DESIGN WORK PLAN
Centredale Manor Restoration Superfund Site
North Providence, Rhode Island

May 9, 2001

Prepared for

Centredale Manor Performing Parties Group
c/o Swidler Berlin Shereff Freidman LLP
3000 K Street, NW, Suite 300
Washington, DC

Prepared by

LOUREIRO ENGINEERING ASSOCIATES, INC.
100 Northwest Drive
Plainville, Connecticut

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Attachments

1. STATEMENT OF OBJECTIVES

Loureiro Engineering Associates, Inc. (LEA) has prepared this Design Work Plan (Work Plan) at the request of the Performing Parties Group associated with the Centredale Manor Restoration Superfund Site (the Site) in North Providence, Rhode Island. The purpose of this Design Work Plan (Work Plan) is to provide a detailed description and schedule for the completion and submission of all design documents to comply with the requirements of the Unilateral Administrative Order (UAO) (U.S. EPA New England CERCLA Docket No. CERCLA-1-2001-0032) issued by the U.S. Environmental Protection Agency (EPA) on March 26, 2001. This document identifies and describes the documents required by the UAO, a description of how each document will be generated, and the Design Schedule previously submitted to the EPA. In addition, this document provides an outline of the design specifications and drawings for the completion of the work during the implementation phase and a preliminary implementation schedule for the completion of the proposed work.

2. SCOPE OF DESIGN

The scope of the work identified in this Work Plan is intended to identify all of the required documents to be submitted to the EPA to comply with the previously identified UAO and provide a description of the preparation of each document for the design phase of this non-time critical removal action (NTCRA). The documents required in the design phase include a 100% Design, a Project Operations Plan (POP) and an Implementation Work Plan. The 100% Design identifies the means and methods required for the delineation and remediation of impacted soil along the perimeter of the floodplain of the Woonasquatucket River and the reconstruction of the Allendale Dam. The POP is made up of four plans and details specific requirements for site management, field sampling, quality assurance, health and safety and the support of the Performing Parties Group to the EPA for community relations support. The Implementation Work Plan will incorporate both the 100% Design and the POP into a working document that specifically identifies the activities that will occur at the Site during the implementation phase of the NTCRA.

2.1 100% Design

The 100% Design document is intended to identify the means and methods required for the complete delineation and remediation of impacted soil along the perimeter of the floodplain of the Woonasquatucket River and the reconstruction of the Allendale Dam. The 100% Design will also include a description of the database management and a description of the means and methods for the compliance of all applicable or relevant and appropriate requirements (ARARs).

2.1.1 Delineation and Excavation of Impacted Soil

As part of the 100% Design, LEA will be reviewing all of the data and drawings associated with previous site investigations to identify any data gaps that will require additional sampling to adequately delineate the areas of impacted soil and sediment. The soil and sediment proposed for removal are based upon the Removal Alternative #3 as identified in the Final Engineering Evaluation/Cost analysis (EECA) provided by Tetra Tech NUS, Inc. Based on the file review and gap assessment, additional field sampling locations will be identified. Specifications and preliminary removal drawings will be generated from the results of the samples collected during previous investigations. Final removal drawings will be generated after additional investigation conducted during the implementation phase of the NTCRA.

2.1.2 Dam Reconstruction

The design and sequence of construction for the Allendale Dam completed by the Army Corps of Engineers (Corps) will be evaluated and modified as necessary to prevent downstream migration of dioxin contaminated sediment during reconstruction. In addition, modifications to the Corps' design of the gate structure will be completed to include an automatic sluice gate to replace the wood stop logs previously identified. All design calculations, specifications and drawings will be submitted as part of the 100% Design. The sequence of dam construction activities will coincide with the maintenance of low water elevations for the completion of the sediment and soil removal activities.

2.2 Implementation Work Plan

The Implementation Work Plan will incorporate the 100% Design and the means and methods identified in the Project Operations Plan, described below, into a working document that will identify the specific activities that will be performed at the Site during the implementation phase of the NTCRA. Specifically the Work Plan will identify items including, but not limited to, all surveys, investigation, and sampling means and methods prior to, during, and at the completion of excavation operations, handling, storage, and disposal of all wastes generated, and all site maintenance and restoration at the completion of the NTCRA. The Work Plan will also include a Construction Quality Control Plan and a Contingency Plan to address any incident or emergency that may occur at the Site. A detailed schedule of all implementation activities will be submitted with the Work Plan. A preliminary implementation schedule has been included as Attachment B of this Work Plan.

