of real-time instruments will be considered for excavation monitoring and the decision on which particular instrument to use for monitoring will be established in the excavation monitoring PSP. ~~Based on the Area 3A/4A IRDP requirement to perform a HPGe shot on pipe bedding material every 50 feet of linear trench, there will be 160 HPGe shots to cover the estimated 8,000 linear feet of utility trenches that will be cut below the designed excavation grade.~~

R1-  
D-  
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TABLE 7  
 Quantities for Task 1: Excavation Monitoring

R1-  
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ITEM	QUANTITY
Draft Project Specific Plan for DOE	1
Response-to-Comments Package for DOE	1
Draft Project Specific Plan for EPA/OEPA	1
Response-to-Comments Package for EPA/OEPA	1
Final Project Specific Plan	1
RTRAK, RSS, EMS and/or and HPGe Scans, acres	56
RTRAK, RSS, EMS and/or and HPGe maps	9
Survey and Flag Hot Spots/Sample Locations	14
Soil Samples	10
HPGe Shots for Linear feet of Utility Trenches to Scan	1698000

2) Task #2 - Precertification

2.1) Scope/Plan

R1-  
 D-  
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Precertification activities will begin as soon as a portion of Area 4B reaches the design grade, with the intent being to minimize the lag time between the completion of excavation and collection of certification samples. The PSP developed for excavation monitoring will also serve as the PSP for precertification. Based on field conditions and required detection levels, RTRAK, RSS, EMS or HPGe measurements will be performed and the precertification maps will be prepared. Certification Unit (CU) boundaries and sample locations will be located by survey and the boundaries and sample locations recorded on maps. Specific activities and deliverables include:

- Walk down field area to assess site conditions for safety and health hazards, equipment access, and maintenance needs (e.g., mowing of grass).
- Coordinate labor support if mowing is required.
- Prepare the area for field measurements by mowing and installing certification fence postings.
- Perform precertification scans with RTRAK, RSS and HPGe equipment.
- Identify hot-spot zones to excavation, if applicable, and rescan area after hot spot is removed.
- Prepare precertification maps based on scan measurements.
- Survey CU boundaries and sample locations and record the information on maps.

- Submit project records to ECDC and maintain copies in project file.
- Perform project management and control activities.

Maps generated from the precertification scans and CU surveys will be delivered to the project. All records will be delivered to ECDC.

The scope of work identified above will be executed using matrixed, centralized and projectized personnel. Distribution of the work, and the plan for executing the scope, is described for each division of personnel.

#### *Matrixed Personnel*

Infrastructure Services will support the operation of real time vehicles. Quality Assurance and Safety and Health will provide oversight on hot spot removal, if needed. Personnel from these organizations are the only individuals who will use charge number G4B17.

#### *Centralized Personnel*

Document Control/Procedure Management will provide document numbers, filing support and issue controlled documents, as needed. Information Management will provide computer hardware and software needs. Personnel from these organizations will use their functional area charge numbers.

#### *Projectized Personnel*

Most work will be completed by project staff from the management, characterization, survey, real time and administrative disciplines; and these personnel will charge their labor hours to PBS-06 control account GPM1. Management, characterization and real time staff will oversee the fieldwork. Project Controls will provide cost and schedule support to the project manager. Prior to collecting certification samples, the entire excavation footprint will be scanned with RTRAK and/or HPGe instruments to assess compliance with the FRLs for radium, thorium and uranium. If found, hot spots will be excavated and the area rescanned. After the completion of scanning activities, the CU boundaries and sample locations will be documented by survey.

### 2.2) Quantification

Table 8 summarizes the quantities and/or deliverables anticipated for Task 2. To account for the excavation slopes, the acreage to be scanned during precertification is estimated as 1.5 times the initial Area 4B acreage. A precertification map will be produced for each set of RTRAK, RSS and HPGe measurements. Based on guidance in the SEP, each CU will be a maximum of 250 by 250 feet and every 800 linear feet of trench that lies below the design grade is a CU. This guidance results in the estimate of 21 CUs for Area 4A, with 6 being utility-trench CUs. In general, the full suite of real-time instruments will be considered for excavation monitoring and the decision on which particular instrument to use for monitoring will be established in the excavation monitoring PSP. ~~Based on the Area 3A/4A IRDP requirement to perform a HPGe shot on soil in the bottom of the trench every 50 feet of linear trench, there will be 160 HPGe shots to cover the estimated 8,000 linear feet of utility trenches that will be cut below the designed excavation grade.~~

R1-  
D-  
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TABLE 8  
 Quantities for Task 2: Precertification

R1- D- 417	ITEM	QUANTITY
	RTRAK, RSS, EMS and/or and HPGe Scans, acres	42
	RTRAK, RSS, EMS and/or and HPGe maps	3
	<del>HPGe Shots for Linear feet of Utility Trenches to Scan</del>	120
	Survey Boundaries, CUs	34

3) Task #3 - Certification

3.1) Scope/Plan

Certification activities begin during excavation with the preparation of the Certification Design Letters (CDLs) and Certification PSP, and end when the Certification Reports (CRs) have been approved by the EPA and OEPA. To minimize the lag time between the end of excavation and collection of certification samples, the CDLs must be approved by the EPA and OEPA before excavation is complete. Specific activities and deliverables include:

- Develop COC list, sampling and analysis strategy, data quality objectives, and off-site laboratory task orders.
- Prepare data tables, CU maps and text for draft CDL/PSP and deliver CDL/PSP to functional-area personnel and DOE for review.
- Obtain review comments from functional-area personnel and DOE for each DOE draft CDL/PSP.
- Incorporate comment responses into each DOE draft CDL/PSP and deliver EPA/OEPA draft CDL/PSP to EPA and OEPA for review.
- Obtain review comments from EPA and OEPA on each EPA/OEPA draft CDL/PSP.
- Prepare response-to-comment (RTC) package for each EPA/OEPA draft CDL/PSP and obtain EPA and OEPA approvals.
- Incorporate comment responses into each EPA/OEPA draft CDL/PSP and deliver final CDL/PSP to project personnel, functional-area personnel, DOE, EPA and OEPA.
- Perform walk downs of field area to assess site conditions for safety and health hazards, equipment access, and maintenance needs (e.g., mowing of grass).
- Coordinate labor support if mowing is required.

- Conduct work-scope briefings with field crews.
- Mobilize the sampling crew to place the borings and obtain the soil samples.
- Develop variance/field change notices (V/FCN), as needed.
- Deliver the samples to the on-site laboratory and create the sample analysis log for on-site and off-site analysis, as needed.
- Perform the required analytical work and generate laboratory reports to QA/QC Level D.
- Perform 100 percent validation (10% QA/QC Level D, 90% QA/QC Level B) of the laboratory reports.
- Enter data into the SED and perform queries.
- Reduce and interpret data and perform the statistical calculations to develop final CR tables.
- Develop tables, maps and text for CRs and deliver CRs to functional-area personnel and DOE for review.
- Obtain review comments from functional-area personnel and DOE for each DOE draft CR.
- Incorporate comment responses into each DOE draft CR and deliver EPA/OEPA draft CR to EPA and OEPA for review.
- Obtain review comments from EPA and OEPA on each EPA/OEPA draft CR.
- Prepare response-to-comment (RTC) package for each EPA/OEPA draft CR and obtain EPA and OEPA approvals.
- Incorporate comment responses into each EPA/OEPA draft CR and deliver final CR to project personnel, functional-area personnel, DOE, EPA and OEPA.
- Submit project records to ECDC and maintain copies in project file.
- Perform project management and control activities.

The CDLs, PSPs, RTCs, and CRs will be delivered to DOE, EPA/OEPA and the project. All documents and records will be delivered to ECDC.

The scope of work identified above will be executed using matrixed, centralized and projectized personnel. Distribution of the work, and the plan for executing the scope, is described for each division of personnel.

#### *Matrixed Personnel*

Environmental Monitoring and Analytical Services will complete most of the work under Task 3. Environmental Monitoring will be used to complete soil borings, collect soil and water samples and deliver the samples to the on-site laboratory. Analytical Laboratory Services will log samples into the system, complete analytical measurements, issue data packages and ship samples requiring analysis for COCs to off-site labs. Samples contracted to off-site laboratories will contain a request for a 14-day turn around time. Analytical measurements will be performed and Level D data packages will be delivered to the project. Project Controls will provide cost and schedule support. Personnel from these organizations are the only individuals who will use charge number G4B17.

#### *Centralized Personnel*

Document Control/Procedure Management will provide document numbers, filing support and issue controlled documents, as needed. Sample Data Management will be used for database queries, data entry, data validation, SOWs for off-site labs, and the statistical reduction of data to evaluate the certification criteria for pass/fail. Information Management will provide computer hardware and software needs. Personnel from these organizations will use their functional area charge numbers.

#### *Projectized Personnel*

Work will be completed by project staff from the management, characterization, survey, and administrative disciplines; and these personnel will charge their labor hours to PBS-06 control account GPM1. Management and characterization staff will prepare all documentation and oversee the field and analytical work. Certification activities will begin with the preparation of the CDLs. Each CDL will identify the number and location of CUs, sample locations, a list of COCs for each CU, and analytical methods and detection limits. Execution of the CDL work will not begin until EPA/OEPA approval is received and the final CDL is released. Field activities will commence with a survey to flag sample locations and samples will be collected after the CDL is approved and precertification is completed. Samples will be sent to the appropriate laboratory for analysis and Level D data packages will be submitted to the project. Ten percent of the data packages will undergo verification and validation, and if problems are found additional packages will be selected for review. The data for each CU will be evaluated with statistical tests identified in the Sitewide Excavation Plan (DOE, June 1998) and a pass/fail decision for each CU will be based on these tests. CUs that fail will be resampled, and possibly subjected to additional excavation, until they pass the certification criteria. The draft CR will be prepared and submitted to EPA/OEPA after all CUs have passed. Once the CR is approved by EPA/OEPA, the final CR will be released and the area will be certified as fully remediated.

### 3.2) Quantification

Table 9 summarizes the quantities and/or deliverables anticipated for Task 3. The number of CDLs/PSPs prepared for previous projects indicate that approximately 3 CDLs/PSPs will be needed to cover certification activities in Area 4B. Therefore, it is estimated that there will be 3 DOE draft CDLs/PSPs, 3 EPA/OEPA draft CDLs/PSPs, 3 EPA/OEPA RTC packages, and 3 final CDLs/PSPs. The SEP dictates that there are 12 sample locations per

CU plus one duplicate sample; the exception being 16 sample locations are surveyed if there is a HWMU or UST in the CU, with 8 of the 16 sample locations in the HWMU or UST footprint. Additionally, a sample is collected every 50 linear feet along the utility-trench CUs. These criteria result in an estimate of 510 certification samples. All samples will be analyzed for uranium, thorium, and radium, with the remaining analyses dependent on the distribution of other COC contamination. The number of laboratory reports that will be generated is based on project history, which indicates one lab report per 12 samples. Per the SEP, 10 percent of these will be validated to Level D and 90 percent to Level B. A CR will be prepared for each CDL and the submittal and review process will follow the CDL scenario.

TABLE 9  
 Quantities for Task 3: Certification

ITEM	QUANTITY
Draft CDLs/PSPs for DOE	3
Draft CDLs/PSPs EPA/OEPA	3
Response-to-Comments Package for EPA/OEPA	3
Final CDLs/PSPs	3
Survey and Flag Sample Locations	476
Soil Samples	510
Uranium, Thorium and Radium Analyses	510
Technetium-99 Analyses	340
Metal Analyses	340
VOC Analyses	340
SVOC Analyses	13
Lab Reports for Radiological COCs	43
Lab Reports for Metal COCs	28
Lab Reports for Organic COCs	28
Radiological Lab Reports to Verify and Validate	43
Metal Lab Reports to Verify and Validate	28
Organic Lab Reports to Verify and Validate	28
Draft CRs for DOE	3
Draft CRs EPA/OEPA	3
Response-to-Comments Packages for EPA/OEPA	3
Final CRs	3

#### 1.5.4 G4B18 - Off-Site Waste Disposition

Soil excavation activities in various areas of the FEMP site may produce waste streams that cannot be disposed of in the OSDF, and off-site waste disposition will be required. Off-site waste disposition refers to the procurement of containers and disposal services, loading and shipping of containers, and preparation of manifestation documentation. Two different types of waste streams are anticipated. First, items that are prohibited from both the OSDF and Envirocare (non-typical waste) will be processed through Fluor Fernald's Waste Generator Services (WGS). Second, AWAC soil and other items that are prohibited

from the OSDF but can be transported to Envirocare. Activities under this charge number are divided into the following tasks: 1) Container Receipt and Preparation; 2) Load Containers; and 3) Shipping and Disposal.

Major technical risks include: the loss of the off-site disposal vendor (i.e., Envirocare); the unexpected discovery of a large volume of special material; and/or the discovery of a large volume of soil that requires on-site treatment. Contingencies that can be implemented to reduce this risk include: acquire additional off-site disposal vendors; and place a subcontract to treat soil.

Most of the work will be performed by WGS personnel matrixed to the project. However, some project oversight from the management, characterization, engineering, and administrative disciplines is needed, and these personnel will charge labor to PBS-06 control account GPM1. Only matrixed labor, as identified below, will use the charge account G4B18. The charge account for G4B18 will be closed when the CR report is approved by EPA/OEPA.

1) Task #1 - Container Receipt and Preparation

1.1) Scope/Plan

Material costs will include the purchase of shipping containers and upon receipt of the containers WGS will prepare them for loading. Specific activities and deliverables include:

- Procure containers and packaging materials.
- Prepare container for loading.
- Deliver the prepared containers to the special material transfer area (SMTA).
- Submit project records to ECDC and maintain copies in project file.
- Perform project management and control activities.

The scope of work identified above will be executed using matrixed, centralized and projectized personnel. Distribution of the work, and the plan for executing the scope, is described for each division of personnel.

*Matrixed Personnel*

Waste Generator Services (WGS) will prepare and deliver containers to the special material transfer area (SMTA), adjacent to the active excavation. Personnel from these organizations are the only individuals who will use charge number G4B18.

*Centralized Personnel*

Document Control/Procedure Management will provide document numbers, filing support and issue controlled documents, as needed. Information Management will provide computer hardware and software needs. Personnel from these organizations will use their functional area charge numbers.

*Projectized Personnel*

Minor support work will be completed by project staff from the management, construction, and administrative disciplines; and these personnel will charge their labor hours to PBS-06 control account GPM1. Project Controls will provide cost and schedule support to the project manager.

1.2) Quantification

Table 10 summarizes the quantities and/or deliverables anticipated for Task 1. Based on past project history, it is estimated that 10 containers (capacity of 2.5 yd<sup>3</sup>) will be required for non-OSDF waste encountered in Area 4B.

TABLE 10  
 Quantities for Task 1: Container Receipt and Preparation

ITEM	QUANTITY
Procure and Prepare Containers	10

2) Task #2 - Load Containers

2.1) Scope/Plan

The project will load waste into containers staged at the SMTA or haul above-WAC waste to SP7 or the designated staging area. Specific activities and deliverables include:

- Load the containers and return filled containers to the SMTA.
- Haul above-WAC debris to SP-7 or the designated storage point for off-site bulk waste.
- Prepare required manifestation, as needed.
- Submit project records to ECDC and maintain copies in project file.
- Perform project management and control activities.

Manifestation documents will be provided to WGS, the project and ECDC, if applicable.

The scope of work identified above will be executed using matrixed, centralized and projectized personnel. Distribution of the work, and the plan for executing the scope, is described for each division of personnel.

*Subcontracted Personnel*

Labor is required for loading waste into containers and for loading and hauling above-WAC soil and debris to SP-7 or the designated staging area to the railcar load-out area. Job categories envisioned include foreman, laborer, heavy-equipment operator, truck operator and teamsters. Subcontract costs will be charged to G4B18.

*Matrixed Personnel*

Radiological Protection Operations will perform radiation surveys of containers and equipment. Personnel from these organizations are the only individuals who will use charge number G4B18.

*Centralized Personnel*

Document Control/Procedure Management will provide document numbers, filing support and issue controlled documents, as needed. The Waste Acceptance Organization will prepare waste manifestation forms. Information Management will provide computer hardware and software needs. Personnel from these organizations will use their functional area charge numbers.

*Projectized Personnel*

Minor support work will be completed by project staff from the management, construction, and administrative disciplines; and these personnel will charge their labor hours to PBS-06 control account GPM1. Project Controls will provide cost and schedule support to the project manager. Management and construction staff will assist the subcontractor in the loading of the containers. Construction personnel will pick up the containers at the SMTA, load the containers, and return them to the SMTA for pick up by WGS. Above-WAC soil and piping will be placed at SP-7 or the designated load-out point for the railcars.

2.2) Quantification

Table 11 summarizes the quantities and/or deliverables anticipated for Task 2. Based on off-site waste quantities from past excavation work, it is estimated that there will be 25 yd<sup>3</sup> of containerized waste and 1 percent of the total piping volume will be prohibited from disposal in the OSDF (i.e., 61 yd<sup>3</sup> of above-WAC piping). Existing RI/FS data were used to roughly estimate 11,000 yards of above-WAC soil in Area 4B. The piping and soil will be loaded into railcars.

TABLE 11  
 Quantities for Task 2: Load Containers

ITEM	QUANTITY
Prohibited Special Materials, cubic yards	140
Above-WAC Soil, cubic yards	11,000
Above-WAC Piping, cubic yards	61

3) Task #3 - Shipping and Disposal

3.1) Scope/Plan

WGS will pick-up containers from the SMTA and prepare final manifestation and shipping papers. Above-WAC debris will be bulk shipped via railcar. Specific activities and deliverables include:

- Transport containers from SMTA to shipping area.
- Prepare shipping manifestation and ship containers or railcars.
- Verify waste disposition at disposal site.
- Submit project records to ECDC and maintain copies in project file.
- Perform project management and control activities.

Manifestation, shipping and tracking forms will be delivered to the project and off-site disposal facility. Verification of waste disposition will be delivered to the project, and all records will be sent to ECDC.

The scope of work identified above will be executed using matrixed, centralized and projectized personnel. Distribution of the work, and the plan for executing the scope, is described for each division of personnel.

*Matrixed Personnel*

WGS will prepare the final manifestation documentation and ship the containers to the designated off-site disposal facility. Personnel from these organizations are the only individuals who will use charge number G4B18.

*Centralized Personnel*

Document Control/Procedure Management will provide document numbers, filing support and issue controlled documents, as needed. WAO will assist with the waste manifestation, as needed. Personnel from these organizations will use their functional area charge numbers.

*Projectized Personnel*

Minor support work will be completed by project staff from the management and administrative disciplines; and these personnel will charge their labor hours to PBS-06 control account GPM1. Management and administrative staff will assist WGS and/or WAO in the preparation of shipping documents. Project Controls will provide cost and schedule support.

3.2) Quantification

Table 12 summarizes the quantities and/or deliverables anticipated for Task 3. Based on the volumes identified in Task 2, 10 containers and 179 railcars will be shipped. The number of railcars is based on 100 tons per car and an approximate bulk soil density of 1.6 tons per cubic yard. It is assumed that three railcars will be used for the piping debris.

TABLE 12  
 Quantities for Task 3: Shipping and Disposal

ITEM	QUANTITY
Ship Containers	10
Ship Railcars	179

1.5.5 G4A19 - On--Site Treatment

On-site treatment of soil and disposal in the OSDF is estimated to save approximately one million dollars per 1,000 yd<sup>3</sup> of treated soil. Although unknown at the present time, it is estimated that there will be approximately 1,800 yd<sup>3</sup> of organically contaminated soil that will require treatment. Similar quantities are documented for Areas 3A and 4A. The toxicity characteristic leaching procedure will be used to make the pass/fail decision on the treated soil and, based on other COC concentrations the soil will be disposed in the OSDF or off site. A low-temperature thermal desorption process is envisioned and a vendor will be contracted to perform the treatment. A treatment pad will be prepared on the old Maintenance Building pad. Activities and deliverables associated with this work include: 1) Procurement; 2) Prepare Treatment Plans; 3) Site Preparation; and 4) Treatment.

Major technical risks include: heterogeneous distribution of organic COCs results in variable treatment times, with an increase in the chance of failure due to treatment stages being set to one time period. Contingencies that can be implemented to reduce this risk include: acquire batch data on several different zones of contamination and perform statistical analysis of the treatment-time data to determine optimal batch time.

Most of the treatment work will be performed by the treatment subcontractor. However, the subcontractor will develop the treatment plans with engineering, characterization and management staff, and this staff will also perform project oversight. Construction personnel will be needed to stage the untreated soil and remove the treated soil. Engineering, characterization and management personnel will charge labor to PBS-06 control account GPM1. The construction subcontractor, treatment subcontractor, and matrixed labor, as identified below, will use the charge account G4B19. The charge account for G4B19 will be closed when the all treated soil has been disposed in the OSDF.

1) Task #1 - Procurement

1.1) Scope/Plan

The procurement process will be completed as part of the Area 3A Charge Number G3A19.

1.2) Quantification

Quantities identified under Task 1 for Area 3A Charge Number G3A19 also cover Area 4B.

2) Task #2 - Prepare Plans

2.1) Scope/Plan

Work plans developed under the Area 3A Charge Number G3A19 also cover Area 4B.

2.2) Quantification

Quantities identified under Task 2 for Area 3A Charge Number G3A19 also cover Area 4B.

3) Task #3 - Site Preparation

3.1) Scope/Plan

Site preparation activities discussed under the Area 3A Charge Number G3A19 also cover Area 4B.

3.2) Quantification

Quantities identified under Task 3 for Area 3A Charge Number G3A19 also cover Area 4B.

4) Task #4: Treatment

4.1) Scope/Plan

Treatment of the estimated 1,800 yd<sup>3</sup> of soil will begin after the Area 4A soil is treated. Soil will be treated 24-hours a day six days a week, with one day allowed for equipment maintenance and housekeeping activities. Treated soil will be staged in a temporary stockpile and a sample for TCLP testing will be collected for every 50 yd<sup>3</sup> of soil. When TCLP results indicate the soil has passed treatment, the soil will be hauled to the OSDF or SP-7 for off-site disposal. The disposal destination will depend on the concentrations of other COCs. After treatment is completed, the equipment will be decontaminated and demobilized. Specific activities and deliverables for this work include:

- Load stockpiled soil into treatment vessel and perform low-temperature thermal desorption for the designated time period.
- Unload the treated soil and stage the soil in the designated treated stockpile.
- Perform equipment maintenance and housekeeping activities.
- Collect a sample for TCLP testing for every 50 yd<sup>3</sup> of treated soil.
- Ship the sample to an off-site lab for TCLP testing and request a Level D QA/QC data package.

- Verify and validate the laboratory report (Level D) and assign pass/fail to the treated soil.
- Haul the treated soil to the OSDF or SP-7 if the TCLP test passes; retreat the soil if the TCLP test fails.
- Decontaminate and demobilize equipment.
- Submit project records to ECDC and maintain copies in project file.
- Perform project management and control activities.

The TCLP results will be delivered to the project, DOE and EPA/OEPA to document the pass/fail decision. All records will be sent to ECDC.

The scope of work identified above will be executed using subcontractor, matrixed, centralized and projectized personnel. Distribution of the work, and the plan for executing the scope, is described for each division of personnel.

#### *Subcontractor Work*

The subcontractor will operate the treatment system, perform standard maintenance activities and maintain the necessary regulatory permits. Subcontract costs will be charged to G4B19.

#### *Matrixed Personnel*

Environmental Monitoring will be used to collect samples of treated soil and deliver the samples to Analytical Laboratory Services. Analytical Laboratory Services will log samples into the system and ship samples to off-site labs for TCLP testing. Samples contracted to off-site laboratories will contain a request for a 14-day turn around time. Analytical measurements will be performed and Level D data packages will be delivered to the project. Personnel from these organizations are the only individuals who will use charge number G4B19.

#### *Centralized Personnel*

Document Control/Procedure Management will provide document numbers, filing support and issue controlled documents, as needed. Sample Data Management will be used for database queries, data entry, data validation, SOWs for off-site labs, and statistical reduction of data. The Waste Acceptance Organization will review the treatment report prior to hauling the soil to the OSDF. Information Management will provide computer hardware and software needs. Personnel from these organizations will use their functional area charge numbers.

#### *Projectized Personnel*

Most work will be completed by project staff from the management, characterization and administrative disciplines; and these personnel will charge their labor hours to PBS-06 control account GPM1. Management and characterization staff will prepare all

documentation and oversee the field and analytical work. Project Controls will provide cost and schedule support.

4.2) Quantification

Table 13 summarizes the quantities and/or deliverables anticipated for Task 4. Based on the quantity of organically contaminated soil requiring treatment that has been identified in Areas 3A and 4A, it is estimated that there will be approximately 1,800 yd<sup>3</sup> of organically contaminated soil in Area 4B that requires treatment. A soil sample will be collected for every 50 yd<sup>3</sup> of treated soil and the samples will be submitted to an off-site laboratory for TCLP testing. A laboratory report will be prepared and issued for every 12 samples and the reports will be validated to QA/QC Level D. Soil will be treated until it passes the TCLP test for the organic COCs, and the successfully treated soil will be hauled to the OSDF or SP-7. On-site treatment is expected to end after the Area 4B soil is treated, and the equipment will be decontaminated and demobilized at this point.

TABLE 13  
 Quantities for Task 4: Treatment

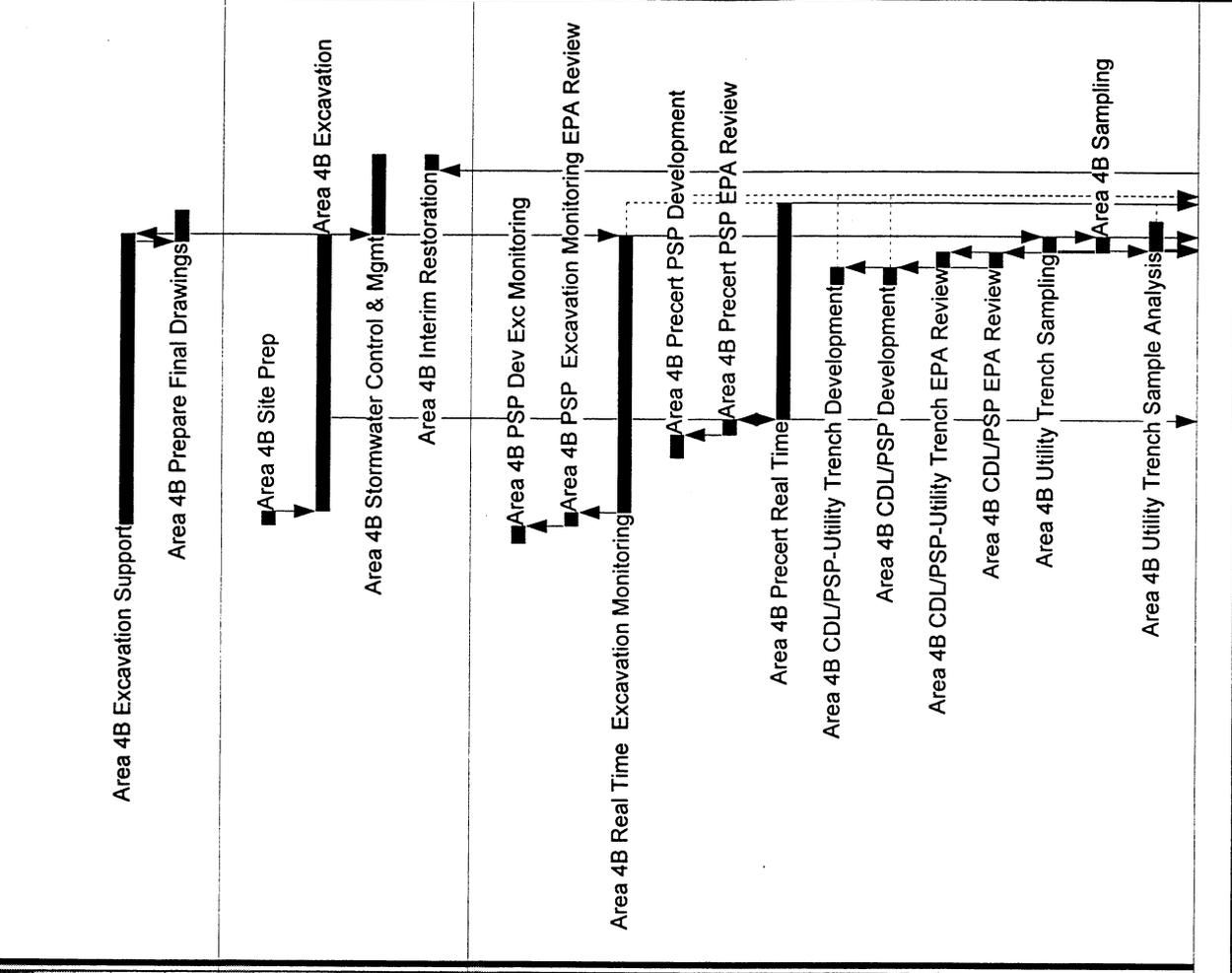
ITEM	QUANTITY
Treat Soil, cubic yards	1,800
Soil Samples	36
TCLP Tests	36
Laboratory Reports	3
Level D Validation Package	3
Haul Soil to OSDF or SP-7, cubic yards	1,800
Decontaminate and Demobilize	1

## **SECTION 8**

### **2.0 SCHEDULE**



Activity ID	Activity Description	Early Start	Early Finish	Orig Dur
<b>G PBS 06 SOILS</b>				
<b>1.1.G.H AREA 4B SOIL REMEDIATION</b>				
<b>G4B13 AREA 4B TITLE III</b>				
GG4B130110	Area 4B Excavation Support	29AUG05	16OCT08	704
GG4B130120	Area 4B Prepare Final Drawings	16SEP08	20JAN09	76
<b>G4B14 AREA 4B SITE PREP / EXCAVATION</b>				
GG4B140140	Area 4B Site Prep	29AUG05	24OCT05	36
GG4B140150	Area 4B Excavation	25OCT05	16OCT08	668
GG4B140170	Area 4B Stormwater Control & Mgmt	20OCT08	25AUG09	190
GG4B140160	Area 4B Interim Restoration	29JUN09	25AUG09	37
<b>G4B17 AREA 4B EXC CONTROL / CERTIFICATION</b>				
GG4B170200	Area 4B PSP Dev Exc Monitoring	24JUN05	25AUG05	40
GG4B170210	Area 4B PSP Excavation Monitoring EPA Review	26AUG05	24OCT05	60
GG4B170510	Area 4B Real Time Excavation Monitoring	25OCT05	16OCT08	668
GG4B170560	Area 4B Precert PSP Development	23MAY06	24AUG06	60
GG4B170570	Area 4B Precert PSP EPA Review	26AUG06	24OCT06	60
GG4B170580	Area 4B Precert Real Time	25OCT06	24FEB09	520
GG4B170610	Area 4B CDL/PSP-Utility Trench Development	11APR08	12JUN08	40
GG4B170670	Area 4B CDL/PSP Development	11APR08	12JUN08	40
GG4B170620	Area 4B CDL/PSP-Utility Trench EPA Review	16JUN08	14AUG08	60
GG4B170680	Area 4B CDL/PSP EPA Review	16JUN08	14AUG08	60
GG4B170630	Area 4B Utility Trench Sampling	15AUG08	16OCT08	40
GG4B170690	Area 4B Sampling	15AUG08	16OCT08	40
GG4B170640	Area 4B Utility Trench Sample Analysis	25AUG08	17DEC08	71



Start Date	Finish Date	Data Date	Run Date
01DEC00	27DEC09	01DEC00	10SEP01 16:19

Start Date: 01DEC00  
 Finish Date: 27DEC09  
 Data Date: 01DEC00  
 Run Date: 10SEP01 16:19

Sheet 1 of 2

**SOILS PROJECT**

**1.1.G.H AREA 4B SOIL REMEDIATION**

BLCF - GG01

FLUOR FERNALD

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Date	Revision	Checked/Approved
F06-045		



## **SECTION 8**

### **3.0 MANPOWER PLANS**





# Manpower Planning Sheet (CR2)

MPS # 1GH01 AREA 4B TITLE III

DRIVERS	START DATE	END DATE	FY 2007				FY 2008				FY 2009				FY 2010				FY 2011			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
606 Area 4B Excavation	10/03/2005	03/31/2008	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX								
607 Area 4B Interim Restoration	04/01/2009	06/24/2009									XXX											
622 Area 4B Exc. Control Characterization	10/03/2005	03/31/2008	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX								
630 Area 4B Precert/Cert	04/01/2008	03/31/2009					XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX								
Engineering & Design	Engineer Piping/Mechanic		0.1	0	0.1	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
QA/QC	QA Engineer		0.1	0	0.1	0.1	0	0.1	0	0.1	0	0.1	0	0.1	0	0	0	0	0	0	0	0
Environmental Safety & Health	Industrial Hygienist Tech.		0.1	0	0.1	0.1	0	0.1	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0

**Sheet Totals:** 0.30 0.00 0.30 0.30 0.30 0.00 0.20 0.00 0.10 0.00 0.10 0.00 0.10 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00

















## **SECTION 8**

### **4.0 ESTIMATE**



**G4B13**

**AREA 4B TITLE III**



# Fluor Fernald, Inc.

ESTIMATE SUPPORT WORKSHEET  
FOR ACTIVITY BASED ESTIMATING  
(1 FTE EQUALS 1747 HOURS)

DATE: 07-Sep-01  
PROJECT MGR: J. D. Chlou  
CAM: J. D. Chlou  
PREPARED BY: W. F. Fick  
FISCAL YEAR: 2005-2009

PBS: OHFN06  
WBS: 1.1.GH  
CTRL ACCT: G4B1  
CHARGE NO: G4B13  
COMMENT NO F06-045

Resource: ENGMEC  
Res Dept:

ENGINEER MECH/PIPING  
Overtime:

Class: LABOR  
EOC: SAL

	Oct 00-		Oct 01-		Oct 02-		Oct 03-		Oct 04-		Oct 05-		Oct 06-		Oct 07-		Oct 08-		Oct 09-	
	Sep 01	Sep 02	Sep 03	Sep 04	Sep 05	Sep 06	Sep 07	Sep 08	Sep 09	Sep 10	Sep 01	Sep 02	Sep 03	Sep 04	Sep 05	Sep 06	Sep 07	Sep 08	Sep 09	Sep 10
Yr Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.8	8.8	90.8	93.9	284.3	304.6	25,319	27,459	27,459	27,459	27,459	27,459
Cum Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.8	8.8	99.6	190.4	8,915	2,141	2,141	2,141	2,141	2,141	2,141	2,141
Yr Total Cost:	0	0	0	0	0	0	0	0	681	681	7,545	8,179	16,404	16,404	27,459	27,459	27,459	27,459	27,459	27,459
Cum Total Cost:	0	0	0	0	0	0	0	0	681	681	8,225	16,404	27,459	27,459	27,459	27,459	27,459	27,459	27,459	27,459

Resource: INHTEC  
Res Dept:

INDUST HYGIENIST TEC  
Overtime:

Class: LABOR  
EOC: SAL

	Oct 00-		Oct 01-		Oct 02-		Oct 03-		Oct 04-		Oct 05-		Oct 06-		Oct 07-		Oct 08-		Oct 09-	
	Sep 01	Sep 02	Sep 03	Sep 04	Sep 05	Sep 06	Sep 07	Sep 08	Sep 09	Sep 10	Sep 01	Sep 02	Sep 03	Sep 04	Sep 05	Sep 06	Sep 07	Sep 08	Sep 09	Sep 10
Yr Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.0	10.0	104.2	107.7	326.1	349.4	17,605	19,092	19,092	19,092	19,092	19,092
Cum Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.0	10.0	114.2	218.4	5,246	6,198	6,198	6,198	6,198	6,198	6,198	6,198
Yr Total Cost:	0	0	0	0	0	0	0	0	473	473	5,246	5,687	11,406	11,406	17,605	19,092	19,092	19,092	19,092	19,092
Cum Total Cost:	0	0	0	0	0	0	0	0	473	473	5,719	11,406	17,605	19,092	19,092	19,092	19,092	19,092	19,092	19,092

Resource: QACENG  
Res Dept:

QA ENGINEER  
Overtime:

Class: LABOR  
EOC: SAL

	Oct 00-		Oct 01-		Oct 02-		Oct 03-		Oct 04-		Oct 05-		Oct 06-		Oct 07-		Oct 08-		Oct 09-	
	Sep 01	Sep 02	Sep 03	Sep 04	Sep 05	Sep 06	Sep 07	Sep 08	Sep 09	Sep 10	Sep 01	Sep 02	Sep 03	Sep 04	Sep 05	Sep 06	Sep 07	Sep 08	Sep 09	Sep 10
Yr Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.5	12.5	129.9	134.4	406.7	435.8	26,776	29,040	29,040	29,040	29,040	29,040
Cum Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.5	12.5	142.5	272.4	8,650	9,428	9,428	9,428	9,428	9,428	9,428	9,428
Yr Total Cost:	0	0	0	0	0	0	0	0	720	720	7,979	8,650	17,349	17,349	26,776	29,040	29,040	29,040	29,040	29,040
Cum Total Cost:	0	0	0	0	0	0	0	0	720	720	8,699	17,349	26,776	29,040	29,040	29,040	29,040	29,040	29,040	29,040

GRAND TOTALS:

	Oct 00-		Oct 01-		Oct 02-		Oct 03-		Oct 04-		Oct 05-		Oct 06-		Oct 07-		Oct 08-		Oct 09-	
	Sep 01	Sep 02	Sep 03	Sep 04	Sep 05	Sep 06	Sep 07	Sep 08	Sep 09	Sep 10	Sep 01	Sep 02	Sep 03	Sep 04	Sep 05	Sep 06	Sep 07	Sep 08	Sep 09	Sep 10
Yr Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	31.3	31.3	324.9	336.0	1,017.1	1,089.7	69,700	75,591	75,591	75,591	75,591	75,591
Cum Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	31.3	31.3	356.2	681.1	22,516	24,541	24,541	24,541	24,541	24,541	24,541	24,541
Yr Total Cost:	0	0	0	0	0	0	0	0	1,874	1,874	20,770	22,516	45,159	45,159	69,700	75,591	75,591	75,591	75,591	75,591
Cum Total Cost:	0	0	0	0	0	0	0	0	1,874	1,874	22,643	45,159	69,700	75,591	75,591	75,591	75,591	75,591	75,591	75,591

CAM



CONTROL TEAM



**G4B14**

**AREA 4B SITE PREP/EXCAVATION**



# Fluor Fernald, Inc.

DATE: 07-Sep-01  
PROJECT MGR: J. D. Chiou  
CAM: J. D. Chiou  
PREPARED BY: W. F. Fick  
FISCAL YEAR: 2005-2009

ESTIMATE SUPPORT WORKSHEET  
FOR ACTIVITY BASED ESTIMATING  
(1 FTE EQUALS 1747 HOURS)

PBS: OHFN06  
WBS: 1.1.G.H  
CTRL ACCT: G4B1  
CHARGE NO: G4B14  
COMMENT NO F08-045

Resource: Res Dept:	FIELD SUBS Overtime:	SUBCONTRACTORS															
		Class:	Oct 01- Sep 02	Oct 02- Sep 03	Oct 03- Sep 04	Oct 04- Sep 05	Oct 05- Sep 06	Oct 06- Sep 07	Oct 07- Sep 08	Oct 08- Sep 09	Oct 09- Sep 10						
Yr Units:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cum Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yr Total Cost:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cum Total Cost:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Resource: Res Dept:	QA/QC TECH Overtime:	LABOR															
		Class:	Oct 01- Sep 02	Oct 02- Sep 03	Oct 03- Sep 04	Oct 04- Sep 05	Oct 05- Sep 06	Oct 06- Sep 07	Oct 07- Sep 08	Oct 08- Sep 09	Oct 09- Sep 10						
Yr Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cum Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yr Total Cost:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cum Total Cost:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Resource: Res Dept:	RAD TECH Overtime:	LABOR															
		Class:	Oct 01- Sep 02	Oct 02- Sep 03	Oct 03- Sep 04	Oct 04- Sep 05	Oct 05- Sep 06	Oct 06- Sep 07	Oct 07- Sep 08	Oct 08- Sep 09	Oct 09- Sep 10						
Yr Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cum Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yr Total Cost:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cum Total Cost:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Resource: Res Dept:	SAFETY ENGINEER Overtime:	LABOR															
		Class:	Oct 01- Sep 02	Oct 02- Sep 03	Oct 03- Sep 04	Oct 04- Sep 05	Oct 05- Sep 06	Oct 06- Sep 07	Oct 07- Sep 08	Oct 08- Sep 09	Oct 09- Sep 10						
Yr Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cum Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yr Total Cost:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cum Total Cost:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

GRAND TOTALS:																	
Yr Hours:	Cum Hours:	Yr Total Cost:	Cum Total Cost:	Oct 00- Sep 01	Oct 01- Sep 02	Oct 02- Sep 03	Oct 03- Sep 04	Oct 04- Sep 05	Oct 05- Sep 06	Oct 06- Sep 07	Oct 07- Sep 08	Oct 08- Sep 09	Oct 09- Sep 10				
0.0	0.0	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

CONTROL TEAM




CAM



G 4514

**Fluor Fernald, Inc.**  
**PROJECTS CONTROLS**  
**ESTIMATING SERVICES**

May 15, 2001

**PROJECT DESCRIPTION:** SOILS REMEDIATION AREA 4B

**WBS NUMBER:** 1.1.G.H

**PROJECT ENGINEER:** RICH ABITZ

**ESTIMATOR:** J. AMOS

**ESTIMATE NUMBER:** C20104005

**BASIS OF ESTIMATE**

**SUPPORTING DOCUMENTATION:**

Verbal Scope	<input type="checkbox"/>	P & ID's	<input type="checkbox"/>	Work Plan	<input type="checkbox"/>
Drawings	<input type="checkbox"/>	Equipment List	<input type="checkbox"/>	Site Walk	<input type="checkbox"/>
Sketches	<input checked="" type="checkbox"/>	Specifications	<input type="checkbox"/>	Eng. Mtg.	<input checked="" type="checkbox"/>
Flow Diagrams	<input type="checkbox"/>	Written Scope	<input checked="" type="checkbox"/>	Estimate	<input type="checkbox"/>

**TYPE OF ESTIMATE:**

Change Proposal	<input type="checkbox"/>	Government	<input type="checkbox"/>
Plan/Feasibility	<input type="checkbox"/>	Conceptual	<input type="checkbox"/>
Construction	<input type="checkbox"/>	Title I Design	<input type="checkbox"/>
Budget	<input checked="" type="checkbox"/>	Independent	<input type="checkbox"/>

**BASIS OF ESTIMATE:**

Estimate the cost of excavation of soils, size-reducing building slabs, foundations, manholes, utility trenches and piping from trenches, loading and hauling to the OSDF facility or to the bulk storage facility for shipment off site (shipment cost not included in this estimate). Quantities used were supplied by project management. Scope is based on Scenario #6.

**Fluor Fernald, Inc.**  
**PROJECTS CONTROLS**  
**ESTIMATING SERVICES**

May 15, 2001

**PROJECT DESCRIPTION:** SOILS REMEDIATION AREA 4B  
**WBS NUMBER:** 1.1.G.H  
**PROJECT ENGINEER:** RICH ABITZ  
**ESTIMATOR:** J. AMOS  
**ESTIMATE NUMBER:** C20104005

**ESTIMATE ASSUMPTIONS**

**EXECUTION:**

- This project is to be performed on a 50-hour week, 10 hours a day.
- This project is to be performed on a 40-hour week, 8 hours a day.
- Premium time allowed.

**WAGE RATES:**

- Wage rates within this estimate are based on Project Labor Agreement rates, effective October 2000 and are considered FY01 dollars for estimating.
- Wage rates within this estimate are based on FF Support Contractor FSC 599 wage rates, effective October 1999 have been escalated 3% and are considered FY01 dollars for estimating.
- Wage rates within this estimate are based on FF FTE Planning Labor Rates FY01.

**ENGINEERING:**

- N/A
- Engineering dollars provided by the Project Engineer.
- Engineering dollars have been factored in at the standard 12% of the total direct and indirect field costs as per request of Project Engineer.

**CONSTRUCTION MANAGEMENT:**

- N/A
- Construction Management dollars provided by the Project Engineer.
- Construction Management dollars have been factored in at the standard 30% of the total direct and indirect field costs as per request of Project Engineer.

**PROJECT MANAGEMENT:**

- N/A
- Project Management dollars provided by the Project Engineer.
- Project Management dollars have been factored in at the standard 30% of the total direct and indirect field costs as per request of Project Engineer.

**WASTE PROGRAM MANAGEMENT:**

- N/A
- Waste Program Management dollars provided by the Project Engineer.

**Fluor Fernald, Inc.**  
**PROJECTS CONTROLS**  
**ESTIMATING SERVICES**

May 15, 2001

**PROJECT DESCRIPTION:** SOILS REMEDIATION AREA 4B

**WBS NUMBER:** 1.1.G.H

**PROJECT ENGINEER:** RICH ABITZ

**ESTIMATOR:** J. AMOS

**ESTIMATE NUMBER:** C20104005

**PRODUCTIVITY:**

A productivity factor has been developed and applied to the unit man-hours derived from MEANS, Richardson, NECA, and or any other published estimating source. See attachment APPENDIX "A" and APPENDIX "B".

**ESCALATION:**

Escalation costs are excluded from the target estimate. The escalation costs are calculated within the Micro-Frame computer system according to the plan for rebaselining.

**UNIT RATES:**

Unit man-hours, equipment and material dollars are based on Richardson, MEANS, NECA, and or other published rates.

**G & A (HO EXPENSE):**

G & A are excluded from the target estimate. The G & A cost are calculated within the Micro-Frame computer system according to the plan for rebaselining.

**HEALTH PHYSICS:**

See attached APPENDIX "C".

**RISK BUDGET:**

There is no risk allowance in this estimate.

**CONTINGENCY:**

There is no contingency allowance in this estimate.

**Fluor Fernald, Inc.**  
**PROJECTS CONTROLS**  
**ESTIMATING SERVICES**

May 15, 2001

**PROJECT DESCRIPTION:** SOILS REMEDIATION AREA 4B

**WBS NUMBER:** 1.1.G.H

**PROJECT ENGINEER:** RICH ABITZ

**ESTIMATOR:** J. AMOS

**ESTIMATE NUMBER:** C20104005

**ESTIMATE INCLUSIONS & EXCLUSIONS**

**INCLUSIONS:**

- X Premobilization & Mobilization.
- X Demobilization.
- X Labor hours.
- X Material dollars.
- X Equipment dollars.
- X Premium time
- X Excavate, load, haul and dump soil, asphalt, gravel, concrete slabs & foundations (sized Reduced), to the OSDF or other appropriate site.
- X Re-grade slopes to 5H:1V and seed, fertilize, and mulch
- X Bulking factors used are as follows:
  - 1. Soils 1.15
  - 2. Concrete 1.33
  - 3. Pipe debris 2.00
- X Installation, maintenance, and removal of silt and construction/rad control fencing

**EXCLUSIONS:**

- X Permits and fees.
- X FF G & A (Home Office Expense).
- X Construction Management.
- X Any second tier subcontract costs.
- X Project Management dollars.
- X Waste Management dollars.
- X Sampling, air monitoring and testing of soils
- X Shipping and disposal costs of materials off site
- X Shipping containers
- X Delays due to unidentified contamination of materials or levels of contamination

**ESTIMATE SUMMARY SHEET**

PROJECT: Soils Excavation Area 4B  
 ESTIMATE #: C2-01-04-005  
 CLIENT: DOE  
 WBS #: 1.1.G.H

DATE: 14-May-01  
 ESTIMATOR: JEA  
 LOCATION: Fernald  
 TASK NO.: G4B14

**Fluor Fernald, Inc.**

ITEM DESCRIPTION	M/H	RATE	LABOR \$	S/C \$	MAT'L \$	EQUIP. \$	TOTAL \$
SITE PREPARATION	7,183		\$171,130	\$42,022	\$135,410	\$58,170	\$406,732
EXCAVATION	215,811		\$6,114,057		\$98,000	\$3,395,010	\$9,607,067
STORM WATER MANAGEMENT	33,302		\$789,998	\$15,000	\$93,770	\$361,640	\$1,260,408
INTERIM RESTORATION	12,901		305,129	50,000	99,960	266,070	\$721,159
<b>DIRECT FIELD COSTS TOTAL</b>	<b>269,197</b>	<b>\$27.42</b>	<b>\$7,380,314</b>	<b>\$107,022</b>	<b>\$427,140</b>	<b>\$4,080,890</b>	<b>\$11,995,366</b>
SUPERVISION - CONTRACTOR	23,400		\$762,322				\$762,322
SMALL TOOLS & CONSUMABLES	-	-	-		\$147,600		\$147,600
MISC. EQUIP. RENTAL	-	-	-				
TEMPORARY FACILITIES							
TEMPORARY UTILITY HOOK-UP							
JOB CLEAN-UP	4,038		\$110,700		\$36,900		\$147,600
PER DIEM / SUBSISTANCE	-	-	-				
HEALTH PHYSICS S/C	1,189		\$32,600		\$49,000		\$81,600
CERCLA - TRAINING	450		\$12,300				\$12,300
GET/SITE ACCESS & JOB SPECIFIC TRAINING	738		\$20,200				\$20,200
PAYROLL BURDENS & BENEFITS	-	-	\$4,741,500				\$4,741,500
OVERHEAD & PROFIT	-	-	-	\$3,581,700			\$3,581,700
BOND	-	-	-	\$279,400			\$279,400
SALES TAX	-	-	-		\$39,600	\$244,900	\$284,500
<b>INDIRECT FIELD COSTS TOTAL</b>	<b>29,815</b>		<b>\$5,679,622</b>	<b>\$3,861,100</b>	<b>\$273,100</b>	<b>\$244,900</b>	<b>\$10,058,722</b>
<b>DIRECT &amp; INDIRECT FIELD COSTS TOTAL</b>	<b>299,012</b>	<b>\$43.68</b>	<b>\$13,059,937</b>	<b>\$3,968,122</b>	<b>\$700,240</b>	<b>\$4,325,790</b>	<b>\$22,054,088</b>
<b>TARGET ESTIMATE</b>							<b>(FY 01 DOLLARS)</b> <b>\$22,054,088</b>

ESTIMATE PERFORMED BY ESTIMATING SERVICES

### ESTIMATE SUMMARY SHEET

PROJECT: Soils Excavation Area 4B  
 ESTIMATE NO. C2-01-04-005  
 CLIENT: DOE  
 WBS NO.: 1.1.G.H

DATE: 14-May-01  
 ESTIMATOR: JEA  
 LOCATION: Fernald  
 TASK NO.: G4B14

### FACTORS

FIXED PRICE :	LABOR \$	S/C \$	MAT'L \$	EQUIP. \$	PPE \$	TOTAL \$
DFC DOLLARS	\$7,380,314	\$107,022	\$427,140	\$4,080,890	\$49,000	\$12,044,366
IFC COST FACTOR	1.7696	--	1.4319	1.0000	--	
BOND + OVERHEAD & PROFIT COST FACTOR	1.2122	1.2122	1.2122	1.2122	1.2122	
SALES TAX	-	-	1.0600	1.0600	1.0600	
<b>DIRECT FIELD COST FACTOR =</b>	<b>2.1451</b>	<b>1.2122</b>	<b>1.8400</b>	<b>1.2850</b>	<b>1.2850</b>	
<b>BASE ESTIMATE \$'s</b>	<b>\$15,831,649</b>	<b>\$129,735</b>	<b>\$785,935</b>	<b>\$5,243,796</b>	<b>\$62,963</b>	<b>\$22,054,078</b>
<b>BASE FACTOR</b>	<b>1.0000</b>	<b>1.0000</b>	<b>1.0000</b>	<b>1.0000</b>	<b>1.0000</b>	
<b>TARGET ESTIMATE FACTOR</b>	<b>2.1451</b>	<b>1.2122</b>	<b>1.8400</b>	<b>1.2850</b>	<b>1.2850</b>	
<b>FPS TARGET ESTIMATE (FY00 \$)</b>	<b>\$15,831,649</b>	<b>\$129,735</b>	<b>\$785,935</b>	<b>\$5,243,796</b>	<b>\$62,963</b>	<b>\$22,054,078</b>

**NOTE:**

If there are no DFC Equip. \$, enter The IFC Equip. \$'s into the direct field cost TOTAL and delete IFC Factor in G65.

## ESTIMATE SUMMARY SHEET

PROJECT: Soils Excavation Area 4B  
 ESTIMATE NO. C2-01-04-005  
 CLIENT: DOE  
 WBS NO.: 1.1.G.H

### Direct Field Cost w / FACTORS

DATE: 14-May-01  
 ESTIMATOR: JEA  
 LOCATION: Fernald  
 TASK NO.: G4B14

PAY ITEM NO.	DESCRIPTION	LABOR \$	S/C \$	MAT'L. \$	EQUIP. \$	PPE \$	TOTAL \$	
						49000		
		(ASSIGN OR PRORATE PPE MAT'L.S's)-->						
	SITE PREPARATION	171130 \$367,090	42022 \$50,940	135410 \$249,150	58170 \$74,750		\$741,930	
	EXCAVATION	6114057 \$13,115,380		98000 \$180,320	3395010 \$4,362,470	49000 \$62,960	\$17,721,130	
	STORM WATER MANAGEMENT	789998 \$1,694,640	15000 \$18,180	93770 \$172,540	361640 \$464,690		\$2,350,050	
	INTERIM RESTORATION	305129 \$654,540	50000 \$60,610	99960 \$183,930	266070 \$341,890		\$1,240,970	
<b>TOTAL DIRECT FIELD COSTS w/FACTORS</b>		<b>(FY01 DOLLARS)</b>						<b>\$22,054,080</b>







DETAIL ESTIMATE WORKSHEETS

**Fluor Fernald, Inc.**

DATE: 14-May-01  
 ESTIMATOR: JEA  
 LOCATION: Fernald  
 TASK NO.: G4B14

PROJECT: Solls Excavation Area 4B  
 ESTIMATE NO.: C2-01-04-005  
 CLIENT: DOE  
 WBS NO.: 1.1.G.H

ITEM NO.	SITE PREPARATION	QTY	UNIT	MAN-HOURS		Rate	COST/UNIT		LABOR	S/C	MAT'L	EQUIP	TOTAL
				Unit	Total		Mat'l	Equip					
D	TEMP. DITCH W/ SILT FENCE W/ WOOD STAKES	5000	LF	0.100	582	21.49	0.95		\$12,520		\$4,750		\$17,270
D	SEED & MULCH DISTURBED AREA, 5700' X 25'	4	ACRE	20.000	93	21.49	3500.00	500.00	\$2,000		\$14,000	\$2,000	\$18,000
D	DEWATERING ( INCL. PUMPS, 2" & 3" HOSES AND 10 INLETS )	1	LOT	750.000	874	21.49	#####		\$18,770		\$47,330		\$66,100
D	CONNECTIONS TO EXISTING STORM DRAIN	1	LOT	40.000	47	21.49	1000.00		\$1,000		\$1,000		\$2,000
D	TEMPORARY DITCH LINER, TYPE 'B'	375	LF	0.080	35	21.49	2.00		\$750		\$750		\$1,500
D	EROSION CONTROL BLANKET	1055	SY	0.070	86	21.49	5.00		\$1,850		\$5,280		\$7,130
D	DUMPED ROCK FILL DITCH, 400 LF, 100 LB. AVE.	333	TON	0.040	16	21.49	15.00	1.05	\$330		\$5,000	\$350	\$5,680
ITEMS IN THIS AREA REMOVED FROM TEMPLATE USED FOR THIS ESTIMATE AND NOT IN THIS AREA													

**DETAIL ESTIMATE WORKSHEETS**  
**Fluor Fernald, Inc.**

PROJECT: Soils Excavation Area 4B  
ESTIMATE NO.: C2-01-04-005  
CLIENT: DOE  
WBS NO.: 1.1.G.H

DATE: 14-May-01  
ESTIMATOR: JEA  
LOCATION: Fernald  
TASK NO.: G4B14

ITEM NO.	SITE PREPARATION	QTY	UNIT	MAN-HOURS		Rate	COST/UNIT			LABOR	S/C	MAT'L	EQUIP	TOTAL			
				Unit	Total		Labor	S/C	Mat'l						Equip		
D	INSTALL 15' DIA. PIPE PLUG	2	EA	24.000	56	21.49	30.00		50.00	\$1,200	\$60	\$100	\$1,360				
D	INSTALL 12' DIA. PIPE PLUG	2	EA	24.000	56	21.49	22.00		50.00	\$1,200	\$40	\$100	\$1,340				
D	INSTALL 10' DIA. PIPE PLUG	5	EA	32.000	186	21.49				\$4,010			\$4,010				
D	EXCAVATE DRAINAGE CHANNEL & BUILD EARTHEN DIKES FOR STORMWATER CONTROL	1	LOT	460.000	536	23.60			6680.00	\$12,650		\$6,680	\$19,330				
D	ALLOWANCE FOR GMA PROTECTION PUMPING	1	LOT										\$10,000				
D	AREA ISOLATION TRENCHING	2400	LF	0.200	559	23.60	10,000		13.30	\$13,190		\$31,920	\$45,110				
D	MOB. & DEMOB. OF TRENCHING MACHINE	1	LOT				8,000						\$8,000				
mD	DECON OF TRENCH MACHINE	1	LOT	96.000	138	23.60				\$3,250			\$3,250				
mD	TRENCHER CHAIN WILL BE TURNOVER TO CM UPON COMPLETION DUE TO CONTAMINATION (QUOTES FROM TRENCOR FOR MDL. 1460)		EA				80,000										
	ITEMS IN THIS AREA REMOVED FROM TEMPLATE USED FOR THIS ESTIMATE AND NOT IN THIS AREA																
Subtotal Direct Cost: Site Preparation													171,130	42,022	135,410	58,170	\$406,732

DETAIL ESTIMATE WORKSHEETS

**Fluor Fernald, Inc.**

PROJECT: Soils Excavation Area 4B  
 ESTIMATE NO.: C2-01-04-005  
 CLIENT: DOE  
 WBS NO.: 1.1.G.H

DATE: 14-May-01  
 ESTIMATOR: JEA  
 LOCATION: Fernald  
 TASK NO.: G4B14

ITEM NO.	EXCAVATION	QTY	UNIT	MAN-HOURS		Rate	COST/UNIT			LABOR	S/C	MATL	EQUIP	TOTAL
				Unit	Total		Labor	S/C	Matl					
mC	DEMOLISH & SIZE REDUCE CONCRETE FDN. AND SLABS ABOVE BASEMENTS	5100	BCY	0.500	4,741	21.48				\$101,840		\$22,030	\$123,870	
mC	LOAD & HAUL DEBRIS ( ROUND TRIP 5000 FT.)	6,783	LCY	0.060	757	21.49				\$16,260		\$13,090	\$29,350	
mC	DEMOLISH & SIZE REDUCE CONCRETE SLAB ON GRADE	11900	BCY	0.500	11,062	21.48				\$237,620		\$51,410	\$289,030	
mC	LOAD & HAUL DEBRIS ( ROUND TRIP 5000 FT.)	15,827	LCY	0.060	1,766	21.49				\$37,940		\$30,550	\$68,490	
ITEMS IN THIS AREA REMOVED FROM TEMPLATE USED FOR THIS ESTIMATE AND NOT IN THIS AREA														
mC	EXCAVATE ABOVE WAC SOIL	11000	BCY	0.300	6,135	23.60				\$144,790		\$72,050	\$216,840	
mC	LOAD & HAUL TO SP - 7	14630	LCY	0.050	1,360	23.60				\$32,100		\$28,240	\$60,340	
mC	EXCAVATE SPECIAL MATERIALS	25	BCY	2.700	125	23.60				\$2,960		\$400	\$3,360	
mC	LOAD SPECIAL MATERIALS & PLACE AT SMTA	33	LCY	0.200	12	21.48				\$270		\$150	\$420	
mD	EXCAVATE ABOVE FRL / BELOW OSDF - SOIL (ASSUME 30% HAULED TO DEWATERING AREA)	225,000	BCY	0.125	40,320	23.60				\$951,550		\$598,500	\$1,550,050	
mD	EXCAVATE ABOVE FRL / BELOW OSDF - SOIL (ASSUME 70% DRY SOIL HAULED TO OSDF AREA)	525,000	BCY	0.125	94,080	23.60				\$2,220,290		\$1,396,500	\$3,616,790	



DETAIL ESTIMATE WORKSHEETS

**Fluor Fernald, Inc.**

PROJECT: Soils Excavation Area 4B  
 ESTIMATE NO.: C2-01-04-005  
 CLIENT: DOE  
 WBS NO.: 1.1.G.H

DATE: 14-May-01  
 ESTIMATOR: JEA  
 LOCATION: Fernald  
 TASK NO.: G4B14

ITEM NO.	STORM WATER MANAGEMENT	QTY	UNIT	MAN-HOURS		Rate	COST/UNIT			LABOR	S/C	MAT'L	EQUIP	TOTAL			
				Unit	Total		Labor	S/C	Mat'l								
0	BUFFER AREA MAINTENANCE (DEWATERING BY 2 HIP ELEC. TRASH PUMPS)	2	EA	100.000	233	26.4		1500.00		\$6,150	\$3,000		\$9,150				
0	3" DIA. DISCHARGE PIPES & FITTINGS	950	LF	0.100	111	26.40		3.38	\$2,920		\$3,210		\$6,130				
0	2" DIA. FLEXIBLE SUCTION HOSE	500	LF	0.010	6	26.40		2.59	\$150		\$1,300		\$1,450				
0	35' WOOD POWER POLES	54	EA	8.330	524	22.66		350.00	\$11,870		\$18,900	\$3,190	\$33,960				
0	#6 CU OVERHEAD LINE	9,600	LF	0.010	112	22.66		0.52	\$2,530		\$4,990		\$7,520				
0	STEP DOWN XFMR, 30 KVA, 3 PHASE, 60 HZ (POLE MOUNTED)	2	EA	14.000	33	22.66		2500.00	\$740		\$5,000		\$5,740				
0	COMB. STARTER W/ DISCONNECT SWITCH	8	EA	4.000	37	22.66		915.00	\$840		\$7,320		\$8,160				
0	SILT FENCE W/ WOOD STAKES	850	LF	0.010	10	21.49		0.30	\$210		\$260		\$470				
0	FENCING 4" HIGH, WIRE MESH, INCLUDES 10% FOR OVERLAP, WASTE, ETC.	12,000	LF	0.030	419	21.49		1.62	\$9,010		\$19,440		\$28,450				
0	MAINTAIN EROSION CONTROLS (16 HRS/AWK FOR 18 MONTHS)	1	LOT	1248.000	1454	21.49		15000.00	\$31,240			\$15,000	\$46,240				
0	MAINTAIN PUMP ACCESS ROADS (ASSUME 1 WK. PER MONTH FOR 18 MONTHS)	1	LOT	720.000	839	21.49		80000.00	\$18,020			\$80,000	\$98,020				
0	ALLOWANCE FOR RAD. CONTROL FACILITIES	3	EA					5,000					\$15,000				
0	PROVIDE DUST CONTROLS ON HAUL ROADS & EXCAVATION AREAS FOR 48 MONTHS	1	LOT	24980.000	29108	21.49		235407.00	\$625,540			\$235,410	\$860,950				
0	CONSTRUCT BUFFER AREA ROS. (AFTER COMPLETION OF EXCAVATION, 3000 X 12 FT.)	6,000	SY	0.020	140	21.49		1.50	\$3,000			\$9,000	\$12,000				
0	GRADE & COMPACT SURGRADE	1,700	CY	0.140	277	21.49		17.85	\$5,960		\$30,350	\$19,040	\$55,350				
0	PREMIUM TIME (1.5 TIMES PER HR. OVER 40 HRS.)	1	LOT						\$71,818				\$71,818				
Subtotal Direct Cost : Storm Water Management													\$709,998	\$15,000	\$93,770	\$361,640	\$1,260,408

DETAIL ESTIMATE WORKSHEETS

**Fluor Fernald, Inc.**

PROJECT: Soils Excavation Area 4B  
 ESTIMATE NO.: C2-01-04-005  
 CLIENT: DOE  
 WBS NO.: 1.1.G.H

DATE: 14-May-01  
 ESTIMATOR: JEA  
 LOCATION: Fernald  
 TASK NO.: G4B14

ITEM NO.	INTERIM RESTORATION	QTY	UNIT	MAN-HOURS		Rate	COST/UNIT			LABOR	S/C	MATL	EQUIP	TOTAL
				Unit	Total		Unit	S/C	Matl					
D	INTERIM REMEDIATION GRADING (USE CUT & FILL OPERATIONS TO CONSTRUCT 5 TO 1 SLOPES - ALL SOILS WILL BE EXISTING IN AREA 4B)	75,000	CY	0.125	10,920	21.49			3.09	\$234,670		\$231,750	\$466,420	
D	SEEDING UPON COMPLETION OF 5 TO 1 SLOPE	28	ACRE	20.000	652	21.49		3500.00	500.00	\$14,020	\$98,000	\$14,000	\$126,020	
D	GROUND WATER CONTROL DURING INTERIM GRADING (ASSUME 4 DAYS PER MONTH FOR 3 MONTH PERIOD.)	1	LOT	120.000	140	21.49		1200.00		\$3,000	\$1,200		\$4,200	
D	TEMP. DITCH W/ SILT FENCE W/ WOOD STAKES	800	LF	0.100	93	21.49		0.95		\$2,000	\$760		\$2,760	
D	MAINTAIN EROSION CONTROL DURING INTERIM RESTORATION FOR 3 MONTHS	1	LOT	240.000	280	21.49			3500.00	\$6,010		\$3,500	\$9,510	
D	PROVIDE DUST CONTROL ON PUMP ACCESS ROADS FOR 3 MONTHS	1	LOT	595.000	693	21.49			16815.00	\$14,890		\$16,820	\$31,710	
D	OFF-DAY- DUST CONTROL (ALLOWANCE)	1	LOT				50,000					\$50,000	\$50,000	
<b>DEMobilIZATION</b>														
D	Complete Punch List Items.	1	LS	20.000	23	22.69				\$530			\$530	
D	Remove Trailer and Change Facilities.	1	LS	20.000	23	22.69				\$530			\$530	
D	Remove all Utilities.	1	LS	20.000	23	22.69				\$420			\$420	
mC	Decontaminate Equipment.	1	LS	10.000	19	22.69				\$530			\$530	
D	Loadout contractors equipment.	1	LS	20.000	23	22.69				\$260			\$260	
D	Other area requirements.	1	LS	10.000	12	22.69								
	PREMIUM TIME ( 1.5 TIMES PER HR. OVER 40 HRS.)	1	LOT							\$27,739			\$27,739	
<b>Subtotal Direct Cost: Interim Restoration</b>											\$305,129	\$50,000	\$99,960	\$721,159

DETAIL ESTIMATE WORKSHEETS

PROJECT: Solis Excavation Area 4B  
 ESTIMATE NO.: C2-01-04-005  
 CLIENT: DOE  
 WBS NO.: 1.1.G.H

DATE: 14-May-01  
 ESTIMATOR: JEA  
 LOCATION: Fernald  
 TASK NO.: G4B14

**Fluor Fernald, Inc.**

ITEM NO.	QTY	UNIT	MAN-HOURS		Rate	COST/UNIT			LABOR	S/C	MAT'L	EQUIP	TOTAL
			Unit	Total		Labor	S/C	Mat'l					
Project Staffing ( 5 - 10hrs. Shift for 18 months ) For Premium Time \$ = total dollars(50hrs) multiplied by 0.2 and multiplied by 0.5													
1.	1950	hr	1.000	1950	\$54.42				106,119				\$106,119
2.	3900	hr	1.000	3900	37.85				147,615				\$147,615
3.	1950	hr	1.000	1950	33.19				64,721				\$64,721
4.	2925	hr	1.000	2925	30.34				88,745				\$88,745
5.	975	hr	1.000	975	28.33				27,622				\$27,622
6.	1950	hr	1.000	1950	28.05				54,698				\$54,698
7.	3900	hr	1.000	3900	19.31				75,309				\$75,309
8.	3900	hr	1.000	3900	25.58				99,762				\$99,762
9.	1950	hr	1.000	1950	14.58				28,431				\$28,431
Premium time 50% for 10 hrs per wk.									\$69,302				\$69,302
<b>TOTAL</b>						<b>23,400</b>	<b>\$32.58</b>						<b>\$762,322</b>



APPENDIX "A"

PROJECT: Soils Excavation Area 4B		DATE: 14-May-01										
ESTIMATE NO:2-01-04-005		ESTIMATOR: JEA										
CLIENT: DOE		LOCATION: Fernald										
WBS NO.: 1.1.G.H		TASK NO.: G4B14										
EFFICIENCY / MULTIPLIER ANALYSIS												
PERCENT OF INFLUENCE ON CHART MANHOURS												
	40%	50%	60%	70%	80%	90%	100%	105%	110%	% OF INFLUENCE	WT'D VALUE	PROD. RESULT
CRAFT SKILL (NOTE 1)	POOR	POOR		FAIR			STD	V.GOOD	XCELLEN	100.0%	12.0%	0.12
CRAFT AVAIL.(NOTE 1)		POOR		FAIR			STD			100.0%	8.0%	0.08
CLIMATE (NOTE 2)	SEVERE	ICE/SNOW			RAIN		+40 TO +85			90.0%	20.0%	0.18
PLANT ELEVATION		OVER 10,000FT			5,000' TO 10,000 FT		UNDER 5,000 FT			100.0%	5.0%	0.05
WORK SPACE				200 SF	250 SF	300 SF	350 SF			100.0%	10.0%	0.1
WORK WEEK		<---- MULTIPLE SHIFTS-					4-10s / 5-8s			100.0%	15.0%	0.15
60 HOUR WORK WEEK		////////////////////	////////////////////	OVER 7 WEEKS	3 TO 7 WEEKS	UP TO 3 WEEKS				0.0%	0.0%	0
60 HOUR WORK WEEK		////////////////////	////////////////////	OVER 7 WEEKS	3 TO 7 WEEKS	UP TO 3 WEEKS				0.0%	0.0%	0
SHIFTWORK												
2ND SHIFT					2ND SHIFT		OR			100.0%	3.0%	0.03
3RD SHIFT				3RD SHIFT			ONE SHIFT ONLY			100.0%	5.0%	0.05
PROJECT SIZE					400M MH AND UP	300M TO 400M MH	200M TO 300M MH	200M MH OR LESS		100.0%	4.0%	0.04
PLANT TYPE					REVAMP & NEW	NEW IN EXIST PLT	GRASS ROOTS			70.0%	8.0%	0.056
AREA/UNION INFLUENCE	STRONG		MILD		SOME		NONE			40.0%	10.0%	0.04
NOTES.....												
1. TURNOVER HAS BEEN CONSIDERED												
2. FOR EXTERIOR WORK ONLY												
	EFFICIENCY (AS A % OFF CHART MANHOURS)										100.0%	89.6%
	MULTIPLIER - ( TO BE APPLIED TO CHART M.H.'S TO OBTAIN SITE M.H.'S )											1.12



EFFICIENCY FACTORS

PROJECT: Soils Excavation Area 4B  
 ESTIMATE NO.: C2-01-04-005  
 CLIENT: DOE  
 WBS NO.: 1.1.G.H

DATE: 14-May-01  
 ESTIMATOR: JEA  
 LOCATION: Fernald  
 TASK NO.: G4B14

**Fluor Fernald, Inc.**

EXAMPLE:

STANDARD CHART MANHOURS =	NET	100
EFFICIENCY FACTORS:		
• SITE SPECIFIC ( SEE APPENDIX A )	12%	12.0
S/T = BASE UNIT MANHOURS		112
OVERTIME PRODUCTIVITY FACTOR (SEE DETAIL WORKSHEET BACK-UP)	0.00%	0
		112
• TASK SPECIFIC ( confined space, high elevation, congestion, etc.)	0.0%	0
		112
• PPE SPECIFIC (Based on current data and estimating knowledge)		

	PPE LEVEL									
	D		Mod.'D'		Mod. "C"		C		C+	
PRODUCTIVITY HOURS ( AS A % ) / ADD MH's	MH's	MULTIPLIER	MH's	MULTIPLIER	MH's	MULTIPLIER	MH's	MULTIPLIER	MH's	MULTIPLIER
( AS A MULTIPLIER )/TOTAL HRS	4.00%	4	28.00%	31	66.00%	74	74.00%	83	96.00%	108
TOTAL MULTIPLIER w/SITE PROD.	1.04	116.5	1.28	143.4	1.66	185.9	1.74	194.9	1.96	219.5
	1.1648		1.4336		1.8592		1.9488		2.1952	

NOTE : Use the Default Productivity Factor of 'mC' for working  
 in a contaminated area if the Safety Level cannot be determined.

(SEE FD FERNALD ESTIMATING SERVICES REFERENCE MANUAL IM-6006 8.10)

Total hours worked in a specific PPE level divided by 10 hour working  
 days = (PPE) ManDays to determine material cost of PPE's.  
 (SEE APPENDIX C - HEALTH PHYSICS)

12.0	Man Days	14.0	Man Days	19.0	Man Days	19.0	Man Days	22.0	Man Days
------	----------	------	----------	------	----------	------	----------	------	----------

THESE EFFICIENCY FACTORS WERE APPLIED INDIVIDUALLY  
 THROUGHOUT THE ESTIMATE AT A TASK SPECIFIC LEVEL,  
 TO OBTAIN A MORE ACCURATE ACCOUNT OF OVERALL  
 EFFICIENCY IMPACT DUE TO PPE REQUIREMENTS IN  
 HANDLING CONTAMINATED AND HAZARDOUS WASTE.

## EFFICIENCY FACTORS

PROJECT: Soils Excavation Area 4B  
 ESTIMATE NO.: C2-01-04-005  
 CLIENT: DOE  
 WBS NO.: 1.1.G.H

DATE: 14-May-01  
 ESTIMATOR: JEA  
 LOCATION: Fernald  
 TASK NO.: G4B14

## Fluor Fernald, Inc.

## PPE MULTIPLIER DEVELOPEMENT

	D	mD	mC	C	C+
CREW SIZE & MAKE-UP					
STANDARD	7	7	7	7	7
WORKER-BUDDY	0	0	0	0	0
SUPPORT TEAM	0	0	0	0	0
TOTAL CREW	7	7	7	7	7
CREW SIZE RATIO	1.00	1.00	1.00	1.00	1.00
AVAILABLE WORK TIME FACTOR	0.96	0.78	0.7	0.7	0.68
PPE LABOR PRODUCTIVITY FACTOR	1	1	0.86	0.82	0.75
NET PRODUCTIVITY RATIO	0.96	0.78	0.602	0.574	0.51
NET PRODUCTIVITY MULTIPLIER	1.04	1.28	1.66	1.74	1.96

These factors were based on Tables 6.1 and 6.2, Moderate Work Efforts, 66F to 85F temperature of 'Hazardous Waste Cost Control' by R.A.Selg. Modifications were made to reflect a 10 hour work day and no buddy system or support team for levels D, mC and C. The worker-buddy and support team members, if required, may be covered under Construction Mgmt. (Rad Techs).

AVAILABLE WORK TIME FACTOR		D	mD	mC	C	C+
TOTAL WORK MINUTES per D	4 - 10's	600	600	600	600	600
ADDITIONAL SITE SAFETY MEETINGS NOT INCLD. IN BAS	QUANTITY	1	1	1	1	1
	MINUTES	25	25	25	25	25
TOTAL		25	25	25	25	25
PPE DON & DOFFING (ADJUST LEVEL D per WORK PLAN)	QUANTITY	0	0	3	3	3
	MINUTES	0	0	15	15	20
TOTAL			0	45	45	60
WORK BREAKS (ADJUST LEVEL D per WORK PLAN)	QUANTITY	N/A	2	2	2	2
	MINUTES	N/A	15	15	15	15
TOTAL			30	30	30	30
MOBILIZATION - ROUND TRIPS (ADJUST LEVEL D per WORK PLAN)	QUANTITY	N/A	4	4	4	4
	MINUTES	N/A	15	15	15	15
TOTAL			60	60	60	60
COOLDOWNS PER DAY ** ( 4 OUT OF 12 MONTHS)	QUANTITY	N/A	4	4	4	4
	MINUTES	N/A	15	15	15	15
TOTAL			20	20	20	20
AIR TANK REPLACEMENT	QUANTITY	N/A	N/A	N/A	N/A	N/A
	MINUTES	N/A	N/A	N/A	N/A	N/A
TOTAL						
AVAILABLE WORK TIME		575	465	420	420	405
AVAILABLE WORK TIME FACTOR		0.96	0.78	0.7	0.7	0.68

NOTE: Adjust 'Work Minutes per Day' basis to: 5 - 8's, or leave as 4 - 10's. Any other circumstances, over-ride the minutes per day.

\*\* Assumption based on work performed in May, June, July & August, pro-rating cost over one year. Adjust % to individual circumstances.

# HEALTH PHYSICS

PROJECT: Soils Excavation Area 4B  
 ESTIMATE NO.: C2-01-04-005  
 CLIENT: DOE  
 WBS NO.: 1.1.G.H

DATE: 14-May-01  
 ESTIMATOR: JEA  
 LOCATION: Fernald  
 TASK NO.: G4B14

## Fluor Fernald, Inc.

PPE's - PERSONAL PROTECTIVE EQUIPMENT

DESCRIPTION	UNIT	UNIT COST	* NO. OF CHANGE OUTS PER WORKER PER DAY			
			Man Days (TOTAL HOURS worked in PPE's Div. by WORK HOURS / DAY)			
PPE LEVEL C / C+ / B : F/HF MASK w/RESP.&CART.			*	MAN DAYS	MAT'L.\$'s	PPE LEVEL
TYVEK COVER-ALL w/HOOD & BOOTIES - DISPOSABLE	EA	\$4.46	3	0	\$0	C / C+
TYVEK COVER-ALL w/HOOD & BOOTIES - DISPOSABLE	EA	\$4.46	3	0	\$0	C / C+
GLOVE LINER - DISPOSABLE	PR	\$0.24	3	0	\$0	C / C+
GLOVE, LASTEX - DISPOSABLE	PR	\$0.26	3	0	\$0	C / C+
GLOVE, WORK - DISPOSABLE	PR	\$1.02	3	0	\$0	C / C+
APR CARTRIDGES - DISPOSABLE	PR	\$6.98	3	0	\$0	C / C+
<b>SUB-TOTAL</b>		<b>\$17.42</b>	<b>3</b>		<b>\$0</b>	

(DOUBLE PPE)

\$/MD = \$0.00

PPE LEVEL mC : FULL DRESS w/ FACE SHIELD				MAN DAYS	MAT'L.\$'s	PPE LEVEL
LT.WT. DISPOSABLE COVERALLS W/HOOD & BOOTIES	PR	\$4.46	3	2730	\$36,522	mC
GLOVE LINER - DISPOSABLE	PR	\$0.24	3	2730	\$1,965	mC
GLOVE, LASTEX - DISPOSABLE	PR	\$0.26	3	2730	\$2,129	mC
GLOVE, WORK - DISPOSABLE	PR	\$1.02	3	2730	\$8,353	mC
<b>SUB-TOTAL</b>		<b>\$5.98</b>	<b>3</b>		<b>\$48,969</b>	

\$/MD = \$17.94

SUBCONTRACTOR REQUIRED PURCHASES		QTY. PER WKR.	NO. OF WORKERS	MAT'L.\$'s	PPE LEVEL	
RUBBER BOOT COVERS-(1)PR.PER WORKER	PR	\$12.70	6	0	\$0	D/C/B
APR w/HALF FACE MASK - (1) PER WORKER	EA	\$22.30	6	0	\$0	C
APR w/FULL FACE MASK - (1) PER WORKER	EA	\$174.00	6	0	\$0	C
SCBA	EA	\$1,894.00	2	0	\$0	B
COOL VESTS	EA	\$137.50	6	0	\$0	C/B
THERMO STRIPS	EA	\$50.00	6	0	\$0	C/B
<b>SUB-TOTAL</b>					<b>\$0</b>	

TOTAL PPE's = MAT'L.\$'s  
\$49,000

(FORWARD TO PAGE 2 OF 2)

OTHER PPE's SUCH AS HARD HAT, SAFETY GLASSES/GOGGLES, STEEL TOED SAFETY SHOES, HEARING PROTECTION, ARE CONSIDERED THE SUBCONTRACTORS RESPONSIBILITY AND ARE COVERED IN HIS OVERHEAD EXPENSE. COSTS OF FD FERNALD SUPPLIED PPE's, SUCH AS COTTON COVERALLS, EXCHANGE OF RUBBER BOOT COVERS AND RESPIRATORS FOR CHANGEOUTS AND CLEANING OF SAME IS INCURRED BY FD FERNALD AND COSTS ARE NOT INCLUDED AS PART OF PROJECT COSTS AT THIS TIME.

# HEALTH PHYSICS

PROJECT: Soils Excavation Area 4B  
 ESTIMATE NO.: C2-01-04-005  
 CLIENT: DOE  
 WBS NO.: 1.1.G.H

DATE: 14-May-01  
 ESTIMATOR: JEA  
 LOCATION: Fernald  
 TASK NO.: G4B14

-MEDICAL MONITORING -

**MEDICAL - PHYSICAL and IN-VIVO MONITORING - LOST WORKER TIME for RAD II WORKERS ONLY**

DESCRIPTION	QTY	HRS	WKR	TOTAL HOURS	AVG. LABOR RATE	TOTAL LABOR \$
PHYSICAL (3hrs), IN-VIVO (1hr)						
BASELINE PHYSICALS	1	4	18	72	\$27.42	\$1,970
ANNUAL PHYSICALS	4	4	18	288	\$27.42	\$7,900
EXIT (TERMINATION) PHYSICALS (IN-VIVO)	1	1	18	18	\$27.42	\$490
<b>SUB-TOTAL</b>						<b>\$10,360</b>

**RADIATION IN-VITRO SURVEILLANCE - LOST WORKER TIME for RAD II WORKERS ONLY**

DESCRIPTION	QTY	HRS	WKR	TOTAL HOURS	AVG. LABOR RATE	TOTAL LABOR \$
BI-MONTHLY BIOASSAY	26	1	18	469	\$27.42	\$12,850
<b>SUB-TOTAL</b>						<b>\$12,850</b>

**RANDOM DRUG TESTING**

	TESTS	HRS	TOTAL HOURS	AVG. RATE	LABOR \$'s	
	172	2	344	\$27.42	\$9,400	
NO. OF WKRS. TESTED	TESTING DAYS PER YR.	AVG. NO. OF TESTS PER DAY	CHANCE/ DAY FOR TEST	NO. OF WKRS. FOR THIS ESTIMATE	CHANCES /DAY FOR TEST FOR PROJECT	CONSTR WORKING DAYS
2340	226	10	0.0042735	41	0.1752	982

LABOR \$'s THRU SAFETY	LABOR \$'s
------------------------------	------------

WORK DELAYS CAUSED BY MONITORING	0.0%		\$8,253,337	\$0
				LABOR \$'s
WORK DELAYS CAUSED BY RAD CHECKING	0.0%		\$8,253,337	\$0

TOTAL LABOR	TOTAL MAT'L.	GRAND TOTAL
\$32,600	\$49,000	\$81,600

**TOTAL HEALTH PHYSICS**

(FORWARD TO ESTIMATE SUMMARY SHEET)

APPENDIX "D"

# ACTIVITY DURATIONS

## Fluor Fernald, Inc.

PROJECT: Soils Excavation Area 4B  
 ESTIMATE NO. C2-01-04-005  
 CLIENT: DOE  
 WBS NO.: 1.1.G.H

DATE: 14-May-01  
 ESTIMATOR: JEA  
 LOCATION: Fernald  
 TASK NO.: G4B14

ACTIVITY	EST. DATE	START DATE	MID POINT	COMPL. DATE	ACTIVITY	DURATION
CONSTRUCTION:	11-May-01	01-Jul-05	31-Aug-07	31-Oct-09		52.1 MONTHS
						0 MONTHS
<b>TOTAL</b>						<b>52.1 MONTHS</b>

	DATE of EST. to MID-POINT	ACTIVITY DURATION
a.	75.8	MONTHS
b.	0	MONTHS

ACTIVITY	EST. DATE	START DATE	MID POINT	COMPL. DATE	ACTIVITY	DURATION
OPERATIONS						0 MONTHS

	DATE of EST. to MID-POINT	ACTIVITY DURATION
	0	MONTHS

ACTIVITY DURATION IS USED IN DETERMINING NUMBER of WORKERS for CERCLA/SAT TRAINING HOURS and HEALTH PHYSICS COSTS.



**G4B17**

**AREA 4B EXC CONTROL/CERTIFICATION**



# Fluor Fernald, Inc.

ESTIMATE SUPPORT WORKSHEET  
FOR ACTIVITY BASED ESTIMATING  
(1 FTE EQUALS 1747 HOURS)

DATE: 07-Sep-01  
PROJECT MGR: J. D. Chlou  
CAM: J. D. Chlou  
PREPARED BY: W. F. Fick  
FISCAL YEAR: 2005-2009

PBS: OHFN06  
WBS: 1.1.G.H  
CTRL ACCT: G4B1  
CHARGE NO: G4B17  
COMMENT NO F06-035, F06-045

Resource:	DRFCAD	DRAFTER/CAD OPERATOR		LABOR		EOC:					
Res Dept:	949	Class:		Class:		SAL					
Yr Hours:		Oct 00- Sep 01	Oct 01- Sep 02	Oct 02- Sep 03	Oct 03- Sep 04	Oct 04- Sep 05	Oct 05- Sep 06	Oct 06- Sep 07	Oct 07- Sep 08	Oct 08- Sep 09	Oct 09- Sep 10
Cum Hours:		0.0	0.0	0.0	0.0	0.0	0.0	0.0	84.0	84.0	84.0
Yr Total Cost:		0	0	0	0	0	0	0	4,000	0	0
Cum Total Cost:		0	0	0	0	0	0	0	4,000	4,000	4,000

Resource:	ENSMGR	ENVR SCIENTIST MGR		LABOR		EOC:					
Res Dept:	949	Class:		Class:		SAL					
Yr Hours:		Oct 00- Sep 01	Oct 01- Sep 02	Oct 02- Sep 03	Oct 03- Sep 04	Oct 04- Sep 05	Oct 05- Sep 06	Oct 06- Sep 07	Oct 07- Sep 08	Oct 08- Sep 09	Oct 09- Sep 10
Cum Hours:		0.0	0.0	0.0	0.0	0.0	0.0	0.0	163.6	61.4	0.0
Yr Total Cost:		0	0	0	0	0	0	0	13,176	225.0	225.0
Cum Total Cost:		0	0	0	0	0	0	0	13,176	5,491	18,667

Resource:	ENSREP	ENVR SCIENCE REP		LABOR		EOC:					
Res Dept:	949	Class:		Class:		SAL					
Yr Hours:		Oct 00- Sep 01	Oct 01- Sep 02	Oct 02- Sep 03	Oct 03- Sep 04	Oct 04- Sep 05	Oct 05- Sep 06	Oct 06- Sep 07	Oct 07- Sep 08	Oct 08- Sep 09	Oct 09- Sep 10
Cum Hours:		0.0	0.0	0.0	0.0	0.0	0.0	0.0	674.2	252.8	0.0
Yr Total Cost:		0	0	0	0	0	0	0	43,188	17,998	927.0
Cum Total Cost:		0	0	0	0	0	0	0	43,188	61,186	61,186

Resource:	ENSTEC	ENVR SCIENTIST TECH		LABOR		EOC:					
Res Dept:	949	Class:		Class:		SAL					
Yr Hours:		Oct 00- Sep 01	Oct 01- Sep 02	Oct 02- Sep 03	Oct 03- Sep 04	Oct 04- Sep 05	Oct 05- Sep 06	Oct 06- Sep 07	Oct 07- Sep 08	Oct 08- Sep 09	Oct 09- Sep 10
Cum Hours:		0.0	0.0	0.0	0.0	0.0	0.0	0.0	892.4	334.6	0.0
Yr Total Cost:		0	0	0	0	0	0	0	38,583	16,079	1,227.0
Cum Total Cost:		0	0	0	0	0	0	0	38,583	54,662	54,662

Resource:	HEOOPR	HEAVY EQUIP OPERATOR		LABOR		EOC:					
Res Dept:	949	Class:		Class:		HOU					
Yr Hours:		Oct 00- Sep 01	Oct 01- Sep 02	Oct 02- Sep 03	Oct 03- Sep 04	Oct 04- Sep 05	Oct 05- Sep 06	Oct 06- Sep 07	Oct 07- Sep 08	Oct 08- Sep 09	Oct 09- Sep 10
Cum Hours:		0.0	0.0	0.0	0.0	0.0	43.7	154.4	270.6	299.9	0.0
Yr Total Cost:		0	0	0	0	0	1,839	5,042	12,463	1,561	0
Cum Total Cost:		0	0	0	0	0	1,839	6,880	14,024	14,024	14,024

# Fluor Fernald, Inc.

ESTIMATE SUPPORT WORKSHEET  
FOR ACTIVITY BASED ESTIMATING  
(1 FTE EQUALS 1747 HOURS)

DATE: 07-Sep-01  
PROJECT MGR: J. D. Chiou  
CAM: J. D. Chiou  
PREPARED BY: W. F. Fick  
FISCAL YEAR: 2005-2009

PBS: OHFN08

WBS: 1.1.G.H

CTRL ACCT: G4B1

CHARGE NO: G4B17

COMMENT NO F06-035, F06-045

**Resource: INDMEC**  
**Res Dept: 949**

**INDUSTRIAL MECHANIC**  
**Overtime:**

**LABOR**  
**Class:**

**EOC:**  
**HOU**

	Oct 00-		Oct 01-		Oct 02-		Oct 03-		Oct 04-		Oct 05-		Oct 06-		Oct 07-		Oct 08-		Oct 09-			
	Yr	Sep																				
Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Cum Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Yr Total Cost:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cum Total Cost:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

**Resource: LABCHM**  
**Res Dept: 949**

**CHEMIST**  
**Overtime:**

**LABOR**  
**Class:**

**EOC:**  
**SAL**

	Oct 00-		Oct 01-		Oct 02-		Oct 03-		Oct 04-		Oct 05-		Oct 06-		Oct 07-		Oct 08-		Oct 09-			
	Yr	Sep																				
Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Cum Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Yr Total Cost:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cum Total Cost:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

**Resource: LABMGR**  
**Res Dept: 949**

**LAB MANAGER**  
**Overtime:**

**LABOR**  
**Class:**

**EOC:**  
**SAL**

	Oct 00-		Oct 01-		Oct 02-		Oct 03-		Oct 04-		Oct 05-		Oct 06-		Oct 07-		Oct 08-		Oct 09-			
	Yr	Sep																				
Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Cum Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Yr Total Cost:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cum Total Cost:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

**Resource: LABTEC**  
**Res Dept: 949**

**LAB TECH**  
**Overtime:**

**LABOR**  
**Class:**

**EOC:**  
**SAL**

	Oct 00-		Oct 01-		Oct 02-		Oct 03-		Oct 04-		Oct 05-		Oct 06-		Oct 07-		Oct 08-		Oct 09-			
	Yr	Sep																				
Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Cum Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Yr Total Cost:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cum Total Cost:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

**Resource: MYOOPR**  
**Res Dept: 949**

**MOTOR VEHICLE OPER**  
**Overtime:**

**LABOR**  
**Class:**

**EOC:**  
**HOU**

	Oct 00-		Oct 01-		Oct 02-		Oct 03-		Oct 04-		Oct 05-		Oct 06-		Oct 07-		Oct 08-		Oct 09-			
	Yr	Sep																				
Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Cum Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Yr Total Cost:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cum Total Cost:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

# Fluor Fernald, Inc.

ESTIMATE SUPPORT WORKSHEET  
FOR ACTIVITY BASED ESTIMATING  
(1 FTE EQUALS 1747 HOURS)

DATE: 07-Sep-01  
PROJECT MGR: J. D. Chiou  
CAM: J. D. Chiou  
PREPARED BY: W. F. Fick  
FISCAL YEAR: 2005-2009

PBS: OHFN06  
WBS: 1.1.G.H  
CTRL ACCT: G4B1  
CHARGE NO: G4B17  
COMMENT NO F06-035, F06-045

Resource: PJSMGR Res Dept: 949		PROJECT SUPPORT MGR		Class:		EOC:		LABOR					
Overtime:						SAL							
Yr Hours:	Cum Hours:	Yr Total Cost:	Cum Total Cost:	Oct 00- Sep 01	Oct 01- Sep 02	Oct 02- Sep 03	Oct 03- Sep 04	Oct 04- Sep 05	Oct 05- Sep 06	Oct 06- Sep 07	Oct 07- Sep 08	Oct 08- Sep 09	Oct 09- Sep 10
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	21.9	55.3	58.2	14.6	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	135.4	150.0	135.4	150.0	150.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1,338	3,665	4,059	1,134	0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1,338	5,003	9,062	10,196	10,196
Resource: QACENG Res Dept: 949		QA ENGINEER		Class:		EOC:		LABOR					
Overtime:						SAL							
Yr Hours:	Cum Hours:	Yr Total Cost:	Cum Total Cost:	Oct 00- Sep 01	Oct 01- Sep 02	Oct 02- Sep 03	Oct 03- Sep 04	Oct 04- Sep 05	Oct 05- Sep 06	Oct 06- Sep 07	Oct 07- Sep 08	Oct 08- Sep 09	Oct 09- Sep 10
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15.5	12.8	160.5	50.2	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	23.5	36.3	196.8	247.0	247.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	953	853	11,262	3,912	0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	460	1,413	2,266	13,527	17,440	17,440
Resource: RADTEC Res Dept: 949		RAD TECH		Class:		EOC:		LABOR					
Overtime:						SAL							
Yr Hours:	Cum Hours:	Yr Total Cost:	Cum Total Cost:	Oct 00- Sep 01	Oct 01- Sep 02	Oct 02- Sep 03	Oct 03- Sep 04	Oct 04- Sep 05	Oct 05- Sep 06	Oct 06- Sep 07	Oct 07- Sep 08	Oct 08- Sep 09	Oct 09- Sep 10
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	55.9	285.6	134.5	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25.9	321.4	455.9	455.9
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2,757	13,818	7,775	0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2,757	16,575	24,350	24,350
Resource: S&HENG Res Dept: 949		SAFETY ENGINEER		Class:		EOC:		LABOR					
Overtime:						SAL							
Yr Hours:	Cum Hours:	Yr Total Cost:	Cum Total Cost:	Oct 00- Sep 01	Oct 01- Sep 02	Oct 02- Sep 03	Oct 03- Sep 04	Oct 04- Sep 05	Oct 05- Sep 06	Oct 06- Sep 07	Oct 07- Sep 08	Oct 08- Sep 09	Oct 09- Sep 10
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.0	0.0	56.4	1.6	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18.0	18.0	74.4	76.0	76.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	560	597	0	4,278	138	0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	560	1,157	1,157	5,434	5,572	5,572
Resource: SERVSUB Res Dept: 949		SUBS LAB		Class:		EOC:		SUBCONTRACTORS					
Overtime:						SUB							
Yr Unils:	Cum Unils:	Yr Total Cost:	Cum Total Cost:	Oct 00- Sep 01	Oct 01- Sep 02	Oct 02- Sep 03	Oct 03- Sep 04	Oct 04- Sep 05	Oct 05- Sep 06	Oct 06- Sep 07	Oct 07- Sep 08	Oct 08- Sep 09	Oct 09- Sep 10
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	40,415.5	82,385.5	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	40,415.5	122,801.0	122,801.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	49,082	102,953	0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	49,082	152,035	152,035

# Fluor Fernald, Inc.

ESTIMATE SUPPORT WORKSHEET  
FOR ACTIVITY BASED ESTIMATING  
(1 FTE EQUALS 1747 HOURS)

DATE: 07-Sep-01  
PROJECT MGR: J. D. Chiou  
CAM: J. D. Chiou  
PREPARED BY: W. F. Fick  
FISCAL YEAR: 2005-2009

PBS: OHFN06  
WBS: 1.1.G.H  
CTRL ACCT: G4B1  
CHARGE NO: G4B17  
COMMENT NO F06-036, F06-046

Resource: Res Dept:	WISE Overtime:	WISE CONSTRUCTION		SUBCONTRACTORS		EOC:					
		Class:	Sub:	Class:	Sub:	EOC:	Sub:				
Yr Units:		Oct 00- Sep 01	Oct 01- Sep 02	Oct 02- Sep 03	Oct 03- Sep 04	Oct 04- Sep 05	Oct 05- Sep 06	Oct 06- Sep 07	Oct 07- Sep 08	Oct 08- Sep 09	Oct 09- Sep 10
Cum Units:		0.0	0.0	0.0	0.0	0.0	0.0	0.0	9,505.0	9,505.0	9,505.0
Yr Total Cost:		0	0	0	0	0	0	0	9,505.0	9,505.0	9,505.0
Cum Total Cost:		0	0	0	0	0	0	0	11,543	11,543	11,543
<b>GRAND TOTALS:</b>											
Yr Hours:		Oct 00- Sep 01	Oct 01- Sep 02	Oct 02- Sep 03	Oct 03- Sep 04	Oct 04- Sep 05	Oct 05- Sep 06	Oct 06- Sep 07	Oct 07- Sep 08	Oct 08- Sep 09	Oct 09- Sep 10
Cum Hours:		0.0	0.0	0.0	0.0	17.0	133.9	345.3	3,242.7	2,247.8	0.0
Yr Total Cost:		0	0	0	0	17.0	150.9	496.2	3,736.9	5,986.7	0
Cum Total Cost:		0	0	0	0	1,019	6,414	16,942	236,115	236,636	0
						1,019	7,433	24,375	262,490	499,126	499,126

CONTROL TEAM

*[Signature]*

**G4B18**

**AREA 4B OFF SITE WASTE DISPOSITION**



# Fluor Fernald, Inc.

ESTIMATE SUPPORT WORKSHEET  
FOR ACTIVITY BASED ESTIMATING  
(1 FTE EQUALS 1747 HOURS)

DATE: 07-Sep-01  
PROJECT MGR: J. D. Chiou  
CAM: J. D. Chiou  
PREPARED BY: W. F. Fick  
FISCAL YEAR: 2005-2009

BBS: OHFN06  
WBS: 1.1.G.H  
CTRL ACCT: G4B1  
CHARGE NO: G4B18  
COMMENT NO F06-035, F06-045

Resource:	BUYCON	BUYER/CONTRACTS ADMN	Class:	EOC:	LABOR	EOC:	LABOR
Res Dept:		Overtime:		SAL		SAL	
Yr Hours:	0	0	0	0	0	0	0
Cum Hours:	0	0	0	0	0	0	0
Yr Total Cost:	0	0	0	0	0	0	0
Cum Total Cost:	0	0	0	0	0	0	0

Resource:	CLERKS	LABOR	Class:	EOC:	LABOR	EOC:	LABOR
Res Dept:	949	Overtime:		SAL		SAL	
Yr Hours:	0	0	0	0	0	0	0
Cum Hours:	0	0	0	0	0	0	0
Yr Total Cost:	0	0	0	0	0	0	0
Cum Total Cost:	0	0	0	0	0	0	0

Resource:	HAZWAT	LABOR	Class:	EOC:	LABOR	EOC:	LABOR
Res Dept:	949	Overtime:		HOU		HOU	
Yr Hours:	0	0	0	0	0	0	0
Cum Hours:	0	0	0	0	0	0	0
Yr Total Cost:	0	0	0	0	0	0	0
Cum Total Cost:	0	0	0	0	0	0	0

Resource:	HEOOPR	LABOR	Class:	EOC:	LABOR	EOC:	LABOR
Res Dept:	949	Overtime:		HOU		HOU	
Yr Hours:	0	0	0	0	0	0	0
Cum Hours:	0	0	0	0	0	0	0
Yr Total Cost:	0	0	0	0	0	0	0
Cum Total Cost:	0	0	0	0	0	0	0

Resource:	MAT300	MATERIAL	Class:	EOC:	MATERIAL	EOC:	MATERIAL
Res Dept:	949	Overtime:		MAT		MAT	
Yr Units:	0	0	0	0	0	0	0
Cum Units:	0	0	0	0	0	0	0
Yr Total Cost:	0	0	0	0	0	0	0
Cum Total Cost:	0	0	0	0	0	0	0

# Fluor Fernald, Inc.

ESTIMATE SUPPORT WORKSHEET  
FOR ACTIVITY BASED ESTIMATING  
(1 FTE EQUALS 1747 HOURS)

DATE: 07-Sep-01  
PROJECT MGR: J. D. Chiou  
CAM: J. D. Chiou  
PREPARED BY: W. F. Fick  
FISCAL YEAR: 2005-2009

PBS: OHFN06  
WBS: 1.1.G.H  
CTRL ACCT: G4B1  
CHARGE NO: G4B18  
COMMENT NO F06-035, F06-045

Resource:	MPCREP	MATL PROP CTRL REP	Class:	LABOR											
				Res Dept:	949	OverTime:	Oct 00-	Oct 01-	Oct 02-	Oct 03-	Oct 04-	Oct 05-	Oct 06-	Oct 07-	Oct 08-
Yr Hours:				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14.8	14.9	1.4	0.0
Cum Hours:				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14.8	14.9	1.4	0.0
Yr Total Cost:				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	28.0	42.9	44.3	0.0
Cum Total Cost:				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	28.0	42.9	44.3	0.0

Resource:	MVOOPR	MOTOR VEHICLE OPER	Class:	LABOR											
				Res Dept:	949	OverTime:	Oct 00-	Oct 01-	Oct 02-	Oct 03-	Oct 04-	Oct 05-	Oct 06-	Oct 07-	Oct 08-
Yr Hours:				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	29.6	29.8	1.4	0.0
Cum Hours:				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	29.6	29.8	1.4	0.0
Yr Total Cost:				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	57.3	87.1	88.5	0.0
Cum Total Cost:				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	57.3	87.1	88.5	0.0

Resource:	OPRMGR	OPERATIONS MGR	Class:	LABOR											
				Res Dept:	949	OverTime:	Oct 00-	Oct 01-	Oct 02-	Oct 03-	Oct 04-	Oct 05-	Oct 06-	Oct 07-	Oct 08-
Yr Hours:				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	29.8	29.8	2.8	0.0
Cum Hours:				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	29.8	29.8	2.8	0.0
Yr Total Cost:				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	58.4	85.6	88.4	0.0
Cum Total Cost:				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	58.4	85.6	88.4	0.0

Resource:	PIPFTR	PIPE FITTER	Class:	LABOR											
				Res Dept:	949	OverTime:	Oct 00-	Oct 01-	Oct 02-	Oct 03-	Oct 04-	Oct 05-	Oct 06-	Oct 07-	Oct 08-
Yr Hours:				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15.0	15.1	0.7	0.0
Cum Hours:				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15.0	15.1	0.7	0.0
Yr Total Cost:				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	29.0	44.1	44.8	0.0
Cum Total Cost:				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	29.0	44.1	44.8	0.0

Resource:	PRJMGR	PROJECT MANAGER	Class:	LABOR											
				Res Dept:	949	OverTime:	Oct 00-	Oct 01-	Oct 02-	Oct 03-	Oct 04-	Oct 05-	Oct 06-	Oct 07-	Oct 08-
Yr Hours:				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14.8	14.9	1.4	0.0
Cum Hours:				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14.8	14.9	1.4	0.0
Yr Total Cost:				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	28.0	42.9	44.3	0.0
Cum Total Cost:				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	28.0	42.9	44.3	0.0



# Fluor Fernald, Inc.

ESTIMATE SUPPORT WORKSHEET  
FOR ACTIVITY BASED ESTIMATING  
(1 FTE EQUALS 1747 HOURS)

PBS: OHFN06  
WBS: 1.1.G.H  
CTRL ACCT: G4B1  
CHARGE NO: G4B18  
COMMENT NO F06-035, F06-045

DATE: 07-Sep-01  
PROJECT MGR: J. D. Chiou  
CAM: J. D. Chiou  
PREPARED BY: W. F. Fick  
FISCAL YEAR: 2005-2009

Resource: Res Dept:	SERVSUB 949	SUBS Overtime:	WAST	Class:	SUBCONTRACTORS												
					Oct 00- Sep 01	Oct 01- Sep 02	Oct 02- Sep 03	Oct 03- Sep 04	Oct 04- Sep 05	Oct 05- Sep 06	Oct 06- Sep 07	Oct 07- Sep 08	Oct 08- Sep 09	Oct 09- Sep 10			
Yr Units:					0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cum Hours:					0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yr Total Cost:					0	0	0	0	0	0	0	0	0	0	0	0	0
Cum Total Cost:					0	0	0	0	0	0	0	0	0	0	0	0	0

Resource: Res Dept:	TPSREP 949	TECH/PROG SUPT REP Overtime:	Class:	LABOR													
				Oct 00- Sep 01	Oct 01- Sep 02	Oct 02- Sep 03	Oct 03- Sep 04	Oct 04- Sep 05	Oct 05- Sep 06	Oct 06- Sep 07	Oct 07- Sep 08	Oct 08- Sep 09	Oct 09- Sep 10				
Yr Hours:				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cum Hours:				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yr Total Cost:				0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cum Total Cost:				0	0	0	0	0	0	0	0	0	0	0	0	0	0

Resource: Res Dept:	TRNLAB 949	TRANSPORT LABORER Overtime:	Class:	LABOR													
				Oct 00- Sep 01	Oct 01- Sep 02	Oct 02- Sep 03	Oct 03- Sep 04	Oct 04- Sep 05	Oct 05- Sep 06	Oct 06- Sep 07	Oct 07- Sep 08	Oct 08- Sep 09	Oct 09- Sep 10				
Yr Hours:				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cum Hours:				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yr Total Cost:				0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cum Total Cost:				0	0	0	0	0	0	0	0	0	0	0	0	0	0

GRAND TOTALS:																
Yr Hours:	Cum Hours:	Yr Total Cost:	Cum Total Cost:	Oct 00- Sep 01	Oct 01- Sep 02	Oct 02- Sep 03	Oct 03- Sep 04	Oct 04- Sep 05	Oct 05- Sep 06	Oct 06- Sep 07	Oct 07- Sep 08	Oct 08- Sep 09	Oct 09- Sep 10			
0.0	0.0	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
0.0	0.0	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
0	0	0	0	0	0	0	0	0	0	0	0	0	0			
0	0	0	0	0	0	0	0	0	0	0	0	0	0			

CAM \_\_\_\_\_

*[Signature]*  
CONTROL TEAM

## Estimate Summary

Area 4B – Waste Disposition

WBS Element – 1.1.G.H

Control Account – G4B1

Charge Number – G4B18

### Labor

Labor is broken down by resource code and by activity on the attached matrixed manpower spreadsheet. The backup for the manpower spreadsheet can be found on the Waste Disposition Campaign Estimate Worksheets that were provided by Waste Generator Services (WGS). WGS estimated resource man-hours, which were then rounded to the tenth of an FTE for Man Power Planning (MPP) purposes to be entered into the MPP database on a quarterly basis. This database was then exported to MicroFrame and expanded into monthly estimates. The monthly figures were then summed to provide a total-hours by resource for each activity.

### Materials

The materials for this account are estimated to be **\$22,274**. The backup information for this value can be found on the Waste Disposition Campaign Estimate Worksheets that were provided by Waste Generator Services (WGS). There are two worksheets that were provided and summed for the total materials costs. However, WGS included costs for PPE that have been subtracted from this estimate due to the fact the PPE is provided by a centralized group and does not get charged back to the project.

### Equipment

N/A

### Subcontracts

A subcontract will be setup to perform offsite waste shipments via gondola cars for above WAC soil from this area. It is estimated that 10,000 cubic yards of above WAC soil will be generated. The value of this subcontract is estimated to be **\$1,024,000**, which includes materials, labor, and equipment. The backup information comes from rough order of magnitude estimates provided by MHF Logistical Systems in the form of several emails. This information is attached. At the time of discussion it was assumed that there would be three individual phases (mobilizations) of a subcontractor to perform the entire scope of work that spans across several areas. Phase I refers to soil generated from Area 4B. Phase II refers to soil generated from Areas 6 and 7. Phase III refers to soils generated from Area 4A and treated prior to handling by the subcontractor. In the attached documentation, the estimate describes only 6,000 cubic yards of soil for Phase I (Area 4B). It also describes that any increase in volume can be estimated to cost an additional

\$7,000 per day. Daily production rates are described as well by estimating an average of 6.5 gondola cars loaded per day each holding up to 100 cubic yards. The capacity of a gondola car is described in a separate attachment labeled Closure Plan Brainstorm Inter-PBS Agreements Rev 0 (2/13/01) Item 2. Using the above information:

	6,000 cubic yards	= \$ 75,000 (material, labor, equipment)
<u>Additional</u>	<u>4,000 cubic yards</u>	<u>= \$ 49,000 (material, labor, equipment) *</u>
Total	10,000 cubic yards	= \$124,000 (material, labor, equipment)

- \* 4,000 cubic yards @ 100 cubic yards per car = 40 cars  
6.5 cars loaded per day = 7 days  
\$7,000 per day = \$49,000

Rail shipments cost estimates come from the attachment labeled Closure Plan Brainstorm Inter-PBS Agreements Rev 0 (2/13/01) Item 2. The cost per gondola car shipment is \$9,000. For 10,000 cubic yards of material, 100 gondola cars would be required. Therefore, the rail shipments are estimated to cost \$900,000.

**The total estimated cost for this subcontract is \$1,024,000.**



# WASTE DISPOSITION CAMPAIGN ESTIMATE WORKSHEET FOR LLW NON-COMPACTABLE TRASH DISPOSITION

Duration:  
Fiscal Year:

PBS: RHHH  
WBS: RHHH  
Control Account: 777

Project: Soil Excavation Prohibited Items  
Campaign: Area 4B Trash and Scrap

Quantity Basis (containers and volume): Approximately 670 cubic feet in 8 metal boxes

Charge Number: 777  
CAM: 777

Activity	PPE		Hazardous (HAZMAT)		MVO (AVOOPS)		HEO (PICOOPS)		Track Labor (TRUCKS)		Supervision (SUPERVISOR)		Red Tech (RADTECH)		NTS Comp (NTS COMP)		GA (GACEN)		WAO (WASTE EN)		Safety Eng (SAFETY EN)		Rad Eng (RAD ENG)		Waste Eng (WASTE EN)		M&A Clief (M&A CLIF)		TO Writer (TO WRITER)		Acquisitions (ACQUISITIONS)		Prof. Mar. Admin. Sp (PROF. MAR. ADMIN. SP)						
	Days	Count	Reg'd	Mhrs	Reg'd	Mhrs	Reg'd	Mhrs	Reg'd	Mhrs	Reg'd	Mhrs	Reg'd	Mhrs	Reg'd	Mhrs	Reg'd	Mhrs	Reg'd	Mhrs	Reg'd	Mhrs	Reg'd	Mhrs	Reg'd	Mhrs	Reg'd	Mhrs	Reg'd	Mhrs	Reg'd	Mhrs	Reg'd	Mhrs					
1. Campaign Planning	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
2. S&H	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
3. Trash Sorting	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
4. ROD Movements (as per load up for ROBs)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
5. Container Movements	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6. Loading and Shipping	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<b>Total/Manhours by Skill</b>																																							

\* Includes two warehouse attendants in Loading and Shipping

Category	Quantity	Rate	Total
<b>WORKSHEET SUMMARY</b>	<b>887</b>		
Total Manhours			\$32,547
Total Labor			\$18,130
Total Materials			\$14,580
Total Burial			\$45,257
Total Cost			\$30,077
All costs are stated in FY01 Dollars			
Total Materials minus PPE			\$10,732

Material	Unit	Quantity	Rate	Total
ISOs	each	1	\$2,000	\$2,000
Metal Boxes	each	8	\$1,200	\$9,600
Drums	each	0	\$40	\$0
Full Ant-Cs	change	140	\$9.68	\$1,355
Normal Protective Clothing	change	10	\$4.03	\$40.30
3 Vehicles for Moves	day	0	\$165	\$0
4 Vehicles for Loading	day	0	\$220	\$0
1 Vehicle for ROB Moves	day	0	\$55	\$0
Autobond	each	1	\$120	\$120
Other Materials	each	1	\$240	\$240
NTS Truck Freight	shipment	1	\$4,600	\$4,600
Shipping	shipment	1	\$100	\$100
<b>BURIAL FEES</b>				
NTS Fee	Unit	Quantity	Rate	Total
	cu. ft.	1,350	\$10.90	\$14,580

Comments and Assumptions  
1. Assumes debris and trash will be sorted and repackaged into an ISO for shipment to NTS

Control Team Review Project Review: \_\_\_\_\_

Prepared by: Greg Fugitt  
Date Prepared: Rev 1, May 2, 2001

W/E DATE: 30-Apr-01

**SUMMARY: AREA 4B OFFSITE Waste Disposition - MATRIXED**

ACT. ID.	Procurement		Container Prep & Loading		Shipping & Disposal							
CHG. NO. G4B18	HOURS	TOTAL \$	HOURS	TOTAL \$	HOURS	TOTAL \$	HOURS	TOTAL \$	HOURS	TOTAL \$	HOURS	TOTAL \$
RESOURCE	44.2											
BUYCON												
CLERKS	22.4		22.4		22.4		22.4		22.4		22.4	
HAZWAT	354.8		354.8		354.8		354.8		354.8		354.8	
HFOOPR	44.2		44.2		44.2		44.2		44.2		44.2	
MPCREP	22.1		22.1		22.1		22.1		22.1		22.1	
MVOOPR	88.4		88.4		88.4		88.4		88.4		88.4	
OPRMGR	44.2		44.2		44.2		44.2		44.2		44.2	
PIPFTR	44.8		44.8		44.8		44.8		44.8		44.8	
PRJMGR	22.1		22.1		22.1		22.1		22.1		22.1	
QACENG	132.6		132.6		132.6		132.6		132.6		132.6	
RADENG					88.4		88.4		88.4		88.4	
RADTEC	44.2		44.2		44.8		44.8		44.8		44.8	
S&HENG					222.2		222.2		222.2		222.2	
S&HTEC	44.2		44.2		44.8		44.8		44.8		44.8	
TPSREP					44.8		44.8		44.8		44.8	
TRNLAB	22.1		22.1		22.1		22.1		22.1		22.1	
Subtotal	44		886.1		666.9		666.9		666.9		666.9	
% Complete												

TOTALS			
RESOURCE	HOURS	TOTAL \$	TOTAL \$
BUYCON	44		
CLERKS	45		
HAZWAT	355		
HFOOPR	44		
MPCREP	44		
MVOOPR	88		
OPRMGR	88		
PIPFTR	45		
PRJMGR	44		
QACENG	222		
RADENG	88		
RADTEC	89		
S&HENG	222		
S&HTEC	89		
TPSREP	45		
TRNLAB	44		
Total	1,597		
Percent Complete:			



## CLOSURE PLAN BRAINSTORM INTER-PBS AGREEMENTS

Rev. 0: 02/13/01

The following represent decisions that were made during Closure Plan Brainstorming sessions on various interfaces between PBS's. If you do not agree with the decisions contact Mark Albertin by 03/01/01. If you do agree there is no response required and the decisions will become the basis for planning as of that date. The (xxx) after the number in each section is the originator. Future additions or changes will be added to this list. "OPEN ISSUES" need to be resolved by the parties involved. In cases listed under Closure Planning we will assist the resolution of the Open Issues. Once the issue is resolved please e-mail Mark Albertin the resolution so the Closure Plan Brainstorm Inter-PBS Agreements list can be updated and reissued. This list does not include any agreements generated in brainstorming sessions with support organizations. The list has been cross-walked between organizations. However, to assure the cross-walk is correct, it is suggested that the entire list be reviewed.

### ALL

1. (OSDF): The North Access Road will be closed as of end of FY04.
2. (WP): The following are cost and shipping criteria that can be used by other projects for shipment of debris to Envirocare:
  - + Debris can represent 10% of the total volume of a 60 train convoy and would cost the same price as other pit material.
  - + Size criteria = 10" x 10" x 20'
  - + Disposal costs are \$95/ton
  - + Rail shipping cost is \$9,000/car
  - + A car = 107.tons or 100 cubic yards
  - + Lid placement cost = \$1,200/lid (i.e. 40hrs/lid at \$30/hr.)
3. (D&D): Projects are to be charged only for washable PPE's that are distributed to the project.
4. (Aquifer): After the STP is removed from service in 3Q FY08, PBS-4 will budget for temporary sanitary facilities for government owned facilities.
5. (WP): Manpower should be planned for on a straight time basis. Overtime should be budgeted separately.
6. WP): Manpower for Operations Assurance to perform SSR's is budgeted for by Operations Assurance.
7. (Silos): Assume progress pictures are budgeted for by Public Affairs.
8. (Silos): Transportation of materials, etc. from RIMIA to a project or a support organization is centralized and budgeted for by Procurement.
9. (Silos): Budget for certification of matrixed personnel is by the organization from which the person is matrixed.
10. (Waste Treat & WGS): All projects are responsible forecasting and budgeting for LLW and MW that the project will generate. Waste Treatment and WGS will be responsible for providing the disposition plan and estimate for the waste material. Greg Fugitt is the designated contact for coordination to obtain the disposition plan and estimate.
11. (WGS): PBS-10 and PBS-11 will budget for waste material that is in a container as of 12/01/00.

**Miller, Frank**

---

**From:** Dennis Morgan [dennis\_morgan@mhfls.com]  
**Sent:** Friday, May 04, 2001 9:54 AM  
**To:** 'Miller, Frank'  
**Cc:** Gus Chirgott; Ken Grumski  
**Subject:** RE: Site Support Services

Frank:

In the event the quantity of material increases, you can utilize a daily rate of \$7,000.00. This rate would cover all direct costs associated with labor, equipment and materials for the on-site services. Passed experience (which can differ from site to site) shows on average 5 - 8 gondola cars per day can be loaded. For estimating purposes, you should base your daily rate on loading out 5 gondola cars with 535 tons of material (approximately 107 tons per car). I would rather be conservative with the production, then be caught short once the project started. Even though our gondola rail cars have a capacity of 109 - 110 tons, utilizing 107 tons per car gives you some flexibility in the type of materials being loaded.

You can utilize a liner (Super Load Wrapper) price of \$550.00 per gondola rail car as a budgetary cost for this project. Based on the volume you gave me, the project would need approximately 171 units.

We are still working on the transportation pricing. As soon as we get the loose ends tied up with the RxR's I'll pass this information on to you. Our transportation pricing will include all the extended logistics required for the project including tracking reports, etc..

I hope this was helpful. If you need anything else, or have any questions please do not hesitate to contact me.

Thanks,  
Dennis

Dennis D. Morgan, II  
Proposal & Contract Manager  
MHF Logistical Solutions, Inc.  
129 McCarrell Lane  
Zelienople, Pennsylvania 16063  
724.452.9300 Ext. 7498  
724.452.3753

-----Original Message-----

**From:** Miller, Frank [mailto:Frank.Miller@fernald.gov]  
**Sent:** Friday, May 04, 2001 9:19 AM  
**To:** 'Dennis Morgan'  
**Subject:** RE: Site Support Services

Dennis,

If for some reason our volume estimates change before mobilization, is there a factor ( \$/cubic yard ) that I can apply to any additional yardage. As you state below, the travel/per diem, and 1 mobilization cost is included for each of the phases. Other than conservatively directly proportioning the listed cost to a per-yard basis and applying that to any increased yardage, is there a way (factor) for me to adjust cost more closely?

Secondly, I have not yet received rail cost, liners, reports or logistic management requirement costs.

Thanks in advance,

Frank Miller  
Manager - Characterization / Waste Management

-----Original Message-----

**From:** Dennis Morgan [mailto:dennis\_morgan@mhfls.com]

**Sent:** Monday, April 30, 2001 4:52 PM

**To:** 'Frank.Miller@fernald.gov'

**Subject:** Site Support Services

Frank:

Here is a re-cap, as a follow up to our conversation earlier.

The following budgetary cost were developed on the following:

Loading of 12,000 CY of LLW based on (2) 6,000 CY campaigns

Loading of 1,500 CY of LLMW based on (1) 1,500 CY campaign

Prices:

Phase I 6,000 CY = \$75,000

Phase II 6,000 CY = \$75,000

Phase III 1,500 CY = \$21,000

Inclusive:

- Equipment, labor and materials to load and manage stockpiles of soils, based on the qty's above
- (1) Mobilization per event
- Perdiem/Travel based on above parameters

By Others (Fluor)

- Sampling
- Analytical
- Health Phys/Safety Management
- Backfilling
- Survey
- Disposal Fees
- Engineering and Design
- Permits
- On Site Support (trailers, phones, etc..)
- Dewatering

Note: Rail transportation costs, including liners, tracking reports, logistic management requirements will follow via a separate e-mail.

I'll get back to you later this week with the additional information. If you have any questions please do not hesitate to contact me.



**G4B19**

**AREA 4B ON SITE WASTE TREATMENT**



# Fluor Fernald, Inc.

ESTIMATE SUPPORT WORKSHEET  
FOR ACTIVITY BASED ESTIMATING  
(1 FTE EQUALS 1747 HOURS)

DATE: 07-Sep-01  
PROJECT MGR: J. D. Chiou  
CAM: J. D. Chiou  
PREPARED BY: W. F. Fick  
FISCAL YEAR: 2007

PBS: OHFN06  
WBS: 1.1.G.H  
CTRL ACCT: G4B1  
CHARGE NO: G4B19  
COMMENT NO F06-045

<b>Resource:</b> HAZWAT	<b>HAZWAT</b>												
<b>Res Dept:</b> 949	<b>949</b>												
	<b>OverTime:</b>												
		<b>HAZWAT</b>											
		<b>Class:</b>											
		<b>EOC:</b>											
		<b>HOU</b>											
		<b>LABOR</b>											
		Oct 00-	Oct 01-	Oct 02-	Oct 03-	Oct 04-	Oct 05-	Oct 06-	Oct 07-	Oct 08-	Oct 09-		
		Sep 01	Sep 02	Sep 03	Sep 04	Sep 05	Sep 06	Sep 07	Sep 08	Sep 09	Sep 10	Oct 09-	
		0.0	0.0	0.0	0.0	0.0	0.0	174.7	0.0	0.0	0.0	0.0	
		0.0	0.0	0.0	0.0	0.0	0.0	174.7	174.7	174.7	174.7	174.7	
		0	0	0	0	0	0	7,286	0	0	0	0	
		0	0	0	0	0	0	7,286	7,286	7,286	7,286	7,286	
		0	0	0	0	0	0	7,286	0	0	0	0	
		0	0	0	0	0	0	7,286	7,286	7,286	7,286	7,286	

<b>Resource:</b> RADENG	<b>RAD ENGINEER</b>												
<b>Res Dept:</b> 949	<b>949</b>												
	<b>OverTime:</b>												
		<b>RAD ENGINEER</b>											
		<b>Class:</b>											
		<b>EOC:</b>											
		<b>SAL</b>											
		<b>LABOR</b>											
		Oct 00-	Oct 01-	Oct 02-	Oct 03-	Oct 04-	Oct 05-	Oct 06-	Oct 07-	Oct 08-	Oct 09-		
		Sep 01	Sep 02	Sep 03	Sep 04	Sep 05	Sep 06	Sep 07	Sep 08	Sep 09	Sep 10	Oct 09-	
		0.0	0.0	0.0	0.0	0.0	0.0	39.4	0.0	0.0	0.0	0.0	
		0.0	0.0	0.0	0.0	0.0	0.0	39.4	39.4	39.4	39.4	39.4	
		0	0	0	0	0	0	2,694	0	0	0	0	
		0	0	0	0	0	0	2,694	2,694	2,694	2,694	2,694	
		0	0	0	0	0	0	2,694	0	0	0	0	
		0	0	0	0	0	0	2,694	2,694	2,694	2,694	2,694	

<b>Resource:</b> SERVSUB	<b>SUBS</b>												
<b>Res Dept:</b> 949	<b>949</b>												
	<b>OverTime:</b>												
		<b>SUBS</b>											
		<b>Class:</b>											
		<b>EOC:</b>											
		<b>SUB</b>											
		<b>SUBCONTRACTORS</b>											
		Oct 00-	Oct 01-	Oct 02-	Oct 03-	Oct 04-	Oct 05-	Oct 06-	Oct 07-	Oct 08-	Oct 09-		
		Sep 01	Sep 02	Sep 03	Sep 04	Sep 05	Sep 06	Sep 07	Sep 08	Sep 09	Sep 10	Oct 09-	
		0.0	0.0	0.0	0.0	0.0	0.0	1,045,990.0	0.0	0.0	0.0	0.0	
		0.0	0.0	0.0	0.0	0.0	0.0	1,045,990.0	1,045,990.0	1,045,990.0	1,045,990.0	1,045,990.0	
		0	0	0	0	0	0	1,234,484	0	0	0	0	
		0	0	0	0	0	0	1,234,484	1,234,484	1,234,484	1,234,484	1,234,484	
		0	0	0	0	0	0	1,234,484	0	0	0	0	
		0	0	0	0	0	0	1,234,484	1,234,484	1,234,484	1,234,484	1,234,484	

<b>Resource:</b> WSTENG	<b>WASTE ENGINEER</b>												
<b>Res Dept:</b> 949	<b>949</b>												
	<b>OverTime:</b>												
		<b>WASTE ENGINEER</b>											
		<b>Class:</b>											
		<b>EOC:</b>											
		<b>SAL</b>											
		<b>LABOR</b>											
		Oct 00-	Oct 01-	Oct 02-	Oct 03-	Oct 04-	Oct 05-	Oct 06-	Oct 07-	Oct 08-	Oct 09-		
		Sep 01	Sep 02	Sep 03	Sep 04	Sep 05	Sep 06	Sep 07	Sep 08	Sep 09	Sep 10	Oct 09-	
		0.0	0.0	0.0	0.0	0.0	0.0	174.7	0.0	0.0	0.0	0.0	
		0.0	0.0	0.0	0.0	0.0	0.0	174.7	174.7	174.7	174.7	174.7	
		0	0	0	0	0	0	12,914	0	0	0	0	
		0	0	0	0	0	0	12,914	12,914	12,914	12,914	12,914	
		0	0	0	0	0	0	12,914	0	0	0	0	
		0	0	0	0	0	0	12,914	12,914	12,914	12,914	12,914	

<b>GRAND TOTALS:</b>													
		Oct 00-	Oct 01-	Oct 02-	Oct 03-	Oct 04-	Oct 05-	Oct 06-	Oct 07-	Oct 08-	Oct 09-		
		Sep 01	Sep 02	Sep 03	Sep 04	Sep 05	Sep 06	Sep 07	Sep 08	Sep 09	Sep 10	Oct 09-	
		0.0	0.0	0.0	0.0	0.0	0.0	388.8	0.0	0.0	0.0	0.0	
		0.0	0.0	0.0	0.0	0.0	0.0	388.8	388.8	388.8	388.8	388.8	
		0	0	0	0	0	0	1,257,378	0	0	0	0	
		0	0	0	0	0	0	1,257,378	1,257,378	1,257,378	1,257,378	1,257,378	
		0	0	0	0	0	0	1,257,378	0	0	0	0	
		0	0	0	0	0	0	1,257,378	1,257,378	1,257,378	1,257,378	1,257,378	

CAM \_\_\_\_\_  
*[Signature]*  
CONTROL TEAM



## Estimate Summary

Area 4B – Waste Treatment

WBS Element – 1.1.G.H

Control Account – G4B1

Charge Number – G4B19

### Labor

Labor is broken down by resource code and by activity on the attached matrixed manpower spreadsheet. SDFP estimated resource manpower, which were then rounded to the tenth of an FTE for Man Power Planning (MPP) purposes to be entered into the MPP database on a quarterly basis. This database was then exported to MicroFrame and expanded into monthly estimates. The monthly figures were then summed to provide a total hours by resource for each activity.

### Materials

N/A

### Equipment

N/A

### Subcontracts

Four informal market research type estimates were provided and attached. The average of the four estimates is used as the value for the subcontract for waste treatment of soil from this area. Since Area 3A will be the first area having readily available soil for treatment the cost for mobilization as well as site preparation will not be accounted for within this charge number. However, since Area 4B will be the last to have soil available for treatment, the cost for demobilization/decontamination of equipment will be accounted for within the charge number. The average of the four market research estimates for 1,800yd<sup>3</sup> not including site preparation nor mobilization of equipment is \$1,045,990.

The total estimated cost for this subcontract is \$1,045,990.

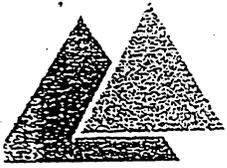


## Outline of Cost Breakout Treatment and Disposal of Soils at Incinerator Pad and Maintenance Building

	Pilot Pilt	ECC <sup>1</sup>	EC <sup>TM</sup> Clean	Steam	MSR <sup>2</sup>	HP TDU
<i>Schedule (days in Production Excluding Mob/Demob)</i>	24/7	-210	~60	12/7 24/7	198 99	82
<i>Pilt Pilt @ 1ton/hr EC<sup>TM</sup> Clean @ 6ton/hr</i>						
<i>Steam @ 3ton/hr, HP TDU @ 4ton/hr</i>						
<i>(12/7 = 12hours/7days week etc...)</i>						
Permitting Costs						
Treatment Costs						
Contractor Mobilization	\$300,000	\$400,000	\$75,000			\$75,000
Operations:						
Excavation <sup>4</sup>						
Debris/Concrete (100yd <sup>3</sup> @ \$24/yd <sup>3</sup> ) <sup>5</sup>	\$2,400	\$2,400	\$2,400	\$2,400	\$2,400	\$2,400
Soil (1800yd <sup>3</sup> @ \$10/yd <sup>3</sup> )	\$18,000	\$18,000	\$18,000	\$18,000	\$18,000	\$18,000
LTTD Treatment or Steam Treatment (\$ per ton) @ 1800 yd <sup>3</sup> (2500 ton)	\$480 <sup>6</sup>	\$250 <sup>6</sup>	\$625,000	\$150 <sup>7</sup>	\$380 <sup>7</sup>	\$950,000
Analytical Verification (1 sample per 50 yd <sup>3</sup> ) <sup>8</sup> \$ per sample 1800 yd <sup>3</sup> = 36 samples	\$190 <sup>9</sup>	\$190 <sup>9</sup>	\$6,840	\$190 <sup>9</sup>	\$190 <sup>9</sup>	\$6,840
Decontamination of Equipment / Demobilization	\$100,000	\$200,000	\$200,000	\$225,000	\$225,000	\$150,000
Disposal Costs						
Treated Soil (\$/ton) OSDF	\$11 <sup>10</sup>	\$11 <sup>10</sup>	\$27,500	\$11 <sup>10</sup>	\$11 <sup>10</sup>	\$27,500
Liquids Recovered as Part of LTTD (Org. Solv.)/(\$/ton) Incinerator at K-25 Oak Ridge CWM Port Arthur / TWI Incinerators	\$2 <sup>7</sup>	\$2 <sup>7</sup>	\$5,000	\$50 <sup>7</sup>	\$2 <sup>7</sup>	\$5,000
Solids Recovered as Part of LTTD						
<b>Total Estimated Costs:</b>	<b>\$1,659,740</b>	<b>\$1,284,740</b>	<b>\$854,740</b>			<b>\$1,234,740</b>

- 1 ECC: Environmental Chemical Corporation
- 2 MSR: Midwest Soil Remediation
- 3 OnSite Technology
- 4 Excavation costs based on Lockwood Green Technologies estimates for 3A/4A Excavation (Feb 2000, Doc 20800-CE-0001 Rev E)
- 5 Concrete estimated using 90% Design Drawings for 3A/4A Excavation 28Jan2000 (DWG 99X-1900-G-00008 and 00010)
- 6 Estimated costs submitted by ECC
- 7 Estimated costs submitted by MSR
- 8 Based on frequency of verifications sampling at the Trap Range
- 9 Estimated sample analysis cost provided by Grace Ruesink of SMO
- 10 Cost for OSDF transport and placement based on \$15/yd<sup>3</sup> = \$10.80/ton
- 11 To account for MSR decon/demobilization: Steam Mob cost x 3 (many small parts to decon) - HP TDU Mob cost x 2 (easier to clean)





# Midwest Soil Remediation, Inc.

4B

Attention: Frank Miller  
Fluor Fernald

Midwest Soil Remediation, Inc. (MSR) operates three indirect heated thermal desorption units (TDUs) that are appropriate for the treatment of chlorinated solvent contaminated soils. These are:

- Steam Plant - 3 to 5 ton/hr closed loop container based system,
- High Performance TDU - 4 to 7 ton/hr two trailer plant with high efficiency primary and condensing train, and
- High Capacity Indirect TDU - 40 to 50 ton/hr twelve trailer plant with high capacity primary and condensing train.

All of these units are described in the attached package, which includes a statement of qualifications for MSR. The High Performance TDU is new to our service line and is described in a technical bulletin.

The high capacity indirect (**HCI**) unit is not presently suitable for operation on radioactive material. Its mobilization charge is prohibitively large for this small of a project. It has completed a similar 32,000 ton chlorinated solvent project with average operation at 45 to 50 ton/hr. If Fluor develops other large projects, this **HCI** unit should be considered for them.

The Steam Plant is routinely used for this type of project and has completed many similar ones. It is normal for us to treat characteristic hazardous waste at the generator's site under the RCRA Subpart I container standards so that the soil is both no longer hazardous, and meets the LDR universal treatment standards (UTS). We would expect to be able to meet your listed treatment standards for the solvents. The Steam Plant has a very small vent rate that is amenable to the redundant HEPA filtration requirement of the nuclear air handling standards.

The High Performance TDU is most suitable to this project and is specifically designed for mixed waste service. Its primary can easily achieve the required operating temperature. Furthermore, in operations on uranium and plutonium contaminated solids we have demonstrated that radioactivity is retained in the primary, and the gas system condensate and vent gas are both non-radioactive.

## ESTIMATED TREATMENT COSTS

The Steam Plant has a typical operating cost of about \$75 to \$150 per ton excluding disposal of the treated soil and gas system condensate. The Steam Plant condensate would probably be radioactive and this cost needs to be carefully evaluated. If the historic disposal pricing of the Oak Ridge K-25 incinerator is used for the condensate, then this can add about \$50/ton to the treatment cost. If commercial disposal at the DSSI mixed waste recovery facility is used, then this increment can be as much as ten times higher, or more. It is important to realize that this high condensate disposal cost is not unique to the Steam Plant, but is typical of virtually all conventional thermal desorption units when placed in radioactive waste service. The Steam Plant is relatively easy to install and has a corresponding low mobilization cost of about \$75,000.

The High Performance TDU has an operating cost of about \$180 to \$380 per ton. Since we have shown that the condensate is non-radioactive in operations on uranium, and we have disposed of it at both the CWM Port Arthur and TWI incinerators in the past, the disposal cost for it will add only about \$2/ton to the treatment cost. This is a significant advantage over both the Steam Plant and competitive thermal desorption units in the remediation market. The High Performance TDU is also relatively easy to install, with a mobilization cost of about \$75,000.

## EFFECT OF PROJECT SIZE

The costs stated above for the Steam Plant are typical of projects in the size range under consideration by Fluor.

The High Performance unit costs are more sensitive to project size. This is because the unit is a new addition to MSR's service line and is presently carrying relatively high fixed costs. For this reason, we do not presently recommend it for projects as small as 2,000 ton. However, if the projected volume is really in the 5,000 to 10,000 ton range as could be the case at the stated increased volume, then the fixed costs are better managed.

All of the abovementioned costs assume operations consistent with our experience on Superfund and hazardous waste sites. We have developed efficient approach to project planning and execution as is required in this highly competitive market. When a project specification is available for review, we can provide complete cost estimate consistent with your site specific requirements.

## PROJECT SCHEDULE

The total project schedule includes time to mobilize and install the unit, the time to process the soil, and the time to decontaminate and demobilize. Mobilization time for both units is similar. Each can be operational within two or three days of arrival at a properly prepared site.

The Steam Plant is suitable for operation either 12 or 24 hours per day. The High Performance TDU is best operated continuously, on a 24/7 or 24/5 schedule. Both have high operational reliability, with on-line factors in excess of 80%. Depending on the soil volume and operating cycle the processing schedule could be over a range of:

Processing Time for Various Scenarios -  
Days in Production (Excluding Mob/Demob)

SCENARIO	1,500 yd <sup>3</sup>	7,300 yd <sup>3</sup>
Steam Plant 12/7	41	198
Steam Plant 24/7	21	99
HP-TDU 24/7	Too small	82

Demobilization is the period of greatest schedule uncertainty. This is because of the need to decontaminate the unit to nuclear free release criteria. The Steam Plant was not designed for radioactive service. Consequently, it has many internal parts that are difficult to access for cleaning. Furthermore, the unit is mostly constructed from carbon steel with its inherent difficulty for decontamination. We would project several weeks of effort to achieve free release status on those components where this is cost effective.

The High Performance TDU on the other hand is designed for radioactive service. Careful attention has been given to limiting the volume and area of contaminated equipment. Also, equipment is constructed from stainless steel which is easier to decontaminate. We have successfully achieved free release for a similar pilot plant that was used for the treatment of both uranium and plutonium contaminated solids. This required only a few days of decontamination with minimal secondary waste generation. We would project one week for the full-scale unit. This can be a significant cost difference, both in direct labor charges and the potential cost of replacing non-releasable equipment items.

## SUMMARY

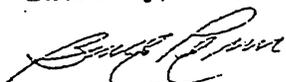
Fernald Area 3A Soil Treatment

5/9/00  
Page 4

MSR has two units that are potentially suitable for this project. Our Steam Plant has the potential to be the low cost choice depending on overall project factors. However, the total project cost may be lowest using our High Performance TDU, especially if the project size extends to the higher estimated volume and residual disposal and radioactive decontamination costs are considered.

Please call me to advance this discussion as you evaluate your options on this project.

Sincerely,



Bruce Penn  
General Manager  
Midwest Soil Remediation, inc.

# Environmental Chemical Corporation

Fernald Site  
TCE/Uranium Mixed Waste Contaminated Soil

## 1. APPROACH

Fernald is evaluating treatment options for a moderate volume of contaminated soil. This soil is contaminated with both trichloroethene (TCE) and uranium. TCE levels are up to 1,100 ppm and uranium levels are at about 300 ppm. Soil that is treated to less than 12 ppm can be disposed in an on-site cell, and does not require off site disposal.

Environmental Chemical Corporation (ECC) has available three thermal desorption units that have the capability to remove TCE from soil to well below the required level. EC Clean™ is its largest unit with capacity of over 20 tons per hour to a pilot scale unit with capacity of 1 ton per hour. We would expect our units to routinely reduce TCE to less than 0.1 ppm, and with optimization to below the standard practical quantitation level of 0.005 ppm.

These thermal desorbers are all indirect heated units, with very low exhaust gas flows. This is critical, since the entire vent gas flow can be economically filtered with multiple HEPA filters to absolutely contain the radioactive uranium.

For this response, we have considered providing either a large pilot unit or our small production unit. The pilot unit is mobile, ships on two trailers, and has a capacity of about 1 ton/hr on this material. The small production unit is also mobile, ships in five sea containers, and has a capacity of about 6-8 ton/hr. As more information becomes available about the project, ECC will be in a better position to recommend the most favorable unit for Fernald.

## 2. SOIL TREATMENT WITH PILOT PLANT

The pilot plant has already been used by the ECC team for the processing of mixed waste sludges at the Oak Ridge gaseous diffusion plant (K-25). In this work, concentrated uranium sludge from a waste water treatment facility at the Y-12 weapons plant were processed in the thermal desorption pilot plant to remove water and oil. The treated solids were then efficiently stabilized to NRC and EPA RCRA standards for land disposal. The significant result of this work was that it was performed without a measurable release of uranium by any pathway. The air emission from the vent had no detectible uranium. The process unit completely contained the radioactive material such that there was not a single "hot" swipe throughout the operation. This was a key to success, since the project was performed in the parking lot of a receiving facility outside of the highly secure area of the K-25 plant. No uncontrolled contamination was allowed in this area.

A photo of the pilot plant at the Oak Ridge project is attached. This unit can heat soil to approximately 1,000F if required. We would expect operation at about 500-700F for this application. The pilot unit can process about 1000-2,000 lb/hr to this temperature.

Our understanding is that the estimated treatment volume ranges from 1,500 to 5,000 cu.yd. At 1 ton/hr, the smaller volume could be treated in about 150 days with the pilot unit. The unit was installed, functionally tested and inspected for operational readiness at Oak Ridge in about ten days. Decontamination to the DOE's free release limit for uranium required an additional ten days at the end of the project. So, all in, the project could be performed in about five months with the pilot plant.

For 24-hr operation (three per shift), plus an engineering supervisor are required to operate the pilot unit. Additional project staff would be one or two health physics technicians per shift. Depending on the project requirements and division of responsibility between Fluor and ECC, very little other direct project staff may be needed.

The pilot unit sets up in an area 70' by 50' and is fed either from drums or with a small telescoping loader. This choice depends on the contamination control requirements for the project. The unit fires on either propane or natural gas.

Permitting at Oak Ridge took about three to six months. A state air permit was obtained for the new source. The waste was RCRA hazardous (F006) and was treated under a modification to the Oak Ridge RCRA Part A permit. The site performed a Safety Analysis Review (SAR) as required by DOE orders, and an independent SAR was performed by a DOE subcontractor. Operation was authorized by the DOE prime contractor after completion of a shakedown test on a non-radioactive surrogate sludge.

Clearly, ECC can present significant positive experience regarding this and other similar successful mixed waste treatment at the appropriate time.

### 3. SOIL TREATMENT WITH EC Clean™

ECC has begun production of its second EC Clean™ system which is modular in configuration to facilitate transportation by barge or other ocean going vessel. This system is a smaller version of the very successful trailer mounted unit used for major superfund site remediation of PCB's. The system is truly indirect such that vapor flow rates are very small. The modular system is designed to be transported and erected at low costs, so that smaller sites, like the one at Fernald can be remediated very economically.

While easier to erect and transport, productivity has been optimized. The system has a treatment rate of between 6-11 tons per hour. The system consists of five ocean style container frames interlinked as a 45' by 45' wide by 18 foot high system. Feed storage and soil discharge area plus equipment would occupy a space of about 80' by 120'.

The system is scheduled to undergo its first project January 2001, and will be available for the FDF project during the spring of 2001.

### 4. BUDGETARY COSTS

ECC has prepared preliminary estimated costs to perform this work. This is to give Fluor information for planning purposes in advance of a specification for the project. As more information is available, these estimates can be refined to be more accurate.

#### Pilot Plant Costs

The pilot plant is essentially complete now with the required equipment to perform this project. The mobilization cost for the project would be about \$300,000. This is dominated by the cost to install and functionally check out the unit. *This mobilization cost is the area that is the least accurate of the estimate.*

Operating cost would be about \$480/ton, including labor, consumable supplies, utilities, and maintenance of the unit. *Disposal of the recovered TCE, water treatment wastes from the condensed liquids, and the treated solids is not included.* Decontamination and demobilization would cost about \$100,000. There could be several drums of mixed waste generated during decontamination. This is from solids that accumulate in the unit that cannot be removed during operation.

#### Larger Plant Costs

EC Clean™ would have very similar mobilization costs as the pilot but the emission potential on a per hour basis is 6 times higher. As such, permitting may be more expensive. Also since the rate for processing of soil is 144 tons per day, fugitive emissions may be a concern. Based on these the mobilization estimates should be increased by \$100,000 or a total of \$400,000.

Operating costs for the larger system would be near \$250/ton including labor, consumable supplies, utilities, and maintenance of the unit. *Disposal of the recovered TCE, water treatment wastes from the condensed liquids, and the treated solids is not included.*

Because of its size, decontamination is much more advanced and is twice the cost of the pilot system or \$200,000.

#### Basis

As with any budget, broad assumptions have been made as to the approach. ECC has a very productive base of thermal treatment experience with nearly 1 million tons of remediated soil. We have used discounted productivities to account for readiness reviews and start up approaches. Care should be taken to understand the approach. Any additional time would increase our costs significantly. The larger system will have a higher standby cost than the pilot system.

Depending on the site's capability to accept contaminated waste waters, as well as new solid wastes from water treatment, this aspect of the treatment can be more or less complicated.

Excavation, monitoring, analytical and backfill/disposal of soils is not included. ECC is a full service contractor and we can provide an estimate to perform any or all of these if you would like.

#### 4. SUMMARY AND CONCLUSION

ECC can mobilize either treatment units to the Fernald site to solve this problem. Either system are economical for the initial quantity of soil. If the quantity of soil grows then the larger modular system offers greater economic advantage.

With either system, operating costs are significantly below off site mixed waste landfill disposal cost, which our present understanding is about \$1,200/ton. Furthermore, TCE at 1,100 ppm does not meet the land ban treatment standard and would not be accepted for mixed waste disposal at any price. Therefore, ECC can perform a valuable service at below market cost for Fernald. Our units are well suited to mixed waste operation, and can meet the rigorous performance requirements of this application. We look forward to advancing this discussion with Fernald.



## **SECTION 8**

### **5.0 RISK PLAN**



# Risk/Opportunity Identification and Analysis Form

Project: Area 4B Soils Remediation		PBS Number: 06		Total Baseline Dollars (Minimum Case): \$30,248,779						
Evaluator: R. Abitz / F. Miller		WBS Number: 1.1.G.H								
CAM: JD Chiou		Date: 4/11/01								
Control Account Number: G4B1		Date: 4/11/01								
Potential Impact		Internal								
Risk and/or Opportunity		Or External Driver								
Impact Cost \$ (Maximum Case)		Risk Impact Level								
Risk Probability %		Risk Probability Level								
Probable Cost \$ (Likeliest Case)		Risk Critical Value								
Risk Handling Strategy		Risk								
Area 4B Site Prep / Excavation	Certification Units Failure	Additional Excavation for 2 Failed CUs. 1/4 footprint of CU at a depth of 2'. This equates to 1200 cy/CU or 2400cy @ \$30/cy	Internal	\$72,000	2	70	4	\$50,400	3	Accept Risk
Area 4B Site Prep / Excavation	Groundwater infiltration during excavation	Installation and operation of pumps to remove excess water	Internal	\$80,000	1	50	3	\$40,000	1	Accept Risk
Area 4B Site Prep / Excavation	Remediation activities contaminate/recontaminate areas that originally did not need remediation.	Additional Excavation of 1000cy @ \$30/cy	Internal	\$30,000	1	30	2	\$9,000	1	Accept Risk
Area 4B Site Prep / Excavation	Extreme Weather Delays	Contractor delayed by weather / muddy conditions for all of April and 1/2 of May. Contractor need to work double shift for a month and a half. Impact to Fluor personnel who will cover second shift at overtime for 1.5 months.	Internal	\$95,000	1	20	2	\$19,000	1	Accept Risk
Area 4B Site Prep / Excavation	Encountering 10% more debris than was identified from predesign activities.	Additional 3500cy of CAT 2 material requiring excavation and placement at 2x the CAT 1 rate.	Internal	\$90,000	1	10	2	\$9,000	1	Accept Risk
Area 4B Site Prep / Excavation	No availability for OnSite Organic Treatment	Organically contaminated soil is in the way of excavation causing a month delay while the soil is containerized. The delay will be corrected for with double shifting for the month following. Impact to Fluor personnel who will cover second shift at overtime for 1 month.	Internal	\$63,000	1	20	2	\$12,600	1	Accept Risk

# Risk/Opportunity Identification and Analysis Form

Project: Area 4B Soils Remediation		PBS Number: 06		Total Baseline Dollars (Minimum Case): \$30,248,779					
Evaluator: R. Abitz / F. Miller		Date: 4/11/01		WBS Number: 1.1.G.H					
CAM: JD Chiou		Date: 4/11/01		Control Account Number: G4B1					
Project Task		Risk and/or Opportunity		Potential Impact					
		Internal Or External Driver	Impact Cost \$ (Maximum Case)	Risk Impact Level	Risk Probability %	Risk Probability Level	Probable Cost \$ (Likeliest Case)	Risk Critical Value	Risk Handling Strategy
Area 4B Title III	Additional Samples needed to bound contamination (chasing)	Internal	\$8,000	1	60	4	\$4,800	2	Accept Risk
Area 4B Title III	Implementing Only A Part of the Design	Internal	\$15,000	1	70	4	\$10,500	2	Accept Risk
Area 4B Offsite Waste Disposition	Containers do not meet shipping requirements	Internal	\$100,000	2	30	2	\$30,000	2	Accept Risk
Area 4B Offsite Waste Disposition	Discovery of additional material needing containerization.	Internal	\$10,000	1	30	3	\$3,000	1	Accept Risk
Area 4B Offsite Waste Disposition	Discovery of additional AWAC material.	Internal	\$2,000,000	3	70	4	\$1,400,000	5	Reduce Risk - Identify An Approach to Address Residual Risk
Area 4B Onsite Waste Treatment	No availability for OnSite Treatment	Internal	\$14,500,000	5	20	2	\$2,900,000	8	Accept Risk. Develop a detailed Contingency Plan
Area 4B Excavation Control / Certification	Certification Units Failure	Internal	\$20,000	2	70	4	\$14,000	3	Accept Risk
Total:			\$17,083,000				\$4,502,300		

Area 4B Onsite Waste Treatment	Longer EPA Review Cycle	External	\$10,000	1	30	2	\$3,000	1	
Area 4B Excavation Control / Certification	Longer EPA Review Cycle	External	\$10,000	1	30	2	\$3,000	1	





**WBS DICTIONARY  
CONTROL ACCOUNT/CHARGE NUMBER**



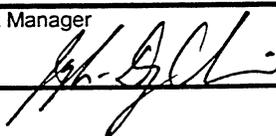
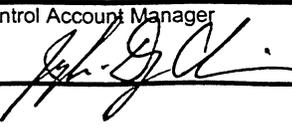
U.S. DEPARTMENT OF ENERGY  
 WORK BREAKDOWN STRUCTURE DICTIONARY  
 PART II - ELEMENT DEFINITION

1. PROJECT TITLE <b>FEMP (DEFENSE)</b>		2. DATE OF CONTRACT 12/01/2000	
3. IDENTIFICATION NUMBER DE-AC24-01OH20115		4. INDEX LINE NO. 55	
5. WBS ELEMENT CODE 1.1.G.J		6. WBS ELEMENT TITLE AREA 5 SOIL REMEDIATION	
7. APPROVED CP NO. NEW PER CP# FY01-0115-0006-00		8. DATE OF CHANGES 09/05/2001	
9. SYSTEM DESIGN DESCRIPTION CERCL/ACA		10. BUDGET AND REPORTING NUMBER EW05H3060	
11. ELEMENT TASK DESCRIPTION			
<p><b><u>a. ELEMENTS OF COST:</u></b></p> <p>Labor          Materials          Subcontracts          ODCs</p> <p><b><u>b. TECHNICAL CONTENT:</u></b></p> <p>Area 5 comprises approximately 48 acres and lies south of the former Production Area. The area is bounded by the 1st Street to the north, the north entrance road to the east and southeast, the southern end of the parking lot to the south, and the west boundary of the parking lot and east side of the Lab Building to the west.</p> <p><b><u>c. SCOPE OF WORK:</u></b></p> <p>The scope of work for these activities is defined in control account G511 Area 5 Soil Remediation. Key subjects in this account are Title III services, site preparation, at-and below-grade excavation, interim restoration, excavation control monitoring, certification activities, onsite treatment of soil contaminated with hazardous organic compounds and offsite waste disposition.</p> <p>NOTE: Predesign activities and Title I/II services are included in control account G3B1.</p> <p>Work specifically excluded from this account is as follows:</p> <ul style="list-style-type: none"> <li>- Staff labor charged to GPM1</li> <li>- Predesign characterization studies</li> <li>- Title I/II engineering services</li> <li>- Engineering services for the design and construction of the OSDF</li> <li>- Post-remediation monitoring and maintenance</li> </ul>			

U.S. DEPARTMENT OF ENERGY  
**WORK BREAKDOWN STRUCTURE DICTIONARY**  
**PART II - ELEMENT DEFINITION**

1. PROJECT TITLE  FEMP (DEFENSE)	2. DATE OF CONTRACT  12/01/2000	
3. IDENTIFICATION NUMBER  DE-AC24-010H20115		4. INDEX LINE NO.  55
5. WBS ELEMENT CODE  1.1.G.J	6. WBS ELEMENT TITLE  AREA 5 SOIL REMEDIATION	
7. APPROVED CP NO.  NEW PER CP# FY01-0115-0006-00		8. DATE OF CHANGES  09/05/2001
9. SYSTEM DESIGN DESCRIPTION  CERCL/ACA	10. BUDGET AND REPORTING NUMBER  EW05H3060	
11. ELEMENT TASK DESCRIPTION <ul style="list-style-type: none"> <li>- Post-closure documentation</li> <li>- Natural Resource Restoration activities</li> <li>- All remedial work described in other PBS06 control accounts</li> <li>- Area 10 (Soils Corridor)</li> <li>- All centralized services</li> </ul>		

**WORK SCOPE DEFINITION  
(Control Account)**

1. PROJECT TITLE <b>FEMP (DEFENSE)</b>		2. DATE <b>09/05/2001</b>	Page 1
3. WBS ELEMENT CODE <b>1.1.G.J</b>	4. WBS ELEMENT TITLE/NAME <b>AREA 5 SOIL REMEDIATION</b>		
5. PERFORMING DIV/DEPARTMENT CODE <b>49</b>	6. ORIGINATOR NAME/PHONE <b>JD CHIOU/648-3726</b>	7. WBS ELEMENT MANAGER <b>JD CHIOU</b>	
8. BUDGET AND REPORTING NUMBER <b>EW05H3060</b>	9. BUDGET TITLE <b>SOILS</b>		
10. ORIGINAL SCOPE? / CHANGE TO WORK SCOPE? / NEW SCOPE? <b>NEW PER CP# FY01-0115-0006-00</b>		11. ESTIMATED START / COMPLETION DATE <b>6/06 - 10/09</b>	
12. TASK IDENTIFICATION (CONTROL ACCOUNT) <b>G511</b>	13. TASK DESCRIPTION (ONE LINE) <b>AREA 5 SOILS REMEDIATION</b>		
14. ELEMENT TASK DESCRIPTION  <b>a. ELEMENTS OF COST:</b>  Labor Materials Subcontracts  <b>b. TECHNICAL CONTENT:</b>  Area 5 comprises approximately 48 acres and lies south of the former Production Area. The area is bounded by 1st Street to the north, the north access road to the east and southeast, the southern end of the parking lot to the south, and the west boundary of the parking lot and east side of the Lab Building to the west.  <b>c. SCOPE OF WORK:</b>  The scope of work for these activities is further defined in the following charge numbers:  G5113 - Area 5 Title III G5114 - Area 5 Site Prep/Excavation G5117 - Area 5 Exc Control/Certification G5118 - Area 5 Offsite Waste Disposition  <b>d. WORK SPECIFICALLY EXCLUDED:</b>  Staff labor charged to Control Account GPML			
Project Manager 	Control Account Manager 	Control Team Manager 	

**WORK SCOPE DEFINITION  
(Control Account)**

1. PROJECT TITLE <b>FEMP (DEFENSE)</b>		2. DATE <b>09/05/2001</b>	Page 2
3. WBS ELEMENT CODE <b>1.1.G.J</b>	4. WBS ELEMENT TITLE/NAME <b>AREA 5 SOIL REMEDIATION</b>		
5. PERFORMING DIV/DEPARTMENT CODE <b>49</b>	6. ORIGINATOR NAME/PHONE <b>JD CHIOU/648-3726</b>	7. WBS ELEMENT MANAGER <b>JD CHIOU</b>	
8. BUDGET AND REPORTING NUMBER <b>EW05H3060</b>	9. BUDGET TITLE <b>SOILS</b>		
10. ORIGINAL SCOPE? / CHANGE TO WORK SCOPE? / NEW SCOPE? <b>NEW PER CP# FY01-0115-0006-00</b>		11. ESTIMATED START / COMPLETION DATE <b>6/06 - 10/09</b>	
12. TASK IDENTIFICATION (CONTROL ACCOUNT) <b>G511</b>	13. TASK DESCRIPTION (ONE LINE) <b>AREA 5 SOILS REMEDIATION</b>		
14. ELEMENT TASK DESCRIPTION <p><b>Scope of work as defined in other remediation area control accounts</b></p> <p><b>Waste Pit liners, liners associated with Waste Pit Area, and AWAC soils under liners, Burn Pit and Clearwell</b></p> <p><b>Post-remediation monitoring and maintenance</b></p> <p><b>Post-Closure documentation</b></p> <p><b>Natural Resources restoration</b></p> <p><b>D&amp;D of above-grade structures</b></p> <p><b>Aquifer Restoration well installation, operation, monitoring, removal and utilities required to operate well systems</b></p> <p><b>Area 10 (Soils Corridor)</b></p> <p><b>All centralized services</b></p>			

**WORK SCOPE DEFINITION**  
(Work Package)

1. PROJECT TITLE <b>FEMP (DEFENSE)</b>		2. DATE <b>09/06/2001</b>	Page 1
3. WBS ELEMENT CODE <b>1.1.G.J</b>	4. WBS ELEMENT TITLE/NAME <b>AREA 5 SOIL REMEDIATION</b>		
5. PERFORMING DIV/DEPARTMENT CODE <b>49</b>	6. ORIGINATOR NAME/PHONE <b>JD CHIOU/648-3726</b>	7. WBS ELEMENT MANAGER <b>JD CHIOU</b>	
8. BUDGET AND REPORTING NUMBER <b>EW05H3060</b>	9. BUDGET TITLE <b>SOILS</b>		
10. ORIGINAL SCOPE? / CHANGE TO WORK SCOPE? / NEW SCOPE? <b>NEW PER CP# FY01-0015-0006-00</b>		11. ESTIMATED START / COMPLETION DATE <b>6/06 - 12/09</b>	
12. TASK IDENTIFICATION (WORK PACKAGE) <b>G5113</b>	13. TASK DESCRIPTION (ONE LINE) <b>AREA 5 TITLE III</b>		

14. ELEMENT TASK DESCRIPTION

**a. ELEMENTS OF COST:**

Labor  
Material  
Subcontracts

**b. TECHNICAL CONTENT:**

Area 5 comprises approximately 53 acres and is enclosed by 1st Street to the north, the north access road to the east and southeast, the eastern storm-water control basin to the south and southwest, and the western end of the main parking lot and the Laboratory Building to the west.

Title III work involves engineering oversight of the excavation work, preparation and approval of DCNs, assistance with RCIs and NCRs, completion of safety walkthroughs, preparation of the yearly completion report, as-built drawings and close-out report, and the submittal of all records to ECDC.

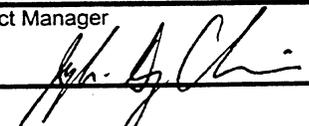
Drivers that affect the cost and schedule of this work include EPA/OEPA review cycles on DCNs, an excessive number of rain days, and unexpected discovery of large areas of undocumented contamination.

**c. SCOPE OF WORK:**

Title III engineering services for Area 5 consist of two tasks: Excavation Support and Prepare Final Documents.

Excavation Support:

Review and modify construction subcontract and work plans, as needed

Project Manager 	Control Account Manager 	Control Team Manager 
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**WORK SCOPE DEFINITION**  
(Work Package)

1. PROJECT TITLE <b>FEMP (DEFENSE)</b>		2. DATE <b>09/06/2001</b>	Page 2
3. WBS ELEMENT CODE <b>1.1.G.J</b>	4. WBS ELEMENT TITLE/NAME <b>AREA 5 SOIL REMEDIATION</b>		
5. PERFORMING DIV/DEPARTMENT CODE <b>49</b>	6. ORIGINATOR NAME/PHONE <b>JD CHIOU/648-3726</b>	7. WBS ELEMENT MANAGER <b>JD CHIOU</b>	
8. BUDGET AND REPORTING NUMBER <b>EW05H3060</b>	9. BUDGET TITLE <b>SOILS</b>		
10. ORIGINAL SCOPE? / CHANGE TO WORK SCOPE? / NEW SCOPE? <b>NEW PER CP# FY01-0015-0006-00</b>		11. ESTIMATED START / COMPLETION DATE <b>6/06 - 12/09</b>	
12. TASK IDENTIFICATION (WORK PACKAGE) <b>G5113</b>	13. TASK DESCRIPTION (ONE LINE) <b>AREA 5 TITLE III</b>		

14. ELEMENT TASK DESCRIPTION

Prepare and approve DCNs  
 Provide information for RCIs  
 Respond to and close out NCRs  
 Perform safety walkthroughs and attend safety briefings, as needed  
 Prepare the yearly completion report  
 Submit project records to ECDC and maintain copies in project file  
 Perform project management and control activities

Prepare Final Documents:

Complete as-built drawings  
 Prepare the close-out report  
 Submit project records to ECDC and maintain copies in project file  
 Perform project management and control activities

**d. WORK SPECIFICALLY EXCLUDED:**

All other charge numbers under control account G511

Excavation, certification, waste disposition

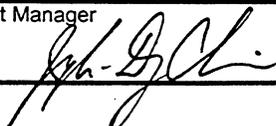
All other control accounts under PBS 06  
 Area 1, Area 2, Area 3A, Area 3B, Area 4A, Area 4B, Area 6, Area 7, Area 8, Area 9, stream corridors

All other PBS accounts  
 PBS 01, PBS 02, PBS 03, PBS 04, PBS 05, PBS 07, PBS 08, PBS 09,  
 PBS 10, PBS 11, PBS 12

All activities associated with other PBS elements

All activities associated with other PBS-06 control accounts.

**WORK SCOPE DEFINITION**  
(Work Package)

1. PROJECT TITLE <b>FEMP (DEFENSE)</b>		2. DATE <b>09/06/2001</b>	Page 1
3. WBS ELEMENT CODE <b>1.1.G.J</b>	4. WBS ELEMENT TITLE/NAME <b>AREA 5 SOIL REMEDIATION</b>		
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8. BUDGET AND REPORTING NUMBER <b>EW05H3060</b>	9. BUDGET TITLE <b>SOILS</b>		
10. ORIGINAL SCOPE? / CHANGE TO WORK SCOPE? / NEW SCOPE? <b>NEW PER CP# FY01-0015-0006-00</b>		11. ESTIMATED START / COMPLETION DATE <b>8/06 - 7/09</b>	
12. TASK IDENTIFICATION (WORK PACKAGE) <b>G5114</b>	13. TASK DESCRIPTION (ONE LINE) <b>AREA 5 SITE PREP/EXCAVATION</b>		
14. ELEMENT TASK DESCRIPTION  <b>a. ELEMENTS OF COST:</b>  Labor Subcontracts  <b>b. TECHNICAL CONTENT:</b>  Perform remedial construction activities for Area 5.  The project boundaries are as follows:  North by 1st Street  East by North Entrance Road  South by the south end of the parking lot  West by east side of the Lab Building  <b>c. SCOPE OF WORK:</b>  Provide site preparation activities prior to the start of excavation. Activities included but not limited to are as follows:  Provide and deliver all required permits.  Establish work limits and excavation boundaries.  Establish construction support areas and work areas.			
Project Manager 	Control Account Manager 	Control Team Manager 	

**WORK SCOPE DEFINITION**  
(Work Package)

1. PROJECT TITLE <b>FEMP (DEFENSE)</b>		2. DATE <b>09/06/2001</b>	Page 2
3. WBS ELEMENT CODE <b>1.1.G.J</b>	4. WBS ELEMENT TITLE/NAME <b>AREA 5 SOIL REMEDIATION</b>		
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8. BUDGET AND REPORTING NUMBER <b>EW05H3060</b>	9. BUDGET TITLE <b>SOILS</b>		
10. ORIGINAL SCOPE? / CHANGE TO WORK SCOPE? / NEW SCOPE? <b>NEW PER CP# FY01-0015-0006-00</b>		11. ESTIMATED START / COMPLETION DATE <b>8/06 - 7/09</b>	
12. TASK IDENTIFICATION (WORK PACKAGE) <b>G5114</b>	13. TASK DESCRIPTION (ONE LINE) <b>AREA 5 SITE PREP/EXCAVATION</b>		
14. ELEMENT TASK DESCRIPTION			
<p>Connect all utilities into construction support area.</p> <p>Establish surface water management controls.</p> <p>Provide excavation and removal of all above FRL soil and at and below grade concrete and utilities from Area #5 and transportation to the On-site Disposal Facility, SP-7 or other designated staging area in accordance with certified construction drawings, specifications and other subcontract requirements. Additional related activities and services within this scope of work are as follows:</p> <p>Erosion and sediment control during construction</p> <p>Installation and/or relocation of fencing during construction</p> <p>Equipment, material and support facilities rented/procured for project use</p> <p>Dewatering as necessary during construction</p> <p>Dust Control within designated work area.</p> <p>Decontamination of equipment</p> <p>Matrixed and subcontracted labor directly associated with construction</p> <p>Specific work to be addressed includes:</p> <p>Size reduce, excavate, load and haul at and below grade concrete, utilities, and debris associated with the Impacted Material Haul Road to OSDF as Category 2.</p> <p>Excavate, load and haul impacted soils to the OSDF as Category 1.</p> <p>Cut area utility isolation trenches and plug storm water and sanitary sewers.</p> <p>Interim Restoration Grading.</p> <p>Perform Post-Excavation activities.</p>			

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3. WBS ELEMENT CODE <b>1.1.G.J</b>	4. WBS ELEMENT TITLE/NAME <b>AREA 5 SOIL REMEDIATION</b>		
5. PERFORMING DIV/DEPARTMENT CODE <b>49</b>	6. ORIGINATOR NAME/PHONE <b>JD CHIOU/648-3726</b>	7. WBS ELEMENT MANAGER <b>JD CHIOU</b>	
8. BUDGET AND REPORTING NUMBER <b>EW05H3060</b>	9. BUDGET TITLE <b>SOILS</b>		
10. ORIGINAL SCOPE? / CHANGE TO WORK SCOPE? / NEW SCOPE? <b>NEW PER CP# FY01-0015-0006-00</b>		11. ESTIMATED START / COMPLETION DATE <b>8/06 - 7/09</b>	
12. TASK IDENTIFICATION (WORK PACKAGE) <b>G5114</b>	13. TASK DESCRIPTION (ONE LINE) <b>AREA 5 SITE PREP/EXCAVATION</b>		

14. ELEMENT TASK DESCRIPTION

**d. WORK SPECIFICALLY EXCLUDED:**

Placement in OSDF

Seeding / Vegetation beyond interim restoration

Road construction

Title I/II design services

Performing and/or managing Title III services

Sampling and testing of waste materials during remediation

Monitoring and maintenance of the remediated area after remediation

Offsite disposal of materials exceeding the waste acceptance criteria for on-site disposal

Treatment of lead containing soil

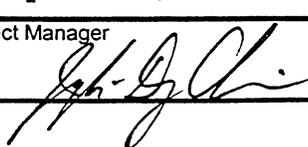
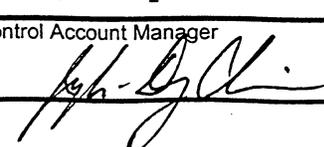
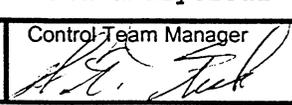
Centralized Personnel, Radiological controls, and Safety management during remedial construction

All activities associated with other PBS elements

All activities associated with other PBS-06 control accounts.



**WORK SCOPE DEFINITION**  
(Work Package)

1. PROJECT TITLE <b>FEMP (DEFENSE)</b>		2. DATE <b>09/06/2001</b>	Page 1
3. WBS ELEMENT CODE <b>1.1.G.J</b>	4. WBS ELEMENT TITLE/NAME <b>AREA 5 SOIL REMEDIATION</b>		
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8. BUDGET AND REPORTING NUMBER <b>EW05H3060</b>	9. BUDGET TITLE <b>SOILS</b>		
10. ORIGINAL SCOPE? / CHANGE TO WORK SCOPE? / NEW SCOPE? <b>NEW PER CP# FY01-0015-0006-00</b>		11. ESTIMATED START / COMPLETION DATE <b>6/06 - 12/09</b>	
12. TASK IDENTIFICATION (WORK PACKAGE) <b>G5117</b>	13. TASK DESCRIPTION (ONE LINE) <b>AREA 5 EXC CONTROL/CERTIFICATION</b>		
14. ELEMENT TASK DESCRIPTION			
<p><b><u>a. ELEMENTS OF COST:</u></b></p> <p>Labor Materials Subcontracts</p> <p><b><u>b. TECHNICAL CONTENT:</u></b></p> <p>The content of this document applies to the soil characterization program at the FEMP specific to area characterization, sampling, and analytical work performed by and for the Soil Disposal Facility Project in Area 5. It is a summary for area-specific characterization efforts that will be conducted in defined areas of excavation and lesser environmentally impacted areas that may not be excavated, but will require monitoring, sampling, and analytical testing. The characterization efforts are intended to provide information that may be required to supplement the remedial design and to support the remedial action that will result in compliance with the Final Remediation Levels (FRLs) published in the OU5 ROD. The Area 5 physical boundaries are described in Section 9 of the Fluor Fernald Closure Plan Basis of Estimate (20300-PL-0005).</p> <p>Drivers of the work are CERCLA, RCRA, the EPA Amended Consent Agreement (ACA), Sitewide Excavation Plan (SEP), and the signed Record of Decision (ROD) for OU5.</p> <p><b><u>c. SCOPE OF WORK:</u></b></p> <p>The scope of this document covers the characterization support for excavation control, precertification, and certification of Area 5. Characterization work performed in Area 5 under this scope will assist in determining soil disposition, extent of excavation, and provide sound field and analytical data</p>			
Project Manager 	Control Account Manager 	Control Team Manager 	

**WORK SCOPE DEFINITION**  
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1. PROJECT TITLE <b>FEMP (DEFENSE)</b>		2. DATE 09/06/2001	Page 2
3. WBS ELEMENT CODE <b>1.1.G.J</b>	4. WBS ELEMENT TITLE/NAME <b>AREA 5 SOIL REMEDIATION</b>		
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8. BUDGET AND REPORTING NUMBER <b>EW05H3060</b>	9. BUDGET TITLE <b>SOILS</b>		
10. ORIGINAL SCOPE? / CHANGE TO WORK SCOPE? / NEW SCOPE? <b>NEW PER CP# FY01-0015-0006-00</b>		11. ESTIMATED START / COMPLETION DATE <b>6/06 - 12/09</b>	
12. TASK IDENTIFICATION (WORK PACKAGE) <b>G5117</b>	13. TASK DESCRIPTION (ONE LINE) <b>AREA 5 EXC CONTROL/CERTIFICATION</b>		
14. ELEMENT TASK DESCRIPTION			
<p>that prove remedial activities were sufficient. During excavation of Area 5, radiological field surveying, physical soil sampling, and analysis will be required. This testing will be performed during the excavation process as necessary to determine disposition of excavated material. After excavation is determined to be complete, the remaining soil will be tested for all area specific contaminants of concern (COCs) to demonstrate FRL attainment. The actual radiological field-survey measurements, physical soil sampling and analytical activities covered under this account include the following tasks:</p> <p>Review existing data and engineering drawings</p> <p>Develop and write applicable data quality objectives and projects-specific-plans, as necessary</p> <p>Develop Certification Design Letters and text for the Area Implementation Plan</p> <p>Define and delineate excavation monitoring boundaries in the field</p> <p>Define and delineate Certification Units</p> <p>Prep the area for field measurements which includes clearing of brush</p> <p>Installation of certification fencing and signs</p> <p>Physical sampling</p> <p>Assess real-time data generated during excavation</p> <p>Perform assessment of radiological field survey results</p> <p>Perform data management functions within SDFP</p> <p>Develop final reports or certification reports</p> <p>Perform analysis</p> <p>If needed, Ground Penetrating Radar (GPR) / Electro-Magnetic (EM) Scanning</p>			

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<b>1. PROJECT TITLE</b>  FEMP (DEFENSE)		<b>2. DATE</b>  09/06/2001	Page 3
<b>3. WBS ELEMENT CODE</b>  1.1.G.J	<b>4. WBS ELEMENT TITLE/NAME</b>  AREA 5 SOIL REMEDIATION		
<b>5. PERFORMING DIV/DEPARTMENT CODE</b>  49	<b>6. ORIGINATOR NAME/PHONE</b>  JD CHIOU/648-3726	<b>7. WBS ELEMENT MANAGER</b>  JD CHIOU	
<b>8. BUDGET AND REPORTING NUMBER</b>  EW05H3060	<b>9. BUDGET TITLE</b>  SOILS		
<b>10. ORIGINAL SCOPE? / CHANGE TO WORK SCOPE? / NEW SCOPE?</b>  NEW PER CP# FY01-0015-0006-00		<b>11. ESTIMATED START / COMPLETION DATE</b>  6/06 - 12/09	
<b>12. TASK IDENTIFICATION (WORK PACKAGE)</b>  G5117	<b>13. TASK DESCRIPTION (ONE LINE)</b>  AREA 5 EXC CONTROL/CERTIFICATION		

**14. ELEMENT TASK DESCRIPTION**

**d. WORK SPECIFICALLY EXCLUDED:**

- Pre-design work
- Waste Tracking and disposition
- Waste Treatment activities
- Construction or remediation
- Development of Engineering plans, drawings, or specifications
- Land Surveying, staff, or equipment
- Real Time Scanning (HPGe, RSS, RTRAK), staff, or equipment
- Characterization personnel covered under GPM14
- Centralized services and/or equipment

All activities associated with other PBS elements

All activities associated with other PBS-06 control accounts.



**WORK SCOPE DEFINITION**  
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3. WBS ELEMENT CODE <b>1.1.G.J</b>	4. WBS ELEMENT TITLE/NAME <b>AREA 5 SOIL REMEDIATION</b>		
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10. ORIGINAL SCOPE? / CHANGE TO WORK SCOPE? / NEW SCOPE? <b>NEW PER CP# FY01-0015-0006-00</b>		11. ESTIMATED START / COMPLETION DATE <b>7/06 - 4/09</b>	
12. TASK IDENTIFICATION (WORK PACKAGE) <b>G5118</b>	13. TASK DESCRIPTION (ONE LINE) <b>AREA 5 OFFSITE WASTE DISPOSITION</b>		

14. ELEMENT TASK DESCRIPTION

**a. ELEMENTS OF COST:**

Labor  
Materials  
Subcontracts

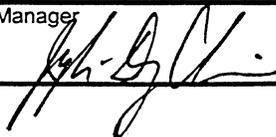
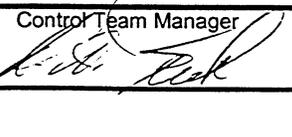
**b. TECHNICAL CONTENT:**

The content of this document applies to waste disposition activities at the FEMP specific to work performed by and for the Soil Disposal Facility Project in Area 5. It is a summary for area-specific waste disposition efforts for waste that does not meet the On Site Disposal Facility (OSDF) Waste Acceptance Criteria (WAC) and will require packaging, loading, shipping, and disposal at an approved offsite disposal facility. Offsite treatment of waste materials that do not meet the offsite disposal facility's WAC may be required prior to disposal and is also covered under this account. The waste disposition efforts are intended to result in compliance with the OU5 Record of Decision (ROD). The Area 5 physical boundaries are described in Section 5 of the Fluor Fernald Closure Plan Basis of Estimate (20300-PL-0005).

Drivers of the work are CERCLA, RCRA, the EPA Amended Consent Agreement (ACA), Sitewide Excavation Plan (SEP), and the signed Record of Decision (ROD) for OU5.

**c. SCOPE OF WORK:**

The scope of this document covers the offsite disposition of at and below grade soil and/or other waste materials that have been identified throughout the characterization and remedial action process. The waste disposition activities covered under this account include the following tasks:

Project Manager 	Control Account Manager 	Control Team Manager 
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**WORK SCOPE DEFINITION**  
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10. ORIGINAL SCOPE? / CHANGE TO WORK SCOPE? / NEW SCOPE? <b>NEW PER CP# FY01-0015-0006-00</b>		11. ESTIMATED START / COMPLETION DATE <b>7/06 - 4/09</b>	
12. TASK IDENTIFICATION (WORK PACKAGE) <b>G5118</b>	13. TASK DESCRIPTION (ONE LINE) <b>AREA 5 OFFSITE WASTE DISPOSITION</b>		
14. ELEMENT TASK DESCRIPTION			
<p><b>Review existing data and engineering drawings</b></p> <p><b>Perform data management functions within SDFP</b></p> <p><b>Develop final reports</b></p> <p><b>Campaign Planning</b></p> <p><b>Purchase or rental of appropriate containers</b></p> <p><b>Package soil and/or other waste materials into containers</b></p> <p><b>Repackaging, or over-packing</b></p> <p><b>Container movements within the FEMP</b></p> <p><b>Loading containers on/in appropriate conveyance</b></p> <p><b>Shipping to offsite disposal facility</b></p> <p><b>Offsite waste treatment to meet offsite WAC</b></p> <p><b><u>d. WORK SPECIFICALLY EXCLUDED:</u></b></p> <p><b>Pre-design work</b></p> <p><b>Excavation control characterization</b></p> <p><b>Precertification / certification activities</b></p> <p><b>Waste treatment activities</b></p> <p><b>Construction or remediation</b></p> <p><b>Development of engineering plans, drawings, or specifications</b></p>			

**WORK SCOPE DEFINITION**  
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8. BUDGET AND REPORTING NUMBER <b>EW05H3060</b>	9. BUDGET TITLE <b>SOILS</b>		
10. ORIGINAL SCOPE? / CHANGE TO WORK SCOPE? / NEW SCOPE? <b>NEW PER CP# FY01-0015-0006-00</b>		11. ESTIMATED START / COMPLETION DATE <b>7/06 - 4/09</b>	
12. TASK IDENTIFICATION (WORK PACKAGE) <b>G5118</b>	13. TASK DESCRIPTION (ONE LINE) <b>AREA 5 OFFSITE WASTE DISPOSITION</b>		
14. ELEMENT TASK DESCRIPTION  <b>Land surveying, staff, or equipment</b>  <b>Real Time Scanning (HPGe, RSS, RTRAK), staff, or equipment</b>  <b>Characterization personnel covered under GPM14</b>  <b>Centralized services and/or equipment</b>  <b>Onsite waste treatment</b>  <b>All activities associated with other PBS elements</b>  <b>All activities associated with other PBS-06 control accounts.</b>			



## **SECTION 9**

### **1.0 NARRATIVE**



1. PROJECT TITLE: SOILS EXCAVATION	2. DATE: 09/10/01	3. PBS#: 06
4. WBS ELEMENT CODE: 1.1.G.J.	5. WBS ELEMENT TITLE: AREA 5 SOILS REMEDIATION	
6. CAM NAME/ PHONE: JYH-DONG CHIOU/ 3726	7. CAM SIGNATURE:	
8. ORIGINAL/ CHANGE SCOPE/ PER CP#:	9. CONTROL ACCOUNT: G511	

## SECTION 9: G511 – AREA 5 SOILS REMEDIATION

### 1.0 NARRATIVE

#### 1.1 OVERVIEW

This Closure Plan defines the scope of work required to plan, develop, execute, manage and administer the Area 5 remedial activities under PBS-06 (WBS 1.1.G.J; control account G511). The control account is divided into the following charge numbers: G5113, Title III Design; G5114 Site Preparation and Excavation; G5117, Excavation Monitoring and Certification; and G5118, Off-site Waste Disposition. Remedial activities will remove all impacted soil and at- and below-grade structures to prepare the area for certification and, ultimately, final restoration activities. The external assumptions and drivers that effect the work and descriptions of the physical area and remedial tasks are discussed below.

#### 1.2 ASSUMPTIONS/EXCLUSIONS

##### 1.2.1 Assumptions

- DOE maintains full baseline funding levels as defined in the closure contract.
- The SDFP restarts in FY2004 with most of the current personnel or personnel with equivalent experience.
- The time consuming, non-technical, and low-value-added requirements and practices are simplified or eliminated, including: Project Execution Plan (PEP), data quality objectives (DQO), project review, Technical Review Board (TRB), Contract Review Board (CRB), safety start-up review (SSR), etc.
- New requirements or procedures are not implemented unless a cost/schedule evaluation indicates they are needed.
- The contractors will prepare the Safe Work Plan, travelers, penetration permits, field logs, lock and tag records, QA/QC documents, placement planning, coordination and tracking, etc.
- Radiation-control and security requirements will be simplified or eliminated.

