

START

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Meeting Minutes Transmittal/Approval
Unit Managers Meeting: Single-Shell Tanks
2440 Stevens Center/Room 1600
Richland, Washington

July 20, 1994

From/
Appvl:

Wendell A. Wyrus
Wendell Wrzesinski, SST Unit Manager, DOE-RL

Date: 2/16/95

Appvl:

Scott E. McKinney
Scott McKinney, SST Unit Manager,
WA Department of Ecology

Date: 2/17/95

Appvl:

David R. Einan
Dave Einan, SST Unit Manager, EPA Region X

Date: 16 Feb 95

Appvl:

Mardine Campbell
Mardine Campbell, WHC, Contractor Representative

Date: 2/14/95

Meeting Minutes are attached. Minutes are comprised of the following:

- Attachment #1, Meeting Summary/Summary of Action Items & Agreements
- Attachment #2, Agenda
- Attachment #3, Attendance List

- Handout 1 - Complete Closure of All Single Shell Tank Farms M-45-00
- Handout 2 - Project W-320, Tank 241-C106 Sluicing
- Handout 3 - W-310 Approval of SPL/FONSI
- Handout 4 - Single Shell Tank Closure Work Plan Schedule
- Handout 5 - Single-Shell Tank Interim Stabilization/Isolation M-41-00
- Handout 6 - Single-Shell Tank Liquid Level Monitoring Program at Hanford
- Handout 7 - TPA Change Control Form - M-43-94-02 - Single-Shell Tank Liquid Level Monitoring Upgrade
- Handout 8 - Waste Tank Safety Program TPA Status Report as of: 06/30/94
- Handout 9 - Riser 14 Temperature Transient in Tank 241-C-106
- Handout 10 - Double and Single-Shell Tank Characterization M-44-00



UNIT MANAGERS MEETING: SINGLE-SHELL TANKS
MEETING SUMMARY/SUMMARY OF ACTION ITEMS AND AGREEMENTS

July 20, 1994

M-45 RETRIEVAL/CLOSURE (W. Wrzesinski) [Handouts #1, 2, 3, 4]:

ACTION: S. McKinney will inquire about the status of the Subsurface Barrier Feasibility Study which had previously been submitted (M-45-07A).

The Closure Work Plan schedule and outline was given to S. McKinney.

M-41 INTERIM STABILIZATION (G. Bishop/D. Engelman/T. Rainey) [Handouts #5, 6, 7]:

The draft change request "Single-Shell Tank Liquid Level Monitoring Upgrade" was given to Ecology.

ACTION (G. Bishop): Provide status of monitoring readings at UMM.

M-40 SAFETY (G. Wilson/O. Wang) [Handouts #8, 9]:

Oliver Wang, WHC, explained the C-106 unusual occurrence. In support of Milestone M-40-05, the process test created a temperature anomaly. Adding water to the tank raised the temperature to the expected "normal" temperature. In the unlikely event the temperature rises above 210 degrees, then further steps will be taken.

Milestone M-40-05 will be completed ahead of schedule.

M-44 TANK CHARACTERIZATION (D. Schlick/C. DeFigh Price) [Handout #10]:

Ecology was asked if there were any comments on the M-44-02A Tank Waste Analysis Plan. This could not be resolved at this time.

The DOE Review Board will meet to determine if the 325 Lab is ready for re-start.

Ferrocyanide tanks will get priority for characterization. LOWs will get priority over safety.

ACTION: C. DeFigh Price will send copies of the new riser study to Ecology.



SINGLE SHELL TANK UNIT MANAGERS MEETING

July 20, 1994

AGENDA

1:00-1:45	Retrieval/Closure	Wrzesinski
1:45-2:30	Interim Stabilization	Bishop
2:30-2:45	Safety	Christensen
2:45-3:30	Characterization	Clark

U/M/M Attendees

MARC STEVENSON	WHC/TPA	376-9668
Luis Soler	GSSC	946-3680
MaryAnn McLaughlin	WHC/TPA	376-4084
Dave Einan	EPA	376-3883
Russ HARWOOD	DOE	376-2348
Scott McKinney	Ecology	407-7146 (206)
WENDELL WRZESINSKI	DOE	376-6751
GARY MEYER	WHC/TWRS	372-3683
FRANK CALAPRISTI	WHC/TPA	376-6693
Mardie Campbell	WHC/TWRS EC.	373-1131
Dean Nguyen	WHC/TWRS	
TOM SNIDER	WHC/TWRS E.C.	373-2984
George Wilson	WHC/LOTSP	372-1130
TOM RAINY	WHC/TWR	373-3531
DON ENGELMAN	WHC/TWR	373-3452
Guy Bishop	DOE	373-1856
David L. Schick	GSSC/DOE	376 119
ZEN ANTONIAK	PNL	375-3841
Loren Epler	PNL	375-3740
Oliver Wang	WHC/TWRS	373-3011
Shuley Piny	WHC/char.	376-5418
Cheri DeFina-Paci	WHC-char.	373-2038

Complete Closure of All Single Shell Tank Farms Milestone M-45-00

W.R. Wrzesinski, DOE-RL

July 20, 1994

- 1) M-45-01 Develop SST Retrieval Technology (September 1994)
 - Plan on end of August completion for submittal to Ecology. Documentation based on correspondence provided in January.

- 2) M-45-07A Complete Evaluation of Sub-Surface Barrier Feasibility (September 1994)
 - On schedule to submit evaluation in September.
 - Feedback on draft study/last month discussion?
 - RKK Cryobarrier Demonstration Meeting (July 11, 1994)

- 3) M-45-03A Initiate Sluicing Retrieval of C-106 (October 1997)
 - Project MRM Presentation (July 20, 1994)

- 4) M-45-06-T01 SST Closure Work Plan
 - Milestone requires periodic submission of SST Closure Work Plan to Ecology. Document intended to provide information on status and strategy for SST closure and to serve to identify and resolve issues prior to submittal of the first SST Closure/Post-Closure Plan as per M-45-06-T01.
 - Outline/Proposed Schedule provided for review and comment.

Management Review Meeting

June 1994

W-320 Tank 241-C-106 Sluicing

Project W-320, Tank 241-C-106 Sluicing

Management Review

July 20, 1994

Management Review Meeting

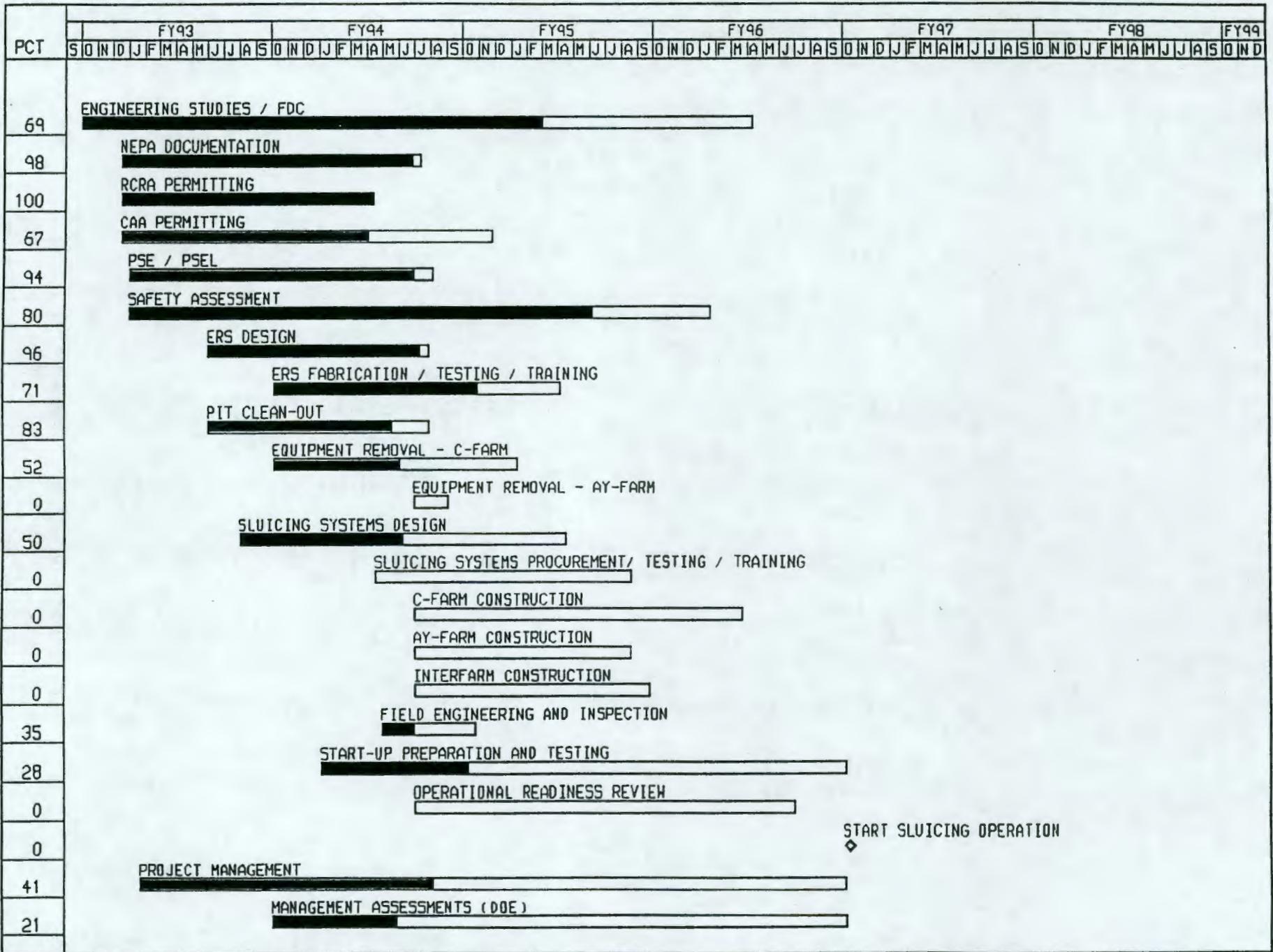
June 1994

W-320 Tank 241-C-106 Sluicing

AGENDA

- Introduction J. M. Henderson
- Cost / Schedule Status J. M. Henderson
- Engineering and Design D. J. Shrimpton
- Construction and Start-up T. N. Shaw
- NEPA and Permitting J. P. Harris
- Project Manager's Assessment J. M. Henderson

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Plot Date 18JUL94
 Data Date 27JUN94
 Project Start 10CT92
 Project Finish 20CT96

Activity Bar/Early Dates
 Critical Activity
 Progress Bar
 Milestone/Flag Activity

June
 W-320 241-C-106 SLUICING
 W-320 LEVEL '0' SCHEDULE TASKS

Sheet 1 of 1

BC-01			
Date	Revision	Checked	Approved

241-C-106 Sluicing
Project W-320

Cost Performance Report
(\$ in 000's)

June 1994

WBS Element	Current Period				
	Budgeted Cost		Actual Cost	Variance	
	Work Scheduled	Work Performed	Work Performed	Schedule	Cost
<u>Operating Expense</u>					
Project Management	371.9	735.6	32.3	363.7	703.3
Engineering	748.3	470.7	852.9	(277.6)	(382.2)
Construction	639.8	855.4	639.3	215.6	216.1
Startup	17.6	47.7	(52.2)	30.1	99.9
Total Expense	1,777.6	2,109.4	1,472.3	331.8	637.1
CENRTC	191.1	47.6	260.1	(143.5)	(212.5)
Total Project	1,968.7	2,157.0	1,732.4	188.3	424.6

WBS Element	Cumulative to Date				
	Budgeted Cost		Actual Cost	Variance	
	Work Scheduled	Work Performed	Work Performed	Schedule	Cost
Project Management	3,585.9	3,786.4	2,244.1	200.5	1,542.3
Engineering	6,661.2	5,884.6	5,746.8	(776.6)	137.8
Construction	5,086.7	4,146.0	5,130.2	(940.7)	(984.2)
Startup	352.9	133.5	132.1	(219.4)	1.4
Total Expense	15,686.7	13,950.5	13,253.2	(1,736.2)	697.3
CENRTC	2,266.0	1,987.6	2,292.9	(278.4)	(305.3)
Total Project	17,952.7	15,938.1	15,546.1	(2,014.6)	392.0

Note: Adjustment made in Project Management current period Actual Cost of Work Performed as a result of a passback for overhead rate reductions (\$290K).

