2. To: (Receiving Organization) Safety Issue Resolutions (SIR)	3. From: (Originating Organization) COGEMA Engineering Corp.	4. Related EDT No.: 622080
5. Proj./Prog./Dept./Div.: Flammable Gas Project	6. Design Authority/ Design Agent/Cog. Engr.: NS Cannon	7. Purchase Order No.: N/A
8. Originator Remarks: For review/approval/issue		9. Equip./Component No.: N/A
11. Receiver Remarks: 11A. Design Baseline Document? ☐ Yes ☒ No		10. System/Bldg./Facility: 241-SY-101
		12. Major Assm. Dig. No.: N/A
		13. Permit/Permit Application No.: N/A
		14. Required Response Date: 9-30-98

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	HNF-3322	A11	0	Engineering Task Plan for Determining the Interstitial Liquid Level in Tank 241-SY-101 Utilizing a Neutron Probe in the Multifunction Instrument Tree	N/A	1	1	

16. KEY			
Approval Designator (F)	Reason for Transmittal (G)	Disposition (H) & (I)	
E, S, Q, D or N/A (see WHC-CM-3-5, Sec.12.7)	1. Approval 2. Release 3. Information	4. Review 5. Post-Review 6. Dist. (Receipt Acknow. Required)	1. Approved 2. Approved w/comment 3. Disapproved w/comment 4. Reviewed no/comment 5. Reviewed w/comment 6. Receipt acknowledged

17. SIGNATURE/DISTRIBUTION (See Approval Designator for required signatures)										
(G) Reason	(H) Disp.	(J) Name	(K) Signature	(L) Date	(M) MSIN	(G) Reason	(H) Disp.	(J) Name	(K) Signature	(L) Date (M) MSIN
4/1	1	Design Authority	PF Kison	10/16/98	74-07	4/1	1	PR Deichelbohrer	<i>Paul Deichelbohrer</i>	10/16/98
4/1	1	Design Agent	FS Stong	10/16/98	57-12	4/1	1	JD Adrian	<i>J.D. Adrian</i>	10/16/98
4/1	1	Cog.Eng.	DA Barnes	10/16/98	22-11	4/1	1	D Scott, Jr.	<i>D. Scott, Jr.</i>	10/16/98
4/1	1	Cog. Mgr.	NW Kirch	10/16/98	82-11	3		GD Johnson		
4/1	1	QA	RR True	10/16/98	74-07	3		DC Larsen		
4/1	1	Safety	LS Krogsrud	10/16/98						
4/1	1	SIR	RE Bauer	10/16/98	57-73					
4/1	1	CE	Hanson	10/16/98	57-12					
4/1	1	JD Criddle, Jr.		10/16/98	57-12					

18. Signature of EDT <i>NS Cannon</i> Signature of EDT Date: 10-16-98	19. Authorized Representative Date for Receiving Organization <i>Roger F. Dune</i> Date: 10/16/98	20. Design Authority/Cognizant Manager <i>N.W. Kirch</i> Date: 10/12/98
21. DOE APPROVAL (if required) Ctrl. No. ☐ Approved ☐ Approved w/comments ☐ Disapproved w/comments		

Engineering Task Plan for Determining the Interstitial Liquid Level in Tank 241-SY-101 Utilizing a Neutron Probe in the Multifunction Instrument Tree

N. S. Cannon

COGEMA Engineering Corporation, Richland, WA 99352
U.S. Department of Energy Contract DE-AC06-96RL13200

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Key Words: engineering task plan (ETP), 241-SY-101, interstitial liquid level (ILL), neutron, gamma, probe, multifunction instrument tree (MIT), flammable gas, inventory, hazard

Abstract: This plan outlines the steps to be taken to modify existing neutron/gamma probe designs to allow insertion of these probes into the multifunction instrument trees (MITs) at tank 241-SY-101. The objective is to locate and track this tank's Interstitial Liquid Level (ILL). This plan provides scope, schedule, and cost estimates to achieve this objective, and assigns individual organizational responsibilities to carry out this task.

