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START

Meeting Minutes Transmittal/Approval
Unit Managers Meeting: Single-Shell Tanks
MO-276 Building/Room 131A
200 East Area Hanford Site, Washington

April 12, 1994

From/
Appvl: Wendell R. Wrzesinski — Date: 12/20/94
Wendell Wrzesinski, SST Unit Manager, DOE-RL

Appvl: Scott E. McKinney — Date: 2/17/95
Scott McKinney, SSt Unit Manager,
WA Department of Ecology

Appvl: David R. Einan — Date: 15 Feb 95
Dave Einan, SST Unit Manager, EPA Region X

Appvl: Lisa Garner — Date: 11/30/94
Lisa Garner, WHC, Contractor Representative

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

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

Handout 1 - Double and Single-Shell Tank Characterization
Handout 2 - Status Report, Data Quality Objectives
Handout 3 - Tank Farm Sampling Schedule
Handout 4 - Characterization Support Related Milestones
Handout 5 - Tri-Part Agreement Milestones- Waste Tank Safety Program Status Report
Handout 6 - 241-C-103 Floating Organic Removal
Handout 7 - 241-C-103 Floating Organic Removal, Treatment & Disposal
Handout 8 - 241-C-103 Floating Organic Removal Methods and Regulatory Implications
Handout 9 - TWRS Baseline Planning-Waste Tank Safety Program
Handout 10 - High-Heat Tank 241-C-106 Status Report
Handout 11 - Single Shell Tanks Interim Stabilization/Isolation
Handout 12 - Tank Stabilization & Engineering Support
Handout 13 - W-340, Tank 241-C-106 Manipulator Retrieval System
Handout 14 - W-320, Tank 241-C-106 Sluicing
Handout 15 - Complete Closure of All Single Shell Tank Farms Milestone M-45-00
Handout 16 - FY95/FY96 Tank Waste Remediation System Priority List - Waste Retrieval

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

April 12, 1994

M-44 (Dave Schlick) (Handouts 1-4): The C-111 and S-110 Tank Characterization Plans (TCP's) were approved by Westinghouse Hanford Company (WHC). On April 11, 1994, C-111 was sampled, using the push-mode core sampling system.

Megan Lerchen is concerned about the data quality objectives (DQO) accountability of the participants. She wants a sign-off when the DQO review is complete. However, not all DQO's require EPA/Ecology approval. The WHC Program Manager will sign the DQO's, rather than requiring the more than 30 participants to do so. Will the laboratories need to sign the DQO's? (The laboratory representative on the DQO team cannot necessarily sign.)

There are nine cleared DQO's to date. The organic DQO will be ready for the stakeholder's meeting next week. Megan may want more detail in the DQO for the laboratory methods. This will be resolved before the TCP is prepared. Three to four revisions may be required to complete the DQO. A controlled revision process will probably be achieved through supporting documents and the engineering change notices (ECN).

Special Topics: The Megan notification/minutes process needs to be improved.

Three DQO meetings have been held to date for the double shell tank (DST) Part B. The evaporator DQO is underway.

Should the High Level Waste immobilization/Low Level Waste immobilization/pretreatment be combined? Although the staff has been identified, the data needs for immobilization are not well defined.

RMCS Equipment: Delays have been experienced due to equipment failures, e.g., a shaft broke, motor burnout, and plate failure.

Forty-three of the fifty-one operational readiness review (ORR) affidavits are complete; nine have been approved.

Three RMCS systems were funded in FY 94. Some of the ancillary equipment was not funded. The cost is $5.5 to $6 million per truck. Deployment of the RMCS is 26 days behind today. The TPA milestone is October 26, 1994 to be through the operational readiness evaluation (ORE) to OPS for testing. A complete ORE/ORR is unnecessary for additional systems.

Push-Mode Core Sampling: The first core sample from C-111 was sent to the lab today. Hookup will be made to the second riser when the wind calms (perhaps Wednesday or Thursday). Availability of certified crews may be an issue.

FY 94 work should be completed by the end of June. Four crews will be trained and certified to allow double shifts by the end of June.

