

APR 7 2000 Sta. 4	S <b>(58)</b>	<b>ENGINEERING DATA TRANSMITTAL</b>	Page 1 of 1 1. EDT <b>617987</b>
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2. To: (Receiving Organization) <b>Distribution</b>	3. From: (Originating Organization) <b>Characterization Engineering</b>	4. Related EDT No.: <b>N/A</b>
5. Proj./Prog./Dept./Div.: <b>Long Length Contaminated Equipment Transport System</b>	6. Design Authority/ Design Agent/Cog. Engr.: <b>GP Janicek/DF Hicks</b>	7. Purchase Order No.: <b>N/A</b>
8. Originator Remarks: The attached Engineering Task Plan describes the management strategy for preparing the LLCETS for deployment in RPP. This plan also provides requirements for turnover of the LLCETS to Characterization Project Operations, including a Partial Acceptance for Beneficial Use (ABU).		9. Equip./Component No.: <b>N/A</b>
11. Receiver Remarks: 11A. Design Baseline Document? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Approval of the ETP is indicated by signature on this EDT.		10. System/Bldg./Facility: <b>RPP/200-G (LLCETS)</b>
		12. Major Assm. Dwg. No.: <b>H-2-827806</b>
		13. Permit/Permit Application No.: <b>N/A</b>
		14. Required Response Date: <b>January 27, 2000</b>

15. DATA TRANSMITTED					(F)	(G)	(H)	(I)
(A) Item No.	(B) Document/Drawing No.	(C) Sheet No.	(D) Rev. No.	(E) Title or Description of Data Transmitted	Approval Designator	Reason for Transmittal	Originator Disposition	Receiver Disposition
1	RPP-5684	-	0	ETP (ETN-98-0007) Preparation of LLCETS for Deployment	SQ	1	1	1

16. KEY		
Approval Designator (F)	Reason for Transmittal (G)	Disposition (H) & (I)
(Ref: RPP-PRO-233)	1. Approval 4. Review 2. Release 5. Post-Review 3. Information 6. Dist. (Receipt Acknow. Required)	1. Approved 4. Reviewed no/comment 2. Approved w/comment 5. Reviewed w/comment 3. Disapproved w/comment 6. Receipt acknowledged

17. SIGNATURE/DISTRIBUTION (See Approval Designator for required signatures)								
(G) Reason	(H) Dis p.	(J) Name	(K) Signature (M) MSIN	(L) Date	(G) Reason	(H) Dis p.	(J) Name	(K) Signature (M) MSIN
1	1	JF Sickels (S7-03)	<i>[Signature]</i>	3/21/00	1	1	LL Penn (S7-03)	<i>[Signature]</i>
1	1	BL Debban (S7-90)	<i>[Signature]</i>	3/21/00	1	1	IC Bonden (R2-83)	<i>[Signature]</i>
1	1	BJ Shoemake (S8-10)	<i>[Signature]</i>	3/28/00	1	1	RSO/JE Allison (R3-72)	<i>[Signature]</i>
1	1	CA Esvelt (S7-12)	<i>[Signature]</i>	3/23/00	1	1	Saf/CD Jackson (S7-34)	<i>[Signature]</i>
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18. Signature of EDT Originator/Date <i>[Signature]</i> DF Hicks 4/5/00	19. Authorized Representative for Receiving Organization N/A	20. Cognizant Manager/Date <i>[Signature]</i> RM Boger 4/6/00	21. DOE APPROVAL (if required) Ctrl. No. (N/A) <input type="checkbox"/> Approved N/A <input type="checkbox"/> Approved w/comments <input type="checkbox"/> Disapproved w/comments
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## ENGINEERING TASK PLAN

(ETN-98-0007)

### Preparation of the Long Length Contaminated Equipment Transport System (LLCETS) for Deployment

**R. M. Boger**

Prepared by CH2M-Hill Hanford Group, Richland, WA 99352  
U.S. Department of Energy RPP Contract DE-AC06-99RL14047

EDT/ECN: 617987 UC: 721  
Cost Center: 6N300 Charge Code: 110337/LMSI 4851, Rel. 33  
B&R Code: EW3120074 Total Pages: 25


**Key Words:** LLCETS, LLCE, LLCERS, Long Length Contaminated Equipment, tilt trailer, receiver trailer, EPA Debris Rule, equipment removal, riser-mounted equipment.

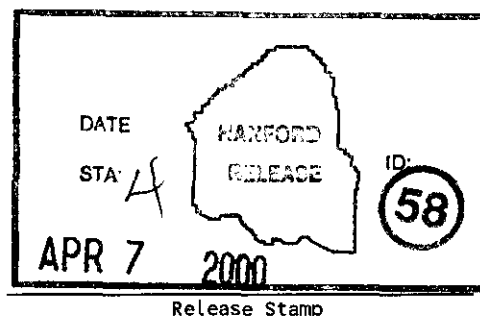
**Abstract:** This task plan addresses the scope, schedule, and deliverables associated with preparation of the Long Length Contaminated Equipment Transport System for deployment in the Tank Farms.

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 4/7/00  
Release Approval Date



**Approved for Public Release**

(1) Document Number

Page 1 of 1

**ENGINEERING TASK PLAN (ETN-98-0007) - Preparation of the Long Length Contaminated Equipment Transport System (LLCETS) for Deployment**

Authorized for Release

(4) Description of Change - Replace, Add, and Delete Pages

(5) Cog. Engr.	(6) Cog. Mgr.	Date
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(7) **Revision 0, EDT-617987**

1200 + 500 = 1700 9/6/00

**ENGINEERING TASK PLAN FOR PREPARATION OF THE LONG  
LENGTH CONTAMINATED EQUIPMENT TRANSPORT SYSTEM  
(LLCETS) FOR DEPLOYMENT (ETN-98-0007)**

Prepared for

CH2M-HILL Hanford Group

Characterization Engineering Group

by

**D. F. HICKS**

**NUMATEC HANFORD CORPORATION**

*April 2000*

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## ENGINEERING TASK PLAN

(ETN-98-0007)

### PREPARATION OF THE LONG LENGTH CONTAMINATED EQUIPMENT TRANSPORT SYSTEM (LLCETS) FOR DEPLOYMENT

#### 1.0 INTRODUCTION

##### 1.1 ACRONYMS

The meanings of acronyms used in this plan are provided below:

AB	Authorization Basis
ABU	Acceptance for Beneficial Use
CE	Characterization Engineering
CEIS	Cost Estimating Input Sheet
CHG	CH2MHILL Hanford Group, Inc.
CM	corrective maintenance
CPO	Characterization Project Operations
DA	Design Authority
ECN	Engineering Change Notice
EDT	Engineering Data Transmittal
ETP	Engineering Task Plan
FGEAB	Flammable Gas Equipment Advisory Board
ESR	Engineering Service Request
FSAR	Final Safety Analysis Report
FY	fiscal year
JCS	Job Control System
NHC	Numatec Hanford Corporation
LLCE	long length contaminated equipment
LLCERS	long length contaminated equipment removal system
LLCETS	long length contaminated equipment transport system
PM	preventive maintenance
PMP	preventive maintenance procedure
QA	Quality Assurance
RCRA	Resource Conservation Recovery Act
RMW	radioactive mixed-waste
RPP	River Protection Project
RSO	Retrieval Support Operations
RT	receiver trailer

SARP	Safety Analysis Report for Packaging
SSC	system, structure, or component
TBR	Technical Basis Review
TRUM	transuranic mixed waste (>100 nCi/g)
TT	transport trailer
USQ	unreviewed safety question
VI	vendor information
WMNW	Waste Management Federal Services Northwest

## 1.2 PURPOSE

Within the constraints of FY-2000 funding, the purposes of this plan are to summarize interfaces between CE and other RPP organizations, and to define the scope of LLCETS preparations for mobilization by CPO.

Because the LLCETS may be deployed by any RPP organization or by any of the several different line item projects, e.g., W-211, *Initial Tank Retrieval System*, W-519, *Privatization Phase I Infrastructure*, an important responsibility of CE is maintaining a viable DA presence.

## 1.3 BACKGROUND

The process path for removal of LLCE from RPP waste tanks is presented in **HNF-1998**. The LLCETS trailers have never been deployed in RPP, but they are required for the disposal process described in **HNF-1998**.

CE is the currently designated owner, custodian, and steward of the LLCETS trailers, and will provide configuration management with preventive and corrective maintenance. CE will turn over the LLCETS to CPO per the ABU process, and will continue to provide needed LLCETS support to CPO after turnover. The **HNF-1998** process path document describes deployment of the LLCETS in more detail.

The concepts of LLCETS "*system design*" and "*Design Authority*" are separate and distinct from the concept of "*ownership*". DA is retained within the CE organization for all issues affecting the LLCETS design baseline, and RPP user organizations shall accept CE as the LLCETS DA. Any LLCETS design issues which interface directly with tank farm SSCs may also require approval of the affected tank farm DA.

CPO plans to share LLCETS items with both plant forces and construction forces to complete RPP programmatic objectives. Other hardware owner organizations will make separate decisions on sharing of equipment under their direct control.

LLCE items destined for eventual removal from Hanford waste tanks can be from 12 to 55 feet long. Approximately 1,300 LLCE items are currently installed in waste tank risers. If these LLCE do not interfere with

retrieval activities or restrict normal tank operations, there are no current plans to remove them, however, as many as 100 LLCE items may have to be removed in the future to support tank waste retrieval activities and tank waste inventory management schedules. As discussed in HNF-1998, the LLCE disposal plan includes using the LLCETS to transport qualifying LLCE items to the RCRA compliant RMW landfill (trenches No. 31 and 34) for disposal.

For planning purposes, five percent of removed LLCE items will be assumed to either be suspect TRUM or to have calculated hydrogen generation rates that do not meet the criteria for RMW disposal. Using current guidance, these LLCE items will be diverted to T-Plant and stored until a final method of disposal can be determined.

When an LLCE item is removed for maintenance replacement reasons, e.g., the failed 104-AW transfer pump, plant forces will perform the removal as noncovered work per the Davis-Bacon Act.

#### **1.4 APPLICABILITY**

This plan applies to all RPP facilities for which operations are now authorized by the AB. The provisions of this plan extend to all approved LLCETS activities.

### **2.0 SCOPE**

#### **2.1 OBJECTIVES**

The scope of the task presented in the introduction is to achieve full operational readiness of a physically complete, accurately documented, and fully accepted LLCETS (the RT and the TT) by the end of FY-2000.

Engineering Service Request 99-028 has been prepared for this task.

#### **2.2 DELIVERABLES**

- Provide detailed reports on what parts need to be replaced or upgraded.

Deliverable: A detailed report on the RT and the TT describing which parts need replacement or upgrade is prepared and approved.

- Prepare/update PM work packages, as required, to cover replacement and/or repair of LLCETS equipment and systems.



Deliverable: As needed, PM work packages are prepared and approved for general maintenance replacement and/or repair of the RT and TT equipment and systems.

- As required, overhaul and/or repair the LLCETS trailers to working order.

Deliverable: RWR work activities for the RT and the TT are complete.

- Prepare draft PM requirements for the RT and the TT.

Deliverable: Draft PM procedures for the RT and TT equipment and systems are prepared. Vendor maintenance requirements are incorporated into applicable work documents.

- Prepare PM work packages for LLCETS equipment.

Deliverable: All PM work packages are identified, prepared, and approved.

- Perform all recommended PM on LLCETS equipment.

Deliverable: All PM work packages are completed, and LLCETS equipment is current on all recommended PMs and calibrations.

- Prepare LLCETS draft operating instructions for the RT and the TT.

Deliverable: Draft operating and prerequisite instructions for the RT and TT equipment and systems are prepared.

- Perform a functional test of the RT and TT equipment and systems.

Deliverable: Functional testing of the RT and TT is complete, and a test report has been written and released.

- Prepare a maintenance program plan for approval in FY-2000 for the LLCETS (RT and TT).

Deliverable: A LLCETS maintenance program plan is prepared and approved.

- Implement a PM program for the LLCETS.

Deliverable: Implementation of a LLCETS PM program is complete, including establishing the spare parts inventory.

- Provide configuration control (cognizant engineer and DA) for all LLCETS vendor information, engineering drawings, software, and specifications.

Deliverable: A LLCETS Cognizant Engineer and DA are selected and formally designated.

- Maintain the SARP and the LLCETS vendor files.

Deliverable: The SARP upgrade is approved and released for use. Vendor information, including the LLCETS vendor drawings, is in a VI file.

- Prepare Hanford site drawings for the LLCETS as necessary.

Deliverable: Using vendor drawings and other acceptable design inputs, H-14 and/or other Hanford site drawings are prepared, issued, and released as necessary to document the LLCETS baseline design. Outstanding ECNs meeting the HNF-IP-0842 criteria for incorporation provided in Vol. IV, Section 4.25, "Engineering Drawings", Part 5.5.1, are incorporated into the affected design baseline documents.