2.3 Project Operations Plan

The Project Operations Plan will be submitted as a significant part of the Implementation Work Plan. The POP consists of four separate plans. The four plans include the Site Management Plan (SMP), the Sampling and Analysis Plan (SAP) which is made up of two plans, the Field Sampling Plan (FSP) and the Quality Assurance Project Plan (QAPP), a site-specific Health and Safety Plan, and a Community Relations Support Plan. A brief discussion of each plan has been included below.

2.3.1 Site Management Plan

The Site Management Plan will be generated to identify various details of the NTCRA concerning site layout, site access, site security, management responsibilities, waste management

and disposal, and data management. The SMP will correspond with the requirements and procedures specified in the 100% Design.

2.3.2 Sampling and Analysis Plan

The Sampling and Analysis Plan is made up by combining two separate plans, the Field Sampling Plan and the Quality Assurance Project Plan. The combined plan will be generated for site-specific methods for the collection, documentation, selection, handling and analysis of all samples generated during the site investigation and remediation of the impacted areas.

2.3.2.1 Field Sampling Plan

The Field Sampling Plan will identify the field sampling and data gathering procedures to be utilized during the implementation phase of the NTCRA. Specifically the FSP will address the number of samples that will be collected for each matrix, the locations of the samples to be collected, the frequency of duplicate and quality control samples that will be collected, the designation of the samples, equipment utilized to collect the samples, sampling handling and transport, and the analysis requirements of the samples including preservation methods and holding times.

2.3.2.2 Quality Assurance Project Plan

The Quality Assurance Project Plan is intended to communicate all of the site-specific procedures and activities to achieve the data quality objectives (DQOs) for the implementation phase of the NTCRA. Specifically the QAPP will identify the quality objectives for the sampling and analysis of samples collected at the site that will be used as a basis for further action and delineation. The QAPP will include methods of documentation and record keeping, sample handling, custody requirements, analytical method requirements, laboratory quality control, data management, and data validation.

2.3.3 Health and Safety Plan

A site-specific Health and Safety Plan will be generated for all activities that will be performed at the site for the implementation phase of the NTCRA. The purpose of a HASP is to establish procedures to protect the health and safety of all workers performing work at the Site. Specifically the HASP will identify all of the potential hazards that can occur at the Site, the emergency procedures to be implemented in the event of an injury or emergent event, the personal protective equipment required, and an explanation of the health and safety program used to track medical records, training and previous incidences of the contractor and its personnel.

2.3.4 Community Relations Support Plan

The Community Relations Support Plan will be written to identify the assistance that the Performing Parties Group will provide in an effort to adequately support the EPA in their community relation efforts associated with the existing Community Relations Plan.

2.4 **Institutional Controls Plan**

The Performing Parties Group will prepare and submit an Institutional Controls Plan (ICP) in accordance with the requirements identified in the Statement of Work (SOW) included as an attachment to the UAO. The ICP will outline the approach used by the Performing Parties to establish and maintain institutional controls and access restrictions to prevent any problems completing the work as required by the UAO. A schedule for the work will be included in the ICP.

3. SCHEDULE

The schedule for the completion of the design documents and tasks associated with the design phase of the NTCRA began prior to the submission of this Work Plan and will continue to July 9, 2001 with the submission of the 100% Design, the Institutional Controls Plan, the Implementation Work Plan and Schedule, and the Project Operations Plan. The Design Schedule was previously submitted to the EPA and has been included as Attachment A to this Work Plan.