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Release Approval

10/12/98
Date

Approved for Public Release

**ENGINEERING TASK PLAN FOR DETERMINING THE
INTERSTITIAL LIQUID LEVEL IN TANK 241-SY-101 UTILIZING A
NEUTRON PROBE IN THE MULTIFUNCTION INSTRUMENT
TREE**

HNF-3322

Revision 0

N. S. Cannon

COGEMA Engineering Corporation

October 12, 1998

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ENGINEERING TASK PLAN FOR DETERMINING THE INTERSTITIAL LIQUID LEVEL IN TANK 241-SY-101 UTILIZING A NEUTRON PROBE IN THE MULTIFUNCTION INSTRUMENT TREE

1.0 INTRODUCTION

There have not been any repetitions of the spontaneous (and episodic), large volume gas release events that occurred in Tank 241-SY-101 prior to the installation of the mixer pump since its operation was initiated. However, the crust surface level of Tank 241-SY-101 has been slowly rising (as determined by level-gauge measurements). There is concern that there may be a pressurized slurry beneath the surface crust or increased gas retention within the tank contents causing a volume increase. The concern occurs because the rising waste level might be an indication of a decreasing margin of safety for the 241-SY-101 tank.

To investigate options for providing information that could assist in evaluating this concern, the Safety Issue Resolution (SIR) organization recommended performance of a feasibility study for utilizing a neutron probe to visualize and measure certain aspects of the material beneath the surface crust, and more specifically, to determine the location of the interstitial liquid level (ILL). This study has been completed (Stong, 1998), and it is the purpose of this Engineering Task Plan (ETP) to implement one of the feasible options recommended by Stong (Option D of Appendix B).

2.0 SCOPE

The object of the work defined in this document is to provide a neutron/gamma probe system for implementation in the 241-SY-101 multifunction instrument trees (MITs), and to operate that system for the purpose of measuring and tracking the location of the ILL.

3.0 DESCRIPTION

3.1 PHYSICAL DESCRIPTION

The objective of this task is to redesign and modify an existing neutron probe system so that probes can be lowered down the central validation tubes of the two MITs at Tank 241-SY-101 for the purpose of measuring and tracking the ILL in this tank. This task encompasses the redesign and fabrication of a neutron probe and a gamma probe to interface with the existing liquid observation well (LOW) vans, which provide the necessary instrumentation,

and to provide probe geometries that allow each probe to be lowered into either of the two MITs. The task also includes completing the necessary testing, documentation, and reviews (as described in Section 3.2) for operation of the probe system at this tank through FY99, and analyzing the data results obtained.

A description of the location of the two MITs of Tank 241-SY-101 is given in Drawing H-14-010531 (Sheet 1), an overview of the MITs is illustrated in Drawing H-2-85141 (Sheet 1), and the dimensions of the MIT validation tube are given in Drawing H-2-85145 (Sheet 3). From this last drawing, the inside diameter (ID) of the MIT validation tube (into which the probes are to be inserted) is shown as 1.984 in (5.04 cm), which has obvious relevance to the maximum allowable probe outside diameter (OD).

The LOW equipment required for this task is operated in accordance with the tank farm operating procedure TO-040-333 (1998). All probe and supporting system equipment operated at the 241-SY-101 tank must comply with this procedure.

3.2 ENGINEERING TASKS

The engineering tasks to be performed for this program are described in the following, and individual contractors assigned for each task are indicated in parentheses at the end of each section. These contractors include COGEMA Engineering Corporation (COGEMA Engineering), Lockheed Martin Hanford Corporation (LMHC), and Numatec Hanford Corporation (NHC).

3.2.1 Complete Engineering Task Plan

The ETP is a required tool for managing the neutron probe program to determine and track the ILL in Tank 241-SY-101; it is provided by this document. (COGEMA Engineering, LMHC)

3.2.2 Probe Procurement

In order to adapt the existing neutron probe system to operate in the MITs at the 241-SY-101 tank, it is necessary to modify the probe hardware. Design changes will be made that include a reduction of the probe diameters. The new design calls for a separate neutron probe and gamma probe, both of which must be procured. Procurement of the neutron probe will require a special effort, as it is likely that the probe, detector, and source will be obtained from separate vendors. The supplier of the neutron and gamma probes will be required to provide Certified Vendor Information (CVI) drawings of these devices. (COGEMA Engineering, LMHC)

3.2.3 Modifications

A number of hardware and software modifications will be required to prepare the neutron probe system to operate in the 241-SY-101 MITs. Engineering Change Notices (ECNs) and H-2/H-14 drawings (or drawing modifications) will be provided as required. Also, because the new probe design requires a change in the neutron source (to a higher dose rate), it may be necessary to provide an ALARA Management Worksheet. Items that require (or may require) modification include:

- software (LMHC)
- plug gage (NHC, Crafts)
- van offset fixture (NHC, Crafts)
- probe holder (NHC, Crafts)
- neutron source storage cask. (NHC, Crafts)
- ALARA Management Worksheet (LMHC)

3.2.4 Perform Pre-Operational Testing

The procurement specifications for the neutron and gamma probes will require the vendor to perform certain limited operational tests before shipping the probes. However, the vendor facility lacks some of the testing capability that is available on the Hanford site. Thus, in cooperation with the vendor, a series of "pre-operational" tests will be performed at Hanford to verify basic functionality of the equipment, prior to formal acceptance testing. This effort will require a test plan and test procedures. (COGEMA Engineering, Crafts)

3.2.5 Write and Perform ATP/OTP

A combined Acceptance Test Procedure/Operations Test Procedure (ATP/OTP) will be written and performed to verify specification compliance and compatibility of the new probes and software with the existing LOW system. The resulting data will be evaluated and an operations test report (OTR) will be issued. (COGEMA Engineering, LMHC)

3.2.6 Complete Acceptance for Beneficial Use (ABU)

An acceptance for beneficial use (ABU) process will be completed. The actual ABU checklist and forms for this task are shown in Attachment A. (COGEMA Engineering, LMHC)

3.2.7 Complete Implementation Plan

Once the ATP/OTP and ABU have been completed, an implementation plan will be completed to allow for continued operation of the neutron probe system at the MITs of Tank 241-SY-101. (COGEMA Engineering)

3.2.8 Operate Probe System

The neutron probe system will be operated at Tank 241-SY-101 through the end of FY99, measuring and tracking the ILL. (COGEMA Engineering, LMHC, Crafts)

3.3 DESIGN VERIFICATION

The current LOW equipment design has been approved for use in LOWs (including those installed in flammable gas tanks), which is a non-intrusive application. Any additional ECNs required for this effort will be reviewed through the informal design review process per HNF 1997a.

3.4 SOFTWARE DEVELOPMENT TASKS

Modification of existing LOW software may be required to obtain and properly analyze data obtained from the 241-SY-101 MITs. These modifications will be performed by LMHC, as required.

3.5 PROCUREMENT TASKS

Procurement activities will be handled by LMHC; items will be procured through LMHC utilizing COGEMA Engineering personnel as the procurement coordinator. The safety classification of the components will be determined by the Design Authority with input from COGEMA Engineering personnel. It is noted that the current probe system is not safety class or safety significant; its GS safety class rating is based on the fact that the probe system and associated electronics are confined to the LOW and are not intrusive in the tank. The probe system serves no safety function, and does not interact with (or affect) other safety equipment at the tank.

3.6 FABRICATION TASKS

It is expected that most of the fabrication associated with this program will be performed by the vendor supplying the modified neutron and gamma probes. However, any on-site fabrication activity (if necessary) for this task plan will be performed by DynCorp Fab Shops.

3.7 OPERATIONAL TESTS

An ATP/OTP will be performed to formally assess the functionality of the neutron probe system and its compatibility with the LOW trucks. System calibration(s) will be included in this task. The results of this testing will be documented in an OTR.

3.8 ACCEPTANCE FOR BENEFICIAL USE

The ABU process checklist/forms that will be used for this task are shown in Attachment A.

3.9 OPERATIONS

All installation and system operational activities associated with the ETP will be performed by LMHC (or their designates).

4.0 ORGANIZATION

Responsibilities are assigned to various companies and organizations as identified in the following paragraphs.

DESH will provide the overall project direction and funding.

- Cost Account Manager (CAM): R. E. Bauer

COGEMA Engineering will provide project management and engineering services to perform any required design, design documentation, and engineering support during fabrication/installation, testing, initial deployment, and task management.

- COGEMA Engineering Project Manager: C. E. Hanson
- Responsible Manager: J. D. Criddle
- Responsible Engineer: N. S. Cannon
- Engineer: F. S. Stong

LMHC will provide support to implement the new system at the 241-SY-101 tank, and to provide continued operational support through FY99.

- LMHC Operations Manager: C. B. Bryan
- Cognizant Manager: N. W. Kirch
- Cognizant Engineer: D. A. Barnes
- Design Authority: P. F. Kison

- Responsible Manager D. Scott, Jr.
- Responsible Manager J. D. Adrian
- Quality Assurance Engineer R. R. True
- Safety Engineer L. S. Krogsrud

NHC will provide support for making needed system modifications, including modifying the plug gage, the offset fixture, the probe holder, and the neutron source storage cask.