- Upgrade/validate VAXGAP, LLCEDATA and LLCECALC software to current RPP requirements and establish software configuration control.

Deliverable: The LLCEDATA and LLCECALC computer software is upgraded to the applicable RPP criterion and is validated. The VAXGAP computer software is validated. Configuration control of software is established.

- Complete a partial ABU with turnover of the LLCETS equipment to CPO. Turnover includes the RT and TT with sufficient operating instructions to enable support of planned maintenance activities.

Deliverable: A partial ABU is completed and approved. Turnover of the LLCETS equipment to CPO is complete.

### 3.0 DESCRIPTION

#### 3.1 PHYSICAL DESCRIPTION

There are several hundred underground tanks in use in the 200 Area tank farms for the storage of high-level and low-level RMW. The most significant of these tanks range in capacity from 2,003,000 to 4,385,000 liters (530,000 to 1,160,000 gallons). The oldest tanks are 149 single-walled tanks, called SSTs, which are no longer used actively. Most of these SSTs have been interim stabilized by removing their inventory of free liquids and by isolating them from other liquid waste stream additions. Twenty-eight newer double-walled tanks, called DSTs, contain liquid and sludge wastes and provide most of the current active storage capacity.

The current RPP mission is to maintain safe, retrievable storage of tank waste. Tank waste retrieval, treatment, and final disposal will be performed by others at a later time.

The dedicated set of equipment items needed to implement the process path agreements summarized in **HNF-1998** is collectively referred to as the LLCERS, with the LLCETS being a subset of the LLCERS. The two major components of the LLCETS are the RT and the TT. An earlier trailer design was used in 1995 to transport seven thermocouple trees that were removed from AZ-101, as the current RT and TT were not yet available for use. The RT is used to receive the bagged LLCE from the crane, lower it from a vertical to a horizontal position, and package the bagged LLCE by pushing it horizontally into a disposal container on the TT. Packages qualified for disposal are sealed and grout filled, and the TT is used to transport the packaged LLCE to its disposal location. Packages to be stored at T-Plant are not grouted.

### 3.2 ENGINEERING TASKS

The tasks below are required for completion of the scope:

- Generate a complete inventory of all existing spare parts for the LLCETS. Create a listing of recommended spare parts, and begin the procurement process to obtain those spare parts which are not already in inventory.
- Identify the LLCETS **DESIGN BASELINE** documentation, e.g., essential, support and general drawings, ECNs, VI files, FGEAB evaluations, equipment specifications. Fill in the gaps where information is missing.
- Identify, list, assess adequacy, and fill in **TECHNICAL BASELINE** gaps, as necessary, for the remainder of the LLCETS.
- Complete a stewardship plan for the LLCETS items controlled by CE.
- Provide a listing of all LLCETS design verification documentation.

- Develop typical plans/processes/strategies for tank farm deployment of LLCETS items:
  - ◆ Create a pre-deployment equipment checklist for review.
  - ◆ Provide an interface point for SARP requirements.
  - ◆ Compile a list of maintenance and operating instructions needed by the LLCETS for an LLCE maintenance replacement activity. Prepare a plan for their preparation and validation.
  - ◆ Prepare draft LLCETS maintenance procedures.
  - ◆ Prepare and issue an LLCETS operating instructions manual.
- Complete partial turnover of the LLCETS trailers to CPO in a manner compliant with the ABU process.
- Update applicable TBR and CEIS documents.

### 3.3 VERIFICATION AND TECHNICAL REVIEWS AND MODIFICATION MANAGEMENT

Design verification is performed to ensure that a design is technically adequate; that design inputs are evaluated and verified for their impact on the design; and that the design meets the applicable requirements for environmental qualification, quality, safety, and performance at a reasonable cost. The extent of design verification required for any individual item will be appropriate for its complexity and importance to the LLCETS. To provide evidence that design verification has occurred, verification documentation of the design is referenced, as appropriate, in design basis documents, in EDTs for released documents, or in Field 14b of released ECNs, "*Justification Details*".

The design of the LLCETS is understood to have been verified per CHG-2000c, and one of the tasks of this ETP is to document and provide a listing of all design verification documentation as a part of the configuration control deliverable. Section 3.2 *ENGINEERING TASKS* will examine the available documentation on design verification. Depending on the results, additional design verification activities may be required.

If design of a new safety-class SSC were to be required for future LLCETS operation, appropriate design verification activities will be performed, including affected functional organization reviews and approvals. As documented in Chapter 3.0 of the FSAR and as defined in DOE-1994, however, safety-class SSCs are those whose preventive or mitigative function is necessary to keep hazardous material exposure to the public below the offsite evaluation guidelines. The SSCs that

comprise the LLCETS are grouped with other RPP tools such as cranes and trucks. In general, RPP tools do not perform safety functions, and none are identified in Chapter 3.0 of the current revision of the FSAR as either safety SSCs or defense-in-depth SSCs. LLCETS equipment items, however, may be required to incorporate specific design attributes and/or conform to specific procedural constraints to qualify for deployment in RPP facilities, and validation of the necessary controls will be accomplished by the design verification and USQ processes.

### **3.4 SOFTWARE DEVELOPMENT TASKS**

Two software applications, *LLCEDATA* and *LLCECALC*, are already developed, verified, and validated for real time gamma assay of an LLCE item during its removal from a waste tank, and are described in *HNF-1995*. The *VAXGAP* software translates gamma spectra into activity data, and provides input to the *LLCEDATA* software. These software applications are not vulnerable to CY-2000 problems. Two FY-2000 upgrade tasks for the *LLCECALC* software are planned, the addition of an algorithm for hydrogen generation rates, and the removal of excessive conservatism from the calculation of TRUM.

### **3.5 PROCUREMENT/FABRICATION TASKS**

Procurement of some materials, e.g., spare parts and consumables, will likely be required to complete the scope of this task.

### **3.6 REPAIR/FIELD TASKS**

The LLCETS items are portable, and each individual item has been designed so that it can be transported to the point of application for use. No permanent installation of an LLCETS item is identified or required.

The full participation of Maintenance, CPO, and Engineering will be required to gain operability of the LLCETS. Maintenance will provide skilled resources; CPO will provide activity and priority integration; and Engineering will provide configuration management, program coordination, and project control.