- SDFP are cross-trained to perform safety and health, industrial-hygiene, and radiation-control tasks.
- SDFP will self perform Title III engineering services.
- Other PBSs that provide matrixed and centralized personnel to this work scope maintain adequate and competent resources to perform the work identified in Section 1.5.
- Services currently provided by the geoprobe sampling crew, on-site analytical laboratory and SED data entry personnel are maintained.
- All inorganic and radiological COCs (except strontium-90) will be analyzed at the on-site laboratory.
- All D&D activities in Area 5 are complete by start of excavation in 1stQ of FY2007.
- An area-isolation trench is placed around Area 51 prior to excavation.
- Perched water is not present in quantities that require a significant change to the designed 2:1 slopes.
- Excavation monitoring consists of scanning the entire area after concrete and gravel pads are removed and one-third of the area after each of 3 lifts to account for contamination zones. This equates to a scanning acreage of twice the initial acreage.
- Above-WAC soil contaminated with organic COCs is treated on site and placed in the OSDF or staged at SP-7 until shipped off site.
- CDLs are developed concurrent with excavation activities.
- Certification field activities begin during the last quarter of excavation activities.
- Statistical tests conducted on the analytical results will follow the pass/fail guidance in the SEP.
- Staffing needs identified in Manpower Plan (Section 3.0) are met to deal with preparation of plans and start-up activities associated with excavation of 4A.
- PBS-06 staff will not be required to perform additional closure plan work after DOE approves the plan.
- Internal and DOE review of a Project Specific Plan (PSP) is performed in one week.

- The EPA/OEPA review and comment period for the PSPs, Certification Design Letter or Certification Report is one month.
- EPA/OEPA will review and approve significant PSP Variance/Field Change Notices (V/FCNs) in 7 days for precertification PSPs and 15 days for certification PSPs.
- EPA/OEPA will review and approve Design Change Notices (DCNs) within 7 days of receipt and CDLs prior to the start of the last quarter of excavation.
- Radiation-control and break trailers used for Areas 3B and 4B are used during Area 5 remediation.
- Electric pumps in certification buffer corridor are fed from overhead lines provided by site utilities group.
- Maintenance activities associated with the buffer corridor are assigned to adjacent areas undergoing remediation after Title III activities cease.
- AWWT operates and maintains pumps in buffer corridor after they are installed and pass start-up process.

#### 1.2.2 Exclusions

- All activities associated with other PBS elements
- All activities associated with other PBS-06 control accounts.

#### 1.2.3 Government-Furnished Equipment/Services

None.

#### 1.2.4 Applicable Requirements

- OU3 and OU5 RODs
- Sitewide CERCLA Quality Assurance Plan
- CDL and CR reviewed and approved by EPA/OEPA
- Dust control measures are implemented during excavation and hauling.
- Real time scan between every excavation lift in above-WAC and above-FRL excavations (i.e., no real time scan if excavation is simply to remove structures).
- Remove excavation water from 24 hour/10-year event within 72 hours.

- Perform 5:1 grading for interim restoration after certification.
- If technetium-99, PCE, TCE, and/or DCE are present at levels that exceed the OSDF WAC, physical samples must be taken along the side slopes and footprints of the above-WAC excavation to confirm their removal prior to initiating below-WAC excavation activities.
- Frisker and/or PID monitoring by radiation control and/or H&S is performed in accordance with applicable DOE and regulatory standards.

#### 1.2.5 Applicable Technical Guidance

- Sitewide Excavation Plan
- Waste Acceptance Criteria for the On-site Disposal Facility
- Impacted Materials Placement Plan for the On-site Disposal Facility
- There is a SSR for the pumps in the certification buffer area.
- Visual monitoring of all excavations by WAO.
- Excavation water with PCE, TCE or DCE above 50 ug/L goes to AWWT for Phase II treatment.
- Certification units are sized to one acre, or 800 linear feet for a utility trench cut below the designed excavation grade.
- A precertification scan with HPGe instruments is conducted prior to the collection of certification samples.

#### 1.2.6 Disposal, Treatment, Containers, Utilities

- There is no organically-contaminated soil that requires treatment
- Soil and debris that do not meet the OSDF radiological or physical WAC are placed at SP-7 until shipped to Envirocare.
- Special materials, as defined in the OSDF WAC Plan, will be packaged and shipped to the Nevada Test Site.
- Electric, water and communication utilities are provided to rad control and break trailers by infrastructure support.

- Electric tie-in points for pumps in buffer corridor are provided by infrastructure support.

### 1.3 DRIVERS

- Congressional funding of DOE EM Projects
- Completion of D&D activities For Buildings 64 and 65.
- Congressional funding of DOE EM Projects
- EPA/OEPA review cycles
- DOE review cycles
- Excessive number of rain days
- Discovery, during excavation, of large areas of undocumented contamination.

### 1.4 PROJECT PHYSICAL DESCRIPTION

Remediation Area 5 comprises approximately 48 acres and lies south of the former Production Area. This area contains the Administration, Service and Safety and Health Buildings and includes the parking lot. The area is bounded by the 1<sup>st</sup> St to the north, the north entrance road to the east and southeast, the southern end of the parking lot to the south, and the west boundary of the parking lot and east side of the Lab Building to the west.

Remedial activities in Area 5 are being carried out in accordance with the OU3 and OU5 RODs, with the primary objective being the removal of all soil contaminated at levels above established FRLs and all at- and below-grade structures. When the remedial actions are completed, the certified area will be graded to 5:1 slopes and seeded according to the Natural Resource Restoration Plan. Predesign characterization work and the Title I/II design were completed in Spring of 2001. Each charge account associated with the remediation of Area 5 is summarized in Section 1.5.

### 1.5 PROJECT PLAN/TECHNICAL SCOPE AND QUANTIFICATION

Area 5 charge numbers under control account G511 (PBS-06, WBS 1.1.G.J) consist of Title III Design (G5113), Site Preparation/Excavation (G5114), Excavation Monitoring/Certification (G5117), and Off-site Waste Disposition (G5118).

#### 1.5.1 G5113 - Title III Design

Title III design activities will focus on the development and approval of design change notices (DCNs) as field activities progress, and the preparation of closure documents after excavation is complete. The activities and deliverables are placed into two tasks:

- 1) Excavation Support and 2) Prepare Final Documents.

A major technical risk identified for this scope of work is the EPA/OEPA review and approval process for DCNs. Contingencies that can be used to mitigate this risk include a reduction in the number of DCNs and a shorter review and approval cycle.

The Task activities and deliverables will be completed primarily by project staff from the management, engineering, surveying, construction and administrative disciplines, and these personnel will charge their labor hours to PBS-06 control account GPM1. Only matrixed and subcontracted labor, as identified in below, will use the charge account G5113. Detail on manpower loading needed to execute this scope of work is provided in Section 3.0. The charge account for G5113 will be closed out when the interim restoration of Area 51 is completed.

1) Task #1 - Excavation Support

1.1) Plan/Scope

Excavation support is the link between engineering design and the execution of the construction work. Prior to initiating construction work, the construction subcontract will be placed and work plans will be completed to meet the needs of Area 5 excavation work. Field and design changes that develop during construction activities must be documented and approved to maintain the record between the CFC drawings and final as-built drawings. If needed, the engineering and construction staff must respond to and close out non-conformance reports. Specific activities and deliverables under this work scope include:

- Review and modify construction subcontract and work plans, if needed.
- Prepare and approve design change notices (DCNs).
- Provide information for requests for clarification of information (RCIs).
- Respond to and close out non-conformance reports (NCRs).
- Perform safety walkthroughs and attend safety briefings, as needed.
- Prepare the Yearly Completion Report
- Submit project records to ECDC and maintain copies in project file.
- Perform project management and control activities.

Deliverables associated with the above scope include: DCNs to the project, EPA/OEPA and ECDC; RCIs to the construction crew; NCRs to the cognizant QA officer; the Yearly Completion Report to the project; and all records to ECDC.

The scope of work identified above will be executed using subcontracted, matrixed, centralized and projectized personnel. Distribution of the work, and the plan for executing the scope, is described for each division of personnel.

*Subcontracted Personnel*

CADD support is required to modify drawings affected by DCNs. Subcontract costs will be charged to G5113.

*Matrixed Personnel*

Environmental, Safety, Health and Quality Integration, Quality Control Operations, and Radiological Protection Operations will perform DCN reviews, if applicable. Project Controls will provide cost and schedule support. Personnel from these organizations will use charge number G5113.

*Centralized Personnel*

Document Control/Procedure Management will assign document numbers, maintain the project file and distribute controlled documents. They will also be used when procedural matters need attention. Information Management will provide the project with computer hardware and software needs. Waste Acceptance Organization will review the DCNs, if applicable. Personnel from these organizations will use their functional area charge numbers.

*Projectized Personnel*

The work plans will be prepared by project staff from the management, engineering, construction and administrative disciplines, and these personnel will charge their labor hours to PBS-06 control account GPM1. Management will ensure that engineering and construction personnel work together to develop the necessary DCNs. A yearly completion report will be prepared by engineering and construction personnel at the end of the construction season to document the performance of the work, the lessons learned, and quantities delivered to the OSDF and other disposition localities.

1.2) Quantification

Table 1 summarizes the quantities and/or deliverables anticipated for Task 1. Per the direction of senior management, 3 safety walkthroughs will be performed each month. Based on the number of DCNs, RCIs, and NCRs for previous Title III work, it is estimated that there will be 100 DCNs, 20 RCIs, and 10 NCRs. The project engineer will approve and sign all DCNs after regulatory approval is obtained. A yearly completion report will be prepared to status the excavation progress.

TABLE 1  
 Quantities for Task 1 - Excavation Support

ITEM	QUANTITY
Safety Walkthroughs	108
Design Change Notice (DCN)	100
Request for Clarification of Information (RCI)	20
Non-Conformance Report (NCR)	10
Yearly Completion Report	2

2) Task #2 - Prepare Final Documents

2.1) Plan/Scope

After the completion of excavation activities, as-built drawings will be prepared and a closeout report will be developed. The close out report will be filed after interim restoration activities are completed in the certified area. Specific activities and deliverables include:

- Complete the as-built drawings.
- Prepare the Closeout Report.
- Submit project records to ECDC and maintain copies in project file.
- Perform project management and control activities.

The as-built drawings and Closeout Report will be delivered to central engineering and all records will be filed with ECDC.

The scope of work identified above will be executed using subcontracted, matrixed, centralized and projectized personnel. Distribution of the work, and the plan for executing the scope, is described for each division of personnel.

*Subcontracted Personnel*

CADD support is required to prepare the as-built drawings. Subcontract costs will be charged to G5113.

*Matrixed Personnel*

Project Controls will provide cost and schedule support. Personnel from these organizations will use charge number G5113.

*Centralized Personnel*

Engineering Services will assist with the as-built drawings, close-out report and termination of the CADD subcontract, as needed. Document Control/Procedure Management will assign document numbers, maintain the project file and distribute controlled documents. Personnel from these organizations will use their functional area charge numbers.

*Projectized Personnel*

Project staff from the management, engineering, construction and administrative disciplines will charge their labor hours to PBS-06 control account GPM1. Management will ensure that engineering and construction personnel work together to complete the as-built drawings and close-out report. As-built drawings will be prepared after excavation is complete and the pumps are installed in the buffer area. The close-out report for the control account will be issued after completion of all certification and waste-management activities.

2.2) Quantification

Table 2 summarizes the quantities and/or deliverables anticipated for Task 2. Based on the percentage of drawings changed during previous construction activity, it is estimated that there will be 50 as-built drawings. A Close-out Report, for the engineering activities associated with the remediation of Area 5, will be prepared during certification activities and will be completed after the interim-restoration grading (5H:1V slopes) of the certified area.

TABLE 2  
 Quantities for Task 2: Prepare Final Documents

ITEM	QUANTITY
As-Built Drawings	50
Close-out Report	1

1.5.2 G5114 - Site Preparation/Excavation

Prior to initiating the site preparation and excavation work, the excavation subcontract must be placed and all work plans must be completed to document the approach and controls that will govern the construction phase of the remediation. The work plans will be approved prior to excavation of Area 4A by engineering and construction disciplines to ensure integration occurs early in the project. This integration will continue with the parallel execution of site preparation, excavation and Title III activities. The activities and deliverables for this charge number are divided into the following tasks: 1) Site Preparation; 2) Excavation; 3) Control and Management; and 4) Interim Restoration.

Major technical risks include the discovery of large volumes of perched water or encountering prohibited items in quantities that greatly exceed the estimated 25 yd<sup>3</sup>. A contingency that can mitigate the perched water risk involves maintaining sufficient dewatering pumps and working several areas concurrently.

The activities and deliverables discussed below will be completed primarily by project staff from the management, construction, surveying, engineering, waste disposition and administrative disciplines, and these personnel will charge their labor hours to PBS-06 control account GPM1. Only matrixed and subcontracted labor, as identified below, will use the charge account G5114. Detail on manpower loading needed to execute this scope of work is provided in Section 3.0. The charge account for G5114 will be closed out when construction personnel complete the interim-restoration grading.

1) Task #1 - Site Preparation

1.1) Plan/Scope

Site preparation activities integrate the final documentation process with field work associated with preparing the job site, and these activities must be completed prior to the start of excavation. Specific activities and deliverables include:

- Complete construction travelers, radiation work permit and penetration permit.
- Prepare the submittal log and cross-check to ensure all work plans and permits are in order.
- Procure materials and equipment, as needed.
- Perform clearing and grubbing, if needed.
- Survey and establish the site layout, work limits, area isolation trench, and excavation boundaries for above-WAC and RCRA/HWMU/UST areas.
- Cut area isolation trench and plug storm water and sanitary sewers.
- Establish access controls with radiological and construction fence and signage.
- Relocate radiation control point and change-out facilities.
- Establish the construction support areas: worker and visitor parking, laydown area for materials and equipment, refueling area, sealands for storage, portolets, and water coolers.
- Establish the work area: install the break/cool-down trailers, portolets, water coolers, special materials transfer area, dust control piping, water wells, haul routes and air monitors.
- Connect electric, telephone, water and communication utilities into construction support area.
- Establish surface-water management controls: silt fence, sediment traps and culvert installation.
- Submit project records to ECDC and maintain copies in project file.
- Perform project management and control activities.

The construction travelers, work permits and submittal log will be delivered to the project. All records will be delivered to ECDC.

The scope of work identified above will be executed with the construction subcontractor using matrixed, centralized and projectized personnel. Distribution of the work, and the plan for executing the scope, is described for each division of personnel.

#### *Subcontractor Work*

The subcontractor will install fencing, access controls and surface-water management structures and the special material transfer area will be prepared. After all work plans have been approved, the area-isolation trench will be cut around the perimeter of the area to provide added assurance that all energized utilities have been isolated (Note: it is not the intent of the area-isolation trench to serve as the primary method for isolating energized utilities, as infrastructure personnel and engineers will terminate all known water, electric and gas lines that enter the area prior to initiating this trenching activity). Subcontract costs will be charged to G5114.

#### *Matrixed Personnel*

Environmental, Safety, Health and Quality Integration, Quality Control Operations, and Radiological Protection Operations will review and the procurement requisitions. Engineering Services will support the installation of utilities in support trailers. Personnel from these organizations will use charge number G5114.

#### *Centralized Personnel*

Document Control/Procedure Management will assign document numbers, maintain the project file and distribute controlled documents. The Construction Support Contractor will assist with administrative aspects of the construction subcontract. Infrastructure Services will assist with the set-up and maintenance of the trailers and provide U/E support for penetration permits. Security/EM Services will provide access control and emergency response. Training will perform needed training for subcontractor personnel. Personnel from these organizations will use their functional area charge numbers.

#### *Projectized Personnel*

Project staff from the management, engineering, construction, survey and administrative disciplines will charge their labor hours to PBS-06 control account GPM1. Management and construction will work closely with the subcontractor and FEMP labor force to ensure all activities are performed in a safe and timely manner. Activities will begin with the set-up of the support trailers and utility hook-ups to these trailers. Electric lines will be required for all trailers for heat, lights and the radiation-control station. Water and sewer for showers will be needed for the change-out trailer, as the support building will no longer be present. Bottled drinking water will be provided in all trailers and portable toilets will be set-up outside of the radiation-control trailer. Project Controls will provide cost and schedule support.

1.2) Quantification

Table 3 summarizes the quantities and/or deliverables anticipated for Task 1. The traveler, permits and submittal log are based on previous submittals by construction contractors, and Fluor Fernald's decision to self-perform the excavation services. Due to safety being the number one site priority, 1,200 linear feet of trench will be cut to a depth of 12 feet around the Area 5 building foundations to provide a physical back-up for previous utility isolation activities. The quantities for fencing, signage, trailers, containers, water coolers, and port-o-are based on previous construction work carried out at the site.

TABLE 3  
 Quantities for Task 1: Site Preparation

ITEM	QUANTITY
Construction Traveler	1
Radiation Work Permit	1
Penetration Permit	1
Submittal Log	1
Area Isolation Trench, linear feet	1,200
Silt Fence, linear feet	5,000
Radiological or Construction Fence, linear feet	5,000
Radiological or Construction Signs	100
Radiological Control Point/Change-Out Trailer	1
Break/Cool Down Trailer	1
Sealand Storage Containers	10
Water Coolers	10
Portolets	4

2) Task #2 - Excavation

2.1) Plan/Scope

Excavation activities will result in the removal of all above-FRL soil and at- and below-grade concrete and utilities. Per the guidance developed in the SEP, the above-WAC and RCRA contamination areas will be removed first to minimize cross-contamination. Concrete pads and foundations will be broken and removed using industry-standard cutting, crushing and loading equipment. Bulldozers, excavators and trucks will be used to remove the soil. Seasonal shutdown and post-excavation actions will also be performed under this task. Specific activities include:

- Size-reduce, excavate, load and haul at- and below-grade concrete and utilities to OSDF, SP-7 or the designated off-site staging area.
- Excavate, load and haul impacted soil to the OSDF, SP-7 or the designated off-site staging area.

- Identify, excavate, load containers and stage special materials at the special materials transfer area.
- Perform construction management services: survey and track materials removed, create redlines, complete daily construction activity logs, respond to NCRs, prepare event discovery reports/final event reports, conduct safety briefings and walkdowns, and perform Root Cause Analysis, if needed.
- Perform seasonal shutdown and winterization: maintain surface water/erosion controls, perform dust control, complete equipment decontamination, remove water from excavations and seed/stabilize excavations and stockpiles, as required.
- Perform post-excavation activities: remove construction support area and work area features, remove utility runs, remove all fencing and signage, perform equipment decontamination and establish the certification perimeter and access control points.
- Submit project records to ECDC and maintain copies in project file.
- Perform project management and control activities.

Survey logs and material estimates, construction logs, NCR resolutions, safety briefings and walkdowns, and event reports will be delivered to the project manager. All project records will be delivered to ECDC.

The scope of work identified above will be executed with the construction subcontractor using matrixed, centralized and projectized personnel. Distribution of the work, and the plan for executing the scope, is described for each division of personnel.

#### ***Subcontractor Work***

The subcontractor will be responsible for the safe removal of all soil, utility piping and reinforced concrete. Additionally, all maintenance and seasonal shut-down tasks will be performed by the contractor. Subcontract costs will be charged to G5114.

#### ***Matrixed Personnel***

Environmental, Safety, Health and Quality Integration, Quality Control Operations, and Radiological Protection Operations will review DCNs, if necessary. Radiological Protection Operations will also maintain radiation permits, perform RWP briefings, and conduct radiation surveys of contaminated materials and equipment. Environmental Compliance will assist with dust monitoring, if needed. Waste Generator Services will prepare and move containers and package special materials for off-site transportation, if needed. Personnel from these organizations will use charge number G5114.

*Centralized Personnel*

Document Control/Procedure Management will assign document numbers, maintain the project file and distribute controlled documents. The Construction Support Contractor will assist in management of the subcontract. Infrastructure Services will maintain the trailers, provide porter services, transport VOC water to the AWWT, perform dust control, and maintain roads to OSDF and SP-7. Waste Acceptance Organization will review DCNs and perform waste manifestation activities. Security/EM Services will provide access control and emergency response. Property Management will receive and log vendor materials, control government inventory and track government-owned property. Training will perform needed training for subcontractor personnel. Personnel from these organizations will use their functional area charge numbers.

*Projectized Personnel*

Project staff from the management, engineering, construction, survey, real time and administrative disciplines will charge their labor hours to PBS-06 control account GPM1. Management, engineering, and construction will work closely with the subcontractor and FEMP labor force to ensure all activities are performed in a safe and timely manner. Real time scans will be conducted over the contamination areas after each lift. Engineering and construction will prepare DCNs and obtain approval from the applicable functional areas. Survey crews will verify material quantities. Concrete pads and below-grade structures may be size-reduced for use as road-bed material in the OSDF. Piping will be removed and size-reduced to meet the OSDF WAC. Special materials, if found, will be loaded into containers provided by waste generator services and placed at the special material transfer area. Project Controls will provide cost and schedule support to the project manager.

2.2) Quantification

Table 4 summarizes the quantities and/or deliverables anticipated for Task 2. Per senior management, 3 safety walkthroughs will be conducted each month. The basis for the soil quantities is the SDFP spreadsheet *At- and Below-Grade Material Quantities*. Estimates for concrete, asphalt and piping debris were obtained from site drawings, with ten percent of the total piping volume assumed to be above-WAC. Piping volume is calculated from linear feet using a nominal 10-inch diameter. Based on past excavation history, the quantity of special materials is estimated to be no greater than 25 cubic yards. A 5-gallon sample of soil will be obtained from the active excavation for every 10,000 cubic yards excavated, and this sample will be delivered to the OSDF for proctor testing.

TABLE 4  
 Quantities for Task 2: Excavation

ITEM	QUANTITY
Safety Walkthroughs	108
Concrete and Asphalt Debris, cubic yards	19,000
Piping Debris, cubic yards	660
Above-WAC Piping, cubic yards	80
Soil, cubic yards	61,000
Above-WAC Soil, cubic yards	0
Above-WAC/RCRA Soil to Treat, cubic yards	0
Special Materials, cubic yards	25
5-Gallon Proctor Sample	6

3) Task #3 - Control and Management

3.1) Scope/Plan

Control and management activities apply to the buffer corridor that surrounds the certification area, access and haul roads, and start-up activities associated with the pump stations. The majority of these activities will follow the excavation of impacted material. Specific activities and deliverables include.

- Install the pump stations in the buffer corridor and perform the Safety Start-up Review.
- Remove sediment from pump sumps located in the buffer corridor and designated sediment traps.
- Maintain surface-water management and erosion control structures.
- Remove water from excavations, as needed.
- Maintain haul roads and access roads.
- Provide dust control, as needed.
- Submit project records to ECDC and maintain copies in project file.
- Perform project management and control activities.

Documents and reports associated with the SSR process will be delivered to the SDFP and Aquifer Project. All records will be delivered to ECDC.

The scope of work identified above will be executed using the construction subcontractor, matrixed, centralized and projectized personnel. Distribution of the work, and the plan for executing the scope, is described for each division of personnel.

#### *Subcontractor Work*

The subcontractor will install pumps and perform maintenance activities in the buffer corridor. Two pump stations will be installed in the buffer corridor and the pumps will discharge to the nearest storm-water catch basin tied to the FEMP storm-water retention basins. Pumps in the buffer corridor will be configured to start and operate automatically at any time of the day, 365 days a year, and they must be capable of handling the 24-hour/10-year storm event. An SSR will be performed after installation and the system will be turned over to the Aquifer Project for operation and maintenance. Maintenance activities include erosion control on the 2:1 slopes and removal of the sump sediment from the pump stations. Subcontract costs will be charged to G5114.

#### *Matrixed Personnel*

Environmental, Safety, Health and Quality Integration, Quality Control Operations, and Radiological Protection Operations will review DCNs, if necessary. Radiological Protection Operations will also maintain radiation permits and perform RWP briefings. Environmental Compliance will assist with dust monitoring, if needed. Project Controls will provide cost and schedule support. Personnel from these organizations will use charge number G5114.

#### *Centralized Personnel*

Document Control/Procedure Management will assign document numbers, maintain the project file and distribute controlled documents. The Construction Support Contractor will assist in managing the construction subcontract. Infrastructure Services will perform dust control and maintain roads to OSDF and SP-7. Security/EM Services will provide access control and emergency response. Property Management will receive and log vendor materials, control government inventory and track government-owned property. Training will perform needed training for subcontractor personnel. Personnel from these organizations will use their functional area charge numbers.

#### *Projectized Personnel*

Project staff from the management, engineering, construction, survey, and administrative disciplines will charge their labor hours to PBS-06 control account GPM1. Management, engineering and construction will work closely with the subcontractor and FEMP labor force to ensure all activities are performed in a safe and timely manner. Prior to the certification of the interior part of Area 5, a buffer corridor will be established around the perimeter of the certification area to control storm-water run-on. Project personnel will conduct an SSR for the pumps in the buffer corridor and turn the pump system over to the Aquifer Project after successful operation is demonstrated.

3.2) Quantification

Table 5 summarizes the quantities and/or deliverables anticipated for Task 3. The number of pump stations is based on the number of pump stations estimated in the Area 3A/4A IRDP for boundaries in Area 3A and 4A, and the length of the boundary between Areas 7/4B and Area 5. Construction management and the labor force will be responsible for the installation and start up of the pump system, maintenance of the slopes (2:1) and removal of sediment in pump sumps. After installing the pumps, construction management will conduct an SSR and demonstrate operational readiness prior to turning the system over to the Aquifer Project. It is assumed that slope maintenance and sediment removal will occur at the beginning and end of the construction season. After the close-out report has been filed for Cost Account G4A1, activities associated with maintaining the slopes and pump sumps in the buffer corridor will be transferred to the adjacent areas undergoing remediation (i.e., Areas 7 and 4B).

TABLE 5  
 Quantities for Task 3: Control and Maintenance

ITEM	QUANTITY
Pump Stations	2
Safety Start-up Review	1
Sediment Removal, biannual	2
Slope Maintenance, biannual	2

4) Task #4 - Interim Restoration

4.1) Scope/Plan

Interim restoration occurs after the remediated area has been certified clean. The 2:1 slopes in the certified area will be graded to 5H:1V, using decontaminated equipment, and seeded. Specific activities include:

- Survey work limits and establish the access controls.
- Procure needed materials and equipment.
- Perform grading to reshape 2:1 slopes to 5:1 slopes.
- Seed 5:1 slopes.
- Submit project records to ECDC and maintain copies in project file.
- Perform project management and control activities.

All project records will be delivered to ECDC.

The scope of work identified above will be executed using subcontracted, matrixed, centralized and projectized personnel. Distribution of the work, and the plan for executing the scope, is described for each division of personnel.

*Subcontracted Personnel*

Labor required for the interim-restoration grading will be hired from local union halls. Job categories envisioned include foreman, laborer, and heavy-equipment operator. Subcontract costs will be charged to G5114.

*Matrixed Personnel*

Acquisitions/Prime Contract Administration will be used to develop RFPs and procure subcontractor services. Environmental Compliance will assist with dust monitoring, if needed. Personnel from these organizations will use charge number G5114.

*Centralized Personnel*

Document Control/Procedure Management will assign document numbers, maintain the project file and distribute controlled documents. The Construction Support Contractor will assist in placing the labor subcontract. Security/EM Services will provide access control and emergency response. Property Management will receive and log vendor materials, control government inventory and track government-owned property. Training will perform needed training for subcontractor personnel. Personnel from these organizations will use their functional area charge numbers.

*Projectized Personnel*

Project staff from the management, engineering, construction, survey, and administrative disciplines will charge their labor hours to PBS-06 control account GPM1. Management, engineering and construction will work closely with the subcontracted labor force and FEMP labor force to ensure all activities are performed in a safe and timely manner. Project Controls will provide cost and schedule support.

4.2) Quantification

Table 6 summarizes the quantities and/or deliverables anticipated for Task 4. The number of walkthroughs is based on 3 walkthroughs a month, per senior management. An estimate on the amount of soil that must be reshaped is taken as 9 percent of the total soil excavated, which is the percentage calculated for the Area 3A/4A design. The acreage requiring seed is estimated as the initial acreage of Area 5.

TABLE 6  
 Quantities for Task 4: Interim Restoration

ITEM	QUANTITY
Safety Walkthroughs	6
Soil to Reshape, cubic yards	5,400
Acres to Seed	48

### 1.5.3 G5117 - Excavation Monitoring/Certification

Monitoring and certification activities will occur in parallel to excavation activities. Each excavation lift, in zones of contamination, will be monitored for radium, thorium and uranium levels. Certification Design Letters (CDLs) will be prepared and submitted to EPA/OEPA for review and approval during excavation to minimize the time period between the end of excavation activities and the start of certification sampling. Likewise, all precertification scans will be completed as close as possible to the end of excavation activities. Specific activities and deliverables are summarized under the following tasks: 1) Excavation Monitoring; 2) Precertification; and 3) Certification.

Major technical risks include: using off-site laboratory services for analysis of organic COCs, insufficient access to the excavation area to begin certification, and EPA/OEPA review cycles for the CDLs and Certification Report (CR). Contingencies that can mitigate the risks include: develop on-site laboratory services for organic COCs, expedite excavation in Area 5 and negotiate shorter EPA/OEPA review cycles.

The task activities and deliverables will be completed primarily by project staff from the management, characterization, surveying, administrative and real time disciplines, and these personnel will charge their labor hours to PBS-06 control account GPM1. Only matrixed labor, as identified below, will use the charge account G5117. Detail on manpower loading for this scope of work is provided in Section 3.0. The charge account for G5117 will be closed when the CR report is approved by EPA/OEPA.

#### 1) Task #1 - Excavation Monitoring

##### 1.1) Scope/Plan

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Excavation monitoring is the scanning of soil surfaces after each excavation lift to determine if ~~contamination hot spots exist with respect to radium, thorium and/or above-WAC levels of uranium levels~~ are present. Prior to performing the excavation monitoring, a PSP is developed to summarize the monitoring approach and frequency. If applicable, the PSP also addresses physical samples that need to be collected to confirm the removal of other COCs in above-WAC and RCRA areas. Specific activities and deliverables include:

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- Perform RTRAK, RSS and/or HPGe measurements between each excavation lift.
- Verify removal of above-WAC uranium ~~and the absence of radium, thorium or uranium hot spots.~~
- Survey and flag ~~hot spot~~ above-WAC and sample locations, as needed, for HPGe measurements and the collection of physical samples.
- Conduct HPGe measurements on soil pads created from soil removed from the bottom of utility trenches.

- Submit project records to ECDC and maintain copies in project file.
- Perform project management and control activities.

Survey information and real time and laboratory data packages will be delivered to the project. All records will be delivered to ECDC.

The scope of work identified above will be executed using matrixed, centralized and projectized personnel. Distribution of the work, and the plan for executing the scope, is described for each division of personnel.

#### *Matrixed Personnel*

Infrastructure Services will support the operation of real time vehicles. Waste Generator Services will provide containers and package waste if special materials are discovered. Quality Assurance and Safety and Health will provide oversight, as needed. Personnel from these organizations are the only individuals who will use charge number G5117.

#### *Centralized Personnel*

Document Control/Procedure Management will provide document numbers, filing support and issue controlled documents, as needed. Environmental Compliance will be consulted on an as-needed basis if RCRA issues become relevant to the work scope. The Waste Acceptance Organization will perform visual oversight of the monitoring and prepare waste manifestation forms, if needed. Information Management will provide computer hardware and software needs. Personnel from these organizations will use their functional area charge numbers.

#### *Projectized Personnel*

Most work will be completed by project staff from the management, characterization, survey, real time and administrative disciplines; and these personnel will charge their labor hours to PBS-06 control account GPM1. Management, characterization and real time staff will oversee the fieldwork. Excavation monitoring will be conducted under all removed concrete and gravel surfaces, in known contamination areas after each lift and whenever unexpected material is encountered. ~~In general, about half of the area will be covered by RTRAK and half with HPGe shots. HPGe shots will be conducted on soil removed from the bottom of utility trenches that are cut below the design grade. This soil will be placed in a circular pad adjacent to the trench prior to conducting the HPGe measurements.~~ Results from the real time survey will be delivered as maps that depict the estimated concentration or activity of radium, thorium and uranium. If unexpected or special materials are encountered, physical samples will be collected as part of the monitoring activities to screen for COCs not measured by the real time instruments. A survey team will document sample locations. Project Controls will provide cost and schedule support.

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417

1.2) Quantification

Table 7 summarizes the quantities and/or deliverables anticipated for Task 1. Based on past experience, a single PSP will be sufficient to support excavation monitoring in Area 5. Therefore, one DOE draft PSP, one DOE RTC package, one EPA/OEPA draft PSP, one EPA/OEPA RTC package, and one final PSP are required. Acres to be scanned during excavation will be estimated as twice the number of initial acres, and this assumes that a scan is conducted over the entire area after concrete and gravel is removed plus three lifts over 1/3 of the area to account for contamination zones. Maps for each of the RTRAK, RSS and HPGe measurements will be prepared for each lift. It is also estimated that there will be four hot spots and ten soil samples. The soil samples are assumed to be associated with the discovery of material that is prohibited from disposal in the OSDF. . In general, the full suite of real-time instruments will be considered for excavation monitoring and the decision on which particular instrument to use for monitoring will be established in the excavation monitoring PSP. ~~Based on the Area 3A/4A IRDP requirement to perform a HPGe shot on pipe bedding material every 50 feet of linear trench, there will be 128 HPGe shots to cover the estimated 6,400 linear feet of utility trenches that will be cut below the designed excavation grade.~~

R1-  
D-  
417

TABLE 7  
 Quantities for Task 1 - Excavation Monitoring

ITEM	QUANTITY
Draft Project Specific Plan for DOE	1
Response-to-Comments Package for DOE	1
Draft Project Specific Plan for EPA/OEPA	1
Response-to-Comments Package for EPA/OEPA	1
Final Project Specific Plan	1
RTRAK, RSS, EMS and/or and HPGe Scans, acres	96
RTRAK, RSS, EMS and/or and HPGe maps	9
Survey and Flag Hot Spots/Sample Locations	14
Soil Samples	10
<del>HPGe Shots for Linear feet of Utility Trenches to Scan</del>	<del>128 6400</del>

R1-  
D-  
417

2) Task #2 - Precertification

2.1) Scope/Plan

R1-  
D-  
417

Precertification activities will begin as soon as a portion of Area 5 reaches the design grade, with the intent being to minimize the lag time between the completion of excavation and collection of certification samples. The PSP developed for excavation monitoring will also serve as the PSP for precertification. Based on field conditions and required detection levels, RTRAK, RSS, EMS or HPGe measurements will be performed and the precertification maps will be prepared. Certification Unit (CU) boundaries and sample locations will be located by survey and the boundaries and sample locations recorded on maps. Specific activities and deliverables include:

- Walk down field area to assess site conditions for safety and health hazards, equipment access, and maintenance needs (e.g., mowing of grass).
- Coordinate labor support if mowing is required.
- Prepare the area for field measurements by mowing and installing certification fence postings.
- Perform precertification scans with RTRAK, RSS and HPGe equipment.
- Identify hot-spot zones to excavation, if applicable, and rescan area after hot spot is removed.
- Prepare precertification maps based on scan measurements.
- Survey CU boundaries and sample locations and record the information on maps.
- Submit project records to ECDC and maintain copies in project file.
- Perform project management and control activities.

Maps generated from the precertification scans and CU surveys will be delivered to the project. All records will be delivered to ECDC.

The scope of work identified above will be executed using matrixed, centralized and projectized personnel. Distribution of the work, and the plan for executing the scope, is described for each division of personnel.

*Matrixed Personnel*

Infrastructure Services will support the operation of real time vehicles. Quality Assurance and Safety and Health will provide oversight on hot spot removal, if needed. Personnel from these organizations are the only individuals who will use charge number G5117.

*Centralized Personnel*

Document Control/Procedure Management will provide document numbers, filing support and issue controlled documents, as needed. Information Management will provide computer hardware and software needs. Personnel from these organizations will use their functional area charge numbers.

*Projectized Personnel*

Most work will be completed by project staff from the management, characterization, survey, real time and administrative disciplines; and these personnel will charge their labor hours to PBS-06 control account GPM1. Management, characterization and real time staff will oversee the fieldwork. Project Controls will provide cost and schedule support to the project manager. Prior to collecting certification samples, the entire excavation footprint will be scanned with RTRAK and/or HPGe instruments to assess compliance with the FRLs for radium, thorium and uranium. If found, hot spots will be excavated and the area rescanned. After the completion of scanning activities, the CU boundaries and sample locations will be documented by survey.

2.2) Quantification

Table 8 summarizes the quantities and/or deliverables anticipated for Task 2. To account for the excavation slopes, the acreage to be scanned during pre-certification is estimated as 1.5 times the initial Area 5 acreage. A precertification map will be produced for each set of RTRAK, RSS and HPGe measurements. Based on guidance in the SEP, Area 5 will have Group 1 (250' by 250') and Group 2 (500' by 500') CUs, and every 800 linear feet of trench that lies below the design grade is a CU. This guidance results in the estimate of 14 Group 1 CUs, 6 Group 2 CUs, and 8 utility-trench CUs. In general, the full suite of real-time instruments will be considered for excavation monitoring and the decision on which particular instrument to use for monitoring will be established in the excavation monitoring PSP. ~~Based on the Area 3A/4A IRDP requirement to perform a HPGe shot on soil in the bottom of the trench every 50 feet of linear trench, there will be 128 HPGe shots to cover the estimated 6,400 linear feet of utility trenches that will be cut below the designed excavation grade.~~

R1-  
D-  
417

TABLE 8  
 Quantities for Task 2: Precertification

R1-  
 D-  
 417

ITEM	QUANTITY
RTRAK, RSS, EMS and/or and HPGe Scans, acres	72
RTRAK, RSS, EMS and/or and HPGe maps	3
<del>HPGe Shots for Linear feet of Utility Trenches to Scan</del>	<del>428 6400</del>
Survey Boundaries, CUs	28

3) Task #3 - Certification

3.1) Scope/Plan

Certification activities begin during excavation with the preparation of the Certification Design Letters (CDLs) and Certification PSP, and end when the Certification Reports (CRs) have been approved by the EPA and OEPA. To minimize the lag time between the end of excavation and collection of certification samples, the CDLs must be approved by the EPA and OEPA before excavation is complete. Specific activities and deliverables include:

- Develop COC list, sampling and analysis strategy, data quality objectives, and off-site laboratory task orders.
- Prepare data tables, CU maps and text for draft CDL/PSP and deliver CDL/PSP to functional-area personnel and DOE for review.
- Obtain review comments from functional-area personnel and DOE for each DOE draft CDL/PSP.
- Incorporate comment responses into each DOE draft CDL/PSP and deliver EPA/OEPA draft CDL/PSP to EPA and OEPA for review.
- Obtain review comments from EPA and OEPA on each EPA/OEPA draft CDL/PSP.
- Prepare response-to-comment (RTC) package for each EPA/OEPA draft CDL/PSP and obtain EPA and OEPA approvals.
- Incorporate comment responses into each EPA/OEPA draft CDL/PSP and deliver final CDL/PSP to project personnel, functional-area personnel, DOE, EPA and OEPA.
- Perform walk downs of field area to assess site conditions for safety and health hazards, equipment access, and maintenance needs (e.g., mowing of grass).
- Coordinate labor support if mowing is required.

- Conduct work-scope briefings with field crews.
- Mobilize the sampling crew to place the borings and obtain the soil samples.
- Develop variance/field change notices (V/FCN), as needed.
- Deliver the samples to the on-site laboratory and create the sample analysis log for on-site and off-site analysis, as needed.
- Perform the required analytical work and generate laboratory reports to QA/QC Level D.
- Perform 100 percent validation (10% QA/QC Level D, 90% QA/QC Level B) of the laboratory reports.
- Enter data into the SED and perform queries.
- Reduce and interpret data and perform the statistical calculations to develop final CR tables.
- Develop tables, maps and text for CRs and deliver CRs to functional-area personnel and DOE for review.
- Obtain review comments from functional-area personnel and DOE for each DOE draft CR.
- Incorporate comment responses into each DOE draft CR and deliver EPA/OEPA draft CR to EPA and OEPA for review.
- Obtain review comments from EPA and OEPA on each EPA/OEPA draft CR.
- Prepare response-to-comment (RTC) package for each EPA/OEPA draft CR and obtain EPA and OEPA approvals.
- Incorporate comment responses into each EPA/OEPA draft CR and deliver final CR to project personnel, functional-area personnel, DOE, EPA and OEPA.
- Submit project records to ECDC and maintain copies in project file.
- Perform project management and control activities.

The CDLs, PSPs, RTCs, and CRs will be delivered to DOE, EPA/OEPA and the project. All documents and records will be delivered to ECDC.

The scope of work identified above will be executed using matrixed, centralized and projectized personnel. Distribution of the work, and the plan for executing the scope, is described for each division of personnel.

*Matrixed Personnel*

Environmental Monitoring and Analytical Services will complete most of the work under Task 3. Environmental Monitoring will be used to complete soil borings, collect soil and water samples and deliver the samples to the on-site laboratory. Analytical Laboratory Services will log samples into the system, complete analytical measurements, issue data packages and ship samples requiring analysis for COCs to off-site labs. Samples contracted to off-site laboratories will contain a request for a 14-day turn around time. Analytical measurements will be performed and Level D data packages will be delivered to the project. Project Controls will provide cost and schedule support. Personnel from these organizations are the only individuals who will use charge number G5117.

*Centralized Personnel*

Document Control/Procedure Management will provide document numbers, filing support and issue controlled documents, as needed. Sample Data Management will be used for database queries, data entry, data validation, SOWs for off-site labs, and the statistical reduction of data to evaluate the certification criteria for pass/fail. Information Management will provide computer hardware and software needs. Personnel from these organizations will use their functional area charge numbers.

*Projectized Personnel*

Work will be completed by project staff from the management, characterization, survey, and administrative disciplines; and these personnel will charge their labor hours to PBS-06 control account GPM1. Management and characterization staff will prepare all documentation and oversee the field and analytical work. Certification activities will begin with the preparation of the CDLs. Each CDL will identify the number and location of CUs, sample locations, a list of COCs for each CU, and analytical methods and detection limits. Execution of the CDL work will not begin until EPA/OEPA approval is received and the final CDL is released. Field activities will commence with a survey to flag sample locations and samples will be collected after the CDL is approved and precertification is completed. Samples will be sent to the appropriate laboratory for analysis and Level D data packages will be submitted to the project. Ten percent of the data packages will undergo verification and validation, and if problems are found additional packages will be selected for review. The data for each CU will be evaluated with statistical tests identified in the Sitewide Excavation Plan (DOE, June 1998) and a pass/fail decision for each CU will be based on these tests. CUs that fail will be resampled, and possibly subjected to additional excavation, until they pass the certification criteria. The draft CR will be prepared and submitted to EPA/OEPA after all CUs have passed. Once the CR is approved by EPA/OEPA, the final CR will be released and the area will be certified as fully remediated.

3.2) Quantification

Table 9 summarizes the quantities and/or deliverables anticipated for Task 3. The number of CDLs/PSPs prepared for previous projects indicate that approximately three CDLs/PSPs will be needed to cover certification activities in Area 51. Therefore, it is estimated that there will be three DOE draft CDLs/PSPs, three EPA/OEPA draft CDLs/PSPs, three EPA/OEPA RTC packages, and three final CDLs/PSPs. The SEP dictates that there are 12 sample locations per CU plus one duplicate sample; the exception being 16 sample locations are surveyed if there is a HWMU or UST in the CU, with 8 of the 16 sample locations in the HWMU or UST footprint. Additionally, a sample is collected every 50 linear feet along the utility-trench CUs. These criteria result in an estimate of 396 certification samples. All samples will be analyzed for uranium, thorium, and radium, with the remaining analyses dependent on the distribution of other COC contamination. The number of laboratory reports that will be generated is based on project history, which indicates one lab report per 12 samples. Per the SEP, 10 percent of these will be validated to Level D and 90 percent to Level B. A CR will be prepared for each CDL and the submittal and review process will follow the CDL scenario.

TABLE 9  
 Quantities for Task 3: Certification

ITEM	QUANTITY
Draft CDLs/PSPs for DOE	3
Draft CDLs/PSPs EPA/OEPA	3
Response-to-Comments Package for EPA/OEPA	3
Final CDLs/PSPs	3
Survey and Flag Sample Locations	368
Soil Samples	396
Uranium, Thorium and Radium Analyses	396
Metal Analyses	39
VOC Analyses	26
Pesticide/PCB Analyses	26
Lab Reports for Radiological COCs	31
Lab Reports for Metal COCs	4
Lab Reports for Organic COCs	4
Radiological Lab Reports to Verify and Validate	31
Metal Lab Reports to Verify and Validate	4
Organic Lab Reports to Verify and Validate	4
Draft CRs for DOE	3
Draft CRs EPA/OEPA	3
Response-to-Comments Packages for EPA/OEPA	3
Final CRs	3

#### 1.5.4 G5118 - Off-Site Waste Disposition

Soil excavation activities in various areas of the FEMP site may produce waste streams that cannot be disposed of in the OSDF, and off-site waste disposition will be required. Off-site waste disposition refers to the procurement of containers and disposal services, loading and shipping of containers, and preparation of manifestation documentation. Two different types of waste streams are anticipated. First, items that are prohibited from both the OSDF and Envirocare (non-typical waste) will be processed through Fluor Fernald's Waste Generator Services (WGS). Second, above-WAC piping that is prohibited from the OSDF but can be transported to Envirocare. Activities under this charge number are divided into the following tasks: 1) Container Receipt and Preparation; 2) Load Containers; and 3) Shipping and Disposal.

Major technical risks include: the loss of the off-site disposal vendor (i.e., Envirocare); the unexpected discovery of a large volume of special material; and/or the discovery of a large volume of soil that requires on-site treatment. Contingencies that can be implemented to reduce this risk include: acquire additional off-site disposal vendors; and place a subcontract to treat soil.

Most of the work will be performed by WGS personnel matrixed to the project. However, some project oversight from the management, characterization, engineering, and administrative disciplines is needed, and these personnel will charge labor to PBS-06 control account GPM1. Only matrixed labor, as identified below, will use the charge account G5118. The charge account for G5118 will be closed when the CR report is approved by EPA/OEPA.

#### 1) Task #1 - Container Receipt and Preparation

##### 1.1) Scope/Plan

Material costs will include the purchase of shipping containers and upon receipt of the containers WGS will prepare them for loading. Specific activities and deliverables include:

- Procure containers and packaging materials.
- Prepare container for loading.
- Deliver the prepared containers to the special material transfer area (SMTA).
- Submit project records to EDCD and maintain copies in project file.
- Perform project management and control activities.

The scope of work identified above will be executed using matrixed, centralized and projectized personnel. Distribution of the work, and the plan for executing the scope, is described for each division of personnel.

#### *Matrixed Personnel*

Waste Generator Services (WGS) will prepare and deliver containers to the special material transfer area (SMTA), adjacent to the active excavation. Personnel from these organizations are the only individuals who will use charge number G5118.

*Centralized Personnel*

Document Control/Procedure Management will provide document numbers, filing support and issue controlled documents, as needed. Information Management will provide computer hardware and software needs. Personnel from these organizations will use their functional area charge numbers.

*Projectized Personnel*

Minor support work will be completed by project staff from the management, construction, and administrative disciplines; and these personnel will charge their labor hours to PBS-06 control account GPM1. Project Controls will provide cost and schedule support to the project manager.

1.2) Quantification

Table 10 summarizes the quantities and/or deliverables anticipated for Task 1. Based on past project history, it is estimated that 10 containers (capacity of 2.5 yd<sup>3</sup>) will be required for non-OSDF waste encountered in Area 5.

TABLE 10  
Quantities for Task 1: Container Receipt and Preparation

ITEM	QUANTITY
Procure and Prepare Containers	10

2) Task #2 - Load Containers

2.1) Scope/Plan

The construction subcontractor will load waste into containers staged at the SMTA and restage the containers at the SMTA for WGS to pick up. The subcontractor will also load and haul above-WAC piping to SP-7. Specific activities and deliverables include:

- Load the containers and return filled containers to the SMTA.
- Load and haul above-WAC piping to SP-7.
- Prepare required manifestation, as needed.
- Submit project records to ECDC and maintain copies in project file.
- Perform project management and control activities.

Manifestation documents will be provided to WGS, the project and ECDC, if applicable.

The scope of work identified above will be executed using matrixed, centralized and projectized personnel. Distribution of the work, and the plan for executing the scope, is described for each division of personnel.

*Subcontracted Personnel*

Construction personnel will pick up the containers at the SMTA, load the containers, and return them to the SMTA for pick up by WGS. Labor is also required to load and haul above-WAC piping debris to SP-7. Job categories envisioned include foreman, laborer, heavy-equipment operator, truck operator and teamsters. Subcontract costs will be charged to G5118.

*Matrixed Personnel*

Radiological Protection Operations will perform radiation surveys of containers and equipment. Personnel from these organizations are the only individuals who will use charge number G5118.

*Centralized Personnel*

Document Control/Procedure Management will provide document numbers, filing support and issue controlled documents, as needed. The Waste Acceptance Organization will prepare waste manifestation forms. Information Management will provide computer hardware and software needs. Personnel from these organizations will use their functional area charge numbers.

*Projectized Personnel*

Minor support work will be completed by project staff from the management, construction, and administrative disciplines; and these personnel will charge their labor hours to PBS-06 control account GPM1. Project Controls will provide cost and schedule support to the project manager. Management and construction staff will assist the subcontractor in the loading of the containers.

2.2) Quantification

Table 11 summarizes the quantities and/or deliverables anticipated for Task 2. Based on off-site waste quantities from past excavation work, it is estimated that there will be 25 yd<sup>3</sup> of containerized waste and 1 percent of the total piping volume will be prohibited from disposal in the OSDF (i.e., 80 yd<sup>3</sup> of above-WAC piping). The piping will be staged at SP7 until loaded into railcars.

TABLE 11  
 Quantities for Task 2: Load Containers

ITEM	QUANTITY
Prohibited Special Materials, cubic yards	25
Above-WAC Piping, cubic yards	80

3) Task #3 - Shipping and Disposal

3.1) Scope/Plan

WGS will pick-up containers from the SMTA and prepare final manifestation and shipping papers. Above-WAC debris will be bulk shipped via railcar. Specific activities and deliverables include:

- Transport containers from SMTA to shipping area.
- Prepare shipping manifestation and ship containers or railcars.
- Verify waste disposition at disposal site.
- Submit project records to ECDC and maintain copies in project file.
- Perform project management and control activities.

Manifestation, shipping and tracking forms will be delivered to the project and off-site disposal facility. Verification of waste disposition will be delivered to the project, and all records will be sent to ECDC.

The scope of work identified above will be executed using matrixed, centralized and projectized personnel. Distribution of the work, and the plan for executing the scope, is described for each division of personnel.

*Matrixed Personnel*

WGS will prepare the final manifestation documentation and ship the containers to the designated off-site disposal facility. Personnel from these organizations are the only individuals who will use charge number G5118.

*Centralized Personnel*

Document Control/Procedure Management will provide document numbers, filing support and issue controlled documents, as needed. WAO will assist with the waste manifestation, as needed. Personnel from these organizations will use their functional area charge numbers.

*Projectized Personnel*

Minor support work will be completed by project staff from the management and administrative disciplines; and these personnel will charge their labor hours to PBS-06 control account GPM1. Management and administrative staff will assist WGS and/or WAO in the preparation of shipping documents. Project Controls will provide cost and schedule support.

3.2) Quantification

Table 12 summarizes the quantities and/or deliverables anticipated for Task 3. Based on the volumes identified in Task 2, 10 containers and 1 railcar will be shipped. It is assumed that one railcar is sufficient for the 80 cubic yards of piping debris.

TABLE 12  
Quantities for Task 3 - Shipping and Disposal

ITEM	QUANTITY
Ship Containers	10
Ship Railcars	1

## **SECTION 9**

### **2.0 SCHEDULE**







## **SECTION 9**

### **3.0 MANPOWER PLANS**





# Manpower Planning Sheet (CR2)

MPS # 1GJ01 AREA 5 TITLE III

DRIVERS	START DATE	END DATE	FY 2007				FY 2008				FY 2009				FY 2010				FY 2011			
			Q1	Q2	Q3	Q4																
623 Area 5 Exc. Control Characterization	10/03/2005	03/31/2008	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX								
631 Area 5: Pre-Cert/Cert	04/01/2008	03/31/2009					XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX								
632 Area 5: Excavation	10/03/2005	03/31/2008	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX								
633 Area 5: Interim Restoration	04/01/2009	07/31/2009									XXX	X										
Engineering & Design	Engineer Piping/Mechanic		0.1	0	0.1	0.1	0.1	0	0.1	0.1	0.1	0	0.1	0.1	0.1	0	0.1	0.1	0.1	0	0.1	0.1
QA/QC	QA Engineer		0.1	0	0.1	0.1	0.1	0	0.1	0.1	0.1	0	0.1	0.1	0.1	0	0.1	0.1	0.1	0	0.1	0.1
Environmental Safety & Health	Industrial Hygienist Tech.		0.1	0	0.1	0.1	0.1	0	0.1	0.1	0.1	0	0.1	0.1	0.1	0	0.1	0.1	0.1	0	0.1	0.1
<b>Sheet Totals:</b>			0.30	0.00	0.30	0.30	0.30	0.00	0.30	0.30	0.30	0.00	0.30	0.30	0.30	0.00	0.30	0.30	0.30	0.00	0.30	0.30











# Manpower Planning Sheet (CR2)

MPS # 1GJ04 AREA 5 OFFSITE WASTE DISPOSITION

DRIVERS	START DATE	END DATE	FY 2007				FY 2008				FY 2009				FY 2010				FY 2011			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
623 Area 5 Exc. Control Characterization	10/03/2005	03/31/2008	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx								
631 Area 5: Pre-Cert/Cert	04/01/2008	03/31/2009					xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx								
632 Area 5: Excavation	10/03/2005	03/31/2008	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx								
633 Area 5: Interim Restoration	04/01/2009	07/31/2009									xxx	x										
General Labor	Hazwat		0	0	0.1	0	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0
Transportation Labor	Motor Vehicle Operator		0	0	0	0	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0
Transportation Labor	Heavy Equipment Operator		0	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Transportation Labor	Transportation Laborer		0	0	0	0	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0
Craft Labor	Pipefitter		0	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Operations	Operations Manager		0	0	0	0	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0
Environmental Safety & Health	Rad Tech		0	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
QA/QC	QA Engineer		0	0	0.1	0	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0
Environmental Safety & Health	Safety Tech.		0	0	0.1	0	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0
Environmental Safety & Health	Rad Engineer		0	0	0.1	0	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0
Environmental Safety & Health	Safety Engineer		0	0	0.4	0	0	0	0.3	0	0	0	0	0	0	0	0	0	0	0	0	0
Procurement	Material Property Control Rep.		0	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Management	Tech/Program Support Rep.		0	0	0	0	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0
Procurement	Buyer/Contracts Administrator		0	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Management	Project Mgr.		0	0	0	0	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0
Administration	Clerks		0	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

**Sheet Totals:** 0.00 0.00 1.40 0.00 0.00 0.00 0.00 1.20 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

## **SECTION 9**

### **4.0 ESTIMATE**



**G5113**

**AREA 5 TITLE III**



# Fluor Fernald, Inc.

ESTIMATE SUPPORT WORKSHEET  
FOR ACTIVITY BASED ESTIMATING  
(1 FTE EQUALS 1747 HOURS)

DATE: 05-Sep-01  
PROJECT MGR: J.D. CHIOU  
CAM: J.D. CHIOU  
PREPARED BY: W. FICK  
FISCAL YEAR: 2006-2009

PBS: OHFN06  
WBS: 1.1.G.J  
CTRL ACCT: G511  
CHARGE NO: G5113  
COMMENT NO F06-044

<b>Resource:</b>	<b>ENGMEC</b>	<b>ENGINEER MECH/PIPING</b>	<b>EOC:</b>	<b>LABOR</b>																
<b>Res Dept:</b>		<b>Overtime:</b>	<b>SAL</b>	<b>Class:</b>																
Yr Hours:		Oct 00- Sep 01	Oct 01- Sep 02	Oct 02- Sep 03	Oct 03- Sep 04	Oct 04- Sep 05	Oct 05- Sep 06	Oct 06- Sep 07	Oct 07- Sep 08	Oct 08- Sep 09	Oct 09- Sep 10									
Cum Hours:		0.0	0.0	0.0	0.0	0.0	59.1	161.6	168.4	45.8	0.0									
Yr Total Cost:		0.0	0.0	0.0	0.0	0.0	59.1	220.7	389.0	434.8	434.8									
Cum Total Cost:		0	0	0	0	0	4,907	14,555	15,986	4,829	0									
								19,461	35,447	40,276	40,276									

<b>Resource:</b>	<b>INHTEC</b>	<b>INDUST HYGIENIST TEC</b>	<b>EOC:</b>	<b>LABOR</b>																
<b>Res Dept:</b>		<b>Overtime:</b>	<b>SAL</b>	<b>Class:</b>																
Yr Hours:		Oct 00- Sep 01	Oct 01- Sep 02	Oct 02- Sep 03	Oct 03- Sep 04	Oct 04- Sep 05	Oct 05- Sep 06	Oct 06- Sep 07	Oct 07- Sep 08	Oct 08- Sep 09	Oct 09- Sep 10									
Cum Hours:		0.0	0.0	0.0	0.0	0.0	59.1	161.6	168.4	45.8	0.0									
Yr Total Cost:		0	0	0	0	0	59.1	220.7	389.0	434.8	434.8									
Cum Total Cost:		0	0	0	0	0	2,974	8,822	9,690	2,927	0									
								11,796	21,486	24,413	24,413									

<b>Resource:</b>	<b>QACENG</b>	<b>QA ENGINEER</b>	<b>EOC:</b>	<b>LABOR</b>																
<b>Res Dept:</b>		<b>Overtime:</b>	<b>SAL</b>	<b>Class:</b>																
Yr Hours:		Oct 00- Sep 01	Oct 01- Sep 02	Oct 02- Sep 03	Oct 03- Sep 04	Oct 04- Sep 05	Oct 05- Sep 06	Oct 06- Sep 07	Oct 07- Sep 08	Oct 08- Sep 09	Oct 09- Sep 10									
Cum Hours:		0.0	0.0	0.0	0.0	0.0	59.1	161.6	168.4	45.8	0.0									
Yr Total Cost:		0	0	0	0	0	59.1	220.7	389.0	434.8	434.8									
Cum Total Cost:		0	0	0	0	0	3,627	10,758	11,816	3,569	0									
								14,385	26,201	29,770	29,770									

<b>GRAND TOTALS:</b>																				
Yr Hours:		Oct 00- Sep 01	Oct 01- Sep 02	Oct 02- Sep 03	Oct 03- Sep 04	Oct 04- Sep 05	Oct 05- Sep 06	Oct 06- Sep 07	Oct 07- Sep 08	Oct 08- Sep 09	Oct 09- Sep 10									
Cum Hours:		0.0	0.0	0.0	0.0	0.0	177.2	484.8	505.2	137.3	0.0									
Yr Total Cost:		0	0	0	0	0	1,167.1	662.0	1,167.1	1,304.5	1,304.5									
Cum Total Cost:		0	0	0	0	0	11,507	34,135	37,491	11,324	0									
								45,642	83,134	94,458	94,458									

CAM  CONTROL TEAM 



**G5114**

**AREA 5 SITE PREP/EXCAVATION**







65114

**Fluor Fernald, Inc.**  
**PROJECT CONTROLS**  
**ESTIMATING SERVICES**

May 16, 2001

**PROJECT DESCRIPTION:** Area 5 Soil Remediation  
**WBS NUMBER:** 1.1.G.J  
**PROJECT ENGINEER:** R. Abitz  
**ESTIMATOR:** D.Usborne  
**ESTIMATE NUMBER:** C2-01-04-06

**BASIS OF ESTIMATE**

**SUPPORTING DOCUMENTATION:**

Verbal Scope	<input checked="" type="checkbox"/>	P & ID's	<input type="checkbox"/>	Work Plan	<input type="checkbox"/>
Drawings	<input type="checkbox"/>	Equipment List	<input type="checkbox"/>	Site Walk	<input type="checkbox"/>
Sketches	<input type="checkbox"/>	Specifications	<input type="checkbox"/>	Eng. Mtg.	<input checked="" type="checkbox"/>
Flow Diagrams	<input type="checkbox"/>	Written Scope	<input type="checkbox"/>	Estimate	<input checked="" type="checkbox"/>

**TYPE OF ESTIMATE:**

Change Proposal	<input type="checkbox"/>	Government	<input type="checkbox"/>
Plan/Feasibility	<input type="checkbox"/>	Conceptual	<input checked="" type="checkbox"/>
Construction	<input type="checkbox"/>	Title I Design	<input type="checkbox"/>
Budget	<input checked="" type="checkbox"/>	Independent	<input type="checkbox"/>

**BASIS OF ESTIMATE:**

Estimate the cost for subcontracting the processing and disposal of soils and concrete from Soils AREA 5 at the Fernald site. This is in support of the Closure Plan, Scenario 6 under PBS06 for the 2001 Rebaseline. Remedial activities will remove all impacted soil and at- and below-grade structures to prepare the area for certification and, ultimately, final restoration activities

**Fluor Fernald, Inc.**  
**PROJECT CONTROLS**  
**ESTIMATING SERVICES**

May 16, 2001

**PROJECT DESCRIPTION:** Area 5 Soil Remediation

**WBS NUMBER:** 1.1.G.J

**PROJECT ENGINEER:** R. Abitz

**ESTIMATOR:** D. Usborne

**ESTIMATE NUMBER:** C2-01-04-06

**ESTIMATE ASSUMPTIONS**

**EXECUTION:**

- This project is to be performed on a 50-hour week, 10 hours a day.
- This project includes a 2<sup>nd</sup> shift for five summer months in FY07.
- Premium time allowed.

**WAGE RATES:**

- Wage rates within this estimate are based on Project Labor Agreement rates, effective October 2000 and are considered FY01 dollars for estimating.
- Wage rates within this estimate are based on FF Support Contractor FSC 599 wage rates, effective October 1999 have been escalated 3% and are considered FY01 dollars for estimating.
- Wage rates within this estimate are based on FF FTE Planning Labor Rates FY01.

**ENGINEERING:**

- N/A
- Engineering dollars provided by the Project Engineer.
- Engineering dollars have been factored in at the standard 12% of the total direct and indirect field costs as per request of Project Engineer.

**CONSTRUCTION MANAGEMENT:**

- N/A
- Construction Management dollars provided by the Project Engineer.
- Construction Management dollars have been factored in at the standard 30% of the total direct and indirect field costs as per request of Project Engineer.

**PROJECT MANAGEMENT:**

- N/A
- Project Management dollars provided by the Project Engineer.
- Project Management dollars have been factored in at the standard 30% of the total direct and indirect field costs as per request of Project Engineer.

**Fluor Fernald, Inc.**  
**PROJECT CONTROLS**  
**ESTIMATING SERVICES**

May 16, 2001

**PROJECT DESCRIPTION:** Area 5 Soil Remediation

**WBS NUMBER:** 1.1.G.J

**PROJECT ENGINEER:** R. Abitz

**ESTIMATOR:** D. Usborne

**ESTIMATE NUMBER:** C2-01-04-06

**WASTE PROGRAM MANAGEMENT:**

N/A

Waste Program Management dollars provided by the Project Engineer.

**PRODUCTIVITY:**

A productivity factor has been developed and applied to the unit man-hours derived from MEANS, Richardson, NECA, and or any other published estimating source. See attachment APPENDIX "A" and APPENDIX "B".

**ESCALATION:**

Escalation costs are excluded from the target estimate. The escalation costs are calculated within the Micro-Frame computer system according to the plan for rebaselining.

**UNIT RATES:**

Unit man-hours, equipment and material dollars are based on Richardson, MEANS, NECA, and or other published rates.

**G & A (HO EXPENSE):**

G & A are excluded from the target estimate. The G & A cost are calculated within the Micro-Frame computer system according to the plan for rebaselining.

**HEALTH PHYSICS:**

See attached APPENDIX "C".

**RISK BUDGET:**

N/A

**CONTINGENCY:**

N/A

**Fluor Fernald, Inc.**  
**PROJECT CONTROLS**  
**ESTIMATING SERVICES**

May 16, 2001

**PROJECT DESCRIPTION:** Area 5 Soil Remediation

**WBS NUMBER:** 1.1.G.J

**PROJECT ENGINEER:** R. Abitz

**ESTIMATOR:** D.Usborne

**ESTIMATE NUMBER:** C2-01-04-06

**ESTIMATE INCLUSIONS & EXCLUSIONS**

**INCLUSIONS:**

- Premobilization, Mobilization & Demobilization.
- Labor hours.
- Material dollars.
- Equipment dollars.
- Area isolation trench cut with a trencher.
- Second shift during May, June, July, August, and Sept. with labor productivity being affected by 10 hrs pay for 9 ½ hrs work and an additional \$ 0.35 / hr for a shift differential. The project team provided these adjustments.
- Double handling for 6/27 of the total concrete. This will be accomplished during the winter months at an interim location when the remainder of the project will be shut down.
- Office and tool trailer provided by subcontractor.
- All quantities were provided or directed by the project team.
- Construction equipment, construction equipment production rates, crews, and equipment rental rates were taken from previous estimates C2-00-04-01 Area 3A & 4A Excavation / OSDF – Phase III by FF and Doc. No. 20800-CE-0001 Package I – Area 3A Excavation by Lockwood Greene.

**EXCLUSIONS:**

- Permits and fees.
- FF G & A (Home Office Expense).
- Construction Management.
- Any second tier subcontract costs.
- Project Management dollars.
- Waste Management dollars.
- Area isolation trencher cutting bar & chain purchase, and trencher move on & off site.
- Costs for FF supplied services or materials.

**ESTIMATE SUMMARY SHEET**

PROJECT: Area 5 Soil Remediation  
 ESTIMATE #: C2-01-04-06  
 CLIENT: DOE  
 WBS #: 1.1.G.J

**Fluor Fernald, Inc.**

DATE: 14-May-01  
 ESTIMATOR: D Osborne  
 LOCATION: Fernald  
 TASK NO.: G5114

ITEM DESCRIPTION	M/H	RATE	LABOR \$	S/C \$	MAT'L \$	EQUIP. \$	TOTAL \$
Task 1 - SITE PREPARATION	2,396		\$56,600	\$52,400	\$30,800	\$47,700	\$187,500
Task 2 - EXCAVATION	33,810		\$800,300	\$56,400	\$178,200	\$1,630,900	\$2,665,800
Task 3 - CONTROL & MANAGEMENT	2,616		\$62,700		\$48,100	\$217,300	\$328,100
Task 4 - INTERIM RESTORATION	2,124		\$51,200	\$3,000	\$168,000	\$52,800	\$275,000
<b>DIRECT FIELD COSTS TOTAL</b>	<b>40,947</b>	<b>\$23.71</b>	<b>\$970,800</b>	<b>\$111,800</b>	<b>\$425,100</b>	<b>\$1,948,700</b>	<b>\$3,456,400</b>
SUPERVISION - CONTRACTOR	35,247		\$1,043,900				\$1,043,900
SMALL TOOLS & CONSUMABLES	-	-	-		\$19,000		\$19,000
MISC. EQUIP. RENTAL	-	-	-				
TEMPORARY FACILITIES							
TEMPORARY UTILITY HOOK-UP	266		\$6,300		\$3,400		\$9,700
JOB CLEAN-UP	614		\$14,600		\$4,900		\$19,500
PER DIEM / SUBSISTANCE	-	-	-				
HEALTH PHYSICS S/C	316		\$7,500		\$9,100		\$16,600
CERCLA - TRAINING	200		\$4,700				\$4,700
GET/SITE ACCESS & JOB SPECIFIC TRAINING	342		\$8,100				\$8,100
PAYROLL BURDENS & BENEFITS	-	-	\$1,171,900				\$1,171,900
OVERHEAD & PROFIT	-	-	-	\$1,150,000			\$1,150,000
BOND	-	-	-	\$89,700			\$89,700
SALES TAX	-	-	-		\$27,700	\$116,900	\$144,600
<b>INDIRECT FIELD COSTS TOTAL</b>	<b>36,986</b>		<b>\$2,257,000</b>	<b>\$1,239,700</b>	<b>\$64,100</b>	<b>\$116,900</b>	<b>\$3,677,700</b>
<b>DIRECT &amp; INDIRECT FIELD COSTS TOTAL</b>	<b>77,932</b>	<b>\$41.42</b>	<b>\$3,227,800</b>	<b>\$1,351,500</b>	<b>\$489,200</b>	<b>\$2,065,600</b>	<b>\$7,134,100</b>
<b>TARGET ESTIMATE</b>							<b>\$7,134,100</b>
<b>(FY 01 DOLLARS)</b>							

ESTIMATE PERFORMED BY ESTIMATING SERVICES

## ESTIMATE SUMMARY SHEET

PROJECT: Area 5 Soil Remediation

DATE: 14-May-01

ESTIMATE NO.: C2-01-04-06

### FACTORS

ESTIMATOR: D Usborne

CLIENT: DOE

LOCATION: Fernald

WBS NO.: 1.1.G.J

TASK NO.: G5114

FIXED PRICE \$	LABOR \$	S/C \$	MATL. \$	EQUIP. \$	PPE \$	TOTAL \$
DFC DOLLARS	\$970,800	\$111,800	\$425,100	\$1,948,700	\$9,100	\$3,465,500
IFC COST FACTOR	3.3249	-	1.0642	1.0000	-	
BOND + OVERHEAD & PROFIT COST FACTOR	1.2103	1.2103	1.2103	1.2103	1.2103	
SALES TAX	-	-	1.0600	1.0600	1.0600	
<b>DIRECT FIELD COST FACTOR =</b>	<b>4.0242</b>	<b>1.2103</b>	<b>1.3653</b>	<b>1.2829</b>	<b>1.2829</b>	
<b>BASE ESTIMATE \$'s</b>	<b>\$3,906,665</b>	<b>\$135,314</b>	<b>\$580,401</b>	<b>\$2,500,060</b>	<b>\$11,675</b>	<b>\$7,134,115</b>
<b>BASE FACTOR</b>	<b>1.0000</b>	<b>1.0000</b>	<b>1.0000</b>	<b>1.0000</b>	<b>1.0000</b>	
<b>TARGET ESTIMATE FACTOR</b>	<b>4.0242</b>	<b>1.2103</b>	<b>1.3653</b>	<b>1.2829</b>	<b>1.2829</b>	
<b>FPS TARGET ESTIMATE (FY00 \$)</b>	<b>\$3,906,665</b>	<b>\$135,314</b>	<b>\$580,401</b>	<b>\$2,500,060</b>	<b>\$11,675</b>	<b>\$7,134,115</b>

**NOTE:**

If there are no DFC Equip. \$, enter The IFC Equip. \$'s into the direct field cost TOTAL and delete IFC Factor in G62.

## ESTIMATE SUMMARY SHEET

PROJECT: Area 5 Soil Remediation  
 ESTIMATE NO.: C2-01-04-06  
 CLIENT: DOE  
 WBS NO.: 1.1.G.J

### Direct Field Cost w / FACTORS

DATE: 14-May-01  
 ESTIMATOR: D Osborne  
 LOCATION: Fernald  
 TASK NO.: G5114

PAY ITEM NO.	DESCRIPTION	LABOR \$	S/C \$	MAT'L \$	EQUIP. \$	PPE \$	TOTAL \$
		(ASSIGN OR PRORATE PPE MAT'L \$'s)-->				9100	
	Task 1 - SITE PREPARATION	56600 \$227,770	52400 \$63,420	30800 \$42,050	47700 \$61,200		\$394,440
	Task 2 - EXCAVATION	800300 \$3,220,540	56400 \$68,260	178200 \$243,300	1630900 \$2,092,340	9100 \$11,670	\$5,636,110
	Task 3 - CONTROL & MANAGEMENT	62700 \$252,320		48100 \$65,670	217300 \$278,780		\$596,770
	Task 4 - INTERIM RESTORATION	51200 \$206,040	3000 \$3,630	168000 \$229,380	52800 \$67,740		\$506,790
<b>TOTAL DIRECT FIELD COSTS w/FACTORS</b>		(FY01 DOLLARS)					<b>\$7,134,110</b>



DETAIL ESTIMATE WORKSHEETS

**Fluor Fernald, Inc.**

PROJECT: Area 6 Soil Remediation  
 ESTIMATE NO.: C2-01-04-06  
 CLIENT: DOE  
 WBS NO.: 1.1.G.J

DATE: 14-May-01  
 ESTIMATOR: D Usborne  
 LOCATION: Fernald  
 TASK NO.: G5114

ITEM NO.	SUMMARY	QTY	UNIT	MAN-HOURS		Rate	COST / UNIT			LABOR	S/C	MAT'L	EQUIP	TOTAL
				Unit	Total		Labor	S/C	Mat'l					
	Task 1 - SITE PREPARATION				2,396				\$56,600	\$52,400	\$30,800	\$47,700	\$187,500	
	Task 2 - EXCAVATION			33,810					\$800,300	\$56,400	\$178,200	\$1,630,900	\$2,665,800	
	Task 3 - CONTROL & MANAGEMENT			2,616					\$62,700		\$48,100	\$217,300	\$328,100	
	Task 4 - INTERIM RESTORATION			2,124					51,200	3,000	168,000	52,800	\$275,000	
	<b>Subtotal Direct Cost</b>	<b>1</b>	<b>LOT</b>	<b>40,947</b>		<b>\$23.71</b>			<b>\$970,800</b>	<b>\$111,000</b>	<b>\$425,100</b>	<b>\$1,946,700</b>	<b>\$3,458,400</b>	

DETAIL ESTIMATE WORKSHEETS

**Fluor Fernald, Inc.**

PROJECT: Area 5 Soil Remediation  
 ESTIMATE NO.: C2-01-04-06  
 CLIENT: DOE  
 WBS NO.: 1.1.G.J

DATE: 14-May-01  
 ESTIMATOR: D Usborne  
 LOCATION: Fernald  
 TASK NO.: G5114

ITEM NO.	Task 1 - SITE PREPARATION	QTY	UNIT	MAN-HOURS		Rate	COST/UNIT			LABOR	S/C	MAT'L	EQUIP	TOTAL
				Unit	Total		Unit	Mat'l	Equip					
	<b>PREMOBILIZATION</b>													
	A Insurance Certificates, List of Sub-Tier Contractors Procurement Documents, Safe Work Plans, QA/QC Plan, Construction and Engineering Documentation, Acceptable baseline Schedules Duration 8 wks	1	LS	40	320	35.00								\$11,200
	<b>MOBILIZATION</b>													
D	S/C Office Trailer	30	mo		80	23.57	300		\$1,900	\$8,990	\$500	\$500	\$10,890	
D	Survey and Engineering Controls	1	LS				3,000	500	\$900	\$3,000	\$1,000	\$500	\$4,000	
D	Install Utilities	1	LS	40	40	22.69	1,000	500	\$900	\$900	\$1,000	\$500	\$2,400	
D	Other misc. requirements as required.	1	LS	80	80	22.69	500	500	\$1,800	\$1,800	\$500	\$500	\$2,800	
D			mo				6,360		\$4,600	\$11,990	\$2,000	\$1,500	\$20,090	
	<b>Total</b>				200									

DETAIL ESTIMATE WORKSHEETS

PROJECT: Area 6 Soil Remediation  
 ESTIMATE NO.: C2-01-04-06  
 CLIENT: DOE  
 WBS NO.: 1.1.G.J

DATE: 14-May-01  
 ESTIMATOR: D Usborne  
 LOCATION: Fernald  
 TASK NO.: G5114

**Fluor Fernald, Inc.**

ITEM NO.	Task 1 - SITE PREPARATION	QTY	UNIT	MAN-HOURS		COST/UNIT		LABOR	S/C	MAT'L	EQUIP	TOTAL
				Unit	Total	Rate	Labor					
	<u>Procure Materials &amp; Equipment</u>											
	Clear & grub	Not Required										Not Required
	Area Isolation Trench	Not Required										Not Required
mC	Trench 12 ft deep w/ Trenco 1460	1,200	LF	0.020	44	21.49		\$940				\$940
mC	Trencher rental (ON & OFF not required)	44	hrs	1.000	44	21.49		\$940				\$25,681
mC	Dozer for backfilling	44	hrs	1.000	44	21.49	586.00	\$940				\$4,327
mC	Spoller	44	hrs	1.000	44	21.49	77.29	\$940				\$940
mC	Dust control	44	hrs	1.000	44	21.49		\$940				\$940
mC	Foreman	44	hrs	1.000	44	21.49		\$940				\$940
C	Decon trencher	40	hrs	1.000	40	21.49	360.00	\$860				\$15,260
	Purchase cutter bar & chain	Not Required					80.000					Not Required
	Plug severed water & sewer lines	by FF										by FF
	<u>Access Controls</u>											
D	Radiological/Construction fence	5,000	LF	0.090	515	21.49		\$11,060		\$7,250	\$670	\$18,980
D	Signage	100	ea	1.500	172	21.49		\$3,650		\$1,600	\$90	\$5,380
D	Silt fence	5,000	LF	0.060	343	21.49		\$7,370		\$3,750	\$670	\$11,790
	<u>Relocate Rad. Control Pt. / Change-Out Facility</u>											
D	Relocate Rad. Control Pt. / Change-Out Facility	by FF										by FF
D	Break/cool down trailer	by FF										by FF
	<u>Establish Construction Support Areas</u>											
D	Worker and visitor parking	Not Req'd, Exist'g										Not Req'd, Exist'g
D	Laydown area	Not Req'd, Exist'g										Not Req'd, Exist'g
D	Refueling area	Not Req'd, Exist'g										Not Req'd, Exist'g
D	Sealands for storage	Not Req'd, Exist'g										Not Req'd, Exist'g
	<u>Establish Work Area</u>											
	Portable toilets, 4 ea x 30 mo	120	mo				147.00		\$17,640			\$17,640
	Water coolers, 10 ea x 30 mo	300	ea				12.00		\$3,600			\$3,600
	Bottled water	2,400	ea				8.00		\$19,200			\$19,200
	(.5 bottle /day x 16 day/mo per cooler x 10 coolers x 30 mo)	3	ea									\$150
	Portable eye wash units											
D	Special Materials Transfer Area (SMTA)	400	LF	0.090	41	21.49		\$880		\$580	\$50	\$1,510
	Const. fencing											
D	Dust control piping	2,000	LF		100	26.40		\$2,640				\$3,400
D	2" PVC installed on ground	1,000	ea		...					\$760		\$2,190
D	2" Water hose	5	Lot		...					\$2,190		\$70
D	2" fire nozzle	1	Lot		...					\$70		\$70
D	Misc flgs etc				...					\$500		\$500

DETAIL ESTIMATE WORKSHEETS

**Fluor Fernald, Inc.**

PROJECT: Area 6 Soil Remediation  
 ESTIMATE NO.: C2-01-04-06  
 CLIENT: DOE  
 WBS NO.: 1.1.G.J

DATE: 14-May-01  
 ESTIMATOR: D Osborne  
 LOCATION: Fernald  
 TASK NO.: G5114

ITEM NO.	Task 1 - SITE PREPARATION	QTY	UNIT	MAN-HOURS			COST/UNIT			LABOR	S/C	MAT'L	EQUIP	TOTAL
				Unit	Total	Rate	Labor	S/C	Mat'l					
D	<u>Buffer zone sump access road</u> 500 LF x 12" w gravel road	700	SY	0.100	80	21.49		11.29	\$1,720		\$8,120		\$9,840	
	<u>Connect Utilities into Construction Support Area</u> Utilities for Rad & Change-Out Trailers													
D	Electrical	by FF											by FF	
D	Telephone	by FF											by FF	
D	Lan & EVAC	by FF											by FF	
D	Sewer for Change-Out Facil.	Not Required											Not Required	
D	Water for Change-Out Facil.	Not Required											Not Required	
	<u>Surface-Water Management Controls</u>													
D	Silt fence	5,000	LF	0.060	343	21.49		0.75	\$7,370		\$3,850	\$670	\$11,890	
D	Sediment traps - Existing	Not Required											Not Required	
D	Culvert	Not Required											Not Required	
D	Cut Perimeter drainage ditch	5,000	LF	0.004	23	21.49		0.11	\$480			\$550	\$1,040	
	<u>PREMIUM PAY ADJUSTMENTS</u> 1/2 Time Premium pay S/T Total Labor \$ =	\$56,560					10%		\$5,658				\$5,658	
	<b>Task 1 - SITE PREPARATION</b>	<b>1</b>	<b>LOT</b>		<b>2,396</b>	<b>\$23.62</b>			<b>\$56,600</b>	<b>\$52,400</b>	<b>\$30,800</b>	<b>\$47,700</b>	<b>\$187,600</b>	

DETAIL ESTIMATE WORKSHEETS

PROJECT: Area 5 Soil Remediation  
 ESTIMATE NO.: C2-01-04-06  
 CLIENT: DOE  
 WBS NO.: 1.1.G.J

DATE: 14-May-01  
 ESTIMATOR: D Osborne  
 LOCATION: Fernald  
 TASK NO.: G5114

**Fluor Fernald, Inc.**

ITEM NO.	Task 2 - EXCAVATION	QTY	UNIT	MAN-HOURS		COST/UNIT			LABOR	S/C	MAT'L	EQUIP	TOTAL
				Unit	Total	Rate	Labor	S/C					
	<b>AT- and BELOW-GRADE CONCRETE &amp; UTILITIES</b>												
	Total concrete	19,000	CY										
	Assumed: Total concrete x 66% = Slabs	12,673	CY										
	Assumed: Total concrete x 33% = Foundation	6,327	CY										
	<b>Size Reduce Slab Concrete</b>												
	Calculated duration including job multipl	320	HR										
	Fracture Slab Surfaces												
C	Aero Hammer	2 EA	CY	0.017	476	21.49	OPER	\$10,220			\$34,208	\$44,428	
MD	Break Up Concrete	1 EA	CY	0.012	328	21.49	OPER	\$7,050			\$35,420	\$42,470	
MD	Cat D8 Dozer (300 Hp)	1 EA	CY										
MD	Dust Control	1 EA	HR	1.000	320	21.49	OPER	\$6,870			\$24,400	\$31,270	
MD	Cat 613C Water Wagon	1 EA	HR	1.000	320	21.49	TEAM	\$6,870			\$8,210	\$15,080	
MD	Water Truck	1 EA	HR	1.000	320	21.49	LABOR	\$6,870			\$3,290	\$10,160	
MD	Hydroseeder (Water Sprayer)	1 EA	HR										
MD	Misc. Labor	1 EA	HR	1.000	320	21.49	OPER	\$6,870				\$6,870	
MD	Oilier/Mechanic	5 EA	HR	5.000	1599	21.49	LABOR	\$34,370				\$34,370	
MD	Laborers: Spotters, Dust Control	1 EA	HR	1.000	320	21.49	LABOR	\$6,870				\$6,870	
C	Foreman	1 EA	HR	0.32	4003	21.48		\$85,990			\$105,529	\$191,519	
	<b>Size Reduce Slab Concrete</b>												
	UNIT COST:	\$15.11	CY										
	<b>Size Reduce Foundation Concrete</b>												
	Calculated duration including job multipl	283	HR										
	Break Up (Size-Reduce) Concrete												
MD	Cat 345 Tracthoe W/ Hoeram	2 EA	CY	0.033	377	21.49	OPER	\$8,110			\$38,744	\$46,854	
MD	Cat 345 Tracthoe W/ Shear / Ja	2 EA	CY	0.033	377	21.49	OPER	\$8,110			\$50,491	\$58,601	
	Dust Control												
MD	Cat 613C Water Wagon	1 EA	HR	1.000	283	21.49	OPER	\$6,080			\$21,580	\$27,660	
MD	Water Truck	1 EA	HR	1.000	283	21.49	TEAM	\$6,080			\$7,260	\$13,340	
MD	Hydroseeder (Water Sprayer)	1 EA	HR	1.000	283	21.49	LABOR	\$6,080			\$2,910	\$8,990	
MD	Misc. Labor	1 EA	HR										
MD	Oilier/Mechanic	1 EA	HR	1.000	283	21.49	OPER	\$6,080				\$6,080	
MD/C	Laborers: Spotters, Dust Control	5 EA	HR	5.000	1415	21.49	LABOR	\$30,400				\$30,400	
C	Foreman	1 EA	HR	1.000	283	21.49	LABOR	\$6,080				\$6,080	
	<b>Size Reduce Foundation Concrete</b>												
	UNIT COST:	\$31.30	CY	0.57	3584	21.49		\$77,020			\$120,986	\$198,006	
	<b>TOTAL SIZE REDUC. MASS CONG.</b>												
	UNIT COST:	\$20.50	CY	0.40	7587	21.49		\$163,010			\$226,515	\$389,525	
	<b>Load &amp; Haul Concrete to OSDF</b>												
	Calculated duration including job multipl	285	HR										
MD	Load Concrete												
MD	Cat 966E FE Loader, 4.5 cy Buc	1 EA	CY	0.008	285	21.49	OPER	\$6,120			\$22,116	\$28,236	
MD	Haul To OSDF, 1.5 Mi Round Trip, & Dump @ OSDF												
MD	Off-Road Truck, 35-Tn, 16 Cy Pe	4 EA	CY	0.033	1500	21.49	TEAM	\$32,220			\$123,211	\$155,431	
	<b>Load &amp; Haul Concrete to OSDF</b>												
	UNIT COST:	\$7.27	CY	0.071	1785	21.48		\$38,340			\$145,327	\$183,667	

DETAIL ESTIMATE WORKSHEETS

PROJECT: Area 6 Soil Remediation  
 ESTIMATE NO.: C2-01-04-06  
 CLIENT: DOE  
 WBS NO.: 1.1.G.J

DATE: 14-May-01  
 ESTIMATOR: D Usborne  
 LOCATION: Fernald  
 TASK NO.: G6114

**Fluor Fernald, Inc.**

ITEM NO.	Task 2 - EXCAVATION	QTY	UNIT	MAN-HOURS			COST/UNIT			LABOR	S/C	MAT'L	EQUIP	TOTAL
				Unit	Total	Rate	Labor	S/C	Mat'l					
mD	<b>Double Load &amp; Haul Concrete to OSDF</b> Calculated duration including job multipl 63 Load Rubble into Trucks Cat 966E FE Loader, 4.5 cy Bucket Haul To OSDF, 1/4 Mi Round Trip, & Dump @ OSDF Off-Road Truck, 35-Tn, 16 Cy / L 2 EA	HR = 5,616 5,616	89 CY CY	0.008 0.010 0.025	63 76 140	21.49 21.49 21.49	OPER TEAM	\$0.87 1.12	\$1,360 \$1,640 \$3,000			\$4,908 \$6,273 \$11,182	\$6,268 \$7,913 \$14,182	
mD	<b>Utilities</b> Piping debris 660 CY neat + (100% swell) = 1320 CY Size-Reduce & Load Pipe Cat 345 trackhoe w/ shear Haul To OSDF, 1.5 Mi Round Trip, & Dump 35T Dump truck, 16 CY/Load, 3	660 1320	CY CY	...	415 415	21.49 21.49	OPER TEAM	84.15 25.83	\$8,920 \$8,920			\$55,542 \$34,096	\$64,462 \$43,016	
mD	<b>Utilities</b> Piping debris 80 CY neat + (100% swell) = 160 CY Size-Reduce & Load Pipe Cat 345 trackhoe w/ shear Haul To SP-7, 1.5 Mi Round Trip, & Dump 35T Dump truck, 16 CY/Load, 3	80 160	CY CY	...	50 50	21.49 21.49	OPER TEAM	84.15 25.83	\$1,080 \$1,080			\$6,732 \$4,133	\$7,812 \$5,213	
	<b>Utilities</b>			931	10441				\$20,000 \$224,350			\$100,503 \$403,527	\$120,503 \$707,877	
	<b>AT- and BELOW-GRADE CONCRETE &amp; UTILITIES</b>													
	<b>IMPACTED SOIL</b> Total Soil = 61,000 CY bank + (15% swell) = Assume 30% of 70,150 CY Must Be Dried = Assume 70% of 70,150 CY Needs No Drying =	70,150 21,045 49,105	CY CY CY											
mD	<b>Excavate &amp; Load Soil Directly Into Trucks,</b> Cat 345 Trackhoe; 3 Cy Bucket Cat 966E FE Loader, 4.5 cy Bucket	61,000 61,000	CY CY	0.009 ...	770 770	21.49 21.49	OPER OPER	1.00 0.98	\$16,550 \$16,550			\$60,900 \$59,784	\$77,450 \$76,334	
mD	<b>Haul 30% of Soil To OSDF Via Dewatering</b> Haul To Dewatering Area, 1.5 Mi Round Trip, & Dump Off-Road Truck, 35-Tn, 16 Cy / L 6 ea Turn Over Pile Until Soil Is Dry.	21,045	CY	0.033	963	21.49	TEAM	3.76	\$20,690			\$79,122	\$99,812	
mD	Cat D8 Dozer, 300Hp Tractor W/ Disc Harrow Load Dried Soil Into Trucks.	21,045 21,045	CY CY	0.012 ...	356 356	21.49 21.49	OPER OPER	1.83 0.35	\$7,640 \$7,640			\$38,413 \$7,304	\$46,053 \$14,944	
mD	Cat 345 Trackhoe; 3 Cy Bucket 1 EA Haul To OSDF, 1.5 Mi Round Trip, & Dump Off-Road Truck, 35-Tn, 16 Cy / L 6 EA	21,045	CY	0.007	221	21.49	OPER	0.83	\$4,760			\$17,509	\$22,269	
mD	<b>Haul 70% of Soil To OSDF No Dewatering</b> Soil Does Not Require Dewatering Haul To OSDF, 1.5 Mi Round Trip, & Dump Off-Road Truck, 35-Tn, 16 Cy / L 11 EA	21,045 49,105	CY CY	0.033 0.033	963 963	21.49 21.49	TEAM	3.76	\$20,690			\$79,122	\$99,812	
	<b>CONTRACTOR ESTIMATED in FY01 DOLLARS</b>			0.033	3,76				\$48,280			\$184,617	\$232,907	

DETAIL ESTIMATE WORKSHEETS

PROJECT: Area 5 Soil Remediation  
 ESTIMATE NO.: C2-01-04-06  
 CLIENT: DOE  
 WBS NO.: 1.1.G.J

DATE: 14-May-01  
 ESTIMATOR: D Usborne  
 LOCATION: Fernald  
 TASK NO.: G5114

**Fluor Fernald, Inc.**

ITEM NO.	Task 2 - EXCAVATION	QTY	UNIT	MAN-HOURS			COST/UNIT			LABOR	S/C	MAT'L	EQUIP	TOTAL
				Unit	Total	Rate	Labor	S/C	Mat'l					
	<b>Utility Pipe Trench Soil</b>													
	Total length of U/G utility pipe = 36,690 LF 70% of 36,690 LF = U/G utility pipe dug by mass excavation = 25,680 LF 30% of 36,690 LF = U/G utility pipe dug by common trenching = 11,010 LF Trench section: Overall depth = 6', SS @ 1:1, bottom width = 3', pipe + bedding = 3', area = 2 CY/LF of trench													
mD	Excavate first 3' depth of trench for U/G utility pipe, load directly into trucks : 11,010 LF @ 1.333 CY / LF pipe	14,676	CY	0.030	620	21.49	OPER	1.10	\$13,320			\$16,140	\$29,460	
mD	Cal 225 Tractor; 1.25 Cy Bucket	14,676	CY	---	620	21.49	OPER	3.28	\$13,320			\$48,107	\$61,427	
mD	Cal 966E FE Loader, 4.5 cy Bucket Haul To OSDF, 1.5 Mi Round Trip, & Dump, 14,676 CY + 15% swell = 16,878 CY	16,878	CY	0.033	772	21.49	TEAM	3.76	\$16,600			\$63,454	\$80,054	
	Off-Road Truck, 35-Tn, 16 Cy / L 6 EA													
	Excavate last 3' depth of trench for U/G utility pipe, load directly into trucks : 11,010 LF @ .667 CY / LF pipe	7,344	CY	0.045	465	21.49	OPER	1.10	\$10,000			\$8,080	\$18,080	
mD	Cal 225 Tractor; 1.25 Cy Bucket	7,344	CY	---	465	21.49	OPER	4.92	\$10,000			\$36,107	\$46,107	
mD	Cal 966E FE Loader, 4.5 cy Bucket Haul 90 % To OSDF, 1.5 Mi Round Trip, & Dump, 90% of 7,344 CY + 15% swell = 7,601 CY	7,601	CY	0.033	348	21.49	TEAM	3.76	\$7,470			\$28,576	\$36,046	
	Off-Road Truck, 35-Tn, 16 Cy / L 6 EA													
	Haul 10 % To SP-7, 1.5 Mi Round Trip, & Dump, 10% of 7,344 CY + 15% swell = 845 CY	845	CY	0.033	39	21.49	TEAM	3.76	\$830			\$3,175	\$4,005	
mD	Off-Road Truck, 35-Tn, 16 Cy / L 6 EA				9976				\$214,340			\$730,409	\$944,749	
	<b>IMPACTED SOIL</b>													
	<b>EXCAVATE SPECIAL MATERIALS</b>													
	WGS to supply, deliver and pickup containers at Special Materials Staging area												by WGS	
	Excavate & Load into Containers and transport to Special Materials Transfer Area	25	CY	0.535	24	21.49	OPER	6.05	\$520			\$150	\$670	
mC	Case 580 Loader / Backhoe			---	24	\$21.49			\$520				\$520	
mC	Laborer			---	24	\$21.49			\$520				\$520	
mC	Laborer Foreman													
	<b>EXCAVATE SPECIAL MATERIALS</b>				73				\$1,560			\$160	\$1,710	

DETAIL ESTIMATE WORKSHEETS

**Fluor Fernald, Inc.**

PROJECT: Area 6 Soil Remediation  
 ESTIMATE NO.: C2-01-04-06  
 CLIENT: DOE  
 WBS NO.: 1.1.G.J

DATE: 14-May-01  
 ESTIMATOR: D Osborne  
 LOCATION: Fernald  
 TASK NO.: G6114

ITEM NO	Task 2 - EXCAVATION	QTY	UNIT	MAN-HOURS		COST/UNIT			LABOR	S/C	MAT'L	EQUIP	TOTAL
				Unit	Total	Rate	Labor	S/C					
	<b>SEASONAL SHUTDOWN &amp; WINTERIZATION</b>												
	3 winters x 3 mo. / winter = 9 mos total												
	Maintain surface water / erosion controls												
	40 crew hours per month, 9 mo												
mD	5T truck	360	hrs	1,000	360	21.49	OPER	\$7,740			\$17,640	\$25,380	
mD	580 Loader/ Backhoe	360	hrs	1,000	360	21.49	OPER	\$7,740			\$10,510	\$18,250	
mD	Laborers (2)	360	hrs	2,000	720	21.49		\$15,470				\$15,470	
mD	Laborer Foreman w/ p.u. truck	360	hrs	1,000	360	21.49		\$7,740			\$3,600	\$11,340	
mD	Silt fence materials	1000	LF				0.95			\$950		\$950	
	Dust control												
	@ 30 crew hours per month, unscheduled												
mD	4000 gal water truck	9	mo	30	270	21.49		\$5,800			\$56,250	\$62,050	
	Remove water from excavations												
	4 times @ 10 crew hours / month, unscheduled												
mD	3" Diaphragm pump, (3)	12	days	1,000	40	21.49	OPER	\$860			\$660	\$660	
mD	Operator, pump	40	hrs	1,000	40	21.49		\$860				\$860	
mD	Laborer	40	hrs	1,000	40	21.49		\$860				\$860	
mD	Laborer Foreman w/ p.u. truck	40	hrs	1,000	40	21.49		\$860			\$400	\$1,260	
	Seed / stabilize excavations and stockpiles												
	N.A.												
	Lighting												
	10 hours per day, 5 mo												
mD	Diesel light towers, 4000w, 2 ea	10	mo	1,000	1100	21.49	OPER	\$23,640			\$15,490	\$15,490	
mD	Operator, 1 man	1100	hrs	1,000	1100	21.49						\$23,640	
	Decon equipment and ON & OFF												
	Number of winter shutdowns = 2												
mD	Machine count	8	ea	20.00	320	21.49		\$6,880			\$6,400	\$13,280	
	<b>SEASONAL SHUTDOWN &amp; WINTERIZATION</b>												
								\$77,590	\$6,400	\$960	\$104,660	\$189,490	

DETAIL ESTIMATE WORKSHEETS

Fluor Fernald, Inc.

PROJECT: Area 6 Soil Remediation  
 ESTIMATE NO.: C2-01-04-06  
 CLIENT: DOE  
 WBS NO.: 1.1.G.J

DATE: 14-May-01  
 ESTIMATOR: D Osborne  
 LOCATION: Fernald  
 TASK NO.: G5114

ITEM NO.	TASK 2 - EXCAVATION	QTY	UNIT	MANHOURS		COST/UNIT			LABOR	S/C	MAT'L	EQUIP	TOTAL
				Unit	Total	Rate	Labor	S/C					
<b>MAINTENANCE DURING CONSTRUCTION</b>													
	Maintain surface-water management Reestablish & clean ditches 20 crew hours per month, 27 mo												
mD	Motor grader	540	hrs	1.000	540	21.49	OPER	\$11,600			\$68,970	\$80,570	
mD	Laborer	540	hrs	1.000	540	21.49		\$11,600				\$11,600	
mD	Laborer Foreman w/ pu truck	540	hrs	1.000	540	21.49		\$11,600			\$5,400	\$17,000	
	Clean sediment traps 4 times x 10 crew hours												
mD	Backhoe	40	hrs	1.000	40	21.49	OPER	\$860			\$3,060	\$3,920	
mD	Dump truck	40	hrs	1.000	40	21.49		\$860			\$1,000	\$1,860	
mD	Laborer	40	hrs	1.000	40	21.49		\$860				\$860	
mD	Laborer Foreman w/ pu truck	40	hrs	1.000	40	21.49		\$860				\$860	
	Remove water from excavations 9 times @ 10 crew hours / month, unscheduled												
mD	3" Diaphragm pump, (3)	24	days										
mD	Operator, pump	80	hrs	1.000	80	21.49	OPER	\$1,720			\$1,320	\$1,720	
mD	Laborer	80	hrs	1.000	80	21.49		\$1,720				\$1,720	
mD	Laborer Foreman w/ p.u. truck	80	hrs	1.000	80	21.49		\$1,720			\$800	\$2,520	
<b>Maintain erosion control structures</b>													
	Silt fence 20 crew hours per month, 27 mo												
mD	Laborer	540	hrs	1.000	540	21.49		\$11,600				\$11,600	
mD	Laborer Foreman w/ pu truck	540	hrs	1.000	540	21.49		\$11,600			\$5,400	\$17,000	
mD	Initial seeding, fertilizer & mulch	48	Acres	20.000	960	21.49		\$20,630		\$168,000	\$24,000	\$212,630	
	Maintenance Dust Control Off-day dust control 4000 gal w/ truck, 11 days/mo, 10 hrs/day.	1	Allow mo						\$50,000			\$50,000	
mD		32	mo	110.000	3520	21.49		\$75,630			\$200,000	\$275,630	
	Maintain access roads by Infra. Serv.											by Infra. Serv.	
<b>MAINTENANCE DURING CONSTRUCTION</b>					7,680			\$162,860	\$50,000	\$168,000	\$309,960	\$690,810	

DETAIL ESTIMATE WORKSHEETS

Fluor Fernald, Inc.

PROJECT: Area 5 Soil Remediation  
 ESTIMATE NO.: C2-01-04-06  
 CLIENT: DOE  
 WBS NO.: 1.1.G.J

DATE: 14-May-01  
 ESTIMATOR: D Osborne  
 LOCATION: Fernald  
 TASK NO.: G5114

ITEM NO	Task 2 - EXCAVATION	QTY	UNIT	MAN-HOURS		COST/UNIT			LABOR	S/C	MAT'L	EQUIP	TOTAL
				Unit	Total	Rate	Labor	S/C					
	<b>2nd SHIFT ADJUSTMENTS</b>												
	Additional hours for 2nd shift, pay 10 hrs for 9.5 hrs work (excav. hrs/ excav. mos) x (dbl shift months) x ((hrs pay / hrs work) - 1) Where, excav. hrs = 36,901 hrs ddl hrs = (excav. hrs / 32) x 5 x ((10/9.5) - 1) = 303 hrs			1,000	303	21.49 aver.							\$6,520
	<b>2nd shift premium</b> ((excav. hours/ excav. mos) x (dbl shift months)) + addl. hrs for 2nd shift Where, excav. hrs = 36,901 hrs and, addl hrs = 303 hrs 2nd shift hrs = ((excav. hours / 32) x 5) + addl hrs = 1,457 hrs						0.35						\$510
	<b>2nd SHIFT ADJUSTMENTS</b>				303								\$7,030
	<b>POST-EXCAVATION ACTIVITIES</b>												
	Remove construction support area		Not Required										Not Required
D	Remove work area features												
D	SMTA fence	400	LF	0.068	31	21.49		\$660				\$50	\$710
	Dust control piping	2000	LF		75	21.49		\$1,610					\$1,610
	Remove utility runs		by Infrastructure										by Infrastructure
	Remove fencing and signage												
D	Radiological/Construction fence	5,000	LF	0.068	306	21.49		\$8,300				\$670	\$8,970
D	Signage	100	ea	1.125	129	21.49		\$2,770				\$90	\$2,860
D	Silt fence	5,000	LF	0.045	257	21.49		\$5,530				\$670	\$6,200
D	Establish certification perimeter	6200	LF	0.090	638	21.49	1.49	\$13,720		\$9,230		\$830	\$23,780
	<b>POST-EXCAVATION ACTIVITIES</b>				1516			\$32,690		\$9,230		\$2,310	\$44,130
	<b>DEMobilIZATION</b>												
D	Complete Punch List Items.	1	LS	20,000	20	22.69		\$500					\$500
D	Remove Trailer and Change Facilities.	1	LS	20,000	20	22.69		\$500					\$500
D	Remove all Utilities.	1	LS	20,000	20	22.69		\$500					\$500
C	Decontaminate Equipment.	11	LS	20,000	220	22.69		\$5,000					\$5,000
D	Loadout contractors equipment.	1	LS	20,000	20	22.69		\$500					\$500
D	Other area requirements.	1	LS	10,000	10	22.69		\$200					\$200
	<b>DEMobilIZATION</b>				310			\$7,200					\$7,200
	<b>PREMIUM PAY ADJUSTMENT</b>												
	1/2 Time Premium pay						10%	\$72,752					\$72,752
	<b>Task 2 - EXCAVATION</b>				33,810	\$23.67		\$800,300		\$56,400	\$179,200	\$1,630,900	\$2,665,800

DETAIL ESTIMATE WORKSHEETS

**Fluor Fernald, Inc.**

PROJECT: Area 5 Soil Remediation  
 ESTIMATE NO.: C2-01-04-06  
 CLIENT: DOE  
 WBS NO.: 1.1.G.J

DATE: 14-May-01  
 ESTIMATOR: D Osborne  
 LOCATION: Fernald  
 TASK NO.: G6114

ITEM NO	Task 3 - CONTROL & MANAGEMENT	QTY	UNIT	MAN-HOURS		COST/UNIT			LABOR	S/C	MAT'L	EQUIP	TOTAL
				Unit	Total	Rate	Labor	S/C					
	<b>BUFFER CORRIDOR &amp; SSR</b>												
D	Install 2 ea pumps in buffer corridor	2	ea		176	22.66			\$3,990		\$3,000		\$6,990
D	Electric trash pumps, 2 hp w/ float switch	54	ea		108	22.66			\$2,450		\$23,760		\$26,210
D	Wood power poles	9600	LF		154	22.66			\$3,490		\$4,990		\$8,480
D	Overhead wire								\$680		\$5,000		\$5,680
D	XFMRs	2	ea		30	22.66			\$1,020		\$10,070		\$11,090
D	Disconnects and starters	11	ea		45	22.66			\$500		\$440		\$940
D	Concrete pad, 36 SF	11	ea		22	22.66			\$360		\$500		\$860
D	Electrical hook-up	1	Lot		16	22.66			\$110		\$120		\$230
D	Build buffer zone berm	1,100	LF		5	21.49							
D	Perform Safety Start-Up Review	by FF											
D	Troubleshooting, 1 day x 3 men	3	men		30	26.40			\$790		\$300		\$1,090
	<b>REMOVE SEDIMENT</b>												
mD	Remove sediment from sumps in buffer corridor												
mD	3 times x 10 crew hrs / time = 30 hrs												
mD	580 Loader / backhoe	30	hrs		30	21.49	OPER		\$640		\$686		\$1,326
mD	Laborer	30	hrs		30	21.49			\$640				\$640
mD	Laborer Foreman / p.u. truck	30	hrs		30	21.49			\$640				\$640
mD	5T truck	30	hrs		90	21.49			\$1,930		\$3,600		\$5,530
	Remove sediment from sediment traps												
	3 times x 10 crew hrs / time												
mD	580 Loader / backhoe	30	hrs		30	21.49	OPER		\$640		\$686		\$1,326
mD	Laborer	30	hrs		30	21.49			\$640				\$640
mD	Laborer Foreman / p.u. truck	30	hrs		30	21.49			\$640				\$640
mD	5T truck	30	hrs		90	21.49			\$1,930		\$3,600		\$5,530
	by CM/FEMP labor												

DETAIL ESTIMATE WORKSHEETS

**Fluor Fernald, Inc.**

PROJECT: Area 6 Soil Remediation  
 ESTIMATE NO.: C2-01-04-06  
 CLIENT: DOE  
 WBS NO.: 1.1.G.J

DATE: 14-May-01  
 ESTIMATOR: D Osborne  
 LOCATION: Fernald  
 TASK NO.: G6114

ITEM NO.	Task 3 - CONTROL & MANAGEMENT	QTY	UNIT	MAN-HOURS			COST/UNIT			LABOR	S/C	MAT'L	EQUIP	TOTAL
				Unit	Total	Rate	Labor	S/C	Mat'l					
<b>MAINTENANCE</b>														
	Maintain surface-water management													
	Restablish & clean ditches													
	20 crew hours per month													
D	Motor grader	140	hrs	1,000	140	21.49	OPER					\$17,880		
D	Laborer	140	hrs	1,000	140	21.49								\$20,890
D	Laborer Foreman w/ pu truck	140	hrs	1,000	140	21.49								\$3,010
	Clean sediment traps													
	2 times x 10 crew hours													\$4,410
D	Backhoe	20	hrs	1,000	20	24.57	OPER							\$490
D	Dump truck	20	hrs	1,000	20	21.49								\$830
D	Laborer	20	hrs	1,000	20	21.49								\$430
D	Laborer Foreman w/ pu truck	20	hrs	1,000	20	21.49								\$430
<b>Maintain erosion control structures</b>														
	Silt fence													
	20 crew hours per month													
D	Laborer	140	hrs	1,000	140	21.49								\$3,010
D	Laborer Foreman w/ pu truck	140	hrs	1,000	140	21.49								\$4,410
<b>Maintain buffer zone sump access roads, 500 LF</b>														
	2 mo x 10 crew hours													
D	Backhoe	70	hrs	1,000	70	21.49	OPER							\$1,500
D	Dump truck	70	hrs	1,000	70	21.49								\$2,900
D	Laborer	70	hrs	1,000	70	21.49								\$1,500
D	Laborer Foreman w/ pu truck	70	hrs	1,000	70	21.49								\$1,500
<b>Remove water from excavations</b>														
	Remove water from excavations													
	4 times @ 10 crew hours / month, unscheduled													
	3" Diaphragm pump, (3)	120	hrs											
D	Operator, pump	40	hrs	1,000	40	21.49	OPER							\$860
D	Laborer	40	hrs	1,000	40	21.49								\$860
D	Laborer Foreman w/ p.u. truck	40	hrs	1,000	40	21.49								\$860
<b>Dust Control</b>														
	4000 gal water truck, 7 days/mo @ 10 hr													
D		490	hrs	1,000	490	21.49								\$10,530
<b>PREMIUM PAY ADJUSTMENT</b>														
	1/2 Time Premium pay S/T Total Labor \$ =													
		\$57,030					10%							\$5,703
											\$40,100	\$217,300	\$326,100	
<b>Task 3 - CONTROL &amp; MANAGEMENT</b>														
											\$82,700	\$217,300	\$326,100	

DETAIL ESTIMATE WORKSHEETS

**Fluor Fernald, Inc.**

PROJECT: Area 6 Soil Remediation  
 ESTIMATE NO.: C2-01-04-06  
 CLIENT: DOE  
 WBS NO.: 1.1.G.J

DATE: 14-May-01  
 ESTIMATOR: D Usborne  
 LOCATION: Fernald  
 TASK NO.: G5114

ITEM NO.	Task 4 - INTERIM RESTORATION	QTY	UNIT	MAN-HOURS			COST/UNIT			LABOR	S/C	MAT'L	EQUIP	TOTAL
				Unit	Total	Rate	Labor	S/C	Mat'l					
	<b>GRADING TO RESHAPE SLOPES TO 6:1</b>													
	Reshape soil from 2:1 to 5:1 @ 150 cy / hr													
	5400 CY @ 150 CY / hr = 36 hrs													
D	Dozer, D-6 (2 ea)	72	hrs	1,000	82	21.49	OPER						\$7,290	\$9,060
D	Compactor-Sheepsfoot CAT 825C (2 ea)	72	hrs	1,000	82	21.49	OPER						\$16,830	\$18,600
D	Compactor-Roller CAT CA 563	36	hrs	1,000	41	21.49	OPER						\$1,230	\$2,110
D	Trackhoe, CAT 345	36	hrs	1,000	41	21.49	OPER						\$2,760	\$3,640
D	Spotters & Laborers (4 ea)	144	hrs	1,000	165	21.49							\$3,540	\$3,540
D	Foreman w/ truck	72	hrs	1,000	82	21.49							\$1,770	\$2,490
	<b>GRADING TO RESHAPE SLOPES TO 6:1</b>				494								\$10,610	\$39,440
	<b>SEEDING</b>													
	Final seeding	48	Acres	20,000	960	21.49		3500.00	500.00				\$20,630	\$212,630
	<b>SEEDING</b>				960								\$20,630	\$212,630
	<b>DEMobilIZATION</b>													
D	Complete Punch List items.	1	LS	20,000	20	22.69							\$500	\$500
D	Remove Trailer and Change Facilities.	1	LS	20,000	20	22.69							\$500	\$500
D	Remove all Utilities.	1	LS	20,000	20	22.69							\$500	\$500
C	Decontaminate Equipment.	15	ea	20,000	300	22.69							\$6,800	\$6,800
D	Loadout contractors equipment.	15	ea	20,000	300	22.69		200					\$6,800	\$9,800
D	Other area requirements.	1	LS	10,000	10	22.69							\$200	\$200
	<b>DEMobilIZATION</b>				670								\$15,300	\$18,300
	<b>PREMIUM PAY ADJUSTMENT</b>								10%				\$4,654	\$4,654
	1/2 Time Premium pay S/T Total Labor \$ =	\$46,540												
	<b>Task 4 - INTERIM RESTORATION</b>	1	LOT		2,124	\$24.10							\$51,200	\$275,000
										\$9,000	\$168,000	\$52,800		\$275,000

DETAIL ESTIMATE WORKSHEETS

**Fluor Fernald, Inc.**

PROJECT: Area 6 Soil Remediation  
 ESTIMATE NO.: C2-01-04-06  
 CLIENT: DOE  
 WBS NO.: 1.1.G.J

DATE: 14-May-01  
 ESTIMATOR: D Usborne  
 LOCATION: Fernald  
 TASK NO.: G5114

ITEM NO.	QTY	UNIT	MAN-HOURS		COST/UNIT			LABOR	S/C	MAT'L	EQUIP	TOTAL
			Unit	Total	Rate	Labor	S/C					
<b>Project Staffing</b>												
1	2937	hr	0.5	1	2937	54.42	\$159,840					\$159,840
2	5874	hr	1	1	5874	37.85	\$222,350					\$222,350
3	2937	hr	0.5	1	2937	33.19	\$97,490					\$97,490
4	4406	hr	0.75	1	4406	30.34	\$133,670					\$133,670
5	1469	hr	0.25	1	1469	28.33	\$41,610					\$41,610
6	2937	hr	0.5	1	2937	28.05	\$82,390					\$82,390
7	5874	hr	1	1	5874	19.31	\$113,440					\$113,440
8	5874	hr	1	1	5874	25.58	\$150,270					\$150,270
9	2937	hr	0.5	1	2937	14.58	\$42,820					\$42,820
					35,247		\$1,043,900					\$1,043,900
<b>TOTAL</b>												
NOTE: Duration = working months (30 ea) plus double shift months (5 ea) = 35 mo												

PROJECT: Area 5 Soil Remediation  
 ESTIMATE NOC2-01-04-06  
 CLIENT: DOE  
 WBS NO.: 1.1.G.J

SITE SPECIFIC  
 EFFICIENCY / MULTIPLIER ANALYSIS

DATE: 14-May-01  
 ESTIMATOR: D Osborne  
 LOCATION: Fernald  
 TASK NO.: G5114

	PERCENT OF INFLUENCE ON CHART MANHOURS										WT'D VALUE	PROD. RESULT		
	40%	50%	60%	70%	80%	90%	100%	105%	110%	% OF INFLUENCE				
CRAFT SKILL (NOTE 1)	POOR	POOR		FAIR									12.0%	0.12
CRAFT AVAIL.(NOTE 1)	SEVERE	ICE/SNOW		FAIR									8.0%	0.08
CLIMATE (NOTE 2)		OVER 10,000FT			RAIN								20.0%	0.18
PLANT ELEVATION					5,000' TO 10,000 FT								5.0%	0.05
WORK SPACE					250 SF	200 SF							10.0%	0.1
WORK WEEK		<----- MULTIPLE SHIFTS-											15.0%	0.15
50 HOUR WORK WEEK				OVER 7 WEEKS	3 TO 7 WEEKS	UP TO 3 WEEKS							0.0%	0
60 HOUR WORK WEEK			OVER 7 WEEKS	3 TO 7 WEEKS	UP TO 3 WEEKS								0.0%	0
SHIFTWORK														
2ND SHIFT					2ND SHIFT								3.0%	0.03
3RD SHIFT					3RD SHIFT								5.0%	0.05
PROJECT SIZE													4.0%	0.04
PLANT TYPE													8.0%	0.072
AREA/UNION INFLUENCE	STRONG		MILD		SOME								10.0%	0.04
NOTES.....														
1. TURNOVER HAS BEEN CONSIDERED														
2. FOR EXTERIOR WORK ONLY														
EFFICIENCY (AS A % OFF CHART MANHOURS)											100.0%	91.2%		
MULTIPLIER - (TO BE APPLIED TO CHART M.H.'S TO OBTAIN SITE M.H.'S)												1.10		



EFFICIENCY FACTORS

PROJECT: Area 5 Soil Remediation  
 ESTIMATE NO. C2-01-04-06  
 CLIENT: DOE  
 WBS NO.: 1.1.G.J

DATE: 14-May-01  
 ESTIMATOR: D Usborne  
 LOCATION: Fernald  
 TASK NO.: G5114

**Fluor Fernald, Inc.**

EXAMPLE:

STANDARD CHART MANHOURS =	NET	100
EFFICIENCY FACTORS:		
* SITE SPECIFIC (SEE APPENDIX A)	10%	10.0
S/T = BASE UNIT MANHOURS		110
OVERTIME PRODUCTIVITY FACTOR (SEE DETAIL WORKSHEET BACK-UP)	0.00%	0
		110
* TASK SPECIFIC (confined space, high elevation, congestion, etc.)	0.0%	0
		110
* PPE SPECIFIC (Based on current data and estimating knowledge)		

	PPE LEVEL									
	D		Mod. "D"		Mod. "C"		C		C+	
PRODUCTIVITY HOURS (AS A % ) / ADD MH's	MH's	MH's	MULTIPLIER	MH's	MULTIPLIER	MH's	MULTIPLIER	MH's	MULTIPLIER	MH's
(AS A MULTIPLIER )/TOTAL HRS	4.00%	4	28.00%	31	66.00%	73	74.00%	81	96.00%	106
TOTAL MULTIPLIER w/SITE PROD.	1.144	114.4	1.28	140.8	1.66	182.6	1.74	191.4	1.96	215.6

NOTE : Use the Default Productivity Factor of "mC" for working in a contaminated area if the Safety Level cannot be determined.

(SEE FD FERNALD ESTIMATING SERVICES REFERENCE MANUAL IM-6006 8.10)

Total hours worked in a specific PPE level divided by 10 hour working days = (PPE) ManDays to determine material cost of PPE's.  
(SEE APPENDIX C - HEALTH PHYSICS)

11.0	Man Days	14.0	Man Days	18.0	Man Days	19.0	Man Days	22.0	Man Days
------	----------	------	----------	------	----------	------	----------	------	----------

THESE EFFICIENCY FACTORS WERE APPLIED INDIVIDUALLY THROUGHOUT THE ESTIMATE AT A TASK SPECIFIC LEVEL, TO OBTAIN A MORE ACCURATE ACCOUNT OF OVERALL EFFICIENCY IMPACT DUE TO PPE REQUIREMENTS IN HANDLING CONTAMINATED AND HAZARDOUS WASTE.

EFFICIENCY FACTORS

PROJECT: Area 5 Soil Remediation  
 ESTIMATE NO. C2-01-04-06  
 CLIENT: DOE  
 WBS NO.: 1.1.G.J

**Fluor Fernald, Inc.**

DATE: 14-May-01  
 ESTIMATOR: D Usborne  
 LOCATION: Fernald  
 TASK NO.: G5114

PPE MULTIPLIER DEVELOPEMENT

	D	mD	mC	C	C+
CREW SIZE & MAKE-UP					
STANDARD	7	7	7	7	7
WORKER-BUDDY	0	0	0	0	0
SUPPORT TEAM	0	0	0	0	0
TOTAL CREW	7	7	7	7	7
CREW SIZE RATIO	1.00	1.00	1.00	1.00	1.00
AVAILABLE WORK TIME FACTOR	0.96	0.78	0.7	0.7	0.68
PPE LABOR PRODUCTIVITY FACTOR	1	1	0.86	0.82	0.75
NET PRODUCTIVITY RATIO	0.96	0.78	0.602	0.574	0.51
NET PRODUCTIVITY MULTIPLIER	1.04	1.28	1.66	1.74	1.96

These factors were based on Tables 6.1 and 6.2, Moderate Work Efforts, 66F to 85F temperature of "Hazardous Waste Cost Control" by R.A.Seig. Modifications were made to reflect a 10 hour work day and no buddy system or support team for levels D, mC and C. The worker-buddy and support team members, if required, may be covered under Construction Mgmt. (Rad Techs).

AVAILABLE WORK TIME FACTOR		D	mD	mC	C	C+
TOTAL WORK MINUTES per D	4 - 10's	600	600	600	600	600
ADDITNL SITE SAFETY MEETINGS NOT INCLD. IN BASE	QUANTITY	1	1	1	1	1
	MINUTES	25	25	25	25	25
TOTAL		25	25	25	25	25
PPE DON & DOFFING (ADJUST LEVEL D per WORK PLAN)	QUANTITY	0	0	3	3	3
	MINUTES	0	0	15	15	20
TOTAL			0	45	45	60
WORK BREAKS (ADJUST LEVEL D per WORK PLAN)	QUANTITY	N/A	2	2	2	2
	MINUTES	N/A	15	15	15	15
TOTAL			30	30	30	30
MOBILIZATION - ROUND TRIPS (ADJUST LEVEL D per WORK PLAN)	QUANTITY	N/A	4	4	4	4
	MINUTES	N/A	15	15	15	15
TOTAL			60	60	60	60
COOLDOWNS PER DAY ** (4 OUT OF 12 MONTHS)	QUANTITY	N/A	4	4	4	4
	MINUTES	N/A	15	15	15	15
TOTAL			20	20	20	20
AIR TANK REPLACEMENT	QUANTITY	N/A	N/A	N/A	N/A	N/A
	MINUTES	N/A	N/A	N/A	N/A	N/A
TOTAL						
AVAILABLE WORK TIME		575	465	420	420	405
AVAILABLE WORK TIME FACTOR		0.96	0.78	0.7	0.7	0.68

NOTE: Adjust "Work Minutes per Day" basis to: 5 - 8's, or leave as 4 - 10's. Any other circumstances, over-ride the minutes per day.

\*\* Assumption based on work performed in May, June, July & August, pro-rating cost over one year. Adjust % to individual circumstances.

# HEALTH PHYSICS

PROJECT: Area 5 Soil Remediation  
 ESTIMATE NO.: C2-01-04-06  
 CLIENT: DOE  
 WBS NO.: 1.1.G.J

DATE: 14-May-01  
 ESTIMATOR: D Osborne  
 LOCATION: Fernald  
 TASK NO.: G5114

## Fluor Fernald, Inc.

PPE's - PERSONAL PROTECTIVE EQUIPMENT

DESCRIPTION	UNIT	UNIT COST	* NO. OF CHANGE OUTS PER WORKER PER DAY			
			Man Days (TOTAL HOURS worked in PPE's Div. by WORK HOURS / DAY)			
PPE LEVEL C / C+ / B : F/HF MASK w/RESP.&CART.						
TYVEK COVER-ALL w/HOOD & BOOTIES - DISPOSABLE	EA	\$4.46	3	164	\$2,193	C / C+
TYVEK COVER-ALL w/HOOD & BOOTIES - DISPOSABLE	EA	\$4.46	3	164	\$2,193	C / C+
GLOVE LINER - DISPOSABLE	PR	\$0.24	3	164	\$118	C / C+
GLOVE, LASTEX - DISPOSABLE	PR	\$0.26	3	164	\$128	C / C+
GLOVE, WORK - DISPOSABLE	PR	\$1.02	3	164	\$501	C / C+
APR CARTRIDGES - DISPOSABLE	PR	\$6.98	3	164	\$3,431	C / C+
<b>SUB-TOTAL</b>		<b>\$17.42</b>	<b>3</b>		<b>\$8,564</b>	

(DOUBLE PPE)

\$/MD = \$52.26

PPE LEVEL mC : FULL DRESS w/ FACE SHIELD				MAN DAYS	MAT'L.S's	PPE LEVEL
LT.WT. DISPOSABLE COVERALLS w/HOOD & BOOTIES	PR	\$4.46	3	29	\$391	mC
GLOVE LINER - DISPOSABLE	PR	\$0.24	3	29	\$21	mC
GLOVE, LASTEX - DISPOSABLE	PR	\$0.26	3	29	\$23	mC
GLOVE, WORK - DISPOSABLE	PR	\$1.02	3	29	\$89	mC
<b>SUB-TOTAL</b>		<b>\$5.98</b>	<b>3</b>		<b>\$524</b>	

\$/MD = \$17.95

SUBCONTRACTOR REQUIRED PURCHASES			QTY. PER WKR.	NO. OF WORKERS	MAT'L.S's	PPE LEVEL
RUBBER BOOT COVERS-(1)PR.PER WORKER	PR	\$12.70	6	0	\$0	D/C/B
APR w/HALF FACE MASK - (1) PER WORKER	EA	\$22.30	6	0	\$0	C
APR w/FULL FACE MASK - (1) PER WORKER	EA	\$174.00	6	0	\$0	C
SCBA	EA	\$1,894.00	2	0	\$0	B
COOL VESTS	EA	\$137.50	6	0	\$0	C/B
THERMO STRIPS	EA	\$50.00	6	0	\$0	C/B
<b>SUB-TOTAL</b>					<b>\$0</b>	

TOTAL PPE's =

MAT'L.S's  
\$9,100

(FORWARD TO PAGE 2 OF 2)

OTHER PPE's SUCH AS HARD HAT, SAFETY GLASSES/GOGGLES, STEEL TOED SAFETY SHOES, HEARING PROTECTION, ARE CONSIDERED THE SUBCONTRACTORS RESPONSIBILITY AND ARE COVERED IN HIS OVERHEAD EXPENSE. COSTS OF FD FERNALD SUPPLIED PPE's, SUCH AS COTTON COVERALLS, EXCHANGE OF RUBBER BOOT COVERS AND RESPIRATORS FOR CHANGEOUTS AND CLEANING OF SAME IS INCURRED BY FD FERNALD AND COSTS ARE NOT INCLUDED AS PART OF PROJECT COSTS AT THIS TIME.

# HEALTH PHYSICS

PROJECT: Area 5 Soil Remediation  
 ESTIMATE NO.: C2-01-04-06  
 CLIENT: DOE  
 WBS NO.: 1.1.G.J

DATE: 14-May-01  
 ESTIMATOR: D Osborne  
 LOCATION: Fernald  
 TASK NO.: G5114

-MEDICAL MONITORING -

**MEDICAL - PHYSICAL and IN-VIVO MONITORING - LOST WORKER TIME for RAD II WORKERS ONLY**

DESCRIPTION	QTY	HRS	WKR	TOTAL HOURS	AVG. LABOR RATE	TOTAL LABOR \$
PHYSICAL (3hrs), IN-VIVO (1hr)						
BASELINE PHYSICALS	1	4	8	32	\$23.71	\$760
ANNUAL PHYSICALS	2	4	8	64	\$23.71	\$1,520
EXIT (TERMINATION) PHYSICALS (IN-VIVO)	1	1	8	8	\$23.71	\$190
<b>SUB-TOTAL</b>						<b>\$2,470</b>

**RADIATION IN-VITRO SURVEILLANCE - LOST WORKER TIME for RAD II WORKERS ONLY**

DESCRIPTION	QTY	HRS	WKR	TOTAL HOURS	AVG. LABOR RATE	TOTAL LABOR \$
BI-MONTHLY BIOASSAY	15	1	8	120	\$23.71	\$2,840
<b>SUB-TOTAL</b>						<b>\$2,840</b>

**RANDOM DRUG TESTING**

	TESTS	HRS	TOTAL HOURS	AVG. RATE	LABOR \$'s	
	46	2	92	\$23.71	\$2,200	
NO. OF WKRS. TESTED	TESTING DAYS PER YR.	AVG. NO. OF TESTS PER DAY	CHANCE/ DAY FOR TEST	NO. OF WKRS. FOR THIS ESTIMATE	CHANCES /DAY FOR TEST FOR PROJECT	CONSTR WORKING DAYS
2340	226	10	0.0042735	19	0.0812	565

LABOR \$'s  
THRU  
SAFETY

LABOR \$'s

WORK DELAYS CAUSED BY MONITORING 0.0%

\$2,035,600

\$0

WORK DELAYS CAUSED BY RAD CHECKING 0.0%

\$2,035,600

LABOR \$'s

\$0

TOTAL LABOR	TOTAL MAT'L	GRAND TOTAL
\$7,500	\$9,100	\$16,600

**TOTAL HEALTH PHYSICS**

(FORWARD TO ESTIMATE SUMMARY SHEET)

# ACTIVITY DURATIONS

## Fluor Fernald, Inc.

PROJECT: Area 5 Soil Remediation  
 ESTIMATE NO.: C2-01-04-06  
 CLIENT: DOE  
 WBS NO.: 1.1.G.J

DATE: 14-May-01  
 ESTIMATOR: D Usborne  
 LOCATION: Fernald  
 TASK NO.: G5114

ACTIVITY	EST. DATE	START DATE	MID POINT	COMPL. DATE	ACTIVITY	DURATION
CONSTRUCTION:	23-May-01	03-Jul-06	01-Oct-07	30-Dec-08	30.0	MONTHS
					0	MONTHS
<b>TOTAL</b>					<b>30.0</b>	<b>MONTHS</b>

DATE of EST. to MID-POINT ACTIVITY DURATION	
a.	76.4 MONTHS
b.	0 MONTHS

ACTIVITY	EST. DATE	START DATE	MID POINT	COMPL. DATE	ACTIVITY	DURATION
OPERATIONS					0	MONTHS

DATE of EST. to MID-POINT ACTIVITY DURATION	
	0 MONTHS

ACTIVITY DURATION IS USED IN DETERMINING NUMBER of WORKERS for CERCLA/SAT TRAINING HOURS and HEALTH PHYSICS COSTS.



**G5117**

**AREA 5 EXC CONTROL/CERTIFICATION**



# Fluor Fernald, Inc.

ESTIMATE SUPPORT WORKSHEET  
FOR ACTIVITY BASED ESTIMATING  
(1 FTE EQUALS 1747 HOURS)

DATE: 05-Sep-01  
PROJECT MGR: J.D. CHIOU  
CAM: J.D. CHIOU  
PREPARED BY: W.FICK  
FISCAL YEAR: 2006-2009

PBS: OHFN06  
WBS: 1.1.G-J  
CTRL ACCT: G511  
CHARGE NO: G5117  
COMMENT NO F06-044

<b>Resource:</b> DRFCAD												
<b>Res Dept:</b> 949												
<b>Yr Hours:</b>	Oct 00-	Oct 01-	Oct 02-	Oct 03-	Oct 04-	Oct 05-	Oct 06-	Oct 07-	Oct 08-	Oct 09-		
<b>Cum Hours:</b>	Sep 01	Sep 02	Sep 03	Sep 04	Sep 05	Sep 06	Sep 07	Sep 08	Sep 09	Sep 10		
<b>Yr Total Cost:</b>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	139.0	0.0	0.0		
<b>Cum Total Cost:</b>	0	0	0	0	0	0	0	139.0	139.0	139.0		
	0	0	0	0	0	0	0	6,618	0	0		
	0	0	0	0	0	0	0	6,618	6,618	6,618		

<b>Resource:</b> ENSMGR												
<b>Res Dept:</b> 949												
<b>Yr Hours:</b>	Oct 00-	Oct 01-	Oct 02-	Oct 03-	Oct 04-	Oct 05-	Oct 06-	Oct 07-	Oct 08-	Oct 09-		
<b>Cum Hours:</b>	Sep 01	Sep 02	Sep 03	Sep 04	Sep 05	Sep 06	Sep 07	Sep 08	Sep 09	Sep 10		
<b>Yr Total Cost:</b>	0	0	0	0	0	0	0	5,368	83.0	0		
<b>Cum Total Cost:</b>	0	0	0	0	0	0	0	5,368	1,461	6,829		
	0	0	0	0	0	0	0	5,368	6,829	6,829		

<b>Resource:</b> ENSREP												
<b>Res Dept:</b> 949												
<b>Yr Hours:</b>	Oct 00-	Oct 01-	Oct 02-	Oct 03-	Oct 04-	Oct 05-	Oct 06-	Oct 07-	Oct 08-	Oct 09-		
<b>Cum Hours:</b>	Sep 01	Sep 02	Sep 03	Sep 04	Sep 05	Sep 06	Sep 07	Sep 08	Sep 09	Sep 10		
<b>Yr Total Cost:</b>	0	0	0	0	0	0	0	17,291	4,706	0		
<b>Cum Total Cost:</b>	0	0	0	0	0	0	0	17,291	21,996	21,996		
	0	0	0	0	0	0	0	17,291	21,996	21,996		

<b>Resource:</b> ENSTEC												
<b>Res Dept:</b> 949												
<b>Yr Hours:</b>	Oct 00-	Oct 01-	Oct 02-	Oct 03-	Oct 04-	Oct 05-	Oct 06-	Oct 07-	Oct 08-	Oct 09-		
<b>Cum Hours:</b>	Sep 01	Sep 02	Sep 03	Sep 04	Sep 05	Sep 06	Sep 07	Sep 08	Sep 09	Sep 10		
<b>Yr Total Cost:</b>	0	0	0	0	0	0	0	335.8	418.0	0		
<b>Cum Total Cost:</b>	0	0	0	0	0	0	0	335.8	3,951	18,468		
	0	0	0	0	0	0	0	335.8	4,706	18,468		

<b>Resource:</b> INDMEC												
<b>Res Dept:</b> 949												
<b>Yr Hours:</b>	Oct 00-	Oct 01-	Oct 02-	Oct 03-	Oct 04-	Oct 05-	Oct 06-	Oct 07-	Oct 08-	Oct 09-		
<b>Cum Hours:</b>	Sep 01	Sep 02	Sep 03	Sep 04	Sep 05	Sep 06	Sep 07	Sep 08	Sep 09	Sep 10		
<b>Yr Total Cost:</b>	0	0	0	0	0	0	0	13.1	24.0	0		
<b>Cum Total Cost:</b>	0	0	0	0	0	0	0	13.1	263	1,143		
	0	0	0	0	0	0	0	13.1	263	1,143		

# Fluor Fernald, Inc.

ESTIMATE SUPPORT WORKSHEET  
FOR ACTIVITY BASED ESTIMATING  
(1 FTE EQUALS 1747 HOURS)

DATE: 05-Sep-01  
PROJECT MGR: J.D. CHIOU  
CAM: J.D. CHIOU  
PREPARED BY: W.FICK  
FISCAL YEAR: 2006-2009

PBS: OHFN06

WBS: 1.1.G.J

CTRL ACCT: G511

CHARGE NO: G5117

COMMENT NO F06-044

Resource: LABCHM

Res Dept: 949

OverTime:

LABOR

EOC:

SAL

Class:

Resource:	LABMGR	949	Class:	EOC:	SAL	Oct 01- Sep 02	Oct 02- Sep 03	Oct 03- Sep 04	Oct 04- Sep 05	Oct 05- Sep 06	Oct 06- Sep 07	Oct 07- Sep 08	Oct 08- Sep 09	Oct 09- Sep 10
Yr Hours:	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0	197.1	159.9	0.0
Cum Hours:	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0	197.1	357.0	0.0
Yr Total Cost:	0	0				0	0	0	0	0	0	11,662	10,517	0
Cum Total Cost:	0	0				0	0	0	0	0	0	11,662	22,179	22,179

Resource:	LABMGR	949	Class:	EOC:	SAL	Oct 01- Sep 02	Oct 02- Sep 03	Oct 03- Sep 04	Oct 04- Sep 05	Oct 05- Sep 06	Oct 06- Sep 07	Oct 07- Sep 08	Oct 08- Sep 09	Oct 09- Sep 10
Yr Hours:	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0	21.5	17.5	0.0
Cum Hours:	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0	21.5	39.0	39.0
Yr Total Cost:	0	0				0	0	0	0	0	0	1,680	1,515	0
Cum Total Cost:	0	0				0	0	0	0	0	0	1,680	3,195	3,195

Resource:	LABTECH	949	Class:	EOC:	SAL	Oct 01- Sep 02	Oct 02- Sep 03	Oct 03- Sep 04	Oct 04- Sep 05	Oct 05- Sep 06	Oct 06- Sep 07	Oct 07- Sep 08	Oct 08- Sep 09	Oct 09- Sep 10
Yr Hours:	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0	164.0	133.0	0.0
Cum Hours:	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0	164.0	297.0	297.0
Yr Total Cost:	0	0				0	0	0	0	0	0	6,958	6,271	0
Cum Total Cost:	0	0				0	0	0	0	0	0	6,958	13,229	13,229

Resource:	MVOOPR	949	Class:	EOC:	HOU	Oct 01- Sep 02	Oct 02- Sep 03	Oct 03- Sep 04	Oct 04- Sep 05	Oct 05- Sep 06	Oct 06- Sep 07	Oct 07- Sep 08	Oct 08- Sep 09	Oct 09- Sep 10
Yr Hours:	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0	189.6	25.7	0.0
Cum Hours:	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0	189.6	250.0	250.0
Yr Total Cost:	0	0				0	0	0	0	0	0	8,354	1,257	0
Cum Total Cost:	0	0				0	0	0	0	0	0	8,354	11,064	11,064

Resource:	PJSMGR	949	Class:	EOC:	SAL	Oct 01- Sep 02	Oct 02- Sep 03	Oct 03- Sep 04	Oct 04- Sep 05	Oct 05- Sep 06	Oct 06- Sep 07	Oct 07- Sep 08	Oct 08- Sep 09	Oct 09- Sep 10
Yr Hours:	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0	47.8	6.5	0.0
Cum Hours:	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0	47.8	54.3	63.0
Yr Total Cost:	0	0				0	0	0	0	0	0	3,336	502	0
Cum Total Cost:	0	0				0	0	0	0	0	0	3,336	4,419	4,419



# Fluor Fernald, Inc.

ESTIMATE SUPPORT WORKSHEET  
FOR ACTIVITY BASED ESTIMATING  
(1 FTE EQUALS 1747 HOURS)

PBS: OHFN06  
WBS: 1.1.G.J  
CTRL ACCT: G511  
CHARGE NO: G5117  
COMMENT NO F06-044

DATE: 05-Sep-01  
PROJECT MGR: J.D. CHIOU  
CAM: J.D. CHIOU  
PREPARED BY: W.FICK  
FISCAL YEAR: 2006-2009

**GRAND TOTALS:**

	Oct 00-		Oct 01-		Oct 02-		Oct 03-		Oct 04-		Oct 05-		Oct 06-		Oct 07-		Oct 08-		Oct 09-			
	Sep 01	Sep 02	Sep 03	Sep 04	Sep 05	Sep 06	Sep 07	Sep 08	Sep 09	Sep 10	Sep 11	Sep 12	Sep 13	Sep 14	Sep 15	Sep 16	Sep 17	Sep 18	Sep 19	Sep 20		
Yr Hours:	0.0	0.0	0.0	0.0	0.0	25.1	89.5	1,807.1	561.4	2,483.1	2,483.1	2,483.1	2,483.1	2,483.1	2,483.1	2,483.1	2,483.1	2,483.1	2,483.1	2,483.1	0.0	
Cum Hours:	0.0	0.0	0.0	0.0	0.0	25.1	114.6	1,921.7	2,483.1	2,483.1	2,483.1	2,483.1	2,483.1	2,483.1	2,483.1	2,483.1	2,483.1	2,483.1	2,483.1	2,483.1	2,483.1	0.0
Yr Total Cost:	0	0	0	0	0	1,468	4,858	126,640	39,243	172,209	172,209	172,209	172,209	172,209	172,209	172,209	172,209	172,209	172,209	172,209	0	0
Cum Total Cost:	0	0	0	0	0	1,468	6,326	132,966	172,209	172,209	172,209	172,209	172,209	172,209	172,209	172,209	172,209	172,209	172,209	172,209	172,209	172,209

CAM CONTROL TEAM

**G5118**

**AREA 5 OFF SITE WASTE DISPOSITION**



# Fluor Fernald, Inc.

ESTIMATE SUPPORT WORKSHEET  
FOR ACTIVITY BASED ESTIMATING  
(1 FTE EQUALS 1747 HOURS)

DATE: 05-Sep-01  
PROJECT MGR: J.D. CHIOU  
CAM: J.D. CHIOU  
PREPARED BY: W.FICK  
FISCAL YEAR: 2006-2009

PBS: OHFN06  
WBS: 1.1.G.J  
CTRL ACCT: G511  
CHARGE NO: G5118  
COMMENT NO F06-044

Resource:	BUYCON	BUYER/CONTRACTS ADMIN		EOC:		LABOR	
Res Dept:		Class:	Class:	SAL	SAL		
Yr Hours:	0.0	Oct 00- Sep 01	Oct 01- Sep 02	Oct 02- Sep 03	Oct 03- Sep 04	Oct 04- Sep 05	Oct 05- Sep 06
Cum Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yr Total Cost:	0	0	0	0	0	0	0
Cum Total Cost:	0	0	0	0	0	0	0

Resource:	CLERKS	CLERKS		EOC:		LABOR	
Res Dept:	949	Class:	Class:	SAL	SAL		
Yr Hours:	0.0	Oct 00- Sep 01	Oct 01- Sep 02	Oct 02- Sep 03	Oct 03- Sep 04	Oct 04- Sep 05	Oct 05- Sep 06
Cum Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yr Total Cost:	0	0	0	0	0	0	0
Cum Total Cost:	0	0	0	0	0	0	0

Resource:	HAZWAT	HAZWAT		EOC:		LABOR	
Res Dept:	949	Class:	Class:	HOU	HOU		
Yr Hours:	0.0	Oct 00- Sep 01	Oct 01- Sep 02	Oct 02- Sep 03	Oct 03- Sep 04	Oct 04- Sep 05	Oct 05- Sep 06
Cum Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yr Total Cost:	0	0	0	0	0	0	0
Cum Total Cost:	0	0	0	0	0	0	0

Resource:	HEOOPR	HEAVY EQUIP OPERATOR		EOC:		LABOR	
Res Dept:	949	Class:	Class:	HOU	HOU		
Yr Hours:	0.0	Oct 00- Sep 01	Oct 01- Sep 02	Oct 02- Sep 03	Oct 03- Sep 04	Oct 04- Sep 05	Oct 05- Sep 06
Cum Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yr Total Cost:	0	0	0	0	0	0	0
Cum Total Cost:	0	0	0	0	0	0	0

Resource:	MAT300	MATERIAL OBJCLASS300		EOC:		MATERIAL	
Res Dept:	949	Class:	Class:	MAT	MAT		
Yr Units:	0.0	Oct 00- Sep 01	Oct 01- Sep 02	Oct 02- Sep 03	Oct 03- Sep 04	Oct 04- Sep 05	Oct 05- Sep 06
Cum Units:	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yr Total Cost:	0	0	0	0	0	0	0
Cum Total Cost:	0	0	0	0	0	0	0

Resource: MPCREP  
Res Dept: 949

MATL PROP CTRL REP  
Overtime:

EOC:  
SAL

LABOR

	Oct 01-		Oct 02-		Oct 03-		Oct 04-		Oct 05-		Oct 06-		Oct 07-		Oct 08-		Oct 09-	
	Oct 01- Sep 01	Sep 02	Oct 02- Sep 03	Sep 04	Oct 03- Sep 04	Sep 05	Oct 04- Sep 05	Sep 06	Oct 05- Sep 06	Sep 07	Oct 06- Sep 07	Sep 08	Oct 07- Sep 08	Sep 09	Oct 08- Sep 09	Sep 10	Oct 09- Sep 10	Sep 10
Yr Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.9	19.6	19.8	19.8	1.9	1.9	0.0	0.0	0.0	0.0
Cum Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.9	22.6	42.4	44.2	44.2	44.2	44.2	44.2	44.2	44.2
Yr Total Cost:	0	0	0	0	0	0	0	0	126	919	977	977	102	102	0	0	0	0
Cum Total Cost:	0	0	0	0	0	0	0	0	1,046	2,022	2,022	2,022	2,124	2,124	2,124	2,124	2,124	2,124

Resource: MVOOPR  
Res Dept: 949

MOTOR VEHICLE OPER  
Overtime:

EOC:  
HOU

LABOR

	Oct 01-		Oct 02-		Oct 03-		Oct 04-		Oct 05-		Oct 06-		Oct 07-		Oct 08-		Oct 09-	
	Oct 01- Sep 01	Sep 02	Oct 02- Sep 03	Sep 04	Oct 03- Sep 04	Sep 05	Oct 04- Sep 05	Sep 06	Oct 05- Sep 06	Sep 07	Oct 06- Sep 07	Sep 08	Oct 07- Sep 08	Sep 09	Oct 08- Sep 09	Sep 10	Oct 09- Sep 10	Sep 10
Yr Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.8	20.0	20.0	20.1	20.1	1.0	1.0	0.0	0.0	0.0	0.0
Cum Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.8	23.8	43.9	44.9	44.9	44.9	44.9	44.9	44.9	44.9	44.9
Yr Total Cost:	0	0	0	0	0	0	0	148	834	886	886	886	47	47	0	0	0	0
Cum Total Cost:	0	0	0	0	0	0	0	148	983	1,869	1,869	1,869	1,916	1,916	1,916	1,916	1,916	1,916

Resource: OPRMGR  
Res Dept: 949

OPERATIONS MGR  
Overtime:

EOC:  
SAL

LABOR

	Oct 01-		Oct 02-		Oct 03-		Oct 04-		Oct 05-		Oct 06-		Oct 07-		Oct 08-		Oct 09-	
	Oct 01- Sep 01	Sep 02	Oct 02- Sep 03	Sep 04	Oct 03- Sep 04	Sep 05	Oct 04- Sep 05	Sep 06	Oct 05- Sep 06	Sep 07	Oct 06- Sep 07	Sep 08	Oct 07- Sep 08	Sep 09	Oct 08- Sep 09	Sep 10	Oct 09- Sep 10	Sep 10
Yr Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	19.9	20.1	20.1	20.1	1.9	1.9	0.0	0.0	0.0	0.0
Cum Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	22.9	42.9	42.9	42.9	44.8	44.8	44.8	44.8	44.8	44.8
Yr Total Cost:	0	0	0	0	0	0	0	207	1,507	1,601	1,601	1,601	166	166	0	0	0	0
Cum Total Cost:	0	0	0	0	0	0	0	207	1,714	3,315	3,315	3,315	3,482	3,482	3,482	3,482	3,482	3,482

Resource: PIPFTR  
Res Dept: 949

PIPE FITTER  
Overtime:

EOC:  
HOU

LABOR

	Oct 01-		Oct 02-		Oct 03-		Oct 04-		Oct 05-		Oct 06-		Oct 07-		Oct 08-		Oct 09-	
	Oct 01- Sep 01	Sep 02	Oct 02- Sep 03	Sep 04	Oct 03- Sep 04	Sep 05	Oct 04- Sep 05	Sep 06	Oct 05- Sep 06	Sep 07	Oct 06- Sep 07	Sep 08	Oct 07- Sep 08	Sep 09	Oct 08- Sep 09	Sep 10	Oct 09- Sep 10	Sep 10
Yr Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.8	19.7	19.7	19.8	19.8	0.9	0.9	0.0	0.0	0.0	0.0
Cum Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.8	23.5	43.3	43.3	43.3	44.2	44.2	44.2	44.2	44.2	44.2
Yr Total Cost:	0	0	0	0	0	0	0	158	889	945	945	945	50	50	0	0	0	0
Cum Total Cost:	0	0	0	0	0	0	0	158	1,048	1,993	1,993	1,993	2,043	2,043	2,043	2,043	2,043	2,043

Resource: PRJMGR  
Res Dept: 949

PROJECT MANAGER  
Overtime:

EOC:  
SAL

LABOR

	Oct 01-		Oct 02-		Oct 03-		Oct 04-		Oct 05-		Oct 06-		Oct 07-		Oct 08-		Oct 09-	
	Oct 01- Sep 01	Sep 02	Oct 02- Sep 03	Sep 04	Oct 03- Sep 04	Sep 05	Oct 04- Sep 05	Sep 06	Oct 05- Sep 06	Sep 07	Oct 06- Sep 07	Sep 08	Oct 07- Sep 08	Sep 09	Oct 08- Sep 09	Sep 10	Oct 09- Sep 10	Sep 10
Yr Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	19.9	19.9	20.1	20.1	1.9	1.9	0.0	0.0	0.0	0.0
Cum Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	22.9	42.9	42.9	42.9	44.8	44.8	44.8	44.8	44.8	44.8
Yr Total Cost:	0	0	0	0	0	0	0	353	2,570	2,731	2,731	2,731	284	284	0	0	0	0
Cum Total Cost:	0	0	0	0	0	0	0	353	2,923	5,654	5,654	5,654	5,938	5,938	5,938	5,938	5,938	5,938

Resource: QACENG  
Res Dept: 949

QA ENGINEER  
Overtime:

EOC:  
SAL

LABOR

	Oct 01-		Oct 02-		Oct 03-		Oct 04-		Oct 05-		Oct 06-		Oct 07-		Oct 08-		Oct 09-	
	Oct 01- Sep 01	Sep 02	Oct 02- Sep 03	Sep 04	Oct 03- Sep 04	Sep 05	Oct 04- Sep 05	Sep 06	Oct 05- Sep 06	Sep 07	Oct 06- Sep 07	Sep 08	Oct 07- Sep 08	Sep 09	Oct 08- Sep 09	Sep 10	Oct 09- Sep 10	Sep 10
Yr Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.9	39.6	39.6	39.9	39.9	3.7	3.7	0.0	0.0	0.0	0.0
Cum Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.9	45.4	85.3	85.3	85.3	89.0	89.0	89.0	89.0	89.0	89.0
Yr Total Cost:	0	0	0	0	0	0	0	360	2,633	2,798	2,798	2,798	292	292	0	0	0	0
Cum Total Cost:	0	0	0	0	0	0	0	360	2,993	5,791	5,791	5,791	6,083	6,083	6,083	6,083	6,083	6,083

Resource:	RADENG	RAD ENGINEER		LABOR		EOC:		LABOR			
Res Dept:	949	Overtime:	Class:	SAL	SAL	SAL	SAL	SAL	SAL		
Yr Hours:		Oct 00- Sep 01	Oct 01- Sep 02	Oct 02- Sep 03	Oct 03- Sep 04	Oct 04- Sep 05	Oct 05- Sep 06	Oct 06- Sep 07	Oct 07- Sep 08	Oct 08- Sep 09	Oct 09- Sep 10
Cum Hours:		0.0	0.0	0.0	0.0	0.0	4.1	39.5	39.8	5.6	0.0
Yr Total Cost:		0.0	0.0	0.0	0.0	0.0	43.6	43.6	83.4	89.0	89.0
Cum Total Cost:		0	0	0	0	0	260	2,700	2,868	444	0
		0	0	0	0	0	260	2,960	5,828	6,272	6,272

Resource:	RADTEC	RAD TECH		LABOR		EOC:		LABOR			
Res Dept:	949	Overtime:	Class:	SAL	SAL	SAL	SAL	SAL	SAL		
Yr Hours:		Oct 00- Sep 01	Oct 01- Sep 02	Oct 02- Sep 03	Oct 03- Sep 04	Oct 04- Sep 05	Oct 05- Sep 06	Oct 06- Sep 07	Oct 07- Sep 08	Oct 08- Sep 09	Oct 09- Sep 10
Cum Hours:		0.0	0.0	0.0	0.0	0.0	2.9	19.6	19.8	1.9	0.0
Yr Total Cost:		0.0	0.0	0.0	0.0	0.0	22.6	22.6	42.4	44.2	44.2
Cum Total Cost:		0	0	0	0	0	133	970	1,030	107	0
		0	0	0	0	0	1,102	2,133	2,133	2,240	2,240

Resource:	S&HENG	SAFETY ENGINEER		LABOR		EOC:		LABOR			
Res Dept:	949	Overtime:	Class:	SAL	SAL	SAL	SAL	SAL	SAL		
Yr Hours:		Oct 00- Sep 01	Oct 01- Sep 02	Oct 02- Sep 03	Oct 03- Sep 04	Oct 04- Sep 05	Oct 05- Sep 06	Oct 06- Sep 07	Oct 07- Sep 08	Oct 08- Sep 09	Oct 09- Sep 10
Cum Hours:		0.0	0.0	0.0	0.0	0.0	14.4	138.1	139.3	19.4	0.0
Yr Total Cost:		0.0	0.0	0.0	0.0	0.0	14.4	152.6	291.8	311.2	311.2
Cum Total Cost:		0	0	0	0	0	958	9,947	10,568	1,638	0
		0	0	0	0	0	958	10,905	21,473	23,111	23,111

Resource:	S&HTEC	SAFETY TECH		LABOR		EOC:		LABOR			
Res Dept:	949	Overtime:	Class:	SAL	SAL	SAL	SAL	SAL	SAL		
Yr Hours:		Oct 00- Sep 01	Oct 01- Sep 02	Oct 02- Sep 03	Oct 03- Sep 04	Oct 04- Sep 05	Oct 05- Sep 06	Oct 06- Sep 07	Oct 07- Sep 08	Oct 08- Sep 09	Oct 09- Sep 10
Cum Hours:		0.0	0.0	0.0	0.0	0.0	5.9	39.6	39.9	3.7	0.0
Yr Total Cost:		0.0	0.0	0.0	0.0	0.0	5.9	45.4	85.3	89.1	89.1
Cum Total Cost:		0	0	0	0	0	227	1,657	1,760	184	0
		0	0	0	0	0	227	1,884	3,644	3,828	3,828

Resource:	SERVSUB	SUBS		WAST		EOC:		SUBCONTRACTORS			
Res Dept:	949	Overtime:	Class:	SUB	SUB	SUB	SUB	SUB	SUB		
Yr Units:		Oct 00- Sep 01	Oct 01- Sep 02	Oct 02- Sep 03	Oct 03- Sep 04	Oct 04- Sep 05	Oct 05- Sep 06	Oct 06- Sep 07	Oct 07- Sep 08	Oct 08- Sep 09	Oct 09- Sep 10
Cum Units:		0.0	0.0	0.0	0.0	0.0	47,458.1	454,502.7	458,153.3	63,885.9	0.0
Yr Total Cost:		0.0	0.0	0.0	0.0	0.0	47,458.1	501,960.8	980,114.1	1,024,000.0	1,024,000.0
Cum Total Cost:		0	0	0	0	0	54,432	536,407	556,396	79,835	0
		0	0	0	0	0	54,432	590,839	1,147,235	1,227,070	1,227,070

Resource:	TPSREP	TECH/PROG SUPT REP		LABOR		EOC:		LABOR			
Res Dept:	949	Overtime:	Class:	SAL	SAL	SAL	SAL	SAL	SAL		
Yr Hours:		Oct 00- Sep 01	Oct 01- Sep 02	Oct 02- Sep 03	Oct 03- Sep 04	Oct 04- Sep 05	Oct 05- Sep 06	Oct 06- Sep 07	Oct 07- Sep 08	Oct 08- Sep 09	Oct 09- Sep 10
Cum Hours:		0.0	0.0	0.0	0.0	0.0	2.1	20.0	20.1	2.8	0.0
Yr Total Cost:		0.0	0.0	0.0	0.0	0.0	42.2	22.1	42.2	45.0	45.0
Cum Total Cost:		0	0	0	0	0	145	1,504	1,598	248	0
		0	0	0	0	0	145	1,648	3,246	3,493	3,493

Resource: TRNLAB  
Res Dept: 949

TRANSPORT LABORER  
Overtime: Class:

EOC:  
HOU

LABOR

	Oct 00-		Oct 01-		Oct 02-		Oct 03-		Oct 04-		Oct 05-		Oct 06-		Oct 07-		Oct 08-		Oct 09-	
	Sep 01	Sep 02	Sep 03	Sep 04	Sep 05	Sep 06	Sep 07	Sep 08	Sep 09	Sep 10	Sep 11	Sep 12	Sep 13	Sep 14	Sep 15	Sep 16	Sep 17	Sep 18	Sep 19	Sep 20
Yr Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cum Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yr Total Cost:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cum Total Cost:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

GRAND TOTALS:

	Oct 00-		Oct 01-		Oct 02-		Oct 03-		Oct 04-		Oct 05-		Oct 06-		Oct 07-		Oct 08-		Oct 09-	
	Sep 01	Sep 02	Sep 03	Sep 04	Sep 05	Sep 06	Sep 07	Sep 08	Sep 09	Sep 10	Sep 11	Sep 12	Sep 13	Sep 14	Sep 15	Sep 16	Sep 17	Sep 18	Sep 19	Sep 20
Yr Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cum Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yr Total Cost:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cum Total Cost:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

*[Handwritten Signature]*

CAM

CONTROL TEAM

## Estimate Summary

Area 5 – Waste Disposition

WBS Element – 1.1.G.J  
Control Account – G511  
Charge Number – G5118

### Labor

Labor is broken down by resource code and by activity on the attached matrixed manpower spreadsheet. The backup for the manpower spreadsheet can be found on the Waste Disposition Campaign Estimate Worksheets that were provided by Waste Generator Services (WGS). WGS estimated resource man-hours, which were then rounded to the tenth of an FTE for Man Power Planning (MPP) purposes to be entered into the MPP database on a quarterly basis. This database was then exported to MicroFrame and expanded into monthly estimates. The monthly figures were then summed to provide a total hours by resource for each activity.

### Materials

The materials for this account are estimated to be \$12,328. The backup information for this value can be found on the Waste Disposition Campaign Estimate Worksheets that were provided by Waste Generator Services (WGS). There are two worksheets that were provided and summed for the total materials costs. However, WGS included costs for PPE that have been subtracted from this estimate due to the fact the PPE is provided by a centralized group and does not get charged back to the project.

### Equipment

N/A

### Subcontracts

N/A



**SUMMARY: AREA 5 OFFSITE Waste Disposition - MATRIXED**

W/E DATE: 30-Apr-01

ACT. ID.	Procurement		Container Prep & Loading		Shipping & Disposal							
CHG. NO. G5118	HOURS	TOTAL \$	HOURS	TOTAL \$	HOURS	TOTAL \$	HOURS	TOTAL \$	HOURS	TOTAL \$	HOURS	TOTAL \$
RESOURCE	44.2											
BUYCON												
CLERKS	22.1		22.1		22.1		22.1		22.1		22.1	
HAZWAT	89.0		89.0		89.0		89.0		89.0		89.0	
HEOOPR	44.2		44.2		44.2		44.2		44.2		44.2	
MPCREP	22.1		22.1		22.1		22.1		22.1		22.1	
MVOOPR	44.8		44.8		44.8		44.8		44.8		44.8	
OPRMGR	22.4		22.4		22.4		22.4		22.4		22.4	
PIPFTR	44.2		44.2		44.2		44.2		44.2		44.2	
PRJMGR	22.4		22.4		22.4		22.4		22.4		22.4	
QCENGR	44.2		44.2		44.2		44.2		44.2		44.2	
RADENG	89.0		89.0		89.0		89.0		89.0		89.0	
RADTEC	22.1		22.1		22.1		22.1		22.1		22.1	
S&HENG	311.2		311.2		311.2		311.2		311.2		311.2	
S&HITEC	44.2		44.2		44.2		44.2		44.2		44.2	
TPSREP	44.8		44.8		44.8		44.8		44.8		44.8	
TRNLAB	22.4		22.4		22.4		22.4		22.4		22.4	
Subtotal	44	\$0	444.1	0.0	668.1	\$0						
% Complete												

TOTALS			
RESOURCE	HOURS	TOTAL \$	TOTAL \$
BUYCON	44		\$0
CLERKS	44		\$0
HAZWAT	89		\$0
HEOOPR	44		\$0
MPCREP	44		\$0
MVOOPR	45		\$0
OPRMGR	45		\$0
PIPFTR	44		\$0
PRJMGR	45		\$0
QCENGR	89		\$0
RADENG	89		\$0
RADTEC	44		\$0
S&HENG	311		\$0
S&HITEC	89		\$0
TPSREP	45		\$0
TRNLAB	45		\$0
Total	1,156		\$0
Percent Complete:			





# WASTE DISPOSITION CAMPAIGN ESTIMATE WORKSHEET FOR LLW NON-COMPACTABLE TRASH DISPOSITION

Duration  
Fiscal Year

PHS: 1111  
WBS: 1111  
Control Account: 777

Project: Soil Excavation Prohibited Items  
Campaign: Area 5 Trash and Scrap

Quantity Basis (containers and volume): Approximately 340 cu yd feet in 4 metal boxes

Charge Number: 777  
CAM: 777

Make Entries in Yellow Shaded Areas Only

1 day = 10 hours

Activity	Days	PPE	Total Members	Harvest (HAWA)	MVI (MVOX)	HICO (HICOD)	Time Labor (TLR)	Maintenance (MAINT)	Supervisor (SVP)	Rad Tech (RT)	Rad Eng (RE)	Slaiv Tech (SLT)	Slaiv Eng (SE)	VAO (VAO)	Waste Eng (WE)		MCAA		TO Willor (TW)	Assultion (AS)	Prof Mer (PM)	Admin (A)	
															Req'd	Rate	Req'd	Rate					Req'd
1. Containment	0	0	437	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2. SSI	0	0	238	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3. Trash Sorting	0	0	230	4	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4. ROD Measurements	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5. Container Movements	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6. Loading and Shipping	0	0	34	31	2	7	2	7	2	7	2	7	2	7	2	7	2	7	2	7	2	7	2
<b>Total Manhours by Skill</b>				<b>718</b>	<b>30</b>	<b>9</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>

Category	Unit	Quantity	Rate	Total
ISOs	each	1	\$2,000	\$2,000
Actual Boxes	each	4	\$1,200	\$4,800
Drums	each	0	\$40	\$0
Full Air-Cx	change	59	\$9.66	\$574
Normal Protective Clothing	change	10	\$3.03	\$30
3 Vehicles for Loading	day	0	\$165	\$0
1 Vehicle for Loading	day	0	\$220	\$0
1 Vehicle for ROD boxes	day	0	\$55	\$0
1 Vehicle for ISOs	day	1	\$240	\$240
1 Vehicle for ISOs	day	1	\$4,800	\$4,800
ISOs Back Freight	shipment	1	\$100	\$100
SHIPPING FEES	shipment	1	\$100	\$100
TOTAL	car ft.	1,250	\$10.80	\$14,580

\* Includes two warehouse attendants in Loading and Shipping

Category	Quantity	Rate	Total
<b>WORKSHEET SUMMARY</b>			
Total Manhours	710		\$20,939
Total Labor			\$14,580
Total Materials			\$57,064
Total Cost			\$12,104
Total Cost minus Inhibit			\$11,932
Total Materials minus PPE			\$11,932

All costs are stated in FY01 Dollars

Control Team Review: *[Signature]* Project Review: *[Signature]*

## **SECTION 9**

### **5.0 RISK PLAN**



# Risk/Opportunity Identification and Analysis Form

Project: Area 5 Soils Remediation		PBS Number: 06		Total Baseline Dollars (Minimum Case): \$10,564,674					
Evaluator: R. Abitz / F. Miller		WBS Number: 1.1.G.J							
CAM: JD Chiu		Control Account Number: G511							
Project Task		Risk and/or Opportunity		Potential Impact					
		Internal Or External Driver	Impact Cost \$ (Maximum Case)	Risk Impact Level	Risk Probability %	Risk Probability Level	Probable Cost \$ (Likeliest Case)	Risk Critical Value	Risk Handling Strategy
Area 5 Site Prep / Excavation RT-006	Certification Units Failure	Internal	\$72,000	2	50	3	\$36,000	2	Accept Risk
	Additional Excavation for 2 Failed CUs, 1/4 footprint of CU at a depth of 2'. This equates to 1200 cy/CU or 2400cy @ \$30/cy								
Area 5 Site Prep / Excavation	Groundwater infiltration during excavation	Internal	\$10,000	1	10	1	\$1,000	1	Accept Risk
Area 5 Site Prep / Excavation	Remediation activities contaminate/recontaminate areas that originally did not need remediation.	Internal	\$30,000	1	30	2	\$9,000	1	Accept Risk
Area 5 Site Prep / Excavation	Extreme Weather Delays	Internal	\$86,000	1	20	2	\$17,200	1	Accept Risk
	Contractor delayed by weather / muddy conditions for all of April and 1/2 of May. Contractor need to work double shift for a month and a half. Impact to Fluor personnel who will cover second shift at overtime for 1.5 months.								
Area 5 Site Prep / Excavation	Encountering 10% more debris than was identified from pre-design activities.	Internal	\$115,000	2	10	2	\$11,500	2	Accept Risk
	Additional 4500cy of CAT 2 material requiring excavation and placement at 2x the CAT 1 rate.								
Area 5 Title III	Additional Samples needed to bound contamination (chasing)	Internal	\$8,000	1	60	4	\$4,800	2	Accept Risk
Area 5 Title III	Implementing Only A Part of the Design	Internal	\$15,000	1	70	4	\$10,500	2	Accept Risk
Area 5 Offsite Waste Disposition	Containers do not meet shipping requirements	Internal	\$90,000	1	30	2	\$27,000	1	Accept Risk
Area 5 Offsite Waste Disposition	Discovery of additional material needing containerization.	Internal	\$9,000	1	30	3	\$2,700	1	Accept Risk
Area 5 Excavation Control / Certification	Certification Units Failure	Internal	\$20,000	2	50	3	\$10,000	2	Accept Risk
	Schedule Delay of 2.5 months								
Total:			\$455,000			Total:	\$129,700		

Area 5 Excavation Control / Certification	Longer EPA Review Cycle	External	\$10,000	1	30	2	\$3,000	1	
	EPA Takes 30 days longer than the normal 60 days to review documents. Schedule delay of 1 month.								







**WBS DICTIONARY  
CONTROL ACCOUNT/CHARGE NUMBER**



U.S. DEPARTMENT OF ENERGY  
 WORK BREAKDOWN STRUCTURE DICTIONARY  
 PART II - ELEMENT DEFINITION

1. PROJECT TITLE  FEMP (DEFENSE)	2. DATE OF CONTRACT  12/01/2000
3. IDENTIFICATION NUMBER  DE-AC24-010H20115	4. INDEX LINE NO.  56
5. WBS ELEMENT CODE  1.1.G.K	6. WBS ELEMENT TITLE  AREA 6 SOIL REMEDIATION
7. APPROVED CP NO.  NEW PER CP# FY01-0115-0006-00	8. DATE OF CHANGES  09/05/2001
9. SYSTEM DESIGN DESCRIPTION  CERCL/ACA	10. BUDGET AND REPORTING NUMBER  EW05H3060
11. ELEMENT TASK DESCRIPTION  <p><b><u>a. ELEMENTS OF COST:</u></b></p> <p>Labor          Material          Subcontract          ODCs</p> <p><b><u>b. TECHNICAL CONTENT:</u></b></p> <p>The remediation area encompasses the Waste Pit Area, process support facilities, and railyard; fire training facility; solid waste landfill; and the northern and eastern portion of the former Production Area including certification of the soil footprint of the existing OSDF access control equipment and decontamination area (equipment wheel wash) and interim leachate conveyance system corridor.</p> <p><b><u>c. SCOPE OF WORK:</u></b></p> <p>The scope of work for these activities is specifically defined in the Control Account G611 (Area 6 Soils Remediation). The following key elements are included in the control account:</p> <ul style="list-style-type: none"> <li>- Predesign characterization</li> <li>- Title I/II engineering design</li> <li>- Title III engineering design</li> <li>- Site preparation/excavation/interim restoration</li> <li>- Excavation control/certification</li> <li>- Off-site waste disposition after Waste Generator Services and WPRAP end.</li> </ul> <p>Work specifically excluded from this account is as follows:</p> <ul style="list-style-type: none"> <li>- Staff Labor charged to Control Account GPM1</li> <li>- Scope of work as defined in other Remediation Area Control Accounts</li> <li>- Waste Pit liner and AWAC soils under liners</li> </ul>	

U.S. DEPARTMENT OF ENERGY  
**WORK BREAKDOWN STRUCTURE DICTIONARY**  
**PART II - ELEMENT DEFINITION**

1. PROJECT TITLE  FEMP (DEFENSE)	2. DATE OF CONTRACT  12/01/2000
3. IDENTIFICATION NUMBER  DE-AC24-01OH20115	4. INDEX LINE NO.  56
5. WBS ELEMENT CODE  1.1.G.K	6. WBS ELEMENT TITLE  AREA 6 SOIL REMEDIATION
7. APPROVED CP NO.  NEW PER CP# FY01-0115-0006-00	8. DATE OF CHANGES  09/05/2001
9. SYSTEM DESIGN DESCRIPTION  CERCL/ACA	10. BUDGET AND REPORTING NUMBER  EW05H3060
11. ELEMENT TASK DESCRIPTION <ul style="list-style-type: none"> <li>- Post-remediation monitoring and maintenance</li> <li>- Post-Closure documentation</li> <li>- Natural Resources restoration</li> <li>- D &amp; D of above-grade structures</li> <li>- Aquifer Restoration well installation, operation, monitoring, removal and utilities required to operated well systems</li> <li>- Area 10 (Soils Corridor)</li> <li>- All centralized service</li> </ul>	

**WORK SCOPE DEFINITION  
(Control Account)**

1. PROJECT TITLE <b>FEMP (DEFENSE)</b>	2. DATE <b>09/05/2001</b>	Page 1
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3. WBS ELEMENT CODE <b>1.1.G.K</b>	4. WBS ELEMENT TITLE/NAME <b>AREA 6 SOIL REMEDIATION</b>
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5. PERFORMING DIV/DEPARTMENT CODE <b>49</b>	6. ORIGINATOR NAME/PHONE <b>JD CHIOU /648-3726</b>	7. WBS ELEMENT MANAGER <b>JD CHIOU</b>
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8. BUDGET AND REPORTING NUMBER <b>EW05H3060</b>	9. BUDGET TITLE <b>SOILS</b>
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10. ORIGINAL SCOPE? / CHANGE TO WORK SCOPE? / NEW SCOPE? <b>NEW PER CP# FY01-0115-0006-00</b>	11. ESTIMATED START / COMPLETION DATE <b>4/04 - 11/09</b>
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12. TASK IDENTIFICATION (CONTROL ACCOUNT) <b>G611</b>	13. TASK DESCRIPTION (ONE LINE) <b>AREA 6 SOILS REMEDIATION</b>
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14. ELEMENT TASK DESCRIPTION

**a. ELEMENTS OF COST:**

Labor  
Material  
Subcontract

**b. TECHNICAL CONTENT:**

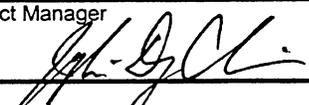
The remediation area encompasses the Waste Pit Area, process support facilities, and rail yard, fire training facility, solid waste landfill, and the northern and eastern portion of the former Production Area, including certification of the soil footprint of the existing OSDF access control equipment and decontamination area (equipment wheel wash) and interim leachate conveyance system corridor.

**c. SCOPE OF WORK:**

The scope of work for these activities is specifically defined in the following charge numbers:

G6111 - Area 6 Predesign  
G6112 - Title I/II Design  
G6113 - Title III  
G6114 - Site Preparation/Excavation  
G6117 - Excavation Control/Certification  
G6118 - Offsite Waste Disposition

**d. WORK SPECIFICALLY EXCLUDED:**

Project Manager 	Control Account Manager 	Control Team Manager 
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**WORK SCOPE DEFINITION  
(Control Account)**

1. PROJECT TITLE <b>FEMP (DEFENSE)</b>		2. DATE <b>09/05/2001</b>	Page 2
3. WBS ELEMENT CODE <b>1.1.G.K</b>	4. WBS ELEMENT TITLE/NAME <b>AREA 6 SOIL REMEDIATION</b>		
5. PERFORMING DIV/DEPARTMENT CODE <b>49</b>	6. ORIGINATOR NAME/PHONE <b>JD CHIOU /648-3726</b>	7. WBS ELEMENT MANAGER <b>JD CHIOU</b>	
8. BUDGET AND REPORTING NUMBER <b>EW05H3060</b>	9. BUDGET TITLE <b>SOILS</b>		
10. ORIGINAL SCOPE? / CHANGE TO WORK SCOPE? / NEW SCOPE? <b>NEW PER CP# FY01-0115-0006-00</b>		11. ESTIMATED START / COMPLETION DATE <b>4/04 - 11/09</b>	
12. TASK IDENTIFICATION (CONTROL ACCOUNT) <b>G611</b>	13. TASK DESCRIPTION (ONE LINE) <b>AREA 6 SOILS REMEDIATION</b>		

14. ELEMENT TASK DESCRIPTION

**Staff labor charged to Control Account GPM1**

**Scope of work as defined in other remediation area control accounts**

**Waste Pit liners, liners associated with Waste Pit Area, and AWAC soils under liners, Burn Pit and Clearwell**

**Post-remediation monitoring and maintenance**

**Post-Closure documentation**

**Natural Resources restoration**

**D&D of above-grade structures**

**Aquifer Restoration well installation, operation, monitoring, removal and utilities required to operate well systems**

**Area 10 (Soils Corridor)**

**All centralized services**

**WORK SCOPE DEFINITION**  
(Work Package)

1. PROJECT TITLE <b>FEMP (DEFENSE)</b>	2. DATE 09/06/2001	Page 1
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3. WBS ELEMENT CODE <b>1.1.G.K</b>	4. WBS ELEMENT TITLE/NAME <b>AREA 6 SOIL REMEDIATION</b>
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5. PERFORMING DIV/DEPARTMENT CODE <b>49</b>	6. ORIGINATOR NAME/PHONE <b>JD CHIOU/648-3726</b>	7. WBS ELEMENT MANAGER <b>JD CHIOU</b>
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8. BUDGET AND REPORTING NUMBER <b>EW05H3060</b>	9. BUDGET TITLE <b>SOILS</b>
--	---------------------------------

10. ORIGINAL SCOPE? / CHANGE TO WORK SCOPE? / NEW SCOPE? <b>NEW PER CP# FY01-0015-0006-00</b>	11. ESTIMATED START / COMPLETION DATE <b>4/04 - 1/08</b>
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12. TASK IDENTIFICATION (WORK PACKAGE) <b>G6111</b>	13. TASK DESCRIPTION (ONE LINE) <b>AREA 6 PREDESIGN</b>
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14. ELEMENT TASK DESCRIPTION

**a. ELEMENTS OF COST:**

Labor  
Subcontracts

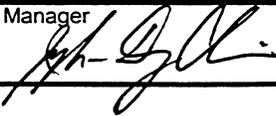
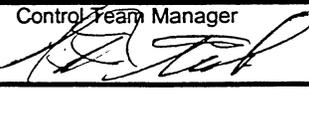
**b. TECHNICAL CONTENT:**

The content of this document applies to the soil characterization program at the FEMP specific to area pre-design characterization, sampling, and analytical work performed by and for the Soil Disposal Facility Project in Area 6. It is a summary for area-specific characterization efforts that will be conducted to delineate areas of above Final Remediation Level (FRL) contamination as well as contamination that is above the On-Site Disposal Facility (OSDF) Waste Acceptance Criteria (WAC). The data generated from these characterization activities will support remedial design. The Area 6 physical boundaries are described in Section 10 of the Fluor Fernald Closure Plan Basis of Estimate (20300-PL-0005).

Drivers of the work are CERCLA, RCRA, the EPA Amended Consent Agreement (ACA), Sitewide Excavation Plan (SEP), and the signed Records of Decision (RODs) for OU5 and OU2.

**c. SCOPE OF WORK:**

The scope of this document covers the characterization support for pre-design of Area 6. Pre-design Investigations include the collection of additional data collected to support the engineering design, which will be included in the Integrated Remedial Design Plan (IRDP). The work scope of the pre-design characterization includes characterization planning, field survey work,

Project Manager 	Control Account Manager 	Control Team Manager 
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**WORK SCOPE DEFINITION**  
(Work Package)

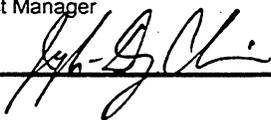
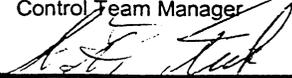
1. PROJECT TITLE <b>FEMP (DEFENSE)</b>		2. DATE <b>09/06/2001</b>	Page 2
3. WBS ELEMENT CODE <b>1.1.G.K</b>	4. WBS ELEMENT TITLE/NAME <b>AREA 6 SOIL REMEDIATION</b>		
5. PERFORMING DIV/DEPARTMENT CODE <b>49</b>	6. ORIGINATOR NAME/PHONE <b>JD CHIOU/648-3726</b>	7. WBS ELEMENT MANAGER <b>JD CHIOU</b>	
8. BUDGET AND REPORTING NUMBER <b>EW05H3060</b>	9. BUDGET TITLE <b>SOILS</b>		
10. ORIGINAL SCOPE? / CHANGE TO WORK SCOPE? / NEW SCOPE? <b>NEW PER CP# FY01-0015-0006-00</b>		11. ESTIMATED START / COMPLETION DATE <b>4/04 - 1/08</b>	
12. TASK IDENTIFICATION (WORK PACKAGE) <b>G6111</b>	13. TASK DESCRIPTION (ONE LINE) <b>AREA 6 PREDESIGN</b>		
14. ELEMENT TASK DESCRIPTION <p>real-time data collection and reduction, field sampling, laboratory analysis, and data management activities.</p> <p>The predesign characterization effort includes the following tasks:</p> <p>Review and evaluation of existing sampling data, real-time data and geophysical data</p> <p>Review HMMUs, USTs, and potentially RCRA characteristic area</p> <p>Develop contamination models based on existing data</p> <p>Develop and write applicable data quality objectives and Project Specific Plans, as necessary</p> <p>Prep the area for field measurements which includes clearing or brush</p> <p>Physical sampling</p> <p>Assess real-time data generated during predesign</p> <p>Perform assessment of radiological field survey results</p> <p>Perform data management functions within SDFP</p> <p>Laboratory sample analysis</p> <p>Sample shipping for off-site analysis</p> <p>If necessary, Ground Penetrating Radar (GPR) / Electro-Magnetic (EM) Scanning</p> <p><b><u>d. WORK SPECIFICALLY EXCLUDED:</u></b></p> <p>Characterization tasks in other areas</p>			

**WORK SCOPE DEFINITION**  
(Work Package)

1. PROJECT TITLE <b>FEMP (DEFENSE)</b>		2. DATE <b>09/06/2001</b>	Page 3
3. WBS ELEMENT CODE <b>1.1.G.K</b>	4. WBS ELEMENT TITLE/NAME <b>AREA 6 SOIL REMEDIATION</b>		
5. PERFORMING DIV/DEPARTMENT CODE <b>49</b>	6. ORIGINATOR NAME/PHONE <b>JD CHIOU/648-3726</b>	7. WBS ELEMENT MANAGER <b>JD CHIOU</b>	
8. BUDGET AND REPORTING NUMBER <b>EW05H3060</b>	9. BUDGET TITLE <b>SOILS</b>		
10. ORIGINAL SCOPE? / CHANGE TO WORK SCOPE? / NEW SCOPE? <b>NEW PER CP# FY01-0015-0006-00</b>		11. ESTIMATED START / COMPLETION DATE <b>4/04 - 1/08</b>	
12. TASK IDENTIFICATION (WORK PACKAGE) <b>G6111</b>	13. TASK DESCRIPTION (ONE LINE) <b>AREA 6 PREDESIGN</b>		
14. ELEMENT TASK DESCRIPTION  <b>Construction or remediation</b>  <b>Waste tracking or disposition</b>  <b>Area pre-certification or certification activities</b>  <b>Waste Tracking and disposition</b>  <b>Waste Treatment activities</b>  <b>Development of Engineering plans, drawings, or specifications</b>  <b>Land Surveying, staff, or equipment</b>  <b>Real Time Scanning (HPGe, RSS, RTRAK), staff, or equipment</b>  <b>Characterization personnel covered under GPM14</b>  <b>Centralized services and/or equipment</b>			



**WORK SCOPE DEFINITION**  
(Work Package)

1. PROJECT TITLE <b>FEMP (DEFENSE)</b>		2. DATE <b>09/06/2001</b>	Page 1
3. WBS ELEMENT CODE <b>1.1.G.K</b>	4. WBS ELEMENT TITLE/NAME <b>AREA 6 SOIL REMEDIATION</b>		
5. PERFORMING DIV/DEPARTMENT CODE <b>49</b>	6. ORIGINATOR NAME/PHONE <b>JD CHIOU (3726)</b>	7. WBS ELEMENT MANAGER <b>JD CHIOU</b>	
8. BUDGET AND REPORTING NUMBER <b>EW05H3060</b>	9. BUDGET TITLE <b>SOILS</b>		
10. ORIGINAL SCOPE? / CHANGE TO WORK SCOPE? / NEW SCOPE? <b>NEW PER CP# FY01-0115-0003-000006</b>		11. ESTIMATED START / COMPLETION DATE <b>7/04 - 6/08</b>	
12. TASK IDENTIFICATION (WORK PACKAGE) <b>G6112</b>	13. TASK DESCRIPTION (ONE LINE) <b>AREA 6 TITLE I/II DESIGN</b>		
14. ELEMENT TASK DESCRIPTION			
<p><b><u>a. ELEMENTS OF COST:</u></b></p> <p>Labor Subcontracts</p> <p><b><u>b. TECHNICAL CONTENT:</u></b></p> <p>This charge number will provide the performance of Title I and Title II engineering services for the remediation excavation and removal of at- and below-grade impacted material from Remediation Area 6. Area 6 is located east of Paddys Run, south of Area 1 Phase III and Area 1 Phase 1, west of the On-Site Disposal Facility (OSDF), and north of the 2nd Street extension and the Impacted Material Haul Road (IMHR). Area 6 includes the following geographic features:</p> <p>Below-WAC soil under Former Waste Pits liners, Clearwell, and Burn Pit</p> <p>Solid Waste Landfill (an Operable Unit 2 waste unit)</p> <p>Former Production Area north of and including the IMHR and east of and including "E" Street</p> <p>General Areas including locations between Former Waste Pits and Paddys Run, Railyard, and Waste Pit material processing facilities</p> <p><b><u>c. SCOPE OF WORK:</u></b></p> <p>The scope of work for these activities is defined in Control Account G611 (Area 6 Soils Remediation). Key elements included in the charge number are:</p> <p>Development of the Integrated Remedial Design Package (IRDP) per the Site-Wide</p>			
Project Manager 	Control Account Manager 	Control Team Manager 	

**WORK SCOPE DEFINITION**  
(Work Package)

1. PROJECT TITLE <b>FEMP (DEFENSE)</b>		2. DATE <b>09/06/2001</b>	Page 2
3. WBS ELEMENT CODE <b>1.1.G.K</b>	4. WBS ELEMENT TITLE/NAME <b>AREA 6 SOIL REMEDIATION</b>		
5. PERFORMING DIV/DEPARTMENT CODE <b>49</b>	6. ORIGINATOR NAME/PHONE <b>JD CHIOU (3726)</b>	7. WBS ELEMENT MANAGER <b>JD CHIOU</b>	
8. BUDGET AND REPORTING NUMBER <b>EW05H3060</b>	9. BUDGET TITLE <b>SOILS</b>		
10. ORIGINAL SCOPE? / CHANGE TO WORK SCOPE? / NEW SCOPE? <b>NEW PER CP# FY01-0115-0003-000006</b>		11. ESTIMATED START / COMPLETION DATE <b>7/04 - 6/08</b>	
12. TASK IDENTIFICATION (WORK PACKAGE) <b>G6112</b>	13. TASK DESCRIPTION (ONE LINE) <b>AREA 6 TITLE I/II DESIGN</b>		

14. ELEMENT TASK DESCRIPTION

Excavation Plan and requirements of the Operable Unit 2 and 5 Records of Decision (ROD) consisting of three components for review and approval by DOE and the regulatory agencies: Implementation Plan, Construction Drawings, and Technical Specifications. Separate IRDPs will be developed for each of the geographic features listed above.