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Management Review Meeting

June 1994

W-320 Tank 241-C-106 Sluicing

Variance Explanation

Project Management

Schedule Variance

Completion of NEPA and safety documentation is approximately two months behind schedule due to resolution of unanticipated comments from external reviews

Completion of the structural analysis efforts is approximately two months behind schedule due to later than planned issuance of contract to ADVENT Engineering and discontinuance of the CRAY computer

Cost Variance

Variance due to later than planned issuance of contract to ADVENT Engineering and discontinuance of the CRAY computer, staffing shortage in Project Engineering (planned level of effort) and delayed installation of mobile office facility (planned as a level of effort activity), and Clean Air BOA contract cost came in lower than estimate. Cost underrun projected for this cost account

Management Review Meeting

June 1994

W-320 Tank 241-C-106 Sluicing

Variance Explanation (Cont)

Engineering

Schedule Variance

Sluicing Definitive Design is approximately ten weeks behind the Definitive Design Plan Rev. 1 schedule. Twelve additional engineers/designers were added in May and six in June. There has been a decrease in Cost Performance Index as new project personnel "come up to speed" and become productive. In July the replanning will be completed and staff trained. The Cost Performance Index is expected to show marked improvement

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W-320 Tank 241-C-106 Sluicing

Variance Explanation (Cont)

Construction

Schedule Variance

Equipment Removal System procurement and fabrication are approximately one month behind schedule. Continuing variance is due to delays in approval of EA (affects some field work at C-Farm), and delays in modifications at the Cold Test Facility. Cold Test Facility delays are due to problems with the rotary-mode sampling system operational testing and ORR. Cold Test Facility will be available July 8, 1994. Positive schedule variance was realized in June

Cost Variance

Year-to-date cost variance caused by fabrication of expense funded ERS components not originally envisioned, overtime expended in ERS fabrication, fabrication of additional equipment disposal boxes, fabrication and installation of new cover blocks, disposal of old coverblocks, fabrication of flexible receiver to riser transition pieces, spray ring, and delays in completing C-Farm surface contamination fixant application

Management Review Meeting

June 1994

W-320 Tank 241-C-106 Sluicing

Variance Explanation (Cont)

Startup

Schedule Variance

Delays in work due to manpower shortages. Additional resources identified; new work was initiated in May 1994. Schedule variance is improving due to the use of engineering subcontractors

Capital Equipment not Related to Construction (CENRTC)

Schedule Variance

Shipment of ERS hydraulic trailer delayed due to problems encountered at factory acceptance test. Rework of test planned for July

Cost Variance

Costs for flexible receiver system exceeded original estimates. Work to be completed in July

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Management Review Meeting

June 1994

W-320 Tank 241-C-106 Sluicing

Project Management

Accomplishments

- Completed Project Revalidation Presentation - June 1994
- Prepared and implemented action item list from DOE Management Assessment

Baseline Management Near-Term Activities

- Prepare project 40% cost estimate.
- Resolve differences in 40% cost estimate from ICE Review Team and update project baseline. July/August 1994

Management Review Meeting

June 1994

W-320 Tank 241-C-106 Sluicing

Engineering and Design

Accomplishments

- Sluicing Definitive Design is 47% complete
- Completed disposition of comments on Sluicing Construction Package 1 and commenced incorporation of comments into design
- Initiated combination of W-320 Sluicing Construction Package 1 with W-030 Construction Package 2 to avoid interferences and construction sequencing problems. Bid package ready mid-July. Cost savings possible

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Management Review Meeting

June 1994

W-320 Tank 241-C-106 Sluicing

Engineering and Design

Accomplishments (Cont)

- Issued ten equipment specifications for 60% review
- Released ERS electrical equipment specification
- Released structural drawings for Cold Test Facility platforms
- Released structural drawings for tank C-106, pit 06B platforms
- Issued first ERS Construction Package for 90% review, minimum comments received
- ERS "Development Control" drawings are being issued to support equipment removal in FY 1994

Management Review Meeting

June 1994

W-320 Tank 241-C-106 Sluicing

Engineering and Design

Issues and Recommendations

- **Sluicing Definitive Design is approximately ten weeks behind the target (early start/early finish) schedule. A recovery plan is being implemented by the project and monitored for effectiveness**
- **No bids received on slurry pumps. Specification will be revised and reissued. Project no impact on construction, but design activities will be affected. Delays to completion of design possible**

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Management Review Meeting

June 1994

W-320 Tank 241-C-106 Sluicing

Engineering and Design

Near-Term Activities

- Complete rework of the design schedule and integrate it into the project schedule - July 1994
- Reconcile MACTEC VE Study results with current design/construction plan - July 1994
- Implement action plan to address MACTEC Management Assessment and remaining ARES Critical Criteria Review action items - July 1994
- Conduct detailed VE Study to identify further potential cost savings - July 1994

Management Review Meeting

June 1994

W-320 Tank 241-C-106 Sluicing

Construction and Startup

Accomplishments

- Operations and Health Physics support issues were partially resolved. Additional HPT resources were assigned in June. Two lead operators will be assigned in July
- Cold Test Facility will be available July 8, 1994. Work around the rotary core sampler is complete
- ICF KH Construction continues performing decontamination of surfaces in and around C-Farm. Operations completed fixant application of C-Farm surfaces in June

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Management Review Meeting

June 1994

W-320 Tank 241-C-106 Sluicing

Construction and Startup

Accomplishments (Cont)

- Merrick & Company Engineering firm has prepared an ERS Integrated OTP and training program document. Training material being prepared
- ARES Corporation preparing W-320 startup documents
 - Startup Plan
 - ALARA Plan
 - ORR Plan
 - Standard OTP

Management Review Meeting

June 1994

W-320 Tank 241-C-106 Sluicing

Construction and Startup

Issues and Recommendations

- Receipt of finding of no significant impact is imperative to maintaining schedule
- Decontamination and pit cleanout efforts were to be completed in June. Delays associated with Operations in-tank video efforts and resumption of water additions to the tank prevented the continuation of pit cleanout
- Factory acceptance testing of the hydraulic trailer was attempted unsuccessfully in June. Rework by vendor required
- C-Farm exterior contamination control is still a problem. 7th Street was closed again because of migrating contamination. Rodents and animals are thought to be the cause. Discussions with operations on preventative measures in progress. Emphasis must shift from contamination cleanup to rodent and dust control

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Management Review Meeting

June 1994

W-320 Tank 241-C-106 Sluicing

Construction and Startup (cont)

Issue and Recommendations (cont)

- Delay at Cold Test Facility and subsequent delay in C-Farm pump pulls may delay start of C-Farm construction until Spring 1995
- Fabrication has been stopped on the second flexible receiver and control trailer until new capital vs expense review completed. Restart expected by August

Management Review Meeting

June 1994

W-320 Tank 241-C-106 Sluicing

Construction and Startup

Near-term Activities

- C-106 pit clean out to resume in July
- Equipment Removal
 - Complete factory acceptance test for ERS hydraulic trailer - July 1994
 - Restart roadway stabilization around C-Farm - July 1994
 - Start site preparation for equipment removal laydown and staging areas - including change trailer and WRAM station following assignment of categorical exclusion - July 1994
- Commitments made to move the rotary core sample truck in June were missed. Core sampler to relocate in July. Resume modifications of cold test facility - July 1994. Stage completed ERS equipment at test facility - July 1994

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Management Review Meeting

June 1994

W-320 Tank 241-C-106 Sluicing

NEPA and Permitting

(RCRA/CAA)

Accomplishments

- Met with senior WHC management to review NEPA and safety issues. Establish WHC consensus position for waste compatibility issue. Will recommend sluicing with high caustic solution
- Prepared closure strategy for project NEPA and safety documentation, including waste compatibility study. FONSI expected week of August 8, 1994

Near Term Activities

- Continue Phase II CAA Permitting
- SRL/FONSI schedule will be completed July 12, 1994

Management Review Meeting

June 1994

W-320 Tank 241-C-106 Sluicing

NEPA and Permitting

(NEPA)

Issues/Recommendations

- Significant final review comments have impacted initiation of procurement milestones. Remaining comments are being addressed
 - WHC recommends waiver from DOE for award of long lead procurement prior to FONSI to minimize further schedule impact
 - Continued focus must be applied to complete waste compatibility study and closeout NEPA/PSE comments
 - Maintain current path for FONSI. Prevent another comment cycle on EA

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Management Review Meeting

June 1994

W-320 Tank 241-C-106 Sluicing

Milestone Status Table

	Baseline	Accelerated	Forecast
Submit SST selection criteria retrieval options and recommended tank selection to Ecology for concurrence	08/02/93		05/10/93 (A)
Begin Clean Air Act Permitting	08/31/93		08/31/93 (A)
Make decision on high water volume retrieval for Tank 241-C-106	09/01/93		09/01/93 (A)
Issue sluicing system FDC to RL	06/01/93		09/30/93 (A)
Start Definitive Design	09/01/93		09/01/93 (A)
Complete NEPA documentation	12/31/93		09/30/93 (A)
Begin RCRA permitting	02/28/94	10/01/93	10/01/93 (A)
Prepare draft CAA permit application Phase I	03/01/94	01/28/94	01/28/94 (A)
Complete 30% design review	03/31/94	02/25/94	02/20/94 (A)
Initiate procurement	02/28/94	02/28/94	05/16/94 (A)
Prepare draft CAA permit application Phase II	06/01/94	03/31/94	04/04/94(A)

Management Review Meeting

June 1994

W-320 Tank 241-C-106 Sluicing

Milestone Status Table (Cont)