### **3.7 PRE-OPERATIONAL AND OPERATIONAL TESTS (TEST AND EVALUATION)**

Extensive qualification testing of the LLCETS components, e.g., RT and TT, has already been performed, and a listing of the applicable documentation will be compiled as a deliverable of this task. In addition, a complete functional test of the TT and the RT will be performed prior to a declaration of readiness, and will be documented in a test report.

### **3.8 ACCEPTANCE FOR BENEFICIAL USE (ABU)**

The ABU process is defined in CHG-1999, and supplemental implementing instructions are provided in CE-1999. The guidance in these two documents will be used to ensure that the necessary activities, documentation, and associated implementing actions are completed for the LLCETS before turnover to CPO in FY-2000. The documentation required prior to partial Acceptance for Beneficial Use is listed on the attached Form A-6002-445.

The ABU process also identifies the responsibilities and requirements needed to verify that CPO has received all documentation needed for proper operation and maintenance of the LLCETS.

CE, CPO, and other independent reviewers will approve the listing of applicable ABU requirements for the LLCETS. At turnover, CPO accepts the LLCETS based on satisfactory completion of the listed partial ABU requirements. The assay system software will remain under the control of either CE or a designated software accountability person.

### 3.9 RISK ASSESSMENT

Fiscal year 2000 funding authorization (130.B16) for the LLCETS (the RT and the TT) is established for the following tasks:

- Inspect/troubleshoot the LLCETS.
- Prepare maintenance procedures and operating instructions for the LLCETS.
- Overhaul/repair the LLCETS components as required.
- Implement configuration control for the LLCETS.

Higher priority RPP work in FY-2000 may create equipment and resource conflicts which could stop or delay any or all of the tasks listed above.

In addition, WMNW may be funded in FY-2000 to validate the *LLCEDATA* and *LLCECALC* characterization software. Configuration control of the software will be confirmed. The WMNW work scope may also include upgrading the *LLCECALC* transuranic characterization algorithm to remove excessive conservatism, as the impact of an LLCE item not meeting RCRA requirements for disposal in the 200 West Area mixed waste landfill trenches is a major constraint. If the best resources to optimize the *LLCECALC* software are not available when needed, large economic penalties could be levied on RPP for future LLCE disposal activities.

Unexpected delays or requests for extensive changes to any of these activities may require additional FY-2000 funding to complete anticipated preparation activities. If supplemental funds were not immediately available, the assumed availability of the LLCETS to support

construction projects in FY-2001 (e.g., Project W-211) and plant forces in FY-2002 (e.g., maintenance replacement of the failed 104-AW transfer pump) could be impacted.

#### 4.0 ORGANIZATION

##### 4.1 FUNCTIONAL RELATIONSHIPS

CPO	Physical equipment custodian/user/operator
RSO	Client
W-211	Alternate user/operator (as borrower)
CE	Design and project activity coordinator/Technical Baseline owner/ETP activity coordinator

##### 4.2 POINTS OF CONTACT

JE Allison (CHG)	373-3037	R3-72	RSO
ML McElroy (CHG)	373-5588	S7-07	QA
RM Boger (NHC)	376-3355	S7-12	Responsible Engrg Manager
RG Brown (CHG)	373-5694	S7-12	Cognizant Engineer
CA Esvelt (CHG)	373-3577	S7-12	Cognizant Engineer
DF Hicks (NHC)	376-0196	S7-12	Project Lead
CD Jackson (CHG)	376-0531	S7-34	Safety
GP Janicek (CHG)	376-2225	S7-12	Design Authority
WS Josephson (WMNW)	372-8597	H1-11	Transportation Services
DE Legare (NHC)	376-3489	R3-47	Consultant
JF Sickels (CHG)	373-0259	S7-03	CPO
JS Schofield (CHG)	373-2245	S7-12	Cognizant Engrg Manager
JE Van Beek (CHG)	372-2813	S2-48	W-211 Project Manager

#### 5.0 SCHEDULE/COST ESTIMATE

The estimated cost to prepare the LLCETS for deployment is \$804,000.00, with an estimated completion date of September 20, 2000 as shown on the attached schedule.

<u>FY-2000 Activity</u>	<u>Cost (\$)</u>
Inspect/Troubleshoot	\$ 15,000.00
Prepare/Update RCRS	15,000.00
Overhaul/Repair LLCETS	375,000.00
Prepare Review/Issue PM Procedures	126,000.00

Implement Configuration Control Engineering	273,000.00
Total .....	<hr/> \$804,000.00

## 6.0 CONFIGURATION MANAGEMENT

All LLCETS items were fabricated to approved engineering design media. The LLCETS equipment design will be under configuration management following completion of this task.

## 7.0 QUALITY ASSURANCE

Although most components of the LLCETS are classified as General Service, some items may be classified as General Service/Enhanced Quality (GS/EQ) per RPP-MD-026, Rev. 0, for procurement purposes. The GS/EQ components have specific attributes and/or were engineered for specific performance criteria requiring documentation during the procurement process. Components and replacement parts for these GS/EQ LLCETS items will require QA receipt inspection to ensure compliance with purchase order requirements.

## 8.0 SAFETY AND AUTHORIZATION BASIS

The RPP AB for this project is provided in **CHG-2000d**, Attachment A. Design, staging, mobilization, operation, and demobilization activities affecting LLCETS items will comply with all RPP AB requirements. All LLCETS equipment modifications and approved operating instructions/maintenance procedures will be evaluated through the USQ process if required by Section 5.4 of **CHG-2000d**.

## 9.0 SYSTEMS ENGINEERING

There is an operational need for mobile platforms that can receive, package, and transport an LLCE item for disposal. Work Breakdown Structure 1.1.4.1.1.10.9.1 has been established to ensure compatibility of all physical, functional, and technical program interfaces in a manner which optimizes the total system definition and design.

## 10.0 CLOSEOUT COSTS

An estimated \$9,750.00 would be required to closeout this task should it be terminated prior to completion.

## 11.0 REFERENCES



- CE, 1999, *Desk Instruction: Acceptance For Beneficial Use (ABU)*, **DI-CE-004-02**, Rev. 2, Characterization Engineering, Lockheed Martin Hanford Corp., Richland, Washington.
- CHG, 1999, **HNF-IP-0842**, *RPP Administration*, Volume IV, Section 3.12, *Acceptance of Structures, Systems, and Components for Beneficial Use*, Rev. 1d, CH2MHILL Hanford Group, Inc., Richland, Washington.
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- CHG, 2000d, **HNF-IP-0842**, *RPP Administration*, Volume IV, Section 5.4, *Unreviewed Safety Questions*, Rev. 12, Attachment A, CH2MHILL Hanford Group, Inc., Richland, Washington.
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- HNF, 1998, *Long-Length Contaminated Equipment Disposal Process Path Document/ETN-94-0054A*, **HNF-SD-WM-ER-730**, Rev. 1 (prepared by ARES Corporation under Agreement No. A52770, Task Order 001 as Report No. 987201-001, Rev. 1), Waste Management Federal Services Inc., Richland, Washington.
- WHC, 1995, *42" Flexible Receiver Development Test Report*, **WHC-SD-W151-TRP-002**, Rev. 0, Westinghouse Hanford Company, Richland, Washington.