Development of supporting documentation appended to the respective Implementation Plans consisting of the Design Criteria Package (DCP), Applicable or Relevant and Appropriate Requirements/To Be Considered (ARARs/TBCs) Table for the DCP, Surface Water Management/Erosion Control Plan, and Earthwork Calculations.

Preparation of engineering documentation: Technical Reference drawing package, safety planning documentation through the request for safety assessment, Project Execution Plan (PEP), project alignments, Occupational and Environmental ALARAs, design and constructability reviews, independent design reviews, resolution of comments (including project, DOE, and regulatory comments), design calculations (including hydrologic modeling, slope stability), quantity take-offs, cost-estimating support.

Generating Construction Drawings and Technical Specifications Certified for Construction.

**d. WORK SPECIFICALLY EXCLUDED:**

Staff labor charge to Control Account GPM1

Predesign Data Summary to be appended to the Implementation Plan

Scope of work as defined in other Remediation Area 6 Charge Accounts including Title III engineering services.

Scope of work as defined in other Remediation Area Control Accounts.

Title III engineering associated with the On-Site Disposal Facility (OSDF).

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3. WBS ELEMENT CODE <b>1.1.G.K</b>	4. WBS ELEMENT TITLE/NAME <b>AREA 6 SOIL REMEDIATION</b>
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5. PERFORMING DIV/DEPARTMENT CODE <b>49</b>	6. ORIGINATOR NAME/PHONE <b>JD CHIOU (3726)</b>	7. WBS ELEMENT MANAGER <b>JD CHIOU</b>
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8. BUDGET AND REPORTING NUMBER <b>EW05H3060</b>	9. BUDGET TITLE <b>SOILS</b>
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10. ORIGINAL SCOPE? / CHANGE TO WORK SCOPE? / NEW SCOPE? <b>NEW PER CP# FY01-0115-0003-000006</b>	11. ESTIMATED START / COMPLETION DATE <b>7/04 - 6/08</b>
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12. TASK IDENTIFICATION (WORK PACKAGE) <b>G6112</b>	13. TASK DESCRIPTION (ONE LINE) <b>AREA 6 TITLE I/II DESIGN</b>
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14. ELEMENT TASK DESCRIPTION

**Engineering associated with the D&D of above-grade structures**

**Engineering associated with the excavation of material, liners, or above-WAC soil at the Waste Pits, Clearwell, or Burn Pit.**

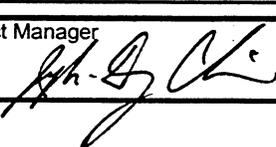
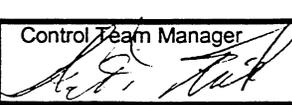
**Engineering associated with the removal of impacted material associated locations listed in the Closure Plan Narrative.**

**Construction management.**

**Post-remediation monitoring and maintenance.**



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5. PERFORMING DIV/DEPARTMENT CODE <b>49</b>	6. ORIGINATOR NAME/PHONE <b>JD CHIOU (3726)</b>	7. WBS ELEMENT MANAGER <b>JD CHIOU</b>	
8. BUDGET AND REPORTING NUMBER <b>EW05H3060</b>	9. BUDGET TITLE <b>SOILS</b>		
10. ORIGINAL SCOPE? / CHANGE TO WORK SCOPE? / NEW SCOPE? <b>NEW PER CP# FY01-0115-0006-00</b>		11. ESTIMATED START / COMPLETION DATE <b>7/05 - 11/08</b>	
12. TASK IDENTIFICATION (WORK PACKAGE) <b>G6113</b>	13. TASK DESCRIPTION (ONE LINE) <b>AREA 6 TITLE III</b>		
14. ELEMENT TASK DESCRIPTION			
<p><b><u>a. ELEMENTS OF COST:</u></b></p> <p>Labor Subcontracts</p> <p><b><u>b. TECHNICAL CONTENT:</u></b></p> <p>This charge number will provide the performance of Title III engineering services during the remediation excavation and removal of at- and below-grade impacted material from Remediation Area 6. Title III engineering services begins after the plans and specifications are certified for construction (CFC).</p> <p>Area 6 is located east of Paddys Run, south of Area 1 Phase III and Area 1 Phase 1, west of the On-Site Disposal Facility (OSDF), and north of the 2nd Street extension and the Impacted Material Haul Road (IMHR). Area 6 includes the following geographic features:</p> <p>Below-WAC soil under Former Waste Pits liners, Clearwell, and Burn Pit</p> <p>Solid Waste Landfill (an Operable Unit 2 waste unit)</p> <p>Former Production Area north of and including the IMHR and east of and including "E" Street</p> <p>General Areas including locations between Former Waste Pits and Paddys Run, Railyard, and Waste Pit material processing facilities</p> <p>Please refer to the Remediation Area 6 Closure Plan Narrative for further information.</p> <p><b><u>c. SCOPE OF WORK:</u></b></p>			
Project Manager 	Control Account Manager 	Control Team Manager 	

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5. PERFORMING DIV/DEPARTMENT CODE <b>49</b>	6. ORIGINATOR NAME/PHONE <b>JD CHIOU (3726)</b>	7. WBS ELEMENT MANAGER <b>JD CHIOU</b>	
8. BUDGET AND REPORTING NUMBER <b>EW05H3060</b>	9. BUDGET TITLE <b>SOILS</b>		
10. ORIGINAL SCOPE? / CHANGE TO WORK SCOPE? / NEW SCOPE? <b>NEW PER CP# FY01-0115-0006-00</b>		11. ESTIMATED START / COMPLETION DATE <b>7/05 - 11/08</b>	
12. TASK IDENTIFICATION (WORK PACKAGE) <b>G6113</b>	13. TASK DESCRIPTION (ONE LINE) <b>AREA 6 TITLE III</b>		

14. ELEMENT TASK DESCRIPTION

The scope of work for these activities is defined in Control Account G611 (Area 6 Soils Remediation). Key elements included in the charge number for each of the geographic features listed above are:

Assist in procurement of the excavation subcontractor after CFC.

Review and approve engineering document family submittals from the subcontractor to ensure conformity to the Implementation Plan, drawings, and specifications.

Review construction, health and safety, or other subcontractor submittals when requested.

Prepare, respond, and approve Request for Clarification (RCIs) and Design Change Notices (DCNs).

Facilitate RCI/DCN review and approval through the project, DOE, and the regulatory agencies.

Prepare Safety Basis Document Reviews (SBDs) based on DCNs.

Develop as-built drawings and specifications and provide an excavation summary report.

**d. WORK SPECIFICALLY EXCLUDED:**

Staff labor charge to Control Account GPM1

Scope of work as defined in other Remediation Area 6 Charge Accounts.

Scope of work as defined in other Remediation Area Control Accounts.

Title III engineering associated with the On-Site Disposal Facility (OSDF).

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5. PERFORMING DIV/DEPARTMENT CODE <b>49</b>	6. ORIGINATOR NAME/PHONE <b>JD CHIOU (3726)</b>	7. WBS ELEMENT MANAGER <b>JD CHIOU</b>	
8. BUDGET AND REPORTING NUMBER <b>EW05H3060</b>	9. BUDGET TITLE <b>SOILS</b>		
10. ORIGINAL SCOPE? / CHANGE TO WORK SCOPE? / NEW SCOPE? <b>NEW PER CP# FY01-0115-0006-00</b>		11. ESTIMATED START / COMPLETION DATE <b>7/05 - 11/08</b>	
12. TASK IDENTIFICATION (WORK PACKAGE) <b>G6113</b>	13. TASK DESCRIPTION (ONE LINE) <b>AREA 6 TITLE III</b>		
14. ELEMENT TASK DESCRIPTION <b>Construction management</b>  <b>Post-remediation monitoring and maintenance.</b>			



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5. PERFORMING DIV/DEPARTMENT CODE <b>49</b>	6. ORIGINATOR NAME/PHONE <b>JD CHIOU/648-3726</b>	7. WBS ELEMENT MANAGER <b>JD CHIOU</b>	
8. BUDGET AND REPORTING NUMBER <b>EW05H3060</b>	9. BUDGET TITLE <b>SOILS</b>		
10. ORIGINAL SCOPE? / CHANGE TO WORK SCOPE? / NEW SCOPE? <b>NEW PER CP# FY01-0015-0006-00</b>		11. ESTIMATED START / COMPLETION DATE <b>7/05 - 11/09</b>	
12. TASK IDENTIFICATION (WORK PACKAGE) <b>G6114</b>	13. TASK DESCRIPTION (ONE LINE) <b>AREA 6 SITE PREP/EXCAVATION</b>		

14. ELEMENT TASK DESCRIPTION

**a. ELEMENTS OF COST:**

Labor  
Subcontracts

**b. TECHNICAL CONTENT:**

Perform remedial construction activities for Area 6.

The project boundaries are as follows:

North by Area 1 Phase III

East by the OSDF

South by Areas 3A, 4A, and 7

West by Paddy's RuN

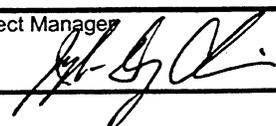
**c. SCOPE OF WORK:**

Provide site preparation activities prior to the start of excavation.  
Activities included but not limited to are as follows:

Provide and deliver all required permits.

Establish work limits and excavation boundaries.

Establish construction support areas and work areas.

Project Manager 	Control Account Manager 	Control Team Manager 
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10. ORIGINAL SCOPE? / CHANGE TO WORK SCOPE? / NEW SCOPE? <b>NEW PER CP# FY01-0015-0006-00</b>		11. ESTIMATED START / COMPLETION DATE <b>7/05 - 11/09</b>	
12. TASK IDENTIFICATION (WORK PACKAGE) <b>G6114</b>	13. TASK DESCRIPTION (ONE LINE) <b>AREA 6 SITE PREP/EXCAVATION</b>		
14. ELEMENT TASK DESCRIPTION			
<p>Connect all utilities into construction support area.</p> <p>Establish surface water management controls.</p> <p>Provide excavation and removal of all above FRL soil and at and below grade concrete and utilities from Area #6 and transportation to the On-site Disposal Facility, SP-7 or other designated staging area in accordance with certified construction drawings, specifications and other subcontract requirements. Additional related activities and services within this scope of work are as follows:</p> <p>Erosion and sediment control during construction</p> <p>Installation and/or relocation of fencing during construction</p> <p>Equipment, material and support facilities rented/procured for project use</p> <p>Dewatering as necessary during construction</p> <p>Dust Control within designated work area.</p> <p>Decontamination of equipment</p> <p>Matrixed and subcontracted labor directly associated with construction</p> <p>Specific work to be addressed includes:</p> <p>Size reduce, excavate, load and haul at and below grade concrete, utilities, and debris associated with the Impacted Material Haul Road to OSDF as Category 2.</p> <p>Excavate, load and haul impacted soils to the OSDF as Category 1.</p> <p>Cut area utility isolation trenches and plug storm water and sanitary sewers.</p> <p>Interim Restoration Grading.</p> <p>Perform Post-Excavation activities.</p>			

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5. PERFORMING DIV/DEPARTMENT CODE <b>49</b>	6. ORIGINATOR NAME/PHONE <b>JD CHIOU/648-3726</b>	7. WBS ELEMENT MANAGER <b>JD CHIOU</b>	
8. BUDGET AND REPORTING NUMBER <b>EW05H3060</b>	9. BUDGET TITLE <b>SOILS</b>		
10. ORIGINAL SCOPE? / CHANGE TO WORK SCOPE? / NEW SCOPE? <b>NEW PER CP# FY01-0015-0006-00</b>		11. ESTIMATED START / COMPLETION DATE <b>7/05 - 11/09</b>	
12. TASK IDENTIFICATION (WORK PACKAGE) <b>G6114</b>	13. TASK DESCRIPTION (ONE LINE) <b>AREA 6 SITE PREP/EXCAVATION</b>		

14. ELEMENT TASK DESCRIPTION

**d. WORK SPECIFICALLY EXCLUDED:**

Placement in OSDF

Seeding / Vegetation beyond interim restoration

Road construction

Title I/II design services

Performing and/or managing Title III services

Sampling and testing of waste materials during remediation

Monitoring and maintenance of the remediated area after remediation

Offsite disposal of materials exceeding the waste acceptance criteria for on-site disposal

Treatment of lead containing soil

Centralized Personnel, Radiological controls, and Safety management during remedial construction



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10. ORIGINAL SCOPE? / CHANGE TO WORK SCOPE? / NEW SCOPE? <b>NEW PER CP# FY01-0015-0006-00</b>		11. ESTIMATED START / COMPLETION DATE <b>4/04 - 1/08</b>	
12. TASK IDENTIFICATION (WORK PACKAGE) <b>G6117</b>	13. TASK DESCRIPTION (ONE LINE) <b>AREA 6 EXC CONTROL/CERTIFICATION</b>		

14. ELEMENT TASK DESCRIPTION

**a. ELEMENTS OF COST:**

Labor  
Materials  
Subcontracts

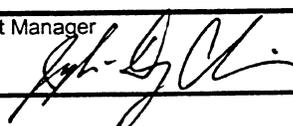
**b. TECHNICAL CONTENT:**

The content of this document applies to the soil characterization program at the FEMP specific to area characterization, sampling, and analytical work performed by and for the Soil Disposal Facility Project in Area 6. It is a summary for area-specific characterization efforts that will be conducted in defined areas of excavation and lesser environmentally impacted areas that may not be excavated, but will require monitoring, sampling, and analytical testing. The characterization efforts are intended to provide information that may be required to supplement the remedial design and to support the remedial action that will result in compliance with the Final Remediation Levels (FRLs) published in the OU5 and OU2 RODs. The Area 6 physical boundaries are described in Section 10 of the Fluor Fernald Closure Plan Basis of Estimate (20300-PL-0005).

Drivers of the work are CERCLA, RCRA, the EPA Amended Consent Agreement (ACA), Sitewide Excavation Plan (SEP), and the signed Records of Decision (RODs) for OU5 and OU2.

**c. SCOPE OF WORK:**

The scope of this document covers the characterization support for excavation control, precertification, and certification of Area 6. Characterization work

Project Manager 	Control Account Manager 	Control Team Manager 
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10. ORIGINAL SCOPE? / CHANGE TO WORK SCOPE? / NEW SCOPE? <b>NEW PER CP# FY01-0015-0006-00</b>		11. ESTIMATED START / COMPLETION DATE <b>4/04 - 1/08</b>	
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14. ELEMENT TASK DESCRIPTION

performed in Area 6 under this scope will assist in determining soil disposition, extent of excavation, and provide sound field and analytical data that prove remedial activities were sufficient. During excavation of Area 6, radiological field surveying, physical soil sampling, and analysis will be required. This testing will be performed during the excavation process as necessary to determine disposition of excavated material. After excavation is determined to be complete, the remaining soil will be tested for all area specific contaminants of concern (COCs) to demonstrate FRL attainment. The actual radiological field-survey measurements, physical soil sampling and analytical activities covered under this account include the following tasks:

Review existing data and engineering drawings

Develop and write applicable data quality objectives and projects-specific-plans, as necessary

Develop Certification Design Letters and text for the Area Implementation Plan

Define and delineate excavation monitoring boundaries in the field

Define and delineate Certification Units

Prep the area for field measurements which includes clearing of brush

Installation of certification fencing and signs

Physical sampling

Assess real-time data generated during excavation

Perform assessment of radiological field survey results

Perform data management functions within SDFP

Develop final reports or certification reports

Perform analysis

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14. ELEMENT TASK DESCRIPTION

If needed, Ground Penetrating Radar (GPR) / Electro-Magnetic (EM) Scanning

**d. WORK SPECIFICALLY EXCLUDED:**

Pre-design work

Waste Tracking and disposition

Waste Treatment activities

Construction or remediation

Development of Engineering plans, drawings, or specifications

Land Surveying, staff, or equipment

Real Time Scanning (HPGe, RSS, RTRAK), staff, or equipment

Characterization personnel covered under GPM14

Centralized services and/or equipment



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12. TASK IDENTIFICATION (WORK PACKAGE) <b>G6118</b>	13. TASK DESCRIPTION (ONE LINE) <b>AREA 6 OFFSITE WASTE DISPOSITION</b>		

14. ELEMENT TASK DESCRIPTION

**a. ELEMENTS OF COST:**

Labor  
Materials  
Subcontracts

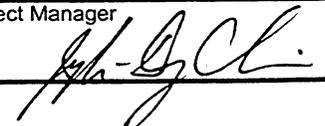
**b. TECHNICAL CONTENT:**

The content of this document applies to waste disposition activities at the FEMP specific to work performed by and for the Soil Disposal Facility Project in Area 6. It is a summary for area-specific waste disposition efforts for waste that does not meet the On Site Disposal Facility (OSDF) Waste Acceptance Criteria (WAC) and will require packaging, loading, shipping, and disposal at an approved offsite disposal facility. Offsite treatment of waste materials that do not meet the offsite disposal facility's WAC may be required prior to disposal and is also covered under this account. The waste disposition efforts are intended to result in compliance with the OU5 Record of Decision (ROD). The Area 6 physical boundaries are described in Section 5 of the Fluor Fernald Closure Plan Basis of Estimate (20300-PL-0005).

Drivers of the work are CERCLA, RCRA, the EPA Amended Consent Agreement (ACA), Sitewide Excavation Plan (SEP), and the signed Record of Decision (ROD) for OU5.

**c. SCOPE OF WORK:**

This scope of this document covers the offsite disposition of at and below grade soil and/or other waste materials that have been identified throughout the characterization and remedial action process. The waste disposition activities covered under this account include the following tasks:

Project Manager 	Control Account Manager 	Control Team Manager 
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12. TASK IDENTIFICATION (WORK PACKAGE) <b>G6118</b>	13. TASK DESCRIPTION (ONE LINE) <b>AREA 6 OFFSITE WASTE DISPOSITION</b>		
14. ELEMENT TASK DESCRIPTION			
<p>Review existing data and engineering drawings</p> <p>Perform data management functions within SDFP</p> <p>Develop final reports</p> <p>Campaign Planning</p> <p>Purchase or rental of appropriate containers</p> <p>Package soil and/or other waste materials into containers</p> <p>Repackaging, or over-packing</p> <p>Container movements within the FEMP</p> <p>Loading containers on/in appropriate conveyance</p> <p>Shipping to offsite disposal facility</p> <p>Offsite waste treatment to meet offsite WAC</p> <p><b><u>d. WORK SPECIFICALLY EXCLUDED:</u></b></p> <p>Pre-design work</p> <p>Excavation control characterization</p> <p>Precertification / certification activities</p> <p>Waste treatment activities</p> <p>Construction or remediation</p> <p>Development of engineering plans, drawings, or specifications</p>			

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10. ORIGINAL SCOPE? / CHANGE TO WORK SCOPE? / NEW SCOPE? <b>NEW PER CP# FY01-0015-0006-00</b>		11. ESTIMATED START / COMPLETION DATE <b>7/05 - 12/08</b>	
12. TASK IDENTIFICATION (WORK PACKAGE) <b>G6118</b>	13. TASK DESCRIPTION (ONE LINE) <b>AREA 6 OFFSITE WASTE DISPOSITION</b>		
14. ELEMENT TASK DESCRIPTION  <b>Land surveying, staff, or equipment</b>  <b>Real Time Scanning (HPGe, RSS, RTRAK), staff, or equipment</b>  <b>Characterization personnel covered under GPM14</b>  <b>Centralized services and/or equipment</b>  <b>Onsite waste treatment</b>			



## **SECTION 10**

### **1.0 NARRATIVE**



1. PROJECT TITLE: SOILS EXCAVATION	2. DATE: 09/10/01	3. PBS#: 06
4. WBS ELEMENT CODE: 1.1.G.K.	5. WBS ELEMENT TITLE: AREA 6 SOILS REMEDIATION	
6. CAM NAME/ PHONE: JYH-DONG CHIOU/ 3726	7. CAM SIGNATURE:	
8. ORIGINAL/ CHANGE SCOPE/ PER CP#:	9. CONTROL ACCOUNT: G611	

**SECTION 10: G611 – AREA 6 SOILS REMEDIATION**

1.0 NARRATIVE

1.1 OVERVIEW

Remedial activities under this scope of work are to support the identification, removal, and certification of those removals of impacted material comprised of at- and below-grade debris and soils above the Final Remediation Levels (FRLs) for the contaminants of concern. The scope of work for Area 6 Soils Remediation (Control Account G611) consists of the following activities:

Pre-design Characterization	(Charge No. G6111)
Title I/II Design	(Charge No. G6112)
Title III Design	(Charge No. G6113)
Site Preparation/Excavation/Interim Restoration	(Charge No. G6114)
Excavation Control/Certification	(Charge No. G6117)
Off-site Waste Disposition	(Charge No. G6118)

1.2 ASSUMPTIONS/EXCLUSIONS

(Note: Charge number-specific assumptions may be found within the Technical Scope and Quantification)

1.2.1 Assumptions

- The scope and schedule for this Control Account is based on Execution Scenario 6 as specified by Closure Project Management.

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OEPA and USEPA to review and provide comments to the following documents within the following review periods. The DOE ~~will establish a written agreement~~ and Fluor Fernald will work with OEPA and USEPA to ~~reflect~~ meet these review periods:

Integrated Remedial Design Package (IRDP)	<del>30</del> 60 calendar days
Pre-design Characterization PSP	30 calendar days
Stockpile PSP, (if needed)	30 calendar days
Excavation Monitoring PSP	30 calendar days
Treatment Verification PSP, (if needed)	30 calendar days
Precertification Real Time Scan PSP	30 calendar days

Certification Design Letter (CDL) and Cert. PSP                      30 calendar days  
Certification Report (CR)    30 calendar days

- DOE will review and comment on the above documents in parallel to the Fluor Fernald internal draft reviews.
- OEPA and USEPA to review and provide comments to all PSP variances (V/FCN) within 7 days of receipt from fax except for PSP variances to the certification PSP in which 15 days is established.
- OEPA and USEPA will review and approve Design Change Notices (DCNs) within 7 days of receipt from fax.
- DOE maintains full baseline funding levels as defined in the contract.
- DOE, OEPA, and USEPA project management does not change.
- Other PBSs providing matrixed and centralized support to the Control Account will provide competent personnel with the necessary training to perform specific work tasks during the required time periods.
- All engineering and construction procedures and requirements (Project Execution Plans, ALARA documentation, Compliance Documentation, Safety Basis Documentation, Technical Review Board and IRSC reviews) are in place, but at minimum, are simplified and/or combined with other Remediation Area documentation.
- Construction Subcontractors are required to ~~facilitate their own~~ perform logistics associated with penetration permits, lock and tag, ~~quality assurance/quality control~~, excavation planning, safe workplan and other planning documentation, per the terms of the subcontract. ~~that Fluor Fernald Construction Management facilitates.~~ will perform QA/QC oversight on these activities.
- Radiological Control and security access requirements are reduced.
- Technical staff are cross-trained to perform many job functions (health and safety, radiological control, etc).
- Sampling, analytical laboratory, data reporting and validation, statistical analysis, data entry into the SED is maintained.
- Utility disconnects are budgeted by PBS-06, but executed by PBS-01.
- Site integration services from Closure Project Management will no longer be necessary with the completion of PBS Closure Plans.

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- Building 91C slab is the location for the bulk staging area for above-WAC shipments off site. Both slab and adjacent soils will be remediated with Area 7.
- Rail spur and a portion of the railyard is certified in place. Rail is to be maintained for off-site waste disposition by a waste shipping logistics subcontractor. Remainder of rail, ties, and ballast will be removed with the remediation of Area 7.
- Personnel assumptions are listed within charge-number specific assumptions.
- Maintenance and Infrastructure Support (PBS-01) or any other PBS constructs new facilities within the Remediation Area footprint.
- ~~Excessive~~ If the number of rain, high wind, severe weather, hot, or cold days. This will not exceeds the information listed in Table 1 from the FEMP site meteorological system, and will constitute an a schedule and/or cost impact to any field activities (i.e. construction-related, predesign characterization, excavation control, precertification, certification, interim restoration) may occur.

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TABLE 1  
Rainfall Amounts

Month	Rainfall Days	Monthly Amount (in)
Jan.	11	2.59
Feb.	11	2.60
Mar.	13	4.24
Apr.	12	3.75
May.	11	4.28
June	10	3.84
July	10	4.24
Aug.	9	3.35
Sep.	8	2.88
Oct.	8	2.86
Nov.	11	3.46
Dec.	13	3.15

1.2.2 Exclusions

- Staff labor charged to control account GPM1.
- Scope of work as defined within other PBS-06 Soils Remediation control accounts including Remediation Area 10 (corridors).
- Waste Pit liners, other liners associated with the Waste Pit Area, and AWAC soils under liners, Burn Pit, and Clearwell.
- Post-remediation monitoring and maintenance.

- Post-closure documentation.
- Natural Resources restoration.
- D&D and costs associated with removal of above-grade structures.
- Waste Pits Remedial Action Project, WPRAP (PBS-05) budgets for the predesign characterization, design, removal and dispositioning of Soil Pile 7 and any AWAC soil and debris within the Soil Pile 7 footprint prior to predesign characterization of non-Waste Pit area features.
- WPRAP (PBS-05) budgets, implements, and reports analysis in the Sitewide Environmental Database of predesign characterization within the Waste Pits, Burn Pit, and Clearwell, including sidewall berm surfaces formally under WPRAP excavated pit material, to delineate the FRL excavation prior to Area 6 Title I/II design. This scope includes a WAC scan of the final excavated surface. This scope also includes 3-D modeling of uranium and thorium to FRL. SDFP will budget and implement the FRL excavation design, excavation, loading, and hauling to the OSDF (PBS-03).
- WPRAP (PBS-05) will remove and disposition all liners and above-WAC soil and soil-like material from under the Waste Pits, Burn Pit, and Clearwell and down-posts all areas, both excavated areas and former dryer facility, support facilities, and other posted thorium contamination areas to be no greater than that of a uranium contamination area posting.
- Aquifer Restoration (PBS-04) well installation, operation, monitoring, removal, and utilities required to operate well systems.
- Aquifer Restoration (PBS-04) budgets, operates, and maintains sump pumps and drainage structures after they are installed during control and management.
- Aquifer Restoration (PBS-04) supplies and budgets any equipment, operations, and maintenance of perched water temporary storage tanker transport.
- Aquifer Restoration (PBS-04) removes and dispositions 1000, 2000, 3000, 4000, or any other monitoring series well or lysimeter casing, screens, concrete pad. SDFP removes and dispositions 1000-series wells that are within excavation footprints.
- Placement and dust control of impacted material in the OSDF (PBS-03).
- Construction of the OSDF (PBS-03).
- Placement and dust control of impacted material within the OMTA (PBS-03).

- Loading and hauling of impacted material from the OMTA to the OSDF (PBS-03).
- Treatment and discharge of stormwater, perched water, or other captured water that is placed at the AWWT headworks as defined by Aquifer Restoration (PBS-04) from excavations or dewatering activities.
- Waste Generator Services (PBS-11) or matrixed personnel from the WGS function establishes contracts for containers for SDFP to package.
- No requirements will be imposed to the project pertaining to Start-up Reviews (SSRs, ORAs, ORRs, or equivalent).
- North Construction Entrance road from State Route 126 to the security gate north of the former Fire Training Facility remains as part of the current discussions by the DOE future land use with the Fernald Citizens Advisory Board.
- Geophysical surveying techniques, such as ground penetrating radar and electromagnetic terrain conductivity profiling.
- All centralized services.
- Labor involved with and the disposal of samples collected during predesign characterization, excavation control, precertification, or certification is not part of the contract.

#### 1.2.3 Government-Furnished Equipment/Services

None.

#### 1.2.4 Applicable Requirements

- IRDP reviewed and approved by DOE, OEPA, USEPA.
- PSPs, CDLs, CRs reviewed and approved by DOE, OEPA, USEPA.
- Informal agreement guidance with DOE, OEPA, USEPA for review time of V/FCNs.
- Dust control measures are implemented during excavation and hauling and during off-hours.
- Real time lift scan for 3' +/- 1' lifts in below-WAC, above-FRL excavations.
- Dewater excavations from 24-hour/10-year storm event within 72 hours after rain event.
- Perform 5H:1V minimum grading for interim restoration after certification.

- No additional above-WAC areas are identified during predesign characterization.
- Excavation approach for underground utility trenches is the same as in Area 3A/4A.
- If technetium-99, PCE, TCE, and/or DCE are present at levels that exceed the OSDF WAC, physical samples must be taken along the sideslopes and footprints of the above-WAC excavation to confirm their removal prior to initiating below-WAC excavation activities.

#### 1.2.5 Applicable Technical Guidance

- OU1 Record of Decision
- OU2 Record of Decision
- OU3 Record of Decision
- OU5 Record of Decision
- Sitewide Excavation Plan, Revision 0
- Certification Units area no larger than 250 feet by 250 feet, or 800 linear feet for a utility trench below the excavation grade
- Waste Acceptance Criteria Attainment Plan for the On-Site Disposal Facility
- Impacted Materials Placement Plan – On-Site Disposal Facility
- Letter: DOE-0678-98, "Management of Wastewater Streams Containing F-Listed Constituents," J. Reising to J. Saric and T. Schneider, April 15, 1998
- Sitewide CERCLA Quality Assurance Plan.

#### 1.2.6 Disposal, Treatment, Containers, Utilities

- There are no inorganic, organic, or metals constituents as listed in the SEP requiring treatment.
- There are no additional radiological, inorganic, or organic constituent as listed in the SEP that would be included as a constituent of concern for predesign characterization or excavation.
- Soil and debris that do not meet the OSDF radiological, chemical, or physical WAC are placed in railcars for shipment and dispositioned off site. Prohibited items are dispositioned in containers.

- Tie-points into existing electric, potable and non-potable water, sanitary sewer, storm sewer, telephone, and communications are identified by Infrastructure support and budgeted and installed by SDFP.

1.3 DRIVERS

(Note: Charge number-specific drivers may be found within the Technical Scope and Quantification)

- Congressional funding of DOE EM Projects, the PBS or any predecessor PBS activity.
- WPRAP (PBS-05) completion of material and liners of the Waste Pits, Burn Pit, and Clearwell by 1<sup>st</sup> Quarter FY2006.
- WPRAP (PBS-05) removal of above-grade structures by 2<sup>nd</sup> Quarter FY2005.
- WPRAP (PBS-05) completion of rail shipments.
- Decontamination and Demolition Project (PBS-02) does not complete removal of the balance of above- grade structures that is not within WPRAP scope by 1<sup>st</sup> Quarter FY2007.
- OSDF (PBS-03) OMTA areas are available for predesign characterization by 1<sup>st</sup> Quarter FY2008.
- DOE document review cycle.
- OEPA or USEPA review cycle.
- ~~Excessive If the number of rain, high wind, severe weather, hot, or cold days. This will not exceeds the information listed in Table 1 from the FEMP site meteorological system, and will constitute an a schedule and/or cost impact to any field activities (i.e. construction related, predesign characterization, excavation control, precertification, certification, interim restoration) may occur.~~

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TABLE 1  
 Rainfall Amounts

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May.	11	4.28
June	10	3.84
July	10	4.24
Aug.	9	3.35

Sep.	8	2.88
Oct.	8	2.86
Nov.	11	3.46
Dec.	13	3.15

- Availability of real time team or physical sampling team for predesign characterization, excavation monitoring, precertification, or certification and lab turnaround due to other PBSs or Remediation Area activities.

#### 1.4 PROJECT PHYSICAL DESCRIPTION

##### 1.4.1 Scope of Work

Remedial activities under this scope of work are to support the identification, removal, and certification of those removals of impacted material comprised of at- and below-grade debris and soils above the FRLs for the contaminants of concern. Remedial activities are to be accomplished in a safe and cost-effective manner to protect human health and the environment. Excavations for impacted material removals are to be executed efficiently ensuring proper ratio of soil to debris for placement in the OSDF while minimizing the quantity of material that does not meet the OSDF WAC. Once the DOE, OEPA, and USEPA agree that the area has been remediated and meets the soil FRLs by the process of certification as documented by the Certification Report, the area will be released for final land use. The scope of work is described by the tasks contained in the following charge numbers:

- **Predesign Characterization (Charge No. G6111)** includes the plan preparation of project specific sampling plans, field implementation of real time and physical sampling, analysis, validation, and modeling of results to define soil excavations and disposition of those soils. Predesign characterization has been subdivided into two tasks. The first task is the East Side Predesign characterization including the former Fire Training facility, Railyard and Support facilities, and Area 6 within the former Production area. The second task is the West Side Predesign characterization including the Waste Pit Processing Area, Solid Waste Landfill, and remaining areas within Area 6.
- **Title I/II Design (Charge No. G6112)** includes project planning, title I design, and title II design activities necessary to prepare an Integrated Remedial Design Package (IRDP). The IRDP consists of an Implementation Plan and Certified for Construction Drawings and Technical Specifications along with supporting documentation and determination of final quantities of at- and below-grade structures and soil excavations. Title I/II design has been subdivided into three tasks to correspond with the excavation: Solid Waste Landfill, Former Pits Area, and General Area or the remainder of Area 6.
- **Title III Design (Charge No. G6113)** includes excavation support, procurement support, and design changes along with preparation of as-builts drawings and

specifications and close-out reports. Title III design has been subdivided into three tasks to also correspond with the excavations.

- Site Preparation/Excavation/Interim Restoration (Charge No. G6114) includes plan preparation addressing means, methods, techniques, and execution of the excavation scope; site preparation necessary prior to excavation; excavating, loading, and hauling of impacted material for final disposition; control and management of excavations through dewatering and excavated slope maintenance; and interim restoration of excavations after certification but prior to final restoration consisting of seeding and regrading. This has been subdivided into three tasks: Solid Waste Landfill, Former Pits Area, and General Area.
- Excavation Control/Certification (Charge No. G6117) includes the plan preparation of project specific sampling plans, field implementation of real time and physical sampling, analysis, and validation for excavation, precertification, and certification. Also included is the development of the Certification Design Letter and the Certification Report.
- Off-site Waste Disposition (Charge No. G6118) includes the procurement, loading, shipping logistics, and final disposition of impacted material that does not meet the OSDF WAC. Off-site Waste Disposition has been subdivided to into three tasks to correspond with the excavation: Solid Waste Landfill, Former Pits Area, and General Area.

#### 1.4.2 Purpose/Objective

The purpose/objective is the excavation and disposition of impacted material either in the OSDF, stage material in bulk for off-site shipment to a disposal facility (material that does not meet the OSDF WAC), or containerize material that does not meet either OSDF WAC or off-site disposal facility WAC for on-site or off-site treatment and disposal. The Records of Decision established the FRLs that were determined to present an unacceptable risk to human health and the environment. Impacted material includes at- and below-grade debris. For SDFP, at- and below-grade debris includes man-made objects such as building foundations, floors, pads, curbs, underground utilities. Impacted material can include perched groundwater if contaminated and includes soil with radiological, organic, or inorganic contaminants above their respective FRL.

#### 1.4.3 Project Boundaries

Figure 1 shows geographic features and project boundaries within Remediation Area 6. It is bounded to the north by Area 1 Phase III, the east by the OSDF, the south by the Areas 3A, 4A, and 7, and to the west by Paddys Run.

#### 1.4.4 End State Condition

The Waste Pits Area and Solid Waste Land fill will be large, expansive depressions that will drain into Paddys Run after certification and interim restoration. Excavations will be

stabilized with vegetation ready for final restoration. The deep excavations in the north boundaries of Area 3A and 3B will be extended to the north and east as necessary as previously modeled during the Area 3A design.

## 1.5 PROJECT PLAN/TECHNICAL SCOPE AND QUANTIFICATION

### 1.5.1 G6111 - Predesign Characterization

In many instances, existing characterization information from the RI/FS is insufficient to use as a basis for excavation design and excavation. The information obtained will confirm RI/FS results concerning above-WAC and above-FRL locations for excavation design and fill in data gaps. Predesign characterization includes the identification and quantification of area-specific contaminants of concern and the evaluation of historical information for the development and implementation of Project Specific Plans (PSPs). The scope of predesign characterization is therefore described in the predesign characterization PSP that is reviewed and approved by OEPA and USEPA.

Two methodologies are employed during the field implementation for predesign characterization. The first considers radiological surface scanning and real time measurements. These measurements are conducted using sodium iodide (NaI) via real time radiation tracking system (RTRAK), Gator scanning system (Gator), radiation scanning system (RSS) or excavation monitoring system (EMS); high purity germanium (HPGe) shots known as podding; or other non-intrusive static and mobile field instruments. These instruments record radiological emanations in form of total activity counts and from uranium, thorium, and radium contamination at the surface or near-surface sources. Also these instruments are employed only in non-concrete and non-gravelled areas. The results from total counts, uranium, thorium, and radium recordings are documented in the form of maps. The second considers physical soil sampling and analytical testing to collect physical data and to record concentrations of organic, inorganic, and radiological (e.g. technetium-99) that real time measurements cannot quantify.

Area 6 Predesign characterization includes two tasks to be detailed subsequently below:

- Task 1: General Area Predesign Characterization
- Task 2: Former Production Area Predesign Characterization.

The activities for each task can be further subdivided into the following subtasks:

- Subtask 1: Prepare Project Specific Plan
- Subtask 2: Field and Analytical Work
- Subtask 3: Data Reduction and Interpretation.

Major technical risks associated with the execution and completion of these tasks include: using off-site laboratory services for analysis of organic contaminants of concern (COCs), insufficient access to areas during predesign due to other scheduled activities and the OEPA and USEPA review cycle of the PSPs. Contingencies that can mitigate these risks include: develop on-site laboratory services for organic COCs, extending predesign

characterization into title I/II design, and negotiate shorter review cycles with OEPA and USEPA.

Specific charge number assumptions include:

- For general assumptions and exclusions, see Section 1.2.
- Earned Value method for this charge number will be based on the quantities developed within the Quantification Sections.
- Real time scanning during predesign characterization will be limited to accessible acres or acres with minimal need for clearing.
- Real time scanning will not be performed on surfaces with gravel, concrete, asphalt, or debris.
- No further predesign characterization of the Solid Waste Landfill is necessary. However, predesign characterization of soil under the Solid Waste Landfill is necessary.
- KC-2 Warehouse area is no longer considered one of the geographically designated RCRA characteristic areas as delineated in the OU5 ROD and SEP per predesign sampling and analysis presented in the Area 3A/4A Implementation Plan.
- Existing AWAC area delineated in the northwest corner of the former Production Area in the former drum baling area north of Building 78 slab was removed in FY2001.
- Internal review and comment of the PSP is performed in one week.
- DOE review and comment of the PSP will occur in parallel to the internal review.
- Internal comment responses are conducted informally through meetings, telephone, email, or written responses on the reviewers commented document.
- No geotechnical investigations or geotechnical testing to support excavation design or OSDF placement.
- A dedicated geoprobe and physical sampling crew will be available to collect soil and perched water samples.
- The number of borings for physical sampling is based on existing data within the Sitewide Environmental Database (SED), concentration of a particular ASCOC, above-WAC data, density of sampling from past sampling events, and process knowledge.

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- Gamma Spectroscopy is the analytical method for uranium, thorium, and radium analysis.
- All samples will be analyzed for uranium.
- A single sample will be collected for the analysis of metals and radiological contaminants (uranium, thorium, radium, technetium-99, and if needed, cesium-137) ~~will be combined into one container and analyzed~~ by the on site laboratory.
- A separate sample will be collected for the analysis of Volatile Organic Compounds (VOCs) ~~will always be collected in a separate sample container and analyzed~~ by the off site laboratory.
- A single sample will be collected for the analysis of other Organics (PCBs, pesticides, PAHs, herbicides, semi-volatile organic compounds (SVOCs), and dioxins) ~~will be collected in one container and analyzed~~ by the off site laboratory.
- A separate sample will be collected for the analysis of exotic radiological contaminants (e.g., strontium-90) ~~will be collected in a separate container and analyzed~~ by the off site laboratory.
- Organic compounds and strontium-90 will be analyzed at off-site laboratories with 14-day turnaround time.
- Exotic radiological contaminants (strontium-90) will be collected in a separate container and analyzed off site.
- For Quality Control (QC) water samples, organic samples will be containerized separately for each analysis. Metals and radiological contaminant water samples will also be containerized separately.
- Equipment rinsates will be collected for 1 in 20 borings greater than or equal to one (1) foot in depth.
- Rinsates and container blanks will be analyzed for the same parameters as the soil samples, except for PAHs.
- There will be twenty (20) variances per predesign PSP.
- One alpha beta screen sample will be taken per boring if there are off-site analyses requested.
- Each predesign data release or lab report will consist of an average of twelve (12) samples group with following analytical data: uranium, thorium, and radium; technetium-99; metals; organics.
- Ten percent (10%) of predesign data releases will receive ASL B data validation. The other ninety percent (90%) of the release will receive field validation only.

- 3-D modeling hardware, software, and personnel used for 3A/4A are retained for predesign characterization, excavation control, precertification, and certification.

1) Task #1 – General Area Predesign Characterization

1.1) Subtask #1 – Prepare Project Specific Plan (PSP)

1.1)1 Plan/Scope

The PSP will document the purpose of the predesign characterization (i.e. provide analytical data to support the design of the excavation surface of above-FRL soil) and to summarize the field characterization and analytical methods.

The PSP will summarize the findings of background information research. Background information research includes database queries of the SED to collect existing soil and perched water data (RI/FS data, CIS data, other data). An evaluation using Geographical Information Systems (GIS) mapping techniques of the ASCOCs, sample density, samples above-FRL and above-WAC, and 3-D modeling, will be performed to assist in developing the sampling and analysis approach. The approach considers verification of past sampling for above-FRL or above-WAC ASCOCs, data gaps for previously sampled material that has been moved or removed through removal or remedial actions, data for ASCOCs that are reported in the SED at the detection limit values that may exceed the FRL or WAC levels, bounding vertically and horizontally above-FRL or above-WAC, investigates locations of sparse sampling data, and considers past utilities, operations, and construction within the area through the review of Operable Unit RI/FSs, interviews, review of photographs, and walkdowns. The PSP is used to document the background information of what is known and presents the characterization plan to the project, matrixed, and centralized personnel, along with the DOE, OEPA, and USEPA.

The PSP will then define the scope of field, laboratory, and data reporting of the ASCOCs through the predesign sampling target analyte list and sampling approach. For physical sampling, the PSP will document the number of borings, location of borings, depths of borings, frequency of sample intervals, sampling collection methods, sampling equipment decontamination, borehole abandonment, and disposition of wastes. For real time measurements, the PSP will document the real time radiation tracking system (RTRAK), real time Gator-mounted system (Gator), radiation scanning system (RSS), excavation monitoring system (EMS), high-purity germanium detector (HPGe), and other radiation monitoring systems (RMS) data acquisitions, surface moisture measurements recordings, background radon monitoring if required, and real time mapping. The tracking and managing of data collection, whether through physical sampling or real time, is described along with both field and laboratory quality assurance requirements. The process of changing the approved PSP by use of variance/field change notice (V/FCN) is described. Finally, the PSP contains health and safety requirements and data quality objectives.

The General Area PSP includes the geographical features shown in Figure 1, including the north construction entrance road, waste pit railyard area, railyard and support facilities,

former fire training facility footprint and stockpiles, solid waste landfill, former borrow area, former drilling staging area, north oxbow area, Paddys Run east diversion embankment, and former Waste Pit Processing Area.

Specific activities for this scope of work includes (capital letters are tied to Table 2):

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- A. Compile and index historical photos including aerial photos.
- B. Review of historical photos site analysis by USEPA, Office of Research and Development, TS-PIC-88088, Sept. 1988.
- C. Review of Operable Unit RI/FS data and conclusions.
- D. Review of Operable Unit 5 contaminant isoconcentration plates.
- E. Review of Characterization Investigation Study (CIS) by Roy F. Weston.
- F. Review of Sitewide Excavation Plan for above-WAC locations, technetium-99 areas, RCRA characteristic locations, HWMU locations, BTVs, high leachable area identification, and other special areas of interest locations.
- G. Review RCRA Part B permit in support of SEP review.
- H. Review of past corrective actions for Non-Conformance Reports (NCRs) and lessons learned documentation to incorporate in PSP.
- I. Generate topographic mapping overlays of pre-site and present site conditions.
- J. Identify the Area-Specific Contaminants of Concern (ASCOCs).
- K. Sitewide Environmental Database (SED) queries and data evaluation.
- L. Development of 3-D model using existing data.
- M. Development of Data Quality Objectives.
- N. Development of sampling strategies.
- O. Development of analytical parameters.
- P. Initiate/coordinated task orders for off-site laboratory services (particularly for VOCs, semi-VOCs, PCBs), if necessary.
- Q. Initial walkdown of area and scoping of work permits, RWPs, penetration permits.
- R. Preparation of draft PSP with figures and tables.
- S. Internal draft PSP review and comment response.

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T. DOE draft PSP review and comment response.

U. OEPA/USEPA review and comment response.

V. Issuance of final PSP.

The scope of work will be managed and performed mainly by projectized staff covered in Control Account GPM1. Matrixed and centralized personnel will also be utilized.

*Matrixed Personnel*

Environmental Monitoring and Analytical Services (PBS-04) will participate in the initial walkdown and to assist in developing the scope of work. Modeling support will provided through Remediation Services. The personnel from these organizations are the only individuals who will use charge number G6111.

*Centralized Personnel*

Document Control/Procedure Management will provide document numbers, filing support and issue controlled documents, as needed. Environmental Compliance will be consulted on an as-needed basis if RCRA issues become relevant to the work scope. The Waste Acceptance Organization will perform visual oversight of the monitoring and prepare waste manifestation forms, if needed. Environment, Safety, Health and Quality will review PSPs, work permits, and monitor field activities, as needed. Information Management will provide computer hardware and software needs. Personnel from these organizations will use their functional area charge numbers.

*Projectized Personnel*

Most work will be completed by project staff from the management, characterization, survey, real time and administrative disciplines; and these personnel will charge their labor hours to PBS-06 control account GPM1. Project Controls will provide cost and schedule support.

Table 1 summarizes the key projectized and centralized personnel performing the scope of work. Additionally, the matrixed personnel that will be using the charge number to perform the scope of work is shown:

TABLE 1  
 Manpower Requirements for Task 1, Subtask 1 - General Area Prepare PSP

Activities:

Code	Personnel P,C,M,S	A-G J	H	I	K	L	M-P	Q	R-V
ENSMGR	P		X		X			X	X
ENSREP	P	X		X	X	X	X	X	X
LABTEC	C				X		X		X
CLERKS	P	X							X
DRFCAD	P			X					X
ENSREP	M					X		X	

Note: P denotes projectized, C denotes centralized, M denotes matrixed, S denotes subcontracted.

1.1)2 Quantification

Table 2 summarizes the quantities and/or deliverables anticipated for this subtask.

TABLE 2  
 Quantities for Task 1, Subtask 1 - General Area Prepare PSP

Item	Quantity
Draft Project Specific Plan for Internal Review	1 each
Draft Project Specific Plan for DOE Review	1 each
Response to Comments for DOE	1 each
Draft Project Specific Plan for OEPA/USEPA Review	1 each
Response to Comments for OEPA/USEPA	1 each
Final Project Specific Plan	1 each
Draft 3-D Model of Uranium Contamination	

1.2) Subtask #2 – Field and Analytical Work

1.2)1 Plan/Scope

After the PSP is approved by OEPA/USEPA, field work will commence after field briefings and walkdowns. Grassy areas and wooded areas that can be accessible may need to be mowed and undergrowth cleared by general labors to ensure worker safety for equipment movement (i.e. surveying, real time equipment handling). Accessible areas to real time instruments will be scanned to assess surface levels of uranium, thorium, radium, and total activity counts.

For physical sampling, a survey team will locate the boring locations and the sampling team will mobilize to place the borings using the Geoprobe<sup>®</sup>. The sampling team will collect samples as specified in the PSP and record daily activities on the Field Activity Log, along with specified information and identifiers in the Sample Collection Log, Chain of Custody/Request for Analysis Form, and Borehole Abandonment Log, as required. The sampling team will review all field data for completeness and accuracy and then forward the data package to Remediation Data Quality. The sampling team will submit the samples to the on-site laboratory where they are received and logged.

For analytical work, samples are received at the sample processing lab along with the chain of custodies. Samples are processed and entered into the laboratory FACTS database tracking system and work cards are generated dependent on the type of analysis requested. Samples then are prepped and analyzed per the requirements set forth in the predesign PSP. Samples identified as requiring analysis for organic constituents will be sent to contracted off-site laboratories, with a request for 14-day turn-around time.

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Specific activities for this scope of work includes (capital letters are tied to Table 2):

- A. Perform walkdowns of field area to assess site conditions for safety and health hazards, and equipment access and support of generation of work permits, RWPs, penetration permits.
- B. Generation of work permits, RWPs, penetration permits.
- C. Coordinating labor support for clearing, cutting, mowing, debris moving.
- D. Conduct PSP work scope briefings field crews, both Real time and Physical Sampling.
- E. Develop Variance/Field Change Notices (V/FCN), as needed with applicable OEPA/USEPA approval.
- F. Real time scans using RTRAK, Gator, EMS, HPGe, or RSS.
- G. Real time scan progress maps.
- H. Evaluate real time data and perform QC prior to data transfer to the Sitewide Environmental Database (SED).
- I. Survey boring locations, record coordinates, and flag locations for the sampling crew.
- J. Mobilize physical sampling crew to place borings.
- K. Obtain soil samples.
- L. Obtain groundwater samples.
- M. Complete the soil boring logs, chain of custody, sampling log, field daily logs.
- N. Deliver the physical samples and chain of custody to the on-site sample processing laboratory.
- O. Receipt of physical samples, entering samples into FACTS database system, and producing work cards. Ship samples for analysis of organic contaminants of concern (COCs) to an off-site laboratory.
- P. Calibrations, quality control, completing chain of custodies, completing laboratory logs, analytical work, and data releases both from on-site and off-site laboratories.
- Q. Perform management oversight and coordination functions.

The scope of work will be managed by projectized staff covered in Control Account GPM1. The scope of work will be performed using subcontract, matrixed, centralized, and projectized personnel.

*Subcontract Personnel*

Off-site laboratory will be utilized for the analysis of organic COCs (VOCs, PCBs, pesticides, PAHs, herbicides, semi-volatile organic compounds (SVOCs), and dioxins).

*Matrixed Personnel*

Infrastructure Services will support and clearing, cutting, mowing and the operation of the RTRAK and EMS. Environmental Monitoring (PBS-04) will complete most of the work under this subtask to support physical sampling. Environmental Monitoring will be used to generate work permits, facilitate RWPs and penetration permits, complete soil borings, collect soil and groundwater samples and deliver the samples to the on-site laboratory. Analytical Services (PBS-04) will log samples into the FACTS database system, complete the analytical measurements, issue data releases, and ship samples requiring analysis for organic COCs to the off-site laboratory. Personnel from these organizations are the only individuals who will use charge number G6111.

*Centralized Personnel*

Document Control/Procedure Management will provide document numbers, filing support and issue controlled documents, as needed. Environmental Compliance will be consulted on an as-needed basis if RCRA issues become relevant to the work scope. Environment, Safety, Health, and Quality will review work permits and generate RWPs. Information Management will provide computer hardware and software needs. Personnel from these organizations will use their functional area charge numbers.

*Projectized Personnel*

Work completed by project staff from the management, characterization, survey, real time, project control and administrative disciplines will be charged to PBS-06 control account GPM1. Management and characterization staff will perform field and safety walk downs, oversee and monitor progress of the field, provide cost and schedule information to project control staff and deliver all records to Document Control/Procedure Management. The real time staff will scan grassy areas for surface levels of radium, thorium and uranium. Results from the real time survey will be delivered as maps that depict the estimated concentration or activity of radium, thorium and uranium. A survey team will locate the boring sites and flag the locations for the physical sampling crew. Project control staff will track cost and schedule using information provided by the project manager.

Table 3 summarizes the key projectized and centralized personnel performing the scope of work. Additionally, the matrixed and subcontract personnel that will be using the charge number to perform the scope of work is shown:

TABLE 3  
 Manpower Requirements for Task 2, Subtask 2 –  
 General Area Field and Analytical Work

Activities:

MPM Code	Personnel P,C,M,S	A	B-D	E	F-H	I	J-N	O-P	Q
ENSMGR	P	X		X					X
ENSREP	P	X		X	X	X	X	X	X
CLERKS	P			X					
DRFCAD	P			X		X			
ENSMGR	M	X	X				X		X
ENSREP	M	X	X				X		
S&HENG	M	X					X		
RADTEC	M	X					X		
ENSTEC	M	X	X				X		
LABMGR	M							X	
LABCHM	M							X	
LABTEC	M							X	
PJSMGR	M				X				
MVOOPR	M				X				
Subs	S							X	

Note: P denotes projectized, C denotes centralized, M denotes matrixed, S denotes subcontracted.

1.2)2 Quantification

Table 4 summarizes the quantities and/or deliverables anticipated for this subtask. The assumed condition is that all buildings and structures are removed or at least accessible and that the Railyard will be present. It is assumed that 75% of the borings will be accessible. The assumed condition is that the on-site laboratory is operating with the normalcy experienced at present.

Real time scans will be limited due to existing concrete slabs and gravel. Real time scans will produce summary maps for uranium, thorium, radium, and total counts.

The number of boring locations and depths for surveying and physical sampling are based several considerations. First is the density of sample borings that was necessary in Areas 3A and 4A, and in the former Sewage Treatment Plant to adequately bound the contamination, both horizontally and vertically, and to fill data gaps for modeling. Second is defining the lower uranium FRL areas known as high leachable areas. Typical uranium FRL is 82 ppm uranium. However, Figure 2-3 of the SEP defines areas with lower uranium FRL concentration of 20 ppm due to high leachability. These areas include the Fire Training Facility and a portion of the OMTA expansion within the former production area. Only HPGe has detections low enough to detect uranium contamination at this concentration. Third is considering the number of priority excavation areas identified in the SEP. The priority excavations are defined as excavations necessary to remove

above-WAC or RCRA contamination prior to excavation of above-FRL material. Figure 2-1 of the SEP illustrates the total uranium concentrations above-WAC which include several areas along the Impacted Area Haul Road within the former Production Area and the Fire Training Facility. Figure 2-2 of the SEP illustrates technetium-99 concentrations potentially above-WAC/FRL of which none are apparent in this subtask. However, with the experience that technetium was found in areas of the former Sewage Treatment Plant that were not anticipated in the SEP, it must be considered.

Nine (9) location exist with historical data above-WAC for total uranium, further characterization and bounding will therefore be conducted resulting in approximately forty-five (45) boring locations and 135 sample intervals. In the former Fire Training Facility area, a plan for ten (10) boring locations with thirty (30) sample intervals will be collected and analyzed for uranium, thorium, radium, technetium-99, VOCs, PAHs, and PCBs. In the footprint of the Solid Waste Landfill, a plan for eight (8) boring locations will be collected and analyzed for uranium, thorium, radium, technetium-99. Metals will be collected and analyzed for uranium, thorium, radium, metals, SVOCs, dioxin, and PCBs. Six (6) boring locations with eighteen (18) sample intervals will be collected near Buildings 94A and 94B and analyzed for uranium, thorium, radium, technetium-99, and metals. Four (4) technetium-99 locations have been identified in the SEP. One of the locations lies within Waste Pit No. 5 and will be investigated by WPRAP (PBS-05). The remaining three (3) locations will result in approximately thirteen (13) boring locations with thirty-nine (39) sample intervals will be collected and analyzed for technetium-99.

TABLE 4  
 Quantities for Task 1, Subtask 2 – General Area Field and Analytical Work

Item	Quantity
Total Acreage of Area 6	126.6 acres
Total Acreage of Area 6 – General Area (excludes former Waste Pits, Burn Pit, Clearwell and Berms)	78.0 acres
North Construction Entrance Rd.	1.7 acres
Former Fire Training Facility	0.9 acres
Waste Pit Railyard Area and Support Facilites	17.1 acres
Solid Waste Landfill Area	1.5 acres
Former Borrow Area	9.2 acres
Former Drilling Staging, North Oxbow, and Paddys Run East Diversion Embankment Areas	26.5 acres
Former Waste Pit Area Processing Area	21.1 acres
Real time Maps for Uranium in Low Leachable Areas	1 each
Real time Maps for Thorium in Low Leachable Areas	1 each
Real time Maps for Radium in Low Leachable Areas	1 each
Real time Maps for Total Cts in Low Leach. Areas	1 each
Real time Maps for Uranium in High Leachable Areas	1 each
Real time Maps for Thorium in High Leachable Areas	1 each
Real time Maps for Radium in High Leachable Areas	1 each
Real time Maps for Total Cts in High Leach. Areas	1 each
Survey and Flag Boring Locations	91 each
Total Geoprobe Borings	91 each
Total Soil Samples	273 each
Total Groundwater Samples (i.e. Perched Water)	0 each
Total Surface Water Samples	0 each
Variance/Field Change Notice	20 each
Samples entered into Database	273 each
Uranium Analysis	273 each
Thorium and Radium Analysis	273 each
Technetium-99 Analysis	138 each
Strontium-90 Analysis	0 each
Metal Analysis	18 each
Volatile Organic Compound Analysis	30 each
Semi-Volatile Organic Compound Analysis	30 each
Pesticide Analysis	30 each
PCBs Analysis	30 each
PAH Analysis	30 each
Dioxin Analysis	0 each
Data Releases	40 each

A summary of the quantification approach is provided:

Acreages were determined by using in-house GIS techniques and information at the time of this writing. The distinction between areas of lower uranium FRL (20 ppm U) due to

high leachable areas and areas of higher uranium FRL (82 ppm U) due to low leachable areas is presented in Figure 2-3 of the SEP.

The real time maps represent the final product of the scanning results. The quantity does not include progress coverage maps that are produced along with the final coverage maps as part of the projectized effort under control account GPM1 of PBS-06.

For RTRAK and Gator, with radon monitor set-up to correct for radon influences if necessary, experience dictates that 2 acres/day for a 10-hour day can be accomplished assuming typical weather. This average drops to 1 acre/day for a 10-hour day during winter months. Staff includes the matrixed driver (MVOOPR @ 1 FTE), the matrixed driver's supervisor (PGSMGR @ 0.25 FTE), projectized environmental scientists (ENSREP @ 2 FTEs), and projectized environmental scientist supervisor (ENSREP @ 1 FTE).

For RSS, with radon monitor set-up to correct for radon influences if necessary, experience dictates that 2 acres/day for a 10-hour day can be accomplished assuming typical weather. This average drops to 1 acre/day for a 10-hour day during winter months. Staff includes projectized environmental scientists (ENSREP @ 2 FTEs) and a projectized environmental scientist supervisor (ENSREP @ 1 FTE).

For EMS, with radon monitor set-up to correct for radon influences if necessary, it is estimated that this instrument will support the RTRAK & RSS production rate of 2 acres/day for a 10-hour day ~~can be accomplished assuming typical weather. This average drops or~~ to 1 acre/day for a 10-hour day during winter months (when averaging in snow and ice days when field activity is not possible). Staff includes the matrixed heavy equipment operator (MVOOPR @ 1 FTE), the matrixed heavy equipment operators supervisor (PGSMGR @ 0.25 FTE), projectized environmental scientists (ENSREP @ 2 FTEs), and projectized environmental scientist supervisor (ENSREP @ 1 FTE).

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For HPGe, with radon monitor set-up to correct for radon influences if necessary, experience dictates a range based on topography and vegetation. 12 shots/day can be accomplished for a 10-hour day with the maximum coverage at a 1 meter height with a 15 minute count time assuming typical weather conditions with adverse topographic and vegetative conditions. 20 shots/day can be accomplished for a 10-hour day with the maximum coverage at a 1 meter height with a 15 minute count time assuming typical weather conditions with moderate topographic and vegetative conditions. Approximately 28 shots are necessary to cover 1 acre. Staff includes projectized environmental scientists (ENSREP @ 2 FTEs) and a projectized environmental scientist supervisor (ENSREP @ 1 FTE).

The number of borings and depths for surveying and physical sampling were determined by using in-house GIS techniques along with an evaluation of the present data available from the SED. Manpower is estimated using the BARDO database based on four (4) years of field and analytical work requested by PBS-06. Specific assumptions bounding the BARDO database are listed above in the charge-number specific assumptions

### 1.3) Subtask #3 – Data Reduction and Interpretation

#### 1.3)1 Plan/Scope

Data reduction and interpretation is a key link between predesign characterization and Title I/II design activities. After data verification and validation is completed, all data must be entered into the SED to allow characterization, engineering, and managerial staff to access the information.

Results from the real time measurements will be delivered as maps that illustrate the estimated concentration or activity of uranium, radium, and thorium as described earlier. All electronically recorded data will have the RMS (i.e. RTRAK or RSS) or HPGe data validation checklist, as required by the User's Guidelines for in situ gamma spectrometry at the FEMP, will be completed after each data collection event. Field documentation, such as the Nuclear Field Density/Moisture Worksheet, will undergo an internal review by real time personnel. Electronically recorded data from the GPS, RMS, and HPGe systems will be downloaded to onto the local area network after an evaluation comparing the electronic data, hard copy maps, and summary reports for accuracy and completeness is conducted. The evaluation package is forwarded to data validation for final review and is subsequently entered into the SED.

For physical sampling, field technicians and the filed sampling data coordinator will review all field data for completeness and accuracy and then forward the data package to the Data Validation Contact for final review. The field data package will then be filed.

Laboratory reports will be reviewed by the characterization team and 10 percent of the reports will undergo verification and validation. The analytical results will be used to define the horizontal and vertical extent of all contamination. Uranium results will be used to develop a 3-D model of the uranium concentration, and all other COCs will be compared to this model to evaluate the capture of all COCs by the modeled uranium contamination. COCs that fall outside of the modeled uranium contamination will be noted to allow their capture during Title I/II design activities. Any above-WAC, RCRA, HWMU, UST, or high leachable areas will be identified during predesign characterization to the Title I/II design team.

The characterization staff will work with engineering to interpret the data and develop the needed tables, figures and data-summary appendix for the Title I/II design. Uranium data placed in the SED will be compiled and entered into the draft 3-D model of uranium contamination to prepare the final 3-D model. The final 3-D model of uranium contamination will be delivered to the Title I/II team to develop the extent of excavation.

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Specific activities and deliverables anticipated for this work include (capital letters are tied to Table 5):

- A. Perform verification and validation of data.
- B. Variance/Field Change Notice, as needed with applicable OEPA/USEPA approval.
- C. Enter data into the SED and perform queries.
- D. Reduce and interpret data to develop the extent of contamination and final list of COCs.
- E. Develop tables, figures, and data summary appendix for Title I/II design.
- F. Prepare the final 3-D model for uranium contamination.
- G. Perform project management and control activities.
- H. Submit characterization records to Procedure and Document Distribution Service.

The verification and validation packages and the final 3-D model of the uranium contamination area delivered to the project. These deliverables and other project records are sent to Procedure and Document Distribution Service.

The scope of work will be managed by projectized staff covered under Control Account GPM1 from PBS-06. The scope of work will be performed using projectized, matrixed, and centralized personnel.

#### *Matrixed Personnel*

Remediation Systems will develop the final 3-D model for uranium contamination. Quality Control Operations will review and approve any remaining V/FCNs. Personnel from these organizations are the only individuals who will use charge number G6111.

#### *Centralized Personnel*

Sample Data Management will perform verification and validation, enter data, conduct database queries, and provide the query results to the characterization group. Procedure and Document Distribution Services will provide document numbers, filing support and issue controlled documents, as needed. Information Management will provide computer hardware and software needs. Personnel from these organizations will use their functional area charge numbers.

#### *Projectized Personnel*

Project staff from the management, characterization, engineering, and administrative disciplines, and these personnel will charge their labor hours to PBS-06 control account GPM1. Management and characterization staff will review laboratory and data reports in parallel with V&V work and use the database queries to define the horizontal and vertical extent of all contamination. All non-uranium COCs will be compared to the final 3-D

model of uranium contamination to evaluate the capture of all COCs by the uranium contamination zones. COCs that fall outside the modeled uranium contamination will be noted to allow their capture during Title I/II design activities. Tables and figures will be developed by the characterization staff to summarize the distribution of sample locations and data results. Of special interest will be the above-WAC, RCRA, HWMU/UST areas and the scatter plots that depict the depth of each COC relative to the excavation depth. All tables and figures will be delivered to the Title I/II design team. A data-summary appendix will be prepared to record all samples analyzed during the predesign work. Project Controls will provide cost and schedule support based on the information supplied by the project manager.

Table 5 summarizes the projectized and matrixed personnel performing the scope of work:

TABLE 5  
 Manpower Requirements for Task 1, Subtask 3 –  
 General Area Data Reporting and Interpretation

Activities:

MPM Code	Personnel P,C,M,S	A	B	C	D	E	F	G	H
ENGMGR	P							X	
ENSREP	P	X	X		X	X	X	X	X
DRFCAD	P				X				
ENSREP	M					X			
LABTEC	M	X		X					

Note: P denotes projectized, C denotes centralized, M denotes matrixed, S denotes subcontracted.

### 1.3)2 Quantification

Table 6 summarizes the quantities and/or deliverables anticipated for this subtask per the SEP, ten percent of the laboratory data packages will be verified and validated. Based on information used in the Area 3A/4A IRDP, it is anticipated that 15 tables, 50 figures and a data-summary appendix will be prepared for the Area 6 IRDP. The final 3-D model of uranium contamination is needed by the Title I/II design team to capture the extent of excavation.

TABLE 6  
 Quantities for Task 1, Subtask 3 –  
 General Area Data Reduction and Interpretation

Item	Quantity
Radiological Lab Reports to Verify and Validate	23 each
Technetium-99 Lab Reports to Verify and Validate	12 each
Metal Lab Reports to Verify and Validate	2 each
Organic Lab Reports to Verify and Validate	3 each
Data Tables	15 each
Figures	50 each
Data-Summary Appendix	1 each
Final 3-D Model of Uranium Contamination	1 each

2) Task #2 – Former Production Area Predesign Characterization

2.1) Subtask #1 – Prepare Project Specific Plan (PSP)

2.1)1 Plan/Scope

The PSP will document the purpose of the predesign characterization (i.e. provide analytical data to support the design of the excavation surface of above-FRL soil) and to summarize the field characterization and analytical methods.

The PSP will summarize the findings of background information research. Background information research includes database queries of the SED to collect existing soil and perched water data (RI/FS data, CIS data, other data). An evaluation using Geographical Information Systems (GIS) mapping techniques of the ASCOCs, sample density, samples above-FRL and above-WAC, and 3-D modeling, will be performed to assist in developing the sampling and analysis approach. The approach considers verification of past sampling for above-FRL or above-WAC ASCOCs, data gaps for previously sampled material that has been moved or removed through removal or remedial actions, data for ASCOCs that are reported in the SED at the detection limit values that may exceed the FRL or WAC levels, bounding vertically and horizontally above-FRL or above-WAC, investigates locations of sparse sampling data, and considers past utilities, operations, and construction within the area through the review of Operable Unit RI/FSs, interviews, review of photographs, and walkdowns. The PSP is used to document the background information of what is known and presents the characterization plan to the project, matrixed, and centralized personnel, along with the DOE, OEPA, and USEPA.

The PSP will then define the scope of field, laboratory, and data reporting of the ASCOCs through the predesign sampling target analyte list and sampling approach. For physical sampling, the PSP will document the number of borings, location of borings, depths of borings, frequency of sample intervals, sampling collection methods, sampling equipment decontamination, borehole abandonment, and disposition of wastes. For real time measurements, the PSP will document the real time radiation tracking system (RTRAK), real time Gator-mounted system (Gator), radiation scanning system (RSS), excavation

monitoring system (EMS), high-purity germanium detector (HPGe), and other radiation monitoring systems (RMS) data acquisitions, surface moisture measurements recordings, background radon monitoring if required, and real time mapping. The tracking and managing of data collection, whether through physical sampling or real time, is described along with both field and laboratory quality assurance requirements. The process of changing the approved PSP by use of variance/field change notice (V/FCN) is described. Finally, the PSP contains health and safety requirements and data quality objectives.

The Former Production Area PSP includes the Area 6 geographical features contained within the former Production Area, including the perimeter runoff trench, shown in Figure 1. These features include Soil Pile 7, OSDF Material Transfer Area (OMTA), OMTA Expansion Area, area north of the Impacted Material Haul Road and west of 'B' Street, Impacted Material Haul Road, and 'E' Street.

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Specific activities for this scope of work includes (capital letters are tied to Table 7):

- A. Compile and index historical photos including aerial photos.
- B. Review of historical photos site analysis by USEPA, Office of Research and Development, TS-PIC-88088, Sept. 1988.
- C. Review of Operable Unit RI/FS data and conclusions.
- D. Review of Operable Unit 5 contaminant isoconcentration plates.
- E. Review of Characterization Investigation Study (CIS) by Roy F. Weston.
- F. Review of Sitewide Excavation Plan for above-WAC locations, technetium-99 areas, RCRA characteristic locations, HWMU locations, BTVs, high leachable area identification, and other special areas of interest locations.
- G. Review RCRA Part B permit in support of SEP review.
- H. Review of past corrective actions for Non-Conformance Reports (NCRs) and lessons learned documentation to incorporate in PSP.
- I. Generate topographic mapping overlays of pre-site and present site conditions.
- J. Identify the Area-Specific Contaminants of Concern (ASCOCs).
- K. Sitewide Environmental Database (SED) queries and data evaluation.
- L. Development of 3-D model using existing data.
- M. Development of Data Quality Objectives.
- N. Development of sampling strategies.

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- O. Development of analytical parameters.
- P. Initiate/coordinated task orders for off-site laboratory services (particularly for VOCs, semi-VOCs, PCBs), if necessary.
- Q. Initial walkdown of area and scoping of work permits, RWPs, penetration permits.
- R. Preparation of draft PSP with figures and tables.
- S. Internal draft PSP review and comment response.
- T. DOE draft PSP review and comment response.
- U. OEPA/USEPA review and comment response.
- V. Issuance of final PSP.

The scope of work will be managed and performed mainly by projectized staff covered in Control Account GPM1. Matrixed and centralized personnel will also be utilized.

*Matrixed Personnel*

Environmental Monitoring and Analytical Services (PBS-04) will participate in the initial walkdown and to assist in developing the scope of work. Modeling support will provided through Remediation Services. The personnel from these organizations are the only individuals who will use charge number G6111.

*Centralized Personnel*

Document Control/Procedure Management will provide document numbers, filing support and issue controlled documents, as needed. Environmental Compliance will be consulted on an as-needed basis if RCRA issues become relevant to the work scope. The Waste Acceptance Organization will perform visual oversight of the monitoring and prepare waste manifestation forms, if needed. Environment, Safety, Health and Quality will review PSPs, work permits, and monitor field activities, as needed. Information Management will provide computer hardware and software needs. Personnel from these organizations will use their functional area charge numbers.

*Projectized Personnel*

Most work will be completed by project staff from the management, characterization, survey, real time and administrative disciplines; and these personnel will charge their labor hours to PBS-06 control account GPM1. Project Controls will provide cost and schedule support.

Table 7 summarizes the key projectized and centralized personnel performing the scope of work. Additionally, the matrixed personnel that will be using the charge number to perform the scope of work is shown:

TABLE 7

Manpower Requirements for Task 2, Subtask 1 –  
 Former Production Area Prepare PSP

Activities:

MPM Code	Personnel P,C,M,S	A-G J	H	I	K	L	M-P	Q	R-V
ENSMGR	P		X		X			X	X
ENSREP	P	X		X	X	X	X	X	X
LABTEC	C				X		X		X
CLERKS	P	X							X
DRFCAD	P			X					X
ENSREP	M					X		X	

Note: P denotes projectized, C denotes centralized, M denotes matrixed, S denotes subcontracted.

2.1)2 Quantification

Table 8 summarizes the quantities and/or deliverables anticipated for this subtask.

TABLE 8  
 Quantities for Task 2, Subtask 1 –  
 Former Production Area Prepare PSP

Item	Quantity
Draft Project Specific Plan for Internal Review	1 each
Draft Project Specific Plan for DOE Review	1 each
Response to Comments for DOE	1 each
Draft Project Specific Plan for OEPA/USEPA Review	1 each
Response to Comments for OEPA/USEPA	1 each
Final Project Specific Plan	1 each
Draft 3-D Model of Uranium Contamination	1 each

2.2) Subtask #2 – Field and Analytical Work

2.2)1 Plan/Scope

After the PSP is approved by OEPA/USEPA, field work will commence after field briefings and walkdowns. Grassy areas may need to be mowed and undergrowth cleared by general labors to ensure worker safety for equipment movement (i.e. surveying, real time equipment handling). Accessible areas to real time instruments will be scanned to assess surface levels of uranium, thorium, radium, and total activity counts .

For physical sampling, a survey team will locate the boring locations and the sampling team will mobilize to place the borings using the Geoprobe ®. The sampling team will collect samples as specified in the PSP and record daily activities on the Field Activity Log, along with specified information and identifiers in the Sample Collection Log, Chain of

Custody/Request for Analysis Form, and Borehole Abandonment Log, as required. The sampling team will review all field data for completeness and accuracy and then forward the data package to Remediation Data Quality. The sampling team will submit the samples to the on-site laboratory where they are received and logged.

For analytical work, samples are received at the sample processing lab along with the chain of custodies. Samples are processed and entered into the laboratory FACTS database tracking system and work cards are generated dependent on the type of analysis requested. Samples then are prepped and analyzed per the requirements set forth in the predesign PSP. Samples identified as requiring analysis for organic constituents will be sent to contracted off-site laboratories, with a request for 14-day turn-around time.

Specific activities for this scope of work includes (capital letters are tied to Table 9):

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- A. Perform walkdowns of field area to assess site conditions for safety and health hazards, and equipment access and support of generation of work permits, RWPs, penetration permits.
- B. Generation of work permits, RWPs, penetration permits.
- C. Coordinating labor support for clearing, cutting, mowing, debris moving.
- D. Conduct PSP work scope briefings field crews, both Real time and Physical Sampling.
- E. Develop Variance/Field Change Notices (V/FCN), as needed with applicable OEPA/USEPA approval.
- F. Real time scans using RTRAK, Gator, EMS, HPGe, or RSS.
- G. Real time scan progress maps.
- H. Evaluate real time data and perform QC prior to data transfer to the Sitewide Environmental Database (SED).
- I. Survey boring locations, record coordinates, and flag locations for the sampling crew.
- J. Mobilize physical sampling crew to place borings.
- K. Obtain soil samples.
- L. Obtain groundwater samples.
- M. Complete the soil boring logs, chain of custody, sampling log, field daily logs.
- N. Deliver the physical samples and chain of custody to the on-site sample processing laboratory.

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- O. Receipt of physical samples, entering samples into FACTS database system, and producing work cards. Ship samples for analysis of organic contaminants of concern (COCs) to off-site laboratory.
- P. Calibrations, quality control, completing chain of custodies, completing laboratory logs, analytical work, and data releases both from on-site and off-site laboratories.
- Q. Perform management oversight and coordination functions

The scope of work will be managed by projectized staff covered in Control Account GPM1. The scope of work will be performed using subcontract, matrixed, centralized, and projectized personnel.

*Subcontract Personnel*

Off-site laboratory will be utilized for the analysis of organic COCs (VOCs, PCBs, pesticides, PAHs, herbicides, semi-volatile organic compounds (SVOCs), and dioxins).

*Matrixed Personnel*

Infrastructure Services will support and clearing, cutting, mowing and the operation of the RTRAK and EMS. Environmental Monitoring (PBS-04) will complete most of the work under this subtask to support physical sampling. Environmental Monitoring will be used to generate work permits, facilitate RWPs and penetration permits, complete soil borings, collect soil and groundwater samples and deliver the samples to the on-site laboratory. Analytical Services (PBS-04) will log samples into the FACTS database system, complete the analytical measurements, issue data releases, and ship samples requiring analysis for organic COCs to the off-site laboratory. Personnel from these organizations are the only individuals who will use charge number G6111.

*Centralized Personnel*

Document Control/Procedure Management will provide document numbers, filing support and issue controlled documents, as needed. Environmental Compliance will be consulted on an as-needed basis if RCRA issues become relevant to the work scope. Environment, Safety, Health, and Quality will review work permits and generate RWPs. Information Management will provide computer hardware and software needs. Personnel from these organizations will use their functional area charge numbers.

*Projectized Personnel*

Work completed by project staff from the management, characterization, survey, real time, project control and administrative disciplines will be charged to PBS-06 control account GPM1. Management and characterization staff will perform field and safety walk downs, oversee and monitor progress of the field, provide cost and schedule information to project control staff and deliver all records to Document Control/Procedure Management. The real time staff will scan grassy areas for surface levels of radium, thorium and uranium. Results from the real time survey will be delivered as maps that depict the estimated concentration or activity of radium, thorium and uranium. A survey team will locate the boring sites and flag the locations for the physical sampling crew. Project control staff will track cost and schedule using information provided by the project manager.

Table 9 summarizes the key projectized and centralized personnel performing the scope of work. Additionally, the matrixed and subcontract personnel that will be using the charge number to perform the scope of work is shown:

TABLE 9  
 Manpower Requirements for Task 2, Subtask 2 –  
 General Area Field and Analytical Work

Activities:

Code	Personnel P,C,M,S	A	B-D	E	F-H	I	J-N	O-P	Q
ENSMGR	P	X		X					X
ENSREP	P	X		X	X	X	X	X	X
CLERKS	P			X					
DRFCAD	P			X		X			
ENSMGR	M	X	X				X		X
ENSREP	M	X	X				X		
S&HENG	M	X					X		
RADTEC	M	X					X		
ENSTEC	M	X	X				X		
LABMGR	M							X	
LABCHM	M							X	
LABTEC	M							X	
PJSMGR	M				X				
MVOOPR	M				X				
Subs	S							X	

Note: P denotes projectized, C denotes centralized, M denotes matrixed, S denotes subcontracted.

2.2)2 Quantification

Table 10 summarizes the quantities and/or deliverables anticipated for this subtask. The assumed condition is that some debris piles from OMTA operations will be present, but at least 75% of the borings will be accessible and that the Railyard will be present. The assumed condition is that the on-site laboratory is operating with the normalcy experienced at present.

Real time scans will be limited due to existing concrete slabs and gravel. Real time scans will produce summary maps for uranium, thorium, radium, and total counts.

The number of boring locations and depths for surveying and physical sampling are based several considerations. First is the density of sample borings that was necessary in Areas 3A and 4A, and in the former Sewage Treatment Plant to adequately bound the contamination, both horizontally and vertically, and to fill data gaps for modeling. Second is defining the lower uranium FRL areas known as high leachable areas. Typical uranium FRL is 82 ppm uranium. However, Figure 2-3 of the SEP defines areas with lower

uranium FRL concentration of 20 ppm due to high leachability. These areas include the Fire Training Facility and a portion of the OMTA expansion within the former production area. Only HPGe has detections low enough to detect uranium contamination at this concentration. Third is considering the number of priority excavation areas identified in the SEP. The priority excavations are defined as excavations necessary to remove above-WAC or RCRA contamination prior to excavation of above-FRL material. Figure 2-1 of the SEP illustrates the total uranium concentrations above-WAC which include several areas along the Impacted Area Haul Road within the former Production Area and the Fire Training Facility. Figure 2-2 of the SEP illustrates technetium-99 concentrations potentially above-WAC/FRL of which none are apparent in this subtask. However, with the experience that technetium was found in areas of the former Sewage Treatment Plant that were not anticipated in the SEP, it must be considered.

In the footprint of Soil Pile 7, a plan for twenty-four (24) boring locations will be collected and analyzed for uranium, thorium, radium, metals, SVOCs, PCBs and dioxin. Sixty-four (64) boring locations with 192 sample intervals will be collected in the remaining OMTA areas for uranium, thorium, radium, technetium-99, metals, PAHs, and PCBs.

TABLE 10  
 Quantities for Task 2, Subtask 2 –  
 General Area Field and Analytical Work

Item	Quantity
Total Acreage of Area 6	126.6 acres
Total Acreage of Area 6 – Within Former Production Area	24.2 acres
Real time Maps for Uranium in Low Leachable Areas	1 each
Real time Maps for Thorium in Low Leachable Areas	1 each
Real time Maps for Radium in Low Leachable Areas	1 each
Real time Maps for Total Cts in Low Leach. Areas	1 each
Real time Maps for Uranium in High Leachable Areas	1 each
Real time Maps for Thorium in High Leachable Areas	1 each
Real time Maps for Radium in High Leachable Areas	1 each
Real time Maps for Total Cts in High Leach. Areas	1 each
Survey and Flag Boring Locations	88 each
Total Geoprobe Borings	88 each
Total Soil Samples	264 each
Total Groundwater Samples (i.e. Perched Water)	0 each
Total Surface Water Samples	0 each
Variance/Field Change Notice	20 each
Samples entered into Database	264 each
Uranium Analysis	264 each
Thorium and Radium Analysis	264 each
Technetium-99 Analysis	264 each
Strontium-90 Analysis	0 each
Metal Analysis	264 each
Volatile Organic Compound Analysis	0 each
Semi-Volatile Organic Compound Analysis	192 each
Pesticide Analysis	192 each
PCBs Analysis	192 each
PAH Analysis	192 each
Dioxin Analysis	0 each
Data Releases	82 each

A summary of the quantification approach is provided:

Acreages were determined by using in-house GIS techniques and information at the time of this writing. The distinction between areas of lower uranium FRL (20 ppm U) due to high leachable areas and areas of higher uranium FRL (82 ppm U) due to low leachable areas is presented in Figure 2-3 of the SEP.

The real time maps represent the final product of the scanning results. The quantity does not include progress coverage maps that are produced along with the final coverage maps as part of the projectized effort under control account GPM1 of PBS-06.

For RTRAK and Gator, with radon monitor set-up to correct for radon influences if necessary, experience dictates that 2 acres/day for a 10-hour day can be accomplished assuming typical weather. This average drops to 1 acre/day for a 10-hour day during winter months. Staff includes the matrixed driver (MVOOPR @ 1 FTE), the matrixed driver's supervisor (PGSMGR @ 0.25 FTE), projectized environmental scientists (ENSREP @ 2 FTEs), and projectized environmental scientist supervisor (ENSREP @ 1 FTE).

For RSS, with radon monitor set-up to correct for radon influences if necessary, experience dictates that 2 acres/day for a 10-hour day can be accomplished assuming typical weather. This average drops to 1 acre/day for a 10-hour day during winter months. Staff includes projectized environmental scientists (ENSREP @ 2 FTEs) and a projectized environmental scientist supervisor (ENSREP @ 1 FTE).

For EMS, with radon monitor set-up to correct for radon influences if necessary, it is estimated that 2 acres/day for a 10-hour day can be accomplished assuming typical weather. This average drops to 1 acre/day for a 10-hour day during winter months (when averaging in snow and ice days when field activity is not possible). Staff includes the matrixed heavy equipment operator (MVOOPR @ 1 FTE), the matrixed heavy equipment operators supervisor (PGSMGR @ 0.25 FTE), projectized environmental scientists (ENSREP @ 2 FTEs), and projectized environmental scientist supervisor (ENSREP @ 1 FTE).

For HPGe, with radon monitor set-up to correct for radon influences if necessary, experience dictates a range based on topography and vegetation. 12 shots/day can be accomplished for a 10-hour day with the maximum coverage at a 1 meter height with a 15 minute count time assuming typical weather conditions with adverse topographic and vegetative conditions. 20 shots/day can be accomplished for a 10-hour day with the maximum coverage at a 1 meter height with a 15 minute count time assuming typical weather conditions with moderate topographic and vegetative conditions. Approximately 28 shots are necessary to cover 1 acre. Staff includes projectized environmental scientists (ENSREP @ 2 FTEs) and a projectized environmental scientist supervisor (ENSREP @ 1 FTE).

The number of borings and depths for surveying and physical sampling were determined by using in-house GIS techniques along with an evaluation of the present data available from the SED. Manpower is estimated using the BARDO database based on four (4) years of field and analytical work requested by PBS-06. Specific assumptions bounding the pre-characterization database are listed above in the charge-number specific assumptions.

### 2.3) Subtask #3 – Data Reduction and Interpretation

#### 2.3)1 Plan/Scope

Data reduction and interpretation is a key link between predesign characterization and Title I/II design activities. After data verification and validation is completed, all data must be entered into the SED to allow characterization, engineering, and managerial staff to access the information.

Results from the real time measurements will be delivered as maps that illustrate the estimated concentration or activity of uranium, radium, and thorium as described earlier. All electronically recorded data will have the RMS (i.e. RTRAK or RSS) or HPGe data validation checklist, as required by the User's Guidelines for in-situ gamma spectrometry at the FEMP, will be completed after each data collection event. Field documentation, such as the Nuclear Field Density/Moisture Worksheet, will undergo an internal review by real time personnel. Electronically recorded data from the GPS, RMS, and HPGe systems will be downloaded to onto the local area network after an evaluation comparing the electronic data, hard copy maps, and summary reports for accuracy and completeness is conducted. The evaluation package is forwarded to data validation for final review and is subsequently entered into the SED.

For physical sampling, field technicians and the filed sampling data coordinator will review all field data for completeness and accuracy and then forward the data package to the Data Validation Contact for final review. The field data package will then be filed.

Laboratory reports will be reviewed by the characterization team and 10 percent of the reports will undergo verification and validation. The analytical results will be used to define the horizontal and vertical extent of all contamination. Uranium results will be used to develop a 3-D model of the uranium concentration, and all other COCs will be compared to this model to evaluate the capture of all COCs by the modeled uranium contamination. COCs that fall outside of the modeled uranium contamination will be noted to allow their capture during Title I/II design activities. Any above-WAC, RCRA, HWMU, UST, or high leachable areas will be identified during predesign characterization to the Title I/II design team.

The characterization staff will work with engineering to interpret the data and develop the needed tables, figures and data-summary appendix for the Title I/II design. Uranium data placed in the SED will be compiled and entered into the draft 3-D model of uranium contamination to prepare the final 3-D model. The final 3-D model of uranium contamination will be delivered to the Title I/II team to develop the extent of excavation. Specific activities and deliverables anticipated for this work include (capital letters are tied to Table 11):

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- A. Perform verification and validation of data.
- B. Variance/Field Change Notice, as needed with applicable OEPA/USEPA approval.
- C. Enter data into the SED and perform queries.
- D. Reduce and interpret data to develop the extent of contamination and final list of COCs.
- E. Develop tables, figures, and data summary appendix for Title I/II design.
- F. Prepare the final 3-D model for uranium contamination.

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G. Perform project management and control activities.

H. Submit characterization records to Procedure and Document Distribution Service.

The verification and validation packages and the final 3-D model of the uranium contamination area delivered to the project. These deliverables and other project records are sent to Procedure and Document Distribution Service.

The scope of work will be managed by projectized staff covered in Control Account GPM1 from PBS-06. The scope of work will be performed using projectized, matrixed, and centralized personnel.

*Matrixed Personnel*

Remediation Systems will develop the final 3-D model for uranium contamination. Quality Control Operations will review and approve any remaining V/FCNs. Personnel from these organizations are the only individuals who will use charge number G6111.

*Centralized Personnel*

Sample Data Management will perform verification and validation, enter data, conduct database queries, and provide the query results to the characterization group. Procedure and Document Distribution Services will provide document numbers, filing support and issue controlled documents, as needed. Information Management will provide computer hardware and software needs. Personnel from these organizations will use their functional area charge numbers.

*Projectized Personnel*

Project staff from the management, characterization, engineering, and administrative disciplines, and these personnel will charge their labor hours to PBS-06 control account GPM1. Management and characterization staff will review laboratory and data reports in parallel with V&V work and use the database queries to define the horizontal and vertical extent of all contamination. All non-uranium COCs will be compared to the final 3-D model of uranium contamination to evaluate the capture of all COCs by the uranium contamination zones. COCs that fall outside the modeled uranium contamination will be noted to allow their capture during Title I/II design activities. Tables and figures will be developed by the characterization staff to summarize the distribution of sample locations and data results. Of special interest will be the above-WAC, RCRA, HWMU/UST areas and the scatter plots that depict the depth of each COC relative to the excavation depth. All tables and figures will be delivered to the Title I/II design team. A data-summary appendix will be prepared to record all samples analyzed during the predesign work. Project Controls will provide cost and schedule support based on the information supplied by the project manager.

Table 11 summarizes the projectized and matrixed personnel performing the scope of work:

TABLE 11  
 Manpower Requirements for Task 2, Subtask 3 –  
 General Area Data Reporting and Interpretation

Activities:

Code	Personnel P,C,M,S	A	B	C	D,E	F	G	H
ENGMGR	P						X	
ENSREP	P	X	X		X	X	X	X
DRFCAD	P				X			
ENSREP	M					X		
LABTEC	M	X		X				

Note: P denotes projectized, C denotes centralized, M denotes matrixed, S denotes subcontracted.

2.3)2 Quantification

Table 12 summarizes the quantities and/or deliverables anticipated for this subtask per the SEP, ten percent of the laboratory data packages will be verified and validated. Based on information used in the Area 3A/4A IRDP, it is anticipated that 15 tables, 50 figures and a data-summary appendix will be prepared for the Area 6 IRDP. The final 3-D model of uranium contamination is needed by the Title I/II design team to capture the extent of excavation.

TABLE 12  
 Quantities for Task 2, Subtask 3 –  
 General Area Data Reduction and Interpretation

Item	Quantity
Radiological Lab Reports to Verify and Validate	22 each
Technetium-99 Lab Reports to Verify and Validate	22 each
Metal Lab Reports to Verify and Validate	22 each
Organic Lab Reports to Verify and Validate	16 each
Data Tables	15 each
Figures	50 each
Data-Summary Appendix	1 each
Final 3-D Model of Uranium Contamination	1 each

1.5.2 G6112 - Title I/II Design

Title I/II Design includes development of the Integrated Remedial Design Package (IRDP) comprised of an Implementation Plan, Technical Specifications, and Excavation Drawings, along with other support plans necessary for agency review and approval prior to

remediation. There will be a total of four IRDPs produced due to schedule constraints with WPRAP (PBS-05) and the resulting excavation sequencing as presented in Scenario 6.

Area 6 Title I/II Design includes four fundamental tasks based on geographical area to be detailed subsequently below:

- Task 1: Solid Waste Landfill
- Task 2: Former Waste Pit Area
- Task 3: General Area
- Task 4: Former Production Area.

Title I/II design activities are guided by the use of the Engineering Functional Area procedures and the Project Execution Plan, along with requirements outlined in the Sitewide Excavation Plan and established design criteria.

The activities for each task can be further subdivided into the following subtasks:

- Subtask 1: Project Planning
- Subtask 2: Title I Design
- Subtask 3: Title II Design.

Major technical risks identified for this scope of work include:

- Redefinition of Remediation Area.
- Implementing a portion of the design.
- Separation of design into smaller packages (i.e. site preparation, excavation, interim restoration).
- Extended review length and approval or excessive number of review comments by DOE or OEPA/USPEA.
- Inadequate engineering discipline.
- Inadequate CADD or drafting experience.
- Inadequate bounding of contaminants above the FRL.

Contingencies for the above technical risks, in order of appearance, include:

- No redefining of Remediation Area after the issuance of this narrative.
- Reevaluate surface water drainage, traffic routes, excavation boundaries.

- Plan for construction drawings and technical specifications in terms of site preparation, excavation, interim restoration so that aspects of the design can be executed.
- ~~Active participation by~~ Involve DOE reviewers during the design development and ~~by request DOE to curb review times and comments by OEPA/USEPA.~~
- Teaming Partners or subcontractor expertise.
- Teaming Partners or subcontractor expertise.
- DCN excavations after CFC.

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Major charge number assumptions include:

- Each of the tasks will require a separate Integrated Remedial Design Package (IRDP) as required by the SEP.
- Engineering is self-performed by Fluor Fernald, Inc. Any additional engineering and CADD services will be obtained through teaming partners.
- Each IRDP will consider and include site preparation, excavation, control and management, and interim restoration. These four construction activities will not be separated in part or entirely as in Area 1 Phase II and Area 2 Phase I IRDPs.
- Consideration to "sector" boundaries was given but not strictly adhered to. Consideration to geographical locations, present and past operations, and contamination data was given priority.
- Remediation area is well-defined and utility isolation trenching is not warranted.
- When applicable by the subtask, three-dimensional modeling of at-and below-grade structures is completed prior to the beginning of Title II Design.
- When applicable by the subtask, three-dimensional modeling of the contamination is completed prior to the beginning of Title II Design.
- When applicable by the subtask, fly-over, photogrammetry, and digitizing to support surveying services will be subcontracted.
- Cultural Resource surveys have been completed or are not warranted within the Remediation area.
- Reproduction of work plans, construction drawings, technical specifications, and other support documents and deliverables will be accomplished on-site.
- Project Planning subtask deliverables are completed prior to Title I design.

- No significant scope changes result from the Title design review.
- R1-D-681 • No OEPA or USEPA review or approvals of Project Planning or Title I design deliverables or documents. ~~DOE review will occur in parallel with internal reviews.~~
- Field verification of topography, utilities, structures, drainage is necessary to ensure the state of existing conditions prior to Title I design.
- 90% and CFC construction drawings and technical specifications are organized similarly as in Area 3A/4A.
- R1-D-681 • Occasionally, DOE review of the 90% IRDP ~~will~~ may occur in parallel with the project internal review to recapture the schedule.
- DOE transmits any agency correspondence, including review comments, to the SDFP project manager within twenty-four (24) hours of receipt.
- OEPA and USEPA review only the 90% IRDP submittal.
- R1-D-558 • ~~100%~~ The final IRDP review will be conducted in a meeting format with internally and by DOE ~~occur via design review meeting and is limited~~ to concur that ensure 90% comments have been incorporated into the design package.

1) Task #1 – Solid Waste Landfill (SWL) Title I/II Design

1.1) Subtask #1 – SWL Project Planning

1.1)1 Plan/Scope

Project planning is the critical initial step in developing the Title I/II design for excavating soil and at- and below-grade structures. Guidance documents must be prepared by both projectized and matrixed personnel and an extensive review of the site reference drawings must be conducted to compile the needed information on at- and below-grade structures and utilities. The compiled drawing packages will be used to prepare the 3-D computer models of at- and below-grade structures, which are needed to design the extent of excavation. Prior to initiating Title I design work, an alignment meeting will be held with all project and matrixed personnel to ensure that assignments are understood and integration channels have been established.

R1-D-410 Specific activities for this scope of work includes (capital letters are tied to Table 13):

- A. Technical Reference Drawing compilation and indexing.
- B. Technical Reference Drawing package.
- C. NLO Construction Project Files (CP) review and report.
- D. Request for Engineering Services for matrix support.
- E. Walkdown of Remediation Area.
- F. Auditable Safety Record (ASR) preparation.

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- G. Functional Design Requirements (FDR) preparation.
- H. ARARs/TBC table preparation.
- I. Project Execution Plan (PEP) preparation.
- J. Project Alignment meetings.
- K. Occupational and Environmental ALARAs (including PEAPR).
- L. Engineering administration including self-assessments; responding to surveillances or non-conformance reports; meetings with project staff, DOE, regulatory agencies; tracking of budget vs actual costs; tracking of schedules; safety workgroup and walkdowns; submission of records to Procedure and Document Distribution Service.

This scope of work will be self-performed by Fluor Fernald, Inc. It will be managed and performed mainly by projectized staff covered in Control Account GPM1. Matrixed and centralized personnel will also be utilized.

*Matrixed Personnel*

Engineering Services will be used to retrieve any drawing that could serve as the input information for the 3-D CADD models. Environmental, Safety, Health and Quality Integration, Radiological Protection Operations, and Quality Control Operations will perform reviews on the Auditable Safety Record (ASR), Functional Design Requirements (FDR), and Project Execution Plan (PEP), and they will participate in the project alignment meetings. Project Controls will provide cost and schedule support. Personnel from these organizations will use charge number G6112 with the exception of the SDFP matrix support (ESH&Q rep., QC rep, Rad rep) which will be budgeted under PBS-06 control account GPM1.

*Centralized Personnel*

Environmental Compliance will assist in developing the PEAPR, ARARs/TBC table and Environmental ALARA, ensure the above documents are consistent with their deliverables and participate in the alignment meetings. Environmental, Safety, Health and Quality Integration will perform the safety assessment and prepare the Auditable Safety Record (ASR) for the project team to review. Procedure and Document Distribution Services will assign document numbers, maintain the project file and distribute controlled documents. They will also be used when procedural matters need attention. Information Management will provide the project with computer hardware and software needs. Waste Acceptance Organization will review the PEP and participate in the alignment meeting. Personnel from these organizations will use their functional area charge numbers.

*Projectized Personnel*

Project staff from the management, engineering and administrative disciplines will provide oversight and support services and prepare most of the text needed for the ASR, FDR and PEP. These personnel will charge their labor hours to PBS-06 control account GPM1. Management will be responsible for integrating all the needed functional areas, including Construction, into the ASR, FDR and PEP documents. Engineering will take the lead role in compiling the archived drawings needed to produce any of the 3-D CADD drawings and for research into the NLO CP files. Engineering will also take the lead in initializing and overseeing the work accomplished concerning the ARAR/TBC table, Occupational ALARA, Environmental ALARA, and PEAPR reviews to ensure all personnel involved are working

consistently on the same scope of work. Prior to initiating the Title I design activities, an alignment meeting will be held to discuss schedule and technical details with all principal project team members and functional area groups that support the design effort. Project Controls will provide cost and schedule support based on the information supplied by the project manager.

Table 13 summarizes the projectized personnel managing and the projectized, matrixed, and some centralized personnel performing the scope of work:

TABLE 13  
 Manpower Requirements for Task 1, Subtask 1 –  
 Project Planning

Activities:

Code	Personnel P,C,M,S	A-C	D	E	F	G	H	I	J	K	L
ENGMGR	P		X	X	X	X		X	X	X	X
ENGCVL	P	X		X	X	X	X	X	X	X	X
ENGCVL	M	X		X	X	X	X		X		
PRJMGR	P			X					X		
CNSMRG	P			X				X	X		
CNSENG	P	X		X		X	X		X		
WSTENG	C			X		X	X	X	X	X	
QACENG	P			X		X	X	X	X	X	
INDHYG	P			X		X	X	X	X	X	
RADENG	P			X		X	X	X	X	X	
TPSREP	P							X			
DRFCAD	P							X			
DRFCAD	M							X			
ENPREP	C			X		X	X		X	X	
TPSREP	C			X	X				X		
ENSREP	P										
CLERKS	P,C				X	X	X	X	X	X	X

Note: P denotes projectized, C denotes centralized, M denotes matrixed, S denotes subcontracted.

### 1.1)2 Quantification

Table 14 summarizes the quantities and/or deliverables anticipated for this subtask. The assumed condition is the railroad spurs around the SWL will be in operation. The excavation limits will be designed to not undermine railroad tracks or interfere with rail operations. The scope will be to remove the contents of the SWL and excavate to FRL as practicable with any remaining excavation to be determined during the Title I/II Design of the general area. Per site procedures, project management and engineering will prepare the ASR, FDR, and PEP and facilitate alignments.

TABLE 14  
 Quantities for Task 1, Subtask 1 – Project Planning

Item	Quantity
Technical Reference Drawings and Index	1 each
Prelim. Qty. Take-off of At- and Below-Grade Structures	1 each
3-D Models of At- and Below-Grade Structures	0 each
NLO CP Files Review summary memo	1 each
Request for Engineering Services	1 each
Auditable Safety Record (ASR)	1 each
Functional Design Requirements (FDR)	1 each
ARARs/TBCs Table	1 each
Project Execution Plan (PEP)	1 each
Alignment Meetings	3 each
Occupational ALARA	1 each
Environmental ALARA	1 each
PEAPR	1 each

Historically, project planning is crucial to the safety and success of projects at the FEMP taking from 3 to 5 months utilizing 2 to 5 FTEs of projectized and matrixed labor. Because the SWL represents a small scope of work, the schedule in Section 2.0 and manpower sheets in Section 3.0 reflect the lower end of the ranges.

1.2) Subtask #2 – SWL Title I Design

1.2.1 Plan/Scope

Title I design includes activities that are necessary to satisfy requirements for the Integrated Remedial Design Package (i.e. Implementation Plan, Construction Drawings, Technical Specifications, and support documents – Design Criteria Package, Storm Water Management Plan, Erosion and Sediment Control Plan, Earthwork Calculations) for agency approval at 90% (Pre-final) completion and to satisfy DOE requirements.

The purpose of Title I design activities is to develop a preliminary or 30% design that will serve as the framework for Title II design and the subsequent issuance of the 90% IRDP to the agencies. Title I design activities, described in detail below, include the development of:

- Design Criteria Package
- Preliminary or 30% Design Package
- Surveying Support
- Engineering Administration

Design Criteria Package

As part of developing the technical baseline, the preparation and completion of the Design Criteria Package (DCP) based on the Functional Design Requirements (FDR) is important. Design Criteria will be developed and are the controlling criteria for design and therefore

execution of the scope. The ARAR/TBC tables will be finalized. Design Criteria will be developed for the following technical areas including:

- Site Preparation
- Storm Water Management
- Subsurface Water Management
- Erosion and Sediment Control
- Support Facilities and Utilities
- Excavation
- Hauling
- Dust Control
- Interim Restoration
- Systems/Control and Management.

#### Preliminary or 30% Design Package

As the Design Criteria Package is developed and the project team members are aligned with the requirements, the preliminary or 30% design package can commence which includes Construction Drawings, Technical Specifications, Engineering Design and Analysis Package, Preliminary Quantity Takeoffs, Workplans, and DOE Review:

#### Construction Drawings:

- List of Drawings: A list of anticipated Civil, Mechanical, Electrical drawings.
- Site Plan/Utility Plan/Existing Conditions showing existing pads, roads, buildings, fencing, poles, overhead utilities, surface features. In addition, it shows site preparation activities such as the location of radiological control and construction support areas, staging areas, laydown areas, special material transfer areas, air monitoring locations and any utility necessary to be installed to support excavation remediation.
- Surface Water Management and Erosion and Sediment Control Plan drawings showing surface water management and erosion control features such as run-on diversion ditches, culverts, silt fences, sediment traps or basins, level spreaders.
- Utility Removal Plan shows which utilities are to be removed and which, if any are to remain.
- Excavation Plans/Typical Excavation Cross-section shows the general location and depth of excavations based on the three-dimensional modeling and in particular in relation to site preparation information.
- Development of Excavation approaches which will illustrate the coordination of excavation monitoring (real time or physical sampling), surveying, and excavation with any defined hold points for any:

- Process piping removal above design excavation grade
  - Process piping removal below design excavation grade
  - Excavation of Above-WAC, RCRA, or special excavation areas
  - Excavation of Above-FRL soil to design excavation grade
- P&IDs/PFDs (if any) showing piping and instrumentation diagrams
  - Traffic Plan showing haul routes and traffic routes
  - Sequencing Plan (For Information Only) used to assist in planning the work that sequences site preparation, excavation, certification, interim restoration activities
  - Material Tracking Plan used to assist WAO in developing the PWID
  - Precertification Plan shows excavated area available for precertification/ certification with surface water run-on control features to control run-off from uncertified areas. Other items to be shown include access control fencing, site preparation features installed that can be removed.
  - Interim Restoration Plan shows any additional planned features and surface water drainage prior to Restoration Planning.

Technical Specifications:

Review of existing specifications for outline and format to develop the technical specification outline including scope. Outline may include such items as surveying, site preparation (i.e. fencing, clearing and grubbing) earthwork, backfilling, unsuitable fill, impacted material excavation, stormwater management and erosion control, presumed asbestos containing material, traffic control, aggregate surface, seeding, mechanical and electrical division specifications.

Engineering Design and Analysis Package:

- Preliminary Excavation Design
- Slope Stability Analysis, examples include if deep excavations exist near the railroad tracks or OSDF
- Subsurface Water evaluation
- Storm water management/hydrologic evaluation, examples include surface water or ditch flow, pumping systems, Paddys Run
- Preliminary support facility design
- P&IDs/PFD

Preliminary Quantity Takeoffs:

- Excavation of above-FRL soil
- Civil, Mechanical, Electrical components

Work Plans:

- Preliminary Implementation Plan
- Preliminary Storm Water Management Plan
- Preliminary Erosion and Sediment Control Plan
- Preliminary Systems/Control Management Plan

Internal Review and Response to Comments:

Internal review includes the review of the design criteria package, technical specifications, construction drawings, implementation plan, storm water management plan, systems/control management plan and response to comments.

DOE Review and Response to Comments:

DOE review includes the review of the design criteria package, technical specifications, construction drawings, implementation plan, storm water management plan, systems/control management plan and response to comments.

Surveying Support:

Surveying support includes collecting or verifying site existing conditions information including topographic information to be used for Title II design. This can include a flyover with digitizing support; field surveying and verification of existing drainage structures (i.e. basins, ditches, trenches, culverts, headwalls), utility structures (i.e. manholes, catch basins, sumps); affected section and upstream portion of Paddys Run for hydrologic evaluation in Title II, verification of final Waste Pit area excavation grades.

Engineering Administration:

Engineering Administration which includes self-assessments; responding to surveillances or non-conformances reports; meetings with project staff, DOE, regulatory agencies, or other project personnel for integration; tracking of budget versus actual costs; tracking schedule; integration with project controls, safety workgroup and walkdown participation, maintenance of project planning deliverables.

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Specific activities for this scope of work includes (capital letters are tied to Table 15):

- A. Preparation Design Criteria Package.
- B. Final ARAR/TBC Table.
- C. Preliminary Construction Drawings.
- D. Preliminary Technical Specifications..

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- E. Preliminary Engineering Design and Analysis Package.
- F. Preliminary Quantity Take-offs.
- G. Preliminary Implementation Plan
- H. Preliminary Storm Water Management Plan.
- I. Preliminary Erosion and Sediment Control Plan.
- J. Preliminary Systems/Control Management Plan.
- K. Internal Review of Items A-J and response to any comments.
- L. DOE Review of Items A-J and response to any comments.
- M. Surveying information.
- N. Maintenance of any Project Planning Deliverables.
- O. Engineering Administration, i.e. meeting minutes, reports, presentation material, status updates, submission of records to Procedure and Document Distribution Service.

This scope of work will be self-performed by Fluor Fernald, Inc. The scope of work will be managed and performed mainly by projectized staff covered in Control Account GPM1. Matrixed and centralized personnel will also be utilized.

*Subcontract Personnel*

Dedicated CADD support is required to generate drawings identified under this task. Specialized civil engineering is required to generate the Engineering Design and Analysis Package.

*Matrixed Personnel*

Engineering Services will be used to develop the mechanical and electrical portions of the DCP and the preliminary design package including the Systems/Control Management Plan. The lead civil engineer will be responsible for integrating all the needed functional areas into the drawings, technical specifications, and plans. The lead civil engineer will take the lead role in developing the technical specifications, drawings and SWECP. CADD services will assist in producing drawings for the preliminary design package. Environmental, Safety, Health and Quality Integration, Radiological Protection Operations, and Quality Control Operations will perform design reviews. Project Controls will provide cost and schedule support. Personnel from these organizations will use charge number G6112 with the exception of the SDFP matrix support (ESH&Q rep., QC rep, Rad rep) which will be budgeted under PBS-06 control account GPM1

*Centralized Personnel*

Environmental Compliance will assist in developing the preliminary design and ensure compliance with the PEAPR, ARARs/TBC table and Environmental ALARA. Procedure and Document Distribution Services will assign document numbers, maintain the project file and distribute controlled documents. They will also be used when procedural matters need attention. Information Management will provide the project with computer hardware and software needs. The Waste Acceptance Organization will provide design reviews and assist in any waste disposition issues. Personnel from these organizations will use their functional area charge numbers.

*Projectized Personnel*

Project staff from the management, engineering, surveying, and administrative disciplines will provide oversight and support services and prepare most of the text needed for the DCP, technical specifications (civil), Implementation Plan (IP), Storm Water Management Plan, and Erosion and Sediment Control. These personnel will charge their labor hours to PBS-06 control account GPM1. The project engineer will prepare most of the IP and be responsible for integrating all the needed functional areas into the DCP, drawings, technical specifications, and plans. The project engineer will take the lead role in developing the DCP. The area project manager will ensure overall integration and provide status to the SDFP project manager. Prior to initiating Title II design activities, a final Title I meeting will be held to discuss schedule and technical details with all principal project team members and functional area groups that support the design effort.

Table 15 summarizes the projectized personnel managing and the projectized, matrixed, and some centralized personnel performing the scope of work:

TABLE 15  
 Manpower Requirements for Task 1, Subtask 2 - Title I Design

Activities:

Code	Personnel P,C,M,S	A	B	C-F	G	H,I	J	K	L	M	N	O
ENGMGR	P	X	X	X	X	X	X	X	X	X	X	X
ENGCVL	P	X	X	X	X	X	X	X	X	X	X	X
ENGCVL	M,S	X	X	X		X	X	X	X	X		X
ENGINR	M	X		X			X	X	X	X		X
ENGELE	M	X		X			X	X	X	X		X
DRFCAD	M,S			X		X		X	X			
PRJMGR	P							X				
CNSMRG	P							X				
CNSENG	P	X	X	X	X	X	X	X				
WSTENG	C	X		X	X	X		X				
QACENG	P	X		X	X	X		X				
INDHYG	P	X		X	X	X		X				
RADENG	P	X		X	X	X		X				
TPSREP	P	X	X		X	X		X				
DRFCAD	P			X	X	X	X					
ENPREP	C	X	X	X	X	X		X			X	
TPSREP	C	X		X	X			X				
ENSREP	P	X			X			X		X		
CLERKS	P,C	X	X	X	X	X	X	X	X	X	X	X

Note: P denotes projectized, C denotes centralized, M denotes matrixed, S denotes subcontracted.

1.2)2 Quantification

Table 16 summarizes the quantities and/or deliverables anticipated for this subtask. The basis for the estimated number of documents and drawings is the site engineering procedures and previous design work experienced in Area 1 and Area 2. Efforts were made to consider and to utilize established documents, plans, and technical specifications along with streamlining designs that were undertaken in the FY2000 in Area 2 Phase I (i.e. Radium Hot Spot IRDP and Carolina IRDP).

TABLE 16  
 Quantities for Task 1, Subtask 2 – Title I Design

Item	Quantity
Design Criteria Package (DCP)	1 each
Final ARAR/TBC Table	1 each
Preliminary Construction Drawings	16 each
Preliminary Technical Specifications	10 each
Preliminary Engineering Design and Analysis Package	1 each
Preliminary Quantity Takeoffs	1 each
Preliminary Implementation Plan	1 each
Preliminary Storm Water Management Plan	1 each
Preliminary Erosion and Sediment Control Plan	1 each
Preliminary Systems/Control Mgmt Plan	1 each
Internal Review and Response to Comments	1 each
DOE Review and Response to Comments	1 each

Historically, project planning is crucial to the safety and success of projects at the FEMP taking from 3 to 5 months utilizing 2 to 5 FTEs of projectized and matrixed labor. Because the SWL represents a small scope of work, the schedule in Section 2.0 and manpower sheets in Section 3.0 reflect the lower end of the ranges.

1.3) Subtask #3 – SWL Title II Design

1.3)1 Plan/Scope

Title II design includes activities that are necessary to satisfy requirements for the Integrated Remedial Design Package (i.e. Implementation Plan, Construction Drawings, Technical Specifications, and support documents – Design Criteria Package, Storm Water Management Plan, Erosion and Sediment Control Plan, Earthwork Calculations) for agency approval at 90% (Pre-final) completion and to satisfy DOE requirements.

The purpose of Title II design activities is to develop the technical baseline from the Title I design into Certified for Construction (CFC) drawings and specifications after the subsequent issuance of the Prefinal or 90% IRDP to the agencies for their review and approval.

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Specific activities for this scope of work includes (capital letters are tied to Table 17):

- A. 90% (Prefinal), 100% (Draft Final), and CFC Construction Drawings
- B. 90% (Prefinal), 100% (Draft Final), and CFC Technical Specifications
- C. 90% (Prefinal), 100% (Draft Final), and Final Implementation Plan
- D. 90% (Prefinal) and 100% (Final) Engineering Design and Analysis Package
- E. 90% (Prefinal) and 100% (Final) Quantity Take-offs of at- and below-grade debris and impacted soil
- F. 90% (Prefinal) and 100% (Final) Cost Estimates
- G. 90% (Prefinal) and 100% (Final) Storm Water Management Plan
- H. 90% (Prefinal) and 100% (Final) Erosion and Sediment Control Plan
- I. 90% (Prefinal) and 100% (Final) Systems/Control Management Plan
- J. Internal Review of Items A-I and response to any comments
- K. DOE Review of Items A-I and response to any comments.
- L. OEPA/USEPA Review of Items A-I and response to Agency comments to the IRDP.
- M. System, Structures, and Components List with associated Performance Grades
- N. Concurrence Letter from TRB accepting SSCs, and PGs.
- O. Labor Standards Review request.
- P. Surveying information
- Q. Maintenance of any Project Planning Deliverables
- R. Engineering Administration, i.e. meeting minutes, reports, presentation material, status updates, submission of records to Procedure and Document Distribution Service.

This scope of work will be self-performed by Fluor Fernald, Inc. The scope of work will be managed and performed mainly by projectized staff covered in Control Account GPM1. Subcontracted, matrixed, centralized personnel will also be utilized.

#### *Subcontract Personnel*

Dedicated CADD support is required to generate drawings identified under this task. Specialized civil engineering will be necessary to complete design analysis of slope stability, hydrologic modeling, etc.

#### *Matrixed Personnel*

Engineering Services will be used to develop the mechanical and electrical portions of the Title II design. The lead civil engineer will be responsible for integrating all the needed functional areas into the drawings, technical specifications, and plans. The lead civil engineer will take the lead role in developing the technical specifications, drawings and SWECP. CADD services will assist in producing drawings for the preliminary design package. Environmental, Safety, Health and Quality Integration, Radiological Protection Operations, and Quality Control Operations will perform design reviews. Project Controls will provide cost and schedule support. Personnel from these organizations will use charge number G6112 with the exception of the SDFP matrix support (ESH&Q rep., QC rep, Rad rep) which are budgeted under PBS-06 control account GPM1.

*Centralized Personnel*

Environmental Compliance will be consulted as necessary to ensure compliance with the PEAPR, ARARs/TBC table and Environmental ALARA. Procedure and Document Distribution Services will assign document numbers, maintain the project file and distribute controlled documents. They will also be used when procedural matters need attention. Information Management will provide the project with computer hardware and software needs. Waste Acceptance Organization will provide design reviews and assist in any waste disposition issues. Industrial Relations will participate in the Labor Standards Review of the scope of work. Personnel from these organizations will use their functional area charge numbers.

*Projectized Personnel*

Project staff from the management, engineering, surveying, and administrative disciplines will provide oversight and support services and prepare most of the Title II design package based on the Title I design including the technical specifications (civil), Implementation Plan (IP), Storm Water Management Plan, and Erosion and Sediment Control. These personnel will charge their labor hours to PBS-06 control account GPM1. The project engineer will prepare most of the IP and ensure compliance with the engineering functional area procedures including coordinating the performance grades for systems, structures, and components. Surveying support includes additional collecting and verification of site existing conditions that was unable to be retrieved during Title I design due to other project interferences. It also includes collecting of data after Title I review and conditions have been finalized. The area project manager will ensure overall integration and provide status to the SDFP project manager.

Table 17 summarizes the projectized personnel managing and the projectized, matrixed, and some centralized personnel performing the scope of work:

**TABLE 17**  
**Manpower Requirements for Task 1, Subtask 3 –**  
**SWL Title II Design**

**Activities:**

MPM Code	Personnel P,C,M,S	A-E	F	G-H	I	J-L	M	N	O	P	Q	R
ENGMGR	P	X	X	X	X	X	X	X	X	X	X	X
ENGCVL	P	X	X	X	X	X	X	X	X	X	X	X
ENGCVL	M,S	X	X	X	X	X	X			X		X
ENGINR	M	X				X	X			X		X
ENGELE	M	X				X	X			X		X
DRFCAD	M,S	X		X	X	X						
PRJMGR	P	X	X						X			
CNSMRG	P	X	X			X			X			
CNSENG	P	X		X	X	X			X			
WSTENG	C	X		X	X	X						
QACENG	P	X		X	X	X						
INDHYG	P	X		X	X	X						
RADENG	P	X		X	X	X						
TPSREP	P	X		X	X	X						
DRFCAD	P	X		X	X	X						
ENPREP	C	X		X	X	X		X			X	
TPSREP	C	X			X			X				
ENSREP	P	X			X			X		X		
CLERKS	P,C	X	X	X	X	X	X	X	X	X	X	X

Note: P denotes projectized, C denotes centralized, M denotes matrixed, S denotes subcontracted.

**1.3)2 Quantification**

Table 18 summarizes the quantities and/or deliverables anticipated for this subtask. The basis for the estimated number of documents and drawings is the site engineering procedures and previous design work experienced in Area 1, Area 2, and Area 3A/4A IRDPs. Efforts were made to consider and to utilize established documents, plans, and technical specifications.

TABLE 18  
 Quantities for Task 1, Subtask 3 – SWL Title II Design

Item	Quantity
SSC List with Performance Grading	1 each
Presentation to the Technical Review Board	1 each
Labor Standard Review request	1 each
90% Construction Drawings	19 each
90% Technical Specifications	16 each
90% Implementation Plan	1 each
90% Engineering Design and Analysis Package	1 each
90% Quantity Takeoffs	1 each
90% Cost Estimate	1 each
90% Storm Water Management Plan (SWMP)	1 each
90% Erosion and Sediment Control Plan (ESCP)	1 each
90% Systems/Control Mgmt Plan (S/CMP)	1 each
90% Internal and DOE Response to Comments	1 each
OEPA/USEPA 90% Construction Drawings	19 each
OEPA/USEPA 90% Technical Specifications	16 each
OEPA/USEPA 90% Implementation Plan	1 each
OEPA/USEPA 90% SWMP, ESCP, S/CMP	1 each
OEPA/USEPA 90% Response to Comments	1 each
100% Construction Drawings	19 each
100% Technical Specifications	16 each
100% Implementation Plan	1 each
100% Engineering Design and Analysis Pkge.	1 each
100% Quantity Takeoffs	1 each
100% Cost Estimate	1 each
100% Storm Water Management Plan (SWMP)	1 each
100% Erosion and Sediment Control Plan (ESCP)	1 each
100% Systems/Control Mgmt Plan (S/CMP)	1 each
100% Internal and DOE Response to Comments	1 each
CFC Construction Drawings	19 each
CFC Technical Specifications	16 each
Final Implementation Plan	1 each
Final Cost Estimate	1 each
Final Storm Water Management Plan	1 each
Final Erosion and Sediment Control Plan	1 each
Final Systems/Control Mgmt Plan	1 each

Historically, project planning is crucial to the safety and success of projects at the FEMP taking from 3 to 5 months utilizing 2 to 5 FTEs of projectized and matrixed labor. Because the SWL represents a small scope of work, the schedule in Section 2.0 and manpower sheets in Section 3.0 reflect the lower end of the ranges.

The following details the quantities for each construction drawing listed above. Construction drawings will contain detailed information, coordinates, grading contours, general and keyed notes and include the following:

(1 Total) Title Sheet, Drawing Index, Legend and General Notes.

(1 Total) Master Plan 1" = 200'

Description: Shows Construction Limits, Dust Control Limits, Lists Exist. Foundations, Pads, Stockpiles, etc., by Number and Description.

(2 Total) Existing Conditions 1" = 60'

Description: Shows existing radiological boundaries, monitoring wells, roads.

(2 Total) Site Preparation 1" = 60'

Description: Shows Construction/Radiological boundary fencing locations; radiological and excavation loadout buffer areas, monitoring wells to be protected, limits of clearing and grubbing activities, special material transfer areas, radiological trailer and construction trailer locations, air monitoring locations, utility construction (telephone, electric, water, sewer, fire system, computer) for trailers, construction laydown areas, sea-land storage areas, additional material storage areas, worker and visitor parking areas, yard lighting (if necessary), pole and transformer locations, equipment refueling areas, interim stockpile locations,.

(2 Total) Traffic Plan 1" = 100' Description: Shows traffic routes from areas of excavations to and from the OSDF, equipment refueling areas, construction staging areas.

(4 Total) Surface Water Management and Erosion Control Plan 1" = 30'

Description: Shows additional drainage features, culverts, silt fence, sediment traps or basins or other stormwater structures that are needed for surface water mgmt and erosion and sediment control to be installed after site preparation, but prior to excavation, including AWAC, RCRA, special excavations and Below-WAC excavations. Delineates extent of excavation for priority excavations (AWAC, RCRA, special excavations).

(1 Total) Grading Plan 1" = 30'

Description: Shows design excavation elevations for Below-WAC excavations.

(1 Total) Cross Sections 1" = 30' Horizontal, 1" = 5' Vertical

Description: Shows cross sections delineated in Grading Plans for final design excavation. Cross sections show pre-excavation topography, excavation design elevation, GMA surface, underground utilities, foundations, locations for GMA protection, sand lenses, perched water, coarse-grain unit, and soil stratigraphy.

(1 Total) Civil Details Sheet 1 of 3

Reserved for details as in:

- Typical Construction Entrance Detail
- Special Materials Transfer Area (SMTA) Detail
- Silt Fence Detail
- Temporary Diversion Detail
- Erosion Blanket Lined Ditch Detail
- Dumped Rock Fill Lined Ditch Detail

Typical Haul Road Detail  
General and Keyed Notes

(1 Total) Civil Details Sheet 2 of 3  
Reserved for details as in:

Traffic Control Gate Detail  
GMA Protection Bench Detail  
Construction/Radiological Control Fence Detail  
General and Keyed Notes

(2 Total) Miscellaneous Details  
Reserved for and electrical or mechanical details, such as typical pole detail, typical transformer detail, wiring diagrams, pump and control panel locations, etc. Electrical and Mechanical Plan will be combined with the above plan sheets

(1 Total) Material Tracking Plan 1" = 100'  
Description: Illustrates the Material Tracking Locations (MTL) for WAO and Tabelizes the MTL, Waste Type, Disposition, and comments each MTL

The following details the quantities for each technical specification listed above. Technical Specifications describes the scope, submittals, products, and execution of the following:

Review of the existing OSDF specifications for applicability including:

Surveying (Section 02050)

Specification establishes survey benchmarks; set limits of construction activities; verifies existing conditions; establishes notekeeping and redlines/asbuilts.

Site Preparation (Section 02100)

Specification describes installation/relocation of construction and radiological fencing; protection of existing monitoring wells and survey benchmarks; clearing, grubbing, woodchipping, and stockpiling.

Earthwork (Section 02206)

Specification applies to non-remediation excavation for topsoil excavation and stockpiling, general excavation and stockpiling; trenching, backfilling, compacting for support utilities.

Dust Control (Section 02210, 02205, 02206)

Description of the requirements for dust control to meet site requirements.

Aggregate Surface (Section 02506)

Specification describes the requirements for aggregate or reuse of existing site materials for roads.

**Storm Drain Piping/Utility (Section 02668)**

Specification describes the requirements for installation of culverts, telephone, electric, water, sewer, fire system, computer to support areas etc.

**Seeding (Section 02900)**

Specification describes the Natural Resource requirements for seed mix, seed be preparation, and application rates over disturbed areas.

Review of the existing or development of Excavation specifications including:

**Traffic Control (Section 02150)**

Specification describes hauling of material from source excavation areas to destination areas, i.e. OSDF, SP7, special material transfer area, stockpiles or other location.

**Impacted Material Excavation (Section 02205)**

Specification describes excavating; size reduction of structures, utilities, pads, foundations; segregation of debris, development and maintenance of stockpiles; loading, hauling, and unloading impacted material. Also includes supplemental excavations beyond the design surface; tracking of known and unknown utility removals; maintenance and fueling of equipment, dewatering excavations; protection of the Great Miami Aquifer during impacted material removal.

**Presumed Asbestos Containing Materials (Section 02210)**

Specification describes the handling, packaging, loading, hauling, and unloading of friable and non-friable asbestos containing material. Also includes the handling, packaging, loading, hauling, and unloading of specific asbestos containing materials such as:

- Pipes coated with thermal system insulation
- Electrical Cable insulated with ACM
- Fireproofing Tape in Electric Manholes
- Piping containing gasket material
- Pipe coated with mastic
- ACM embedded in concrete
- Buried ACM not associated with underground utilities.

**Erosion and Sediment Control (Section 02770)**

Specification describes the installation, maintenance, and removal of temporary erosion controls; placement of dumped rock fill, erosion control blankets, geotextiles, for ditches and erosion control areas; management of erosion and sediment control measures; control of surface water and mgmt of ponded water.

**Mechanical and Electrical Division**

Specifications for mechanical and electrical details, such as utility pole plan and installation, transformers, wiring diagrams, pump and control panel locations, etc., three specifications per division.

Preparation and completion of the Engineering Design and Analysis Package including the following:

- Excavation Design
- Slope Stability Analysis
- Subsurface Water evaluation
- Storm water management/hydrologic evaluation including potential impacts to Paddys Run
- Support Facility Design.

2) Task #2 - Former Waste Pit Area Title I/II Design

Same as Task 1 subtasks with the following exception: Construction Drawings will be 25.

3) Task #3 – General Area Title I/II Design

Same as Task 1 subtasks with the following exception: As-built Construction Drawings will be 35.

4) Task #4 – Former Production Area Title I/II Design

Same as Task 1 subtasks with the following exception: As-built Construction Drawings will be 35.

### 1.5.3 G6113 - Title III Design

Title III Design includes activities to monitor the quality of the technical baseline and design criteria as established in the IRDP. This monitoring is accomplished by the review and approval of construction plans and submittals prior to field activities. Additionally, the development and/or response to Requests for Clarification of Information (RCI) and Design Change Notices (DCNs) as field activities commence also ensures the technical baseline and design criteria are maintained or when necessary revised.

Area 6 Title III Design includes three fundamental tasks based on geographical areas to be detailed subsequently below:

- |         |                         |
|---------|-------------------------|
| Task 1: | Solid Waste Landfill    |
| Task 2: | Former Waste Pit Area   |
| Task 3: | General Area            |
| Task 4: | Former Production Area. |

Title III Design activities are guided by the use of the Engineering Functional Area procedures, Integrated Remedial Design Package, Project Execution Plan, along with any requirement outlined in the Sitewide Excavation Plan and established design criteria.

Major technical risks identified for this scope of work include extended review length and approval for DCNs or excessive number of review comments by DOE or OEPA/USEPA and extension of excavation schedule carries the extension of Title III Design FTEs.

Contingencies for the above technical risks, in order of appearance include a reduction in the number of DCNs by better Title I Designs and a shorter review and approval cycle for DCNs and also excavation schedules are to be maintained.

The Task activities and deliverables will be completed primarily by project staff from the management, engineering, surveying, construction and administrative disciplines, and these personnel will charge their labor hours to PBS-06 control account GPM1. Only matrixed and subcontracted labor, as identified in below, will use the charge account G6113. Detail on manpower loading needed to execute this scope of work is provided in Section 3.0. The charge account for G6113 will be closed out when the interim restoration of Area 6 is completed.

Major charge number assumptions are listed in Title I/II Design.

- 1) Task #1 – Solid Waste Landfill (SWL) Title III Design
- 1.1) Subtask #1 – SWL Excavation Support
- 1.1)1 Plan/Scope

Excavation support is necessary to monitor the technical baseline established during Title I/II Design during field execution (i.e. Site Preparation, Excavation, Control and Management, Interim Restoration). Field and design changes that develop during field execution must be documented and approved to maintain or change the technical baseline. They also ensure continued approval by DOE, the customer, and the OEPA/USEPA, the originating approval agencies.

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Specific activities for this scope of work includes (capital letters are tied to Table 20):

- A. Prepare, respond, and approve RCIs and DCNs.
- B. Facilitate RCI/DCN review and approval through the project and DOE and OEPA/DOE.
- C. Prepare Safety Basis Document Reviews (SBDRs) based on DCNs.
- D. Assist Construction in plan preparation.
- E. Review and approve material submittals and plans.
- F. Perform and document monthly progress surveys.
- G. Generate monthly excavation cross-sections and quantities.

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- H. Respond to and close out non-conformance reports (NCRs) or Event Discovery and Final Event Reports.
- I. Attend Construction progress meetings.
- J. Develop draft Excavation Summary Report.
- K. Engineering Administration including self-assessments; responding to surveillances; meetings with project staff, DOE, regulatory agencies; tracking of budget vs actual costs; tracking of schedule; safety workgroup and walkdowns; submission of records to Procedure and Document Distribution Service.

This scope of work will be self-performed by Fluor Fernald, Inc. It will be managed and performed mainly by projectized staff covered in Control Account GPM1. Matrixed and centralized personnel will also be utilized.

#### *Matrixed Personnel*

The mechanical and electrical engineering disciplines from Engineering Services will be used to respond to or develop any RCI/DCN affecting their area of expertise. The lead civil will be used likewise in the event that civil issues cannot be answered by projectized staff and for changes that impact the design. Environmental, Safety, Health, and Quality Integration, Radiological Protection Operations, and Quality Control Operations will perform plan and DCN reviews as needed. Project Controls will provide cost and schedule support. Personnel from these organizations will use charge number G6113 with the exception of the SDFP matrix support (ESH&Q rep., QC rep., Rad rep.) which are budgeted under PBS-06 control account GPM1.

#### *Centralized Personnel*

Environmental Compliance and Waste Acceptance Organization will be consulted as necessary to ensure compliance with the PEAPR, ARARs/TBC table and Environmental ALARA should a plan or RCI/DCN warrant such consultation. Procedure and Document Distribution Services will assign document numbers, RCI/DCN numbers, maintain the project file and distribute controlled documents. They will also be used when procedural matters need attention. Information Management will provide the project with computer hardware and software needs. Personnel from these organizations will use their functional area charge numbers.

#### *Projectized Personnel*

Project staff from management, engineering, surveying, and administrative disciplines will provide oversight and support services for the Title III design. Project staff from construction will provide oversight and management for all field activities and execution. These personnel will charge their labor hours to PBS-06 control account GPM1. Management will ensure that engineering, characterization, and construction, along with support services are working together and to provide any enhancements in the work process. The project engineer will ensure timely review and approval of plans and RCIs/DCNs by all support organizations. The project engineer will also develop the draft Excavation Summary Report.

Table 19 summarizes the projectized personnel managing and the projectized, matrixed, and some centralized personnel performing the scope of work:

TABLE 19  
 Manpower Requirements for Task 1, Subtask 1 –  
 SWL Excavation Support

Activities:

MPM Code	Personnel P,C,M,S	A	B	C	D,E	F,G	H	I	J	K
ENGMGR	P		X		X		X	X	X	X
ENGCVL	P	X	X	X	X	X	X	X	X	X
ENGCVL	M		X		X	X	X		X	X
ENGINR	M		X		X		X			
ENGELE	M		X		X		X			
DRFCAD	M		X		X	X				
PRJMGR	P		X							
CNSMRG	P		X						X	
CNSENG	P		X			X			X	
WSTENG	C		X						X	
QACENG	P		X				X		X	
INDHYG	P		X						X	
RADENG	P		X						X	
TPSREP	P		X							
DRFCAD	P		X						X	
ENPREP	C		X						X	
TPSREP	C		X						X	
ENSREP	P		X	X		X			X	
CLERKS	P,C		X	X			X		X	X

Note: P denotes projectized, C denotes centralized, M denotes matrixed, S denotes subcontracted.

1.1)2 Quantification

Table 20 summarizes the quantities and/or deliverables anticipated for this subtask. Per the direction of senior management, 3 safety walkthroughs will be performed each month. The number of DCNs, RCIs, NCRs, and EDR/FERs are based on previous Title III Design in Area 1 and Area 2. Further, based on their complexity of scope, RCIs have been subdivided as simple and average, and DCNs have been subdivided as simple, average, and complex.

**TABLE 20**  
**Quantities for Task 1, Subtask 1 – SWL Excavation Support**

Item	Quantity
Safety Walkthroughs	9 each
Simple Request for Clarification of Information (RCI)	4 each
Average Request for Clarification of Information (RCI)	2 each
Simple Design Change Notice (DCN)	15 each
Average Design Change Notice (DCN)	7 each
Complex Design Change Notice (DCN)	0 each
Non-Conformance Report (NCR)	2 each
Event Discovery Report/Final Event Report (EDR/FER)	1 each
Review of Safe Work Plan	1 each
Review and approval of Storm Water Mgmt Plan	1 each
Review and approval of Erosion and Sediment Control Plan	1 each
Review and approval of Dust Control Plan	1 each
Review and approval of Management and Operation Plan	1 each
Review and approval of material submittals	25 each
Monthly excavation progress survey and cross-sections	2 each
Draft Excavation Summary Report	1 each

The number of FTEs of projectized and matrixed labor are based upon Area 1 and Area 2 Title III Designs and substituting Fluor Fernald, Inc FTEs, formally implemented by the A/E subcontract.

Typically, safety walkthroughs may take up to 3 hours to conduct and write-up, a simple RCI up to 4 hours to process, an average RCI up to 7 hours to process, a simple DCN up to 14 hours to process, an average DCN up to 36 hours to process, and a complex DCN involving many disciplines up to 114 hours to process. NCRs, EDRs/FERs can take up to 40 hours of project time from on-set through corrective action planning. Material submittal review and approval can range from 0.5 to 2 hours to review. Plan review can range from 2 to 8 hours to review per reviewer. Monthly excavation progress survey and cross sections can take up to 20 hours to survey in the field, 4 hours to reduce the data and transfer to CADD, and up to 12 hours for CADD to produce, review, and revise. The draft Excavation Summary Report can take up to 100 hours to develop including supporting information from all the supporting functional areas.

1.2) Subtask #2 – SWL As-Builts/Closure

1.2)1 Plan/Scope

After the completion of excavation activities, as-built drawings will be prepared based on redline information and surveys and a final excavation summary developed which will include project close-out information. Oversight and monitoring will continue for dust control, surface water management, sediment and erosion controls, and interim restoration as a Title III activity should RCIs/DCNs be necessary while Area 6 awaits certification.

The actual implementation and maintenance for these items is budgeted in Charge No. G6114.

Specific activities for this scope of work include (capital letters are tied to Table 21):

R1-  
D-  
410

- A. Complete the As-Built Drawings and Specifications.
- B. Prepare the final Excavation Summary Report.
- C. Control and Management of dust, surface water management, sediment and erosion controls.
- D. Interim restoration.
- E. Engineering Administration including self-assessments; responding to surveillances; meetings with project staff, DOE, regulatory agencies; tracking of budget vs actual costs; tracking of schedule; safety workgroup and walkdowns; submission of records to Procedure and Document Distribution Service.

This scope of work will be self-performed by Fluor Fernald, Inc. It will be managed and performed mainly by projectized staff covered in Control Account GPM1. Matrixed and centralized personnel will also be utilized.

*Matrixed Personnel*

The mechanical and electrical engineering disciplines from Engineering Services will as-built drawings and specifications in their area of expertise. The lead civil will be used likewise do the same. Environmental, Safety, Health, and Quality Integration, Radiological Protection Operations, and Quality Control Operations will assist in collecting data for the Excavation Summary Report and perform reviews as needed. Project Controls will provide cost and schedule support. Personnel from these organizations will use charge number G61,13 with the exception of the SDFP matrix support (ESH&Q rep., QC rep., Rad rep.) which are budgeted under PBS-06 control account GPM1.

*Centralized Personnel*

Environmental Compliance and Waste Acceptance Organization will assist in compiling the data for the Excavation Summary Report and perform reviews as needed. Procedure and Document Distribution Services will assign document numbers, maintain the project file and distribute controlled documents. They will also be used when procedural matters need attention. Information Management will provide the project with computer hardware and software needs. Personnel from these organizations will use their functional area charge numbers.

*Projectized Personnel*

Project staff from management, engineering, surveying, and administrative disciplines will provide oversight and support services for the Title III design. These personnel will charge their labor hours to PBS-06 control account GPM1. The project engineer will ensure timely

review and approval of the as-builts and the Excavation Summary Report by all support organizations.

Table 21 summarizes the projectized personnel managing and the projectized, matrixed, and some centralized personnel performing the scope of work:

TABLE 21  
 Manpower Requirements for Task 1, Subtask 2 –  
 SWL As-Builts/Closure

Activities:

MPM Code	Personnel P,C,M,S	A	B	C	D	E
ENGMGR	P	X	X	X	X	X
ENGCVL	P	X	X	X	X	X
ENGCVL	M	X	X			
ENGINR	M	X				
ENGELE	M	X				
DRFCAD	M	X				
PRJMGR	P					
CNSMRG	P		X			
CNSENG	P	X	X			
WSTENG	C	X	X			
QACENG	P	X	X			
INDHYG	P		X			
RADENG	P		X			
TPSREP	P	X				
DRFCAD	P		X			X
ENPREP	C		X			
TPSREP	C		X			
ENSREP	P		X			X
CLERKS	P,C	X	X			X

Note: P denotes projectized, C denotes centralized, M denotes matrixed, S denotes subcontracted.

1.2)2 Quantification

Table 22 summarizes the quantities and/or deliverables anticipated for this subtask:

TABLE 22  
 Quantities for Task 1, Subtask 2 –  
 SWL As-Builts/Closure

Item	Quantity
As-Built Construction Drawings	19 each
As-Built Technical Specifications	16 each
Excavation Summary Report	1 each

The number of as-built drawings and technical specifications were based on the number presented in the Title I/II Design task. Historically, as-builts and the Excavation Summary Report can take 2 to 3 months to develop and is usually dependent on the turnaround in receiving information from other project functional areas. During this timeframe, as-builts can take up to 1 to 2 FTEs while the Excavation Summary Report can take up to 0.5 FTEs.

2) Task #2 – Former Waste Pit Area Title III Design

2.1) Subtask #1 – Excavation Support

2.1)1 Plan/Scope

Same as Task 1, Subtask 1

2.1)2 Quantification

Same as Task 1, Subtask 1

2.2) Subtask #2 – As-Builts/Closure

2.2)1 Plan/Scope

Same as Task 1, Subtask 2

2.2)2 Quantification

Same as Task 1, Subtask 2 with the following exception: As-built Construction Drawings will be 25.

3) Task #3 – General Area Title III Design

3.1) Subtask #1 – Excavation Support

3.1)1 Plan/Scope

Same as Task 1, Subtask 1

3.1)2 Quantification

Same as Task 1, Subtask 1

3.2) Subtask #2 – As-Builts/Closure

3.2)1 Plan/Scope

Same as Task 1, Subtask 2

3.2)2 Quantification

Same as Task 1, Subtask 2 with the following exception: As-built Construction Drawings will be 35.

4) Task #4 – Former Production Area

4.1) Subtask #1 – Excavation Support

4.1)1 Plan/Scope

Same as Task 1, Subtask 1

4.1)2 Quantification

Same as Task 1, Subtask 1

4.2) Subtask #2 – As-Builts/Closure

4.2)1 Plan/Scope

Same as Task 1, Subtask 2

4.2)2 Quantification

Same as Task 1, Subtask 2 with the following exception: As-built Construction Drawings will be 35.

1.5.4 G6114 - Site Preparation/Excavation/Interim Restoration

After the construction drawings and specifications have been certified for construction (CFC), Prior to initiating the site preparation field activities and excavation, several work plans must be prepared or existing work plans revised to document the details of the means, methods, techniques, and execution of the scope. These details are beyond the scope typically covered in the construction drawings and technical specifications and may have not been detailed in the Implementation Plan of the IRDP. The work plans will be prepared in parallel to the Title II design activities to ensure that the engineering and construction disciplines are integrated early in the project.

After site preparation and excavation have concluded but as precertification and certification activities continue, control and management of the area must continue through completion of interim restoration. Control and management of excavations may

include dewatering and excavated slope maintenance, dust control, surface water management, and erosion and sediment. Interim restoration of excavations can commence after OEPA and USEPA approval of the Certification Report consisting primarily of seeding and regrading.

The Area 6 site preparation/excavation/interim restoration includes three fundamental tasks based on the sequence of excavation defined by Scenario 6 and to be detailed subsequently below:

- Task 1: Solid Waste Landfill
- Task 2: Former Waste Pit Area
- Task 3: General Area
- Task 4: Former Production Area.

The site preparation/excavation/interim restoration activities are guided by the Construction Functional Area procedures along with the Certified for Construction Drawings and Technical Specifications and approved construction plan submittals.

The activities for each task can be further subdivided into the following subtasks and can be combined for short duration subtasks:

- Subtask 1: Site Preparation
- Subtask 2: Excavation
- Subtask 3: Control and Management
- Subtask 4: Interim Restoration.

Major technical risks include the discovery of large volumes of perched water during the excavation where a well-point dewatering system is necessary. Contingencies include directed excavations earlier into potential perch water areas to determine yields.

The activities and deliverables discussed below will be completed primarily by project staff from the management, construction, surveying, engineering, waste disposition and administrative disciplines, and these personnel will charge their labor hours to PBS-06 control account GPM1. Only matrixed and subcontracted labor, as identified below, will use the charge account G6114. Details on manpower loading needed to execute this scope of work is provided in Section 3.0. The charge account for G6114 will be closed out with the completion of interim-restoration.

Specific charge number assumptions include:

- For general assumptions and exclusions, see section 1.2.
- Earned Value method for this charge number will be based on the quantities developed within the Quantification Sections.

- All site preparation and excavation work will be subcontracted. For this Remediation Area, site preparation, excavation, control and management, and interim restoration work will be presented as an Option in the contract that includes the above items with OSDF material placement and construction.
- Two shifts work daily (5 days/week, 10 hours/day) beginning in May and ending in September between 3<sup>rd</sup> Quarter of FY2006 and 1<sup>st</sup> Quarter of FY2008 including October in FY2008 to correspond to OSDF (PBS-03) placement schedule.
- No excavation work is scheduled during OSDF winter shut-down, i.e. the months of January, February, and March.
- Isolation trenching for underground utilities around the Remediation Area Perimeter is not warranted.
- Blasting or explosives is not permitted.
- Removal of Buffer Area maintenance structures installed under Areas 3A/4A and 3B/4B.
- Excavations shall generally: progress upgradient to downgradient, remove above-WAC and RCRA-hazardous areas prior to Below-WAC excavations, prevent surface water drainage into areas excavated to design grade or supplement excavations from Below-WAC excavations.
- Excavations will be 3' +/- 1' lifts to the design surface. Real time monitoring will be conducted and analyze prior to the excavation of the next lift.
- Excavation to a depth of 2' minimum within areas of the former Production Area.
- Prior to loading any soil, material must not contain free liquid per EPA SW 846 Method 9095.
- Slope Stability Requirements shall be: excavation slopes with depths less than 20' shall be performed per OSHA 29 CFR 1926.650 Subpart P.
- Temporary Excavation slopes with depths greater than 20' shall be no steeper than 1.5H:1V with the maximum height of 13 feet between 15' wide benches and certified by a Registered Professional Engineer per OSH 29 CFR 1926.650 Subpart P.
- Design slopes and slopes created by supplemental excavations shall be no steeper than 2H:1V with a maximum height of 13 feet between 15' wide benches.
- The following pipelines will be considered as AWAC: SN - Sanitary Sewers, CE - Contaminated Effluent, FT - Filtrate or Effluent, SL - Sump Liquor.

- **Vitrified Clay Pipe (VCP), PVC, and CPVC pipe can be crushed after visually inspection by WAO for determination of any residues and removed with excavated material as OSDF Category 1 material. Pipe that is visually inspected by WAO is cut so as to not crimped as with a shear attachment.**
- **Pipe that is 12" or greater in diameter must be split for OSDF disposition.**
- **All pipe must be cut in 10' or less in length for OSDF disposition.**
- **AWAC pipe that is 10" or greater in diameter must be split for off-site disposition.**
- **All AWAC pipe must be cut in 8' or less in length for off-site disposition.**
- **Bulking factor for pipe is 4 and for concrete is 1.5 per 2001 guidance by WAO.**
- **Stockpiles shall be constructed with maximum slopes of 3H:1V and a maximum height to base ration of 0.2.**
- **Equipment required to excavate, load, haul, and place Above-WAC and RCRA-hazardous soil and debris to that specific application are dedicated and restricted until decontaminated with pressure washers or equal until no visible material is present of exterior equipment surfaces, or in haul truck beds.**
- **Equipment is to be maintained within excavation area during periods of non-work unless decontaminated.**
- **Equipment is to be keep in Below-WAC areas to prevent compromising areas excavated to design grade.**
- **Placement of clay plug material over unsaturated sands and gravels of the Great Miami Aquifer is excluded from this scope.**
- **Volvo A30 articulating trucks or Caterpillar CATD300E with Best Available Technology or automatic covers employed whether bed is empty or full.**
- **Dust Control provided by existing above-ground 3" and 4" HDPE water line (or necessary extensions), water trucks, water wagons, hydroseeders, portable tanks, sprinklers.**
- **Pressure Washers or comparable to clean process residue or suspect process residue and soil from piping and debris to allow for placement in OSDF.**
- **Portable Wash Equipment to wash vehicle tires and vehicle exteriors as necessary.**
- **Equipment used to excavate, load, haul, and unload impacted material shall have enclosed cabs (barrier from outside air intrusion). Heating, air conditioning, ventilating of cab from the outside air must first pass through a HEPA.**

- Area is posted as a uranium contamination area with uranium release limits.
- Solid Waste Landfill has the additional posting as an Asbestos Area.
- Assumed depth of excavation from WPRAP excavated surface within the Waste Pit footprint to FRL is 1.5 feet over 17.28 acres.
- Only surface debris will be removed from Paddys Run East Diversion Embankment. It is assumed that the embankment soil meets FRL and that no debris is buried.
- Soil volumes listed are in banked cubic yards.
- Debris volumes listed are in in-place cubic yards.
- No unexpected cultural discoveries are encountered during site preparation, excavation, or interim restoration activities.

1) Task #1 – Solid Waste Landfill (SWL)

1.1) Subtask #1 – Site Preparation

1.1)1 Plan/Scope

The scope of work will be described as an option to the existing Remediation Area/OSDF contract. After evaluation of the subcontractor's proposal and award of the work, work plans must be prepared or existing plans revised and approved prior to initiating site preparation activities. Work under this task will be done as a contamination area with no respirators.

Electric will be obtained from the existing electric located just north of the SWL on the north side of the RR tracks. Dust control water will be extended from the existing above-ground water system located along the IMHR.

Specific activities for this scope of work include:

- Technical and cost evaluation of the proposal with cost estimate.
- Award of the scope.
- Submittal, review, and approval of revisions to existing subcontractor plans including Impacted Material Excavation Plan, Safe Work Plan, Stormwater/Erosion Control Plan, Dust Control Plan, Traffic Control Plan, Management and Operation Plan (for dust control, slope stability, pump maintenance after excavation until certification).
- Submittal, review, and approval of resource loaded construction schedule, submittal logs, material submittals, and detailed construction activity schedule.

- Preparation of work permits, radiation work permits, and penetration permits.
- Subcontractor procurement and mobilization of equipment and material, survey and establish site layout, work limits, excavation limits, verify existing conditions, identify existing utilities, and excavation boundaries for above-WAC and RCRA/HWMU/UST areas.
- Establish access controls with radiological and construction fence and signage.
- Establish radiation control point and change-out facilities.
- Establish the construction support areas: worker and visitor parking, laydown area for materials and equipment, refueling area, sealands for storage, portolets, and water coolers. Drinking water and showers will not be provided.
- Establish the work area: install the break/cool-down trailers, portolets, water coolers, special materials transfer area, dust control piping if needed, haul routes and air monitors.
- Connect electric, telephone, water and communication utilities into construction support area.
- Establish surface-water management controls consisting of silt fence. Plug existing 36" culvert with concrete and install sump pump and electric with auto controls with 1000' of 4" diameter SDR 11 HDPE piping to the paved gutter north of Waste Pit No. 5.
- Improve haul road from Impacted Material Haul Road to the SWL.
- Construction management activities including submitting project records and maintain copies in project file and project control activities.

The scope of work identified above will be executed using subcontracted, matrixed, centralized and projectized personnel. Distribution of the work, and the plan for executing the scope, is described for each division of personnel.

#### *Subcontracted Personnel*

The subcontractor construction management will prepare the proposal, prepare the submittals, procure the material and equipment, and establish the labor required to execute the scope of work. Fencing, access controls, laydown areas, and surface-water management structures will be installed and the special material transfer area will be prepared after all work plans have been approved. Subcontract costs will be charged to G6114.

#### *Matrixed Personnel*

Acquisitions/Prime Contract Administration will be used to develop RFPs and procure subcontractor services. Environmental, Safety, Health and Quality Integration, Quality

Control Operations, and Radiological Protection Operations will review and the procurement requisitions. Engineering Services will support the installation of utilities in support trailers. Personnel from these organizations will use charge number G6114.

*Centralized Personnel*

Document Control/Procedure Management will assign document numbers, maintain the project file and distribute controlled documents. The Construction Support Contractor will assist in placing the labor subcontract. Infrastructure Services will assist with the set-up and maintenance of the trailers and provide U/E support for penetration permits. Security/EM Services will provide access control and emergency response. Training will perform needed training for subcontractor personnel. Personnel from these organizations will use their functional area charge numbers.

*Projectized Personnel*

Project staff from the management, engineering, construction, survey and administrative disciplines will charge their labor hours to PBS-06 control account GPM1. Management and construction will work closely with the subcontracted labor force and FEMP labor force to ensure all activities are performed in a safe and timely manner. Activities will begin with the set-up of the support trailers and utility hook-ups to these trailers. Electric lines will be required for all trailers for heat, lights and the radiation-control station. Water and sewer for showers will be needed for the change-out trailer, as the support building will no longer be present. Bottled drinking water will be provided in all trailers and portable toilets will be set-up outside of the radiation-control trailer. Project Controls will provide cost and schedule support.

1.1)2 Quantification

Table 23 summarizes the quantities and/or deliverables anticipated for this subtask. The workplans, permits, and submittals are based on previous submittals by construction contractors. The quantities for fencing, signage, trailers, containers, water coolers, and portolets are based on previous construction work carried out at the site.

TABLE 23  
 Quantities for Subtask 1: Site Preparation

ITEM	QUANTITY
Proposal	1
Impacted Material Excavation Plan	1
Safe Work Plan	1
Stormwater/Erosion Control Plan	1
Dust Control Plan	1
Traffic Control Plan	1
Management and Operation Plan	1
Rad Work Permit, Work Permit, Penetration Permit	1
Submittal Log	1
Silt Fence, linear feet	1000
Replace/Establish Plastic Construction Fence and Signs, linear feet	1900
Stormwater Controls	
Sump pump with auto controls	1
4" Dai. SDR 11 HDPE piping, linear feet	1000
4" Dai. Ball valves, each	2
Electric to sump pump, linear feet	225
8" CMP sleeve under RR tracks, linear feet	10
Plug existing 36" Culvert with concrete, cy	5
Staging Area	
Aggregate, #304, (62 cy), tons	125
Geotextile underlayment, sy	2130
Dust control	
4" Dia, HDPE, SDR 11 Pipe w ball valves, LF	450
Electric Poles, each	4
Radiological Control Point/Change-Out Trailer/Break Trailer	1
Sealand Storage Containers	1
Water Coolers	1
Portolets	1

1.2) Subtask #2 – Excavation

1.2)1 Plan/Scope

Excavation activities will result in the removal of all above-FRL soil and at- and below-grade concrete, refuse, broken bottles, asbestos, construction debris, and other material that was disposed of in the SWL. Per the guidance developed in the SEP, the above-WAC areas will be removed first when they are encountered as delineated on the construction drawings or during real time scanning of every 3' +/- 1' lifts. Material meeting the OSDF WAC will be pushed to one side by of the SWL by bulldozers and stockpiled where it will be size reduced, if necessary, and loaded out over the radiological boundary by excavators. Articulating trucks with automatic tarps will then transport for placement to the OSDF.

Above-WAC material will be hauled to bulk staging area at Building 91C to await shipment by railcar or intermodal. (Shipment is budgeted under Off-site Waste Disposition). Prohibited materials are loaded into 2.5 cy containers and staged in the SMTA. (Container prepping, packaging, and shipping is budgeted under Off-site Waste Disposition. Specific activities include:

- Excavate, size reduce, load and haul impacted soil and debris to the OSDF or to the designated off-site staging area.
- Identify, excavate, load containers and stage special materials at the special materials transfer area.
- Perform construction management services: survey and track materials removed, create redlines, complete daily construction activity logs, respond to NCRs, prepare event discovery reports/final event reports, conduct safety briefings and walkdowns, and perform Root Cause Analysis, if needed.
- Perform seasonal shutdown and winterization: maintain surface water/erosion controls, perform dust control, complete equipment decontamination, remove water from excavations and seed/stabilize excavations and stockpiles, as required.
- Stockpile aggregate for reuse for parking areas at the relocated Southern Waste Unit trailer relocation described in the Former Waste Pits Task.
- Perform post-excavation activities: remove construction support area and work area features, remove temporary utility runs, remove all fencing and signage, perform equipment decontamination and establish the certification perimeter and access control points.
- Submit project records to ECDC and maintain copies in project file.
- Perform project management and control activities.

The scope of work identified above will be executed using subcontracted, matrixed, centralized and projectized personnel. Distribution of the work, and the plan for executing the scope, is described for each division of personnel.

#### *Subcontracted Personnel*

The majority of labor required for excavation activities will be hired from local union halls. Subcontract costs will be charged to G6114.

#### *Matrixed Personnel*

Acquisitions/Prime Contract Administration will be used to monitor subcontractor services. Environmental, Safety, Health and Quality Integration, Quality Control Operations, and Radiological Protection Operations will review DCNs, if necessary. Radiological Protection Operations will also maintain radiation permits, perform RWP briefings, and conduct radiation surveys of contaminated materials and equipment Environmental Compliance will

assist with dust monitoring, if needed. Waste Generator Services will prepare and move containers and package special materials for off-site transportation, if needed. Personnel from these organizations will use charge number G6114.

*Centralized Personnel*

Document Control/Procedure Management will assign document numbers, maintain the project file and distribute controlled documents. The Construction Support Contractor will assist in placing the labor subcontract. Infrastructure Services will maintain the trailers, provide porter services, transport VOC water to the AWWT, perform dust control, and maintain roads to OSDF and SP-7. Waste Acceptance Organization will review DCNs and perform waste manifestation activities. Security/EM Services will provide access control and emergency response. Property Management will receive and log vendor materials, control government inventory and track government-owned property. Training will perform needed training for subcontractor personnel. Personnel from these organizations will use their functional area charge numbers.

*Projectized Personnel*

Project staff from the management, engineering, construction, survey, real time and administrative disciplines will charge their labor hours to PBS-06 control account GPM1. Management, engineering, and construction will work closely with the subcontracted labor force and FEMP labor force to ensure all activities are performed in a safe and timely manner. Real time scans will be conducted over the contamination areas after each lift. Engineering and construction will prepare DCNs and obtain approval from the applicable functional areas. Survey crews will verify material quantities. Concrete pads and below-grade structures may be size-reduced for use as road-bed material in the OSDF. Piping will be removed and size-reduced to meet the OSDF WAC. Special materials, if found, will be loaded into containers provided by waste generator services and placed at the special material transfer area. Project Controls will provide cost and schedule support to the project manager.

1.2)2 Quantification

Table 24 summarizes the quantities and/or deliverables anticipated for this subtask. RTRAK, RSS and/or HPGe scans will be conducted after each excavation lift and this is estimated as approximately 6 lifts over 1 acre. The basis for the soil quantities is the SDFP spreadsheet *At- and Below-Grade Material Quantities*.

TABLE 24  
 Quantities for Subtask 2: Excavation

ITEM	QUANTITY
Soil, OSDF Cat 1, cubic yards	6760
Refuse, debris, OSDF Cat 4, cubic yards	15615
Above-WAC Soil/debris, cubic yards	100
Prohibited items, cubic yards	75
Number of containers for Prohibited items, each	30
Post-excavation activities, each	1
Decontaminate and Demobilize, each	1

1.3) Subtask #3 – Interim Restoration

1.3)1 Plan/Scope

Interim restoration for the SWL will consist of seeding only. The final interim restoration of the area will be covered in the General Area Interim Restoration scope. Seeding will occur after the last real time scan and the downposting of the area from a contamination area.

The scope of work identified above will be executed using subcontracted, matrixed, centralized and projectized personnel as described in the previous subtask. Distribution of the work, and the plan for executing the scope, is described for each division of personnel.

1.3)2 Quantification

Table 25 summarizes the quantities and/or deliverables anticipated for this subtask. The entire SWL and surrounding area will be seeded.

TABLE 25  
 Quantities for Subtask 3: Interim Restoration

ITEM	QUANTITY
Seeding, acres	1.5

1.4) Subtask #4 – Control and Management

1.4)1 Plan/Scope

Control and management activities apply to the maintenance of the area until certification is completed. The SWL will be certified when the surround General Area is certified. Because the SWL is surrounded by railroad tracks and in a depression the sump pump will remain in operation until the General Area Interim Restoration grading after certification takes place. Specific activities and deliverables include:

- Remove sediment from sump pump.
- Remove sediment from ditches and silt fence.
- Operation and maintenance of the sump by Aquifer Restoration (PBS-04).
- Maintain surface-water management and erosion control structures.
- Maintain fencing.
- Provide dust control, as needed.
- Provide regrading and reseeded, as needed.
- Submit project records, maintain copies in project file, construction management and project control activities.

The scope of work identified above will be executed using subcontracted, matrixed, centralized and projectized personnel. Distribution of the work, and the plan for executing the scope, is described for each division of personnel.

The scope of work identified above will be executed using subcontracted, matrixed, centralized and projectized personnel as described in the previous subtask. Distribution of the work, and the plan for executing the scope, is described for each division of personnel.

1.4)2 Quantification

Table 26 summarizes the quantities and/or deliverables anticipated for this subtask. Construction management will be responsible for the maintenance of the slopes (2:1) and removal of sediment in pump sumps. It is assumed that slope maintenance and sediment removal will occur at the beginning and end of the construction season.

TABLE 26  
 Quantities for Subtask 4: Control and Maintenance

ITEM	QUANTITY
Sediment Removal, biannual	2
Fence Maintenance, biannual	2
Slope Maintenance, biannual	2

2) Task #2 – Former Waste Pit Area

2.1) Subtask #1 – Site Preparation

2.1)1 Plan/Scope

The scope of work will be described as an option to the existing Remediation Area/OSDF contract. After evaluation of the subcontractor’s proposal and award of the work, work plans must be prepared or existing plans revised and approved prior to initiating site preparation activities. Work under this task will be done as a contamination area with no respirators.

Dust control water will be extended from the existing above-ground water system located along the IMHR and a new construction water well will be installed as the demands for

dust suppression water will increase. New construction water well will be installed north Waste Pit No. 5 in the certified area of A1PIII.

A sump pump with controls and piping will be installed at the southern end of the former Waste Pits to allow for stormwater transfer into structure 18N, the Waste Pit Area Stormwater Control Basin for subsequent treatment at the AWWT. The sump pump will be operational until the General Area is certified and drainage is facilitated towards Paddys Run.

The Southern Waste Units (SWU) support trailers, the double-wide radiological control trailer (T-139), support trailer (T-132), and double-wide construction management trailer (T-138) from the will be relocated from their temporary storage area at the Met tower and installed under this subtask. Aggregate stockpiled at the SWL will be used for the parking area. These facilities will serve both remediation activities in Area 6 and Area 7 and will be dismantled for disposal in the OSDF during Area 7.

Electric will be obtained from the existing electric located just north of the SWL on the north side of the railroad tracks. Electric will be necessary to supply power to the construction support trailers, new construction water well, former Waste Pits sump pump, and air monitors.

Specific activities for this scope of work include:

- Technical and cost evaluation of the proposal with cost estimate.
- Award of the scope.
- Submittal, review, and approval of revisions to existing subcontractor plans including Impacted Material Excavation Plan, Safe Work Plan, Stormwater/Erosion Control Plan, Dust Control Plan, Traffic Control Plan, Management and Operation Plan (for dust control, slope stability, pump maintenance after excavation until certification).
- Submittal, review, and approval of resource loaded construction schedule, submittal logs, material submittals, and detailed construction activity schedule.
- Preparation of work permits, radiation work permits, and penetration permits.
- Subcontractor procurement and mobilization of equipment and material.
- Survey and establish site layout, work limits, excavation limits, verify existing conditions.
- Establish access controls with radiological and construction fence and signage.
- Establish former SWU support trailers for Area 6 and 7 in Area 6.

- Establish the construction support areas: worker and visitor parking, laydown area for materials and equipment, refueling area, sealands for storage, portolets, and water coolers. Drinking water and showers will not be provided.
- Establish the work area: install the break/cool-down trailers, portolets, water coolers, special materials transfer area, haul routes and air monitors.
- Install dust control piping.
- Install and develop new construction water well.
- Connect electric, telephone, water and communication utilities into construction support area.
- Establish surface-water management controls consisting of silt fence.
- Construction management activities including submitting project records and maintain copies in project file and project control activities.

The scope of work identified above will be executed using subcontracted, matrixed, centralized and projectized personnel. Distribution of the work, and the plan for executing the scope, is described for each division of personnel.

#### *Subcontracted Personnel*

The subcontractor construction management will prepare the proposal, prepare the submittals, procure the material and equipment, and establish the labor required to execute the scope of work. Fencing, access controls, laydown areas, and surface-water management structures, dust control piping, new construction water well will be installed and the special material transfer area will be prepared after all work plans have been approved. Electric will be installed for centralized personnel from Infrastructure Services to hook-up to the construction support trailers. Subcontract costs will be charged to G6114.

#### *Matrixed Personnel*

Acquisitions/Prime Contract Administration will be used to develop RFPs and procure subcontractor services. Environmental, Safety, Health and Quality Integration, Quality Control Operations, and Radiological Protection Operations will review and the procurement requisitions. Engineering Services will support the installation of utilities in support trailers. Personnel from these organizations will use charge number G6114.

#### *Centralized Personnel*

Document Control/Procedure Management will assign document numbers, maintain the project file and distribute controlled documents. The Construction Support Contractor will assist in placing the labor subcontract. Infrastructure Services will relocate, set-up, and establish maintenance of the trailers and provide U/E support for penetration permits. Security/EM Services will provide access control and emergency response. Training will

perform needed training for subcontractor personnel. Personnel from these organizations will use their functional area charge numbers.

*Projectized Personnel*

Project staff from the management, engineering, construction, survey and administrative disciplines will charge their labor hours to PBS-06 control account GPM1. Management and construction will work closely with the subcontracted labor force and FEMP labor force to ensure all activities are performed in a safe and timely manner. Activities will begin with the set-up of the support trailers and utility hook-ups to these trailers. Electric lines will be required for all trailers for heat, lights and the radiation-control station. Water and sewer for showers will be not be installed for trailers. Bottled drinking water will be provided in all trailers and portable toilets will be set-up outside of the radiation-control trailer. Project Controls will provide cost and schedule support.

2.1)2 Quantification

Table 27 summarizes the quantities and/or deliverables anticipated for this subtask. The workplans, permits, and submittals are based on previous submittals by construction contractors. The quantities for fencing, signage, trailers, containers, water coolers, and porttolets are based on previous construction work carried out at the site.

TABLE 27  
 Quantities for Subtask 1: Site Preparation

ITEM	QUANTITY
Proposal	1
Impacted Material Excavation Plan	1
Safe Work Plan	1
Stormwater/Erosion Control Plan	1
Dust Control Plan	1
Traffic Control Plan	1
Management and Operation Plan	1
Rad Work Permit, Work Permit, Penetration Permit	1
Submittal Log	1
Silt Fence, linear feet	200
Replace/Establish Plastic Construction Fence and Signs, linear feet	4700
Stormwater Controls	
Sump pump with auto controls	1
4" Dia. SDR 11 HDPE piping, linear feet	100
4" Dia. Ball valves, each	2
Electric to sump pump, linear feet	200
Staging Area	
Aggregate, #304, (62 cy), tons	125
Geotextile underlayment, sy	2130
Construction Water Well	
10" Dia Casing, 180' Deep, 150 GPM, 80' TDH, 3 Bowls, 30 HP motor, each	1
Electric to Construction Water Well	
Dust control	
4" Dia, HDPE, SDR 11 Pipe w/ball valves, LF	2260
4" Dia, HDPE, SDR 11 Pipe w/ball valves, connection to existing dust control water line	620
Electric to Construction Water Well, linear feet	100
Sprinklers with Isolation valves every 100'	23
Relocation and set-up of Radiological Control Point (T-139)/Construction Management Trailer (T-138)/Support Trailer (T-132)	1
Sealand Storage Containers	1
Water Coolers	2
Portolets	2

2.2) Subtask #2 – Excavation

2.2)1 Plan/Scope

Excavation activities will result in the removal of all above-FRL soil within the former Waste Pit Area. No above-WAC areas or liner material should be encountered as addressed previously by WPRAP. Additionally, the area is assumed to downposted from a thorium contamination area to a uranium contamination area. Only one (1) lift is expected

to bulldozers and stockpiled where it will be loaded out over the radiological boundary by excavators. Articulating trucks with automatic tarps will then transport for placement to the OSDF.

- Excavate, load and haul impacted soil to the OSDF.
- Perform construction management services: survey and track materials removed, create redlines, complete daily construction activity logs, respond to NCRs, prepare event discovery reports/final event reports, conduct safety briefings and walkdowns, and perform Root Cause Analysis, if needed.
- Perform seasonal shutdown and winterization: maintain surface water/erosion controls, perform dust control, complete equipment decontamination, remove water from excavations and seed/stabilize excavations and stockpiles, as required.
- Perform post-excavation activities: remove temporary utility runs, remove all fencing and signage, perform equipment decontamination and establish the certification perimeter and access control points.
- Submit project records to ECDC and maintain copies in project file.
- Perform project management and control activities.

The scope of work identified above will be executed using subcontracted, matrixed, centralized and projectized personnel. Distribution of the work, and the plan for executing the scope, is described for each division of personnel.

#### *Subcontracted Personnel*

The majority of labor required for excavation activities will be hired from local union halls. Subcontract costs will be charged to G6114.

#### *Matrixed Personnel*

Acquisitions/Prime Contract Administration will be used to monitor subcontractor services. Environmental, Safety, Health and Quality Integration, Quality Control Operations, and Radiological Protection Operations will review DCNs, if necessary. Radiological Protection Operations will also maintain radiation permits, perform RWP briefings, and conduct radiation surveys of contaminated materials and equipment. Environmental Compliance will assist with dust monitoring, if needed. Waste Generator Services will prepare and move containers and package special materials for off-site transportation, if needed. Personnel from these organizations will use charge number G6114.

#### *Centralized Personnel*

Document Control/Procedure Management will assign document numbers, maintain the project file and distribute controlled documents. The Construction Support Contractor will assist in placing the labor subcontract. Infrastructure Services will maintain the trailers, provide porter services, transport VOC water to the AWWT, perform dust control, and maintain roads to OSDF and SP-7. Waste Acceptance Organization will review DCNs and

perform waste manifestation activities. Security/EM Services will provide access control and emergency response. Property Management will receive and log vendor materials, control government inventory and track government-owned property. Training will perform needed training for subcontractor personnel. Personnel from these organizations will use their functional area charge numbers.

*Projectized Personnel*

Project staff from the management, engineering, construction, survey, real time and administrative disciplines will charge their labor hours to PBS-06 control account GPM1. Management, engineering, and construction will work closely with the subcontracted labor force and FEMP labor force to ensure all activities are performed in a safe and timely manner. Real time scans will be conducted over the contamination areas after each lift. Engineering and construction will prepare DCNs and obtain approval from the applicable functional areas. Survey crews will verify material quantities. Special materials, if found, will be loaded into containers provided by waste generator services and placed at the special material transfer area. Project Controls will provide cost and schedule support to the project manager.

2.2)2 Quantification

Table 28 summarizes the quantities and/or deliverables anticipated for this subtask. RTRAK, RSS and/or HPGe scans will be conducted after each excavation lift and this is estimated as approximately 1 lifts will occur. The basis for the soil quantities is the SDFP spreadsheet *At- and Below-Grade Material Quantities*. Assumed depth of excavation from the WPRAP excavated surface within the Waste Pit footprint to FRL is 1.5 feet over 17.28 acres.

TABLE 28  
 Quantities for Subtask 2: Excavation

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ITEM	QUANTITY
Excavate, load, haul to OSDF, soil and soil-like material (Category 1), total cubic yards	83644 41822
Waste Pit No. 1, cy	5212
Waste Pit No. 2, cy	2592
Waste Pit No. 3, cy	13702
Waste Pit No. 4, cy	4736
Waste Pit No. 5, cy	9581
Waste Pit No. 6, cy	1923
Burn Pit, cy	2210
Clear Well, cy	1866
Post-excavation activities, each	1
Decontaminate and Demobilize, each	1

2.3) Subtask #3 – Control and Management

2.3)1 Plan/Scope

Control and management activities apply to the maintenance of the area until certification is completed. Specific activities and deliverables include.

- Remove sediment from sump pump.
- Remove sediment from ditches and silt fence.
- Operation and maintenance of the sump by Aquifer Restoration (PBS-04).
- Maintain surface-water management and erosion control structures.
- Maintain fencing.
- Provide dust control, as needed.
- Provide regrading and reseeding, as needed.
- Submit project records, maintain copies in project file, construction management and project control activities.

The scope of work identified above will be executed using subcontracted, matrixed, centralized and projectized personnel. Distribution of the work, and the plan for executing the scope, is described for each division of personnel.

The scope of work identified above will be executed using subcontracted, matrixed, centralized and projectized personnel as described in the previous subtask. Distribution of the work, and the plan for executing the scope, is described for each division of personnel in the previous control and management subtask.

2.3)2 Quantification

Table 29 summarizes the quantities and/or deliverables anticipated for this subtask. Construction management will be responsible for the maintenance of the slopes (2:1) and removal of sediment in pump sumps. It is assumed that slope maintenance and sediment removal will occur at the beginning and end of the construction season.

TABLE 29  
 Quantities for Subtask 3: Control and Management

ITEM	QUANTITY
Sediment Removal, biannual	2
Fence Maintenance, biannual	2
Slope Maintenance, biannual	2

## 2.4) Subtask #4 – Interim Restoration

### 2.4)1 Plan/Scope

Interim restoration occurs after the remediated area has been certified. The 2:1 slopes in the certified area will be graded to 5H:1V, using decontaminated equipment, and seeded. Specific activities include:

- Survey work limits and establish the access controls.
- Procure needed materials and equipment.
- Perform grading to reshape 2:1 slopes to 5:1 slopes.
- Seed 5:1 slopes.
- Submit project records to ECDC and maintain copies in project file.
- Perform construction management and project control activities.

All project records will be delivered to ECDC.

The scope of work identified above will be executed using subcontracted, matrixed, centralized and projectized personnel. Distribution of the work, and the plan for executing the scope, is described for each division of personnel.

#### *Subcontracted Personnel*

Labor required for the interim-restoration grading will be hired from local union halls. Job categories envisioned include foreman, laborer, and heavy-equipment operator. Subcontract costs will be charged to G6114.

#### *Matrixed Personnel*

Acquisitions/Prime Contract Administration will be used to monitor subcontractor services. Personnel from these organizations will use charge number G6114.

#### *Centralized Personnel*

Document Control/Procedure Management will assign document numbers, maintain the project file and distribute controlled documents. The Construction Support Contractor will assist in placing the labor subcontract. Security/EM Services will provide access control and emergency response. Property Management will receive and log vendor materials, control government inventory and track government-owned property. Training will perform needed training for subcontractor personnel. Personnel from these organizations will use their functional area charge numbers.

#### *Projectized Personnel*

Project staff from the management, engineering, construction, survey, and administrative disciplines will charge their labor hours to PBS-06 control account GPM1. Management, engineering and construction will work closely with the subcontracted labor force and FEMP labor force to ensure all activities are performed in a safe and timely manner. Project Controls will provide cost and schedule support.

2.4)2 Quantification

Table 30 summarizes the quantities and/or deliverables anticipated for this subtask. An estimate on the amount of soil that must be regraded for drainage is taken as ten (10) percent of the total soil excavated, which is the approximate percentage calculated for the Area 3A/4A design. The acreage requiring seed is estimated includes the former Waste Pit area and surroundings.

TABLE 30  
 Quantities for Subtask 4: Interim Restoration

ITEM	QUANTITY
Remove sump pump, piping, and electric, each	1
Soil to Regrade, cubic yards	8400
Acres to Seed	24.4

3) Task #3 – General Area

3.1) Subtask #1 – Site Preparation

3.1)1 Plan/Scope

The General Area is the surrounding the former Waste Pit Area of Area 6 and does not include the former Production Area. The scope of work will be described as an option to the existing Remediation Area/OSDF contract. After evaluation of the subcontractor's proposal and award of the work, work plans must be prepared or existing plans revised and approved prior to initiating site preparation activities. Work under this task will be done as a contamination area with no respirators.

Dust control water will be extended from the existing above-ground water system located along the IMHR.

No sump pump with controls and piping will be installed. Excavations that encounter perched water or storm water will pump using a construction pump and discharge into the Bio-Surge Lagoon or the Waste Pit Area Runoff Control Basin (18N) for subsequent treatment at the AWWT. However, perched water and stormwater collected within the excavation at the former Fire Training Facility, a HWMU, will be pumped by the subcontractor into a tanker truck supplied, operated, maintained, and budgeted for Aquifer Restoration (PBS-04).

The Southern Waste Units (SWU) support trailers, the double-wide radiological control trailer (T-139), support trailer (T-132), and double-wide construction management trailer (T-138) from will continue to be used. These facilities will serve both remediation activities in Area 6 and Area 7 and will be dismantled for disposal in the OSDF during Area 7.

Specific activities for this scope of work include:

- Technical and cost evaluation of the proposal with cost estimate.
- Award of the scope.
- Submittal, review, and approval of revisions to existing subcontractor plans including Impacted Material Excavation Plan, Safe Work Plan, Stormwater/Erosion Control Plan, Dust Control Plan, Traffic Control Plan, Management and Operation Plan (for dust control, slope stability, pump maintenance after excavation until certification).
- Submittal, review, and approval of resource loaded construction schedule, submittal logs, material submittals, and detailed construction activity schedule.
- Preparation of work permits, radiation work permits, and penetration permits.
- Subcontractor procurement and mobilization of equipment and material.
- Survey and establish site layout, work limits, excavation limits, verify existing conditions.
- Establish access controls with radiological and construction fence and signage.
- Maintain former SWU support trailers for Area 6 and 7 in Area 6.
- Establish the construction support areas: worker and visitor parking, laydown area for materials and equipment, refueling area, sealands for storage, portolets, and water coolers. Drinking water and showers will not be provided.
- Establish the work area: install the break/cool-down trailers, portolets, water coolers, special materials transfer area, haul routes and air monitors.
- Install dust control piping.
- Maintain new construction water well.
- Maintain electric, telephone, water and communication utilities into construction support area.
- Establish surface-water management controls consisting of silt fence.
- Construction management activities including submitting project records and maintain copies in project file and project control activities.

The scope of work identified above will be executed using subcontracted, matrixed, centralized and projectized personnel. Distribution of the work, and the plan for executing the scope, is described for each division of personnel.

*Subcontracted Personnel*

The subcontractor construction management will prepare the proposal, prepare the submittals, procure the material and equipment, and establish the labor required to execute the scope of work. Fencing, access controls, laydown areas, and surface-water management structures, dust control piping, will be installed and the special material transfer area will be prepared after all work plans have been approved. Subcontract costs will be charged to G6114.

*Matrixed Personnel*

Acquisitions/Prime Contract Administration will be used to develop RFPs and procure subcontractor services. Environmental, Safety, Health and Quality Integration, Quality Control Operations, and Radiological Protection Operations will review and the procurement requisitions. Engineering Services will support the installation of utilities in support trailers. Personnel from these organizations will use charge number G6114.

*Centralized Personnel*

Document Control/Procedure Management will assign document numbers, maintain the project file and distribute controlled documents. The Construction Support Contractor will assist in placing the labor subcontract. Infrastructure Services will relocate, set-up, and establish maintenance of the trailers and provide U/E support for penetration permits. Security/EM Services will provide access control and emergency response. Training will perform needed training for subcontractor personnel. Personnel from these organizations will use their functional area charge numbers.

*Projectized Personnel*

Project staff from the management, engineering, construction, survey and administrative disciplines will charge their labor hours to PBS-06 control account GPM1. Management and construction will work closely with the subcontracted labor force and FEMP labor force to ensure all activities are performed in a safe and timely manner. Bottled drinking water will be provided in all trailers and portable toilets will be set-up outside of the radiation-control trailer. Project Controls will provide cost and schedule support.

3.1)2 Quantification

Table 31 summarizes the quantities and/or deliverables anticipated for this subtask. The workplans, permits, and submittals are based on previous submittals by construction contractors. The quantities for fencing, signage, trailers, containers, water coolers, and portolets are based on previous construction work carried out at the site.

TABLE 31  
 Quantities for Subtask 1: Site Preparation

ITEM	QUANTITY
Proposal	1
Impacted Material Excavation Plan	1
Safe Work Plan	1
Stormwater/Erosion Control Plan	1
Dust Control Plan	1
Traffic Control Plan	1
Management and Operation Plan	1
Rad Work Permit, Work Permit, Penetration Permit	1
Submittal Log	1
Silt Fence, linear feet	1400
Replace/Establish Plastic Construction Fence and Signs, linear feet	10000
Construction Water Well	
Maintain well pump and casing, each	1
Dust control	
4" Dia, HDPE, SDR 11 Pipe w/ball valves, LF	2400
Sprinklers with Isolation valves every 100'	23
Maintain Radiological Control Point (T-139)/Construction Management Trailer (T-138)/Support Trailer (T-132)	1
Sealand Storage Containers	1
Water Coolers	2
Portolets	2

3.2) Subtask #2 – Excavation

3.2)1 Plan/Scope

Excavation activities will result in the removal of all above-FRL soil and at- and below-grade concrete and utilities. Per the guidance developed in the SEP, the above-WAC and RCRA contamination areas will be removed first to minimize cross-contamination. Concrete pads and foundations will be broken and removed using industry-standard cutting, crushing and loading equipment. Bulldozers and excavators will be used to remove the soil. Seasonal shutdown and post-excavation actions will also be performed under this task. Specific activities include:

- Size-reduce, excavate, load and haul at- and below-grade concrete, utilities, and debris to OSDF as Category 2.
- Size-reduce, excavate, load and haul at- and below-grade concrete, utilities, and debris that are above-WAC to the bulk staging area at Bldg 91C.
- Size-reduce, excavate, load in containers at- and below-grade concrete, utilities, and debris that are prohibited in containers (2.5 cy volume).