DST Grab Sampling: A DQO is not required, instead use the Waste Analysis Plan in Part B. Safety screening and compatibility DQOs can be applied primarily for the liquid DSTs. Megan is supportive of this approach.

Ecology stated that TCR approval can substitute for approval of the DQO and TCP.

SAFETY (Gary Dukelow) (Handouts 5-8):

The distributed handouts describe the milestone status and C-103. The estimated volume of C-103 is 4-5,000 gallons. Level and thickness detection will be used to verify and confirm the volume to ensure the proper tanker truck size is used.

Secretary O'Leary's approval is required for the return of aqueous to the "closed" SST.

Part A treatment for C-103 is different from C-106. G. T. Dukelow will ensure a letter is sent to Scott McKinney, requesting an NOI waiver. Scott will look into the NOI issue. Bob King will also look at TAPs.

Greg Hanson explained TWRS Baseline Planning for the Waste Tank Safety Program (Handout 9). Preliminary planning has been done.

INTERIM STABILIZATION (Bishop/Rainey/Engelman): Oliver Wang discussed C-106 stabilization, specifically the core sample analysis (Handout 10). The original TPA milestone M-40-05 requires a Class 2 change. (Note: The slides with the proposed change were not in the presentation.) The core sample is not required for process testing. Thermal conductivity is bounded with the worst case conditions. The core sample will be done but is no longer tied to M-40-05 completion. Actual retrieval cannot be performed without the core sample.

Rotary core sampling of C-106 is scheduled for May 1994. To be classified as a high heat tank, a 4700 BTU/hr rate is necessary. The high heat issue will be resolved by 1997. Cooling will not be achieved by adding water, instead, an air-chiller will be used.

Tank BX-111 pumping resumed March 25. Seventy-eight thousand gallons of waste had been pumped March 31. Because of problems with the totalizer, pumping has not yet restarted on BX-110, but 4,337 gallons were previously pumped.

M-41-01 T1/T2/T3 The BY farm work is on schedule. C farm work is two weeks behind schedule. A change request is in process and was sent to Ecology yesterday. M-41-09 is on schedule. Photos of C-105 were taken and the process test begun.

Tom Rainey (Handout 11) Compatibility studies are underway for T-111. The emergency pump skid was moved to T farm April 11, 1994. Work on T-111 will delay C farm activities one month. Discussion followed regarding changes to the TPA milestone. Since the alternative would be a compliance enforcement action, the milestone will be changed. Scott recommended explaining the milestone to assist readers of the change notices. Mary Ann McLaughlin and Lou Soler will write the changes to M-41-04 which will slip one month. M-41-16 will drop from two tanks to one.

ACTION: Scott McKinney requested RL and WHC to provide budget information for each milestone at key times throughout the year.

Don Engelman (Handout 12) stated that an integrity break in the Liquid Observation Well (LOW) in SX-104 was found. No hydrogen was detected in the atmosphere. No other risers are available to install a new LOW. Alternatives include a gamma probe or a sleeve placed inside the present LOW. The break is not large enough to get liquid into the LOW so a sleeve is the most likely alternative. There is no dry well indication of leaks. Photographs are not possible. The SX exhaust header will monitor several tanks.

ACTION: Scott asked for a progress plan to install LOWs. Don Engelman will provide this.

The question was raised if it would be a good idea to have SST leak detection in the TPA. There was no further discussion of this point.

RETRIEVAL/CLOSURE: (Handouts 13 and 14) Outstanding permits for C-106 were discussed. For the Clean Air Act (CAA), Phase I construction activities do not constitute a source of new emission to the air, therefore, permitting is not required for those activities. Bob King will not provide formal approval for CAA in total.

Regarding air issues, Scott McKinney stated NOC's are always submitted late. Although approximately three months are necessary for approval, insufficient lead time is allowed.

John Harris demonstrated the equipment removal system for removing equipment from tanks prior to retrieval actions.