**Project** PREPARATION OF THE LONG LENGTH CONTAMINATED EQUIPMENT TRANSPORT SYSTEM (LLCETS) FOR DEPLOYMENT

## ENGINEERING

- Letter Report: SARP Requirements Met
- Letter Report: Tank Farm Reqmts
- Functional Test Report

[illegible]

DF Hicks

LL Penn

CA Esvelt/  
RG Brown

GW Wilson  
CA Esvelt/  
RG Brown

CA Esvelt/  
RG Brown

DF Hicks

RG Brown

CA Esvelt/  
RG Brown

## ADP

- Software Configuration Management Plan
- System Requirements Specification
- Software Design Description
- Software Validation/Verification

☐ \_\_\_\_\_

- Training Plan
- Training Manuals
- Training to Operating Crews
- Training to Maintenance Crews
- Training Mockup

□ \_\_\_\_\_

- ☐ Operating and Maintenance Manuals
- ☐ Operating Procedures
- ☐ Surveillance Procedures
- ☒ Calibration Procedures
- ☒ Preventative Maintenance Instructions
- ☐ Repair/Maintenance Procedures

- Functional Test Procedures
- Preventative Maintenance Data Sheets

## ■ Operating Instructions

□

- ☒ Inspection Plan
- ☐ QA Program Plan
- ☐ QA Project Plan

\_\_\_\_\_

- Vendor Information Files
- Comprehensive Equipment List
- Spare Parts List
- Spare Parts in Stock

[illegible]

DF Hicks

DF Hicks

DM Bailey

DM Bailey

JC Akers

CA Esvelt

MN Hall  
JC Akers

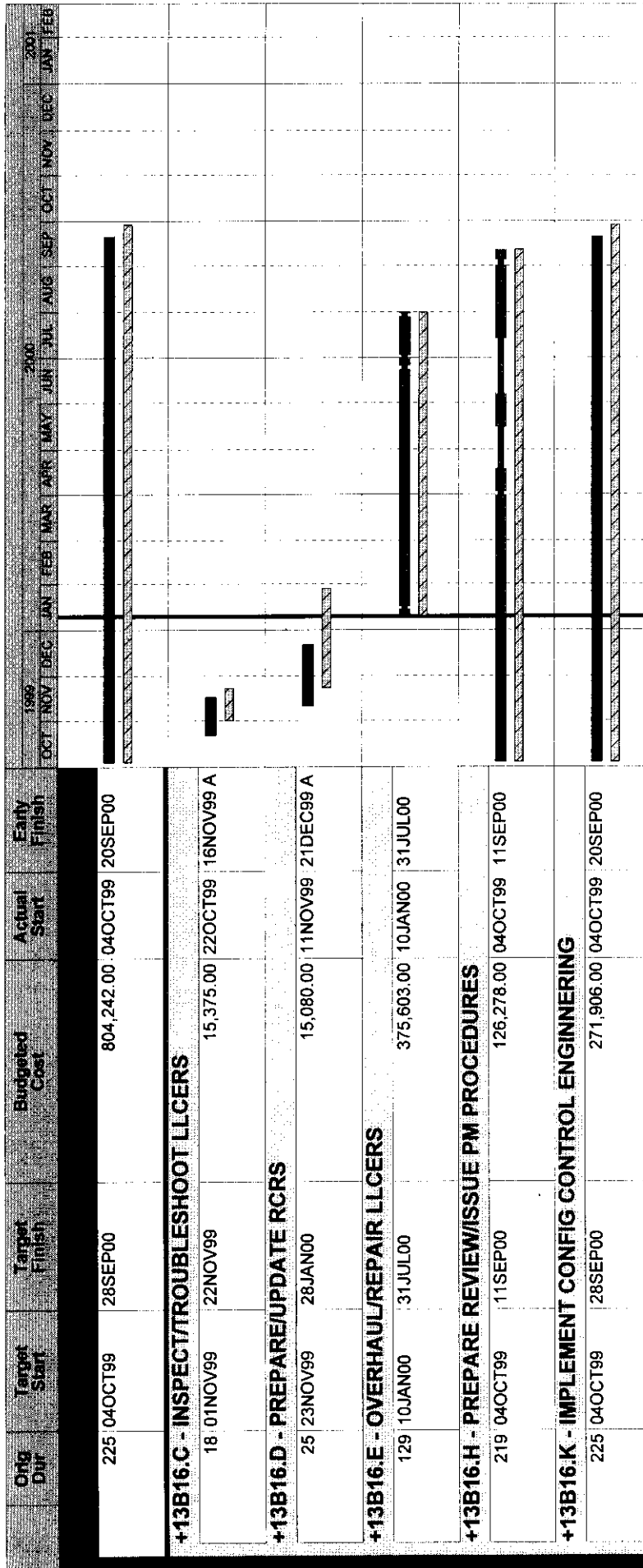
RG Brown

ML McElroy

CA Esvelt  
RG Brown  
RG Brown  
RG Brown

## APPROVAL FOR ABU ISSUE/RELEASE

Name		Signature	Date
Cog Engineer	CA Esvelt		
Cog Engineer	RG Brown		
Cog Manager	JS Schofield		
Project Lead	DF Hicks		
Design Authority	GP Janicek		
Characterization Engrg	RM Boger		
Characterization Ops	JF Sickels		
QA	ML McElroy		
Safety	CA Jackson		
Environmental	LL Penn		



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LLC1

**LLCERS TRAILERS**  
**CH2MHILL Hanford Group**

TE Rainey

Early bar  
 Target bar  
 Progress bar  
 Critical bar  
 Summary bar

Progress point  
 Critical point  
 Summary point  
 Start milestone point  
 Finish milestone point