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- Excavate, load and haul impacted soil to the OSDF as Category 1.
- Excavate, load and haul impacted soil that is above-WAC to the bulk staging area at Bldg 91C.
- Excavate, load, haul and stockpile railroad ballast and railroad ties for reuse or disposal in the OSDF. Work will be performed as clean.
- Perform construction management services: survey and track materials removed, create redlines, complete daily construction activity logs, respond to NCRs, prepare event discovery reports/final event reports, conduct safety briefings and walkdowns, and perform Root Cause Analysis, if needed.
- Perform seasonal shutdown and winterization: maintain surface water/erosion controls, perform dust control, complete equipment decontamination, remove water from excavations and seed/stabilize excavations and stockpiles, as required.
- Perform post-excavation activities: remove temporary utility runs, remove all fencing and signage, perform equipment decontamination and establish the certification perimeter and access control points.
- Submit project records to ECDC and maintain copies in project file.
- Perform construction management and control activities.

Survey logs and material estimates, construction logs, NCR resolutions, safety briefings and walkdowns, and event reports will be delivered to the project manager. All project records will be delivered to ECDC.

The scope of work identified above will be executed using subcontracted, matrixed, centralized and projectized personnel. Distribution of the work, and the plan for executing the scope, is described for each division of personnel.

***Subcontracted Personnel***

The majority of labor required for excavation activities will be hired from local union halls. Subcontract costs will be charged to G6114.

***Matrixed Personnel***

Acquisitions/Prime Contract Administration will be used monitor subcontractor services. Environmental, Safety, Health and Quality Integration, Quality Control Operations, and Radiological Protection Operations will review DCNs, if necessary. Radiological Protection Operations will also maintain radiation permits, perform RWP briefings, and conduct radiation surveys of contaminated materials and equipment. Waste Generator Services will prepare and move containers and package special materials for off-site transportation, if needed. Personnel from these organizations will use charge number G6114.

### *Centralized Personnel*

Document Control/Procedure Management will assign document numbers, maintain the project file and distribute controlled documents. The Construction Support Contractor will assist in placing the labor subcontract. Infrastructure Services will maintain the trailers, provide porter services, transport perched or stormwater from the former Fire Training Facility to the AWWT. Waste Acceptance Organization will review DCNs and perform waste manifestation activities. Security/EM Services will provide access control and emergency response. Property Management will receive and log vendor materials, control government inventory and track government-owned property. Training will perform needed training for subcontractor personnel. Personnel from these organizations will use their functional area charge numbers.

### *Projectized Personnel*

Project staff from the management, engineering, construction, survey, real time and administrative disciplines will charge their labor hours to PBS-06 control account GPM1. Management, engineering, and construction will work closely with the subcontracted labor force and FEMP labor force to ensure all activities are performed in a safe and timely manner. Real time scans will be conducted over the contamination areas after each lift. Engineering and construction will prepare DCNs and obtain approval from the applicable functional areas. Survey crews will verify material quantities. Concrete pads and below-grade structures may be size-reduced for use as road-bed material in the OSDF. Piping will be removed and size-reduced to meet the OSDF WAC. Prohibited material when found, will be loaded into containers provided by waste generator services and placed at the special material transfer area. Project Controls will provide cost and schedule support to the project manager.

### 3.2)2 Quantification

Table 32 summarizes the quantities and/or deliverables anticipated for this subtask. RTRAK, RSS and/or HPGe scans will be conducted after each excavation lift only in areas of documented uranium. The basis for the soil quantities is the SDFP spreadsheet *At- and Below-Grade Material Quantities*. Estimates for concrete slabs/foundations and piping debris were obtained from the OU3 Estimate Quantities, site drawings, and site underground utility drawings shown in Figure 2. Miscellaneous debris is comprised of transformer pads, steps, sidewalks, catchbasins, manholes, fence, etc. Total piping volume assumed to be above-WAC are based on assumptions listed above. Based on past excavation history, the quantity of prohibited materials to be containerized is estimated to 0.

TABLE 32  
 Quantities for Subtask 2: Excavation

ITEM	QUANTITY
Excavate, load, and haul a portion of the railyard (railroad ballast and ties) to designated stockpile area, cy	3038
Clear 900'x100' vegetation at Paddys Run East Diversion Embankment and stockpile, acres	2.1
Excavate, load, haul to OSDF, soil and soil-like material (Category 1), former WPRAP processing Area, total cubic yards	163188
Excavate, load, haul to OSDF, soil and soil-like material (Category 1), Stockpiles at Former Fire Training Facility, total cubic yards	15
Excavate, segregate, load, haul to OSDF, debris (Category 2), Stockpiles at Former Fire Training Facility, total cubic yards	646
Excavate, load, haul to OSDF, soil and soil-like material (Category 1), former Fire Training Facility and Railyard Area, total cubic yards	38200
Excavate, load, haul to OSDF, soil and soil-like (Category 1) utility trench backfill remaining below the excavation grade, total cubic yards	20166
Excavate, load, haul to OSDF, soil and soil-like (Category 1) gravel and aggregate from roads remaining, total cubic yards	6340
Excavate, size-reduce, load, haul to OSDF, utility piping debris (Category 2) remaining below the excavation grade, total cubic yards	650
Excavate, segregate, load, haul to OSDF, surface debris (Category 2), East Paddys Run Diversion Embankment, total cubic yards	100
Excavate, size-reduce, load, haul to OSDF concrete slabs and foundations (Category 2), total cubic yards	5463
Pit 5 Sluice Gate (18F), cy	1
Clearwell Pump House (18G), cy	9
OU1 Remediation SWM Pond	586
Gas Cleaning Sys/Water Trmt Sys (91A)	948
Material Handling Bldg (91B)	3208
Railcar Prep. and Liner Storage (91D)	270
Maintenance Bldg (91E)	154
Warehouse (91F)	96
Truck Wash Pump House (91G)	19
Geolab (91H)	9
Locomotive Maintenance Bldg (24C)	163
Excavate, size-reduce, load, haul to OSDF miscellaneous concrete and debris (Category 2), total cubic yards	5664
Excavate, load, haul to bulk staging area, AWAC soil and soil-like utility trench backfill remaining below the excavation grade, total cubic yards	1606
Excavate, size reduce, load, haul to bulk staging area, AWAC utility piping debris remaining below the excavation grade, total cubic yards	50
RCRA Soil, cubic yards	0
Prohibited Materials, cubic yards	0
Post-excavation activities, each	1
Decontaminate and Demobilize, each	1

3.3) Subtask #3 – Control and Management

3.3)1 Plan/Scope

Control and management activities apply to the maintenance of the area until certification is completed. Specific activities and deliverables include.

- Remove sediment from sump pump.
- Remove sediment from ditches and silt fence.
- Operation and maintenance of the sump by Aquifer Restoration (PBS-04).
- Maintain surface-water management and erosion control structures.
- Maintain fencing.
- Provide dust control, as needed.
- Provide regrading and reseeding, as needed.
- Submit project records, maintain copies in project file, construction management and project control activities.

The scope of work identified above will be executed using subcontracted, matrixed, centralized and projectized personnel. Distribution of the work, and the plan for executing the scope, is described for each division of personnel.

The scope of work identified above will be executed using subcontracted, matrixed, centralized and projectized personnel as described in the previous subtask. Distribution of the work, and the plan for executing the scope, is described for each division of personnel in the previous control and management subtask.

3.3)2 Quantification

Table 33 summarizes the quantities and/or deliverables anticipated for this subtask. Construction management will be responsible for the maintenance of the slopes (2:1) and removal of sediment in pump sumps. It is assumed that slope maintenance and sediment removal will occur at the beginning and end of the construction season.

TABLE 33  
 Quantities for Subtask 3: Control and Management

ITEM	QUANTITY
Sediment Removal, biannual	2
Fence Maintenance, biannual	2
Slope Maintenance, biannual	2

### 3.4) Subtask #4 – Interim Restoration

#### 3.4)1 Plan/Scope

Interim restoration occurs after the remediated area has been certified. The 2:1 slopes in the certified area will be graded to 5H:1V, using decontaminated equipment, and seeded. Specific activities include:

- Survey work limits and establish the access controls.
- Procure needed materials and equipment.
- Perform grading to reshape 2:1 slopes to 5:1 slopes.
- Seed 5:1 slopes.
- Submit project records to ECDC and maintain copies in project file.
- Perform construction management and project control activities.

All project records will be delivered to ECDC.

The scope of work identified above will be executed using subcontracted, matrixed, centralized and projectized personnel. Distribution of the work, and the plan for executing the scope, is described for each division of personnel.

#### *Subcontracted Personnel*

Labor required for the interim-restoration grading will be hired from local union halls. Job categories envisioned include foreman, laborer, and heavy-equipment operator. Subcontract costs will be charged to G6114.

#### *Matrixed Personnel*

Acquisitions/Prime Contract Administration will be used to monitor subcontractor services. Personnel from these organizations will use charge number G6114.

#### *Centralized Personnel*

Document Control/Procedure Management will assign document numbers, maintain the project file and distribute controlled documents. The Construction Support Contractor will assist in placing the labor subcontract. Security/EM Services will provide access control and emergency response. Property Management will receive and log vendor materials, control government inventory and track government-owned property. Training will perform needed training for subcontractor personnel. Personnel from these organizations will use their functional area charge numbers.

#### *Projectized Personnel*

Project staff from the management, engineering, construction, survey, and administrative disciplines will charge their labor hours to PBS-06 control account GPM1. Management, engineering and construction will work closely with the subcontracted labor force and FEMP labor force to ensure all activities are performed in a safe and timely manner. Project Controls will provide cost and schedule support.

3.4)2 Quantification

Table 34 summarizes the quantities and/or deliverables anticipated for this subtask. An estimate on the amount of soil that must be regraded for drainage is taken as ten (10) percent of the total soil excavated, which is the approximate percentage calculated for the Area 3A/4A design. The acreage requiring seed is estimated includes the former Waste Pit area and surroundings.

TABLE 34  
 Quantities for Subtask 4: Interim Restoration

ITEM	QUANTITY
Soil to Regrade, cubic yards	23000
Acres to Seed	52.0

4) Task #4 – Former Production Area

4.1) Subtask #1 – Site Preparation

4.1)1 Plan/Scope

The Former Production Area is the surrounding the former Waste Pit Area of Area 6 and does not include the former Production Area. The scope of work will be described as an option to the existing Remediation Area/OSDF contract. After evaluation of the subcontractor's proposal and award of the work, work plans must be prepared or existing plans revised and approved prior to initiating site preparation activities. Work under this task will be done as a contamination area with no respirators.

Dust control water will be extended from the existing above-ground water system located along the IMHR.

No sump pump with controls and piping will be installed as part of stormwater management. Existing sump pumps installed under Area 3A/4A/3B will be in place and operating. This system is operated and maintained by Aquifer Restoration (PBS-04). Excavations that encounter perched water or storm water will remove water by using a construction pump and discharge into the nearest sump pump for subsequent conveyance and treatment at the AWWT.

The Southern Waste Units (SWU) support trailers, the double-wide radiological control trailer (T-139), support trailer (T-132), and double-wide construction management trailer (T-138) from will continue to be used. These facilities will serve both remediation activities in Area 6 and Area 7 and will be dismantled for disposal in the OSDF during Area 7.

Specific activities for this scope of work include:

- Technical and cost evaluation of the proposal with cost estimate.
- Award of the scope.
- Submittal, review, and approval of revisions to existing subcontractor plans including Impacted Material Excavation Plan, Safe Work Plan, Stormwater/Erosion Control Plan, Dust Control Plan, Traffic Control Plan, Management and Operation Plan (for dust control, slope stability, pump maintenance after excavation until certification).
- Submittal, review, and approval of resource loaded construction schedule, submittal logs, material submittals, and detailed construction activity schedule.
- Preparation of work permits, radiation work permits, and penetration permits.
- Subcontractor procurement and mobilization of equipment and material.
- Survey and establish site layout, work limits, excavation limits, verify existing conditions.
- Establish access controls with radiological and construction fence and signage.
- Maintain former SWU support trailers for Area 6 and 7 in Area 6.
- Establish the construction support areas: worker and visitor parking, laydown area for materials and equipment, refueling area, sealands for storage, portolets, and water coolers. Drinking water and showers will not be provided.
- Establish the work area: install the break/cool-down trailers, portolets, water coolers, special materials transfer area, haul routes and air monitors.
- Install dust control piping.
- Maintain new construction water well.
- Maintain electric, telephone, water and communication utilities into construction support area.
- Establish surface-water management controls consisting of silt fence.
- Construction management activities including submitting project records and maintain copies in project file and project control activities.

The scope of work identified above will be executed using subcontracted, matrixed, centralized and projectized personnel. Distribution of the work, and the plan for executing the scope, is described for each division of personnel.

*Subcontracted Personnel*

The subcontractor construction management will prepare the proposal, prepare the submittals, procure the material and equipment, and establish the labor required to execute the scope of work. Fencing, access controls, laydown areas, and surface-water management structures, dust control piping, will be installed and the special material transfer area will be prepared after all work plans have been approved. Subcontract costs will be charged to G6114.

*Matrixed Personnel*

Acquisitions/Prime Contract Administration will be used to develop RFPs and procure subcontractor services. Environmental, Safety, Health and Quality Integration, Quality Control Operations, and Radiological Protection Operations will review and the procurement requisitions. Engineering Services will support the installation of utilities in support trailers. Personnel from these organizations will use charge number G6114.

*Centralized Personnel*

Document Control/Procedure Management will assign document numbers, maintain the project file and distribute controlled documents. The Construction Support Contractor will assist in placing the labor subcontract. Infrastructure Services will relocate, set-up, and establish maintenance of the trailers and provide U/E support for penetration permits. Security/EM Services will provide access control and emergency response. Training will perform needed training for subcontractor personnel. Personnel from these organizations will use their functional area charge numbers.

*Projectized Personnel*

Project staff from the management, engineering, construction, survey and administrative disciplines will charge their labor hours to PBS-06 control account GPM1. Management and construction will work closely with the subcontracted labor force and FEMP labor force to ensure all activities are performed in a safe and timely manner. Bottled drinking water will be provided in all trailers and portable toilets will be set-up outside of the radiation-control trailer. Project Controls will provide cost and schedule support.

4.1)2 Quantification

Table 35 summarizes the quantities and/or deliverables anticipated for this subtask. The workplans, permits, and submittals are based on previous submittals by construction contractors. The quantities for fencing, signage, trailers, containers, water coolers, and portolets are based on previous construction work carried out at the site.

TABLE 35  
 Quantities for Subtask 1: Site Preparation

ITEM	QUANTITY
Proposal	1
Impacted Material Excavation Plan	1
Safe Work Plan	1
Stormwater/Erosion Control Plan	1
Dust Control Plan	1
Traffic Control Plan	1
Management and Operation Plan	1
Rad Work Permit, Work Permit, Penetration Permit	1
Submittal Log	1
Silt Fence, linear feet	200
Replace/Establish Plastic Construction Fence and Signs, linear feet	8600
Construction Water Well	
Maintain well pump and casing, each	1
Dust control	
4" Dia, HDPE, SDR 11 Pipe w/ball valves, LF	500
Sprinklers with Isolation valves every 100'	5
Maintain Radiological Control Point (T-139)/Construction Management Trailer (T-138)/Support Trailer (T-132)	1
Sealand Storage Containers	1
Water Coolers	2
Portolets	2

4.2) Subtask #2 – Excavation

4.2)1 Plan/Scope

Excavation activities will result in the removal of all above-FRL soil and at- and below-grade concrete and utilities. Per the guidance developed in the SEP, the above-WAC and RCRA contamination areas will be removed first to minimize cross-contamination. Concrete pads and foundations will be broken and removed using industry-standard cutting, crushing and loading equipment. Impacted material from the Area 3A/4A/3B isolation trench is assumed to be included in the deep excavations resulting from their respective Areas. Bulldozers and excavators will be used to remove the soil. Seasonal shutdown and post-excavation actions will also be performed under this task. Specific activities include:

- Size-reduce, excavate, load and haul at- and below-grade concrete, utilities, and debris to OSDF as Category 2.
- Size-reduce, excavate, load and haul at- and below-grade concrete, utilities, and debris that are above-WAC to the bulk staging area at Bldg 91C.

- Size-reduce, excavate, load in containers at- and below-grade concrete, utilities, and debris that are prohibited in containers (2.5 cy volume).
- Excavate, load and haul impacted soil to the OSDF as Category 1.
- Excavate, load and haul impacted soil that is above-WAC to the bulk staging area at Bldg 91C.
- Perform construction management services: survey and track materials removed, create redlines, complete daily construction activity logs, respond to NCRs, prepare event discovery reports/final event reports, conduct safety briefings and walkdowns, and perform Root Cause Analysis, if needed.
- Perform seasonal shutdown and winterization: maintain surface water/erosion controls, perform dust control, complete equipment decontamination, remove water from excavations and seed/stabilize excavations and stockpiles, as required.
- Perform post-excavation activities: remove temporary utility runs, remove all fencing and signage, perform equipment decontamination and establish the certification perimeter and access control points.
- Submit project records to ECDC and maintain copies in project file.
- Perform construction management and control activities.

Survey logs and material estimates, construction logs, NCR resolutions, safety briefings and walkdowns, and event reports will be delivered to the project manager. All project records will be delivered to ECDC.

The scope of work identified above will be executed using subcontracted, matrixed, centralized and projectized personnel. Distribution of the work, and the plan for executing the scope, is described for each division of personnel.

#### *Subcontracted Personnel*

The majority of labor required for excavation activities will be hired from local union halls. Subcontract costs will be charged to G6114

#### *Matrixed Personnel*

Acquisitions/Prime Contract Administration will be used monitor subcontractor services. Environmental, Safety, Health and Quality Integration, Quality Control Operations, and Radiological Protection Operations will review DCNs, if necessary. Radiological Protection Operations will also maintain radiation permits, perform RWP briefings, and conduct radiation surveys of contaminated materials and equipment. Waste Generator Services will prepare and move containers and package special materials for off-site transportation, if needed. Personnel from these organizations will use charge number G6114.

### *Centralized Personnel*

Document Control/Procedure Management will assign document numbers, maintain the project file and distribute controlled documents. The Construction Support Contractor will assist in placing the labor subcontract. Infrastructure Services will maintain the trailers, and provide porter services. Aquifer Restoration (PBS-04) will operate and maintain buffer area sump pumps until excavation and certification is. Waste Acceptance Organization will review DCNs and perform waste manifestation activities. Security/EM Services will provide access control and emergency response. Property Management will receive and log vendor materials, control government inventory and track government-owned property. Training will perform needed training for subcontractor personnel. Personnel from these organizations will use their functional area charge numbers.

### *Projectized Personnel*

Project staff from the management, engineering, construction, survey, real time and administrative disciplines will charge their labor hours to PBS-06 control account GPM1. Management, engineering, and construction will work closely with the subcontracted labor force and FEMP labor force to ensure all activities are performed in a safe and timely manner. Real time scans will be conducted over the contamination areas after each lift. Engineering and construction will prepare DCNs and obtain approval from the applicable functional areas. Survey crews will verify material quantities. Concrete pads and below-grade structures may be size-reduced for use as road-bed material in the OSDF. Piping will be removed and size-reduced to meet the OSDF WAC. Prohibited material when found, will be loaded into containers provided by waste generator services and placed at the special material transfer area. Project Controls will provide cost and schedule support to the project manager.

#### 4.2)2 Quantification

Table 36 summarizes the quantities and/or deliverables anticipated for this subtask. RTRAK, RSS and/or HPGe scans will be conducted after each excavation lift only in areas of documented uranium. The basis for the soil quantities is the SDFP spreadsheet *At- and Below-Grade Material Quantities*. Estimates for concrete slabs/foundations and piping debris were obtained from the OU3 Estimate Quantities, site drawings, and site underground utility drawings shown in Figure 2. Miscellaneous debris is comprised of transformer pads, steps, sidewalks, catchbasins, manholes, fence, etc. Total piping volume assumed to be above-WAC are based on assumptions listed above. Based on past excavation history, the quantity of prohibited materials to be containerized is estimated to 0.

TABLE 36  
 Quantities for Subtask 2: Excavation

ITEM	QUANTITY
Excavate, load, and haul railyard and railroad ballast and ties to designated stockpile area, cy	0
Excavate, load, haul to OSDF, soil and soil-like material (Category 1), total cubic yards	49773
Excavate, load, haul to OSDF organic material (Category 4), total cubic yards	0
Excavate, load, haul to OSDF, material (Category 5), total cubic yards	0
Excavate, load, haul to OSDF, soil and soil-like material (Category 1), from existing Stockpiles, total cubic yards	0
Excavate, segregate, load, haul to OSDF, debris (Category 2), from existing, total cubic yards	0
Excavate, load, haul to OSDF, soil and soil-like (Category 1) utility trench backfill remaining below the excavation grade, total cubic yards	8643
Excavate, load, haul to OSDF, soil and soil-like (Category 1) gravel and aggregate from roads remaining, total cubic yards	6340
Excavate, load, haul to OSDF, (Category 1) gravel from OMTA, total cubic yards	20973
Excavate, size-reduce, load, haul to OSDF, utility piping debris (Category 2) remaining below the excavation grade, total cubic yards	279
Excavate, size-reduce, load, haul to OSDF concrete slabs and foundations (Category 2), total cubic yards	3171
North Wheel Wash Facility (21C)	130
Substation Pad N78-1 (16M)	3
D&D Bldg (78)	282
Finished Products Warehouse (4A)	582
E. Elev. Potable Water Storage Tank (20D)	324
Plant 6 Warehouse (79)	519
Gas Meter House (22A)	10
KC-2 Warehouse (63)	901
Bldg 63 West Pad (74S)	2
Railroad Scale House (24A)	5
Old Admin. Bldg (57)	118
Quonset Hut #1 (60)	147
Quonset Hut #2 (61)	74
Quonset Hut #3 (62)	74
Excavate, size-reduce, load, haul to OSDF miscellaneous concrete and debris (Category 2), total cubic yards	5664
Excavate, load, haul to bulk staging area, AWAC soil and soil-like utility trench backfill remaining below the excavation grade, total cubic yards	688
Excavate, size reduce, load, haul to bulk staging area, AWAC utility piping debris remaining below the excavation grade, total cubic yards	50
RCRA Soil, cubic yards	0
Prohibited Materials, cubic yards	0
Post-excavation activities, each	1
Decontaminate and Demobilize, each	1

4.3) Subtask #3 – Control and Management

4.3)1 Plan/Scope

Control and management activities apply to the maintenance of the area until certification is completed. Specific activities and deliverables include.

- Remove sediment from sump pump.
- Remove sediment from ditches and silt fence.
- Operation and maintenance of the sump by Aquifer Restoration (PBS-04).
- Maintain surface-water management and erosion control structures.
- Maintain fencing.
- Provide dust control, as needed.
- Provide regrading and reseeding, as needed.
- Submit project records, maintain copies in project file, construction management and project control activities.

The scope of work identified above will be executed using subcontracted, matrixed, centralized and projectized personnel. Distribution of the work, and the plan for executing the scope, is described for each division of personnel.

The scope of work identified above will be executed using subcontracted, matrixed, centralized and projectized personnel as described in the previous subtask. Distribution of the work, and the plan for executing the scope, is described for each division of personnel in the previous control and management subtask.

4.3)2 Quantification

Table 37 summarizes the quantities and/or deliverables anticipated for this subtask. Construction management will be responsible for the maintenance of the slopes (2:1) and removal of sediment in pump sumps. It is assumed that slope maintenance and sediment removal will occur at the beginning and end of the construction season.

TABLE 37  
 Quantities for Subtask 3: Control and Management

ITEM	QUANTITY
Sediment Removal, biannual	2
Fence Maintenance, biannual	2
Slope Maintenance, biannual	2

#### 4.4) Subtask #4 – Interim Restoration

##### 4.4)1 Plan/Scope

Interim restoration occurs after the remediated area has been certified. The 2:1 slopes in the certified area will be graded to 5H:1V, using decontaminated equipment, and seeded. Specific activities include:

- Survey work limits and establish the access controls.
- Procure needed materials and equipment.
- Perform grading to reshape 2:1 slopes to 5:1 slopes.
- Seed 5:1 slopes.
- Removal of Area 3A/4A/3B buffer area sump pumps.
- Submit project records to ECDC and maintain copies in project file.
- Perform construction management and project control activities.

All project records will be delivered to ECDC.

The scope of work identified above will be executed using subcontracted, matrixed, centralized and projectized personnel. Distribution of the work, and the plan for executing the scope, is described for each division of personnel.

##### *Subcontracted Personnel*

Labor required for the interim-restoration grading will be hired from local union halls. Job categories envisioned include foreman, laborer, and heavy-equipment operator. Subcontract costs will be charged to G6114.

##### *Matrixed Personnel*

Acquisitions/Prime Contract Administration will be used to monitor subcontractor services. Personnel from these organizations will use charge number G6114.

##### *Centralized Personnel*

Document Control/Procedure Management will assign document numbers, maintain the project file and distribute controlled documents. The Construction Support Contractor will assist in placing the labor subcontract. Security/EM Services will provide access control and emergency response. Property Management will receive and log vendor materials, control government inventory and track government-owned property. Training will perform needed training for subcontractor personnel. Personnel from these organizations will use their functional area charge numbers.

##### *Projectized Personnel*

Project staff from the management, engineering, construction, survey, and administrative disciplines will charge their labor hours to PBS-06 control account GPM1. Management, engineering and construction will work closely with the subcontracted labor force and FEMP labor force to ensure all activities are performed in a safe and timely manner. Project Controls will provide cost and schedule support.

4.4)2 Quantification

Table 38 summarizes the quantities and/or deliverables anticipated for this subtask. An estimate on the amount of soil that must be regraded for drainage is taken as ten (10) percent of the total soil excavated, which is the approximate percentage calculated for the Area 3A/4A design. The acreage requiring seed is estimated.

TABLE 38  
 Quantities for Subtask 4: Interim Restoration

ITEM	QUANTITY
Remove 9 pumps, associated electric, and 1200 linear feet of hose, each	1
Soil to Regrade, cubic yards	5000
Acres to Seed	25.4

1.5.5 G6116 - Excavation Control/Certification

Excavation control will occur will occur in parallel to excavation activities. Where practical, precertification and certification activities will also commence during excavation.

The scope of the excavation control is described in an Excavation Control Project Specific Plan (PSP) that is reviewed and approved by OEPA and USEPA. Generally, each excavation lift, will be monitored for radium, thorium and uranium levels to ensure soil meets the OSDF WAC for uranium. These measurements are conducted using the sodium iodide (NaI) via RTRAK, Gator, or RSS. For steeper areas, the NaI mounted EMS, the high purity germanium (HPGe), or other non-intrusive static and mobile field instruments are used to record radiological emanations from the surface or near-surface sources.

Precertification PSPs, Certification PSPs, and Certification Design Letters (CDLs) will be prepared and submitted to OEPA and USEPA for review and approval during excavation to minimize the period between the end of excavation activities and the start of certification sampling. All precertification scans and certification sampling within a location of the remediated area will be completed as close as possible to the end of excavation activities so that this information can be included with the CDL. The end result of the certification sampling, analysis, and statistical evaluation of each area-specific contaminant of concern (ASCOC) and its corresponding FRL is the Certification Report (CR), that is submitted to OEPA and USEPA for review and approval. Upon approval, the area is considered certified.

Area 6 excavation control/certification includes three tasks to be detailed subsequently below:

- Task 1: Excavation Control
- Task 2: Precertification
- Task 3: Certification.

Major technical risks include: using off-site laboratory services for analysis of volatile and semi-volatile organic COCs, insufficient access to the excavation area to begin precertification and certification, and OEPA/USPEA review cycles for the PSPs, CDLs and Certification Report (CR). Contingencies that can mitigate the risks include: develop on-site laboratory services for organic COCs, expedite excavation in Area 3B and negotiate shorter EPA/OEPA review cycles.

Specific charge number assumptions include:

- For General Assumptions and Exclusions, see Section 1.2.
- Earned Value method for this charge number will be based on the quantities developed within the Quantification Sections.
- Internal comment responses are conducted informally through meetings, telephone, email, or written responses on the reviewer's commented document.
- DOE review and comment on documents will occur in parallel to the internal reviews.
- No geotechnical investigations or geotechnical testing to support excavation design or OSDF placement. Five (5) gallon bucket full of soil will be made available to OSDF (PBS-03) for geotechnical testing.
- If personnel protective equipment (PPE) is required during predesign characterization, at minimum, they will be required for entry during excavation control and precertification. PPE will not be required (other than possibly orange vest, hard hat, gloves) for entry during certification.
- Gamma spectroscopy is the analytical method for uranium, thorium, and radium analysis.
- A single sample will be collected for the analysis of metals and radiological contaminants (uranium, thorium, radium, technetium-99, and if needed, cesium-137) ~~will be combined into one container and analyzed by the on site laboratory.~~
- A separate sample will be collected for the analysis of Volatile Organic Compounds (VOCs) ~~will always be collected in a separate sample container and analyzed by the off site laboratory.~~
- A single sample will be collected for the analysis of other Organics (PCBs, pesticides, PAHs, herbicides, semi-volatile organic compounds (SVOCs), and dioxins) ~~will be collected in one container and analyzed by the off site laboratory.~~
- A separate sample will be collected for the analysis of exotic radiological contaminants (e.g., strontium-90) ~~will be collected in a separate container and analyzed by the off site laboratory.~~

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- Organic compounds and strontium-90 will be analyzed at off-site laboratories with a 14-day turnaround time.
- Two (2) container blanks per analytical suite will be submitted for each certification PSP. There are no container blanks needed for PAHs.
- Rinsates and container blanks will be analyzed for the same parameters as the soil samples, except for PAHs.
- Any resampling of Certification Units (CU) due to false positives or actual contamination will be accounted for by a separate risk factor and are not accounted for in the manpower estimates.
- Locations of twelve (12) samples will be surveyed, sampled, and analyzed for each CU with the exception of any CU that contained a Hazardous Waste Management Unit (HWMU) or Underground Storage Tank (UST) (described in Tables 2-1 and 2-2 in the SEP). In these cases, sixteen (16) samples will be surveyed, sampled, and analyzed with eight (8) of the sixteen (16) sample locations within the HWMU or UST footprint.
- Per the SEP, one duplicate sample will taken and analyzed per twelve (12) certification samples contained within a CU.
- Each non-utility trench CU is no greater than 62,500 square feet in area.
- If necessary, any CU that is sampled at depth (i.e. greater than six (6) inches from the surface), will be counted separately from the ground surface CU above it.
- Each utility trench CU (utility trenches that remain below the design excavation grade), a certification sample will be taken every fifty (50) linear feet along the utility trench.
- No archive samples are collected for a non-utility trench CU, except where noted. Four (4) archive samples are collected for a trench CU.
- No alpha-beta screen sample will be taken for certification samples.
- Each CU will constitute four (4) data releases or lab reports: uranium, thorium, radium; technetium-99; metals; and organics.
- Ten percent (10%) of the excavation control and precertification release will receive ASL B data validation. The other 90% of the release will receive field validation only.
- Ten percent (10%) of the certification releases will receive ASL D data validation. The other 90% of certification releases will receive ASL B data validation.

- There will be ten (10) variances per excavation control PSP, four (4) variances per precertification PSP (therefore fourteen (14) total should excavation control and precertification PSP be combined), and two (2) variances per certification PSP.
- Figure entitled "Area 6 CU Design For Baseline Planning Purposes" is for illustration only to conceptually determine the number of Certification Units and certification samples. Actual boundaries will be finalized in the Certification Design Letter.

The task activities and deliverables will be completed primarily by project staff from the management, characterization, surveying, administrative and real time disciplines, and these personnel will charge their labor hours to PBS-06 control account GPM1. Only matrixed labor, as identified below, will use the charge account G6117. Detail on manpower loading for this scope of work is provided in Section 3.0. The charge account for G6117 will be closed when the CR report is approved by OEPA and USEPA.

1) Task #1 - Excavation Control

1.1) Plan/Scope

The PSP will document the purpose of the excavation control and to summarize the monitoring approach and frequency using real time methods. If applicable, the PSP also addresses physical sampling for COCs that are not detected by real time instrumentation (e.g. technetium-99, VOCs, SVOCs, metals) but nevertheless need to be collected to confirm removal.

The PSP will define the scope of field, laboratory, and data reporting of the ASCOCs through the sampling target analyte list and sampling approach. For physical sampling, the PSP will document the number of borings, location of borings, depths of borings, frequency of sample intervals, sampling collection methods, sampling equipment decontamination, borehole abandonment, and disposition of wastes. For real time measurements, the PSP will document the real time radiation tracking system (RTRAK), real time Gator-mounted system (Gator), radiation scanning system (RSS), excavation monitoring system (EMS) high-purity germanium detector (HPGe), and other radiation monitoring systems (RMS) data acquisitions, surface moisture measurements recordings, and real time mapping. The tracking and managing of data collection, whether through physical sampling or real time, is described along with both field and laboratory quality assurance requirements. The process of changing the approved PSP by use of variance/field change notice (V/FCN) is described. Finally, the PSP contains health and safety requirements and data quality objectives.

After approval of the PSP by OEPA and USEPA and upon completion of an excavation lift (typically 3' +/-1'), excavation control is the scanning of soil surfaces after each excavation lift to determine if contamination hot spots exist with respect to radium, thorium and/or uranium levels. Excavation control will occur after concrete and gravel areas are removed prior to the first lift of excavation. Additionally, scanning will be performed at the bottom of utility trenches cut below the design grade using the EMS or

measurements will be conducted on soil removed from the bottom of the excavation placed adjacent to the trench.

Based on experience gained through Area 1 and Area 2 excavation control, a single PSP for each Area was sufficient to support excavation control and monitoring. However, because Area 6 excavation has been divided into four separate excavations, each with its own distinct scope, four PSPs are planned:

Solid Waste Landfill  
Former Waste Pit Area  
General Area  
Former Production Area

If applicable, the PSP also addresses physical samples that need to be collected to confirm the removal of other COCs in above-WAC and RCRA areas. Specific activities and deliverables include (capital letters are assigned in Table 39):

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- A. Identify the ASCOCs.
- B. Data queries for IIMS data group.
- C. Development of Data Quality Objectives.
- D. Development of scanning and sampling strategies.
- E. Development of analytical parameters.
- F. Initiate/coordinate task orders for off-site laboratory services (particularly for VOCs, semi-VOCs, PCBs), if necessary.
- G. Initial Walkdown of area.
- H. Preparation of figures and data tables.
- I. Preparation of draft PSP.
- J. Internal draft PSP review and comment response.
- K. DOE draft PSP review and comment response.
- L. OEPA/USEPA review and comment response.
- M. Issuance of final PSP.
- N. Perform walkdowns and work scope briefings to field crews.

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- O. Development of Variance/Field Change Notices (V/FCN), as needed, with applicable EPA/USEPA approval.
- P. Real time scans using RTRAK, Gator, HPGe, EMS, or RSS between each excavation lift.
- Q. Real time scan progress maps.
- R. Evaluate real time data and perform QC prior to data transfer to the Sitewide Environmental Database (SED).
- S. AWAC and hot-spot verification and removal verification.
- T. HPGe measurements and mapping representing soil under utility trenches below the design excavation grade.
- U. Survey, record coordinates, and flag locations for the sampling crew.
- V. Mobilize physical sampling crew; collect samples; complete soil boring logs, chain of custody, sampling log, field daily logs; deliver samples and chain of custody to on-site sample processing laboratory, if necessary.
- W. Receipt of physical samples, entering samples into FACTS database system, producing work cards, if necessary.
- X. Calibrations, quality control, analytical work, and data releases, if necessary.
- Y. Perform verification and validation of data, enter into SED, if necessary.
- Z. Reduce and interpret data to develop extent of contamination, if necessary.
- AA. Submit project records to Document Control/Procedure Management.
- BB. Perform management and project control activities.

Survey information and real time and laboratory data packages will be delivered to the project.

The scope of work identified above will be managed by projectized staff covered in Control Account GPM1. The scope of work will be performed using matrixed, centralized and projectized personnel.

#### *Matrixed Personnel*

Infrastructure Services will support the operation of real time vehicles. If needed, Environmental Monitoring and Analytical Services (PBS-04) will support any physical sampling and analysis should it be required. The Personnel from these organizations are the only individuals who will use charge number G6117.

*Centralized Personnel*

Document Control/Procedure Management will provide document numbers, filing support and issue controlled documents, as needed. Environmental Compliance will be consulted on an as-needed basis if RCRA issues become relevant to the work scope. The Waste Acceptance Organization will perform visual oversight of the monitoring and prepare waste manifestation forms, if needed. Environment, Safety, Health and Quality will review PSPs, work permits, and monitor field activities. Information Management will provide computer hardware and software needs. Personnel from these organizations will use their functional area charge numbers.

*Projectized Personnel*

Most work will be completed by project staff from the management, characterization, survey, real time and administrative disciplines; and these personnel will charge their labor hours to PBS-06 control account GPM1. Management, characterization and real time staff will oversee the fieldwork. Excavation control will be conducted under all removed concrete and gravel surfaces, in known contamination areas after each lift, and whenever unexpected material is encountered. Results from the real time survey will be delivered as maps that depict the estimated concentration or activity of radium, thorium and uranium. If unexpected or special materials are encountered, physical samples will be collected as part of the monitoring activities to screen for COCs not measured by the real time instruments. A survey team will document sample locations. Project Controls will provide cost and schedule support.

Table 39 summarizes the projectized and matrixed personnel performing the scope of work:

TABLE 39  
 Manpower Requirements for Task 1 – Excavation Control

Activities:

MPM Code	Personnel P,C,M,S	A	B-I	J-M O	N-T	U,V	W,X	Y	Z-BB
ENSMGR	P		X	X					X
ENSREP	P	X	X	X	X	X	X	X	X
LABTEC	P								
CLERKS	P	X		X					X
DRFCAD	P		X	X					
ENSTEC	P								
ENSMGR	M					X			
ENSREP	M		X			X			X
S&HENG	M								
RADTEC	M								
ENSTEC	M					X			
LABMGR	M						X		
LABCHM	M						X		
LABTEC	M						X		
INHTEC	M								
PJSMGR	M				X				
MVOOPR	M				X				
ENSMGR	C							X	
ENSREP	C							X	
LABTEC	C							X	

Note: P denotes projectized, C denotes centralized, M denotes matrixed, S denotes subcontracted.

### 1.2) Quantification

Table 40 summarizes the quantities and/or deliverables anticipated for this task.

The assumed condition includes that no additional visual contamination is found when gravel, gravel roads, concrete slabs and foundations, and roads are removed that would yield an above-WAC condition. For excavation control based on the Flynn Model and RI/FS data the excavation area accessible to real time. Maps for each of the RTRAK, Gator, RSS, EMS, and HPGe measurements will be prepared for each lift. Based on the Area 3A/4A IRDP requirement to perform a HPGe shot every 50 feet of linear trench, there will be 701 HPGe shots on the pipe embedment to cover the 35,058 linear feet of utility trenches that are assumed to be below the excavation surface.

TABLE 40  
 Quantities for Task 1 – Excavation Control

Item	Quantity
Draft Project Specific Plan for Internal Review	4 total
Draft Project Specific Plan for DOE Review	4 total
Response to Comments for DOE	4 total
Draft Project Specific Plan for OEPA/USEPA Review	4 total
Response to Comments for OEPA/USEPA	4 total
Final Project Specific Plan	4 total
Total Acres available for scanning by RTRAK, Gator, RSS, EMS, or HPGe	126.6 acres
Real time Maps for Uranium, Thorium, Radium, and Total Counts/ Lift	9 each/lift
Survey and Flag Hot Spots/Sample Locations	0 total
Soil Samples	0 total
HPGe Shots for Utility Trenches	701 total
Variance/Field Change Notice	40 total

A summary of the quantification approach is provided:

Acres were determined by using in-house GIS techniques and information at the time of this writing. The distinction between areas of lower uranium FRL (20 ppm U) due to high leachable areas and areas of higher uranium FRL (82 ppm U) due to low leachable areas is presented in Figure 2-3 of the SEP.

The real time maps represent the final product of the lift scanning results. The quantity does not include progress coverage maps that are produced along with the final coverage maps as part of the projectized effort under control account GPM1 of PBS-06.

For RTRAK and Gator, with radon monitor set-up to correct for radon influences, experience dictates that 2 acres/day for a 10-hour day can be accomplished assuming typical weather. This average drops to 1 acre/day for a 10-hour day during winter months. Staff includes the matrixed driver (MVOOPR @ 1 FTE), the matrixed driver's supervisor (PGSMGR @ 0.25 FTE), projectized environmental scientists (ENSREP @ 2 FTEs), and projectized environmental scientist supervisor (ENSREP @ 1 FTE).

For RSS, with radon monitor set-up to correct for radon influences, experience dictates that 2 acres/day for a 10-hour day can be accomplished assuming typical weather. This average drops to 1 acre/day for a 10-hour day during winter months. Staff includes projectized environmental scientists (ENSREP @ 2 FTEs) and a projectized environmental scientist supervisor (ENSREP @ 1 FTE).

For HPGe, with radon monitor set-up to correct for radon influences, experience dictates that 12 shots/day can be accomplished for a 10-hour day with the maximum coverage at a 1 meter height with a 15 minute count time assuming typical weather conditions with adverse topographic and vegetative conditions. 20 shots/day can be accomplished for a 10-hour day with the maximum coverage at a 1 meter height with a 15 minute count time assuming typical weather conditions with moderate topographic and vegetative conditions.

Staff includes projectized environmental scientists (ENSREP @ 2 FTEs) and a projectized environmental scientist supervisor (ENSREP @ 1 FTE).

For EMS, with radon monitor set-up to correct for radon influences if necessary, it is estimated that 2 acres/day for a 10-hour day can be accomplished assuming typical weather. This average drops to 1 acre/day for a 10-hour day during winter months (when averaging in snow and ice days when field activity is not possible). Staff includes the matrixed heavy equipment operator (MVOOPR @ 1 FTE), the matrixed heavy equipment operators supervisor (PGSMGR @ 0.25 FTE), projectized environmental scientists (ENSREP @ 2 FTEs), and projectized environmental scientist supervisor (ENSREP @ 1 FTE).

The number of hot spots requiring surveying and physical sampling is 0.

2) Task #2 - Precertification

2.1) Plan/Scope

Precertification activities begin with the preparation of the precertification Project Specific Plan. The purpose of precertification is to assess the readiness of an area for certification and to develop the Certification Design Letter.

Precertification field activities will begin as soon as a portion of Area 6 reaches the design grade, with the intent being to minimize the lag time between the completion of excavation and collection of certification samples. This, however, does not apply to the Solid Waste Landfill excavation since it will be surrounded by impacted soil with no surface water run-on controls. The Solid Waste Landfill and the former Waste Pit footprint will be pre-certified with the surrounding excavated areas under the General Area precertification. The remaining portion of Area 6 within the former Production Area will be pre-certified in a separate precertification effort. Based on field conditions and required detection levels, RTRAK, Gator, RSS, EMS, or HPGe measurements will be performed and the precertification maps will be prepared. Preliminary Certification Unit (CU) boundaries will be surveyed only for those CU that are associated with the high leachable areas as shown in Figure 2-3 of the SEP. These areas will have a lower FRL for uranium at 20 ppm that the sodium iodide real time systems cannot detect. Specific activities and deliverables include (capital letters are tied to Table 41):

R1-  
D-  
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- A. Identify the ASCOCs.
- B. Development of Data Quality Objectives.
- C. Development of scanning and sampling strategies.
- D. Development of analytical parameters.
- E. Initiate/coordinate task orders for off-site laboratory services (particularly for VOCs, semi-VOCs, PCBs), if necessary.

R1-  
D-  
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- F. Initial Walkdown of area.
- G. Preparation of figures and data tables.
- H. Preparation of draft PSP.
- I. Internal draft PSP review and comment response.
- J. DOE draft PSP review and comment response.
- K. OEPA/USEPA review and comment response.
- L. Issuance of final PSP.
- M. Perform walkdowns and work scope briefings to field crews.
- N. Development of Variance/Field Change Notices (V/FCN), as needed with applicable OEPA/USEPA approval.
- O. Real time scans using RTRAK, Gator, HPGe, EMS, or RSS.
- P. Real time scan progress maps.
- Q. Evaluate real time data and perform QC prior to data transfer to the Sitewide Environmental Database (SED).
- R. Survey and flag High Leachable Area CU.
- S. Survey Certification Area Boundary.
- T. Survey, record coordinates, and flag locations for the sampling crew for precertification physical sampling, if necessary.
- U. Mobilize physical sampling crew; collect samples; complete soil boring logs, chain of custody, sampling log, field daily logs; deliver samples and chain of custody to on-site sample processing laboratory, if necessary.
- V. Receipt of physical samples, entering samples into FACTS database system, producing work cards, if necessary.
- W. Calibrations, quality control, analytical work, and data releases, if necessary.
- X. Perform verification and validation of data, enter into SED, if necessary.
- Y. Reduce and interpret data to develop extent of contamination, if necessary.

R1-  
D-  
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Z. Identify hot-spot zones for excavation, if necessary, and rescan area after hot spot removal.

AA. Submit project records to Document Control/Procedure Management.

BB. Perform management and project control activities.

Survey information and real time and laboratory data packages will be delivered to the project.

The scope of work identified above will be managed by projectized staff covered in Control Account GPM1. The scope of work will be performed using matrixed, centralized and projectized personnel.

*Matrixed Personnel*

Infrastructure Services will support the operation of real time vehicles. If needed, Environmental Monitoring and Analytical Services (PBS-04) will support any physical sampling and analysis should it be required. The Personnel from these organizations are the only individuals who will use charge number G6117.

*Centralized Personnel*

Document Control/Procedure Management will provide document numbers, filing support and issue controlled documents, as needed. Environment, Safety, Health and Quality will review PSPs, work permits, and monitor field activities. Information Management will provide computer hardware and software needs. Personnel from these organizations will use their functional area charge numbers.

*Projectized Personnel*

Most work will be completed by project staff from the management, characterization, survey, real time and administrative disciplines; and these personnel will charge their labor hours to PBS-06 control account GPM1. Management, characterization and real time staff will oversee the fieldwork. Excavation control will be conducted under all removed concrete and gravel surfaces, in known contamination areas after each lift, and whenever unexpected material is encountered. Results from the real time survey will be delivered as maps that depict the estimated concentration or activity of radium, thorium and uranium. If unexpected or special materials are encountered, physical samples will be collected as part of the monitoring activities to screen for COCs not measured by the real time instruments. A survey team will document sample locations. Project Controls will provide cost and schedule support.

Table 41 summarizes the projectized and matrixed personnel performing the scope of work:

TABLE 41  
 Manpower Requirements for Task 2 – Precertification

Activities:

MPM Code	Personnel P,C,M,S	A-H	I-L	M-O	R-U	V,W	X	Y-BB
ENSMGR	P	X	X					X
ENSREP	P	X	X	X	X	X	X	X
LABTEC	P							
CLERKS	P	X	X					X
DRFCAD	P	X	X					
ENSMGR	M				X			
ENSREP	M	X			X			X
ENSTEC	M				X			
LABMGR	M					X		
LABCHM	M					X		
LABTEC	M					X		
INHTEC	M				X			
PJSMGR	M			X				X
MVOOPR	M			X				X
ENSMGR	C						X	
ENSREP	C						X	
LABTEC	C						X	

Note: P denotes projectized, C denotes centralized, M denotes matrixed, S denotes subcontracted.

2.2) Quantification

Table 42 summarizes the quantities and/or deliverables anticipated for this task.

The assumed condition is that the former Waste Pits and berms along with the former Borrow Area, North Oxbow Area, and a portion of the Former Drilling Staging Area, or approximately 60.1 acres excavation control real time scanning data can be used for precertification. Therefore, of the 126.6 acres of Area 6, 66.5 acres will be scanned as the result of excavations and that the acreage is still posted as a high contamination area pending results of the precertification. Based on the Area 3A/4A IRDP requirement to perform a HPGe shot every 50 feet of linear trench bottom, there will be 701 HPGe shots on the pipe embedment to cover the 35,058 linear feet of utility trenches that are assumed to be below the excavation surface.

The number of PSPs is based on the development of separate PSPs as described in the Predesign Characterization section.

Additionally, based on the Area 3A/4A IRDP requirement to perform a HPGe shot every 50 feet of linear trench, there will be 701 HPGe shots on the excavated trench bottom cover the 35,058 linear feet of utility trenches that are assumed to be below the excavation surface.

TABLE 42  
 Quantities for Task 2 – Precertification

Item	Quantity
Draft Project Specific Plan for Internal Review	2 total
Draft Project Specific Plan for DOE Review	2 total
Response to Comments for DOE	2 total
Draft Project Specific Plan for OEPA/USEPA Review	2 total
Response to Comments for OEPA/USEPA	2 total
Final Project Specific Plan	2 total
Total Acres available for scanning by RTRAK, Gator, RSS, EMS, or HPGe	66.5 acres
Real time Maps for Uranium, Thorium, Radium, and Total Counts	8 each
HPGe Shots for Utility Trenches	701 total
Variance/Field Change Notice	8 total

A summary of the quantification approach is provided:

Acres were determined by using in-house GIS techniques and information at the time of this writing. The distinction between areas of lower uranium FRL (20 ppm U) due to high leachable areas and areas of higher uranium FRL (82 ppm U) due to low leachable areas is presented in Figure 2-3 of the SEP.

The real time maps represent the final product of the lift scanning results. The quantity does not include progress coverage maps that are produced along with the final coverage maps as part of the projectized effort under control account GPM1 of PBS-06.

For RTRAK and Gator, with radon monitor set-up to correct for radon influences, experience dictates that 2 acres/day for a 10-hour day can be accomplished assuming typical weather. This average drops to 1 acre/day for a 10-hour day during winter months. Staff includes the matrixed driver (MVOOPR @ 1 FTE), the matrixed driver's supervisor (PGSMGR @ 0.25 FTE), projectized environmental scientists (ENSREP @ 2 FTEs), and projectized environmental scientist supervisor (ENSREP @ 1 FTE).

For RSS, with radon monitor set-up to correct for radon influences, experience dictates that 2 acres/day for a 10-hour day can be accomplished assuming typical weather. This average drops to 1 acre/day for a 10-hour day during winter months. Staff includes projectized environmental scientists (ENSREP @ 2 FTEs) and a projectized environmental scientist supervisor (ENSREP @ 1 FTE).

For HPGe, with radon monitor set-up to correct for radon influences, experience dictates that 12 shots/day can be accomplished for a 10-hour day with the maximum coverage at a 1 meter height with a 15 minute count time assuming typical weather conditions with adverse topographic and vegetative conditions. 20 shots/day can be accomplished for a

10-hour day with the maximum coverage at a 1 meter height with a 15 minute count time assuming typical weather conditions with moderate topographic and vegetative conditions. Staff includes projectized environmental scientists (ENSREP @ 2 FTEs) and a projectized environmental scientist supervisor (ENSREP @ 1 FTE).

For EMS, with radon monitor set-up to correct for radon influences if necessary, it is estimated that 2 acres/day for a 10-hour day can be accomplished assuming typical weather. This average drops to 1 acre/day for a 10-hour day during winter months (when averaging in snow and ice days when field activity is not possible). Staff includes the matrixed heavy equipment operator (MVOOPR @ 1 FTE), the matrixed heavy equipment operators supervisor (PGSMGR @ 0.25 FTE), projectized environmental scientists (ENSREP @ 2 FTEs), and projectized environmental scientist supervisor (ENSREP @ 1 FTE).

The number of hot spots requiring surveying and physical sampling is 0.

### 3) Task #3: Certification

#### 3.1) Plan/Scope

Certification activities begin with the preparation of the Certification PSP and Certification Design Letters (CDLs) and are completed when the Certification Reports have been approved by the OEPA and USEPA. The purpose of the CDL is to summarize the precertification activities, delineate the Certification Units, identify the ASCOCs, and to locate the certification samples within each CU. Certification field activities will begin at the completion of an excavated area but not at the end of excavation of the Remediation Area. This approach was used with great success during the A2PIII Radium Hot Spot excavation and certification, the A2PI Active Flyash Pile excavation and certification, and the Soil Pile 3 excavation and certification. The time between excavation completion and certification sample collection was reduce from several months, as with Area 1 Phase II, to days and weeks.

Four (4) separate PSPs, and CDLs are planned to cover underground utilities, former Waste Pits footprint, General Area excluding the Waste Pits footprint, and former Production Area. Three (3) Certification Reports (CR) will result with the underground utility certification information contained in either the General Area CR or former Production Area CR.

Sampling activities cannot begin until the PSP and CDL have been at least conditionally approved by OEPA/USEPA. Samples will be submitted for analysis and ASL D data packages produced. The data for each Certification Unit (CU) will be evaluated using statistical tests identified in the SEP and a pass/fail decision for each ASCOC will be determined. If a CU fails, additional excavation is required until the CU passes the certification criteria. The Certification Report (CR) documents the certification process once approved by OEPA and USEPA, the area is released for final land use. Specific activities and deliverables include (capital letters are tied to Table 43):

R1-  
D-  
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- A. Identify the ASCOCs.
- B. Development of Data Quality Objectives.
- C. Development of analytical parameters.
- D. Initiate/coordinate task orders for off-site laboratory services (particularly for VOCs, semi-VOCs, PCBs), if necessary.
- E. Initial walkdown of area.
- F. Preparation of figures and data tables.
- G. Preparation of Certification Unit design and sample locations.
- H. Preparation of draft PSP and draft CDL.
- I. Internal draft PSP and draft CDL review and comment response.
- J. DOE draft PSP and draft CDL review and comment response.
- K. OEPA/USEPA review and comment response.
- L. Issuance of final PSP and CDL.
- M. Perform walkdowns and work scope briefings to field crews.
- N. Development of Variance/Field Change Notices (V/FCN) and CDL page changes, as needed with applicable OEPA/USEPA approval.
- O. Survey and flag sampling locations.
- P. Mobilize physical sampling crew; collect samples; complete chain of custody, sampling log, field daily logs; deliver samples and chain of custody to on-site sample processing laboratory.
- Q. Receipt of physical samples, entering samples into FACTS database system, producing work cards.
- R. Calibrations, quality control, analytical work, and data releases.
- S. Reduce and interpret preliminary certification data and perform statistical evaluation for each certification unit.
- T. Identify hot-spot zones for excavation and repeat previous steps beginning with N.
- U. Perform verification and validation of data, enter into SED.

- V. Perform final statistical evaluation for each certification unit and produce summary tables.
- W. Preparation of draft Certification Report (CR) with figures, tables, statistical evaluation and SEP-related CR information (i.e. chronology of events, performance standards and construction quality control, excavation activities, summary of material and data tracking, summary of costs, etc.).
- X. Internal draft CR review and comment response.
- Y. DOE draft CR review and comment response.
- Z. OEPA/USEPA review and comment response.
- AA. Issuance of final CR.
- BB. Submit project records to Document Control/Procedure Management.
- CC. Perform management and project control activities.

Survey information and real time and laboratory data packages will be delivered to the project.

The scope of work identified above will be managed by projectized staff covered in Control Account GPM1. The scope of work will be performed using subcontract, matrixed, centralized and projectized personnel.

#### *Subcontract Personnel*

Off-site laboratory will be utilized for the analysis of organic COCs (VOCs, PCBs, pesticides, PAHs, herbicides, semi-volatile organic compounds (SVOCs), and dioxins).

#### *Matrixed Personnel*

Environmental Monitoring and Analytical Services (PBS-04) will support any physical sampling and analysis. Environmental Monitoring will be used to collect and deliver the certification samples to the on-site laboratory. Analytical Services will log samples into the system, complete analytical measurements, issue data releases, and ship samples requiring analysis for COCs to off-site laboratories. Samples contracted to off-site laboratories will require a 14-day turn-around time. Analytical measurements will be performed and ASL D data packages will be delivered to the project. The Personnel from these organizations are the only individuals who will use charge number G6117.

#### *Centralized Personnel*

Document Control/Procedure Management will provide document numbers, filing support and issue controlled documents, as needed. Environment, Safety, Health and Quality will review PSPs, CDLs, CRs, work permits, and monitor field activities. Sample Data Management will be used for database queries, data entry, data validation, statement of work for off-site laboratories, and the statistical reduction of data to evaluate the

certification criteria for each CU's ASCOC. Information Management will provide computer hardware and software needs. Personnel from these organizations will use their functional area charge numbers.

*Projectized Personnel*

Work to be completed by project staff from the management, characterization, survey, and administrative disciplines; and these personnel will charge their labor hours to PBS-06 control account GPM1. Management and characterization staff will oversee the field and laboratory work. Management and characterization staff will prepare all PSPs, CDLs, and CRs, along with the response to comments to these documents. They will also prepare any Variance/Field Change Notice that may be warranted after PSPs are approved by OEPA/USEPA. A survey team will document sample locations. Project Controls will provide cost and schedule support.

Table 43 summarizes the projectized and matrixed personnel performing the scope of work:

TABLE 43  
 Manpower Requirements for Task 3 – Certification

Activities:

MPM Code	Personnel P,C,M,S	A-H	I-L	M-P	Q-S	T	U-V	W-CC
ENSMGR	P	X	X			X		X
ENSREP	P	X	X	X	X	X	X	X
LABTEC	P							
CLERKS	P	X	X					X
DRFCAD	P	X	X		X		X	
ENSMGR	M			X				
ENSREP	M	X		X				
ENSTEC	M			X				
LABMGR	M				X			
LABCHM	M				X			
LABTEC	M				X		X	
ENSMGR	C						X	
ENSREP	C				X		X	
LABTEC	C						X	
Subs	S				X			

Note: P denotes projectized, C denotes centralized, M denotes matrixed, S denotes subcontracted.

3.2) Quantification

Table 44 summarizes the quantities and/or deliverables anticipated for this task.

The assumed condition is that portions 126.6 acres of Area 6 will be available for certification with the appropriate storm water run-on controls in place during excavation to protect areas being certified.

TABLE 44  
 Quantities for Task 3 – Certification

Item	Quantity
Draft PSP and CDL for Internal Review	4 total
Draft PSP and CDL for DOE Review	4 total
Response to Comments for DOE	4 total
Draft PSP and CDL for OEPA/USEPA Review	4 total
Response to Comments for OEPA/USEPA	4 total
Final PSP and CDL	4 total
Number of Non-Utility Trench Certification Units	100 total
Number of Trench Certification Units	59 total
Soil Samples	2303 total
Samples entered into Database	2303 total
Uranium Analysis	2303 total
Thorium and Radium Analysis	2303 total
Technetium-99 Analysis	117 total
Metal Analysis	2303total
Volatile Organic Compound Analysis	91 total
Semi-Volatile Organic Compound Analysis	169 total
Pesticide Analysis	65 total
PCBs Analysis	65 total
PAH Analysis	65 total
Dioxin Analysis	0 total
Uranium, Thorium, Radium Lab Reports	159 total
Technetium-99 Lab Reports	9 total
Metal COC Lab Reports	100 total
Organic COC Lab Reports	7 total
Uranium, Thorium, Radium Lab Reports to Verify and Validate to ASL D	16 total
Technetium-99 Lab Reports to Verify and Validate to ASL D	1 total
Metal Lab Reports to Verify and Validate to ASL D	10 total
Organic Lab Reports to Verify and Validate to ASL D	1 total
Variance/Field Change Notice	8 total
Draft Certification Report for Internal Review	3 total
Draft Certification Report for DOE Review	3 total
Response to Comments for DOE	3 total
Draft Certification Report for OEPA/USEPA Review	3 total
Response to Comments for OEPA/USEPA	3 total
Final Certification Report	3 total

A summary of the quantification approach is provided:

Acreages were determined by using in-house GIS techniques and information at the time of this writing. The distinction between areas of lower uranium FRL (20 ppm U) due to high leachable areas and areas of higher uranium FRL (82 ppm U) due to low leachable areas is presented in Figure 2-3 of the SEP.

Manpower is estimated using the BARDO database based on four (4) years of field and analytical work requested by PBS-06. Specific assumptions bounding the BARDO database are listed above in the charge-number specific assumptions.

#### 1.5.6 G6118 - Off-Site Waste Disposition

Soil excavation activities in various areas of the FEMP site may produce waste streams that do not meet the OSDF waste acceptance criteria (i.e. above-WAC) and cannot be disposed of in the OSDF. Therefore, off-site waste disposition will be required. Off-site waste disposition refers to the procurement of containers and disposal services, loading and shipping of containers, and preparation of manifestation documentation. Three different types of waste streams are anticipated. First, items that are prohibited from both the OSDF and Envirocare (non-typical waste) will be processed through Fluor Fernald's Waste Generator Services (WGS) using leased containers by a logistics vendor prior to shipment. The Non-Typical waste, as defined by the Final Non-Typical Waste Management Plan (FEMP-10500-PL-0013), will be segregated at the excavation site by those performing the excavation work. Once segregated, these materials will then be packaged into containers that have been approved and provided by and moved from the excavation site for shipment to Nevada Test Site (NTS). Second, AWAC soil and other items that do not meet the OSDF WAC, but do meet the Envirocare WAC will be processed in bulk using leased railcar or intermodal containers by a logistics vendor prior to shipment. Third, items that are prohibited from OSDF, but can be transported by the logistics vendor to Envirocare.

Off-site Waste Disposition includes three tasks:

- Task 1: Procurement
- Task 2: Container Receipt, Preparation, Loading
- Task 3: Shipping and Disposal.

Major technical risks include: the loss of the off-site disposal vendor (i.e., Envirocare); the unexpected discovery of a large volume of special material; and/or the discovery of a large volume of soil that requires on-site treatment. Contingencies that can be implemented to reduce this risk include: acquire additional off-site disposal vendors; and place a subcontract to treat soil.

Most of the work will be performed by WGS personnel matrixed to the project. However, some project oversight from the management, characterization, engineering, and administrative disciplines is needed, and these personnel will charge labor to PBS-06 control account GPM1. Only matrixed labor, as identified below, will use the charge

account G6118. The charge account for G6118 will be closed when the Certification Report is approved by OEPA and USEPA.

Specific charge number assumptions include:

- For general assumptions and exclusions, see Section 1.2.
- Fluor Fernald will provide characterization support to demonstrate compliance to the off-site disposal acceptance criteria. This process and the resulting documentation will be consistent with the current practice being performed by WPRAP.
- WPRAP is no longer in operation.
- Containers are leased from a vendor that provides logistics and transportation through final disposition.
- No internal decontamination of a waste container until the end of the project.

1) Task #1 – Procurement

1.1) Plan/Scope

Material costs will include the purchase of shipping containers and upon receipt of the containers WGS will prepare them for loading. Specific activities for this scope of work includes:

- Planning to include the identification of containerized waste with any existing specific waste disposition campaign and the preparation of task orders, safety evaluations, work permits.
- Procure containers usage and packaging materials.
- Characterization to include any required sampling/visual inspections, laboratory analysis, characterization review of analytical data, preparation/validation of MEFs, compatibility assessment, absorbent determinations, and preparation of required profiles for disposal. For debris/scrap, characterization will mostly involve verifying the waste into an existing MEF. Any PCBs will obviously require significantly more effort.
- Submit project records to ECDC and maintain copies in project file.
- Perform project management and control activities.

The scope of work identified above will be executed using subcontract, matrixed, centralized and projectized personnel. Distribution of the work, and the plan for executing the scope, is described for each division of personnel.

*Subcontracted Personnel*

A request for proposal will be requested and logistics contract award. Subcontractor will furnish containers with appropriate container labeling and documentation.

*Matrixed Personnel*

Waste Generator Services (WGS) will prepare and deliver containers to the special material transfer area (SMTA) adjacent to the active excavation. Personnel from these organizations are the only individuals who will use charge number G6118.

*Centralized Personnel*

Document Control/Procedure Management will provide document numbers, filing support and issue controlled documents, as needed. Information Management will provide computer hardware and software needs. Personnel from these organizations will use their functional area charge numbers.

*Projectized Personnel*

Minor support work will be completed by project staff from the management, construction, and administrative disciplines; and these personnel will charge their labor hours to PBS-06 control account GPM1. Project Controls will provide cost and schedule support to the project manager.

1.2) Quantification

Table 45 summarizes the quantities and/or deliverables anticipated for Task 1. Based on past project history, it is estimated that seventy-five (75) cubic yards or 30 containers (capacity of 2.5 yd<sup>3</sup>) will be required for non-OSDF waste encountered. It is estimated that 2462 cubic yards of AWAC soil and debris or 40 railcars will be required to ship the remaining material in bulk to Envirocare.

TABLE 45  
 Quantities for Task 1: Procurement

ITEM	QUANTITY
Procure and Prepare Containers	30 total
Procure and Prepare Railcars	40 total

2) Task #2 - Container Receipt, Preparation, Loading

2.1) Plan/Scope

The project will load waste into containers staged at the SMTA or haul above-WAC waste to the designated staging area at Building 91C. Specific activities and deliverables include:

- Preparation of the container for loading.

- For Non-Typical Waste:
  - Delivery of container at the excavation site known as the special materials handling area (SMTA).
  - Movement to pick the container up from the SMTA and moving it to a processing area assumed to be at the location of Building 91C.
  - Sorting of debris/scrap to search for NTS prohibited items and any residue contaminated items that will not meet the trash/scrap profile at NTS. Sorting includes incidental movement of containers in and around the work area, repackaging of sorted wastes for final disposal in an appropriate shipping container assumed to be an ISO, and addition of the required absorbent.
  - Repackaging to allow for addition of the required absorbent to non-debris/residue waste streams and to optimize use of burial containers.
  - Loading and Shipping to include sealing, banding, touch-up, and labeling of containers, loading of individual containers onto trailers, bracing of the load, NTS certification, vehicle inspection and weighing, and DOT manifesting.
  - Material costs will include purchase of shipping containers, which is assumed to be the container waste is originally loaded into. In the case of debris, where the original container will likely not be the shipping container, the only cost is the shipping container.
- For AWAC soils and items prohibited from OSDF, but meeting the Envirocare WAC:
  - Excavation and transport of material to a staging area at Building 91C.
  - Loading of railcars or intermodals and shipping including sealing, banding, touch-up, and final labeling, railcar inspection, weighing, and DOT manifesting.
  - Submit project records to ECDC and maintain copies in project file.
  - Perform project management and control activities.

Manifestation documents will be provided to WGS, the project and ECDC, if applicable.

The scope of work identified above will be executed using subcontracted, matrixed, centralized and projectized personnel. Distribution of the work, and the plan for executing the scope, is described for each division of personnel.

*Subcontracted Personnel*

Labor is required by the logistic vendor for final preparation of containers and railcar loadout. Job categories envisioned include foreman, laborer, heavy-equipment operator, truck operator and teamsters. Logistic vendor will make the necessary arrangements with trucking and rail companies and the disposal site including any necessary notifications to the states the waste will be transported into. Subcontract costs will be charged to G6118.

*Matrixed Personnel*

Radiological Protection Operations will perform radiation surveys of containers and equipment. Personnel from these organizations are the only individuals who will use charge number G6118.

*Centralized Personnel*

Document Control/Procedure Management will provide document numbers, filing support and issue controlled documents, as needed. The Waste Acceptance Organization will prepare waste manifestation forms. Information Management will provide computer hardware and software needs. Personnel from these organizations will use their functional area charge numbers.

*Projectized Personnel*

Minor support work will be completed by project staff from the management, construction, and administrative disciplines; and these personnel will charge their labor hours to PBS-06 control account GPM1. Project Controls will provide cost and schedule support to the project manager. Construction personnel will pick up the containers at the SMTA, load the containers, and return them to the SMTA for pick up by WGS. Above-WAC soil and piping will be placed at the designated load-out point at Building 91C for the railcars.

2.2) Quantification

Table 46 summarizes the quantities and/or deliverables anticipated for this task. Quantities were established in the previous task.

TABLE 46  
 Quantities for Task 2: Container Receipt, Preparation, Loading

ITEM	QUANTITY
Prohibited Special Materials, cubic yards	75
Above-WAC Soil, cubic yards	2294
Above-WAC Piping, cubic yards	168

3) Task #3 – Shipping And Disposal

3.1) Plan/Scope

WGS will pick-up containers from the SMTA and prepare final manifestation and shipping papers. Above-WAC debris and soil will be bulk shipped via railcar. Specific activities and deliverables include:

- Shipping of containers.
- Verify waste disposition at disposal site.
- Return of containers for reuse, if needed, to the site.
- Submit project records to ECDC and maintain copies in project file.
- Perform project management and control activities.

Manifestation, shipping and tracking forms will be delivered to the project and off-site disposal facility. Verification of waste disposition will be delivered to the project, and all records will be sent to ECDC.

The scope of work identified above will be executed using subcontracted, matrixed, centralized and projectized personnel. Distribution of the work, and the plan for executing the scope, is described for each division of personnel.

*Subcontracted Personnel*

Logistic vendor will make the necessary arrangements with trucking and rail companies and the disposal site during shipping. Subcontract costs will be charged to G6118.

*Matrixed Personnel*

WGS will prepare the final manifestation documentation and shipping inspections of the containers. Personnel from these organizations are the only individuals who will use charge number G3B18.

*Centralized Personnel*

Document Control/Procedure Management will provide document numbers, filing support and issue controlled documents, as needed. WAO will assist with the waste manifestation, as needed. Personnel from these organizations will use their functional area charge numbers.

*Projectized Personnel*

Minor support work will be completed by project staff from the management and administrative disciplines; and these personnel will charge their labor hours to PBS-06 control account GPM1. Management and administrative staff will assist WGS and/or WAO in the preparation of shipping documents. Project Controls will provide cost and schedule support.

3.2) Quantification

Table 47 summarizes the quantities and/or deliverables anticipated for this task. The volumes and number of containers are identified in the previous task, The number of railcars is based on 100 tons per car and an approximate bulk soil density of 1.6 tons per cubic yard.

TABLE 47  
Quantities for Task 3: Shipping and Disposal

ITEM	QUANTITY
Ship Containers	30
Ship Railcars	40



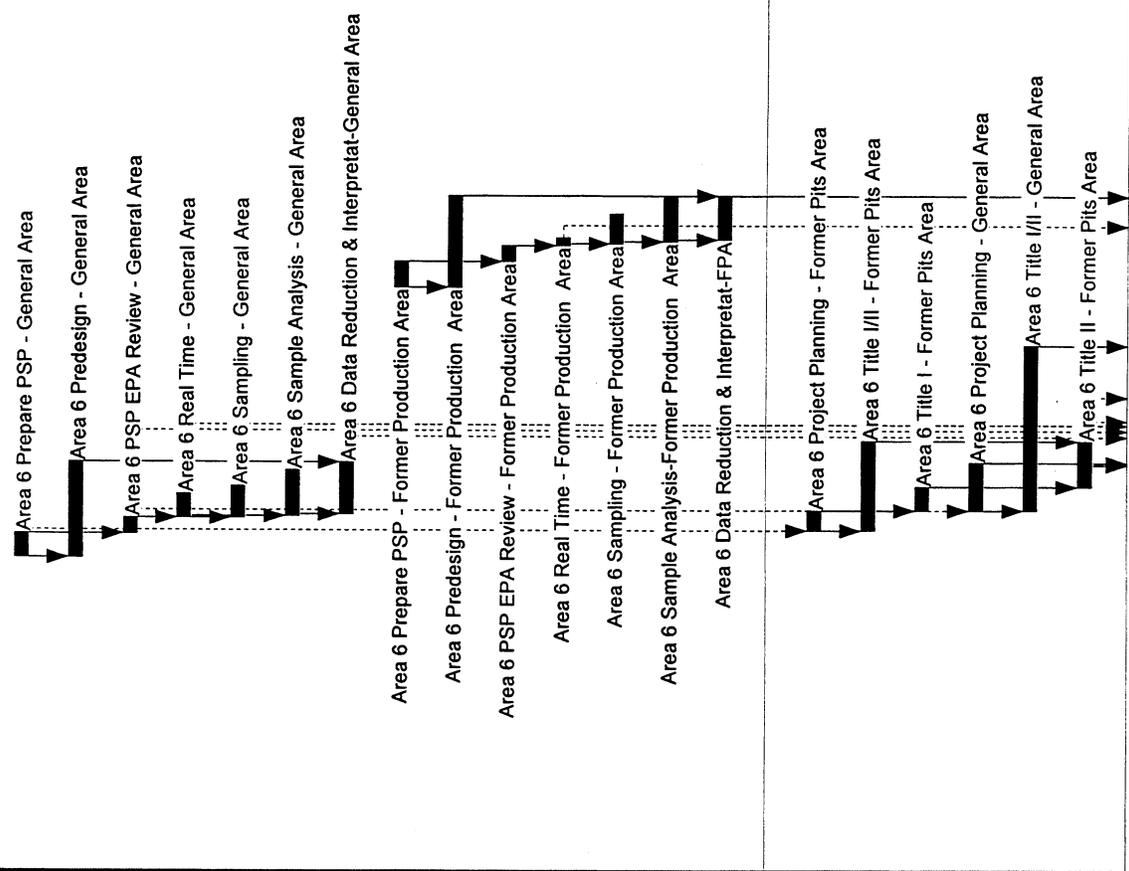
**SECTION 10**

**2.0 SCHEDULE**



**G PBS 06 - SOILS**  
**1.1.G.K AREA 6 SOIL REMEDIATION**

Activity ID	Activity Description	Early Start	Early Finish	Orig Dur
<b>G6111 AREA 6 PREDESIGN</b>				
GG61110610	Area 6 Prepare PSP - General Area	01APR04*	01JUL04	58
GG6111H110	Area 6 Predesign - General Area	01APR04	31MAR05	223*
GG61110620	Area 6 PSP EPA Review - General Area	02JUL04	30AUG04	60
GG61110640	Area 6 Real Time - General Area	31AUG04	01DEC04	57
GG61110630	Area 6 Sampling - General Area	31AUG04	29DEC04	73
GG61110650	Area 6 Sample Analysis - General Area	08SEP04	03MAR05	107
GG61110660	Area 6 Data Reduction & Interpretat-General Area	16SEP04	31MAR05	119
GG61110300	Area 6 Prepare PSP - Former Production Area	08FEB07*	22MAY07	64
GG6111H210	Area 6 Predesign - Former Production Area	08FEB07	31JAN08	219*
GG61110310	Area 6 PSP EPA Review - Former Production Area	23MAY07	21JUL07	60
GG61110340	Area 6 Real Time - Former Production Area	23JUL07	21AUG07	20
GG61110320	Area 6 Sampling - Former Production Area	30JUL07	21NOV07	73
GG61110350	Area 6 Sample Analysis-Former Production Area	06AUG07	21JAN08	102
GG61110360	Area 6 Data Reduction & Interpretat-FPA	14AUG07	31JAN08	104



Activity ID	Activity Description	Early Start	Early Finish	Orig Dur
<b>G6112 AREA 6 TITLE I/II DESIGN</b>				
GG61120160	Area 6 Project Planning - Former Pits Area	15JUL04*	30SEP04	49
GG6112H120	Area 6 Title I/II - Former Pits Area	15JUL04	30JUN05	216*
GG61120170	Area 6 Title I - Former Pits Area	01OCT04	29DEC04	53
GG61120200	Area 6 Project Planning - General Area	01OCT04*	31MAR05	109
GG6112H200	Area 6 Title I/II - General Area	01OCT04	29JUN06	390*
GG61120180	Area 6 Title II - Former Pits Area	03JAN05	30JUN05	114

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**1.1.G.K AREA 6 SOIL REMEDIATION**

Start Date  
01DEC00

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27DEC09

Data Date  
01DEC00

Run Date  
05SEP01 16:01

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Early Bar

Progress Bar

Critical Activity

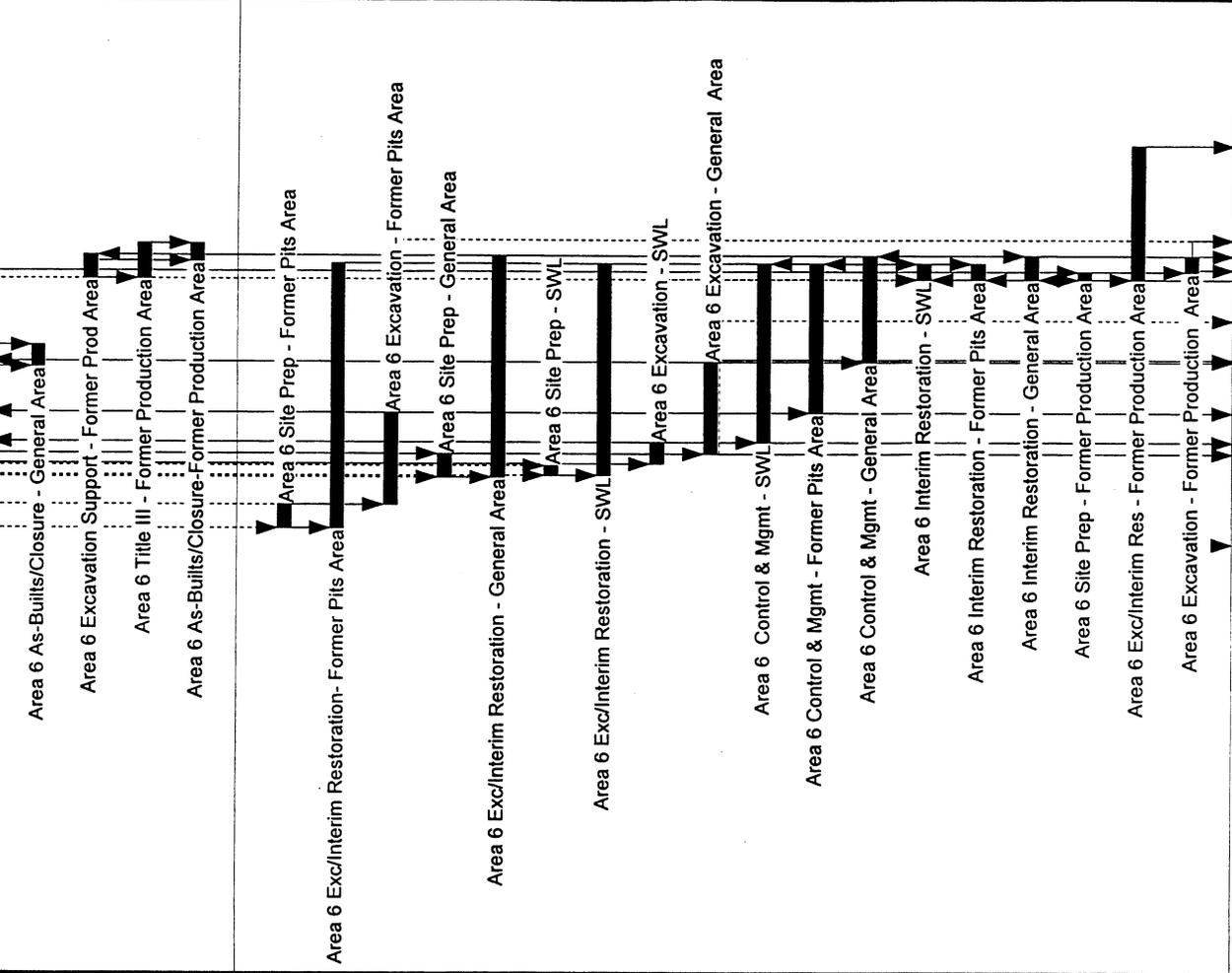
Date  
F06.043

Revision

Checker/Approved



FY01	FY02	FY03	FY04	FY05	FY06	FY07	FY08	FY09	FY10	FY11
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Activity ID	Activity Description	Early Start	Early Finish	Orig Dur
<b>G6113 AREA 6 TITLE III</b>				
GG61130220	Area 6 As-Built/Closure - General Area	06JUN07	28AUG07	53
GG61130300	Area 6 Excavation Support - Former Prod Area	19MAY08	15AUG08	57
GG6113H300	Area 6 Title III - Former Production Area	19MAY08	02OCT08	87*
GG61130310	Area 6 As-Built/Closure-Former Production Area	23JUL08	02OCT08	46
<b>G6114 AREA 6 SITE PREP / EXCAVATION</b>				
GG61140170	Area 6 Site Prep - Former Pits Area	12SEP05	12DEC05	57
GG6114H120	Area 6 Exc/Interim Restoration-Former Pits Area	12SEP05	17JUL08	638*
GG61140180	Area 6 Excavation - Former Pits Area	13DEC05	11DEC06	223
GG61140210	Area 6 Site Prep - General Area	31MAR06	28JUN06	57
GG6114H200	Area 6 Exc/Interim Restoration - General Area	31MAR06	15AUG08	534*
GG61140120	Area 6 Site Prep - SWL	06APR06	18MAY06	27
GG6114H110	Area 6 Exc/Interim Restoration - SWL	06APR06	17JUL08	511*
GG61140130	Area 6 Excavation - SWL	22MAY06	17AUG06	56
GG61140220	Area 6 Excavation - General Area	03JUL06	28JUN07	223
GG61140140	Area 6 Control & Mgmt - SWL	18AUG06	17JUL08	428
GG61140190	Area 6 Control & Mgmt - Former Pits Area	12DEC06	17JUL08	358
GG61140230	Area 6 Control & Mgmt - General Area	02JUL07	15AUG08	254
GG61140150	Area 6 Interim Restoration - SWL	15MAY08	17JUL08	39
GG61140200	Area 6 Interim Restoration - Former Pits Area	15MAY08	17JUL08	39
GG61140240	Area 6 Interim Restoration - General Area	15MAY08	15AUG08	58
GG61140310	Area 6 Site Prep - Former Production Area	19MAY08	12JUN08	17
GG6114H300	Area 6 Exc/Interim Res - Former Production Area	19MAY08	20OCT09	321*
GG61140320	Area 6 Excavation - Former Production Area	16JUN08	15AUG08	40

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**1.1.G.K AREA 6 SOIL REMEDIATION**

Sheet 3 of 6

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Revision: F06-043

Date: \_\_\_\_\_

Checked/Approved: \_\_\_\_\_

Activity ID	Activity Description	Early Start	Early Finish	Orig Dur	FY01	FY02	FY03	FY04	FY05	FY06	FY07	FY08	FY09	FY10	FY11
<b>G6114</b>	<b>AREA 6 SITE PREP / EXCAVATION</b>														
GG61140330	Area 6 Controls & Mgmt - Former Production Area	18AUG08	20OCT09	264											
GG61140340	Area 6 Interim Restorat - Former Production Area	19AUG09	20OCT09	39											
<b>G6117</b>	<b>AREA 6 EXC CONTROL / CERTIFICATION</b>														
GG61170310	Area 6 Exc Monitoring PSP Development	13JUL05	13OCT05	59											
GG61170200	Area 6 Excavation Control	13JUL05	15AUG08	694*											
GG6117H120	Area 6 Excavation Control Precert/Cert	13JUL05	04NOV08	744*											
GG61170320	Area 6 Exc Monitoring EPA Review	14OCT05	12DEC05	60											
GG61170340	Area 6 Exc Monitoring Real Time (Below Pits)	13DEC05	11DEC06	223											
GG61170440	Area 6 Precert PSP Development-General Area	03FEB06	06APR06	40											
GG61170210	Area 6 Precertification	03FEB06	02SEP08	579*											
GG61170450	Area 6 Precert PSP EPA Review-General Area	09APR06	07JUN06	60											
GG61170330	Area 6 Exc Monitoring Real Time (SWL)	22MAY06	17AUG06	56											
GG61170460	Area 6 Precert Real Time-General Area	08JUN06	05JUL07	241											
GG61170350	Area 6 Exc Monitoring Real Time (Gen Area)	03JUL06	28JUN07	223											
GG61170610	Area 6 CDL/PSP Development-Former Waste Pits	12DEC06	15FEB07	40											
GG61170810	Area 6 CDL/PSP Development-General Area	26DEC06	02MAY07	80											
GG61170220	Area 6 Certification	26DEC06	04NOV08	420*											
GG61170620	Area 6 CDL/PSP EPA Review-Former Waste Pits	16FEB07	16APR07	60											
GG61170630	Area 6 Cert Sampling-Former Waste Pits	17APR07	19JUN07	40											
GG61170640	Area 6 Sample Analysis-Former Waste Pits	25APR07	30JUL07	60											
GG61170650	Area 6 Data Entry/Valid/Stat-Former Waste Pits	02MAY07	15AUG07	66											
GG61170820	Area 6 CDL/PSP EPA Review-General Area	03MAY07	01JUL07	60											
GG61170660	Area 6 Certification Report-Former Waste Pits	20JUN07	21AUG07	40											

Start Date: 01DEC00  
Finish Date: 27DEC09  
Data Date: 01DEC00  
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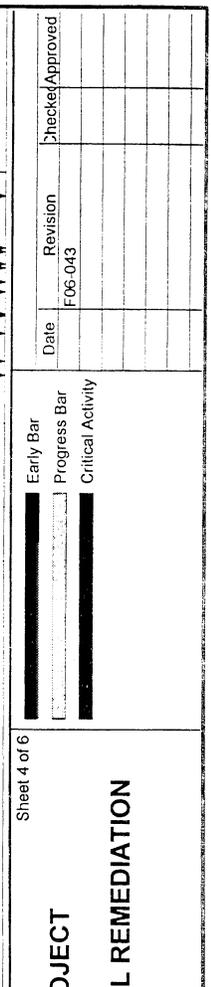
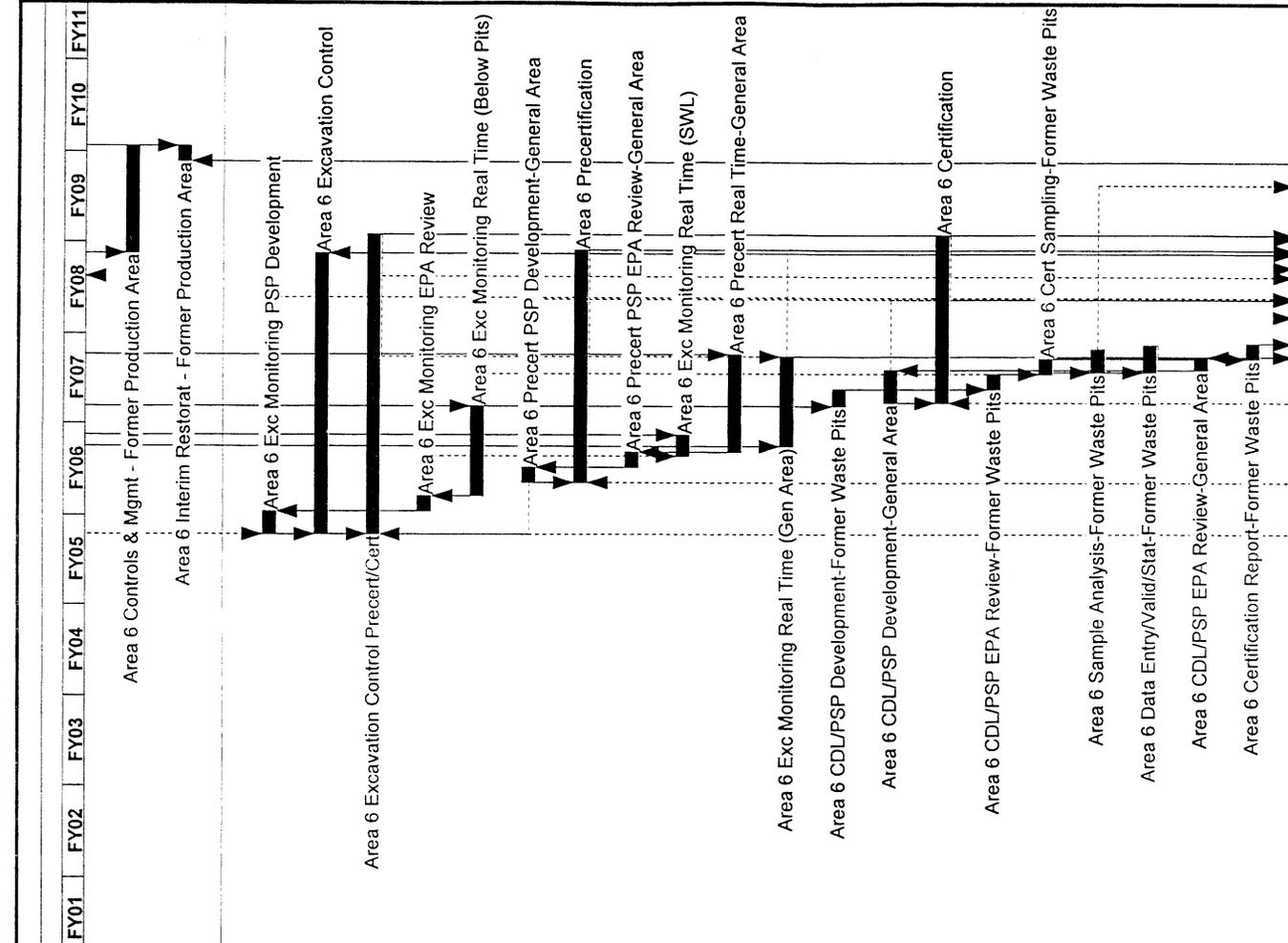
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Activity ID	Activity Description	Early Start	Early Finish	Orig Dur	FY01	FY02	FY03	FY04	FY05	FY06	FY07	FY08	FY09	FY10	FY11
<b>G6117 AREA 6 EXC CONTROL / CERTIFICATION</b>															
GG61170830	Area 6 Cert Sampling-General Area	02JUL07	08OCT07	62											
GG61170840	Area 6 Sample Analysis-General Area	10JUL07	03DEC07	90											
GG61170850	Area 6 Data Entry/Valid/Stat-General Area	18JUL07	15JAN08	110											
GG61170510	Area 6 Utility CU's CDL/PSP Development	13AUG07	10OCT07	38											
GG61170670	Area 6 EPA Approve Cert Report-Former Waste Pits	22AUG07	19NOV07	90											
GG61170520	Area 6 Utility CU's CDL/PSP EPA Review	11OCT07	09DEC07	60											
GG61170530	Area 6 Utility CU's Sampling	10DEC07	15AUG08	155											
GG61170870	Area 6 Certification Report-General Area	11DEC07	14FEB08	40											
GG61170540	Area 6 Utility CU's Sampling Analysis	18DEC07	27OCT08	195											
GG61170550	Area 6 Utility CU's Data Entry/Validation/Stat	27DEC07	04NOV08	195											
GG61170880	Area 6 EPA Approve Cert Report-General Area	15FEB08	14MAY08	90											
GG61170410	Area 6 Precent PSP Development-Former Prod Area	20FEB08	23APR08	40											
GG61170710	Area 6 CDL/PSP Development-Former Prod Area	11APR08	15AUG08	80											
GG61170420	Area 6 Precent PSP EPA Review-Former Prod Area	24APR08	22JUN08	60											
GG61170360	Area 6 Exc Monitoring Real Time (Prod Area)	29MAY08	15AUG08	50											
GG61170430	Area 6 Precent Real Time-Former Prod Area	23JUN08	02SEP08	45											
GG61170720	Area 6 CDL/PSP EPA Review-Former Prod Area	18AUG08	16OCT08	60											
GG61170730	Area 6 Cert Sampling-Former Prod Area	20OCT08	28JAN09	60											
GG61170740	Area 6 Sample Analysis-Former Prod Area	27OCT08	25MAR09	90											
GG61170750	Area 6 Data Entry/Valid/Stat-Former Prod Area	04NOV08	05MAY09	110											
GG61170770	Area 6 Certification Report-Former Prod Area	18MAR09	20MAY09	40											
GG61170780	Area 6 EPA Approve Cert Report-Former Prod Area	21MAY09	18AUG09	90											

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 Data Date: 01DEC00  
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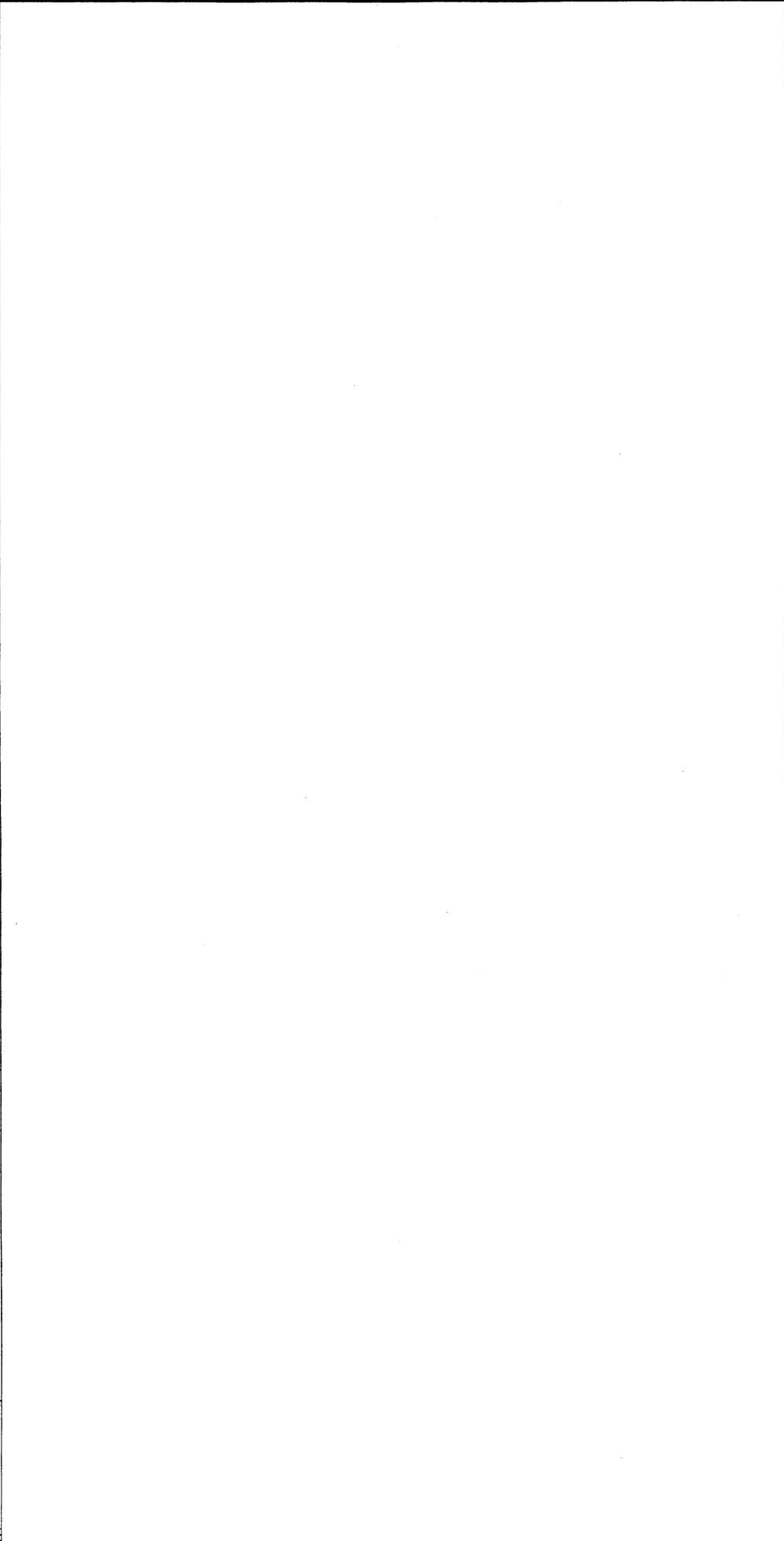
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**1.1.G.K AREA 6 SOIL REMEDIATION**

Sheet 5 of 6

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Activity ID	Activity Description	Early Start	Early Finish	Orig Dur	FY01	FY02	FY03	FY04	FY05	FY06	FY07	FY08	FY09	FY10	FY11
<b>G6118 AREA 6 OFFSITE WASTE DISPOSITION</b>															
GG61180300	Area 6 Procurement	14OCT05	19JAN06	57											
GG6118H200	Area 6 Waste Disposition	14OCT05	20NOV08	695*											
GG61180310	Area 6 Container Receipt, Prep, Loading	20JAN06	20OCT08	618											
GG61180320	Area 6 Shipping and Disposal	22FEB06	20NOV08	618											



<b>FLUOR FERNALD</b>	Start Date	01DEC00	BLCF - GG01	Sheet 6 of 6	Early Bar	<b>SCEP PROJECT</b>  <b>1.1.G.K AREA 6 SOIL REMEDIATION</b>	Date	Revision	Checked/Approved
	Finish Date	27DEC09			Progress Bar			F06-043	
	Data Date	01DEC00			Critical Activity				
	Run Date	05SEP01 16:01							

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## **SECTION 10**

### **3.0 MANPOWER PLANS**















# Manpower Planning Sheet (CR2)

MPS # 1GK04 AREA 6 SITE PREP/EXCAVATION

DRIVERS	START DATE	END DATE	TOT	FY 2001				FY 2002				FY 2003				FY 2004				FY 2005				FY 2006			
				Q1	Q2	Q3	Q4																				
611 Area 6: Excavation	10/02/2006	09/28/2007																									
627 Area 6 Interim Resoration	04/01/2008	06/30/2008																									
635 Area 6: Predsign/Design	10/03/2005	09/29/2006																									
636 Area 6: Precert/Cert	07/02/2007	06/30/2008																									
Environmental Safety & H Safety Tech.			2.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
QA/QC			2.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Environmental Safety & H Rad Tech			13.70	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Sheet Totals:</b>			17.70	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

XXX XXX XXX XXX







# Manpower Planning Sheet (CR2)

## MPS # 1GK06 AREA 6 OFFSITE WASTE DISPOSITION

DRIVERS	START DATE	END DATE	TOT	FY 2001				FY 2002				FY 2003				FY 2004				FY 2005				FY 2006							
				Q1	Q2	Q3	Q4																								
611 Area 6: Excavation	10/02/2006	09/28/2007	1.60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.4	0	0.4	0.4
627 Area 6 Interim Restoration	04/01/2008	06/30/2008	0.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	0	0.1	0.1
635 Area 6: PreDesign/Design	10/03/2005	09/29/2006	0.10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0
636 Area 6: Precert/Cert	07/02/2007	06/30/2008	0.10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1
General Labor	Hazwat		0.10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Transportation Labor	Motor Vehicle Operator		0.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	0	0.1	0.1
Transportation Labor	Heavy Equipment Operator		0.10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0
Transportation Labor	Transportation Laborer		0.10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1
Craft Labor	Pipefitter		0.10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Operations	Operations Manager		0.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0	0.1	0.1
Environmental Safety & H	Rad Tech		0.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0	0.2	0.1
QA/QC	QA Engineer		0.80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	0	0.2	0.2
Waste Management	Waste Engineer		0.80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	0	0.2	0.2
Environmental Safety & H	Safety Tech.		0.30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0	0	0.1
Environmental Safety & H	Rad Engineer		0.20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.1
Environmental Safety & H	Safety Engineer		0.70	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	0	0.2	0.2
Procurement	Material Property Control Rep.		0.10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Management	Tech/Program Support Rep.		0.10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1
Procurement	Buyer/Contracts Administrator		0.10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0
Project Management	Project Mgr.		0.10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0	0	0
Administration	Clerks		0.10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0
<b>Sheet Totals:</b>			6.70	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	1.60	0.00	1.60	1.70



**SECTION 10**

**4.0 ESTIMATE**



**G6111**

**AREA 6 PREDESIGN**



# Fluor Fernald, Inc.

ESTIMATE SUPPORT WORKSHEET  
FOR ACTIVITY BASED ESTIMATING  
(1 FTE EQUALS 1747 HOURS)

DATE: 05-Sep-01  
PROJECT MGR: J.D. CHIOU  
CAM: J.D. CHIOU  
PREPARED BY: W. FICK  
FISCAL YEAR: 2004-2005 & 2007-2008

PBS: OHFN06  
WBS: 1.1.G.K  
CTRL ACCT: G611  
CHARGE NO: G6111  
COMMENT NO N/A

<b>Resource:</b>	<b>DRFCAD</b>												
<b>Res Dept:</b>	<b>949</b>												
<b>Yr Hours:</b>		Oct 00- Sep 01	Oct 01- Sep 02	Oct 02- Sep 03	Oct 03- Sep 04	Oct 04- Sep 05	Oct 05- Sep 06	Oct 06- Sep 07	Oct 07- Sep 08	Oct 08- Sep 09	Oct 09- Sep 10		
<b>Cum Hours:</b>		0.0	0.0	0.0	16.3	43.7	0.0	32.6	27.4	0.0	0.0		
<b>Yr Total Cost:</b>		0.0	0.0	0.0	16.3	60.0	60.0	92.6	120.0	120.0	120.0		
<b>Cum Total Cost:</b>		0.0	0.0	0.0	600	1,705	2,305	3,777	5,082	5,082	5,082		

<b>Resource:</b>	<b>ENSMGR</b>												
<b>Res Dept:</b>	<b>949</b>												
<b>Yr Hours:</b>		Oct 00- Sep 01	Oct 01- Sep 02	Oct 02- Sep 03	Oct 03- Sep 04	Oct 04- Sep 05	Oct 05- Sep 06	Oct 06- Sep 07	Oct 07- Sep 08	Oct 08- Sep 09	Oct 09- Sep 10		
<b>Cum Hours:</b>		0.0	0.0	0.0	59.5	159.5	219.0	333.1	429.0	429.0	429.0		
<b>Yr Total Cost:</b>		0.0	0.0	0.0	3,704	10,521	14,225	8,715	7,724	0	0		
<b>Cum Total Cost:</b>		0.0	0.0	0.0	3,704	14,225	22,940	30,664	30,664	30,664	30,664		

<b>Resource:</b>	<b>ENSREP</b>												
<b>Res Dept:</b>	<b>949</b>												
<b>Yr Hours:</b>		Oct 00- Sep 01	Oct 01- Sep 02	Oct 02- Sep 03	Oct 03- Sep 04	Oct 04- Sep 05	Oct 05- Sep 06	Oct 06- Sep 07	Oct 07- Sep 08	Oct 08- Sep 09	Oct 09- Sep 10		
<b>Cum Hours:</b>		0.0	0.0	0.0	110.7	367.3	478.0	699.0	937.0	937.0	937.0		
<b>Yr Total Cost:</b>		0.0	0.0	0.0	5,485	19,273	24,759	13,431	15,248	0	0		
<b>Cum Total Cost:</b>		0.0	0.0	0.0	5,485	24,759	38,190	53,438	53,438	53,438	53,438		

<b>Resource:</b>	<b>ENSTEC</b>												
<b>Res Dept:</b>	<b>949</b>												
<b>Yr Hours:</b>		Oct 00- Sep 01	Oct 01- Sep 02	Oct 02- Sep 03	Oct 03- Sep 04	Oct 04- Sep 05	Oct 05- Sep 06	Oct 06- Sep 07	Oct 07- Sep 08	Oct 08- Sep 09	Oct 09- Sep 10		
<b>Cum Hours:</b>		0.0	0.0	0.0	190.1	509.9	700.0	1,064.5	306.5	0.0	0.0		
<b>Yr Total Cost:</b>		0.0	0.0	0.0	6,357	18,059	24,415	14,952	13,253	0	0		
<b>Cum Total Cost:</b>		0.0	0.0	0.0	6,357	24,415	39,368	52,620	52,620	52,620	52,620		

<b>Resource:</b>	<b>HEOOPR</b>												
<b>Res Dept:</b>	<b>949</b>												
<b>Yr Hours:</b>		Oct 00- Sep 01	Oct 01- Sep 02	Oct 02- Sep 03	Oct 03- Sep 04	Oct 04- Sep 05	Oct 05- Sep 06	Oct 06- Sep 07	Oct 07- Sep 08	Oct 08- Sep 09	Oct 09- Sep 10		
<b>Cum Hours:</b>		0.0	0.0	0.0	43.5	116.6	160.0	160.0	160.0	160.0	160.0		
<b>Yr Total Cost:</b>		0.0	0.0	0.0	1,614	4,586	6,201	0	0	0	0		
<b>Cum Total Cost:</b>		0.0	0.0	0.0	1,614	6,201	6,201	6,201	6,201	6,201	6,201		

# Fluor Fernald, Inc.

ESTIMATE SUPPORT WORKSHEET  
FOR ACTIVITY BASED ESTIMATING  
(1 FTE EQUALS 1747 HOURS)

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FISCAL YEAR: 2004-2005 & 2007-2008

PBS: OHFN06  
WBS: 1.1.G.K  
CTRL ACCT: G611  
CHARGE NO: G6111  
COMMENT NO N/A

Resource: INDMEC		INDUSTRIAL MECHANIC																						
Res Dept: 949		LABOR																						
Overtime:		EOC: HOU																						
		Class:																						
Yr Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Cum Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Yr Total Cost:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cum Total Cost:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Resource: INHTEC		INDUST HYGIENIST TEC																						
Res Dept: 949		LABOR																						
Overtime:		EOC: SAL																						
		Class:																						
Yr Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Cum Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yr Total Cost:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cum Total Cost:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Resource: LABCHM		CHEMIST																						
Res Dept: 949		LABOR																						
Overtime:		EOC: SAL																						
		Class:																						
Yr Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Cum Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yr Total Cost:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cum Total Cost:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Resource: LABMGR		LAB MANAGER																						
Res Dept: 949		LABOR																						
Overtime:		EOC: SAL																						
		Class:																						
Yr Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Cum Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yr Total Cost:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cum Total Cost:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Resource: LABTEC		LAB TECH																						
Res Dept: 949		LABOR																						
Overtime:		EOC: SAL																						
		Class:																						
Yr Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Cum Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yr Total Cost:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cum Total Cost:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

# Fluor Fernald, Inc.

ESTIMATE SUPPORT WORKSHEET  
FOR ACTIVITY BASED ESTIMATING  
(1 FTE EQUALS 1747 HOURS)

DATE: 05-Sep-01  
PROJECT MGR: J.D. CHIOU  
CAM: J.D. CHIOU  
PREPARED BY: W. FICK  
FISCAL YEAR: 2004-2005 & 2007-2008

PBS: OHFN06

WBS: 1.1.G.K

CTRL ACCT: G611

CHARGE NO: G6111

COMMENT NO N/A

Resource: MVOOPR  
Res Dept: 949

MOTOR VEHICLE OPER		Class:		EOC:		LABOR	
Overtime:		Oct 01-	Oct 02-	Oct 03-	Oct 04-	Oct 05-	Oct 06-
		Oct 00-	Oct 01-	Oct 02-	Oct 03-	Oct 04-	Oct 05-
		Oct 01-	Oct 02-	Oct 03-	Oct 04-	Oct 05-	Oct 06-
		Oct 07-	Oct 08-	Oct 09-	Oct 09-	Oct 09-	Oct 09-
Yr Hours:		0.0	0.0	0.0	0.0	0.0	0.0
Cum Hours:		0.0	40.7	109.3	150.0	150.0	150.0
Yr Total Cost:		0	0	0	0	0	0
Cum Total Cost:		0	1,388	3,944	5,332	5,332	5,332

Resource: PJSMGR  
Res Dept: 949

PROJECT SUPPORT MGR		Class:		EOC:		LABOR	
Overtime:		Oct 01-	Oct 02-	Oct 03-	Oct 04-	Oct 05-	Oct 06-
		Oct 00-	Oct 01-	Oct 02-	Oct 03-	Oct 04-	Oct 05-
		Oct 01-	Oct 02-	Oct 03-	Oct 04-	Oct 05-	Oct 06-
		Oct 07-	Oct 08-	Oct 09-	Oct 09-	Oct 09-	Oct 09-
Yr Hours:		0.0	0.0	0.0	0.0	0.0	0.0
Cum Hours:		0.0	21.2	56.8	78.0	78.0	78.0
Yr Total Cost:		0	0	0	0	0	0
Cum Total Cost:		0	1,144	3,249	4,393	4,393	4,393

Resource: QACENG  
Res Dept: 949

QA ENGINEER		Class:		EOC:		LABOR	
Overtime:		Oct 01-	Oct 02-	Oct 03-	Oct 04-	Oct 05-	Oct 06-
		Oct 00-	Oct 01-	Oct 02-	Oct 03-	Oct 04-	Oct 05-
		Oct 01-	Oct 02-	Oct 03-	Oct 04-	Oct 05-	Oct 06-
		Oct 07-	Oct 08-	Oct 09-	Oct 09-	Oct 09-	Oct 09-
Yr Hours:		0.0	0.0	0.0	0.0	0.0	0.0
Cum Hours:		0.0	32.2	64.8	97.1	152.8	193.1
Yr Total Cost:		0	0	0	0	0	0
Cum Total Cost:		0	1,748	3,727	5,475	9,189	12,010

Resource: RADTEC  
Res Dept: 949

RAD TECH		Class:		EOC:		LABOR	
Overtime:		Oct 01-	Oct 02-	Oct 03-	Oct 04-	Oct 05-	Oct 06-
		Oct 00-	Oct 01-	Oct 02-	Oct 03-	Oct 04-	Oct 05-
		Oct 01-	Oct 02-	Oct 03-	Oct 04-	Oct 05-	Oct 06-
		Oct 07-	Oct 08-	Oct 09-	Oct 09-	Oct 09-	Oct 09-
Yr Hours:		0.0	0.0	0.0	0.0	0.0	0.0
Cum Hours:		0.0	117.0	322.0	439.0	597.0	742.0
Yr Total Cost:		0	0	0	0	0	0
Cum Total Cost:		0	4,709	13,724	18,432	26,230	33,776

Resource: S&HENG  
Res Dept: 949

SAFETY ENGINEER		Class:		EOC:		LABOR	
Overtime:		Oct 01-	Oct 02-	Oct 03-	Oct 04-	Oct 05-	Oct 06-
		Oct 00-	Oct 01-	Oct 02-	Oct 03-	Oct 04-	Oct 05-
		Oct 01-	Oct 02-	Oct 03-	Oct 04-	Oct 05-	Oct 06-
		Oct 07-	Oct 08-	Oct 09-	Oct 09-	Oct 09-	Oct 09-
Yr Hours:		0.0	0.0	0.0	0.0	0.0	0.0
Cum Hours:		0.0	32.1	61.9	94.0	148.6	187.0
Yr Total Cost:		0	0	0	0	0	0
Cum Total Cost:		0	1,883	3,849	5,732	9,666	12,579

# Fluor Fernald, Inc.

ESTIMATE SUPPORT WORKSHEET  
FOR ACTIVITY BASED ESTIMATING  
(1 FTE EQUALS 1747 HOURS)

DATE: 05-Sep-01  
PROJECT MGR: J.D. CHIOU  
CAM: J.D. CHIOU  
PREPARED BY: W. FICK  
FISCAL YEAR: 2004-2005 & 2007-2008

PBS: OHFN06  
WBS: 1.1.G.K  
CTRL ACCT: G611  
CHARGE NO: G6111  
COMMENT NO N/A

Resource:	SERVSUB	SUBS	Overtime:		EOC:		SUB		SUBCONTRACTORS						
			Res Dept:	949	Class:	Oct 01- Sep 02	Oct 02- Sep 03	Oct 03- Sep 04	Oct 04- Sep 05	Oct 05- Sep 06	Oct 06- Sep 07	Oct 07- Sep 08	Oct 08- Sep 09	Oct 09- Sep 10	
Yr Units:			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cum Units:			0.0	0.0	2,510.6	2,510.6	17,722.0	15,211.4	17,722.0	17,722.0	17,722.0	133,853.4	133,853.4	133,853.4	133,853.4
Yr Total Cost:			0	0	0	2,722	16,955	19,677	16,955	0	92,785	92,785	0	0	0
Cum Total Cost:			0	0	0	2,722	19,677	19,677	19,677	66,566	159,351	159,351	159,351	159,351	159,351

**GRAND TOTALS:**

Yr Hours:			0.0	0.0	759.8	759.8	2,365.4	3,125.2	3,125.2	4,468.4	5,998.3	5,998.3	5,998.3	5,998.3	5,998.3
Cum Hours:			0.0	0.0	0.0	759.8	1,529.9	1,529.9	1,529.9	1,529.9	1,529.9	1,529.9	1,529.9	1,529.9	1,529.9
Yr Total Cost:			0	0	0	0	0	0	0	117,595	176,188	176,188	0	0	0
Cum Total Cost:			0	0	0	0	0	0	0	275,791	451,979	451,979	451,979	451,979	451,979

*W. Fick*

CAM CONTROL TEAM

**G6112**

**AREA 6 TITLE I/II DESIGN**



# Fluor Fernald, Inc.

ESTIMATE SUPPORT WORKSHEET  
FOR ACTIVITY BASED ESTIMATING  
(1 FTE EQUALS 1747 HOURS)

DATE: 05-Sep-01  
PROJECT MGR: J.D. CHIOU  
CAM: J.D. CHIOU  
PREPARED BY: W.FICK  
FISCAL YEAR: 2004-2006 & 2008

PBS: OHFN06  
WBS: 1.1.G.K  
CTRL ACCT: G611  
CHARGE NO: G6112  
COMMENT NO F06-028, F06-038

Resource:	DRFCAD																				
Res Dept:	949																				
Yr Hours:		Oct 00- Sep 01	Oct 01- Sep 02	Oct 02- Sep 03	Oct 03- Sep 04	Oct 04- Sep 05	Oct 05- Sep 06	Oct 06- Sep 07	Oct 07- Sep 08	Oct 08- Sep 09	Oct 09- Sep 10										
Cum Hours:		0.0	0.0	0.0	112.7	735.5	692.2	0.0	338.2	0.0	0.0										
Yr Total Cost:		0.0	0.0	0.0	1,540.4	848.2	1,540.4	1,878.6	1,878.6	1,878.6	1,878.6										
Cum Total Cost:		0	0	0	4,150	28,689	28,849	0	16,102	0	0										

Resource:	ENGCVL																				
Res Dept:	949																				
Yr Hours:		Oct 00- Sep 01	Oct 01- Sep 02	Oct 02- Sep 03	Oct 03- Sep 04	Oct 04- Sep 05	Oct 05- Sep 06	Oct 06- Sep 07	Oct 07- Sep 08	Oct 08- Sep 09	Oct 09- Sep 10										
Cum Hours:		0.0	0.0	0.0	184.0	1,200.3	1,129.8	0.0	551.9	0.0	0.0										
Yr Total Cost:		0.0	0.0	0.0	1,840.0	1,384.3	2,514.1	2,514.1	3,066.0	3,066.0	3,066.0										
Cum Total Cost:		0	0	0	11,810	81,632	82,094	0	45,820	0	0										

Resource:	ENGINEER ELECTRICAL																				
Res Dept:	949																				
Yr Hours:		Oct 00- Sep 01	Oct 01- Sep 02	Oct 02- Sep 03	Oct 03- Sep 04	Oct 04- Sep 05	Oct 05- Sep 06	Oct 06- Sep 07	Oct 07- Sep 08	Oct 08- Sep 09	Oct 09- Sep 10										
Cum Hours:		0.0	0.0	0.0	18.7	121.7	114.5	0.0	55.9	0.0	0.0										
Yr Total Cost:		0.0	0.0	0.0	18.7	140.3	254.8	254.8	310.7	310.7	310.7										
Cum Total Cost:		0	0	0	1,153	7,965	8,007	0	4,469	0	0										

Resource:	ENGINEER MECH/PIPING																				
Res Dept:	949																				
Yr Hours:		Oct 00- Sep 01	Oct 01- Sep 02	Oct 02- Sep 03	Oct 03- Sep 04	Oct 04- Sep 05	Oct 05- Sep 06	Oct 06- Sep 07	Oct 07- Sep 08	Oct 08- Sep 09	Oct 09- Sep 10										
Cum Hours:		0.0	0.0	0.0	12.1	79.1	74.5	0.0	37.0	0.0	0.0										
Yr Total Cost:		0.0	0.0	0.0	12.1	91.3	165.8	165.8	202.8	202.8	202.8										
Cum Total Cost:		0	0	0	890	6,154	6,189	0	3,512	0	0										

Resource:	INDHYG																				
Res Dept:	949																				
Yr Hours:		Oct 00- Sep 01	Oct 01- Sep 02	Oct 02- Sep 03	Oct 03- Sep 04	Oct 04- Sep 05	Oct 05- Sep 06	Oct 06- Sep 07	Oct 07- Sep 08	Oct 08- Sep 09	Oct 09- Sep 10										
Cum Hours:		0.0	0.0	0.0	18.3	119.5	112.5	0.0	55.0	0.0	0.0										
Yr Total Cost:		0.0	0.0	0.0	18.3	137.9	250.4	250.4	305.4	305.4	305.4										
Cum Total Cost:		0	0	0	1,005	6,939	6,980	0	3,896	0	0										

# Fluor Fernald, Inc.

ESTIMATE SUPPORT WORKSHEET  
FOR ACTIVITY BASED ESTIMATING  
(1 FTE EQUALS 1747 HOURS)

DATE: 05-Sep-01  
PROJECT MGR: J.D. CHIOU  
CAM: J.D. CHIOU  
PREPARED BY: W.FICK  
FISCAL YEAR: 2004-2006 & 2008

PBS: OHFN06  
WBS: 1.1.G.K  
CTRL ACCT: G611  
CHARGE NO: G6112  
COMMENT NO F06-028, F06-036  
Resource: QACENG  
Res Dept: 949

QA ENGINEER  
Overtime:

	Oct 00-		Oct 01-		Oct 02-		Oct 03-		Oct 04-		Oct 05-		Oct 06-		Oct 07-		Oct 08-		Oct 09-	
	Oct 00-	Sep 01	Oct 01-	Sep 02	Oct 02-	Sep 03	Oct 03-	Sep 04	Oct 04-	Sep 05	Oct 05-	Sep 06	Oct 06-	Sep 07	Oct 07-	Sep 08	Oct 08-	Sep 09	Oct 09-	Sep 10
Yr Hours:	0.0	0.0	0.0	0.0	0.0	0.0	18.3	119.5	112.5	0.0	250.4	305.4	0.0	55.0	305.4	0.0	305.4	0.0	0.0	0.0
Cum Hours:	0.0	0.0	0.0	0.0	0.0	0.0	18.3	137.9	250.4	555.4	855.8	1161.3	1161.3	1216.3	1521.7	1521.7	1827.1	1827.1	1827.1	1827.1
Yr Total Cost:	0	0	0	0	0	0	995	6,870	6,911	0	14,775	18,633	0	3,857	18,633	0	18,633	0	0	0
Cum Total Cost:	0	0	0	0	0	0	995	7,865	14,775	18,633	33,408	52,041	52,041	55,898	74,531	74,531	93,164	93,164	93,164	93,164

## SUBS

Resource: SERVSUB  
Res Dept: 949

	Oct 00-		Oct 01-		Oct 02-		Oct 03-		Oct 04-		Oct 05-		Oct 06-		Oct 07-		Oct 08-		Oct 09-	
	Oct 00-	Sep 01	Oct 01-	Sep 02	Oct 02-	Sep 03	Oct 03-	Sep 04	Oct 04-	Sep 05	Oct 05-	Sep 06	Oct 06-	Sep 07	Oct 07-	Sep 08	Oct 08-	Sep 09	Oct 09-	Sep 10
Yr Units:	0.0	0.0	0.0	0.0	0.0	0.0	18,000.0	314,800.0	250,426.1	0.0	245,276.0	0.0	828,502.0	828,502.0	0.0	828,502.0	0.0	828,502.0	0.0	0.0
Cum Units:	0.0	0.0	0.0	0.0	0.0	0.0	18,000.0	332,800.0	583,226.0	583,226.0	828,502.0	828,502.0	828,502.0	828,502.0	828,502.0	828,502.0	828,502.0	828,502.0	828,502.0	828,502.0
Yr Total Cost:	0	0	0	0	0	0	19,517	350,883	287,225	0	657,624	657,624	0	297,871	955,495	0	955,495	0	0	0
Cum Total Cost:	0	0	0	0	0	0	19,517	370,399	657,624	1,314,823	1,972,447	2,630,071	2,630,071	2,927,942	3,883,437	3,883,437	4,838,932	4,838,932	4,838,932	4,838,932

## GRAND TOTALS:

	Oct 00-		Oct 01-		Oct 02-		Oct 03-		Oct 04-		Oct 05-		Oct 06-		Oct 07-		Oct 08-		Oct 09-	
	Oct 00-	Sep 01	Oct 01-	Sep 02	Oct 02-	Sep 03	Oct 03-	Sep 04	Oct 04-	Sep 05	Oct 05-	Sep 06	Oct 06-	Sep 07	Oct 07-	Sep 08	Oct 08-	Sep 09	Oct 09-	Sep 10
Yr Hours:	0.0	0.0	0.0	0.0	0.0	0.0	364.1	2,375.7	2,236.1	0.0	1,092.9	0.0	6,068.8	6,068.8	0.0	6,068.8	0.0	6,068.8	0.0	0.0
Cum Hours:	0.0	0.0	0.0	0.0	0.0	0.0	364.1	2,739.8	4,975.9	4,975.9	6,068.8	6,068.8	6,068.8	6,068.8	6,068.8	6,068.8	6,068.8	6,068.8	6,068.8	6,068.8
Yr Total Cost:	0	0	0	0	0	0	39,520	489,132	426,254	0	954,906	954,906	0	375,527	1,330,434	0	1,330,434	0	0	0
Cum Total Cost:	0	0	0	0	0	0	39,520	528,652	954,906	1,909,512	2,864,412	3,819,318	3,819,318	4,194,845	5,525,279	5,525,279	6,855,713	6,855,713	6,855,713	6,855,713

CAM



CONTROL TEAM

**G6113**

**AREA 6 TITLE III**







**G6114**

**AREA 6 SITE PREP/EXCAVATION**







GG114

**Fluor Fernald, Inc.**  
**PROJECTS CONTROLS**  
**ESTIMATING SERVICES**

July 26, 2001

**PROJECT DESCRIPTION:** SOILS REMEDIATION AREA 6  
**WBS NUMBER:** 1.1.G.K  
**PROJECT ENGINEER:** T. CRAWFORD  
**ESTIMATOR:** J. AMOS  
**ESTIMATE NUMBER:** C20105003R1

**BASIS OF ESTIMATE**

**SUPPORTING DOCUMENTATION:**

Verbal Scope	<input type="checkbox"/>	P & ID's	<input type="checkbox"/>	Work Plan	<input type="checkbox"/>
Drawings	<input type="checkbox"/>	Equipment List	<input type="checkbox"/>	Site Walk	<input type="checkbox"/>
Sketches	<input checked="" type="checkbox"/>	Specifications	<input type="checkbox"/>	Eng. Mtg.	<input checked="" type="checkbox"/>
Flow Diagrams	<input type="checkbox"/>	Written Scope	<input checked="" type="checkbox"/>	Estimate	<input type="checkbox"/>

**TYPE OF ESTIMATE:**

Change Proposal	<input type="checkbox"/>	Government	<input type="checkbox"/>
Plan/Feasibility	<input type="checkbox"/>	Conceptual	<input type="checkbox"/>
Construction	<input type="checkbox"/>	Title I Design	<input type="checkbox"/>
Budget	<input checked="" type="checkbox"/>	Independent	<input type="checkbox"/>

**BASIS OF ESTIMATE:**

Estimate the cost of excavation of soils, size-reducing building slabs, foundations, manholes, utility trenches and piping from trenches, loading and hauling to the OSDF facility or to the bulk storage facility for shipment off site (shipment cost not included in this estimate). Quantities used were supplied by project management. Scope is based on Scenario #6. Revision 01 corrected excavation volume in former pits area and deleted duplicate volume entry.

**Fluor Fernald, Inc.**  
**PROJECTS CONTROLS**  
**ESTIMATING SERVICES**

July 26, 2001

**PROJECT DESCRIPTION:** SOILS REMEDIATION AREA 6  
**WBS NUMBER:** 1.1.G.K  
**PROJECT ENGINEER:** T. CRAWFORD  
**ESTIMATOR:** J. AMOS  
**ESTIMATE NUMBER:** C20105003R1

**ESTIMATE ASSUMPTIONS**

**EXECUTION:**

- This project is to be performed on a 50-hour week, 10 hours a day.
- This project is to be performed on a 40-hour week, 8 hours a day.
- Premium time allowed.

**WAGE RATES:**

- Wage rates within this estimate are based on Project Labor Agreement rates, effective October 2000 and are considered FY01 dollars for estimating.
- Wage rates within this estimate are based on FF Support Contractor FSC 599 wage rates, effective October 1999 have been escalated 3% and are considered FY01 dollars for estimating.
- Wage rates within this estimate are based on FF FTE Planning Labor Rates FY01.

**ENGINEERING:**

- N/A
- Engineering dollars provided by the Project Engineer.
- Engineering dollars have been factored in at the standard 12% of the total direct and indirect field costs as per request of Project Engineer.

**CONSTRUCTION MANAGEMENT:**

- N/A
- Construction Management dollars provided by the Project Engineer.
- Construction Management dollars have been factored in at the standard 30% of the total direct and indirect field costs as per request of Project Engineer.

**PROJECT MANAGEMENT:**

- N/A
- Project Management dollars provided by the Project Engineer.
- Project Management dollars have been factored in at the standard 30% of the total direct and indirect field costs as per request of Project Engineer.

**WASTE PROGRAM MANAGEMENT:**

- N/A
- Waste Program Management dollars provided by the Project Engineer.

**Fluor Fernald, Inc.**  
**PROJECTS CONTROLS**  
**ESTIMATING SERVICES**

July 26, 2001

**PROJECT DESCRIPTION:** SOILS REMEDIATION AREA 6  
**WBS NUMBER:** 1.1.G.K  
**PROJECT ENGINEER:** T. CRAWFORD  
**ESTIMATOR:** J. AMOS  
**ESTIMATE NUMBER:** C20105003R1

**PRODUCTIVITY:**

A productivity factor has been developed and applied to the unit man-hours derived from MEANS, Richardson, NECA, and or any other published estimating source. See attachment APPENDIX [A] and APPENDIX [B].

**ESCALATION:**

Escalation costs are excluded from the target estimate. The escalation costs are calculated within the Micro-Frame computer system according to the plan for rebaselining.

**UNIT RATES:**

Unit man-hours, equipment and material dollars are based on Richardson, MEANS, NECA, and or other published rates.

**G & A (HO EXPENSE):**

G & A are excluded from the target estimate. The G & A cost are calculated within the Micro-Frame computer system according to the plan for rebaselining.

**HEALTH PHYSICS:**

See attached APPENDIX [C].

**RISK BUDGET:**

There is no risk allowance in this estimate.

**CONTINGENCY:**

There is no contingency allowance in this estimate.

**Fluor Fernald, Inc.**  
**PROJECTS CONTROLS**  
**ESTIMATING SERVICES**

July 26, 2001

**PROJECT DESCRIPTION:** SOILS REMEDIATION AREA 6  
**WBS NUMBER:** 1.1.G.K  
**PROJECT ENGINEER:** T. CRAWFORD  
**ESTIMATOR:** J. AMOS  
**ESTIMATE NUMBER:** C20105003R1

**ESTIMATE INCLUSIONS & EXCLUSIONS**

**INCLUSIONS:**

- Premobilization & Mobilization.
- Demobilization.
- Labor hours.
- Material dollars.
- Equipment dollars.
- X Premium time
- X Excavate, load, haul and dump soil, asphalt, gravel, concrete slabs & foundations (sized Reduced), to the OSDF or other appropriate site.
- X Re-grade slopes to 5H:1V and seed, fertilize, and mulch
- X Bulking factors used are as follows:
  - 1. Soils 1.15
  - 2. Concrete 1.33
  - 3. Pipe debris 2.00
- X Installation, maintenance, and removal of silt and construction/rad control fencing

**EXCLUSIONS:**

- Permits and fees.
- FF G & A (Home Office Expense).
- Construction Management
- Any second tier subcontract costs.
- Project Management dollars.
- Waste Management dollars.
- Sampling, air monitoring and testing of soils
- Shipping and disposal costs of materials off site
- Shipping containers
- Delays due to unidentified contamination of materials or levels of contamination

## ESTIMATE SUMMARY SHEET

PROJECT: AREA 6 SOIL REMEDIATION  
 ESTIMATE #: C2-01-05-003-R01  
 CLIENT: DOE  
 WBS #: 1.1.G.K

# Fluor Fernald, Inc.

DATE: July 24, 2001  
 ESTIMATOR: JEA/KGK  
 LOCATION: Fernald  
 TASK NO.: G6114

ITEM DESCRIPTION	M/H	RATE	LABOR \$	S/C \$	MAT'L \$	EQUIP. \$	TOTAL \$
<b>SOLID WASTE LANDFILL</b>							
SITE PREPARATION	3,470		\$115,090	\$16,900	\$39,770	\$24,130	\$195,890
EXCAVATION	7,345		\$200,420		\$7,085	\$251,510	\$459,015
CONTROLS & MGMT.	275		\$8,900	\$50,000		\$8,240	\$67,140
INTERIM RESTORATION	299		\$10,300	\$100,000	\$3,750		\$114,050
<b>GENERAL AREA</b>							
SITE PREPARATION	7,853		\$235,780		\$35,600	\$25,430	\$296,810
EXCAVATION	53,801		\$1,489,110		\$186,060	\$1,796,770	\$3,471,940
CONTROLS & MGMT.	229		\$7,420	\$40,000		\$6,860	\$54,280
INTERIM RESTORATION	2,537		\$79,440		\$130,000	\$80,260	\$289,700
<b>FORMER PITS AREA</b>							
SITE PREPARATION	4,277		\$130,420		\$46,480	\$17,160	\$194,060
EXCAVATION	9,734		\$269,750		\$89,425	\$286,890	\$646,065
CONTROLS & MGMT.	275		\$8,900	\$50,000		\$8,240	\$67,140
INTERIM RESTORATION	1,288		\$41,280		\$61,250	\$36,120	\$138,650
<b>FORMER PRODUCTION AREA</b>							
SITE PREPARATION	4,294		\$89,210		\$3,180	\$5,490	\$97,880
EXCAVATION	19,617		\$567,020		\$90,400	\$778,720	\$1,436,140
CONTROLS & MGMT.	229		\$7,420	\$40,000		\$60	\$47,480
INTERIM RESTORATION	1,279		\$40,450		\$63,500	\$28,500	\$132,450
DEMobilIZATION	380		\$12,190			\$9,000	\$21,190
<b>DIRECT FIELD COSTS TOTAL</b>							
	117,180	\$28.27	\$3,313,100	\$296,900	\$756,500	\$3,363,380	\$7,729,880
<b>SUPERVISION - CONTRACTOR</b>							
	42,826		\$1,284,060				\$1,284,060
<b>SMALL TOOLS &amp; CONSUMABLES</b>							
	-	-	-		\$66,300		\$66,300
<b>MISC. EQUIP. RENTAL</b>							
	-	-	-			\$117,200	\$117,200
<b>TEMPORARY FACILITIES</b>							
	1,172		\$33,100		\$33,100		\$66,200
<b>TEMPORARY UTILITY HOOK-UP</b>							
	762		\$21,500		\$11,600		\$33,100
<b>JOB CLEAN-UP</b>							
	1,758		\$49,700		\$16,600		\$66,300
<b>PER DIEM / SUBSISTANCE</b>							
	-	-	-				-
<b>HEALTH PHYSICS S/C</b>							
	849		\$24,000		\$189,200		\$213,200
<b>CERCLA - TRAINING</b>							
	375		\$10,600				\$10,600
<b>GET/SITE ACCESS &amp; JOB SPECIFIC TRAINING</b>							
	450		\$12,700				\$12,700
<b>PAYROLL BURDENS &amp; BENEFITS</b>							
	-	-	\$2,706,800				\$2,706,800
<b>OVERHEAD &amp; PROFIT</b>							
	-	-	-	\$2,461,300			\$2,461,300
<b>BOND</b>							
	-	-	-	\$192,000			\$192,000
<b>SALES TAX</b>							
	-	-	-		\$64,400	\$208,800	\$273,200
<b>INDIRECT FIELD COSTS TOTAL</b>							
	48,191		\$4,142,460	\$2,653,300	\$381,200	\$326,000	\$7,502,960
<b>DIRECT &amp; INDIRECT FIELD COSTS TOTAL</b>							
	165,371	\$45.08	\$7,455,560	\$2,950,200	\$1,137,700	\$3,689,380	\$15,232,840
<b>TARGET ESTIMATE (FY 01 DOLLARS)</b>							
							\$15,232,840

ESTIMATE PERFORMED BY ESTIMATING SERVICES

## ESTIMATE SUMMARY SHEET

PROJECT: AREA 6 SOIL REMEDIATION  
 ESTIMATE NO.: C2-01-05-003-R01  
 CLIENT: DOE  
 WBS NO.: 1.1.G.K

DATE: July 24, 2001  
 ESTIMATOR: JEA/KGK  
 LOCATION: Fernald  
 TASK NO.: G6114

### FACTORS

FIXED PRICE \$	LABOR \$	S/C \$	MATL. \$	EQUIP. \$	PPE \$	TOTAL \$
DFC DOLLARS	\$3,313,100	\$296,900	\$756,500	\$3,363,380	\$189,200	\$7,919,080
IFC COST FACTOR	2.2503	-	1.1687	1.0348	-	
BOND + OVERHEAD & PROFIT COST FACTOR	1.2109	1.2109	1.2109	1.2109	1.2109	
SALES TAX	-	-	1.0600	1.0600	1.0600	
<b>DIRECT FIELD COST FACTOR =</b>	<b>2.7250</b>	<b>1.2109</b>	<b>1.5001</b>	<b>1.3283</b>	<b>1.2836</b>	
<b>BASE ESTIMATE \$'s</b>	<b>\$9,028,101</b>	<b>\$359,523</b>	<b>\$1,134,811</b>	<b>\$4,467,593</b>	<b>\$242,853</b>	<b>\$15,232,880</b>
<b>BASE FACTOR</b>	<b>1.0000</b>	<b>1.0000</b>	<b>1.0000</b>	<b>1.0000</b>	<b>1.0000</b>	
<b>TARGET ESTIMATE FACTOR</b>	<b>2.7250</b>	<b>1.2109</b>	<b>1.5001</b>	<b>1.3283</b>	<b>1.2836</b>	
<b>FPS TARGET ESTIMATE (FY01 \$)</b>	<b>\$9,028,101</b>	<b>\$359,523</b>	<b>\$1,134,811</b>	<b>\$4,467,593</b>	<b>\$242,853</b>	<b>\$15,232,880</b>

**NOTE:**

If there are no DFC Equip. \$, enter The IFC Equip. \$'s into the direct field cost TOTAL and delete IFC Factor in G62.

## ESTIMATE SUMMARY SHEET

PROJECT: AREA 6 SOIL REMEDIATION  
 ESTIMATE NO.: C2-01-05-003-R01  
 CLIENT: DOE  
 WBS NO.: 1.1.G.K

### Direct Field Cost w / FACTORS

DATE: July 24, 2001  
 ESTIMATOR: JEA/KGK  
 LOCATION: Fernald  
 TASK NO.: G6114

PAY ITEM NO.	DESCRIPTION	LABOR \$	S/C \$	MAT'L. \$	EQUIP. \$	PPE \$	TOTAL \$
	<u>SOLID WASTE LANDFILL</u>	(ASSIGN OR PRORATE PPE MAT'L.\$'s)-->>				189200	
	SITE PREPARATION	115090	16900	39770	24130	2239	198,129
		\$313,620	\$20,460	\$59,660	\$32,050	\$2,870	\$428,660
	EXCAVATION	200420		7085	251510	33315	492,330
		\$546,140		\$10,630	\$334,080	\$42,760	\$933,610
	CONTROLS & MGMT.	8900	50000		8240		67,140
		\$24,250	\$60,550		\$10,950		\$95,750
	INTERIM RESTORATION	10300	100000	3750			114,050
		\$28,070	\$121,090	\$5,630			\$154,790
	<u>GENERAL AREA</u>						
	SITE PREPARATION	235780		35600	25430	11420	308,230
		\$642,490		\$53,400	\$33,780	\$14,660	\$744,330
	EXCAVATION	1489110		186060	1796770	92304	3,564,244
		\$4,057,780		\$279,100	\$2,386,660	\$118,480	\$6,842,020
	CONTROLS & MGMT.	7420	40000		6860		54,280
		\$20,220	\$48,440		\$9,110		\$77,770
	INTERIM RESTORATION	79440		130000	80260		289,700
		\$216,470		\$195,010	\$106,610		\$518,090
	<u>FORMER PITS AREA</u>						
	SITE PREPARATION	130420		46480	17160	5156	199,216
		\$355,390		\$69,720	\$22,790	\$6,620	\$454,520
	EXCAVATION	269750		89425	286890	15568	661,633
		\$735,060		\$134,140	\$381,080	\$19,980	\$1,270,260
	CONTROLS & MGMT.	8900	50000		8240		67,140
		\$24,250	\$60,550		\$10,950		\$95,750
	INTERIM RESTORATION	41280		61250	36120		138,650
		\$112,490		\$91,880	\$47,980		\$252,350
	<u>FORMER PRODUCTION AREA</u>						
	SITE PREPARATION	89210		3180	5490	5674	103,554
		\$243,090		\$4,770	\$7,290	\$7,280	\$262,430
	EXCAVATION	567020		90400	778720	23189	1,459,329
		\$1,545,110		\$135,610	\$1,034,380	\$29,770	\$2,744,870
	CONTROLS & MGMT.	7420	40000		60		47,480
		\$20,220	\$48,440		\$80		\$68,740
	INTERIM RESTORATION	40450		63500	28500		132,450
		\$110,230		\$95,260	\$37,860		\$243,350
	DEMOBILIZATION	12190			9000	287	21,477
		\$33,220			\$11,950	\$370	\$45,540
<b>TOTAL DIRECT FIELD COSTS w/FACTORS ( FY01 DOLLARS )</b>		<b>\$9,028,100</b>	<b>\$359,530</b>	<b>\$1,134,810</b>	<b>\$4,467,600</b>	<b>\$242,790</b>	<b>\$15,232,830</b>



# DETAIL ESTIMATE WORKSHEETS

## Fluor Fernald, Inc.

DATE: July 24, 2001  
 ESTIMATOR: JEA/KGK  
 LOCATION: Fernald  
 TASK NO.: G6114

PROJECT: AREA 6 SOIL REMEDIATION  
 ESTIMATE NO.: C2-01-06-003-R01  
 CLIENT: DOE  
 WBS NO.: 1.1.G.K

ITEM NO.	SUMMARY	QTY	UNIT	MAN-HOURS		Rate	COST / UNIT			LABOR	S/C	MAT'L	EQUIP	TOTAL
				Unit	Total		Labor	S/C	Mat'l					
	<b>SOLID WASTE LANDFILL</b>													
	SITE PREPARATION			3,470					\$115,090	\$16,900	\$39,770	\$24,130	\$195,890	
	EXCAVATION			7,345					\$200,420	\$50,000	\$7,085	\$251,510	\$459,015	
	CONTROLS & MGMT.			275					\$8,900	\$100,000		\$8,240	\$67,140	
	INTERIM RESTORATION			299					\$10,300		\$3,750		\$114,050	
	<b>SOLID WASTE LANDFILL DIRECT FIELD TOTAL</b>			<b>11,388</b>					<b>\$334,710</b>	<b>\$166,900</b>	<b>\$50,605</b>	<b>\$283,880</b>	<b>\$836,085</b>	
	<b>GENERAL AREA</b>													
	SITE PREPARATION			7,853					\$235,780		\$35,600	\$25,430	\$296,810	
	EXCAVATION			53,801					\$1,489,110		\$186,060	\$1,796,770	\$3,471,940	
	CONTROLS & MGMT.			229					\$7,420	\$40,000		\$6,860	\$54,280	
	INTERIM RESTORATION			2,537					\$79,440		\$130,000	\$80,260	\$289,700	
	<b>GENERAL AREA DIRECT FIELD TOTAL</b>			<b>64,420</b>					<b>\$1,811,750</b>	<b>\$40,000</b>	<b>\$351,660</b>	<b>\$1,909,320</b>	<b>\$4,112,730</b>	
	<b>FORMER PITS AREA</b>													
	SITE PREPARATION			4,277					\$130,420		\$46,480	\$17,160	\$194,060	
	EXCAVATION			9,734					\$269,750		\$89,425	\$286,890	\$646,065	
	CONTROLS & MGMT.			275					\$8,900	\$50,000		\$8,240	\$67,140	
	INTERIM RESTORATION			1,288					\$41,280		\$61,250	\$36,120	\$138,650	
	<b>FORMER PITS AREA DIRECT FIELD TOTAL</b>			<b>15,573</b>					<b>\$450,350</b>	<b>\$50,000</b>	<b>\$197,155</b>	<b>\$348,410</b>	<b>\$1,045,915</b>	
	<b>FORMER PRODUCTION AREA</b>													
	SITE PREPARATION			4,294					\$89,210		\$3,180	\$5,490	\$97,880	
	EXCAVATION			19,617					\$567,020		\$90,400	\$778,720	\$1,436,140	
	CONTROLS & MGMT.			229					\$7,420	\$40,000		\$60	\$47,480	
	INTERIM RESTORATION			1,279					\$40,450		\$63,500	\$28,500	\$132,450	
	DEMOBILIZATION			380					\$12,190			\$9,000	\$21,190	
	<b>FORMER PRODUCTION AREA DIRECT FIELD TOTAL</b>			<b>25,799</b>					<b>\$716,290</b>	<b>\$40,000</b>	<b>\$157,080</b>	<b>\$821,770</b>	<b>\$1,735,140</b>	
	<b>Subtotal Direct Cost</b>			<b>91,761</b>		<b>\$30.11</b>			<b>\$7,313,100</b>	<b>\$260,900</b>	<b>\$756,500</b>	<b>\$3,363,330</b>	<b>\$7,728,880</b>	

DETAIL ESTIMATE WORKSHEETS

**Fluor Fernald, Inc.**

PROJECT: AREA 6 SOIL REMEDIATION  
 ESTIMATE NO.: C2-01-06-003-R01  
 CLIENT: DOE  
 WBS NO.: 1.1.G.K

DATE: July 24, 2001  
 ESTIMATOR: JEAKGK  
 LOCATION: Fernald  
 TASK NO.: G6114

ITEM NO.	SOLID WASTE LANDFILL	QTY	UNIT	MAN-HOURS		Rate	Labor	COST/UNIT		LABOR	S/C	MAT'L	EQUIP	TOTAL
				Unit	Total			S/C	Mat'l					
	<b>PREMOBILIZATION</b> (INCLUDED w/SWL SITE PREP.)													
	A. Insurance Certificates, List of Sub-Tier Contractors Procurement Documents, Safe Work Plans, QA/QC Plan, Project Execution Plan, Construction and Engineering Documentation, Acceptable baseline Schedules Duration 8 wks	1	LS	200.000	1,600	35.00				\$56,000				\$56,000
	<b>MOBILIZATION</b> (INCLUDED w/SWL SITE PREP.)													
	SIC Office Trailer	46.3	mo			32.38		300			\$13,900			\$13,900
	Survey and Engineering Controls	1	LS			31.18		3,000	500	\$2,500	\$3,000	\$500	\$500	\$4,000
D	Install Utilities	1	LS	80.000	80	31.18		1,000	500	\$2,500		\$500	\$500	\$3,500
D	Other misc. requirements as required.	1	Ea	20.000	23	29.52		500	500	\$680		\$500	\$5,000	\$6,180
D	Break trailer	1	Ea	4.000	5	29.52		500	500	\$140		\$500	\$500	\$640
D	Sealand storage container	1	Ea	20.000	37	32.43		3000	3000	\$1,180		\$3,000	\$3,000	\$4,180
mC	Install break/cool-down trailer	11	Ea	3.000	38	32.43		100	100	\$1,220		\$1,100	\$1,100	\$2,320
D	Equipment													
	<b>Premob. &amp; Mobil. Subtotal (Direct Cost w/SWL SITE PREP.)</b>				1,862	\$34.49	\$64,220			\$64,220	\$16,900	\$2,500	\$11,100	\$94,720



DETAIL ESTIMATE WORKSHEETS

# Fluor Fernald, Inc.

PROJECT: AREA 6 SOIL REMEDIATION  
 ESTIMATE NO.: C2-01-05-003-R01  
 CLIENT: DOE  
 WBS NO.: 1.1.G.K

DATE: July 24, 2001  
 ESTIMATOR: JEAVK/GK  
 LOCATION: Fernald  
 TASK NO.: G6114

ITEM NO.	SOLID WASTE LANDFILL	QTY	UNIT	MAN-HOURS			COST/UNIT			LABOR	S/C	MAT'L	EQUIP	TOTAL
				Unit	Total	Rate	Labor	S/C	Mat'l					
<b>C.) CONTROLS &amp; MGMT.</b>														
D	Remove sediment from sump	2	Ea	120.000	275	32.43								
D	Remove sediment from ditches & silt fence *													
D	Oper. & maintain sump pump *													
D	Maint surf. Water & erosion control *													
D	Maint. Certification fencing *													
D	Provide regrading & reseeding as needed *													
D	Provide dust control as needed (Allowance)	1	Lot				50000.00							\$50,000
	* Items Included in remove sediment from sump													
	SWL Controls & Mgmt. DFC Total				275				\$8,900	\$50,000				\$67,140
<b>D.) INTERIM RESTORATION</b>														
D	Grading to reshape slopes to 5:1:1V	1500	CY	0.045	77	32.43								
D	Seed and mulch	1.5	Acres	20.000	34	29.52								
D	Remove dust control piping	1275	LF	0.050	73	36.27								
D	Remove sump pump/electrical	1	Lot	100.000	114	36.27								
	SWL Interim Storage DFC Total				299				\$10,300	\$100,000	\$3,750	\$24,140		\$138,190
									\$2,500		\$3,750	\$3,390		\$5,890
									\$1,010			\$750		\$5,510
									\$2,640			\$1,020		\$3,660
									\$4,150			\$2,500		\$6,650

# DETAIL ESTIMATE WORKSHEETS

## Fluor Fernald, Inc.

PROJECT: AREA 6 SOIL REMEDIATION  
 ESTIMATE NO.: C2-01-05-003-R01  
 CLIENT: DOE  
 WBS NO.: 1.1.G.K

DATE: July 24, 2001  
 ESTIMATOR: JEAKGK  
 LOCATION: Fernald  
 TASK NO.: G6114

ITEM NO.	GENERAL AREA	QTY	UNIT	MAN-HOURS			COST/UNIT			LABOR	S/C	MAT'L	EQUIP	TOTAL
				Total	Rate	Unit	Labor	S/C	Mat'l					
<b>A.1 SITE PREPARATION</b>														
mC	Survey, stake, and maintain grade	52	CRES	5697	29.52	60.000								
mC	Install silt fence	1400	LF	102	29.52	0.040	60.00	175.00	\$168,200		\$3,120	\$9,100	\$180,420	
D	Replace/install plastic const. Fence	10000	LF	1144	29.52	0.100	1.00	1.15	\$3,020		\$1,400	\$1,610	\$6,030	
D	Place const signs	100	Ea	172	29.52	1.500	1.00	0.10	\$33,770		\$10,000	\$1,000	\$44,770	
mC	Temporary Water System	2400	LF	438	36.27	0.100		0.10	\$5,070			\$10	\$5,080	
mC	4" dia. HDPE pipe	23	Ea	84	36.27	2.000	2.25	1.41	\$15,890		\$5,400	\$3,380	\$24,670	
mC	Sprinklers (22 ea) w/ isolation valves @ 100'	4	Ea	7	36.27	1.000	45.00	20.00	\$3,050		\$1,040	\$460	\$4,550	
D	4" wyes w/ 4" dia. Ball valves						100.00		\$260		\$400		\$660	
D														
D	Const. Support/transfer areas	495	Tons	11	29.52	0.020								
D	#304 aggregate	2365	SY	82	29.52	0.030	18.00	1.00	\$330		\$8,910	\$500	\$9,740	
D	Geotextile underlayment						1.60	0.10	\$2,420		\$3,820	\$240	\$6,480	
D	Dust Control Temp. water system	450	LF	51	36.27	0.100								
D	4" Dia HDPE Pipe w/ ball valves	1	Ea	23	29.52	20.000	2.25	1.41	\$1,870		\$1,010	\$630	\$3,510	
D	Break/change out trailer	1	Ea	5	29.52	4.000	500.00	5000.00	\$680		\$500	\$5,000	\$6,180	
D	Sealand storage container	1	Ea	37	29.52	20.000	500.00	3000.00	\$140		\$500	\$500	\$640	
mC	Install break/cool-down trailer	1	Ea						\$1,080			\$3,000	\$4,080	
D	Trailer complex ????????	1	Ea											
General Area Site Prep DFC Total														
				7,853					\$235,780		\$35,600	\$25,430	\$296,810	
<b>B.1 EXCAVATION</b>														
mC	Labor to man-handle ties	1	Lot	146	31.18	80.000								
mC	Excavate & load rr ballast & ties	3038	CY	416	32.43	0.075	1000.00	7.60	\$4,550			\$1,000	\$5,550	
mC	Haul rr ballast & ties to OSDF	6076	CY	666	20.78	0.060	7.60	5.70	\$13,490			\$23,090	\$36,580	
mC	Clear veg. @ Paddy's Run E. Diver. & stockpile	2	Acres	192	32.43	0.052	2.30	3.80	\$6,220			\$34,630	\$48,460	
mC	Excavate & load Cat 1 former WPRAP Proc. Area	163190	CY	15495	32.43	0.038	3.80	2.30	\$502,540			\$620,120	\$6,220	
mC	Haul WPRAP cat 1 to OSDF	187669	CY	13022	20.78	0.052	2.30	3.80	\$270,600			\$431,640	\$1,122,660	
mC	Excavate & load cat 1 Former Fire Train.	38215	CY	3629	32.43	0.038	3.80	2.30	\$117,680			\$145,220	\$702,240	
mC	Haul Cat 1 Former Fire Train	43947	CY	3049	20.78	0.038	2.30	3.80	\$63,370			\$101,080	\$164,450	
mC	Excavate, segregate, & load Cat 2 debris FFT	646	CY	123	32.43	0.104	7.60	2.68	\$3,980			\$4,910	\$8,890	
D	Haul Cat 2 debris to OSDF	1292	CY	65	20.78	0.044	2.68	1.350	\$1,350			\$3,460	\$4,810	
mC	Excavate & load cat 1 utility trench backfill & roads	26506	CY	2904	32.43	0.060	6.56	6.56	\$94,180			\$173,880	\$268,060	
mC	Haul Cat 1 Utility trench & roads	30482	CY	2449	20.78	0.044	2.30	3.80	\$50,890			\$70,110	\$121,000	
mC	Excavate, size reduce & load utility piling cat 2	650	CY	2255	32.43	1.900	7.60	7.60	\$73,140			\$4,940	\$78,080	
D	Haul utility piling debris Cat 2 to OSDF	1300	CY	65	20.78	0.044	2.68	2.68	\$1,360			\$3,480	\$4,840	
mC	Excavate, segregate, & load Cat 2 debris Paddy's	100	CY	19	32.43	0.104	7.60	7.60	\$620			\$760	\$1,380	
mC	Haul Cat 2 debris to OSDF	115	CY	9	20.78	0.044	2.68	2.68	\$190			\$310	\$500	
mC	Excavate, size-reduce, & load Cat 2 slabs & found.	5463	CY	1037	32.43	0.104	7.60	7.60	\$33,650			\$41,520	\$75,170	
mC	Haul Cat 2 slabs & found.	7265.8	CY	584	20.78	0.044	2.68	2.68	\$12,130			\$19,470	\$31,600	
mC	Excavate, size-reduce, & load Cat 2 misc & debris	5664	CY	1076	32.43	0.104	7.60	7.60	\$34,880			\$43,050	\$77,930	
mC	Haul Cat.2 misc & debris to OSDF	7533.1	CY	605	20.78	0.044	2.68	2.68	\$12,580			\$20,190	\$32,770	

CONTRACTOR - Stated In FY01 DOLLARS

DETAIL ESTIMATE WORKSHEETS

DATE: July 24, 2001  
 ESTIMATOR: JEA/KGK  
 LOCATION: Fernald  
 TASK NO.: G6114

PROJECT: AREA 6 SOIL REMEDIATION  
 ESTIMATE NO.: C2-01-06-003-R01  
 CLIENT: DOE  
 WBS NO.: 1.1.G.K

**Fluor Fernald, Inc.**

ITEM NO.	GENERAL AREA	QTY	UNIT	MAN-HOURS		Rate	COST/UNIT			LABOR	S/C	MATL	EQUIP	TOTAL
				Unit	Total		Labor	S/C	Matl					
<b>B.1 EXCAVATION (CONT.)</b>														
mC	Excavate & load below excavation AWAC bkfill	1606	CY	0.104	305	32.43							\$12,210	\$22,100
mC	Haul AWAC bkfill to bulk staging area	1846.9	CY	0.044	148	20.78							\$4,950	\$8,030
mC	Excavate, size reduce & load AWAC utility piping debris, (below the excavation grade)	50	CY	1.900	173	32.43							\$380	\$6,010
mC	Haul AWAC utility piping to bulk staging area	100	CY	0.044	8	20.78							\$270	\$440
D	Replace const fence w/ certification rope	10000	LF	0.090	1030	29.52					\$2,500		\$1,000	\$33,900
mC	Decon equipment	80	Hrs	2.000	292	32.43		0.25					\$9,480	\$9,480
mC	Survey for excavation	52	Acres	30.000	2849	29.52		30.00			\$1,560		\$9,100	\$9,480
D	Seed and Mulch	52	Acres	20.000	1190	29.52		3500.00			\$182,000		\$26,000	\$94,760
	General Area Excavation DFC Total				53,801					\$1,489,110	\$186,060	\$1,796,770	\$3,471,940	
<b>C.1 CONTROLS &amp; MGMT.</b>														
D	Remove sediment from ditches & silt fence	2	Ea	100.000	229	32.43							\$6,880	\$14,280
D	Maint surf. Water & erosion control													
D	Maint. Certification fencing													
D	Provide dust control as needed (Allowance)													
D	Provide regrading & reseeding as needed *													
	* Items Included in remove sediment from sump													
	General Area Controls & Mgmt. DFC Total				229			40000.00		\$7,420			\$40,000	\$40,000
<b>D.1 INTERIM RESTORATION</b>														
D	Grading to reshape slopes to 5H:1V	23000	CY	0.045	1184	32.43							\$6,860	\$54,280
D	Seed and mulch	52	Acres	20.000	1190	29.52							\$51,980	\$90,380
D	Remove dust control piping	2850	LF	0.050	163	36.27							\$26,000	\$191,130
	General Area Interim Storage DFC Total				2,537					\$79,440	\$130,000	\$80,260	\$289,700	

# DETAIL ESTIMATE WORKSHEETS

## Fluor Fernald, Inc.

PROJECT: AREA 6 SOIL REMEDIATION  
 ESTIMATE NO.: C2-01-06-003-R01  
 CLIENT: DOE  
 WBS NO.: 1.1.G.K

DATE: July 24, 2001  
 ESTIMATOR: JEA/KGK  
 LOCATION: Fernald  
 TASK NO.: G6114

ITEM NO.	FORMER PITS AREA	QTY	MAN-HOURS	COST/UNIT			LABOR	S/C	MATL	EQUIP	TOTAL
				Unit	Total	Rate					
<b>A) SITE PREPARATION</b>											
mC	Relocate former SWU support trailer complex	1 Lot									
D	Survey, stake, and maintain grade	25 Acres	2684	29.52	60.00	175.00	\$79,250		\$1,470	\$4,290	\$85,010
mC	Install const. Fence	4700 LF	538	29.52	1.00	0.10	\$15,870		\$4,700	\$470	\$21,040
mC	Silt fence	200 LF	15	31.18	1.00	1.15	\$460		\$200	\$230	\$890
Establish const support areas											
D	Parking area (ALLOWANCE)	1 Ea	114	32.43	10000.00	2000.00	\$3,710		\$10,000	\$2,000	\$15,710
D	Laydown area (mater., equip., refuel, Etc. (ALLOW	1 Ea	114	32.43	8000.00	1500.00	\$3,710		\$8,000	\$1,500	\$13,210
mC	Install & develop new const. Well ??????	1 Ea									
mC	Install sump pumps w/ auto controls	1 Ea	73	36.27	3000.00	100.00	\$2,650		\$3,000	\$100	\$5,750
mC	4" dia. HDPE pipe	100 LF	18	36.27	2.25	1.41	\$660		\$230	\$140	\$1,030
mC	4" dia ball valves & check valves	3 Ea	11	36.27	400.00		\$400		\$1,200	\$600	\$1,600
mC	Electrical to sump pumps	200 LF	73	31.14	6.00	3.00	\$2,270		\$1,200	\$600	\$4,070
<u>Dust Control Temporary water system</u>											
D	4" Dia HDPE Pipe w/ ball valves	2260 LF	259	36.27	2.25	1.41	\$9,380		\$5,090	\$3,190	\$17,660
D	Sprinklers (22 ea) w/ isolation valves @ 100'	22 Ea	50	36.27	45.00	20.00	\$1,830		\$990	\$440	\$3,260
D	4" wyes w/ 4" dia. Ball valves	6 Ea	7	36.27	100.00		\$250		\$600	\$600	\$850
D	Electrical to trailers	1400 LF	320	31.14	7.00	3.00	\$9,980		\$9,800	\$4,200	\$23,980
<b>B.) EXCAVATION</b>											
Former Pits Area Site Prep DFC Total revised By KGK/WF											
mC	Excavate & load soil & silt like material	41822 CY	3971	32.43		3.00	\$130,420		\$46,480	\$17,160	\$194,060
mC	Excavate waste pits (1-6) to 10' depth	48095 CY	3337	20.78		3.80	\$128,790			\$158,920	\$287,710
mC	Haul soil to OSDF	4700 LF	484	29.52	2.30	0.10	\$69,350		\$1,175	\$110,620	\$179,970
D	Replace const fence w/ certification rope	25 Acres	1370	29.52	30.00	175.00	\$14,290		\$750	\$470	\$15,935
D	Survey for excavation	25 Acres	572	29.52	3500.00	500.00	\$40,430		\$87,500	\$4,380	\$45,560
D	Seed and Mulch		9,734				\$16,890		\$89,425	\$12,500	\$116,890
<b>C.) CONTROLS &amp; MGMT.</b>											
Former Pits Area Excavation DFC Total											
D	Remove sediment from sump	2 Ea	275	32.43		30.00	\$8,900			\$8,240	\$17,140
D	Remove sediment from ditches & silt fence *										
D	Oper. & maintain sump pump *										
D	Maint surf. Water & erosion control *										
D	Maint. Certification fencing *										
D	Provide regrading & reseeding as needed *										
D	Provide dust control as needed (Allowance)										
D	* Items included in remove sediment from sump										
<b>Former Pits Area Controls &amp; Mgmt. DFC Total</b>											
			275				\$8,900	\$50,000	\$8,240		\$50,000
											\$67,140

**DETAIL ESTIMATE WORKSHEETS**  
**Fluor Fernald, Inc.**

PROJECT: AREA 6 SOIL REMEDIATION  
ESTIMATE NO.: C2-01-06-003-R01  
CLIENT: DOE  
WBS NO.: 1.1.G.K

DATE: July 24, 2001  
ESTIMATOR: JEAKGK  
LOCATION: Fernald  
TASK NO.: G6114

ITEM NO.	FORMER PITS AREA	QTY	UNIT	MAN-HOURS		COST/UNIT			LABOR	S/C	MAT'L	EQUIP	TOTAL
				Unit	Total	Rate	Labor	S/C					
D	<b>D.1 INTERIM RESTORATION</b>	8400	CY	0.045	432	32.43							
D	Grading to reshape slopes to 5H:1V	24.5	Acres	20.000	561	29.52		\$14,020		\$61,250	\$18,980	\$33,000	
D	Seed and mulch	1	Ea	40.000	46	36.27	2500.00	\$16,550			\$12,250	\$90,050	
D	Remove sump pump	2360	LF	0.050	135	36.27		\$1,660			\$500	\$2,160	
D	Remove dust control piping	1	Lot	100.000	114	36.27		\$4,900			\$1,890	\$6,790	
	Former Pits Area Interim Storage DFC Total				1,288			\$41,280		\$61,250	\$36,120	\$138,650	

**DETAIL ESTIMATE WORKSHEETS**  
**Fluor Fernald, Inc.**

PROJECT: AREA 6 SOIL REMEDIATION  
ESTIMATE NO.: C2-01-06-003-R01  
CLIENT: DOE  
WBS NO.: 1.1.G.K

DATE: July 24, 2001  
ESTIMATOR: JEAKGK  
LOCATION: Fernald  
TASK NO.: G6114

ITEM NO.	FORMER PRODUCTION AREA	QTY	UNIT	MAN-HOURS		COST/UNIT			LABOR	S/C	MATT'L	EQUIP	TOTAL
				Unit	Total	Rate	Labor	S/C					
<b>A) SITE PREPARATION</b>													
mC	Survey, stake, and maintain grade	25	CRES	60.000	2783	29.52							
mC	Install silt fence	200	LF	0.040	15	29.52	60.00						
D	Replace/install plastic const. Fence	8600	LF	0.100	984	29.52	1.00						
D	Place const signs	86	Ea	1.500	148	29.52	1.00						
<b>Dust Control Temporary water system</b>													
mC	Relocate exist. Above grade dust control piping	1	Lot	40.000	73	36.27							
mC	4" dia. HDPE pipe	500	LF	0.100	91	36.27	100.00						
mC	Sprinklers (22 ea) w/ isolation valves @ 100'	5	Ea	2.000	18	36.27	2.25						
mC	Maintain radiological Control Point trailer	1	Ea	100.000	183	29.52	45.00						
				Former Production Area Site Prep DFC Total		4,294							
<b>B.) EXCAVATION</b>													
mC	Excavate & load Cat 1 soil	49773	CY	0.052	4726	32.43							
D	Haul Cat 1 to OSDF	57239	CY	0.038	2488	20.78							
mC	Excavate & load Cat 1 soil utility trench bkfill	8643	CY	0.060	947	32.43							
D	Haul utility trench bkfill to OSDF	9939.5	CY	0.044	500	20.78							
mC	Excavate & load Cat 1 soil from roads & OMTA	27313	CY	0.060	2992	32.43							
D	Haul Cat 1 soil from roads & OMTA to OSDF	31410	CY	0.044	1581	20.78							
mC	Excavate, size-reduce & load utility piping debris	278	CY	1.900	964	32.43							
D	Haul Cat 2 piping debris to OSDF	556	CY	0.044	28	20.78							
mC	Excavate, size-reduce & load conc slabs & found.	3171	CY	0.104	602	32.43							
D	Haul Cat 2 conc slabs & found to OSDF	4217.4	CY	0.044	212	20.78							
mC	Excavate, size-reduce, & load misc conc & debris	5664	CY	0.104	1076	32.43							
D	Haul Cat 2 misc conc. & debris to OSDF	7533.1	CY	0.044	379	20.78							
mC	Excavate, & load AWAC soil trench bkfill below grid	688	CY	0.060	75	32.43							
D	Haul AWAC soil trench bkfill to bulk staging area	791.2	CY	0.044	40	20.78							
mC	Excavate, size-reduce, & load AWAC utility piping	50	CY	1.900	173	32.43							
D	Haul AWAC piping debris to bulk staging area	100	CY	0.044	5	20.78							
mC	Replace fence w/ certification rope	8600	LF	0.090	885	29.52	0.25						
D	Survey for excavation	25	Acres	30.000	1370	29.52	30.00						
D	Seed and Mulch	25	Acres	20.000	572	29.52	3500.00						
				Former Production Area Excavation DFC Total		19,617							
<b>C.) CONTROLS &amp; MGMT.</b>													
D	Remove sediment from ditches & silt fence	2	Ea	100.000	229	32.43							
D	Maint surf. Water & erosion control						30.00						
D	Maint. Certification fencing												
D	Provide dust control as needed (Allowance)												
D	Provide regrading & reseeding as needed *												
				Former Production Area Controls & Mgmt. DFC Total		229							
						40000.00							
								\$7,420			\$60		
								\$40,000					
								\$7,420	\$40,000		\$60	\$47,480	
								\$16,890			\$12,500	\$40,000	
								\$567,020	\$90,400	\$778,720	\$1,436,140		
								\$26,140		\$2,150	\$270	\$29,150	
								\$40,430		\$750	\$4,380	\$45,560	
								\$87,500		\$87,500	\$12,500	\$116,890	

\* Items included in remove sediment from sump

CONTRACTOR - Stated in FY01 DOLLARS

PROJECT: AREA 6 SOIL REMEDIATION  
 ESTIMATE NO.: C2-01-06-003-R01  
 CLIENT: DOE  
 WBS NO.: 1.1.G.K

DETAIL ESTIMATE WORKSHEETS  
**Fluor Fernald, Inc.**

DATE: July 24, 2001  
 ESTIMATOR: JEA/KGK  
 LOCATION: Fernald  
 TASK NO.: G6114

ITEM NO.	FORMER PRODUCTION AREA	QTY	UNIT	MAN-HOURS		COST/UNIT			LABOR	S/C	MAT'L	EQUIP	TOTAL
				Unit	Total	Rate	Labor	S/C					
D	<b>D.1. INTERIM RESTORATION</b>												
D	Grading to reshape slopes to 5H:1V	5000	CY	0.045	257	32.43		\$8,350				\$11,300	\$19,650
D	Seed and mulch	25.4	Acres	20.000	581	29.52		\$17,160				\$12,700	\$93,360
D	Remove sump pumps	9	Ea	40.000	412	36.27	2500.00	\$14,940			\$63,500	\$4,500	\$19,440
D	Remove dust control piping	500	LF	0.050	29	36.27	500.00						\$19,440
	Former Production Area Interim Storage DFC Total				1,279			\$40,450		\$63,500		\$28,500	\$132,450
D	<b>E.1. DEMOBILIZATION</b>												
D	Complete Punch List Items.	1	LS	80.000	80	31.18		\$2,500				\$5,000	\$7,500
D	Remove Trailer and Change Facilities.	1	LS	20.000	20	31.18		\$600				\$1,000	\$1,600
D	Remove all Utilities.	1	LS	20.000	20	36.27		\$700				\$1,000	\$1,700
mC	Decontaminate Equipment.	1	LS	160.000	160	32.43		\$5,190				\$2,000	\$5,190
D	Loadout contractors equipment.	1	LS	60.000	60	32.43		\$1,950				\$2,000	\$3,950
D	Other area requirements.	1	LS	40.000	40	31.18		\$1,250				\$9,000	\$10,250
	Former Production Area Demob. DFC Total				380			\$12,190				\$9,000	\$21,190

PROJECT: AREA 6 SOIL REMEDIATION  
 ESTIMATE NO.: C2-01-06-003-R01  
 CLIENT: DOE  
 WBS NO.: 1.1.G.K

DETAIL ESTIMATE WORKSHEETS  
**Fluor Fernald, Inc.**

DATE: July 24, 2001  
 ESTIMATOR: JEA/KGK  
 LOCATION: Fernald  
 TASK NO.: G6114

ITEM NO.	PROJECT STAFFING	QTY	UNIT	MAN-HOURS		COST/UNIT			LABOR	S/C	MAT'L	EQUIP	TOTAL
				Unit	Total	Rate	Labor	S/C					
1.	Project Manager	3893	hr	1.000	3893	54.42		\$211,870				\$211,870	
2.	Project Superintendent	7787	hr	1.000	7787	37.85		\$294,720				\$294,720	
3.	Project Engineer	3893	hr	1.000	3893	33.19		\$129,220				\$129,220	
4.	Safety Engineer	5840	hr	1.000	5840	30.34		\$177,180				\$177,180	
5.	Industrial Hygiene Tech.	1947	hr	1.000	1947	28.33		\$55,150				\$55,150	
6.	QA/QC Engineer	3893	hr	1.000	3893	28.05		\$109,210				\$109,210	
7.	Office Administration	7787	hr	1.000	7787	19.31		\$150,360				\$150,360	
8.	Contract Administration/ Scheduler	3893	hr	1.000	3893	25.58		\$99,590				\$99,590	
9.	Clerical	3893	hr	1.000	3893	14.58		\$56,760				\$56,760	
TOTAL *					42,826	29.98		\$1,284,100				\$1,284,100	

\*FORWARDED TO SUPERVISION - CONTRACTOR on ESTIMATE SUMMARY SHEET







EFFICIENCY FACTORS

PROJECT: AREA 6 SOIL REMEDIATION  
 ESTIMATE NO. C2-01-05-003-R01  
 CLIENT: DOE  
 WBS NO.: 1.1.G.K

DATE: July 24, 2001  
 ESTIMATOR: JEA/KGK  
 LOCATION: Fernald  
 TASK NO.: G6114

**Fluor Fernald, Inc.**

EXAMPLE:

STANDARD CHART MANHOURS =	NET	100
EFFICIENCY FACTORS:		
* SITE SPECIFIC (SEE APPENDIX A)	10%	10.0
S/T = BASE UNIT MANHOURS		110
OVERTIME PRODUCTIVITY FACTOR (SEE DETAIL WORKSHEET BACK-UP)	0.00%	0
		110
* TASK SPECIFIC ( confined space, high elevation, congestion, etc.)	0.0%	0
		110
* PPE SPECIFIC (Based on current data and estimating knowledge)		

	PPE LEVEL									
	D		Mod. "D"		Mod. "C"		C		C+	
PRODUCTIVITY HOURS ( AS A % ) / ADD MH's	MH's	MULTIPLIER	MH's	MULTIPLIER	MH's	MULTIPLIER	MH's	MULTIPLIER	MH's	
( AS A MULTIPLIER ) / TOTAL HRS	4.00%	4	28.00%	31	66.00%	73	74.00%	81	96.00%	106
TOTAL MULTIPLIER w/SITE PROD.	1.04	114.4	1.28	140.8	1.66	182.6	1.74	191.4	1.96	215.6
	1.144		1.408		1.826		1.914		2.156	

NOTE : Use the Default Productivity Factor of "mC" for working in a contaminated area if the Safety Level cannot be determined.

(SEE FD FERNALD ESTIMATING SERVICES REFERENCE MANUAL IM-6006 2.10)

Total hours worked in a specific PPE level divided by 10 hour working days = (PPE) ManDays to determine material cost of PPE's.  
(SEE APPENDIX C - HEALTH PHYSICS)

11.0	Man Days	14.0	Man Days	18.0	Man Days	19.0	Man Days	22.0	Man Days
------	----------	------	----------	------	----------	------	----------	------	----------

THESE EFFICIENCY FACTORS WERE APPLIED INDIVIDUALLY THROUGHOUT THE ESTIMATE AT A TASK SPECIFIC LEVEL, TO OBTAIN A MORE ACCURATE ACCOUNT OF OVERALL EFFICIENCY IMPACT DUE TO PPE REQUIREMENTS IN HANDLING CONTAMINATED AND HAZARDOUS WASTE.

EFFICIENCY FACTORS

PROJECT: AREA 6 SOIL REMEDIATION  
 ESTIMATE NO. C2-01-05-003-R01  
 CLIENT: DOE  
 WBS NO.: 1.1.G.K

**Fluor Fernald, Inc.**

DATE: July 24, 2001  
 ESTIMATOR: JEA/KGK  
 LOCATION: Fernald  
 TASK NO.: G6114

PPE MULTIPLIER DEVELOPEMENT

	D	mD	mC	C	C+
CREW SIZE & MAKE-UP					
STANDARD	7	7	7	7	7
WORKER-BUDDY	0	0	0	0	0
SUPPORT TEAM	0	0	0	0	0
TOTAL CREW	7	7	7	7	7
CREW SIZE RATIO	1.00	1.00	1.00	1.00	1.00
AVAILABLE WORK TIME FACTOR	0.96	0.78	0.7	0.7	0.68
PPE LABOR PRODUCTIVITY FACTOR	1	1	0.86	0.82	0.75
NET PRODUCTIVITY RATIO	0.96	0.78	0.602	0.574	0.51
NET PRODUCTIVITY MULTIPLIER	1.04	1.28	1.66	1.74	1.96

These factors were based on Tables 6.1 and 6.2, Moderate Work Efforts, 66F to 85F temperature of Hazardous Waste Cost Control by R.A.Selg. Modifications were made to reflect a 10 hour work day and no buddy system or support team for levels D, mC and C. The worker-buddy and support team members, if required, may be covered under Construction Mgmt. (Rad Techs).

AVAILABLE WORK TIME FACTOR		D	mD	mC	C	C+
TOTAL WORK MINUTES per D	4 - 10's	600	600	600	600	600
ADDITNL SITE SAFETY MEETINGS NOT INCLD. IN BASE	QUANTITY	1	1	1	1	1
	MINUTES	25	25	25	25	25
TOTAL		25	25	25	25	25
PPE DON & DOFFING (ADJUST LEVEL D per WORK PLAN)	QUANTITY	0	0	3	3	3
	MINUTES	0	0	15	15	20
TOTAL			0	45	45	60
WORK BREAKS (ADJUST LEVEL D per WORK PLAN)	QUANTITY	N/A	2	2	2	2
	MINUTES	N/A	15	15	15	15
TOTAL			30	30	30	30
MOBILIZATION - ROUND TRIPS (ADJUST LEVEL D per WORK PLAN)	QUANTITY	N/A	4	4	4	4
	MINUTES	N/A	15	15	15	15
TOTAL			60	60	60	60
COOLDOWNS PER DAY ** (4 OUT OF 12 MONTHS)	QUANTITY	N/A	4	4	4	4
	MINUTES	N/A	15	15	15	15
TOTAL			20	20	20	20
AIR TANK REPLACEMENT	QUANTITY	N/A	N/A	N/A	N/A	N/A
	MINUTES	N/A	N/A	N/A	N/A	N/A
TOTAL						
AVAILABLE WORK TIME		575	465	420	420	405
AVAILABLE WORK TIME FACTOR		0.96	0.78	0.7	0.7	0.68

NOTE: Adjust 'Work Minutes per Day' basis to: 5 - 8's, or leave as 4 - 10's. Any other circumstances, over-ride the minutes per day.

\*\* Assumption based on work performed in May, June, July & August, pro-rating cost over one year. Adjust % to individual circumstances.

# HEALTH PHYSICS

PROJECT: AREA 6 SOIL REMEDIATION  
 ESTIMATE NO.: C2-01-05-003-R01  
 CLIENT: DOE  
 WBS NO.: 1.1.G.K

DATE: July 24, 2001  
 ESTIMATOR: JEA/KGK  
 LOCATION: Fernald  
 TASK NO.: G6114

## Fluor Fernald, Inc.

PPE's - PERSONAL PROTECTIVE EQUIPMENT

DESCRIPTION	UNIT	UNIT COST	* NO. OF CHANGE OUTS PER WORKER PER DAY			
			Man Days (TOTAL HOURS worked in PPE's Div. by WORK HOURS / DAY)			
PPE LEVEL C / C+ / B : F/HF MASK w/RESP.&CART.						
TYVEK COVER-ALL w/HOOD & BOOTIES - DISPOSABLE	EA	\$4.46	3	589	\$7,883	C / C+
TYVEK COVER-ALL w/HOOD & BOOTIES - DISPOSABLE	EA	\$4.46	3	589	\$7,883	C / C+
GLOVE LINER - DISPOSABLE	PR	\$0.24	3	589	\$424	C / C+
GLOVE, LASTEX - DISPOSABLE	PR	\$0.26	3	589	\$460	C / C+
GLOVE, WORK - DISPOSABLE	PR	\$1.02	3	589	\$1,803	C / C+
APR CARTRIDGES - DISPOSABLE	PR	\$6.98	3	589	\$12,337	C / C+
<b>SUB-TOTAL</b>		<b>\$17.42</b>	<b>3</b>	<b>589</b>	<b>\$12,337</b>	<b>C / C+</b>
					<b>\$30,790</b>	
					<b>\$/MD = \$52.26</b>	

(DOUBLE PPE)

PPE LEVEL mC : FULL DRESS w/ FACE SHIELD						
DESCRIPTION	UNIT	UNIT COST	MAN DAYS	MAT'L.\$'s	PPE LEVEL	
LT.WT. DISPOSABLE COVERALLS W/HOOD & BOOTIES	PR	\$4.46	3	8827	\$118,109	mC
GLOVE LINER - DISPOSABLE	PR	\$0.24	3	8827	\$6,356	mC
GLOVE, LASTEX - DISPOSABLE	PR	\$0.26	3	8827	\$6,885	mC
GLOVE, WORK - DISPOSABLE	PR	\$1.02	3	8827	\$27,012	mC
<b>SUB-TOTAL</b>		<b>\$5.98</b>	<b>3</b>		<b>\$158,362</b>	
					<b>\$/MD = \$17.94</b>	

SUBCONTRACTOR REQUIRED PURCHASES	QTY. PER WKR.	NO. OF WORKERS	MAT'L.\$'s	PPE LEVEL	
RUBBER BOOT COVERS-(1)PR.PER WORKER	6	0	\$0	D/C/B	
APR w/HALF FACE MASK - (1) PER WORKER	6	0	\$0	C	
APR w/FULL FACE MASK - (1) PER WORKER	6	0	\$0	C	
SCBA	2	0	\$0	B	
COOL VESTS	6	0	\$0	C/B	
THERMO STRIPS	6	0	\$0	C/B	
<b>SUB-TOTAL</b>	<b>6</b>	<b>0</b>	<b>\$0</b>	<b>C/B</b>	
					<b>\$0</b>

TOTAL PPE's =

MAT'L.\$'s  
\$189,200

(FORWARD TO PAGE 2 OF 2)

OTHER PPE's SUCH AS HARD HAT, SAFETY GLASSES/GOGGLES, STEEL TOED SAFETY SHOES, HEARING PROTECTION, ARE CONSIDERED THE SUBCONTRACTORS RESPONSIBILITY AND ARE COVERED IN HIS OVERHEAD EXPENSE. COSTS OF FD FERNALD SUPPLIED PPE's, SUCH AS COTTON COVERALLS, EXCHANGE OF RUBBER BOOT COVERS AND RESPIRATORS FOR CHANGEOUTS AND CLEANING OF SAME IS INCURRED BY FD FERNALD AND COSTS ARE NOT INCLUDED AS PART OF PROJECT COSTS AT THIS TIME.

# HEALTH PHYSICS

PROJECT: AREA 6 SOIL REMEDIATION  
 ESTIMATE NO.: C2-01-05-003-R01  
 CLIENT: DOE  
 WBS NO.: 1.1.G.K

DATE: July 24, 2001  
 ESTIMATOR: JEA/KGK  
 LOCATION: Fernald  
 TASK NO.: G6114

-MEDICAL MONITORING -

**MEDICAL - PHYSICAL and IN-VIVO MONITORING - LOST WORKER TIME for RAD II WORKERS ONLY**

DESCRIPTION PHYSICAL (3hrs), IN-VIVO (1hr)	QTY	HRS	WKR	TOTAL HOURS	AVG. LABOR RATE	TOTAL LABOR \$
BASELINE PHYSICALS	1	4	15	60	\$28.27	\$1,700
ANNUAL PHYSICALS	4	4	15	240	\$28.27	\$6,780
EXIT (TERMINATION) PHYSICALS (IN-VIVO)	1	1	15	15	\$28.27	\$420
<b>SUB-TOTAL</b>						<b>\$8,900</b>

**RADIATION IN-VITRO SURVEILLANCE - LOST WORKER TIME for RAD II WORKERS ONLY**

DESCRIPTION	QTY	HRS	WKR	TOTAL HOURS	AVG. LABOR RATE	TOTAL LABOR \$
BI-MONTHLY BIOASSAY	23	1	15	348	\$28.27	\$9,830
<b>SUB-TOTAL</b>						<b>\$9,830</b>

**RANDOM DRUG TESTING**

	TESTS	HRS	TOTAL HOURS	AVG. RATE	LABOR \$'s	
	93	2	186	\$28.27	\$5,300	
NO. OF WKRS. TESTED	TESTING DAYS PER YR.	AVG. NO. OF TESTS PER DAY	CHANCE/ DAY FOR TEST	NO. OF WKRS. FOR THIS ESTIMATE	CHANCES /DAY FOR TEST FOR PROJECT	CONSTR WORKING DAYS
2340	226	10	0.0042735	25	0.1068	874

	LABOR \$'s THRU SAFETY	LABOR \$'s
WORK DELAYS CAUSED BY MONITORING	0.0%	\$4,701,460
WORK DELAYS CAUSED BY RAD CHECKING	0.0%	\$4,701,460

	TOTAL LABOR	TOTAL MAT'L	GRAND TOTAL
<b>TOTAL HEALTH PHYSICS</b>	<b>\$24,000</b>	<b>\$189,200</b>	<b>\$213,200</b>

(FORWARD TO ESTIMATE SUMMARY SHEET)

# ACTIVITY DURATIONS

## Fluor Fernald, Inc.

PROJECT: AREA 6 SOIL REMEDIATION  
 ESTIMATE NO.: C2-01-05-003-R01  
 CLIENT: DOE  
 WBS NO.: 1.1.G.K

DATE: July 24, 2001  
 ESTIMATOR: JEA/KGK  
 LOCATION: Fernald  
 TASK NO.: G6114

ACTIVITY	EST. DATE	START DATE	MID POINT	COMPL. DATE	ACTIVITY	DURATION
CONSTRUCTION:	11-May-01	05-Jul-05	09-Jun-07	14-May-09	46.3	MONTHS
					0	MONTHS
<b>TOTAL</b>					<b>46.3</b>	<b>MONTHS</b>

	DATE of EST. to MID-POINT	ACTIVITY DURATION
a.	73.0	MONTHS
b.	0	MONTHS

ACTIVITY	EST. DATE	START DATE	MID POINT	COMPL. DATE	ACTIVITY	DURATION
OPERATIONS					0	MONTHS

	DATE of EST. to MID-POINT	ACTIVITY DURATION
	0	MONTHS

ACTIVITY DURATION IS USED IN DETERMINING NUMBER of WORKERS for CERCLA/SAT TRAINING HOURS and HEALTH PHYSICS COSTS.