- Responsible Engineer: P. R. Deihelbohrer

5.0 COST AND SCHEDULE ESTIMATES

Cost and schedule for both engineering, fabrication, and testing are dependent on many variables. As such, these are not "fixed price" or "fixed schedule" estimates. COGEMA Engineering will closely manage the task and report any cost or schedule issues to the appropriate management.

5.1 SCHEDULE

The schedule estimate prepared by COGEMA is given in Attachment B. Key dates in the schedule are completion of the Acceptance for Beneficial Use (ABU) by December 29, 1998, the initiation of ILL measurement/analysis on January 20, 1999, with a continuation of the tracking of the ILL through September 30, 1999.

5.2 COST ESTIMATE

A simplified cost estimate is given in the following table (Table 1) in terms of manhours unless otherwise specified. This estimate does not include any costs incurred by this project prior to August 24, 1998.

6.0 CONFIGURATION MANAGEMENT

The current baseline configuration of the LOW van system will not change for this task; new probes are being designed and fabricated to interface with the existing LOW system. All new vendor supplied drawings shall be added to the existing CVI file (50014). New parts fabricated "in-house" for this program will have required drawings released per WHC 1996, HNF 1997b, and HNF 1997c. ECNs will be generated against these new design drawings to reflect the

additional modifications required to support this task. These ECNs will be prepared in accordance with WHC 1996 and HNF 1997d.

7.0 QUALITY ASSURANCE

All documentation (ECNs, etc.) associated with this task shall be assigned approval

TABLE 1: TASK IMPLEMENTATION COST ESTIMATE						
TASK	COGEMA	LMHC	OPS Mangement	Operations	CRAFTS	NHC
Engineering Task Plan	200	40				
Probe Procurement	392	96				
Probe Hardware		\$30K*				
System Mods	8	64				
Well Logging			16	24	16	56
Offset Fixture Mod	8				8	56
Probe Holder Mod					24	40
Source Cask Mod					24	40
Pre-Op. Testing	136		32	32		
ATP/OTP	224	88	8	40		
ABU	32	8				
Implementation Plan	120					
Operational Phase	792	1728		1248		
TOTAL (hrs)	1912	2024	56	1344	72	192
FY98 Total (hrs)	688	160	16	24	16	112
FY99 Total (hrs)	1224	1864	40	1320	56	80

* Expected purchase order cost for probe components

designators by the cognizant engineer with concurrence from the cognizant manager. The approval designator shall be determined from Table 1 of HNF 1997e. Those documents given an approval designator "Q" will be reviewed and approved by Quality Assurance per WHC 1991. A final verification/walkdown of the probe system shall be performed in accordance with HNF 1997f prior to completion of the ABU. The ATP/OTP and OTR for the probe system will be conducted in accordance with HNF 1997g.

8.0 SAFETY

All documentation (ECNs, etc.) associated with this task shall be assigned approval designators by the cognizant engineer with concurrence from the cognizant manager. The approval designator shall be determined from Table 1 of HNF 1997e. Those documents given an approval designator "S" will be reviewed and approved by Safety.

9.0 REFERENCES

- HNF, 1997a, HNF-PRO-445, Rev. 0, *Project Hanford Policy and Procedure System Design Verification Requirements*, Fluor Daniel Hanford, Inc., Richland, Washington.
- HNF, 1997b, HNF-PRO-244, Rev. 0, *Project Hanford Policy and Procedure System Engineering Data Submittal Requirements*, Fluor Daniel Hanford, Inc., Richland, Washington.
- HNF, 1997c, HNF-PRO-317, Rev. 0, *Project Hanford Policy and Procedure System Engineering Release and Approval Requirements*, Fluor Daniel Hanford, Inc., Richland, Washington.
- HNF, 1997d, HNF-PRO-440, Rev. 0, *Project Hanford Policy and Procedure System Engineering Document Change Control Requirements*, Fluor Daniel Hanford, Inc., Richland, Washington.
- HNF, 1997e, HNF-PRO-233, Rev. 0, *Project Hanford Policy and Procedure System Review and Approval of Documents*, Fluor Daniel Hanford, Inc., Richland Washington.
- HNF, 1997f, HNF-PRO-283, Rev. 0, *Project Hanford Policy and Procedure System Control of Inspections*, Fluor Daniel Hanford, Inc., Richland, Washington.
- HNF, 1997g, HNF-PRO-286, Rev. 0, *Project Hanford Policy and Procedure System Test Control*, Fluor Daniel Hanford, Inc., Richland, Washington.