## FUNCTIONAL TEST

TR1A000	PREP & ISS PR TO MSI	11	16FEB00 *	06MAR00	14d	RAINEY
TR1A000	MSI ONSITE TO TRAIN	12	07MAR00	23MAR00	14d	ESVELT
TR1A000	DETERMINE REQMENTS	5	24MAR00	30MAR00	14d	ESVELT
TR1A000	PREPARE DRAFT OP	9	03APR00	13APR00	14d	BROWN
TR1A000	PREPARE DRAFT	18	17APR00	11MAY00	14d	ESVELT
TR1A000	REVIEW & APPROVE	9	15MAY00	25MAY00	14d	ESVELT
TR1A000	ISSUE FUNCTIONAL TEST	1	30MAY00	30MAY00	14d	ESVELT
TR1A000	PERFORM FUNCTIONAL	16	31MAY00	22JUN00	14d	ESVELT
TR1A000	PREPARE TEST REPORT	5	26JUN00	30JUN00	14d	ESVELT
TR1A000	REVIEW & APPROVE TEST	5	03JUL00	11JUL00	14d	ESVELT
TR1A000	ISSUE TEST REPORT	1	12JUL00	12JUL00	14d	ESVELT
TR1A000	RESOLVE EXCEPTIONS	11	13JUL00	28JUL00	14d	ESVELT
TR1A000	ISSUE REV.	1	31JUL00	31JUL00	38d	BROWN
DRAWING REVIEW						
TR1C000	PROCURE DWGS FROM	20	21DEC99 A	06JAN00 A		RAINEY
TR1C000	REPRINT DRAWINGS	4	10JAN00 A	13JAN00	35d	ESVELT
TR1C000	PREP CONFIGURATION	9	10JAN00	20JAN00	30d	JANICEK
TR1C000	ISSUE CONFIG MGMT	1	24JAN00	24JAN00	135d	JANICEK
TR1C000	REVIEW VENDOR DWGS	3	10JAN00	12JAN00	52d	ESVELT
TR1C000	DETERMINE ESSENTIAL	1	13JAN00	13JAN00	141d	SMALLEY
TR1C000	DETERMINE ADDITIONAL	1	13JAN00	13JAN00	52d	SMALLEY
TR1C000	DRAFT H-2 ESSENTIAL	25	13JAN00	22FEB00	52d	SMALLEY
TR1C000	WALKDOWN ESSENTIAL	17	31JAN00	25FEB00	114d	SMALLEY
TR1C000	APPROVE ESSENTIAL	5	28FEB00	06MAR00	114d	SMALLEY
TR1C000	RELEASE ESSENTIAL	1	07MAR00	07MAR00	114d	SMALLEY
TR1C000	PREP & ISSUE ECN TO	5	08MAR00	14MAR00	114d	SMALLEY
TR1C000	DRAFT H-2 ADDITIONAL	25	13JAN00	22FEB00	52d	SMALLEY

PREP & ISS PR TO MSI

MSI ONSITE TO TRAIN CH2M HILL

DETERMINE REQMENTS FOR OPERATION INSTRU

PREPARE DRAFT OP INSTRUCTIONS

PREPARE DRAFT FUNCTIONAL TEST

REVIEW & APPROVE FUNCTIONAL TE

ISSUE FUNCTIONAL TEST

PERFORM FUNCTIONAL TEST

PREPARE TEST REPORT

REVIEW & APPROVE TEST

ISSUE TEST REPORT

RESOLVE EXCEPTIONS

ISSUE REV. W/EXCEPTI

PROCURE DWGS FROM VENDOR

REPRINT DRAWINGS

PREP CONFIGURATION MANAGEMENT PLAN

ISSUE CONFIG MGMT PLAN

REVIEW VENDOR DWGS

DETERMINE ESSENTIAL DWGS

DETERMINE ADDITIONAL DWGS

DRAFT H-2 ESSENTIAL DWGS

WALKDOWN ESSENTIAL DWGS

APPROVE ESSENTIAL DWGS

RELEASE ESSENTIAL DWGS

PREP & ISSUE ECN TO ESSENTIAL DWG LIST

DRAFT H-2 ADDITIONAL DWGS

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# LLCERS TRAILERS CH2MHILL Hanford Group