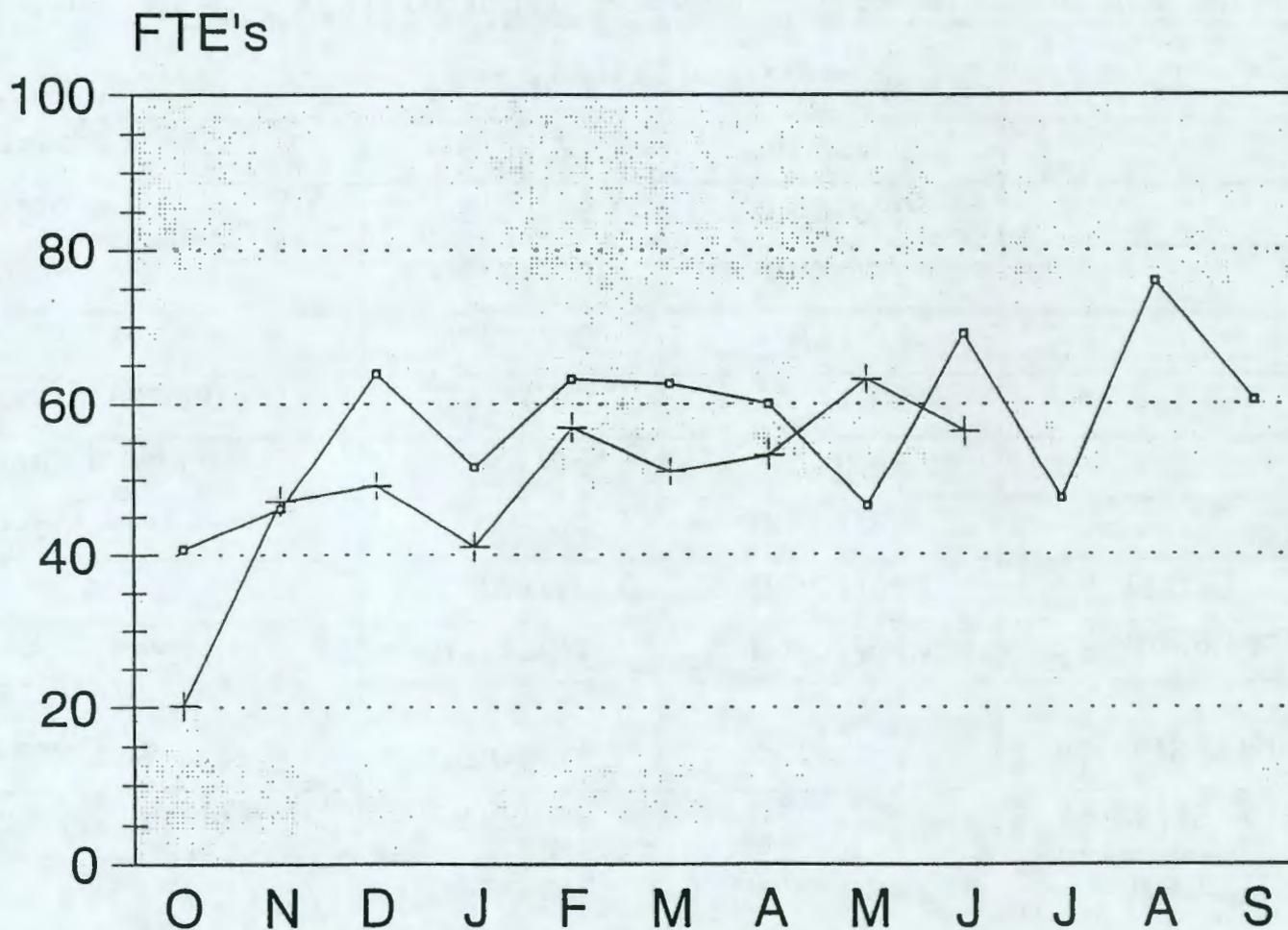
	Baseline	Accelerated	Forecast
Prepare Part A RCRA Modification	07/01/94	03/31/94	12/28/93 (A)
Issue HVAC specification to procurement	08/01/94	04/22/94	05/20/94 (A)
Prepare revalidation package	04/22/94	04/22/94	05/20/94 (A)
Start construction	04/28/95	08/01/94	TBD*
Begin DST modification work	10/03/94	09/01/94	
Complete C-106 pump removal	12/01/94	10/19/94	
Complete safety documentation	01/31/95	12/31/94	
Complete definitive design	04/28/95	12/31/94	
Begin readiness review	06/01/95	04/15/95	
Complete construction	09/30/96	03/29/96	
Start Retrieval operations	10/29/97	10/29/96	
TPA M-45-03A	10/29/97	10/29/96	

* Remaining milestones affected by delays to FONSI and PSE, rework of integrated project schedule, and award of KD #3

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PROJECT W-320 TANK 241-C-106 SLUICING

WHC LABOR HOURS - FY 1994

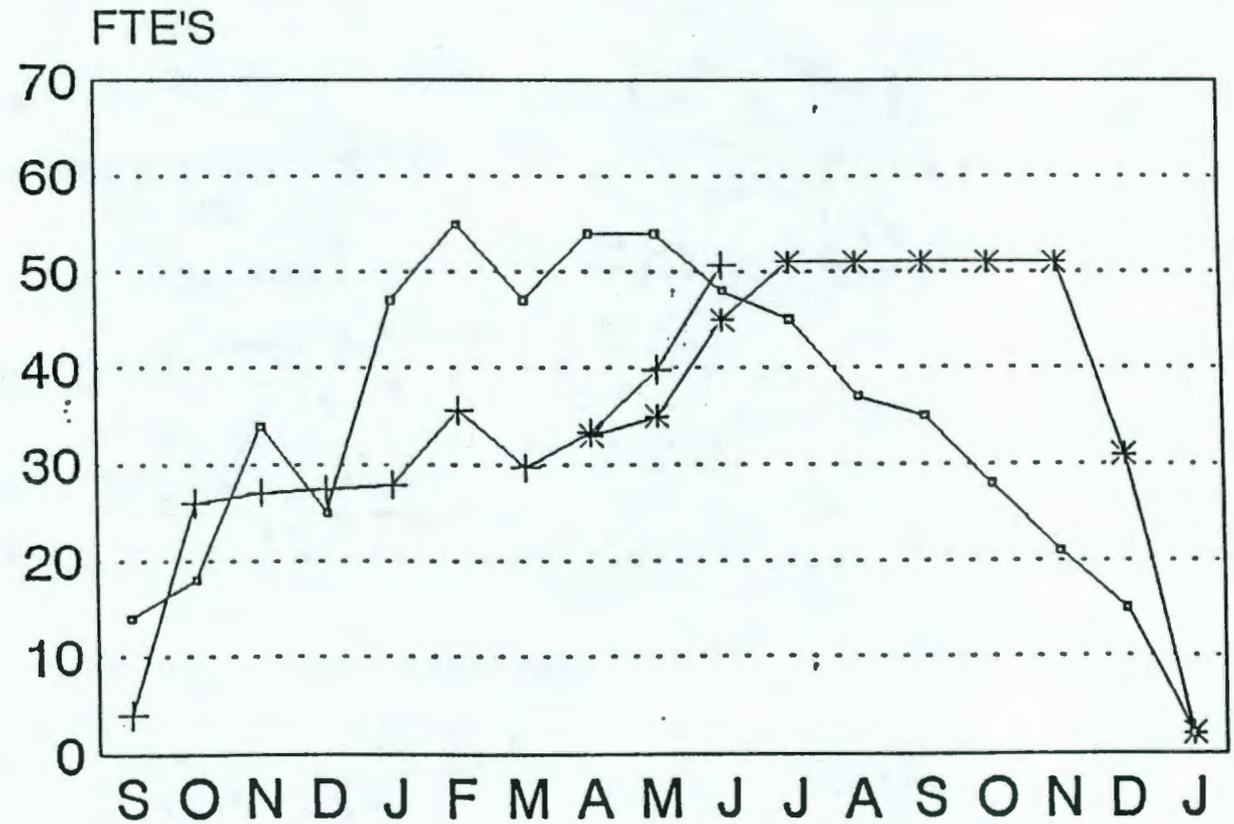


Planned	40.7	46.1	63.9	51.8	63.2	62.6	60	46.5	69.1	47.6	76	60.5
Actual	20.2	47.1	49.2	41	57	51.2	53.4	63.2	56.5			

Actual point adjustment in May to correct labor hours to expense for CENRTC activities in prior months

ICF KAISER HANFORD COMPANY DEFINITIVE DESIGN REV. 1 MANPOWER PLAN V.S ACTUAL FORECAST

◻ PLANNED
 + ACTUAL
 * RECOVERY PLAN

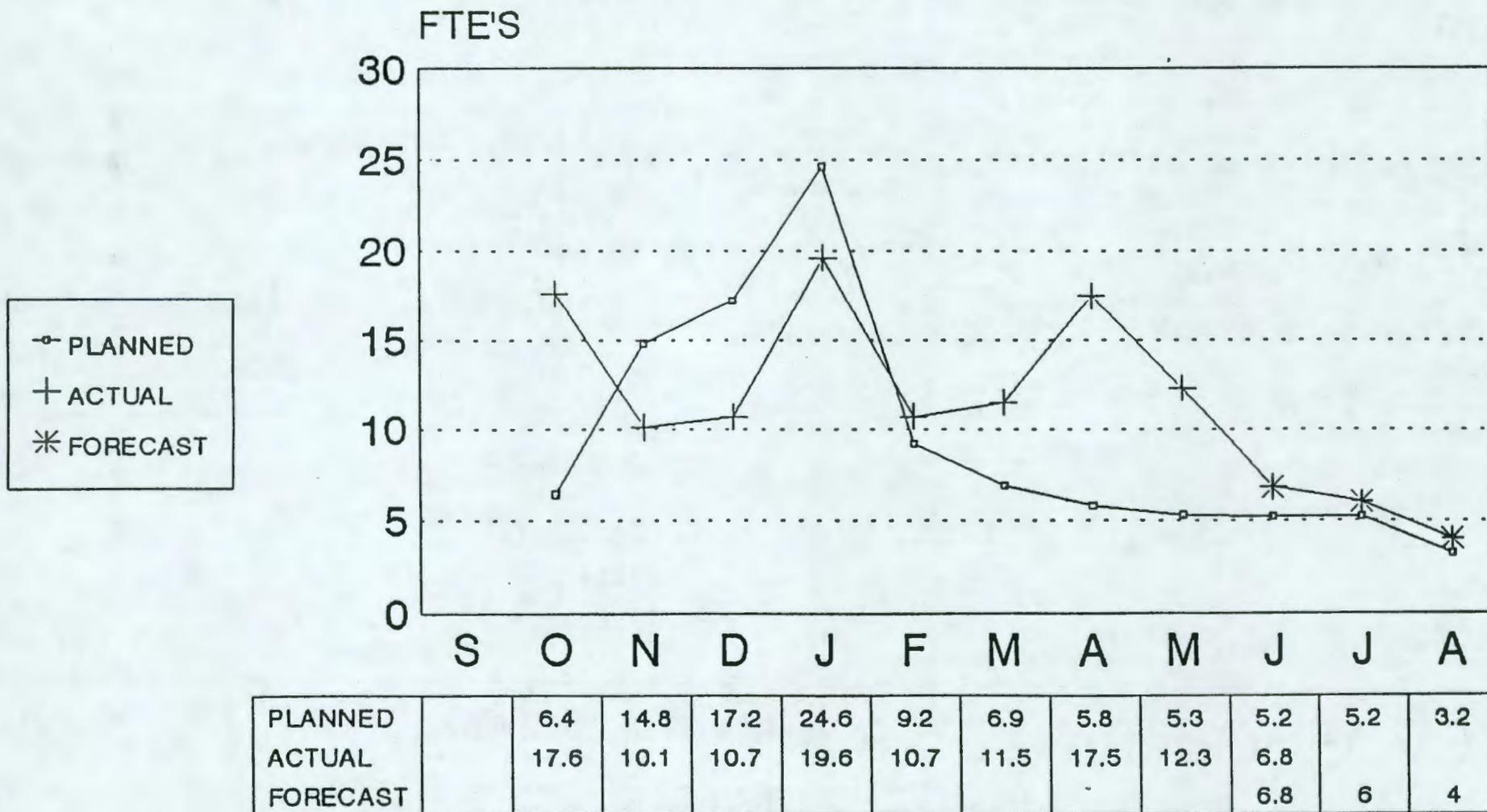


PLANNED	14	18	34	25	47	55	47	54	54	48	45	37	35	28	21	15	2
ACTUAL	4	26	27.1	27.4	27.9	35.6	29.7	33.3	39.8	50.7							
RECOVERY PLAN								33	35	45	51	51	51	51	51	31	2