Corrective Action/Closure Plan (Handout 15) Scott McKinney questioned the two year submittal of the Plan and expressed concern over DOE non-delivery of the plan since 1989. No TPA milestone was developed through negotiations. A letter may be received on this issue. Scott McKinney was advised that DOE plans to submit a plan in April 1995. Scott stated that the issue is the corrective action plan not the closure plan.

An Action was taken to provide Ecology with a briefing of the planning for the Corrective Action/Closure Plan in the near-term.

Dangerous Waste Discharge Permit (DWDP) for Leak Detection Testing DOE is submitting a DWPD application to support the discharge of 6000 gallons of 0.1 M sodium Chloride solution. It is the intent of Ecology to take no action on this permit and allow the action to proceed following a 60 day waiting period. The need for this permit is of question by DOE and concern was expressed by DOE to submit permitting actions that may set a precedence for the requirement for further permitting action on potentially innocuous actions.

Budget Wendell Wrzesinski presented the Waste Retrieval Program budget (Handout 16). Scott McKinney would like to see all budget information presented to Ecology in this format.

Attachment 2

AGENDA
TRI-PARTY AGREEMENT
SINGLE-SHELL TANKS
UNIT MANAGERS MEETING

April 12, 1994, 12:00 to 3:00
2440 Stevens Center, Conference Room 2200

Time	Topic	Presenter
12:00-12:30	Tank Waste Characterization (M-44)	Clark
12:30-1:00	Safety	Christensen
1:00-2:00	Interim Stabilization (M-41)	Bishop
2:00-2:30	Retrieval/Closure (M-45)	Wrzesinski

SST Unit Managers Meeting

Attachment 3

Name	Organization	Phone
Lisa Garner	WHC Tank Farms EC	373-1505
Dave Einan	EPA	509-376-3883
Luis Soler	Dames & Moore / GSSC	946-3680
Scott McCinney	Ecology	(206) 407-7146
Alisa Huckaby	Ecology	509/736-3034
FRANK CALAPRISTI	WHC/TPA	509/376-6693
Mary Ann McLaughlin	WHC/TPA	(509)376-4084
Murdine Campbell	WHC TF EC	509-373-1131
MW Stevenson	WHC TPAI	(509) 376-9668
Robert HENDRIX	WHC/RCRA Closures	509-372-1597
[illegible]	WHC/EAT/Eng. Labs.	(509) 376-7646
[illegible]	WHC/RCRA Closures	(509) 376-7542
Stanley Branch	DOE-RL	376-9450
George Gilbert	WHC/WTSP	372-1130
Gary [illegible]	WHC/WTSP	373-4479
[illegible]	WHC/WTSP	373-2079
CARL HALLER	WHC/TWRS	373-1765
Oliver Wang	WHC/TWRS	373-3011
Thomas Rankey	WHC/TWRS	509-373-3531
DON ENGELMAN	WHC/TWRS	373-3452
Steve Moore	Ecology	736-3023
John Harris	WHC/Retrieval Projects	372-1237
WENDY WASTKINSKI	DOE-RL/TWRS RETRIEVAL	376-6751

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DOUBLE AND SINGLE-SHELL TANK CHARACTERIZATION

MILESTONE M-44-00

U.S. Department of Energy / Richland Operations Office

John Clark - U.S. DOE

Unit Managers Meeting

April 12, 1994
Richland, Washington

DOUBLE AND SINGLE-SHELL TANK CHARACTERIZATION

MILESTONE M-44-00

TOPICS

- Accomplishments
- FY 1994 Milestone Status
- Special Topics

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ACCOMPLISHMENTS

- Issued the Waste Compatibility Data Quality Objective on March 4, 1994
- Issued the In-tank Generic Data Quality Objective on March 7, 1994
- Redeployed Push-Mode Core Sampling system on March 31, 1994
- Deployed Auger Sampling system on March 8, 1994
- Prepared Tank Characterization Plans for sampling Waste Tanks 241-SY-103, T-111, C-111, C-108, C-106, BX-101, S-110, AN-102, AN-107 and AY-102
- Issued TWRS wide Tank Scheduling procedure on March 31, 1994