Early bar

Early start point

Early finish point

Target bar

Progress bar

Critical bar

Summary bar

Start milestone point

Finish milestone point

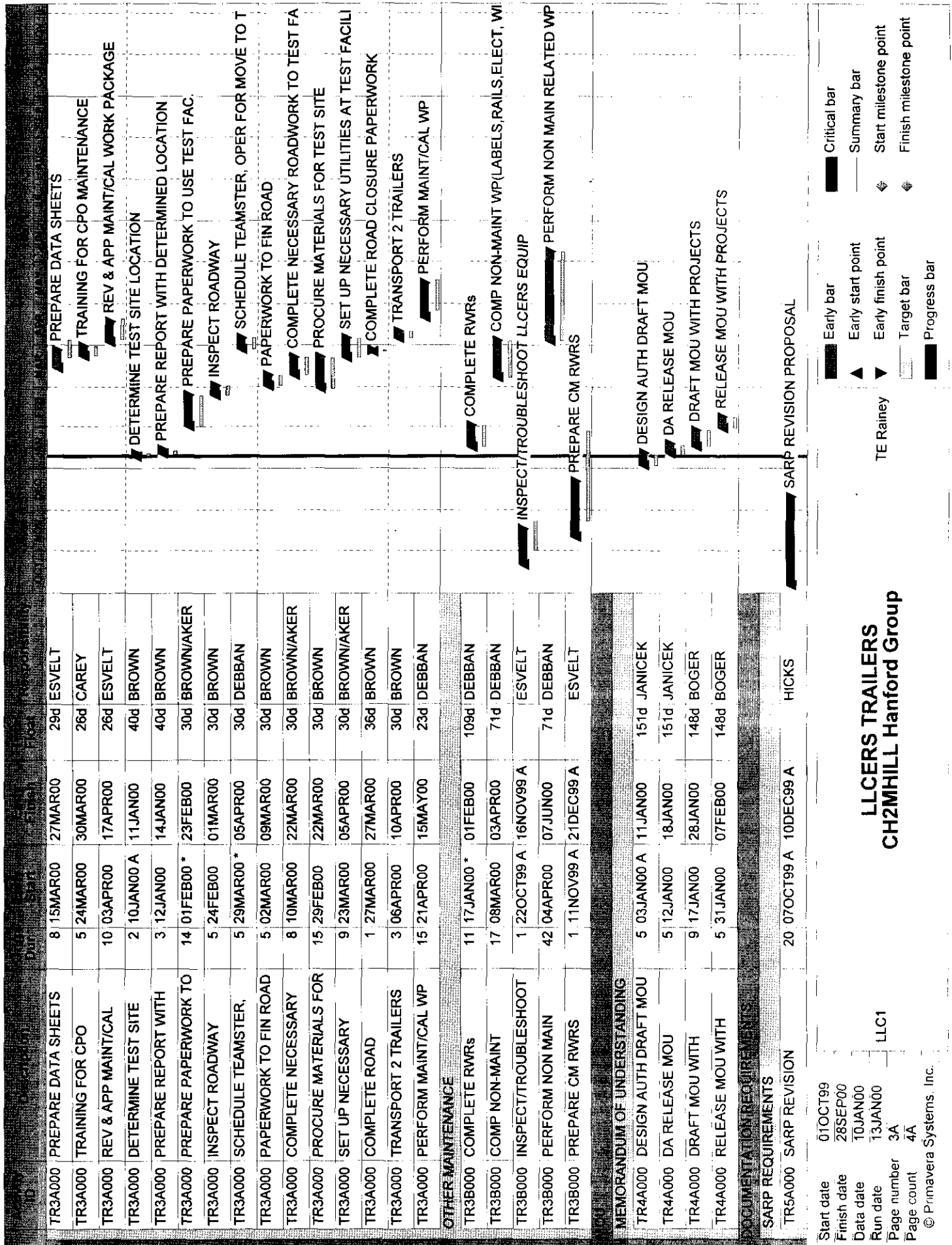
TR1C000	WALKDOWN ADDITIONAL	17	31JAN00	25FEB00	52d	SMALLEY	WALKDOWN ADDITIONAL DWGS
TR1C000	APPROVE ADDITIONAL	5	28FEB00	06MAR00	52d	SMALLEY	APPROVE ADDITIONAL DWGS
TR1C000	RELEASE ADDITIONAL	1	07MAR00	07MAR00	52d	SMALLEY	RELEASE ADDITIONAL DWGS
OPERATING INSTRUCTIONS							REVISE OPERATING I
TR2A000	REVISE OPERATING	18	14JUL00	10AUG00	6d	BROWN	WRITE CHECKLIST FOR
TR2A000	WRITE CHECKLIST FOR	9	28JUL00	10AUG00	31d	BROWN	COMPLETE ENG W
TR2A000	COMPLETE ENG	9	11AUG00	24AUG00	6d	BROWN	ISSUE OP INSTRU
TR2A000	ISSUE OP INSTRUCTIONS	5	25AUG00	31AUG00	6d	BROWN	TRAINING PRO
PROJECT TRAINING							
TR2C000	TRAINING PROGRAM FOR	5	05SEP00	11SEP00	12d	CAREY	
COMPLETE PMS & CALS							REVIEW VENDOR INFO FOR MAINT REQUIREMENTS
TR3A000	REVIEW VENDOR INFO	5	04OCT99 A	06JAN00 A		ESVELT	PROCURE OR FAB SPECIAL TOOLS
TR3A000	PROCURE OR FAB	18	10JAN00	03FEB00	60d	BROWN	SPECIAL TOOLS COMPLETED
TR3A000	SPECIAL TOOLS	1	07FEB00	07FEB00	60d	BROWN	PREP MAINT PLAN & JUSTIFICATION (MFJ)
TR3A000	PREP MAINT PLAN &	9	06JAN00 A	14JAN00	29d	ESVELT	ISSUE MAINT PLAN JUSTIFICATION REPORT
TR3A000	ISSUE MAINT PLAN	1	17JAN00	17JAN00	29d	ESVELT	REVIEW VENDOR DOC FOR SPARE PARTS LIST
TR3A000	REVIEW VENDOR DOC	1	01DEC99 A	29DEC99 A		BROWN	DETERMINE SAFETY CLASS OF SPARES
TR3A000	DETERMINE SAFETY	16	10JAN00	01FEB00	23d	BROWN	PREPARE SPARE PARTS LIST
TR3A000	PREPARE SPARE PARTS	5	10JAN00 A	02FEB00	23d	BROWN	REVIEW & APPROVE SPARE PARTS LIST
TR3A000	REVIEW & APPROVE	5	03FEB00	10FEB00	23d	BROWN	PROCURE SPARE PARTS
TR3A000	PROCURE SPARE PARTS	32	11FEB00	03APR00	23d	BROWN	SET UP WAREHOUSE STORAGE
TR3A000	SET UP WAREHOUSE	11	11FEB00	29FEB00	44d	BROWN	RECEIVE SPARE PARTS
TR3A000	RECEIVE SPARE PARTS	12	04APR00	20APR00	23d	BROWN	PREPARE MAINT/CAL INSTRUCTIONS
TR3A000	PREPARE MAINT/CAL	44	18JAN00	27MAR00	29d	ESVELT	PREP PM/CAL PROCEDURES
TR3A000	PREP PM/CAL	20	28FEB00	28MAR00	116d	ESVELT	REVISE DRAFT PM/CAL PROCEDURE
TR3A000	REVISE DRAFT PM/CAL	9	16MAY00	30MAY00	72d	ESVELT	ENGINEERING WALKTHRU OF PMS
TR3A000	ENGINEERING WALKTHRU	5	31MAY00	06JUN00	72d	ESVELT	PREPARE MAINT WORK PACKAGE
TR3A000	PREPARE MAINT WORK	44	18JAN00	27MAR00	29d	ESVELT	

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LLC1

## LLCERS TRAILERS CH2MHILL Hanford Group

TE Rainey  
 Early bar  
 Early start point  
 Early finish point  
 Target bar  
 Progress bar  
 Critical bar  
 Summary bar  
 Start milestone point  
 Finish milestone point