**G6117**

**AREA 6 EXC CONTROL/CERTIFICATION**



# Fluor Fernald, Inc.

ESTIMATE SUPPORT WORKSHEET  
FOR ACTIVITY BASED ESTIMATING  
(1 FTE EQUALS 1747 HOURS)

DATE: 05-Sep-01  
PROJECT MGR: J.D. CHIOU  
CAM: J.D. CHIOU  
PREPARED BY: W. FICK  
FISCAL YEAR: 2005-2009

PBS: OHFN06  
WBS: 1.1.G.K  
CTRL ACCT: G611  
CHARGE NO: G6117  
COMMENT NO F06-028

Resource: Res Dept:	DRFCAD 949	DRAFTER/CAD OPERATOR Overtime:	LABOR											
			Class:		EOC: SAL		Class:		EOC: SAL		Class:		EOC: SAL	
Yr Hours:		Oct 00- Sep 01	Oct 01- Sep 02	Oct 02- Sep 03	Oct 03- Sep 04	Oct 04- Sep 05	Oct 05- Sep 06	Oct 06- Sep 07	Oct 07- Sep 08	Oct 08- Sep 09	Oct 09- Sep 10			
Cum Hours:		0.0	0.0	0.0	0.0	0.0	0.0	304.0	416.0	0.0	0.0	19,068	19,068	
Yr Total Cost:		0	0	0	0	0	0	304.0	416.0	0	0	19,068	19,068	
Cum Total Cost:		0	0	0	0	0	0	13,735	5,333	0	0	19,068	19,068	

Resource: Res Dept:	ENSMGR 949	ENVIR SCIENTIST MGR Overtime:	LABOR											
			Class:		EOC: SAL		Class:		EOC: SAL		Class:		EOC: SAL	
Yr Hours:		Oct 00- Sep 01	Oct 01- Sep 02	Oct 02- Sep 03	Oct 03- Sep 04	Oct 04- Sep 05	Oct 05- Sep 06	Oct 06- Sep 07	Oct 07- Sep 08	Oct 08- Sep 09	Oct 09- Sep 10			
Cum Hours:		0.0	0.0	0.0	0.0	0.0	0.0	197.3	392.1	86.0	0.0	38,450	38,450	
Yr Total Cost:		0	0	0	0	0	0	197.3	7,696	478.1	0	38,450	38,450	
Cum Total Cost:		0	0	0	0	0	0	15,071	30,754	7,696	0	38,450	38,450	

Resource: Res Dept:	ENPREP 949	ENVIR SCIENCE REP Overtime:	LABOR											
			Class:		EOC: SAL		Class:		EOC: SAL		Class:		EOC: SAL	
Yr Hours:		Oct 00- Sep 01	Oct 01- Sep 02	Oct 02- Sep 03	Oct 03- Sep 04	Oct 04- Sep 05	Oct 05- Sep 06	Oct 06- Sep 07	Oct 07- Sep 08	Oct 08- Sep 09	Oct 09- Sep 10			
Cum Hours:		0.0	0.0	0.0	0.0	0.0	0.0	802.0	787.0	349.0	0.0	1,938.0	1,938.0	
Yr Total Cost:		0	0	0	0	0	0	802.0	1,589.0	1,938.0	0	1,938.0	1,938.0	
Cum Total Cost:		0	0	0	0	0	0	48,745	50,417	24,845	0	124,007	124,007	

Resource: Res Dept:	ENSTECH 949	ENVIR SCIENTIST TECH Overtime:	LABOR											
			Class:		EOC: SAL		Class:		EOC: SAL		Class:		EOC: SAL	
Yr Hours:		Oct 00- Sep 01	Oct 01- Sep 02	Oct 02- Sep 03	Oct 03- Sep 04	Oct 04- Sep 05	Oct 05- Sep 06	Oct 06- Sep 07	Oct 07- Sep 08	Oct 08- Sep 09	Oct 09- Sep 10			
Cum Hours:		0.0	0.0	0.0	0.0	0.0	0.0	998.4	1,986.0	4,350.0	0.0	2,421.0	2,421.0	
Yr Total Cost:		0	0	0	0	0	0	998.4	1,986.0	4,350.0	0	2,421.0	2,421.0	
Cum Total Cost:		0	0	0	0	0	0	40,954	42,702	20,901	0	104,557	104,557	

Resource: Res Dept:	GLMINT 949	GEN LABOR MAINT Overtime:	LABOR											
			Class:		EOC: HOU		Class:		EOC: HOU		Class:		EOC: HOU	
Yr Hours:		Oct 00- Sep 01	Oct 01- Sep 02	Oct 02- Sep 03	Oct 03- Sep 04	Oct 04- Sep 05	Oct 05- Sep 06	Oct 06- Sep 07	Oct 07- Sep 08	Oct 08- Sep 09	Oct 09- Sep 10			
Cum Hours:		0.0	0.0	0.0	0.0	0.0	11.9	28.1	40.0	0.0	0.0	40.0	40.0	
Yr Total Cost:		0	0	0	0	0	0	40.0	994	0	0	40.0	40.0	
Cum Total Cost:		0	0	0	0	0	0	1,382	1,382	0	0	1,382	1,382	

# Fluor Fernald, Inc.

ESTIMATE SUPPORT WORKSHEET  
FOR ACTIVITY BASED ESTIMATING  
(1 FTE EQUALS 1747 HOURS)

DATE: 05-Sep-01  
PROJECT MGR: J.D. CHIOU  
CAM: J.D. CHIOU  
PREPARED BY: W. FICK  
FISCAL YEAR: 2005-2009

PBS: OHFN06  
WBS: 1.1.G.K  
CTRL ACCT: G611  
CHARGE NO: G6117  
COMMENT NO F06-028

Resource:	Res Dept:	HEOOPR 949	HEAVY EQUIP OPERATOR	EOC:		LABOR		EOC:		LABOR		EOC:		LABOR	
				Overtime:	HOU	Class:	Oct 01- Sep 02	Oct 02- Sep 03	Oct 03- Sep 04	Oct 04- Sep 05	Oct 05- Sep 06	Oct 06- Sep 07	Oct 07- Sep 08	Oct 08- Sep 09	Oct 09- Sep 10
Yr Hours:			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cum Hours:			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yr Total Cost:			0	0	0	0	0	0	0	0	0	0	0	0	0
Cum Total Cost:			0	0	0	0	0	0	0	0	0	0	0	0	0

Resource:	Res Dept:	INDMEC 949	INDUSTRIAL MECHANIC	EOC:		LABOR		EOC:		LABOR		EOC:		LABOR	
				Overtime:	HOU	Class:	Oct 01- Sep 02	Oct 02- Sep 03	Oct 03- Sep 04	Oct 04- Sep 05	Oct 05- Sep 06	Oct 06- Sep 07	Oct 07- Sep 08	Oct 08- Sep 09	Oct 09- Sep 10
Yr Hours:			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cum Hours:			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yr Total Cost:			0	0	0	0	0	0	0	0	0	0	0	0	0
Cum Total Cost:			0	0	0	0	0	0	0	0	0	0	0	0	0

Resource:	Res Dept:	LABCHIM 949	CHEMIST	EOC:		LABOR		EOC:		LABOR		EOC:		LABOR	
				Overtime:	SAL	Class:	Oct 01- Sep 02	Oct 02- Sep 03	Oct 03- Sep 04	Oct 04- Sep 05	Oct 05- Sep 06	Oct 06- Sep 07	Oct 07- Sep 08	Oct 08- Sep 09	Oct 09- Sep 10
Yr Hours:			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cum Hours:			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yr Total Cost:			0	0	0	0	0	0	0	0	0	0	0	0	0
Cum Total Cost:			0	0	0	0	0	0	0	0	0	0	0	0	0

Resource:	Res Dept:	LABMGR 949	LAB MANAGER	EOC:		LABOR		EOC:		LABOR		EOC:		LABOR	
				Overtime:	SAL	Class:	Oct 01- Sep 02	Oct 02- Sep 03	Oct 03- Sep 04	Oct 04- Sep 05	Oct 05- Sep 06	Oct 06- Sep 07	Oct 07- Sep 08	Oct 08- Sep 09	Oct 09- Sep 10
Yr Hours:			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cum Hours:			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yr Total Cost:			0	0	0	0	0	0	0	0	0	0	0	0	0
Cum Total Cost:			0	0	0	0	0	0	0	0	0	0	0	0	0

Resource:	Res Dept:	LABTEC 949	LAB TECH	EOC:		LABOR		EOC:		LABOR		EOC:		LABOR	
				Overtime:	SAL	Class:	Oct 01- Sep 02	Oct 02- Sep 03	Oct 03- Sep 04	Oct 04- Sep 05	Oct 05- Sep 06	Oct 06- Sep 07	Oct 07- Sep 08	Oct 08- Sep 09	Oct 09- Sep 10
Yr Hours:			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cum Hours:			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yr Total Cost:			0	0	0	0	0	0	0	0	0	0	0	0	0
Cum Total Cost:			0	0	0	0	0	0	0	0	0	0	0	0	0

# Fluor Fernald, Inc.

ESTIMATE SUPPORT WORKSHEET  
FOR ACTIVITY BASED ESTIMATING  
(1 FTE EQUALS 1747 HOURS)

DATE: 05-Sep-01  
PROJECT MGR: J.D. CHIOU  
CAM: J.D. CHIOU  
PREPARED BY: W. FICK  
FISCAL YEAR: 2005-2009

PBS: OHFN06  
WBS: 1.1.G.K  
CTRL ACCT: G611  
CHARGE NO: G6117  
COMMENT NO F06-028

Resource:	Res Dept:	MVOOPR	949	MOTOR VEHICLE OPER																				
				Overtime:		Class:		EOC:		HOU		LABOR		LABOR										
				Oct 00-	Oct 01-	Oct 02-	Oct 03-	Oct 04-	Oct 05-	Oct 06-	Oct 07-	Oct 08-	Oct 09-	Oct 00-	Oct 01-	Oct 02-	Oct 03-	Oct 04-	Oct 05-	Oct 06-	Oct 07-	Oct 08-	Oct 09-	
Yr Hours:				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	59.5	140.5	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0
Cum Hours:				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	59.5	140.5	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0
Yr Total Cost:				0	0	0	0	0	0	0	0	0	0	2,293	5,873	8,166	8,166	8,166	8,166	8,166	8,166	8,166	8,166	8,166
Cum Total Cost:				0	0	0	0	0	0	0	0	0	0	2,293	8,166	16,332	24,498	32,664	40,830	48,996	57,162	65,328	73,494	81,660

Resource:	Res Dept:	PJMGR	949	PROJECT SUPPORT MGR																				
				Overtime:		Class:		EOC:		SAL		LABOR		LABOR										
				Oct 00-	Oct 01-	Oct 02-	Oct 03-	Oct 04-	Oct 05-	Oct 06-	Oct 07-	Oct 08-	Oct 09-	Oct 00-	Oct 01-	Oct 02-	Oct 03-	Oct 04-	Oct 05-	Oct 06-	Oct 07-	Oct 08-	Oct 09-	
Yr Hours:				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	36.6	86.4	123.0	123.0	123.0	123.0	123.0	123.0	123.0	123.0	123.0
Cum Hours:				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	36.6	123.0	246.0	369.0	492.0	615.0	738.0	861.0	984.0	1107.0	1230.0
Yr Total Cost:				0	0	0	0	0	0	0	0	0	0	2,234	5,723	7,957	7,957	7,957	7,957	7,957	7,957	7,957	7,957	7,957
Cum Total Cost:				0	0	0	0	0	0	0	0	0	0	2,234	7,957	15,914	23,871	31,828	39,785	47,742	55,699	63,656	71,613	79,570

Resource:	Res Dept:	QACENG	949	QA ENGINEER																				
				Overtime:		Class:		EOC:		SAL		LABOR		LABOR										
				Oct 00-	Oct 01-	Oct 02-	Oct 03-	Oct 04-	Oct 05-	Oct 06-	Oct 07-	Oct 08-	Oct 09-	Oct 00-	Oct 01-	Oct 02-	Oct 03-	Oct 04-	Oct 05-	Oct 06-	Oct 07-	Oct 08-	Oct 09-	
Yr Hours:				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	31.3	188.9	350.9	389.1	397	397	397	397	397	397	397
Cum Hours:				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	31.3	200.2	389.1	578.2	775.2	972.2	1169.2	1366.2	1563.2	1760.2	1957.2
Yr Total Cost:				0	0	0	0	0	0	0	0	0	0	1,924	13,257	23,360	25,680	25,680	25,680	25,680	25,680	25,680	25,680	25,680
Cum Total Cost:				0	0	0	0	0	0	0	0	0	0	1,924	15,181	38,541	64,221	89,901	115,581	141,261	166,941	192,621	218,301	243,981

Resource:	Res Dept:	RADTEC	949	RAD TECH																				
				Overtime:		Class:		EOC:		SAL		LABOR		LABOR										
				Oct 00-	Oct 01-	Oct 02-	Oct 03-	Oct 04-	Oct 05-	Oct 06-	Oct 07-	Oct 08-	Oct 09-	Oct 00-	Oct 01-	Oct 02-	Oct 03-	Oct 04-	Oct 05-	Oct 06-	Oct 07-	Oct 08-	Oct 09-	
Yr Hours:				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	41.6	194.1	235.8	235.8	235.8	235.8	235.8	235.8	235.8	235.8	235.8
Cum Hours:				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	41.6	235.8	471.6	707.4	943.2	1179.0	1414.8	1650.6	1886.4	2122.2	2357.9
Yr Total Cost:				0	0	0	0	0	0	0	0	0	0	1,896	9,584	16,972	16,972	16,972	16,972	16,972	16,972	16,972	16,972	16,972
Cum Total Cost:				0	0	0	0	0	0	0	0	0	0	1,896	11,480	28,452	45,424	62,396	79,368	96,340	113,312	130,284	147,256	164,228

Resource:	Res Dept:	S&HENG	949	SAFETY ENGINEER																				
				Overtime:		Class:		EOC:		SAL		LABOR		LABOR										
				Oct 00-	Oct 01-	Oct 02-	Oct 03-	Oct 04-	Oct 05-	Oct 06-	Oct 07-	Oct 08-	Oct 09-	Oct 00-	Oct 01-	Oct 02-	Oct 03-	Oct 04-	Oct 05-	Oct 06-	Oct 07-	Oct 08-	Oct 09-	
Yr Hours:				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18.2	76.1	161.8	161.8	161.8	161.8	161.8	161.8	161.8	161.8	161.8
Cum Hours:				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18.2	94.3	172.5	234.3	296.1	357.9	419.7	481.5	543.3	605.1	666.9
Yr Total Cost:				0	0	0	0	0	0	0	0	0	0	5,777	264.0	5,777	5,777	5,777	5,777	5,777	5,777	5,777	5,777	5,777
Cum Total Cost:				0	0	0	0	0	0	0	0	0	0	5,777	6,041.0	11,818.0	17,595.0	23,372.0	29,149.0	34,926.0	40,703.0	46,480.0	52,257.0	58,034.0



**G6118**

**AREA 6 OFF SITE WASTE DISPOSITION**



# Fluor Fernald, Inc.

ESTIMATE SUPPORT WORKSHEET  
FOR ACTIVITY BASED ESTIMATING  
(1 FTE EQUALS 1747 HOURS)

DATE: 05-Sep-01  
PROJECT MGR: J.D. CHIOU  
CAM: J.D. CHIOU  
PREPARED BY: W. FICK  
FISCAL YEAR: 2006-2009

PBS: OHFN06  
WBS: 1.1.G.K  
CTRL ACCT: G611  
CHARGE NO: G6118  
COMMENT NO F06-028

Resource: Res Dept:	BUYCON	BUYER/CONTRACTS ADMIN		Class:		EOC:		LABOR				
		OverTime:	Class:	Oct 01- Sep 02	Oct 02- Sep 03	Oct 03- Sep 04	Oct 04- Sep 05	Oct 05- Sep 06	Oct 06- Sep 07	Oct 07- Sep 08	Oct 08- Sep 09	Oct 09- Sep 10
Yr Hours:		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cum Hours:		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yr Total Cost:		0	0	0	0	0	0	0	0	0	0	0
Cum Total Cost:		0	0	0	0	0	0	0	0	0	0	0

Resource: Res Dept:	CLERKS 949	CLERKS		Class:		EOC:		LABOR				
		OverTime:	Class:	Oct 01- Sep 02	Oct 02- Sep 03	Oct 03- Sep 04	Oct 04- Sep 05	Oct 05- Sep 06	Oct 06- Sep 07	Oct 07- Sep 08	Oct 08- Sep 09	Oct 09- Sep 10
Yr Hours:		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cum Hours:		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yr Total Cost:		0	0	0	0	0	0	0	0	0	0	0
Cum Total Cost:		0	0	0	0	0	0	0	0	0	0	0

Resource: Res Dept:	HAZWAT 949	HAZWAT		Class:		EOC:		LABOR				
		OverTime:	Class:	Oct 01- Sep 02	Oct 02- Sep 03	Oct 03- Sep 04	Oct 04- Sep 05	Oct 05- Sep 06	Oct 06- Sep 07	Oct 07- Sep 08	Oct 08- Sep 09	Oct 09- Sep 10
Yr Hours:		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cum Hours:		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yr Total Cost:		0	0	0	0	0	0	0	0	0	0	0
Cum Total Cost:		0	0	0	0	0	0	0	0	0	0	0

Resource: Res Dept:	HEOOPR 949	HEAVY EQUIP OPERATOR		Class:		EOC:		LABOR				
		OverTime:	Class:	Oct 01- Sep 02	Oct 02- Sep 03	Oct 03- Sep 04	Oct 04- Sep 05	Oct 05- Sep 06	Oct 06- Sep 07	Oct 07- Sep 08	Oct 08- Sep 09	Oct 09- Sep 10
Yr Hours:		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cum Hours:		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yr Total Cost:		0	0	0	0	0	0	0	0	0	0	0
Cum Total Cost:		0	0	0	0	0	0	0	0	0	0	0

Resource: Res Dept:	MAT300 949	MATERIAL OBJCLASS300		Class:		EOC:		MATERIAL				
		OverTime:	Class:	Oct 01- Sep 02	Oct 02- Sep 03	Oct 03- Sep 04	Oct 04- Sep 05	Oct 05- Sep 06	Oct 06- Sep 07	Oct 07- Sep 08	Oct 08- Sep 09	Oct 09- Sep 10
Yr Units:		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cum Units:		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yr Total Cost:		0	0	0	0	0	0	0	0	0	0	0
Cum Total Cost:		0	0	0	0	0	0	0	0	0	0	0

# Fluor Fernald, Inc.

DATE: 05-Sep-01  
PROJECT MGR: J.D. CHIOU  
CAM: J.D. CHIOU  
PREPARED BY: W. FICK  
FISCAL YEAR: 2006-2009

ESTIMATE SUPPORT WORKSHEET  
FOR ACTIVITY BASED ESTIMATING  
(1 FTE EQUALS 1747 HOURS)

PBS: OHFN06  
WBS: 1.1.G.K  
CTRL ACCT: G611  
CHARGE NO: G6118  
COMMENT NO F08-028

Resource: Res Dept:	MPCREP 949	MATL PROP CTRL REP Overtime:	LABOR																		
			Oct 00-		Oct 01-		Oct 02-		Oct 03-		Oct 04-		Oct 05-		Oct 06-		Oct 07-		Oct 08-		Oct 09-
		Class:		Class:		Class:		Class:		Class:		Class:		Class:		Class:		Class:		Class:	
Yr Hours:		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cum Hours:		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yr Total Cost:		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cum Total Cost:		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Resource: Res Dept:	MVOOPR 949	MOTOR VEHICLE OPER Overtime:	LABOR																		
			Oct 00-		Oct 01-		Oct 02-		Oct 03-		Oct 04-		Oct 05-		Oct 06-		Oct 07-		Oct 08-		Oct 09-
		Class:		Class:		Class:		Class:		Class:		Class:		Class:		Class:		Class:		Class:	
Yr Hours:		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cum Hours:		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yr Total Cost:		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cum Total Cost:		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Resource: Res Dept:	OPRMGR 949	OPERATIONS MGR Overtime:	LABOR																		
			Oct 00-		Oct 01-		Oct 02-		Oct 03-		Oct 04-		Oct 05-		Oct 06-		Oct 07-		Oct 08-		Oct 09-
		Class:		Class:		Class:		Class:		Class:		Class:		Class:		Class:		Class:		Class:	
Yr Hours:		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cum Hours:		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yr Total Cost:		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cum Total Cost:		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Resource: Res Dept:	PIPFTR 949	PIPE FITTER Overtime:	LABOR																		
			Oct 00-		Oct 01-		Oct 02-		Oct 03-		Oct 04-		Oct 05-		Oct 06-		Oct 07-		Oct 08-		Oct 09-
		Class:		Class:		Class:		Class:		Class:		Class:		Class:		Class:		Class:		Class:	
Yr Hours:		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cum Hours:		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yr Total Cost:		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cum Total Cost:		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Resource: Res Dept:	PRJMGR 949	PROJECT MANAGER Overtime:	LABOR																		
			Oct 00-		Oct 01-		Oct 02-		Oct 03-		Oct 04-		Oct 05-		Oct 06-		Oct 07-		Oct 08-		Oct 09-
		Class:		Class:		Class:		Class:		Class:		Class:		Class:		Class:		Class:		Class:	
Yr Hours:		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cum Hours:		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yr Total Cost:		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cum Total Cost:		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

# Fluor Fernald, Inc.

ESTIMATE SUPPORT WORKSHEET  
FOR ACTIVITY BASED ESTIMATING  
(1 FTE EQUALS 1747 HOURS)

DATE: 05-Sep-01  
PROJECT MGR: J.D. CHIOU  
CAM: J.D. CHIOU  
PREPARED BY: W. FICK  
FISCAL YEAR: 2006-2009

PBS: OHFN06  
WBS: 1.1.G.K  
CTRL ACCT: G611  
CHARGE NO: G6118  
COMMENT NO: F06-028

Resource: QACENG Res Dept: 949		QA ENGINEER		Overtime:		Class:		EOC:		LABOR	
Yr	Hours:	Oct 00- Sep 01	Oct 01- Sep 02	Oct 02- Sep 03	Oct 03- Sep 04	Oct 04- Sep 05	Oct 05- Sep 06	Oct 06- Sep 07	Oct 07- Sep 08	Oct 08- Sep 09	Oct 09- Sep 10
	Cum Hours:	0.0	0.0	0.0	0.0	0.0	81.6	123.1	124.1	12.4	0.0
	Yr Total Cost:	0	0	0	0	0	204.8	328.9	341.3	341.3	0
	Cum Total Cost:	0	0	0	0	0	5,012	8,198	8,710	963	22,884

Resource: RADENG Res Dept: 949		RAD ENGINEER		Overtime:		Class:		EOC:		LABOR	
Yr	Hours:	Oct 00- Sep 01	Oct 01- Sep 02	Oct 02- Sep 03	Oct 03- Sep 04	Oct 04- Sep 05	Oct 05- Sep 06	Oct 06- Sep 07	Oct 07- Sep 08	Oct 08- Sep 09	Oct 09- Sep 10
	Cum Hours:	0.0	0.0	0.0	0.0	0.0	20.5	33.1	33.4	4.8	0.0
	Yr Total Cost:	0	0	0	0	0	20.5	53.6	87.0	91.8	0
	Cum Total Cost:	0	0	0	0	0	1,292	2,265	2,406	384	6,347

Resource: RADTEC Res Dept: 949		RAD TECH		Overtime:		Class:		EOC:		LABOR	
Yr	Hours:	Oct 00- Sep 01	Oct 01- Sep 02	Oct 02- Sep 03	Oct 03- Sep 04	Oct 04- Sep 05	Oct 05- Sep 06	Oct 06- Sep 07	Oct 07- Sep 08	Oct 08- Sep 09	Oct 09- Sep 10
	Cum Hours:	0.0	0.0	0.0	0.0	0.0	51.4	77.5	78.2	7.8	0.0
	Yr Total Cost:	0	0	0	0	0	2,340	3,828	4,067	450	0
	Cum Total Cost:	0	0	0	0	0	2,340	6,168	10,235	10,685	10,685

Resource: S&HENG Res Dept: 949		SAFETY ENGINEER		Overtime:		Class:		EOC:		LABOR	
Yr	Hours:	Oct 00- Sep 01	Oct 01- Sep 02	Oct 02- Sep 03	Oct 03- Sep 04	Oct 04- Sep 05	Oct 05- Sep 06	Oct 06- Sep 07	Oct 07- Sep 08	Oct 08- Sep 09	Oct 09- Sep 10
	Cum Hours:	0.0	0.0	0.0	0.0	0.0	67.4	108.9	109.8	15.7	0.0
	Yr Total Cost:	0	0	0	0	0	4,474	7,843	8,333	301.8	0
	Cum Total Cost:	0	0	0	0	0	4,474	12,317	20,649	21,977	21,977

Resource: S&HTEC Res Dept: 949		SAFETY TECH		Overtime:		Class:		EOC:		LABOR	
Yr	Hours:	Oct 00- Sep 01	Oct 01- Sep 02	Oct 02- Sep 03	Oct 03- Sep 04	Oct 04- Sep 05	Oct 05- Sep 06	Oct 06- Sep 07	Oct 07- Sep 08	Oct 08- Sep 09	Oct 09- Sep 10
	Cum Hours:	0.0	0.0	0.0	0.0	0.0	30.2	45.6	46.0	4.6	0.0
	Yr Total Cost:	0	0	0	0	0	30.2	75.8	121.8	126.4	126.4
	Cum Total Cost:	0	0	0	0	0	1,167	3,077	5,106	5,330	5,330



## Estimate Summary

Area 6 – Waste Disposition

WBS Element – 1.1.G.K

Control Account – G611

Charge Number – G6118

### Labor

Labor is broken down by resource code and by activity on the attached matrixed manpower spreadsheet. The backup for the manpower spreadsheet can be found on the Waste Disposition Campaign Estimate Worksheets that were provided by Waste Generator Services (WGS). WGS estimated resource man-hours, which were then rounded to the tenth of an FTE for Man Power Planning (MPP) purposes to be entered into the MPP database on a quarterly basis. This database was then exported to MicroFrame and expanded into monthly estimates. The monthly figures were then summed to provide a total hours by resource for each activity.

### Materials

The materials for this account are estimated to be \$57,338. The backup information for this value can be found on the Waste Disposition Campaign Estimate Worksheets that were provided by Waste Generator Services (WGS). There are two worksheets that were provided and summed for the total materials costs. However, WGS included costs for PPE that have been subtracted from this estimate due to the fact the PPE is provided by a centralized group and does not get charged back to the project.

### Equipment

N/A

### Subcontracts

A subcontract will be setup to perform offsite waste shipments via gondola cars for above WAC soil from this area. It is estimated that 2,400 cubic yards of above WAC soil will be generated. The value of this subcontract is estimated to be \$249,000, which includes materials, labor, and equipment. The backup information comes from rough order of magnitude estimates provided by MHF Logistical Systems in the form of several emails. This information is attached. At the time of discussion it was assumed that there would be three individual phases (mobilizations) of a subcontractor to perform the entire scope of work that spans across several areas. Phase I refers to soil generated from Area 4B. Phase II refers to soil generated from Areas 6 and 7. Phase III refers to soils generated from Area 4A and treated prior to handling by the subcontractor. In the attached documentation, the estimate describes 6,000 cubic yards of soil for Phase II (Areas 6 & 7). It also describes that changes in volume can be estimated to cost an \$7,000 per day.

Daily production rates are described as well by estimating an average of 6.5 gondola cars loaded per day each holding up to 100 cubic yards. The capacity of a gondola car is described in a separate attachment labeled Closure Plan Brainstorm Inter-PBS Agreements Rev 0 (2/13/01) Item 2. Using the above information:

	6,000 cubic yards	= \$ 75,000 (material, labor, equipment)
Less	<u>3,600 cubic yards</u>	<u>= \$ 42,000 (material, labor, equipment) *</u>
Total	2,400 cubic yards	= \$ 33,000 (material, labor, equipment)

- \* 3,600 cubic yards @ 100 cubic yards per car = 36 cars
- 6.5 cars loaded per day = 6 days
- \$7,000 per day = \$42,000

Rail shipments cost estimates come from the attachment labeled Closure Plan Brainstorm Inter-PBS Agreements Rev 0 (2/13/01) Item 2. The cost per gondola car shipment is \$9,000. For 2,400 cubic yards of material, 24 gondola cars would be required. Therefore, the rail shipments are estimated to cost \$216,000.

The total estimated cost for this subcontract is \$249,000.





## CLOSURE PLAN BRAINSTORM INTER-PBS AGREEMENTS

Rev. 0: 02/13/01

The following represent decisions that were made during Closure Plan Brainstorming sessions on various interfaces between PBS's. If you do not agree with the decisions contact Mark Albertin by 03/01/01. If you do agree there is no response required and the decisions will become the basis for planning as of that date. The (xxx) after the number in each section is the originator. Future additions or changes will be added to this list. "OPEN ISSUES" need to be resolved by the parties involved. In cases listed under Closure Planning we will assist the resolution of the Open Issues. Once the issue is resolved please e-mail Mark Albertin the resolution so the Closure Plan Brainstorm Inter-PBS Agreements list can be updated and reissued. This list does not include any agreements generated in brainstorming sessions with support organizations. The list has been cross-walked between organizations. However, to assure the cross-walk is correct, it is suggested that the entire list be reviewed.

### ALL

1. (OSDF): The North Access Road will be closed as of end of FY04.
2. (WP): The following are cost and shipping criteria that can be used by other projects for shipment of debris to Envirocare:
  - + Debris can represent 10% of the total volume of a 60 train convoy and would cost the same price as other pit material.
  - + Size criteria = 10" x 10" x 20'
  - + Disposal costs are \$95/ton
  - + Rail shipping cost is \$9,000/car
  - + A car = 107 tons or 100 cubic yards
  - + Lid placement cost = \$1,200/lid (i.e. 40hrs/lid at \$30/hr.)
3. (D&D): Projects are to be charged only for washable PPE's that are distributed to the project.
4. (Aquifer): After the STP is removed from service in 3Q FY08, PBS-4 will budget for temporary sanitary facilities for government owned facilities.
5. (WP): Manpower should be planned for on a straight time basis. Overtime should be budgeted separately.
6. WP): Manpower for Operations Assurance to perform SSR's is budgeted for by Operations Assurance.
7. (Silos): Assume progress pictures are budgeted for by Public Affairs.
8. (Silos): Transportation of materials, etc. from RIMIA to a project or a support organization is centralized and budgeted for by Procurement.
9. (Silos): Budget for certification of matrixed personnel is by the organization from which the person is matrixed.
10. (Waste Treat & WGS): All projects are responsible forecasting and budgeting for LLW and MW that the project will generate. Waste Treatment and WGS will be responsible for providing the disposition plan and estimate for the waste material. Greg Fugitt is the designated contact for coordination to obtain the disposition plan and estimate.
11. (WGS): PBS-10 and PBS-11 will budget for waste material that is in a container as of 12/01/00.



**Miller, Frank**

---

**From:** Dennis Morgan [dennis\_morgan@mhfls.com]  
**Sent:** Friday, May 04, 2001 9:54 AM  
**To:** 'Miller, Frank'  
**Cc:** Gus Chirgott; Ken Grumski  
**Subject:** RE: Site Support Services

Frank:

In the event the quantity of material increases, you can utilize a daily rate of \$7,000.00. This rate would cover all direct costs associated with labor, equipment and materials for the on-site services. Passed experience (which can differ from site to site) shows on average 5 - 8 gondola cars per day can be loaded. For estimating purposes, you should base your daily rate on loading out 5 gondola cars with 535 tons of material (approximately 107 tons per car). I would rather be conservative with the production, then be caught short once the project started. Even though our gondola rail cars have a capacity of 109 - 110 tons, utilizing 107 tons per car gives you some flexibility in the type of materials being loaded.

You can utilize a liner (Super Load Wrapper) price of \$550.00 per gondola rail car as a budgetary cost for this project. Based on the volume you gave me, the project would need approximately 171 units.

We are still working on the transportation pricing. As soon as we get the loose ends tied up with the RxR's I'll pass this information on to you. Our transportation pricing will include all the extended logistics required for the project including tracking reports, etc..

I hope this was helpful. If you need anything else, or have any questions please do not hesitate to contact me.

Thanks,  
Dennis

Dennis D. Morgan, II  
Proposal & Contract Manager  
MHF Logistical Solutions, Inc.  
129 McCarrell Lane  
Zelienople, Pennsylvania 16063  
724.452.9300 Ext. 7498  
724.452.3753

-----Original Message-----

**From:** Miller, Frank [mailto:Frank.Miller@fernauld.gov]  
**Sent:** Friday, May 04, 2001 9:19 AM  
**To:** 'Dennis Morgan'  
**Subject:** RE: Site Support Services

Dennis,

If for some reason our volume estimates change before mobilization, is there a factor ( \$/cubic yard ) that I can apply to any additional yardage. As you state below, the travel/per diem, and 1 mobilization cost is included for each of the phases. Other than conservatively directly proportioning the listed cost to a per-yard basis and applying that to any increased yardage, is there a way (factor) for me to adjust cost more closely?

05/04/2001

Secondly, I have not yet received rail cost, liners, reports or logistic management requirement costs.

Thanks in advance,

Frank Miller  
Manager - Characterization / Waste Management

-----Original Message-----

**From:** Dennis Morgan [mailto:dennis\_morgan@mhfls.com]

**Sent:** Monday, April 30, 2001 4:52 PM

**To:** 'Frank.Miller@fernald.gov'

**Subject:** Site Support Services

Frank:

Here is a re-cap, as a follow up to our conversation earlier.

The following budgetary cost were developed on the following:

Loading of 12,000 CY of LLW based on (2) 6,000 CY campaigns

Loading of 1,500 CY of LLMW based on (1) 1,500 CY campaign

Prices:

Phase I 6,000 CY = \$75,000

Phase II 6,000 CY = \$75,000

Phase III 1,500 CY = \$21,000

Inclusive:

- Equipment, labor and materials to load and manage stockpiles of soils, based on the qty's above
- (1) Mobilization per event
- Perdiem/Travel based on above parameters

By Others (Fluor)

- Sampling
- Analytical
- Health Phys/Safety Management
- Backfilling
- Survey
- Disposal Fees
- Engineering and Design
- Permits
- On Site Support (trailers, phones, etc..)
- Dewatering

Note: Rail transportation costs, including liners, tracking reports, logistic management requirements will follow via a separate e-mail.

I'll get back to you later this week with the additional information. If you have any questions please do not hesitate to contact me.

05/04/2001





# Risk/Opportunity Identification and Analysis Form

Project: Area 6 Soils Remediation		PBS Number: 06		Total Baseline Dollars (Minimum Case): \$21,755,409					
Evaluator: T. Crawford / F. Miller		WBS Number: 1.1.G.K							
Date: 4/11/01		Control Account Number: G611							
CAM: JD Chiou		Potential Impact							
Project Task		Internal Or External Driver		Risk Impact Level					
Risk and/or Opportunity		Impact Cost \$ (Maximum Case)		Risk Probability %					
		Probable Cost \$ (Likeliest Case)		Risk Probability Level					
		Risk Critical Value		Risk Handling Strategy					
Area 6 Pre-design	Additional Samples needed to bound contamination (chasing)	Internal	\$50,000	1	75	4	\$37,500	2	Accept Risk
Area 6 Site Prep / Excavation	Certification Units Failure	Internal	\$288,000	2	70	4	\$201,600	3	Accept Risk
Area 6 Site Prep / Excavation	Groundwater infiltration during excavation	Internal	\$20,000	1	10	1	\$2,000	1	Accept Risk
Area 6 Site Prep / Excavation	Remediation activities contaminate/recontaminate areas that originally did not need remediation.	Internal	\$30,000	1	30	2	\$9,000	1	Accept Risk
Area 6 Site Prep / Excavation	Extreme Weather Delays	Internal	\$86,000	1	20	2	\$17,200	1	Accept Risk
Area 6 Site Prep / Excavation	Encountering 10% more debris than was identified from pre-design activities.	Internal	\$108,000	2	10	2	\$10,800	2	Accept Risk
Area 6 Site Prep / Excavation	Area is up-posted as a Thorium Area	Internal	\$3,620,000	3	20	2	\$724,000	3	Accept Risk
Area 6 Title III	Additional Samples needed to bound contamination (chasing)	Internal	\$8,000	1	60	4	\$4,800	2	Accept Risk
Area 6 Offsite Waste Disposition	Implementing Only A Part of the Design	Internal	\$15,000	1	70	4	\$10,500	2	Accept Risk
Area 6 Offsite Waste Disposition	Containers do not meet shipping requirements	Internal	\$113,000	2	30	2	\$33,900	2	Accept Risk
Area 6 Offsite Waste Disposition	Discovery of additional material needing containerization.	Internal	\$54,000	1	30	3	\$16,200	1	Accept Risk
Area 6 Offsite Waste Disposition	Discovery of additional AWAC material.	Internal	\$450,000	1	60	4	\$270,000	2	Accept Risk
Area 6 Excavation Control / Certification	Certification Units Failure	Internal	\$80,000	2	70	4	\$56,000	3	Accept Risk
			Total:	\$4,922,000		Total:	\$1,393,500		

# Risk/Opportunity Identification and Analysis Form

Project: Area 6 Soils Remediation		PBS Number: 06		Total Baseline Dollars (Minimum Case): \$21,755,409					
Evaluator: T. Crawford / F. Miller		WBS Number: 1.1.G.K							
CAM: JD Chiou		Date: 4/11/01							
Risk and/or Opportunity		Control Account Number: G611							
Project Task	Potential Impact	Internal Or External Driver	Impact Cost \$ (Maximum Case)	Risk Impact Level	Risk Probability %	Risk Probability Level	Probable Cost \$ (Likeliest Case)	Risk Critical Value	Risk Handling Strategy
Area 6 Pre-design	Longer EPA Review Cycle EPA Takes 30 days longer than the normal 60 days to review documents. Schedule delay of 1 month.	External	\$10,000	1	30	2	\$3,000	1	
Area 6 Title I/II	Longer EPA Review Cycle EPA Takes 30 days longer than the normal 60 days to review documents. Schedule delay of 1 month.	External	\$10,000	1	30	2	\$3,000	1	
Area 6 Excavation Control / Certification	Longer EPA Review Cycle EPA Takes 30 days longer than the normal 60 days to review documents. Schedule delay of 1 month.	External	\$10,000	1	30	2	\$3,000	1	





**WBS DICTIONARY  
CONTROL ACCOUNT/CHARGE NUMBER**



U.S. DEPARTMENT OF ENERGY  
**WORK BREAKDOWN STRUCTURE DICTIONARY**  
**PART II - ELEMENT DEFINITION**

1. PROJECT TITLE <b>FEMP (DEFENSE)</b>	2. DATE OF CONTRACT 12/01/2000		
3. IDENTIFICATION NUMBER DE-AC24-01OH20115		4. INDEX LINE NO. 57	
5. WBS ELEMENT CODE 1.1.G.M	6. WBS ELEMENT TITLE AREA 7 SOIL REMEDIATION		
7. APPROVED CP NO. NEW PER CP# FY01-0115-0006-00		8. DATE OF CHANGES 09/05/2001	
9. SYSTEM DESIGN DESCRIPTION CERCL/ACA	10. BUDGET AND REPORTING NUMBER EW05H3060		
<p>11. ELEMENT TASK DESCRIPTION</p> <p><b><u>a. ELEMENTS OF COST:</u></b></p> <p>Labor  Material  Subcontracts  ODCs</p> <p><b><u>b. TECHNICAL CONTENT:</u></b></p> <p>The remediation area encompasses the Silos 1,2,3, &amp; 4, silo process support facilities, and footprint of lime sludge pond after use by remediation areas 3A, 3B, 4A, and 4B as a water handling area.</p> <p><b><u>c. SCOPE OF WORK:</u></b></p> <p>The scope of work for these activities is specifically defined in the Control Account G711 (Area 7 Soils Remediation). The following key elements are included in the control account.</p> <ul style="list-style-type: none"> <li>- Predesign characterization</li> <li>- Title I/II engineering design</li> <li>- Title III engineering design</li> <li>- Site preparation/excavation/interim restoration</li> <li>- Excavation control/certification</li> <li>- Off-site waste disposition after Waste Generator Services and WPRAP end.</li> </ul> <p>Work specifically excluded from this account is as follows:</p> <ul style="list-style-type: none"> <li>- Staff Labor charged to Control Account GPM1</li> <li>- Scope of work as defined in other Remediation Area Control Accounts</li> <li>- Remediation activities in locations as defined in the Closure Narrative Plan</li> <li>- Post-remediation monitoring and maintenance</li> <li>- Post-Closure documentation</li> </ul>			

U.S. DEPARTMENT OF ENERGY  
**WORK BREAKDOWN STRUCTURE DICTIONARY**  
**PART II - ELEMENT DEFINITION**

1. PROJECT TITLE  FEMP (DEFENSE)	2. DATE OF CONTRACT  12/01/2000	
3. IDENTIFICATION NUMBER  DE-AC24-01OH20115		4. INDEX LINE NO.  57
5. WBS ELEMENT CODE  1.1.G.M	6. WBS ELEMENT TITLE  AREA 7 SOIL REMEDIATION	
7. APPROVED CP NO.  NEW PER CP# FY01-0115-0006-00		8. DATE OF CHANGES  09/05/2001
9. SYSTEM DESIGN DESCRIPTION  CERCL/ACA	10. BUDGET AND REPORTING NUMBER  EW05H3060	
11. ELEMENT TASK DESCRIPTION <ul style="list-style-type: none"> <li>- Natural Resources restoration</li> <li>- Removal and disposition of Silo 1 and Silo 2 at-and below-grade debris associated with foundations, walls, floors, underdrains, and piping</li> <li>- Removal and disposition of decant sump tank and associated piping and debris</li> <li>- Removal and disposition of the concrete trench and piping within trench from Silo 1, Silo 2, and former location of demolished drum handling building to the common K-65 concrete trench.</li> <li>- Removal and disposition of piping within the K-65 trench</li> <li>- D &amp; D of above-grade structures</li> <li>- Predesign, design, excavation, and certification of soil and at- and below-grade debris associated with Sectors 2 and 3, e.g. Bldg 30/45 parking lot, access road to Bldg 30/45 parking lot, Boiler House, AWWT, new Sewage Treatment Plant, SWRBs, SPIT, Biosurge Lagoon, High Nitrate Tank, TACO trailers, parking lot south and west of TACO trailers, storm sewer directly north and draining into SWRB.</li> <li>- Aquifer Restoration well installation, operation, monitoring, removal and utilities required to operated well systems</li> <li>- Area 10 (Soil Corridors)</li> <li>- Excludes all centralized services</li> </ul>		

**WORK SCOPE DEFINITION  
(Control Account)**

1. PROJECT TITLE <b>FEMP (DEFENSE)</b>	2. DATE <b>09/05/2001</b>	Page 1
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3. WBS ELEMENT CODE <b>1.1.G.M</b>	4. WBS ELEMENT TITLE/NAME <b>AREA 7 SOIL REMEDIATION</b>
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5. PERFORMING DIV/DEPARTMENT CODE <b>49</b>	6. ORIGINATOR NAME/PHONE <b>JD CHIOU /648-3726</b>	7. WBS ELEMENT MANAGER <b>JD CHIOU</b>
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8. BUDGET AND REPORTING NUMBER <b>EW05H3060</b>	9. BUDGET TITLE <b>SOILS</b>
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10. ORIGINAL SCOPE? / CHANGE TO WORK SCOPE? / NEW SCOPE? <b>NEW PER CP# FY01-0115-0006-00</b>	11. ESTIMATED START / COMPLETION DATE <b>3/06 - 11/09</b>
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12. TASK IDENTIFICATION (CONTROL ACCOUNT) <b>G711</b>	13. TASK DESCRIPTION (ONE LINE) <b>AREA 7 SOILS REMEDIATION</b>
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14. ELEMENT TASK DESCRIPTION

**a. ELEMENTS OF COST:**

Labor  
Material  
Subcontracts

**b. TECHNICAL CONTENT:**

The remediation area encompasses the Silos 1, 2, 3 and 4, silo process support facilities, and the footprint of lime sludge pond after use by remediation areas 3A, 4A and 4B as a water handling area.

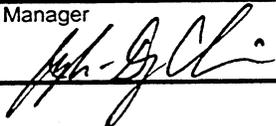
**c. SCOPE OF WORK:**

Please refer to the Remediation Area 7 Closure Plan narrative for further information.

The scope of work for these activities is specifically defined in the following charge numbers:

G7111 - Area 7 Predesign  
G7112 - Area 7 Title I/II Design  
G7113 - Title III Design  
G7114 - Site Preparation/Excavation  
G7117 - Exc/Control/Certification  
G7118 - Off-site Waste Disposition

**d. WORK SPECIFICALLY EXCLUDED:**

Project Manager 	Control Account Manager 	Control Team Manager 
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**WORK SCOPE DEFINITION**  
(Control Account)

1. PROJECT TITLE <b>FEMP (DEFENSE)</b>		2. DATE <b>09/05/2001</b>	Page 2
3. WBS ELEMENT CODE <b>1.1.G.M</b>	4. WBS ELEMENT TITLE/NAME <b>AREA 7 SOIL REMEDIATION</b>		
5. PERFORMING DIV/DEPARTMENT CODE <b>49</b>	6. ORIGINATOR NAME/PHONE <b>JD CHIOU /648-3726</b>	7. WBS ELEMENT MANAGER <b>JD CHIOU</b>	
8. BUDGET AND REPORTING NUMBER <b>EW05H3060</b>	9. BUDGET TITLE <b>SOILS</b>		
10. ORIGINAL SCOPE? / CHANGE TO WORK SCOPE? / NEW SCOPE? <b>NEW PER CP# FY01-0115-0006-00</b>		11. ESTIMATED START / COMPLETION DATE <b>3/06 - 11/09</b>	
12. TASK IDENTIFICATION (CONTROL ACCOUNT) <b>G711</b>	13. TASK DESCRIPTION (ONE LINE) <b>AREA 7 SOILS REMEDIATION</b>		

14. ELEMENT TASK DESCRIPTION

Staff Labor charged to control account GPM1

Scope of work as defined in other Remediation Area control accounts

Remediation activities in locations as defined in the Closure Narrative Plan

Post-remediation monitoring and maintenance

Post-Closure documentation

Natural resources restoration

Removal and disposition of Silo 1 and Silo 2 at- and below-grade debris associated with foundations, walls, floors, underdrains, and piping

Removal and disposition of decant sump tank and associated piping and debris

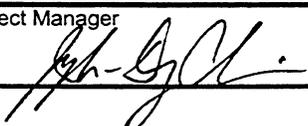
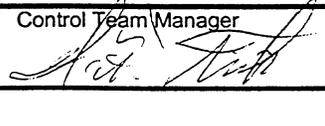
Removal and disposition of the concrete trench and piping within trench from Silos 1 & 2 and the former location of the demolished drum handling building to the common K-65 concrete trench

Removal and disposition of piping within the K-65 trench

D&D of above-grade structures

Predesign, design, excavation and certification of soil and at- and below-grade debris associated with Sectors 2 and 3, e.g., Bldg 30/45 parking lot, access road to 30/45 parking lot, Boiler House, AWWT, new Sewage Treatment Plant, SWRBs, SPIT, Bio-Surge Lagoon, High Nitrate Tank, TACO trailers, parking lot south and west of TACO trailers,

**WORK SCOPE DEFINITION**  
(Work Package)

1. PROJECT TITLE <b>FEMP (DEFENSE)</b>		2. DATE <b>09/06/2001</b>	Page 1
3. WBS ELEMENT CODE <b>1.1.G.M</b>	4. WBS ELEMENT TITLE/NAME <b>AREA 7 SOIL REMEDIATION</b>		
5. PERFORMING DIV/DEPARTMENT CODE <b>49</b>	6. ORIGINATOR NAME/PHONE <b>JD CHIOU/648-3726</b>	7. WBS ELEMENT MANAGER <b>JD CHIOU</b>	
8. BUDGET AND REPORTING NUMBER <b>EW05H3060</b>	9. BUDGET TITLE <b>SOILS</b>		
10. ORIGINAL SCOPE? / CHANGE TO WORK SCOPE? / NEW SCOPE? <b>NEW PER CP# FY01-0015-0006-00</b>		11. ESTIMATED START / COMPLETION DATE <b>3/06 - 4/07</b>	
12. TASK IDENTIFICATION (WORK PACKAGE) <b>G7111</b>	13. TASK DESCRIPTION (ONE LINE) <b>AREA 7 PREDESIGN</b>		
14. ELEMENT TASK DESCRIPTION			
<p><b><u>a. ELEMENTS OF COST:</u></b></p> <p>Labor Subcontracts</p> <p><b><u>b. TECHNICAL CONTENT:</u></b></p> <p>The content of this document applies to the soil characterization program at the FEMP specific to area pre-design characterization, sampling, and analytical work performed by and for the Soil Disposal Facility Project in Area 7. It is a summary for area-specific characterization efforts that will be conducted to delineate areas of above Final Remediation Level (FRL) contamination as well as contamination that is above the On-Site Disposal Facility (OSDF) Waste Acceptance Criteria (WAC). The data generated from these characterization activities will support remedial design. The Area 7 physical boundaries are described in Section 11 of the Fluor Fernald Closure Plan Basis of Estimate (20300-PL-0005).</p> <p>Drivers of the work are CERCLA, RCRA, the EPA Amended Consent Agreement (ACA), Sitewide Excavation Plan (SEP), and the signed Records of Decision (RODs) for OU5 and OU2.</p> <p><b><u>c. SCOPE OF WORK:</u></b></p> <p>The scope of this document covers the characterization support for pre-design of Area 7. Pre-design Investigations include the collection of additional data collected to support the engineering design, which will be included in the Integrated Remedial Design Plan (IRDP). The work scope of the pre-design characterization includes characterization planning, field survey work, real-time data collection and reduction, field sampling, laboratory analysis,</p>			
Project Manager 	Control Account Manager 	Control Team Manager 	

**WORK SCOPE DEFINITION**  
(Work Package)

1. PROJECT TITLE <b>FEMP (DEFENSE)</b>		2. DATE <b>09/06/2001</b>	Page 2
3. WBS ELEMENT CODE <b>1.1.G.M</b>	4. WBS ELEMENT TITLE/NAME <b>AREA 7 SOIL REMEDIATION</b>		
5. PERFORMING DIV/DEPARTMENT CODE <b>49</b>	6. ORIGINATOR NAME/PHONE <b>JD CHIOU/648-3726</b>	7. WBS ELEMENT MANAGER <b>JD CHIOU</b>	
8. BUDGET AND REPORTING NUMBER <b>EW05H3060</b>	9. BUDGET TITLE <b>SOILS</b>		
10. ORIGINAL SCOPE? / CHANGE TO WORK SCOPE? / NEW SCOPE? <b>NEW PER CP# FY01-0015-0006-00</b>		11. ESTIMATED START / COMPLETION DATE <b>3/06 - 4/07</b>	
12. TASK IDENTIFICATION (WORK PACKAGE) <b>G7111</b>	13. TASK DESCRIPTION (ONE LINE) <b>AREA 7 PREDESIGN</b>		
14. ELEMENT TASK DESCRIPTION <p>and data management activities.</p> <p>The predesign characterization effort includes the following tasks:</p> <p>Review and evaluation of existing sampling data, real-time data and geophysical data</p> <p>Review HWMUs, USTs, and potentially RCRA characteristic area</p> <p>Develop contamination models based on existing data</p> <p>Develop and write applicable data quality objectives and Project Specific Plans, as necessary</p> <p>Prep the area for field measurements which includes clearing or brush</p> <p>Physical sampling</p> <p>Assess real-time data generated during predesign</p> <p>Perform assessment of radiological field survey results</p> <p>Perform data management functions within SDFP</p> <p>Laboratory sample analysis</p> <p>Sample shipping for off-site analysis</p> <p>If necessary, Ground Penetrating Radar (GPR) / Electro-Magnetic (EM) Scanning</p> <p><b><u>d. WORK SPECIFICALLY EXCLUDED:</u></b></p> <p>Characterization tasks in other areas</p> <p>Construction or remediation</p>			

**WORK SCOPE DEFINITION**  
(Work Package)

1. PROJECT TITLE <b>FEMP (DEFENSE)</b>		2. DATE <b>09/06/2001</b>	Page 3
3. WBS ELEMENT CODE <b>1.1.G.M</b>	4. WBS ELEMENT TITLE/NAME <b>AREA 7 SOIL REMEDIATION</b>		
5. PERFORMING DIV/DEPARTMENT CODE <b>49</b>	6. ORIGINATOR NAME/PHONE <b>JD CHIOU/648-3726</b>	7. WBS ELEMENT MANAGER <b>JD CHIOU</b>	
8. BUDGET AND REPORTING NUMBER <b>EW05H3060</b>	9. BUDGET TITLE <b>SOILS</b>		
10. ORIGINAL SCOPE? / CHANGE TO WORK SCOPE? / NEW SCOPE? <b>NEW PER CP# FY01-0015-0006-00</b>		11. ESTIMATED START / COMPLETION DATE <b>3/06 - 4/07</b>	
12. TASK IDENTIFICATION (WORK PACKAGE) <b>G7111</b>	13. TASK DESCRIPTION (ONE LINE) <b>AREA 7 PREDESIGN</b>		
14. ELEMENT TASK DESCRIPTION  <p><b>Waste tracking or disposition</b></p> <p><b>Area pre-certification or certification activities</b></p> <p><b>Waste Tracking and disposition</b></p> <p><b>Waste Treatment activities</b></p> <p><b>Development of Engineering plans, drawings, or specifications</b></p> <p><b>Land Surveying, staff, or equipment</b></p> <p><b>Real Time Scanning (HPGe, RSS, RTRAK), staff, or equipment</b></p> <p><b>Characterization personnel covered under GPM14</b></p> <p><b>Centralized services and/or equipment</b></p>			



**WORK SCOPE DEFINITION**  
(Work Package)

1. PROJECT TITLE <b>FEMP (DEFENSE)</b>		2. DATE <b>09/06/2001</b>	Page 1
3. WBS ELEMENT CODE <b>1.1.G.M</b>	4. WBS ELEMENT TITLE/NAME <b>AREA 7 SOIL REMEDIATION</b>		
5. PERFORMING DIV/DEPARTMENT CODE <b>49</b>	6. ORIGINATOR NAME/PHONE <b>JD CHIOU (3726)</b>	7. WBS ELEMENT MANAGER <b>JD CHIOU</b>	
8. BUDGET AND REPORTING NUMBER <b>EW05H3060</b>	9. BUDGET TITLE <b>SOILS</b>		
10. ORIGINAL SCOPE? / CHANGE TO WORK SCOPE? / NEW SCOPE? <b>NEW PER CP# FY01-0115-0003-000006</b>		11. ESTIMATED START / COMPLETION DATE <b>10/06 - 2/08</b>	
12. TASK IDENTIFICATION (WORK PACKAGE) <b>G7112</b>	13. TASK DESCRIPTION (ONE LINE) <b>AREA 7 TITLE I/II DESIGN</b>		

14. ELEMENT TASK DESCRIPTION

**a. ELEMENTS OF COST:**

Labor  
Subcontracts

**b. TECHNICAL CONTENT:**

This charge number will provide the performance of Title I and Title II engineering services for the remediation excavation and removal of at- and below-grade impacted material from Remediation Area 7. Area 7 is located east of Paddys Run; south of Area 6, west of the former Production Area, and north of the Pilot Plant Drainage Ditch. Area 7 includes the following major features:

- Silos area.
- K-65 trench.
- Advanced Waste Retrieval and future processing area.
- Footprint of the Lime Sludge Ponds (an Operable Unit 2 waste unit).

**c. SCOPE OF WORK:**

The scope of work for these activities is defined in Control Account G711 (Area 7 Soils Remediation). Key elements included in the charge number are:

Development of the Integrated Remedial Design Package (IRDP) per the Site-Wide Excavation Plan and requirements of the Operable Unit 2 and 5 Records of Decision (ROD) consisting of three components for review and approval by DOE and the regulatory agencies: Implementation Plan, Construction Drawings, and Technical Specifications. One IRDP will be developed for Area 7.

Development of supporting documentation to the Implementation Plans consisting

Project Manager 	Control Account Manager 	Control Team Manager 
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**WORK SCOPE DEFINITION**  
(Work Package)

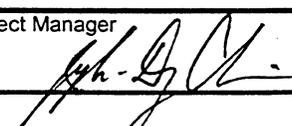
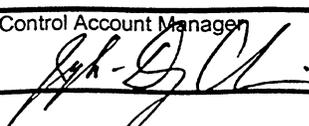
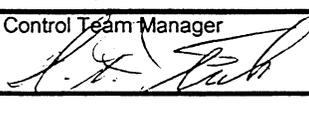
1. PROJECT TITLE <b>FEMP (DEFENSE)</b>		2. DATE <b>09/06/2001</b>	Page 2
3. WBS ELEMENT CODE <b>1.1.G.M</b>	4. WBS ELEMENT TITLE/NAME <b>AREA 7 SOIL REMEDIATION</b>		
5. PERFORMING DIV/DEPARTMENT CODE <b>49</b>	6. ORIGINATOR NAME/PHONE <b>JD CHIOU (3726)</b>	7. WBS ELEMENT MANAGER <b>JD CHIOU</b>	
8. BUDGET AND REPORTING NUMBER <b>EW05H3060</b>	9. BUDGET TITLE <b>SOILS</b>		
10. ORIGINAL SCOPE? / CHANGE TO WORK SCOPE? / NEW SCOPE? <b>NEW PER CP# FY01-0115-0003-000006</b>		11. ESTIMATED START / COMPLETION DATE <b>10/06 - 2/08</b>	
12. TASK IDENTIFICATION (WORK PACKAGE) <b>G7112</b>	13. TASK DESCRIPTION (ONE LINE) <b>AREA 7 TITLE I/II DESIGN</b>		
14. ELEMENT TASK DESCRIPTION			
<p>of the Design Criteria Package (DCP) , Applicable or Relevant and Appropriate Requirements/To Be Considered (ARARs/TBCs) Table for the DCP, Surface Water Management/Erosion Control Plan, and Earthwork Calculations.</p> <p>Preparation of engineering documentation: Technical Reference drawing package, safety planning documentation through the request for safety assessment, Project Execution Plan (PEP), project alignments, Occupational and Environmental ALARAs, design and constructability reviews, independent design reviews, resolution of comments (including project, DOE, and regulatory comments), design calculations (including hydrologic modeling, slope stability), quantity take-offs, cost-estimating support.</p> <p>Generating Construction Drawings and Technical Specifications Certified for Construction.</p> <p><b><u>d. WORK SPECIFICALLY EXCLUDED:</u></b></p> <p>Staff labor charge to Control Account GPM1</p> <p>Predesign Data Summary to be appended to the Implementation Plan</p> <p>Scope of work as defined in other Remediation Area 7 Charge Accounts including Title III engineering services.</p> <p>Design of Silo 1 and Silo 2 structure removal with associated floors, foundations, underdrains, piping, decant sump tank, and section of K-65 Trench under the silos berm</p> <p>Scope of work as defined in other Remediation Area Control Accounts.</p> <p>Title III engineering associated with the On-Site Disposal Facility (OSDF).</p> <p>Engineering associated with the D&amp;D of above-grade structures</p> <p>Engineering associated with the removal of impacted material associated</p>			

**WORK SCOPE DEFINITION**  
(Work Package)

<b>1. PROJECT TITLE</b>  FEMP (DEFENSE)		<b>2. DATE</b>  09/06/2001	Page 3
<b>3. WBS ELEMENT CODE</b>  1.1.G.M	<b>4. WBS ELEMENT TITLE/NAME</b>  AREA 7 SOIL REMEDIATION		
<b>5. PERFORMING DIV/DEPARTMENT CODE</b>  49	<b>6. ORIGINATOR NAME/PHONE</b>  JD CHIOU (3726)	<b>7. WBS ELEMENT MANAGER</b>  JD CHIOU	
<b>8. BUDGET AND REPORTING NUMBER</b>  EW05H3060	<b>9. BUDGET TITLE</b>  SOILS		
<b>10. ORIGINAL SCOPE? / CHANGE TO WORK SCOPE? / NEW SCOPE?</b>  NEW PER CP# FY01-0115-0003-000006		<b>11. ESTIMATED START / COMPLETION DATE</b>  10/06 - 2/08	
<b>12. TASK IDENTIFICATION (WORK PACKAGE)</b>  G7112	<b>13. TASK DESCRIPTION (ONE LINE)</b>  AREA 7 TITLE I/II DESIGN		
<b>14. ELEMENT TASK DESCRIPTION</b>  locations listed in the Closure Plan Narrative.  Construction management.  Post-remediation monitoring and maintenance.			



**WORK SCOPE DEFINITION**  
(Work Package)

1. PROJECT TITLE <b>FEMP (DEFENSE)</b>		2. DATE <b>09/06/2001</b>	Page 1
3. WBS ELEMENT CODE <b>1.1.G.M</b>	4. WBS ELEMENT TITLE/NAME <b>AREA 7 SOIL REMEDIATION</b>		
5. PERFORMING DIV/DEPARTMENT CODE <b>49</b>	6. ORIGINATOR NAME/PHONE <b>JD CHIOU (3726)</b>	7. WBS ELEMENT MANAGER <b>JD CHIOU</b>	
8. BUDGET AND REPORTING NUMBER <b>EW05H3060</b>	9. BUDGET TITLE <b>SOILS</b>		
10. ORIGINAL SCOPE? / CHANGE TO WORK SCOPE? / NEW SCOPE? <b>NEW PER CP# FY01-0115-0006-00</b>		11. ESTIMATED START / COMPLETION DATE <b>3/08 - 11/09</b>	
12. TASK IDENTIFICATION (WORK PACKAGE) <b>G7113</b>	13. TASK DESCRIPTION (ONE LINE) <b>AREA 7 TITLE III</b>		
14. ELEMENT TASK DESCRIPTION			
<p><b><u>a. ELEMENTS OF COST:</u></b></p> <p>Labor Subcontracts</p> <p><b><u>b. TECHNICAL CONTENT:</u></b></p> <p>This charge number will provide the performance of Title III engineering services during the remediation excavation and removal of at- and below-grade impacted material from Remediation Area 7. Title III engineering services begins after the plans and specifications are certified for construction (CFC).</p> <p>Area 7 is located east of Paddys Run, south of Area 6, west of the former Production Area, and north of the Pilot Plant Drainage Ditch. Area 7 includes the following major features:</p> <ul style="list-style-type: none"> <li>- Silos area.</li> <li>- K-65 trench.</li> <li>- Advanced Waste Retrieval and future processing area.</li> <li>- Footprint of the Lime Sludge Ponds (an Operable Unit 2 waste unit).</li> </ul> <p><b><u>c. SCOPE OF WORK:</u></b></p> <p>The scope of work for these activities is defined in Control Account G711 (Area 7 Soils Remediation). Key elements included in the charge number for each of the geographic features listed above are:</p> <p>Assist in procurement of the excavation subcontractor after CFC.</p> <p>Review and approve engineering document family submittals from the subcontractor</p>			
Project Manager 	Control Account Manager 	Control Team Manager 	

**WORK SCOPE DEFINITION**  
(Work Package)

1. PROJECT TITLE <b>FEMP (DEFENSE)</b>		2. DATE <b>09/06/2001</b>	Page 2
3. WBS ELEMENT CODE <b>1.1.G.M</b>	4. WBS ELEMENT TITLE/NAME <b>AREA 7 SOIL REMEDIATION</b>		
5. PERFORMING DIV/DEPARTMENT CODE <b>49</b>	6. ORIGINATOR NAME/PHONE <b>JD CHIOU (3726)</b>	7. WBS ELEMENT MANAGER <b>JD CHIOU</b>	
8. BUDGET AND REPORTING NUMBER <b>EW05H3060</b>	9. BUDGET TITLE <b>SOILS</b>		
10. ORIGINAL SCOPE? / CHANGE TO WORK SCOPE? / NEW SCOPE? <b>NEW PER CP# FY01-0115-0006-00</b>		11. ESTIMATED START / COMPLETION DATE <b>3/08 - 11/09</b>	
12. TASK IDENTIFICATION (WORK PACKAGE) <b>G7113</b>	13. TASK DESCRIPTION (ONE LINE) <b>AREA 7 TITLE III</b>		

14. ELEMENT TASK DESCRIPTION

to ensure conformity to the Implementation Plan, drawings, and specifications.

Review construction, health and safety, or other subcontractor submittals when requested.

Prepare, respond, and approve Request for Clarification (RCIs) and Design Change Notices (DCNs).

Facilitate RCI/DCN review and approval through the project, DOE, and the regulatory agencies.

Prepare Safety Basis Document Reviews (SBDs) based on DCNs.

Develop as-built drawings and specifications and provide an excavation summary report.

**d. WORK SPECIFICALLY EXCLUDED:**

Staff labor charge to Control Account GPM1

Scope of work as defined in other Remediation Area 7 Charge Accounts.

Scope of work as defined in other Remediation Area Control Accounts.

Title III engineering associated with the On-Site Disposal Facility (OSDF).

Construction management

Post-remediation monitoring and maintenance.

**WORK SCOPE DEFINITION**  
(Work Package)

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5. PERFORMING DIV/DEPARTMENT CODE <b>49</b>	6. ORIGINATOR NAME/PHONE <b>JD CHIOU/648-3726</b>	7. WBS ELEMENT MANAGER <b>JD CHIOU</b>	
8. BUDGET AND REPORTING NUMBER <b>EW05H3060</b>	9. BUDGET TITLE <b>SOILS</b>		
10. ORIGINAL SCOPE? / CHANGE TO WORK SCOPE? / NEW SCOPE? <b>NEW PER CP# FY01-0015-0006-00</b>		11. ESTIMATED START / COMPLETION DATE <b>3/08 - 11/09</b>	
12. TASK IDENTIFICATION (WORK PACKAGE) <b>G7114</b>	13. TASK DESCRIPTION (ONE LINE) <b>AREA 7 SITE PREP/EXCAVATION</b>		

14. ELEMENT TASK DESCRIPTION

**a. ELEMENTS OF COST:**

Labor  
Subcontracts

**b. TECHNICAL CONTENT:**

Perform remedial construction activities for Area 7.

The project boundaries are as follows:

North by Area 6 including the former Waste Pit Area

East by Area 4B including the former Production Area

South by Area 2 and the Pilot Plant Drainage Ditch

West by Paddy's Run

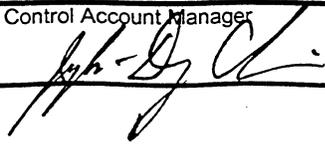
**c. SCOPE OF WORK:**

Provide site preparation activities prior to the start of excavation.  
Activities included but not limited to are as follows:

Provide and deliver all required permits.

Establish work limits and excavation boundaries.

Establish construction support areas and work areas.

Project Manager 	Control Account Manager 	Control Team Manager 
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**WORK SCOPE DEFINITION**  
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10. ORIGINAL SCOPE? / CHANGE TO WORK SCOPE? / NEW SCOPE? <b>NEW PER CP# FY01-0015-0006-00</b>		11. ESTIMATED START / COMPLETION DATE <b>3/08 - 11/09</b>	
12. TASK IDENTIFICATION (WORK PACKAGE) <b>G7114</b>	13. TASK DESCRIPTION (ONE LINE) <b>AREA 7 SITE PREP/EXCAVATION</b>		
14. ELEMENT TASK DESCRIPTION			
<p>Connect all utilities into construction support area.</p> <p>Establish surface water management controls.</p> <p>Provide excavation and removal of all above FRL soil and at and below grade concrete and utilities from Area #7 and transportation to the On-site Disposal Facility, SP-7 or other designated staging area in accordance with certified construction drawings, specifications and other subcontract requirements. Additional related activities and services within this scope of work are as follows:</p> <p>Erosion and sediment control during construction</p> <p>Installation and/or relocation of fencing during construction</p> <p>Equipment, material and support facilities rented/procured for project use</p> <p>Dewatering as necessary during construction</p> <p>Dust Control within designated work area.</p> <p>Decontamination of equipment</p> <p>Matrixed and subcontracted labor directly associated with construction</p> <p>Specific work to be addressed includes:</p> <p>Size reduce, excavate, load and haul at and below grade concrete, utilities, and debris associated with the Impacted Material Haul Road to OSDF as Category 2.</p> <p>Excavate, load and haul impacted soils to the OSDF as Category 1.</p> <p>Cut area utility isolation trenches and plug storm water and sanitary sewers.</p> <p>Interim Restoration Grading.</p> <p>Perform Post-Excavation activities.</p>			

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(Work Package)

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3. WBS ELEMENT CODE <b>1.1.G.M</b>	4. WBS ELEMENT TITLE/NAME <b>AREA 7 SOIL REMEDIATION</b>		
5. PERFORMING DIV/DEPARTMENT CODE <b>49</b>	6. ORIGINATOR NAME/PHONE <b>JD CHIOU/648-3726</b>	7. WBS ELEMENT MANAGER <b>JD CHIOU</b>	
8. BUDGET AND REPORTING NUMBER <b>EW05H3060</b>	9. BUDGET TITLE <b>SOILS</b>		
10. ORIGINAL SCOPE? / CHANGE TO WORK SCOPE? / NEW SCOPE? <b>NEW PER CP# FY01-0015-0006-00</b>		11. ESTIMATED START / COMPLETION DATE <b>3/08 - 11/09</b>	
12. TASK IDENTIFICATION (WORK PACKAGE) <b>G7114</b>	13. TASK DESCRIPTION (ONE LINE) <b>AREA 7 SITE PREP/EXCAVATION</b>		

14. ELEMENT TASK DESCRIPTION

**d. WORK SPECIFICALLY EXCLUDED:**

Placement in OSDF

Seeding / Vegetation beyond interim restoration

Road construction

Title I/II design services

Performing and/or managing Title III services

Sampling and testing of waste materials during remediation

Monitoring and maintenance of the remediated area after remediation

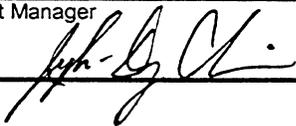
Offsite disposal of materials exceeding the waste acceptance criteria for on-site disposal

Treatment of lead containing soil

Centralized Personnel, Radiological controls, and Safety management during remedial construction



**WORK SCOPE DEFINITION**  
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8. BUDGET AND REPORTING NUMBER <b>EW05H3060</b>	9. BUDGET TITLE <b>SOILS</b>		
10. ORIGINAL SCOPE? / CHANGE TO WORK SCOPE? / NEW SCOPE? <b>NEW PER CP# FY01-0015-0006-00</b>		11. ESTIMATED START / COMPLETION DATE <b>3/08 - 11/09</b>	
12. TASK IDENTIFICATION (WORK PACKAGE) <b>G7117</b>	13. TASK DESCRIPTION (ONE LINE) <b>AREA 7 EXC CONTROL/CERTIFICATION</b>		
14. ELEMENT TASK DESCRIPTION			
<p><b><u>a. ELEMENTS OF COST:</u></b></p> <p>Labor Materials Subcontracts</p> <p><b><u>b. TECHNICAL CONTENT:</u></b></p> <p>The content of this document applies to the soil characterization program at the FEMP specific to area characterization, sampling, and analytical work performed by and for the Soil Disposal Facility Project in Area 7. It is a summary for area-specific characterization efforts that will be conducted in defined areas of excavation and lesser environmentally impacted areas that may not be excavated, but will require monitoring, sampling, and analytical testing. The characterization efforts are intended to provide information that may be required to supplement the remedial design and to support the remedial action that will result in compliance with the Final Remediation Levels (FRLs) published in the OU5 ROD. The Area 7 physical boundaries are described in Section 11 of the Fluor Fernald Closure Plan Basis of Estimate (20300-PL-0005).</p> <p>Drivers of the work are CERCLA, RCRA, the EPA Amended Consent Agreement (ACA), Sitewide Excavation Plan (SEP), and the signed Record of Decision (ROD) for OU5.</p> <p><b><u>c. SCOPE OF WORK:</u></b></p> <p>The scope of this document covers the characterization support for excavation control, precertification, and certification of Area 7. Characterization work performed in Area 7 under this scope will assist in determining soil disposition, extent of excavation, and provide sound field and analytical data</p>			
Project Manager 	Control Account Manager 	Control Team Manager 	

**WORK SCOPE DEFINITION**  
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1. PROJECT TITLE <b>FEMP (DEFENSE)</b>		2. DATE <b>09/06/2001</b>	Page 2
3. WBS ELEMENT CODE <b>1.1.G.M</b>	4. WBS ELEMENT TITLE/NAME <b>AREA 7 SOIL REMEDIATION</b>		
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10. ORIGINAL SCOPE? / CHANGE TO WORK SCOPE? / NEW SCOPE? <b>NEW PER CP# FY01-0015-0006-00</b>		11. ESTIMATED START / COMPLETION DATE <b>3/08 - 11/09</b>	
12. TASK IDENTIFICATION (WORK PACKAGE) <b>G7117</b>	13. TASK DESCRIPTION (ONE LINE) <b>AREA 7 EXC CONTROL/CERTIFICATION</b>		
14. ELEMENT TASK DESCRIPTION <p>that prove remedial activities were sufficient. During excavation of Area 7, radiological field surveying, physical soil sampling, and analysis will be required. This testing will be performed during the excavation process as necessary to determine disposition of excavated material. After excavation is determined to be complete, the remaining soil will be tested for all area specific contaminants of concern (COCs) to demonstrate FRL attainment. The actual radiological field-survey measurements, physical soil sampling and analytical activities covered under this account include the following tasks:</p> <ul style="list-style-type: none"> <li>Review existing data and engineering drawings</li> <li>Develop and write applicable data quality objectives and projects-specific-plans, as necessary</li> <li>Develop Certification Design Letters and text for the Area Implementation Plan</li> <li>Define and delineate excavation monitoring boundaries in the field</li> <li>Define and delineate Certification Units</li> <li>Prep the area for field measurements which includes clearing of brush</li> <li>Installation of certification fencing and signs</li> <li>Physical sampling</li> <li>Assess real-time data generated during excavation</li> <li>Perform assessment of radiological field survey results</li> <li>Perform data management functions within SDFP</li> <li>Develop final reports or certification reports</li> <li>Perform analysis</li> <li>If needed, Ground Penetrating Radar (GPR) / Electro-Magnetic (EM) Scanning</li> </ul>			

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<b>3. WBS ELEMENT CODE</b> 1.1.G.M	<b>4. WBS ELEMENT TITLE/NAME</b> AREA 7 SOIL REMEDIATION		
<b>5. PERFORMING DIV/DEPARTMENT CODE</b> 49	<b>6. ORIGINATOR NAME/PHONE</b> JD CHIOU/648-3726	<b>7. WBS ELEMENT MANAGER</b> JD CHIOU	
<b>8. BUDGET AND REPORTING NUMBER</b> EW05H3060	<b>9. BUDGET TITLE</b> SOILS		
<b>10. ORIGINAL SCOPE? / CHANGE TO WORK SCOPE? / NEW SCOPE?</b> NEW PER CP# FY01-0015-0006-00		<b>11. ESTIMATED START / COMPLETION DATE</b> 3/08 - 11/09	
<b>12. TASK IDENTIFICATION (WORK PACKAGE)</b> G7117	<b>13. TASK DESCRIPTION (ONE LINE)</b> AREA 7 EXC CONTROL/CERTIFICATION		

**14. ELEMENT TASK DESCRIPTION**

**d. WORK SPECIFICALLY EXCLUDED:**

Pre-design work

Waste Tracking and disposition

Waste Treatment activities

Construction or remediation

Development of Engineering plans, drawings, or specifications

Land Surveying, staff, or equipment

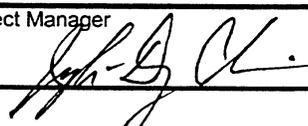
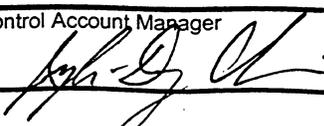
Real Time Scanning (HPGe, RSS, RTRAK), staff, or equipment

Characterization personnel covered under GPM14

Centralized services and/or equipment



**WORK SCOPE DEFINITION**  
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1. PROJECT TITLE <b>FEMP (DEFENSE)</b>		2. DATE <b>09/06/2001</b>	Page 1
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10. ORIGINAL SCOPE? / CHANGE TO WORK SCOPE? / NEW SCOPE? <b>NEW PER CP# FY01-0015-0006-00</b>		11. ESTIMATED START / COMPLETION DATE <b>1/08 - 3/09</b>	
12. TASK IDENTIFICATION (WORK PACKAGE) <b>G7118</b>	13. TASK DESCRIPTION (ONE LINE) <b>AREA 7 OFFSITE WASTE DISPOSITION</b>		
14. ELEMENT TASK DESCRIPTION			
<p><b><u>a. ELEMENTS OF COST:</u></b></p> <p>Labor Materials Subcontracts</p> <p><b><u>b. TECHNICAL CONTENT:</u></b></p> <p>The content of this document applies to waste disposition activities at the FEMP specific to work performed by and for the Soil Disposal Facility Project in Area 7. It is a summary for area-specific waste disposition efforts for waste that does not meet the On Site Disposal Facility (OSDF) Waste Acceptance Criteria (WAC) and will require packaging, loading, shipping, and disposal at an approved offsite disposal facility. Offsite treatment of waste materials that do not meet the offsite disposal facility's WAC may be required prior to disposal and is also covered under this account. The waste disposition efforts are intended to result in compliance with the OU5 Record of Decision (ROD). The Area 7 physical boundaries are described in Section 5 of the Fluor Fernald Closure Plan Basis of Estimate (20300-PL-0005).</p> <p>Drivers of the work are CERCLA, RCRA, the EPA Amended Consent Agreement (ACA), Sitewide Excavation Plan (SEP), and the signed Record of Decision (ROD) for OU5.</p> <p><b><u>c. SCOPE OF WORK:</u></b></p> <p>The scope of this document covers the offsite disposition of at and below grade soil and/or other waste materials that have been identified throughout the characterization and remedial action process. The waste disposition activities covered under this account include the following tasks:</p>			
Project Manager 	Control Account Manager 	Control Team Manager 	

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8. BUDGET AND REPORTING NUMBER <b>EW05H3060</b>	9. BUDGET TITLE <b>SOILS</b>		
10. ORIGINAL SCOPE? / CHANGE TO WORK SCOPE? / NEW SCOPE? <b>NEW PER CP# FY01-0015-0006-00</b>		11. ESTIMATED START / COMPLETION DATE <b>1/08 - 3/09</b>	
12. TASK IDENTIFICATION (WORK PACKAGE) <b>G7118</b>	13. TASK DESCRIPTION (ONE LINE) <b>AREA 7 OFFSITE WASTE DISPOSITION</b>		

14. ELEMENT TASK DESCRIPTION

Review existing data and engineering drawings

Perform data management functions within SDFP

Develop final reports

Campaign Planning

Purchase or rental of appropriate containers

Package soil and/or other waste materials into containers

Repackaging, or over-packing

Container movements within the FEMP

Loading containers on/in appropriate conveyance

Shipping to offsite disposal facility

Offsite waste treatment to meet offsite WAC

**d. WORK SPECIFICALLY EXCLUDED:**

Pre-design work

Excavation control characterization

Precertification / certification activities

Waste treatment activities

Construction or remediation

Development of engineering plans, drawings, or specifications

**WORK SCOPE DEFINITION**  
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10. ORIGINAL SCOPE? / CHANGE TO WORK SCOPE? / NEW SCOPE? <b>NEW PER CP# FY01-0015-0006-00</b>		11. ESTIMATED START / COMPLETION DATE <b>1/08 - 3/09</b>	
12. TASK IDENTIFICATION (WORK PACKAGE) <b>G7118</b>	13. TASK DESCRIPTION (ONE LINE) <b>AREA 7 OFFSITE WASTE DISPOSITION</b>		
14. ELEMENT TASK DESCRIPTION  <p>Land surveying, staff, or equipment</p> <p>Real Time Scanning (HPGe, RSS, RTRAK), staff, or equipment</p> <p>Characterization personnel covered under GPM14</p> <p>Centralized services and/or equipment</p> <p>Onsite waste treatment</p>			

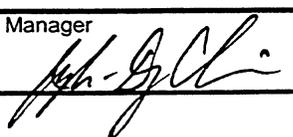
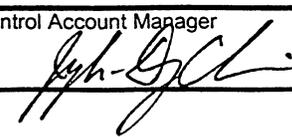
U.S. DEPARTMENT OF ENERGY  
 WORK BREAKDOWN STRUCTURE DICTIONARY  
 PART II - ELEMENT DEFINITION

1. PROJECT TITLE  FEMP (DEFENSE)	2. DATE OF CONTRACT  12/01/2000
3. IDENTIFICATION NUMBER  DE-AC24-010H20115	4. INDEX LINE NO.  57
5. WBS ELEMENT CODE  1.1.G.M	6. WBS ELEMENT TITLE  AREA 7 SOIL REMEDIATION
7. APPROVED CP NO.  NEW PER CP# FY01-0115-0006-00	8. DATE OF CHANGES  09/05/2001
9. SYSTEM DESIGN DESCRIPTION  CERCL/ACA	10. BUDGET AND REPORTING NUMBER  EW05H3060
11. ELEMENT TASK DESCRIPTION  <p><b><u>a. ELEMENTS OF COST:</u></b></p> <p>Labor          Material          Subcontracts          ODCs</p> <p><b><u>b. TECHNICAL CONTENT:</u></b></p> <p>The remediation area encompasses the Silos 1,2,3, &amp; 4, silo process support facilities, and footprint of lime sludge pond after use by remediation areas 3A, 3B, 4A, and 4B as a water handling area.</p> <p><b><u>c. SCOPE OF WORK:</u></b></p> <p>The scope of work for these activities is specifically defined in the Control Account G711 (Area 7 Soils Remediation). The following key elements are included in the control account.</p> <ul style="list-style-type: none"> <li>- Predesign characterization</li> <li>- Title I/II engineering design</li> <li>- Title III engineering design</li> <li>- Site preparation/excavation/interim restoration</li> <li>- Excavation control/certification</li> <li>- Off-site waste disposition after Waste Generator Services and WPRAP end.</li> </ul> <p>Work specifically excluded from this account is as follows:</p> <ul style="list-style-type: none"> <li>- Staff Labor charged to Control Account GPM1</li> <li>- Scope of work as defined in other Remediation Area Control Accounts</li> <li>- Remediation activities in locations as defined in the Closure Narrative Plan</li> <li>- Post-remediation monitoring and maintenance</li> <li>- Post-Closure documentation</li> </ul>	

U.S. DEPARTMENT OF ENERGY  
**WORK BREAKDOWN STRUCTURE DICTIONARY**  
**PART II - ELEMENT DEFINITION**

1. PROJECT TITLE  FEMP (DEFENSE)	2. DATE OF CONTRACT  12/01/2000
3. IDENTIFICATION NUMBER  DE-AC24-01OH20115	4. INDEX LINE NO.  57
5. WBS ELEMENT CODE  1.1.G.M	6. WBS ELEMENT TITLE  AREA 7 SOIL REMEDIATION
7. APPROVED CP NO.  NEW PER CP# FY01-0115-0006-00	8. DATE OF CHANGES  09/05/2001
9. SYSTEM DESIGN DESCRIPTION  CERCL/ACA	10. BUDGET AND REPORTING NUMBER  EW05H3060
11. ELEMENT TASK DESCRIPTION <ul style="list-style-type: none"> <li>- Natural Resources restoration</li> <li>- Removal and disposition of Silo 1 and Silo 2 at-and below-grade debris associated with foundations, walls, floors, underdrains, and piping</li> <li>- Removal and disposition of decant sump tank and associated piping and debris</li> <li>- Removal and disposition of the concrete trench and piping within trench from Silo 1, Silo 2, and former location of demolished drum handling building to the common K-65 concrete trench.</li> <li>- Removal and disposition of piping within the K-65 trench</li> <li>- D &amp; D of above-grade structures</li> <li>- Predesign, design, excavation, and certification of soil and at- and below-grade debris associated with Sectors 2 and 3, e.g. Bldg 30/45 parking lot, access road to Bldg 30/45 parking lot, Boiler House, AWWT, new Sewage Treatment Plant, SWRBs, SPIT, Biosurge Lagoon, High Nitrate Tank, TACO trailers, parking lot south and west of TACO trailers, storm sewer directly north and draining into SWRB.</li> <li>- Aquifer Restoration well installation, operation, monitoring, removal and utilities required to operated well systems</li> <li>- Area 10 (Soil Corridors)</li> <li>- Excludes all centralized services</li> </ul>	

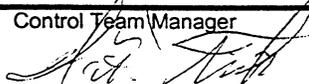
**WORK SCOPE DEFINITION  
(Control Account)**

1. PROJECT TITLE <b>FEMP (DEFENSE)</b>		2. DATE <b>09/05/2001</b>	Page 1
3. WBS ELEMENT CODE <b>1.1.G.M</b>	4. WBS ELEMENT TITLE/NAME <b>AREA 7 SOIL REMEDIATION</b>		
5. PERFORMING DIV/DEPARTMENT CODE <b>49</b>	6. ORIGINATOR NAME/PHONE <b>JD CHIOU /648-3726</b>	7. WBS ELEMENT MANAGER <b>JD CHIOU</b>	
8. BUDGET AND REPORTING NUMBER <b>EW05H3060</b>	9. BUDGET TITLE <b>SOILS</b>		
10. ORIGINAL SCOPE? / CHANGE TO WORK SCOPE? / NEW SCOPE? <b>NEW PER CP# FY01-0115-0006-00</b>		11. ESTIMATED START / COMPLETION DATE <b>3/06 - 11/09</b>	
12. TASK IDENTIFICATION (CONTROL ACCOUNT) <b>G711</b>	13. TASK DESCRIPTION (ONE LINE) <b>AREA 7 SOILS REMEDIATION</b>		
14. ELEMENT TASK DESCRIPTION  <b>a. ELEMENTS OF COST:</b>  Labor Material Subcontracts  <b>b. TECHNICAL CONTENT:</b>  The remediation area encompasses the Silos 1, 2, 3 and 4, silo process support facilities, and the footprint of lime sludge pond after use by remediation areas 3A, 4A and 4B as a water handling area.  <b>c. SCOPE OF WORK:</b>  Please refer to the Remediation Area 7 Closure Plan narrative for further information.  The scope of work for these activities is specifically defined in the following charge numbers:  G7111 - Area 7 Predesign G7112 - Area 7 Title I/II Design G7113 - Title III Design G7114 - Site Preparation/Excavation G7117 - Exc/Control/Certification G7118 - Off-site Waste Disposition  <b>d. WORK SPECIFICALLY EXCLUDED:</b>			
Project Manager 	Control Account Manager 	Control Team Manager 	

**WORK SCOPE DEFINITION  
(Control Account)**

1. PROJECT TITLE <b>FEMP (DEFENSE)</b>		2. DATE <b>09/05/2001</b>	Page 2
3. WBS ELEMENT CODE <b>1.1.G.M</b>	4. WBS ELEMENT TITLE/NAME <b>AREA 7 SOIL REMEDIATION</b>		
5. PERFORMING DIV/DEPARTMENT CODE <b>49</b>	6. ORIGINATOR NAME/PHONE <b>JD CHIOU /648-3726</b>	7. WBS ELEMENT MANAGER <b>JD CHIOU</b>	
8. BUDGET AND REPORTING NUMBER <b>EW05H3060</b>	9. BUDGET TITLE <b>SOILS</b>		
10. ORIGINAL SCOPE? / CHANGE TO WORK SCOPE? / NEW SCOPE? <b>NEW PER CP# FY01-0115-0006-00</b>		11. ESTIMATED START / COMPLETION DATE <b>3/06 - 11/09</b>	
12. TASK IDENTIFICATION (CONTROL ACCOUNT) <b>G711</b>	13. TASK DESCRIPTION (ONE LINE) <b>AREA 7 SOILS REMEDIATION</b>		
14. ELEMENT TASK DESCRIPTION			
<p><b>Staff Labor charged to control account GPM1</b></p> <p><b>Scope of work as defined in other Remediation Area control accounts</b></p> <p><b>Remediation activities in locations as defined in the Closure Narrative Plan</b></p> <p><b>Post-remediation monitoring and maintenance</b></p> <p><b>Post-Closure documentation</b></p> <p><b>Natural resources restoration</b></p> <p><b>Removal and disposition of Silo 1 and Silo 2 at- and below-grade debris associated with foundations, walls, floors, underdrains, and piping</b></p> <p><b>Removal and disposition of decant sump tank and associated piping and debris</b></p> <p><b>Removal and disposition of the concrete trench and piping within trench from Silos 1 &amp; 2 and the former location of the demolished drum handling building to the common K-65 concrete trench</b></p> <p><b>Removal and disposition of piping within the K-65 trench</b></p> <p><b>D&amp;D of above-grade structures</b></p> <p><b>Predesign, design, excavation and certification of soil and at- and below-grade debris associated with Sectors 2 and 3, e.g., Bldg 30/45 parking lot, access road to 30/45 parking lot, Boiler House, AWWT, new Sewage Treatment Plant, SWRBs, SPIT, Bio-Surge Lagoon, High Nitrate Tank, TACO trailers, parking lot south and west of TACO trailers,</b></p>			

**WORK SCOPE DEFINITION**  
(Work Package)

1. PROJECT TITLE <b>FEMP (DEFENSE)</b>		2. DATE <b>09/06/2001</b>	Page 1
3. WBS ELEMENT CODE <b>1.1.G.M</b>		4. WBS ELEMENT TITLE/NAME <b>AREA 7 SOIL REMEDIATION</b>	
5. PERFORMING DIV/DEPARTMENT CODE <b>49</b>	6. ORIGINATOR NAME/PHONE <b>JD CHIOU/648-3726</b>	7. WBS ELEMENT MANAGER <b>JD CHIOU</b>	
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10. ORIGINAL SCOPE? / CHANGE TO WORK SCOPE? / NEW SCOPE? <b>NEW PER CP# FY01-0015-0006-00</b>		11. ESTIMATED START / COMPLETION DATE <b>3/06 - 4/07</b>	
12. TASK IDENTIFICATION (WORK PACKAGE) <b>G7111</b>	13. TASK DESCRIPTION (ONE LINE) <b>AREA 7 PREDESIGN</b>		
14. ELEMENT TASK DESCRIPTION			
<p><b><u>a. ELEMENTS OF COST:</u></b></p> <p>Labor Subcontracts</p> <p><b><u>b. TECHNICAL CONTENT:</u></b></p> <p>The content of this document applies to the soil characterization program at the FEMP specific to area pre-design characterization, sampling, and analytical work performed by and for the Soil Disposal Facility Project in Area 7. It is a summary for area-specific characterization efforts that will be conducted to delineate areas of above Final Remediation Level (FRL) contamination as well as contamination that is above the On-Site Disposal Facility (OSDF) Waste Acceptance Criteria (WAC). The data generated from these characterization activities will support remedial design. The Area 7 physical boundaries are described in Section 11 of the Fluor Fernald Closure Plan Basis of Estimate (20300-PL-0005).</p> <p>Drivers of the work are CERCLA, RCRA, the EPA Amended Consent Agreement (ACA), Sitewide Excavation Plan (SEP), and the signed Records of Decision (RODs) for OU5 and OU2.</p> <p><b><u>c. SCOPE OF WORK:</u></b></p> <p>The scope of this document covers the characterization support for pre-design of Area 7. Pre-design Investigations include the collection of additional data collected to support the engineering design, which will be included in the Integrated Remedial Design Plan (IRDP). The work scope of the pre-design characterization includes characterization planning, field survey work, real-time data collection and reduction, field sampling, laboratory analysis,</p>			
Project Manager 	Control Account Manager 	Control Team Manager 	

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8. BUDGET AND REPORTING NUMBER <b>EW05H3060</b>	9. BUDGET TITLE <b>SOILS</b>		
10. ORIGINAL SCOPE? / CHANGE TO WORK SCOPE? / NEW SCOPE? <b>NEW PER CP# FY01-0015-0006-00</b>		11. ESTIMATED START / COMPLETION DATE <b>3/06 - 4/07</b>	
12. TASK IDENTIFICATION (WORK PACKAGE) <b>G7111</b>	13. TASK DESCRIPTION (ONE LINE) <b>AREA 7 PREDESIGN</b>		

14. ELEMENT TASK DESCRIPTION

and data management activities.

The predesign characterization effort includes the following tasks:

Review and evaluation of existing sampling data, real-time data and geophysical data

Review HWMUs, USTs, and potentially RCRA characteristic area

Develop contamination models based on existing data

Develop and write applicable data quality objectives and Project Specific Plans, as necessary

Prep the area for field measurements which includes clearing or brush

Physical sampling

Assess real-time data generated during predesign

Perform assessment of radiological field survey results

Perform data management functions within SDFP

Laboratory sample analysis

Sample shipping for off-site analysis

If necessary, Ground Penetrating Radar (GPR) / Electro-Magnetic (EM) Scanning

**d. WORK SPECIFICALLY EXCLUDED:**

Characterization tasks in other areas

Construction or remediation

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8. BUDGET AND REPORTING NUMBER <b>EW05H3060</b>	9. BUDGET TITLE <b>SOILS</b>		
10. ORIGINAL SCOPE? / CHANGE TO WORK SCOPE? / NEW SCOPE? <b>NEW PER CP# FY01-0015-0006-00</b>		11. ESTIMATED START / COMPLETION DATE <b>3/06 - 4/07</b>	
12. TASK IDENTIFICATION (WORK PACKAGE) <b>G7111</b>	13. TASK DESCRIPTION (ONE LINE) <b>AREA 7 PREDESIGN</b>		
14. ELEMENT TASK DESCRIPTION  <p>Waste tracking or disposition</p> <p>Area pre-certification or certification activities</p> <p>Waste Tracking and disposition</p> <p>Waste Treatment activities</p> <p>Development of Engineering plans, drawings, or specifications</p> <p>Land Surveying, staff, or equipment</p> <p>Real Time Scanning (HPGe, RSS, RTRAK), staff, or equipment</p> <p>Characterization personnel covered under GPM14</p> <p>Centralized services and/or equipment</p>			



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10. ORIGINAL SCOPE? / CHANGE TO WORK SCOPE? / NEW SCOPE? <b>NEW PER CP# FY01-0115-0003-000006</b>		11. ESTIMATED START / COMPLETION DATE <b>10/06 - 2/08</b>	
12. TASK IDENTIFICATION (WORK PACKAGE) <b>G7112</b>	13. TASK DESCRIPTION (ONE LINE) <b>AREA 7 TITLE I/II DESIGN</b>		

14. ELEMENT TASK DESCRIPTION

**a. ELEMENTS OF COST:**

Labor  
Subcontracts

**b. TECHNICAL CONTENT:**

This charge number will provide the performance of Title I and Title II engineering services for the remediation excavation and removal of at- and below-grade impacted material from Remediation Area 7. Area 7 is located east of Paddys Run, south of Area 6, west of the former Production Area, and north of the Pilot Plant Drainage Ditch. Area 7 includes the following major features:

- Silos area.
- K-65 trench.
- Advanced Waste Retrieval and future processing area.
- Footprint of the Lime Sludge Ponds (an Operable Unit 2 waste unit).

**c. SCOPE OF WORK:**

The scope of work for these activities is defined in Control Account G711 (Area 7 Soils Remediation). Key elements included in the charge number are:

Development of the Integrated Remedial Design Package (IRDP) per the Site-Wide Excavation Plan and requirements of the Operable Unit 2 and 5 Records of Decision (ROD) consisting of three components for review and approval by DOE and the regulatory agencies: Implementation Plan, Construction Drawings, and Technical Specifications. One IRDP will be developed for Area 7.

Development of supporting documentation to the Implementation Plans consisting

Project Manager 	Control Account Manager 	Control Team Manager 
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8. BUDGET AND REPORTING NUMBER <b>EW05H3060</b>	9. BUDGET TITLE <b>SOILS</b>		
10. ORIGINAL SCOPE? / CHANGE TO WORK SCOPE? / NEW SCOPE? <b>NEW PER CP# FY01-0115-0003-000006</b>		11. ESTIMATED START / COMPLETION DATE <b>10/06 - 2/08</b>	
12. TASK IDENTIFICATION (WORK PACKAGE) <b>G7112</b>	13. TASK DESCRIPTION (ONE LINE) <b>AREA 7 TITLE I/II DESIGN</b>		
14. ELEMENT TASK DESCRIPTION			
<p>of the Design Criteria Package (DCP) , Applicable or Relevant and Appropriate Requirements/To Be Considered (ARARs/TBCs) Table for the DCP, Surface Water Management/Erosion Control Plan, and Earthwork Calculations.</p> <p>Preparation of engineering documentation: Technical Reference drawing package, safety planning documentation through the request for safety assessment, Project Execution Plan (PEP), project alignments, Occupational and Environmental ALARAs, design and constructability reviews, independent design reviews, resolution of comments (including project, DOE, and regulatory comments), design calculations (including hydrologic modeling, slope stability), quantity take-offs, cost-estimating support.</p> <p>Generating Construction Drawings and Technical Specifications Certified for Construction.</p> <p><b><u>d. WORK SPECIFICALLY EXCLUDED:</u></b></p> <p>Staff labor charge to Control Account GPM1</p> <p>Predesign Data Summary to be appended to the Implementation Plan</p> <p>Scope of work as defined in other Remediation Area 7 Charge Accounts including Title III engineering services.</p> <p>Design of Silo 1 and Silo 2 structure removal with associated floors, foundations, underdrains, piping, decant sump tank, and section of K-65 Trench under the silos berm</p> <p>Scope of work as defined in other Remediation Area Control Accounts.</p> <p>Title III engineering associated with the On-Site Disposal Facility (OSDF).</p> <p>Engineering associated with the D&amp;D of above-grade structures</p> <p>Engineering associated with the removal of impacted material associated</p>			

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<b>5. PERFORMING DIV/DEPARTMENT CODE</b>  49	<b>6. ORIGINATOR NAME/PHONE</b>  JD CHIOU (3726)	<b>7. WBS ELEMENT MANAGER</b>  JD CHIOU	
<b>8. BUDGET AND REPORTING NUMBER</b>  EW05H3060	<b>9. BUDGET TITLE</b>  SOILS		
<b>10. ORIGINAL SCOPE? / CHANGE TO WORK SCOPE? / NEW SCOPE?</b>  NEW PER CP# FY01-0115-0003-000006		<b>11. ESTIMATED START / COMPLETION DATE</b>  10/06 - 2/08	
<b>12. TASK IDENTIFICATION (WORK PACKAGE)</b>  G7112	<b>13. TASK DESCRIPTION (ONE LINE)</b>  AREA 7 TITLE I/II DESIGN		
<b>14. ELEMENT TASK DESCRIPTION</b>  locations listed in the Closure Plan Narrative.  Construction management.  Post-remediation monitoring and maintenance.			



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12. TASK IDENTIFICATION (WORK PACKAGE) <b>G7113</b>	13. TASK DESCRIPTION (ONE LINE) <b>AREA 7 TITLE III</b>		

14. ELEMENT TASK DESCRIPTION

**a. ELEMENTS OF COST:**

Labor  
Subcontracts

**b. TECHNICAL CONTENT:**

This charge number will provide the performance of Title III engineering services during the remediation excavation and removal of at- and below-grade impacted material from Remediation Area 7. Title III engineering services begins after the plans and specifications are certified for construction (CFC).

Area 7 is located east of Paddys Run, south of Area 6, west of the former Production Area, and north of the Pilot Plant Drainage Ditch. Area 7 includes the following major features:

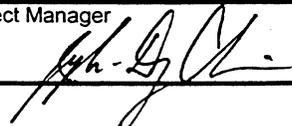
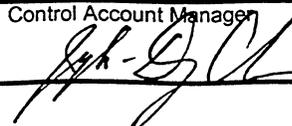
- Silos area.
- K-65 trench.
- Advanced Waste Retrieval and future processing area.
- Footprint of the Lime Sludge Ponds (an Operable Unit 2 waste unit).

**c. SCOPE OF WORK:**

The scope of work for these activities is defined in Control Account G711 (Area 7 Soils Remediation). Key elements included in the charge number for each of the geographic features listed above are:

Assist in procurement of the excavation subcontractor after CFC.

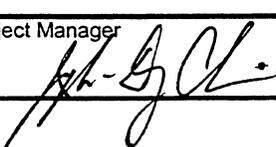
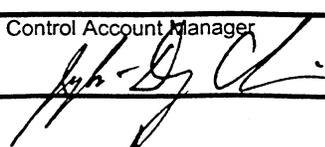
Review and approve engineering document family submittals from the subcontractor

Project Manager 	Control Account Manager 	Control Team Manager 
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5. PERFORMING DIV/DEPARTMENT CODE <b>49</b>	6. ORIGINATOR NAME/PHONE <b>JD CHIOU (3726)</b>	7. WBS ELEMENT MANAGER <b>JD CHIOU</b>	
8. BUDGET AND REPORTING NUMBER <b>EW05H3060</b>	9. BUDGET TITLE <b>SOILS</b>		
10. ORIGINAL SCOPE? / CHANGE TO WORK SCOPE? / NEW SCOPE? <b>NEW PER CP# FY01-0115-0006-00</b>		11. ESTIMATED START / COMPLETION DATE <b>3/08 - 11/09</b>	
12. TASK IDENTIFICATION (WORK PACKAGE) <b>G7113</b>	13. TASK DESCRIPTION (ONE LINE) <b>AREA 7 TITLE III</b>		
14. ELEMENT TASK DESCRIPTION			
<p>to ensure conformity to the Implementation Plan, drawings, and specifications.</p> <p>Review construction, health and safety, or other subcontractor submittals when requested.</p> <p>Prepare, respond, and approve Request for Clarification (RCIs) and Design Change Notices (DCNs).</p> <p>Facilitate RCI/DCN review and approval through the project, DOE, and the regulatory agencies.</p> <p>Prepare Safety Basis Document Reviews (SBDs) based on DCNs.</p> <p>Develop as-built drawings and specifications and provide an excavation summary report.</p> <p><b><u>d. WORK SPECIFICALLY EXCLUDED:</u></b></p> <p>Staff labor charge to Control Account GPM1</p> <p>Scope of work as defined in other Remediation Area 7 Charge Accounts.</p> <p>Scope of work as defined in other Remediation Area Control Accounts.</p> <p>Title III engineering associated with the On-Site Disposal Facility (OSDF).</p> <p>Construction management</p> <p>Post-remediation monitoring and maintenance.</p>			

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10. ORIGINAL SCOPE? / CHANGE TO WORK SCOPE? / NEW SCOPE? <b>NEW PER CP# FY01-0015-0006-00</b>		11. ESTIMATED START / COMPLETION DATE <b>3/08 - 11/09</b>	
12. TASK IDENTIFICATION (WORK PACKAGE) <b>G7114</b>	13. TASK DESCRIPTION (ONE LINE) <b>AREA 7 SITE PREP/EXCAVATION</b>		
14. ELEMENT TASK DESCRIPTION			
<p><b><u>a. ELEMENTS OF COST:</u></b></p> <p>Labor Subcontracts</p> <p><b><u>b. TECHNICAL CONTENT:</u></b></p> <p>Perform remedial construction activities for Area 7. The project boundaries are as follows: North by Area 6 including the former Waste Pit Area East by Area 4B including the former Production Area South by Area 2 and the Pilot Plant Drainage Ditch West by Paddy's Run</p> <p><b><u>c. SCOPE OF WORK:</u></b></p> <p>Provide site preparation activities prior to the start of excavation. Activities included but not limited to are as follows: Provide and deliver all required permits. Establish work limits and excavation boundaries. Establish construction support areas and work areas.</p>			
Project Manager 	Control Account Manager 	Control Team Manager 	

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3. WBS ELEMENT CODE <b>1.1.G.M</b>	4. WBS ELEMENT TITLE/NAME <b>AREA 7 SOIL REMEDIATION</b>
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5. PERFORMING DIV/DEPARTMENT CODE <b>49</b>	6. ORIGINATOR NAME/PHONE <b>JD CHIOU/648-3726</b>	7. WBS ELEMENT MANAGER <b>JD CHIOU</b>
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8. BUDGET AND REPORTING NUMBER <b>EW05H3060</b>	9. BUDGET TITLE <b>SOILS</b>
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10. ORIGINAL SCOPE? / CHANGE TO WORK SCOPE? / NEW SCOPE? <b>NEW PER CP# FY01-0015-0006-00</b>	11. ESTIMATED START / COMPLETION DATE <b>3/08 - 11/09</b>
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12. TASK IDENTIFICATION (WORK PACKAGE) <b>G7114</b>	13. TASK DESCRIPTION (ONE LINE) <b>AREA 7 SITE PREP/EXCAVATION</b>
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14. ELEMENT TASK DESCRIPTION

Connect all utilities into construction support area.

Establish surface water management controls.

Provide excavation and removal of all above FRL soil and at and below grade concrete and utilities from Area #7 and transportation to the On-site Disposal Facility, SP-7 or other designated staging area in accordance with certified construction drawings, specifications and other subcontract requirements. Additional related activities and services within this scope of work are as follows:

Erosion and sediment control during construction

Installation and/or relocation of fencing during construction

Equipment, material and support facilities rented/procured for project use

Dewatering as necessary during construction

Dust Control within designated work area.

Decontamination of equipment

Matrixed and subcontracted labor directly associated with construction

Specific work to be addressed includes:

Size reduce, excavate, load and haul at and below grade concrete, utilities, and debris associated with the Impacted Material Haul Road to OSDF as Category 2.

Excavate, load and haul impacted soils to the OSDF as Category 1.

Cut area utility isolation trenches and plug storm water and sanitary sewers.

Interim Restoration Grading.

Perform Post-Excavation activities.

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10. ORIGINAL SCOPE? / CHANGE TO WORK SCOPE? / NEW SCOPE? <b>NEW PER CP# FY01-0015-0006-00</b>		11. ESTIMATED START / COMPLETION DATE <b>3/08 - 11/09</b>	
12. TASK IDENTIFICATION (WORK PACKAGE) <b>G7114</b>	13. TASK DESCRIPTION (ONE LINE) <b>AREA 7 SITE PREP/EXCAVATION</b>		

14. ELEMENT TASK DESCRIPTION

**d. WORK SPECIFICALLY EXCLUDED:**

Placement in OSDF

Seeding / Vegetation beyond interim restoration

Road construction

Title I/II design services

Performing and/or managing Title III services

Sampling and testing of waste materials during remediation

Monitoring and maintenance of the remediated area after remediation

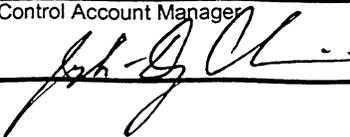
Offsite disposal of materials exceeding the waste acceptance criteria for on-site disposal

Treatment of lead containing soil

Centralized Personnel, Radiological controls, and Safety management during remedial construction



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12. TASK IDENTIFICATION (WORK PACKAGE) <b>G7117</b>	13. TASK DESCRIPTION (ONE LINE) <b>AREA 7 EXC CONTROL/CERTIFICATION</b>		
14. ELEMENT TASK DESCRIPTION			
<p><b><u>a. ELEMENTS OF COST:</u></b></p> <p>Labor Materials Subcontracts</p> <p><b><u>b. TECHNICAL CONTENT:</u></b></p> <p>The content of this document applies to the soil characterization program at the FEMP specific to area characterization, sampling, and analytical work performed by and for the Soil Disposal Facility Project in Area 7. It is a summary for area-specific characterization efforts that will be conducted in defined areas of excavation and lesser environmentally impacted areas that may not be excavated, but will require monitoring, sampling, and analytical testing. The characterization efforts are intended to provide information that may be required to supplement the remedial design and to support the remedial action that will result in compliance with the Final Remediation Levels (FRLs) published in the OU5 ROD. The Area 7 physical boundaries are described in Section 11 of the Fluor Fernald Closure Plan Basis of Estimate (20300-PL-0005).</p> <p>Drivers of the work are CERCLA, RCRA, the EPA Amended Consent Agreement (ACA), Site-wide Excavation Plan (SEP), and the signed Record of Decision (ROD) for OU5.</p> <p><b><u>c. SCOPE OF WORK:</u></b></p> <p>The scope of this document covers the characterization support for excavation control, precertification, and certification of Area 7. Characterization work performed in Area 7 under this scope will assist in determining soil disposition, extent of excavation, and provide sound field and analytical data</p>			
Project Manager 	Control Account Manager 	Control Team Manager 	

**WORK SCOPE DEFINITION**  
(Work Package)

1. PROJECT TITLE <b>FEMP (DEFENSE)</b>		2. DATE <b>09/06/2001</b>	Page 2
3. WBS ELEMENT CODE <b>1.1.G.M</b>	4. WBS ELEMENT TITLE/NAME <b>AREA 7 SOIL REMEDIATION</b>		
5. PERFORMING DIV/DEPARTMENT CODE <b>49</b>	6. ORIGINATOR NAME/PHONE <b>JD CHIOU/648-3726</b>	7. WBS ELEMENT MANAGER <b>JD CHIOU</b>	
8. BUDGET AND REPORTING NUMBER <b>EW05H3060</b>	9. BUDGET TITLE <b>SOILS</b>		
10. ORIGINAL SCOPE? / CHANGE TO WORK SCOPE? / NEW SCOPE? <b>NEW PER CP# FY01-0015-0006-00</b>		11. ESTIMATED START / COMPLETION DATE <b>3/08 - 11/09</b>	
12. TASK IDENTIFICATION (WORK PACKAGE) <b>G7117</b>	13. TASK DESCRIPTION (ONE LINE) <b>AREA 7 EXC CONTROL/CERTIFICATION</b>		
14. ELEMENT TASK DESCRIPTION <p>that prove remedial activities were sufficient. During excavation of Area 7, radiological field surveying, physical soil sampling, and analysis will be required. This testing will be performed during the excavation process as necessary to determine disposition of excavated material. After excavation is determined to be complete, the remaining soil will be tested for all area specific contaminants of concern (COCs) to demonstrate FRL attainment. The actual radiological field-survey measurements, physical soil sampling and analytical activities covered under this account include the following tasks:</p> <p>Review existing data and engineering drawings</p> <p>Develop and write applicable data quality objectives and projects-specific-plans, as necessary</p> <p>Develop Certification Design Letters and text for the Area Implementation Plan</p> <p>Define and delineate excavation monitoring boundaries in the field</p> <p>Define and delineate Certification Units</p> <p>Prep the area for field measurements which includes clearing of brush</p> <p>Installation of certification fencing and signs</p> <p>Physical sampling</p> <p>Assess real-time data generated during excavation</p> <p>Perform assessment of radiological field survey results</p> <p>Perform data management functions within SDFP</p> <p>Develop final reports or certification reports</p> <p>Perform analysis</p> <p>If needed, Ground Penetrating Radar (GPR) / Electro-Magnetic (EM) Scanning</p>			

**WORK SCOPE DEFINITION**  
(Work Package)

1. PROJECT TITLE <b>FEMP (DEFENSE)</b>		2. DATE <b>09/06/2001</b>	Page 3
3. WBS ELEMENT CODE <b>1.1.G.M</b>	4. WBS ELEMENT TITLE/NAME <b>AREA 7 SOIL REMEDIATION</b>		
5. PERFORMING DIV/DEPARTMENT CODE <b>49</b>	6. ORIGINATOR NAME/PHONE <b>JD CHIOU/648-3726</b>	7. WBS ELEMENT MANAGER <b>JD CHIOU</b>	
8. BUDGET AND REPORTING NUMBER <b>EW05H3060</b>	9. BUDGET TITLE <b>SOILS</b>		
10. ORIGINAL SCOPE? / CHANGE TO WORK SCOPE? / NEW SCOPE? <b>NEW PER CP# FY01-0015-0006-00</b>		11. ESTIMATED START / COMPLETION DATE <b>3/08 - 11/09</b>	
12. TASK IDENTIFICATION (WORK PACKAGE) <b>G7117</b>	13. TASK DESCRIPTION (ONE LINE) <b>AREA 7 EXC CONTROL/CERTIFICATION</b>		

14. ELEMENT TASK DESCRIPTION

**d. WORK SPECIFICALLY EXCLUDED:**

Pre-design work

Waste Tracking and disposition

Waste Treatment activities

Construction or remediation

Development of Engineering plans, drawings, or specifications

Land Surveying, staff, or equipment

Real Time Scanning (HPGe, RSS, RTRAK), staff, or equipment

Characterization personnel covered under GPM14

Centralized services and/or equipment

**WORK SCOPE DEFINITION**  
(Work Package)

1. PROJECT TITLE <b>FEMP (DEFENSE)</b>		2. DATE <b>09/06/2001</b>	Page 1
3. WBS ELEMENT CODE <b>1.1.G.M</b>	4. WBS ELEMENT TITLE/NAME <b>AREA 7 SOIL REMEDIATION</b>		
5. PERFORMING DIV/DEPARTMENT CODE <b>49</b>	6. ORIGINATOR NAME/PHONE <b>JD CHIOU/648-3726</b>	7. WBS ELEMENT MANAGER <b>JD CHIOU</b>	
8. BUDGET AND REPORTING NUMBER <b>EW05H3060</b>	9. BUDGET TITLE <b>SOILS</b>		
10. ORIGINAL SCOPE? / CHANGE TO WORK SCOPE? / NEW SCOPE? <b>NEW PER CP# FY01-0015-0006-00</b>		11. ESTIMATED START / COMPLETION DATE <b>1/08 - 3/09</b>	
12. TASK IDENTIFICATION (WORK PACKAGE) <b>G7118</b>	13. TASK DESCRIPTION (ONE LINE) <b>AREA 7 OFFSITE WASTE DISPOSITION</b>		

14. ELEMENT TASK DESCRIPTION

**a. ELEMENTS OF COST:**

Labor  
Materials  
Subcontracts

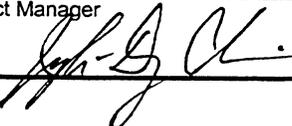
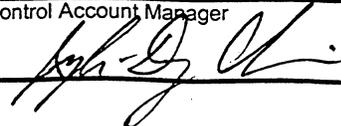
**b. TECHNICAL CONTENT:**

The content of this document applies to waste disposition activities at the FEMP specific to work performed by and for the Soil Disposal Facility Project in Area 7. It is a summary for area-specific waste disposition efforts for waste that does not meet the On Site Disposal Facility (OSDF) Waste Acceptance Criteria (WAC) and will require packaging, loading, shipping, and disposal at an approved offsite disposal facility. Offsite treatment of waste materials that do not meet the offsite disposal facility's WAC may be required prior to disposal and is also covered under this account. The waste disposition efforts are intended to result in compliance with the OU5 Record of Decision (ROD). The Area 7 physical boundaries are described in Section 5 of the Fluor Fernald Closure Plan Basis of Estimate (20300-PL-0005).

Drivers of the work are CERCLA, RCRA, the EPA Amended Consent Agreement (ACA), Sitewide Excavation Plan (SEP), and the signed Record of Decision (ROD) for OU5.

**c. SCOPE OF WORK:**

The scope of this document covers the offsite disposition of at and below grade soil and/or other waste materials that have been identified throughout the characterization and remedial action process. The waste disposition activities covered under this account include the following tasks:

Project Manager 	Control Account Manager 	Control Team Manager 
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**WORK SCOPE DEFINITION**  
(Work Package)

1. PROJECT TITLE <b>FEMP (DEFENSE)</b>		2. DATE <b>09/06/2001</b>	Page 2
3. WBS ELEMENT CODE <b>1.1.G.M</b>	4. WBS ELEMENT TITLE/NAME <b>AREA 7 SOIL REMEDIATION</b>		
5. PERFORMING DIV/DEPARTMENT CODE <b>49</b>	6. ORIGINATOR NAME/PHONE <b>JD CHIOU/648-3726</b>	7. WBS ELEMENT MANAGER <b>JD CHIOU</b>	
8. BUDGET AND REPORTING NUMBER <b>EW05H3060</b>	9. BUDGET TITLE <b>SOILS</b>		
10. ORIGINAL SCOPE? / CHANGE TO WORK SCOPE? / NEW SCOPE? <b>NEW PER CP# FY01-0015-0006-00</b>		11. ESTIMATED START / COMPLETION DATE <b>1/08 - 3/09</b>	
12. TASK IDENTIFICATION (WORK PACKAGE) <b>G7118</b>	13. TASK DESCRIPTION (ONE LINE) <b>AREA 7 OFFSITE WASTE DISPOSITION</b>		

14. ELEMENT TASK DESCRIPTION

Review existing data and engineering drawings

Perform data management functions within SDFP

Develop final reports

Campaign Planning

Purchase or rental of appropriate containers

Package soil and/or other waste materials into containers

Repackaging, or over-packing

Container movements within the FEMP

Loading containers on/in appropriate conveyance

Shipping to offsite disposal facility

Offsite waste treatment to meet offsite WAC

**d. WORK SPECIFICALLY EXCLUDED:**

Pre-design work

Excavation control characterization

Precertification / certification activities

Waste treatment activities

Construction or remediation

Development of engineering plans, drawings, or specifications

**WORK SCOPE DEFINITION**  
(Work Package)

1. PROJECT TITLE <b>FEMP (DEFENSE)</b>		2. DATE <b>09/06/2001</b>	Page 3
3. WBS ELEMENT CODE <b>1.1.G.M</b>	4. WBS ELEMENT TITLE/NAME <b>AREA 7 SOIL REMEDIATION</b>		
5. PERFORMING DIV/DEPARTMENT CODE <b>49</b>	6. ORIGINATOR NAME/PHONE <b>JD CHIOU/648-3726</b>	7. WBS ELEMENT MANAGER <b>JD CHIOU</b>	
8. BUDGET AND REPORTING NUMBER <b>EW05H3060</b>	9. BUDGET TITLE <b>SOILS</b>		
10. ORIGINAL SCOPE? / CHANGE TO WORK SCOPE? / NEW SCOPE? <b>NEW PER CP# FY01-0015-0006-00</b>		11. ESTIMATED START / COMPLETION DATE <b>1/08 - 3/09</b>	
12. TASK IDENTIFICATION (WORK PACKAGE) <b>G7118</b>	13. TASK DESCRIPTION (ONE LINE) <b>AREA 7 OFFSITE WASTE DISPOSITION</b>		

14. ELEMENT TASK DESCRIPTION

Land surveying, staff, or equipment

Real Time Scanning (HPGe, RSS, RTRAK), staff, or equipment

Characterization personnel covered under GPM14

Centralized services and/or equipment

Onsite waste treatment

1. PROJECT TITLE: SOILS EXCAVATION	2. DATE: 09/10/01	3. PBS#: 06
4. WBS ELEMENT CODE: 1.1.G.M.	5. WBS ELEMENT TITLE: AREA 7 SOILS REMEDIATION	
6. CAM NAME/ PHONE: JYH-DONG CHIOU/ 3726	7. CAM SIGNATURE:	
8. ORIGINAL/ CHANGE SCOPE/ PER CP#:	9. CONTROL ACCOUNT: G711	

**SECTION 11: G711 – AREA 7 SOILS REMEDIATION**

1.0 NARRATIVE

1.1 OVERVIEW

Remedial activities under this scope of work are to support the identification, removal, and certification of those removals of impacted material comprised of at- and below-grade debris and soils above the Final Remediation Levels (FRLs) for the contaminants of concern. The scope of work for Area 7 Soils Remediation (Control Account G711) consists of the following activities:

Predesign Characterization	(Charge No. G7111)
Title I/II Design	(Charge No. G7112)
Title III Design	(Charge No. G7113)
Site Preparation/Excavation/Interim Restoration	(Charge No. G7114)
Excavation Control/Certification	(Charge No. G7117)
Off-site Waste Disposition	(Charge No. G7118)

1.2 ASSUMPTIONS/EXCLUSIONS

(Note: Charge number-specific assumptions may be found within the Technical Scope and Quantification)

1.2.1 Assumptions

- The scope and schedule for this Control Account is based on Execution Scenario 6 as specified by Closure Project Management.

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OEPA and USEPA to review and provide comments to the following documents within the following review periods. The DOE ~~will establish a written agreement~~ and Fluor Fernald will work with OEPA and USEPA to ~~reflect~~ meet these review periods:

Integrated Remedial Design Package (IRDP)	<del>30</del> 60 calendar days
Predesign Characterization PSP	30 calendar days
Stockpile PSP, (if needed)	30 calendar days
Excavation Monitoring PSP	30 calendar days
Treatment Verification PSP, (if needed)	30 calendar days
Precertification Real Time Scan PSP	30 calendar days

Cert. Design Letter (CDL) and Cert. PSP                      30 calendar days  
Certification Report (CR)    30 calendar days

- DOE will review and comment on the above documents in parallel to the Fluor Fernald internal draft reviews.
- OEPA and USEPA to review and provide comments to all PSP variances (V/FCN)) within 7 days of receipt from fax except for PSP variances to the certification PSP in which 15 days is established.
- OEPA and USEPA will review and approve Design Change Notices (DCNs) within 7 days of receipt from fax.
- DOE maintains full baseline funding levels as defined in the contract.
- DOE, OEPA, and USEPA project management does not change.
- Other PBSs providing matrixed and centralized support to the Control Account will provide competent personnel with the necessary training to perform specific work tasks during the required time periods.
- All engineering and construction procedures and requirements (Project Execution Plans, ALARA documentation, Compliance Documentation, Safety Basis Documentation, Technical Review Board and IRSC reviews) are in place, but at minimum, are simplified and/or combined with other Remediation Area documentation.
- Construction Subcontractors are required to ~~facilitate their own~~ perform logistics associated with penetration permits, lock and tag, ~~quality assurance/quality control~~, excavation planning, safe workplan and other planning documentation, per the terms of the subcontract. ~~that Fluor Fernald Construction Management facilitates.~~ will perform QA/QC oversight on these activities.
- Radiological Control and security access requirements are reduced.
- Technical staff are cross-trained to perform many job functions (health and safety, radiological control, etc).
- Sampling, analytical laboratory, data reporting and validation, statistical analysis, data entry into the SED is maintained.
- Utility disconnects are budgeted by PBS-06, but executed by PBS-01.
- Site integration services from Closure Project Management will no longer be necessary with the completion of PBS Closure Plans.

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- Building 91C slab is the location for the bulk staging area for above-WAC shipments off site. Both slab and adjacent soils will be remediated with Area 7.

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- Rail spur and a portion of the Railyard is certified in place. Rail is to be maintained for off-site waste disposition by a waste shipping logistics subcontractor. Remainder of rail, Rail track will be removed and sold by PBS02, and the ties, and ballast will be removed with the remediation of Area 7.

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- Paddys Run railroad trestle is assumed to meet FRL and will not be removed be left in place for use as a walk path across Paddys Run.

- Riprap installed in 1997 against the east streambank of Paddys Run west of Silos 1 and 2 is clean. No predesign or certification sampling of the riprap is necessary. Riprap is assumed to be relocated and stockpiled for use by others and/or reshaped within Paddys Run after excavation.

- Personnel assumptions are listed within charge-number specific assumptions.

- Maintenance and Infrastructure Support (PBS-01) or any other PBS constructs new facilities within the Remediation Area footprint.

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- Excessive If the number of rain, high wind, severe weather, hot, or cold days. This will not exceeds the information listed in Table 1 from the FEMP site meteorological system, and will constitute an a schedule and/or cost impact to any field activities (i.e. construction-related, predesign characterization, excavation control, precertification, certification, interim restoration) may occur.

TABLE 1  
Rainfall Amounts

Month	Rainfall Days	Monthly Amount (in)
Jan.	11	2.59
Feb.	11	2.60
Mar.	13	4.24
Apr.	12	3.75
May.	11	4.28
June	10	3.84
July	10	4.24
Aug.	9	3.35
Sep.	8	2.88
Oct.	8	2.86
Nov.	11	3.46
Dec.	13	3.15

### 1.2.2 Exclusions

- Staff labor charged to control account GPM1.
- Scope of work as defined within other PBS-06 Soils Remediation control accounts including Remediation Area 10 (corridors).
- Predesign characterization, design, excavation, and certification of soil and at-and below-grade debris associated with Sectors 2 and 3 including: Bldg 30/45 parking lot, access road to Bldg 30/45 parking lot, AWWT Caustic Tank Storage (19B), AWWT (51A), Slurry Dewatering Bldg (51B), AWWT Laboratory Expansion Bldg (51C), Southwest Boiler House (93A), Proposed ALS Bldg (15D), New Sewage Treatment Plant Complex (25K), Domestic and Fire Water Booster Station (26D), Domestic and Fire Water 400,000 Gallon Storage Tank (26E), Domestic and Fire Water Lift Station (26F), Contractor Parking Lot (89D), New RIMIA Pad, Maintenance Labor Storage Bldgs (12E and 12F), 10Plex South Substation (16J), 10Plex North Substation (16H), 50,000 Gallon Holding Tank (18U), 10Plexes Sewage Lift Station (25J), Maintenance Storage Bldg (50), RTRAK Bldg (52A), ASTD SCEP Bldg (52D), Parking Lot-Overflow of West (89C), TACOs 10Plexes (T-76, T-77, T-80, T-81), Storm Water Retention Basins (SWRB, E&W Basins), South Plume Interim Treatment Bldg, AWWT Ozone Generation Bldg (18Y), Sludge Mix Tanks (18J & 18Z), Bio-Denitrification Surge Lagoon (18A), and High Nitrate Tank and secondary containment (18M).
- Excavation for removal of transfer pipeline ST-6"-B4-7000 located from SWRB to Southern Waste Units.
- Post-remediation monitoring and maintenance.
- Post-closure documentation.
- Natural Resources restoration.
- D&D and costs associated with removal of above-grade structures.
- Removal and disposition of Silo 1 and Silo 2 at- and below-grade debris associated with foundations, walls, floors, underdrains, and piping and all Silo berm soil.
- Removal and disposition of decant sump tank and associated piping and debris.
- Removal and disposition of the concrete trench and piping within trench from Silo 1, Silo 2, and former location of demolished drum handling building to the common K-65 trench.
- Removal and disposition of piping within the K-65 trench.
- Aquifer Restoration (PBS-04) well installation, operation, monitoring, removal, and utilities required to operate PBS-04 systems.

- Aquifer Restoration (PBS-04) budgets, operates, and maintains any sump pump and drainage structures after they are installed during control and management.
- Aquifer Restoration (PBS-04) removes and dispositions 1000, 2000, 3000, 4000, or any other monitoring series well or lysimeter casing, screens, concrete pad. SDFP removes and dispositions 1000-series wells that are within excavation footprints.
- Placement and dust control of impacted material in the OSDF (PBS-03).
- Construction of the OSDF (PBS-03).
- Placement and dust control of impacted material within the OMTA (PBS-03) during its operation.
- Loading and hauling of impacted material from the OMTA to the OSDF (PBS-03).
- Treatment and discharge of stormwater, perched water, or other captured water that is placed at the AWWT headworks as defined by Aquifer Restoration (PBS-04) from excavations or dewatering activities.
- Waste Generator Services (PBS-11) or matrixed personnel from the WGS function establishes contracts for containers for SDFP to package.
- No requirements will be imposed to the project pertaining to Start-up Reviews (SSRs, ORAs, ORRs, or equivalent).
- Geophysical surveying techniques, such as ground penetrating radar and electromagnetic terrain conductivity profiling.
- All centralized services.
- Labor involved with and the disposal of samples collected during predesign characterization, excavation control, precertification, or certification is not part of the contract.

### 1.2.3 Government-Furnished Equipment/Services

None.

### 1.2.4 Applicable Requirements

- IRDP reviewed and approved by DOE, OEPA, USEPA.
- PSPs, CDLs, CRs reviewed and approved by DOE, OEPA, USEPA.
- Informal agreement guidance with DOE, OEPA, USEPA for review time of V/FCNs.

- Dust control measures are implemented during excavation and hauling and during off-hours.
- Real time lift scan for 3' +/- 1' lifts in below-WAC, above-FRL excavations.
- Dewater excavations from 24-hour/10-year storm event within 72 hours after rain event.
- Perform 5H:1V minimum grading for interim restoration after certification.
- No additional above-WAC areas are identified during predesign characterization.
- Excavation approach for underground utility trenches is the same as in Area 3A/4A.
- If technetium-99, PCE, TCE, and/or DCE are present at levels that exceed the OSDF WAC, physical samples must be taken along the sideslopes and footprints of the above-WAC excavation to confirm their removal prior to initiating below-WAC excavation activities.

#### 1.2.5 Applicable Technical Guidance

- Reserved
- OU2 Record of Decision
- OU3 Record of Decision
- OU5 Record of Decision
- Sitewide Excavation Plan, Revision 0
- Certification Units area no larger than 250 feet by 250 feet, or 800 linear feet for a utility trench below the excavation grade.
- Waste Acceptance Criteria Attainment Plan for the On-Site Disposal Facility
- Impacted Materials Placement Plan – On-Site Disposal Facility
- Letter: DOE-0678-98, "Management of Wastewater Streams Containing F-Listed Constituents," J. Reising to J. Saric and T. Schneider, April 15, 1998.
- Sitewide CERCLA Quality Assurance Plan.

#### 1.2.6 Disposal, Treatment, Containers, Utilities

- There are no inorganic, organic, or metals constituents as listed in the SEP requiring treatment.

- There are no additional radiological, inorganic, or organic constituent as listed in the SEP that would be included as a constituent of concern for predesign characterization or excavation.
- Soil and debris that do not meet the OSDF radiological, chemical, or physical WAC are placed in railcars for shipment and dispositioned off site. Prohibited items are dispositioned in containers.
- Tie-points into existing electric, potable and non-potable water, sanitary sewer, storm sewer, telephone, and communications are identified by Infrastructure support and budgeted and installed by SDFP.

### 1.3 DRIVERS

(Note: Charge number-specific drivers may be found within the Technical Scope and Quantification)

- Congressional funding of DOE EM Projects
- DOE funding of this PBS or any predecessor PBS activity.
- Silos (PBS-07) removal and disposition of Silo 1 and Silo 2 at- and below-grade debris associated with foundations, walls, floors, underdrains, and piping and all Silo berm soil by predesign characterization in 4<sup>th</sup> Quarter FY2006.
- Silos (PBS-07) removal and disposition of decant sump tank and associated piping and debris by predesign characterization in 4<sup>th</sup> Quarter FY2006.
- Silos (PBS-07) removal and disposition of the concrete trench and piping within trench from Silo 1, Silo 2, and former location of demolished drum handling building to the common K-65 trench by Site Prep\Excavation in 3<sup>rd</sup> Quarter FY2008.
- Decontamination and Demolition Project (PBS-02) removal and disposition of piping within the remainder of the K-65 trench by Site Prep\Excavation in 3<sup>rd</sup> Quarter FY2008.
- Decontamination and Demolition Project (PBS-02) completes the removal of the balance of above-grade structures that is not within Silos scope by 3<sup>rd</sup> Quarter FY2008.
- DOE, OEPA or USEPA review cycle.
- ~~Excessive If the number of rain, high wind, severe weather, hot, or cold days. This will not exceeds the information listed in Table 1 from the FEMP site meteorological system, and will constitute an a schedule and/or cost impact to any field activities~~

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~~(i.e. construction related, predesign characterization, excavation control, precertification, certification, interim restoration) may occur.~~

**TABLE 1**  
**Rainfall Amounts**

Month	Rainfall Days	Monthly Amount (in)
Jan.	11	2.59
Feb.	11	2.60
Mar.	13	4.24
Apr.	12	3.75
May.	11	4.28
June	10	3.84
July	10	4.24
Aug.	9	3.35
Sep.	8	2.88
Oct.	8	2.86
Nov.	11	3.46
Dec.	13	3.15

- Availability of real time team or physical sampling team for predesign characterization, excavation monitoring, precertification, or certification and lab turnaround due to other PBSs or Remediation Area activities.

#### 1.4 PHYSICAL PROJECT DESCRIPTION

##### 1.4.1 Scope of Work

Remedial activities under this scope of work are to support the identification, removal, and certification of those removals of impacted material comprised of at- and below-grade debris and soils above the FRLs for the contaminants of concern. Remedial activities are to be accomplished in a safe and cost-effective manner to protect human health and the environment. Excavations for impacted material removals are to be executed efficiently ensuring proper ratio of soil to debris for placement in the OSDF while minimizing the quantity of material that does not meet the OSDF WAC. Once the DOE, OEPA, and USEPA agree that the area has been remediated and meets the soil FRLs by the process of certification as documented by the Certification Report, the area will be released for final land use. The scope of work is described by the tasks contained in the following charge numbers:

- Predesign Characterization (Charge No. G7111) includes the plan preparation of project specific sampling plans, field implementation of real time and physical sampling, analysis, validation, and modeling of results to define soil excavations and disposition of those soils.
- Title I/II Design (Charge No. G7112) includes project planning, title I design, and title II design activities necessary to prepare an Integrated Remedial Design Package (IRDP). The IRDP consists of an Implementation Plan and Certified for Construction

Drawings and Technical Specifications along with supporting documentation and determination of final quantities of at- and below-grade structures and soil excavations.

- Title III Design (Charge No. G7113) includes excavation support, procurement support, and design changes along with preparation of as-builts drawings and specifications and close-out reports.
- Site Preparation/Excavation/Interim Restoration (Charge No. G7114) includes plan preparation addressing means, methods, techniques, and execution of the excavation scope; site preparation necessary prior to excavation; excavating, loading, and hauling of impacted material for final disposition; control and management of excavations through dewatering and excavated slope maintenance; and interim restoration of excavations after certification but prior to final restoration consisting of seeding and regrading.
- Excavation Control/Certification (Charge No. G7117) includes the plan preparation of project specific sampling plans, field implementation of real time and physical sampling, analysis, and validation for excavation, precertification, and certification. Also included is the development of the Certification Design Letter and the Certification Report.
- Off-site Waste Disposition (Charge No. G7118) includes the procurement, loading, shipping logistics, and final disposition of impacted material that does not meet the OSDF WAC.

#### 1.4.2 Purpose/Objective

The purpose/objective is the excavation and disposition of impacted material either in the OSDF, stage material in bulk for off-site shipment to a disposal facility (material that does not meet the OSDF WAC), or containerize material that does not meet either OSDF WAC or off-site disposal facility WAC for on-site or off-site treatment and disposal. The Records of Decision established the FRLs that were determined to present an unacceptable risk to human health and the environment. Impacted material includes at- and below-grade debris. For SDFP, at- and below-grade debris includes man-made objects such as building foundations, floors, pads, curbs, underground utilities. Impacted material can include perched groundwater if contaminated and includes soil with radiological, organic, or inorganic contaminants above their respective FRL.

#### 1.4.3 Project Boundaries

Figure 1 shows geographic features and project boundaries within Remediation Area 7. It is bounded to the north by Area 6 including the former Waste Pit Area, to the east by Area 4B including the former Production Area, to the south by Area 2 and the Pilot Plant Drainage Ditch, and to the west by Paddys Run.

#### 1.4.4 End State Condition

The silo structures and silo content processing facilities will be removed. A deep excavation will result where Silo 1 and Silo 2 once were located that will drain to Paddys Run. Excavations will be stabilized with vegetation ready for final restoration.

### 1.5 PROJECT PLAN/TECHNICAL SCOPE AND QUANTIFICATION

#### 1.5.1 G7111 - Predesign Characterization

In many instances, existing characterization information from the RI/FS is insufficient to use as a basis for excavation design and excavation. The information obtained will confirm RI/FS results concerning above-WAC and above-FRL locations for excavation design and fill in data gaps. Predesign characterization includes the identification and quantification of area-specific contaminants of concern and the evaluation of historical information for the development and implementation of Project Specific Plans (PSPs). The scope of predesign characterization is therefore described in the predesign characterization PSP that is reviewed and approved by OEPA and USEPA.

Two methodologies are employed during the field implementation for predesign characterization. The first considers radiological surface scanning and real time measurements. These measurements are conducted using sodium iodide (NaI) via real time radiation tracking system (RTRAK), Gator scanning system (Gator), radiation scanning system (RSS) or excavation monitoring system (EMS); high purity germanium (HPGe) shots known as podding; or other non-intrusive static and mobile field instruments. These instruments record radiological emanations in form of total activity counts and from uranium, thorium, and radium contamination at the surface or near-surface sources. Also these instruments are employed only in non-concrete and non-gravelled areas. The results from total counts, uranium, thorium, and radium recordings are documented in the form of maps. The second considers physical soil sampling and analytical testing to collect physical data and to record concentrations of organic, inorganic, and radiological (e.g. technetium-99) that real time measurements cannot quantify.

Area 7 Predesign characterization includes two tasks to be detailed subsequently below:

- Task 1: Silo/RCRA/Trench Predesign Characterization
- Task 2: General Area Predesign Characterization.

The activities for each task can be further subdivided into the following subtasks:

- Subtask 1: Prepare Project Specific Plan
- Subtask 2: Field and Analytical Work
- Subtask 3: Data Reduction and Interpretation.

Major technical risks associated with the execution and completion of these tasks include: using off-site laboratory services for analysis of organic contaminants of concern (COCs), insufficient access to areas during predesign due to other scheduled activities and the

OEPA and USEPA review cycle of the PSPs. Contingencies that can mitigate these risks include: develop on-site laboratory services for organic COCs, extending predesign characterization into title I/II design, and negotiate shorter review cycles with OEPA and USEPA.

Specific charge number assumptions include:

- For general assumptions and exclusions, see Section 1.2.
- Earned Value method for this charge number will be based on the quantities developed within the Quantification Sections.
- Real time scanning during predesign characterization will be limited to accessible acres or acres with minimal need for clearing.
- Real time scanning will not be performed on surfaces with gravel, concrete, asphalt, or debris.
- The geographically designated RCRA characteristic area west of the Silos, as delineated in the OU5 ROD and SEP, will be verified as not being a RCRA characteristic area with the aid of previous sampling in Paddys Run (1997) and Area 7 (1999) supporting predesign information.
- Existing technetium-99 area delineated in the SEP along the K-65 trench will be verified as not an technetium-99 area.
- Internal review and comment of PSPs is performed in one week.
- DOE review and comment of PSPs will occur in parallel to the internal review.
- Internal comment responses are conducted informally through meetings, telephone, email, or written responses on the reviewers commented document.
- No geotechnical investigations or geotechnical testing to support excavation design or OSDF placement.
- A dedicated geoprobe and physical sampling crew will be available to collect soil and perched water samples.
- The number of borings for physical sampling is based on existing data within the Sitewide Environmental Database (SED), concentration of a particular ASCOC, above-WAC data, density of sampling from past sampling events, and process knowledge.
- Gamma Spectroscopy is the analytical method for uranium, thorium, and radium analysis.

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- All samples will be analyzed for uranium.
- A single sample will be collected for the analysis of metals and radiological contaminants (uranium, thorium, radium, technetium-99, and if needed, cesium-137) ~~will be combined into one container and analyzed~~ by the on site laboratory.
- A separate sample will be collected for the analysis of Volatile Organic Compounds (VOCs) ~~will always be collected in a separate sample container and analyzed~~ by the off site laboratory.
- A single sample will be collected for the analysis of other Organics (PCBs, pesticides, PAHs, herbicides, semi-volatile organic compounds (SVOCs), and dioxins) ~~will be collected in one container and analyzed~~ by the off site laboratory.
- A separate sample will be collected for the analysis of exotic radiological contaminants (e.g., strontium-90) ~~will be collected in a separate container and analyzed~~ by the off site laboratory.
- Organic compounds and strontium-90 will be analyzed at off-site laboratories with 14-day turnaround time.
- For Quality Control (QC) water samples, organic samples will be containerized separately for each analysis. Metals and radiological contaminant water samples will also be containerized separately.
- Equipment rinsates will be collected for 1 in 20 borings greater than or equal to one (1) foot in depth.
- Rinsates and container blanks will be analyzed for the same parameters as the soil samples, except for PAHs.
- There will be twenty (20) variances per predesign PSP.
- One alpha beta screen sample will be taken per boring if there are off-site analyses requested.
- Each predesign data release or lab report will consist of an average of twelve (12) samples group with following analytical data: uranium, thorium, and radium; technetium-99; metals; organics.
- Ten percent (10%) of predesign data releases will receive ASL B data validation. The other ninety percent (90%) of the release will receive field validation only.
- 3-D modeling hardware, software, and personnel used for 3A/4A are retained for predesign characterization, excavation control, precertification, and certification.

1) Task #1 – Silo/RCRA/Trench Predesign Characterization

1.1) Subtask #1 – Prepare Project Specific Plan (PSP)

1.1)1 Plan/Scope

The PSP will document the purpose of the predesign characterization (i.e. provide analytical data to support the design of the excavation surface of above-FRL soil) and to summarize the field characterization and analytical methods. The scope of work will concentrate efforts in and around the Silos 1-4 area, between the Silos 1-4 area and Paddys Run, and the K-65 trench.

The PSP will summarize the findings of background information research. Background information research includes database queries of the SED to collect existing soil and perched water data (RI/FS data, CIS data, other data). An evaluation using Geographical Information Systems (GIS) mapping techniques of the ASCOCs, sample density, samples above-FRL and above-WAC, and 3-D modeling for both uranium and radium (prevalent under Silos 1 and 2) will be performed to assist in developing the sampling and analysis approach. The approach considers verification of past sampling for above-FRL or above-WAC ASCOCs, data gaps for previously sampled material that has been moved or removed through removal or remedial actions, data for ASCOCs that are reported in the SED at the detection limit values that may exceed the FRL or WAC levels, bounding vertically and horizontally above-FRL or above-WAC, investigates locations of sparse sampling data, and considers past utilities, operations, and construction within the area through the review of Operable Unit RI/FSs, interviews, review of photographs, and walkdowns. The PSP is used to document the background information of what is known and presents the characterization plan to the project, matrixed, and centralized personnel, along with the DOE, OEPA, and USEPA.

The PSP will then define the scope of field, laboratory, and data reporting of the ASCOCs through the predesign sampling target analyte list and sampling approach. For physical sampling, the PSP will document the number of borings, location of borings, depths of borings, frequency of sample intervals, sampling collection methods, sampling equipment decontamination, borehole abandonment, and disposition of wastes. For real time measurements, the PSP will document the real time radiation tracking system (RTRAK), real time Gator-mounted system (Gator), radiation scanning system (RSS), excavation monitoring system (EMS), high-purity germanium detector (HPGe), and other radiation monitoring systems (RMS) data acquisitions, surface moisture measurements recordings, background radon monitoring if required, and real time mapping. The tracking and managing of data collection, whether through physical sampling or real time, is described along with both field and laboratory quality assurance requirements. The process of changing the approved PSP by use of variance/field change notice (V/FCN) is described. Finally, the PSP contains health and safety requirements and data quality objectives.

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410 Specific activities for this scope of work include (capital letters are tied to Table 2):

A. Compile and index historical photos including aerial photos.

- B. Review of historical photos site analysis by USEPA, Office of Research and Development, TS-PIC-88088, Sept. 1988.
- C. Review of Operable Unit RI/FS data and conclusions.
- D. Review of Operable Unit 5 contaminant isoconcentration plates.
- E. Review of Characterization Investigation Study (CIS) by Roy F. Weston.
- F. Review of Sitewide Excavation Plan for above-WAC locations, technetium-99 areas, RCRA characteristic locations, HWMU locations, BTVs, high leachable area identification, and other special areas of interest locations.
- G. Review RCRA Part B permit in support of SEP review.
- H. Review of past corrective actions for Non-Conformance Reports (NCRs) and lessons learned documentation to incorporate in PSP.
- I. Generate topographic mapping overlays of pre-site and present site conditions.
- J. Identify the Area-Specific Contaminants of Concern (ASCOCs).
- K. Sitewide Environmental Database (SED) queries and data evaluation.
- L. Development of 3-D model using existing data.
- M. Development of Data Quality Objectives.
- N. Development of sampling strategies.
- O. Development of analytical parameters.
- P. Initiate/coordinated task orders for off-site laboratory services (particularly for VOCs, semi-VOCs, PCBs), if necessary.
- Q. Initial walkdown of area and scoping of work permits, RWPs, penetration permits.
- R. Preparation of draft PSP with figures and tables.
- S. Internal draft PSP review and comment response.
- T. DOE draft PSP review and comment response.
- U. OEPA/USEPA review and comment response.
- V. Issuance of final PSP.

The scope of work will be managed and performed mainly by projectized staff covered in Control Account GPM1. Matrixed and centralized personnel will also be utilized.

*Matrixed Personnel*

Environmental Monitoring and Analytical Services (PBS-04) will participate in the initial walkdown and to assist in developing the scope of work. Modeling support will provided through Remediation Services. The personnel from these organizations are the only individuals who will use charge number G7111.

*Centralized Personnel*

Document Control/Procedure Management will provide document numbers, filing support and issue controlled documents, as needed. Environmental Compliance will be consulted on an as-needed basis if RCRA issues become relevant to the work scope. The Waste Acceptance Organization will perform visual oversight of the monitoring and prepare waste manifestation forms, if needed. Environment, Safety, Health and Quality will review PSPs, work permits, and monitor field activities, as needed. Information Management will provide computer hardware and software needs. Personnel from these organizations will use their functional area charge numbers.

*Projectized Personnel*

Most work will be completed by project staff from the management, characterization, survey, real time and administrative disciplines; and these personnel will charge their labor hours to PBS-06 control account GPM1. Project Controls will provide cost and schedule support.

Table 2 summarizes the key projectized and centralized personnel performing the scope of work. Additionally, the matrixed personnel that will be using the charge number to perform the scope of work is shown:

TABLE 2  
 Manpower Requirements for Task 1, Subtask 1 –  
 Silos/RCRA/Trench Prepare PSP

Activities:

MPM Code	Personnel P,C,M,S	A-G J	H	I	K	L	M-P	Q	R-V
ENSMGR	P		X		X			X	X
ENSREP	P	X		X	X	X	X	X	X
LABTEC	C				X		X		X
CLERKS	P	X							X
DRFCAD	P			X					X
ENSREP	M					X		X	

Note: P denotes projectized, C denotes centralized, M denotes matrixed, S denotes subcontracted.

1.1)2 Quantification

Table 3 summarizes the quantities and/or deliverables anticipated for this subtask.

TABLE 3  
 Quantities for Task 1, Subtask 1 – Silo/RCRA/Trench Prepare PSP

Item	Quantity
Draft Project Specific Plan for Internal Review	1 each
Draft Project Specific Plan for DOE Review	1 each
Response to Comments for DOE	1 each
Draft Project Specific Plan for OEPA/USEPA Review	1 each
Response to Comments for OEPA/USEPA	1 each
Final Project Specific Plan	1 each
Draft 3-D Model of Radium Contamination	1 each
Draft 3-D Model of Uranium Contamination	1 each

1.2) Subtask #2 – Field and Analytical Work

1.2)1 Plan/Scope

After the PSP is approved by OEPA/USEPA, field work will commence after field briefings and walkdowns. Grassy areas and wooded areas that can be accessible may need to be mowed and undergrowth cleared by general labors to ensure worker safety for equipment movement (i.e. surveying, real time equipment handling). Accessible areas to real time instruments will be scanned to assess surface levels of uranium, thorium, radium, and total activity counts .

For physical sampling, a survey team will locate the boring locations and the sampling team will mobilize to place the borings using the Geoprobe<sup>®</sup>. The sampling team will collect samples as specified in the PSP and record daily activities on the Field Activity Log, along with specified information and identifiers in the Sample Collection Log, Chain of Custody/Request for Analysis Form, and Borehole Abandonment Log, as required. The sampling team will review all field data for completeness and accuracy and then forward the data package to Remediation Data Quality. The sampling team will submit the samples to the on-site laboratory where they are received and logged.

For analytical work, samples are received at the sample processing lab along with the chain of custodies. Samples are processed an entered into the laboratory FACTS database tracking system and work cards are generated dependent on the type of analysis requested. Samples then are prepped and analyzed per the requirements set forth in the predesign PSP. Samples identified as requiring analysis for organic constituents will be sent to contracted off-site laboratories, with a request for 14-day turn-around time.

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Specific activities for this scope of work includes (capital letters are tied to Table 4):

- A. Perform walkdowns of field area to assess site conditions for safety and health hazards, and equipment access and support of generation of work permits, RWPs, penetration permits.
- B. Generation of work permits, RWPs, penetration permits.
- C. Coordinating labor support for clearing, cutting, mowing, debris moving.
- D. Conduct PSP work scope briefings field crews, both Real time and Physical Sampling.
- E. Develop Variance/Field Change Notices (V/FCN), as needed with applicable OEPA/USEPA approval.
- F. Real time scans using RTRAK, Gator, EMS, HPGe, or RSS.
- G. Real time scan progress maps.
- H. Evaluate real time data and perform QC prior to data transfer to the Sitewide Environmental Database (SED).
- I. Survey boring locations, record coordinates, and flag locations for the sampling crew.
- J. Mobilize physical sampling crew to place borings.
- K. Obtain soil samples.
- L. Obtain groundwater samples.
- M. Complete the soil boring logs, chain of custody, sampling log, field daily logs.
- N. Deliver the physical samples and chain of custody to the on-site sample processing laboratory.
- O. Receipt of physical samples, entering samples into FACTS database system, and producing work cards. Ship samples for analysis of organic contaminants of concern (COCs) to off-site laboratory.
- P. Calibrations, quality control, completing chain of custodies, completing laboratory logs, analytical work, and data releases both from on-site and off-site laboratories.
- Q. Perform management oversight and coordination functions.

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The scope of work will be managed by projectized staff covered in Control Account GPM1. The scope of work will be performed using subcontract, matrixed, centralized, and projectized personnel.

*Subcontract Personnel*

Off-site Laboratory will be utilized for the analysis of organic COCs (VOCs, PCBs, pesticides, PAHs, herbicides, semi-volatile organic compounds (SVOCs), and dioxins).

*Matrixed Personnel*

Infrastructure Services will support and clearing, cutting, mowing and the operation of the RTRAK and EMS. Environmental Monitoring (PBS-04) will complete most of the work under this subtask to support physical sampling. Environmental Monitoring will be used to generate work permits, facilitate RWPs and penetration permits, complete soil borings, collect soil and groundwater samples and deliver the samples to the on-site laboratory. Analytical Services (PBS-04) will log samples into the FACTS database system, complete the analytical measurements, issue data releases, and ship samples requiring analysis for organic COCs to the off-site laboratory. Personnel from these organizations are the only individuals who will use charge number G7111.

*Centralized Personnel*

Document Control/Procedure Management will provide document numbers, filing support and issue controlled documents, as needed. Environmental Compliance will be consulted on an as-needed basis if RCRA issues become relevant to the work scope. Environment, Safety, Health, and Quality will review work permits and generate RWPs. Information Management will provide computer hardware and software needs. Personnel from these organizations will use their functional area charge numbers.

*Projectized Personnel*

Work completed by project staff from the management, characterization, survey, real time, project control and administrative disciplines will be charged to PBS-06 control account GPM1. Management and characterization staff will perform field and safety walk downs, oversee and monitor progress of the field, provide cost and schedule information to project control staff and deliver all records to Document Control/Procedure Management. The real time staff will scan grassy areas for surface levels of radium, thorium and uranium. Results from the real time survey will be delivered as maps that depict the estimated concentration or activity of radium, thorium and uranium. A survey team will locate the boring sites and flag the locations for the physical sampling crew. Project control staff will track cost and schedule using information provided by the project manager.

Table 4 summarizes the key projectized and centralized personnel performing the scope of work. Additionally, the matrixed and subcontract personnel that will be using the charge number to perform the scope of work is shown:

**TABLE 4**  
**Manpower Requirements for Task 2, Subtask 2 –**  
**Silos/RCRA/Trench Field and Analytical Work**

Activities:

MPM Code	Personnel P,C,M,S	A	B-D	E	F-H	I	J-N	O-P	Q
ENSMGR	P	X		X					X
ENSREP	P	X		X	X	X	X	X	X
CLERKS	P			X					
DRFCAD	P			X		X			
ENSMGR	M	X	X				X		X
ENSREP	M	X	X				X		
S&HENG	M	X					X		
RADTEC	M	X					X		
ENSTEC	M	X	X				X		
LABMGR	M							X	
LABCHM	M							X	
LABTEC	M							X	
PJSMGR	M				X				
MVOOPR	M				X				
Subs	S							X	

Note: P denotes projectized, C denotes centralized, M denotes matrixed, S denotes subcontracted.

1.2)2 Quantification

Table 5 summarizes the quantities and/or deliverables anticipated for this subtask. The assumed condition is that the Silos area and K-65 trench area will be 100% accessible for placement of borings and sampling. The assumed condition is that the on-site laboratory is operating with the normalcy experienced at present.

Real time scans can be limited due to existing concrete slabs and gravel. Real time scans will produce summary maps for uranium, thorium, radium, and total counts.

The number of boring locations and depths for surveying and physical sampling are based several considerations. First is the density of sample borings that was necessary in Areas 3A and 4A, and in the former Sewage Treatment Plant to adequately bound the contamination, both horizontally and vertically, and to fill data gaps for modeling. Second is defining the lower uranium FRL areas known as high leachable areas. Typical uranium FRL is 82 ppm uranium. However, Figure 2-3 of the SEP defines areas with lower uranium FRL concentration of 20 ppm due to high leachability. Only HPGe has detections low enough to detect uranium contamination at this concentration. Third is considering the number of priority excavation areas identified in the SEP. The priority excavations are defined as excavations necessary to remove above-WAC or RCRA contamination prior to excavation of above-FRL material. Figure 2-1 of the SEP illustrates the total uranium concentrations above-WAC of which none have been identified for this scope of work.

Figure 2-2 of the SEP illustrates technetium-99 concentrations potentially above-WAC/FRL of which an area surrounding the K-65 trench has been identified.

One location has high historical data results for PAHs. This location is west of Silos 3 and 4. Five (5) borings with twenty-five (25) sample intervals will be collected and analyzed for uranium, thorium, radium, metals, and PAHs. Along the K-65 trench, Silos 1 and 2, and the SEP-identified RCRA characteristic area, fifty (50) boring locations with 245 sample intervals will be collected and analyzed for uranium, thorium, radium, technetium-99, and metals. An additional ten (10) boring locations with thirty (30) sample intervals will be collected and analyzed for uranium, thorium, radium, technetium-99, and metals to investigate the technetium-99 area located at the K-65 trench. Finally, two isolated locations have high historical data results for radium-226. At these locations, ten (10) with 20 sample intervals will be collected and analyzed for uranium, thorium, radium, and technetium-99.

TABLE 5  
 Quantities for Task 1, Subtask 2 –  
 Silos/RCRA/Trench Field and Analytical Work

Item	Quantity
Total Acreage of Area 7	32.49 acres
Real Time Maps for Uranium	1 each
Real Time Maps for Thorium	1 each
Real Time Maps for Radium	1 each
Real Time Maps for Total Counts	1 each
Survey and Flag Boring Locations	75 each
Total Geoprobe Borings	75 each
Total Soil Samples	325 each
Total Groundwater Samples (i.e. Perched Water)	0 each
Total Surface Water Samples	0 each
Variance/Field Change Notice	20 each
Samples entered into Database	325 each
Uranium Analysis	325 each
Thorium and Radium Analysis	325 each
Technetium-99 Analysis	305 each
Strontium-90 Analysis	0 each
Metal Analysis	275 each
Volatile Organic Compound Analysis	0 each
Semi-Volatile Organic Compound Analysis	0 each
Pesticide Analysis	0 each
PCBs Analysis	0 each
PAH Analysis	0 each
Dioxin Analysis	0 each
Data Releases	77 each

A summary of the quantification approach is provided:

Acreages were determined by using in-house GIS techniques and information at the time of this writing.

The real time maps represent the final product of the scanning results. The quantity does not include progress coverage maps that are produced along with the final coverage maps as part of the projectized effort under control account GPM1 of PBS-06.

For RTRAK and Gator, with radon monitor set-up to correct for radon influences if necessary, experience dictates that 2 acres/day for a 10-hour day can be accomplished assuming typical weather. This average drops to 1 acre/day for a 10-hour day during winter months. Staff includes the matrixed driver (MVOOPR @ 1 FTE), the matrixed driver's supervisor (PGSMGR @ 0.25 FTE), projectized environmental scientists (ENSREP @ 2 FTEs), and projectized environmental scientist supervisor (ENSREP @ 1 FTE).

For RSS, with radon monitor set-up to correct for radon influences if necessary, experience dictates that 2 acres/day for a 10-hour day can be accomplished assuming typical weather. This average drops to 1 acre/day for a 10-hour day during winter months. Staff includes projectized environmental scientists (ENSREP @ 2 FTEs) and a projectized environmental scientist supervisor (ENSREP @ 1 FTE).

For EMS, with radon monitor set-up to correct for radon influences if necessary, it is estimated that this instrument will support the RTRAK & RSS production rate of 2 acres/day for a 10-hour day ~~can be accomplished assuming typical weather. This average drops~~ or to 1 acre/day for a 10-hour day during winter months (when averaging in snow and ice days when field activity is not possible). Staff includes the matrixed heavy equipment operator (MVOOPR @ 1 FTE), the matrixed heavy equipment operators supervisor (PGSMGR @ 0.25 FTE), projectized environmental scientists (ENSREP @ 2 FTEs), and projectized environmental scientist supervisor (ENSREP @ 1 FTE).

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For HPGe, with radon monitor set-up to correct for radon influences if necessary, experience dictates a range based on topography and vegetation. 12 shots/day can be accomplished for a 10-hour day with the maximum coverage at a 1 meter height with a 15 minute count time assuming typical weather conditions with adverse topographic and vegetative conditions. Twenty shots/day can be accomplished for a 10-hour day with the maximum coverage at a 1 meter height with a 15 minute count time assuming typical weather conditions with moderate topographic and vegetative conditions. Approximately 28 shots are necessary to cover 1 acre. Staff includes projectized environmental scientists (ENSREP @ 2 FTEs) and a projectized environmental scientist supervisor (ENSREP @ 1 FTE).

The number of borings and depths for surveying and physical sampling were determined by using in-house GIS techniques along with an evaluation of the present data available from the SED. Manpower is estimated using the BARDO database based on four (4) years of field and analytical work requested by PBS-06. Specific assumptions bounding the BARDO database are listed above in the charge-number specific assumptions.

### 1.3) Subtask #3 – Data Reduction and Interpretation

#### 1.3)1 Plan/Scope

Data reduction and interpretation is a key link between predesign characterization and Title I/II design activities. After data verification and validation is completed, all data must be entered into the SED to allow characterization, engineering, and managerial staff to access the information.

Results from the real time measurements will be delivered as maps that illustrate the estimated concentration or activity of uranium, radium, and thorium as described earlier. All electronically recorded data will have the RMS (i.e. RTRAK or RSS) or HPGc data validation checklist, as required by the User's Guidelines for in-situ gamma spectrometry at the FEMP, will be completed after each data collection event. Field documentation, such as the Nuclear Field Density/Moisture Worksheet, will undergo an internal review by real time personnel. Electronically recorded data from the GPS, RMS, and HPGc systems will be downloaded to onto the local area network after an evaluation comparing the electronic data, hard copy maps, and summary reports for accuracy and completeness is conducted. The evaluation package is forwarded to data validation for final review and is subsequently entered into the SED.

For physical sampling, field technicians and the filed sampling data coordinator will review all field data for completeness and accuracy and then forward the data package to the Data Validation Contact for final review. The field data package will then be filed.

Laboratory reports will be reviewed by the characterization team and 10 percent of the reports will undergo verification and validation. The analytical results will be used to define the horizontal and vertical extent of all contamination. Uranium results and will be used to develop a 3-D model of the uranium concentration and radium results will be used to develop a 3-D model of the radium concentrations within the Silos area. All other COCs will be compared to these two models to evaluate the capture of all COCs by the modeled uranium contamination or the modeled radium contamination. COCs that fall outside of the modeled contamination will be noted to allow their capture during Title I/II design activities. Any above-WAC, RCRA, HWMU, UST, or high leachable areas will be identified during predesign characterization to the Title I/II design team.

The characterization staff will work with engineering to interpret the data and develop the needed tables, figures and data-summary appendix for the Title I/II design. Uranium and thorium data placed in the SED will be compiled and entered into the draft 3-D model of uranium contamination and the radium contamination to prepare the final 3-D models, one for uranium and one for radium. The final 3-D models will be delivered to the Title I/II team to develop the extent of excavation. Specific activities and deliverables anticipated for this work include (capital letters are tied to Table 6):

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- A. Perform verification and validation of data.
- B. Variance/Field Change Notice, as needed with applicable OEPA/USEPA approval.
- C. Enter data into the SED and perform queries.

- D. Reduce and interpret data to develop the extent of contamination and final list of COCs.
- E. Develop tables, figures, and data summary appendix for Title I/II design.
- F. Prepare the final 3-D model for uranium contamination.
- G. Prepare the final 3-D model for radium contamination.
- H. Perform project management and control activities.
- I. Submit characterization records to Procedure and Document Distribution Service.

The verification and validation packages and the final 3-D models of the uranium contamination area and radium contamination area will be delivered to the project. These deliverables and other project records are sent to Procedure and Document Distribution Service.

The scope of work will be managed by projectized staff covered in Control Account GPM1 from PBS-06. The scope of work will be performed using projectized, matrixed, and centralized personnel.

#### *Matrixed Personnel*

Remediation Systems will develop the final 3-D model for uranium contamination and radium contamination. Quality Control Operations will review and approve any remaining V/FCNs. Personnel from these organizations are the only individuals who will use charge number G7111.

#### *Centralized Personnel*

Sample Data Management will perform verification and validation, enter data, conduct database queries, and provide the query results to the characterization group. Procedure and Document Distribution Services will provide document numbers, filing support and issue controlled documents, as needed. Information Management will provide computer hardware and software needs. Personnel from these organizations will use their functional area charge numbers.

#### *Projectized Personnel*

Project staff from the management, characterization, engineering, and administrative disciplines, and these personnel will charge their labor hours to PBS-06 control account GPM1. Management and characterization staff will review laboratory and data reports in parallel with V&V work and use the database queries to define the horizontal and vertical extent of all contamination. Tables and figures will be developed by the characterization staff to summarize the distribution of sample locations and data results. All tables and figures will be delivered to the Title I/II design team. A data-summary appendix will be prepared to record all samples analyzed during the predesign work. Project Controls will provide cost and schedule support based on the information supplied by the project manager.

Table 6 summarizes the projectized and matrixed personnel performing the scope of work:

TABLE 6  
 Manpower Requirements for Task 1, Subtask 3 -  
 Silos/RCRA/Trench Area Data Reporting and Interpretation

Activities:

MPM Code	Personnel P, C, M, S	A	B	C	D/E	F	G	H
ENGMGR	P						X	
ENSREP	P	X	X		X	X	X	X
DRFCAD	P				X			
ENSREP	M					X		
LABTEC	M	X		X				

Note: P denotes projectized, C denotes centralized, M denotes matrixed, S denotes subcontracted.

1.3)2 Quantification

Table 7 summarizes the quantities and/or deliverables anticipated for this subtask per the SEP, ten percent of the laboratory data packages will be verified and validated. Based on information used in the Area 3A/4A IRDP, it is anticipated that 15 tables, 50 figures and a data-summary appendix will be prepared for the Area 7 IRDP.

TABLE 7  
 Quantities for Task 1, Subtask 3 -  
 Silos/RCRA/Trench Data Reduction and Interpretation

Item	Quantity
Radiological Lab Reports to Verify and Validate	28 each
Techneium-99 Lab Reports to Verify and Validate	26 each
Metal Lab Reports to Verify and Validate	23 each
Organic Lab Reports to Verify and Validate	0 each
Data Tables	15 each
Figures	50 each
Data-Summary Appendix	1 each
Final 3-D Model of Radium Contamination	1 each
Final 3-D Model of Uranium Contamination	1 each

2) Task #2 - General Area Predesign Characterization

2.1) Subtask #1 - Prepare Project Specific Plan (PSP)

2.1)1 Plan/Scope

The PSP will document the purpose of the predesign characterization (i.e. provide analytical data to support the design of the excavation surface of above-FRL soil) and to

summarize the field characterization and analytical methods. The scope of work will concentrate efforts at locations not addressed in Task 1.

The PSP will summarize the findings of background information research. Background information research includes database queries of the SED to collect existing soil and perched water data (RI/FS data, CIS data, other data). An evaluation using Geographical Information Systems (GIS) mapping techniques of the ASCOCs, sample density, samples above-FRL and above-WAC, and 3-D modeling, will be performed to assist in developing the sampling and analysis approach. The approach considers verification of past sampling for above-FRL or above-WAC ASCOCs, data gaps for previously sampled material that has been moved or removed through removal or remedial actions, data for ASCOCs that are reported in the SED at the detection limit values that may exceed the FRL or WAC levels, bounding vertically and horizontally above-FRL or above-WAC, investigates locations of sparse sampling data, and considers past utilities, operations, and construction within the area through the review of Operable Unit RI/FSs, interviews, review of photographs, and walkdowns. The PSP is used to document the background information of what is known and presents the characterization plan to the project, matrixed, and centralized personnel, along with the DOE, OEPA, and USEPA.

The PSP will then define the scope of field, laboratory, and data reporting of the ASCOCs through the predesign sampling target analyte list and sampling approach. For physical sampling, the PSP will document the number of borings, location of borings, depths of borings, frequency of sample intervals, sampling collection methods, sampling equipment decontamination, borehole abandonment, and disposition of wastes. For real time measurements, the PSP will document the real time radiation tracking system (RTRAK), real time Gator-mounted system (Gator), radiation scanning system (RSS), excavation monitoring system (EMS), high-purity germanium detector (HPGe), and other radiation monitoring systems (RMS) data acquisitions, surface moisture measurements recordings, background radon monitoring if required, and real time mapping. The tracking and managing of data collection, whether through physical sampling or real time, is described along with both field and laboratory quality assurance requirements. The process of changing the approved PSP by use of variance/field change notice (V/FCN) is described. Finally, the PSP contains health and safety requirements and data quality objectives.

Specific activities for this scope of work includes (capital letters are tied to Table 8):

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- A. Compile and index historical photos including aerial photos.
- B. Review of historical photos site analysis by USEPA, Office of Research and Development, TS-PIC-88088, Sept. 1988.
- C. Review of Operable Unit RI/FS data and conclusions.
- D. Review of Operable Unit 5 contaminant isoconcentration plates.
- E. Review of Characterization Investigation Study (CIS) by Roy F. Weston.

- F. Review of Sitewide Excavation Plan for above-WAC locations, technetium-99 areas, RCRA characteristic locations, HWMU locations, BTVs, high leachable area identification, and other special areas of interest locations.
- G. Review RCRA Part B permit in support of SEP review.
- H. Review of past corrective actions for Non-Conformance Reports (NCRs) and lessons learned documentation to incorporate in PSP.
- I. Generate topographic mapping overlays of pre-site and present site conditions.
- J. Identify the Area-Specific Contaminants of Concern (ASCOCs).
- K. Sitewide Environmental Database (SED) queries and data evaluation.
- L. Development of 3-D model using existing data.
- M. Development of Data Quality Objectives.
- N. Development of sampling strategies.
- O. Development of analytical parameters.
- P. Initiate/coordinated task orders for off-site laboratory services (particularly for VOCs, semi-VOCs, PCBs), if necessary.
- Q. Initial walkdown of area and scoping of work permits, RWPs, penetration permits.
- R. Preparation of draft PSP with figures and tables.
- S. Internal draft PSP review and comment response.
- T. DOE draft PSP review and comment response.
- U. OEPA/USEPA review and comment response.
- V. Issuance of final PSP.

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The scope of work will be managed and performed mainly by projectized staff covered in Control Account GPM1. Matrixed and centralized personnel will also be utilized.

***Matrixed Personnel***

Environmental Monitoring and Analytical Services (PBS-04) will participate in the initial walkdown and to assist in developing the scope of work. Modeling support will provided through Remediation Services. The personnel from these organizations are the only individuals who will use charge number G7111.

**Centralized Personnel**

Document Control/Procedure Management will provide document numbers, filing support and issue controlled documents, as needed. Environmental Compliance will be consulted on an as-needed basis if RCRA issues become relevant to the work scope. The Waste Acceptance Organization will perform visual oversight of the monitoring and prepare waste manifestation forms, if needed. Environment, Safety, Health and Quality will review PSPs, work permits, and monitor field activities, as needed. Information Management will provide computer hardware and software needs. Personnel from these organizations will use their functional area charge numbers.

**Projectized Personnel**

Most work will be completed by project staff from the management, characterization, survey, real time and administrative disciplines; and these personnel will charge their labor hours to PBS-06 control account GPM1. Project Controls will provide cost and schedule support.

Table 8 summarizes the key projectized and centralized personnel performing the scope of work. Additionally, the matrixed personnel that will be using the charge number to perform the scope of work is shown:

**TABLE 8**  
**Manpower Requirements for Task 2, Subtask 1 – General Area Prepare PSP**

**Activities:**

MPM Code	Personnel P, C, M, S	A-G, J	H	I	K	L	M-P	Q	R-V
ENSMGR	P		X		X			X	X
ENSREP	P	X		X	X	X	X	X	X
LABTEC	C				X		X		X
CLERKS	P	X							X
DRFCAD	P			X					X
ENSREP	M					X		X	

Note: P denotes projectized, C denotes centralized, M denotes matrixed, S denotes subcontracted.

**2.1)2 Quantification**

Table 9 summarizes the quantities and/or deliverables anticipated for this subtask.

TABLE 9  
 Quantities for Task 2, Subtask 1 – General Area Prepare PSP

Item	Quantity
Draft Project Specific Plan for Internal Review	1 each
Draft Project Specific Plan for DOE Review	1 each
Response to Comments for DOE	1 each
Draft Project Specific Plan for OEPA/USEPA Review	1 each
Response to Comments for OEPA/USEPA	1 each
Final Project Specific Plan	1 each
Draft 3-D Model of Uranium Contamination	1 each

2.2) Subtask #2 – Field and Analytical Work

2.2)1 Plan/Scope

After the PSP is approved by OEPA/USEPA, field work will commence after field briefings and walkdowns. Grassy areas may need to be mowed and undergrowth cleared by general labors to ensure worker safety for equipment movement (i.e. surveying, real time equipment handling). Accessible areas to real time instruments will be scanned to assess surface levels of uranium, thorium, radium, and total activity counts.

For physical sampling, a survey team will locate the boring locations and the sampling team will mobilize to place the borings using the Geoprobe<sup>®</sup>. The sampling team will collect samples as specified in the PSP and record daily activities on the Field Activity Log, along with specified information and identifiers in the Sample Collection Log, Chain of Custody/Request for Analysis Form, and Borehole Abandonment Log, as required. The sampling team will review all field data for completeness and accuracy and then forward the data package to Remediation Data Quality. The sampling team will submit the samples to the on-site laboratory where they are received and logged.

For analytical work, samples are received at the sample processing lab along with the chain of custodies. Samples are processed and entered into the laboratory FACTS database tracking system and work cards are generated dependent on the type of analysis requested. Samples then are prepped and analyzed per the requirements set forth in the predesign PSP. Samples identified as requiring analysis for organic constituents will be sent to contracted off-site laboratories, with a request for 14-day turn-around time.

Specific activities for this scope of work includes (capital letters are tied to Table 10):

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- A. Perform walkdowns of field area to assess site conditions for safety and health hazards, and equipment access and support of generation of work permits, RWPs, penetration permits.
- B. Generation of work permits, RWPs, penetration permits.
- C. Coordinating labor support for clearing, cutting, mowing, debris moving.

- D. Conduct PSP work scope briefings field crews, both Real time and Physical Sampling.
- E. Develop Variance/Field Change Notices (V/FCN), as needed with applicable OEPA/USEPA approval.
- F. Real time scans using RTRAK, Gator, EMS, HPGe, or RSS.
- G. Real time scan progress maps.
- H. Evaluate real time data and perform QC prior to data transfer to the Sitewide Environmental Database (SED).
- I. Survey boring locations, record coordinates, and flag locations for the sampling crew.
- J. Mobilize physical sampling crew to place borings.
- K. Obtain soil samples.
- L. Obtain groundwater samples.
- M. Complete the soil boring logs, chain of custody, sampling log, field daily logs.
- N. Deliver the physical samples and chain of custody to the on-site sample processing laboratory.
- O. Receipt of physical samples, entering samples into FACTS database system, and producing work cards. Ship samples for analysis of organic contaminants of concern (COCs) to off-site laboratory.
- P. Calibrations, quality control, completing chain of custodies, completing laboratory logs, analytical work, and data releases both from on-site and off-site laboratories.
- Q. Perform management oversight and coordination functions

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The scope of work will be managed by projectized staff covered in Control Account GPM1. The scope of work will be performed using subcontract, matrixed, centralized, and projectized personnel.

#### *Matrixed Personnel*

Infrastructure Services will support and clearing, cutting, mowing and the operation of the RTRAK and EMS. Environmental Monitoring (PBS-04) will complete most of the work under this subtask to support physical sampling. Environmental Monitoring will be used to generate work permits, facilitate RWPs and penetration permits, complete soil borings, collect soil and groundwater samples and deliver the samples to the on-site laboratory. Analytical Services (PBS-04) will log samples into the FACTS database system, complete the analytical measurements, and issue data releases. Personnel from these organizations are the only individuals who will use charge number G7111.

*Centralized Personnel*

Document Control/Procedure Management will provide document numbers, filing support and issue controlled documents, as needed. Environmental Compliance will be consulted on an as-needed basis if RCRA issues become relevant to the work scope. Environment, Safety, Health, and Quality will review work permits and generate RWPs. Information Management will provide computer hardware and software needs. Personnel from these organizations will use their functional area charge numbers.

*Projectized Personnel*

Work completed by project staff from the management, characterization, survey, real time, project control and administrative disciplines will be charged to PBS-06 control account GPM1. Management and characterization staff will perform field and safety walk downs, oversee and monitor progress of the field, provide cost and schedule information to project control staff and deliver all records to Document Control/Procedure Management. The real time staff will scan grassy areas for surface levels of radium, thorium and uranium. Results from the real time survey will be delivered as maps that depict the estimated concentration or activity of radium, thorium and uranium. A survey team will locate the boring sites and flag the locations for the physical sampling crew. Project control staff will track cost and schedule using information provided by the project manager.

Table 10 summarizes the key projectized and centralized personnel performing the scope of work. Additionally, the matrixed and subcontract personnel that will be using the charge number to perform the scope of work is shown:

**TABLE 10**  
**Manpower Requirements for Task 2, Subtask 2 –**  
**General Area Field and Analytical Work**

Activities:

MPM Code	Personnel P,C,M,S	A	B-D	E	F-H	I	J-N	O-P	Q
ENSMGR	P	X		X					X
ENSREP	P	X		X	X	X	X	X	X
CLERKS	P			X					
DRFCAD	P			X		X			
ENSMGR	M	X	X				X		X
ENSREP	M	X	X				X		
S&HENG	M	X					X		
RADTEC	M	X					X		
ENSTEC	M	X	X				X		
LABMGR	M							X	
LABCHM	M							X	
LABTEC	M							X	
PJSMGR	M				X				
MVOOPR	M				X				

Note: P denotes projectized, C denotes centralized, M denotes matrixed, S denotes subcontracted.

2.2)2 Quantification

Table 11 summarizes the quantities and/or deliverables anticipated for this subtask. The assumed condition is that the on-site laboratory is operating with the normalcy experienced at present.

Real time scans will be limited due to existing concrete slabs and gravel. Real time scans will produce summary maps for uranium, thorium, radium, and total counts.

The number of boring locations and depths for surveying and physical sampling are based several considerations. First is the density of sample borings that was necessary in Areas 3A and 4A, and in the former Sewage Treatment Plant to adequately bound the contamination, both horizontally and vertically, and to fill data gaps for modeling. Second is defining the lower uranium FRL areas known as high leachable areas. Typical uranium FRL is 82 ppm uranium. However, Figure 2-3 of the SEP defines areas with lower uranium FRL concentration of 20 ppm due to high leachability. Only HPGe has detections low enough to detect uranium contamination at this concentration. Third is considering the number of priority excavation areas identified in the SEP. The priority excavations are defined as excavations necessary to remove above-WAC or RCRA contamination prior to excavation of above-FRL material. Figure 2-1 of the SEP illustrates the total uranium concentrations above-WAC which include several areas along the Impacted Area Haul Road within the former Production Area and the Fire Training Facility. Figure 2-2 of the

SEP illustrates technetium-99 concentrations potentially above-WAC/FRL of which none are apparent in this subtask.

A plan for thirty-seven (37) boring locations with 111 sample intervals will be collected and analyzed for uranium, thorium, radium, technetium-99 and metals.

TABLE 11  
 Quantities for Task 2, Subtask 2 –  
 General Area Field and Analytical Work

Item	Quantity
Total Acreage of Area 7	32.5 acres
Real Time Maps for Uranium	1 each
Real Time Maps for Thorium	1 each
Real Time Maps for Radium	1 each
Real Time Maps for Total Counts	1 each
Survey and Flag Boring Locations	37 each
Total Geoprobe Borings	37 each
Total Soil Samples	111 each
Total Groundwater Samples (i.e. Perched Water)	0 each
Total Surface Water Samples	0 each
Variance/Field Change Notice	20 each
Samples entered into Database	111 each
Uranium Analysis	111 each
Thorium and Radium Analysis	111 each
Technetium-99 Analysis	111 each
Strontium-90 Analysis	0 each
Metal Analysis	111 each
Volatile Organic Compound Analysis	0 each
Semi-Volatile Organic Compound Analysis	0 each
Pesticide Analysis	0 each
PCBs Analysis	0 each
PAH Analysis	0 each
Dioxin Analysis	0 each
Data Releases	30 each

A summary of the quantification approach is provided:

Acreages were determined by using in-house GIS techniques and information at the time of this writing. The distinction between areas of lower uranium FRL (20 ppm U) due to high leachable areas and areas of higher uranium FRL (82 ppm U) due to low leachable areas is presented in Figure 2-3 of the SEP.

The real time maps represent the final product of the scanning results. The quantity does not include progress coverage maps that are produced along with the final coverage maps as part of the projectized effort under control account GPM1 of PBS-06.

For RTRAK and Gator, with radon monitor set-up to correct for radon influences if necessary, experience dictates that 2 acres/day for a 10-hour day can be accomplished assuming typical weather. This average drops to 1 acre/day for a 10-hour day during winter months. Staff includes the matrixed driver (MVOOPR @ 1 FTE), the matrixed driver's supervisor (PGSMGR @ 0.25 FTE), projectized environmental scientists (ENSREP @ 2 FTEs), and projectized environmental scientist supervisor (ENSREP @ 1 FTE).

For RSS, with radon monitor set-up to correct for radon influences if necessary, experience dictates that 2 acres/day for a 10-hour day can be accomplished assuming typical weather. This average drops to 1 acre/day for a 10-hour day during winter months. Staff includes projectized environmental scientists (ENSREP @ 2 FTEs) and a projectized environmental scientist supervisor (ENSREP @ 1 FTE).