Depending upon EPA review, comments and final approval of the submitted plans, the Performing Parties will schedule a pre-construction meeting with the EPA in an effort to begin work immediately. The UAO requires a completion of all construction activities within 180 days of the approval of the 100% Design. The Preliminary Implementation Schedule included as Attachment B indicates that more than 180 days will be needed to complete the work due to weather conditions and the expected start date. In the event that the EPA approves the 100% Design by the beginning of August, the additional investigation activities will begin immediately. Based upon estimated turn-around times for dioxin sample analysis and data validation, the complete extent of the removal areas might not be known until the middle of October. Excavation activities may start at the end of October, but due to removal area access, the removal activities may take as long as two months. Site restoration for the excavation areas would need to be performed in the Spring of 2002 when it is possible to establish a suitable stand of vegetation. This may pose a problem with the residents of properties where removal has occurred. It may be appropriate to wait until the next construction season (spring 2002) to begin the removals in the residential lots. Further discussion will be needed to determine the schedule for the soil removal activities.

The reconstruction of the dam will begin in August assuming EPA approval of the 100% Design by the beginning of August 2001. If EPA approval delays the start of constructioon beyond August, an adequate construction period prior to winter and the end of the construction season may not be available. In any event, it is likely that site restoration of the area surrounding the dam could not be completed prior to the spring of 2002.

4. OUTLINE OF DESIGN SPECIFICATIONS AND DRAWINGS

The design specifications and drawings will be separated into two parts, the excavation and disposal of soil and sediment and the reconstruction of the Allendale Dam. Outlines of the design specifications and drawings for the design of each component are identified below.

4.1 Soil and Sediment Excavation and Disposal

The excavation and disposal of the soil and sediment containing dioxin greater than 1 ppb is primarily an earthwork project. The sections that will be included as part of the design specifications include the following Sections;

General Requirements

Section 01010 – Scope of Work
Section 01025 -- Price and Payment Procedures
Section 01050 – Field Engineering
Section 01120 – Decontamination
Section 01200 – Coordination and Meetings
Section 01330 – Submittal Procedures
Section 01500 – Temporary Facilities and Controls
Section 01560 – Safety and Environmental Controls

Site Construction

Section 02110 – Clearing and Grubbing
Section 02140 -- Dewatering
Section 02220 -- Earthwork
Section 02272 – Soil Erosion and Sediment Controls
Section 02950 – Site Restoration

Excavation Design Drawings

Drawing No. 1 – Cover Sheet
Drawing No. 2 – Site Layout and Trucking Routes
Drawing No. 3 – Soil Erosion and Sediment Controls Details and Notes
Drawing No. 4, 5, 6, etc. – Excavation Areas and Site Work Details

4.2 Dam Reconstruction

Based upon the design of the reconstructed dam to replace the existing structure, the reconstruction will primarily be an earthwork and concrete construction project. The sections that will be included as part of the design specifications for the dam include the following;

General Requirements

Section 01010 – Scope of Work
Section 01025 -- Price and Payment Procedures
Section 01050 – Field Engineering
Section 01120 – Decontamination
Section 01200 – Coordination and Meetings
Section 01330 – Submittal Procedures
Section 01500 – Temporary Facilities and Controls
Section 01560 – Safety and Environmental Controls

Site Construction

Section 02110 – Clearing and Grubbing
Section 02140 -- Dewatering
Section 02220 -- Earthwork
Section 02272 – Soil Erosion and Sediment Controls
Section 02950 – Site Restoration

Concrete

Section 03100 – Concrete Formwork
Section 03200 – Concrete Reinforcement
Section 03250 – Concrete Accessories
Section 03300 – Cast-in-Place Concrete
Section 03400 – Precast Concrete

Specialty Construction

Section 13200 – Mechanical Sluice Gate System
Section 13320 – Control and Instrumentation

Electrical

Section 16200 – Electrical Power

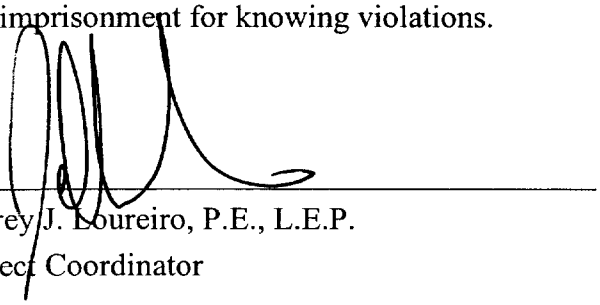
Dam Design Drawings

Drawing No. 1 – Cover Sheet
Drawing No. 2 – Site Layout and Trucking Routes
Drawing No. 3 – Soil Erosion and Sediment Controls Details and Notes
Drawing No. 4 – Sequence of Construction Notes
Drawing No. 5 – Sitework – Plan and Details
Drawing No. 6, 7 – Structural Plan
Drawing No. 8, 9 – Structural Sections and Details