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 January 31, 1994
  - **Completed - ahead of schedule - on January 13, 1994**
- M-44-05 Issue 20 Tank Characterization Reports in accordance with approved Tank Characterization Plans.
  - on schedule for completion on September 15, 1994
- M-44-06 Input Data from 20 HLW Tanks into Tank Characterization Database
  - on schedule for completion on September 30, 1994
- M-44-01A Issue Draft of FY95 Tanks Waste Analysis Plan to Ecology and EPA
  - on schedule for completion on May 31, 1994

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SPECIAL TOPICS

- Data Quality Objective Planning Process - Status Schedule
- Status of Rotary-Mode Core Sampling Equipment
- Status of Push-Mode Core Sampling
- Status of FY-95 Tank Waste Analysis Plan, Tank Characterization Plans, and Tank Characterization Reports - Schedule

STATUS REPORT, DATA QUALITY OBJECTIVES
TWRS CHARACTERIZATION PROGRAM
Chart compiled by D. J. McCain 373-1023
Effective date: 4/01/94

TYPE	WHC RESPONSIBLE PERSON/PHONE	DOCUMENT NUMBER	DOCUMENT TITLE	DUE DATE/STATUS/ TRANSMITTAL NUMBER	DOE-RL RESPONSIBLE PERSON/PHONE
Ferrocyanide	Robert J. Cash 373-3132	WHC-EP-0728	Ferrocyanide Safety Program: Data Requirements for the Ferrocyanide Safety Issue Developed Through the DQO Process	12/31/93 Complete-Issued CCRN 9361056 Rev. 1 as an SD document now in process.	Wally F. Hendrickson 376-5862
C-106 High Heat	Oliver S. Wang 373-3011	WHC-EP-0723	Tank 241-C-106 Sampling Data Requirements Developed Through the DQO Process	1/20/94 Complete-Issued CCRN 9450464	Russell G. Harwood 376-2348
Safety Screening	Harry Babad 373-2897	WHC-SD-WM-SP-004	Tank Safety Screening Data Quality Objectives	2/23/94 Complete-Issued CCRN 9451671	Roger F. Christensen 376-8992
Vapor Rotary Mode	George A. Stanton, Jr. 373-5590	WHC-SD-WM-SP-003	Rotary Core Vapor Sampling Data Quality Objective	2/25/94 Complete-Issued CCRN 9451694	Ellen M. Mattlin 376-2385
Waste Compatibility	Nick W. Kirch 373-2380	WHC-SD-WM-DQO-001	Data Quality Objective for Waste Compatibility Program	3/4/94 Complete-Issued CCRN 9451694	Marcus J. Glasper 372-2038
C-103 Vapor	Jerry W. Osborne 373-5379	WHC-EP-0774	Tank 241-C-103 Vapor and Gas Sampling Data Quality Objectives	2/28/94 Complete-Issued CCRN 9451694	Stanley O. Branch 376-9450
In-Tank Generic Vapor	Jerry W. Osborne 373-5379	WHC-SD-WM-DQO-002	Data Quality Objectives for Generic In-Tank Health and Safety Vapor Issue Resolution	3/7/94 Complete-Issued CCRN 9451694	Stanley O. Branch 376-9450