For EMS, with radon monitor set-up to correct for radon influences if necessary, it is estimated that 2 acres/day for a 10-hour day can be accomplished assuming typical weather. This average drops to 1 acre/day for a 10-hour day during winter months (when averaging in snow and ice days when field activity is not possible). Staff includes the matrixed heavy equipment operator (MVOOPR @ 1 FTE), the matrixed heavy equipment operators supervisor (PGSMGR @ 0.25 FTE), projectized environmental scientists (ENSREP @ 2 FTEs), and projectized environmental scientist supervisor (ENSREP @ 1 FTE).

For HPGe, with radon monitor set-up to correct for radon influences if necessary, experience dictates a range based on topography and vegetation. 12 shots/day can be accomplished for a 10-hour day with the maximum coverage at a 1 meter height with a 15 minute count time assuming typical weather conditions with adverse topographic and vegetative conditions. 20 shots/day can be accomplished for a 10-hour day with the maximum coverage at a 1 meter height with a 15 minute count time assuming typical weather conditions with moderate topographic and vegetative conditions. Approximately 28 shots are necessary to cover 1 acre. Staff includes projectized environmental scientists (ENSREP @ 2 FTEs) and a projectized environmental scientist supervisor (ENSREP @ 1 FTE).

The number of borings and depths for surveying and physical sampling were determined by using in-house GIS techniques along with an evaluation of the present data available from the SED. Manpower is estimated using the BARDO database based on four (4) years of field and analytical work requested by PBS-06. Specific assumptions bounding the BARDO database are listed above in the charge-number specific assumptions.

### 2.3) Subtask #3 – Data Reduction and Interpretation

#### 2.3)1 Plan/Scope

Data reduction and interpretation is a key link between predesign characterization and Title I/II design activities. After data verification and validation is completed, all data must be entered into the SED to allow characterization, engineering, and managerial staff to access the information.

Results from the real time measurements will be delivered as maps that illustrate the estimated concentration or activity of uranium, radium, and thorium as described earlier. All electronically recorded data will have the RMS (i.e. RTRAK or RSS) or HPGe data validation checklist, as required by the User's Guidelines for in-situ gamma spectrometry at the FEMP, will be completed after each data collection event. Field documentation, such as the Nuclear Field Density/Moisture Worksheet, will undergo an internal review by real time personnel. Electronically recorded data from the GPS, RMS, and HPGe systems will be downloaded to onto the local area network after an evaluation comparing the electronic data, hard copy maps, and summary reports for accuracy and completeness is conducted. The evaluation package is forwarded to data validation for final review and is subsequently entered into the SED.

For physical sampling, field technicians and the filed sampling data coordinator will review all field data for completeness and accuracy and then forward the data package to the Data Validation Contact for final review. The field data package will then be filed.

Laboratory reports will be reviewed by the characterization team and 10 percent of the reports will undergo verification and validation. The analytical results will be used to define the horizontal and vertical extent of all contamination. Uranium results will be used to develop a 3-D model of the uranium concentration, and all other COCs will be compared to this model to evaluate the capture of all COCs by the modeled uranium contamination. COCs that fall outside of the modeled uranium contamination will be noted to allow their capture during Title I/II design activities. Any above-WAC, RCRA, HWMU, UST, or high leachable areas will be identified during predesign characterization to the Title I/II design team.

The characterization staff will work with engineering to interpret the data and develop the needed tables, figures and data-summary appendix for the Title I/II design. Uranium data placed in the SED will be compiled and entered into the draft 3-D model of uranium contamination to prepare the final 3-D model. The final 3-D model of uranium contamination will be delivered to the Title I/II team to develop the extent of excavation. Specific activities and deliverables anticipated for this work include (capital letters are tied to Table 12):

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- A. Perform verification and validation of data.
- B. Variance/Field Change Notice, as needed with applicable OEPA/USEPA approval.
- C. Enter data into the SED and perform queries.
- D. Reduce and interpret data to develop the extent of contamination and final list of COCs.
- E. Develop tables, figures, and data summary appendix for Title I/II design.
- F. Prepare the final 3-D model for uranium contamination.
- G. Perform project management and control activities.
- H. Submit characterization records to Procedure and Document Distribution Service.

The verification and validation packages and the final 3-D model of the uranium contamination area delivered to the project. These deliverables and other project records are sent to Procedure and Document Distribution Service.

The scope of work will be managed by projectized staff covered in Control Account GPM1 from PBS-06. The scope of work will be performed using projectized, matrixed, and centralized personnel.

*Matrixed Personnel*

Remediation Systems will develop the final 3-D model for uranium contamination. Quality Control Operations will review and approve any remaining V/FCNs. Personnel from these organizations are the only individuals who will use charge number G7111.

*Centralized Personnel*

Sample Data Management will perform verification and validation, enter data, conduct database queries, and provide the query results to the characterization group. Procedure and Document Distribution Services will provide document numbers, filing support and issue controlled documents, as needed. Information Management will provide computer hardware and software needs. Personnel from these organizations will use their functional area charge numbers.

*Projectized Personnel*

Project staff from the management, characterization, engineering, and administrative disciplines, and these personnel will charge their labor hours to PBS-06 control account GPM1. Management and characterization staff will review laboratory and data reports in parallel with V&V work and use the database queries to define the horizontal and vertical extent of all contamination. All non-uranium COCs will be compared to the final 3-D model of uranium contamination to evaluate the capture of all COCs by the uranium contamination zones. COCs that fall outside the modeled uranium contamination will be noted to allow their capture during Title I/II design activities. Tables and figures will be developed by the characterization staff to summarize the distribution of sample locations and data results. Of special interest will be the above-WAC, RCRA, HWMU/UST areas and the scatter plots that depict the depth of each COC relative to the excavation depth. All tables and figures will be delivered to the Title I/II design team. A data-summary appendix will be prepared to record all samples analyzed during the predesign work. Project Controls will provide cost and schedule support based on the information supplied by the project manager.

Table 12 summarizes the projectized and matrixed personnel performing the scope of work:

TABLE 12  
 Manpower Requirements for Task 2, Subtask 3 –  
 General Area Data Reporting and Interpretation

Activities:

MPM Code	Personnel P,C,M,S	A	B	C	D,E	F	G	H
ENGMGR	P						X	
ENSREP	P	X	X		X	X	X	X
DRFCAD	P				X			
ENSREP	M					X		
LABTEC	M	X		X				

Note: P denotes projectized, C denotes centralized, M denotes matrixed, S denotes subcontracted.

### 2.3)2 Quantification

Table 13 summarizes the quantities and/or deliverables anticipated for this subtask per the SEP, ten percent of the laboratory data packages will be verified and validated. Based on information used in the Area 3A/4A IRDP, it is anticipated that 15 tables, 50 figures and a data-summary appendix will be prepared for the Area 7 IRDP. The final 3-D model of uranium contamination is needed by the Title I/II design team to capture the extent of excavation.

TABLE 13  
 Quantities for Task 2, Subtask 3 –  
 General Area Data Reduction and Interpretation

Item	Quantity
Radiological Lab Reports to Verify and Validate	10 each
Technetium-99 Lab Reports to Verify and Validate	10 each
Metal Lab Reports to Verify and Validate	10 each
Organic Lab Reports to Verify and Validate	0 each
Data Tables	15 each
Figures	50 each
Data-Summary Appendix	1 each
Final 3-D Model of Uranium Contamination	1 each

### 1.5.2 G7112 - Title I/II Design

Title I/II Design includes development of the Integrated Remedial Design Package (IRDP) comprised of an Implementation Plan, Technical Specifications, and Excavation Drawings, along with other support plans necessary for agency review and approval prior to

remediation. There will be a total of one (1) IRDP produced due to schedule constraints with WPRAP (PBS-05) and the resulting excavation sequencing as presented in Scenario 6.

Title I/II design activities are guided by the use of the Engineering Functional Area procedures and the Project Execution Plan, along with requirements outlined in the Sitewide Excavation Plan and established design criteria.

The activities for the Title I/II design will be grouped into three fundamental tasks:

- Task 1: Project Planning
- Task 2: Title I Design
- Task 3: Title II Design

Major technical risks identified for this scope of work include:

- Redefinition of Remediation Area.
- Implementing a portion of the design.
- Separation of design into smaller packages (i.e. site preparation, excavation, interim restoration).
- Extended review length and approval or excessive number of review comments by DOE or OEPA/USPEA.
- Inadequate engineering discipline.
- Inadequate CADD or drafting experience.
- Inadequate bounding of contaminants above the FRL.

Contingencies for the above technical risks, in order of appearance, include:

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- No redefining of Remediation Area after the issuance of this narrative.
  - Reevaluate surface water drainage, traffic routes, excavation boundaries.
  - Plan for construction drawings and technical specifications in terms of site preparation, excavation, interim restoration so that aspects of the design can be executed.
  - ~~Active participation by~~ Involve DOE reviewers during the design development and ~~by~~ request DOE to curb review times and comments by OEPA/USEPA.
  - Teaming Partners or subcontractor expertise.
  - Teaming Partners or subcontractor expertise.

- DCN excavations after CFC.

Major charge number assumptions include:

- Only one (1) Integrated Remedial Design Package (IRDP) as required by the SEP will be produced describing Area 7 remediation.
- Engineering is self-performed by Fluor Fernald, Inc. Any additional engineering and CADD services will be obtained through teaming partners.
- The IRDP will consider and include site preparation, excavation, control and management, and interim restoration. These four construction activities will not be separated in part or entirely as was experience in Area 1 Phase II and Area 2 Phase I IRDPs.
- Consideration to "sector" boundaries was given but not strictly adhered to. Consideration to geographical locations, present and past operations, and contamination data was given priority.
- Remediation area is well-defined and utility isolation trenching is not warranted.
- When applicable by the task, three-dimensional modeling of at-and below-grade structures is completed prior to the beginning of Title II Design.
- When applicable by the task, three-dimensional modeling of the contamination is completed prior to the beginning of Title II Design.
- When applicable by the task, fly-over, photogrammetry, and digitizing to support surveying services will be subcontracted.
- Cultural Resource surveys have been completed or are not warranted within the Remediation area.
- Reproduction of work plans, construction drawings, technical specifications, and other support documents and deliverables will be accomplished on site.
- Project Planning task deliverables are completed prior to Title I design.
- No significant scope changes result from the Title design review.
- No OEPA or USEPA review or approvals of Project Planning or Title I design deliverables or documents. ~~DOE review will occur in parallel with internal reviews.~~
- Field verification of topography, utilities, structures, drainage is necessary to ensure the state of existing conditions prior to Title I design.

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681

- 90% and CFC construction drawings and technical specifications are organized similarly as in Area 3A/4A.

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- Occasionally, DOE review of the 90% IRDP will may occur in parallel with the project internal review to recapture the schedule.
- DOE transmits any agency correspondence, including review comments, to the SDFP project manager within twenty-four (24) hours of receipt.
- OEPA and USEPA review only the 90% IRDP submittal.

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558

- ~~400%~~ The final IRDP review will be conducted in a meeting format with internally and by DOE occur via design review meeting and is limited to concur that ensure 90% comments have been incorporated into the design package.

1) Task #1 – Project Planning

1.1) Plan/Scope

Project planning is the critical initial step in developing the Title I/II design for excavating soil and at- and below-grade structures. Guidance documents must be prepared by both projectized and matrixed personnel and an extensive review of the site reference drawings must be conducted to compile the needed information on at- and below-grade structures and utilities. The compiled drawing packages will be used to prepare the 3-D computer models of at- and below-grade structures, which are needed to design the extent of excavation. Prior to initiating Title I design work, an alignment meeting will be held with all project and matrixed personnel to ensure that assignments are understood and integration channels have been established.

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Specific activities for this scope of work includes (capital letters are tied to Table 14):

- A. Technical Reference Drawing compilation and indexing.
- B. Technical Reference Drawing package.
- C. NLO Construction Project Files (CPF) review and report.
- D. Request for Engineering Services for matrix support.
- E. Walkdown of Remediation Area.
- F. Auditable Safety Record (ASR) preparation.
- G. Functional Design Requirements (FDR) preparation.
- H. ARARs/TBC table preparation.
- I. Project Execution Plan (PEP) preparation.
- J. Project Alignment meetings.
- K. Occupational and Environmental ALARAs (including PEAPR).
- L. Engineering administration including self-assessments; responding to surveillances or non-conformance reports; meetings with project staff, DOE, regulatory agencies; tracking of budget vs actual costs; tracking of schedules; safety workgroup and walkdowns; submission of records to Procedure and Document Distribution Service.

This scope of work will be self-performed by Fluor Fernald, Inc. It will be managed and performed mainly by projectized staff covered in Control Account GPM1. Matrixed and centralized personnel will also be utilized.

*Matrixed Personnel*

Engineering Services will be used to retrieve any drawing that could serve as the input information for the 3-D CADD models. Environmental, Safety, Health and Quality Integration, Radiological Protection Operations, and Quality Control Operations will perform reviews on the Auditable Safety Record (ASR), Functional Design Requirements (FDR), and Project Execution Plan (PEP), and they will participate in the project alignment meetings. Project Controls will provide cost and schedule support. Personnel from these organizations will use charge number G7112 with the exception of the SDFP matrix support (ESH&Q rep., QC rep, Rad rep) which will be budgeted under PBS-06 control account GPM1.

*Centralized Personnel*

Environmental Compliance will assist in developing the PEAPR, ARARs/TBC table and Environmental ALARA, ensure the above documents are consistent with their deliverables and participate in the alignment meetings. Environmental, Safety, Health and Quality Integration will perform the safety assessment and prepare the Auditable Safety Record (ASR) for the project team to review. Procedure and Document Distribution Services will assign document numbers, maintain the project file and distribute controlled documents. They will also be used when procedural matters need attention. Information Management will provide the project with computer hardware and software needs. Waste Acceptance Organization will review the PEP and participate in the alignment meeting. Personnel from these organizations will use their functional area charge numbers.

*Projectized Personnel*

Project staff from the management, engineering and administrative disciplines will provide oversight and support services and prepare most of the text needed for the ASR, FDR and PEP. These personnel will charge their labor hours to PBS-06 control account GPM1. Management will be responsible for integrating all the needed functional areas, including Construction, into the ASR, FDR and PEP documents. Engineering will take the lead role in compiling the archived drawings needed to produce any of the 3-D CADD drawings and for research into the NLO CPF files. Engineering will also take the lead in initializing and overseeing the work accomplished concerning the ARAR/TBC table, Occupational ALARA, Environmental ALARA, and PEAPR reviews to ensure all personnel involved are working consistently on the same scope of work. Prior to initiating the Title I design activities, an alignment meeting will be held to discuss schedule and technical details with all principal project team members and functional area groups that support the design effort. Project Controls will provide cost and schedule support based on the information supplied by the project manager.

Table 14 summarizes the projectized personnel managing and the projectized, matrixed, and some centralized personnel performing the scope of work:

TABLE 14  
 Manpower Requirements for Task 1 - Project Planning

Activities:

MPM Code	Personnel P,C,M,S	A-C	D	E	F	G	H	I	J	K	L
ENGMGR	P		X	X	X	X		X	X	X	X
ENGCVL	P	X		X	X	X	X	X	X	X	X
ENGCVL	M	X		X	X	X	X		X		
PRJMGR	P			X					X		
CNSMRG	P			X				X	X		
CNSENG	P	X		X		X	X		X		
WSTENG	C			X		X	X	X	X	X	
QACENG	P			X		X	X	X	X	X	
INDHYG	P			X		X	X	X	X	X	
RADENG	P			X		X	X	X	X	X	
TPSREP	P							X			
DRFCAD	P							X			
DRFCAD	M							X			
ENPREP	C			X		X	X		X	X	
TPSREP	C			X	X				X		
ENSREP	P										
CLERKS	P,C				X	X	X	X	X	X	X

Note: P denotes projectized, C denotes centralized, M denotes matrixed, S denotes subcontracted.

1.2) Quantification

Table 15 summarizes the quantities and/or deliverables anticipated for this subtask. Per site procedures, project management and engineering will prepare or revise existing ASR, FDR, and PEP and facilitate alignments.

TABLE 15  
 Quantities for Task 1 – Project Planning

Item	Quantity
Technical Reference Drawings and Index	1 each
Prelim. Qty. Take-off of At- and Below-Grade Structures	1 each
3-D Models of At- and Below-Grade Structures	1 each
NLO CPF Files Review Summary memo	1 each
Request for Engineering Services	1 each
Auditable Safety Record (ASR)	1 each
Functional Design Requirements (FDR)	1 each
ARARs/TBCs Table	1 each
Project Execution Plan (PEP)	1 each
Alignment Meetings	3 each
Occupational ALARA	1 each
Environmental ALARA	1 each
PEAPR	1 each

Historically, project planning is crucial to the safety and success of projects at the FEMP taking from 3 to 5 months utilizing 2 to 5 FTEs of projectized and matrixed labor. Because self-performing and streamlining engineering, the schedule in Section 2.0 and manpower sheets in Section 3.0 reflect the lower end of the ranges.

2) Task #2 – Title I Design

2.1) Plan/Scope

Title I design includes activities that are necessary to satisfy requirements for the Integrated Remedial Design Package (i.e. Implementation Plan, Construction Drawings, Technical Specifications, and support documents – Design Criteria Package, Storm Water Management Plan, Erosion and Sediment Control Plan, Earthwork Calculations) for agency approval at 90% (Prefinal) completion and to satisfy DOE requirements.

The purpose of Title I design activities is to develop a preliminary or 30% design that will serve as the framework for Title II design and the subsequent issuance of the 90% IRDP to the agencies. Title I design activities, described in detail below, include the development or the revision of existing documents and includes:

- Design Criteria Package
- Preliminary or 30% Design Package
- Surveying Support
- Engineering Administration.

Design Criteria Package:

As part of developing the technical baseline, the preparation and completion of the Design Criteria Package (DCP) based on the Functional Design Requirements (FDR) is important. Design Criteria will be developed and are the controlling criteria for design and therefore

execution of the scope. The ARAR/TBC tables will be finalized. Design Criteria will be developed for the following technical areas including:

- Site Preparation
- Storm Water Management
- Subsurface Water Management
- Erosion and Sediment Control
- Support Facilities and Utilities
- Excavation
- Hauling
- Dust Control
- Interim Restoration
- Systems/Control and Management.

#### Preliminary or 30% Design Package

As the Design Criteria Package is developed and the project team members are aligned with the requirements, the preliminary or 30% design package can commence which includes Construction Drawings, Technical Specifications, Engineering Design and Analysis Package, Preliminary Quantity Takeoffs, Workplans, and DOE Review:

#### Construction Drawings:

- **List of Drawings:** A list of anticipated Civil, Mechanical, Electrical drawings
- **Site Plan/Utility Plan/Existing Conditions** showing existing pads, roads, buildings, fencing, poles, overhead utilities, surface features. In addition, it shows site preparation activities such as the location of radiological control and construction support areas, staging areas, laydown areas, special material transfer areas, air monitoring locations and any utility necessary to be installed to support excavation remediation.
- **Surface Water Management and Erosion and Sediment Control Plan drawings** showing surface water management and erosion control features such as run-on diversion ditches, culverts, silt fences, sediment traps or basins, level spreaders.
- **Utility Removal Plan** shows which utilities are to be removed and which, if any are to remain.
- **Excavation Plans/Typical Excavation Cross-section** shows the general location and depth of excavations based on the three-dimensional modeling and in particular in relation to site preparation information.
- **Development of Excavation approaches** which will illustrate the coordination of excavation monitoring (real time or physical sampling), surveying, and excavation with any defined hold points for any:

- Process piping removal above design excavation grade
  - Process piping removal below design excavation grade
  - Excavation of Above-WAC, RCRA, or special excavation areas
  - Excavation of Above-FRL soil to design excavation grade.
- P&IDs/PFDs (if any) showing piping and instrumentation diagrams.
  - Traffic Plan showing haul routes and traffic routes.
  - Sequencing Plan (For Information Only) used to assist in planning the work that sequences site preparation, excavation, certification, interim restoration activities.
  - Material Tracking Plan used to assist WAO in developing the PWID.
  - Precertification Plan shows excavated area available for precertification/ certification with surface water run-on control features to control run-off from uncertified areas. Other items to be shown include access control fencing, site preparation features installed that can be removed.
  - Interim Restoration Plan shows any additional planned features and surface water drainage prior to Restoration Planning.

#### Technical Specifications:

Review of existing specifications for outline and format to develop the technical specification outline including scope. Outline may include such items as surveying, site preparation (i.e. fencing, clearing and grubbing) earthwork, backfilling, unsuitable fill, impacted material excavation, stormwater management and erosion control, presumed asbestos containing material, traffic control, aggregate surface, seeding, mechanical and electrical division specifications.

#### Engineering Design and Analysis Package:

- Preliminary Excavation Design.
- Slope Stability Analysis, examples include if deep excavations exist near the railroad tracks or OSDF
- Subsurface Water evaluation
- Storm water management/hydrologic evaluation, examples include surface water or ditch flow, pumping systems, Paddys Run
- Preliminary support facility design
- P&IDs/PFD.

Preliminary Quantity Takeoffs:

- Excavation of above-FRL soil
- Civil, Mechanical, Electrical components.

Work Plans:

- Preliminary Implementation Plan
- Preliminary Storm Water Management Plan
- Preliminary Erosion and Sediment Control Plan
- Preliminary Systems/Control Management Plan

Internal Review and Response to Comments:

Internal review includes the review of the design criteria package, technical specifications, construction drawings, implementation plan, storm water management plan, systems/control management plan and response to comments.

DOE Review and Response to Comments:

DOE review includes the review of the design criteria package, technical specifications, construction drawings, implementation plan, storm water management plan, systems/control management plan and response to comments.

Surveying Support:

Surveying support includes collecting or verifying site existing conditions information including topographic information to be used for Title II design. This can include a flyover with digitizing support; field surveying and verification of existing drainage structures (i.e. basins, ditches, trenches, culverts, headwalls), utility structures (i.e. manholes, catch basins, sumps); affected section and upstream portion of Paddys Run for hydrologic evaluation in Title II, verification of final Silos Area excavation grades.

Engineering Administration:

Engineering Administration which includes self-assessments; responding to surveillances or non-conformances reports; meetings with project staff, DOE, regulatory agencies, or other project personnel for integration; tracking of budget versus actual costs; tracking schedule; integration with project controls, safety workgroup and walkdown participation, maintenance of project planning deliverables.

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Specific activities for this scope of work includes (capital letters are tied to Table 16):

- A. Preparation Design Criteria Package.
- B. Final ARAR/TBC Table.
- C. Preliminary Construction Drawings.
- D. Preliminary Technical Specifications..

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- E. Preliminary Engineering Design and Analysis Package.
  - F. Preliminary Quantity Take-offs.
  - G. Preliminary Implementation Plan
  - H. Preliminary Storm Water Management Plan.
  - I. Preliminary Erosion and Sediment Control Plan.
  - J. Preliminary Systems/Control Management Plan.
  - K. Internal Review of Items A-J and response to any comments.
  - L. DOE Review of Items A-J and response to any comments.
  - M. Surveying information.
  - N. Maintenance of any Project Planning Deliverables.
  - O. Engineering Administration, i.e. meeting minutes, reports, presentation material, status updates, submission of records to Procedure and Document Distribution Service.

This scope of work will be self-performed by Fluor Fernald, Inc. The scope of work will be managed and performed mainly by projectized staff covered in Control Account GPM1. Matrixed and centralized personnel will also be utilized.

*Subcontract Personnel*

Dedicated CADD support is required to generate drawings identified under this task. Specialized civil engineering is required to generate the Engineering Design and Analysis Package.

*Matrixed Personnel*

Engineering Services will be used to develop the mechanical and electrical portions of the DCP and the preliminary design package including the Systems/Control Management Plan. The lead civil engineer will be responsible for integrating all the needed functional areas into the drawings, technical specifications, and plans. The lead civil engineer will take the lead role in developing the technical specifications, drawings and SWECP. CADD services will assist in producing drawings for the preliminary design package. Environmental, Safety, Health and Quality Integration, Radiological Protection Operations, and Quality Control Operations will perform design reviews. Project Controls will provide cost and schedule support. Personnel from these organizations will use charge number G7112 with the exception of the SDFP matrix support (ESH&Q rep., QC rep, Rad rep) which will be budgeted under PBS-06 control account GPM1

*Centralized Personnel*

Environmental Compliance will assist in developing the preliminary design and ensure compliance with the PEAPR, ARARs/TBC table and Environmental ALARA. Procedure and Document Distribution Services will assign document numbers, maintain the project file and distribute controlled documents. They will also be used when procedural matters need attention. Information Management will provide the project with computer hardware and software needs. Waste Acceptance Organization will provide design reviews and assist in any waste disposition issues. Personnel from these organizations will use their functional area charge numbers.

*Projectized Personnel*

Project staff from the management, engineering, surveying, and administrative disciplines will provide oversight and support services and prepare most of the text needed for the DCP, technical specifications (civil), Implementation Plan (IP), Storm Water Management Plan, and Erosion and Sediment Control. These personnel will charge their labor hours to PBS-06 control account GPM1. The project engineer will prepare most of the IP and be responsible for integrating all the needed functional areas into the DCP, drawings, technical specifications, and plans. The project engineer will take the lead role in developing the DCP. The area project manager will ensure overall integration and provide status to the SDFP project manager. Prior to initiating Title II design activities, a final Title I meeting will be held to discuss schedule and technical details with all principal project team members and functional area groups that support the design effort.

Table 16 summarizes the projectized personnel managing and the projectized, matrixed, and some centralized personnel performing the scope of work:

TABLE 16  
 Manpower Requirements for Task 2 – Title I Design

Activities:

MPM Code	Personnel P,C,M,S	A	B	C,F	G	H,I	J	K	L	M	N	O
ENGMGR	P	X	X	X	X	X	X	X	X	X	X	X
ENGCVL	P	X	X	X	X	X	X	X	X	X	X	X
ENGCVL	M,S	X	X	X		X	X	X	X	X		X
ENGINR	M	X		X			X	X	X	X		X
ENGELE	M	X		X			X	X	X	X		X
DRFCAD	M,S			X		X		X	X			
PRJMGR	P							X				
CNSMRG	P							X				
CNSENG	P	X	X	X	X	X	X	X				
WSTENG	C	X		X	X	X		X				
QACENG	P	X		X	X	X		X				
INDHYG	P	X		X	X	X		X				
RADENG	P	X		X	X	X		X				
TPSREP	P	X	X		X	X		X				
DRFCAD	P			X	X	X	X					
ENPREP	C	X	X	X	X	X		X			X	
TPSREP	C	X		X	X			X				
ENSREP	P	X			X			X		X		
CLERKS	P,C	X	X	X	X	X	X	X	X	X	X	X

Note: P denotes projectized, C denotes centralized, M denotes matrixed, S denotes subcontracted.

2.2) Quantification

Table 17 summarizes the quantities and/or deliverables anticipated for this subtask. The basis for the estimated number of documents and drawings is the site engineering procedures and previous design work experienced in Area 1 and Area 2. Efforts were made to consider and to utilize established documents, plans, and technical specifications along with streamlining designs that were undertaken in the FY2000 in Area 2 Phase I (i.e. Radium Hot Spot IRDP and Carolina IRDP).

TABLE 17  
 Quantities for Task 2 – Title I Design

Item	Quantity
Design Criteria Package (DCP)	1 each
Final ARAR/TBC Table	1 each
Preliminary Construction Drawings	16 each
Preliminary Technical Specifications	10 each
Preliminary Engineering Design and Analysis Package	1 each
Preliminary Quantity Takeoffs	1 each
Preliminary Implementation Plan	1 each
Preliminary Storm Water Management Plan	1 each
Preliminary Erosion and Sediment Control Plan	1 each
Preliminary Systems/Control Mgmt Plan	1 each
Internal Review and Response to Comments	1 each
DOE Review and Response to Comments	1 each

Historically, project planning is crucial to the safety and success of projects at the FEMP taking from 3 to 5 months utilizing 2 to 5 FTEs of projectized and matrixed labor. Because self-performing and streamlining engineering, the schedule in Section 2.0 and manpower sheets in Section 3.0 reflect the lower end of the ranges.

3) Task #3 – Title II Design

3.1) Plan/Scope

Title II design includes activities that are necessary to satisfy requirements for the Integrated Remedial Design Package (i.e. Implementation Plan, Construction Drawings, Technical Specifications, and support documents – Design Criteria Package, Storm Water Management Plan, Erosion and Sediment Control Plan, Earthwork Calculations) for agency approval at 90% (Prefinal) completion and to satisfy DOE requirements.

The purpose of Title II design activities is to develop the technical baseline from the Title I design into Certified for Construction (CFC) drawings and specifications after the subsequent issuance of the Prefinal or 90% IRDP to the agencies for their review and approval.

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Specific activities for this scope of work include (capital letters are tied to Table 18):

- A. 90% (Prefinal), 100% (Draft Final), and CFC Construction Drawings
- B. 90% (Prefinal), 100% (Draft Final), and CFC Technical Specifications
- C. 90% (Prefinal), 100% (Draft Final), and Final Implementation Plan
- D. 90% (Prefinal) and 100% (Final) Engineering Design and Analysis Package
- E. 90% (Prefinal) and 100% (Final) Quantity Take-offs of at- and below-grade debris and impacted soil
- F. 90% (Prefinal) and 100% (Final) Cost Estimates
- G. 90% (Prefinal) and 100% (Final) Storm Water Management Plan
- H. 90% (Prefinal) and 100% (Final) Erosion and Sediment Control Plan
- I. 90% (Prefinal) and 100% (Final) Systems/Control Management Plan
- J. Internal Review of Items A-I and response to any comments
- K. DOE Review of Items A-I and response to any comments
- L. OEPA/USEPA Review of Items A-I and response to Agency comments to the IRDP
- M. System, Structures, and Components List with associated Performance Grades
- N. Concurrence Letter from TRB accepting SSCs, and PGs
- O. Labor Standards Review request.
- P. Surveying information
- Q. Maintenance of any Project Planning Deliverables
- R. Engineering Administration, i.e. meeting minutes, reports, presentation material, status updates, submission of records to Procedure and Document Distribution Service.

This scope of work will be self-performed by Fluor Fernald, Inc. The scope of work will be managed and performed mainly by projectized staff covered in Control Account GPM1. Subcontracted, matrixed, centralized personnel will also be utilized.

#### *Subcontract Personnel*

Dedicated CADD support is required to generate drawings identified under this task. Specialized civil engineering will be necessary to complete design analysis of slope stability, hydrologic modeling, etc.

#### *Matrixed Personnel*

Engineering Services will be used to develop the mechanical and electrical portions of the Title II design. The lead civil engineer will be responsible for integrating all the needed functional areas into the drawings, technical specifications, and plans. The lead civil engineer will take the lead role in developing the technical specifications, drawings and SWECP. CADD services will assist in producing drawings for the preliminary design package. Environmental, Safety, Health and Quality Integration, Radiological Protection Operations, and Quality Control Operations will perform design reviews. Project Controls will provide cost and schedule support. Personnel from these organizations will use charge number G7112 with the exception of the SDFP matrix support (ESH&Q rep., QC rep, Rad rep) which are budgeted under PBS-06 control account GPM1.

*Centralized Personnel*

Environmental Compliance will be consulted as necessary to ensure compliance with the PEAPR, ARARs/TBC table and Environmental ALARA. Procedure and Document Distribution Services will assign document numbers, maintain the project file and distribute controlled documents. They will also be used when procedural matters need attention. Information Management will provide the project with computer hardware and software needs. Waste Acceptance Organization will provide design reviews and assist in any waste disposition issues. Industrial Relations will participate in the Labor Standards Review of the scope of work. Personnel from these organizations will use their functional area charge numbers.

*Projectized Personnel*

Project staff from the management, engineering, surveying, and administrative disciplines will provide oversight and support services and prepare most of the Title II design package based on the Title I design including the technical specifications (civil), Implementation Plan (IP), Storm Water Management Plan, and Erosion and Sediment Control. These personnel will charge their labor hours to PBS-06 control account GPM1. The project engineer will prepare most of the IP and ensure compliance with the engineering functional area procedures including coordinating the performance grades for systems, structures, and components. Surveying support includes additional collecting and verification of site existing conditions that was unable to be retrieved during Title I design due to other project interferences. It also includes collecting of data after Title I review and conditions have been finalized. The area project manager will ensure overall integration and provide status to the SDFP project manager.

Table 18 summarizes the projectized personnel managing and the projectized, matrixed, and some centralized personnel performing the scope of work:

TABLE 18  
 Manpower Requirements for Task 3 - Title II Design

Activities:

MPM Code	Personnel P,C,M,S	A-E	F	G-H	I	J-L	M	N	O	P	Q	R
ENGMGR	P	X	X	X	X	X	X	X	X	X	X	X
ENGCVL	P	X	X	X	X	X	X	X	X	X	X	X
ENGCVL	M,S	X	X	X	X	X	X			X		X
ENGINR	M	X				X	X			X		X
ENGELE	M	X				X	X			X		X
DRFCAD	M,S	X		X	X	X						
PRJMGR	P	X	X						X			
CNSMRG	P	X	X			X			X			
CNSENG	P	X		X	X	X			X			
WSTENG	C	X		X	X	X						
QACENG	P	X		X	X	X						
INDHYG	P	X		X	X	X						
RADENG	P	X		X	X	X						
TPSREP	P	X		X	X	X						
DRFCAD	P	X		X	X	X						
ENPREP	C	X		X	X	X		X			X	
TPSREP	C	X			X			X				
ENSREP	P	X			X			X		X		
CLERKS	P,C	X	X	X	X	X	X	X	X	X	X	X

Note: P denotes projectized, C denotes centralized, M denotes matrixed, S denotes subcontracted.

3.2) Quantification

Table 19 summarizes the quantities and/or deliverables anticipated for this subtask. The basis for the estimated number of documents and drawings is the site engineering procedures and previous design work experienced in Area 1, Area 2, and Area 3A/4A IRDPs. Efforts were made to consider and to utilize established documents, plans, and technical specifications.

TABLE 19  
 Quantities for Task 3 – Title II Design

Item	Quantity
SSC List with Performance Grading	1 each
Presentation to the Technical Review Board	1 each
Labor Standard Review request	1 each
90% Construction Drawings	34 each
90% Technical Specifications	16 each
90% Implementation Plan	1 each
90% Engineering Design and Analysis Pkg.	1 each
90% Quantity Takeoffs	1 each
90% Cost Estimate	1 each
90% Storm Water Management Plan (SWMP)	1 each
90% Erosion and Sediment Control Plan (ESCP)	1 each
90% Systems/Control Mgmt Plan (S/CMP)	1 each
90% Internal and DOE Response to Comments	1 each
OEPA/USEPA 90% Construction Drawings	34 each
OEPA/USEPA 90% Technical Specifications	16 each
OEPA/USEPA 90% Implementation Plan	1 each
OEPA/USEPA 90% SWMP, ESCP, S/CMP	1 each
OEPA/USEPA 90% Response to Comments	1 each
100% Construction Drawings	34 each
100% Technical Specifications	16 each
100% Implementation Plan	1 each
100% Engineering Design and Analysis Pkg.	1 each
100% Quantity Takeoffs	1 each
100% Cost Estimate	1 each
100% Storm Water Management Plan (SWMP)	1 each
100% Erosion and Sediment Control Plan (ESCP)	1 each
100% Systems/Control Mgmt Plan (S/CMP)	1 each
100% Internal and DOE Response to Comments	1 each
CFC Construction Drawings	34 each
CFC Technical Specifications	16 each
Final Implementation Plan	1 each
Final Cost Estimate	1 each
Final Storm Water Management Plan	1 each
Final Erosion and Sediment Control Plan	1 each
Final Systems/Control Mgmt Plan	1 each

Historically, project planning is crucial to the safety and success of projects at the FEMP taking from 3 to 5 months utilizing 2 to 5 FTEs of projectized and matrixed labor.

The following details the quantities for each construction drawing listed above. Construction drawings will contain detailed information, coordinates, grading contours, general and keyed notes and include the following:

(1 Total) Title Sheet, Drawing Index, Legend and General Notes.

(1 Total) Master Plan 1" = 200'

Description: Shows Construction Limits, Dust Control Limits, Lists Exist. Foundations, Pads, Stockpiles, etc., by Number and Description.

(3 Total) Existing Conditions 1" = 60'

Description: Shows existing radiological boundaries, monitoring wells, roads.

(3 Total) Site Preparation 1" = 60'

Description: Shows Construction/Radiological boundary fencing locations; radiological and excavation loadout buffer areas, monitoring wells to be protected, limits of clearing and grubbing activities, special material transfer areas, radiological trailer and construction trailer locations (already established as part of the Area 6 design), air monitoring locations, utility construction (telephone, electric, fire system, computer) for trailers, construction laydown areas, sea-land storage areas, additional material storage areas, worker and visitor parking areas, yard lighting (if necessary), pole and transformer locations, equipment refueling areas, interim stockpile locations,.

(3 Total) Traffic Plan 1" = 100'

Description: Shows traffic routes from areas of excavations to and from the OSDF, equipment refueling areas, construction staging areas.

(4 Total) Surface Water Management and Erosion Control Plan 1" = 30'

Description: Shows additional drainage features, culverts, silt fence, sediment traps or basins or other stormwater structures that are needed for surface water mgmt and erosion and sediment control to be installed after site preparation, but prior to excavation, including AWAC, RCRA, special excavations and Below-WAC excavations. Delineates extent of excavation for priority excavations (AWAC, RCRA, special excavations).

(4 Total) Grading and Foundational Removal Plan 1" = 30'

Description: Shows design excavation elevations for Below-WAC excavations.

(6 Total) Cross Sections 1" = 30' Horizontal, 1" = 5' Vertical

Description: Shows cross sections delineated in Grading Plans for final design excavation. Cross sections show pre-excavation topography, excavation design elevation, GMA surface, underground utilities, foundations, locations for GMA protection, sand lenses, perched water, coarse-grain unit, and soil stratigraphy.

(1 Total) Civil Details Sheet 1 of 3

Reserved for details as in:

Typical Construction Entrance Detail

Special Materials Transfer Area (SMTA) Detail

Silt Fence Detail

Temporary Diversion Detail

Erosion Blanket Lined Ditch Detail

Dumped Rock Fill Lined Ditch Detail  
Typical Haul Road Detail  
General and Keyed Notes

(1 Total) Civil Details Sheet 2 of 3  
Reserved for details as in:

Traffic Control Gate Detail  
GMA Protection Bench Detail  
Construction/Radiological Control Fence Detail  
General and Keyed Notes

(1 Total) Miscellaneous Details  
Reserved for and electrical or mechanical details, such as typical pole detail, typical transformer detail, wiring diagrams, pump and control panel locations, etc. Electrical and Mechanical Plan will be combined with the above plan sheets

(1 Total) Material Tracking Plan 1" = 100'  
Description: Illustrates the Material Tracking Locations (MTL) for WAO and tabulates the MTL, Waste Type, Disposition, and comments each MTL

(1 Total) Sequencing Plan (For Information Only)  
Description: Assists in planning the work that sequences site preparation, location-specific excavations, underground utility removals, certification and interim restoration activities. It considers soil to debris ratios within the Remediation Area itself and from other active Remediation Areas. It also considers the criteria to excavate from upgradient areas to downgradient areas with respect to surface water flow and perched groundwater, controlling haul routes through contaminated areas to minimize cross-contamination of areas ready for certification, and certification sequencing.

(3 Total) Precertification Configuration 1" = 60'  
Description: Delineates the certification boundary within the excavation grading plan. Shows surface water management structure locations to prevent stormwater runoff from uncertified areas and utilities from entering the certification boundary. Shows any interim restoration grading necessary.

Drawing Boundaries are same as Existing Conditions Drawings.

(1 Total) Utility Removal Methods  
Description: Shows methods of excavation, real time scanning, physical sampling, and backfilling of Below-WAC excavations during underground utility removals below the design excavation surface. Methods may include removals of both process piping and non-process piping. Detail may be greater should utilities also be located in AWAC, RCRA, or other special excavation areas.

The following details the quantities for each technical specification listed above. Technical Specifications describes the scope, submittals, products, and execution of the following:

Review of the existing OSDF specifications for applicability including:

**Surveying (Section 02050)**

Specification establishes survey benchmarks; set limits of construction activities; verifies existing conditions; establishes notekeeping and redlines/as-builts.

**Site Preparation (Section 02100)**

Specification describes installation/relocation of construction and radiological fencing; protection of existing monitoring wells and survey benchmarks; clearing, grubbing, woodchipping, and stockpiling.

**Earthwork (Section 02206)**

Specification applies to non-remediation excavation for topsoil excavation and stockpiling, general excavation and stockpiling; trenching, backfilling, compacting for support utilities.

**Dust Control (Section 02210, 02205, 02206)**

Description of the requirements for dust control to meet site requirements.

**Aggregate Surface (Section 02506)**

Specification describes the requirements for aggregate or reuse of existing site materials for roads.

**Storm Drain Piping/Utility (Section 02668)**

Specification describes the requirements for installation of culverts, telephone, electric, water, sewer, fire system, computer to support areas etc.

**Seeding (Section 02900)**

Specification describes the Natural Resource requirements for seed mix, seed be preparation, and application rates over disturbed areas.

Review of the existing or development of Excavation specifications including:

**Traffic Control (Section 02150)**

Specification describes hauling of material from source excavation areas to destination areas, i.e. OSDF, SP7, special material transfer area, stockpiles or other location.

**Impacted Material Excavation (Section 02205)**

Specification describes excavating; size reduction of structures, utilities, pads, foundations; segregation of debris, development and maintenance of stockpiles; loading, hauling, and unloading impacted material. Also includes supplemental excavations beyond the design surface; tracking of known and unknown utility removals; maintenance and fueling of equipment, dewatering excavations; protection of the Great Miami Aquifer during impacted material removal.

**Presumed Asbestos Containing Materials (Section 02210)**

Specification describes the handling, packaging, loading, hauling, and unloading of friable and non-friable asbestos containing material. Also includes the handling, packaging, loading, hauling, and unloading of specific asbestos containing materials such as:

- Pipes coated with thermal system insulation
- Electrical Cable insulated with ACM
- Fireproofing Tape in Electric Manholes
- Piping containing gasket material
- Pipe coated with mastic
- ACM embedded in concrete
- Buried ACM not associated with underground utilities

**Erosion and Sediment Control (Section 02770)**

Specification describes the installation, maintenance, and removal of temporary erosion controls; placement of dumped rock fill, erosion control blankets, geotextiles, for ditches and erosion control areas; management of erosion and sediment control measures; control of surface water and mgmt of ponded water.

**Mechanical and Electrical Division**

Specifications for mechanical and electrical details, such as utility pole plan and installation, transformers, wiring diagrams, pump and control panel locations, etc., three specifications per division.

Preparation and completion of the Engineering Design and Analysis Package including the following:

- Excavation Design
- Slope Stability Analysis
- Subsurface Water evaluation
- Storm water management/hydrologic evaluation including potential impacts to Paddys Run
- Support Facility Design

**1.5.3 G7113 - Area 7 Title III Design**

Title III Design includes activities to monitor the quality of the technical baseline and design criteria as established in the IRDP. This monitoring is accomplished by the review and approval of construction plans and submittals prior to field activities. Additionally, the development and/or response to Requests for Clarification of Information (RCI) and Design Change Notices (DCNs) as field activities commence also ensures the technical baseline and design criteria are maintained or when necessary revised.

Area 7 Title III Design includes two fundamental tasks:

- Task 1: Excavation Support
- Task 2: As-builts/Closure

Title III Design activities area guided by the use of the Engineering Functional Area procedures, Integrated Remedial Design Package, Project Execution Plan, along with any requirement outlined in the Sitewide Excavation Plan and established design criteria.

Major technical risks identified for this scope of work include extended review length and approval for DCNs or excessive number of review comments by DOE or OEPA/USEPA and extension of excavation schedule carries the extension of Title III Design FTEs.

Contingencies for the above technical risks, in order of appearance include a reduction in the number of DCNs by better Title I Designs and a shorter review and approval cycle for DCNs and also excavation schedules are to be maintained.

The Task activities and deliverables will be completed primarily by project staff from the management, engineering, surveying, construction and administrative disciplines, and these personnel will charge their labor hours to PBS-06 control account GPM1. Only matrixed and subcontracted labor, as identified in below, will use the charge account G7113. Detail on manpower loading needed to execute this scope of work is provided in Section 3.0. The charge account for G7113 will be closed out when the interim restoration of Area 7 is completed.

Major charge number assumptions are listed in Title I/II Design.

1) Task #1 – Excavation Support

1.1) Plan/Scope

Excavation support is necessary to monitor the technical baseline established during Title I/II Design during field execution (i.e. Site Preparation, Excavation, Control and Management, Interim Restoration). Field and design changes that develop during field execution must be documented and approved to maintain or change the technical baseline. They also ensure continued approval by DOE, the customer, and the OEPA/USEPA, the originating approval agencies.

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Specific activities for this scope of work includes (capital letters are tied to Table 20):

- A. Prepare, respond, and approve RCIs and DCNs.
- B. Facilitate RCI/DCN review and approval through the project and DOE and OEPA/DOE.
- C. Prepare Safety Basis Document Reviews (SBDRs) based on DCNs.
- D. Assist Construction in plan preparation.
- E. Review and approve material submittals and plans.
- F. Perform and document monthly progress surveys.

G. Generate monthly excavation cross-sections and quantities.

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H. Respond to and close out non-conformance reports (NCRs) or Event Discovery and Final Event Reports.

I. Attend Construction progress meetings.

J. Develop draft Excavation Summary Report.

K. Engineering Administration including self-assessments; responding to surveillances; meetings with project staff, DOE, regulatory agencies; tracking of budget vs actual costs; tracking of schedule; safety workgroup and walkdowns; submission of records to Procedure and Document Distribution Service.

This scope of work will be self-performed by Fluor Fernald, Inc. It will be managed and performed mainly by projectized staff covered in Control Account GPM1. Matrixed and centralized personnel will also be utilized.

#### *Matrixed Personnel*

The mechanical and electrical engineering disciplines from Engineering Services will be used to respond to or develop any RCI/DCN affecting their area of expertise. The lead civil will be used likewise in the event that civil issues cannot be answered by projectized staff and for changes that impact the design. Environmental, Safety, Health, and Quality Integration, Radiological Protection Operations, and Quality Control Operations will perform plan and DCN reviews as needed. Project Controls will provide cost and schedule support. Personnel from these organizations will use charge number G7113 with the exception of the SDFP matrix support (ESH&Q rep., QC rep., Rad rep.) which are budgeted under PBS-06 control account GPM1.

#### *Centralized Personnel*

Environmental Compliance and Waste Acceptance Organization will be consulted as necessary to ensure compliance with the PEAPR, ARARs/TBC table and Environmental ALARA should a plan or RCI/DCN warrant such consultation. Procedure and Document Distribution Services will assign document numbers, RCI/DCN numbers, maintain the project file and distribute controlled documents. They will also be used when procedural matters need attention. Information Management will provide the project with computer hardware and software needs. Personnel from these organizations will use their functional area charge numbers.

#### *Projectized Personnel*

Project staff from management, engineering, surveying, and administrative disciplines will provide oversight and support services for the Title III design. Project staff from construction will provide oversight and management for all field activities and execution. These personnel will charge their labor hours to PBS-06 control account GPM1. Management will ensure that engineering, characterization, and construction, along with support services are working together and to provide any enhancements in the work process. The project engineer will ensure timely review and approval of plans and

RCIs/DCNs by all support organizations. The project engineer will also develop the draft Excavation Summary Report.

Table 20 summarizes the projectized personnel managing and the projectized, matrixed, and some centralized personnel performing the scope of work:

TABLE 20  
 Manpower Requirements for Task 1 - Excavation Support

Activities:

MPM Code	Personnel P,C,M,S	A	B	C	D,E	F,G	H	I	J	K
ENGMGR	P		X		X		X	X	X	X
ENGCVL	P	X	X	X	X	X	X	X	X	X
ENGCVL	M		X		X	X	X		X	X
ENGINR	M		X		X		X			
ENGELE	M		X		X		X			
DRFCAD	M		X		X	X				
PRJMGR	P		X							
CNSMRG	P		X						X	
CNSENG	P		X			X			X	
WSTENG	C		X						X	
QACENG	P		X				X		X	
INDHYG	P		X						X	
RADENG	P		X						X	
TPSREP	P		X							
DRFCAD	P		X						X	
ENPREP	C		X						X	
TPSREP	C		X						X	
ENSREP	P		X	X		X			X	
CLERKS	P,C		X	X			X		X	X

Note: P denotes projectized, C denotes centralized, M denotes matrixed, S denotes subcontracted.

### 1.2) Quantification

Table 21 summarizes the quantities and/or deliverables anticipated for this subtask. Per the direction of senior management, 3 safety walkthroughs will be performed each month. The number of DCNs, RCIs, NCRs, and EDR/FERs are based on previous Title III Design in Area 1 and Area 2. Further, based on their complexity of scope, RCIs have been subdivided as simple and average, and DCNs have been subdivided as simple, average, and complex.

TABLE 21  
 Quantities for Task 1 – Excavation Support

Item	Quantity
Safety Walkthroughs	9 each
Simple Request for Clarification of Information (RCI)	4 each
Average Request for Clarification of Information (RCI)	2 each
Simple Design Change Notice (DCN)	15 each
Average Design Change Notice (DCN)	7 each
Complex Design Change Notice (DCN)	0 each
Non-Conformance Report (NCR)	2 each
Event Discovery Report/Final Event Report (EDR/FER)	1 each
Review of Safe Work Plan	1 each
Review and approval of Storm Water Mgmt Plan	1 each
Review and approval of Erosion and Sed. Control Plan	1 each
Review and approval of Dust Control Plan	1 each
Review and approval of Management and Operation Plan	1 each
Review and approval of material submittals	25 each
Monthly excavation progress survey and cross-sections	2 each
Draft Excavation Summary Report	1 each

The number of FTEs of projectized and matrixed labor are based upon Area 1 and Area 2 Title III Designs and substituting Fluor Fernald, Inc FTEs, formally implemented by the A/E subcontract.

Typically, safety walkthroughs may take up to 3 hours to conduct and write-up, a simple RCI up to 4 hours to process, an average RCI up to 7 hours to process, a simple DCN up to 14 hours to process, an average DCN up to 36 hours to process, and a complex DCN involving many disciplines up to 114 hours to process. NCRs, EDRs/FERs can take up to 40 hours of project time from on-set through corrective action planning. Material submittal review and approval can range from 0.5 to 2 hours to review. Plan review can range from 2 to 8 hours to review per reviewer. Monthly excavation progress survey and cross-sections can take up to 20 hours to survey in the field, 4 hours to reduce the data and transfer to CADD, and up to 12 hours for CADD to produce, review, and revise. The draft Excavation Summary Report can take up to 100 hours to develop including supporting information from all the supporting functional areas.

2) Task #2 – As-Builts/Closure

2.1) Plan/Scope

After the completion of excavation activities, as-built drawings will be prepared based on redline information and surveys and a final excavation summary developed which will include project closeout information. Oversight and monitoring will continue for dust control, surface water management, sediment and erosion controls, and interim restoration as a Title III activity should RCIs/DCNs be necessary while Area 7 awaits certification.

The actual implementation and maintenance for these items is budgeted in Charge No. G7114.

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Specific activities for this scope of work include (capital letters are tied to Table 22):

- A. Complete the As-Built Drawings and Specifications
- B. Prepare the final Excavation Summary Report
- C. Control and Management of dust, surface water management, sediment and erosion controls
- D. Interim Restoration
- E. Engineering Administration including self-assessments; responding to surveillances; meetings with project staff, DOE, regulatory agencies; tracking of budget vs actual costs; tracking of schedule; safety workgroup and walkdowns; submission of records to Procedure and Document Distribution Service.

This scope of work will be self-performed by Fluor Fernald, Inc. It will be managed and performed mainly by projectized staff covered in Control Account GPM1. Matrixed and centralized personnel will also be utilized.

#### *Matrixed Personnel*

The mechanical and electrical engineering disciplines from Engineering Services will as-built drawings and specifications in their area of expertise. The lead civil will be used likewise to do the same. Environmental, Safety, Health, and Quality Integration, Radiological Protection Operations, and Quality Control Operations will assist in collecting data for the Excavation Summary Report and perform reviews as needed. Project Controls will provide cost and schedule support. Personnel from these organizations will use charge number G7113 with the exception of the SDFP matrix support (ESH&Q rep., QC rep., Rad rep.) which are budgeted under PBS-06 control account GPM1.

#### *Centralized Personnel*

Environmental Compliance and Waste Acceptance Organization will assist in compiling the data for the Excavation Summary Report and perform reviews as needed. Procedure and Document Distribution Services will assign document numbers, maintain the project file and distribute controlled documents. They will also be used when procedural matters need attention. Information Management will provide the project with computer hardware and software needs. Personnel from these organizations will use their functional area charge numbers.

#### *Projectized Personnel*

Project staff from management, engineering, surveying, and administrative disciplines will provide oversight and support services for the Title III design. These personnel will charge their labor hours to PBS-06 control account GPM1. The project engineer will ensure timely

review and approval of the as-builts and the Excavation Summary Report by all support organizations.

Table 22 summarizes the projectized personnel managing and the projectized, matrixed, and some centralized personnel performing the scope of work:

TABLE 22  
 Manpower Requirements for Task 2 - As-builts/Closure

Activities:

MPM Code	Personnel P,C,M,S	A	B	C	D	E
ENGMGR	P	X	X	X	X	X
ENGCVL	P	X	X	X	X	X
ENGCVL	M	X	X			
ENGINR	M	X				
ENGELE	M	X				
DRFCAD	M	X				
PRJMGR	P					
CNSMRG	P		X			
CNSENG	P	X	X			
WSTENG	C	X	X			
QACENG	P	X	X			
INDHYG	P		X			
RADENG	P		X			
TPSREP	P	X				
DRFCAD	P		X			X
ENPREP	C		X			
TPSREP	C		X			
ENSREP	P		X			X
CLERKS	P,C	X	X			X

Note: P denotes projectized, C denotes centralized, M denotes matrixed, S denotes subcontracted.

2.2) Quantification

Table 23 summarizes the quantities and/or deliverables anticipated for this subtask:

TABLE 23  
 Quantities for Task 2 – As-Builts/Closure

Item	Quantity
As-Built Construction Drawings	34 each
As-Built Technical Specifications	16 each
Excavation Summary Report	1 each

The number of as-built drawings and technical specifications were based on the number presented in the Title I/II Design task. Historically, as-builts and the Excavation Summary Report can take 2 to 3 months to develop and is usually dependent on the turnaround in receiving information from other project functional areas. During this timeframe, as-builts can take up to 1 to 2 FTEs while the Excavation Summary Report can take up to 0.5 FTEs.

#### 1.5.4 G7114 - Site Preparation/Excavation/Interim Restoration

The scope of work will be described as one (1) option in a Remediation Area/OSDF contract. This option is based on the sequence of excavation defined by Scenario 6 and activities are grouped into the following tasks:

- Task 1: Site Preparation
- Task 2: Excavation
- Task 3: Control and Management
- Task 4: Interim Restoration.

Site preparation includes with the evaluation of the subcontractor's proposal for each task and award of the work. Subsequently, the subcontractor must prepare work plans or revised existing work plans for Fluor Fernald, Inc.'s approval prior to starting field activities. Field activities include the work necessary to prepare an area for the excavation of any identified above-WAC or RCRA-hazardous soils and at-and below-grade debris. This work includes establishing work and excavation limits, establishing storm water control measures, establishing radiological boundaries, and construction support areas.

Excavation includes the excavation, loading, and hauling of any above-WAC, RCRA-hazardous, and above-FRL to the appropriate destination for dispositioning and the support necessary to execute the excavation scope.

After site preparation and excavation activities have concluded but as precertification and certification activities commence or continue, control and management of the excavated area must continue through completion of interim restoration. Control and management of excavated locations may include dewatering and excavated slope maintenance, dust control, surface water management, certification rope fence maintenance, and erosion and sediment control.

Interim restoration of the excavated areas can commence after the OEPA and USEPA have approved the Certification Report. Interim restoration consists primarily of the removal of storm water pumping systems that were installed during site preparation and excavation, regrading of excavations to provide for long-term slope stability, regrading to permit storm water runoff, and seeding.

The site preparation/excavation/interim restoration activities are guided by the Construction Functional Area procedures along with the Certified for Construction Drawings and Technical Specifications and approved subcontractor work plan submittals.

Major technical risks include the discovery of large volumes of perched water during the excavation where a well-point dewatering system is necessary. Contingencies include directed excavations earlier into potential perch water areas to determine yields.

The activities and deliverables discussed below will be completed primarily by project staff from the management, construction, surveying, engineering, waste disposition and administrative disciplines, and these personnel will charge their labor hours to PBS-06 control account GPM1. Only matrixed and subcontracted labor, as identified below, will use the charge account G7114. Details on manpower loading needed to execute this scope of work is provided in Section 3.0. The charge account for G7114 will be closed out with the completion of interim restoration.

Specific charge number assumptions include:

- For general assumptions and exclusions, see Section 1.2.
- Earned Value method for this charge number will be based on the quantities developed within the Quantification Sections.
- All site preparation, excavation, control and management, and interim restoration work will be subcontracted. For this Remediation Area, site preparation, excavation, control and management, and interim restoration work will be presented as an Option in the contract that includes the soil and debris placement in the OSDF and the OSDF construction presented in PBS-03.
- Two shifts work daily (5 days/week, 10 hours/day) beginning in May and ending in September between 3<sup>rd</sup> Quarter of FY2006 and 1<sup>st</sup> Quarter of FY2008 including October in FY2008 to correspond to OSDF (PBS-03) placement schedule.
- No excavation work is scheduled during OSDF winter shutdown, i.e. the months of January, February, and March.
- Isolation trenching for underground utilities around the Remediation Area Perimeter is not warranted.
- Blasting or explosives is not permitted.
- Excavations shall generally progress upgradient to downgradient, remove above-WAC and RCRA-hazardous areas prior to Below-WAC excavations, prevent surface water drainage into areas excavated to design grade or supplement excavations from Below-WAC excavations.
- Prior to loading any soil, material must not contain free liquid per EPA SW 846 Method 9095.
- Slope Stability requirements shall be performed per OSHA 29 CFR 1926.650 Subpart P.

- Water hazard requirements shall be performed per OSHA 29 CFR 1926.106.
- Temporary Excavation slopes with depths greater than 20' shall be no steeper than 1.5H:1V certified by a Registered Professional Engineer per OSHA 29 CFR 1926.650 Subpart P.
- Design slopes and slopes created by supplemental excavations shall be no steeper than 2H:1V. Design slopes will be finalized during Title I/II design.
- The following pipelines will be considered as AWAC: SN - Sanitary Sewers, CE - Contaminated Effluent, FT - Filtrate or Effluent, SL - Sump Liquor.
- Vitrified Clay Pipe (VCP), PVC, and CPVC pipe can be crushed after visually inspection by WAO for determination of any residues and removed with excavated material. Pipe that is visually inspected by WAO is cut so as to not crimped as with a shear attachment.
- Pipe that is 12" or greater in diameter must be split for OSDF disposition.
- All pipe must 10' or less in length for OSDF disposition.
- AWAC pipe that is 10" or greater in diameter must be split for off-site disposition.
- All AWAC pipe must be 8' or less in length for off-site disposition.
- Bulking factor for pipe is 4 and for concrete is 1.5 per 2001 guidance by WAO.
- Stockpiles shall be constructed with maximum slopes of 3H:1V and a maximum height to base ratio of 0.2.
- Equipment required to excavate, load, haul, and place above-WAC or RCRA-hazardous soil and debris are to be dedicated for that purpose until washed with pressure washers or equal to remove all visible impacted soil or debris from the exterior equipment surfaces. For haul trucks, hauling above-WAC or RCRA-hazardous soil and debris and not entering these designated areas, only the haul truck beds need to be addressed.
- Equipment involved with the excavation is to be maintained within excavation area during periods of non-work unless decontaminated and released.
- Equipment involved with the excavation is to be kept in below-WAC areas to prevent compromising areas excavated to design grade. Excavations reaching the design grade are assumed to be ready for precertification.
- Placement of clay plug material over unsaturated sands and gravels of the Great Miami Aquifer is excluded from this scope.

- Haul trucks are to use automatic covers whether haul bed is empty or full or employ other Best Available Technologies for dust control.
- Dust Control provided by existing above-ground 3" and 4" HDPE dust control water line (or necessary extensions), water trucks, water wagons, hydroseeders, portable tanks, sprinklers.
- Pressure Washers or comparable will be utilized to wash process residue or suspect process residue and soil from piping and debris to allow for placement in OSDF. Wash water is to be collected and transferred for treatment at the AWWT.
- Portable Wash Equipment will be utilized to wash vehicle tires and vehicle exteriors as necessary. Wash water is to be collected and transferred for treatment at the AWWT.
- Equipment used to excavate, load, haul, and unload impacted material shall have enclosed cabs (barrier from outside air intrusion). Heating, air conditioning, ventilating of cab from the outside air must first pass through a HEPA.
- Existing contamination area postings are posted as uranium contamination areas with uranium release limits.
- Soil volumes listed are banked cubic yards.
- Debris volumes listed are in-place cubic yards.
- No unexpected cultural resource discoveries are encountered during site preparation, excavation, control and management or interim restoration activities.

1) Task #1 – Site Preparation

1.1) Plan/Scope

The scope of work will be described as an option to the existing Remediation Area/OSDF contract. After evaluation of the subcontractor's proposal and award of the work, the subcontractor must prepare and submit work plans or revised existing work plans for Fluor Fernald, Inc.'s approval. These plans detail and demonstrate the subcontractor's understanding of the technical requirements prior to initiating site preparation activities by documenting the means, methods, techniques, safety, and sequencing planned for the execution of the scope. These details are beyond the scope typically addressed in the construction drawings and technical specifications and may have not been detailed in the Implementation Plan of the IRDP.

An extension from the existing dust control water distribution system located along the Impacted Material Haul Road will supply water for dust control. The extension will be placed above-grade and contain y's, valves, sprinkler heads, and nozzles to deliver dust control water for the excavation and for haul routes.

No sump pump with automatic controls and discharge piping will be installed. Excavations that encounter perched water or storm water will pump using a construction pump and discharge into the Bio-Surge Lagoon, or the Waste Pit Area Runoff Control Basin (18N) prior to its removal, for subsequent treatment at the AWWT.

The relocated Southern Waste Units (SWU) construction support trailers including the double-wide radiological control trailer (T-139), support trailer (T-132), and double-wide construction management trailer (T-138), will continue to be used.

Specific activities for this scope of work include:

- Technical and cost evaluation of the proposal with cost estimate.
- Award of the scope.
- Submittal, review, and approval of revisions to existing subcontractor plans including Impacted Material Excavation Plan, Safe Work Plan, Stormwater/Erosion Control Plan, Dust Control Plan, Traffic Control Plan, Management and Operation Plan (for dust control, slope stability, pump maintenance after excavation until certification).
- Submittal, review, and approval of resource loaded construction schedule, submittal logs, material submittals, and detailed construction activity schedule.
- Preparation of work permits, radiation work permits, and penetration permits.
- Subcontractor procurement and mobilization of equipment and material.
- Survey and establish site layout, work limits, excavation limits, verify existing conditions.
- Establish access controls with radiological and construction fence and signage.
- Maintain former SWU support trailers for Area 7 located Area 6.
- Establish the construction support areas: worker and visitor parking, laydown area for materials and equipment, refueling area, sealands for storage, portolets, and water coolers. Drinking water and showers will not be provided.
- Establish the work area: install the break/cool-down trailers, portolets, special materials transfer area, haul routes and air monitors.
- Install dust control piping.
- Maintain electric, telephone, and communication utilities into construction support area.

- Establish surface-water management controls consisting of silt fence.
- Construction management activities including submitting project records and maintain copies in project file and project control activities.

The scope of work identified above will be executed using subcontracted, matrixed, centralized and projectized personnel. Distribution of the work, and the plan for executing the scope, is described for each division of personnel.

#### *Subcontracted Personnel*

The subcontractor construction management will prepare the proposal, prepare the submittals, procure the material and equipment, and establish the labor required to execute the scope of work. Fencing, access controls, laydown areas, and surface-water management structures, dust control piping, will be installed and the special material transfer area will be prepared after all work plans have been approved. Subcontract costs will be charged to G7114.

#### *Matrixed Personnel*

Acquisitions/Prime Contract Administration will be used to develop RFPs and procure subcontractor services. Environmental, Safety, Health and Quality Integration, Quality Control Operations, and Radiological Protection Operations will review and the procurement requisitions. Engineering Services will support the installation of utilities in support trailers. Personnel from these organizations will use charge number G7114.

#### *Centralized Personnel*

Document Control/Procedure Management will assign document numbers, maintain the project file and distribute controlled documents. Infrastructure Services will maintain the trailers, provide porter services, and bottled water. Security/EM Services will provide access control and emergency response. Training will perform needed training for subcontractor personnel. Personnel from these organizations will use their functional area charge numbers.

#### *Projectized Personnel*

Project staff from the management, engineering, construction, survey and administrative disciplines will charge their labor hours to PBS-06 control account GPM1. Management and construction will work closely with the subcontracted labor force and FEMP labor force to ensure all activities are performed in a safe and timely manner. Project Controls will provide cost and schedule support.

### 1.2) Quantification

Table 24 summarizes the quantities and/or deliverables anticipated for this subtask. The workplans, permits, and submittals are based on previous submittals by construction contractors. The quantities for fencing, signage, trailers, containers, and portolets are based on previous construction work carried out at the site.

TABLE 24  
 Quantities for Task 1: Site Preparation

ITEM	QUANTITY
Proposal	1
Impacted Material Excavation Plan	1
Safe Work Plan	1
Stormwater/Erosion Control Plan	1
Dust Control Plan	1
Traffic Control Plan	1
Management and Operation Plan	1
Rad Work Permit, Work Permit, Penetration Permit	1
Submittal Log	1
Silt Fence, linear feet	1000
Replace/Establish Plastic Construction Fence and Signs, linear feet	6300
Dust control	
4" Dia, HDPE, SDR 11 Pipe w/ball valves, LF	1100
Sprinklers w/ 4" Dia. Isolation valves every 100'	11
4" Y's w/ 4" Dia. ball valve	4
Maintain Radiological Control Point (T-139)/Construction Management Trailer (T-138)/Support Trailer (T-132)	1
Sealand Storage Containers	1
Portolets	2

2) Task #2 - Excavation

2.1) Plan/Scope

Excavation activities will result in the removal of all above-FRL soil and at- and below-grade concrete and utilities. Per the guidance developed in the SEP, the above-WAC and RCRA-hazardous areas will be removed first to minimize cross-contamination. Concrete pads and foundations will be broken, size-reduced, and removed using industry-standard cutting, crushing and loading equipment. Bulldozers and excavators will be used to remove the soil.

For the excavation at Silo 1 and Silo 2, the concrete perimeter trench drain will remain as long as possible until the topography contained within is below the surface elevation of the drain. It will be maintained as long as possible to facilitate construction pump discharge of perched water or stormwater from the Silo 1 and Silo 2 excavation. Discharged water into this trench drain flows through a conveyance system to the concrete basin (18N) and enters the AWWT headworks for treatment. At some point during the excavation, the trench drain, its conveyance system, and the concrete basin will be removed. Perched water and stormwater will then be pumped using construction pumps and hoses for discharge into the Bio-Surge Lagoon (18A), which is also the headworks to the AWWT.

The K-65 trench will be removed and subsequently result in a drainage swale to the Silo 1 and Silo 2 perimeter trench drain and excavation. Stormwater that enters this excavation will be pumped into either the perimeter trench drain while it is intact, or to the Bio-Surge Lagoon (18A).

Other excavations to remove foundations, concrete slabs, roads, or above-FRL soil will utilize construction pumps for discharge to the concrete perimeter trench drain, its conveyance system to the concrete basin (18N), the concrete basin (18N), the Bio-Surge Lagoon (18A), or other allowable entry point to the AWWT system.

Riprap located on the east streambank of Paddys Run will be removed as the excavation progresses in the Silo 1 and Silo 2 area to eliminate its potential from falling into the excavation. It is anticipated that the radium FRL will drive the excavation within the Silo 1 and Silo 2 area both vertically and laterally. Data suggests that the excavation may be as deep as the stream bottom of Paddys Run and extended to the west into Paddys Run. The riprap will be staged directly to the west in the existing lower pasture or at the former construction staging area located south of Silo 1 and placed back against the east streambank after excavation. The balance of the riprap will remain at its staging area for use on-site activities including restoration activities.

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Finally, the bulk staging area at Bldg. 91C will be removed and dispositioned to the OSDF except for the rail track. Remaining railroad track will be removed and sold by PBS02. Ballast and ties will be ~~considered clean and relocated to the area where ballast and ties were staged during Area 6, and reused or dispositioned to the OSDF.~~ The construction support area in Area 6 will be dismantled and dispositioned into the OSDF.

Seasonal shutdown and post-excavation actions will also be performed under this task. Specific activities include:

- Size-reduce, excavate, load and haul at- and below-grade concrete, utilities, and debris to OSDF as Category 2.
- Size-reduce, excavate, load and haul at- and below-grade concrete, utilities, and debris that are above-WAC to the bulk staging area at Bldg. 91C.
- Size-reduce, excavate, and load in containers at- and below-grade concrete, utilities, and debris that are prohibited in containers (2.5 cy volume).
- Excavate, load and haul impacted soil to the OSDF as Category 1.
- Excavate, load and haul impacted soil that is above-WAC to the bulk staging area at Bldg 91C.
- Excavate, load and stockpile Paddys Run riprap from the east streambank.
- Excavate, load, and place former Paddys Run riprap regraded to regraded east streambank.

- Remove bulk staging area at Building 91C and haul to OSDF.
- Remove construction support area and disposition trailers into the OSDF.
- Excavate, load, haul and stockpile railroad ballast and railroad ties for reuse. Work will be performed as clean.
- Perform construction management services: survey and track materials removed, create redlines, complete daily construction activity logs, respond to NCRs, prepare event discovery reports/final event reports, conduct safety briefings and walkdowns, and perform Root Cause Analysis, if needed.
- Perform seasonal shutdown and winterization: maintain surface water/erosion controls, perform dust control, complete equipment decontamination, remove water from excavations and seed/stabilize excavations and stockpiles, as required.
- Perform post-excavation activities: remove temporary utility runs, remove all fencing and signage, perform equipment decontamination and establish the certification perimeter and access control points.
- Submit project records to ECDC and maintain copies in project file.
- Perform construction management and control activities.

Survey logs and material estimates, construction logs, NCR resolutions, safety briefings and walkdowns, and event reports will be delivered to the project manager. All project records will be delivered to ECDC.

The scope of work identified above will be executed using subcontracted, matrixed, centralized and projectized personnel. Distribution of the work, and the plan for executing the scope, is described for each division of personnel.

#### *Subcontracted Personnel*

Excavation subcontractor will be comprised of construction management and labor. Subcontract costs will be charged to G7114.

#### *Matrixed Personnel*

Acquisitions/Prime Contract Administration will be used monitor subcontractor services. Environmental, Safety, Health and Quality Integration, Quality Control Operations, and Radiological Protection Operations will review DCNs, if necessary. Radiological Protection Operations will also maintain radiation permits, perform RWP briefings, and conduct radiation surveys of contaminated materials and equipment. Personnel from these organizations will use charge number G7114.

#### *Centralized Personnel*

Document Control/Procedure Management will assign document numbers, maintain the project file and distribute controlled documents. Waste Acceptance Organization will review DCNs and perform waste manifestation activities. Waste Generator Services will prepare and move containers and package special materials for off-site transportation, if needed. Security/EM Services will provide access control and emergency response. Property Management will receive and log vendor materials, control government inventory and track government-owned property. Training will perform needed training for subcontractor personnel. Personnel from these organizations will use their functional area charge numbers.

*Projectized Personnel*

Project staff from the management, engineering, construction, survey, real time and administrative disciplines will charge their labor hours to PBS-06 control account GPM1. Management, engineering, and construction will work closely with the subcontracted labor force and FEMP labor force to ensure all activities are performed in a safe and timely manner. Real time scans will be conducted over the contamination areas after each lift. Engineering and construction will prepare DCNs and obtain approval from the applicable functional areas. Survey crews will verify material quantities. Project Controls will provide cost and schedule support to the project manager.

2.2) Quantification

Table 25 summarizes the quantities and/or deliverables anticipated for this subtask. RTRAK, RSS, EMS, and/or HPGe scans will be conducted after each excavation lift only in areas of documented uranium. The basis for the soil quantities is the SDFP spreadsheet *At- and Below-Grade Material Quantities*. Estimates for concrete slabs/foundations and piping debris were obtained from the OU3 Estimate Quantities, site drawings, and site underground utility drawings. Miscellaneous debris is comprised of transformer pads, steps, sidewalks, catchbasins, manholes, fence, etc. The total volume of piping assumed to be above-WAC is based on assumptions listed above. Based on past excavation history, the quantity of prohibited materials to be containerized is estimated to 0.

TABLE 25  
 Quantities for Task 2 - Excavation

ITEM	QUANTITY
Excavate, load, and haul the remainder of the railyard (railroad ballast and ties) and rail spurs to designated stockpile area, cy	9112
Clear vegetation at Paddys Run East Streambank and stockpile, acres	0.5
Excavate, load, haul to OSDF, soil and soil-like material (Category 1), total cubic yards	72431
Excavate, load, haul to OSDF, soil and soil-like material (Category 1), from existing stockpiles, total cubic yards	0
Excavate, load, haul to OSDF, soil and soil-like (Category 1) utility trench backfill remaining below the excavation grade, total cubic yards	11626
Excavate, load, haul to OSDF, soil and soil-like (Category 1) gravel and aggregate from roads remaining, total cubic yards	219
Excavate, size-reduce, load, haul to OSDF, utility piping debris (Category 2) remaining below the excavation grade, total cubic yards	486
Excavate, size-reduce, load, haul to OSDF concrete slabs and foundations (Category 2), total cubic yards	12698
Trailer Complex (S-7Plex, 44C)	66
Railroad Inspection Pit (24D)	12
Northwest 34.5 KV Feeder (16L)	8
Waste Pit Area Concrete Basin (18N)	764
Metal Oxide Storage Tank (Silo 4, 35A)	128
Guard Post East of Detention Basin (28H)	3
K-65 Trench (22E)	856
RTS Bldg (34C)	29
Metal Oxide Storage Tank (Silo 3, 35B)	128
CRU4 Vitrification Pilot Plant (94A)	1019
Prop. CRU4 Chem. Stab. Facility (94B)	4072
TTA Facility (94C)	2253
Carbon Beds (94D)	199
RCS (94E)	98
Prop. Electric Bldg (94G)	37
Equipment Pad	58
Silos Interim Storage Pad (ISA Pad)	1816
Bldg 91C slab	1152
Excavate, size-reduce, load, haul to OSDF miscellaneous concrete and debris (Category 2), total cubic yards	8537
Excavate, load, haul to bulk staging area, AWAC soil and soil-like utility trench backfill remaining below the excavation grade, total cubic yards	1200
Excavate, size reduce, load, haul to bulk staging area, AWAC utility piping debris remaining below the excavation grade, total cubic yards	163
Dismantle construction management area established in Area 6 and disposition to OSDF, each	1
RCRA Soil, cubic yards	0
Prohibited Materials, cubic yards	0
Excavate, load, stockpile Paddys Run riprap, total tons	4000

TABLE 25 (Continued)

ITEM	QUANTITY
Excavate, load, place Paddys Run riprap from stockpile on east streambank, total tons	3000
Post-excavation activities, each	1
Replace construction fence with certification rope, w/ certification signs 100'o/c, LF	6300
Decontaminate and Demobilize, each	1

3) Task #3 – Control and Management

3.1) Plan/Scope

Control and management activities apply to the maintenance of the area until certification is completed. Specific activities and deliverables include:

- Remove sediment from ditches and silt fence.
- Maintain surface-water management and erosion control structures.
- Maintain certification fencing.
- Provide dust control, as needed.
- Provide regrading and reseeding, as needed.
- Submit project records, maintain copies in project file, construction management and project control activities.

The scope of work identified above will be executed using subcontracted, matrixed, centralized and projectized personnel Distribution of the work, and the plan for executing the scope, is described for each division of personnel.

*Subcontracted Personnel*

Excavation subcontractor will be comprised of construction management and labor. Subcontract costs will be charged to G7114.

*Matrixed Personnel*

Acquisitions/Prime Contract Administration will be used to monitor subcontractor services. Personnel from these organizations will use charge number G7114.

*Centralized Personnel*

Document Control/Procedure Management will assign document numbers, maintain the project file and distribute controlled documents. Sump pump operation and maintenance will be by Aquifer Restoration (PBS-04). Personnel from these organizations will use their functional area charge numbers.

*Projectized Personnel*

Project staff from the management, engineering, construction, survey, real time and administrative disciplines will charge their labor hours to PBS-06 control account GPM1. Project Controls will provide cost and schedule support to the project manager.

3.2) Quantification

Table 26 summarizes the quantities and/or deliverables anticipated for this subtask. Construction management will be responsible for the maintenance of the slopes (2:1, minimum) and removal of sediment in pump sumps. It is assumed that slope maintenance and sediment removal will occur at the beginning and end of the construction season.

TABLE 26  
 Quantities for Task 3: Control and Management

ITEM	QUANTITY
Sediment Removal, biannual	2
Fence Maintenance, biannual	2
Slope Maintenance, biannual	2

4) Task #4 – Interim Restoration

4.1) Plan/Scope

Interim restoration occurs after the remediated area has been certified. The 2H:1V slopes in the certified area will be graded to 5H:1V, using decontaminated equipment, and seeded. Specific activities and deliverables include:

- Survey work limits and establish the access controls.
- Procure needed materials and equipment.
- Perform grading to reshape 2H:1V slopes to 5H:1V slopes.
- Seed 5H:1V slopes.
- Submit project records to ECDC and maintain copies in project file.
- Perform construction management and project control activities.

The scope of work identified above will be executed using subcontracted, matrixed, centralized and projectized personnel. Distribution of the work, and the plan for executing the scope, is described for each division of personnel.

*Subcontracted Personnel*

Excavation subcontractor will be comprised of construction management and labor. Subcontract costs will be charged to G7114.

*Matrixed Personnel*

Acquisitions/Prime Contract Administration will be used to monitor subcontractor services. Personnel from these organizations will use charge number G7114.

*Centralized Personnel*

Document Control/Procedure Management will assign document numbers, maintain the project file and distribute controlled documents. Security/EM Services will provide access control and emergency response. Property Management will receive and log vendor

materials, control government inventory and track government-owned property. Training will perform needed training for subcontractor personnel. Personnel from these organizations will use their functional area charge numbers.

*Projectized Personnel*

Project staff from the management, engineering, construction, survey, and administrative disciplines will charge their labor hours to PBS-06 control account GPM1. Management, engineering and construction will work closely with the subcontracted labor force and FEMP labor force to ensure all activities are performed in a safe and timely manner. Project Controls will provide cost and schedule support.

4.2) Quantification

Table 27 summarizes the quantities and/or deliverables anticipated for this subtask. An estimate on the amount of soil that must be regraded for drainage is taken as ten (10) percent of the total soil excavated, which is the approximate percentage calculated for the Area 3A/4A design. The acreage requiring seed is estimated.

TABLE 27  
 Quantities for Task 4: Interim Restoration

ITEM	QUANTITY
Soil to Regrade, cubic yards	8500
Acres to Seed	32.5

1.5.5 G7117 - Excavation Control/Certification

Excavation control will occur will occur in parallel to excavation activities. Where practical, precertification and certification activities will also commence during excavation.

The scope of the excavation control is described in an Excavation Control Project Specific Plan (PSP) that is reviewed and approved by OEPA and USEPA. Generally, each excavation lift, will be monitored for radium, thorium and uranium levels to ensure soil meets the OSDF WAC for uranium. These measurements are conducted using the sodium iodide (NaI) via RTRAK, Gator, or RSS. For steeper areas, the NaI mounted EMS, the high purity germanium (HPGe), or other non-intrusive static and mobile field instruments are used to record radiological emanations from the surface or near-surface sources.

Precertification PSPs, Certification PSPS, and Certification Design Letters (CDLs) will be prepared and submitted to OEPA and USEPA for review and approval during excavation to minimize the period between the end of excavation activities and the start of certification sampling. All precertification scans and certification sampling within a location of the remediated area will be completed as close as possible to the end of excavation activities so that this information can be included with the CDL. The end result of the certification sampling, analysis, and statistical evaluation of each area-specific contaminant of concern (ASCOC) and its corresponding FRL is the Certification Report (CR), that is submitted to

OEPA and USEPA for review and approval. Upon approval, the area is considered certified.

Area 7 excavation control/certification includes three tasks to be detailed subsequently below:

- Task 1: Excavation Control
- Task 2: Precertification
- Task 3: Certification

Major technical risks include: using off-site laboratory services for analysis of volatile and semi-volatile organic COCs, insufficient access to the excavation area to begin precertification and certification, and OEPA/USPEA review cycles for the PSPs, CDLs and Certification Report (CR). Contingencies that can mitigate the risks include: develop on-site laboratory services for organic COCs, expedite excavation in Area 3B and negotiate shorter EPA/OEPA review cycles.

Specific charge number assumptions include:

- For General Assumptions and Exclusions, see Section 1.2.
- Earned Value method for this charge number will be based on the quantities developed within the Quantification Sections.
- Internal comment responses are conducted informally through meetings, telephone, email, or written responses on the reviewer's commented document.
- DOE review and comment on documents will occur in parallel to the internal reviews.
- No geotechnical investigations or geotechnical testing to support excavation design or OSDF placement. Five (5) gallon bucket full of soil will be made available to OSDF (PBS-03) for geotechnical testing.
- If personnel protective equipment (PPE) is required during predesign characterization, at minimum, they will be required for entry during excavation control and precertification. PPE will not be required (other than possibly orange vest, hard hat, gloves) for entry during certification.
- Gamma spectroscopy is the analytical method for uranium, thorium, and radium analysis.
- A single sample will be collected for the analysis of metals and radiological contaminants (uranium, thorium, radium, technetium-99, and if needed, cesium-137) will be combined into one container and analyzed by the on site laboratory.

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- A separate sample will be collected for the analysis of Volatile Organic Compounds (VOCs) ~~will always be collected in a separate sample container and analyzed by the off site laboratory.~~
- A single sample will be collected for the analysis of other Organics (PCBs, pesticides, PAHs, herbicides, semi-volatile organic compounds (SVOCs), and dioxins) ~~will be collected in one container and analyzed by the off site laboratory.~~
- A separate sample will be collected for the analysis of exotic radiological contaminants (e.g., strontium-90) ~~will be collected in a separate container and analyzed by the off site laboratory.~~
- Organic compounds and strontium-90 will be analyzed at off-site laboratories with a 14-day turnaround time.
- Two (2) container blanks per analytical suite will be submitted for each certification PSP. There are no container blanks needed for PAHs.
- Rinsates and container blanks will be analyzed for the same parameters as the soil samples, except for PAHs.
- Any resampling of Certification Units (CU) due to false positives or actual contamination will be accounted for by a separate risk factor and are not accounted for in the manpower estimates.
- Locations of twelve (12) samples will be surveyed, sampled, and analyzed for each CU with the exception of any CU that contained a Hazardous Waste Management Unit (HWMU) or Underground Storage Tank (UST) (described in Tables 2-1 and 2-2 in the SEP). In these cases, sixteen (16) samples will be surveyed, sampled, and analyzed with eight (8) of the sixteen (16) sample locations within the HWMU or UST footprint.
- Per the SEP, one duplicate sample will taken and analyzed per twelve (12) certification samples contained within a CU.
- Each non-utility trench CU is no greater than 62,500 square feet in area.
- If necessary, any CU that is sampled at depth (i.e. greater than six (6) inches from the surface), will be counted separately from the ground surface CU above it.
- Each utility trench CU (utility trenches that remain below the design excavation grade), a certification sample will be taken every fifty (50) linear feet along the utility trench.
- No archive samples are collected for a non-utility trench CU, except where noted. Four (4) archive samples are collected for a trench CU.

- No alpha-beta screen sample will be taken for certification samples.
- Each CU will constitute four (4) data releases or lab reports: uranium, thorium, radium; technetium-99; metals; and organics.
- Ten percent (10%) of the excavation control and precertification release will receive ASL B data validation. The other 90% of the release will receive field validation only.
- Ten percent (10%) of the certification releases will receive ASL D data validation. The other 90% of certification releases will receive ASL B data validation.
- There will be ten (10) variances per excavation control PSP, four (4) variances per precertification PSP (therefore fourteen (14) total should excavation control and precertification PSP be combined), and two (2) variances per certification PSP.
- Figure entitled "Area 7 CU Design For Baseline Planning Purposes" is for illustration only to conceptually determine the number of Certification Units and certification samples. Actual boundaries will be finalized in the Certification Design Letter.

The task activities and deliverables will be completed primarily by project staff from the management, characterization, surveying, administrative and real time disciplines, and these personnel will charge their labor hours to PBS-06 control account GPM1. Only matrixed labor, as identified below, will use the charge account G7117. Detail on manpower loading for this scope of work is provided in Section 3.0. The charge account for G7117 will be closed when the CR report is approved by OEPA and USEPA.

1) Task #1 - Excavation Control

1.1) Plan/Scope

The PSP will document the purpose of the excavation control and to summarize the monitoring approach and frequency using real time methods. If applicable, the PSP also addresses physical sampling for COCs that are not detected by real time instrumentation (e.g. technetium-99, VOCs, SVOCs, metals) but nevertheless need to be collected to confirm removal.

The PSP will define the scope of field, laboratory, and data reporting of the ASCOCs through the sampling target analyte list and sampling approach. For physical sampling, the PSP will document the number of borings, location of borings, depths of borings, frequency of sample intervals, sampling collection methods, sampling equipment decontamination, borehole abandonment, and disposition of wastes. For real time measurements, the PSP will document the real time radiation tracking system (RTRAK), real time Gator-mounted system (Gator), radiation scanning system (RSS), excavation monitoring system (EMS) high-purity germanium detector (HPGe), and other radiation monitoring systems (RMS) data acquisitions, surface moisture measurements recordings, and real time mapping. The tracking and managing of data collection, whether through

physical sampling or real time, is described along with both field and laboratory quality assurance requirements. The process of changing the approved PSP by use of variance/field change notice (V/FCN) is described. Finally, the PSP contains health and safety requirements and data quality objectives.

After approval of the PSP by OEPA and USEPA and upon completion of an excavation lift (typically 3' +/-1'), excavation control is the scanning of soil surfaces after each excavation lift to determine if contamination hot spots exist with respect to radium, thorium and/or uranium levels. Excavation control will occur after concrete and gravel areas are removed prior to the first lift of excavation. Additionally, scanning will be performed at the bottom of utility trenches cut below the design grade using the EMS or measurements will be conducted on soil removed from the bottom of the excavation placed adjacent to the trench.

Based on experience gained through Area 1 and Area 2 excavation control, a single PSP for each Area was sufficient to support excavation control and monitoring.

If applicable, the PSP also addresses physical samples that need to be collected to confirm the removal of other COCs in above-WAC and RCRA areas. Specific activities and deliverables include (capital letters are tied to Table 28):

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- A. Identify the ASCOCs.
- B. Data queries for IIMS data group.
- C. Development of Data Quality Objectives.
- D. Development of scanning and sampling strategies.
- E. Development of analytical parameters.
- F. Initiate/coordinate task orders for off-site laboratory services (particularly for VOCs, semi-VOCs, PCBs), if necessary.
- G. Initial walkdown of area.
- H. Preparation of figures and data tables.
- I. Preparation of draft PSP.
- J. Internal draft PSP review and comment response.
- K. DOE draft PSP review and comment response.
- L. OEPA/USEPA review and comment response.
- M. Issuance of final PSP.

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- N. Perform walkdowns and work scope briefings to field crews.
- O. Development of Variance/Field Change Notices (V/FCN), as needed, with applicable OEPA/USEPA approval.
- P. Real time scans using RTRAK, Gator, HPGe, EMS, or RSS between each excavation lift.
- Q. Real time scan progress maps.
- R. Evaluate real time data and perform QC prior to data transfer to the Sitewide Environmental Database (SED).
- S. AWAC and hot-spot verification and removal verification.
- T. HPGe measurements and mapping representing soil under utility trenches below the design excavation grade.
- U. Survey, record coordinates and flag locations for the sampling crew.
- V. Mobilize physical sampling crew; collect samples; complete soil boring logs, chain of custody, sampling log, field daily logs; deliver samples and chain of custody to on-site sample processing laboratory, if necessary.
- W. Receipt of physical samples, entering samples into FACTS database system, producing work cards, if necessary.
- X. Calibrations, quality control, analytical work, and data releases, if necessary.
- Y. Perform verification and validation of data, enter into SED, if necessary.
- Z. Reduce and interpret data to develop extent of contamination, if necessary.
- AA. Submit project records to Document Control/Procedure Management.
- BB. Perform management and project control activities.

Survey information and real time and laboratory data packages will be delivered to the project.

The scope of work identified above will be managed by projectized staff covered in Control Account GPM1. The scope of work will be performed using matrixed, centralized and projectized personnel.

*Matrixed Personnel*

Infrastructure Services will support the operation of real time vehicles. If needed, Environmental Monitoring and Analytical Services (PBS-04) will support any physical sampling and analysis should it be required. The Personnel from these organizations are the only individuals who will use charge number G7117.

*Centralized Personnel*

Document Control/Procedure Management will provide document numbers, filing support and issue controlled documents, as needed. Environmental Compliance will be consulted on an as-needed basis if RCRA issues become relevant to the work scope. The Waste Acceptance Organization will perform visual oversight of the monitoring and prepare waste manifestation forms, if needed. Environment, Safety, Health and Quality will review PSPs, work permits, and monitor field activities. Information Management will provide computer hardware and software needs. Personnel from these organizations will use their functional area charge numbers.

*Projectized Personnel*

Most work will be completed by project staff from the management, characterization, survey, real time and administrative disciplines; and these personnel will charge their labor hours to PBS-06 control account GPM1. Management, characterization and real time staff will oversee the fieldwork. Excavation control will be conducted under all removed concrete and gravel surfaces, in known contamination areas after each lift, and whenever unexpected material is encountered. Results from the real time survey will be delivered as maps that depict the estimated concentration or activity of radium, thorium and uranium. If unexpected or special materials are encountered, physical samples will be collected as part of the monitoring activities to screen for COCs not measured by the real time instruments. A survey team will document sample locations. Project Controls will provide cost and schedule support.

Table 28 summarizes the projectized and matrixed personnel performing the scope of work:

TABLE 28  
 Manpower Requirements for Task 1 – Excavation Control

Activities:

MPM Code	Personnel P,C,M,S	A	B-I	J-M O	N-T	U,V	W,X	Y	Z-BB
ENSMGR	P		X	X					X
ENSREP	P	X	X	X	X	X	X	X	X
LABTEC	P								
CLERKS	P	X		X					X
DRFCAD	P		X	X					
ENSTEC	P								
ENSMGR	M					X			
ENSREP	M		X			X			X
S&HENG	M								
RADTEC	M								
ENSTEC	M					X			
LABMGR	M						X		
LABCHM	M						X		
LABTEC	M						X		
INHTEC	M								
PJSMGR	M				X				
MVOOPR	M				X				
ENSMGR	C							X	
ENSREP	C							X	
LABTEC	C							X	

Note: P denotes projectized, C denotes centralized, M denotes matrixed, S denotes subcontracted.

1.2) Quantification

Table 29 summarizes the quantities and/or deliverables anticipated for this task.

The assumed condition includes that no additional visual contamination is found when gravel, gravel roads, concrete slabs and foundations, and roads are removed that would yield an above-WAC condition. For excavation control based on the Flynn Model and RI/FS data the excavation area accessible to real time. Maps for each of the RTRAK, Gator, RSS, EMS, and HPGe measurements will be prepared for each lift. Based on the Area 3A/4A IRDP requirement to perform a HPGe shot every 50 feet of linear trench, there will be 450 HPGe shots on the pipe embedment to cover the 22455 linear feet of utility trenches that are assumed to be below the excavation surface.

TABLE 29  
 Quantities for Task 1 – Excavation Control

Item	Quantity
Draft Project Specific Plan for Internal Review	1 total
Draft Project Specific Plan for DOE Review	1 total
Response to Comments for DOE	1 total
Draft Project Specific Plan for OEPA/USEPA Review	1 total
Response to Comments for OEPA/USEPA	1 total
Final Project Specific Plan	1 total
Total Acres available for scanning by RTRAK, Gator, RSS, EMS, or HPGe	32.5 acres
Real Time Maps for Uranium, Thorium, Radium, and Total Counts/ Lift	10 each/lift
Survey and Flag Hot Spots/Sample Locations	0 total
Soil Samples	0 total
HPGe Shots for Utility Trenches	450 total
Variance/Field Change Notice	10 total

A summary of the quantification approach is provided:

Acres were determined by using in-house GIS techniques and information at the time of this writing. The distinction between areas of lower uranium FRL (20 ppm U) due to high leachable areas and areas of higher uranium FRL (82 ppm U) due to low leachable areas is presented in Figure 2-3 of the SEP.

The real time maps represent the final product of the lift scanning results. The quantity does not include progress coverage maps that are produced along with the final coverage maps as part of the projectized effort under control account GPM1 of PBS-06.

For RTRAK and Gator, with radon monitor set-up to correct for radon influences, experience dictates that 2 acres/day for a 10-hour day can be accomplished assuming typical weather. This average drops to 1 acre/day for a 10-hour day during winter months. Staff includes the matrixed driver (MVOOPR @ 1 FTE), the matrixed driver's supervisor (PGSMGR @ 0.25 FTE), projectized environmental scientists (ENSREP @ 2 FTEs), and projectized environmental scientist supervisor (ENSREP @ 1 FTE).

For RSS, with radon monitor set-up to correct for radon influences, experience dictates that 2 acres/day for a 10-hour day can be accomplished assuming typical weather. This average drops to 1 acre/day for a 10-hour day during winter months. Staff includes projectized environmental scientists (ENSREP @ 2 FTEs) and a projectized environmental scientist supervisor (ENSREP @ 1 FTE).

For HPGe, with radon monitor set-up to correct for radon influences, experience dictates that 12 shots/day can be accomplished for a 10-hour day with the maximum coverage at a 1 meter height with a 15 minute count time assuming typical weather conditions with adverse topographic and vegetative conditions. 20 shots/day can be accomplished for a 10-hour day with the maximum coverage at a 1 meter height with a 15 minute count time assuming typical weather conditions with moderate topographic and vegetative conditions.

Staff includes projectized environmental scientists (ENSREP @ 2 FTEs) and a projectized environmental scientist supervisor (ENSREP @ 1 FTE).

For EMS, with radon monitor set-up to correct for radon influences if necessary, it is estimated that 2 acres/day for a 10-hour day can be accomplished assuming typical weather. This average drops to 1 acre/day for a 10-hour day during winter months (when averaging in snow and ice days when field activity is not possible). Staff includes the matrixed heavy equipment operator (MVOOPR @ 1 FTE), the matrixed heavy equipment operators supervisor (PGSMGR @ 0.25 FTE), projectized environmental scientists (ENSREP @ 2 FTEs), and projectized environmental scientist supervisor (ENSREP @ 1 FTE).

The number of hot spots requiring surveying and physical sampling is 0.

2) Task #2 - Precertification

2.1) Plan/Scope

Precertification activities begin with the preparation of the precertification Project Specific Plan. The purpose of precertification is to assess the readiness of an area for certification and to develop the Certification Design Letter. It is assumed that one PSP will be developed.

Precertification field activities will begin as soon as a portion of Area 7 reaches the design grade, with the intent being to minimize the lag time between the completion of excavation and collection of certification samples. Based on field conditions and required detection levels, RTRAK, Gator, RSS, EMS, or HPGe measurements will be performed and the precertification maps will be prepared. Preliminary Certification Unit (CU) boundaries will be surveyed only for those CU that are associated with the high leachable areas as shown in Figure 2-3 of the SEP. These areas will have a lower FRL for uranium at 20 ppm that the sodium iodide real time systems cannot detect. Specific activities and deliverables include (capital letters are tied to Table 30):

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- A. Identify the ASCOCs.
- B. Development of Data Quality Objectives.
- C. Development of scanning and sampling strategies.
- D. Development of analytical parameters.
- E. Initiate/coordinate task orders for off-site laboratory services (particularly for VOCs, semi-VOCs, PCBs), if necessary.
- F. Initial Walkdown of area.
- G. Preparation of figures and data tables.

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- H. Preparation of draft PSP.
- I. Internal draft PSP review and comment response.
- J. DOE draft PSP review and comment response.
- K. OEPA/USEPA review and comment response.
- L. Issuance of final PSP.
- M. Perform walkdowns and work scope briefings to field crews.
- N. Development of Variance/Field Change Notices (V/FCN), as needed with applicable OEPA/USEPA approval.
- O. Real time scans using RTRAK, Gator, HPGe, EMS, or RSS.
- P. Real time scan progress maps.
- Q. Evaluate real time data and perform QC prior to data transfer to the Sitewide Environmental Database (SED).
- R. Survey and flag High Leachable Area CU.
- S. Survey Certification Area Boundary.
- T. Survey, record coordinates, and flag locations for the sampling crew for precertification physical sampling, if necessary.
- U. Mobilize physical sampling crew; collect samples; complete soil boring logs, chain of custody, sampling log, field daily logs; deliver samples and chain of custody to on-site sample processing laboratory, if necessary.
- V. Receipt of physical samples, entering samples into FACTS database system, producing work cards, if necessary.
- W. Calibrations, quality control, analytical work, and data releases, if necessary.
- X. Perform verification and validation of data, enter into SED, if necessary.
- Y. Reduce and interpret data to develop extent of contamination, if necessary.
- Z. Identify hot-spot zones for excavation, if necessary, and rescan area after hot spot removal.

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**AA. Submit project records to Document Control/Procedure Management.**

**BB. Perform management and project control activities.**

Survey information and real time and laboratory data packages will be delivered to the project.

The scope of work identified above will be managed by projectized staff covered in Control Account GPM1. The scope of work will be performed using matrixed, centralized and projectized personnel.

*Matrixed Personnel*

Infrastructure Services will support the operation of real time vehicles. If needed, Environmental Monitoring and Analytical Services (PBS-04) will support any physical sampling and analysis should it be required. The Personnel from these organizations are the only individuals who will use charge number G7117.

*Centralized Personnel*

Document Control/Procedure Management will provide document numbers, filing support and issue controlled documents, as needed. Environment, Safety, Health and Quality will review PSPs, work permits, and monitor field activities. Information Management will provide computer hardware and software needs. Personnel from these organizations will use their functional area charge numbers.

*Projectized Personnel*

Most work will be completed by project staff from the management, characterization, survey, real time and administrative disciplines; and these personnel will charge their labor hours to PBS-06 control account GPM1. Management, characterization and real time staff will oversee the fieldwork. Excavation control will be conducted under all removed concrete and gravel surfaces, in known contamination areas after each lift, and whenever unexpected material is encountered. Results from the real time survey will be delivered as maps that depict the estimated concentration or activity of radium, thorium and uranium. If unexpected or special materials are encountered, physical samples will be collected as part of the monitoring activities to screen for COCs not measured by the real time instruments. A survey team will document sample locations. Project Controls will provide cost and schedule support.

Table 30 summarizes the projectized and matrixed personnel performing the scope of work:

TABLE 30  
 Manpower Requirements for Task 2 – Precertification

Activities:

MPM Code	Personnel P,C,M,S	A-H	I-L	M-O	R-U	V-W	X	Y-BB
ENSMGR	P	X	X					X
ENSREP	P	X	X	X	X	X	X	X
LABTEC	P							
CLERKS	P	X	X					X
DRFCAD	P	X	X					
ENSMGR	M				X			
ENSREP	M	X			X			X
ENSTEC	M				X			
LABMGR	M					X		
LABCHM	M					X		
LABTEC	M					X		
INHTEC	M				X			
PJSMGR	M			X				X
MVOOPR	M			X				X
ENSMGR	C						X	
ENSREP	C						X	
LABTEC	C						X	

Note: P denotes projectized, C denotes centralized, M denotes matrixed, S denotes subcontracted.

2.2) Quantification

Table 31 summarizes the quantities and/or deliverables anticipated for this task.

TABLE 31  
 Quantities for Task 2 – Precertification

Item	Quantity
Draft Project Specific Plan for Internal Review	1 total
Draft Project Specific Plan for DOE Review	1 total
Response to Comments for DOE	1 total
Draft Project Specific Plan for OEPA/USEPA Review	1 total
Response to Comments for OEPA/USEPA	1 total
Final Project Specific Plan	1 total
Total Acres available for scanning by RTRAK, Gator, RSS, EMS, or HPGe	32.5 acres
Real Time Maps for Uranium, Thorium, Radium, and Total Counts	4 each
HPGe Shots for Utility Trenches	450 total
Variance/Field Change Notice	4 total

A summary of the quantification approach is provided:

Acreages were determined by using in-house GIS techniques and information at the time of this writing. The distinction between areas of lower uranium FRL (20 ppm U) due to high leachable areas and areas of higher uranium FRL (82 ppm U) due to low leachable areas is presented in Figure 2-3 of the SEP.

The real time maps represent the final product of the lift scanning results. The quantity does not include progress coverage maps that are produced along with the final coverage maps as part of the projectized effort under control account GPM1 of PBS-06.

For RTRAK and Gator, with radon monitor set-up to correct for radon influences, experience dictates that 2 acres/day for a 10-hour day can be accomplished assuming typical weather. This average drops to 1 acre/day for a 10-hour day during winter months. Staff includes the matrixed driver (MVOOPR @ 1 FTE), the matrixed driver's supervisor (PGSMGR @ 0.25 FTE), projectized environmental scientists (ENSREP @ 2 FTEs), and projectized environmental scientist supervisor (ENSREP @ 1 FTE).

For RSS, with radon monitor set-up to correct for radon influences, experience dictates that 2 acres/day for a 10-hour day can be accomplished assuming typical weather. This average drops to 1 acre/day for a 10-hour day during winter months. Staff includes projectized environmental scientists (ENSREP @ 2 FTEs) and a projectized environmental scientist supervisor (ENSREP @ 1 FTE).

For HPGe, with radon monitor set-up to correct for radon influences, experience dictates that 12 shots/day can be accomplished for a 10-hour day with the maximum coverage at a 1 meter height with a 15 minute count time assuming typical weather conditions with adverse topographic and vegetative conditions. 20 shots/day can be accomplished for a 10-hour day with the maximum coverage at a 1 meter height with a 15 minute count time assuming typical weather conditions with moderate topographic and vegetative conditions. Staff includes projectized environmental scientists (ENSREP @ 2 FTEs) and a projectized environmental scientist supervisor (ENSREP @ 1 FTE).

For EMS, with radon monitor set-up to correct for radon influences if necessary, it is estimated that 2 acres/day for a 10-hour day can be accomplished assuming typical weather. This average drops to 1 acre/day for a 10-hour day during winter months (when averaging in snow and ice days when field activity is not possible). Staff includes the matrixed heavy equipment operator (MVOOPR @ 1 FTE), the matrixed heavy equipment operators supervisor (PGSMGR @ 0.25 FTE), projectized environmental scientists (ENSREP @ 2 FTEs), and projectized environmental scientist supervisor (ENSREP @ 1 FTE).

The number of hot spots requiring surveying and physical sampling is 0.

3) Task #3 - Certification

3.1) Plan/Scope

Certification activities begin with the preparation of the Certification PSP and Certification Design Letters (CDLs) and are completed when the Certification Reports have been approved by the OEPA and USEPA. The purpose of the CDL is to summarize the precertification activities, delineate the Certification Units, identify the ASCOCs, and to locate the certification samples within each CU. Certification field activities will begin at the completion of an excavated area but not at the end of excavation of the Remediation Area. This approach was used with great success during the A2PIII Radium Hot Spot excavation and certification, the A2PI Active Flyash Pile excavation and certification, and the Soil Pile 3 excavation and certification. The time between excavation completion and certification sample collection was reduce from several months, as with Area 1 Phase II, to days and weeks.

Two (2) separate PSPs, and CDLs are planned to cover underground utilities and Area 7. One (1) Certification Report (CR) will result with the underground utility certification information contained.

Sampling activities cannot begin until the PSP and CDL have been at least conditionally approved by OEPA/USEPA. Samples will be submitted for analysis and ASL D data packages produced. The data for each Certification Unit (CU) will be evaluated using statistical tests identified in the SEP and a pass/fail decision for each ASCOC will be determined. If a CU fails, additional excavation is required until the CU passes the certification criteria. The Certification Report (CR) documents the certification process once approved by OEPA and USEPA, the area is released for final land use. Specific activities and deliverables include (capital letters are tied to Table 33):

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- A. Identify the ASCOCs.
- B. Development of Data Quality Objectives.
- C. Development of analytical parameters.
- D. Initiate/coordinate task orders for off-site laboratory services (particularly for VOCs, semi-VOCs, PCBs), if necessary.
- E. Initial Walkdown of area.
- F. Preparation of figures and data tables.
- G. Preparation of Certification Unit design and sample locations.
- H. Preparation of draft PSP and draft CDL..
- I. Internal draft PSP and draft CDL review and comment response.

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- J. DOE draft PSP and draft CDL review and comment response.
- K. OEPA/USEPA review and comment response.
- L. Issuance of final PSP and CDL.
- M. Perform walkdowns and work scope briefings to field crews.
- N. Development of Variance/Field Change Notices (V/FCN) and CDL page changes, as needed with applicable OEPA/USEPA approval.
- O. Survey and flag sampling locations.
- P. Mobilize physical sampling crew; collect samples; complete chain of custody, sampling log, field daily logs; deliver samples and chain of custody to on-site sample processing laboratory.
- Q. Receipt of physical samples, entering samples into FACTS database system, producing work cards.
- R. Calibrations, quality control, analytical work, and data releases.
- S. Reduce and interpret preliminary certification data and perform statistical evaluation for each certification unit.
- T. Identify hot-spot zones for excavation and repeat previous steps beginning with N.
- U. Perform verification and validation of data, enter into SED.
- V. Perform final statistical evaluation for each certification unit and produce summary tables.
- W. Preparation of draft Certification Report (CR) with figures, tables, statistical evaluation and SEP-related CR information (i.e. chronology of events, performance standards and construction quality control, excavation activities, summary of material and data tracking, summary of costs, etc.).
- X. Internal draft CR review and comment response.
- Y. DOE draft CR review and comment response.
- Z. OEPA/USEPA review and comment response.
- AA. Issuance of final CR.
- BB. Submit project records to Document Control/Procedure Management.

**CC. Perform management and project control activities.**

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Survey information and real time and laboratory data packages will be delivered to the project.

The scope of work identified above will be managed by projectized staff covered in Control Account GPM1. The scope of work will be performed using subcontract, matrixed, centralized and projectized personnel.

*Subcontract Personnel*

An off-site laboratory will be utilized for the analysis of organic COCs (VOCs, PCBs, pesticides, PAHs, herbicides, semi-volatile organic compounds (SVOCs), and dioxins).

*Matrixed Personnel*

Environmental Monitoring and Analytical Services (PBS-04) will support any physical sampling and analysis. Environmental Monitoring will be used to collect and deliver the certification samples to the on-site laboratory. Analytical Services will log samples into the system, complete analytical measurements, issue data releases, and ship samples requiring analysis for COCs to off-site laboratories. Samples contracted to off-site laboratories will require a 14-day turn-around time. Analytical measurements will be performed and ASL D data packages will be delivered to the project. The Personnel from these organizations are the only individuals who will use charge number G7117.

*Centralized Personnel*

Document Control/Procedure Management will provide document numbers, filing support and issue controlled documents, as needed. Environment, Safety, Health and Quality will review PSPs, CDLs, CRs, work permits, and monitor field activities. Sample Data Management will be used for database queries, data entry, data validation, statement of work for off-site laboratories, and the statistical reduction of data to evaluate the certification criteria for each CU's ASCOC. Information Management will provide computer hardware and software needs. Personnel from these organizations will use their functional area charge numbers.

*Projectized Personnel*

Work to be completed by project staff from the management, characterization, survey, and administrative disciplines; and these personnel will charge their labor hours to PBS-06 control account GPM1. Management and characterization staff will oversee the field and laboratory work. Management and characterization staff will prepare all PSPs, CDLs, and CRs, along with the response to comments to these documents. They will also prepare any Variance/Field Change Notice that may be warranted after PSPs are approved by OEPA/USEPA. A survey team will document sample locations. Project Controls will provide cost and schedule support.

Table 32 summarizes the projectized and matrixed personnel performing the scope of work:

TABLE 32  
 Manpower Requirements for Task 3 – Certification

Activities:

MPM Code	Personnel P,C,M,S	A-H	I-L	M-P	Q-S	T	U-V	W-CC
ENSMGR	P	X	X			X		X
ENSREP	P	X	X	X	X	X	X	X
LABTEC	P							
CLERKS	P	X	X					X
DRFCAD	P	X	X		X		X	
ENSMGR	M			X				
ENSREP	M	X		X				
ENSTEC	M			X				
LABMGR	M				X			
LABCHM	M				X			
LABTEC	M				X		X	
ENSMGR	C						X	
ENSREP	C				X		X	
LABTEC	C						X	
Subs	S				X			

Note: P denotes projectized, C denotes centralized, M denotes matrixed, S denotes subcontracted.

3.2) Quantification

Table 33 summarizes the quantities and/or deliverables anticipated for this task.

The assumed condition is that portions Area 7 will be available for certification with the appropriate storm water run-on controls in place during excavation to protect areas being certified.

TABLE 33  
 Quantities for Task 3 – Certification

Item	Quantity
Draft PSP and CDL for Internal Review	2 total
Draft PSP and CDL for DOE Review	2 total
Response to Comments for DOE	2 total
Draft PSP and CDL for OEPA/USEPA Review	2 total
Response to Comments for OEPA/USEPA	2 total
Final PSP and CDL	2 total
Number of Non-Utility Trench Certification Units	28 total
Number of Trench Certification Units	25 total
Soil Samples	789 total
Samples entered into Database	789 total
Uranium Analysis	789 total
Thorium and Radium Analysis	789 total
Technetium-99 Analysis	13 total
Metal Analysis	364 total
Volatile Organic Compound Analysis	0 total
Semi-Volatile Organic Compound Analysis	117 total
Pesticide Analysis	0 total
PCBs Analysis	0 total
PAH Analysis	0 total
Dioxin Analysis	0 total
Uranium, Thorium, Radium Lab Reports	65 total
Technetium-99 Lab Reports	1 total
Metal COC Lab Reports	31 total
Organic COC Lab Reports	9 total
Uranium, Thorium, Radium Lab Reports to Verify and Validate to ASL D	7 total
Technetium-99 Lab Reports to Verify and Validate to ASL D	1 total
Metal Lab Reports to Verify and Validate to ASL D	4 total
Organic Lab Reports to Verify and Validate to ASL D	1 total
Variance/Field Change Notice	4 total
Draft Certification Report for Internal Review	1 total
Draft Certification Report for DOE Review	1 total
Response to Comments for DOE	1 total
Draft Certification Report for OEPA/USEPA Review	1 total
Response to Comments for OEPA/USEPA	1 total
Final Certification Report	1 total

A summary of the quantification approach is provided:

Acreages were determined by using in-house GIS techniques and information at the time of this writing. The distinction between areas of lower uranium FRL (20 ppm U) due to high leachable areas and areas of higher uranium FRL (82 ppm U) due to low leachable areas is presented in Figure 2-3 of the SEP.

Manpower is estimated using the BARDO database based on four (4) years of field and analytical work requested by PBS-06. Specific assumptions bounding the BARDO database are listed above in the charge-number specific assumptions.

#### 1.5.6 G7118 - Off-Site Waste Disposition

Soil excavation activities in various areas of the FEMP site may produce waste streams that do not meet the OSDF waste acceptance criteria (i.e. above-WAC) and cannot be disposed of in the OSDF. Therefore, off-site waste disposition will be required. Off-site waste disposition refers to the procurement of containers and disposal services, loading and shipping of containers, and preparation of manifestation documentation. Three different types of waste streams are anticipated. First, items that are prohibited from both the OSDF and Envirocare (non-typical waste) will be processed through Fluor Fernald's Waste Generator Services (WGS) using leased containers by a logistics vendor prior to shipment. The Non-Typical waste, as defined by the Final Non-Typical Waste Management Plan (FEMP-10500-PL-0013), will be segregated at the excavation site by those performing the excavation work. Once segregated, these materials will then be packaged into containers that have been approved and provided by and moved from the excavation site for shipment to Nevada Test Site (NTS). Second, AWAC soil and other items that do not meet the OSDF WAC, but do meet the Envirocare WAC will be processed in bulk using leased railcar or intermodal containers by a logistics vendor prior to shipment. Third, items that are prohibited from OSDF, but can be transported by the logistics vendor to Envirocare.

Off-site Waste Disposition includes three tasks:

- Task 1: Procurement
- Task 2: Container Receipt, Preparation, Loading
- Task 3: Shipping and Disposal.

Major technical risks include: the loss of the off-site disposal vendor (i.e., Envirocare); the unexpected discovery of a large volume of special material; and/or the discovery of a large volume of soil that requires on-site treatment. Contingencies that can be implemented to reduce this risk include: acquire additional off-site disposal vendors; and place a subcontract to treat soil.

Most of the work will be performed by WGS personnel matrixed to the project. However, some project oversight from the management, characterization, engineering, and administrative disciplines is needed, and these personnel will charge labor to PBS-06 control account GPM1. Only matrixed labor, as identified below, will use the charge account G7118. The charge account for G7118 will be closed when the Certification Report is approved by OEPA and USEPA.

Specific charge number assumptions include:

- For general assumptions and exclusions, see Section 1.2.
- Fluor Fernald will provide characterization support to demonstrate compliance to the off-site disposal acceptance criteria. This process and the resulting documentation will be consistent with the current practice being performed by WPRAP.
- WPRAP is no longer in operation.
- Containers are leased from a vendor that provides logistics and transportation through final disposition.
- No internal decontamination of a waste container until the end of the project.

1) Task #1 – Procurement

1.1) Plan/Scope

Material costs will include the purchase of shipping containers and upon receipt of the containers WGS will prepare them for loading. Specific activities for this scope of work includes:

- Planning to include the identification of containerized waste with any existing specific waste disposition campaign and the preparation of task orders, safety evaluations, work permits.
- Procure containers usage and packaging materials.
- Characterization to include any required sampling/visual inspections, laboratory analysis, characterization review of analytical data, preparation/validation of MEFs, compatibility assessment, absorbent determinations, and preparation of required profiles for disposal. For debris/scrap, characterization will mostly involve verifying the waste into an existing MEF. Any PCBs will obviously require significantly more effort.
- Submit project records to ECDC and maintain copies in project file.
- Perform project management and control activities.

The scope of work identified above will be executed using subcontract, matrixed, centralized and projectized personnel. Distribution of the work, and the plan for executing the scope, is described for each division of personnel.

*Subcontracted Personnel*

A request for proposal will be requested and logistics contract award. Subcontractor will furnish containers with appropriate container labeling and documentation.

*Matrixed Personnel*

Waste Generator Services (WGS) will prepare and deliver containers to the special material transfer area (SMTA) adjacent to the active excavation. Personnel from these organizations are the only individuals who will use charge number G7118.

*Centralized Personnel*

Document Control/Procedure Management will provide document numbers, filing support and issue controlled documents, as needed. Information Management will provide computer hardware and software needs. Personnel from these organizations will use their functional area charge numbers.

*Projectized Personnel*

Minor support work will be completed by project staff from the management, construction, and administrative disciplines; and these personnel will charge their labor hours to PBS-06 control account GPM1. Project Controls will provide cost and schedule support to the project manager.

1.2) Quantification

Table 34 summarizes the quantities and/or deliverables anticipated for Task 1. Based on past project history, it is estimated that zero (0) cubic yards will be required for non-OSDF waste encountered. It is estimated that 1363 cubic yards of above-WAC soil and debris or 40 railcars will be required to ship the remaining material in bulk to Envirocare.

TABLE 34  
Quantities for Task 1: Procurement

ITEM	QUANTITY
Procure and Prepare Containers	0 total
Procure and Prepare Railcars	23 total

2) Task #2 - Container Receipt, Preparation, Loading

2.1) Plan/Scope

The project will load waste into containers staged at the SMTA or haul above-WAC waste to the designated staging area at Building 91C. Specific activities and deliverables include:

- Preparation of the container for loading.
- For Non-Typical Waste:
  - Delivery of container at the excavation site known as the special materials handling area (SMTA).

- Movement to pick the container up from the SMTA and moving it to a processing area assumed to be at the location of Building 91C.
  - Sorting of debris/scrap to search for NTS prohibited items and any residue contaminated items that will not meet the trash/scrap profile at NTS. Sorting includes incidental movement of containers in and around the work area, repackaging of sorted wastes for final disposal in an appropriate shipping container assumed to be an ISO, and addition of the required absorbent.
  - Repackaging to allow for addition of the required absorbent to non-debris/residue waste streams and to optimize use of burial containers.
  - Loading and Shipping to include sealing, banding, touch-up, and labeling of containers, loading of individual containers onto trailers, bracing of the load, NTS certification, vehicle inspection and weighing, and DOT manifesting.
  - Material costs will include purchase of shipping containers, which is assumed to be the container waste is originally loaded into. In the case of debris, where the original container will likely not be the shipping container, the only cost is the shipping container.
- For above-WAC soils and items prohibited from OSDF, but meeting the Envirocare WAC:
    - Excavation and transport of material to a staging area at Building 91C.
    - Loading of railcars or intermodals and shipping including sealing, banding, touch-up, and final labeling, railcar inspection, weighing, and DOT manifesting.
    - Submit project records to ECDC and maintain copies in project file.
    - Perform project management and control activities.

Manifestation documents will be provided to WGS, the project and ECDC, if applicable.

The scope of work identified above will be executed using subcontracted, matrixed, centralized and projectized personnel. Distribution of the work, and the plan for executing the scope, is described for each division of personnel.

#### *Subcontracted Personnel*

Labor is required by the logistic vendor for final preparation of containers and railcar loadout. Job categories envisioned include foreman, laborer, heavy-equipment operator, truck operator and teamsters. Logistic vendor will make the necessary arrangements with trucking and rail companies and the disposal site including any necessary notifications to

the states the waste will be transported into. Subcontract costs will be charged to G7118.

*Matrixed Personnel*

Radiological Protection Operations will perform radiation surveys of containers and equipment. Personnel from these organizations are the only individuals who will use charge number G7118.

*Centralized Personnel*

Document Control/Procedure Management will provide document numbers, filing support and issue controlled documents, as needed. The Waste Acceptance Organization will prepare waste manifestation forms. Information Management will provide computer hardware and software needs. Personnel from these organizations will use their functional area charge numbers.

*Projectized Personnel*

Minor support work will be completed by project staff from the management, construction, and administrative disciplines; and these personnel will charge their labor hours to PBS-06 control account GPM1. Project Controls will provide cost and schedule support to the project manager. Construction personnel will pick up the containers at the SMTA, load the containers, and return them to the SMTA for pick up by WGS. Above-WAC soil and piping will be placed at the designated load-out point at Building 91C for the railcars.

2.2) Quantification

Table 35 summarizes the quantities and/or deliverables anticipated for this task. Quantities were established in the previous task.

TABLE 35  
Quantities for Task 2: Container Receipt, Preparation, Loading

ITEM	QUANTITY
Prohibited Special Materials, cubic yards	0
Above-WAC Soil, cubic yards	1200
Above-WAC Piping, cubic yards	163

3) Task #3 – Shipping And Disposal

3.1) Plan/Scope

WGS will pick-up containers from the SMTA and prepare final manifestation and shipping papers. Above-WAC debris and soil will be bulk shipped via railcar. Specific activities and deliverables include:

- Shipping of containers.

- Verify waste disposition at disposal site.
- Return of containers for reuse, if needed, to the site.
- Submit project records to ECDC and maintain copies in project file.
- Perform project management and control activities.

Manifestation, shipping and tracking forms will be delivered to the project and off-site disposal facility. Verification of waste disposition will be delivered to the project, and all records will be sent to ECDC.

The scope of work identified above will be executed using subcontracted, matrixed, centralized and projectized personnel. Distribution of the work, and the plan for executing the scope, is described for each division of personnel.

*Subcontracted Personnel*

Logistic vendor will make the necessary arrangements with trucking and rail companies and the disposal site during shipping. Subcontract costs will be charged to G7118.

*Matrixed Personnel*

WGS will prepare the final manifestation documentation and shipping inspections of the containers. Personnel from these organizations are the only individuals who will use charge number G7118.

*Centralized Personnel*

Document Control/Procedure Management will provide document numbers, filing support and issue controlled documents, as needed. WAO will assist with the waste manifestation, as needed. Personnel from these organizations will use their functional area charge numbers.

*Projectized Personnel*

Minor support work will be completed by project staff from the management and administrative disciplines; and these personnel will charge their labor hours to PBS-06 control account GPM1. Management and administrative staff will assist WGS and/or WAO in the preparation of shipping documents. Project Controls will provide cost and schedule support.

Quantification

Table 36 summarizes the quantities and/or deliverables anticipated for this task. The volumes and number of containers are identified in the previous task, The number of railcars is based on 100 tons per car and an approximate bulk soil density of 1.6 tons per cubic yard.

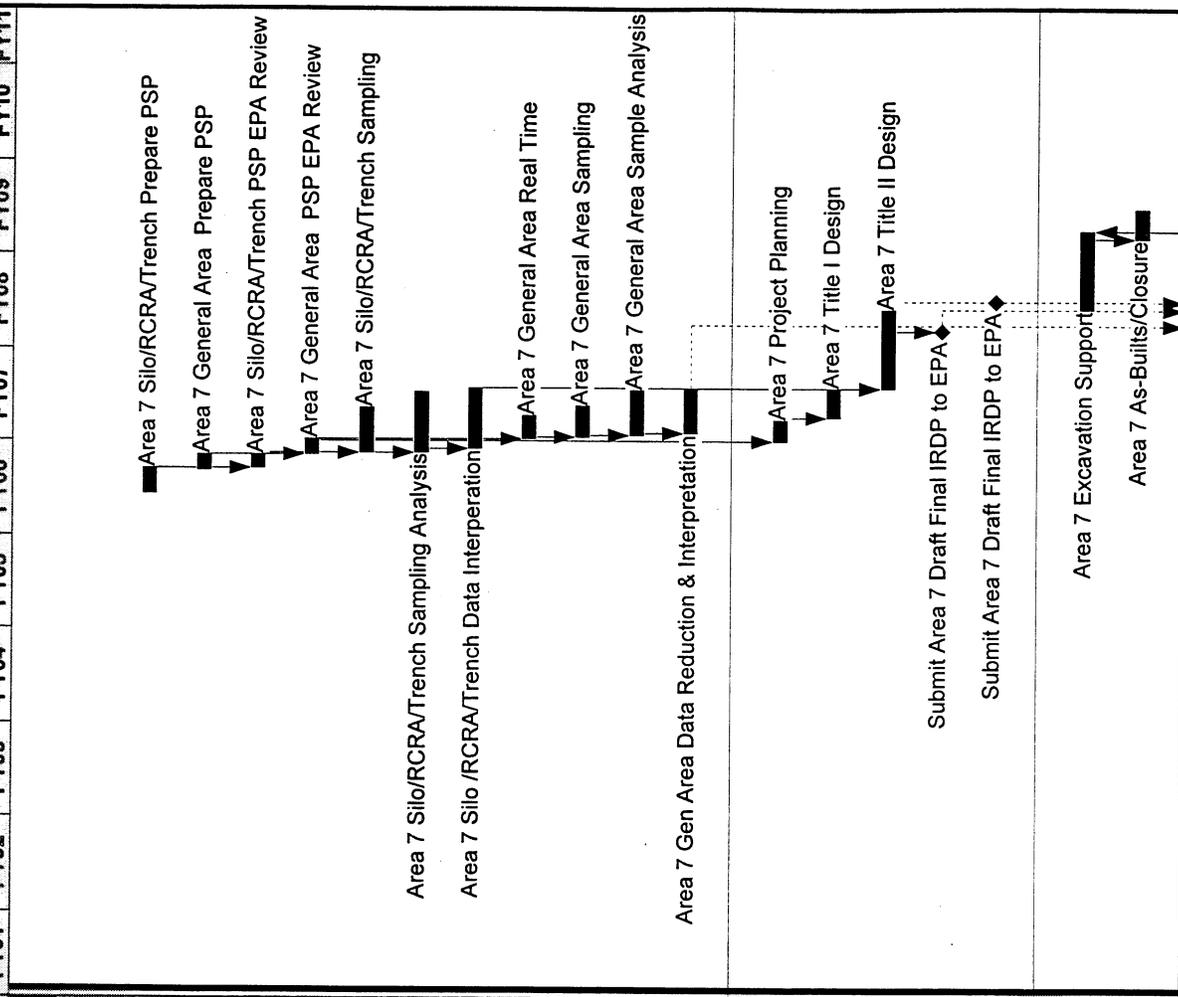
TABLE 36  
Quantities for Task 3: Shipping and Disposal

ITEM	QUANTITY
Ship Containers	0
Ship Railcars	23

**SECTION 11**

**2.0 SCHEDULE**





Activity ID	Activity Description	Early Start	Early Finish	Orig Dur
<b>G PBS 06 - SOILS</b>				
<b>1.1.G.M AREA 7 SOIL REMEDIATION</b>				
<b>G7111 AREA 7 PREDESIGN</b>				
GG71110120	Area 7 Silo/RCRA/Trench Prepare PSP	09MAR06*	13JUN06	60
GG71110220	Area 7 General Area Prepare PSP	12JUN06*	10AUG06	39
GG71110130	Area 7 Silo/RCRA/Trench PSP EPA Review	14JUN06	10AUG06	58
GG71110230	Area 7 General Area PSP EPA Review	11AUG06	09OCT06	60
GG71110140	Area 7 Silo/RCRA/Trench Sampling	14AUG06	13FEB07	112
GG71110150	Area 7 Silo/RCRA/Trench Sampling Analysis	21AUG06	13APR07	144
GG71110160	Area 7 Silo/RCRA/Trench Data Interperation	29AUG06	30APR07	149
GG71110240	Area 7 General Area Real Time	10OCT06	08JAN07	53
GG71110250	Area 7 General Area Sampling	17OCT06	15FEB07	73
GG71110260	Area 7 General Area Sample Analysis	25OCT06	17APR07	105
GG71110270	Area 7 Gen Area Data Reduction & Interpretation	01NOV06	30APR07	108
<b>G7112 AREA 7 TITLE I/II DESIGN</b>				
GG71120120	Area 7 Project Planning	02OCT06	28DEC06	53
GG71120130	Area 7 Title I Design	02JAN07	30APR07	75
GG71120140	Area 7 Title II Design	01MAY07	29FEB08	187
GG7112M005	Submit Area 7 Draft Final IRDP to EPA	04DEC07		0
GG7112MEPA	Submit Area 7 Draft Final IRDP to EPA	31MAR08*		0
<b>G7113 AREA 7 TITLE III</b>				
GG71130120	Area 7 Excavation Support	04MAR08	31DEC08	186
GG71130130	Area 7 As-Builts/Closure	01DEC08	30MAR09	74

Legend:  
 Early Bar: [Solid Black Bar]  
 Progress Bar: [Hatched Bar]  
 Critical Activity: [Dashed Line]

Revision Table:

Date	Revision	Checked/Approved

Start Date: 01DEC00  
 Finish Date: 27DEC09  
 Data Date: 01DEC00  
 Run Date: 10SEP01 16:23

Sheet 1 of 3

**SOILS PROJECT**

**1.1.G.M AREA 7 SOIL REMEDIATION**

**FLUOR FERNALD**

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Activity ID	Activity Description	Early Start	Early Finish	Orig Dur	Fiscal Year															
					FY01	FY02	FY03	FY04	FY05	FY06	FY07	FY08	FY09	FY10	FY11					
G7117	AREA 7 EXC CONTROL / CERTIFICATION																			
GG71170880	Area 7 EPA Approve Cert Report	18AUG09	15NOV09	90																
G7118	AREA 7 OFFSITE WASTE DISPOSITION																			
GG71180120	Area 7 Procurement	03JAN08	01APR08	56																
GG71180130	Area 7 Container receipt, Prep, Loading	02APR08	31DEC08	168																
GG71180140	Area 7 Shipping and Disposal	05MAY08	02FEB09	168																



Start Date	Finish Date	Run Date	Early Bar	Progress Bar	Critical Activity
01DEC00	27DEC09	01DEC00			
		10SEP01 16:23			

Date	Revision	Checked	Approved

Sheet 3 of 3

BLCF - GG01

SOILS PROJECT

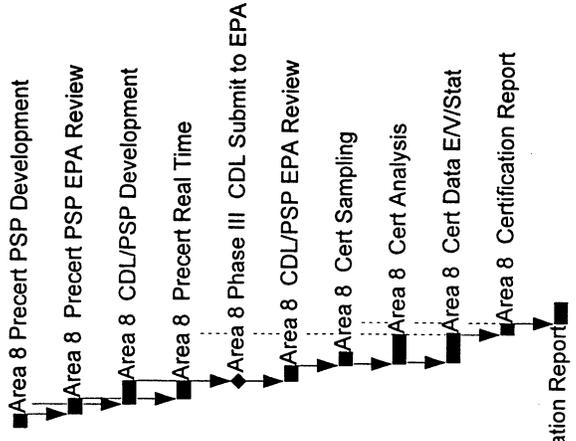
1.1.G.M AREA 7 SOIL REMEDIATION

**FLUOR FERNALD**

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Activity ID	Activity Description	Early Start	Early Finish	Orig Dur
<b>G PBS 06 - SOILS</b>				
<b>1.1.G.N AREA 8 SOIL REMEDIATION</b>				
<b>G8117 AREA 8 PHASE III NORTH CERTIFICATION</b>				
GG8117MEPA	Area 8 Phase III CDL Submit to EPA		30JUN03*	0
GG81170200	Area 8 Precert PSP Development	03OCT05*	01DEC05	37
GG81170210	Area 8 Precert PSP EPA Review	02DEC05	30JAN06	60
GG81170310	Area 8 CDL/PSP Development	06JAN06	06APR06	58
GG81170220	Area 8 Precert Real Time	31JAN06	05APR06	42
GG8117M300	Area 8 Phase III CDL Submit to EPA		06APR06	0
GG81170320	Area 8 CDL/PSP EPA Review	07APR06	05JUN06	60
GG81170330	Area 8 Cert Sampling	06JUN06	04AUG06	39
GG81170360	Area 8 Cert Analysis	13JUN06	10OCT06	75
GG81170370	Area 8 Cert Data E/V/Stat	21JUN06	19OCT06	77
GG81170380	Area 8 Certification Report	09OCT06	22NOV06	29
GG81170390	Area 8 EPA Approve Certification Report	23NOV06	20FEB07	90

◆ Area 8 Phase III CDL Submit to EPA



Sheet 1 of 1

**SOILS PROJECT**

**1.1.G.N AREA 8 SOIL REMEDIATION**

BLCF - GG01

Start Date: 01DEC00  
 Finish Date: 27DEC09  
 Data Date: 01DEC00  
 Run Date: 10SEP01 16:24

Legend:  
 Early Bar  
 Progress Bar  
 Critical Activity

Table with columns: Date, Revision, Checked/Approved

**FLUOR FERNALD**

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## **SECTION 11**

### **3.0 MANPOWER PLANS**









# Manpower Planning Sheet (CR2)

MPS # 1GM02 AREA 7 TITLE I/II DESIGN

DRIVERS	START DATE	END DATE	FY 2007				FY 2008				FY 2009				FY 2010				FY 2011			
			Q1	Q2	Q3	Q4																
616 Area 7, Sector 1 and 4 Excavation	01/02/2008	09/30/2008					xxx	xxx	xxx	xxx												
617 Area 7, Sector 1 and 4 Interim Restoration	10/01/2008	12/31/2008									xxx											
624 Area 7, Sector 1 and 4 Characterization	07/02/2007	10/27/2008					xxx	xxx	xxx	xxx	xxx	x										
637 Area 7: Pre-design/Design	10/02/2006	09/28/2007	xxx	xxx	xxx	xxx																
Engineering & Design	Engineer Civil		0.5	0.8	1	1	0.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Engineering & Design	Engineer Piping/Mechanic		0.1	0.1	0.1	0.1	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Engineering & Design	Engineer Electrical		0	0.1	0.1	0.1	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Engineering & Design	Drafter/CAD Operator		0	0.1	0.1	0.1	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Sheet Totals:</b>			0.60	1.10	1.30	1.30	0.80	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











# Manpower Planning Sheet (CR2)

## MPS # 1GM05 AREA 7 EXCAVATION CTRL/CERTIFICATION

DRIVERS	START DATE	END DATE	FY 2007			FY 2008			FY 2009			FY 2010			FY 2011			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
616 Area 7, Sector 1 and 4 Excavation	01/02/2008	09/30/2008					XXX XXX XXX											
617 Area 7, Sector 1 and 4 Interim Restoration	10/01/2008	12/31/2008						XXX										
624 Area 7, Sector 1 and 4 Characterization	07/02/2007	10/27/2008				XXX	XXX XXX XXX XXX X											
637 Area 7: Pre-design/Design	10/02/2006	09/28/2007	XXX XXX XXX XXX															
Environmental	Environmental Scientist Mgr.		0	0	0	0	0.1	0.1	0	0	0.1	0	0	0	0	0	0	0
Environmental	Environmental Scientist Rep.		0	0	0	0	0.4	0.4	1.2	0.7	0.7	0.4	0.7	0	0	0	0	0
Environmental Safety & Health	Safety Engineer		0	0	0	0	0.1	0	0	0.1	0	0	0	0	0	0	0	0
Lab	Chemist		0	0	0	0	0	0.5	0.5	0.5	0.5	0	0.5	0	0	0	0	0
Lab	Lab Tech.		0	0	0	0	0	0.4	0.4	0.4	0.4	0	0.4	0	0	0	0	0
Environmental Safety & Health	Rad Tech		0	0	0	0	0.1	0.1	0.1	0.1	0	0.1	0	0	0	0	0	0
Maintenance	Maintenance Manager		0	0	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0
General Labor	General Laborer		0	0	0	0	0.1	0	0	0.5	0.5	0	0	0	0	0	0	0
QA/QC	QA Engineer		0	0	0	0	0.1	0.1	0.1	0.1	0.1	0.1	0	0	0	0	0	0
Environmental	Environmental Scientist Tech.		0	0	0	0	0	0	0	0.5	0.5	0	0	0	0	0	0	0

**Sheet Totals:** 0.00 0.00 0.00 0.00 0.00 1.00 0.70 2.40 2.90 2.70 0.70 1.60 0.00 0.00 0.00 0.00 0.00 0.00 0.00



# Manpower Planning Sheet (CR2)

## MPS # 1GM06 AREA 7 OFFSITE WASTE DISPOSITION

DRIVERS	START DATE	END DATE	FY 2007			FY 2008			FY 2009			FY 2010			FY 2011					
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
616 Area 7, Sector 1 and 4 Excavation	01/02/2008	09/30/2008					xxx xxx xxx													
617 Area 7, Sector 1 and 4 Interim Restoration	10/01/2008	12/31/2008						xxx												
624 Area 7, Sector 1 and 4 Characterization	07/02/2007	10/27/2008				xxx	xxx xxx xxx xxx	x												
637 Area 7: Pre-design/Design	10/02/2006	09/28/2007	xxx	xxx	xxx	xxx														
General Labor	Hazwat		0	0	0	0	0	0.2	0.1	0	0	0	0	0	0	0	0	0	0	
Transportation Labor	Motor Vehicle Operator		0	0	0	0	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0
Transportation Labor	Heavy Equipment Operator		0	0	0	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0
Transportation Labor	Transportation Laborer		0	0	0	0	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0
Craft Labor	Pipefitter		0	0	0	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0
Operations	Operations Manager		0	0	0	0	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0
Environmental Safety & Health	Rad Tech		0	0	0	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0
QA/QC	QA Engineer		0	0	0	0	0	0.3	0.3	0	0	0	0	0	0	0	0	0	0	0
Environmental Safety & Health	Safety Tech.		0	0	0	0	0	0.1	0.1	0	0	0	0	0	0	0	0	0	0	0
Environmental Safety & Health	Rad Engineer		0	0	0	0	0	0.1	0.1	0	0	0	0	0	0	0	0	0	0	0
Environmental Safety & Health	Safety Engineer		0	0	0	0	0	0.4	0.3	0	0	0	0	0	0	0	0	0	0	0
Procurement	Material Property Control Rep.		0	0	0	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0
Project Management	Tech/Program Support Rep.		0	0	0	0	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0
Procurement	Buyer/Contracts Administrator		0	0	0	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0
Project Management	Project Mgr.		0	0	0	0	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0
Administration	Clerks		0	0	0	0	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0

**Sheet Totals:** 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 1.70 1.40 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00

## **SECTION 11**

### **4.0 ESTIMATE**



**G7111**

**AREA 7 PREDESIGN**



# Fluor Fernald, Inc.

DATE: 05-Sep-01  
PROJECT MGR: J.D. CHIOU  
CAM: J.D. CHIOU  
PREPARED BY: W. FICK  
FISCAL YEAR: 2006-2007

ESTIMATE SUPPORT WORKSHEET  
FOR ACTIVITY BASED ESTIMATING  
(1 FTE EQUALS 1747 HOURS)

PBS: OHFN06  
WBS: 1.1.G.M  
CTRL ACCT: G711  
CHARGE NO: G7111  
COMMENT NO F06-026

Resource:	DRFCAD	DRAFTER/CAD OPERATOR		EOC:		LABOR	
Res Dept:	949	Overtime:	Class:	Sal	Sal	Sal	Sal
Yr Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cum Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yr Total Cost:	0	0	0	0	0	0	0
Cum Total Cost:	0	0	0	0	0	0	0

Resource:	ENSMGR	ENVIR SCIENTIST MGR		EOC:		LABOR	
Res Dept:	949	Overtime:	Class:	Sal	Sal	Sal	Sal
Yr Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cum Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yr Total Cost:	0	0	0	0	0	0	0
Cum Total Cost:	0	0	0	0	0	0	0

Resource:	ENSREP	ENVIR SCIENCE REP		EOC:		LABOR	
Res Dept:	949	Overtime:	Class:	Sal	Sal	Sal	Sal
Yr Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cum Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yr Total Cost:	0	0	0	0	0	0	0
Cum Total Cost:	0	0	0	0	0	0	0

Resource:	ENSTEC	ENVIR SCIENTIST TECH		EOC:		LABOR	
Res Dept:	949	Overtime:	Class:	Sal	Sal	Sal	Sal
Yr Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cum Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yr Total Cost:	0	0	0	0	0	0	0
Cum Total Cost:	0	0	0	0	0	0	0

Resource:	GLMINT	GEN LABOR MAINT		EOC:		LABOR	
Res Dept:	949	Overtime:	Class:	HOU	HOU	HOU	HOU
Yr Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cum Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yr Total Cost:	0	0	0	0	0	0	0
Cum Total Cost:	0	0	0	0	0	0	0

# Fluor Fernald, Inc.

ESTIMATE SUPPORT WORKSHEET  
FOR ACTIVITY BASED ESTIMATING  
(1 FTE EQUALS 1747 HOURS)

DATE: 05-Sep-01  
PROJECT MGR: J.D. CHIOU  
CAM: J.D. CHIOU  
PREPARED BY: W. FICK  
FISCAL YEAR: 2006-2007

PBS: OHFN08  
WBS: 1.1.G.M  
CTRL ACCT: G711  
CHARGE NO: G7111  
COMMENT NO F06-026

**Resource: HEOOPR 949**      **HEAVY EQUIP OPERATOR**      **LABOR**

Res Dept: 949      Overtime:      Class:      EOC: HOU

	Oct 00-		Oct 01-		Oct 02-		Oct 03-		Oct 04-		Oct 05-		Oct 06-		Oct 07-		Oct 08-		Oct 09-			
	Yr	Sep	Yr	Sep	Yr	Sep	Yr	Sep														
Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	0	0
Cum Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	0	0
Yr Total Cost:	0	0	0	0	0	0	0	0	0	0	0	0	456	456	456	456	456	456	456	456	0	0
Cum Total Cost:	0	0	0	0	0	0	0	0	0	0	0	0	456	456	456	456	456	456	456	456	0	456

**Resource: INDMEC 949**      **INDUSTRIAL MECHANIC**      **LABOR**

Res Dept: 949      Overtime:      Class:      EOC: HOU

	Oct 00-		Oct 01-		Oct 02-		Oct 03-		Oct 04-		Oct 05-		Oct 06-		Oct 07-		Oct 08-		Oct 09-			
	Yr	Sep	Yr	Sep	Yr	Sep	Yr	Sep														
Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.2	11.2	28.0	28.0	28.0	28.0	28.0	28.0	0	0
Cum Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.2	11.2	28.0	28.0	28.0	28.0	28.0	28.0	0	0
Yr Total Cost:	0	0	0	0	0	0	0	0	0	0	0	0	472	472	764	764	1,237	1,237	1,237	1,237	0	0
Cum Total Cost:	0	0	0	0	0	0	0	0	0	0	0	0	472	472	764	764	1,237	1,237	1,237	1,237	0	1,237

**Resource: LABCHM 949**      **CHEMIST**      **LABOR**

Res Dept: 949      Overtime:      Class:      EOC: SAL

	Oct 00-		Oct 01-		Oct 02-		Oct 03-		Oct 04-		Oct 05-		Oct 06-		Oct 07-		Oct 08-		Oct 09-			
	Yr	Sep	Yr	Sep	Yr	Sep	Yr	Sep														
Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	60.7	60.7	617.0	617.0	617.0	617.0	617.0	617.0	0	0
Cum Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	60.7	60.7	617.0	617.0	617.0	617.0	617.0	617.0	0	0
Yr Total Cost:	0	0	0	0	0	0	0	0	0	0	0	0	3,144	3,144	31,232	31,232	34,376	34,376	34,376	34,376	0	0
Cum Total Cost:	0	0	0	0	0	0	0	0	0	0	0	0	3,144	3,144	31,232	31,232	34,376	34,376	34,376	34,376	0	34,376

**Resource: LABMGR 949**      **LAB MANAGER**      **LABOR**

Res Dept: 949      Overtime:      Class:      EOC: SAL

	Oct 00-		Oct 01-		Oct 02-		Oct 03-		Oct 04-		Oct 05-		Oct 06-		Oct 07-		Oct 08-		Oct 09-			
	Yr	Sep	Yr	Sep	Yr	Sep	Yr	Sep														
Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	61.4	61.4	68.1	68.1	68.1	68.1	68.1	68.1	0	0
Cum Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	61.4	61.4	68.1	68.1	68.1	68.1	68.1	68.1	0	0
Yr Total Cost:	0	0	0	0	0	0	0	0	0	0	0	0	4,545	4,545	5,001	5,001	5,001	5,001	5,001	5,001	0	0
Cum Total Cost:	0	0	0	0	0	0	0	0	0	0	0	0	4,545	4,545	5,001	5,001	5,001	5,001	5,001	5,001	0	5,001

**Resource: LABTEC 949**      **LAB TECH**      **LABOR**

Res Dept: 949      Overtime:      Class:      EOC: SAL

	Oct 00-		Oct 01-		Oct 02-		Oct 03-		Oct 04-		Oct 05-		Oct 06-		Oct 07-		Oct 08-		Oct 09-			
	Yr	Sep	Yr	Sep	Yr	Sep	Yr	Sep														
Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	37.8	37.8	415.0	415.0	415.0	415.0	415.0	415.0	0	0
Cum Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	37.8	37.8	415.0	415.0	415.0	415.0	415.0	415.0	0	0
Yr Total Cost:	0	0	0	0	0	0	0	0	0	0	0	0	1,404	1,404	15,181	15,181	16,585	16,585	16,585	16,585	0	0
Cum Total Cost:	0	0	0	0	0	0	0	0	0	0	0	0	1,404	1,404	15,181	15,181	16,585	16,585	16,585	16,585	0	16,585

# Fluor Fernald, Inc.

ESTIMATE SUPPORT WORKSHEET  
FOR ACTIVITY BASED ESTIMATING  
(1 FTE EQUALS 1747 HOURS)

DATE: 05-Sep-01  
PROJECT MGR: J.D. CHIOU  
CAM: J.D. CHIOU  
PREPARED BY: W. FICK  
FISCAL YEAR: 2006-2007

PBS: OHFN06  
WBS: 1.1.G.M  
CTRL ACCT: G711  
CHARGE NO: G7111  
COMMENT NO F06-026

**MOTOR VEHICLE OPER** LABOR

Resource:	Res Dept:	MVOOPR	949	Overetime:		Class:		EOC:		HOU														
				Oct 00-	Sep 01	Oct 01-	Sep 02	Oct 02-	Sep 03	Oct 03-	Sep 04	Oct 04-	Sep 05	Oct 05-	Sep 06	Oct 06-	Sep 07	Oct 07-	Sep 08	Oct 08-	Sep 09	Oct 09-	Sep 10	
Yr Hours:				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cum Hours:				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yr Total Cost:				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cum Total Cost:				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

**PROJECT SUPPORT MGR** LABOR

Resource:	Res Dept:	PJMGR	949	Overetime:		Class:		EOC:		SAL														
				Oct 00-	Sep 01	Oct 01-	Sep 02	Oct 02-	Sep 03	Oct 03-	Sep 04	Oct 04-	Sep 05	Oct 05-	Sep 06	Oct 06-	Sep 07	Oct 07-	Sep 08	Oct 08-	Sep 09	Oct 09-	Sep 10	
Yr Hours:				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cum Hours:				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yr Total Cost:				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cum Total Cost:				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

**QA ENGINEER** LABOR

Resource:	Res Dept:	GACENG	949	Overetime:		Class:		EOC:		SAL														
				Oct 00-	Sep 01	Oct 01-	Sep 02	Oct 02-	Sep 03	Oct 03-	Sep 04	Oct 04-	Sep 05	Oct 05-	Sep 06	Oct 06-	Sep 07	Oct 07-	Sep 08	Oct 08-	Sep 09	Oct 09-	Sep 10	
Yr Hours:				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cum Hours:				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yr Total Cost:				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cum Total Cost:				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

**RAD TECH** LABOR

Resource:	Res Dept:	RADTEC	949	Overetime:		Class:		EOC:		SAL														
				Oct 00-	Sep 01	Oct 01-	Sep 02	Oct 02-	Sep 03	Oct 03-	Sep 04	Oct 04-	Sep 05	Oct 05-	Sep 06	Oct 06-	Sep 07	Oct 07-	Sep 08	Oct 08-	Sep 09	Oct 09-	Sep 10	
Yr Hours:				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cum Hours:				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yr Total Cost:				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cum Total Cost:				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

**SAFETY ENGINEER** LABOR

Resource:	Res Dept:	S&HENG	949	Overetime:		Class:		EOC:		SAL														
				Oct 00-	Sep 01	Oct 01-	Sep 02	Oct 02-	Sep 03	Oct 03-	Sep 04	Oct 04-	Sep 05	Oct 05-	Sep 06	Oct 06-	Sep 07	Oct 07-	Sep 08	Oct 08-	Sep 09	Oct 09-	Sep 10	
Yr Hours:				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cum Hours:				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yr Total Cost:				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cum Total Cost:				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



**G7112**

**AREA 7 TITLE I/II DESIGN**





# Fluor Fernald, Inc.

ESTIMATE SUPPORT WORKSHEET  
FOR ACTIVITY BASED ESTIMATING  
(1 FTE EQUALS 1747 HOURS)

PBS: OHFN06  
WBS: 1.1.G.M  
CTRL ACCT: G711  
CHARGE NO: G7112  
COMMENT NO N/A

DATE: 05-Sep-01  
PROJECT MGR: J.D. CHIOU  
CAM: J.D. CHIOU  
PREPARED BY: W. FICK  
FISCAL YEAR: 2007-2008

**GRAND TOTALS:**

	Oct 00- Sep 01	Oct 01- Sep 02	Oct 02- Sep 03	Oct 03- Sep 04	Oct 04- Sep 05	Oct 05- Sep 06	Oct 06- Sep 07	Oct 07- Sep 08	Oct 08- Sep 09	Oct 09- Sep 10
Yr Hours:	0.0	0.0	0.0	0.0	0.0	0.0	1,592.9	653.0	0.0	0.0
Cum Hours:	0.0	0.0	0.0	0.0	0.0	0.0	1,592.9	2,245.9	2,245.9	2,245.9
Yr Total Cost:	0	0	0	0	0	0	356,160	124,417	0	0
Cum Total Cost:	0	0	0	0	0	0	356,160	480,577	480,577	480,577



CONTROL TEAM

CAM

**G7113**

**AREA 7 TITLE III**







**G7114**

**AREA 7 SITE PREP/EXCAVATION**



# Fluor Fernald, Inc.

DATE: 05-Sep-01  
PROJECT MGR: J.D. CHIOU  
CAM: J.D. CHIOU  
PREPARED BY: W. FICK  
FISCAL YEAR: 2008-2010

ESTIMATE SUPPORT WORKSHEET  
FOR ACTIVITY BASED ESTIMATING  
(1 FTE EQUALS 1747 HOURS)

PBS: OHFN06  
WBS: 1.1.G.M  
CTRL ACCT: G711  
CHARGE NO: G7114  
COMMENT NO F06-026, F06-027

Resource: Res Dept:	FIELD SUBS 949	FIELD SUBS Overtime:	SUBCONTRACTORS																	
			Class:		EOC: SUB		Class:		EOC: SAL		Class:		EOC: SAL							
Yr Units:	Oct 00- Sep 01	0.0 0.0	Oct 01- Sep 02	0.0 0.0	Oct 02- Sep 03	0.0 0.0	Oct 03- Sep 04	0.0 0.0	Oct 04- Sep 05	0.0 0.0	Oct 05- Sep 06	0.0 0.0	Oct 06- Sep 07	0.0 0.0	Oct 07- Sep 08	3,709,495.5 3,709,495.5	Oct 08- Sep 09	1,611,513.6 5,321,009.1	Oct 09- Sep 10	620,090.9 5,941,100.0
Cum Units:		0.0		0.0		0.0		0.0		0.0		0.0		0.0		4,504,930		6,518,759		7,316,128
Yr Total Cost:		0		0		0		0		0		0		0		4,504,930		6,518,759		7,316,128
Cum Total Cost:		0		0		0		0		0		0		0		4,504,930		6,518,759		7,316,128

Resource: Res Dept:	QA/QC TECH 949	QA/QC TECH Overtime:	LABOR																	
			Class:		EOC: SAL		Class:		EOC: SAL		Class:		EOC: SAL							
Yr Hours:	Oct 00- Sep 01	0.0 0.0	Oct 01- Sep 02	0.0 0.0	Oct 02- Sep 03	0.0 0.0	Oct 03- Sep 04	0.0 0.0	Oct 04- Sep 05	0.0 0.0	Oct 05- Sep 06	0.0 0.0	Oct 06- Sep 07	0.0 0.0	Oct 07- Sep 08	325.5 325.5	Oct 08- Sep 09	156.4 481.9	Oct 09- Sep 10	0.0 481.9
Cum Hours:		0.0		0.0		0.0		0.0		0.0		0.0		0.0		15,348		8,192		23,540
Yr Total Cost:		0		0		0		0		0		0		0		15,348		8,192		23,540
Cum Total Cost:		0		0		0		0		0		0		0		15,348		23,540		23,540

Resource: Res Dept:	RAD TECH 949	RAD TECH Overtime:	LABOR																	
			Class:		EOC: SAL		Class:		EOC: SAL		Class:		EOC: SAL							
Yr Hours:	Oct 00- Sep 01	0.0 0.0	Oct 01- Sep 02	0.0 0.0	Oct 02- Sep 03	0.0 0.0	Oct 03- Sep 04	0.0 0.0	Oct 04- Sep 05	0.0 0.0	Oct 05- Sep 06	0.0 0.0	Oct 06- Sep 07	0.0 0.0	Oct 07- Sep 08	1,769.9 1,769.9	Oct 08- Sep 09	850.1 2,620.0	Oct 09- Sep 10	0.0 2,620.0
Cum Hours:		0.0		0.0		0.0		0.0		0.0		0.0		0.0		92,089		49,154		141,242
Yr Total Cost:		0		0		0		0		0		0		0		92,089		141,242		141,242
Cum Total Cost:		0		0		0		0		0		0		0		92,089		141,242		141,242

Resource: Res Dept:	S&H ENG 949	SAFETY ENGINEER Overtime:	LABOR																	
			Class:		EOC: SAL		Class:		EOC: SAL		Class:		EOC: SAL							
Yr Hours:	Oct 00- Sep 01	0.0 0.0	Oct 01- Sep 02	0.0 0.0	Oct 02- Sep 03	0.0 0.0	Oct 03- Sep 04	0.0 0.0	Oct 04- Sep 05	0.0 0.0	Oct 05- Sep 06	0.0 0.0	Oct 06- Sep 07	0.0 0.0	Oct 07- Sep 08	325.5 325.5	Oct 08- Sep 09	156.4 481.9	Oct 09- Sep 10	0.0 481.9
Cum Hours:		0.0		0.0		0.0		0.0		0.0		0.0		0.0		24,706		13,187		37,893
Yr Total Cost:		0		0		0		0		0		0		0		24,706		13,187		37,893
Cum Total Cost:		0		0		0		0		0		0		0		24,706		37,893		37,893

Resource: Res Dept:	WSTENG 949	WASTE ENGINEER Overtime:	LABOR																	
			Class:		EOC: SAL		Class:		EOC: SAL		Class:		EOC: SAL							
Yr Hours:	Oct 00- Sep 01	0.0 0.0	Oct 01- Sep 02	0.0 0.0	Oct 02- Sep 03	0.0 0.0	Oct 03- Sep 04	0.0 0.0	Oct 04- Sep 05	0.0 0.0	Oct 05- Sep 06	0.0 0.0	Oct 06- Sep 07	0.0 0.0	Oct 07- Sep 08	58.7 58.7	Oct 08- Sep 09	28.2 86.9	Oct 09- Sep 10	0.0 86.9
Cum Hours:		0.0		0.0		0.0		0.0		0.0		0.0		0.0		4,574		2,441		7,015
Yr Total Cost:		0		0		0		0		0		0		0		4,574		2,441		7,015
Cum Total Cost:		0		0		0		0		0		0		0		4,574		7,015		7,015

# Fluor Fernald, Inc.

PBS: OHFN06  
WBS: 1.1.G.M  
CTRL ACCT: G711  
CHARGE NO: G7114  
COMMENT NO F06-026, F06-027

ESTIMATE SUPPORT WORKSHEET  
FOR ACTIVITY BASED ESTIMATING  
(1 FTE EQUALS 1747 HOURS)

DATE: 05-Sep-01  
PROJECT MGR: J.D. CHIOU  
CAM: J.D. CHIOU  
PREPARED BY: W. FICK  
FISCAL YEAR: 2008-2010

**GRAND TOTALS:**

	Oct 00- Sep 01	Oct 01- Sep 02	Oct 02- Sep 03	Oct 03- Sep 04	Oct 04- Sep 05	Oct 05- Sep 06	Oct 06- Sep 07	Oct 07- Sep 08	Oct 08- Sep 09	Oct 09- Sep 10
Yr Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2,479.7	1,191.0	0.0
Yr Total Cost:	0	0	0	0	0	0	0	2,479.7	3,670.7	3,670.7
Cum Total Cost:	0	0	0	0	0	0	0	4,641,646	2,086,803	797,369
								4,641,646	6,728,449	7,525,818

*[Signature]*  
CONTROL TEAM

**Fluor Fernald, Inc.**  
**PROJECTS CONTROLS**  
**ESTIMATING SERVICES**

May 15, 2001

**PROJECT DESCRIPTION:** SOILS REMEDIATION AREA 7

**WBS NUMBER:** 1.1.G.M

**PROJECT ENGINEER:** T. CRAWFORD

**ESTIMATOR:** J. AMOS

**ESTIMATE NUMBER:** C20105002

**BASIS OF ESTIMATE**

**SUPPORTING DOCUMENTATION:**

Verbal Scope	<input type="checkbox"/>	P & ID's	<input type="checkbox"/>	Work Plan	<input type="checkbox"/>
Drawings	<input type="checkbox"/>	Equipment List	<input type="checkbox"/>	Site Walk	<input type="checkbox"/>
Sketches	<input checked="" type="checkbox"/>	Specifications	<input type="checkbox"/>	Eng. Mtg.	<input checked="" type="checkbox"/>
Flow Diagrams	<input type="checkbox"/>	Written Scope	<input checked="" type="checkbox"/>	Estimate	<input type="checkbox"/>

**TYPE OF ESTIMATE:**

Change Proposal	<input type="checkbox"/>	Government	<input type="checkbox"/>
Plan/Feasibility	<input type="checkbox"/>	Conceptual	<input type="checkbox"/>
Construction	<input type="checkbox"/>	Title I Design	<input type="checkbox"/>
Budget	<input checked="" type="checkbox"/>	Independent	<input type="checkbox"/>

**BASIS OF ESTIMATE:**

Estimate the cost of excavation of soils, size-reducing building slabs, foundations, manholes, utility trenches and piping from trenches, loading and hauling to the OSDF facility or to the bulk storage facility for shipment off site (shipment cost not included in this estimate). Quantities used were supplied by project management. Scope is based on Scenario #6.

**Fluor Fernald, Inc.**  
**PROJECTS CONTROLS**  
**ESTIMATING SERVICES**

May 15, 2001

**PROJECT DESCRIPTION:** SOILS REMEDIATION AREA 7

**WBS NUMBER:** 1.1.G.M

**PROJECT ENGINEER:** T. CRAWFORD

**ESTIMATOR:** J. AMOS

**ESTIMATE NUMBER:** C20105002

**ESTIMATE ASSUMPTIONS**

**EXECUTION:**

- This project is to be performed on a 50-hour week, 10 hours a day.
- This project is to be performed on a 40-hour week, 8 hours a day.
- Premium time allowed.

**WAGE RATES:**

- Wage rates within this estimate are based on Project Labor Agreement rates, effective October 2000 and are considered FY01 dollars for estimating.
- Wage rates within this estimate are based on FF Support Contractor FSC 599 wage rates, effective October 1999 have been escalated 3% and are considered FY01 dollars for estimating.
- Wage rates within this estimate are based on FF FTE Planning Labor Rates FY01.

**ENGINEERING:**

- N/A
- Engineering dollars provided by the Project Engineer.
- Engineering dollars have been factored in at the standard 12% of the total direct and indirect field costs as per request of Project Engineer.

**CONSTRUCTION MANAGEMENT:**

- N/A
- Construction Management dollars provided by the Project Engineer.
- Construction Management dollars have been factored in at the standard 30% of the total direct and indirect field costs as per request of Project Engineer.

**PROJECT MANAGEMENT:**

- N/A
- Project Management dollars provided by the Project Engineer.
- Project Management dollars have been factored in at the standard 30% of the total direct and indirect field costs as per request of Project Engineer.

**WASTE PROGRAM MANAGEMENT:**

- N/A
- Waste Program Management dollars provided by the Project Engineer.

**Fluor Fernald, Inc.**  
**PROJECTS CONTROLS**  
**ESTIMATING SERVICES**

May 15, 2001

**PROJECT DESCRIPTION:** SOILS REMEDIATION AREA 7

**WBS NUMBER:** 1.1.G.M

**PROJECT ENGINEER:** T. CRAWFORD

**ESTIMATOR:** J. AMOS

**ESTIMATE NUMBER:** C20105002

**PRODUCTIVITY:**

A productivity factor has been developed and applied to the unit man-hours derived from MEANS, Richardson, NECA, and or any other published estimating source. See attachment APPENDIX "A" and APPENDIX "B".

**ESCALATION:**

Escalation costs are excluded from the target estimate. The escalation costs are calculated within the Micro-Frame computer system according to the plan for rebaselining.

**UNIT RATES:**

Unit man-hours, equipment and material dollars are based on Richardson, MEANS, NECA, and or other published rates.

**G & A (HO EXPENSE):**

G & A are excluded from the target estimate. The G & A cost are calculated within the Micro-Frame computer system according to the plan for rebaselining.

**HEALTH PHYSICS:**

See attached APPENDIX "C".

**RISK BUDGET:**

There is no risk allowance in this estimate.

**CONTINGENCY:**

There is no contingency allowance in this estimate.

**Fluor Fernald, Inc.**  
**PROJECTS CONTROLS**  
**ESTIMATING SERVICES**

May 15, 2001

**PROJECT DESCRIPTION:** SOILS REMEDIATION AREA 7

**WBS NUMBER:** 1.1.G.M

**PROJECT ENGINEER:** T. CRAWFORD

**ESTIMATOR:** J. AMOS

**ESTIMATE NUMBER:** C20105002

**ESTIMATE INCLUSIONS & EXCLUSIONS**

**INCLUSIONS:**

- X Premobilization & Mobilization.
- X Demobilization.
- X Labor hours.
- X Material dollars.
- X Equipment dollars.
- X Premium time
- X Excavate, load, haul and dump soil, asphalt, gravel, concrete slabs & foundations (sized Reduced), to the OSDF or other appropriate site.
- X Re-grade slopes to 5H:1V and seed, fertilize, and mulch
- X Bulking factors used are as follows:
  - 1. Soils 1.15
  - 2. Concrete 1.33
  - 3. Pipe debris 2.00
- X Installation, maintenance, and removal of silt and construction/rad control fencing

**EXCLUSIONS:**

- X Permits and fees.
- X FF G & A (Home Office Expense).
- X Construction Management.
- X Any second tier subcontract costs.
- X Project Management dollars.
- X Waste Management dollars.
- X Sampling, air monitoring and testing of soils
- X Shipping and disposal costs of materials off site
- X Shipping containers
- X Delays due to unidentified contamination of materials or levels of contamination

**ESTIMATE SUMMARY SHEET**

PROJECT: SOILS REMEDIATION AREA 7  
 ESTIMATE #: C2-01-05-002  
 CLIENT: DOE  
 WBS #: 1.1.G.M

DATE: 12-May-01  
 ESTIMATOR: JEA  
 LOCATION: Fernald  
 TASK NO.: G7114

**Fluor Fernald, Inc.**

ITEM DESCRIPTION	M/H	RATE	LABOR \$	S/C \$	MAT'L \$	EQUIP. \$	TOTAL \$	
SITE PREPARATION	5,167		\$162,940	\$8,700	\$18,310	\$10,660	\$200,310	
EXCAVATION	31,055		\$966,600		\$115,300	\$1,204,000	\$2,285,900	
CONTROL & MANAGEMENT	275		\$8,900	\$50,000		\$8,200	\$67,100	
INTERIM RESTORATION	4,317		\$128,200		\$113,800	\$37,200	\$279,200	
<b>DIRECT FIELD COSTS TOTAL</b>								
	40,813	\$31.04	\$1,266,640	\$58,700	\$247,110	\$1,260,060	\$2,832,510	
SUPERVISION - CONTRACTOR	19,132		\$566,620				\$566,620	
SMALL TOOLS & CONSUMABLES	-	-	-		\$25,300		\$25,300	
MISC. EQUIP. RENTAL	-	-	-			\$142,800	\$142,800	
TEMPORARY FACILITIES	816		\$25,300		\$25,300		\$50,600	
TEMPORARY UTILITY HOOK-UP	265		\$8,200		\$4,400		\$12,600	
JOB CLEAN-UP	612		\$19,000		\$6,300		\$25,300	
PER DIEM / SUBSISTANCE	-	-	-					
HEALTH PHYSICS S/C	251		\$7,800		\$38,100		\$45,900	
CERCLA - TRAINING	200							
GET/SITE ACCESS & JOB SPECIFIC TRAINING	414		\$12,800				\$12,800	
PAYROLL BURDENS & BENEFITS	-	-	\$1,086,600				\$1,086,600	
OVERHEAD & PROFIT	-	-	-	\$960,200			\$960,200	
BOND	-	-	-	\$74,900			\$74,900	
SALES TAX	-	-	-		\$20,800	\$84,200	\$105,000	
<b>INDIRECT FIELD COSTS TOTAL</b>								
	21,691		\$1,726,320	\$1,035,100	\$120,200	\$227,000	\$3,108,620	
<b>DIRECT &amp; INDIRECT FIELD COSTS TOTAL</b>								
	62,504	\$47.88	\$2,992,960	\$1,093,800	\$367,310	\$1,487,060	\$5,941,130	
<b>TARGET ESTIMATE</b>							<b>(FY 01 DOLLARS)</b>	<b>\$5,941,130</b>

ESTIMATE PERFORMED BY ESTIMATING SERVICES

### ESTIMATE SUMMARY SHEET

PROJECT: SOILS REMEDIATION AREA 7  
 ESTIMATE NO. C2-01-05-002  
 CLIENT: DOE  
 WBS NO.: 1.1.G.M

DATE: 12-May-01  
 ESTIMATOR: JEA  
 LOCATION: Fernald  
 TASK NO.: G7114

### FACTORS

FIXED PRICE \$	LABOR \$	S/C \$	MATL. \$	EQUIP. \$	PPE \$	TOTAL \$
DFC DOLLARS	\$1,286,640	\$58,700	\$247,110	\$1,260,060	\$38,100	\$2,870,610
IFC COST FACTOR	2.3629	-	1.2481	1.1133	-	-
BOND + OVERHEAD & PROFIT COST FACTOR	1.2110	1.2110	1.2110	1.2110	1.2110	-
SALES TAX	-	-	1.0600	1.0600	1.0600	-
<b>DIRECT FIELD COST FACTOR =</b>	<b>2.8615</b>	<b>1.2110</b>	<b>1.6021</b>	<b>1.4291</b>	<b>1.2836</b>	-
<b>BASE ESTIMATE \$'s</b>	<b>\$3,624,430</b>	<b>\$71,085</b>	<b>\$395,889</b>	<b>\$1,800,773</b>	<b>\$48,907</b>	<b>\$5,941,084</b>
<b>BASE FACTOR</b>	<b>1.0000</b>	<b>1.0000</b>	<b>1.0000</b>	<b>1.0000</b>	<b>1.0000</b>	-
<b>TARGET ESTIMATE FACTOR</b>	<b>2.8615</b>	<b>1.2110</b>	<b>1.6021</b>	<b>1.4291</b>	<b>1.2836</b>	-
<b>FPS TARGET ESTIMATE (FY00 \$)</b>	<b>\$3,624,430</b>	<b>\$71,085</b>	<b>\$395,889</b>	<b>\$1,800,773</b>	<b>\$48,907</b>	<b>\$5,941,084</b>

**NOTE:**

If there are no DFC Equip. \$, enter The IFC Equip. \$'s into the direct field cost TOTAL and delete IFC Factor in G62.

## ESTIMATE SUMMARY SHEET

PROJECT: SOILS REMEDIATION AREA 7  
 ESTIMATE NO. C2-01-05-002  
 CLIENT: DOE  
 WBS NO.: 1.1.G.M

### Direct Field Cost w/FACTORS

DATE: 12-May-01  
 ESTIMATOR: JEA  
 LOCATION: Fernald  
 TASK NO.: G7114

PAY ITEM NO.	DESCRIPTION	LABOR \$	S/C \$	MAT'L \$	EQUIP. \$	PPE \$	TOTAL \$
		(ASSIGN OR PRORATE PPE MAT'L.'s)->				38100	
	SITE PREPARATION	162940 \$466,250	8700 \$10,540	18010 \$28,850	10660 \$15,230		\$520,870
	EXCAVATION	966600 \$2,765,880		115300 \$184,720	1204000 \$1,720,660	38100 \$48,910	\$4,720,170
	CONTROL & MANAGEMENT	8900 \$25,470	50000 \$60,550		8200 \$11,720		\$97,740
	INTERIM RESTORATION	128200 \$366,840		113800 \$182,320	37200 \$53,160		\$602,320
<b>TOTAL DIRECT FIELD COSTS w/FACTORS</b>							<b>\$5,941,100</b>



DETAIL ESTIMATE WORKSHEETS

**Fluor Fernald, Inc.**

DATE: 12-May-01  
 ESTIMATOR: JEA  
 LOCATION: Fernald  
 TASK NO.: G7114

PROJECT: SOILS REMEDIATION AREA 7  
 ESTIMATE NO.: C2-01-05-002  
 CLIENT: DOE  
 WBS NO.: 1.1.G.M

ITEM NO.	SUMMARY	QTY	UNIT	MAN-HOURS		Rate	COST / UNIT			LABOR	S/C	MAT'L	EQUIP	TOTAL
				Unit	Total		Labo	S/C	Mat'l					
	SITE PREPARATION				5,167	\$31.53			\$162,940	\$8,700	\$18,010	\$10,660	\$200,310	
	EXCAVATION				31,055	\$31.13			\$966,600		\$115,300	\$1,204,000	\$2,285,900	
	CONTROL & MANAGEMENT				275	\$32.42			\$8,900	\$50,000		\$8,200	\$67,100	
	INTERIM RESTORATION				4,317	\$29.70			\$128,200		\$113,600	\$37,200	\$279,200	
	<b>Subtotal Direct Cost</b>				<b>40,813</b>	<b>\$31.04</b>			<b>\$1,266,640</b>	<b>\$88,700</b>	<b>\$247,110</b>	<b>\$1,260,060</b>	<b>\$2,832,610</b>	

DETAIL ESTIMATE WORKSHEETS

**Fluor Fernald, Inc.**

DATE: 12-May-01  
 ESTIMATOR: JEA  
 LOCATION: Fernald  
 TASK NO.: G7114

PROJECT: SOILS REMEDIATION AREA 7  
 ESTIMATE NO.: C2-01-05-002  
 CLIENT: DOE  
 WBS NO.: 1.1.G.M

ITEM NO.	SITE PREPARATION	QTY	UNIT	MAN-HOURS		COST/UNIT			LABOR	S/C	MAT'L	EQUIP	TOTAL
				Unit	Total	Rate	Labor	S/C					
	<b>PREMOBILIZATION</b>												
	A. Insurance Certificates, List of Sub-Tier Contractors Procurement Documents, Safe Work Plans, QA/QC Plan, Project Execution Plan, Construction and Engineering Documentation, Acceptable baseline Schedules Duration 8 wks	1	LS	200.00	1,600	35.00		\$56,000					\$56,000
	<b>MOBILIZATION</b>												
D	S/C Office Trailer	19	mo			31.18	300		\$5,700				\$5,700
D	Survey and Engineering Controls	1	LS				3,000		\$3,000				\$3,000
C	Install Utilities	1	LS	40.00	40	31.18	500	\$1,200		\$1,000	\$500		\$2,700
D	Other misc. requirements as required.	1	LS	80.00	80	31.18	500	\$2,500		\$500	\$500		\$3,500
D							6,360						
					1,720	\$34.71		59,700	8,700	2,000	1,500		\$71,900



DETAIL ESTIMATE WORKSHEETS

**Fluor Fernald, Inc.**

DATE: 12-May-01  
 ESTIMATOR: JEA  
 LOCATION: Fernald  
 TASK NO.: G7114

PROJECT: SOILS REMEDIATION AREA 7  
 ESTIMATE NO.: C2-01-05-002  
 CLIENT: DOE  
 WBS NO.: 1.1.G.M

ITEM NO.	EXCAVATION	QTY	UNIT	MAN-HOURS		Rate	COST/UNIT			LABOR	S/C	MAT'L	EQUIP	TOTAL
				Unit	Total		Subtotal	Mat'l	Equip					
mC	Excavate & load rr ballast & ties	9112	CY	0.075	1248	32.43			5.70	\$40,470		\$51,940	\$92,410	
D	Haul rr ballast & ties to stockpile area	10479	CY	0.060	719	28.55			2.30	\$20,540		\$24,100	\$44,640	
mC	Clear & grub vegetation at Paddys Run	0.5	Acre	50.000	46	32.43			3500.00	\$1,480		\$1,750	\$3,230	
mC	Excavate & load Cat 1 soil & soil like mater	72431	CY	0.052	6877	32.43			3.80	\$223,050		\$275,240	\$498,290	
D	Haul Cat 1 soil & soil like mater to OSDF	83296	CY	0.038	3621	28.55			2.30	\$103,380		\$191,580	\$294,960	
mC	Excavate & load Cat 1 utility trench bkfill mater	11626	CY	0.060	1274	32.43			6.56	\$41,310		\$76,270	\$117,580	
D	Haul Cat 1 utility trench bkfill mater to OSDF	13370	CY	0.044	673	28.55			2.30	\$19,210		\$30,750	\$49,960	
mC	Excavate & load Cat 1 gravel from roads	3625	CY	0.052	344	32.43			3.80	\$11,160		\$13,780	\$24,940	
D	Haul Cat 1 gravel from roads to OSDF	4169	CY	0.038	181	28.55			2.30	\$5,170		\$9,590	\$14,760	
mC	Excavate, size-reduce, & load Cat 2 util. Piping	486	CY	1.900	1686	32.43			7.60	\$54,680		\$3,690	\$58,370	
D	Haul size-reduced Cat 2 piping to OSDF	972	CY	0.044	49	28.55			2.68	\$1,400		\$2,600	\$4,000	
mC	Excavate, size-reduce, & load Cat 2 conc slabs	12698	CY	*0.104	2411	32.43			7.60	\$78,210		\$96,500	\$174,710	
D	Haul size-reduced Cat 2 conc slabs to OSDF	16888	CY	0.044	850	28.55			2.68	\$24,270		\$45,260	\$69,530	
mC	Excavate, size-reduce, & load Cat 2 misc conc	8537	CY	0.104	1621	32.43			7.60	\$52,580		\$64,880	\$117,460	
D	Haul size-reduced Cat 2 misc conc to OSDF	11354	CY	0.044	572	28.55			2.68	\$16,320		\$30,430	\$46,750	
mC	Excavate & load AWAC utility trench bkfill	1200	CY	0.060	131	32.43			6.56	\$4,260		\$7,870	\$12,130	
D	Haul AWAC utility trench bkfill to bulk staging	1380	CY	0.044	69	28.55			2.30	\$1,980		\$3,170	\$5,150	
mC	Excavate, size-reduce, & load AWAC utility piping	163	CY	1.900	566	32.43			7.60	\$18,340		\$1,240	\$19,580	
D	Haul size-reduce AWAC utility piping to bulk stag.	326	CY	0.044	26	28.55			2.68	\$750		\$870	\$1,620	
mC	Dismantle const. Management area	1	Lot	300.000	343	32.38			5000.00	\$11,110		\$5,000	\$16,110	
D	Excavate & load Paddys Run riprap	2710	CY	0.075	371	32.43			5.70	\$12,030		\$15,440	\$27,470	
D	Excavate & load Paddys Run riprap to stockpile	3604	CY	0.044	181	28.55			2.68	\$5,180		\$9,660	\$14,840	
mC	Excavate & load Paddys Run riprap on East bank	1500	CY	0.075	205	32.43			5.70	\$6,660		\$8,550	\$15,210	
D	Haul Paddys Run riprap & place	1995	CY	0.044	100	28.55			2.68	\$2,870		\$5,350	\$8,220	
D	Replace const fence w/ certification rope	6300	LF	0.090	649	29.52	0.25		0.10	\$19,150	\$1,580	\$630	\$21,360	
mC	Excavate & load Cat 2 gravel from roads	2566	CY	0.052	244	32.43			3.80	\$7,900		\$9,750	\$17,650	
D	Haul Cat 2 gravel from roads to OSDF	2951	CY	0.038	128	28.55			2.30	\$3,660		\$6,790	\$10,450	
D	Decon equipment	1	Lot	160.000	183	21.63				\$3,960		\$3,960	\$3,960	
mC	Labor for spotting, wheel washing, etc.	320	Hrs	1.000	584	29.52				\$17,250	\$113,750	\$16,250	\$17,250	
D	Seed & mulch	32.5	Acres	20.000	744	29.52			500.00	\$21,950		\$16,250	\$151,950	
mC	Assume handle 30% material twice Excavate & load	29360	CY	0.052	2788	32.43			3.80	\$90,410		\$111,570	\$201,980	
D	Assume handle 30% material twice Haul	29360	CY	0.038	1276	28.55			2.30	\$36,440		\$67,530	\$103,970	
mC	Excavation "punchlist" (allowance)	1	Lot	160.000	292	32.43			16000.00	\$9,480		\$16,000	\$25,480	
<b>Subtotal Direct Cost</b>										<b>\$966,600</b>		<b>\$115,900</b>	<b>\$1,204,000</b>	<b>\$2,286,500</b>
				<b>31055</b>										

DETAIL ESTIMATE WORKSHEETS

PROJECT: SOILS REMEDIATION AREA 7  
 ESTIMATE NO.: C2-01-05-002  
 CLIENT: DOE  
 WBS NO.: 1.1.G.M

DATE: 12-May-01  
 ESTIMATOR: JEA  
 LOCATION: Fernald  
 TASK NO.: G7114

# Fluor Fernald, Inc.

ITEM NO.	CONTROL & MANAGEMENT	QTY	UNIT	MAN-HOURS		COST/UNIT			LABOR	S/C	MAT'L	EQUIP	TOTAL
				Unit	Total	Rate	Labor	S/C					
D	Remove sediment from ditches & silt fence will be required two times during this period	2	Ea	120.000	275	32.43			\$8,900			\$8,240	\$17,140
D	Maint. Surface water & erosion control structures*												
D	Maint. Certification fencing *												
D	Provide dust control as needed (Allowance per spec)	1	Lot				50000.00			\$50,000			\$50,000
D	Provide regrading & seeding as needed *												
* Items included in sediment & ditches													
					276	\$32.42		8,900	50,000			8,200	\$67,100
Subtotal Direct Cost												\$67,100	

DETAIL ESTIMATE WORKSHEETS

**Fluor Fernald, Inc.**

DATE: 12-May-01  
 ESTIMATOR: JEA  
 LOCATION: Fernald  
 TASK NO.: G7114

PROJECT: SOILS REMEDIATION AREA 7  
 ESTIMATE NO.: C2-01-05-002  
 CLIENT: DOE  
 WBS NO.: 1.1.G.M

ITEM NO.	INTERIM RESTORATION	QTY	UNIT	MAN-HOURS		COST/UNIT			LABOR	S/C	MAT'L	EQUIP	TOTAL	
				Unit	Total	Rate	Labor	S/C						Mat'l
D	Grading to reshape slopes to 5:1:1V	8500	CY	0.045	438	29.52			\$12,920			\$19,210	\$32,130	
D	Seed & mulch	32.5	Acres	20.000	744	29.52	3500.00		\$21,950		\$113,750	\$16,250	\$151,950	
D	Remove silt fence	1000	LF	0.020	23	29.52			\$680			\$500	\$1,180	
D	Remove Consl/Rad fence	6300	LF	0.050	360	29.52			\$10,640			\$320	\$10,960	
D	Remove signs	65	Ea	0.750	56	29.52			\$1,650			\$70	\$1,720	
D	Remove dust control piping	1100	LF	0.050	63	29.52			\$1,860			\$880	\$2,740	
D	Surveying for final grade, payment, etc.	32.5	Acres	60.000	2231	29.52			\$65,900				\$65,900	
<b>DEMobilIZATION</b>														
D	Complete Punch List items.	1	LS	20.000	20	31.18			\$620				\$620	
D	Remove Trailer and Change Facilities.	1	LS	20.000	20	31.18			\$620				\$620	
D	Remove all Utilities.	1	LS	40.000	40	31.18			\$1,250				\$1,250	
INC	Decontaminate Equipment.	1	LS	160.000	293	31.18			\$9,130				\$9,130	
D	Loadout contractors equipment.	1	LS	20.000	20	31.18			\$620				\$620	
D	Other area requirements.	1	LS	10.000	10	31.18			\$310				\$310	
<b>Subtotal Direct Cost</b>											<b>\$128,200</b>	<b>\$113,800</b>	<b>\$7,200</b>	<b>\$249,200</b>

DETAIL ESTIMATE WORKSHEETS

# Fluor Fernald, Inc.

DATE: 12-May-01  
 ESTIMATOR: JEA  
 LOCATION: Fernald  
 TASK NO.: G7114

PROJECT: SOILS REMEDIATION AREA 7  
 ESTIMATE NO.: C2-01-05-002  
 CLIENT: DOE  
 WBS NO.: 1.1.G.M

ITEM NO.	QTY	UNIT	MAN-HOURS			COST/UNIT			LABOR	S/C	MAT'L	EQUIP	TOTAL
			Unit	Total	Rate	Labor	S/C	Mat'l					
<b>Project Staffing</b>													
1. Project Manager	1594	hr	1	1594	54.42			\$86,760				\$86,760	
2. Project Superintendent	3189	hr	1	3189	37.85			\$120,690				\$120,690	
3. Project Engineer	1594	hr	1	1594	33.19			\$52,920				\$52,920	
4. Safety Engineer	2392	hr	1	2392	30.34			\$72,560				\$72,560	
5. Industrial Hygiene Tech.	797	hr	1	797	28.33			\$22,580				\$22,580	
6. QA/QC Engineer	1594	hr	1	1594	28.05			\$44,720				\$44,720	
7. Office Administration	3189	hr	1	3189	19.31			\$61,570				\$61,570	
8. Contract Administration/ Scheduler	3189	hr	1	3189	25.58			\$81,570				\$81,570	
9. Clerical	1594	hr	1	1594	14.58			\$23,250				\$23,250	
<b>SUPERVISION CONTRACTOR TOTAL *</b>									\$566,620			\$566,620	
* These totals are picked up on the summary sheet (supervision)													



APPENDIX " A "

PROJECT: SOILS REMEDIATION AREA 7  
 ESTIMATE NOC2-01-05-002  
 CLIENT: DOE  
 WBS NO.: 1.1.G.M

SITE SPECIFIC  
 EFFICIENCY / MULTIPLIER ANALYSIS

DATE: 12-May-01  
 ESTIMATOR: JEA  
 LOCATION: Fernald  
 TASK NO.: G7114

	PERCENT OF INFLUENCE ON CHART MANHOURS										WTD VALUE	PROD. RESULT	
	40%	50%	60%	70%	80%	90%	100%	105%	110%	% OF INFLUENCE			
CRAFT SKILL (NOTE 1)	POOR			FAIR			STD	V.GOOD	XCELLENT		12.0%	0.12	
CRAFT AVAIL.(NOTE 1)		POOR		FAIR			STD				8.0%	0.08	
CLIMATE (NOTE 2)	SEVERE	ICE/SNOW			RAIN		+40 TO +85				20.0%	0.18	
PLANT ELEVATION		OVER 10,000FT			5,000' TO 10,000 FT		UNDER 5,000 FT				6.0%	0.06	
WORK SPACE				200 SF	250 SF	300 SF	350 SF				10.0%	0.1	
WORK WEEK		<---- MULTIPLE SHIFTS-										15.0%	0.15
60 HOUR WORK WEEK				OVER 7 WEEKS	3 TO 7 WEEKS	UP TO 3 WEEKS	4-10s / 6-8s				0.0%	0	
60 HOUR WORK WEEK			OVER 7 WEEKS	3 TO 7 WEEKS	UP TO 3 WEEKS						0.0%	0	
SHIFTWORK													
2ND SHIFT					2ND SHIFT		OR ONE SHIFT ONLY				3.0%	0.03	
3RD SHIFT			3RD SHIFT								6.0%	0.06	
PROJECT SIZE					400M MH AND UP	300M TO 400M MH	200M TO 300M MH	200M MH OR LESS			4.0%	0.04	
PLANT TYPE				REVAMP ONLY	REVAMP & NEW	NEW IN EXIST PLT	GRASS ROOTS				8.0%	0.072	
AREA/UNION INFLUENCE	STRONG		MILD		SOME		NONE				10.0%	0.04	
NOTES.....											100.0%	91.2%	
1. TURNOVER HAS BEEN CONSIDERED													
2. FOR EXTERIOR WORK ONLY													
EFFICIENCY (AS A % OFF CHART MANHOURS)												91.2%	
MULTIPLIER - ( TO BE APPLIED TO CHART M.H.'S TO OBTAIN SITE M.H.'S )												1.10	



EFFICIENCY FACTORS

PROJECT: SOILS REMEDIATION AREA 7  
 ESTIMATE NO. C2-01-05-002  
 CLIENT: DOE  
 WBS NO.: 1.1.G.M

DATE: 12-May-01  
 ESTIMATOR: JEA  
 LOCATION: Fernald  
 TASK NO.: G7114

**Fluor Fernald, Inc.**

EXAMPLE:

STANDARD CHART MANHOURS =	NET	100
<u>EFFICIENCY FACTORS:</u>		
• SITE SPECIFIC (SEE APPENDIX A)	10%	10.0
S/T = BASE UNIT MANHOURS		110
OVERTIME PRODUCTIVITY FACTOR (SEE DETAIL WORKSHEET BACK-UP)	0.00%	0
		110
• TASK SPECIFIC ( confined space, high eievation, congestion, etc.)	0.0%	0
		110
• PPE SPECIFIC (Based on current data and estimating knowledge)		

	PPE LEVEL									
	D		Mod. "D"		Mod. "C"		C		C+	
PRODUCTIVITY HOURS ( AS A % ) / ADD MH's	MH's	MULTIPLIER	MH's	MULTIPLIER	MH's	MULTIPLIER	MH's	MULTIPLIER	MH's	
( AS A MULTIPLIER ) / TOTAL HRS	4.00%	4	28.00%	31	66.00%	73	74.00%	81	96.00%	106
TOTAL MULTIPLIER w/SITE PROD.	1.04	114.4	1.28	140.8	1.66	182.6	1.74	191.4	1.96	215.6
	1.144		1.408		1.826		1.914		2.156	

NOTE : Use the Default Productivity Factor of "mC" for working in a contaminated area if the Safety Level cannot be determined.