5. DISCLAIMER AND CERTIFICATION STATEMENT

"Disclaimer: This document has been prepared pursuant to a government administrative order (U.S. EPA New England CERCLA Docket No. CERCLA-1-2001-0032) and is subject to approval by the U.S. Environmental Protection Agency. The opinions, findings, and conclusions expressed are those of the author and not those of the U.S. Environmental Protection Agency."

"To the best of my knowledge, after thorough investigation, I certify that the information contained in or accompanying this submission is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.



Jeffrey J. Loureiro, P.E., L.E.P.
Project Coordinator

ATTACHMENT A

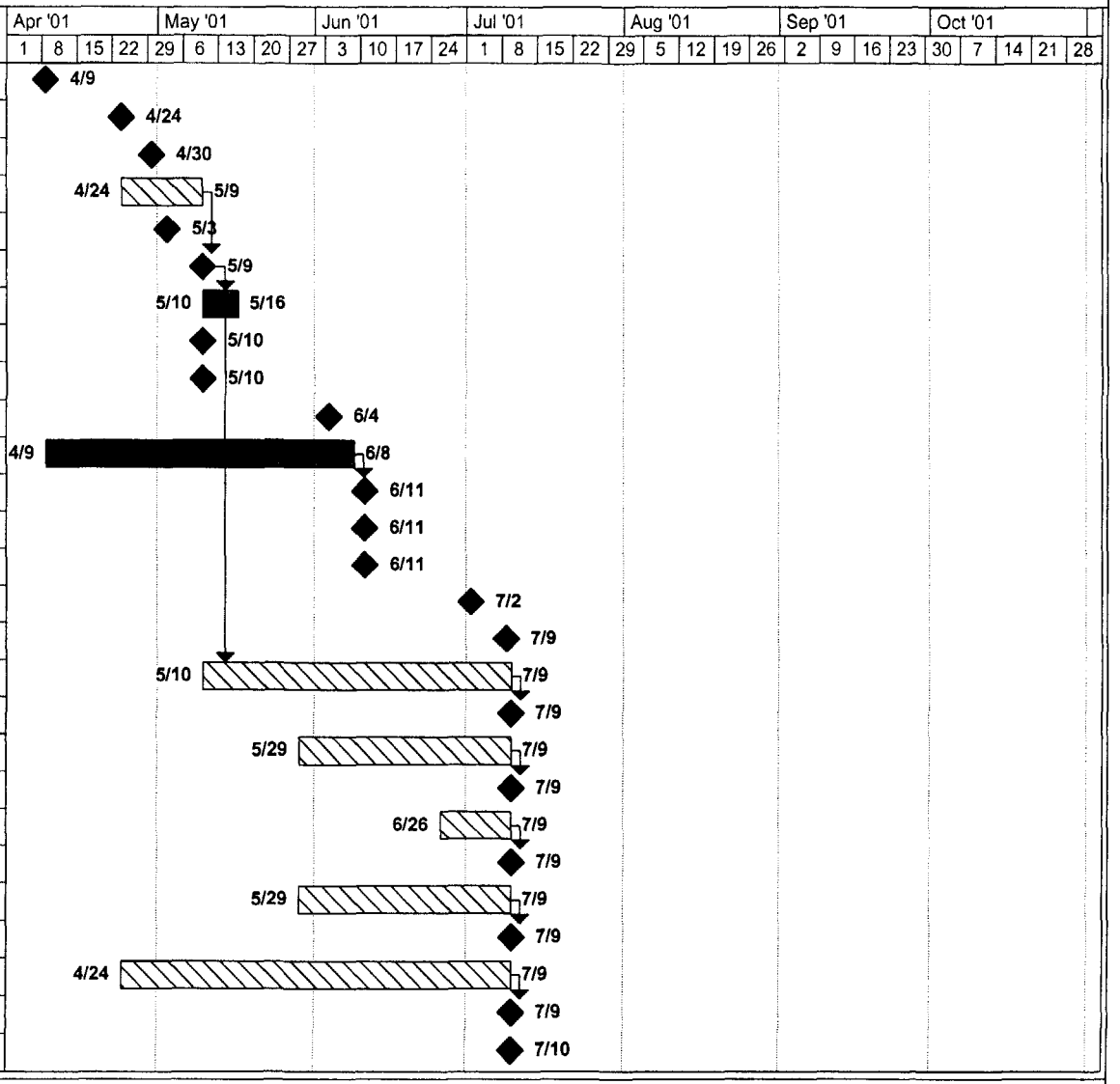
Design Schedule

DESIGN SCHEDULE

(DRAFT)

Centredale Manor Restoration Project Superfund Site
North Providence, Rhode Island

ID	Task Name	Duration
1	Effective Date of Order	0 days
2	Submit Notice to Recorder's Office to EPA	0 days
3	Submit a Communication and Coordination Plan	0 days
4	Prepare Design Work Plan	12 days
5	Submit Progress Meeting Agenda to EPA	0 days
6	Submit Design Work Plan to EPA	0 days
7	EPA Review and Approval of Work Plan	5 days
8	Submit Monthly Progress Report to EPA	0 days
9	Design Progress Meeting	0 days
10	Submit Progress Meeting Agenda to EPA	0 days
11	Secure all Access Agreements	45 days
12	Submit Lack of Access Agreement Letter (if necessary)	0 days
13	Design Progress Meeting	0 days
14	Submit Monthly Progress Report to EPA	0 days
15	Submit Progress Meeting Agenda to EPA	0 days
16	Design Progress Meeting	0 days
17	Prepare 100% Design	43 days
18	Submit 100% Design	0 days
19	Prepare Institutional Controls Plan	30 days
20	Submit Institutional Controls Plan	0 days
21	Prepare Implementation Schedule	10 days
22	Submit Implementation Schedule	0 days
23	Prepare Implementation Work Plan	30 days
24	Submit Implementation Work Plan	0 days
25	Prepare Project Operations Plan	55 days
26	Submit Project Operations Plan	0 days
27	Submit Monthly Progress Report to EPA	0 days