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FULL TIME EQUIVALENT PEOPLE BY MONTH

ECF KAISER HANFORD COMPANY EQUIPMENT REMOVAL ENGINEERING MANPOWER PLAN V.S ACTUAL FORECAST



FULL TIME EQUIVALENT PEOPLE BY MONTH

Management Review Meeting

June 1994

W-320 Tank 241-C-106 Sluicing

Project Manager's Assessment

Accomplishments

- Prepared and implemented action item list in response to DOE Management Assessment
- Permitting activities and regulator interfaces are positive, and support the accelerated schedule
- Retrieval system design team at required staff levels
- ERS design and fabrication underway. Major equipment deliveries expected in July 1994. Activities at Cold Test site to start in July 1994
- Field work started in May with contamination reduction in C-106 heel-jet pump pit. Additional field work to start in July with approval of categorical exclusion covering ERS preparatory work

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W-320 Tank 241-C-106 Sluicing

Issues/Recommendations

- Continuing problems with NEPA and safety document approvals have impacted major equipment procurement
 - Implement WHC plan for completion of waste compatibility study, PSE, and EA
 - Obtain FONSI in August 1994
 - RL requested to issue waiver on FONSI for long-lead equipment procurements
- Delays in availability of cold test facility have impacted schedule for ERS system testing and personnel training
 - Move out rapidly in July to attempt completion of C-106 equipment removal in 1994
 - Evaluate need to complete AY-102 pump pull prior to completion of sluicing

Management Review Meeting

June 1994

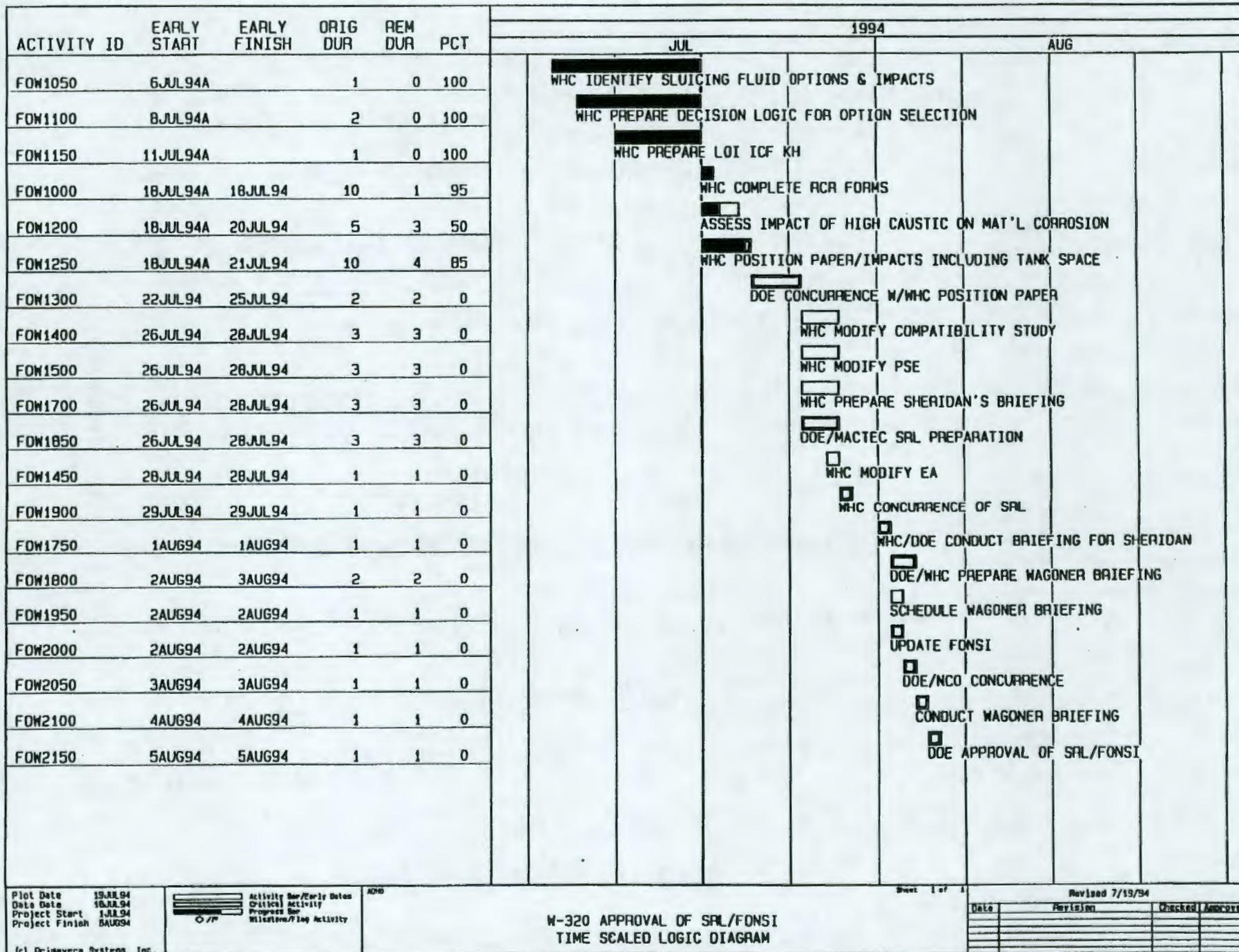
W-320 Tank 241-C-106 Sluicing

Project Manager's Assessment

Near-term Activities

- Major focus for July\August 1994
 - Obtain approvals of NEPA and safety documents
 - Complete Management Assessment actions
 - Prepare for construction
 - Obtain KD #3
 - Complete design/construction replanning
 - Resolve ICE comments
 - Complete pit contamination reduction
 - Ramp up field work for ERS

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07/19/94 15:29 509 372 0065 MO-414/200 EAST TWR5 RL

Plot Date 15.AUG.94
 Data Date 16.AUG.94
 Project Start 1.JUL.94
 Project Finish 8AUG94

Activity Bar/Early Dates
 Critical Activity
 Progress Bar
 Milestone/Flag Activity

ADO

(c) Primavera Systems, Inc.

W-320 APPROVAL OF SRL/FONSI
 TIME SCALED LOGIC DIAGRAM

Revised 7/19/94

Date	Revision	Checked	Approved

PRIMAVERA PROJECT PLANNER

REPORT DATE 19JUL94 RUN NO. 3
 14:13
 CLASSIC SCHEDULE REPORT - SORT BY ES, TF

START DATE 1JUL94 FIN DATE 5AUG94
 DATA DATE 18JUL94 PAGE NO. 2

ACTIVITY ID	ORIG DUR	REM DUR		ACTIVITY DESCRIPTION	EARLY START	EARLY FINISH	TOTAL FLOAT
POW1850	3	3	0	DOE/MACTEC SRL PREPARATION	26JUL94	28JUL94	0
..POW1000	10	1	95 PR	WHC COMPLETE RCR FORMS	18JUL94A	18JUL94	0
..POW1250	10	4	85 PR	WHC POSITION PAPER/IMPACTS INCLUDING TANK SPACE	18JUL94A	21JUL94	0
..POW1300	*	2	0 PR	DOE CONCURRENCE W/WHC POSITION PAPER	22JUL94	25JUL94	0
..POW1900	*	1	0 SU	WHC CONCURRENCE OF SRL	29JUL94	29JUL94	0
POW1900	1	1	0	WHC CONCURRENCE OF SRL	29JUL94	29JUL94	0
..POW1850	*	3	0 PR	DOE/MACTEC SRL PREPARATION	26JUL94	28JUL94	0
..POW1750	*	1	0 SU	WHC/DOE CONDUCT BRIEFING FOR SHERIDAN	1AUG94	1AUG94	0
POW1950	1	1	0	SCHEDULE WAGONER BRIEFING	2AUG94	2AUG94	1
..POW1750	*	1	0 PR	WHC/DOE CONDUCT BRIEFING FOR SHERIDAN	1AUG94	1AUG94	0
..POW2100	1	1	0 SU	CONDUCT WAGONER BRIEFING	4AUG94	4AUG94	0
POW2000	1	1	0	UPDATE FONSI	2AUG94	2AUG94	0
..POW1450	1	1	0 PR	WHC MODIFY EA	28JUL94	28JUL94	1
..POW1750	*	1	0 PR	WHC/DOE CONDUCT BRIEFING FOR SHERIDAN	1AUG94	1AUG94	0
..POW2050	*	1	0 SU	DOE/NCO CONCURRENCE	3AUG94	3AUG94	0
POW2050	1	1	0	DOE/NCO CONCURRENCE	3AUG94	3AUG94	0
..POW2000	*	1	0 PR	UPDATE FONSI	2AUG94	2AUG94	0
..POW2100	*	1	0 SU	CONDUCT WAGONER BRIEFING	4AUG94	4AUG94	0
POW2100	1	1	0	CONDUCT WAGONER BRIEFING	4AUG94	4AUG94	0
..POW1800	*	2	0 PR	DOE/WHC PREPARE WAGONER BRIEFING	2AUG94	3AUG94	0
..POW1950	1	1	0 PR	SCHEDULE WAGONER BRIEFING	2AUG94	2AUG94	1
..POW2050	*	1	0 PR	DOE/NCO CONCURRENCE	3AUG94	3AUG94	0
..POW2150	*	1	0 SU	DOE APPROVAL OF SRL/FONSI	5AUG94	5AUG94	0
POW2150	1	1	0	DOE APPROVAL OF SRL/FONSI	5AUG94	5AUG94	0
..POW2100	*	1	0 PR	CONDUCT WAGONER BRIEFING	4AUG94	4AUG94	0