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Crust Burn Flammable Gas	Gerry D. Johnson 373-1324	WHC-SD-WM-DQO-003	Data Requirements Required Through the Data Quality Objectives Process for the Crust Burn Issue Associated with Flammable Gas Tanks	3/14/94 Complete-Issued CCRN 9451694	Gary W. Rosenwald 376-5349
Core DST Flammable Gas	Gerry D. Johnson 373-1324 Norton G. McDuffie 373-2653	WHC-SD-WM-DQO-004	Flammable Gas Safety Program: Data Requirements for the Flammable Gas Safety Issue Developed through the Data Quality Objectives (DQO) Process	Due 4/15/94	Gary W. Rosenwald 376-5349
Organics	Harry Babad 373-2897	PNL-XXXX UC-XXX	Data Requirements and Data Quality Objectives for the Organic-Nitrate Safety Issue in the Hanford Single-Shell Tanks	4/25/94-Large PNL document now being condensed.	Roger F. Christensen 376-5349
C-103 Dip Sample	David A. Turner 373-2238	PNL-8871 UC-510	Organic Layer Sampling for SST 241-C-103 Background, and Data Quality Objectives, and Analytical Plan	8/93 Complete-Issued Rev. 1 now out for comment	Roger F. Christensen 376-8992
Retrieval	Pushpa K. Bhatia 372-2224			A preliminary document, WHC-SD-WM-RD-039, is being rewritten.	Wendell R.Wrzesiński 376-6751
Part B Permit Application	Robert D. Gustavson 373-5090 Joseph M. Jones 373-3492			Preliminary mtgs. have begun. Scoping a major issue.	John M. Clark 376-2246
Evaporator Operations	Brian H. Von Bargen 373-1829			Efforts are underway with a facilitator.	
Pretreatment	Mike Kupfer 376-6631 Jackie Mobley			Due 8/22/94 Formal meetings in progress.	Rob A. Gilbert 372-0618

HLW Immobilization	Rod W. Powell 376-9618			Due 9/06/94 Currently working with Pretreatment DQO process.	George H. Sanders 376-6888
Process Control	To Be Determined				
Waste Disposal (Drums, Equip.)	David C. Hetzer 372-3304				
Historical Data Acquisition Model Verification	Harry Babad 373-2897				John M. Clark 376-2246
LLW Immobilization	Jeff A. Voogd 373-4101			Due 9/21/94 Currently working with Pretreatment DQO process.	George H. Sanders 376-6888

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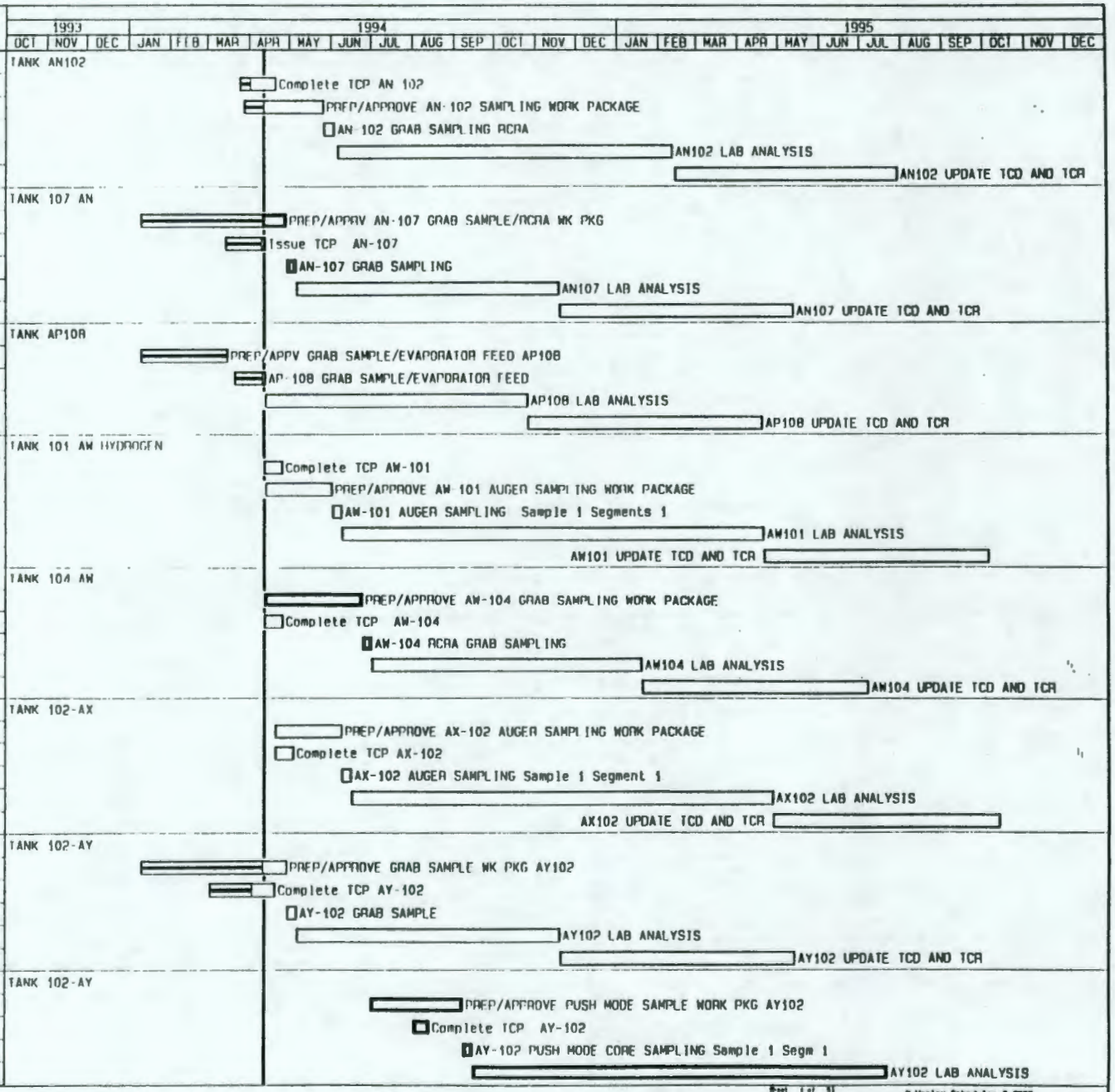
Handout 3