Activity ID	Description	Orig. Dur.	Early Start	Early Finish	Float	Responsibility	Notes
TR5A000	PREP SOW & TASK ORDER	6	17JAN00 *	25JAN00	6d	HICKS	PREP SOW & TASK ORDER TO WMTS
TR5A000	WMTS REVIEW & REVISE	32	26JAN00	15MAR00	6d	JOSEPHSON	WMTS REVIEW & REVISE SARP
TR5A000	CH2MH REVIEW SARP	12	16MAR00	04APR00	6d	HICKS	CH2MH REVIEW SARP CHANGES
TR5A000	USQ FOR SARP CHANGES	7	24MAR00	04APR00	29d	ESVELT	USQ FOR SARP CHANGES
TR5A000	INCRP COMMENTS & REV SARP FOR	5	05APR00	11APR00	29d	JOSEPHSON	INCRP COMMENTS & ISSUE SARP CHANGES
TR5A000	CFE PREP & ISS LTR MTG	5	12APR00	19APR00	59d	HICKS	REV SARP FOR MAINT/OPER REQ
TR5A000	WMTS REVIEW & UPGRADE SOFTWARE	11	05SEP00	20SEP00	6d	HICKS	CFE PREP & I
TR5A000	TANK FARM REQUIREMENTS	32	26JAN00	15MAR00	124d	HICKS	WMTS REVIEW & UPGRADE SOFTWARE
TR5B000	REVIEW TANK FARM	11	06JAN00 A	18JAN00	117d	BROWN	REVIEW TANK FARM REQUIREMENTS
TR5B000	CFE PREP & ISSUE LTR	11	05SEP00	20SEP00	6d	BROWN	CFE PREP & I
ENVIRONMENTAL REQUIREMENTS							
TR5C000	ENV COMPL OFFICER TO	20	16MAR00	17APR00	6d	PENN	ENV COMPL OFFICER TO DETERMINE APPLI
TR5C000	COMPLETE NECESSARY	55	18APR00	13JUL00	6d	PENN	COMPLETE NECESSARY PE
TR5C000	REVIEW APPLICABLE	9	06JUL00	19JUL00	34d	BROWN	REVIEW APPLICABLE PER
TR5C000	CFE PREPARE & ISS LTR	11	05SEP00	20SEP00	6d	BROWN	CFE PREPAR
TR5C000	LLCETS READY FOR USE	0		20SEP00	6d	BROWN	LLCETS READ
PROJECT SUPPORT							
TR4A000	ENGINEERING PLANNING & ETP	171	04OCT99 A	28SEP00	0	RAINEY	ENGINEER
TR4A000	PREPARE ETP	60	04OCT99 A	14JAN00	0	HICKS	PREPARE ETP
TR4A000	ISSUE ETP	0		14JAN00	162d	HICKS	ISSUE ETP

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## LLCERS TRAILERS CH2MHILL Hanford Group

TE Rainey  
 Early bar  
 Early start point  
 Early finish point  
 Target bar  
 Progress bar  
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 Summary bar  
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 Finish milestone point



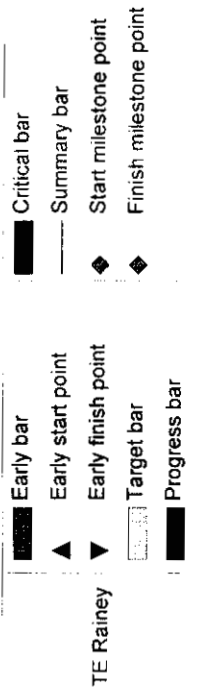
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**LLCERS TRAILERS**  
**CH2MHILL Hanford Group**

LLC1

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ID		Description	Units	
A001	FDNW (ANN)	HRS		
B001	CE MGR (BOGER)	HRS	14	46
CE01	COG ENG (ESVELT)	HRS	223	1,309
CE02	COG ENG (BROWN)	HRS	170	1,066
CE03	DA ENG (JANICEK)	HRS	11	308
CE04	NHC ENG (HICKS)	HRS	150	252
CE05	PROJ ENG (RAINEY)	HRS	79	369
CE06	COG MGR (SCHOFIELD)	HRS	15	103
CR01	OTHER ENG	HRS		256
EE01	ECO	HRS		164
GE01	COGEMA (AKERS)	HRS		222
GE02	COGEMA (SMALLEY)	HRS		76
GE03	COGEMA ENG	HRS		1,028
MAT0	MATERIAL	\$		105
ME01	MAINT MGMT	HRS		157
ME02	MAINT CRAFT	HRS		613
OE01	OPS MGMT	HRS		266
OE02	NCO	HRS		724
PC01	PO CONTRACT	\$	2	10,002
PE01	PLANNER/SCHEDULER	HRS		202
PE02	MATL COORD/STOREKEEPER	HRS		154
PE03	PLANT ENG/PROCEDURE WRITER	HRS		72
QA01	QA/QC	HRS		296
SA01	SAFETY	HRS		216
TE01	OPS TRAINING	HRS		150
V4	FLEET MAINT	HRS	25	160
WM01	WASTE MGMT	HRS		280

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**LLCERS TRAILERS**  
**CH2MHILL Hanford Group**

TE Rainey

- Critical bar
- Summary bar
- Start milestone
- Finish milestone

# DISTRIBUTION SHEET

To	From	Page	1 of 1
Distribution	Characterization Engineering	Date	4/4/2000
Project Title/Work Order		EDT No.	617987
110337/LMSI Contr 4851, Rel. 33		ECN No.	N/A

Name	MSIN	Text With All Attach.	Text Only	Attach./ Appendix Only	EDT/ECN Only
Akers, Jeff C.	S7-12	X			
Allison, John E.	R3-72	X			
Bailey, Douglas M.	R2-84	X			
Bender, Tim C.	R2-84	X			
Boger, Mike	S7-12	X			
Bounini, Larbi	G1-32	X			
Brown, Roland G.	S7-12	X			
Carey, Jim W.	R2-82	X			
Connolly, Rhonda R.	T3-04	X			
Criddle, Jim D.	S7-12	X			
Davis, Albert I.	T4-52	X			
Debban, Bruce L.	S7-90	X			
Dodd, Ryan A.	R3-72	X			
Ellefson, Mark D.	T3-05	X			
Esvelt, Chad A.	S7-12	X			
Hall, Mark N.	S7-12	X			
Hebdon, Joel B.	S6-15	X			
Hicks, Dale F.	S7-24	X			
Jackson, Cary D.	S7-34	X			
Janicek, George P.	S7-12	X			
Josephson, Walter S.	H1-11	X			
Legare, Don E.	R3-25	X			
Mattichak, Ron W.	S7-12	X			
McCall, Dennis L.	H1-11	X			
Miller, Phillip C.	R1-51	X			
Nester, Dean E.	T4-05	X			
Penn, Lucinda L.	S7-03	X			
Reeves, John A.	H1-11	X			
Riley, Donald L.	H1-11	X			
McElroy, Mike L.	S7-07	X			
Schofield, John S.	S7-12	X			
Shoemake, Billy J.	S8-10	X			
Sickels, Jim F.	S7-03	X			
Smith, Willy N.	T4-04	X			
Sparks, Jon S.	S7-07	X			
Triner, Glen C.	T3-05	X			
Troyer, Gary L.	T6-50	X			
Wolfe, Steve D.	H1-11	X			