PRIMAVERA PROJECT PLANNER

REPORT DATE 19JUL94 RUN NO. 3

START DATE 1JUL94 FIN DATE 5AUG94

14:13

CLASSIC SCHEDULE REPORT - SORT BY ES, TF

DATA DATE 18JUL94 PAGE NO. 1

ACTIVITY ID	ORIG DUR	REM DUR		ACTIVITY DESCRIPTION	EARLY START	EARLY FINISH	TOTAL FLOAT
FOW1300	2	2	0	DOE CONCURRENCE W/WHC POSITION PAPER	22JUL94	25JUL94	0
..FOW1000	10	1	95 PR FF	0 WHC COMPLETE RCR FORMS	18JUL94A	18JUL94	0
..FOW1250	* 10	4	85 PR	WHC POSITION PAPER/IMPACTS INCLUDING TANK SPACE	18JUL94A	21JUL94	0
..FOW1400	* 3	3	0 SU	WHC MODIFY COMPATIBILITY STUDY	26JUL94	28JUL94	1
..FOW1450	1	1	0 SU	WHC MODIFY EA	28JUL94	28JUL94	1
..FOW1500	* 3	3	0 SU	WHC MODIFY PSE	26JUL94	28JUL94	1
..FOW1700	* 3	3	0 SU	WHC PREPARE SHERIDAN'S BRIEFING	26JUL94	28JUL94	1
..FOW1850	* 3	3	0 SU	DOE/MACTEC SRL PREPARATION	26JUL94	28JUL94	0
FOW1400	3	3	0	WHC MODIFY COMPATIBILITY STUDY	26JUL94	28JUL94	1
..FOW1000	10	1	95 PR	WHC COMPLETE RCR FORMS	18JUL94A	18JUL94	0
..FOW1300	* 2	2	0 PR	DOE CONCURRENCE W/WHC POSITION PAPER	22JUL94	25JUL94	0
..FOW1450	* 1	1	0 SU FF	0 WHC MODIFY EA	28JUL94	28JUL94	1
..FOW1500	* 3	3	0 SU FF	0 WHC MODIFY PSE	26JUL94	28JUL94	1
..FOW1750	1	1	0 SU	WHC/DOE CONDUCT BRIEFING FOR SHERIDAN	1AUG94	1AUG94	0
FOW1450	1	1	0	WHC MODIFY EA	28JUL94	28JUL94	1
..FOW1000	10	1	95 PR	WHC COMPLETE RCR FORMS	18JUL94A	18JUL94	0
..FOW1300	2	2	0 PR	DOE CONCURRENCE W/WHC POSITION PAPER	22JUL94	25JUL94	0
..FOW1400	* 3	3	0 PR FF	0 WHC MODIFY COMPATIBILITY STUDY	26JUL94	28JUL94	1
..FOW1500	* 3	3	0 SU FF	0 WHC MODIFY PSE	26JUL94	28JUL94	1
..FOW1750	1	1	0 SU	WHC/DOE CONDUCT BRIEFING FOR SHERIDAN	1AUG94	1AUG94	0
..FOW2000	1	1	0 SU	UPDATE FONSI	2AUG94	2AUG94	0
FOW1500	3	3	0	WHC MODIFY PSE	26JUL94	28JUL94	1
..FOW1000	10	1	95 PR	WHC COMPLETE RCR FORMS	18JUL94A	18JUL94	0
..FOW1300	* 2	2	0 PR	DOE CONCURRENCE W/WHC POSITION PAPER	22JUL94	25JUL94	0
..FOW1400	* 3	3	0 PR FF	0 WHC MODIFY COMPATIBILITY STUDY	26JUL94	28JUL94	1
..FOW1450	* 1	1	0 PR FF	0 WHC MODIFY EA	28JUL94	28JUL94	1
..FOW1750	1	1	0 SU	WHC/DOE CONDUCT BRIEFING FOR SHERIDAN	1AUG94	1AUG94	0
FOW1700	3	3	0	WHC PREPARE SHERIDAN'S BRIEFING	26JUL94	28JUL94	1
..FOW1000	10	1	95 PR	WHC COMPLETE RCR FORMS	18JUL94A	18JUL94	0
..FOW1300	* 2	2	0 PR	DOE CONCURRENCE W/WHC POSITION PAPER	22JUL94	25JUL94	0
..FOW1750	1	1	0 SU	WHC/DOE CONDUCT BRIEFING FOR SHERIDAN	1AUG94	1AUG94	0
FOW1750	1	1	0	WHC/DOE CONDUCT BRIEFING FOR SHERIDAN	1AUG94	1AUG94	0
..FOW1400	3	3	0 PR	WHC MODIFY COMPATIBILITY STUDY	26JUL94	28JUL94	1
..FOW1450	1	1	0 PR	WHC MODIFY EA	28JUL94	28JUL94	1
..FOW1500	3	3	0 PR	WHC MODIFY PSE	26JUL94	28JUL94	1
..FOW1700	3	3	0 PR	WHC PREPARE SHERIDAN'S BRIEFING	26JUL94	28JUL94	1
..FOW1900	* 1	1	0 PR	WHC CONCURRENCE OF SRL	29JUL94	29JUL94	0
..FOW1800	* 2	2	0 SU	DOE/WHC PREPARE WAGONER BRIEFING	2AUG94	3AUG94	0
..FOW1950	* 1	1	0 SU	SCHEDULE WAGONER BRIEFING	2AUG94	2AUG94	1
..FOW2000	* 1	1	0 SU	UPDATE FONSI	2AUG94	2AUG94	0
FOW1800	2	2	0	DOE/WHC PREPARE WAGONER BRIEFING	2AUG94	3AUG94	0
..FOW1750	* 1	1	0 PR	WHC/DOE CONDUCT BRIEFING FOR SHERIDAN	1AUG94	1AUG94	0
..FOW2100	* 1	1	0 SU	CONDUCT WAGONER BRIEFING	4AUG94	4AUG94	0

Draft Outline for Single-Shell Tank Closure Work Plan, Rev. 0

- 1.0 Introduction
 - 1.1 Background
 - 1.2 Closure Work Plan Contents
- 2.0 Facility Description
 - 2.1 Hanford Site
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 - 2.1.2 Hanford Site Wastes
 - 2.1.3 Hanford Site Geography/Meteorology
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 - 2.2.3 Waste Generation
 - 2.2.4 Tank Stabilization
 - 2.2.5 Single-Shell Tank Farm Description
 - 2.3 Past Practice Units
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 - 3.1 Geology of the Hanford Site
 - 3.1.1 Regional Geologic Setting
 - 3.1.2 Geology of the 200 Areas
 - 3.2 Hydrology of the Hanford Site
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 - 4.1 Interim Stabilization Program and Status
 - 4.2 Current Surveillance Methods
 - 4.3 Enhanced Surveillance Methods
 - 4.4 Emergency Pumping Provisions
 - 4.5 Single-Shell Tanks Interim Operations Issues
 - 4.5.1 Single-Shell Tank Stabilization
 - 4.5.2 Structural Integrity of Waste Tanks
 - 4.5.3 Equipment and Materials Disposed of in Tanks
 - 4.5.4 Inadequate Waste Tank Leak Detection
 - 4.5.5 Inadequate SST Emergency Pumping Capability
- 5.0 Waste Retrieval
 - 5.1 SST Waste Retrieval Strategy
 - 5.2 Waste Tank Retrieval Sequence and Schedule
 - 5.3 Subsurface Barriers
 - 5.4 Waste Retrieval Issues
 - 5.4.1 Retrieval Efficiency Uncertainties
 - 5.4.2 Tank Leakage during Retrieval
 - 5.4.3 Cost/Benefit of Subsurface Barriers
- 6.0 Operable Units Characterization
 - 6.1 Description of Tank Waste
 - 6.2 Characterization of Single-Shell Tank Waste

- 6.2.1 Objectives of the Single-Shell Tank Waste Characterization Program
 - 6.2.2 Waste Characterization Plans and Schedule
 - 6.2.3 Quality Assurance/Control Procedures
 - 6.3 Characterization of SST Leaks and Past Practice Units
 - 6.3.1 Geochemistry of the Hanford Site
 - 6.4 Leak Detection
 - 6.4.1 Quality Assurance/Quality Control for SST Leak/PPU Analysis
 - 6.4.1 Borehole Logging Program
 - 6.5 Post-Retrieval Characterization of Residual Waste in Tanks
 - 6.5.1 Strategy for Post-Retrieval Characterization
 - 6.5.2 Objectives of Post-Retrieval Characterization
 - 6.5.3 Determination of compliance with TPA limits on residual waste volume
 - 6.6 Characterization Issues
 - 6.6.1 Representativeness of samples
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- 7.1 SST Retrieval
 - 7.2 Subsurface Barriers
 - 7.3 Leak Detection
 - 7.4 Post-Retrieval Characterization of Residual Waste
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 - 7.6 Immobilization and Stabilization of Residual Waste in Tanks
 - 7.7 Surface Barriers
- 8.0 Regulatory Pathway
- 8.1 Applicable Laws, Regulations, and DOE Orders
 - 8.1.1 Resource Conservation and Recovery Act of 1976
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 - 8.1.4 Title 40, Code of Federal Regulations, Part 191, Environmental Radiation Protection Standards for Management and Disposal of Spent Nuclear Fuel, High-Level, and Transuranic Wastes
 - 8.1.5 The Clean Air Act
 - 8.1.6 Department of Energy Orders
 - 8.1.6.1 Waste Management and Environmental Protection
 - 8.1.6.2 Occupational Radiation Protection
 - 8.2 Classification of Single-Shell Tank Waste
 - 8.3 Compliance Strategy
 - 8.4 Regulatory Issues
 - 8.4.1 Closing tanks with residual hazardous waste as landfill
 - 8.4.2 Classification of radioactive waste component in single-shell tanks
 - 8.4.3 Absence of regulations for near-surface disposal of high-level waste
 - 8.4.4 Applicability of Land Disposal Restrictions
 - 8.4.5 Adoption of WAC 173-303-610 for closure of former RCRA 3004(u) past practice units
 - 8.4.6 Potential conflicts between Atomic Energy Act of 1954 and Resource Conservation and Recovery Act of 1976

9.0 Strategy for Achieving Closure

- 9.1 Alternatives for Stabilizing Residual Waste in Single-Shell Tanks
 - 9.1.1 Chemical Stabilization
 - 9.1.2 Microwave Drying
 - 9.1.3 In-Situ Vitrification
- 9.2 Alternatives for Subsidence Prevention
- 9.3 Alternatives for Contaminated Soil and Ancillary Equipment
 - 9.3.1 Plume Characterization
 - 9.3.1.1 Phase 1 Characterization
 - 9.3.1.2 Deep Vadose Zone Characterization
 - 9.3.1.3 Phase 2 Characterization
 - 9.3.2 Phase 1 Implementation Plan
 - 9.3.2.1 Task 1: Shallow Vadose Zone Effort
 - 9.3.2.2 Task 2: Deep Vadose Zone Effort
 - 9.3.3 Phase 2 Implementation Plan
 - 9.3.3.1 Task 1
 - 9.3.3.2 Task 2
 - 9.3.3.3 Task 3
- 9.4 Protective Barrier and Marker System
 - 9.4.1 Water Infiltration Control
 - 9.4.1.1 Run-off
 - 9.4.1.2 Capillary Barrier
 - 9.4.1.3 Low-Permeability Layers
 - 9.4.1.4 Edge Effects
 - 9.4.1.5 Physical Stability
 - 9.4.2 Biointrusion Control
 - 9.4.2.1 Plant Root Intrusion Control
 - 9.4.2.2 Burrowing Animal Intrusion Control
 - 9.4.3 Wind and Water Erosion Control
 - 9.4.3.1 Barrier Surface
 - 9.4.3.2 Barrier Side Slopes and Toe
 - 9.4.3.3 Surface Soils Surrounding the Barrier
 - 9.4.4 Human Interference Control
 - 9.4.4.1 Offsite Records
 - 9.4.4.2 Surface Markers
 - 9.4.4.3 Subsurface Markers
 - 9.4.4.4 Barrier Designs
 - 9.4.5 Gaseous Release Control
 - 9.4.6 Conclusions
- 9.5 Risk Assessment
 - 9.5.1 Pathway Analysis
 - 9.5.2 Consequence Analysis
- 9.6 Integration of Hanford Contractor Roles and Responsibilities
- 9.7 Plans and Schedules Supporting Closure
- 9.8 Closure Strategy Issues
 - 9.8.1 Data Needs for Contaminant Transport Modeling and Performance Assessment of Closed Units
 - 9.8.2 Integration of Data Acquisition Requirements with other Hanford Programs
 - 9.8.3 Integration of performance assessment modeling with other Hanford programs, and allocation of Hanford site risk