(SEE FD FERNALD ESTIMATING SERVICES REFERENCE MANUAL IM-6008 8.10)

Total hours worked in a specific PPE level divided by 10 hour working days = (PPE) ManDays to determine material cost of PPE's.  
(SEE APPENDIX C - HEALTH PHYSICS)

11.0	Man Days	14.0	Man Days	18.0	Man Days	19.0	Man Days	22.0	Man Days
------	----------	------	----------	------	----------	------	----------	------	----------

THESE EFFICIENCY FACTORS WERE APPLIED INDIVIDUALLY THROUGHOUT THE ESTIMATE AT A TASK SPECIFIC LEVEL, TO OBTAIN A MORE ACCURATE ACCOUNT OF OVERALL EFFICIENCY IMPACT DUE TO PPE REQUIREMENTS IN HANDLING CONTAMINATED AND HAZARDOUS WASTE.

EFFICIENCY FACTORS

PROJECT: SOILS REMEDIATION AREA 7  
 ESTIMATE NO. C2-01-05-002  
 CLIENT: DOE  
 WBS NO.: 1.1.G.M

**Fluor Fernald, Inc.**

DATE: 12-May-01  
 ESTIMATOR: JEA  
 LOCATION: Fernald  
 TASK NO.: G7114

PPE MULTIPLIER DEVELOPEMENT

	D	mD	mC	C	C+
CREW SIZE & MAKE-UP					
STANDARD	7	7	7	7	7
WORKER-BUDDY	0	0	0	0	0
SUPPORT TEAM	0	0	0	0	0
TOTAL CREW	7	7	7	7	7
CREW SIZE RATIO	1.00	1.00	1.00	1.00	1.00
AVAILABLE WORK TIME FACTOR	0.96	0.78	0.7	0.7	0.68
PPE LABOR PRODUCTIVITY FACTOR	1	1	0.86	0.82	0.75
NET PRODUCTIVITY RATIO	0.96	0.78	0.602	0.574	0.51
NET PRODUCTIVITY MULTIPLIER	1.04	1.28	1.66	1.74	1.96

These factors were based on Tables 6.1 and 6.2. Moderate Work Efforts, 66F to 85F temperature of Hazardous Waste Cost Control by R.A.Selg. Modifications were made to reflect a 10 hour work day and no buddy system or support team for levels D, mC and C. The worker-buddy and support team members, if required, may be covered under Construction Mgmt. (Rad Techs).

AVAILABLE WORK TIME FACTOR		D	mD	mC	C	C+
TOTAL WORK MINUTES per D	4 - 10's	600	600	600	600	600
ADDITIONAL SITE SAFETY MEETINGS NOT INCLD. IN BASE	QUANTITY	1	1	1	1	1
	MINUTES	25	25	25	25	25
TOTAL		25	25	25	25	25
PPE DON & DOFFING (ADJUST LEVEL D per WORK PLAN)	QUANTITY	0	0	3	3	3
	MINUTES	0	0	15	15	20
TOTAL			0	45	45	60
WORK BREAKS (ADJUST LEVEL D per WORK PLAN)	QUANTITY	N/A	2	2	2	2
	MINUTES	N/A	15	15	15	15
TOTAL			30	30	30	30
MOBILIZATION - ROUND TRIPS (ADJUST LEVEL D per WORK PLAN)	QUANTITY	N/A	4	4	4	4
	MINUTES	N/A	15	15	15	15
TOTAL			60	60	60	60
COOLDOWNS PER DAY ** ( 4 OUT OF 12 MONTHS)	QUANTITY	N/A	4	4	4	4
	MINUTES	N/A	15	15	15	15
TOTAL			20	20	20	20
AIR TANK REPLACEMENT	QUANTITY	N/A	N/A	N/A	N/A	N/A
	MINUTES	N/A	N/A	N/A	N/A	N/A
TOTAL						
AVAILABLE WORK TIME		575	465	420	420	405
AVAILABLE WORK TIME FACTOR		0.96	0.78	0.7	0.7	0.68

NOTE: Adjust Work Minutes per Day basis to: 5 - 8's, or leave as 4 - 10's. Any other circumstances, override the minutes per day.

\*\* Assumption based on work performed in May, June, July & August, pro-rating cost over one year. Adjust % to individual circumstances.

# HEALTH PHYSICS

PROJECT: SOILS REMEDIATION AREA 7  
 ESTIMATE NO.: C2-01-05-002  
 CLIENT: DOE  
 WBS NO.: 1.1.G.M

DATE: 12-May-01  
 ESTIMATOR: JEA  
 LOCATION: Fernald  
 TASK NO.: G7114

## Fluor Fernald, Inc.

PPE's - PERSONAL PROTECTIVE EQUIPMENT

DESCRIPTION	UNIT	UNIT COST	* NO. OF CHANGE OUTS PER WORKER PER DAY			
			Man Days (TOTAL HOURS worked in PPE's Div. by WORK HOURS / DAY)			
PPE LEVEL	C / C+ / B	F/HF MASK w/RESP.&CART.		MAN DAYS	MAT'L \$'s	PPE LEVEL
TYVEK COVER-ALL w/HOOD & BOOTIES - DISPOSABLE	EA	\$4.46	3	0	\$0	C / C+
TYVEK COVER-ALL w/HOOD & BOOTIES - DISPOSABLE	EA	\$4.46	3	0	\$0	C / C+
GLOVE LINER - DISPOSABLE	PR	\$0.24	3	0	\$0	C / C+
GLOVE, LASTEX - DISPOSABLE	PR	\$0.26	3	0	\$0	C / C+
GLOVE, WORK - DISPOSABLE	PR	\$1.02	3	0	\$0	C / C+
APR CARTRIDGES - DISPOSABLE	PR	\$6.98	3	0	\$0	C / C+
<b>SUB-TOTAL</b>		<b>\$17.42</b>	<b>3</b>		<b>\$0</b>	

(DOUBLE PPE)

\$/MD = \$0.00

PPE LEVEL	mC	FULL DRESS w/ FACE SHIELD		MAN DAYS	MAT'L \$'s	PPE LEVEL
LT.WT. DISPOSABLE COVERALLS w/HOOD & BOOTIES	PR	\$4.46	3	2123	\$28,400	mC
GLOVE LINER - DISPOSABLE	PR	\$0.24	3	2123	\$1,528	mC
GLOVE, LASTEX - DISPOSABLE	PR	\$0.26	3	2123	\$1,656	mC
GLOVE, WORK - DISPOSABLE	PR	\$1.02	3	2123	\$6,495	mC
<b>SUB-TOTAL</b>		<b>\$5.98</b>	<b>3</b>		<b>\$38,079</b>	

\$/MD = \$17.94

SUBCONTRACTOR REQUIRED PURCHASES			QTY. PER WKR.	NO. OF WORKERS	MAT'L \$'s	PPE LEVEL
RUBBER BOOT COVERS-(1)PR.PER WORKER	PR	\$12.70	6	0	\$0	D/C/B
APR w/HALF FACE MASK - (1) PER WORKER	EA	\$22.30	6	0	\$0	C
APR w/FULL FACE MASK - (1) PER WORKER	EA	\$174.00	6	0	\$0	C
SCBA	EA	\$1,894.00	2	0	\$0	B
COOL VESTS	EA	\$137.50	6	0	\$0	C/B
THERMO STRIPS	EA	\$50.00	6	0	\$0	C/B
<b>SUB-TOTAL</b>					<b>\$0</b>	

TOTAL PPE's = MAT'L \$'s  
\$38,100

(FORWARD TO PAGE 2 OF 2)

OTHER PPE's SUCH AS HARD HAT, SAFETY GLASSES/GOGGLES, STEEL TOED SAFETY SHOES, HEARING PROTECTION, ARE CONSIDERED THE SUBCONTRACTORS RESPONSIBILITY AND ARE COVERED IN HIS OVERHEAD EXPENSE. COSTS OF FD FERNALD SUPPLIED PPE's, SUCH AS COTTON COVERALLS, EXCHANGE OF RUBBER BOOT COVERS AND RESPIRATORS FOR CHANGEOUTS AND CLEANING OF SAME IS INCURRED BY FD FERNALD AND COSTS ARE NOT INCLUDED AS PART OF PROJECT COSTS AT THIS TIME.

# HEALTH PHYSICS

PROJECT: SOILS REMEDIATION AREA 7  
 ESTIMATE NO.: C2-01-05-002  
 CLIENT: DOE  
 WBS NO.: 1.1.G.M

DATE: 12-May-01  
 ESTIMATOR: JEA  
 LOCATION: Fernald  
 TASK NO.: G7114

-MEDICAL MONITORING -

MEDICAL - PHYSICAL and IN-VIVO MONITORING - LOST WORKER TIME for RAD II WORKERS ONLY

DESCRIPTION	QTY	HRS	WKR	TOTAL HOURS	AVG. LABOR RATE	TOTAL LABOR \$
PHYSICAL (3hrs), IN-VIVO (1hr)						
BASELINE PHYSICALS	1	4	8	32	\$31.04	\$990
ANNUAL PHYSICALS	2	4	8	64	\$31.04	\$1,990
EXIT (TERMINATION) PHYSICALS (IN-VIVO)	1	1	8	8	\$31.04	\$250
<b>SUB-TOTAL</b>						<b>\$3,230</b>

RADIATION IN-VITRO SURVEILLANCE - LOST WORKER TIME for RAD II WORKERS ONLY

DESCRIPTION	QTY	HRS	WKR	TOTAL HOURS	AVG. LABOR RATE	TOTAL LABOR \$
BI-MONTHLY BIOASSAY	9	1	8	76	\$31.04	\$2,360
<b>SUB-TOTAL</b>						<b>\$2,360</b>

RANDOM DRUG TESTING

	TESTS	HRS	TOTAL HOURS	AVG. RATE	LABOR \$'s	
	35	2	70	\$31.04	\$2,200	
NO. OF WKRS. TESTED	TESTING DAYS PER YR.	AVG. NO. OF TESTS PER DAY	CHANCE/ DAY FOR TEST	NO. OF WKRS. FOR THIS ESTIMATE	CHANCES /DAY FOR TEST FOR PROJECT	CONSTR WORKING DAYS
2340	226	10	0.0042735	23	0.0983	358

<b>WORK DELAYS CAUSED BY MONITORING</b>	0.0%			\$1,885,760	\$0	
<b>WORK DELAYS CAUSED BY RAD CHECKING</b>	0.0%			\$1,885,760	\$0	

	TOTAL LABOR	TOTAL MAT'L	GRAND TOTAL
<b>TOTAL HEALTH PHYSICS</b>	\$7,800	\$38,100	\$45,900

(FORWARD TO ESTIMATE SUMMARY SHEET)

# ACTIVITY DURATIONS

## Fluor Fernald, Inc.

PROJECT: SOILS REMEDIATION AREA 7  
 ESTIMATE NO.: C2-01-05-002  
 CLIENT: DOE  
 WBS NO.: 1.1.G.M

DATE: 12-May-01  
 ESTIMATOR: JEA  
 LOCATION: Fernald  
 TASK NO.: G7114

ACTIVITY	EST. DATE	START DATE	MID POINT	COMPL. DATE	ACTIVITY	DURATION
CONSTRUCTION:	07-May-01	03-Mar-08	16-Dec-08	01-Oct-09		19.0 MONTHS
						0 MONTHS
<b>TOTAL</b>						<b>19.0 MONTHS</b>

DATE of EST. to MID-POINT ACTIVITY DURATION	
a.	91.5 MONTHS
b.	0 MONTHS

ACTIVITY	EST. DATE	START DATE	MID POINT	COMPL. DATE	ACTIVITY	DURATION
OPERATIONS						0 MONTHS

DATE of EST. to MID-POINT ACTIVITY DURATION	
	0 MONTHS

ACTIVITY DURATION IS USED IN DETERMINING NUMBER of WORKERS for CERCLA/SAT TRAINING HOURS and HEALTH PHYSICS COSTS.



**G7117**

**AREA 7 EXC CONTROL/CERTIFICATION**



# Fluor Fernald, Inc.

ESTIMATE SUPPORT WORKSHEET  
FOR ACTIVITY BASED ESTIMATING  
(1 FTE EQUALS 1747 HOURS)

DATE: 05-Sep-01  
PROJECT MGR: J.D. CHIOU  
CAM: J.D. CHIOU  
PREPARED BY: W. FICK  
FISCAL YEAR: 2008-2009

PBS: OHFN06  
WBS: 1.1.G.M  
CTRL ACCT: G711  
CHARGE NO: G7117  
COMMENT NO F06-026

<b>Resource:</b> DRFCAD	<b>EOC:</b>												
<b>Res Dept:</b> 949	<b>SAL</b>												
	<b>Class:</b>	<b>LABOR</b>											
<b>DRAFTER/CAD OPERATOR</b>													
<b>Overtime:</b>													
		Oct 00-	Oct 01-	Oct 02-	Oct 03-	Oct 04-	Oct 05-	Oct 06-	Oct 07-	Oct 08-	Oct 09-		
		Sep 01	Sep 02	Sep 03	Sep 04	Sep 05	Sep 06	Sep 07	Sep 08	Sep 09	Sep 10		
Yr Hours:		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	149.0	0.0		
Cum Hours:		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	149.0	0.0		
Yr Total Cost:		0	0	0	0	0	0	0	0	7,885	0		
Cum Total Cost:		0	0	0	0	0	0	0	0	7,885	7,885		

<b>Resource:</b> ENSMGR	<b>EOC:</b>												
<b>Res Dept:</b> 949	<b>SAL</b>												
	<b>Class:</b>	<b>LABOR</b>											
<b>ENVR SCIENTIST MGR</b>													
<b>Overtime:</b>													
		Oct 00-	Oct 01-	Oct 02-	Oct 03-	Oct 04-	Oct 05-	Oct 06-	Oct 07-	Oct 08-	Oct 09-		
		Sep 01	Sep 02	Sep 03	Sep 04	Sep 05	Sep 06	Sep 07	Sep 08	Sep 09	Sep 10		
Yr Hours:		0.0	0.0	0.0	0.0	0.0	0.0	0.0	48.8	120.2	0.0		
Cum Hours:		0.0	0.0	0.0	0.0	0.0	0.0	0.0	48.8	169.0	169.0		
Yr Total Cost:		0	0	0	0	0	0	0	3,932	10,753	0		
Cum Total Cost:		0	0	0	0	0	0	0	3,932	14,684	14,684		

<b>Resource:</b> ENSREP	<b>EOC:</b>												
<b>Res Dept:</b> 949	<b>SAL</b>												
	<b>Class:</b>	<b>LABOR</b>											
<b>ENVR SCIENCE REP</b>													
<b>Overtime:</b>													
		Oct 00-	Oct 01-	Oct 02-	Oct 03-	Oct 04-	Oct 05-	Oct 06-	Oct 07-	Oct 08-	Oct 09-		
		Sep 01	Sep 02	Sep 03	Sep 04	Sep 05	Sep 06	Sep 07	Sep 08	Sep 09	Sep 10		
Yr Hours:		0.0	0.0	0.0	0.0	0.0	0.0	0.0	198.5	488.5	0.0		
Cum Hours:		0.0	0.0	0.0	0.0	0.0	0.0	0.0	198.5	687.0	687.0		
Yr Total Cost:		0	0	0	0	0	0	0	12,715	34,777	0		
Cum Total Cost:		0	0	0	0	0	0	0	12,715	47,491	47,491		

<b>Resource:</b> ENSTEC	<b>EOC:</b>												
<b>Res Dept:</b> 949	<b>SAL</b>												
	<b>Class:</b>	<b>LABOR</b>											
<b>ENVR SCIENTIST TECH</b>													
<b>Overtime:</b>													
		Oct 00-	Oct 01-	Oct 02-	Oct 03-	Oct 04-	Oct 05-	Oct 06-	Oct 07-	Oct 08-	Oct 09-		
		Sep 01	Sep 02	Sep 03	Sep 04	Sep 05	Sep 06	Sep 07	Sep 08	Sep 09	Sep 10		
Yr Hours:		0.0	0.0	0.0	0.0	0.0	0.0	0.0	247.3	607.7	0.0		
Cum Hours:		0.0	0.0	0.0	0.0	0.0	0.0	0.0	247.3	855.0	855.0		
Yr Total Cost:		0	0	0	0	0	0	0	10,693	29,198	0		
Cum Total Cost:		0	0	0	0	0	0	0	10,693	39,890	39,890		

<b>Resource:</b> HEOOPR	<b>EOC:</b>												
<b>Res Dept:</b> 949	<b>HOU</b>												
	<b>Class:</b>	<b>LABOR</b>											
<b>HEAVY EQUIP OPERATOR</b>													
<b>Overtime:</b>													
		Oct 00-	Oct 01-	Oct 02-	Oct 03-	Oct 04-	Oct 05-	Oct 06-	Oct 07-	Oct 08-	Oct 09-		
		Sep 01	Sep 02	Sep 03	Sep 04	Sep 05	Sep 06	Sep 07	Sep 08	Sep 09	Sep 10		
Yr Hours:		0.0	0.0	0.0	0.0	0.0	0.0	0.0	27.0	133.0	0.0		
Cum Hours:		0.0	0.0	0.0	0.0	0.0	0.0	0.0	27.0	160.0	160.0		
Yr Total Cost:		0	0	0	0	0	0	0	1,298	7,098	0		
Cum Total Cost:		0	0	0	0	0	0	0	1,298	8,396	8,396		

# Fluor Fernald, Inc.

ESTIMATE SUPPORT WORKSHEET  
FOR ACTIVITY BASED ESTIMATING  
(1 FTE EQUALS 1747 HOURS)

DATE: 05-Sep-01  
PROJECT MGR: J.D. CHIOU  
CAM: J.D. CHIOU  
PREPARED BY: W. FICK  
FISCAL YEAR: 2008-2009

PBS: OHFN06  
WBS: 1.1.G.M  
CTRL ACCT: G711  
CHARGE NO: G7117  
COMMENT NO F06-026

Resource: INDMEC		INDUSTRIAL MECHANIC		Class:		EOC:		LABOR				
Res Dept:	949	OverTime:		Oct 01- Sep 02	Oct 02- Sep 03	Oct 03- Sep 04	Oct 04- Sep 05	Oct 05- Sep 06	Oct 06- Sep 07	Oct 07- Sep 08	Oct 08- Sep 09	Oct 09- Sep 10
Yr Hours:		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22.3	41.7	0.0
Cum Hours:		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22.3	64.0	64.0
Yr Total Cost:		0	0	0	0	0	0	0	0	1,072	2,224	0
Cum Total Cost:		0	0	0	0	0	0	0	0	1,072	3,296	3,296

Resource: LABCHIM		CHEMIST		Class:		EOC:		LABOR				
Res Dept:	949	OverTime:		Oct 01- Sep 02	Oct 02- Sep 03	Oct 03- Sep 04	Oct 04- Sep 05	Oct 05- Sep 06	Oct 06- Sep 07	Oct 07- Sep 08	Oct 08- Sep 09	Oct 09- Sep 10
Yr Hours:		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	171.3	767.7	0.0
Cum Hours:		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	171.3	939.0	939.0
Yr Total Cost:		0	0	0	0	0	0	0	0	10,135	50,486	0
Cum Total Cost:		0	0	0	0	0	0	0	0	10,135	60,621	60,621

Resource: LABMGR		LAB MANAGER		Class:		EOC:		LABOR				
Res Dept:	949	OverTime:		Oct 01- Sep 02	Oct 02- Sep 03	Oct 03- Sep 04	Oct 04- Sep 05	Oct 05- Sep 06	Oct 06- Sep 07	Oct 07- Sep 08	Oct 08- Sep 09	Oct 09- Sep 10
Yr Hours:		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18.8	85.2	0.0
Cum Hours:		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18.8	104.0	104.0
Yr Total Cost:		0	0	0	0	0	0	0	0	1,468	7,389	0
Cum Total Cost:		0	0	0	0	0	0	0	0	1,468	8,857	8,857

Resource: LABTEC		LAB TECH		Class:		EOC:		LABOR				
Res Dept:	949	OverTime:		Oct 01- Sep 02	Oct 02- Sep 03	Oct 03- Sep 04	Oct 04- Sep 05	Oct 05- Sep 06	Oct 06- Sep 07	Oct 07- Sep 08	Oct 08- Sep 09	Oct 09- Sep 10
Yr Hours:		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	130.2	495.8	0.0
Cum Hours:		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	130.2	626.0	626.0
Yr Total Cost:		0	0	0	0	0	0	0	0	5,524	23,378	0
Cum Total Cost:		0	0	0	0	0	0	0	0	5,524	28,902	28,902

Resource: MVOOPR		MOTOR VEHICLE OPER		Class:		EOC:		LABOR				
Res Dept:	949	OverTime:		Oct 01- Sep 02	Oct 02- Sep 03	Oct 03- Sep 04	Oct 04- Sep 05	Oct 05- Sep 06	Oct 06- Sep 07	Oct 07- Sep 08	Oct 08- Sep 09	Oct 09- Sep 10
Yr Hours:		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	47.3	122.7	0.0
Cum Hours:		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	47.3	170.0	170.0
Yr Total Cost:		0	0	0	0	0	0	0	0	2,083	6,008	0
Cum Total Cost:		0	0	0	0	0	0	0	0	2,083	8,092	8,092

# Fluor Fernald, Inc.

ESTIMATE SUPPORT WORKSHEET  
FOR ACTIVITY BASED ESTIMATING  
(1 FTE EQUALS 1747 HOURS)

DATE: 05-Sep-01  
PROJECT MGR: J.D. CHIOU  
CAM: J.D. CHIOU  
PREPARED BY: W. FICK  
FISCAL YEAR: 2008-2009

PBS: OHFN06  
WBS: 1.1.G.M  
CTRL ACCT: G711  
CHARGE NO: G7117  
COMMENT NO F08-026

Resource: Res Dept:	PJMGR 949	PROJECT SUPPORT MGR		LABOR													
		EOC:	SAL	Class:		Class:		Class:		Class:		Class:		Class:		Class:	
Overtime:		Oct 00- Sep 01	Oct 01- Sep 02	Oct 02- Sep 03	Oct 03- Sep 04	Oct 04- Sep 05	Oct 05- Sep 06	Oct 06- Sep 07	Oct 07- Sep 08	Oct 08- Sep 09	Oct 09- Sep 10						
Yr Hours:		0.0	0.0	0.0	0.0	0.0	0.0	0.0	25.9	97.0	0.0						
Cum Hours:		0.0	0.0	0.0	0.0	0.0	0.0	0.0	71.1	178.9	0.0						
Yr Total Cost:		0	0	0	0	0	0	0	25.9	97.0	0						
Cum Total Cost:		0	0	0	0	0	0	0	71.1	178.9	0						

Resource: Res Dept:	QACENG 949	QA ENGINEER		LABOR													
		EOC:	SAL	Class:		Class:		Class:		Class:		Class:		Class:		Class:	
Overtime:		Oct 00- Sep 01	Oct 01- Sep 02	Oct 02- Sep 03	Oct 03- Sep 04	Oct 04- Sep 05	Oct 05- Sep 06	Oct 06- Sep 07	Oct 07- Sep 08	Oct 08- Sep 09	Oct 09- Sep 10						
Yr Hours:		0.0	0.0	0.0	0.0	0.0	0.0	0.0	73.1	252.0	0.0						
Cum Hours:		0.0	0.0	0.0	0.0	0.0	0.0	0.0	178.9	430.9	0.0						
Yr Total Cost:		0	0	0	0	0	0	0	252.0	731.0	0						
Cum Total Cost:		0	0	0	0	0	0	0	430.9	1161.9	0						

Resource: Res Dept:	RADTEC 949	RAD TECH		LABOR													
		EOC:	SAL	Class:		Class:		Class:		Class:		Class:		Class:		Class:	
Overtime:		Oct 00- Sep 01	Oct 01- Sep 02	Oct 02- Sep 03	Oct 03- Sep 04	Oct 04- Sep 05	Oct 05- Sep 06	Oct 06- Sep 07	Oct 07- Sep 08	Oct 08- Sep 09	Oct 09- Sep 10						
Yr Hours:		0.0	0.0	0.0	0.0	0.0	0.0	0.0	22.9	187.0	0.0						
Cum Hours:		0.0	0.0	0.0	0.0	0.0	0.0	0.0	22.9	209.9	0.0						
Yr Total Cost:		0	0	0	0	0	0	0	209.9	187.0	0						
Cum Total Cost:		0	0	0	0	0	0	0	419.8	376.7	0						

Resource: Res Dept:	S&HENG 949	SAFETY ENGINEER		LABOR													
		EOC:	SAL	Class:		Class:		Class:		Class:		Class:		Class:		Class:	
Overtime:		Oct 00- Sep 01	Oct 01- Sep 02	Oct 02- Sep 03	Oct 03- Sep 04	Oct 04- Sep 05	Oct 05- Sep 06	Oct 06- Sep 07	Oct 07- Sep 08	Oct 08- Sep 09	Oct 09- Sep 10						
Yr Hours:		0.0	0.0	0.0	0.0	0.0	0.0	0.0	19.5	67.5	0.0						
Cum Hours:		0.0	0.0	0.0	0.0	0.0	0.0	0.0	19.5	87.0	0.0						
Yr Total Cost:		0	0	0	0	0	0	0	1480	5692	0						
Cum Total Cost:		0	0	0	0	0	0	0	1480	7172	0						

Resource: Res Dept:	SERVSUB 949	SUBS		SUBCONTRACTORS													
		EOC:	SUB	Class:		Class:		Class:		Class:		Class:		Class:		Class:	
Overtime:		Oct 00- Sep 01	Oct 01- Sep 02	Oct 02- Sep 03	Oct 03- Sep 04	Oct 04- Sep 05	Oct 05- Sep 06	Oct 06- Sep 07	Oct 07- Sep 08	Oct 08- Sep 09	Oct 09- Sep 10						
Yr Units:		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0						
Cum Units:		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0						
Yr Total Cost:		0	0	0	0	0	0	0	0	0	0						
Cum Total Cost:		0	0	0	0	0	0	0	0	0	0						

# Fluor Fernald, Inc.

ESTIMATE SUPPORT WORKSHEET  
FOR ACTIVITY BASED ESTIMATING  
(1 FTE EQUALS 1747 HOURS)

DATE: 05-Sep-01  
PROJECT MGR: J.D. CHIOU  
CAM: J.D. CHIOU  
PREPARED BY: W. FICK  
FISCAL YEAR: 2008-2009

PBS: OHFN06  
WBS: 1.1.G.M  
CTRL ACCT: G711  
CHARGE NO: G7117  
COMMENT NO F06-026

Resource: WISE  
Res Dept: 949  
Class: WISE CONSTRUCTION  
Overtime: WISE CONSTRUCTION  
EOC: SUB  
SUBCONTRACTORS

	Oct 00-		Oct 01-		Oct 02-		Oct 03-		Oct 04-		Oct 05-		Oct 06-		Oct 07-		Oct 08-		Oct 09-		
	Sep 01	Sep 02	Sep 03	Sep 04	Sep 05	Sep 06	Sep 07	Sep 08	Sep 09	Sep 10	Sep 11	Sep 12	Sep 13	Sep 14	Sep 15	Sep 16	Sep 17	Sep 18	Sep 19	Sep 20	
Yr Units:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cum Units:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yr Total Cost:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cum Total Cost:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

**GRAND TOTALS:**

	Oct 00-		Oct 01-		Oct 02-		Oct 03-		Oct 04-		Oct 05-		Oct 06-		Oct 07-		Oct 08-		Oct 09-		
	Sep 01	Sep 02	Sep 03	Sep 04	Sep 05	Sep 06	Sep 07	Sep 08	Sep 09	Sep 10	Sep 11	Sep 12	Sep 13	Sep 14	Sep 15	Sep 16	Sep 17	Sep 18	Sep 19	Sep 20	
Yr Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cum Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yr Total Cost:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cum Total Cost:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

*[Signature]*

CAM

CONTROL TEAM

**G7118**

**AREA 7 OFF SITE WASTE DISPOSITION**



# Fluor Fernald, Inc.

ESTIMATE SUPPORT WORKSHEET  
FOR ACTIVITY BASED ESTIMATING  
(1 FTE EQUALS 1747 HOURS)

DATE: 05-Sep-01  
PROJECT MGR: J.D. CHIOU  
CAM: J.D. CHIOU  
PREPARED BY: W. FICK  
FISCAL YEAR: 2008-2009

PBS: OHFN06  
WBS: 1.1.G.M  
CTRL ACCT: G711  
CHARGE NO: G7118  
COMMENT NO F06-028

Resource: Res Dept:	BUYCON	BUYER/CONTRACTS ADMIN		EOC:		LABOR					
		Overtime:	Class:	SAL	SAL	Class:	Class:				
Yr Hours:		Oct 00- Sep 01	Oct 01- Sep 02	Oct 02- Sep 03	Oct 03- Sep 04	Oct 04- Sep 05	Oct 05- Sep 06	Oct 06- Sep 07	Oct 07- Sep 08	Oct 08- Sep 09	Oct 09- Sep 10
Cum Hours:		0.0	0.0	0.0	0.0	0.0	0.0	0.0	44.8	0.0	0.0
Yr Total Cost:		0.0	0.0	0.0	0.0	0.0	0.0	0.0	44.8	0.0	0.0
Cum Total Cost:		0.0	0.0	0.0	0.0	0.0	0.0	0.0	2,866	0.0	2,866

Resource: Res Dept:	CLERKS 949	CLERKS		EOC:		LABOR					
		Overtime:	Class:	SAL	SAL	Class:	Class:				
Yr Hours:		Oct 00- Sep 01	Oct 01- Sep 02	Oct 02- Sep 03	Oct 03- Sep 04	Oct 04- Sep 05	Oct 05- Sep 06	Oct 06- Sep 07	Oct 07- Sep 08	Oct 08- Sep 09	Oct 09- Sep 10
Cum Hours:		0.0	0.0	0.0	0.0	0.0	0.0	0.0	27.6	17.2	0.0
Yr Total Cost:		0.0	0.0	0.0	0.0	0.0	0.0	0.0	27.6	44.8	44.8
Cum Total Cost:		0.0	0.0	0.0	0.0	0.0	0.0	0.0	1,006	698	1,704

Resource: Res Dept:	HAZWAT 949	HAZWAT		EOC:		LABOR					
		Overtime:	Class:	HOU	HOU	Class:	Class:				
Yr Hours:		Oct 00- Sep 01	Oct 01- Sep 02	Oct 02- Sep 03	Oct 03- Sep 04	Oct 04- Sep 05	Oct 05- Sep 06	Oct 06- Sep 07	Oct 07- Sep 08	Oct 08- Sep 09	Oct 09- Sep 10
Cum Hours:		0.0	0.0	0.0	0.0	0.0	0.0	0.0	90.3	43.4	0.0
Yr Total Cost:		0.0	0.0	0.0	0.0	0.0	0.0	0.0	90.3	133.7	133.7
Cum Total Cost:		0.0	0.0	0.0	0.0	0.0	0.0	0.0	3,970	2,119	6,089

Resource: Res Dept:	HEOOPR 949	HEAVY EQUIP OPERATOR		EOC:		LABOR					
		Overtime:	Class:	HOU	HOU	Class:	Class:				
Yr Hours:		Oct 00- Sep 01	Oct 01- Sep 02	Oct 02- Sep 03	Oct 03- Sep 04	Oct 04- Sep 05	Oct 05- Sep 06	Oct 06- Sep 07	Oct 07- Sep 08	Oct 08- Sep 09	Oct 09- Sep 10
Cum Hours:		0.0	0.0	0.0	0.0	0.0	0.0	0.0	30.3	14.5	0.0
Yr Total Cost:		0.0	0.0	0.0	0.0	0.0	0.0	0.0	30.3	44.8	44.8
Cum Total Cost:		0.0	0.0	0.0	0.0	0.0	0.0	0.0	1,454	776	2,230

Resource: Res Dept:	MAT300 949	MATERIAL OBJCLASS300		EOC:		MATERIAL					
		Overtime:	Class:	MAT	MAT	Class:	Class:				
Yr Units:		Oct 00- Sep 01	Oct 01- Sep 02	Oct 02- Sep 03	Oct 03- Sep 04	Oct 04- Sep 05	Oct 05- Sep 06	Oct 06- Sep 07	Oct 07- Sep 08	Oct 08- Sep 09	Oct 09- Sep 10
Cum Units:		0.0	0.0	0.0	0.0	0.0	0.0	0.0	8,827.9	4,240.2	0.0
Yr Total Cost:		0.0	0.0	0.0	0.0	0.0	0.0	0.0	8,827.9	13,068.0	13,068.0
Cum Total Cost:		0.0	0.0	0.0	0.0	0.0	0.0	0.0	10,721	5,299	16,020

# Fluor Fernald, Inc.

ESTIMATE SUPPORT WORKSHEET  
FOR ACTIVITY BASED ESTIMATING  
(1 FTE EQUALS 1747 HOURS)

DATE: 05-Sep-01  
PROJECT MGR: J.D. CHIOU  
CAM: J.D. CHIOU  
PREPARED BY: W. FICK  
FISCAL YEAR: 2008-2009

PBS: OHFN06  
WBS: 1.1.G.M  
CTRL ACCT: G711  
CHARGE NO: G7118  
COMMENT NO F06-026

Resource:	Res Dept:	MPCREP	949	MATL PROP CTRL REP		EOC:		LABOR					
				Overtime:	Class:	SAL	SAL	Class:	Class:				
Yr Hours:				Oct 00- Sep 01	Oct 01- Sep 02	Oct 02- Sep 03	Oct 03- Sep 04	Oct 04- Sep 05	Oct 05- Sep 06	Oct 06- Sep 07	Oct 07- Sep 08	Oct 08- Sep 09	Oct 09- Sep 10
Cum Hours:				0.0	0.0	0.0	0.0	0.0	0.0	0.0	17.2	17.2	0.0
Yr Total Cost:				0.0	0.0	0.0	0.0	0.0	0.0	0.0	27.6	44.8	44.8
Cum Total Cost:				0	0	0	0	0	0	0	1,361	944	0
				0	0	0	0	0	0	0	1,361	2,305	2,305

Resource:	Res Dept:	MVOOPR	949	MOTOR VEHICLE OPER		EOC:		LABOR					
				Overtime:	Class:	HOU	HOU	Class:	Class:				
Yr Hours:				Oct 00- Sep 01	Oct 01- Sep 02	Oct 02- Sep 03	Oct 03- Sep 04	Oct 04- Sep 05	Oct 05- Sep 06	Oct 06- Sep 07	Oct 07- Sep 08	Oct 08- Sep 09	Oct 09- Sep 10
Cum Hours:				0.0	0.0	0.0	0.0	0.0	0.0	0.0	29.8	14.3	0.0
Yr Total Cost:				0.0	0.0	0.0	0.0	0.0	0.0	0.0	29.8	44.1	44.1
Cum Total Cost:				0	0	0	0	0	0	0	1,312	700	0
				0	0	0	0	0	0	0	1,312	2,013	2,013

Resource:	Res Dept:	OPRMGR	949	OPERATIONS MGR		EOC:		LABOR					
				Overtime:	Class:	SAL	SAL	Class:	Class:				
Yr Hours:				Oct 00- Sep 01	Oct 01- Sep 02	Oct 02- Sep 03	Oct 03- Sep 04	Oct 04- Sep 05	Oct 05- Sep 06	Oct 06- Sep 07	Oct 07- Sep 08	Oct 08- Sep 09	Oct 09- Sep 10
Cum Hours:				0.0	0.0	0.0	0.0	0.0	0.0	0.0	27.2	17.0	0.0
Yr Total Cost:				0.0	0.0	0.0	0.0	0.0	0.0	0.0	27.2	44.1	44.1
Cum Total Cost:				0	0	0	0	0	0	0	2,168	1,504	0
				0	0	0	0	0	0	0	2,168	3,671	3,671

Resource:	Res Dept:	PIPFTR	949	PIPE FITTER		EOC:		LABOR					
				Overtime:	Class:	HOU	SAL	Class:	Class:				
Yr Hours:				Oct 00- Sep 01	Oct 01- Sep 02	Oct 02- Sep 03	Oct 03- Sep 04	Oct 04- Sep 05	Oct 05- Sep 06	Oct 06- Sep 07	Oct 07- Sep 08	Oct 08- Sep 09	Oct 09- Sep 10
Cum Hours:				0.0	0.0	0.0	0.0	0.0	0.0	0.0	30.3	14.5	0.0
Yr Total Cost:				0.0	0.0	0.0	0.0	0.0	0.0	0.0	30.3	44.8	44.8
Cum Total Cost:				0	0	0	0	0	0	0	1,444	771	0
				0	0	0	0	0	0	0	1,444	2,214	2,214

Resource:	Res Dept:	PRJMGR	949	PROJECT MANAGER		EOC:		LABOR					
				Overtime:	Class:	SAL	SAL	Class:	Class:				
Yr Hours:				Oct 00- Sep 01	Oct 01- Sep 02	Oct 02- Sep 03	Oct 03- Sep 04	Oct 04- Sep 05	Oct 05- Sep 06	Oct 06- Sep 07	Oct 07- Sep 08	Oct 08- Sep 09	Oct 09- Sep 10
Cum Hours:				0.0	0.0	0.0	0.0	0.0	0.0	0.0	27.2	17.0	0.0
Yr Total Cost:				0.0	0.0	0.0	0.0	0.0	0.0	0.0	27.2	44.1	44.1
Cum Total Cost:				0	0	0	0	0	0	0	3,697	2,564	0
				0	0	0	0	0	0	0	3,697	6,261	6,261

# Fluor Fernald, Inc.

ESTIMATE SUPPORT WORKSHEET  
FOR ACTIVITY BASED ESTIMATING  
(1 FTE EQUALS 1747 HOURS)

DATE: 05-Sep-01  
PROJECT MGR: J.D. CHIOU  
CAM: J.D. CHIOU  
PREPARED BY: W. FICK  
FISCAL YEAR: 2008-2009

PBS: OHFN06  
WBS: 1.1.G.M  
CTRL ACCT: G711  
CHARGE NO: G7118  
COMMENT NO F06-026

Resource: QACENG Res Dept: 949		QA ENGINEER		LABOR		EOC:				
Overtime:		Class:		SAL						
Yr Hours:	0.0	Oct 01- Sep 02	Oct 02- Sep 03	Oct 03- Sep 04	Oct 04- Sep 05	Oct 05- Sep 06	Oct 06- Sep 07	Oct 07- Sep 08	Oct 08- Sep 09	Oct 09- Sep 10
Cum Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	164.2	102.4	0.0
Yr Total Cost:	0	0	0	0	0	0	0	164.2	266.7	266.7
Cum Total Cost:	0	0	0	0	0	0	0	11,525	7,988	0
								11,525	19,513	19,513

Resource: RADENG Res Dept: 949		RAD ENGINEER		LABOR		EOC:				
Overtime:		Class:		SAL						
Yr Hours:	0.0	Oct 01- Sep 02	Oct 02- Sep 03	Oct 03- Sep 04	Oct 04- Sep 05	Oct 05- Sep 06	Oct 06- Sep 07	Oct 07- Sep 08	Oct 08- Sep 09	Oct 09- Sep 10
Cum Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	50.0	39.9	0.0
Yr Total Cost:	0	0	0	0	0	0	0	50.0	89.9	89.9
Cum Total Cost:	0	0	0	0	0	0	0	3,603	3,195	0
								3,603	6,798	6,798

Resource: RADTEC Res Dept: 949		RAD TECH		LABOR		EOC:				
Overtime:		Class:		SAL						
Yr Hours:	0.0	Oct 01- Sep 02	Oct 02- Sep 03	Oct 03- Sep 04	Oct 04- Sep 05	Oct 05- Sep 06	Oct 06- Sep 07	Oct 07- Sep 08	Oct 08- Sep 09	Oct 09- Sep 10
Cum Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	27.6	17.2	0.0
Yr Total Cost:	0	0	0	0	0	0	0	27.6	44.8	44.8
Cum Total Cost:	0	0	0	0	0	0	0	1,436	995	0
								1,436	2,431	2,431

Resource: S&HENG Res Dept: 949		SAFETY ENGINEER		LABOR		EOC:				
Overtime:		Class:		SAL						
Yr Hours:	0.0	Oct 01- Sep 02	Oct 02- Sep 03	Oct 03- Sep 04	Oct 04- Sep 05	Oct 05- Sep 06	Oct 06- Sep 07	Oct 07- Sep 08	Oct 08- Sep 09	Oct 09- Sep 10
Cum Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	173.2	138.3	0.0
Yr Total Cost:	0	0	0	0	0	0	0	173.2	311.5	311.5
Cum Total Cost:	0	0	0	0	0	0	0	13,147	11,660	0
								13,147	24,808	24,808

Resource: S&HTEC Res Dept: 949		SAFETY TECH		LABOR		EOC:				
Overtime:		Class:		SAL						
Yr Hours:	0.0	Oct 01- Sep 02	Oct 02- Sep 03	Oct 03- Sep 04	Oct 04- Sep 05	Oct 05- Sep 06	Oct 06- Sep 07	Oct 07- Sep 08	Oct 08- Sep 09	Oct 09- Sep 10
Cum Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	54.8	34.1	0.0
Yr Total Cost:	0	0	0	0	0	0	0	54.8	88.9	88.9
Cum Total Cost:	0	0	0	0	0	0	0	2,417	1,675	0
								2,417	4,092	4,092



## Estimate Summary

Area 7 – Waste Disposition

WBS Element – 1.1.G.M

Control Account – G711

Charge Number – G7118

### Labor

Labor is broken down by resource code and by activity on the attached matrixed manpower spreadsheet. The backup for the manpower spreadsheet can be found on the Waste Disposition Campaign Estimate Worksheets that were provided by Waste Generator Services (WGS). WGS estimated resource man-hours, which were then rounded to the tenth of an FTE for Man Power Planning (MPP) purposes to be entered into the MPP database on a quarterly basis. This database was then exported to MicroFrame and expanded into monthly estimates. The monthly figures were then summed to provide a total hours by resource for each activity.

### Materials

The materials for this account are estimated to be \$12,328. The backup information for this value can be found on the Waste Disposition Campaign Estimate Worksheets that were provided by Waste Generator Services (WGS). There are two worksheets that were provided and summed for the total materials costs. However, WGS included costs for PPE that have been subtracted from this estimate due to the fact the PPE is provided by a centralized group and does not get charged back to the project.

### Equipment

N/A

### Subcontracts

A subcontract will be setup to perform offsite waste shipments via gondola cars for above WAC soil from this area. It is estimated that 1,200 cubic yards of above WAC soil will be generated. The value of this subcontract is estimated to be \$127,000, which includes materials, labor, and equipment. The backup information comes from rough order of magnitude estimates provided by MHF Logistical Systems in the form of several emails. This information is attached. At the time of discussion it was assumed that there would be three individual phases (mobilizations) of a subcontractor to perform the entire scope of work that spans across several areas. Phase I refers to soil generated from Area 4B. Phase II refers to soil generated from Areas 6 and 7. Phase III refers to soils generated from Area 4A and treated prior to handling by the subcontractor. In the attached documentation, the estimate describes 6,000 cubic yards of soil for Phase II (Areas 6 & 7). It also describes that changes in volume can be estimated to cost an \$7,000 per day.

Daily production rates are described as well by estimating an average of 6.5 gondola cars loaded per day each holding up to 100 cubic yards. The capacity of a gondola car is described in a separate attachment labeled Closure Plan Brainstorm Inter-PBS Agreements Rev 0 (2/13/01) Item 2. Using the above information:

	6,000 cubic yards	= \$ 75,000 (material, labor, equipment)
<u>Less</u>	<u>4,800 cubic yards</u>	<u>= \$ 56,000 (material, labor, equipment)*</u>
Total	1,200 cubic yards	= \$ 19,000 (material, labor, equipment)

- \* 4,800 cubic yards @ 100 cubic yards per car = 48 cars
- 6.5 cars loaded per day = 8 days
- \$7,000 per day = \$56,000

Rail shipments cost estimates come from the attachment labeled Closure Plan Brainstorm Inter-PBS Agreements Rev 0 (2/13/01) Item 2. The cost per gondola car shipment is \$9,000. For 1,200 cubic yards of material, 12 gondola cars would be required. Therefore, the rail shipments are estimated to cost \$108,000.

**The total estimated cost for this subcontract is \$127,000.**

## CLOSURE PLAN BRAINSTORM INTER-PBS AGREEMENTS

Rev. 0: 02/13/01

The following represent decisions that were made during Closure Plan Brainstorming sessions on various interfaces between PBS's. If you do not agree with the decisions contact Mark Albertin by 03/01/01. If you do agree there is no response required and the decisions will become the basis for planning as of that date. The (xxx) after the number in each section is the originator. Future additions or changes will be added to this list. "OPEN ISSUES" need to be resolved by the parties involved. In cases listed under Closure Planning we will assist the resolution of the Open Issues. Once the issue is resolved please e-mail Mark Albertin the resolution so the Closure Plan Brainstorm Inter-PBS Agreements list can be updated and reissued. This list does not include any agreements generated in brainstorming sessions with support organizations. The list has been cross-walked between organizations. However, to assure the cross-walk is correct, it is suggested that the entire list be reviewed.

### ALL

1. (OSDF): The North Access Road will be closed as of end of FY04.
2. (WP): The following are cost and shipping criteria that can be used by other projects for shipment of debris to Envirocare:
  - + Debris can represent 10% of the total volume of a 60 train convoy and would cost the same price as other pit material.
  - + Size criteria = 10" x 10" x 20'
  - + Disposal costs are \$95/ton
  - + Rail shipping cost is \$9,000/car
  - + A car = 107.tons or 100 cubic yards
  - + Lid placement cost = \$1,200/lid (i.e. 40hrs/lid at \$30/hr.)
3. (D&D): Projects are to be charged only for washable PPE's that are distributed to the project.
4. (Aquifer): After the STP is removed from service in 3Q FY08, PBS-4 will budget for temporary sanitary facilities for government owned facilities.
5. (WP): Manpower should be planned for on a straight time basis. Overtime should be budgeted separately.
6. WP): Manpower for Operations Assurance to perform SSR's is budgeted for by Operations Assurance.
7. (Silos): Assume progress pictures are budgeted for by Public Affairs.
8. (Silos): Transportation of materials, etc. from RIMIA to a project or a support organization is centralized and budgeted for by Procurement.
9. (Silos): Budget for certification of matrixed personnel is by the organization from which the person is matrixed.
10. (Waste Treat & WGS): All projects are responsible forecasting and budgeting for LLW and MW that the project will generate. Waste Treatment and WGS will be responsible for providing the disposition plan and estimate for the waste material. Greg Fugitt is the designated contact for coordination to obtain the disposition plan and estimate.
11. (WGS): PBS-10 and PBS-11 will budget for waste material that is in a container as of 12/01/00.



**Miller, Frank**

---

**From:** Dennis Morgan [dennis\_morgan@mhfls.com]  
**Sent:** Friday, May 04, 2001 9:54 AM  
**To:** 'Miller, Frank'  
**Cc:** Gus Chirgott; Ken Grumski  
**Subject:** RE: Site Support Services

Frank:

In the event the quantity of material increases, you can utilize a daily rate of \$7,000.00. This rate would cover all direct costs associated with labor, equipment and materials for the on-site services. Passed experience (which can differ from site to site) shows on average 5 - 8 gondola cars per day can be loaded. For estimating purposes, you should base your daily rate on loading out 5 gondola cars with 535 tons of material (approximately 107 tons per car). I would rather be conservative with the production, then be caught short once the project started. Even though our gondola rail cars have a capacity of 109 - 110 tons, utilizing 107 tons per car gives you some flexibility in the type of materials being loaded.

You can utilize a liner (Super Load Wrapper) price of \$550.00 per gondola rail car as a budgetary cost for this project. Based on the volume you gave me, the project would need approximately 171 units.

We are still working on the transportation pricing. As soon as we get the loose ends tied up with the RxR's I'll pass this information on to you. Our transportation pricing will include all the extended logistics required for the project including tracking reports, etc..

I hope this was helpful. If you need anything else, or have any questions please do not hesitate to contact me.

Thanks,  
Dennis

Dennis D. Morgan, II  
Proposal & Contract Manager  
MHF Logistical Solutions, Inc.  
129 McCarrell Lane  
Zelienople, Pennsylvania 16063  
724.452.9300 Ext. 7498  
724.452.3753

-----Original Message-----

**From:** Miller, Frank [mailto:Frank.Miller@fernauld.gov]  
**Sent:** Friday, May 04, 2001 9:19 AM  
**To:** 'Dennis Morgan'  
**Subject:** RE: Site Support Services

Dennis,

If for some reason our volume estimates change before mobilization, is there a factor ( \$/cubic yard ) that i can apply to any additional yardage. As you state below, the travel/per diem, and 1 mobilization cost is included for each of the phases. Other than conservatively directly proportioning the listed cost to a per-yard basis and applying that to any increased yardage, is there a way (factor) for me to adjust cost more closely?

05/04/2001

Secondly, I have not yet received rail cost, liners, reports or logistic management requirement costs.

Thanks in advance,

Frank Miller  
Manager - Characterization / Waste Management

-----Original Message-----

**From:** Dennis Morgan [mailto:dennis\_morgan@mhfls.com]  
**Sent:** Monday, April 30, 2001 4:52 PM  
**To:** 'Frank.Miller@fernald.gov'  
**Subject:** Site Support Services

Frank:

Here is a re-cap, as a follow up to our conversation earlier.

The following budgetary cost were developed on the following:

Loading of 12,000 CY of LLW based on (2) 6,000 CY campaigns  
Loading of 1,500 CY of LLMW based on (1) 1,500 CY campaign

Prices:

Phase I 6,000 CY = \$75,000  
Phase II 6,000 CY = \$75,000  
Phase III 1,500 CY = \$21,000

Inclusive:

- Equipment, labor and materials to load and manage stockpiles of soils, based on the qty's above
- (1) Mobilization per event
- Perdiem/Travel based on above parameters

By Others (Fluor)

- Sampling
- Analytical
- Health Phys/Safety Management
- Backfilling
- Survey
- Disposal Fees
- Engineering and Design
- Permits
- On Site Support (trailers, phones, etc..)
- Dewatering

Note: Rail transportation costs, including liners, tracking reports, logistic management requirements will follow via a separate e-mail.

I'll get back to you later this week with the additional information. If you have any questions please do not hesitate to contact me.



# WASTE DISPOSITION CAMPAIGN ESTIMATE WORKSHEET FOR LLW NON-COMPACTABLE TRASH DISPOSITION

Duration  
Fiscal Year:

PUS: IIIIII  
WBS: IIIIII

Control Account:

Project: Soil Excavation Prohibited Items

Campaign: Area 7 Trash and Scrap

Quantity Basis (containers and volume): Approximately 340 cubic feet in 4 metal boxes

Charge Number: 777

CAIA: 777

1 day = 10 mhrs

1 day = 10 mhrs

Activity	Day	PPE Count	Total Mins	Herval (HAWAI) Reg'd Mhrs	MVO (MVOOPS) (Reg'd Mhrs)	HICO (HICOOPS) (Reg'd Mhrs)	Trn. Labor (TRNLAB) (Reg'd Mhrs)	Mntnncs (MNTNCS) (Reg'd Mhrs)	Supervisor (SUPRVSUP) (Reg'd Mhrs)	Red Tech (RADTEC) (Reg'd Mhrs)	QA (QACENQ) (Reg'd Mhrs)		WAO (WASTENG) (Reg'd Mhrs)	Safety Eng (SAFEEN) (Reg'd Mhrs)	Ann (ANNENQ) (Reg'd Mhrs)	Waste Eng (WASTEEN) (Reg'd Mhrs)	MCA/Chp (MCA/CHP) (Reg'd Mhrs)	MCPREP (MCPREP) (Reg'd Mhrs)	UPREP (UPREP) (Reg'd Mhrs)	Acquisitions (ACQUIS) (Reg'd Mhrs)	Prof. Mgr. Admin. Sp (PRJMG) (Reg'd Mhrs)	CLEANS (CLEANS) (Reg'd Mhrs)	
											Reg'd	Rate											
1. Containment Planning	10	437	0.05	5	0.05	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2. SSR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3. Trash Sorting	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ISOs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Metal Boxes	4	3	50	101	1	28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Drums	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4. ROB Movements	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ISOs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Metal Boxes	4	3	50	101	1	28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Drums	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5. Containment Movements	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ISOs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Metal Boxes	4	3	50	101	1	28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Drums	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6. Loading and Shipping	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ISOs	1	10	31	2	7	2	7	1	3	0.05	0	0	0	0	0	0	0	0	0	0	0	0	0
Metal Boxes	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Drums	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Total Manhours by Skill</b>				<b>118</b>		<b>28</b>		<b>3</b>	<b>3</b>	<b>4</b>	<b>3</b>	<b>3</b>	<b>0</b>	<b>32</b>	<b>100</b>	<b>100</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

\* Includes two warehouse attendants in Loading and Shipping

WORKSHEET SUMMARY		710
Total Manhours		\$29,939
Total Labor		\$12,545
Total Materials		\$14,580
Total Burial		\$57,054
Total Cost		\$12,181
All costs are stated in FY01 Dollars		
Total Materials minus PPE		\$11,932

Project Review: *[Signature]*

Central Team Review: *[Signature]*

Prepared by Greg Fugitt  
Date Prepared Rev 1, May 2, 2001





**SECTION 11**

**5.0 RISK PLAN**



# Risk/Opportunity Identification and Analysis Form

Project: Area 7 Soils Remediation		PBS Number: 06		Total Baseline Dollars (Minimum Case): \$8,856,839					
Evaluator: T. Crawford / F. Miller		WBS Number: 1.1.G.M							
CAM: JD Chiu		Date: 4/11/01							
Date: 4/11/01		Control Account Number: G711							
Project Task		Risk and/or Opportunity		Potential Impact					
		Internal Or External Driver	Impact Cost \$ (Maximum Case)	Risk Impact Level	Risk Probability %	Risk Probability Level	Probable Cost \$ (Likeliest Case)	Risk Critical Value	Risk Handling Strategy
Area 7 Pre-design	Additional Samples needed to bound contamination (chasing)	Internal	\$40,000	1	75	4	\$30,000	2	Accept Risk
Area 7 Site Prep / Excavation	Certification Units Failure	Internal	\$72,000	2	70	4	\$50,400	3	Accept Risk
Area 7 Site Prep / Excavation	Groundwater infiltration during excavation	Internal	\$20,000	1	20	1	\$4,000	1	Accept Risk
Area 7 Site Prep / Excavation	Remediation activities contaminate/recontaminate areas that originally did not need remediation.	Internal	\$30,000	1	30	2	\$9,000	1	Accept Risk
Area 7 Site Prep / Excavation	Extreme Weather Delays	Internal	\$95,000	1	20	2	\$19,000	1	Accept Risk
Area 7 Site Prep / Excavation	Encountering 10% more debris than was identified from pre-design activities.	Internal	\$50,000	1	10	2	\$5,000	1	Accept Risk
Area 7 Site Prep / Excavation	Area is up-posted as a Radium Area	Internal	\$840,000	2	20	2	\$168,000	2	Accept Risk
Area 7 Title III	Additional Samples needed to bound contamination (chasing)	Internal	\$8,000	1	60	4	\$4,800	2	Accept Risk
Area 7 Title III	Implementing Only A Part of the Design	Internal	\$15,000	1	70	4	\$10,500	2	Accept Risk
Area 7 Offsite Waste Disposition	Containers do not meet shipping requirements	Internal	\$90,000	1	30	2	\$27,000	1	Accept Risk
Area 7 Offsite Waste Disposition	Discovery of additional material needing containerization.	Internal	\$9,000	1	30	3	\$2,700	1	Accept Risk
Area 7 Offsite Waste Disposition	Discovery of additional AWAC material.	Internal	\$240,000	1	60	4	\$144,000	2	Accept Risk
Area 7 Excavation Control / Certification	Certification Units Failure	Internal	\$20,000	2	70	4	\$14,000	3	Accept Risk
			Total:				\$488,400		

Area 7 Pre-design	Longer EPA Review Cycle	External	\$10,000	1	30	2	\$3,000	1	
			Total:				\$488,400		

# Risk/Opportunity Identification and Analysis Form

Project: Area 7 Soils Remediation		PBS Number: 06		Total Baseline Dollars (Minimum Case): \$8,856,839						
Evaluator: T. Crawford / F. Miller		WBS Number: 1.1.G.M								
CAM: JD Chiou		Date: 4/11/01								
Project Task		Control Account Number: G711								
Risk and/or Opportunity		Potential Impact								
Area 7 Title / III	Longer EPA Review Cycle	EPA Takes 30 days longer than the normal 60 days to review documents. Schedule delay of 1 month.	Internal Or External Driver	Impact Cost \$ (Maximum Case)	Risk Impact Level	Risk Probability %	Risk Probability Level	Probable Cost \$ (Likeliest Case)	Risk Critical Value	Risk Handling Strategy
Area 7 Excavation Control / Certification	Longer EPA Review Cycle	EPA Takes 30 days longer than the normal 60 days to review documents. Schedule delay of 1 month.	External	\$10,000	1	30	2	\$3,000	1	
	Longer EPA Review Cycle	EPA Takes 30 days longer than the normal 60 days to review documents. Schedule delay of 1 month.	External	\$10,000	1	30	2	\$3,000	1	





**WBS DICTIONARY  
CONTROL ACCOUNT/CHARGE NUMBER**

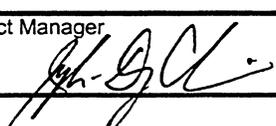
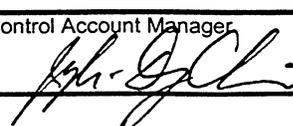


U.S. DEPARTMENT OF ENERGY  
**WORK BREAKDOWN STRUCTURE DICTIONARY**  
**PART II - ELEMENT DEFINITION**

1. PROJECT TITLE <b>FEMP (DEFENSE)</b>	2. DATE OF CONTRACT 12/01/2000		
3. IDENTIFICATION NUMBER DE-AC24-01OH20115		4. INDEX LINE NO. 58	
5. WBS ELEMENT CODE 1.1.G.N	6. WBS ELEMENT TITLE AREA 8 SOIL REMEDIATION		
7. APPROVED CP NO. NEW PER CP# FY01-0115-0006-00		8. DATE OF CHANGES 09/05/2001	
9. SYSTEM DESIGN DESCRIPTION CERCL/ACA	10. BUDGET AND REPORTING NUMBER EW05H3060		
<p>11. ELEMENT TASK DESCRIPTION</p> <p><b><u>a. ELEMENTS OF COST:</u></b></p> <p>Labor  Material  Subcontractors  Other Direct Costs (ODCs)</p> <p><b><u>b. TECHNICAL CONTENT:</u></b></p> <p>Area 8 encompasses the entire western portion of the FEMP, west of Paddys Run. Prior to FY01, certification to final remediation levels (FRLs) has been attained for Area 8 Phase I, II and III South. The remaining scope of work includes the precertification and certification of the soil to final remediation levels (FRLs) in the northern portion known as Area 8 Phase III North (A8P3). The control account is summarized in one charge number: G8117.</p> <p><b><u>c. SCOPE OF WORK:</u></b></p> <p>The scope of work for these activities is specifically defined in the following control accounts:</p> <p>G811      Area 8 Phase III North Precertification/Certification</p> <p>Work Specifically Excluded:</p> <ul style="list-style-type: none"> <li>- Remediation work (not expected)</li> <li>- SDFP staff charging to control account GPM1</li> <li>- Soil characterization work in Area 8 conducted prior to December 2000.</li> <li>- Natural Resource Restoration</li> <li>- Post-certification monitoring and maintenance</li> </ul>			



**WORK SCOPE DEFINITION  
(Control Account)**

1. PROJECT TITLE <b>FEMP (DEFENSE)</b>		2. DATE <b>09/05/2001</b>	Page 1
3. WBS ELEMENT CODE <b>1.1.G.N</b>	4. WBS ELEMENT TITLE/NAME <b>AREA 8 SOIL REMEDIATION</b>		
5. PERFORMING DIV/DEPARTMENT CODE <b>49</b>	6. ORIGINATOR NAME/PHONE <b>JD CHIOU/648-3726</b>	7. WBS ELEMENT MANAGER <b>JD CHIOU</b>	
8. BUDGET AND REPORTING NUMBER <b>EW05H3060</b>	9. BUDGET TITLE <b>SOILS</b>		
10. ORIGINAL SCOPE? / CHANGE TO WORK SCOPE? / NEW SCOPE? <b>NEW PER CP# FY01-0115-006-00</b>		11. ESTIMATED START / COMPLETION DATE <b>10/05 - 2/07</b>	
12. TASK IDENTIFICATION (CONTROL ACCOUNT) <b>G811</b>	13. TASK DESCRIPTION (ONE LINE) <b>AREA 8 SOILS REMEDIATION</b>		
14. ELEMENT TASK DESCRIPTION  <b>a. <u>ELEMENTS OF COST:</u></b>  Labor Material Subcontractors  <b>b. <u>TECHNICAL CONTENT:</u></b>  This account covers Area 8 Phase III north precertification and certification activities as outlined in the scope of work and the Closure Plan Narrative. Area 8 Phase III North encompasses the western portion of the FEMP which is bounded to the east by Paddys Run, to the north by the railroad trestle, and to the south by the Stream Corridor boundary.  <b>c. <u>SCOPE OF WORK:</u></b>  The scope of work for these activities is specifically defined in charge number G8117.  <b>d. <u>WORK SPECIFICALLY EXCLUDED:</u></b>  Remediation Work (not expected)  SDFP staff charging to control account GPM1  Soil characterization work in Area 8 conducted prior to December 2000			
Project Manager 	Control Account Manager 	Control Team Manager 	

**WORK SCOPE DEFINITION  
(Control Account)**

1. PROJECT TITLE <b>FEMP (DEFENSE)</b>		2. DATE <b>09/05/2001</b>	Page 2
3. WBS ELEMENT CODE <b>1.1.G.N</b>	4. WBS ELEMENT TITLE/NAME <b>AREA 8 SOIL REMEDIATION</b>		
5. PERFORMING DIV/DEPARTMENT CODE <b>49</b>	6. ORIGINATOR NAME/PHONE <b>JD CHIOU/648-3726</b>	7. WBS ELEMENT MANAGER <b>JD CHIOU</b>	
8. BUDGET AND REPORTING NUMBER <b>EW05H3060</b>	9. BUDGET TITLE <b>SOILS</b>		
10. ORIGINAL SCOPE? / CHANGE TO WORK SCOPE? / NEW SCOPE? <b>NEW PER CP# FY01-0115-006-00</b>		11. ESTIMATED START / COMPLETION DATE <b>10/05 - 2/07</b>	
12. TASK IDENTIFICATION (CONTROL ACCOUNT) <b>G811</b>	13. TASK DESCRIPTION (ONE LINE) <b>AREA 8 SOILS REMEDIATION</b>		
14. ELEMENT TASK DESCRIPTION <b>Natural Resources Restoration</b>  <b>Post-certification monitoring and maintenance</b>			

**WORK SCOPE DEFINITION**  
(Work Package)

1. PROJECT TITLE <b>FEMP (DEFENSE)</b>		2. DATE <b>09/06/2001</b>	Page 1
3. WBS ELEMENT CODE <b>1.1.G.N</b>	4. WBS ELEMENT TITLE/NAME <b>AREA 8 SOIL REMEDIATION</b>		
5. PERFORMING DIV/DEPARTMENT CODE <b>49</b>	6. ORIGINATOR NAME/PHONE <b>JD CHIOU/648-3726</b>	7. WBS ELEMENT MANAGER <b>JD CHIOU</b>	
8. BUDGET AND REPORTING NUMBER <b>EW05H3060</b>	9. BUDGET TITLE <b>SOILS</b>		
10. ORIGINAL SCOPE? / CHANGE TO WORK SCOPE? / NEW SCOPE? <b>NEW PER CP# FY01-0015-0006-00</b>		11. ESTIMATED START / COMPLETION DATE <b>10/05 - 2/07</b>	
12. TASK IDENTIFICATION (WORK PACKAGE) <b>G8117</b>	13. TASK DESCRIPTION (ONE LINE) <b>AREA 8 PHASE III NORTH CERTIFICATION</b>		
14. ELEMENT TASK DESCRIPTION			
<p><b><u>a. ELEMENTS OF COST:</u></b></p> <p>Labor Materials Subcontracts</p> <p><b><u>b. TECHNICAL CONTENT:</u></b></p> <p>The content of this document applies to the soil characterization program at the FEMP specific to area characterization, sampling, and analytical work performed by and for the Soil Disposal Facility Project in Area 8 Phase III North. It is a summary for area-specific characterization efforts that will require monitoring, sampling, and analytical testing. The characterization efforts are intended to provide information that will result in compliance with the Final Remediation Levels (FRLs) published in the OU5 ROD. The Area 8 Phase III North physical boundaries are described in Section 12 of the Fluor Fernald Closure Plan Basis of Estimate (20300-PL-0005).</p> <p>Drivers of the work are CERCLA, RCRA, the EPA Amended Consent Agreement (ACA), Sitewide Excavation Plan (SEP), and the signed Record of Decision (ROD) for OU5.</p> <p><b><u>c. SCOPE OF WORK:</u></b></p> <p>The scope of this document covers the characterization support for certification of Area 8 Phase III North. Characterization work performed in Area 8 Phase III North under this scope provide sound field and analytical data that prove remedial activities were sufficient. During certification of Area 8 Phase III North, radiological field surveying, physical soil sampling, and analysis will be required. After excavation is determined to be unnecessary, the soil will be tested for all area specific contaminants of concern (COCs) to demonstrate FRL</p>			
Project Manager 	Control Account Manager 	Control Team Manager 	

**WORK SCOPE DEFINITION**  
(Work Package)

1. PROJECT TITLE <b>FEMP (DEFENSE)</b>		2. DATE <b>09/06/2001</b>	Page 2
3. WBS ELEMENT CODE <b>1.1.G.N</b>	4. WBS ELEMENT TITLE/NAME <b>AREA 8 SOIL REMEDIATION</b>		
5. PERFORMING DIV/DEPARTMENT CODE <b>49</b>	6. ORIGINATOR NAME/PHONE <b>JD CHIOU/648-3726</b>	7. WBS ELEMENT MANAGER <b>JD CHIOU</b>	
8. BUDGET AND REPORTING NUMBER <b>EW05H3060</b>	9. BUDGET TITLE <b>SOILS</b>		
10. ORIGINAL SCOPE? / CHANGE TO WORK SCOPE? / NEW SCOPE? <b>NEW PER CP# FY01-0015-0006-00</b>		11. ESTIMATED START / COMPLETION DATE <b>10/05 - 2/07</b>	
12. TASK IDENTIFICATION (WORK PACKAGE) <b>G8117</b>	13. TASK DESCRIPTION (ONE LINE) <b>AREA 8 PHASE III NORTH CERTIFICATION</b>		
14. ELEMENT TASK DESCRIPTION <p>attainment. The actual radiological field-survey measurements, physical soil sampling and analytical activities covered under this account include the following tasks:</p> <p>Review existing data and engineering drawings</p> <p>Develop and write applicable data quality objectives and projects-specific-plans, as necessary</p> <p>Develop Certification Design Letters</p> <p>Define and delineate Certification Units</p> <p>Prep the area for field measurements which includes clearing of brush</p> <p>Installation of certification fencing and signs</p> <p>Physical sampling</p> <p>Assess real-time data</p> <p>Perform assessment of radiological field survey results</p> <p>Perform data management functions within SDFP</p> <p>Develop final reports or certification reports</p> <p>Perform analysis</p> <p><b><u>d. WORK SPECIFICALLY EXCLUDED:</u></b></p> <p>Pre-design work</p> <p>Waste Tracking and disposition</p>			

**WORK SCOPE DEFINITION**  
(Work Package)

1. PROJECT TITLE <b>FEMP (DEFENSE)</b>		2. DATE <b>09/06/2001</b>	Page 3
3. WBS ELEMENT CODE <b>1.1.G.N</b>	4. WBS ELEMENT TITLE/NAME <b>AREA 8 SOIL REMEDIATION</b>		
5. PERFORMING DIV/DEPARTMENT CODE <b>49</b>	6. ORIGINATOR NAME/PHONE <b>JD CHIOU/648-3726</b>	7. WBS ELEMENT MANAGER <b>JD CHIOU</b>	
8. BUDGET AND REPORTING NUMBER <b>EW05H3060</b>	9. BUDGET TITLE <b>SOILS</b>		
10. ORIGINAL SCOPE? / CHANGE TO WORK SCOPE? / NEW SCOPE? <b>NEW PER CP# FY01-0015-0006-00</b>		11. ESTIMATED START / COMPLETION DATE <b>10/05 - 2/07</b>	
12. TASK IDENTIFICATION (WORK PACKAGE) <b>G8117</b>	13. TASK DESCRIPTION (ONE LINE) <b>AREA 8 PHASE III NORTH CERTIFICATION</b>		
14. ELEMENT TASK DESCRIPTION <p><b>Waste Treatment activities</b></p> <p><b>Construction or remediation</b></p> <p><b>Development of Engineering plans, drawings, or specifications</b></p> <p><b>Land Surveying, staff, or equipment</b></p> <p><b>Real Time Scanning (HPGe, RSS, RTRAK), staff, or equipment</b></p> <p><b>Characterization personnel covered under GPM14</b></p> <p><b>Centralized services and/or equipment</b></p> <p><b>Any other Area 8 work performed prior to December 1, 2000</b></p> <p><b>All other PBS elements</b></p> <p><b>All other PBS-06 control accounts</b></p>			



## **SECTION 12**

### **1.0 NARRATIVE**



1. PROJECT TITLE: SOILS EXCAVATION	2. DATE: 09/10/01	3. PBS#: 06
4. WBS ELEMENT CODE: 1.1.G.N.	5. WBS ELEMENT TITLE: AREA 8 SOILS REMEDIATION	
6. CAM NAME/ PHONE: JYH-DONG CHIOU/ 3726	7. CAM SIGNATURE:	
8. ORIGINAL/ CHANGE SCOPE/ PER CP#:	9. CONTROL ACCOUNT: G811	

## SECTION 12: G811 – AREA 8 SOILS REMEDIATION

### 1.0 NARRATIVE

#### 1.1 OVERVIEW

This Closure Plan defines the scope of work required to plan, develop, execute, manage and administer the Area 8 remedial activities under PBS-06 (WBS 1.1.G.N; control account G811). Area 8 encompasses the entire western portion of the FEMP, west of Paddys Run. Prior to FY2001, certification to final remediation levels (FRLs) has been attained for Area 8 Phase I, II and III South. The remaining scope of work includes the precertification and certification of the soil to final remediation levels (FRLs) in the northern portion known as Area 8 Phase III North (A8P3). The control account is summarized in one charge number: G8117.

#### 1.2 ASSUMPTIONS/EXCLUSIONS

##### 1.2.1 Assumptions

- Internal and DOE review of a PSP/CDL/Certification Report is performed in one week.
- EPA/OEPA review of a PSP is performed in two months.
- EPA/OEPA review of CDL/Cert Report is performed in two months.
- EPA review/comment on significant PSP Variance/Field Change Notices (V/FCNs) 7 days for precertification PSPs and 15 days for certification PSPs.
- A dedicated sampling crew will be available to collect soil and perched-water samples.
- Gamma spectroscopy is the assumed analytical method for the primary radionuclides analysis.
- Level D data packages are submitted by the analytical laboratories and 10 percent of the packages undergo verification and validation.

- Statistical tests conducted on the analytical results will follow the pass/fail guidance in the SEP.
- DOE maintains full baseline funding levels.
- DOE negotiates termination of the grazing lease with the local farmer.
- Site labor subcontractor (currently Wise const) to post Certification signs
- Sampling, laboratory, and data management personnel to support Certification

#### 1.2.2 Exclusions

- All other PBS elements
- All other PBS-06 control accounts
- Final restoration activities
- Remediation work in A8P3
- Soil characterization work in Area 8 conducted prior to December 2001.

#### 1.2.3 Government-Furnished Equipment/Services

None.

#### 1.2.4 Applicable Requirements

- OU5 ROD
- PSPs, CDL, and CR reviewed and approved by EPA/OEPA
- Informal agreement with EPA for review time of V/FCNs.

#### 1.2.5 Applicable Technical Guidance

- Sitewide Excavation Plan (SEP) for precertification/certification
- Real time in situ gamma scanning parameters established in the Real Time Users Guide.
- Sampling and analytical parameters established in the SCQ

#### 1.2.6 Disposal, Treatment, Containers, Utilities

None.

### 1.3 DRIVERS

- Grazing lease for the land with the local farmer is terminated by 4Q FY2004
- Agency approval of the precertification PSP, certification PSP, CDL and Certification Report within the allotted review time
- Normal weather conditions to implement the field schedule (no excessive rain or snow due to moisture requirements for real time gamma measurements)
- Availability of sampling team and lab turnaround to complete the certification.

#### 1.3.1 External Events that Impact the Schedule

- Congressional funding of DOE EM Projects
- EPA/OEPA review cycles
- DOE review cycles
- Grazing lease for the land with the local farmer is terminated by 4Q FY2004
- Agency approval of the precertification PSP, CDL and certification PSP
- Normal weather conditions to implement the field schedule (no excessive rain or snow due to moisture requirements for real time gamma measurements)
- Availability of sampling team and lab turnaround

### 1.4 PROJECT PHYSICAL DESCRIPTION

Area 8, Phase 3 (A8P3) consists of certification of the western portion of the FEMP. The area is bounded to the east by Paddys Run, to the north by the railroad track and trestle, to the west by Paddys Run Road, and to the south by the Stream Corridor boundary. There are no major features contained within the A8P3 North area other than the existing natural drainage systems. Two habitats dominate the landscape: grasslands/grazing areas and deciduous woodlots. The end condition for A8P3 will be certified soil to final remediation levels.

### 1.5 PROJECT PLAN/TECHNICAL SCOPE AND QUANTIFICATION

Since A8P3 is a perimeter area, no excavation is anticipated [Approach E from the Sitewide Excavation Plan (SEP)]. No predesign sampling or scanning is anticipated. Due to the location of the area and the existing cattle fencing, no certification fence installation will be required (only sign posting).

Major technical risks include: EPA/OEPA lengthy review cycles for the CDLs and Certification Report (CR) and failure to attain FRL. Contingencies that can mitigate the risks include: negotiate shorter EPA/OEPA review cycles and collect more samples to increase statistical population for certification attainment.

The task activities and deliverables will be completed primarily by project staff from the management, characterization, surveying, administrative and real time disciplines, and these personnel will charge their labor hours to PBS-06 control account GPM1. Only matrixed labor, as identified below, will use the charge account G8117. Detail on manpower loading for this scope of work is provided in Section 3.0. The charge account for G8117 will be closed when the CR report is approved by EPA/OEPA.

#### 1.5.1 G8117 – Area 8 Phase III North Certification

##### 1) Task #1 - Precertification

##### 1.1) Scope/Plan

Prior to measurement activities, a Project Specific Plan will be generated and the field will be mowed and cleared. Based on field conditions and required detection levels, RTRAK, RSS or HPGe measurements will be performed and the precertification maps will be prepared. Certification Unit (CU) boundaries and sample locations will be located by the surveying team and the boundaries and sample locations recorded on maps. Specific activities and deliverables include:

- Evaluate historical information/acquired data, prepare the Precertification Project Specific Plan (PSP) and submit for Agency approval.
- Perform walk downs of field area to assess site conditions for safety and health hazards, equipment access, and maintenance needs (e.g., mowing of grass).
- Coordinate labor support if mowing is required.
- Prepare the area for field measurements by clearing brush, mowing, and installing certification fence postings.
- Perform precertification scans with RTRAK, RSS and HPGe equipment
- Identify hot-spot zones to excavate, if applicable, and rescan area after hot spot is removed.
- Prepare precertification maps based on scan measurements.
- Survey CU boundaries and sample locations and record the information on maps.

- Submit project records to ECDC and maintain copies in project file.
- Perform project management and control activities.

Maps generated from the precertification scans and CU surveys will be delivered to the project. All records will be delivered to ECDC.

The scope of work identified above will be executed using matrixed, centralized and projectized personnel. Distribution of the work, and the plan for executing the scope, is described for each division of personnel.

#### *Matrixed Personnel*

Infrastructure Services will support the operation of real time vehicles and any necessary clearing or mowing. WISE construction or future site labor contractor will post certification signs. Quality Assurance and Safety and Health will provide review of the PSP and oversight on hot spot removal, if needed. Personnel from these organizations are the only individuals who will use charge number G8117.

#### *Centralized Personnel*

Document Control/Procedure Management will provide document numbers, filing support and issue controlled documents, as needed. Information Management will provide computer hardware and software needs. Personnel from these organizations will use their functional area charge numbers.

#### *Projectized Personnel*

Project staff from the management, characterization, survey, real time and administrative disciplines will complete most of the work; and these personnel will charge their labor hours to PBS-06 control account GPM1. Management, characterization and real time staff will oversee the fieldwork. Project Controls will provide cost and schedule support to the project manager. Prior to collecting certification samples, the entire excavation footprint will be scanned with RTRAK and/or HPGe instruments to assess compliance with the FRLs for radium, thorium and uranium. If found, hot spots will be excavated and the area rescanned. After the completion of scanning activities, the CU boundaries and sample locations will be documented by survey.

### 1.2) Quantification

Table 1 summarizes the quantities and/or deliverables anticipated for Task 1. A precertification map will be produced for each set of RTRAK, RSS and HPGe measurements. Forty-three, 1-meter HPGe measurements are needed to cover 1 acre at 99.1% coverage.

TABLE 1  
 Quantities for Task 1: Precertification

ITEM	QUANTITY
Acres requiring mowing/clearing	25
RTRAK, RSS and HPGe Scans, acres	39
RTRAK, RSS and HPGe maps	5
RTRAK/RSS acres	34
HPGe acres/measurements	5/215
Survey Boundaries, Cus	8

2) Task #2 - Certification

2.1) Scope/Plan

Certification activities begin with the preparation of the Certification Design Letter (CDL) and Certification PSP and end when the Certification Report is approved by the EPA and OEPA. Specific activities and deliverables include:

- Develop COC list, sampling and analysis strategy, data quality objectives, and off-site laboratory task orders.
- Prepare data tables, CU maps and text for draft CDL/PSP and deliver CDL/PSP to functional-area personnel and DOE for review.
- Obtain review comments from functional-area personnel and DOE for each DOE draft CDL/PSP.
- Incorporate comment responses into each DOE draft CDL/PSP and deliver EPA/OEPA draft CDL/PSP to EPA and OEPA for review.
- Obtain review comments from EPA and OEPA on each EPA/OEPA draft CDL/PSP
- Prepare response-to-comment (RTC) package for each EPA/OEPA draft CDL/PSP and obtain EPA and OEPA approvals.
- Incorporate comment responses into each EPA/OEPA draft CDL/PSP and deliver final CDL to project personnel, functional-area personnel, DOE, EPA and OEPA.
- Perform walk downs of field area to assess site conditions for safety and health hazards, equipment access, and maintenance needs (e.g., mowing of grass).
- Coordinate labor support if mowing is required.
- Conduct work scope briefings with field crews.

- Mobilize the sampling crew to obtain the soil samples.
- Develop variance/field change notices (V/FCN), as needed.
- Deliver the samples to the on-site laboratory and create the sample analysis log for on-site and off-site analysis, as needed.
- Perform the required analytical work and generate laboratory reports to QA/QC Level D.
- Perform 100% data validation (10% QA/QC level D, 90% QA/QC level B) of the laboratory reports.
- Enter data into the SED and perform queries.
- Reduce and interpret data (statistical evaluations) to develop final CR tables.
- Develop tables, maps and text for CRs and deliver CRs to functional-area personnel and DOE for review.
- Obtain review comments from functional-area personnel and DOE for each DOE draft CR.
- Incorporate comment responses into each DOE draft CR and deliver EPA/OEPA draft CR to EPA and OEPA for review.
- Obtain review comments from EPA and OEPA on each EPA/OEPA draft CR.
- Prepare response-to-comment (RTC) package for each EPA/OEPA draft CR and obtain EPA and OEPA approvals.
- Incorporate comment responses into each EPA/OEPA draft CR and deliver final CR to project personnel, functional-area personnel, DOE, EPA and OEPA.
- Submit project records to ECDC and maintain copies in project file.
- Perform project management and control activities.

The CDL, PSP, RTCs, and CR will be delivered to DOE, EPA/OEPA and the project. All documents and records will be delivered to ECDC.

The scope of work identified above will be executed using matrixed, centralized and projectized personnel. Distribution of the work, and the plan for executing the scope, is described for each division of personnel.

*Matrixed Personnel*

Environmental Monitoring and Analytical Services will complete most of the work under Task 2. Environmental Monitoring will be used to complete soil borings, collect soil samples and deliver the samples to the on-site laboratory. Analytical Laboratory Services will log samples into the system, complete analytical measurements, issue data packages and ship any samples requiring analysis for COCs to off-site labs. Samples contracted to off-site laboratories will contain a request for a 45-day turn around time. Analytical measurements will be performed and Level D data packages will be delivered to the project. Project Controls will provide cost and schedule support. Personnel from these organizations are the only individuals who will use charge number G8117.

*Centralized Personnel*

Document Control/Procedure Management will provide document numbers, filing support and issue controlled documents, as needed. Sample Data Management will be used for database queries, data entry, data validation, SOWs for off-site labs, and the statistical reduction of data to evaluate the certification criteria for pass/fail. Information Management will provide computer hardware and software needs. Personnel from these organizations will use their functional area charge numbers.

*Projectized Personnel*

Project staff from the management, characterization, survey will complete work, and administrative disciplines; and these personnel will charge their labor hours to PBS-06 control account GPM1. Management and characterization staff will prepare all documentation and oversee the field and analytical work. Certification activities will begin with the preparation of the CDL/PSP. Each CDL/PSP will identify the number and location of CUs, sample locations, a list of COCs for each CU, and analytical methods and detection limits. Execution of the CDL/PSP work will not begin until EPA/OEPA approval is received and the final CDL/PSP is released. Field activities will commence with sample collection after the CDL/PSP is approved and precertification is completed. Samples will be sent to the appropriate laboratory for analysis and Level D data packages will be submitted to the project. One hundred percent of the data packages will undergo verification and data validation, and if problems are found additional packages will be selected for review. The data for each CU will be evaluated with statistical tests identified in the Sitewide Excavation Plan (DOE, June 1998) and a pass/fail decision for each CU will be based on these tests. CUs that fail will be resampled, and possibly subjected to additional excavation, until they pass the certification criteria. The draft CR will be prepared and submitted to EPA/OEPA after all CUs have passed. Once the CR is approved by EPA/OEPA, the final CR will be released and the area will be certified as fully remediated.

2.2) Quantification

Table 2 summarizes the quantities and/or deliverables anticipated for Task 2. One draft CDL and Certification PSP, EPA/OEPA draft review, one EPA/OEPA RTC package, and one final CDL/PSP will be generated. The SEP dictates that there are 12 sample locations per

CU plus one duplicate sample. These criteria result in an estimate of 104 certification samples. The number of laboratory reports that will be generated is based on project history of one lab report per 12 samples and, per the SEP, 10 percent of these will be validated to Level D. A CR will be prepared for each CDL and the submittal and review process will follow the CDL scenario.

TABLE 2  
 Quantities for Task 2: Certification

ITEM	QUANTITY
Draft CDL/PSP for DOE	1
Draft CDL/PSP for EPA/OEPA	1
Response-to-Comments Package for EPA/OEPA	1
Final CDL/PSP	1
V/FCNs during sampling	10
Soil Samples	104
Uranium, Thorium and Radium Analyses	104
Lab Reports for Radiological COCs	8
Radiological Lab Reports to Verify and Validate	8
Draft Certification Report for DOE	1
Draft Certification Report EPA/OEPA	1
Response-to-Comments Packages for EPA/OEPA	1
Final Certification Report	1



## **SECTION 12**

### **2.0 SCHEDULE**







## **SECTION 12**

### **3.0 MANPOWER PLANS**



# Manpower Planning Sheet (CR2)

MPS # 1GN01 AREA 8 PHASE III NORTH REMEDIATION CERTIFI

DRIVERS	START DATE	END DATE	TOT	FY 2001				FY 2002				FY 2003				FY 2004				FY 2005				FY 2006			
				Q1	Q2	Q3	Q4																				
Lab			0.40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lab			0.20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
QA/QC			0.20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0	0	0	0.1	0
Environmental Safety & H Safety Engineer			0.10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Sheet Totals:</b>				0.90	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	0.20	0.00	0.70	0.00	0.00	0.00	0.00	0.00



## **SECTION 12**

### **4.0 ESTIMATE**



**G8117**

**AREA 8 PHASE III NORTH CERTIFICATION**



# Fluor Fernald, Inc.

ESTIMATE SUPPORT WORKSHEET  
FOR ACTIVITY BASED ESTIMATING  
(1 FTE EQUALS 1747 HOURS)

DATE: 07-Sep-01  
PROJECT MGR: J.D. CHIOU  
CAM: J.D. CHIOU  
PREPARED BY: T. O'BRIEN  
FISCAL YEAR: 2006

PBS: OHFN06  
WBS: 1.1.G.N  
CTRL ACCT: G811  
CHARGE NO: G8117  
COMMENT NO:

<b>Resource:</b> DRFCAD	<b>LABOR</b>											
<b>Res Dept:</b> 949	<b>EOC: SAL</b>											
	<b>Class:</b>											
	<b>DRAFTER/CAD OPERATOR</b>	Oct 00-	Oct 01-	Oct 02-	Oct 03-	Oct 04-	Oct 05-	Oct 06-	Oct 07-	Oct 08-	Oct 09-	
	Overline:	Sep 01	Sep 02	Sep 03	Sep 04	Sep 05	Sep 06	Sep 07	Sep 08	Sep 09	Sep 10	
Yr Hours:	0.0	0.0	0.0	0.0	0.0	0.0	54.0	0.0	0.0	0.0	0.0	
Cum Hours:	0.0	0.0	0.0	0.0	0.0	0.0	54.0	54.0	54.0	54.0	54.0	
Yr Total Cost:	0	0	0	0	0	0	2,250	0	0	0	0	
Cum Total Cost:	0	0	0	0	0	0	2,250	2,250	2,250	2,250	2,250	

<b>Resource:</b> ENSMGR	<b>LABOR</b>											
<b>Res Dept:</b> 949	<b>EOC: SAL</b>											
	<b>Class:</b>											
	<b>ENVIR SCIENTIST MGR</b>	Oct 00-	Oct 01-	Oct 02-	Oct 03-	Oct 04-	Oct 05-	Oct 06-	Oct 07-	Oct 08-	Oct 09-	
	Overline:	Sep 01	Sep 02	Sep 03	Sep 04	Sep 05	Sep 06	Sep 07	Sep 08	Sep 09	Sep 10	
Yr Hours:	0.0	0.0	0.0	0.0	0.0	0.0	19.0	0.0	0.0	0.0	0.0	
Cum Hours:	0.0	0.0	0.0	0.0	0.0	0.0	19.0	19.0	19.0	19.0	19.0	
Yr Total Cost:	0	0	0	0	0	0	1,340	0	0	0	0	
Cum Total Cost:	0	0	0	0	0	0	1,340	1,340	1,340	1,340	1,340	

<b>Resource:</b> ENSREP	<b>LABOR</b>											
<b>Res Dept:</b> 949	<b>EOC: SAL</b>											
	<b>Class:</b>											
	<b>ENVIR SCIENCE REP</b>	Oct 00-	Oct 01-	Oct 02-	Oct 03-	Oct 04-	Oct 05-	Oct 06-	Oct 07-	Oct 08-	Oct 09-	
	Overline:	Sep 01	Sep 02	Sep 03	Sep 04	Sep 05	Sep 06	Sep 07	Sep 08	Sep 09	Sep 10	
Yr Hours:	0.0	0.0	0.0	0.0	0.0	0.0	77.0	0.0	0.0	0.0	0.0	
Cum Hours:	0.0	0.0	0.0	0.0	0.0	0.0	77.0	77.0	77.0	77.0	77.0	
Yr Total Cost:	0	0	0	0	0	0	4,317	0	0	0	0	
Cum Total Cost:	0	0	0	0	0	0	4,317	4,317	4,317	4,317	4,317	

<b>Resource:</b> ENSTEC	<b>LABOR</b>											
<b>Res Dept:</b> 949	<b>EOC: SAL</b>											
	<b>Class:</b>											
	<b>ENVIR SCIENTIST TECH</b>	Oct 00-	Oct 01-	Oct 02-	Oct 03-	Oct 04-	Oct 05-	Oct 06-	Oct 07-	Oct 08-	Oct 09-	
	Overline:	Sep 01	Sep 02	Sep 03	Sep 04	Sep 05	Sep 06	Sep 07	Sep 08	Sep 09	Sep 10	
Yr Hours:	0.0	0.0	0.0	0.0	0.0	0.0	96.0	0.0	0.0	0.0	0.0	
Cum Hours:	0.0	0.0	0.0	0.0	0.0	0.0	96.0	96.0	96.0	96.0	96.0	
Yr Total Cost:	0	0	0	0	0	0	3,633	0	0	0	0	
Cum Total Cost:	0	0	0	0	0	0	3,633	3,633	3,633	3,633	3,633	



# Fluor Fernald, Inc.

ESTIMATE SUPPORT WORKSHEET  
FOR ACTIVITY BASED ESTIMATING  
(1 FTE EQUALS 1747 HOURS)

DATE: 07-Sep-01  
PROJECT MGR: J.D. CHIOU  
CAM: J.D. CHIOU  
PREPARED BY: T. O'BRIEN  
FISCAL YEAR: 2006

PBS: OHFN06  
WBS: 1.1.G.N  
CTRL ACCT: G811  
CHARGE NO: G8117  
COMMENT NO:

**MOTOR VEHICLE OPER**

Resource:	Res Dept:	MVOOPR	949	Class:	LABOR											
					EOC:		HOU		EOC:		HOU		EOC:		HOU	
				OverTime:	Oct 00-	Oct 01-	Oct 02-	Oct 03-	Oct 04-	Oct 05-	Oct 06-	Oct 07-	Oct 08-	Oct 09-		
					Sep 01	Sep 02	Sep 03	Sep 04	Sep 05	Sep 06	Sep 07	Sep 08	Sep 09	Sep 10		
Yr Hours:					0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Cum Hours:					0.0	0.0	0.0	0.0	0.0	293.0	293.0	293.0	293.0	293.0		
Yr Total Cost:					0	0	0	0	0	11,298	11,298	0	0	0		
Cum Total Cost:					0	0	0	0	0	11,298	11,298	11,298	11,298	11,298		

**PROJECT SUPPORT MGR**

Resource:	Res Dept:	PJMGR	949	Class:	LABOR											
					EOC:		SAL		EOC:		SAL		EOC:		SAL	
				OverTime:	Oct 00-	Oct 01-	Oct 02-	Oct 03-	Oct 04-	Oct 05-	Oct 06-	Oct 07-	Oct 08-	Oct 09-		
					Sep 01	Sep 02	Sep 03	Sep 04	Sep 05	Sep 06	Sep 07	Sep 08	Sep 09	Sep 10		
Yr Hours:					0.0	0.0	0.0	0.0	0.0	102.0	102.0	0.0	0.0	0.0		
Cum Hours:					0.0	0.0	0.0	0.0	0.0	102.0	102.0	102.0	102.0	102.0		
Yr Total Cost:					0	0	0	0	0	6,231	6,231	0	0	0		
Cum Total Cost:					0	0	0	0	0	6,231	6,231	6,231	6,231	6,231		

**QA ENGINEER**

Resource:	Res Dept:	QACENG	949	Class:	LABOR											
					EOC:		SAL		EOC:		SAL		EOC:		SAL	
				OverTime:	Oct 00-	Oct 01-	Oct 02-	Oct 03-	Oct 04-	Oct 05-	Oct 06-	Oct 07-	Oct 08-	Oct 09-		
					Sep 01	Sep 02	Sep 03	Sep 04	Sep 05	Sep 06	Sep 07	Sep 08	Sep 09	Sep 10		
Yr Hours:					0.0	0.0	0.0	0.0	0.0	78.4	4.6	0.0	0.0	0.0		
Cum Hours:					0.0	0.0	0.0	0.0	0.0	78.4	83.0	83.0	83.0	83.0		
Yr Total Cost:					0	0	0	0	0	4,814	307	0	0	0		
Cum Total Cost:					0	0	0	0	0	4,814	5,121	5,121	5,121	5,121		

**RAD TECH**

Resource:	Res Dept:	RADTEC	949	Class:	LABOR											
					EOC:		SAL		EOC:		SAL		EOC:		SAL	
				OverTime:	Oct 00-	Oct 01-	Oct 02-	Oct 03-	Oct 04-	Oct 05-	Oct 06-	Oct 07-	Oct 08-	Oct 09-		
					Sep 01	Sep 02	Sep 03	Sep 04	Sep 05	Sep 06	Sep 07	Sep 08	Sep 09	Sep 10		
Yr Hours:					0.0	0.0	0.0	0.0	0.0	116.0	0.0	0.0	0.0	0.0		
Cum Hours:					0.0	0.0	0.0	0.0	0.0	116.0	116.0	116.0	116.0	116.0		
Yr Total Cost:					0	0	0	0	0	5,282	0	0	0	0		
Cum Total Cost:					0	0	0	0	0	5,282	5,282	5,282	5,282	5,282		

# Fluor Fernald, Inc.

PBS: OHFN06  
 WBS: 1.1.G.N  
 CTRL ACCT: G811  
 CHARGE NO: G8117  
 COMMENT NO:

DATE: 07-Sep-01  
 PROJECT MGR: J.D. CHIOU  
 CAM: J.D. CHIOU  
 PREPARED BY: T. O'BRIEN  
 FISCAL YEAR: 2006

ESTIMATE SUPPORT WORKSHEET  
 FOR ACTIVITY BASED ESTIMATING  
 (1 FTE EQUALS 1747 HOURS)

Resource:	S&HENG	SAFETY ENGINEER		LABOR		EOC:					
		Overtime:	Class:	EOC:	SAL						
Res Dept:	949										
Yr Hours:		Oct 00- Sep 01	Oct 01- Sep 02	Oct 02- Sep 03	Oct 03- Sep 04	Oct 04- Sep 05	Oct 05- Sep 06	Oct 06- Sep 07	Oct 07- Sep 08	Oct 08- Sep 09	Oct 09- Sep 10
Cum Hours:		0.0	0.0	0.0	0.0	0.0	21.0	0.0	0.0	0.0	0.0
Yr Total Cost:		0	0	0	0	0	21.0	0	0	0	21.0
Cum Total Cost:		0	0	0	0	0	1,394	0	0	0	1,394

Resource:	WISE	WISE CONSTRUCTION		SUBCONTRACTORS		EOC:					
		Overtime:	Class:	EOC:	SUB						
Res Dept:	949										
Yr Units:		Oct 00- Sep 01	Oct 01- Sep 02	Oct 02- Sep 03	Oct 03- Sep 04	Oct 04- Sep 05	Oct 05- Sep 06	Oct 06- Sep 07	Oct 07- Sep 08	Oct 08- Sep 09	Oct 09- Sep 10
Cum Units:		0.0	0.0	0.0	0.0	0.0	325.0	0.0	0.0	0.0	0.0
Yr Total Cost:		0	0	0	0	0	325.0	0	0	0	325.0
Cum Total Cost:		0	0	0	0	0	373	0	0	0	373

**GRAND TOTALS:**

Yr Hours:		Oct 00- Sep 01	Oct 01- Sep 02	Oct 02- Sep 03	Oct 03- Sep 04	Oct 04- Sep 05	Oct 05- Sep 06	Oct 06- Sep 07	Oct 07- Sep 08	Oct 08- Sep 09	Oct 09- Sep 10
Cum Hours:		0.0	0.0	0.0	0.0	0.0	1,269.9	18.1	0.0	0.0	0.0
Yr Total Cost:		0	0	0	0	0	1,288.1	1,288.1	1,288.1	1,288.1	1,288.1
Cum Total Cost:		0	0	0	0	0	56,501	988	0	0	57,489

*[Handwritten Signature]*

CAM

CONTROL TEAM

## **SECTION 12**

### **5.0 RISK PLAN**



# Risk/Opportunity Identification and Analysis Form

Project: Area 8 Soils Remediation		PBS Number: 06		Total Baseline Dollars (Minimum Case):		\$57,489																
Evaluator: M. Rolles / F. Miller		Date: 4/11/01		WBS Number: 1.1.G.N																		
CAM: JD Chiou		Date: 4/11/01		Control Account Number: G811																		
Project Task		Risk and/or Opportunity		Potential Impact		Internal Or External Driver		Impact Cost, \$ (Maximum Case)		Risk Impact Level		Risk Probability %		Risk Probability Level		Probable Cost, \$ (Likeliest Case)		Risk Critical Value		Risk Handling Strategy		
Area 8 Excavation Control / Certification		Certification Units Failure	2 CUs Fail - Resampling and Analysis / Schedule Delay of 2.5 months	Internal	\$20,000	2	10	1	\$2,000	1	1	1	1	1	1	1	1	1	1	1	1	Accept Risk
Area 8 Excavation Control / Certification	RI-0406	Certification Units Failure	Excavation for 2 Failed CUs. 1/4 footprint of CU at a depth of 2'. This equates to 1200 cy/CU or 2400cy @ \$30/cy	Internal	\$72,000	2	10	1	\$7,200	1	1	1	1	1	1	1	1	1	1	1	1	Accept Risk

Total:	\$92,000
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Total:	\$9,200
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Total:	\$3,000
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**WBS DICTIONARY  
CONTROL ACCOUNT/CHARGE NUMBER**



U.S. DEPARTMENT OF ENERGY  
 WORK BREAKDOWN STRUCTURE DICTIONARY  
 PART II - ELEMENT DEFINITION

1. PROJECT TITLE  FEMP (DEFENSE)	2. DATE OF CONTRACT  12/01/2000
3. IDENTIFICATION NUMBER  DE-AC24-01OH20115	4. INDEX LINE NO.  59
5. WBS ELEMENT CODE  1.1.G.P	6. WBS ELEMENT TITLE  AREA 9 SOIL REMEDIATION
7. APPROVED CP NO.  NEW PER CP# FY01-0115-0006-00	8. DATE OF CHANGES  09/05/2001
9. SYSTEM DESIGN DESCRIPTION  CERCL/ACA	10. BUDGET AND REPORTING NUMBER  EW05H3060
11. ELEMENT TASK DESCRIPTION  <p><b><u>a. ELEMENTS OF COST:</u></b></p> <p>Labor          Material          Subcontractors          Other Direct Costs (ODCs)</p> <p><b><u>b. TECHNICAL CONTENT:</u></b></p> <p>Area 9 is adjacent to on-property Area 1, Phases I and II and divided into two phases. Prior to December 1, 2000, investigations with real-time scanning, precertification physical samples, confirmation samples, and pre-design samples were collected in Area 9, Phase I (A9P1), including a cultural resources survey. The remaining scope of work includes the certification of the soil in A9PI and the precertification and certification of soil in Area 9, Phase II (A9P2). The control account is summarized in two charge numbers: G9116 and G9117.</p> <p><b><u>c. SCOPE OF WORK:</u></b></p> <p>The scope of work for these activities is specifically defined in the following control accounts:</p> <p>G911      Area 9 Phase I Certification and Phase II Precertification/Certification</p> <p>Work Specifically Excluded:</p> <ul style="list-style-type: none"> <li>- Remediation work (not expected)</li> <li>- SDFP staff charging to control account GPM1</li> <li>- Soil characterization work in Area 9 conducted prior to December 2000.</li> <li>- Natural Resource Restoration (not required)</li> </ul>	



**WORK SCOPE DEFINITION**  
(Control Account)

1. PROJECT TITLE <b>FEMP (DEFENSE)</b>	2. DATE <b>09/05/2001</b>	Page 1
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3. WBS ELEMENT CODE <b>1.1.G.P</b>	4. WBS ELEMENT TITLE/NAME <b>AREA 9 SOIL REMEDIATION</b>
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5. PERFORMING DIV/DEPARTMENT CODE <b>49</b>	6. ORIGINATOR NAME/PHONE <b>JD CHIOU/648-3726</b>	7. WBS ELEMENT MANAGER <b>JD CHIOU</b>
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8. BUDGET AND REPORTING NUMBER <b>EW05H3060</b>	9. BUDGET TITLE <b>SOILS</b>
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10. ORIGINAL SCOPE? / CHANGE TO WORK SCOPE? / NEW SCOPE? <b>NEW PER CP# FY01-0015-0006-00</b>	11. ESTIMATED START / COMPLETION DATE <b>12/00 - 10/07</b>
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12. TASK IDENTIFICATION (CONTROL ACCOUNT) <b>G911</b>	13. TASK DESCRIPTION (ONE LINE) <b>AREA 9 SOILS REMEDIATION</b>
--	--

14. ELEMENT TASK DESCRIPTION

**a. ELEMENTS OF COST:**

Labor  
Materials  
Subcontractors

**b. TECHNICAL CONTENT:**

This account covers Area 9 precertification and certification activities as outlined in the scope of work and the Closure Plan narrative. Area 9 is an off-property area and is divided into two phases. Area 9 Phase I extends from SR 126 to the southern Summe-Welch property line. Area 9 Phase II extends to the south from the southern A9PI boundary (the Summe-Welch property line) to the Welch-Knollman property line, and also includes a small grassy area north of SR 126.

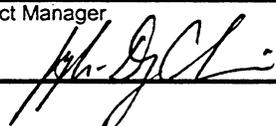
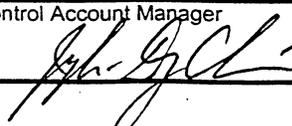
**c. SCOPE OF WORK:**

The scope of work for these activities is specifically defined in the following charge numbers:

G9116 - Area 9 Phase I certification  
G9117 - Area 9 Phase II Precertification/Certification

**d. WORK SPECIFICALLY EXCLUDED:**

Remediation work (not expected)

Project Manager 	Control Account Manager 	Control Team Manager 
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**WORK SCOPE DEFINITION**  
(Control Account)

1. PROJECT TITLE <b>FEMP (DEFENSE)</b>		2. DATE <b>09/05/2001</b>	Page 2
3. WBS ELEMENT CODE <b>1.1.G.P</b>	4. WBS ELEMENT TITLE/NAME <b>AREA 9 SOIL REMEDIATION</b>		
5. PERFORMING DIV/DEPARTMENT CODE <b>49</b>	6. ORIGINATOR NAME/PHONE <b>JD CHIOU/648-3726</b>	7. WBS ELEMENT MANAGER <b>JD CHIOU</b>	
8. BUDGET AND REPORTING NUMBER <b>EW05H3060</b>	9. BUDGET TITLE <b>SOILS</b>		
10. ORIGINAL SCOPE? / CHANGE TO WORK SCOPE? / NEW SCOPE? <b>NEW PER CP# FY01-0015-0006-00</b>		11. ESTIMATED START / COMPLETION DATE <b>12/00 - 10/07</b>	
12. TASK IDENTIFICATION (CONTROL ACCOUNT) <b>G911</b>	13. TASK DESCRIPTION (ONE LINE) <b>AREA 9 SOILS REMEDIATION</b>		

14. ELEMENT TASK DESCRIPTION

**SDFP staff charging to control account GPM1**

**Soil characterization work in Area 9 conducted prior to December 2000**

**Natural Resource Restoration (not required)**

**WORK SCOPE DEFINITION**  
(Work Package)

1. PROJECT TITLE <b>FEMP (DEFENSE)</b>		2. DATE <b>09/06/2001</b>	Page 1
3. WBS ELEMENT CODE <b>1.1.G.P</b>	4. WBS ELEMENT TITLE/NAME <b>AREA 9 SOIL REMEDIATION</b>		
5. PERFORMING DIV/DEPARTMENT CODE <b>49</b>	6. ORIGINATOR NAME/PHONE <b>JD CHIOU/648-3726</b>	7. WBS ELEMENT MANAGER <b>JD CHIOU</b>	
8. BUDGET AND REPORTING NUMBER <b>EW05H3060</b>	9. BUDGET TITLE <b>SOILS</b>		
10. ORIGINAL SCOPE? / CHANGE TO WORK SCOPE? / NEW SCOPE? <b>NEW PER CP# FY01-0015-0006-00</b>		11. ESTIMATED START / COMPLETION DATE <b>12/00 - 10/07</b>	
12. TASK IDENTIFICATION (WORK PACKAGE) <b>G9116</b>	13. TASK DESCRIPTION (ONE LINE) <b>AREA 9 PHASE I CERTIFICATION</b>		

14. ELEMENT TASK DESCRIPTION

**a. ELEMENTS OF COST:**

Labor  
Materials  
Subcontracts

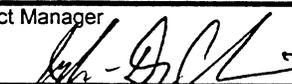
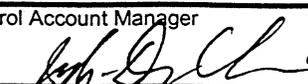
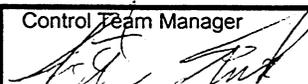
**b. TECHNICAL CONTENT:**

The content of this document applies to the soil characterization program at the FEMP specific to area characterization, sampling, and analytical work performed by and for the Soil Disposal Facility Project in Area 9 Phase I. It is a summary for area-specific characterization efforts that will require monitoring, sampling, and analytical testing. The characterization efforts are intended to provide information that will result in compliance with the Final Remediation Levels (FRLs) published in the OU5 ROD. The Area 9 Phase I physical boundaries are described in Section 13 of the Fluor Fernald Closure Plan Basis of Estimate (20300-PL-0005).

Drivers of the work are CERCLA, RCRA, the EPA Amended Consent Agreement (ACA), Sitewide Excavation Plan (SEP), and the signed Record of Decision (ROD) for OU5.

**c. SCOPE OF WORK:**

The scope of this document covers the characterization support for certification of Area 9 Phase I. Characterization work performed in Area 9 Phase I under this scope provide sound field and analytical data that prove remedial activities were sufficient. During certification of Area 9 Phase I, radiological field surveying, physical soil sampling, and analysis will be required. After

Project Manager 	Control Account Manager 	Control Team Manager 
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**WORK SCOPE DEFINITION**  
(Work Package)

1. PROJECT TITLE <b>FEMP (DEFENSE)</b>		2. DATE <b>09/06/2001</b>	Page 2
3. WBS ELEMENT CODE <b>1.1.G.P</b>	4. WBS ELEMENT TITLE/NAME <b>AREA 9 SOIL REMEDIATION</b>		
5. PERFORMING DIV/DEPARTMENT CODE <b>49</b>	6. ORIGINATOR NAME/PHONE <b>JD CHIOU/648-3726</b>	7. WBS ELEMENT MANAGER <b>JD CHIOU</b>	
8. BUDGET AND REPORTING NUMBER <b>EW05H3060</b>	9. BUDGET TITLE <b>SOILS</b>		
10. ORIGINAL SCOPE? / CHANGE TO WORK SCOPE? / NEW SCOPE? <b>NEW PER CP# FY01-0015-0006-00</b>		11. ESTIMATED START / COMPLETION DATE <b>12/00 - 10/07</b>	
12. TASK IDENTIFICATION (WORK PACKAGE) <b>G9116</b>	13. TASK DESCRIPTION (ONE LINE) <b>AREA 9 PHASE I CERTIFICATION</b>		

14. ELEMENT TASK DESCRIPTION

excavation is determined to be unnecessary, the soil will be tested for all area specific contaminants of concern (COCs) to demonstrate FRL attainment. The actual radiological field-survey measurements, physical soil sampling and analytical activities covered under this account include the following tasks:

- Review existing data and engineering drawings
- Develop and write applicable data quality objectives and projects-specific-plans, as necessary
- Develop Certification Design Letters
- Define and delineate Certification Units
- Prep the area for field measurements which includes clearing of brush
- Installation of certification fencing and signs
- Physical sampling
- Assess real-time data
- Perform assessment of radiological field survey results
- Perform data management functions within SDFP
- Develop final reports or certification reports
- Perform analysis

**d. WORK SPECIFICALLY EXCLUDED:**

- Pre-design work
- Waste Tracking and disposition

**WORK SCOPE DEFINITION**  
(Work Package)

1. PROJECT TITLE <b>FEMP (DEFENSE)</b>	2. DATE <b>09/06/2001</b>	Page 3
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3. WBS ELEMENT CODE <b>1.1.G.P</b>	4. WBS ELEMENT TITLE/NAME <b>AREA 9 SOIL REMEDIATION</b>
---------------------------------------	---

5. PERFORMING DIV/DEPARTMENT CODE <b>49</b>	6. ORIGINATOR NAME/PHONE <b>JD CHIOU/648-3726</b>	7. WBS ELEMENT MANAGER <b>JD CHIOU</b>
--	--	---

8. BUDGET AND REPORTING NUMBER <b>EW05H3060</b>	9. BUDGET TITLE <b>SOILS</b>
--	---------------------------------

10. ORIGINAL SCOPE? / CHANGE TO WORK SCOPE? / NEW SCOPE? <b>NEW PER CP# FY01-0015-0006-00</b>	11. ESTIMATED START / COMPLETION DATE <b>12/00 - 10/07</b>
--	---

12. TASK IDENTIFICATION (WORK PACKAGE) <b>G9116</b>	13. TASK DESCRIPTION (ONE LINE) <b>AREA 9 PHASE I CERTIFICATION</b>
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14. ELEMENT TASK DESCRIPTION

**Waste Treatment activities**

**Construction or remediation**

**Development of Engineering plans, drawings, or specifications**

**Land Surveying, staff, or equipment**

**Real Time Scanning (HPGe, RSS, RTRAK), staff, or equipment**

**Characterization personnel covered under GPM14**

**Centralized services and/or equipment**

**Any other Area 9 work performed prior to December 1, 2000**



**WORK SCOPE DEFINITION**  
(Work Package)

1. PROJECT TITLE <b>FEMP (DEFENSE)</b>		2. DATE <b>09/06/2001</b>	Page 1
3. WBS ELEMENT CODE <b>1.1.G.P</b>	4. WBS ELEMENT TITLE/NAME <b>AREA 9 SOIL REMEDIATION</b>		
5. PERFORMING DIV/DEPARTMENT CODE <b>49</b>	6. ORIGINATOR NAME/PHONE <b>JD CHIOU/648-3726</b>	7. WBS ELEMENT MANAGER <b>JD CHIOU</b>	
8. BUDGET AND REPORTING NUMBER <b>EW05H3060</b>	9. BUDGET TITLE <b>SOILS</b>		
10. ORIGINAL SCOPE? / CHANGE TO WORK SCOPE? / NEW SCOPE? <b>NEW PER CP# FY01-0015-0006-00</b>		11. ESTIMATED START / COMPLETION DATE <b>5/06 - 10/07</b>	
12. TASK IDENTIFICATION (WORK PACKAGE) <b>G9117</b>	13. TASK DESCRIPTION (ONE LINE) <b>AREA 9 PHASE II CERTIFICATION</b>		

14. ELEMENT TASK DESCRIPTION

**a. ELEMENTS OF COST:**

Labor  
Materials  
Subcontracts

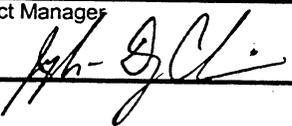
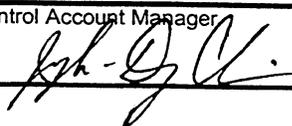
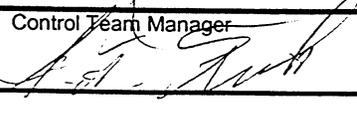
**b. TECHNICAL CONTENT:**

The content of this document applies to the soil characterization program at the FEMP specific to area characterization, sampling, and analytical work performed by and for the Soil Disposal Facility Project in Area 9 Phase II. It is a summary for area-specific characterization efforts that will be conducted in defined areas of excavation and lesser environmentally impacted areas that may not be excavated, but will require monitoring, sampling, and analytical testing. The characterization efforts are intended to provide information that may be required to supplement the remedial design and to support the remedial action that will result in compliance with the Final Remediation Levels (FRLs) published in the OU5 ROD. The Area 9 Phase II physical boundaries are described in Section 13 of the Fluor Fernald Closure Plan Basis of Estimate (20300-PL-0005).

Drivers of the work are CERCLA, RCRA, the EPA Amended Consent Agreement (ACA), Sitewide Excavation Plan (SEP), and the signed Record of Decision (ROD) for OU5.

**c. SCOPE OF WORK:**

The scope of this document covers the characterization support for excavation control, precertification, and certification of Area 9 Phase II.

Project Manager 	Control Account Manager 	Control Team Manager 
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**WORK SCOPE DEFINITION**  
(Work Package)

1. PROJECT TITLE <b>FEMP (DEFENSE)</b>		2. DATE <b>09/06/2001</b>	Page 2
3. WBS ELEMENT CODE <b>1.1.G.P</b>	4. WBS ELEMENT TITLE/NAME <b>AREA 9 SOIL REMEDIATION</b>		
5. PERFORMING DIV/DEPARTMENT CODE <b>49</b>	6. ORIGINATOR NAME/PHONE <b>JD CHIOU/648-3726</b>	7. WBS ELEMENT MANAGER <b>JD CHIOU</b>	
8. BUDGET AND REPORTING NUMBER <b>EW05H3060</b>	9. BUDGET TITLE <b>SOILS</b>		
10. ORIGINAL SCOPE? / CHANGE TO WORK SCOPE? / NEW SCOPE? <b>NEW PER CP# FY01-0015-0006-00</b>		11. ESTIMATED START / COMPLETION DATE <b>5/06 - 10/07</b>	
12. TASK IDENTIFICATION (WORK PACKAGE) <b>G9117</b>	13. TASK DESCRIPTION (ONE LINE) <b>AREA 9 PHASE II CERTIFICATION</b>		

14. ELEMENT TASK DESCRIPTION

Characterization work performed in Area 9 Phase II under this scope will assist in determining soil disposition, extent of excavation, and provide sound field and analytical data that prove remedial activities were sufficient. During excavation of Area 9 Phase II, radiological field surveying, physical soil sampling, and analysis will be required. This testing will be performed during the excavation process as necessary to determine disposition of excavated material. After excavation is determined to be complete, the remaining soil will be tested for all area specific contaminants of concern (COCs) to demonstrate FRL attainment. The actual radiological field-survey measurements, physical soil sampling and analytical activities covered under this account include the following tasks:

- Review existing data and engineering drawings
- Develop and write applicable data quality objectives and projects-specific-plans, as necessary
- Develop Certification Design Letters and text for the Area Implementation Plan
- Define and delineate excavation monitoring boundaries in the field
- Define and delineate Certification Units
- Prep the area for field measurements which includes clearing of brush
- Installation of certification fencing and signs
- Physical sampling
- Assess real-time data generated during excavation
- Perform assessment of radiological field survey results
- Perform data management functions within SDFP
- Develop final reports or certification reports

**WORK SCOPE DEFINITION**  
(Work Package)

1. PROJECT TITLE <b>FEMP (DEFENSE)</b>		2. DATE <b>09/06/2001</b>	Page 3
3. WBS ELEMENT CODE <b>1.1.G.P</b>	4. WBS ELEMENT TITLE/NAME <b>AREA 9 SOIL REMEDIATION</b>		
5. PERFORMING DIV/DEPARTMENT CODE <b>49</b>	6. ORIGINATOR NAME/PHONE <b>JD CHIOU/648-3726</b>	7. WBS ELEMENT MANAGER <b>JD CHIOU</b>	
8. BUDGET AND REPORTING NUMBER <b>EW05H3060</b>	9. BUDGET TITLE <b>SOILS</b>		
10. ORIGINAL SCOPE? / CHANGE TO WORK SCOPE? / NEW SCOPE? <b>NEW PER CP# FY01-0015-0006-00</b>		11. ESTIMATED START / COMPLETION DATE <b>5/06 - 10/07</b>	
12. TASK IDENTIFICATION (WORK PACKAGE) <b>G9117</b>	13. TASK DESCRIPTION (ONE LINE) <b>AREA 9 PHASE II CERTIFICATION</b>		
14. ELEMENT TASK DESCRIPTION <p><b>Perform analysis</b></p> <p><b>If needed, Ground Penetrating Radar (GPR) / Electro-Magnetic (EM) Scanning</b></p> <p><b><u>d. WORK SPECIFICALLY EXCLUDED:</u></b></p> <p><b>Pre-design work</b></p> <p><b>Waste Tracking and disposition</b></p> <p><b>Waste Treatment activities</b></p> <p><b>Construction or remediation</b></p> <p><b>Development of Engineering plans, drawings, or specifications</b></p> <p><b>Land Surveying, staff, or equipment</b></p> <p><b>Real Time Scanning (HPGe, RSS, RTRAK), staff, or equipment</b></p> <p><b>Characterization personnel covered under GPM14</b></p> <p><b>Centralized services and/or equipment</b></p> <p><b>All other PBS elements</b></p> <p><b>All other PBS-06 control accounts</b></p>			



## **SECTION 13**

### **1.0 NARRATIVE**



1. PROJECT TITLE: SOILS EXCAVATION	2. DATE: 09/10/01	3. PBS#: 06
4. WBS ELEMENT CODE: 1.1.G.P.	5. WBS ELEMENT TITLE: AREA 9 SOILS REMEDIATION	
6. CAM NAME/ PHONE: JYH-DONG CHIOU/ 3726	7. CAM SIGNATURE:	
8. ORIGINAL/ CHANGE SCOPE/ PER CP#:	9. CONTROL ACCOUNT: G911	

**SECTION 13: G911 – AREA 9 SOILS REMEDIATION**

1.0 NARRATIVE

1.1 OVERVIEW

This Closure Plan defines the scope of work required to plan, develop, execute, manage and administer the Area 9 remedial activities under PBS-06 (WBS 1.1.G.P control account G91). Area 9 is adjacent to on-property Area 1, Phases I and II and divided into two phases. Prior to December 1, 2000, investigations with real time scanning, precertification physical samples, confirmation samples, and predesign samples were collected in Area 9, Phase I (A9P1), including a cultural resources survey. The remaining scope of work includes the certification of the soil in A9PI and the precertification and certification of soil in Area 9, Phase II (A9P2). The control account is summarized in two charge numbers: G9116 and G9117.

1.2 ASSUMPTIONS/EXCLUSIONS

1.2.1 Assumptions

- Internal and DOE review of a PSP/CDL/Certification Report is performed in one week.
- EPA/OEPA review of a PSP is performed in two months.
- EPA/OEPA review of CDL/Cert Report is performed in two months.
- EPA review/comment on significant PSP Variance/Field Change Notices (V/FCNs) 7 days for precertification PSPs and 15 days for certification PSPs.
- A dedicated sampling crew will be available to collect soil and perched-water samples.
- Gamma spectroscopy is the assumed analytical method for the primary radionuclides analysis.
- Level D data packages are submitted by the analytical laboratories and 10 percent of the packages undergo verification and validation.

- Statistical tests conducted on the analytical results will follow the pass/fail guidance in the SEP.
- DOE maintains full baseline funding levels.
- DOE will obtain legal access agreements to perform work.
- Site labor subcontractor (currently Wise Construction) to post Certification signs.
- Sampling, laboratory, and data management personnel to support Certification.

#### 1.2.2 Exclusions

- All other PBS elements
- All other PBS-06 control accounts
- Final restoration activities
- Remediation work in Area 9
- Soil characterization work in Area 9 conducted prior to December 2001
- Additional cultural resource survey
- Removal and disposition of the off-property debris, specifically the abandoned vehicle (old Honda Civic) and farmer's fence in A9P2.

#### 1.2.3 Government-Furnished Equipment/Services

None.

#### 1.2.4 Applicable Requirements

- OU5 ROD
- PSPs, CDL, and CR reviewed and approved by EPA/OEPA
- Informal agreement with EPA for review time of V/FCNs
- Agreements made with private landowner.

#### 1.2.5 Applicable Technical Guidance

- Sitewide Excavation Plan (SEP) for precertification/certification
- Real time in situ gamma scanning parameters established in the Real Time Users Guide
- Sampling and analytical parameters established in the SCQ.

#### 1.2.6 Disposal, Treatment, Containers, Utilities

None.

### 1.3 DRIVERS

- Timeframe of the legal access agreements to perform work
- Agency approval of the precertification PSP, certification PSP, CDL and Certification Report within the allotted review time.
- Field work (surveying, scanning and sampling) need to be conducted in the Winter (before crops are planted) or in the Fall (after the crops are harvested)
- Normal weather conditions to implement the field schedule (no excessive rain or snow due to moisture requirements for real time gamma measurements)
- Availability of sampling team and lab turnaround to complete the certification.

#### 1.3.1 External Events that Impact the Schedule

- Congressional funding of DOE EM Projects
- EPA/OEPA review cycles
- DOE review cycles
- Timeframe of the legal access agreements to perform work
- Agency approval of the precertification PSP, CDL and certification PSP
- Normal weather conditions to implement the field schedule (no excessive rain or snow due to moisture requirements for real time gamma measurements)
- Availability of sampling team and lab turnaround.

### 1.4 PROJECT PHYSICAL DESCRIPTION

Area 9, Phase I extends south from S.R.126 to the A9PII boundary/Summe-Welch property line (an approximate distance of 4875 feet). Of the 72 acres in Area 9, Phase I, only the southernmost 53 acres require certification because they are adjacent to the on-property areas that were excavated for remediation purposes.

Area 9, Phase II extends from the southern A9PI boundary/Summe-Welch property line, to the Welch-Knollman property line (an approximate distance of 1350 feet), and also includes a small grassy area north of S.R.126. All 18 acres of Area 9, Phase II adjacent to the eastern property boundary require certification as a result of being adjacent to on-property areas that were excavated for remediation purposes. A 1.4-acre area north of

S.R. 126 requires certification as a result of a CU failure and excavation for total uranium at CU O-20 of Area 1, Phase I.

The majority of Area 9 is cultivated fields. The remainder is deciduous wood lots along the eastern boundary and grasslands/grazing areas to the north. A buried oil pipeline runs north-to-south through the eastern portion of A9P2 along with a set of power lines and tower. In addition, several barn structures and an old baseball field are located in the southeastern portion of A9P2. The natural drainage flows west to east in the northern half of A9PI. The end condition for A9 will be certified soil to final remediation levels and cultivated soils to background levels.

## 1.5 PROJECT PLAN/TECHNICAL SCOPE AND QUANTIFICATION

### 1.5.1 G9116 – Area 9 Phase I Certification

Since A9P1 is off-property and in a perimeter area, no excavation is anticipated [Approach E from the Sitewide Excavation Plan (SEP)]. Due to the location of the area and the existing cattle fencing, no certification fence installation will be required (only sign posting).

The task activities and deliverables will be completed primarily by project staff from the management, characterization, surveying, and administrative disciplines, and these personnel will charge their labor hours to PBS-06 control account GPM1. Only matrixed labor, as identified below, will use the charge account G9116. Detail on manpower loading for this scope of work is provided in Section 3.0. The charge account for G9116 will be closed when the CR report is approved by EPA/OEPA.

#### 1) Task #1 - Certification

##### 1.1) Scope/Plan

Certification activities began with the preparation of the Certification Design Letter (CDL) and Certification PSP. The draft CDL was completed prior to December 2000. Certification is complete when the Certification Report is approved by the EPA and OEPA. Specific activities and deliverables include:

- Incorporate comment responses into each DOE draft CDL/PSP and deliver EPA/OEPA draft CDL/PSP to EPA and OEPA for review.
- Obtain review comments from EPA and OEPA on each EPA/OEPA draft CDL/PSP
- Prepare response-to-comment (RTC) package for each EPA/OEPA draft CDL/PSP and obtain EPA and OEPA approvals.
- Incorporate comment responses into each EPA/OEPA draft CDL/PSP and deliver final CDL to project personnel, functional-area personnel, DOE, EPA and OEPA.

- Perform walk downs of field area to assess site conditions for safety and health hazards, equipment access, and maintenance needs (e.g., mowing of grass).
- Coordinate labor support if mowing is required.
- Conduct work scope briefings with field crews.
- Mobilize the sampling crew to obtain the soil samples and collect surface and at-depth samples
- Develop variance/field change notices (V/FCN), as needed.
- Deliver the samples to the on-site laboratory and create the sample analysis log for on-site and off-site analysis, as needed.
- Perform the required analytical work and generate laboratory reports to QA/QC Level D.
- Perform 100% data validation (10% QA/QC level D, 90% QA/QC level B) of the laboratory reports.
- Enter data into the SED and perform queries.
- Reduce and interpret data (statistical evaluations) to develop final CR tables.
- Develop tables, maps and text for CRs and deliver CRs to functional-area personnel and DOE for review.
- Obtain review comments from functional-area personnel and DOE for each DOE draft CR.
- Incorporate comment responses into each DOE draft CR and deliver EPA/OEPA draft CR to EPA and OEPA for review.
- Obtain review comments from EPA and OEPA on each EPA/OEPA draft CR.
- Prepare response-to-comment (RTC) package for each EPA/OEPA draft CR and obtain EPA and OEPA approvals.
- Incorporate comment responses into each EPA/OEPA draft CR and deliver final CR to project personnel, functional-area personnel, DOE, EPA and OEPA.
- Submit project records to ECDC and maintain copies in project file.
- Perform project management and control activities.

The CDL, PSP, RTCs, and CR will be delivered to DOE, EPA/OEPA and the project. All documents and records will be delivered to ECDC.

The scope of work identified above will be executed using matrixed, centralized and projectized personnel. Distribution of the work, and the plan for executing the scope, is described for each division of personnel.

*Matrixed Personnel*

Environmental Monitoring and Analytical Services will complete most of the work under Task 1. Environmental Monitoring will be used to complete soil borings, collect soil samples and deliver the samples to the on-site laboratory. Analytical Laboratory Services will log samples into the system, complete analytical measurements, issue data packages and ship any samples requiring analysis for COCs to off-site labs. Samples contracted to off-site laboratories will contain a request for a 45-day turn around time. Analytical measurements will be performed and Level D data packages will be delivered to the project. Project Controls will provide cost and schedule support. Personnel from these organizations are the only individuals who will use charge number G9116.

*Centralized Personnel*

Document Control/Procedure Management will provide document numbers, filing support and issue controlled documents, as needed. Sample Data Management will be used for database queries, data entry, data validation, SOWs for off-site labs, and the statistical reduction of data to evaluate the certification criteria for pass/fail. Information Management will provide computer hardware and software needs. Personnel from these organizations will use their functional area charge numbers.

*Projectized Personnel*

Project staff from the management, characterization, survey will complete work, and administrative disciplines; and these personnel will charge their labor hours to PBS-06 control account GPM1. Management and characterization staff will prepare all documentation and oversee the field and analytical work. Certification activities will begin with the preparation of the CDL/PSP. Each CDL/PSP will identify the number and location of CUs, sample locations, a list of COCs for each CU, and analytical methods and detection limits. Execution of the CDL/PSP work will not begin until EPA/OEPA approval is received and the final CDL/PSP is released. Field activities will commence with sample collection after the CDL/PSP is approved and precertification is completed. Samples will be sent to the appropriate laboratory for analysis and Level D data packages will be submitted to the project. One hundred percent of the data packages will undergo verification and data validation, and if problems are found additional packages will be selected for review. The data for each CU will be evaluated with statistical tests identified in the Sitewide Excavation Plan (DOE, June 1998) and a pass/fail decision for each CU will be based on these tests. CUs that fail certification or background levels will be resampled, and possibly subjected to additional excavation, until they pass the certification criteria. The draft CR will be prepared and submitted to EPA/OEPA after all CUs have passed. Once the CR is approved by EPA/OEPA, the final CR will be released and the area will be certified as fully remediated.

1.2) Quantification

Table 1 summarizes the quantities and/or deliverables anticipated for Task 1. The SEP dictates that there are 12 sample locations per CU plus one duplicate sample. In addition, four additional cultivated area (background) soil samples will be collected per CU along with a maximum of 17 equipment rinsate samples. These criteria result in an estimate of 260 certification samples and 64 at-depth background samples. Samples will be analyzed for the primary radiological COCs, technetium-99, arsenic, beryllium, and aroclor-1260. The Group 1 CU samples will also be analyzed for cesium-137 and strontium-90. The number of laboratory reports that will be generated is based on project history of one lab report per 12 samples and, per the SEP, 10 percent of these will be validated to Level D (90% to Level B). A CR will be prepared for each CDL and the submittal and review process will follow the CDL scenario.

TABLE 1  
 Quantities for Task 1: A9PI Certification

ITEM	QUANTITY
Final Certification Design Letters	1
Soil Samples	324
Uranium, Thorium and Radium Analyses	324
Technetium-99 Analyses	324
Metal Analyses	324
PCB Analyses	324
Cesium-137 and Strontium-90 Analyses	200
Lab Reports for Radiological COCs	20
Lab Reports for Metal COCs	20
Lab Reports for Organic COCs	20
Radiological Lab Reports to Verify and Validate	20
Metal Lab Reports to Verify and Validate	20
Organic Lab Reports to Verify and Validate	20
Draft Certification Reports for DOE	1
Draft Certification Reports EPA/OEPA	1
Response-to-Comments Packages for EPA/OEPA	1
Final Certification Reports	1

1.5.2 G9117 – Area 9 Phase II Certification

Since A9PII is off-property and in a perimeter area, no excavation is anticipated [Approach E from the Sitewide Excavation Plan (SEP)]. Due to the location of the area and the existing cattle fencing, no certification fence installation will be required (only sign posting).

The task activities and deliverables will be completed primarily by project staff from the management, characterization, surveying, administrative and real time disciplines, and

these personnel will charge their labor hours to PBS-06 control account GPM1. Only matrixed labor, as identified below, will use the charge account G9116. Detail on manpower loading for this scope of work is provided in Section 3.0. The charge account for G9117 will be closed when the CR report is approved by EPA/OEPA

1) Task #1 - Precertification

1.1) Scope/Plan

The Project Specific Plan was generated prior to December 2000. Prior to field measurements being collected, the field will be mowed and cleared. Based on field conditions and required detection levels, RTRAK, RSS or HPGe measurements will be performed and the precertification maps will be prepared. Certification Unit (CU) boundaries and sample locations will be located by the surveying team and the boundaries and sample locations recorded on maps. Specific activities and deliverables include:

- Perform walk downs of field area to assess site conditions for safety and health hazards, equipment access, and maintenance needs (e.g., mowing of grass).
- Coordinate labor support if mowing/clearing is required.
- Prepare the area for field measurements by clearing brush, mowing, and installing certification fence postings.
- Perform precertification scans with RTRAK, RSS and HPGe equipment
- Identify hot-spot zones to excavate, if applicable, and rescan area after hot spot is removed.
- Prepare precertification maps based on scan measurements.
- Survey CU boundaries and sample locations and record the information on maps.
- Submit project records to ECDC and maintain copies in project file.
- Perform project management and control activities.

Maps generated from the precertification scans and CU surveys will be delivered to the project. All records will be delivered to ECDC.

The scope of work identified above will be executed using matrixed, centralized and projectized personnel. Distribution of the work, and the plan for executing the scope, is described for each division of personnel.

*Matrixed Personnel*

Infrastructure Services will support the operation of real time vehicles and any necessary clearing or mowing. WISE construction or future site labor contractor will post certification signs. Quality Assurance and Safety and Health will provide review of the PSP and oversight on hot spot removal, if needed. Personnel from these organizations are the only individuals who will use charge number G9117.

*Centralized Personnel*

Document Control/Procedure Management will provide document numbers, filing support and issue controlled documents, as needed. Information Management will provide computer hardware and software needs. Personnel from these organizations will use their functional area charge numbers.

*Projectized Personnel*

Project staff from the management, characterization, survey, real time and administrative disciplines will complete most of the work; and these personnel will charge their labor hours to PBS-06 control account GPM1. Management, characterization and real time staff will oversee the fieldwork. Project Controls will provide cost and schedule support to the project manager. Prior to collecting certification samples, the entire excavation footprint will be scanned with RTRAK and/or HPGe instruments to assess compliance with the FRLs for radium, thorium and uranium. If found, hot spots will be excavated and the area rescanned. After the completion of scanning activities, the CU boundaries and sample locations will be documented by survey.

1.2) Quantification

Table 2 summarizes the quantities and/or deliverables anticipated for Task 1. A precertification map will be produced for each set of RTRAK, RSS and HPGe measurements. Forty-three, 1-meter HPGe measurements are needed to cover 1 acre at 99.1% coverage.

TABLE 2  
 Quantities for Task 1: Precertification

ITEM	QUANTITY
Acres requiring mowing/clearing	7
RTRAK, RSS and HPGe Scans, acres	18
RTRAK, RSS and HPGe maps	6
RTRAK/RSS acres	12
HPGe acres/measurements	6/258
Survey Boundaries, Cus	10

2) Task #2 - Certification

2.1) Scope/Plan

Certification activities begin with the preparation of the Certification Design Letter (CDL) and Certification PSP and end when the Certification Report is approved by the EPA and OEPA. Specific activities and deliverables include:

- Develop COC list, sampling and analysis strategy, data quality objectives, and off-site laboratory task orders.
- Prepare data tables, CU maps and text for draft CDL/PSP and deliver CDL/PSP to functional-area personnel and DOE for review.
- Obtain review comments from functional-area personnel and DOE for each DOE draft CDL/PSP.
- Incorporate comment responses into each DOE draft CDL/PSP and deliver EPA/OEPA draft CDL/PSP to EPA and OEPA for review.
- Obtain review comments from EPA and OEPA on each EPA/OEPA draft CDL/PSP
- Prepare response-to-comment (RTC) package for each EPA/OEPA draft CDL/PSP and obtain EPA and OEPA approvals.
- Incorporate comment responses into each EPA/OEPA draft CDL/PSP and deliver final CDL to project personnel, functional-area personnel, DOE, EPA and OEPA.
- Perform walk downs of field area to assess site conditions for safety and health hazards, equipment access, and maintenance needs (e.g., mowing of grass).
- Coordinate labor support if mowing is required.
- Conduct work-scope briefings with field crews.
- Mobilize the sampling crew to obtain the soil samples and collect surface and at-depth samples.
- Develop variance/field change notices (V/FCN), as needed.
- Deliver the samples to the on-site laboratory and create the sample analysis log for on-site and off-site analysis, as needed.
- Perform the required analytical work and generate laboratory reports to QA/QC Level D.

- Perform 100% data validation (10% QA/QC level D, 90% QA/QC level B) of the laboratory reports.
- Enter data into the SED and perform queries.
- Reduce and interpret data (statistical evaluations) to develop final CR tables.
- Develop tables, maps and text for CRs and deliver CRs to functional-area personnel and DOE for review.
- Obtain review comments from functional-area personnel and DOE for each DOE draft CR.
- Incorporate comment responses into each DOE draft CR and deliver EPA/OEPA draft CR to EPA and OEPA for review.
- Obtain review comments from EPA and OEPA on each EPA/OEPA draft CR.
- Prepare response-to-comment (RTC) package for each EPA/OEPA draft CR and obtain EPA and OEPA approvals.
- Incorporate comment responses into each EPA/OEPA draft CR and deliver final CR to project personnel, functional-area personnel, DOE, EPA and OEPA.
- Submit project records to ECDC and maintain copies in project file.
- Perform project management and control activities.

The CDL, PSP, RTCs, and CR will be delivered to DOE, EPA/OEPA and the project. All documents and records will be delivered to ECDC.

The scope of work identified above will be executed using matrixed, centralized and projectized personnel. Distribution of the work, and the plan for executing the scope, is described for each division of personnel.

#### *Matrixed Personnel*

Environmental Monitoring and Analytical Services will complete most of the work under Task 2. Environmental Monitoring will be used to complete soil borings, collect soil samples and deliver the samples to the on-site laboratory. Analytical Laboratory Services will log samples into the system, complete analytical measurements, issue data packages and ship any samples requiring analysis for COCs to off-site labs. Samples contracted to off-site laboratories will contain a request for a 45-day turn around time. Analytical measurements will be performed and Level D data packages will be delivered to the project. Project Controls will provide cost and schedule support. Personnel from these organizations are the only individuals who will use charge number G9117.

### *Centralized Personnel*

Document Control/Procedure Management will provide document numbers, filing support and issue controlled documents, as needed. Sample Data Management will be used for database queries, data entry, data validation, SOWs for off-site labs, and the statistical reduction of data to evaluate the certification criteria for pass/fail. Information Management will provide computer hardware and software needs. Personnel from these organizations will use their functional area charge numbers.

### *Projectized Personnel*

Project staff from the management, characterization, survey will complete work, and administrative disciplines; and these personnel will charge their labor hours to PBS-06 control account GPM1. Management and characterization staff will prepare all documentation and oversee the field and analytical work. Certification activities will begin with the preparation of the CDL/PSP. Each CDL/PSP will identify the number and location of CUs, sample locations, a list of COCs for each CU, and analytical methods and detection limits. Execution of the CDL/PSP work will not begin until EPA/OEPA approval is received and the final CDL/PSP is released. Field activities will commence with sample collection after the CDL/PSP is approved and precertification is completed. Samples will be sent to the appropriate laboratory for analysis and Level D data packages will be submitted to the project. One hundred percent of the data packages will undergo verification and data validation, and if problems are found additional packages will be selected for review. The data for each CU will be evaluated with statistical tests identified in the Sitewide Excavation Plan (DOE, June 1998) and a pass/fail decision for each CU will be based on these tests. CUs that fail will be resampled, and possibly subjected to additional excavation, until they pass the certification criteria. The draft CR will be prepared and submitted to EPA/OEPA after all CUs have passed. Once the CR is approved by EPA/OEPA, the final CR will be released and the area will be certified as fully remediated.

## 2.2) Quantification

Table 3 summarizes the quantities and/or deliverables anticipated for Task 2. The SEP dictates that there are 12 sample locations per CU plus one duplicate sample. In addition, four additional cultivated area (background) soil samples will be collected per CU. Depending on the sampling equipment used to collect soil certification samples, a maximum of 10 equipment rinsate samples could be collected. One equipment rinsate sample per twenty reuses of the equipment would be required. Samples collected in the A9P11 CUs east of the FEMP will be analyzed for the primary radiological COCs, technetium-99, arsenic, beryllium, aroclor-1254, aroclor-1260, tetrachloroethene, antimony, and molybdenum. The A9P11 samples collected from the CU north of S.R. 126 will be analyzed for the primary radiological COCs. These criteria result in an estimate of 141 certification samples and 28 at-depth background samples. The number of laboratory reports that will be generated is based on project history of one lab report per 12 samples and, per the SEP, 10 percent of these will be validated to Level D (90% to Level B). A CR will be prepared for each CDL and the submittal and review process will follow the CDL scenario.

TABLE 3  
 Quantities for Task 2: A9P2 Certification

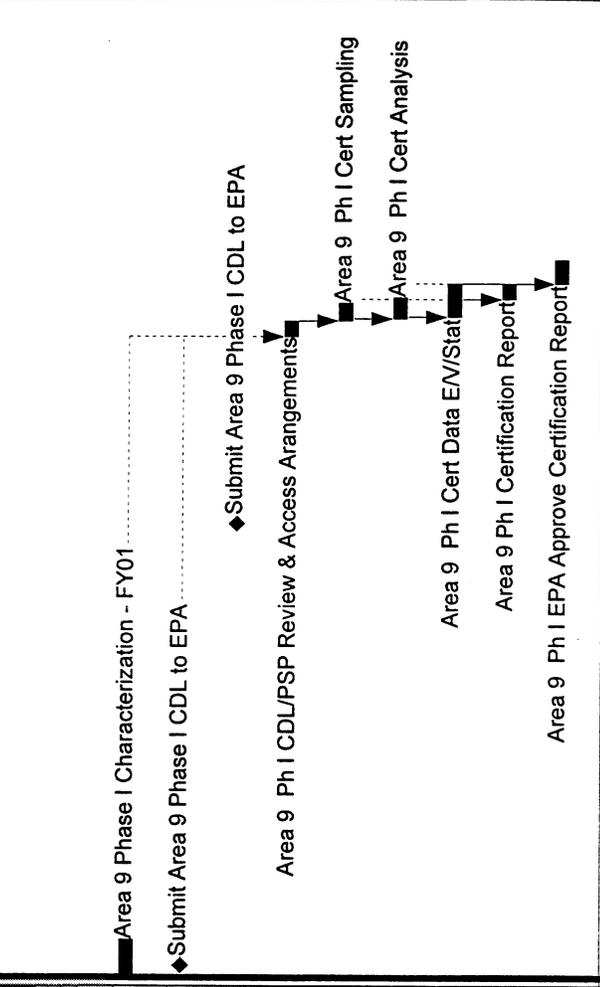
ITEM	QUANTITY
Draft CDL/PSP for DOE	1
Draft CDL/PSP for EPA/OEPA	1
Response-to-Comments Package for EPA/OEPA	1
Final CDL/PSP	1
V/FCNs during sampling	10
Soil Samples	171
Uranium, Thorium and Radium Analyses	171
Technetium-99 Analyses	158
Metal Analyses	158
PCB Analyses	158
VOA Analyses	158
Lab Reports for Radiological COCs	11
Lab Reports for Metal COCs	11
Lab Reports for Organic COCs	11
Radiological Lab Reports to Verify and Validate	11
Metal Lab Reports to Verify and Validate	11
Organic Lab Reports to Verify and Validate	11
Draft Certification Reports for DOE	1
Draft Certification Reports EPA/OEPA	1
Response-to-Comments Packages for EPA/OEPA	1
Final Certification Reports	1



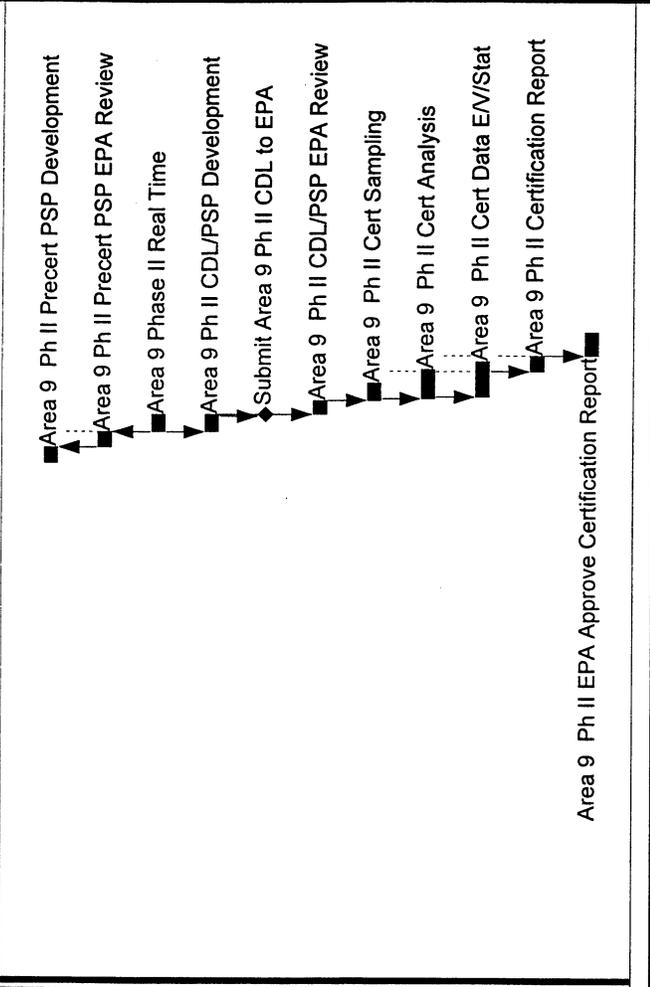
**SECTION 13**

**2.0 SCHEDULE**





Activity ID	Activity Description	Early Start	Early Finish	Orig Dur
GG91160100	Area 9 Phase I Characterization - FY01	01DEC00	26APR01	90
GG9116M100	Submit Area 9 Phase I CDL to EPA		19JAN01*	0
GG9116MEPA	Submit Area 9 Phase I CDL to EPA		30SEP05*	0
GG91160120	Area 9 Ph I CDL/PSP Review & Access Arrangements	01OCT07*	29NOV07	60
GG91160230	Area 9 Ph I Cert Sampling	03DEC07	05FEB08	40
GG91160300	Area 9 Ph I Cert Analysis	10DEC07	29FEB08	50
GG91160310	Area 9 Ph I Cert Data E/Stat	18DEC07	25APR08	80
GG91160320	Area 9 Ph I Certification Report	25FEB08	25APR08	40
GG91160330	Area 9 Ph I EPA Approve Certification Report	26APR08	24JUL08	90



Activity ID	Activity Description	Early Start	Early Finish	Orig Dur
GG91170210	Area 9 Ph II Precent PSP Development	31MAY06	02AUG06	40
GG91170240	Area 9 Ph II Precent PSP EPA Review	03AUG06	01OCT06	60
GG91170220	Area 9 Phase II Real Time	02OCT06*	06DEC06	40
GG91170310	Area 9 Ph II CDL/PSP Development	02OCT06*	06DEC06	40
GG9117M300	Submit Area 9 Ph II CDL to EPA		06DEC06	0
GG91170320	Area 9 Ph II CDL/PSP EPA Review	07DEC06	04FEB07	60
GG91170330	Area 9 Ph II Cert Sampling	05FEB07	10APR07	40
GG91170340	Area 9 Ph II Cert Analysis	13FEB07	08JUN07	73
GG91170350	Area 9 Ph II Cert Data E/Stat	21FEB07	06JUL07	85
GG91170360	Area 9 Ph II Certification Report	29MAY07	31JUL07	40
GG91170370	Area 9 Ph II EPA Approve Certification Report	01AUG07	29OCT07	90

Start Date: 01DEC00  
 Finish Date: 27DEC09  
 Data Date: 01DEC00  
 Run Date: 10SEP01 16:25

Sheet 1 of 1

**SOILS PROJECT**

**1.1.G.P AREA 9 SOIL REMEDIATION**

Legend:  
 ■ Early Bar  
 ■ Progress Bar  
 ■ Critical Activity

Date	Revision	Checked	Approved

**FLUOR FERNALD**

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## **SECTION 13**

### **3.0 MANPOWER PLANS**











# Manpower Planning Sheet (CR2)

MPS # 1GP02 AREA 9 PHS II CERTIFICATION

DRIVERS	START DATE	END DATE	FY 2007				FY 2008				FY 2009				FY 2010				FY 2011			
			Q1	Q2	Q3	Q4																
General Labor			0	0	0	0	0.3	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lab			0	0	0	0	0	0	1.4	0	0	0	0	0	0	0	0	0	0	0	0	0
Environmental			0	0	0	0	0	0	0.6	0	0	0	0	0	0	0	0	0	0	0	0	0
Lab			0	0	0	0	0	0	0.6	0	0	0	0	0	0	0	0	0	0	0	0	0
QA/QC			0	0	0	0	0.1	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0
Environmental Safety & Health			0	0	0	0	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0
Environmental Safety & Health			0	0	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Sheet Totals:</b>			0.00	0.00	0.00	0.00	0.50	0.10	2.80	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



## **SECTION 13**

### **4.0 ESTIMATE**



**G9116**

**AREA 9 PHASE I CERTIFICATION**





# Fluor Fernald, Inc.

ESTIMATE SUPPORT WORKSHEET  
FOR ACTIVITY BASED ESTIMATING  
(1 FTE EQUALS 1747 HOURS)

DATE: 07-Sep-01  
PROJECT MGR: J.D. CHIOU  
CAM: J.D. CHIOU  
PREPARED BY: T. O'BRIEN  
FISCAL YEAR: 2001 & 2008

PBS: OHFN06  
WBS: 1.1.G.P  
CTRL ACCT: G911  
CHARGE NO: G9116  
COMMENT NO:

Resource:	ENSTEC	ENVIR SCIENTIST TECH	Overtime:	EOC:		LABOR	
				SAL	Class:	SAL	Class:
Res Dept:	949						
Yr Hours:		Oct 00- Sep 01	0.0 0.0	Oct 01- Sep 02	0.0 0.0	Oct 02- Sep 03	0.0 0.0
Cum Hours:			0.0		0.0		0.0
Yr Total Cost:			0		0		0
Cum Total Cost:			0		0		0

Resource:	GLMINT	GEN LABOR MAINT	Overtime:	EOC:		LABOR	
				HOU	Class:	HOU	Class:
Res Dept:							
Yr Hours:		Oct 00- Sep 01	0.0 0.0	Oct 01- Sep 02	0.0 0.0	Oct 02- Sep 03	0.0 0.0
Cum Hours:			0.0		0.0		0.0
Yr Total Cost:			0		0		0
Cum Total Cost:			0		0		0

Resource:	IRREP	INDUSTRIAL REL REP	Overtime:	EOC:		LABOR	
				SAL	Class:	SAL	Class:
Res Dept:	949						
Yr Hours:		Oct 00- Sep 01	44.3 44.3	Oct 01- Sep 02	0.0 44.3	Oct 02- Sep 03	0.0 44.3
Cum Hours:			44.3		44.3		44.3
Yr Total Cost:			1,810		0		0
Cum Total Cost:			1,810		1,810		1,810

Resource:	LABCHM	CHEMIST	Overtime:	EOC:		LABOR	
				SAL	Class:	SAL	Class:
Res Dept:							
Yr Hours:		Oct 00- Sep 01	0.0 0.0	Oct 01- Sep 02	0.0 0.0	Oct 02- Sep 03	0.0 0.0
Cum Hours:			0.0		0.0		0.0
Yr Total Cost:			0		0		0
Cum Total Cost:			0		0		0

# Fluor Fernald, Inc.

ESTIMATE SUPPORT WORKSHEET  
FOR ACTIVITY BASED ESTIMATING  
(1 FTE EQUALS 1747 HOURS)

DATE: 07-Sep-01  
PROJECT MGR: J.D. CHIOU  
CAM: J.D. CHIOU  
PREPARED BY: T. O'BRIEN  
FISCAL YEAR: 2001 & 2008

PBS: OHFN06  
WBS: 1.1.G.P  
CTRL ACCT: G911  
CHARGE NO: G9116  
COMMENT NO:

Resource:	LABMGR	LAB MANAGER	EOC:		LABOR	
			OverTime:	SAL	Class:	SAL
Yr Hours:	0.0	0.0	0.0	0.0	0.0	0.0
Cum Hours:	0.0	0.0	0.0	0.0	0.0	0.0
Yr Total Cost:	0	0	0	0	0	0
Cum Total Cost:	0	0	0	0	0	0

Resource:	LABTECH	LAB TECH	EOC:		LABOR	
			OverTime:	SAL	Class:	SAL
Yr Hours:	0.0	0.0	0.0	0.0	0.0	0.0
Cum Hours:	0.0	0.0	0.0	0.0	0.0	0.0
Yr Total Cost:	0	0	0	0	0	0
Cum Total Cost:	0	0	0	0	0	0

Resource:	MAT300	MATERIAL OBJCLASS300	EOC:		MATERIAL	
			OverTime:	MAT	Class:	MAT
Yr Units:	40.0	40.0	40.0	40.0	40.0	40.0
Cum Units:	40.0	40.0	40.0	40.0	40.0	40.0
Yr Total Cost:	40	40	40	40	40	40
Cum Total Cost:	40	40	40	40	40	40

Resource:	QACENG	QA ENGINEER	EOC:		LABOR	
			OverTime:	SAL	Class:	SAL
Yr Hours:	0.0	0.0	0.0	0.0	0.0	0.0
Cum Hours:	0.0	0.0	0.0	0.0	0.0	0.0
Yr Total Cost:	0	0	0	0	0	0
Cum Total Cost:	0	0	0	0	0	0



# Fluor Fernald, Inc.

ESTIMATE SUPPORT WORKSHEET  
FOR ACTIVITY BASED ESTIMATING  
(1 FTE EQUALS 1747 HOURS)

PBS: OHFN06 DATE: 07-Sep-01  
 WBS: 1.1.G.P PROJECT MGR: J.D. CHIOU  
 CTRL ACCT: G911 CAM: J.D. CHIOU  
 CHARGE NO: G9116 PREPARED BY: T. O'BRIEN  
 COMMENT NO: FISCAL YEAR: 2001 & 2008

**GRAND TOTALS:**

	Oct 00-	Oct 01-	Oct 02-	Oct 03-	Oct 04-	Oct 05-	Oct 06-	Oct 07-	Oct 08-	Oct 09-
Yr Hours:	265.9	0.0	0.0	0.0	0.0	0.0	0.0	6,363.8	0.0	0.0
Cum Hours:	265.9	265.9	265.9	265.9	265.9	265.9	265.9	6,629.6	6,629.6	6,629.6
Yr Total Cost:	10,754	0	0	0	0	0	0	333,004	0	0
Cum Total Cost:	10,754	10,754	10,754	10,754	10,754	10,754	10,754	343,759	343,759	343,759

*[Handwritten Signature]*  
CONTROL TEAM

CAM



**G9117**

**AREA 9 PHASE II CERTIFICATION**



# Fluor Fernald, Inc.

ESTIMATE SUPPORT WORKSHEET  
FOR ACTIVITY BASED ESTIMATING  
(1 FTE EQUALS 1747 HOURS)

DATE: 07-Sep-01  
PROJECT MGR: J.D. CHIOU  
CAM: J.D. CHIOU  
PREPARED BY: T. O'BRIEN  
FISCAL YEAR: 2007

PBS: OHFN06  
WBS: 1.1.G.P  
CTRL ACCT: G911  
CHARGE NO: G9117  
COMMENT NO:

Resource:	Res Dept:	DRFCAD	949	DRAFTER/CAD OPERATOR	Overtime:	EOC:		LABOR															
						Class:	SAL	Class:	SAL														
Yr Hours:				Oct 00- Sep 01	0.0 0.0	Oct 01- Sep 02	0.0 0.0	Oct 02- Sep 03	0.0 0.0	Oct 03- Sep 04	0.0 0.0	Oct 04- Sep 05	0.0 0.0	Oct 05- Sep 06	0.0 0.0	Oct 06- Sep 07	26.0 26.0	Oct 07- Sep 08	0.0 26.0	Oct 08- Sep 09	0.0 26.0	Oct 09- Sep 10	0.0 26.0
Cum Hours:					0.0		0.0		0.0		0.0		0.0		0.0		26.0		26.0		26.0		26.0
Yr Total Cost:					0		0		0		0		0		0		1,175		1,175		1,175		1,175
Cum Total Cost:					0		0		0		0		0		0		1,175		1,175		1,175		1,175

Resource:	Res Dept:	ENSMGR	949	ENVIR SCIENTIST MGR	Overtime:	EOC:		LABOR															
						Class:	SAL	Class:	SAL														
Yr Hours:				Oct 00- Sep 01	0.0 0.0	Oct 01- Sep 02	0.0 0.0	Oct 02- Sep 03	0.0 0.0	Oct 03- Sep 04	0.0 0.0	Oct 04- Sep 05	0.0 0.0	Oct 05- Sep 06	0.0 0.0	Oct 06- Sep 07	95.0 95.0	Oct 07- Sep 08	0.0 95.0	Oct 08- Sep 09	0.0 95.0	Oct 09- Sep 10	0.0 95.0
Cum Hours:					0.0		0.0		0.0		0.0		0.0		0.0		95.0		95.0		95.0		95.0
Yr Total Cost:					0		0		0		0		0		0		7,257		7,257		7,257		7,257
Cum Total Cost:					0		0		0		0		0		0		7,257		7,257		7,257		7,257

Resource:	Res Dept:	ENSREP	949	ENVIR SCIENCE REP	Overtime:	EOC:		LABOR															
						Class:	SAL	Class:	SAL														
Yr Hours:				Oct 00- Sep 01	0.0 0.0	Oct 01- Sep 02	0.0 0.0	Oct 02- Sep 03	0.0 0.0	Oct 03- Sep 04	0.0 0.0	Oct 04- Sep 05	0.0 0.0	Oct 05- Sep 06	0.0 0.0	Oct 06- Sep 07	259.0 259.0	Oct 07- Sep 08	0.0 259.0	Oct 08- Sep 09	0.0 259.0	Oct 09- Sep 10	0.0 259.0
Cum Hours:					0.0		0.0		0.0		0.0		0.0		0.0		259.0		259.0		259.0		259.0
Yr Total Cost:					0		0		0		0		0		0		15,742		15,742		15,742		15,742
Cum Total Cost:					0		0		0		0		0		0		15,742		15,742		15,742		15,742

Resource:	Res Dept:	ENSTEC	949	ENVIR SCIENTIST TECH	Overtime:	EOC:		LABOR															
						Class:	SAL	Class:	SAL														
Yr Hours:				Oct 00- Sep 01	0.0 0.0	Oct 01- Sep 02	0.0 0.0	Oct 02- Sep 03	0.0 0.0	Oct 03- Sep 04	0.0 0.0	Oct 04- Sep 05	0.0 0.0	Oct 05- Sep 06	0.0 0.0	Oct 06- Sep 07	387.0 387.0	Oct 07- Sep 08	0.0 387.0	Oct 08- Sep 09	0.0 387.0	Oct 09- Sep 10	0.0 387.0
Cum Hours:					0.0		0.0		0.0		0.0		0.0		0.0		387.0		387.0		387.0		387.0
Yr Total Cost:					0		0		0		0		0		0		15,875		15,875		15,875		15,875
Cum Total Cost:					0		0		0		0		0		0		15,875		15,875		15,875		15,875

# Fluor Fernald, Inc.

ESTIMATE SUPPORT WORKSHEET  
FOR ACTIVITY BASED ESTIMATING  
(1 FTE EQUALS 1747 HOURS)

DATE: 07-Sep-01  
PROJECT MGR: J.D. CHIOU  
CAM: J.D. CHIOU  
PREPARED BY: T. O'BRIEN  
FISCAL YEAR: 2007

PBS: OHFN06  
WBS: 1.1.G.P  
CTRL ACCT: G911  
CHARGE NO: G9117  
COMMENT NO:

Resource: GLMINT GEN LABOR MAINT EOC: LABOR  
Res Dept: 949 Overtime: HOU

	Oct 00-		Oct 01-		Oct 02-		Oct 03-		Oct 04-		Oct 05-		Oct 06-		Oct 07-		Oct 08-		Oct 09-		
	Yr	Sep																			
Yr Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cum Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yr Total Cost:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cum Total Cost:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Resource: LABCHM CHEMIST EOC: LABOR  
Res Dept: 949 Overtime: SAL

	Oct 00-		Oct 01-		Oct 02-		Oct 03-		Oct 04-		Oct 05-		Oct 06-		Oct 07-		Oct 08-		Oct 09-	
	Yr	Sep																		
Yr Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cum Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yr Total Cost:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cum Total Cost:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Resource: LABMGR LAB MANAGER EOC: LABOR  
Res Dept: 949 Overtime: SAL

	Oct 00-		Oct 01-		Oct 02-		Oct 03-		Oct 04-		Oct 05-		Oct 06-		Oct 07-		Oct 08-		Oct 09-	
	Yr	Sep																		
Yr Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Cum Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Yr Total Cost:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Cum Total Cost:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Resource: LABTEC LAB TECH EOC: LABOR  
Res Dept: 949 Overtime: SAL

	Oct 00-		Oct 01-		Oct 02-		Oct 03-		Oct 04-		Oct 05-		Oct 06-		Oct 07-		Oct 08-		Oct 09-	
	Yr	Sep																		
Yr Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Cum Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Yr Total Cost:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Cum Total Cost:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	



# Fluor Fernald, Inc.

ESTIMATE SUPPORT WORKSHEET  
FOR ACTIVITY BASED ESTIMATING  
(1 FTE EQUALS 1747 HOURS)

DATE: 07-Sep-01  
PROJECT MGR: J.D. CHIOU  
CAM: J.D. CHIOU  
PREPARED BY: T. O'BRIEN  
FISCAL YEAR: 2007

PBS: OHFN06  
WBS: 1.1.G.P  
CTRL ACCT: G911  
CHARGE NO: G9117  
COMMENT NO:

Resource:	S&HENG	SAFETY ENGINEER	LABOR		SUBS		SUBS		LAB		SUBS		SUBS		
			Res Dept:	949	Overtime:	Class:	EOC:	SAL	Overtime:	Class:	EOC:	SUB	Overtime:	Class:	EOC:
Yr Hours:		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cum Hours:		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yr Total Cost:		0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cum Total Cost:		0	0	0	0	0	0	0	0	0	0	0	0	0	0

### SUBCONTRACTORS

Resource:	SERVSUB	LABOR		SUBS		LAB		SUBS		LAB		SUBS		LAB		SUBS			
		Res Dept:	949	Overtime:	Class:	EOC:	SUB												
Yr Units:		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cum Units:		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yr Total Cost:		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cum Total Cost:		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

### SUBCONTRACTORS

Resource:	WISE	CONSTRUCTION		SUBS		LAB		SUBS		LAB		SUBS		LAB		SUBS			
		Res Dept:	949	Overtime:	Class:	EOC:	SUB												
Yr Units:		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cum Units:		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yr Total Cost:		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cum Total Cost:		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

### GRAND TOTALS:

Resource:	Yr Hours:	Cum Hours:	Yr Total Cost:	Cum Total Cost:
LABOR	15.0	15.0	15.0	15.0
SUBS	0.0	0.0	0.0	0.0
LAB	0.0	0.0	0.0	0.0
SUBS	0.0	0.0	0.0	0.0
WISE CONSTRUCTION	0.0	0.0	0.0	0.0
SUBS	0.0	0.0	0.0	0.0
LAB	0.0	0.0	0.0	0.0
SUBS	0.0	0.0	0.0	0.0
CONTROL TEAM	127.0	127.0	127.0	127.0
SUBS	0.0	0.0	0.0	0.0
LAB	0.0	0.0	0.0	0.0
SUBS	0.0	0.0	0.0	0.0
GRAND TOTALS:	15.0	15.0	15.0	15.0

CAM:  CONTROL TEAM: 

**SECTION 13**

**5.0 RISK PLAN**



# Fluor Fernald, Inc.

ESTIMATE SUPPORT WORKSHEET  
FOR ACTIVITY BASED ESTIMATING  
(1 FTE EQUALS 1747 HOURS)

DATE: 07-Sep-01  
PROJECT MGR: J.D. CHIOU  
CAM: J.D. CHIOU  
PREPARED BY: T. O'BRIEN  
FISCAL YEAR: 2007

PBS: OHFN06  
WBS: 1.1.G.P  
CTRL ACCT: G911  
CHARGE NO: G9117  
COMMENT NO:

Resource: DRFCAD      DRAFTER/CAD OPERATOR      EOC:      LABOR  
Res Dept: 949      Overtime:      SAL

	Oct 00-		Oct 01-		Oct 02-		Oct 03-		Oct 04-		Oct 05-		Oct 06-		Oct 07-		Oct 08-		Oct 09-				
	Yr	Hours:																					
Cum Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Yr Total Cost:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Cum Total Cost:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Resource: ENSMGR      ENVIR SCIENTIST MGR      EOC:      LABOR  
Res Dept: 949      Overtime:      SAL

	Oct 00-		Oct 01-		Oct 02-		Oct 03-		Oct 04-		Oct 05-		Oct 06-		Oct 07-		Oct 08-		Oct 09-					
	Yr	Hours:																						
Cum Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Yr Total Cost:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cum Total Cost:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Resource: ENSREP      ENVIR SCIENCE REP      EOC:      LABOR  
Res Dept: 949      Overtime:      SAL

	Oct 00-		Oct 01-		Oct 02-		Oct 03-		Oct 04-		Oct 05-		Oct 06-		Oct 07-		Oct 08-		Oct 09-					
	Yr	Hours:																						
Cum Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Yr Total Cost:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cum Total Cost:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Resource: ENSTEC      ENVIR SCIENTIST TECH      EOC:      LABOR  
Res Dept: 949      Overtime:      SAL

	Oct 00-		Oct 01-		Oct 02-		Oct 03-		Oct 04-		Oct 05-		Oct 06-		Oct 07-		Oct 08-		Oct 09-					
	Yr	Hours:																						
Cum Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Yr Total Cost:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cum Total Cost:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

# Fluor Fernald, Inc.

ESTIMATE SUPPORT WORKSHEET  
FOR ACTIVITY BASED ESTIMATING  
(1 FTE EQUALS 1747 HOURS)

DATE: 07-Sep-01  
PROJECT MGR: J.D. CHIOU  
CAM: J.D. CHIOU  
PREPARED BY: T. O'BRIEN  
FISCAL YEAR: 2007

PBS: OHFN06  
WBS: 1.1.GP  
CTRL ACCT: G911  
CHARGE NO: G9117  
COMMENT NO:

Resource: GLMINT GEN LABOR MAINT EOC: LABOR  
Res Dept: 949 Overtime: HOU

	Oct 00-		Oct 01-		Oct 02-		Oct 03-		Oct 04-		Oct 05-		Oct 06-		Oct 07-		Oct 08-		Oct 09-	
	Yr	Sep																		
Yr Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cum Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yr Total Cost:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cum Total Cost:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Resource: LABCHM CHEMIST EOC: LABOR  
Res Dept: 949 Overtime: SAL

	Oct 00-		Oct 01-		Oct 02-		Oct 03-		Oct 04-		Oct 05-		Oct 06-		Oct 07-		Oct 08-		Oct 09-	
	Yr	Sep																		
Yr Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cum Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yr Total Cost:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cum Total Cost:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Resource: LABMGR LAB MANAGER EOC: LABOR  
Res Dept: 949 Overtime: SAL

	Oct 00-		Oct 01-		Oct 02-		Oct 03-		Oct 04-		Oct 05-		Oct 06-		Oct 07-		Oct 08-		Oct 09-	
	Yr	Sep																		
Yr Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cum Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yr Total Cost:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cum Total Cost:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Resource: LABTEC LAB TECH EOC: LABOR  
Res Dept: 949 Overtime: SAL

	Oct 00-		Oct 01-		Oct 02-		Oct 03-		Oct 04-		Oct 05-		Oct 06-		Oct 07-		Oct 08-		Oct 09-	
	Yr	Sep																		
Yr Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cum Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yr Total Cost:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cum Total Cost:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

# Fluor Fernald, Inc.

ESTIMATE SUPPORT WORKSHEET  
FOR ACTIVITY BASED ESTIMATING  
(1 FTE EQUALS 1747 HOURS)

DATE: 07-Sep-01  
PROJECT MGR: J.D. CHIOU  
CAM: J.D. CHIOU  
PREPARED BY: T. O'BRIEN  
FISCAL YEAR: 2007

PBS: OHFN06  
WBS: 1.1.G.P  
CTRL ACCT: G911  
CHARGE NO: G9117  
COMMENT NO:

Resource:	Res Dept:	MVOOPR	MOTOR VEHICLE OPER	Overtime:	LABOR											
					Class:		EOC:		HOU		Class:		EOC:		SAL	
					Oct 00-	Oct 01-	Oct 02-	Oct 03-	Oct 04-	Oct 05-	Oct 06-	Oct 07-	Oct 08-	Oct 09-		
					Sep 01	Sep 02	Sep 03	Sep 04	Sep 05	Sep 06	Sep 07	Sep 08	Sep 09	Sep 10		
Yr Hours:					0.0	0.0	0.0	0.0	0.0	0.0	108.0	0.0	0.0	0.0		
Cum Hours:					0.0	0.0	0.0	0.0	0.0	0.0	108.0	108.0	108.0	108.0		
Yr Total Cost:					0	0	0	0	0	0	4,515	0	0	0		
Cum Total Cost:					0	0	0	0	0	0	4,515	4,515	4,515	4,515		

Resource:	Res Dept:	PJSMGR	PROJECT SUPPORT MGR	Overtime:	LABOR											
					Class:		EOC:		SAL		Class:		EOC:		SAL	
					Oct 00-	Oct 01-	Oct 02-	Oct 03-	Oct 04-	Oct 05-	Oct 06-	Oct 07-	Oct 08-	Oct 09-		
					Sep 01	Sep 02	Sep 03	Sep 04	Sep 05	Sep 06	Sep 07	Sep 08	Sep 09	Sep 10		
Yr Hours:					0.0	0.0	0.0	0.0	0.0	0.0	46.0	0.0	0.0	0.0		
Cum Hours:					0.0	0.0	0.0	0.0	0.0	0.0	46.0	46.0	46.0	46.0		
Yr Total Cost:					0	0	0	0	0	0	3,046	0	0	0		
Cum Total Cost:					0	0	0	0	0	0	3,046	3,046	3,046	3,046		

Resource:	Res Dept:	QACENG	QA ENGINEER	Overtime:	LABOR											
					Class:		EOC:		SAL		Class:		EOC:		SAL	
					Oct 00-	Oct 01-	Oct 02-	Oct 03-	Oct 04-	Oct 05-	Oct 06-	Oct 07-	Oct 08-	Oct 09-		
					Sep 01	Sep 02	Sep 03	Sep 04	Sep 05	Sep 06	Sep 07	Sep 08	Sep 09	Sep 10		
Yr Hours:					0.0	0.0	0.0	0.0	0.0	8.0	60.0	0.0	0.0	0.0		
Cum Hours:					0.0	0.0	0.0	0.0	0.0	8.0	68.0	68.0	68.0	68.0		
Yr Total Cost:					0	0	0	0	0	491	3,994	0	0	0		
Cum Total Cost:					0	0	0	0	0	491	4,485	4,485	4,485	4,485		

Resource:	Res Dept:	RADTEC	RAD TECH	Overtime:	LABOR											
					Class:		EOC:		SAL		Class:		EOC:		SAL	
					Oct 00-	Oct 01-	Oct 02-	Oct 03-	Oct 04-	Oct 05-	Oct 06-	Oct 07-	Oct 08-	Oct 09-		
					Sep 01	Sep 02	Sep 03	Sep 04	Sep 05	Sep 06	Sep 07	Sep 08	Sep 09	Sep 10		
Yr Hours:					0.0	0.0	0.0	0.0	0.0	0.0	91.0	0.0	0.0	0.0		
Cum Hours:					0.0	0.0	0.0	0.0	0.0	0.0	91.0	91.0	91.0	91.0		
Yr Total Cost:					0	0	0	0	0	0	4,493	0	0	0		
Cum Total Cost:					0	0	0	0	0	0	4,493	4,493	4,493	4,493		

# Fluor Fernald, Inc.

ESTIMATE SUPPORT WORKSHEET  
FOR ACTIVITY BASED ESTIMATING  
(1 FTE EQUALS 1747 HOURS)

DATE: 07-Sep-01  
PROJECT MGR: J.D. CHIOU  
CAM: J.D. CHIOU  
PREPARED BY: T. O'BRIEN  
FISCAL YEAR: 2007

PBS: OHFN06  
WBS: 1.1.G.P  
CTRL ACCT: G911  
CHARGE NO: G9117  
COMMENT NO:

Resource: S&HENG SAFETY ENGINEER EOC: SAL  
Res Dept: 949 Overtime: Class:

	LABOR		LABOR		LABOR		LABOR		LABOR		LABOR		LABOR		LABOR		LABOR				
	Oct 00- Sep 01	Oct 01- Sep 02	Oct 02- Sep 03	Oct 03- Sep 04	Oct 04- Sep 05	Oct 05- Sep 06	Oct 06- Sep 07	Oct 07- Sep 08	Oct 08- Sep 09	Oct 09- Sep 10	Oct 00- Sep 01	Oct 01- Sep 02	Oct 02- Sep 03	Oct 03- Sep 04	Oct 04- Sep 05	Oct 05- Sep 06	Oct 06- Sep 07	Oct 07- Sep 08	Oct 08- Sep 09	Oct 09- Sep 10	
Yr Hours:	0.0	0.0	0.0	0.0	0.0	9.0	6.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cum Hours:	0.0	0.0	0.0	0.0	0.0	9.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0
Yr Total Cost:	0	0	0	0	0	598	432	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cum Total Cost:	0	0	0	0	0	598	1,030	1,030	1,030	1,030	1,030	1,030	1,030	1,030	1,030	1,030	1,030	1,030	1,030	1,030	1,030

Resource: SERVSUB SUBS EOC: SUB  
Res Dept: 949 Overtime: Class:

	LAB		LAB		LAB		LAB		LAB		LAB		LAB		LAB		LAB		LAB		LAB	
	Oct 00- Sep 01	Oct 01- Sep 02	Oct 02- Sep 03	Oct 03- Sep 04	Oct 04- Sep 05	Oct 05- Sep 06	Oct 06- Sep 07	Oct 07- Sep 08	Oct 08- Sep 09	Oct 09- Sep 10	Oct 00- Sep 01	Oct 01- Sep 02	Oct 02- Sep 03	Oct 03- Sep 04	Oct 04- Sep 05	Oct 05- Sep 06	Oct 06- Sep 07	Oct 07- Sep 08	Oct 08- Sep 09	Oct 09- Sep 10	Oct 00- Sep 01	Oct 01- Sep 02
Yr Units:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cum Units:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yr Total Cost:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cum Total Cost:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Resource: WISE WISE CONSTRUCTION EOC: SUB  
Res Dept: 949 Overtime: Class:

	LAB		LAB		LAB		LAB		LAB		LAB		LAB		LAB		LAB		LAB		LAB	
	Oct 00- Sep 01	Oct 01- Sep 02	Oct 02- Sep 03	Oct 03- Sep 04	Oct 04- Sep 05	Oct 05- Sep 06	Oct 06- Sep 07	Oct 07- Sep 08	Oct 08- Sep 09	Oct 09- Sep 10	Oct 00- Sep 01	Oct 01- Sep 02	Oct 02- Sep 03	Oct 03- Sep 04	Oct 04- Sep 05	Oct 05- Sep 06	Oct 06- Sep 07	Oct 07- Sep 08	Oct 08- Sep 09	Oct 09- Sep 10	Oct 00- Sep 01	Oct 01- Sep 02
Yr Units:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cum Units:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yr Total Cost:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cum Total Cost:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

GRAND TOTALS:

	LABOR		LABOR		LABOR		LABOR		LABOR		LABOR		LABOR		LABOR		LABOR		LABOR		LABOR	
	Oct 00- Sep 01	Oct 01- Sep 02	Oct 02- Sep 03	Oct 03- Sep 04	Oct 04- Sep 05	Oct 05- Sep 06	Oct 06- Sep 07	Oct 07- Sep 08	Oct 08- Sep 09	Oct 09- Sep 10	Oct 00- Sep 01	Oct 01- Sep 02	Oct 02- Sep 03	Oct 03- Sep 04	Oct 04- Sep 05	Oct 05- Sep 06	Oct 06- Sep 07	Oct 07- Sep 08	Oct 08- Sep 09	Oct 09- Sep 10	Oct 00- Sep 01	Oct 01- Sep 02
Yr Hours:	0.0	0.0	0.0	0.0	0.0	17.0	1,707.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cum Hours:	0.0	0.0	0.0	0.0	0.0	17.0	1,724.0	1,724.0	1,724.0	1,724.0	1,724.0	1,724.0	1,724.0	1,724.0	1,724.0	1,724.0	1,724.0	1,724.0	1,724.0	1,724.0	1,724.0	1,724.0
Yr Total Cost:	0	0	0	0	0	1,089	117,242	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cum Total Cost:	0	0	0	0	0	1,089	118,331	118,331	118,331	118,331	118,331	118,331	118,331	118,331	118,331	118,331	118,331	118,331	118,331	118,331	118,331	118,331

CONTROL TEAM

CAM

# Risk/Opportunity Identification and Analysis Form

Project: Area 9 Soils Remediation  
 Evaluator: M. Roifes / F. Miller  
 CAM: JD Chidou  
 Date: 4/11/01  
 Date: 4/11/01  
 Control Account Number: G911  
 Internal Or External Driver  
 Potential Impact  
 Impact Cost \$ (Maximum Case)  
 Risk Impact Level  
 Risk Probability %  
 Risk Probability Level  
 Probable Cost \$ (Likeliest Case)  
 Risk Critical Value  
 Risk Handling Strategy  
 Total Baseline Dollars (Minimum Case): \$462,090

Area	Certification Units Failure	1 CUs Fail - Resampling and Analysis / Schedule Delay of 2.5 months	Internal	Impact Cost \$ (Maximum Case)	Risk Impact Level	Risk Probability %	Risk Probability Level	Probable Cost \$ (Likeliest Case)	Risk Critical Value	Risk Handling Strategy
Area 9 Phase I Certification	Certification Units Failure	1 CUs Fail - Resampling and Analysis / Schedule Delay of 2.5 months	Internal	\$10,000	2	20	2	\$2,000	2	Accept Risk
Area 9 Phase I Certification	Certification Units Failure	Excavation for Failed CUs. 1/4 footprint of CU at a depth of 2'. This equates to 1200cy @ \$30/cy Required to backfill excavated volume with top soil. @ \$5cy.	Internal	\$37,000	1	20	2	\$7,400	1	Accept Risk
Area 9 Phase I Certification	Certification Units Failure - Excavation	Required to backfill excavated volume with top soil. @ \$5cy.	Internal	\$6,000	1	20	2	\$1,200	1	Accept Risk
Area 9 Phase II Certification	Certification Units Failure	1 CUs Fail - Resampling and Analysis / Schedule Delay of 2.5 months	Internal	\$10,000	2	20	2	\$2,000	2	Accept Risk
Area 9 Phase II Certification	Certification Units Failure	Excavation for Failed CUs. 1/4 footprint of CU at a depth of 2'. This equates to 1200cy @ \$30/cy Required to backfill excavated volume with top soil. @ \$5cy.	Internal	\$37,000	1	20	2	\$7,400	1	Accept Risk
Area 9 Phase II Certification	Certification Units Failure - Excavation	Required to backfill excavated volume with top soil. @ \$5cy.	Internal	\$6,000	1	20	2	\$1,200	1	Accept Risk
				Total:				\$21,200		

Area 9 Phase I Certification	Longer EPA Review Cycle	EPA Takes 30 days longer than the normal 60 days to review documents. Schedule delay of 1 month.	External	\$10,000	1	30	2	\$3,000	1	
Area 9 Phase II Certification	Longer EPA Review Cycle	EPA Takes 30 days longer than the normal 60 days to review documents. Schedule delay of 1 month.	External	\$10,000	1	30	2	\$3,000	1	
				Total:				\$6,000		







**WBS DICTIONARY  
CONTROL ACCOUNT/CHARGE NUMBER**



U.S. DEPARTMENT OF ENERGY  
 WORK BREAKDOWN STRUCTURE DICTIONARY  
 PART II - ELEMENT DEFINITION

1. PROJECT TITLE FEMP (DEFENSE)	2. DATE OF CONTRACT 12/01/2000
3. IDENTIFICATION NUMBER DE-AC24-01OH20115	4. INDEX LINE NO. 60
5. WBS ELEMENT CODE 1.1.G.Q	6. WBS ELEMENT TITLE STREAM CORRIDOR
7. APPROVED CP NO. NEW PER CP# FY01-0115-0006-00	8. DATE OF CHANGES 09/05/2001
9. SYSTEM DESIGN DESCRIPTION CERCL/ACA	10. BUDGET AND REPORTING NUMBER EW05H3060
11. ELEMENT TASK DESCRIPTION  <p><b><u>a. ELEMENTS OF COST:</u></b></p> <p>Labor          Material          Subcontractors          Other Direct Costs (ODCs)</p> <p><b><u>b. TECHNICAL CONTENT:</u></b></p> <p>The Stream Corridor encompasses three tributary systems that traverse the FEMP site: Paddys Run, Pilot Plant (PP), and Storm Sewer Outfall Ditch (SSOD). Remedial activities will remove all impacted soil, sediment and debris to prepare the area for certification and, ultimately, final restoration activities. The control account is divided into the following charge numbers: GPR11, Predesign Characterization; GPR12, Title I/II Design; GPR13, Title III Design; GPR14 Site Preparation &amp; Excavation and GPR17, Excavation Monitoring &amp; Certification.</p> <p><b><u>c. SCOPE OF WORK:</u></b></p> <p>The scope of work for these activities is specifically defined in the following control accounts:</p> <p>GPR1 Stream Corridors Remediation which includes predesign, Title I/II/III design, site preparation/excavation and excavation control and certification.</p> <p>Work Specifically Excluded:</p> <ul style="list-style-type: none"> <li>- Further stabilization (beyond the FY01 A1PIII work) or re-routing of Paddys Run for erosion measures.</li> <li>- SDFP staff charging to control account GPM1</li> <li>- Remediation of new contamination (since December 2000) directly caused by</li> </ul>	

U.S. DEPARTMENT OF ENERGY  
**WORK BREAKDOWN STRUCTURE DICTIONARY**  
**PART II - ELEMENT DEFINITION**

1. PROJECT TITLE  FEMP (DEFENSE)	2. DATE OF CONTRACT  12/01/2000		
3. IDENTIFICATION NUMBER  DE-AC24-010H20115		4. INDEX LINE NO.  60	
5. WBS ELEMENT CODE  1.1.G.Q	6. WBS ELEMENT TITLE  STREAM CORRIDOR		
7. APPROVED CP NO.  NEW PER CP# FY01-0115-0006-00		8. DATE OF CHANGES  09/05/2001	
9. SYSTEM DESIGN DESCRIPTION  CERCL/ACA	10. BUDGET AND REPORTING NUMBER  EW05H3060		
11. ELEMENT TASK DESCRIPTION other FEMP projects besides Soils/OSDF. - Natural Resource Restoration - Post-certification monitoring and maintenance - Area 10 (Soils Corridor) - Excludes all centralized services			

**WORK SCOPE DEFINITION**  
(Control Account)

1. PROJECT TITLE <b>FEMP (DEFENSE)</b>		2. DATE <b>09/05/2001</b>	Page 1
3. WBS ELEMENT CODE <b>1.1.G.Q</b>	4. WBS ELEMENT TITLE/NAME <b>STREAM CORRIDOR</b>		
5. PERFORMING DIV/DEPARTMENT CODE <b>49</b>	6. ORIGINATOR NAME/PHONE <b>JD CHIOU/648-3726</b>	7. WBS ELEMENT MANAGER <b>JD CHIOU</b>	
8. BUDGET AND REPORTING NUMBER <b>EW05H3060</b>	9. BUDGET TITLE <b>SOILS</b>		
10. ORIGINAL SCOPE? / CHANGE TO WORK SCOPE? / NEW SCOPE? <b>NEW PER CP# FY01-0115-0006-00</b>		11. ESTIMATED START / COMPLETION DATE <b>10/06 - 1/10</b>	
12. TASK IDENTIFICATION (CONTROL ACCOUNT) <b>GPR1</b>	13. TASK DESCRIPTION (ONE LINE) <b>STREAM CORRIDORS REMEDIATION</b>		

14. ELEMENT TASK DESCRIPTION

**a. ELEMENTS OF COST:**

Labor  
Material  
Subcontractors

**b. TECHNICAL CONTENT:**

This account covers the remediation activities (predesign, design, excavation, certification, and interim restoration) as outlined in the scope of work for Stream Corridor and Closure Plan Narrative. The Stream Corridors encompass three tributary systems that traverse the FEMP site: Paddys Run, Pilot Plant, Drainage Ditch and the SSOD. The scope includes a southern oxbow area.