Project: Design Schedule
Date: Wed 5/9/01

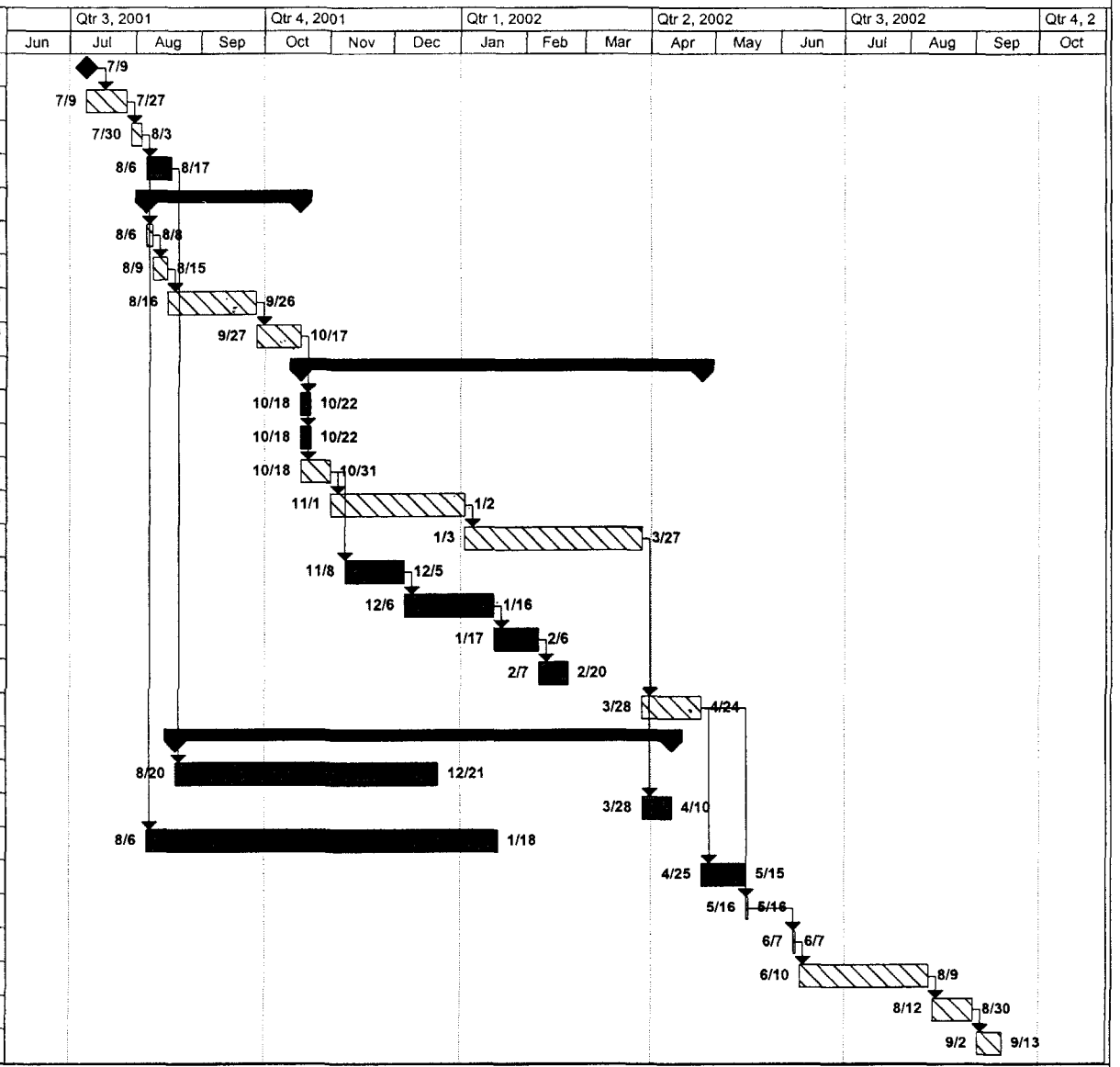
Task		Rolled Up Task		External Tasks	
Critical Task		Rolled Up Critical Task		Project Summary	
Progress		Rolled Up Milestone		Group By Summary	
Milestone		Rolled Up Progress			
Summary		Split			

ATTACHMENT B

Preliminary Implementation Schedule

PRELIMINARY IMPLEMENTATION SCHEDULE
Centredale Manor Restoration Superfund Site
North Providence, Rhode Island

ID	Task Name	Duration
1	Submission of Implementation Work Plan, etc.	0 days
2	EPA Review and Comment of Submitted Plans	15 days
3	Perfoming Parties Comment Response	5 days
4	Preconstruction Meeting	10 days
5	**Additional Site Investigation**	**53 days**
6	Sample Location	3 days
7	Sample Collection	5 days
8	Sample transport and Analysis	30 days
9	Sample Results and Data Validation	15 days
10	**Soil Excavation and Disposal**	**135 days**
11	Mobilization	3 days
12	Excavation Area location	3 days
13	Site Preparation	10 days
14	Sediment and Soil Excavation and Disposal	45 days
15	Demobilization and Winter Shutdown	60 days
16	Sidewall Sample Collection	20 days
17	Sidewall Sample Transport and Analysis	30 days
18	Sample Validation	15 days
19	Analytical Results Review	10 days
20	Site Restoration	20 days
21	**Dam Reconstruction**	**168 days**
22	Construction of Replacement Dam	90 days
23	Site Restoration	10 days
24	Prepare and Submit Post-Removal Site Control Plan	120 days
25	Develop "Punch List"	15 days
26	Pre-Final Inspection	1 day
27	Final Inspection	1 day
28	Develop and Submit Completion of Work Report	45 days
29	EPA Review and Approval	15 days
30	Implement Post Removal Site Controls	10 days



Project: Preliminary Implementation Sc
Date: Wed 5/9/01

Task	Summary	Rolled Up Progress	Group By Summary
Critical Task	Rolled Up Task	Split	
Progress	Rolled Up Critical Task	External Tasks	
Milestone	Rolled Up Milestone	Project Summary	