Stong, F. S., 1998, HNF-3041, *Determining the Interstitial Level in Tank 241-SY-101 Utilizing a Neutron Probe in the Multifunction Instrument Tree*, COGEMA Engineering Corporation, Richland, Washington.

TO-040-33, Rev. A-4, January 7, 1998, *Liquid Observation Well (LOW) Surveillance Van Startup and Operation Procedure*, Westinghouse Hanford Company, Richland, Washington

WHC, 1996, WHC-IP-0842, TWRS Administration, Volume IV, Section 3.5, Rev. 1, "Engineering Documents," Westinghouse Hanford Company, Richland, Washington.

ATTACHMENT A: ABU

ACCEPTANCE FOR BENEFICIAL USE (ABU)					
3. Document No. HNF-3322	4. Project No. NA	5. SSC Designator GS	6. System/Bldg/ Facility 241-SY-101	7. Equip/Component No.	8. ECN/EDT No. EDT 140119
9. Final ABU () Partial ABU ()			10. ATP Rerun Required () Yes () No		
11. Description of Work Modify Neutron/Gamma Probes to operate with the existing LOW Surveillance Vans at Tank 241-SY-101 MITs in accordance with procedure TO-040-333. This ABU documents the completion of all activities necessary for the deployment of modified neutron and gamma probes with the existing LOW vans at Tank 241-SY-101 MITs.					
12. Description of Work to be Completed		13. Scheduled Completion Date	14. Responsibility for Completion	15. Impact on Operations/Safety	

16. Documents or Other Items/Tasks to be Updated	17. Funding Source	18. Document Number	19. Responsibility for Completion	20. Required prior to final ABU (Yes/No)
TRAINING:				
• Training manuals ()				
• Training to Operating Crews (x)		TBD	J. D. Adrian	Yes
• Training to Maintenance Crews (x)		TBD	J. D. Adrian	Yes
ENGINEERING:				
• Engineering Task Plan (x)		HNF-3322	N. S. Cannon	Yes
• Engineering Procedure ()				
• Final Safety Analysis Report (FSAR) ()				
• Safety Assessment (SA) ()				
• Functional Design Criteria (FDC) ()				
• Design Review Report ()				
• Conceptual Design Report (CDR) ()				

• Supplemental Design Requirements Document (SDRD) ()				
16. Documents or Other Items/Tasks to be Updated	17. Funding Source	18. Document Number	19. Responsibility for Completion	20. Required prior to final ABU (Yes/No)
• System Design Description (SDD) ()				
• Test procedures/specifications Test Report (x)		ATP/OTP & OTR (Document # TBD)	N. S. Cannon	Yes
• Safety Equipment List ()				
• Environmental Impact Statement ()				
• Environmental Report ()				
• Environmental Permits ()				
• Stress/Seismic Analysis ()				
• Stress/Design Report ()				
• Equipment Specification ()				
• Procurement Specification (x)		Included in PR A31978 & A31980	N. S. Cannon	Yes
• Construction Specification ()				
• Essential Material Specification ()				
• Technical Specification ()				
• As-built Drawing (x)		TBD	P. R. Deichelborer	Yes
• Interface Control Drawing ()				
• Computer Software ()				
OPERATIONS:				
• Operating and Maintenance Manuals ()				
• Operating Procedures (x)		TO-040-333*	D. A. Barnes	Yes
• Operation Instructions ()				
• Calibration Procedures (x)		TO-040-333*	D. A. Barnes	Yes

16. Documents or Other Items/Tasks to be Updated	17. Funding Source	18. Document Number	19. Responsibility for Completion	20. Required prior to final ABU (Yes/No)
• Preventative Maintenance Procedures ()				
• Operations Safety Requirements ()				
<u>QUALITY ASSURANCE:</u>				
• Inspection Plan (x)		TBD	R. R. True	Yes
• QAPP ()				
• QAP JP ()				
• NEC Inspection ()				
<u>PROCUREMENT ACTIVITIES:</u>				
• Vendor Information (x)		TBD	N. S. Cannon	Yes
• Material List ()				
• Spare Parts ()				
• Purchase Requisition(s) (x)		PR A31978 & A319830	N. S. Cannon	Yes
• ALARA Management Worksheet ()				
• Other Commercial Grade Item forms ()				

* Minor changes (if any) are expected for the procedures.