- 9.8.4 Performance criteria for Operable Units closed with residual tank waste and contaminated soil
- 9.8.5 Tradeoffs between worker exposure and public health and safety risk, as a function of TPA closure criteria
- 9.8.6 Establishment of final closure criteria as driver for waste retrieval
- 9.8.7 In-place disposal alternative for single-shell tank wastes
- 9.8.8 Closure Packaging and Sequence

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**Single-Shell Tanks
Interim Stabilization/Isolation**

**T. E. Rainey
Single-Shell Tank Unit Managers Meeting**

July 20, 1994

JUNE, 1994

SST INTERIM STABILIZATION/ISOLATION

ACCOMPLISHMENTS

Emergency Pumping

- 241-T-111 pumped 3.0 K gal., total pumped 7.4 K gal.
- 241-BX-111 pumped 2.0 K gal., total pumped 114.5 K gal.

Interim Stabilization

- 241-BY-102 pumped 10.6 K gal., total pumped 13.5 K gal.
- 241-BY-109 pumped 7.8 K gal, total pumped 7.9 K gal

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JUNE, 1994

SST INTERIM STABILIZATION/ISOLATION

CURRENT ACTIVITIES

Emergency pumping tank 241-T-111 (M-41-16A-T01)

Pumping 241-BY-102 and 109 (M-41-01-T2)

Preparing to pump tanks 241-C-102, 107, and 110 (M-41-01-T1)

**Continuing restoration of 244-U double-contained receiver tank
(M-41-02-T04)**

Continuing procurement of HLLW Cask (M-41-03B)

**Preparing safety study analysis on interim stabilization of remaining Watch
List tanks (M-41-07)**

Preparing to pump 7 non-watch list tanks in 241-S farm (M-41-09-T1)

**Preparing schedule for pumping Non-Watch List and Organic Tanks in
241-U Farm (M-41-08 & M-41-13)**

JUNE, 1994

SST INTERIM STABILIZATION/ISOLATION

CURRENT ACTIVITIES (CON'T.)

**Completing fabrication drawings for emergency overground piping system
(M-41-02-T02)**

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**Single-Shell Tank
Liquid Level Monitoring
Program
at Hanford**

The unique, radioactive, and hazardous nature of the radioactive wastes in the SST's at Hanford constitute an exceptional, unprecedented challenge for providing accurate, timely leak detection.

- Intention:**
- 1) Obtain agreement on program to be implemented.
 - 2) Obtain agreement in monitoring SST liquid levels within the TPA.

Philosophy: *This is entirely consistent with the principles and values of the TPA.*

"The TPA should promote a sense of partnership and cooperation , and should encourage imagination to solve problems that arise because of regulatory complexity or technical difficulties."

TAKEN FROM THE HANFORD TANK WASTE TASK FORCE "FINAL REPORT":

This agreement will reflect a culture where those with a stake in successful clean-up at Hanford evolve new, applicable, and efficient management policies that lead to environmentally sound clean-up.

Tank leaks are immediate health and environmental risks that need to be addressed. Infrastructure upgrades are important. Progress needs to be made on all fronts.

Value: An action is "getting on with it" when it achieves substantive progress on the ground as quickly as possible.

- ▶ Installation of new state-of-art instruments on all unstabilized SST's with a liquid surface in FY-94.**
- ▶ Implement new monitoring program in FY-94.**
- ▶ Complete installation of new state-of-art instruments in stabilized tanks in 1996.**
- ▶ Complete installation of all LOW's in 1998.**

Value: An action is "getting on with it" when it is less costly than other options while still protective of the environment.

- ▶ **Monitoring program is substantially better than any previous program**
- ▶ **Monitoring program would allow conclusive detection of all credible expected leaks as well as any other program.**

Value: Use the most practical, timely, available technology, while leaving room for future innovation.

- ▶ **State of the art instruments replace old, obsolete devices.**
- ▶ **Should better instruments be identified, they can be used.**

Value: Protect the environment.

- ▶ **Program will substantially improve ability to detect tank leaks during the period of stabilization.**
- ▶ **Program allows for as rapid a detection of maximum credible leak as any other possible monitoring program.**

Intention is to obtain agreement for the interim period between the present and the start of each SST retrieval.

Intention is NOT to seek permanent exemption from the regulatory requirements using the vehicle of the TPA.

Agreement needs to be contained within the framework of the TPA. This underscores its importance, as well as brings appropriate attention to the completion of the required milestones.

Program:

Multi-faceted improvement program in SST liquid level monitoring.

- **Improve monitoring by:**
 - **daily reading on tanks with a liquid surface (uses FIC)**
 - **weekly reading on tanks with a dry surface (uses Liquid Observation Well)**
- **Specify course of action to be followed if readings are not taken**
- **Revise leakage detection criteria and how it is applied to each unstabilized tank**
- **Replace old FIC devices with state-of-art Enraf-854 devices in all tanks with liquid surfaces**

- **Install LOW's in all appropriate tanks**

Program is consistent with TWRS Technical Strategy, and is included in the Multi-Year Program Plan.

<p>Change Number M-43-94-02</p>	<p align="center">Federal Facility Agreement and Consent Order Change Control Form</p> <p align="center">Do not use blue ink. Type or print using black ink.</p>	<p>Date July 12, 1994</p>
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<p>Originator G. E. Bishop / T. E. Rainey</p>	<p>Phone (509)372-1856/(509)373-3531</p>
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Class of Change
 I - Signatories II - Project Manager III - Unit Manager

Change Title
Single-Shell Tank Liquid Level Monitoring Upgrade

Description/Justification of Change

Liquid Level Monitoring Upgrade

An interim milestone is added to implement specification limits for monitoring frequencies and recovery actions for the single-shell tanks (SST) liquid level surveillance program. In addition, interim milestones are added for the installation of new liquid level monitoring devices in the single-shell tanks.

Operating Specifications (M-43-08)

Operating specifications that contain monitoring frequency limits for the single-shell tanks will be implemented to monitor daily with a surface measuring device those SSTs with either:

- Liquid surface under a surface level measurement device; or,
- An assumed partial liquid/floating crust surface under a surface level measurement device; or,

(Continued on Page 2)

Impact of Change

The implementation of this change will add three (3) new interim milestones and six (6) new target milestones. This change will not affect any other major or interim milestones.

Affected Documents

Hanford Federal Facility Agreement and Consent Order, Appendix D, Work Plan.

<p>Approvals</p> <p>_____ Date ___ Approved ___ Disapproved</p> <p>DOE</p> <p>_____ Date ___ Approved ___ Disapproved</p> <p>EPA</p> <p>_____ Date ___ Approved ___ Disapproved</p> <p>Ecology</p>		
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DRAFT**Description/Justification (cont.)**

An assumed conductive solid surface at least partially supported by liquid under a surface level measurement *device*.

SSTs assumed to have non-conductive solids or a solid surface independent of liquid level under a surface level measurement device are to be monitored weekly, provided a functional liquid observation well (LOW) is installed. The operating specification also states the recovery action to be taken when a monitoring frequency is exceeded, when equipment is out of service or when a violation of the specification occurs.

The primary liquid level monitoring frequencies for surface level measurement or interstitial measurements will not be changed without the agreement of the Unit Managers. The primary liquid level monitoring device and primary monitoring frequency for each SST will be provided to Ecology and EPA monthly in the Tank Farm Surveillance and Waste Status Summary Report (WHC-EP-0182-XX).

New Liquid Level Monitoring Devices

Several SSTs that should be monitored weekly do not have LOWs. An interim milestone (M-43-09) is added to install LOWs in all SSTs where such installation is practical. Some SSTs have insufficient material content to allow a LOW to function; thus it is inappropriate to install LOWs in these tanks. At this time, there is no known replacement device for the LOWs. Therefore, tanks with < 2 feet of waste and a solid surface will not have primary liquid level monitoring instrumentation.

An interim milestone (M-43-10) is added to install new surface measurement instrumentation (Enraf Model 854 Level Instrument) in tanks where the primary liquid level monitoring instrumentation is a surface measurement device.

The schedule and scope for the added target dates requires the installation of indicated liquid level monitoring devices (LOW or Enraf). If future technology development identifies superior monitoring devices than those proposed, modifications to the installation schedule will be agreed upon by the parties.

Add the following interim and target milestones to M-43-00, Complete Tank Farm Upgrades:

		<u>Due Date</u>
M-43-08	Implement single-shell tank operating specification limits for liquid level monitoring frequency.	9/30/1994
M-43-09	Install liquid observation wells (LOWs) in all single-shell tanks with sufficient material content to allow a LOW to function.	9/30/1998
M-43-09-T01	Install liquid observation wells (LOWs) in three (3) single-shell tanks.	9/30/1994
M-43-09-T02	Install liquid observation wells (LOWs) in an additional 12 single-shell tanks.	9/30/1995

		<u>Due Date</u>
M-43-09-T03	Install liquid observation wells (LOWs) in an additional 15 single-shell tanks.	9/30/1996
M-43-09-T04	Install liquid observation wells (LOWs) in an additional 15 single-shell tanks.	9/30/1997
M-43-10	Install new surface measurement instrumentation in all single-shell tanks requiring daily liquid level monitoring.	9/30/1996
M-43-10-T01	Install new surface measurement instrumentation in all single-shell tanks not interim stabilized requiring daily liquid level monitoring.	9/30/1994
M-43-10-T02	Install new surface measurement instrumentation in an additional 12 single-shell tanks requiring daily liquid level monitoring.	9/30/1995

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TRI-PARTY AGREEMENT MILESTONES
WASTE TANK SAFETY PROGRAM

STATUS REPORT AS OF: 06/30/94

No.	Title	Due	Status	Remarks
M-40-01	Complete Tank 241-SY-101 Low Speed Mixer Pump Test. (Interim to SI-2g23 - 09/94)	03/94	Completed 03/17/94	Completion of this TPA milestone was documented by WHC in a letter to RL dated March 17, 1994.
M-40-14	Close Ferrocyanide Unreviewed Safety Question. (SI-2s13 - 01/94)	03/94	Completed 03/01/94	Completion of this TPA milestone was documented by WHC in a letter to RL dated March 28, 1994.
M-40-16	Complete Sampling and Safety Evaluation of Liquid Organic in Tank 241-C-103. (SI-2q15 - 03/94)	03/94	Completed 03/31/94	Completion of this TPA milestone was documented by WHC in a letter to RL dated March 31, 1994.
M-40-17	Close Tank 241-C-103 Unreviewed Safety Question. (SI-2j16 - 03/94)	05/94	Completed 05/19/94	Completion of this TPA milestone was documented by WHC in a letter to RL dated May 25, 1994.
M-40-11	Close the Unreviewed Safety Question for the Criticality Issue. (SI-2w17 - 03/94)	06/94	Completed 03/17/94	Completion of this TPA milestone was documented by WHC in a letter to RL dated April 6, 1994.