**c. SCOPE OF WORK:**

The scope of work for these activities is specifically defined in the following charge numbers:

- GPR11 - Stream Corridors Predesign
- GPR12 - Stream Corridors Title I/II Design
- GPR13 - Stream Corridors Site Prep/Excavation
- GPR14 - Stream Corridors Site Prep/Excavation
- GPR17 - Stream Corridors Exc Control/Certification

**d. WORK SPECIFICALLY EXCLUDED:**

Further stabilization (beyond the FY01 A1PIII work) or re-routing of Paddys Run

Project Manager

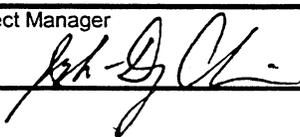
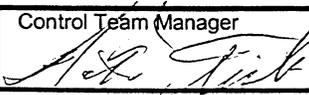
Control Account Manager

Control Team Manager

**WORK SCOPE DEFINITION  
(Control Account)**

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3. WBS ELEMENT CODE <b>1.1.G.Q</b>	4. WBS ELEMENT TITLE/NAME <b>STREAM CORRIDOR</b>		
5. PERFORMING DIV/DEPARTMENT CODE <b>49</b>	6. ORIGINATOR NAME/PHONE <b>JD CHIOU/648-3726</b>	7. WBS ELEMENT MANAGER <b>JD CHIOU</b>	
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10. ORIGINAL SCOPE? / CHANGE TO WORK SCOPE? / NEW SCOPE? <b>NEW PER CP# FY01-0115-0006-00</b>		11. ESTIMATED START / COMPLETION DATE <b>10/06 - 1/10</b>	
12. TASK IDENTIFICATION (CONTROL ACCOUNT) <b>GPR1</b>	13. TASK DESCRIPTION (ONE LINE) <b>STREAM CORRIDORS REMEDIATION</b>		
14. ELEMENT TASK DESCRIPTION  <b>for erosion measures</b>  <b>SDFP staff charging to control account GPM1</b>  <b>Remediation of new contamination (since December 2000) directly caused by other FEMP projects besides Soils/OSDF</b>  <b>Natural Resource Restoration</b>  <b>Post-certification monitoring and maintenance</b>  <b>Area 10 (Soils Corridor)</b>  <b>Excludes all centralized services</b>			

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(Work Package)

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3. WBS ELEMENT CODE <b>1.1.G.Q</b>		4. WBS ELEMENT TITLE/NAME <b>STREAM CORRIDOR</b>	
5. PERFORMING DIV/DEPARTMENT CODE <b>49</b>		6. ORIGINATOR NAME/PHONE <b>JD CHIOU/648-3726</b>	7. WBS ELEMENT MANAGER <b>JD CHIOU</b>
8. BUDGET AND REPORTING NUMBER <b>EW05H3060</b>		9. BUDGET TITLE <b>SOILS</b>	
10. ORIGINAL SCOPE? / CHANGE TO WORK SCOPE? / NEW SCOPE? <b>NEW PER CP# FY01-0015-0006-00</b>		11. ESTIMATED START / COMPLETION DATE <b>10/06 - 6/07</b>	
12. TASK IDENTIFICATION (WORK PACKAGE) <b>GPR11</b>		13. TASK DESCRIPTION (ONE LINE) <b>STREAM CORRIDORS PREDESIGN</b>	
14. ELEMENT TASK DESCRIPTION			
<p><b><u>a. ELEMENTS OF COST:</u></b></p> <p>Labor</p>			
<p><b><u>b. TECHNICAL CONTENT:</u></b></p> <p>The content of this document applies to the soil characterization program at the FEMP specific to area pre-design characterization, sampling, and analytical work performed by and for the Soil Disposal Facility Project in The Stream Corridors. It is a summary for area-specific characterization efforts that will be conducted to delineate areas of above Final Remediation Level (FRL) contamination as well as contamination that is above the On-Site Disposal Facility (OSDF) Waste Acceptance Criteria (WAC). The data generated from these characterization activities will support remedial design. The Stream Corridors physical boundaries are described in Section 14 of the Fluor Fernald Closure Plan Basis of Estimate (20300-PL-0005).</p> <p>Drivers of the work are CERCLA, RCRA, the EPA Amended Consent Agreement (ACA), Sitewide Excavation Plan (SEP), and the signed Records of Decision (RODs) for OU5 and OU2.</p>			
<p><b><u>c. SCOPE OF WORK:</u></b></p> <p>The scope of this document covers the characterization support for pre-design of The Stream Corridors. Pre-design Investigations include the collection of additional data collected to support the engineering design, which will be included in the Integrated Remedial Design Plan (IRDP). The work scope of the pre-design characterization includes characterization planning, field survey work, real-time data collection and reduction, field sampling, laboratory</p>			
Project Manager 	Control Account Manager 	Control Team Manager 	

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10. ORIGINAL SCOPE? / CHANGE TO WORK SCOPE? / NEW SCOPE? <b>NEW PER CP# FY01-0015-0006-00</b>		11. ESTIMATED START / COMPLETION DATE <b>10/06 - 6/07</b>	
12. TASK IDENTIFICATION (WORK PACKAGE) <b>GPR11</b>	13. TASK DESCRIPTION (ONE LINE) <b>STREAM CORRIDORS PREDESIGN</b>		
14. ELEMENT TASK DESCRIPTION <p>analysis, and data management activities.</p> <p>The predesign characterization effort includes the following tasks:</p> <p>Review and evaluation of existing sampling data, real-time data and geophysical data</p> <p>Review HWMUs, USTs, and potentially RCRA characteristic area</p> <p>Develop contamination models based on existing data</p> <p>Develop and write applicable data quality objectives and Project Specific Plans, as necessary</p> <p>Prep the area for field measurements which includes clearing or brush</p> <p>Physical sampling</p> <p>Assess real-time data generated during predesign</p> <p>Perform assessment of radiological field survey results</p> <p>Perform data management functions within SDFP</p> <p>Laboratory sample analysis</p> <p>Sample shipping for off-site analysis</p> <p>If necessary, Ground Penetrating Radar (GPR) / Electro-Magnetic (EM) Scanning</p> <p><b><u>d. WORK SPECIFICALLY EXCLUDED:</u></b></p> <p>Characterization tasks in other areas</p>			

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5. PERFORMING DIV/DEPARTMENT CODE <b>49</b>	6. ORIGINATOR NAME/PHONE <b>JD CHIOU/648-3726</b>	7. WBS ELEMENT MANAGER <b>JD CHIOU</b>	
8. BUDGET AND REPORTING NUMBER <b>EW05H3060</b>	9. BUDGET TITLE <b>SOILS</b>		
10. ORIGINAL SCOPE? / CHANGE TO WORK SCOPE? / NEW SCOPE? <b>NEW PER CP# FY01-0015-0006-00</b>		11. ESTIMATED START / COMPLETION DATE <b>10/06 - 6/07</b>	
12. TASK IDENTIFICATION (WORK PACKAGE) <b>GPR11</b>	13. TASK DESCRIPTION (ONE LINE) <b>STREAM CORRIDORS PREDESIGN</b>		

14. ELEMENT TASK DESCRIPTION

Construction or remediation

Waste tracking or disposition

Area pre-certification or certification activities

Waste Tracking and disposition

Waste Treatment activities

Development of Engineering plans, drawings, or specifications

Land Surveying, staff, or equipment

Real Time Scanning (HPGe, RSS, RTRAK), staff, or equipment

Characterization personnel covered under GPM14

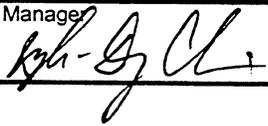
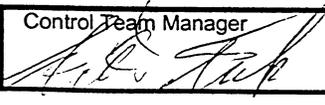
Centralized services and/or equipment

All other PBS elements

All other PBS-06 control accounts



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8. BUDGET AND REPORTING NUMBER <b>EW05H3060</b>	9. BUDGET TITLE <b>SOILS</b>		
10. ORIGINAL SCOPE? / CHANGE TO WORK SCOPE? / NEW SCOPE? <b>NEW PER CP# FY01-0015-0006-00</b>		11. ESTIMATED START / COMPLETION DATE <b>10/06 - 1/10</b>	
12. TASK IDENTIFICATION (WORK PACKAGE) <b>GPR12</b>	13. TASK DESCRIPTION (ONE LINE) <b>STREAM CORRIDORS TITLE I/II DESIGN</b>		
14. ELEMENT TASK DESCRIPTION			
<p><b><u>a. ELEMENTS OF COST:</u></b></p> <p>Labor</p> <p><b><u>b. TECHNICAL CONTENT:</u></b></p> <p>This work package provides for the Title I and Title II engineering services to design the remediation excavation and removal of at- and below-grade impacted material from the Stream Corridors. The Stream Corridors encompass three tributary systems that traverse the FEMP site: Paddys Run, Pilot Plant (PP), and Storm Sewer Outfall Ditch (SSOD). The major features contained within the area include the railroad tressle, abandoned storm sewer outfall/headwall, culverts, outfall stone, and miscellaneous debris. Please refer to Section 10 of the Closure Plan Narrative for further information.</p> <p>The drivers for this work include the signed Record of Decision for Operable Unit 5, the Site-Wide Excavation Plan, and site remediation schedule.</p> <p><b><u>c. SCOPE OF WORK:</u></b></p> <p>The scope of work for these activities is defined in Control Account GPR1 (Stream Corridor Soils Remediation). Key elements included in the charge number are:</p> <p>Development of the Integrated Remedial Design Package (IRDP) consisting of three components for review and approval by DOE and the regulatory agencies: Implementation Plan, Construction Drawings, and Technical Specifications.</p> <p>Development of supporting documentation to the Implementation Plans consisting</p>			
Project Manager 	Control Account Manager 	Control Team Manager 	

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5. PERFORMING DIV/DEPARTMENT CODE <b>49</b>	6. ORIGINATOR NAME/PHONE <b>JD CHIOU/648-3726</b>	7. WBS ELEMENT MANAGER <b>JD CHIOU</b>	
8. BUDGET AND REPORTING NUMBER <b>EW05H3060</b>	9. BUDGET TITLE <b>SOILS</b>		
10. ORIGINAL SCOPE? / CHANGE TO WORK SCOPE? / NEW SCOPE? <b>NEW PER CP# FY01-0015-0006-00</b>		11. ESTIMATED START / COMPLETION DATE <b>10/06 - 1/10</b>	
12. TASK IDENTIFICATION (WORK PACKAGE) <b>GPR12</b>	13. TASK DESCRIPTION (ONE LINE) <b>STREAM CORRIDORS TITLE I/II DESIGN</b>		

14. ELEMENT TASK DESCRIPTION

of the Design Criteria Package (DCP) , Applicable or Relevant and Appropriate Requirements/To Be Considered (ARARs/TBCs) Table for the DCP, Surface Water Management/Erosion Control Plan, and Earthwork Calculations.

Preparation of engineering documentation: Technical Reference drawing package, safety planning documentation through the request for safety assessment, Project Execution Plan (PEP), project alignments, Occupational and Environmental ALARAs, design and constructability reviews, independent design reviews, resolution of comments (including project, DOE, and regulatory comments), design calculations, quantity take-offs, cost-estimating support.

Generating Construction Drawings and Technical Specifications Certified for Construction.

**d. WORK SPECIFICALLY EXCLUDED:**

Staff labor charge to Control Account GPM1

Predesign Data Summary to be appended to the Implementation Plan

Scope of work as defined in other Stream Corridor charge accounts including Title III engineering services.

Scope of work as defined in other Remediation Area control accounts.

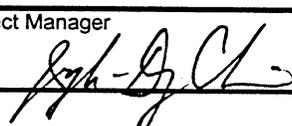
Construction management.

Post-remediation monitoring and maintenance.

All other PBS elements

All other PBS-06 control accounts

**WORK SCOPE DEFINITION**  
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8. BUDGET AND REPORTING NUMBER <b>EW05H3060</b>	9. BUDGET TITLE <b>SOILS</b>		
10. ORIGINAL SCOPE? / CHANGE TO WORK SCOPE? / NEW SCOPE? <b>NEW PER CP# FY01-0015-0006-00</b>		11. ESTIMATED START / COMPLETION DATE <b>10/06 - 1/10</b>	
12. TASK IDENTIFICATION (WORK PACKAGE) <b>GPR13</b>	13. TASK DESCRIPTION (ONE LINE) <b>STREAM CORRIDORS TITLE III</b>		
14. ELEMENT TASK DESCRIPTION			
<p><b><u>a. ELEMENTS OF COST:</u></b></p> <p>Labor</p> <p><b><u>b. TECHNICAL CONTENT:</u></b></p> <p>This work package provides for the Title III engineering services to support the remediation excavation and removal of at- and below-grade impacted material from the Stream Corridors. The Stream Corridors encompass three tributary systems that traverse the FEMP site: Paddys Run, Pilot Plant (PP), and Storm Sewer Outfall Ditch (SSOD). The major features contained within the area include the railroad tressle, abandoned storm sewer outfall/headwall, culverts, outfall stone, and miscellaneous debris. Please refer to Section 10 of the Closure Plan Narrative for further information.</p> <p>The drivers for this work include the signed Record of Decision for Operable Unit 5, the Site-Wide Excavation Plan, and site remediation schedule.</p> <p><b><u>c. SCOPE OF WORK:</u></b></p> <p>The scope of work for these activities is defined in Control Account GPR1 (Stream Corridor Soils Remediation). Key elements included in the charge number:</p> <p>Assist in procurement of the excavation subcontractor after CFC.</p> <p>Review and approve engineering document family submittals from the subcontractor to ensure conformity to the Implementation Plan, drawings, and specifications.</p>			
Project Manager 	Control Account Manager 	Control Team Manager 	

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5. PERFORMING DIV/DEPARTMENT CODE <b>49</b>	6. ORIGINATOR NAME/PHONE <b>JD CHIOU/648-3726</b>	7. WBS ELEMENT MANAGER <b>JD CHIOU</b>	
8. BUDGET AND REPORTING NUMBER <b>EW05H3060</b>	9. BUDGET TITLE <b>SOILS</b>		
10. ORIGINAL SCOPE? / CHANGE TO WORK SCOPE? / NEW SCOPE? <b>NEW PER CP# FY01-0015-0006-00</b>		11. ESTIMATED START / COMPLETION DATE <b>10/06 - 1/10</b>	
12. TASK IDENTIFICATION (WORK PACKAGE) <b>GPR13</b>	13. TASK DESCRIPTION (ONE LINE) <b>STREAM CORRIDORS TITLE III</b>		

14. ELEMENT TASK DESCRIPTION

Review construction, health and safety, or other subcontractor submittals when requested.

Prepare, respond, and approve Request for Clarification (RCIs) and Design Change Notices (DCNs).

Facilitate RCI/DCN review and approval through the project, DOE, and the regulatory agencies.

Prepare Safety Basis Document Reviews (SBDs) based on DCNs.

Develop as-built drawings and specifications and provide an excavation summary report.

**d. WORK SPECIFICALLY EXCLUDED:**

Staff labor charge to Control Account GPM1

Scope of work as defined in other Stream Corridor Charge Accounts.

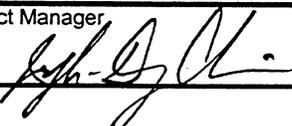
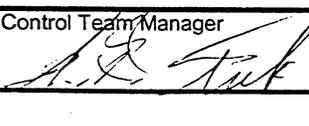
Scope of work as defined in other Remediation Area Control Accounts.

Post-remediation monitoring and maintenance.

All other PBS elements

All other PBS-06 control accounts

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5. PERFORMING DIV/DEPARTMENT CODE <b>49</b>	6. ORIGINATOR NAME/PHONE <b>JD CHIOU/648-3726</b>	7. WBS ELEMENT MANAGER <b>JD CHIOU</b>	
8. BUDGET AND REPORTING NUMBER <b>EW05H3060</b>	9. BUDGET TITLE <b>SOILS</b>		
10. ORIGINAL SCOPE? / CHANGE TO WORK SCOPE? / NEW SCOPE? <b>NEW PER CP# FY01-0015-0006-00</b>		11. ESTIMATED START / COMPLETION DATE <b>4/08 - 11/08</b>	
12. TASK IDENTIFICATION (WORK PACKAGE) <b>GPR14</b>	13. TASK DESCRIPTION (ONE LINE) <b>STREAM CORRIDORS SITE PREP/EXCAVATION</b>		
14. ELEMENT TASK DESCRIPTION			
<p><b><u>a. ELEMENTS OF COST:</u></b></p> <p>Labor Subcontracts</p> <p><b><u>b. TECHNICAL CONTENT:</u></b></p> <p>Perform remedial construction activities for the Stream Corridors, including site preparation, excavation, hauling, and interim restoration.</p> <p>The Stream Corridors encompass three tributary systems that traverse the FEMP site: Paddys Run, Pilot Plant (PP), and Storm Sewer Outfall Ditch (SSOD). The major features contained within the area include the railroad trestle, abandoned storm sewer outfall/headwall, culverts, outfall stone, and miscellaneous debris.</p> <p>Refer to Section 10 of the Closure Plan Narrative for further information.</p> <p>The drivers for this work include the signed Record of Decision for Operable Unit 5, the Site-Wide Excavation Plan, and site remediation schedule.</p> <p><b><u>c. SCOPE OF WORK:</u></b></p> <p>Provide excavation and removal of impacted soil and debris from the Stream Corridors and transportation to the On-site Disposal Facility and/or transportation to a designated stockpile area in accordance with certified construction drawings, specifications and other subcontract requirements. Additional related activities and services within this scope of work are as follows:</p> <p>Site preparation work including permit generation, clearing/grubbing, site</p>			
Project Manager 	Control Account Manager 	Control Team Manager 	

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10. ORIGINAL SCOPE? / CHANGE TO WORK SCOPE? / NEW SCOPE? <b>NEW PER CP# FY01-0015-0006-00</b>		11. ESTIMATED START / COMPLETION DATE <b>4/08 - 11/08</b>	
12. TASK IDENTIFICATION (WORK PACKAGE) <b>GPR14</b>	13. TASK DESCRIPTION (ONE LINE) <b>STREAM CORRIDORS SITE PREP/EXCAVATION</b>		
14. ELEMENT TASK DESCRIPTION <p>layout surveying, access controls setup, and establishing other support areas</p> <p>Erosion and sediment control during construction</p> <p>Installation and/or relocation of fencing during construction</p> <p>Equipment, material and support facilities rented/procured for project use</p> <p>Dewatering as necessary during construction</p> <p>Dust Control within designated work area.</p> <p>Decontamination of equipment</p> <p>Matrixed and subcontracted labor directly associated with construction</p> <p>Seed and stabilize/interim grade the excavation area</p> <p>Performance of construction management services such as subcontractor oversight, material tracking, drawing redlines, daily activity logs, briefings, and responses to occurrences/NCR's/DCNs.</p> <p>Specific work to be addressed includes:</p> <p>Excavate, load and haul impacted soils to the OSDF as Category 1.</p> <p>Removal of misc. debris within the streambeds and around the railroad trestle.</p> <p><b><u>d. WORK SPECIFICALLY EXCLUDED:</u></b></p> <p>Placement in OSDF</p> <p>Seeding / Vegetation beyond interim restoration</p>			

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12. TASK IDENTIFICATION (WORK PACKAGE) <b>GPR14</b>	13. TASK DESCRIPTION (ONE LINE) <b>STREAM CORRIDORS SITE PREP/EXCAVATION</b>		
14. ELEMENT TASK DESCRIPTION <p><b>Road construction</b></p> <p><b>Title I/II design services</b></p> <p><b>Performing and/or managing Title III services</b></p> <p><b>Sampling and testing of waste materials during remediation</b></p> <p><b>Monitoring and maintenance of the remediated area after remediation</b></p> <p><b>Offsite disposal of materials exceeding the waste acceptance criteria for on-site disposal</b></p> <p><b>Treatment of lead containing soil</b></p> <p><b>Centralized Personnel, Radiological controls, and Safety management during remedial construction</b></p> <p><b>All other PBS elements</b></p> <p><b>All other PBS-06 control accounts</b></p>			



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8. BUDGET AND REPORTING NUMBER <b>EW05H3060</b>	9. BUDGET TITLE <b>SOILS</b>		
10. ORIGINAL SCOPE? / CHANGE TO WORK SCOPE? / NEW SCOPE? <b>NEW PER CP# FY01-0015-0006-00</b>		11. ESTIMATED START / COMPLETION DATE <b>10/06 - 1/10</b>	
12. TASK IDENTIFICATION (WORK PACKAGE) <b>GPR17</b>	13. TASK DESCRIPTION (ONE LINE) <b>STREAM CORRIDORS EXC CONTROL/CERTIFICATION</b>		

14. ELEMENT TASK DESCRIPTION

**a. ELEMENTS OF COST:**

Labor

**b. TECHNICAL CONTENT:**

The content of this document applies to the soil characterization program at the FEMP specific to area characterization, sampling, and analytical work performed by and for the Soil Disposal Facility Project in the Stream Corridors. It is a summary for area-specific characterization efforts that will be conducted in defined areas of excavation and lesser environmentally impacted areas that may not be excavated, but will require monitoring, sampling, and analytical testing. The characterization efforts are intended to provide information that may be required to supplement the remedial design and to support the remedial action that will result in compliance with the Final Remediation Levels (FRLs) published in the OU5 ROD. The Stream Corridors physical boundaries are described in Section 9 of the Fluor Fernald Closure Plan Basis of Estimate (20300-PL-0005).

Drivers of the work are CERCLA, RCRA, the EPA Amended Consent Agreement (ACA), Sitewide Excavation Plan (SEP), and the signed Record of Decision (ROD) for OU5.

**c. SCOPE OF WORK:**

The scope of this document covers the characterization support for excavation control, precertification, and certification of the Stream Corridors. Characterization work performed in the Stream Corridors under this scope will assist in determining soil disposition, extent of excavation, and provide sound field and analytical data that prove remedial activities were sufficient.

Project Manager 	Control Account Manager 	Control Team Manager 
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**WORK SCOPE DEFINITION**  
(Work Package)

1. PROJECT TITLE <b>FEMP (DEFENSE)</b>		2. DATE <b>09/06/2001</b>	Page 2
3. WBS ELEMENT CODE <b>1.1.G.Q</b>	4. WBS ELEMENT TITLE/NAME <b>STREAM CORRIDOR</b>		
5. PERFORMING DIV/DEPARTMENT CODE <b>49</b>	6. ORIGINATOR NAME/PHONE <b>JD CHIOU/648-3726</b>	7. WBS ELEMENT MANAGER <b>JD CHIOU</b>	
8. BUDGET AND REPORTING NUMBER <b>EW05H3060</b>	9. BUDGET TITLE <b>SOILS</b>		
10. ORIGINAL SCOPE? / CHANGE TO WORK SCOPE? / NEW SCOPE? <b>NEW PER CP# FY01-0015-0006-00</b>		11. ESTIMATED START / COMPLETION DATE <b>10/06 - 1/10</b>	
12. TASK IDENTIFICATION (WORK PACKAGE) <b>GPR17</b>	13. TASK DESCRIPTION (ONE LINE) <b>STREAM CORRIDORS EXC CONTROL/CERTIFICATION</b>		

14. ELEMENT TASK DESCRIPTION

During excavation of the Stream Corridors, radiological field surveying, physical soil sampling, and analysis will be required. This testing will be performed during the excavation process as necessary to determine disposition of excavated material. After excavation is determined to be complete, the remaining soil will be tested for all area specific contaminants of concern (COCs) to demonstrate FRL attainment. The actual radiological field-survey measurements, physical soil sampling and analytical activities covered under this account include the following tasks:

- Review existing data and engineering drawings
- Develop and write applicable data quality objectives and projects-specific-plans, as necessary
- Develop Certification Design Letters and text for the Area Implementation Plan
- Define and delineate excavation monitoring boundaries in the field
- Define and delineate Certification Units
- Prep the area for field measurements which includes clearing of brush
- Installation of certification fencing and signs
- Physical sampling
- Assess real-time data generated during excavation
- Perform assessment of radiological field survey results
- Perform data management functions within SDFP
- Develop final reports or certification reports
- Perform analysis
- Data management and validation

**WORK SCOPE DEFINITION**  
(Work Package)

1. PROJECT TITLE <b>FEMP (DEFENSE)</b>		2. DATE <b>09/06/2001</b>	Page 3
3. WBS ELEMENT CODE <b>1.1.G.Q</b>	4. WBS ELEMENT TITLE/NAME <b>STREAM CORRIDOR</b>		
5. PERFORMING DIV/DEPARTMENT CODE <b>49</b>	6. ORIGINATOR NAME/PHONE <b>JD CHIOU/648-3726</b>	7. WBS ELEMENT MANAGER <b>JD CHIOU</b>	
8. BUDGET AND REPORTING NUMBER <b>EW05H3060</b>	9. BUDGET TITLE <b>SOILS</b>		
10. ORIGINAL SCOPE? / CHANGE TO WORK SCOPE? / NEW SCOPE? <b>NEW PER CP# FY01-0015-0006-00</b>		11. ESTIMATED START / COMPLETION DATE <b>10/06 - 1/10</b>	
12. TASK IDENTIFICATION (WORK PACKAGE) <b>GPR17</b>	13. TASK DESCRIPTION (ONE LINE) <b>STREAM CORRIDORS EXC CONTROL/CERTIFICATION</b>		

14. ELEMENT TASK DESCRIPTION

Perform statistical evaluation of analytical data

If needed, Ground Penetrating Radar (GPR) / Electro-Magnetic (EM) Scanning

**d. WORK SPECIFICALLY EXCLUDED:**

Pre-design work

Waste Tracking and disposition

Waste Treatment activities

Construction or remediation

Development of Engineering plans, drawings, or specifications

Land Surveying, staff, or equipment

Real Time Scanning (HPGe, RSS, RTRAK), staff, or equipment

Characterization personnel covered under GPM14

Centralized services and/or equipment

All other PBS elements

All other PBS-06 control accounts



## **SECTION 14**

### **1.0 NARRATIVE**



1. PROJECT TITLE: SOILS EXCAVATION	2. DATE: 09/10/01	3. PBS#: 06
4. WBS ELEMENT CODE: 1.1.G.Q.	5. WBS ELEMENT TITLE: STREAM CORRIDORS REMEDIATION	
6. CAM NAME/ PHONE: JYH-DONG CHIOU/ 3726	7. CAM SIGNATURE:	
8. ORIGINAL/ CHANGE SCOPE/ PER CP#:	9. CONTROL ACCOUNT: GPR1	

## SECTION 14: GPR1 – STREAM CORRIDORS REMEDIATION

### 1.0 NARRATIVE

#### 1.1 OVERVIEW

This Closure Plan defines the scope of work required to plan, develop, execute, manage and administer the Stream Corridor remedial activities under PBS-06 (WBS 1.1.G.Q; control account GPR1). The Stream Corridor encompasses three tributary systems that traverse the FEMP site: Paddys Run, Pilot Plant (PP), and Storm Sewer Outfall Ditch (SSOD). Remedial activities will remove all impacted soil, sediment and debris to prepare the area for certification and, ultimately, final restoration activities. The control account is divided into the following charge numbers: GPR11, Predesign Characterization; GPR12, Title I/II Design; GPR13, Title III Design; GPR14 Site Preparation and Excavation and GPR17, Excavation Monitoring and Certification. The external assumptions and drivers that effect the work and descriptions of the physical area and remedial tasks are discussed below.

#### 1.2 ASSUMPTIONS/EXCLUSIONS

##### 1.2.1 Assumptions

- Internal and DOE review of a PSP/CDL/Certification Report is performed in one week.
- EPA/OEPA review of a PSP is performed in two months.
- EPA/OEPA review of CDL/Cert Report is performed in two months.
- EPA review/comment on significant PSP Variance/Field Change Notices (V/FCNs) 7 days for precertification PSPs and 15 days for certification PSPs.
- A dedicated sampling crew will be available to collect soil and perched-water samples.
- Level D data packages are submitted by the analytical laboratories and 10 percent of the packages undergo verification and validation.

- Statistical tests conducted on the analytical results will follow the pass/fail guidance in the SEP.
- Sediment FRLs will be used for certification of the Corridors.
- Fluor Fernald self-performs the Title I design as a single package, with dedicated civil engineers and CADD personnel committed to the project.
- The Title I work requires 50 percent of the predesign characterization data to initiate the design.
- Fluor Fernald self-performs the Title II excavation design as a single package, with dedicated civil engineers and CADD personnel committed to the project.
- Title II work is initiated with no less than 75 percent of the predesign data.
- A 30-day DOE review cycle for the draft IRDP.
- A 60 day EPA/OEPA review cycle for the IRDP.
- A 30-day window to prepare the EPA/OEPA response-to-comments (RTC) package.
- A 30-day EPA/OEPA review and approval cycle for the RTC package.
- A 14-day window to prepare the final Implementation Plan.
- D&D work is complete prior to initiating site-preparation work.
- EPA and OEPA review and approval period is 90 days for IRDP.
- DOE maintains full baseline funding levels.
- All construction work will be subcontracted.
- Site labor subcontractor (currently Wise const) to post Certification signs.
- Sampling, laboratory, and data management personnel to support Certification.

#### 1.2.2 Exclusions

- All other PBS elements
- All other PBS-06 control accounts
- Engineering and construction services for the OSDF

- Final restoration activities
- SSR or ORR prior to excavation
- Placement of impacted material in the OSDF
- Placement of impacted material within the OMTA
- Transport of impacted material from the OMTA to the OSDF
- Predesign characterization, Title I/II design, Title III design, Site Preparation/Excavation/Interim Restoration, Excavation Control/Certification work, Interim Restoration for Areas 1, 2, 3, 4, 5, 7, 8, 9
- PP drainage ditch re-routing
- The abandoned storm sewer/outfall headwall structure will remain part of SWRB and will not be part of scope of FF contract
- Removal of the extraction wells left within corridors
- Removal of the concrete box culvert and associated portion of road south of the SWUs
- Removal of the concrete slabs stabilizing the railroad bridge/trestle foundation. Debris that is not associated with stabilizing the trestle will be removed.
- Removal of stone placed along the east bank of the Paddys Run near the Waste Pits, Silos and Inactive Flyash Pile footprint will be part of those specific area remediations or utilized in final restoration. This also includes the check dam and bank stone in the PP and SSOD.

#### 1.2.3 Government-Furnished Equipment/Services

None.

#### 1.2.4 Applicable Requirements

- OU5 ROD
- IRDP and CFC Package reviewed and approved by DOE
- PSPs, IRDP, CDL, and CR reviewed and approved by EPA/OEPA
- Informal agreement with EPA for review time of V/FCNs
- Dust control measures are implemented during excavation and hauling.
- Real time scan between every 3 +/- 1 foot excavation lift in above-FRL excavations.
- Grading to natural stream contours for interim restoration after certification.
- Visual monitoring of all excavations by WAO

- Frisker and/or PID monitoring by radiation control and/or H&S are performed in accordance with applicable DOE and regulatory standards.

#### 1.2.5 Applicable Technical Guidance

- Sitewide Excavation Plan (SEP)
- Real time in situ gamma scanning parameters established in the Real Time Users Guide
- Sampling and analytical parameters established in the Sitewide CERCLA Quality Assurance Plan (SCQ)
- Waste Acceptance Criteria Attainment Plan for the On-Site Disposal Facility
- Impacted Materials Placement Plan – On-Site Disposal Facility.

#### 1.2.6 Disposal, Treatment, Containers, Utilities

- No major utilities exist in the area
- Several monitoring and extraction wells are located within the area footprint
- All impacted material is expected to meet the OSDF WAC and is dispositioned in the OSDF
- Electric, water and communication utilities are provided to rad control and break trailers by infrastructure support
- Tie-points into existing electric, potable and non-potable water, sanitary sewer, storm sewer, telephone, and communications are identified by Infrastructure support and budgeted and installed by SDFP.

#### 1.3 DRIVERS

- Timeframe of the legal access agreements to perform work
- Agency approval of the predesign/precertification/certification PSPs, IRDP, CDL and Certification Report within the allotted review time
- Normal weather conditions to implement the field schedule (no excessive rain or snow due to moisture requirements for real time gamma measurements)
- Availability of sampling team and lab turnaround to complete the certification

- Completion of excavation/remediation and any precertification/certification prior to Spring flooding
- Mitigation of upstream contamination sources or use of runoff control measures to ensure no cross-contamination prior to or after certification of the PP, SSOD or Paddys Run.

#### 1.3.1 External Events that Impact the Schedule

- Congressional funding of DOE EM Projects
- EPA/OEPA review cycles
- DOE review cycles
- Agency approval of the precertification PSP, CDL and certification PSP
- Normal weather conditions to implement the field schedule (no excessive rain or snow due to moisture requirements for real time gamma measurements)
- Availability of sampling team and lab turnaround
- Discovery, during excavation, of large areas of undocumented contamination.

#### 1.4 PROJECT PHYSICAL DESCRIPTION

The Stream Corridors (approximately 28 acres) encompass three tributary systems that traverse the FEMP site: Paddys Run, Pilot Plant (PP), and Storm Sewer Outfall Ditch (SSOD).

The Paddys Run stream corridor originates north of the FEMP property line and traverses south along the western portion of site and continues beyond the southern boundary of the site (Willey Road). The stream serves as the eastern boundary for Area 8 and the western boundary for Area 1, 2, 6 and 7. The stream has been rerouted on several occasions to mitigate erosion problems resulting in the creation of two larger oxbow areas. A portion of the northern oxbow in the stream corridor is within the Area 6 footprint and is not part of the Stream Corridor scope of work.

The PP drainage ditch originates just west of the AWWT and runs east-west separating Area 2 from Area 7 (Silos). At its eastern origin, the PP receives overflow surface water from a culvert which runs from the Area 7 Sector 3 near the AWWT under the building 30/45 road.

The SSOD drainage tributaries are located in the southern portion of the site, originating just south of the west main parking lot. The northern tributary legs receive surface water runoff from culverts from the parking lot/SWRB facilities and the A1PII outfall. The central

and southern legs receive surface water runoff from the Area 2 (certified and remediated footprints). A concrete culvert provides a road crossing south of the AFP. The SSOD empties into Paddys Run near the southern end of the site.

The major features contained within the project are the following:

- Paddys Run - railroad trestle (and stabilizing debris) spanning the stream in the north and miscellaneous debris along the stream
- SSOD - check dams, abandoned storm sewer outfall/headwall structure, concrete box culvert south of the SWUs and outfall from SWRB and former Production Area
- PP - culvert, outfall and associated stone from Area 7 and former Production Area.

Remedial activities in the Stream Corridors are being carried out in accordance with the OU5 ROD, with the primary objective being the removal of all soil and sediment contaminated at levels above established FRLs and man-made debris. When the remedial actions are completed, the certified area will be graded close to original contours and seeded according to the Natural Resource Restoration Plan. Each charge account associated with the remediation is summarized below.

## 1.5 PROJECT PLAN/TECHNICAL SCOPE AND QUANTIFICATION

### 1.5.1 GPR11 - Predesign Characterization

Predesign characterization will be conducted and divided into the following tasks: 1) Prepare Project Specific Plans (PSPs); 2) Field and Analytical Work; and 3) Data Reduction and Interpretation. Each task is described and detailed below.

The task activities and deliverables discussed below will be completed primarily by project staff from the management, characterization, surveying, administrative and real time disciplines, and these personnel will charge their labor hours to PBS-06 control account GPM1. Only matrixed labor, identified below, will use the charge account GPR11. Detail on manpower loading needed to execute this scope of work is provided in Section 3.0. The charge account for GPR11 will be closed when all characterization data has been received by the Title II design team.

#### 1) Task #1 - Prepare Project Specific Plans

##### 1.1) Plan/Scope

Preparation of Project Specific Plans (PSPs) involves a thorough review of existing characterization data and remedial design documents to develop the appropriate list of contaminants and the sampling and analysis strategy. The PSP is the vehicle used to document the data gaps and present the characterization plan to the project personnel, functional-area personnel, DOE, EPA and OEPA. Specific activities and deliverables envisioned for this work include:

- Review of historical photos and records, OU5 RI/FS data and RODs, OU5 plates on contaminant concentrations, Weston CIS data, removal-action data in the SED, Sitewide Excavation Plan (SEP), utility drawings, and past NCRs and corrective actions.
- Conduct database queries, data evaluation, walk downs, and meetings with past-operations personnel.
- Develop COC list, sampling and analysis strategy, data quality objectives, off-site laboratory task orders, penetration permits and radiation work permits.
- Prepare data tables, figures and text for draft PSPs and deliver PSPs to functional area personnel and DOE for review
- Obtain review comments from functional-area personnel and DOE for each DOE draft PSP
- Prepare response-to-comment (RTC) package for each DOE draft PSP and obtain DOE approval
- Incorporate comment responses into each DOE draft PSP and deliver EPA/OEPA draft PSP to EPA and OEPA for review
- Obtain review comments from EPA and OEPA on each EPA/OEPA draft PSP
- Prepare response-to-comment (RTC) package for each EPA/OEPA draft PSP and obtain EPA and OEPA approvals
- Incorporate comment responses into each EPA/OEPA draft PSP and deliver final PSP to project personnel, functional-area personnel, DOE, EPA and OEPA
- Submit project records to ECDC and maintain copies in project file
- Perform project management and control activities.

Deliverables include the draft PSP, RTCs, and final PSP submitted to DOE and EPA/OEPA and all project records to ECDC.

The scope of work identified above will be executed using matrixed, centralized and projectized personnel. Distribution of the work, and the plan for executing the scope, is described for each division of personnel.

#### *Matrixed Personnel*

Quality Control Operations and Safety and Health personnel will review and approve PSPs and variances. Personnel from these organizations are the only individuals who will use charge number GPR11.

***Centralized Personnel***

Sample Data Management will conduct database queries to collect all existing data (e.g., RI/FS data) and provide the query results to the characterization group. The Waste Acceptance Organization will review and approve PSPs. Document Control/Procedure Management will provide document numbers, filing support and issue controlled documents, as needed. Environmental Compliance will be consulted on an as-needed basis if RCRA issues become relevant to the work scope. Information Management will provide computer hardware and software needs. Personnel from these organizations will use their functional area charge numbers.

***Projectized Personnel***

Most of the Task 1 work will be completed by project staff from the management, characterization, project controls and administrative disciplines, and these personnel will charge their labor hours to PBS-06 control account GPM1. Management and characterization staff will acquire and review all existing data and documents to develop the COC list and sampling and analysis approach for the PSPs. The tables, figures, text and DQOs presented in the PSPs will be prepared by the characterization staff to document the sampling approach, number of borings, frequency of sample intervals, and the number of COCs that must be characterized. Internal and regulatory reviews of the PSP will be performed and comments will be incorporated to finalize the PSPs prior to initiating field activities. Characterization staff will also be responsible for all RTC packages, the final PSPs, and initiating all activities associated with obtaining penetration and radiation work permits. The project manager will provide needed cost and schedule information to project controls and assure that all project records are delivered to ECDC.

1.2) Quantification

Table 1 summarizes the quantities and/or deliverables anticipated for Task 1.

TABLE 1  
 Quantities for Task 1: Prepare Project Specific Plans

ITEM	QUANTITY
Draft Project Specific Plan for DOE	1
Response-to-Comments Package for DOE	1
Draft Project Specific Plan for EPA/OEPA	1
Response-to-Comments Package for EPA/OEPA	1
Final Project Specific Plan	1

2) Task #2 - Field and Analytical Work

2.1) Plan/Scope

Field and analytical work requires thorough planning to coordinate the support groups and obtain the needed work permits. The field area must be walked down to gauge site conditions as they pertain to safety, clearance and ground cover. Labor crews must be lined up if clearing or mowing activities are needed prior to mobilizing the survey

personnel, real time equipment, and sampling crew. Penetration and radiation work permits must be obtained and contamination areas must be posted, if applicable. The on-site laboratory must be notified of incoming samples and off-site laboratory contracts must be in place, if needed. Specific activities and deliverables envisioned for this work include:

- Perform walk downs of field area to assess site conditions for safety and health hazards, equipment access, and maintenance needs (e.g., mowing of grass or clearing of debris).
- Generate penetration, radiation and other needed work permits.
- Coordinate labor support if clearing or mowing is required.
- Conduct work scope briefings with field crews.
- Perform RTRAK, RSS and/or HPGe scans and develop scan maps.
- Evaluate RTRAK, RSS and/or HPGe data and perform QC prior to data entry into the Sitewide Environmental Database (SED).
- Survey in boring locations, record coordinates, and flag the locations for sampling crew.
- Mobilize the sampling crew to place the borings and obtain the soil samples.
- Develop variance/field change notices (V/FCN), as needed.
- Deliver the samples to the on-site laboratory and create the sample analysis log for on-site and off-site analysis, as needed.
- Perform the required analytical work and generate laboratory reports to the specified QA/QC level.
- Submit project records to ECDC and maintain copies in project file.
- Perform project management and control activities.

Deliverables include: the penetration, radiation and associated work permits; RTRAK, RSS and HPGe scan maps; survey locations; V/FCNs submitted to DOE and EPA/OEPA; samples to the on-site and off-site laboratory; laboratory reports; and all project records to ECDC.

The scope of work identified above will be executed using matrixed, centralized and projectized personnel. Distribution of the work, and the plan for executing the scope, is described for each division of personnel.

### *Matrixed Personnel*

Environmental Monitoring and Analytical Services will complete most of the work under Task 2. Environmental Monitoring will be used to complete soil borings, collect soil and water samples and deliver the samples to the on-site laboratory. Analytical Laboratory Services will log samples into the system, complete analytical measurements, issue data packages and ship samples requiring analysis for organic COCs to off-site labs. Samples contracted to off-site laboratories will contain a request for a 14-day turn around time. Analytical measurements will be performed and Level B data packages will be delivered to the project. Infrastructure Services will support the operation of real time vehicles used to complete the RTRAK and RSS scan maps. In addition, Infrastructure Services will support any mowing or clearing needed prior to field measurements. Personnel from these organizations are the only individuals who will use charge number GPR11.

### *Centralized Personnel*

Document Control/Procedure Management will provide document numbers, filing support and issue controlled documents, as needed. Information Management will provide computer hardware and software needs. Personnel from these organizations will use their functional area charge numbers.

### *Projectized Personnel*

Work completed by project staff from the management, characterization, survey, real time, project control and administrative disciplines will be charged to PBS-06 control account GPM1. Management and characterization staff will perform field and safety walk downs, coordinate the efforts to obtain the penetration, radiation and needed work permits, oversee the field and analytical work, provide cost and schedule information to project control staff and deliver all records to ECDC. The real time staff will scan grassy areas for surface levels of radium, thorium and uranium. Results from the real time survey will be delivered as maps that depict the estimated concentration or activity of radium, thorium and uranium. A survey team will locate the boring sites and flag the locations for the sampling crew, in addition to performing excavation volume verifications. Project control staff will track cost and schedule using information provided by the project manager.

## 2.2) Quantification

Prior to December FY2001, a substantial predesign investigation of the PP ditch was conducted as part of A2P2 with physical samples and magnetometer surveying. Additional predesign work for the PP ditch is not anticipated. In addition, a real time scanning PSP has been generated and approved for implementation within Paddys Run.

Table 2 summarizes the quantities and/or deliverables anticipated for Task 2. The number of safety walk-down reports is dictated as 3 per month by upper level management, and the estimated duration of the field work is 4 months. Real time scans will be approximately 28 acres. Approximately 43, 1-meter HPGe measurements are needed to cover 1 acre at 99% coverage. The mobile NaI detectors may not receive GPS signals in the heavy foliage areas; thus, stationary HPGe measurements may be required.

Boring locations are biased around above-FRL RI/FS data points and potential contamination sources (Silos, Waste Pit, and SWUs). Samples locations are spaced every 150 feet in areas without concerns. Forty-seven (47) four-foot borings will be collected resulting in 141 sediment/soil samples (includes duplicate). The samples will be analyzed for primary radiological and metals COCs.

As documented in the Sitewide Excavation Plan, all samples will be analyzed to ASL B or equivalent level with 10% ASL B validation. In general, laboratory reports will be generated for the radiological, metal and organic COCs at a rate of one report per 12 samples. Based on the number of Variance/Field Change Notices prepared and approved for in Area 2, approximately 20 V/FCNs will be prepared for the PSP.

TABLE 2  
 Quantities for Task 2: Field and Analytical Work

ITEM	QUANTITY
Safety Walk-Down Reports	12
Acres requiring mowing/clearing	15
Acres Scanned by RTRAK, RSS or HPGe	28
HPGe acres/measurements	10/430
Scan Maps for Uranium, Thorium and Radium	3
Survey and Flag Boring Locations	47
Borings	47
Soil Samples	141
Uranium, Thorium and Radium Analyses	141
Metal Analyses	141
Lab Reports for Radiological COCs	12
Lab Reports for Metal COCs	12
Variance/Field Change Notices	20

3) Task #3 - Data Reduction and Interpretation

3.1) Plan/Scope

Data reduction and interpretation is the key link between predesign characterization activities and the Title I/II design. After data verification and validation is completed, all data must be entered into the SED to allow the characterization, engineering, and managerial staff to access the information. The characterization staff will work with engineering to interpret the data and develop the needed tables, figures and data-summary appendix for the Title I/II design. Specific activities and deliverables anticipated for this work include:

- Perform verification and validation (V&V) of data listed in laboratory reports.
- Enter data into the SED and perform queries.

- Reduce and interpret data to develop final list of COCs and extent of contamination.
- Develop tables, figures and data-summary appendix for Title I/II design work.
- Submit project records to ECDC and maintain copies in project file.
- Perform project management and control activities.

The V&V packages are delivered to the project. These deliverables and other project records are sent to ECDC.

The scope of work identified above will be executed using matrixed, centralized and projectized personnel. Distribution of the work, and the plan for executing the scope, is described for each division of personnel.

#### *Matrixed Personnel*

Quality Control Operations will review and approve V/FCNs. Personnel from this organization are the only individuals who will use charge number GPR11.

#### *Centralized Personnel*

Sample Data Management will perform verification and validation, enter data, conduct database queries, and provide the query results to the characterization group. Document Control/Procedure Management will provide document numbers, filing support and issue controlled documents, as needed. Information Management will provide computer hardware and software needs. Personnel from these organizations will use their functional area charge numbers.

#### *Projectized Personnel*

Project staff from the management, characterization and administrative disciplines will complete most of the Task 3 work, and these personnel will charge their labor hours to PBS-06 control account GPM1. Management and characterization staff will review laboratory and data reports in parallel with V&V work and use the database queries to define the lateral and vertical extent of all contamination. Tables and figures will be developed by the characterization staff to summarize the distribution of sample locations and data results. Of special interest will be the above-FRL areas and the scatter plots that depict the depth of each COC relative to the excavation depth. All tables and figures will be delivered to the Title I/II design team. A data-summary appendix will be prepared to record all samples analyzed during the predesign work. Project Controls will provide cost and schedule support based on the information supplied by the project manager.

### 3.2) Quantification

Table 3 summarizes the quantities and/or deliverables anticipated for Task 3. Per the Sitewide Excavation Plan, ten percent of the laboratory data packages will be verified and validated. Based on information used in the Area 2 and 3A/4A IRDPs, it is anticipated that 5 tables, 10 figures and a data-summary appendix will be prepared for the IRDP.

TABLE 3  
Quantities for Task 3: Data Reduction and Interpretation

ITEM	QUANTITY
Radiological Lab Reports to Verify and Validate	12
Metal Lab Reports to Verify and Validate	12
Data Tables	5
Figures	10
Data-Summary Appendix	1

### 1.5.2 GPR12 - Title I/II Design

Title I/II design work will produce a single IRDP. The activities and deliverables are divided into three tasks: 1) Project Planning; 2) Title I Design; and 3) Title II Design. Each task is described and detailed below.

The Task activities and deliverables will be completed primarily by project staff from the management, engineering, surveying, construction and administrative disciplines, and these personnel will charge their labor hours to PBS-06 control account GPM1. Only matrixed and subcontracted labor, as identified below, will use the charge account GPR12. Detail on manpower loading for this scope of work is provided in Section 3.0. The charge account for GPR12 will be closed when the IRDP has been released as the CFC Package and final Implementation Plan.

#### 1) Task #1 - Project Planning

##### 1.1) Plan/Scope

Project planning is the critical initial step in developing the Title I/II design for excavating soil, sediment and debris. Guidance documents must be prepared and a review of the site reference drawings must be conducted to compile the needed information for utilities. Prior to initiating Title I design work, an alignment meeting will be held with all project and functional-area personnel to ensure that assignments are understood and integration channels have been established. Specific activities and deliverables under this task include:

- Review reference drawings, NLO project files and other project closure reports
- Compile and index drawing packages for each grid sector.
- Walk down the Stream Corridor area to evaluate the completeness of the drawing packages and debris estimates.
- Prepare the Project Execution Plan (PEP) and Auditable Safety Record (ASR).
- Develop the Functional Design Requirements (FDRs), ARARs and TBCs.

- Complete the occupational and environmental ALARAs.
- Procure the needed CADD and civil engineers.
- Conduct the project alignment meeting.
- Submit project records to ECDC and maintain copies in project file.
- Perform project management and control activities.

Deliverables associated with the above scope include: drawing packages to the subcontractor performing the CADD work; estimates on the linear feet and volume of debris; the PEP, ASR and FDR (includes ARARs and TBCs); assignment summary from the project alignment meeting; and project records to ECDC.

The scope of work identified above will be executed using matrixed, centralized and projectized personnel. Distribution of the work, and the plan for executing the scope, is described for each division of personnel.

#### *Subcontracted Personnel*

Dedicated CADD support is required to prepare drawings for the IRDP. This design work must be completed prior to the start of Task 2. Subcontract costs will be charged to GPR12.

#### *Matrixed Personnel*

Engineering Services will be used to retrieve drawings and compile the drawing packages. They will also participate in the review of the Functional Design Requirements (FDR) and Project Execution Plan (PEP), and participate in the project alignment meeting. The alignment meeting will be held prior to initiating Task 2. Environmental, Safety, Health and Quality Integration will perform reviews on the Auditable Safety Record (ASR) and PEP, and they will participate in the project alignment meeting. Quality Control Operations will review the FDR and PEP, and participate in the alignment meeting. Radiological Protection Operations will perform reviews of the ASR and PEP, and participate in the alignment meeting. Project Controls will provide cost and schedule support. Personnel from these organizations will use charge number GPR12.

#### *Centralized Personnel*

Document Control/Procedure Management will assign document numbers, maintain the project file and distribute controlled documents. They will also be used when procedural matters need attention. Information Management will provide the project with computer hardware and software needs. Waste Acceptance Organization will review the PEP and participate in the alignment meeting. Personnel from these organizations will use their functional area charge numbers.

#### *Projectized Personnel*

Project staff from the management, engineering and administrative disciplines will provide oversight and support services and prepare most of the text needed for the ASR, FDR and

PEP. These personnel will charge their labor hours to PBS-06 control account GPM1. Management will be responsible for integrating all the needed functional areas into the ASR, FDR and PEP documents. Engineering will take the lead role in compiling the archived drawings needed to produce the drawings. Prior to initiating the Title I design activities, an alignment meeting will be held to discuss schedule and technical details with all principal project team members and functional area groups that support the design effort. Project Controls will provide cost and schedule support based on the information supplied by the project manager.

1.2) Quantification

Table 4 summarizes the quantities and/or deliverables anticipated for Task 1. Per site procedures, project management and engineering will prepare the ASR, FDR and PEP. An alignment meeting will be conducted at the end of this task to initiate Title I design work.

TABLE 4  
 Quantities for Task 1: Project Planning

ITEM	QUANTITY
Auditable Safety Record (ASR)	1
Functional Design Requirements (FDR)	1
Project Execution Plan (PEP)	1
Alignment Meeting	1

2) Task #2 - Title I Design

2.1) Plan/Scope

The goal of Title I design activities is to develop a conceptual design that will serve as the framework for Title II design work. A key element of this scope is the development of the Design Criteria Package (DCP), which is based on the FDR and any other applicable engineering design criteria. Based on the DCP, a conceptual design is developed and drawings and specifications are constructed to meet the design needs. Successful completion of this task requires that dedicated CADD and civil engineers are available to support the design effort, and it is anticipated that these resources will be acquired through a subcontract. Specific activities and deliverables under this task include:

- Prepare the DCP using the FDR and any other applicable engineering design criteria.
- Develop a conceptual design to the extent that needed construction drawings and specifications are completed to the 30 percent level.
- Initiate work on the Implementation Plan (IP) and Storm Water/Erosion Control Plan (SWECP).

- Perform an engineering analysis and review of the DCP, drawings, specifications, IP and SWECP.
- Conduct a review meeting with project and functional-area personnel on the 30 percent design.
- Submit project records to ECDC and maintain copies in project file.
- Perform project management and control activities.

Deliverables associated with the above scope include: the DCP; a 30-percent package for review by the project and functional-area personnel; and project records to ECDC.

The scope of work identified above will be executed using subcontracted, matrixed, centralized and projectized personnel. Distribution of the work, and the plan for executing the scope, is described for each division of personnel.

#### *Subcontracted Personnel*

Dedicated CADD support is required to develop the conceptual design drawings. Drawings will be started to show the site layout for trailers, fencing access points, staging areas, etc; utility grids and removal plans; surface-water management structures; excavation plans and cross sections; traffic plan; and material tracking locations. Subcontract costs will be charged to GPR12.

#### *Matrixed Personnel*

Engineering Services will be used to review the Design Criteria Package (DCP) and perform administrative engineering functions that pertain to the CADD subcontract. Environmental, Safety, Health and Quality Integration, Quality Control Operations, and Radiological Protection Operations will perform design reviews and participate in the final Title I design meeting. Project Controls will provide cost and schedule support. Personnel from these organizations will use charge number GPR12.

#### *Centralized Personnel*

Document Control/Procedure Management will assign document numbers, maintain the project file and distribute controlled documents. They will also be used when procedural matters need attention. Information Management will provide the project with computer hardware and software needs. The Waste Acceptance Organization will perform design reviews and participate in the final Title I design meeting. Personnel from these organizations will use their functional area charge numbers.

#### *Projectized Personnel*

Project staff from the management, engineering and administrative disciplines will provide oversight and support services and prepare most of the text needed for the DCP, specifications, Implementation Plan (IP) and Surface-Water/Erosion-Control Plan (SWECP). These personnel will charge their labor hours to PBS-06 control account GPM1. Management will prepare most of the IP and be responsible for integrating all the needed functional areas into the DCP, drawings, specifications, IP and SWECP. Engineering will

take the lead role in developing the DCP, specifications, drawings and SWECP. The DCP will contain the ARARs and FDR, as well as all engineering criteria that apply to site preparation, storm-water management, excavation, hauling, support facilities, interim restoration, and control and management of applicable systems and structures. Specification will be assembled to cover surveying, traffic control, excavation of impacted material, earthwork, removal of asbestos containing material, road construction, erosion and sediment control, vegetation, excavation dewatering, basic electrical requirements and overhead power distribution. The IP and SWECP will be started by assembling the input from needed disciplines and constructing an annotated outline. Prior to initiating Title II design activities, a final Title I meeting will be held to discuss schedule and technical details with all principal project team members and functional area groups that support the design effort.

2.2) Quantification

Table 5 summarizes the quantities and/or deliverables anticipated for Task 2. The basis for the estimated number of documents and drawings is the site engineering procedures and previous design work carried out for the Area 1, 2 and previous Paddys Run Title I design work. DCP is an engineering requirement. Less than 10 drawings and 10 specifications were prepared during Title I activities carried out for similar work in the Area 2 Carolina area and A1P3 Paddys Run area. Regulatory requirements dictate the preparation of the IP and SWECP. The design review meeting is a project requirement.

TABLE 5  
 Quantities for Task 2: Title I Design

ITEM	QUANTITY
Design Criteria Package (DCP)	1
30% Drawings	10
30% Specifications	10
30% Implementation Plan (IP)	1
30% Storm Water/Erosion Control Plan (SWECP)	1
30% Design Review Meeting	1

3) Task #3 - Title II Design

3.1) Plan/Scope

Title II design activities must be executed efficiently to ensure that a robust design (i.e., the draft IRDP) is delivered to DOE two months after the completion of Title I activities. DOE will have one month to review the draft IRDP, and the project will respond to comments and reissue the draft IRDP to EPA/OEPA one-month after receiving DOE comments. The EPA/OEAP review cycle is the critical schedule element to the successful completion of the Title II design. Specific activities and deliverables under this task include:

- Complete the performance grading of systems and structures.
- Conduct the Occupational and Environmental ALARA evaluations.
- Develop and complete a cost estimate.
- Present a review of the project to the Technical Review Board (TRB)
- Prepare the DOE 90% Integrated Remedial Design Package (IRDP), which includes drawings, specifications, Implementation Plan and Storm Water/Erosion Control Plan.
- Complete the DOE response-to-comment (RTC) package.
- Prepare the EPA/OEPA 90% IRDP.
- Complete the EPA/OEPA RTC package.
- Prepare the Certified for Construction (CFC) package, which includes the final drawings and specifications, and the final Implementation Plan.
- Complete the Davis-Bacon determination.
- Submit project records to ECDC and maintain copies in project file.
- Perform project management and control activities.

Deliverables associated with the above scope include: performance grading of systems and structures; the occupational and environmental ALARA reviews; the 90% IRDP and RTC package to DOE and EPA/OEPA; the CFC Package to DOE; the final Implementation Plan to EPA/OEPA; and all records to ECDC.

The scope of work identified above will be executed using subcontracted, matrixed, centralized and projectized personnel. Distribution of the work, and the plan for executing the scope, is described for each division of personnel.

#### *Subcontracted Personnel*

Dedicated CADD support is required to complete the drawings identified under Task 2 and prepare the drawings for the CFC package. Subcontract costs will be charged to GPR12.

#### *Matrixed Personnel*

Engineering Services will be used to review the Design Criteria Package (DCP) and perform administrative engineering functions that pertain to the CADD subcontract. Environmental, Safety, Health and Quality Integration, Quality Control Operations, and Radiological Protection Operations will review the IRDP and participate in the final Title II design

meeting. Project Controls will provide cost and schedule support. Personnel from these organizations will use charge number GPR12.

#### *Centralized Personnel*

Engineering Services will participate in the TRB and ALARA reviews and will be tasked with the development and completion of a cost estimate. Document Control/Procedure Management will assign document numbers, maintain the project file and distribute controlled documents. They will also be used when procedural matters need attention. Information Management will provide the project with computer hardware and software needs. Waste Acceptance Organization will review the IRDP and participate in the final Title II design meeting. Industrial Relations will participate in the Davis-Bacon determination. Personnel from these organizations will use their functional area charge numbers.

#### *Projectized Personnel*

Project staff from the management, engineering and administrative disciplines will provide oversight and support services and complete the DCP, specifications, IP and SWECP. These personnel will charge their labor hours to PBS-06 control account GPM1. Management will complete the IP, represent the project for the Davis-Bacon determination and TRB and ALARA reviews, and be responsible for integrating all the needed functional areas into the DCP, drawings, specifications, IP and SWECP. Engineering will complete the DCP, specifications, drawings and SWECP and provide input and oversight to the TRB and ALARA reviews. Prior to completing the draft IRDP for DOE review, a final Title II meeting will be held to discuss schedule and technical details with all principal project team members and functional area groups that support the design effort. DOE comments will be incorporated into the IRDP by management and engineering and the IRDP will be submitted to EPA/OEPA for review. When all EPA/OEPA comments are resolved, the CFC Package, final Implementation Plan and final cost estimate will be released and a Davis-Bacon determination will be made on the work scope.

### 3.2) Quantification

Table 6 summarizes the quantities and/or deliverables anticipated for Task 3.

The basis for the estimated number of documents and drawings is the site engineering procedures and previous design work carried out for the Area 1, 2 and previous Paddys Run Title I design work. Performance grading, ALARA reviews, and the presentation to the Technical Review Board are site requirements. The development and review of the cost estimate, DOE IRDP (drawings, specifications, IP and SWECP) and RTC package is a DOE requirement. Less than 10 drawings and 10 specifications were prepared during Title I activities carried out for similar work in the Area 2 Carolina area and A1P3 Paddys Run area. Regulatory requirements dictate the submittal of the EPA/OEPA IRDP and RTC package and, when the RTC package is approved, the preparation of the certified-for-construction package (final drawings and specifications), final IP and final SWECP.

TABLE 6  
 Quantities for Task 3: Title II Design

ITEM	QUANTITY
Performance Grading of Systems and Structures	1
Occupational ALARA	1
Environmental ALARA	1
Presentation to the Technical Review Board	1
Draft Cost Estimate	1
DOE 90 % Drawings	10
DOE 90 % Specifications	10
DOE 90 % Implementation Plan (IP)	1
DOE 90 % Storm Water/Erosion Control Plan (SWECP)	1
DOE Response-to-Comment (RTC) Package	1
EPA/OEPA 90% Drawings	10
EPA/OEPA 90 % Specifications	10
EPA/OEPA 90 % IP	1
EPA/OEPA 90 % SWECP	1
EPA/OEPA RTC Package	1
Final Cost Estimate	1
Final Drawings	10
Final Specifications	10
Final IP	1
Final SWECP	1
Davis-Bacon Determination	1

### 1.5.3 GPR13 - Title III Design

Title III design activities will focus on the development and approval of design change notices (DCNs) as field activities progress and preparation of closure documents after excavation is complete. The activities and deliverables are placed into two tasks: 1) Excavation Support and 2) Prepare Final Documents.

The Task activities and deliverables will be completed primarily by project staff from the management, engineering, surveying, construction and administrative disciplines, and these personnel will charge their labor hours to PBS-06 control account GPM1. Only matrixed and subcontracted labor, as identified in below, will use the charge account GPR13. Detail on manpower loading needed to execute this scope of work is provided in Section 3.0. The charge account for GPR13 will be closed out when the interim restoration of the Stream Corridors is completed.

1) Task #1 - Excavation Support

1.1) Plan/Scope

Excavation support is the link between engineering design and the execution of the construction work. Field and design changes that develop during construction activities must be documented and approved to maintain the record between the CFC drawings and final as-built drawings. If needed, the engineering and construction staff must respond to and close out non-conformance reports. Specific activities and deliverables under this work scope include:

- Review and modify construction subcontract, work plans and submittals, if needed.
- Prepare and approve design change notices (DCNs).
- Provide information for requests for clarification of information (RCIs).
- Respond to and close out non-conformance reports (NCRs).
- Perform safety walkthroughs and attend safety briefings, as needed.
- Submit project records to ECDC and maintain copies in project file.
- Perform project management and control activities.

Deliverables associated with the above scope include: DCNs to the project, EPA/OEPA and ECDC; RCIs to the construction crew; NCRs to the cognizant QA officer; the Yearly Completion Report to the project; and all records to ECDC.

The scope of work identified above will be executed using subcontracted, matrixed, centralized and projectized personnel. Distribution of the work, and the plan for executing the scope, is described for each division of personnel.

*Subcontracted Personnel*

CADD support is required to modify drawings affected by DCNs. Subcontract costs will be charged to GPR13.

*Matrixed Personnel*

Environmental, Safety, Health and Quality Integration, Quality Control Operations, and Radiological Protection Operations will perform DCN reviews, if applicable. Project Controls will provide cost and schedule support. Personnel from these organizations will use charge number GPR13.

*Centralized Personnel*

Document Control/Procedure Management will assign document numbers, maintain the project file and distribute controlled documents. They will also be used when procedural matters need attention. Information Management will provide the project with computer

hardware and software needs. Waste Acceptance Organization will review the DCNs, if applicable. Personnel from these organizations will use their functional area charge numbers.

*Projectized Personnel*

The work plans will be prepared by project staff from the management, engineering, construction and administrative disciplines, and these personnel will charge their labor hours to PBS-06 control account GPM1. Management will ensure that engineering and construction personnel work together to develop the necessary DCNs.

1.2) Quantification

Table 7 summarizes the quantities and/or deliverables anticipated for Task 1. Per the direction of senior management, 3 safety walkthroughs will be performed each month. Based on the number of DCNs, RCIs, and NCRs for previous Title III work, it is estimated that there will be 10 DCNs, 6 RCIs, and 4 NCRs. The project engineer will approve and sign all DCNs after regulatory approval is obtained. A yearly completion report will be prepared to status the excavation progress.

TABLE 7  
 Quantities for Task 1: Excavation Support

ITEM	QUANTITY
Safety Walkthroughs	15
Design Change Notice (DCN)	10
Request for Clarification of Information (RCI)	6
Non-Conformance Report (NCR)	4

2) Task #2 - Prepare Final Documents

2.1) Plan/Scope

After the completion of excavation activities, as-built drawings will be prepared and a closeout report will be developed. The closeout report will be filed after interim restoration activities are completed in the certified area. Specific activities and deliverables include:

- Complete the as-built drawings.
- Prepare the Closeout Report.
- Submit project records to ECDC and maintain copies in project file.
- Perform project management and control activities.

The as-built drawings and Closeout Report will be delivered to central engineering and all records will be filed with ECDC.

The scope of work identified above will be executed using subcontracted, matrixed, centralized and projectized personnel. Distribution of the work, and the plan for executing the scope, is described for each division of personnel.

*Subcontracted Personnel*

CADD support is required to prepare the as-built drawings. Subcontract costs will be charged to GPR13.

*Matrixed Personnel*

Project Controls will provide cost and schedule support. Personnel from these organizations will use charge number GPR13.

*Centralized Personnel*

Engineering Services will assist with the as-built drawings, close-out report and termination of the CADD subcontract, as needed. Document Control/Procedure Management will assign document numbers, maintain the project file and distribute controlled documents. Personnel from these organizations will use their functional area charge numbers.

*Projectized Personnel*

Project staff from the management, engineering, construction and administrative disciplines will charge their labor hours to PBS-06 control account GPM1. Management will ensure that engineering and construction personnel work together to complete the as-built drawings and close-out report. As-built drawings will be prepared after excavation is complete and the pumps are installed in the buffer area. The close-out report for the control account will be issued after completion of all certification and waste-management activities.

2.2) Quantification

Table 8 summarizes the quantities and/or deliverables anticipated for Task 2. Based on the percentage of drawings changed during previous construction activity, it is estimated that there will be 10 as-built drawings. A Close-out Report, for the engineering activities will be prepared during certification activities and will be completed after the interim-restoration grading of the certified area.

TABLE 8  
 Quantities for Task 2: Prepare Final Documents

ITEM	QUANTITY
As-Built Drawings	10
Close-out Report	1

#### 1.5.4 GPR14 - Site Preparation/Excavation/Interim Restoration

Prior to initiating the site preparation and excavation work, the excavation subcontract must be reviewed to ensure that all work plans are updated to document the approach and controls that will govern the construction phase of the remediation. The initial work plans will have been prepared prior to excavation of the Stream Corridors and a review and update will be performed to ensure that the engineering and construction disciplines are integrated early in the project. This integration will continue with the parallel execution of site preparation, excavation and Title III activities. The activities and deliverables for this charge number are divided into the following tasks: 1) Site Preparation; 2) Excavation; 3) Control and Management.

The activities and deliverables discussed below will be completed primarily by project staff from the management, construction, surveying, engineering, waste disposition and administrative disciplines, and these personnel will charge their labor hours to PBS-06 control account GPM1. Only matrixed and subcontracted labor, as identified below, will use the charge account GPR14. Detail on manpower loading needed to execute this scope of work is provided in Section 3.0. The charge account for GPR14 will be closed out when construction personnel complete the interim-restoration grading.

##### 1) Task #1 - Site Preparation

###### 1.1) Plan/Scope

Site preparation activities integrate the final documentation process with field work associated with preparing the job site, and these activities must be completed prior to the start of excavation. Specific activities and deliverables include:

- Complete construction travelers, radiation work permit and penetration permit.
- Prepare the submittal log and cross-check to ensure all work plans and permits are in order.
- Procure materials and equipment, as needed.
- Perform clearing and grubbing, if needed.
- Survey and establish the site layout, work limits, and excavation boundaries for above-FRL areas.
- Establish access controls with radiological and construction fence and signage.
- Relocate radiation control point and change-out facilities, if necessary.
- Establish the construction support areas, if necessary: worker and visitor parking, laydown area for materials and equipment, refueling area, sealands for storage, portolets, and water coolers.

- Establish the work area: install the break/cool-down trailers, portolets, water coolers, special materials transfer area, dust control piping, water wells, haul routes and air monitors.
- Connect electric, telephone, water and communication utilities into construction support area.
- Establish surface-water management controls: silt fence, sediment traps and culvert installation, if needed.
- Submit project records to ECDC and maintain copies in project file.
- Perform project management and control activities.

The construction travelers, work permits and submittal log will be delivered to the project. All records will be delivered to ECDC.

The scope of work identified above will be executed with the construction subcontractor using matrixed, centralized and projectized personnel. Distribution of the work, and the plan for executing the scope, is described for each division of personnel.

#### *Subcontractor Work*

The subcontractor will install fencing, access controls and surface-water management structures and the special material transfer area will be prepared. After all work plans have been approved, the area-isolation trench will be cut around the perimeter of the area to provide added assurance that all energized utilities have been isolated. Subcontract costs will be charged to GPR14.

#### *Matrixed Personnel*

Acquisitions/Prime Contract Administration will be used to modify the construction contract, if needed. Environmental, Safety, Health and Quality Integration, Quality Control Operations, and Radiological Protection Operations will review and the procurement requisitions. Engineering Services will support the installation of utilities in support trailers. Personnel from these organizations will use charge number GPR14.

#### *Centralized Personnel*

Document Control/Procedure Management will assign document numbers, maintain the project file and distribute controlled documents. The Construction Support Contractor will assist in modifying the construction subcontract, if needed. Infrastructure Services will assist with the set-up and maintenance of the trailers and provide U/E support for penetration permits. Security/EM Services will provide access control and emergency response. Training will perform needed training for subcontractor personnel. Personnel from these organizations will use their functional area charge numbers.

#### *Projectized Personnel*

Project staff from the management, engineering, construction, survey and administrative disciplines will charge their labor hours to PBS-06 control account GPM1. Management

and construction will work closely with the subcontractor and FEMP labor force to ensure all activities are performed in a safe and timely manner. Activities will begin with the set-up of the support trailers and utility hook-ups to these trailers. Electric lines will be required for all trailers for heat, lights and the radiation-control station. Water and sewer for showers will be needed for the change-out trailer, as the support building will no longer be present. Bottled drinking water will be provided in all trailers and portable toilets will be set-up outside of the radiation-control trailer. Project Controls will provide cost and schedule support.

1.2) Quantification

Table 9 summarizes the quantities and/or deliverables anticipated for Task 1. The permits and submittal log are based on previous submittals by construction contractors. The quantities for fencing, signage, trailers, containers, water coolers, and portolets are based on previous construction work carried out at the site.

TABLE 9  
 Quantities for Task 1: Site Preparation

ITEM	QUANTITY
Radiation Work Permit	1
Penetration Permit	1
Submittal Log	1
Silt Fence, linear feet	500
Radiological or Construction Fence, linear feet	1,000
Radiological or Construction Signs	20
Radiological Control Point/Change-Out Trailer	1
Break/Cool Down Trailer	1
Sealand Storage Containers	1
Water Coolers	2
Portolets	1

2) Task #2 - Excavation

2.1) Plan/Scope

Excavation activities will result in the removal of all above-FRL soil, sediment and debris. The over-sized debris will be broken and removed using industry-standard cutting, crushing and loading equipment. Bulldozers and excavators will be used to remove the soil. Specific activities include:

- Size-reduce, excavate, load and haul debris to OSDF.
- Excavate, load and haul impacted soil and sediment to the OSDF.

- Perform construction management services: survey and track materials removed, create redlines, complete daily construction activity logs, respond to NCRs, prepare event discovery reports/final event reports, conduct safety briefings and walkdowns, and perform Root Cause Analysis, if needed.
- Maintain surface water/erosion controls, perform dust control, complete equipment decontamination, remove water from excavations.
- Perform post-excavation activities: remove construction support area and work area features, remove utility runs, remove all fencing and signage, perform equipment decontamination and establish the certification perimeter and access control points.
- Seed/stabilize excavations as required for interim restoration, which includes grading excavation footprints to topography of existing corridors and placing coir matting of disturbed streambeds and banks (if needed)
- Submit project records to ECDC and maintain copies in project file.
- Perform project management and control activities.

Survey logs and material estimates, construction logs, NCR resolutions, safety briefings and walkdowns, and event reports will be delivered to the project manager. All project records will be delivered to ECDC.

The scope of work identified above will be executed with the construction subcontractor using matrixed, centralized and projectized personnel. Distribution of the work, and the plan for executing the scope, is described for each division of personnel.

#### *Subcontracted Personnel*

The subcontractor will be responsible for the safe removal of all soil and debris. Additionally, the contractor will perform all maintenance, control management and minimal interim restoration seeding/grading tasks. Subcontract costs will be charged to GPR14.

#### *Matrixed Personnel*

Acquisitions/Prime Contract Administration will be used to modify the construction subcontract, if needed. Environmental, Safety, Health and Quality Integration, Quality Control Operations, and Radiological Protection Operations will review DCNs, if necessary. Radiological Protection Operations will also maintain radiation permits, perform RWP briefings, and conduct radiation surveys of contaminated materials and equipment. Environmental Compliance will assist with dust monitoring, if needed. Waste Generator Services will prepare and move containers and package special materials for off-site transportation, if needed. Personnel from these organizations will use charge number GPR14.

### *Centralized Personnel*

Document Control/Procedure Management will assign document numbers, maintain the project file and distribute controlled documents. The Construction Support Contractor will assist in modifying the construction subcontract, if needed. Infrastructure Services will maintain the trailers, provide porter services, transport VOC water to the AWWT, perform dust control, and maintain roads to OSDF. Waste Acceptance Organization will review DCNs and perform waste manifestation activities. Security/EM Services will provide access control and emergency response. Property Management will receive and log vendor materials, control government inventory and track government-owned property. Training will perform needed training for subcontractor personnel. Personnel from these organizations will use their functional area charge numbers.

### *Projectized Personnel*

Project staff from the management, engineering, construction, survey, real time and administrative disciplines will charge their labor hours to PBS-06 control account GPM1. Management, engineering, and construction will work closely with the subcontractor and FEMP labor force to ensure all activities are performed in a safe and timely manner. Real time scans will be conducted over the contamination areas after each 3 +/-1 foot lift. Engineering and construction will prepare DCNs and obtain approval from the applicable functional areas. Survey crews will verify material quantities. Any debris will be removed and size-reduced to meet the OSDF WAC. Special materials, if found, will be loaded into containers provided by waste generator services and placed at the special material transfer area. Project Controls will provide cost and schedule support to the project manager.

## 2.2) Quantification

Table 10 summarizes the quantities and/or deliverables anticipated for Task 2. Per senior management, 3 safety walkthroughs will be conducted each month. HPGe scans will be conducted after each excavation lift of 3 +/-1 foot; this is estimated as only 1 full acre. Soil quantities are based on assumption of:

- 1 foot deep excavation of 5 acres of SSOD
- 3 foot deep excavation of entire PP (Predesign data shows above-FRL soil contamination to 3 foot depth in several places. Will plan to excavate although material is below sediment FRL concentrations)
- 1 foot deep excavation for 2 acres of Paddys Run.

Debris estimates are based on recent walkdowns of corridors and process knowledge/observations of debris encountered during recent debris removal events. No AWAC material or special materials are anticipated. Interim grading of the stream banks will be minimal and may be conducted at risk prior to certification approval. Any seeding or coir matting will be minimal since the corridor is steep banks and streambeds.

TABLE 10  
 Quantities for Task 2: Excavation

ITEM	QUANTITY
Safety Walkthroughs	12
HPGe acres/measurements	1/43
Debris, cubic yards	100
Soil, cubic yards	17,200
Above-WAC Soil, cubic yards	0
RCRA Soil, cubic yards	0
Interim regrading, cubic yards	1,000
Seeding, acres	4
Special Materials, cubic yards	0

1.5.5 GPR17 - Excavation Monitoring/Certification

Monitoring and certification activities will occur in parallel to excavation activities. Each excavation lift will be monitored for radium, thorium and uranium levels. Certification Design Letters (CDLs) will be prepared and submitted to EPA/OEPA for review and approval during excavation to minimize the time period between the end of excavation activities and the start of certification sampling. Likewise, all precertification scans will be completed as close as possible to the end of excavation activities. Specific activities and deliverables are summarized under the following tasks: 1) Excavation Monitoring; 2) recertification; and 3) Certification.

The task activities and deliverables will be completed primarily by project staff from the management, characterization, surveying, administrative and real time disciplines, and these personnel will charge their labor hours to PBS-06 control account GPM1. Only matrixed labor, as identified below, will use the charge account GPR17. Detail on manpower loading for this scope of work is provided in Section 3.0. The charge account for GPR17 will be closed when the CR report is approved by EPA/OEPA.

1) Task #1 - Excavation Monitoring

1.1) Scope/Plan

Excavation monitoring is the scanning of soil surfaces after each 3 +/-1 foot excavation lift to determine if contamination hot spots exist with respect to radium, thorium and/or uranium levels. Since the depth of excavations is not expected to go beyond 3 feet, only a small contingency for excavation monitoring is expected. Thus, the PSP will be developed with the Precertification PSP to summarize the monitoring approach and frequency. Specific activities and deliverables include:

- Perform HPGe measurements between each 3 +/-1 foot excavation lift.
- Survey and flag hot-spot and sample locations, as needed, for HPGe measurements.
- Submit project records to ECDC and maintain copies in project file.
- Perform project management and control activities.

Survey information and real time and laboratory data packages will be delivered to the project. All records will be delivered to ECDC.

The scope of work identified above will be executed using matrixed, centralized and projectized personnel. Distribution of the work, and the plan for executing the scope, is described for each division of personnel.

*Matrixed Personnel*

Infrastructure Services will support the operation of real time vehicles (RTRAK and EMS). Quality Assurance and Safety and Health will provide oversight, as needed. Personnel from these organizations are the only individuals who will use charge number GFM17.

*Centralized Personnel*

Document Control/Procedure Management will provide document numbers, filing support and issue controlled documents, as needed. Information Management will provide computer hardware and software needs. Personnel from these organizations will use their functional area charge numbers.

*Projectized Personnel*

Most work will be completed by project staff from the management, characterization, survey, real time and administrative disciplines; and these personnel will charge their labor hours to PBS-06 control account GPM1. Management, characterization and real time staff will oversee the fieldwork. Excavation monitoring will be conducted only in the areas which are excavated deeper than 3-4 feet. Results from the real time survey will be delivered as maps that depict the estimated concentration or activity of radium, thorium and uranium. A survey team will document sample locations. Project Controls will provide cost and schedule support.

1.2) Quantification

Table 11 summarizes the quantities and/or deliverables anticipated for Task 1. Based on past experience, a single PSP will be sufficient to support excavation monitoring and precertification scans. Therefore, 1 DOE draft PSP, 1 DOE RTC package, 1 EPA/OEPA draft PSP, 1 EPA/OEPA RTC package, and 1 final PSP are required. HPGe scans will be conducted after each excavation lift of 3 +/-1 foot; this is estimated as only 1 full acre. Maps for each of the RTRAK, RSS and HPGe measurements will be prepared for each lift.

TABLE 11  
 Quantities for Task 1: Excavation Monitoring

ITEM	QUANTITY
Draft Project Specific Plan for DOE	1
Response-to-Comments Package for DOE	1
Draft Project Specific Plan for EPA/OEPA	1
Response-to-Comments Package for EPA/OEPA	1
Final Project Specific Plan	1
HPGe Scan acres/measurements	1/43
HPGe maps	3
Survey and Flag Hot Spots/Sample Locations	3

2) Task #2 - Precertification

2.1) Scope/Plan

Prior to measurement activities, the field will be mowed and cleared. Based on field conditions and required detection levels, RTRAK, RSS or HPGe measurements will be performed and the precertification maps will be prepared. Certification Unit (CU) boundaries and sample locations will be located by the surveying team and the boundaries and sample locations recorded on maps. Specific activities and deliverables include:

- Perform walk downs of field area to assess site conditions for safety and health hazards, equipment access, and maintenance needs (e.g., mowing of grass).
- Coordinate labor support if mowing is required.
- Prepare the area for field measurements by clearing brush, mowing, and installing certification fence postings.
- Perform precertification scans with RTRAK, RSS and HPGe equipment
- Identify hot-spot zones to excavate, if applicable, and rescan area after hot spot is removed.
- Prepare precertification maps based on scan measurements.
- Survey CU boundaries and sample locations and record the information on maps.
- Submit project records to ECDC and maintain copies in project file.
- Perform project management and control activities.

Maps generated from the precertification scans and CU surveys will be delivered to the project. All records will be delivered to ECDC.

The scope of work identified above will be executed using matrixed, centralized and projectized personnel. Distribution of the work, and the plan for executing the scope, is described for each division of personnel.

*Matrixed Personnel*

Infrastructure Services will support the operation of real time vehicles (RTRAK and/or EMS) and any necessary clearing or mowing. WISE construction or future site labor contractor will post certification signs. Quality Assurance and Safety and Health will provide review of the PSP and oversight on hot spot removal, if needed. Personnel from these organizations are the only individuals who will use charge number GPR17.

*Centralized Personnel*

Document Control/Procedure Management will provide document numbers, filing support and issue controlled documents, as needed. Information Management will provide computer hardware and software needs. Personnel from these organizations will use their functional area charge numbers.

*Projectized Personnel*

Project staff from the management, characterization, survey, real time and administrative disciplines will complete most of the work; and these personnel will charge their labor hours to PBS-06 control account GPM1. Management, characterization and real time staff will oversee the fieldwork. Project Controls will provide cost and schedule support to the project manager. Prior to collecting certification samples, the entire excavation footprint will be scanned with RTRAK and/or HPGe instruments to assess compliance with the FRLs for radium, thorium and uranium. If found, hot spots will be excavated and the area rescanned. After the completion of scanning activities, the CU boundaries and sample locations will be documented by survey.

2.2) Quantification

Table 12 summarizes the quantities and/or deliverables anticipated for Task 2. A precertification map will be produced for each set of RTRAK, RSS and HPGe measurements. Predesign scanning over the entire footprint is anticipated. Since The majority of the corridor will meet FRLs and not require debris or sediment removal, only 10 acres are expected to require precertification. Forty-three, 1-meter HPGe measurements are needed to cover 1 acre at 99.1% coverage.

TABLE 12  
 Quantities for Task 2: Precertification

ITEM	QUANTITY
RTRAK, RSS, EMS and HPGe Scans, acres	10
RTRAK, RSS, EMS and HPGe maps	5
RTRAK/RSS acres	5
HPGe acres/measurements	5/215
Survey Boundaries, Cus	22

3) Task #3 - Certification

3.1) Scope/Plan

Certification activities begin with the preparation of the Certification Design Letter (CDL) and Certification PSP and end when the Certification Report is approved by the EPA and OEPA. Specific activities and deliverables include:

- Develop COC list, sampling and analysis strategy, data quality objectives, and off-site laboratory task orders.
- Prepare data tables, CU maps and text for draft CDL/PSP and deliver CDL/PSP to functional-area personnel and DOE for review.
- Obtain review comments from functional-area personnel and DOE for each DOE draft CDL/PSP.
- Incorporate comment responses into each DOE draft CDL/PSP and deliver EPA/OEPA draft CDL/PSP to EPA and OEPA for review.
- Obtain review comments from EPA and OEPA on each EPA/OEPA draft CDL/PSP
- Prepare response-to-comment (RTC) package for each EPA/OEPA draft CDL/PSP and obtain EPA and OEPA approvals.
- Incorporate comment responses into each EPA/OEPA draft CDL/PSP and deliver final CDL to project personnel, functional-area personnel, DOE, EPA and OEPA.
- Perform walk downs of field area to assess site conditions for safety and health hazards, equipment access, and maintenance needs (e.g., mowing of grass).
- Coordinate labor support if mowing is required.
- Conduct work-scope briefings with field crews.
- Mobilize the sampling crew to obtain the soil samples.
- Develop variance/field change notices (V/FCN), as needed.
- Deliver the samples to the on-site laboratory and create the sample analysis log for on-site and off-site analysis, as needed.
- Perform the required analytical work and generate laboratory reports to QA/QC Level D.

- Perform 100% data validation (10% QA/QC level D, 90% QA/QC level B) of the laboratory reports.
- Enter data into the SED and perform queries.
- Reduce and interpret data (statistical evaluations) to develop final CR tables.
- Develop tables, maps and text for CRs and deliver CRs to functional-area personnel and DOE for review.
- Obtain review comments from functional-area personnel and DOE for each DOE draft CR.
- Incorporate comment responses into each DOE draft CR and deliver EPA/OEPA draft CR to EPA and OEPA for review.
- Obtain review comments from EPA and OEPA on each EPA/OEPA draft CR.
- Prepare response-to-comment (RTC) package for each EPA/OEPA draft CR and obtain EPA and OEPA approvals.
- Incorporate comment responses into each EPA/OEPA draft CR and deliver final CR to project personnel, functional-area personnel, DOE, EPA and OEPA.
- Submit project records to ECDC and maintain copies in project file.
- Perform project management and control activities.

The CDL, PSP, RTCs, and CR will be delivered to DOE, EPA/OEPA and the project. All documents and records will be delivered to ECDC.

The scope of work identified above will be executed using matrixed, centralized and projectized personnel. Distribution of the work, and the plan for executing the scope, is described for each division of personnel.

#### *Matrixed Personnel*

Environmental Monitoring and Analytical Services will complete most of the work under Task 3. Environmental Monitoring will be used to complete soil borings, collect soil samples and deliver the samples to the on-site laboratory. Analytical Laboratory Services will log samples into the system, complete analytical measurements, issue data packages and ship any samples requiring analysis for COCs to off-site labs. Samples contracted to off-site laboratories will contain a request for a 45-day turn around time. Analytical measurements will be performed and Level D data packages will be delivered to the project. Project Controls will provide cost and schedule support. Personnel from these organizations are the only individuals who will use charge number GPR17.

### *Centralized Personnel*

Document Control/Procedure Management will provide document numbers, filing support and issue controlled documents, as needed. Sample Data Management will be used for database queries, data entry, data validation, SOWs for off-site labs, and the statistical reduction of data to evaluate the certification criteria for pass/fail. Information Management will provide computer hardware and software needs. Personnel from these organizations will use their functional area charge numbers.

### *Projectized Personnel*

Project staff from the management, characterization, survey will complete work, and administrative disciplines; and these personnel will charge their labor hours to PBS-06 control account GPM1. Management and characterization staff will prepare all documentation and oversee the field and analytical work. Certification activities will begin with the preparation of the CDL/PSP. Each CDL/PSP will identify the number and location of CUs, sample locations, a list of COCs for each CU, and analytical methods and detection limits. Execution of the CDL/PSP work will not begin until EPA/OEPA approval is received and the final CDL/PSP is released. Field activities will commence with sample collection after the CDL/PSP is approved and precertification is completed. Samples will be sent to the appropriate laboratory for analysis and Level D data packages will be submitted to the project. One hundred percent of the data packages will undergo verification and data validation, and if problems are found additional packages will be selected for review. The data for each CU will be evaluated with statistical tests identified in the Sitewide Excavation Plan (DOE, June 1998) and a pass/fail decision for each CU will be based on these tests. CUs that fail will be resampled, and possibly subjected to additional excavation, until they pass the certification criteria. The draft CR will be prepared and submitted to EPA/OEPA after all CUs have passed. Once the CR is approved by EPA/OEPA, the final CR will be released and the area will be certified as fully remediated.

### 3.2) Quantification

Table 13 summarizes the quantities and/or deliverables anticipated for Task 3. One draft CDL and Certification PSP, EPA/OEPA draft review, one EPA/OEPA RTC package, and one final CDL/PSP will be generated. The SEP dictates that there are 12 sample locations per CU plus one duplicate sample. Two hundred and eighty-six (286) surface (0-6") soil samples (includes duplicate) will be collected for primary radiological, metals and PAH analysis. Gamma spectroscopy is the assumed analytical method for the primary radionuclide analysis. The number of laboratory reports that will be generated is based on project history of one lab report per 12 samples and, per the SEP, 10 percent of these will be validated to Level D. A CR will be prepared for each CDL and the submittal and review process will follow the CDL scenario.

TABLE 13  
 Quantities for Task 3: Certification

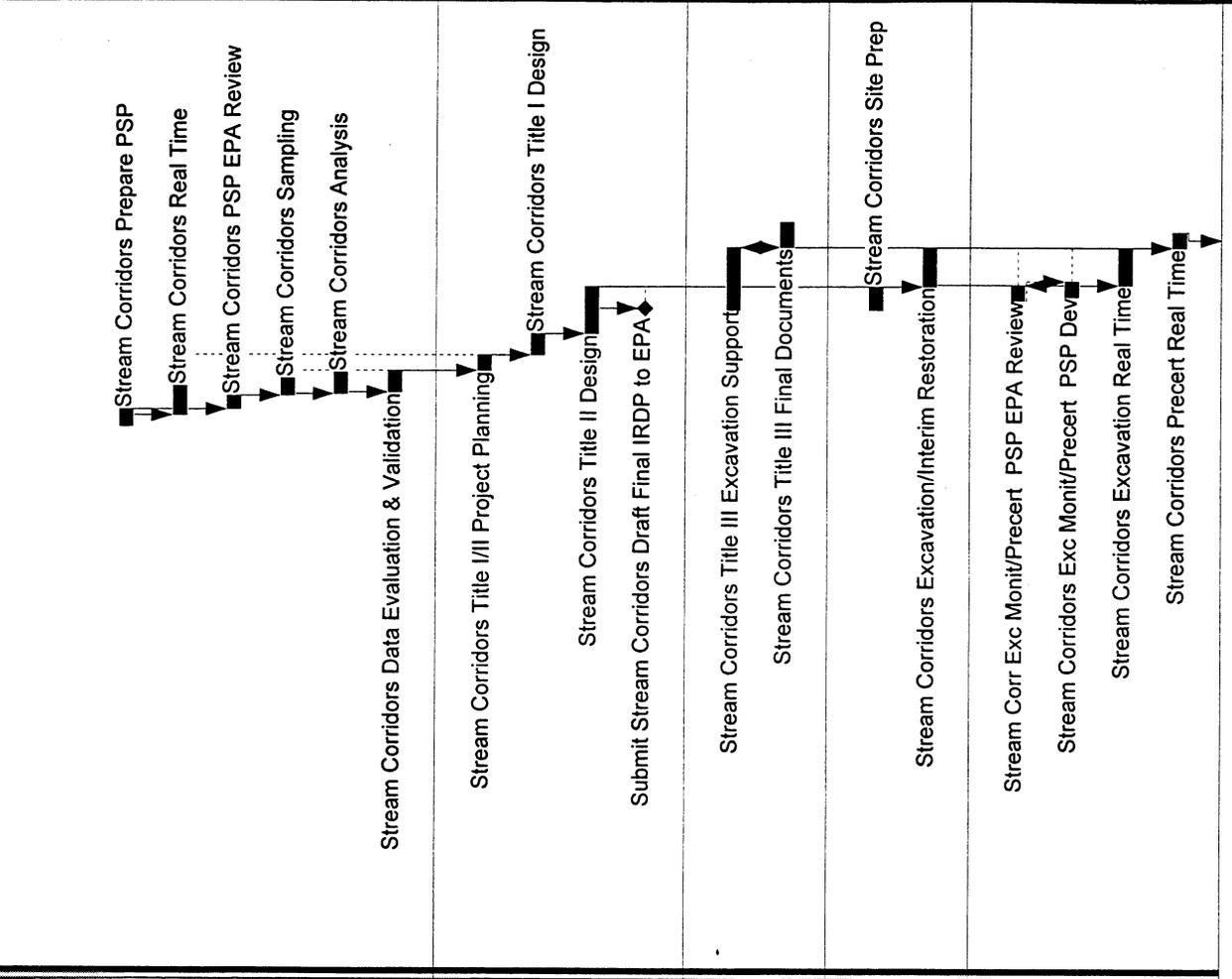
ITEM	QUANTITY
Draft CDL/PSP for DOE	1
Draft CDL/PSP for EPA/OEPA	1
Response-to-Comments Package for EPA/OEPA	1
Final CDL/PSP	1
V/FCNs during sampling	10
Soil Samples	286
Uranium, Thorium and Radium Analyses	286
Metals Analyses	286
PAH Analyses	286
Lab Reports for Radiological COCs	22
Lab Reports for Metals COCs	22
Lab Reports for Organic COCs	22
Radiological Lab Reports to Verify and Validate	22
Metals Lab Reports to Verify and Validate	22
Organic Lab Reports to Verify and Validate	22
Draft Certification Report for DOE	1
Draft Certification Report EPA/OEPA	1
Response-to-Comments Packages for EPA/OEPA	1
Final Certification Report	1

## **SECTION 14**

### **2.0 SCHEDULE**



Activity ID	Activity Description	Early Start	Early Finish	Orig Dur
-------------	----------------------	-------------	--------------	----------



Activity ID	Activity Description	Early Start	Early Finish	Orig Dur
GGPR110120	Stream Corridors Prepare PSP	02OCT06*	06DEC06	40
GGPR110150	Stream Corridors Real Time	20NOV06	15MAR07	70
GGPR110130	Stream Corridors PSP EPA Review	07DEC06	04FEB07	60
GGPR110140	Stream Corridors Sampling	05FEB07	10APR07	40
GGPR110160	Stream Corridors Analysis	13FEB07	03MAY07	51
GGPR110170	Stream Corridors Data Evaluation & Validation	21FEB07	10MAY07	50
<b>GPR12 STREAM CORRIDORS TITLE I/III DESIGN</b>				
GGPR120130	Stream Corridors Title I/III Project Planning	11MAY07	11JUL07	38
GGPR120140	Stream Corridors Title I Design	12JUL07	03OCT07	53
GGPR120150	Stream Corridors Title II Design	04OCT07	10APR08	114
GGPR12M007	Submit Stream Corridors Draft Final IRDP to EPA	16JAN08		0
<b>GPR13 STREAM CORRIDORS TITLE III</b>				
GGPR130120	Stream Corridors Title III Excavation Support	10JAN08	08SEP08	150
GGPR130130	Stream Corridors Title III Final Documents	09SEP08	15DEC08	60
<b>GPR14 STREAM CORRIDORS SITE PREP / EXCAVATION</b>				
GGPR140130	Stream Corridors Site Prep	10JAN08	10APR08	57
GGPR140140	Stream Corridors Excavation/Interim Restoration	11APR08	08SEP08	93
<b>GPR17 STREAM CORRIDORS EXC CONTROL / CERTIFICATION</b>				
GGPR170150	Stream Corridors Exc Monit/Precert PSP EPA Review	15FEB08	14APR08	60
GGPR170130	Stream Corridors Exc Monit/Precert PSP Dev	03MAR08*	01MAY08	39
GGPR170140	Stream Corridors Excavation Real Time	15APR08	10SEP08	93
GGPR170210	Stream Corridors Precert Real Time	11SEP08	07NOV08	38

Start Date: 01DEC00  
 Finish Date: 27DEC09  
 Data Date: 01DEC00  
 Run Date: 10SEP01 16:27

Sheet 1 of 2

SOILS PROJECT

1.1.G.Q. STREAM CORRIDORS

Legend:  
 Early Bar  
 Progress Bar  
 Critical Activity

Revision: F06-041  
 Date: [ ]  
 Checked/Approved: [ ]

**FLUOR FERNALD**

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## **SECTION 14**

### **3.0 MANPOWER PLANS**



















**Manpower Planning Sheet (CR2)**

MPS # 1GQ05 STREAM CORRIDORS EXCAV CTRL/CERTIFICATI

DRIVERS	START DATE	END DATE	TOT	FY 2001				FY 2002				FY 2003				FY 2004				FY 2005				FY 2006			
				Q1	Q2	Q3	Q4																				
Environmental			0.10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Environmental	Environmental Scientist Mgr.		0.80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lab	Environmental Scientist Rep.		1.10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lab	Lab Tech.		0.80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
QA/QC	Chemist		0.30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Environmental Safety & H	QA Engineer		0.20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Environmental Safety & H	Rad Tech		0.10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Environmental Safety & H	Industrial Hygienist Tech.		3.10	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

Sheet Totals:

# Manpower Planning Sheet (CR2)

MPS # 1GQ05 STREAM CORRIDORS EXCAV CTRL/CERTIFICATI

DRIVERS	START DATE	END DATE	FY 2007				FY 2008				FY 2009				FY 2010				FY 2011			
			Q1	Q2	Q3	Q4																
			#Er	#Er	#Er	#Er																
Environmental	Environmental Scientist Mgr.		0	0	0	0	0	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0
Environmental	Environmental Scientist Rep.		0	0	0	0	0	0	0	0.5	0	0	0	0	0	0	0	0	0	0	0	0
Lab	Lab Tech.		0	0	0	0	0	0	0	1.1	0	0	0	0	0	0	0	0	0	0	0	0
Lab	Chemist		0	0	0	0	0	0	0	0.8	0	0	0	0	0	0	0	0	0	0	0	0
QA/QC	QA Engineer		0	0	0	0	0	0.1	0	0.1	0.1	0	0	0	0	0	0	0	0	0	0	0
Environmental Safety & Health	Rad Tech		0	0	0	0	0	0	0	0.2	0	0	0	0	0	0	0	0	0	0	0	0
Environmental Safety & Health	Industrial Hygienist Tech.		0	0	0	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Sheet Totals:</b>			0.00	0.00	0.00	0.00	0.00	0.20	0.00	2.80	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

## **SECTION 14**

### **4.0 ESTIMATE**



**GPR11**

**STREAM CORRIDORS PREDESIGN**



# Fluor Fernald, Inc.

ESTIMATE SUPPORT WORKSHEET  
FOR ACTIVITY BASED ESTIMATING  
(1 FTE EQUALS 1747 HOURS)

DATE: 07-Sep-01  
PROJECT MGR: J.D. CHIOU  
CAM: J.D. CHIOU  
PREPARED BY: T. O'BRIEN  
FISCAL YEAR: 2007

PBS: OHFN06  
WBS: 1.1.G.Q  
CTRL ACCT: GPR1  
CHARGE NO: GPR11  
COMMENT NO:

Resource:	DRFCAD	DRAFTER/CAD OPERATOR											
Res Dept:	949	LABOR											
	Overtime:	Class: SAL											
		Oct 00-	Oct 01-	Oct 02-	Oct 03-	Oct 04-	Oct 05-	Oct 06-	Oct 07-	Oct 08-	Oct 09-	Oct 09-	Oct 09-
		Sep 01	Sep 02	Sep 03	Sep 04	Sep 05	Sep 06	Sep 07	Sep 08	Sep 09	Sep 10	Sep 10	Sep 10
Yr Hours:		0.0	0.0	0.0	0.0	0.0	0.0	14.0	0.0	0.0	0.0	0.0	0.0
Cum Hours:		0.0	0.0	0.0	0.0	0.0	0.0	14.0	14.0	14.0	14.0	14.0	14.0
Yr Total Cost:		0	0	0	0	0	0	632	0	0	0	0	0
Cum Total Cost:		0	0	0	0	0	0	632	632	632	632	632	632

Resource:	ENSMGR	ENVIR SCIENTIST MGR											
Res Dept:	949	LABOR											
	Overtime:	Class: SAL											
		Oct 00-	Oct 01-	Oct 02-	Oct 03-	Oct 04-	Oct 05-	Oct 06-	Oct 07-	Oct 08-	Oct 09-	Oct 09-	Oct 09-
		Sep 01	Sep 02	Sep 03	Sep 04	Sep 05	Sep 06	Sep 07	Sep 08	Sep 09	Sep 10	Sep 10	Sep 10
Yr Hours:		0.0	0.0	0.0	0.0	0.0	0.0	83.0	0.0	0.0	0.0	0.0	0.0
Cum Hours:		0.0	0.0	0.0	0.0	0.0	0.0	83.0	83.0	83.0	83.0	83.0	83.0
Yr Total Cost:		0	0	0	0	0	0	6,340	0	0	0	0	0
Cum Total Cost:		0	0	0	0	0	0	6,340	6,340	6,340	6,340	6,340	6,340

Resource:	ENSREP	ENVIR SCIENCE REP											
Res Dept:	949	LABOR											
	Overtime:	Class: SAL											
		Oct 00-	Oct 01-	Oct 02-	Oct 03-	Oct 04-	Oct 05-	Oct 06-	Oct 07-	Oct 08-	Oct 09-	Oct 09-	Oct 09-
		Sep 01	Sep 02	Sep 03	Sep 04	Sep 05	Sep 06	Sep 07	Sep 08	Sep 09	Sep 10	Sep 10	Sep 10
Yr Hours:		0.0	0.0	0.0	0.0	0.0	0.0	127.0	0.0	0.0	0.0	0.0	0.0
Cum Hours:		0.0	0.0	0.0	0.0	0.0	0.0	127.0	127.0	127.0	127.0	127.0	127.0
Yr Total Cost:		0	0	0	0	0	0	7,719	0	0	0	0	0
Cum Total Cost:		0	0	0	0	0	0	7,719	7,719	7,719	7,719	7,719	7,719

Resource:	ENSTEC	ENVIR SCIENTIST TECH											
Res Dept:	949	LABOR											
	Overtime:	Class: SAL											
		Oct 00-	Oct 01-	Oct 02-	Oct 03-	Oct 04-	Oct 05-	Oct 06-	Oct 07-	Oct 08-	Oct 09-	Oct 09-	Oct 09-
		Sep 01	Sep 02	Sep 03	Sep 04	Sep 05	Sep 06	Sep 07	Sep 08	Sep 09	Sep 10	Sep 10	Sep 10
Yr Hours:		0.0	0.0	0.0	0.0	0.0	0.0	268.0	0.0	0.0	0.0	0.0	0.0
Cum Hours:		0.0	0.0	0.0	0.0	0.0	0.0	268.0	268.0	268.0	268.0	268.0	268.0
Yr Total Cost:		0	0	0	0	0	0	10,994	0	0	0	0	0
Cum Total Cost:		0	0	0	0	0	0	10,994	10,994	10,994	10,994	10,994	10,994

Resource:	GLMINT	GEN LABOR MAINT											
Res Dept:	949	LABOR											
	Overtime:	Class: HOU											
		Oct 00-	Oct 01-	Oct 02-	Oct 03-	Oct 04-	Oct 05-	Oct 06-	Oct 07-	Oct 08-	Oct 09-	Oct 09-	Oct 09-
		Sep 01	Sep 02	Sep 03	Sep 04	Sep 05	Sep 06	Sep 07	Sep 08	Sep 09	Sep 10	Sep 10	Sep 10
Yr Hours:		0.0	0.0	0.0	0.0	0.0	0.0	268.0	0.0	0.0	0.0	0.0	0.0
Cum Hours:		0.0	0.0	0.0	0.0	0.0	0.0	268.0	268.0	268.0	268.0	268.0	268.0
Yr Total Cost:		0	0	0	0	0	0	10,994	0	0	0	0	0
Cum Total Cost:		0	0	0	0	0	0	10,994	10,994	10,994	10,994	10,994	10,994

# Fluor Fernald, Inc.

ESTIMATE SUPPORT WORKSHEET  
FOR ACTIVITY BASED ESTIMATING  
(1 FTE EQUALS 1747 HOURS)

DATE: 07-Sep-01  
PROJECT MGR: J.D. CHIOU  
CAM: J.D. CHIOU  
PREPARED BY: T. O'BRIEN  
FISCAL YEAR: 2007

PBS: OHFN06  
WBS: 1.1.G.Q  
CTRL ACCT: GPR1  
CHARGE NO: GPR11  
COMMENT NO:

	Sep 01		Sep 02		Sep 03		Sep 04		Sep 05		Sep 06		Sep 07		Sep 08		Sep 09		Sep 10	
	Yr Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	313.0	0.0	0.0	0.0	0.0	0.0	0.0
Cum Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	313.0	313.0	313.0	313.0	313.0	313.0	313.0
Yr Total Cost:	0	0	0	0	0	0	0	0	0	0	0	0	0	11,081	0	0	0	0	0	0
Cum Total Cost:	0	0	0	0	0	0	0	0	0	0	0	0	0	11,081	11,081	11,081	11,081	11,081	11,081	11,081

Resource: HEOOPR HEAVY EQUIP OPERATOR EOC: LABOR  
Res Dept: 949 Overtime: HOU

	Oct 00-		Oct 01-		Oct 02-		Oct 03-		Oct 04-		Oct 05-		Oct 06-		Oct 07-		Oct 08-		Oct 09-	
	Yr Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cum Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yr Total Cost:	0	0	0	0	0	0	0	0	0	0	0	0	0	10,481	0	0	0	0	0	0
Cum Total Cost:	0	0	0	0	0	0	0	0	0	0	0	0	0	10,481	10,481	10,481	10,481	10,481	10,481	10,481

Resource: LABCHM CHEMIST EOC: LABOR  
Res Dept: 949 Overtime: SAL

	Oct 00-		Oct 01-		Oct 02-		Oct 03-		Oct 04-		Oct 05-		Oct 06-		Oct 07-		Oct 08-		Oct 09-	
	Yr Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cum Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yr Total Cost:	0	0	0	0	0	0	0	0	0	0	0	0	0	8,422	0	0	0	0	0	0
Cum Total Cost:	0	0	0	0	0	0	0	0	0	0	0	0	0	8,422	8,422	8,422	8,422	8,422	8,422	8,422

Resource: LABMGR LAB MANAGER EOC: LABOR  
Res Dept: 949 Overtime: SAL

	Oct 00-		Oct 01-		Oct 02-		Oct 03-		Oct 04-		Oct 05-		Oct 06-		Oct 07-		Oct 08-		Oct 09-	
	Yr Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cum Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yr Total Cost:	0	0	0	0	0	0	0	0	0	0	0	0	0	1,185	0	0	0	0	0	0
Cum Total Cost:	0	0	0	0	0	0	0	0	0	0	0	0	0	1,185	1,185	1,185	1,185	1,185	1,185	1,185

Resource: LABTEC LAB TECH EOC: LABOR  
Res Dept: 949 Overtime: SAL

	Oct 00-		Oct 01-		Oct 02-		Oct 03-		Oct 04-		Oct 05-		Oct 06-		Oct 07-		Oct 08-		Oct 09-	
	Yr Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cum Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yr Total Cost:	0	0	0	0	0	0	0	0	0	0	0	0	0	4,628	0	0	0	0	0	0
Cum Total Cost:	0	0	0	0	0	0	0	0	0	0	0	0	0	4,628	4,628	4,628	4,628	4,628	4,628	4,628

# Fluor Fernald, Inc.

ESTIMATE SUPPORT WORKSHEET  
FOR ACTIVITY BASED ESTIMATING  
(1 FTE EQUALS 1747 HOURS)

DATE: 07-Sep-01  
PROJECT MGR: J.D. CHIOU  
CAM: J.D. CHIOU  
PREPARED BY: T. O'BRIEN  
FISCAL YEAR: 2007

PBS: OHFN06  
WBS: 1.1.G.Q  
CTRL ACCT: GPR1  
CHARGE NO: GPR11  
COMMENT NO:

Resource:	MVOOPR	MOTOR VEHICLE OPER	EOC:	LABOR	EOC:	LABOR
Res Dept:	949	Overtime:	HOU	Class:	HOU	Class:
Yr Hours:	0.0	0.0	0.0	0.0	0.0	0.0
Cum Hours:	0.0	0.0	0.0	0.0	0.0	0.0
Yr Total Cost:	0	0	0	0	0	0
Cum Total Cost:	0	0	0	0	0	0

Resource:	PJSMGR	PROJECT SUPPORT MGR	EOC:	LABOR	EOC:	LABOR
Res Dept:	949	Overtime:	SAL	Class:	SAL	Class:
Yr Hours:	0.0	0.0	0.0	0.0	0.0	0.0
Cum Hours:	0.0	0.0	0.0	0.0	0.0	0.0
Yr Total Cost:	0	0	0	0	0	0
Cum Total Cost:	0	0	0	0	0	0

Resource:	QACENG	QA ENGINEER	EOC:	LABOR	EOC:	LABOR
Res Dept:	949	Overtime:	SAL	Class:	SAL	Class:
Yr Hours:	0.0	0.0	0.0	0.0	0.0	0.0
Cum Hours:	0.0	0.0	0.0	0.0	0.0	0.0
Yr Total Cost:	0	0	0	0	0	0
Cum Total Cost:	0	0	0	0	0	0

Resource:	RADTEC	RAD TECH	EOC:	LABOR	EOC:	LABOR
Res Dept:	949	Overtime:	SAL	Class:	SAL	Class:
Yr Hours:	0.0	0.0	0.0	0.0	0.0	0.0
Cum Hours:	0.0	0.0	0.0	0.0	0.0	0.0
Yr Total Cost:	0	0	0	0	0	0
Cum Total Cost:	0	0	0	0	0	0

Resource:	S&HENG	SAFETY ENGINEER	EOC:	LABOR	EOC:	LABOR
Res Dept:	949	Overtime:	SAL	Class:	SAL	Class:
Yr Hours:	0.0	0.0	0.0	0.0	0.0	0.0
Cum Hours:	0.0	0.0	0.0	0.0	0.0	0.0
Yr Total Cost:	0	0	0	0	0	0
Cum Total Cost:	0	0	0	0	0	0

# Fluor Fernald, Inc.

ESTIMATE SUPPORT WORKSHEET  
FOR ACTIVITY BASED ESTIMATING  
(1 FTE EQUALS 1747 HOURS)

DATE: 07-Sep-01  
PROJECT MGR: J.D. CHIOU  
CAM: J.D. CHIOU  
PREPARED BY: T. O'BRIEN  
FISCAL YEAR: 2007

PBS: OHFN06  
WBS: 1.1.G.Q  
CTRL ACCT: GPR1  
CHARGE NO: GPR11  
COMMENT NO:

	Sep 01	Sep 02	Sep 03	Sep 04	Sep 05	Sep 06	Sep 07	Sep 08	Sep 09	Sep 10
Yr Hours:	0.0	0.0	0.0	0.0	0.0	0.0	28.0	0.0	0.0	0.0
Cum Hours:	0.0	0.0	0.0	0.0	0.0	0.0	28.0	28.0	28.0	28.0
Yr Total Cost:	0	0	0	0	0	0	2,015	0	0	0
Cum Total Cost:	0	0	0	0	0	0	2,015	2,015	2,015	2,015

**GRAND TOTALS:**

	Oct 00- Sep 01	Oct 01- Sep 02	Oct 02- Sep 03	Oct 03- Sep 04	Oct 04- Sep 05	Oct 05- Sep 06	Oct 06- Sep 07	Oct 07- Sep 08	Oct 08- Sep 09	Oct 09- Sep 10
Yr Hours:	0.0	0.0	0.0	0.0	0.0	0.0	2,076.0	0.0	0.0	0.0
Cum Hours:	0.0	0.0	0.0	0.0	0.0	0.0	2,076.0	2,076.0	2,076.0	2,076.0
Yr Total Cost:	0	0	0	0	0	0	103,731	0	0	0
Cum Total Cost:	0	0	0	0	0	0	103,731	103,731	103,731	103,731

CAM

*[Signature]*  
CONTROL TEAM

**GPR12**

**STREAM CORRIDORS TITLE I/II DESIGN**



# Fluor Fernald, Inc.

ESTIMATE SUPPORT WORKSHEET  
FOR ACTIVITY BASED ESTIMATING  
(1 FTE EQUALS 1747 HOURS)

DATE: 07-Sep-01  
PROJECT MGR: J.D. CHIOU  
CAM: J.D. CHIOU  
PREPARED BY: T. O'BRIEN  
FISCAL YEAR: 2007 - 2008

PBS: OHFN06  
WBS: 1.1.G.Q  
CTRL ACCT: GPR1  
CHARGE NO: GPR12  
COMMENT NO F06-037, F06-041

Resource:	DRFCAD	EOC:	LABOR													
			DRAFTER/CAD OPERATOR		EOC:		LABOR		EOC:		LABOR		EOC:		LABOR	
Res Dept:	949	SAL	Class:		Class:		Class:		Class:		Class:		Class:		Class:	
Yr Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cum Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yr Total Cost:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cum Total Cost:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Resource:	ENGCVL	EOC:	LABOR													
			ENGINEER CIVIL		EOC:		LABOR		EOC:		LABOR		EOC:		LABOR	
Res Dept:	949	SAL	Class:		Class:		Class:		Class:		Class:		Class:		Class:	
Yr Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cum Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yr Total Cost:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cum Total Cost:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Resource:	ENGELE	EOC:	LABOR													
			ENGINEER ELECTRICAL		EOC:		LABOR		EOC:		LABOR		EOC:		LABOR	
Res Dept:	949	SAL	Class:		Class:		Class:		Class:		Class:		Class:		Class:	
Yr Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cum Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yr Total Cost:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cum Total Cost:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Resource:	ENGMEC	EOC:	LABOR													
			ENGINEER MECH/PIPING		EOC:		LABOR		EOC:		LABOR		EOC:		LABOR	
Res Dept:	949	SAL	Class:		Class:		Class:		Class:		Class:		Class:		Class:	
Yr Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cum Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yr Total Cost:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cum Total Cost:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



**GPR13**

**STREAM CORRIDORS TITLE III**



# Fluor Fernald, Inc.

DATE: 07-Sep-01  
PROJECT MGR: J.D. CHIOU  
CAM: J.D. CHIOU  
PREPARED BY: T. O'BRIEN  
FISCAL YEAR: 2008 - 2009

ESTIMATE SUPPORT WORKSHEET  
FOR ACTIVITY BASED ESTIMATING  
(1 FTE EQUALS 1747 HOURS)

PBS: OHFN06

WBS: 1.1.G.Q

CTRL ACCT: GPR1

CHARGE NO: GPR13

COMMENT NO F06-037, F06-041

Resource:	ENGCVL	ENGINEER CIVIL	EOC:	LABOR		EOC:		LABOR		EOC:		LABOR		EOC:		LABOR		EOC:		LABOR	
				Res Dept:	949	Overtime:	Class:	SAL	SAL	SAL	SAL	SAL	SAL	SAL	SAL	SAL	SAL	SAL	SAL	SAL	SAL
Yr Hours:		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cum Hours:		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yr Total Cost:		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cum Total Cost:		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>GRAND TOTALS:</b>																					
Yr Hours:		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cum Hours:		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yr Total Cost:		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cum Total Cost:		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

CONTROL TEAM

CAM



**GPR14**

**STREAM CORRIDORS SITE PREP/EXCAVATION**



# Fluor Fernald, Inc.

ESTIMATE SUPPORT WORKSHEET  
FOR ACTIVITY BASED ESTIMATING  
(1 FTE EQUALS 1747 HOURS)

DATE: 07-Sep-01  
PROJECT MGR: J.D. CHIOU  
CAM: J.D. CHIOU  
PREPARED BY: T. O'BRIEN  
FISCAL YEAR: 2008

PBS: OHFN06  
WBS: 1.1.G.Q  
CTRL ACCT: GPR1  
CHARGE NO: GPR14  
COMMENT NO F06-037, F06-041

Resource: QACTEC      FIELD SUBS      EOC:      SUBCONTRACTORS  
Res Dept: 949      Overtime:      Class:      SUB

	Oct 00-		Oct 01-		Oct 02-		Oct 03-		Oct 04-		Oct 05-		Oct 06-		Oct 07-		Oct 08-		Oct 09-	
	Sep 01	Sep 02	Sep 03	Sep 04	Sep 05	Sep 06	Sep 07	Sep 08	Sep 09	Sep 10	Sep 11	Sep 12	Sep 13	Sep 14	Sep 15	Sep 16	Sep 17	Sep 18	Sep 19	Sep 20
Yr Units:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cum Units:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yr Total Cost:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cum Total Cost:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Resource: QACTEC      QVQC TECH      EOC:      LABOR  
Res Dept: 949      Overtime:      Class:      SAL

	Oct 00-		Oct 01-		Oct 02-		Oct 03-		Oct 04-		Oct 05-		Oct 06-		Oct 07-		Oct 08-		Oct 09-	
	Sep 01	Sep 02	Sep 03	Sep 04	Sep 05	Sep 06	Sep 07	Sep 08	Sep 09	Sep 10	Sep 11	Sep 12	Sep 13	Sep 14	Sep 15	Sep 16	Sep 17	Sep 18	Sep 19	Sep 20
Yr Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cum Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yr Total Cost:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cum Total Cost:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Resource: RADTEC      RAD TECH      EOC:      LABOR  
Res Dept: 949      Overtime:      Class:      SAL

	Oct 00-		Oct 01-		Oct 02-		Oct 03-		Oct 04-		Oct 05-		Oct 06-		Oct 07-		Oct 08-		Oct 09-	
	Sep 01	Sep 02	Sep 03	Sep 04	Sep 05	Sep 06	Sep 07	Sep 08	Sep 09	Sep 10	Sep 11	Sep 12	Sep 13	Sep 14	Sep 15	Sep 16	Sep 17	Sep 18	Sep 19	Sep 20
Yr Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cum Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yr Total Cost:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cum Total Cost:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Resource: S&HENG      SAFETY ENGINEER      EOC:      LABOR  
Res Dept: 949      Overtime:      Class:      SAL

	Oct 00-		Oct 01-		Oct 02-		Oct 03-		Oct 04-		Oct 05-		Oct 06-		Oct 07-		Oct 08-		Oct 09-	
	Sep 01	Sep 02	Sep 03	Sep 04	Sep 05	Sep 06	Sep 07	Sep 08	Sep 09	Sep 10	Sep 11	Sep 12	Sep 13	Sep 14	Sep 15	Sep 16	Sep 17	Sep 18	Sep 19	Sep 20
Yr Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cum Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yr Total Cost:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cum Total Cost:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

# Fluor Fernald, Inc.

ESTIMATE SUPPORT WORKSHEET  
FOR ACTIVITY BASED ESTIMATING  
(1 FTE EQUALS 1747 HOURS)

PBS: OHFN06  
WBS: 1.1.G.Q  
CTRL ACCT: GPR1  
CHARGE NO: GPR14  
COMMENT NO F06-037, F06-041

**GRAND TOTALS:**

	Oct 00- Sep 01	Oct 01- Sep 02	Oct 02- Sep 03	Oct 03- Sep 04	Oct 04- Sep 05	Oct 05- Sep 06	Oct 06- Sep 07	Oct 07- Sep 08	Oct 08- Sep 09	Oct 09- Sep 10
Yr Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1,120.6	0.0	0.0
Cum Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1,120.6	1,120.6	1,120.6
Yr Total Cost:	0	0	0	0	0	0	0	2,256,938	0	0
Cum Total Cost:	0	0	0	0	0	0	0	2,256,938	2,256,938	2,256,938

*[Signature]*  
CONTROL TEAM

GPR14

**Fluor Fernald, Inc.**  
**PROJECTS CONTROLS**  
**ESTIMATING SERVICES**

May 15, 2001

**PROJECT DESCRIPTION:** STREAM CORRIDORS SOILS REMEDIATION  
**WBS NUMBER:** 1.1.G.Q  
**PROJECT ENGINEER:** Mike Rolfes  
**ESTIMATOR:** J. AMOS  
**ESTIMATE NUMBER:** C20105009

**BASIS OF ESTIMATE**

**SUPPORTING DOCUMENTATION:**

Verbal Scope	<input type="checkbox"/>	P & ID's	<input type="checkbox"/>	Work Plan	<input type="checkbox"/>
Drawings	<input type="checkbox"/>	Equipment List	<input type="checkbox"/>	Site Walk	<input type="checkbox"/>
Sketches	<input checked="" type="checkbox"/>	Specifications	<input type="checkbox"/>	Eng. Mtg.	<input checked="" type="checkbox"/>
Flow Diagrams	<input type="checkbox"/>	Written Scope	<input checked="" type="checkbox"/>	Estimate	<input type="checkbox"/>

**TYPE OF ESTIMATE:**

Change Proposal	<input type="checkbox"/>	Government	<input type="checkbox"/>
Plan/Feasibility	<input type="checkbox"/>	Conceptual	<input type="checkbox"/>
Construction	<input type="checkbox"/>	Title I Design	<input type="checkbox"/>
Budget	<input checked="" type="checkbox"/>	Independent	<input type="checkbox"/>

**BASIS OF ESTIMATE:**

Estimate the cost of excavation of soils, size-reducing building slabs, foundations, manholes, loading and hauling to the OSDF facility or to the bulk storage facility for shipment off site (shipment cost not included in this estimate). Quantities used were supplied by project management. Scope is based on Scenario #6.

**Fluor Fernald, Inc.**  
**PROJECTS CONTROLS**  
**ESTIMATING SERVICES**

May 15, 2001

**PROJECT DESCRIPTION:** STREAM CORRIDORS SOILS REMEDIATION  
**WBS NUMBER:** 1.1.G.Q  
**PROJECT ENGINEER:** Mike Rolfes  
**ESTIMATOR:** J. AMOS  
**ESTIMATE NUMBER:** C20105009

**ESTIMATE ASSUMPTIONS**

**EXECUTION:**

- This project is to be performed on a 50-hour week, 10 hours a day.
- This project is to be performed on a 40-hour week, 8 hours a day.
- Premium time allowed.

**WAGE RATES:**

- Wage rates within this estimate are based on Project Labor Agreement rates, effective October 2000 and are considered FY01 dollars for estimating.
- Wage rates within this estimate are based on FF Support Contractor FSC 599 wage rates, effective October 1999 have been escalated 3% and are considered FY01 dollars for estimating.
- Wage rates within this estimate are based on FF FTE Planning Labor Rates FY01.

**ENGINEERING:**

- N/A
- Engineering dollars provided by the Project Engineer.
- Engineering dollars have been factored in at the standard 12% of the total direct and indirect field costs as per request of Project Engineer.

**CONSTRUCTION MANAGEMENT:**

- N/A
- Construction Management dollars provided by the Project Engineer.
- Construction Management dollars have been factored in at the standard 30% of the total direct and indirect field costs as per request of Project Engineer.

**PROJECT MANAGEMENT:**

- N/A
- Project Management dollars provided by the Project Engineer.
- Project Management dollars have been factored in at the standard 30% of the total direct and indirect field costs as per request of Project Engineer.

**WASTE PROGRAM MANAGEMENT:**

- N/A
- Waste Program Management dollars provided by the Project Engineer.

**Fluor Fernald, Inc.**  
**PROJECTS CONTROLS**  
**ESTIMATING SERVICES**

May 15, 2001

**PROJECT DESCRIPTION:** STREAM CORRIDORS SOILS REMEDIATION  
**WBS NUMBER:** 1.1.G.Q  
**PROJECT ENGINEER:** Mike Rolfes  
**ESTIMATOR:** J. AMOS  
**ESTIMATE NUMBER:** C20105009

**PRODUCTIVITY:**

A productivity factor has been developed and applied to the unit man-hours derived from MEANS, Richardson, NECA, and or any other published estimating source. See attachment APPENDIX "A" and APPENDIX "B".

**ESCALATION:**

Escalation costs are excluded from the target estimate. The escalation costs are calculated within the Micro-Frame computer system according to the plan for rebaselining.

**UNIT RATES:**

Unit man-hours, equipment and material dollars are based on Richardson, MEANS, NECA, and or other published rates.

**G & A (HO EXPENSE):**

G & A are excluded from the target estimate. The G & A cost are calculated within the Micro-Frame computer system according to the plan for rebaselining.

**HEALTH PHYSICS:**

See attached APPENDIX "C".

**RISK BUDGET:**

There is no risk allowance in this estimate.

**CONTINGENCY:**

There is no contingency allowance in this estimate.

**Fluor Fernald, Inc.**  
**PROJECTS CONTROLS**  
**ESTIMATING SERVICES**

May 15, 2001

**PROJECT DESCRIPTION:** STREAM CORRIDORS SOILS REMEDIATION

**WBS NUMBER:** 1.1.G.Q

**PROJECT ENGINEER:** Mike Rolfes

**ESTIMATOR:** J. AMOS

**ESTIMATE NUMBER:** C20105009

**ESTIMATE INCLUSIONS & EXCLUSIONS**

**INCLUSIONS:**

- X Premobilization & Mobilization.
- X Demobilization.
- X Labor hours.
- X Material dollars.
- X Equipment dollars.
- X Premium time
- X Excavate, load, haul and dump soil, asphalt, gravel, concrete slabs & foundations (sized Reduced), to the OSDF or other appropriate site.
- X Re-grade slopes to 5H:1V and seed, fertilize, and mulch
- X Bulking factors used are as follows:
  - 1. Soils 1.15
  - 2. Concrete 1.33
  - 3. Pipe debris 2.00
- X Installation, maintenance, and removal of silt and construction/rad control fencing

**EXCLUSIONS:**

- X Permits and fees.
- X FF G & A (Home Office Expense).
- X Construction Management.
- X Any second tier subcontract costs.
- X Project Management dollars.
- X Waste Management dollars.
- X Sampling, air monitoring and testing of soils
- X Shipping and disposal costs of materials off site
- X Shipping containers
- X Delays due to unidentified contamination of materials or levels of contamination



## ESTIMATE SUMMARY SHEET

PROJECT: STREAM CORRIDORS SOILS REMEDIATIO  
 ESTIMATE NO. C2-2001-05-009  
 CLIENT: DOE  
 WBS NO.: 1.1.G.Q

### FACTORS

DATE: 17-May-01  
 ESTIMATOR: JEA  
 LOCATION: Fernald  
 TASK NO.: GPR14

FIXED PRICE \$	LABOR \$	S/C \$	MAT'L. \$	EQUIP. \$	PPE \$	TOTAL \$
DFC DOLLARS	\$444,660	\$25,300	\$71,840	\$197,420	\$6,000	\$745,220
IFC COST FACTOR	2.5037	-	1.2895	1.1813	-	
BOND + OVERHEAD & PROFIT COST FACTOR	1.2127	1.2127	1.2127	1.2127	1.2127	
SALES TAX	-	-	1.0600	1.0600	1.0600	
<b>DIRECT FIELD COST FACTOR =</b>	<b>3.0362</b>	<b>1.2127</b>	<b>1.6576</b>	<b>1.5186</b>	<b>1.2855</b>	
<b>BASE ESTIMATE \$'s</b>	<b>\$1,350,089</b>	<b>\$30,681</b>	<b>\$119,085</b>	<b>\$299,796</b>	<b>\$7,713</b>	<b>\$1,807,364</b>
<b>BASE FACTOR</b>	<b>1.0000</b>	<b>1.0000</b>	<b>1.0000</b>	<b>1.0000</b>	<b>1.0000</b>	
<b>TARGET ESTIMATE FACTOR</b>	<b>3.0362</b>	<b>1.2127</b>	<b>1.6576</b>	<b>1.5186</b>	<b>1.2855</b>	
<b>FPS TARGET ESTIMATE (FY00 \$)</b>	<b>\$1,350,089</b>	<b>\$30,681</b>	<b>\$119,085</b>	<b>\$299,796</b>	<b>\$7,713</b>	<b>\$1,807,364</b>

**NOTE:**

If there are no DFC Equip. \$, enter The IFC Equip. \$'s into the direct field cost TOTAL and delete IFC Factor in G62.

## ESTIMATE SUMMARY SHEET

PROJECT: STREAM CORRIDORS SOILS REMEDIATIO  
 ESTIMATE NO. C2-2001-05-009  
 CLIENT: DOE  
 WBS NO.: 1.1.G.Q

### Direct Field Cost w / F A C T O R S

DATE: 17-May-01  
 ESTIMATOR: JEA  
 LOCATION: Fernald  
 TASK NO.: GPR14

PAY ITEM NO.	DESCRIPTION	LABOR \$	S/C \$	MAT'L. \$	EQUIP. \$	PPE \$	TOTAL \$
		(ASSIGN OR PRORATE PPE MAT'L.\$'s)-->>				6000	
	SITE PREPARATION	102960 \$312,610	5300 \$6,430	5640 \$9,350	23520 \$35,720		\$364,110
	EXCAVATION	293900 \$892,350		31500 \$52,220	165700 \$251,630	6000 \$7,710	\$1,203,910
	CONTROL & MANAGEMENT	4500 \$13,660	20000 \$24,250		4100 \$6,230		\$44,140
	INTERIM RESTORATION	43300 \$131,470		34700 \$57,520	4100 \$6,230		\$195,220
<b>TOTAL DIRECT FIELD COSTS w/FACTORS</b>		<b>(FY01 DOLLARS)</b>					<b>\$1,807,380</b>





# DETAIL ESTIMATE WORKSHEETS

## Fluor Fernald, Inc.

**PROJECT:** STREAM CORRIDORS SOILS REMEDIATION  
**ESTIMATE NO.:** C2-2001-05-008  
**CLIENT:** DOE  
**WBS NO.:** 1.1.G.Q

**DATE:** 17-May-01  
**ESTIMATOR:** JEA  
**LOCATION:** Fernald  
**TASK NO.:** GPR14

ITEM NO.	SITE PREPARATION	QTY	UNIT	MAN-HOURS			COST/UNIT			LABOR	S/C	MAT'L	EQUIP	TOTAL
				Unit	Total	Rate	Labor	S/C	Mat'l					
	<b>PREMOBILIZATION</b>													
	A. Insurance Certificates, List of Sub-Tier Contractors Procurement Documents, Safe Work Plans, QA/QC Plan, Project Execution Plan, Construction and Engineering Documentation, Acceptable baseline Schedules Duration 8 wks	1	LS	200.00	1,600	35.00			\$56,000				\$56,000	
	<b>MOBILIZATION</b>													
D	S/C Office Trailer	8	mo			31.18	300						\$2,300	
D	Survey and Engineering Controls	1	LS			31.18	3,000		\$1,200	\$2,300	\$500	\$500	\$4,000	
D	Install Utilities	1	LS	40.00	40	31.18	1,000		\$1,000	\$3,000	\$500	\$500	\$2,700	
D	Other misc. requirements as required.	1	LS	80.00	80	31.18	500		\$2,500		\$500	\$500	\$3,500	
					1,720				59,700	5,300	2,000	1,500	\$68,500	

DETAIL ESTIMATE WORKSHEETS

# Fluor Fernald, Inc.

PROJECT: STREAM CORRIDORS SOILS REMEDIATION  
 ESTIMATE NO.: C2-2001-05-009  
 CLIENT: DOE  
 WBS NO.: 1.1.G.Q

DATE: 17-May-01  
 ESTIMATOR: JEA  
 LOCATION: Fernald  
 TASK NO.: GPR14

ITEM NO.	SITE PREPARATION	QTY	UNIT	MAN-HOURS		Rate	COST/UNIT			LABOR	S/C	MAT'L	EQUIP	TOTAL
				Unit	Total		Labor	S/C	Mat'l					
D	Silt fence	500	LF	0.04	23	29.52		1.00						\$1,760
D	Replace/Establish const fence	1000	LF	0.10	114	29.52		1.60			\$500	\$580		\$1,760
D	Signs	20	Ea	1.50	34	29.52					\$1,600	\$100		\$5,080
D	Survey & stake area	9	Acres	60.00	618	29.52		60.00		\$18,240	\$540	\$1,580		\$20,360
<b>DUST CONTROL</b>														
D	Maintain Radiological control/change out trailers	2	Ea	100.00	229	29.52		500.00		\$6,750	\$1,000	\$4,000		\$11,750
D	Sealand storage container	1	Ea	5.00	6	29.52				\$170		\$130		\$300
mC	Labor for dust control	5	Mth	50.00	457	28.55				\$13,030				\$13,030
mC	Water truck for dust control	2.5	Mth									\$15,630		\$15,630
										\$43,260	\$3,640	\$22,020	\$69,920	

DETAIL ESTIMATE WORKSHEETS

**Fluor Fernald, Inc.**

PROJECT: STREAM CORRIDORS SOILS REMEDIATION  
 ESTIMATE NO.: C2-2001-05-009  
 CLIENT: DOE  
 WBS NO.: 1.1.G.Q

DATE: 17-May-01  
 ESTIMATOR: JEA  
 LOCATION: Fernald  
 TASK NO.: GPR14

ITEM NO.	EXCAVATION	QTY	UNIT	MAN-HOURS		COST/UNIT			LABOR	S/C	MAT'L	EQUIP	TOTAL
				Unit	Total	Rate	Labor	S/C					
mC	Excavate & load Cat 1 soil & soil like mater	17200	CY	0.156	4900	32.43			\$158,900			\$65,360	\$224,260
D	Haul Cat 1 soil & soil like mater to OSDF	19780	CY	0.114	2580	28.55			\$73,650			\$45,490	\$119,140
mC	Clear & grub vegetation at Paddys Run	0.5	Acre	50.000	46	32.43			\$1,480			\$1,750	\$3,230
mC	Excavate, size-reduce, & load Cat 2 conc slabs	100	CY	0.104	19	32.43			\$620			\$760	\$1,380
D	Haul size-reduced Cat 2 conc slabs to OSDF	133	CY	0.044	7	28.55			\$190			\$360	\$550
D	Decon equipment	1	Lot	160.000	183	21.63			\$3,960				\$3,960
mC	Labor for spotting, wheel washing, etc.	320	Hrs	1.000	584	29.52			\$17,250				\$17,250
D	Seed & mulch	9	Acres	20.000	206	29.52			\$6,080		\$31,500	\$4,500	\$42,080
mC	Assume handle 30% material twice Excavate & load	5160	CY	0.052	490	32.43		3500.00	\$15,890			\$19,610	\$35,500
D	Assume handle 30% material twice Haul	5160	CY	0.038	224	28.55			\$6,400			\$11,870	\$18,270
mC	Excavation "punchlist" (allowance)	1	Lot	160.000	292	32.43		16000.00	\$9,480			\$16,000	\$25,480
									\$293,900		\$31,500	\$165,700	\$491,100
Subtotal Direct Cost									\$293,900		\$31,500	\$165,700	\$491,100

**DETAIL ESTIMATE WORKSHEETS**  
**Fluor Fernald, Inc.**

**PROJECT:** STREAM CORRIDORS SOILS REMEDIATION  
**ESTIMATE NO.:** C2-2001-05-009  
**CLIENT:** DOE  
**WBS NO.:** 1.1.G.Q

**DATE:** 17-May-01  
**ESTIMATOR:** JEA  
**LOCATION:** Fernald  
**TASK NO.:** GPR14

ITEM NO.	CONTROL & MANAGEMENT	QTY	UNIT	MAN-HOURS		COST/UNIT			LABOR	S/C	MAT'L	EQUIP	TOTAL
				Unit	Total	Rate	Labor	S/C					
D	Remove sediment from ditches & silt fence will be required two times during this period	1	Ea	120.000	137	32.43			\$4,450			\$4,120	\$8,570
D	Maint. Surface water & erosion control structures*												
D	Maint. Certification fencing *												
D	Provide dust control as needed (Allowance per spec)	1	Lot				20000.00		\$20,000				\$20,000
D	Provide regrading & seeding as needed *												
	* Items included in sediment & ditches												
<b>Subtotal Direct Cost</b>					137	\$32.78			4,500	20,000		4,100	\$28,600

# DETAIL ESTIMATE WORKSHEETS

## Fluor Fernald, Inc.

**PROJECT:** STREAM CORRIDORS SOILS REMEDIATION  
**ESTIMATE NO.:** C2-2001-05-009  
**CLIENT:** DOE  
**WBS NO.:** 1.1.G.Q

**DATE:** 17-May-01  
**ESTIMATOR:** JEA  
**LOCATION:** Fernald  
**TASK NO.:** GPR14

ITEM NO.	INTERIM RESTORATION	QTY	UNIT	MAN-HOURS		COST/UNIT			LABOR	S/C	MAT'L	EQUIP	TOTAL
				Unit	Total	Rate	Labor	S/C					
D	Grading to reshape slopes to 5H:1V	1000	CY	0.045	51	29.52			\$1,520			\$2,260	\$3,780
D	Seed & mulch (allow. 6 acres to be done twice)	3	Acres	20.000	69	29.52		3500.00	\$2,030		\$10,500	\$1,500	\$14,030
D	Remove silt fence	500	LF	0.020	11	29.52			\$340			\$250	\$590
D	Remove Const/Rad fence	1000	LF	0.050	57	29.52			\$1,690			\$50	\$1,740
D	Remove signs	20	Ea	0.750	17	29.52			\$510			\$20	\$530
D	Surveying for final grade, payment, etc.	9	Acres	60.000	618	29.52			\$18,200				\$18,200
D	Slope erosion control ( 4 acres)	19360	SY	0.010	221	29.52		1.25	\$6,500		\$24,200		\$30,700
<b>DEMobilIZATION</b>													
D	Complete Punch List Items.	1	LS	20.000	20	31.18			\$620				\$620
D	Remove Trailer and Change Facilities.	1	LS	20.000	20	31.18			\$620				\$620
D	Remove all Utilities.	1	LS	40.000	40	31.18			\$1,250				\$1,250
mC	Decontaminate Equipment.	1	LS	160.000	293	31.18			\$9,130				\$9,130
D	Loadout contractors equipment.	1	LS	20.000	20	31.18			\$620				\$620
D	Other area requirements.	1	LS	10.000	10	31.18			\$310				\$310
<b>Subtotal Direct Cost</b>										<b>43,300</b>	<b>34,700</b>	<b>4,100</b>	<b>\$82,100</b>

# DETAIL ESTIMATE WORKSHEETS

## Fluor Fernald, Inc.

**PROJECT:** STREAM CORRIDORS SOILS REMEDIATION  
**ESTIMATE NO.:** C2-2001-05-009  
**CLIENT:** DOE  
**WBS NO.:** 1.1.G.Q

**DATE:** 17-May-01  
**ESTIMATOR:** JEA  
**LOCATION:** Fernald  
**TASK NO.:** GPR14

ITEM NO.	QTY	UNIT	MAN-HOURS		COST/UNIT			LABOR	S/C	MAT'L	EQUIP	TOTAL
			Unit	Total	Rate	Labor	S/C					
<b>Project Staffing</b>												
1. Project Manager	658	hr	1	658	54.42		\$35,790				\$35,790	
2. Project Superintendent	1315	hr	1	1315	37.85		\$49,780				\$49,780	
3. Project Engineer	658	hr	1	658	33.19		\$21,830				\$21,830	
4. Safety Engineer	986	hr	1	986	30.34		\$29,930				\$29,930	
5. Industrial Hygiene Tech.	329	hr	1	329	28.33		\$9,320				\$9,320	
6. QA/QC Engineer	658	hr	1	658	28.05		\$18,450				\$18,450	
7. Office Administration	1315	hr	1	1315	19.31		\$25,400				\$25,400	
8. Contract Administration/ Scheduler	1315	hr	1	1315	25.58		\$33,640				\$33,640	
9. Clerical	658	hr	1	658	14.58		\$9,590				\$9,590	
<b>SUPERVISION - CONTRACTOR TOTAL *</b>				7,892			\$233,730 *				\$233,730	
* These totals are picked up on the summary sheet (supervision)												
											1	LOT



PROJECT: STREAM CORRIDORS SOILS REMEDIATION  
 ESTIMATE NOC2-2001-05-009  
 CLIENT: DOE  
 WBS NO.: 1.1.G.Q

SITE SPECIFIC  
 EFFICIENCY / MULTIPLIER ANALYSIS

DATE: 17-May-01  
 ESTIMATOR: JEA  
 LOCATION: Fernald  
 TASK NO.: GPR14

	PERCENT OF INFLUENCE ON CHART MANHOURS										WT'D VALUE	PROD. RESULT
	40%	50%	60%	70%	80%	90%	100%	105%	110%	% OF INFLUENCE		
CRAFT SKILL (NOTE 1)	POOR	POOR		FAIR			STD		V.GOOD	XCELLENT	12.0%	0.12
CRAFT AVAIL.(NOTE 1)	SEVERE	ICE/SNOW		FAIR	RAIN		STD				8.0%	0.08
CLIMATE (NOTE 2)		OVER 10,000FT			5,000' TO 10,000 FT		+40 TO +85				20.0%	0.18
PLANT ELEVATION					250 SF		UNDER 5,000 FT				5.0%	0.05
WORK SPACE			200 SF		300 SF		350 SF				10.0%	0.1
WORK WEEK	<---- MULTIPLE SHIFTS-											
50 HOUR WORK WEEK				OVER 7 WEEKS	3 TO 7 WEEKS	UP TO 3 WEEKS	4-10s / 5-8s				15.0%	0.15
60 HOUR WORK WEEK			OVER 7 WEEKS	3 TO 7 WEEKS	UP TO 3 WEEKS						0.0%	0
SHIFTWORK											0.0%	0
2ND SHIFT					2ND SHIFT		OR ONE SHIFT ONLY				3.0%	0.03
3RD SHIFT		3RD SHIFT									5.0%	0.05
PROJECT SIZE					400M MH AND UP	300M TO 400M MH	200M TO 300M MH	200M MH OR LESS			4.0%	0.04
PLANT TYPE				REVAMP ONLY	REVAMP & NEW	NEW IN EXIST PLT	GRASS ROOTS				8.0%	0.072
AREA/UNION INFLUENCE	STRONG		MILD		SOME		NONE				10.0%	0.04
NOTES.....												
1. TURNOVER HAS BEEN CONSIDERED												
2. FOR EXTERIOR WORK ONLY												
	EFFICIENCY (AS A % OFF CHART MANHOURS)										100.0%	91.2%
	MULTIPLIER - ( TO BE APPLIED TO CHART M.H.'S TO OBTAIN SITE M.H.'S )											1.10



**EFFICIENCY FACTORS**

PROJECT: STREAM CORRIDORS SOILS REMEDIATION  
 ESTIMATE NO. C2-2001-05-009  
 CLIENT: DOE  
 WBS NO.: 1.1.G.Q

DATE: 17-May-01  
 ESTIMATOR: JEA  
 LOCATION: Fernald  
 TASK NO.: GPR14

**Fluor Fernald, Inc.**

EXAMPLE:

STANDARD CHART MANHOURS = NET 100  
 EFFICIENCY FACTORS:  
 \* SITE SPECIFIC (SEE APPENDIX A) 10% 10.0  
 S/T = BASE UNIT MANHOURS 110

OVERTIME PRODUCTIVITY FACTOR 0.00% 0  
 (SEE DETAIL WORKSHEET BACK-UP) 110

\* TASK SPECIFIC ( confined space,  
 high elevation, congestion, etc.) 0.0% 0  
 110

\* PPE SPECIFIC (Based on current data  
 and estimating knowledge)

	PPE LEVEL										
	D		Mod.'D'		Mod. "C"		C		C+		
PRODUCTIVITY HOURS ( AS A % ) / ADD MH's	MH's	MULTIPLIER	MH's	MULTIPLIER	MH's	MULTIPLIER	MH's	MULTIPLIER	MH's	MULTIPLIER	MH's
( AS A MULTIPLIER ) / TOTAL HR\$	4.00%	4	28.00%	31	66.00%	73	74.00%	81	96.00%	106	106
TOTAL MULTIPLIER w/SITE PROD.	1.04	114.4	1.28	140.8	1.66	182.6	1.74	191.4	1.96	215.6	215.6
	1.144		1.408		1.826		1.914		2.156		

NOTE : Use the Default Productivity Factor of 'mC' for working  
 in a contaminated area if the Safety Level cannot be determined.

(SEE FD FERNALD ESTIMATING SERVICES REFERENCE MANUAL IM-6006 8.10)

Total hours worked in a specific PPE level divided by 10 hour working  
 days = (PPE) ManDays to determine material cost of PPE's.  
 (SEE APPENDIX C - HEALTH PHYSICS)

11.0	Man Days	14.0	Man Days	18.0	Man Days	19.0	Man Days	22.0	Man Days
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THESE EFFICIENCY FACTORS WERE APPLIED INDIVIDUALLY  
 THROUGHOUT THE ESTIMATE AT A TASK SPECIFIC LEVEL,  
 TO OBTAIN A MORE ACCURATE ACCOUNT OF OVERALL  
 EFFICIENCY IMPACT DUE TO PPE REQUIREMENTS IN  
 HANDLING CONTAMINATED AND HAZARDOUS WASTE.

## EFFICIENCY FACTORS

PROJECT: STREAM CORRIDORS SOILS REMEDIATION  
 ESTIMATE NO. C2-2001-05-009  
 CLIENT: DOE  
 WBS NO.: 1.1.G.Q

**Fluor Fernald, Inc.**

DATE: 17-May-01  
 ESTIMATOR: JEA  
 LOCATION: Fernald  
 TASK NO.: GPR14

## PPE MULTIPLIER DEVELOPEMENT

	D	mD	mC	C	C+
CREW SIZE & MAKE-UP					
STANDARD	7	7	7	7	7
WORKER-BUDDY	0	0	0	0	0
SUPPORT TEAM	0	0	0	0	0
TOTAL CREW	7	7	7	7	7
CREW SIZE RATIO	1.00	1.00	1.00	1.00	1.00
AVAILABLE WORK TIME FACTOR	0.96	0.78	0.7	0.7	0.68
PPE LABOR PRODUCTIVITY FACTOR	1	1	0.86	0.82	0.75
NET PRODUCTIVITY RATIO	0.96	0.78	0.602	0.574	0.51
NET PRODUCTIVITY MULTIPLIER	1.04	1.28	1.66	1.74	1.96

These factors were based on Tables 6.1 and 6.2, Moderate Work Efforts, 66F to 85F temperature of 'Hazardous Waste Cost Control' by R.A.Selg. Modifications were made to reflect a 10 hour work day and no buddy system or support team for levels D, mC and C. The worker-buddy and support team members, if required, may be covered under Construction Mgmt. (Rad Techs).

AVAILABLE WORK TIME FACTOR		D	mD	mC	C	C+
TOTAL WORK MINUTES per D 4 - 10's		600	600	600	600	600
ADDIT'L SITE SAFETY MEETINGS NOT INCLD. IN BAS	QUANTITY	1	1	1	1	1
	MINUTES	25	25	25	25	25
TOTAL		25	25	25	25	25
PPE DON & DOFFING (ADJUST LEVEL D per WORK PLAN)	QUANTITY	0	0	3	3	3
	MINUTES	0	0	15	15	20
TOTAL			0	45	45	60
WORK BREAKS (ADJUST LEVEL D per WORK PLAN)	QUANTITY	N/A	2	2	2	2
	MINUTES	N/A	15	15	15	15
TOTAL			30	30	30	30
MOBILIZATION - ROUND TRIPS (ADJUST LEVEL D per WORK PLAN)	QUANTITY	N/A	4	4	4	4
	MINUTES	N/A	15	15	15	15
TOTAL			60	60	60	60
COOLDOWNS PER DAY ** (4 OUT OF 12 MONTHS) 33.33%	QUANTITY	N/A	4	4	4	4
	MINUTES	N/A	15	15	15	15
TOTAL			20	20	20	20
AIR TANK REPLACEMENT	QUANTITY	N/A	N/A	N/A	N/A	N/A
	MINUTES	N/A	N/A	N/A	N/A	N/A
TOTAL						
AVAILABLE WORK TIME		575	465	420	420	405
AVAILABLE WORK TIME FACTOR		0.96	0.78	0.7	0.7	0.68

NOTE: Adjust 'Work Minutes per Day' basis to: 5 - 8's, or leave as 4 - 10's. Any other circumstances, over-ride the minutes per day.

\*\* Assumption based on work performed in May, June, July & August, pro-rating cost over one year. Adjust % to individual circumstances.

# HEALTH PHYSICS

PROJECT: STREAM CORRIDORS SOILS REMEDIATION  
 ESTIMATE NO.: C2-2001-05-009  
 CLIENT: DOE  
 WBS NO.: 1.1.G.Q

## Fluor Fernald, Inc.

DATE: 17-May-01  
 ESTIMATOR: JEA  
 LOCATION: Fernald  
 TASK NO.: GPR14

**PPE's - PERSONAL PROTECTIVE EQUIPMENT**

DESCRIPTION	UNIT	UNIT COST	* NO. OF CHANGE OUTS PER WORKER PER DAY			
			Man Days (TOTAL HOURS worked in PPE's Div. by WORK HOURS / DAY)			
PPE LEVEL C / C+ / B : F/HF MASK w/RESP.&CART.			*	MAN DAYS	MAT'L.\$'s	PPE LEVEL
TYVEK COVER-ALL w/HOOD & BOOTIES - DISPOSABLE	EA	\$4.46	3	0	\$0	C / C+
TYVEK COVER-ALL w/HOOD & BOOTIES - DISPOSABLE	EA	\$4.46	3	0	\$0	C / C+
GLOVE LINER - DISPOSABLE	PR	\$0.24	3	0	\$0	C / C+
GLOVE, LASTEX - DISPOSABLE	PR	\$0.26	3	0	\$0	C / C+
GLOVE, WORK - DISPOSABLE	PR	\$1.02	3	0	\$0	C / C+
APR CARTRIDGES - DISPOSABLE	PR	\$6.98	3	0	\$0	C / C+
<b>SUB-TOTAL</b>		<b>\$17.42</b>	<b>3</b>		<b>\$0</b>	

(DOUBLE PPE)

**\$/MD = \$0.00**

PPE LEVEL mC : FULL DRESS w/ FACE SHIELD			MAN DAYS	MAT'L.\$'s	PPE LEVEL	
LT.WT. DISPOSABLE COVERALLS w/HOOD & BOOTIES	PR	\$4.46	3	708	\$9,473	mC
GLOVE LINER - DISPOSABLE	PR	\$0.24	3	708	\$510	mC
GLOVE, LASTEX - DISPOSABLE	PR	\$0.26	3	708	\$552	mC
GLOVE, WORK - DISPOSABLE	PR	\$1.02	3	708	\$2,166	mC
<b>SUB-TOTAL</b>		<b>\$5.98</b>	<b>3</b>		<b>\$12,701</b>	

**\$/MD = \$17.94**

SUBCONTRACTOR REQUIRED PURCHASES			QTY. PER WKR.	NO. OF WORKERS	MAT'L.\$'s	PPE LEVEL
RUBBER BOOT COVERS-(1)PR.PER WORKER	PR	\$12.70	6	0	\$0	D/C/B
APR w/HALF FACE MASK - (1) PER WORKER	EA	\$22.30	6	0	\$0	C
APR w/FULL FACE MASK - (1) PER WORKER	EA	\$174.00	6	0	\$0	C
SCBA	EA	\$1,894.00	2	0	\$0	B
COOL VESTS	EA	\$137.50	6	0	\$0	C/B
THERMO STRIPS	EA	\$50.00	6	0	\$0	C/B
<b>SUB-TOTAL</b>					<b>\$0</b>	

**TOTAL PPE's =** **MAT'L.\$'s**  
**\$12,700**  
(FORWARD TO PAGE 2 OF 2)

OTHER PPE's SUCH AS HARD HAT, SAFETY GLASSES/GOGGLES, STEEL TOED SAFETY SHOES, HEARING PROTECTION, ARE CONSIDERED THE SUBCONTRACTORS RESPONSIBILITY AND ARE COVERED IN HIS OVERHEAD EXPENSE. COSTS OF FD FERNALD SUPPLIED PPE's, SUCH AS COTTON COVERALLS, EXCHANGE OF RUBBER BOOT COVERS AND RESPIRATORS FOR CHANGEOUTS AND CLEANING OF SAME IS INCURRED BY FD FERNALD AND COSTS ARE NOT INCLUDED AS PART OF PROJECT COSTS AT THIS TIME.

# HEALTH PHYSICS

PROJECT: STREAM CORRIDORS SOILS REMEDIATION  
 ESTIMATE NO.: C2-2001-05-009  
 CLIENT: DOE  
 WBS NO.: 1.1.G.Q

## Fluor Fernald, Inc.

DATE: 17-May-01  
 ESTIMATOR: JEA  
 LOCATION: Fernald  
 TASK NO.: GPR14

-MEDICAL MONITORING -

**MEDICAL - PHYSICAL and IN-VIVO MONITORING - LOST WORKER TIME for RAD II WORKERS ONLY**

DESCRIPTION PHYSICAL (3hrs), IN-VIVO (1hr)	QTY	HRS	WKR	TOTAL HOURS	AVG. LABOR RATE	TOTAL LABOR \$
BASELINE PHYSICALS	1	4	7	28	\$31.06	\$870
ANNUAL PHYSICALS	0	4	7	0	\$31.06	\$0
EXIT (TERMINATION) PHYSICALS (IN-VIVO)	1	1	7	7	\$31.06	\$220
<b>SUB-TOTAL</b>						<b>\$1,090</b>

**RADIATION IN-VITRO SURVEILLANCE - LOST WORKER TIME for RAD II WORKERS ONLY**

DESCRIPTION	QTY	HRS	WKR	TOTAL HOURS	AVG. LABOR RATE	TOTAL LABOR \$
BI-MONTHLY BIOASSAY	4	1	7	27	\$31.06	\$850
<b>SUB-TOTAL</b>						<b>\$850</b>

**RANDOM DRUG TESTING**

	TESTS	HRS	TOTAL HOURS	AVG. RATE	LABOR \$'s	
	12	2	24	\$31.06	\$700	
NO. OF WKRS. TESTED	TESTING DAYS PER YR.	AVG. NO. OF TESTS PER DAY	CHANCE/ DAY FOR TEST	NO. OF WKRS. FOR THIS ESTIMATE	CHANCES /DAY FOR TEST FOR PROJECT	CONSTR WORKING DAYS
1900	226	8	0.0042105	21	0.0884	137

<b>WORK DELAYS CAUSED BY MONITORING</b>	0.0%			<b>LABOR \$'s THRU SAFETY</b>	<b>LABOR \$'s</b>	
				\$695,390	\$0	
<b>WORK DELAYS CAUSED BY RAD CHECKING</b>	0.0%			<b>LABOR \$'s</b>	<b>LABOR \$'s</b>	
				\$695,390	\$0	

	TOTAL LABOR	TOTAL MAT'L	GRAND TOTAL
<b>TOTAL HEALTH PHYSICS</b>	\$2,600	\$12,700	\$15,300

(FORWARD TO ESTIMATE SUMMARY SHEET)

# ACTIVITY DURATIONS

## Fluor Fernald, Inc.

PROJECT: STREAM CORRIDORS SOILS REMEDIATION  
 ESTIMATE NO.: C2-2001-05-009  
 CLIENT: DOE  
 WBS NO.: 1.1.G.Q

DATE: 17-May-01  
 ESTIMATOR: JEA  
 LOCATION: Fernald  
 TASK NO.: GPR14

ACTIVITY	EST. DATE	START DATE	MID POINT	COMPL. DATE	ACTIVITY	DURATION
CONSTRUCTION:	11-May-01	01-Apr-08	29-Jul-08	25-Nov-08		7.8 MONTHS
						0 MONTHS
TOTAL						7.8 MONTHS

DATE of EST. to MID-POINT ACTIVITY DURATION	
a.	86.7 MONTHS
b.	0 MONTHS

ACTIVITY	EST. DATE	START DATE	MID POINT	COMPL. DATE	ACTIVITY	DURATION
OPERATIONS						0 MONTHS

DATE of EST. to MID-POINT ACTIVITY DURATION	
	0 MONTHS

ACTIVITY DURATION IS USED IN DETERMINING NUMBER of WORKERS for CERCLA/SAT TRAINING HOURS and HEALTH PHYSICS COSTS.



**GPR17**

**STREAM CORRIDORS EXC CTRL/CERT**



# Fluor Fernald, Inc.

ESTIMATE SUPPORT WORKSHEET  
FOR ACTIVITY BASED ESTIMATING  
(1 FTE EQUALS 1747 HOURS)

DATE: 07-Sep-01  
PROJECT MGR: J.D. CHIOU  
CAM: J.D. CHIOU  
PREPARED BY: T. O'BRIEN  
FISCAL YEAR: 2009

PBS: OHFN06  
WBS: 1.1.G.Q  
CTRL ACCT: GPR1  
CHARGE NO: GPR17  
COMMENT NO F06-041

Resource:	Res Dept:	ENSMGR	ENVR SCIENTIST MGR	Overtime:	Class:		EOC:		LABOR
					EOC:	SAL	EOC:	SAL	
Yr Hours:			Oct 00- Sep 01	0.0	0.0	0.0	0.0	0.0	0.0
Cum Hours:			Oct 01- Sep 02	0.0	0.0	0.0	0.0	0.0	0.0
Yr Total Cost:			Oct 02- Sep 03	0.0	0.0	0.0	0.0	0.0	0.0
Cum Total Cost:			Oct 03- Sep 04	0.0	0.0	0.0	0.0	0.0	0.0
			Oct 04- Sep 05	0.0	0.0	0.0	0.0	0.0	0.0
			Oct 05- Sep 06	0.0	0.0	0.0	0.0	0.0	0.0
			Oct 06- Sep 07	0.0	0.0	0.0	0.0	0.0	0.0
			Oct 07- Sep 08	0.0	0.0	0.0	0.0	0.0	0.0
			Oct 08- Sep 09	0.0	0.0	0.0	0.0	0.0	0.0
			Oct 09- Sep 10	0.0	0.0	0.0	0.0	0.0	0.0
				0	0	0	0	0	0
				0	0	0	0	0	0
				4,921	4,921	4,921	4,921	4,921	4,921
				0	0	0	0	0	0
				4,921	4,921	4,921	4,921	4,921	4,921

Resource:	Res Dept:	ENSREP	ENVR SCIENCE REP	Overtime:	Class:		EOC:		LABOR
					EOC:	SAL	EOC:	SAL	
Yr Hours:			Oct 00- Sep 01	0.0	0.0	0.0	0.0	0.0	0.0
Cum Hours:			Oct 01- Sep 02	0.0	0.0	0.0	0.0	0.0	0.0
Yr Total Cost:			Oct 02- Sep 03	0.0	0.0	0.0	0.0	0.0	0.0
Cum Total Cost:			Oct 03- Sep 04	0.0	0.0	0.0	0.0	0.0	0.0
			Oct 04- Sep 05	0.0	0.0	0.0	0.0	0.0	0.0
			Oct 05- Sep 06	0.0	0.0	0.0	0.0	0.0	0.0
			Oct 06- Sep 07	0.0	0.0	0.0	0.0	0.0	0.0
			Oct 07- Sep 08	0.0	0.0	0.0	0.0	0.0	0.0
			Oct 08- Sep 09	0.0	0.0	0.0	0.0	0.0	0.0
			Oct 09- Sep 10	0.0	0.0	0.0	0.0	0.0	0.0
				0	0	0	0	0	0
				0	0	0	0	0	0
				15,947	15,947	15,947	15,947	15,947	15,947

Resource:	Res Dept:	ENSTEC	ENVR SCIENTIST TECH	Overtime:	Class:		EOC:		LABOR
					EOC:	SAL	EOC:	SAL	
Yr Hours:			Oct 00- Sep 01	0.0	0.0	0.0	0.0	0.0	0.0
Cum Hours:			Oct 01- Sep 02	0.0	0.0	0.0	0.0	0.0	0.0
Yr Total Cost:			Oct 02- Sep 03	0.0	0.0	0.0	0.0	0.0	0.0
Cum Total Cost:			Oct 03- Sep 04	0.0	0.0	0.0	0.0	0.0	0.0
			Oct 04- Sep 05	0.0	0.0	0.0	0.0	0.0	0.0
			Oct 05- Sep 06	0.0	0.0	0.0	0.0	0.0	0.0
			Oct 06- Sep 07	0.0	0.0	0.0	0.0	0.0	0.0
			Oct 07- Sep 08	0.0	0.0	0.0	0.0	0.0	0.0
			Oct 08- Sep 09	0.0	0.0	0.0	0.0	0.0	0.0
			Oct 09- Sep 10	0.0	0.0	0.0	0.0	0.0	0.0
				0	0	0	0	0	0
				0	0	0	0	0	0
				13,358	13,358	13,358	13,358	13,358	13,358

Resource:	Res Dept:	HEOOPR	HEAVY EQUIP OPERATOR	Overtime:	Class:		EOC:		LABOR
					EOC:	HOU	EOC:	SAL	
Yr Hours:			Oct 00- Sep 01	0.0	0.0	0.0	0.0	0.0	0.0
Cum Hours:			Oct 01- Sep 02	0.0	0.0	0.0	0.0	0.0	0.0
Yr Total Cost:			Oct 02- Sep 03	0.0	0.0	0.0	0.0	0.0	0.0
Cum Total Cost:			Oct 03- Sep 04	0.0	0.0	0.0	0.0	0.0	0.0
			Oct 04- Sep 05	0.0	0.0	0.0	0.0	0.0	0.0
			Oct 05- Sep 06	0.0	0.0	0.0	0.0	0.0	0.0
			Oct 06- Sep 07	0.0	0.0	0.0	0.0	0.0	0.0
			Oct 07- Sep 08	0.0	0.0	0.0	0.0	0.0	0.0
			Oct 08- Sep 09	0.0	0.0	0.0	0.0	0.0	0.0
			Oct 09- Sep 10	0.0	0.0	0.0	0.0	0.0	0.0
				0	0	0	0	0	0
				0	0	0	0	0	0
				33.3	33.3	33.3	33.3	33.3	33.3
				70.0	70.0	70.0	70.0	70.0	70.0
				1,762	1,762	1,762	1,762	1,762	1,762
				3,541	3,541	3,541	3,541	3,541	3,541

Resource:	Res Dept:	LABCHM	CHEMIST	Overtime:	Class:		EOC:		LABOR
					EOC:	SAL	EOC:	SAL	
Yr Hours:			Oct 00- Sep 01	0.0	0.0	0.0	0.0	0.0	0.0
Cum Hours:			Oct 01- Sep 02	0.0	0.0	0.0	0.0	0.0	0.0
Yr Total Cost:			Oct 02- Sep 03	0.0	0.0	0.0	0.0	0.0	0.0
Cum Total Cost:			Oct 03- Sep 04	0.0	0.0	0.0	0.0	0.0	0.0
			Oct 04- Sep 05	0.0	0.0	0.0	0.0	0.0	0.0
			Oct 05- Sep 06	0.0	0.0	0.0	0.0	0.0	0.0
			Oct 06- Sep 07	0.0	0.0	0.0	0.0	0.0	0.0
			Oct 07- Sep 08	0.0	0.0	0.0	0.0	0.0	0.0
			Oct 08- Sep 09	0.0	0.0	0.0	0.0	0.0	0.0
			Oct 09- Sep 10	0.0	0.0	0.0	0.0	0.0	0.0
				0	0	0	0	0	0
				0	0	0	0	0	0
				1,762	1,762	1,762	1,762	1,762	1,762
				3,541	3,541	3,541	3,541	3,541	3,541

INCLUDES ESCALATION COSTS

# Fluor Fernald, Inc.

ESTIMATE SUPPORT WORKSHEET  
FOR ACTIVITY BASED ESTIMATING  
(1 FTE EQUALS 1747 HOURS)

DATE: 07-Sep-01  
PROJECT MGR: J.D. CHIOU  
CAM: J.D. CHIOU  
PREPARED BY: T. O'BRIEN  
FISCAL YEAR: 2009

PBS: OHFN06  
WBS: 1.1.G.Q  
CTRL ACCT: GPR1  
CHARGE NO: GPR17  
COMMENT NO F06-041

	Sep 01	Sep 02	Sep 03	Sep 04	Sep 05	Sep 06	Sep 07	Sep 08	Sep 09	Sep 10
Yr Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	351.0	0.0
Cum Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	351.0	351.0
Yr Total Cost:	0	0	0	0	0	0	0	0	23,083	0
Cum Total Cost:	0	0	0	0	0	0	0	0	23,083	23,083

Resource: LABMGR LAB MANAGER EOC: LABOR  
Res Dept: 949 Overtime: SAL

	Oct 00- Sep 01	Oct 01- Sep 02	Oct 02- Sep 03	Oct 03- Sep 04	Oct 04- Sep 05	Oct 05- Sep 06	Oct 06- Sep 07	Oct 07- Sep 08	Oct 08- Sep 09	Oct 09- Sep 10
Yr Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	39.0	0.0
Cum Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	39.0	39.0
Yr Total Cost:	0	0	0	0	0	0	0	0	3,383	0
Cum Total Cost:	0	0	0	0	0	0	0	0	3,383	3,383

Resource: LABTEC LAB TECH EOC: LABOR  
Res Dept: 949 Overtime: SAL

	Oct 00- Sep 01	Oct 01- Sep 02	Oct 02- Sep 03	Oct 03- Sep 04	Oct 04- Sep 05	Oct 05- Sep 06	Oct 06- Sep 07	Oct 07- Sep 08	Oct 08- Sep 09	Oct 09- Sep 10
Yr Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	210.0	0.0
Cum Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	210.0	210.0
Yr Total Cost:	0	0	0	0	0	0	0	0	9,902	0
Cum Total Cost:	0	0	0	0	0	0	0	0	9,902	9,902

Resource: MVOOPR MOTOR VEHICLE OPER EOC: LABOR  
Res Dept: 949 Overtime: HOU

	Oct 00- Sep 01	Oct 01- Sep 02	Oct 02- Sep 03	Oct 03- Sep 04	Oct 04- Sep 05	Oct 05- Sep 06	Oct 06- Sep 07	Oct 07- Sep 08	Oct 08- Sep 09	Oct 09- Sep 10
Yr Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16.7	33.3	0.0
Cum Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16.7	50.0	50.0
Yr Total Cost:	0	0	0	0	0	0	0	734	1,632	0
Cum Total Cost:	0	0	0	0	0	0	0	734	2,367	2,367

Resource: PUSMGR PROJECT SUPPORT MGR EOC: LABOR  
Res Dept: 949 Overtime: SAL

	Oct 00- Sep 01	Oct 01- Sep 02	Oct 02- Sep 03	Oct 03- Sep 04	Oct 04- Sep 05	Oct 05- Sep 06	Oct 06- Sep 07	Oct 07- Sep 08	Oct 08- Sep 09	Oct 09- Sep 10
Yr Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17.3	22.7	0.0
Cum Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17.3	40.0	40.0
Yr Total Cost:	0	0	0	0	0	0	0	1,209	1,758	0
Cum Total Cost:	0	0	0	0	0	0	0	1,209	2,967	2,967

# Fluor Fernald, Inc.

ESTIMATE SUPPORT WORKSHEET  
FOR ACTIVITY BASED ESTIMATING  
(1 FTE EQUALS 1747 HOURS)

DATE: 07-Sep-01  
PROJECT MGR: J.D. CHIOU  
CAM: J.D. CHIOU  
PREPARED BY: T. O'BRIEN  
FISCAL YEAR: 2009

PBS: OHFN06  
WBS: 1.1.G.Q  
CTRL ACCT: GPR1  
CHARGE NO: GPR17  
COMMENT NO F06-041

Resource: QACENG  
Res Dept: 949

QA ENGINEER  
Overtime:

	Oct 00-		Oct 01-		Oct 02-		Oct 03-		Oct 04-		Oct 05-		Oct 06-		Oct 07-		Oct 08-		Oct 09-	
	Sep 01	Sep 02	Sep 03	Sep 04	Sep 05	Sep 06	Sep 07	Sep 08	Sep 09	Sep 10	Sep 01	Sep 02	Sep 03	Sep 04	Sep 05	Sep 06	Sep 07	Sep 08	Sep 09	Sep 10
Yr Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	36.0	81.0	117.0	117.0	0.0
Cum Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	36.0	117.0	234.0	351.0	351.0
Yr Total Cost:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2,526	6,316	117,000	117,000	0
Cum Total Cost:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2,526	8,842	165,000	282,000	8,842

Resource: RADTEC  
Res Dept: 949

RAD TECH  
Overtime:

	Oct 00-		Oct 01-		Oct 02-		Oct 03-		Oct 04-		Oct 05-		Oct 06-		Oct 07-		Oct 08-		Oct 09-	
	Sep 01	Sep 02	Sep 03	Sep 04	Sep 05	Sep 06	Sep 07	Sep 08	Sep 09	Sep 10	Sep 01	Sep 02	Sep 03	Sep 04	Sep 05	Sep 06	Sep 07	Sep 08	Sep 09	Sep 10
Yr Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	40.0	108.0	148.0	148.0	0.0
Cum Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	40.0	148.0	296.0	444.0	444.0
Yr Total Cost:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2,081	6,246	148,000	148,000	0
Cum Total Cost:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2,081	8,327	166,000	314,000	8,327

Resource: S&HENG  
Res Dept: 949

SAFETY ENGINEER  
Overtime:

	Oct 00-		Oct 01-		Oct 02-		Oct 03-		Oct 04-		Oct 05-		Oct 06-		Oct 07-		Oct 08-		Oct 09-	
	Sep 01	Sep 02	Sep 03	Sep 04	Sep 05	Sep 06	Sep 07	Sep 08	Sep 09	Sep 10	Sep 01	Sep 02	Sep 03	Sep 04	Sep 05	Sep 06	Sep 07	Sep 08	Sep 09	Sep 10
Yr Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.0	6.0	15.0	15.0	0.0
Cum Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.0	15.0	30.0	45.0	45.0
Yr Total Cost:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	684	507	15,000	15,000	0
Cum Total Cost:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	684	1,191	16,500	31,500	1,191

Resource: SERVSUB  
Res Dept: 949

SUBS  
Overtime:

	Oct 00-		Oct 01-		Oct 02-		Oct 03-		Oct 04-		Oct 05-		Oct 06-		Oct 07-		Oct 08-		Oct 09-	
	Sep 01	Sep 02	Sep 03	Sep 04	Sep 05	Sep 06	Sep 07	Sep 08	Sep 09	Sep 10	Sep 01	Sep 02	Sep 03	Sep 04	Sep 05	Sep 06	Sep 07	Sep 08	Sep 09	Sep 10
Yr Units:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4,123.0	4,123.0	0.0
Cum Units:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4,123.0	8,246.0	4,123.0
Yr Total Cost:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5,162	4,123.0	0
Cum Total Cost:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5,162	9,289.0	5,162

# Fluor Fernald, Inc.

ESTIMATE SUPPORT WORKSHEET  
FOR ACTIVITY BASED ESTIMATING  
(1 FTE EQUALS 1747 HOURS)

PBS: OHFN06  
WBS: 1.1.G.Q  
CTRL ACCT: GPR1  
CHARGE NO: GPR17  
COMMENT NO F06-041

DATE: 07-Sep-01  
PROJECT MGR: J.D. CHIOU  
CAM: J.D. CHIOU  
PREPARED BY: T. O'BRIEN  
FISCAL YEAR: 2009

**GRAND TOTALS:**

	Oct 00- Sep 01	Oct 01- Sep 02	Oct 02- Sep 03	Oct 03- Sep 04	Oct 04- Sep 05	Oct 05- Sep 06	Oct 06- Sep 07	Oct 07- Sep 08	Oct 08- Sep 09	Oct 09- Sep 10
Yr Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	155.7	1,441.4	0.0
Cum Hours:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	155.7	1,597.1	1,597.1
Yr Total Cost:	0	0	0	0	0	0	0	8,996	93,984	0
Cum Total Cost:	0	0	0	0	0	0	0	8,996	102,980	102,980
Cum Total Cost:	0	0	0	0	0	0	0	8,996	102,980	102,980

*[Signature]*  
CONTROL TEAM

CAM

## **SECTION 14**

### **5.0 RISK PLAN**



# Risk/Opportunity Identification and Analysis Form

Project: Area Stream Corridors Soils Remediation		PBS Number: 06		Total Baseline Dollars (Minimum Case): \$2,690,989					
Evaluator: M. Rolles / F. Miller		Date: 4/11/01		WBS Number: 1.1.G.O					
CAM: JD Chiou		Date: 4/11/01		Control Account Number: GPR1					
Project Task		Risk and/or Opportunity		Potential Impact					
		Internal Or External Driver	Impact Cost \$ (Maximum Case)	Risk Impact Level	Risk Probability %	Risk Probability Level	Probable Cost \$ (Likeliest Case)	Risk Critical Value	Risk Handling Strategy
Area Stream Corridors Predesign	Additional Samples needed to bound contamination (chasing)	Internal	\$16,000	1	75	4	\$12,000	2	Accept Risk
Area Stream Corridors Site Prep / Excavation	Certification Units Failure	Internal	\$37,000	2	30	2	\$11,100	2	Accept Risk
Area Stream Corridors Site Prep / Excavation	Encountering more debris and unknown material	Internal	\$15,000	1	30	2	\$4,500	1	Accept Risk
Area Stream Corridors Site Prep / Excavation	Extreme Weather Delays	Internal	\$77,000	1	20	2	\$15,400	1	Accept Risk
Area Stream Corridors Site Prep / Excavation	Encountering 10% more debris than was identified from predesign activities.	Internal	\$5,000	1	10	2	\$500	1	Accept Risk
Area Stream Corridors Title III	Additional Samples needed to bound contamination (chasing)	Internal	\$8,000	1	60	4	\$4,800	2	Accept Risk
Area Stream Corridors Excavation Control / Certification	Certification Units Failure	Internal	\$10,000	2	30	2	\$3,000	2	Accept Risk
			Total:				\$51,300		

Area Stream Corridors Predesign	Longer EPA Review Cycle	External	\$10,000	1	30	2	\$3,000	1	
Area Stream Corridors Title III	Longer EPA Review Cycle	External	\$10,000	1	30	2	\$3,000	1	
Area Stream Corridors Excavation Control / Certification	Longer EPA Review Cycle	External	\$10,000	1	30	2	\$3,000	1	
			Total:				\$51,300		