PROJECTS: CHARACTERIZATION OPERATIONS AND ENGINEERING	
Signature	Date
Cog/Field Engineer DA Barnes	
Cog/Field Engineer	
Cog/Field Engineer	
Cog/Field Mgr. NW Kirch	
QA RR True	
Safety LS Krogsrud	
Environmental NA	
Modification Projects	
DS Tank Operations	
Design Authority PF Kison	
Design Engineer	
Design Engineer	
Design Engineer	
Design Engineer	
Design Engineer	

ATTACHMENT B: Neutron/Gamma Probe Schedule

HNF-3322 Rev. 0

Project: Neutron Probe ILL
Date: 10/12/98

Task Summary Rolled Up Progress
Progress Rolled Up Task
Milestone Rolled Up Milestone

ATTACHMENT B: Neutron/Gamma Probe Schedule

HNF-3322 Rev. 0

ID	Task Name	Duration	Start	Finish	1999												
					Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
24	Receive Probe	48d	9/15/98	11/19/98													
25	MISC TASKS	22d	9/28/98	10/27/98													
26	System Mods	6d	10/20/98	10/27/98													
27	Provide Scan Para	1d	10/20/98	10/20/98													
28	Setup Special Repo	5d	10/21/98	10/27/98													
29	Data Access Accou	1d	10/21/98	10/21/98													
30	Download Cal Data	1d	10/21/98	10/21/98													
31	Well Logging/Cleanout	17d	9/28/98	10/20/98													
32	Modify Plug Gage	5d	9/28/98	10/2/98													
33	Log Well	1d	10/19/98	10/19/98													
34	Clean Well	2d	10/19/98	10/20/98													
35	Modify Offset Fixture	12d	9/28/98	10/13/98													
36	Write ECN	5d	9/28/98	10/2/98													
37	Generate Work Pkg	5d	10/5/98	10/9/98													
38	Perform Mods	2d	10/12/98	10/13/98													
39	Modify Probe Holder	12d	9/28/98	10/13/98													
40	Write ECN	5d	9/28/98	10/2/98													
41	Generate Work Pkg	5d	10/5/98	10/9/98													
42	Perform Mods	2d	10/12/98	10/13/98													
43	Mod. Source Str. Cask	12d	9/28/98	10/13/98													
44	Write ECN	5d	9/28/98	10/2/98													
45	Generate Work Pkg	5d	10/5/98	10/9/98													
46	Perform Mods	2d	10/12/98	10/13/98													

Project: Neutron Probe ILL
Date: 10/12/98

Task

Progress

Milestone

Summary

Rolled Up Task

Rolled Up Milestone

Rolled Up Progress

ATTACHMENT B: Neutron/Gamma Probe Schedule

HNF-3322 Rev. 0

Project: Neutron Probe ILL
Date: 10/12/98

Task

Summary

Rolled Up Progress

Progress

Rolled Up Task

Milestone

Rolled Up Milestone

DISTRIBUTION SHEET

To Distribution	From Electrical I & C	Page 1 of 1			
		Date October 12, 1998			
Project Title/Work Order Engineering Task Plan for Determining the Interstitial Liquid Level in Tank 241-SY-101 Utilizing a Neutron Probe in the Multifunction Instrument Tree		EDT No. 140119			
		ECN No. NA			
Name	MSIN	Text With All Attach.	Text Only	Attach./Appendix Only	EDT/ECN Only
J. D. Adrian	T4-01	X			
D. A. Barnes	R2-11	X			
R. E. Bauer	S7-73	X			
N. S. Cannon (3)	L6-38	X			
J. D. Criddle, Jr.	S7-12	X			
P. R. Deichelbohrer	S7-12	X			
C. E. Hanson	S7-12	X			
G. D. Johnson	S7-73	X			
N. W. Kirch	R2-11	X			
P. F. Kison	T4-07	X			
L. S. Krogsrud	T4-07	X			
D. C. Larsen	T4-08	X			
D. Scott, Jr.	T4-01	X			
F. S. Stong	S7-12	X			
R. R. True	T4-07	X			
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