Status: ⊕ Ahead of Schedule † Improving Schedule
 ● On Schedule ‡ Deteriorating Schedule
 ⊖ Behind Schedule

No.	Title	Due	Status	Remarks
M-40-06	Complete Vapor Sampling Characterization of Tank 241-C-103 (Phase 2) (SI-2m18 - 06/94)	08/94	⊕	Revision 0 of the report has been formally transmitted to RL. However, due to the postponement of the Vapor Conference #5 to mid-July (a TPA milestone peer review requirement), the TPA milestone is now expected to be completed by 07/29/94.
M-40-13	Design and Fabricate a Spare Mixer Pump for Tank 241-SY-101.	09/94	●	Fabrication of the spare mixer pump is 65% complete. Materials are being assembled for the trailer and hydraulic system for removal of the current test pump in the event of a pump failure.
M-40-15	Install Gas Monitoring Equipment in the Remaining Five Potentially Flammable DSTs. (Interim to SI-2h36 - 04/95)	09/94	●	The gas monitoring system installation in tank 103-SY has been completed. Installation for DST 101-AW has begun and installation for the three DSTs in AN farm is scheduled to start in July.
M-40-02A	Develop Criteria for Upgrading Temperature Monitoring Capabilities in Ferrocyanide. (Interim to SI-2t27 - 12/94)	09/94	● ↓	A draft document "Criteria for Upgrading Temperature Monitoring in Ferrocyanide Tanks," was completed and transmitted to RL in March 1994. Comments were requested by 05/30/94. No comments have yet been received from either WDOE or EPA. Further delays in receiving comments may make it difficult to incorporate changes before the milestone due date.

Status: ⊕ Ahead of Schedule † Improving Schedule
 ● On Schedule ↓ Deteriorating Schedule
 ⊖ Behind Schedule

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No.	Title	Due	Status	Remarks
M-40-02B	Install Six of Twelve New Thermocouple Trees. (Interim to SI-2t27 - 12/94)	09/94	⊖ ↓	This milestone cannot be met. Installations are on hold pending integration of tank riser users and development of a new characterization schedule. TC installation will follow characterization sampling of the applicable tanks. This will maximize riser availability for sampling. However, this will impact the current schedule. A TPA Change Control Form will be submitted for consideration when a new TC installation schedule can be developed.
M-40-02	Upgrade Temperature Monitoring Capabilities in Ferrocyanide Tanks. (SI-2t27 - 12/94)	04/95	● ↓	This milestone is in jeopardy. (See M-40-02B)
M-40-04	Complete Removal of Floating Organic Layer from Tank 241-C-103. (SI-2u33 - 03/95)	06/95	● ↓	This milestone is in jeopardy. Recent studies have greatly reduced the safety concerns over the organic layer. Studies are in progress to determine if the layer can safely remain in the tank. In addition, unanticipated technical complexities for removal of the organic layer is jeopardizing both schedule and cost. A TPA Change Control Form is being prepared to delay the completion dates so that risk-benefit studies of alternatives can be completed.

Status: ⊕ Ahead of Schedule ↑ Improving Schedule
 ● On Schedule ↓ Deteriorating Schedule
 ⊖ Behind Schedule

No.	Title	Due	Status	Remarks
M-40-07	Commence Operation of a Vapor Treatment System in Tank 241-C-103. (Interim SI-2n19 - 06/94)	06/95	●	The Layer Modeling Study, the Mitigation Exposure Study, and the Engineering Evaluation of Alternatives have been completed. Peer review by the Vapor Sample Conference #5 is scheduled to be completed by July 1994.
M-40-05	Complete Safety Alternative Test in High-Heat Tank 241-C-106. (SI-2x38 - 06/95)	09/95	⊕	The Process Test that was initiated on 03/07/94 was terminated on 06/15/94 when the in tank video indicated that the solid surface is at about 69 inches. Water addition was made to maintained the liquid level between 70 and 74 inches for normal operation. Based on the thermal analysis a contingency plan will be developed to reduce the amount of drainable liquid in the tank to minimum in the event of a leak. (An off-normal condition was declared on 07/01/94 for cycling temperatures in the tank. On 07/03/94 water was again added to raise the supernate back to it's former 78-inch level. The cycling diminished significantly. Further study into the cause of the anomaly is being conducted.)
M-40-03	Perform Vapor Characterization for all Ferrocyanide Watch List Tanks. (SI-2o37 - 06/95)	11/95	⊕	Six of 22 suspect ferrocyanide tanks have had initial in situ vapor samples performed. Three of the 22 have also had all sampling completed this last month.

Status: ⊕ Ahead of Schedule † Improving Schedule
 ● On Schedule ‡ Deteriorating Schedule
 ⊖ Behind Schedule

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No.	Title	Due	Status	Remarks
M-40-08	Perform Vapor Characterization for all Organic Watch List Tanks. (SI-2o37 - 06/95)	11/95	⊕	One of 14 suspect organic tanks has had all sampling completed. Ten Organic SSTs have been added to the Watch List. A TPA Change Control Form will be prepared to add these tanks to the TPA milestone. The impact on the schedule is unknown at this time.
M-40-10	Complete Vapor Space Monitoring of all Flammable Gas Generating Tanks.	01/97	●	On schedule. (See M-40-15) SST vapor monitoring will follow the DST installations.
M-40-09	Close all Unreviewed Safety Questions (USQ) for Double-Shell & Single-Shell Tanks.	09/98	⊕	One USQ (flammable gas tanks) is outstanding. The SY-Farm portion of this USQ is scheduled for closure in March 1995.
M-40-12	Resolve Nuclear Criticality Safety Issue.	09/99	●	
M-40-00	Mitigate/Resolve Tank Safety Issues for High Priority Watch List Tanks.	09/01	●	

Status: ⊕ Ahead of Schedule † Improving Schedule
 ● On Schedule ↓ Deteriorating Schedule
 ⊖ Behind Schedule

RISER 14 TEMPERATURE TRANSIENT IN TANK 241-C-106

Presented to
Unit Managers Meeting
July 20, 1994

Oliver Wang
Westinghouse Hanford Company

9513335.0682

Overall Tank Strategy to Minimize Risk/Impact of Tank Leak

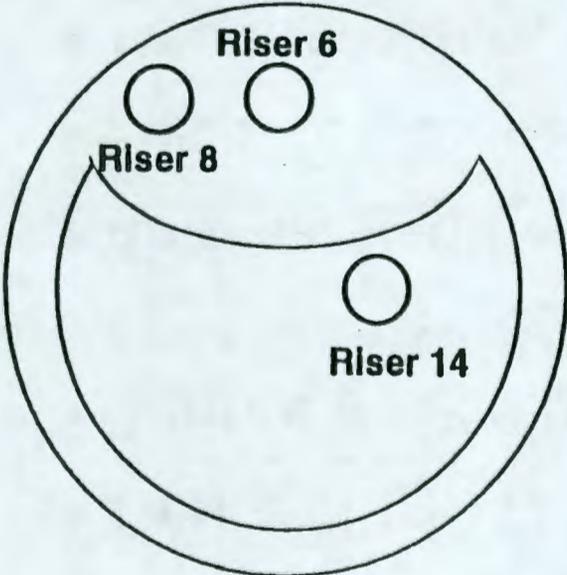
- **Expedited plan to sluice waste to double-shell tank in late 1996**
- **Contingency plans for alternate cooling using chillers with forced ventilation or reduced water additions through spraying**
- **Determine minimum water level for effective tank cooling**

Tank 241-C-106 Background

- Tank built 1947
- Contains ~229,000 gallons waste (200,000 high strontium sludge)
- Actively ventilated with 2,000 CFM exhauster
- Periodic water additions for evaporative cooling
- Two thermocouple trees
- Typical tank temperatures range from 140 to 160 °F
- OSR temperature limit of 350 °F (concrete structural integrity)

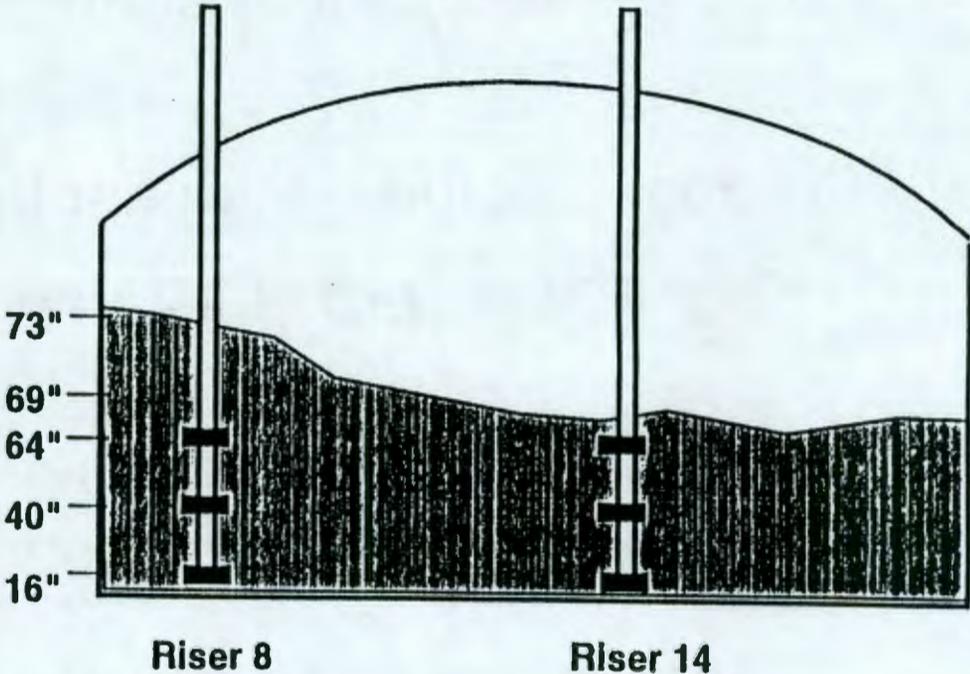
Riser Locations for Tank 241-C-106

Top View



Not to Scale

Side View



Historical Temperature Trends

- **Maximum temperatures based on Uniform Thermal Model**
 - 230 °F at center line
 - 210 °F at Riser 14
 - 160 °F at Riser 8
- **Actual maximum temperatures based on thermocouple readings**
 - 140 °F at Riser 14
 - 160 °F at Riser 8
- **Temperature anomalies**
 - Cold spot effect
 - Insulating effect of water in well around thermocouple

Recent Activities

- **March to Mid-June**
 - Allowed water level to evaporate to just expose sludge (79 to 68 inches)
 - In-tank videos taken
- **Mid-June to July**
 - Refilled tank to 74 inches
 - Center thermocouple tree increased from 140 to 195 °F; essentially no change on outer thermocouple tree
- **July to present**
 - Further increased water to 79 inches
 - Current temperature 205 °F; still essentially no change on out thermocouple tree
 - In-tank videos taken



TANK C-106

PRINT SCREEN

TEMPERATURE READINGS OVER THE LAST 31 DAYS (Degrees Fahrenheit)

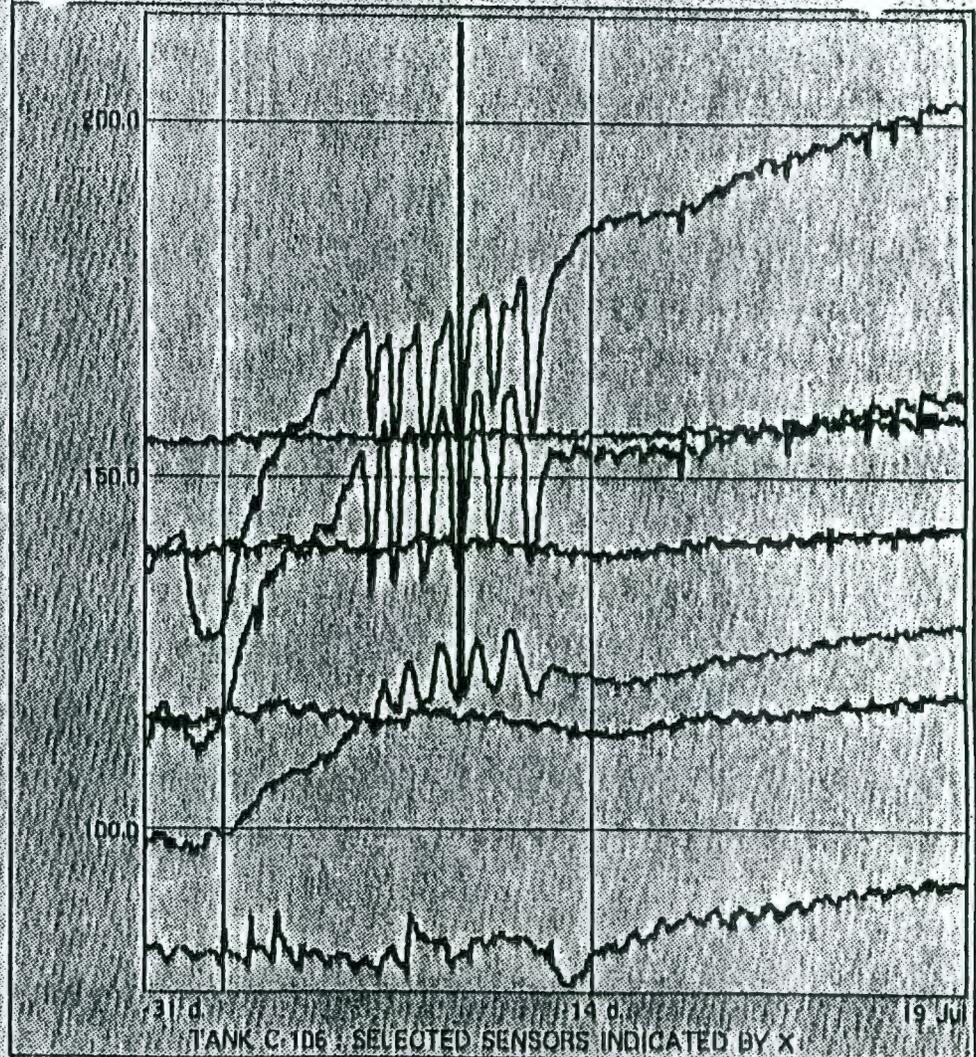
RISER 000

<input checked="" type="checkbox"/> TC-01	■	CURRENT	150.7	LOW	154.0	HIGH	159.1
<input checked="" type="checkbox"/> TC-02	+	CURRENT	149.2	LOW	138.0	HIGH	143.2
<input checked="" type="checkbox"/> TC-03	▲	CURRENT	119.3	LOW	113.0	HIGH	119.7
<input type="checkbox"/> TC-04	■	CURRENT	100.0	LOW	90.0	HIGH	100.4
<input type="checkbox"/> TC-05	+	CURRENT	85.1	LOW	76.1	HIGH	88.9
<input type="checkbox"/> TC-06	▲	CURRENT	83.8	LOW	75.7	HIGH	86.9

RISER 014

<input checked="" type="checkbox"/> TC-01	■	CURRENT	203.0	LOW	126.7	HIGH	203.4
<input checked="" type="checkbox"/> TC-02	+	CURRENT	162.0	LOW	110.3	HIGH	163.0
<input checked="" type="checkbox"/> TC-03	▲	CURRENT	120.8	LOW	96.3	HIGH	214.3
<input checked="" type="checkbox"/> TC-04	■	CURRENT	92.5	LOW	77.4	HIGH	93.2
<input type="checkbox"/> TC-05	+	CURRENT	81.7	LOW	73.4	HIGH	85.5
<input type="checkbox"/> TC-06	▲	CURRENT	81.5	LOW	73.8	HIGH	85.6
<input type="checkbox"/> TC-08	⊘	CURRENT	82.8	LOW	75.0	HIGH	85.8

<input type="checkbox"/> RJC-A	—	CURRENT	108.9	LOW	67.0	HIGH	120.9
<input type="checkbox"/> RJC-B	—	CURRENT	107.4	LOW	66.0	HIGH	120.2



TANK C-106 : SELECTED SENSORS INDICATED BY X

UPDATE GRAPH

19 Jul 94 10:33:08 a.m.

SELECT: SENSORS AND TIME INTERVAL, THEN CLICK ON UPDATE GRAPH BUTTON.

- SELECT TIME INTERVAL:
- 1 hour
 - 8 hours
 - 24 hours
 - 7 days
 - 31 days

0613235.0605

Riser 14 Now Transitioning to Represent Actual Sludge Temperatures in Tank 241-C-106

- **Tank video prior to refill validated center thermocouple tree not uniformly contacting heat generating sludge**
- **Water hole around center temperature tree insulating tree from hotter sludge**
- **Mid-June water additions rearranged sludge to be in direct contact with thermocouple tree**
- **Expect temperature to stabilize around 210 °F**

**DOUBLE AND SINGLE-SHELL
TANK CHARACTERIZATION**

MILESTONE M-44-00

U.S. Department of Energy / Richland Operations Office

Ron Gerton - U.S. DOE

Unit Managers Meeting

**July 20, 1994
Richland, Washington**

DOUBLE AND SINGLE-SHELL TANK CHARACTERIZATION

MILESTONE M-44-00

TOPICS

- **Accomplishments**
- **FY 1994 Milestone Status**
- **Special Topics**
- **Discussion**

ACCOMPLISHMENTS

- Draft Tank Waste Analysis (M-44-01A) was transmitted to Ecology on May 26, 1994
- Riser preparations were conducted in BY and C farms with type 2 vapor sample taken on 241-C-107 and 241-C-111.
- Two auger samples were taken on 241-BX-101.
- Safety Analysis Report (SAR) data and Tracks Radioactive Constituents (TRAC) has been loaded into the Tank Characterization Database.
- Loaded previous Characterization data from 18 Single-Shell Tanks and Double Shell Tanks into Tank Characterization Database (241-C-109, 241-C-112, 241-B-201, 241-S-104, 241-T-104, 241-T-111, 241-T-107, 241-BX-107, 241-C-110, 241-T-105, 241-T-102, 241-B-111, 241-AW-105, 241-SY-101, 241-AP-103, 241-AW-106, 241-B-202, and 241-AW-102).

ACCOMPLISHMENTS (Cont'd)

- **Prepared Tank Characterization Plans for sampling Waste Tanks: 241-C-106, 241-C-108, 241-C-111, 241-S-110, 241-AN-107, 241-SY-103, 241-BX-101, 241-AY-102, 241-BY-105, and 241-BY-106, 241-BX-108, 241-T-102, 241-T-112**
- **The final Tank Characterization Report for double-shell tank 241-AP-105 was delivered to WHC. This is in support of TPA milestone M-44-05, which requires the delivery of 20 Tank Characterization Reports by September.**

FY 1994 Milestone Status

- **M-44-07 Complete all FY 1992 and 1993 core sample analyses and complete validation of the resulting data.**
 - **Completed - ahead of schedule - on November 18, 1993**
- **M-44-04 Input Data from 3 HLW Tanks into Tank Characterization Database by January 31, 1994**
 - **Completed - ahead of schedule - on January 13, 1994**
- **M-44-01A Issue Draft of FY95 Tanks Waste Analysis Plan to Ecology and EPA**
 - **Completed - ahead of schedule - on May 23, 1994**
- **M-44-02A Annual Update to TWAP to EPA/Ecology**
 - **On schedule for completion on August 31, 1994
Looking for comments (if any) by July 31, 1994**

FY 1994 Milestone Status (Cont'd)

- **M-44-05 Issue 20 Tank Characterization Reports.**
 - **On schedule for completion on September 30, 1994**
- **M-44-06 Input Data from 20 HLW Tanks into Tank Characterization Database**
 - **On schedule for completion on September 30, 1994**

SPECIAL TOPICS

- **325 Laboratory Restart Package**

Problems:

The 325 laboratory has not restarted radiological work due to restart package not accepted by DOE. The PNL restart committee has been working to prepare another restart package which incorporates DOE input.

Corrective Actions:

Non-radiological activities are being restarted on a job-by-job prioritized basis. Work Activity Packages must be prepared for the restart of all work activities. Contingency planning is proceeding by the 222-S laboratory to evaluate the capability to continue to support TWRS Characterization needs.

SPECIAL TOPICS

- **Status of Push-Mode Core Sampling Events**

Problems:

Initial sampling events of two tanks in C Farm resulted in poor recovery.

Corrective Actions:

Temporarily delaying further push mode sampling. Test plan being prepared using Rotary truck (in push mode) with simulants to test alternate procedures and bits.

A letter with action plan was issued to DOE-RL on June 15, which looked at different bit construction, push rates, etc.

Recovery problems generally with first segment only. Currently implementing auger system that can go 20 inches as alternate method of getting top segment.

SPECIAL TOPICS

- **Status of Rotary-Mode Core Sampling Equipment**

Problems:

Rotary trucks deployment behind schedule.

Corrective Actions:

WHC completed Readiness Review July 11, 1994. RL ORE initiated. Expect to start sampling early August.

SPECIAL TOPICS

- **Riser Availability**

Problems:

Many SSTs only have 1-3 available risers. Competing for instrument installation through these risers may leave none for Characterization (e.g. Thermocouple trees, LOWs).

Corrective Actions:

Integrate instrument installation/Characterization activities. Confirm risers with cameras/"plug guage" (to see if straight, etc.)
Integrating instrument installation schedule with sampling schedule to reduce impacts.