3

ACTIVITY ID	EARLY START	EARLY FINISH	REM DUR	PCT
TANK AN102				
GS21095	25MAR94A	20APR94	7	30
GS21-1	28MAR94A	26MAY94	33	25
GS21-4	27MAY94	3JUN94	5	0
GS21-40	6JUN94	10FEB95	172	0
GS21-41	13FEB95	28JUL95	120	0
TANK 107 AN				
GS55-1	10JAN94A	28APR94	13	83
GS55095	14MAR94A	12APR94	1	90
GS55-4	29APR94	5MAY94	5	0
GS55-40	6MAY94	17NOV94	136	0
GS55-41	18NOV94	11MAY95	120	0
TANK AP108				
GS51-1	10JAN94A	15MAR94A	0	100
GS51-4	21MAR94A	12APR94	1	90
GS51-40	13APR94	25OCT94	136	0
GS51-41	26OCT94	18APR95	120	0
TANK 101 AW HYDROGEN				
AS04095	12APR94	25APR94	10	0
AS04-1	13APR94	1JUN94	35	0
AS04-4	2JUN94	8JUN94	5	0
AS04-40	9JUN94	18APR95	216	0
AS04-41	19APR95	30OCT95	120	0
TANK 104 AW				
GS05-1	12APR94	23JUN94	52	0
GS05095	12APR94	25APR94	10	0
GS05-4	24JUN94	30JUN94	5	0
GS05-40	1JUL94	18JAN95	136	0
GS05-41	19JAN95	5JUL95	120	0
TANK 102-AX				
AS10-1	20APR94	8JUN94	35	0
AS10095	20APR94	3MAY94	10	0
AS10-4	9JUN94	15JUN94	5	0
AS10-40	16JUN94	25APR95	216	0
AS10-41	26APR95	10OCT95	120	0
TANK 102-AY				
GS52-1	10JAN94A	28APR94	13	83
GS52095	2MAR94A	19APR94	6	65
GS52-4	29APR94	5MAY94	5	0
GS52-40	6MAY94	17NOV94	136	0
GS52-41	18NOV94	11MAY95	120	0
TANK 102-AY				
PS06-1	30JUN94	6SEP94	46	0
PS06095	1AUG94	12AUG94	10	0
PS06-4	7SEP94	13SEP94	5	0
PS06-40	14SEP94	19JUL95	216	0



Plot Date 12APR94
Data Date 12APR94
Project Start 10CT93
Project Finish 5JUN95

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Activity Bar/Early Bars
Critical Activity
Progress Bar
Milestone/Plng Activity

FHC

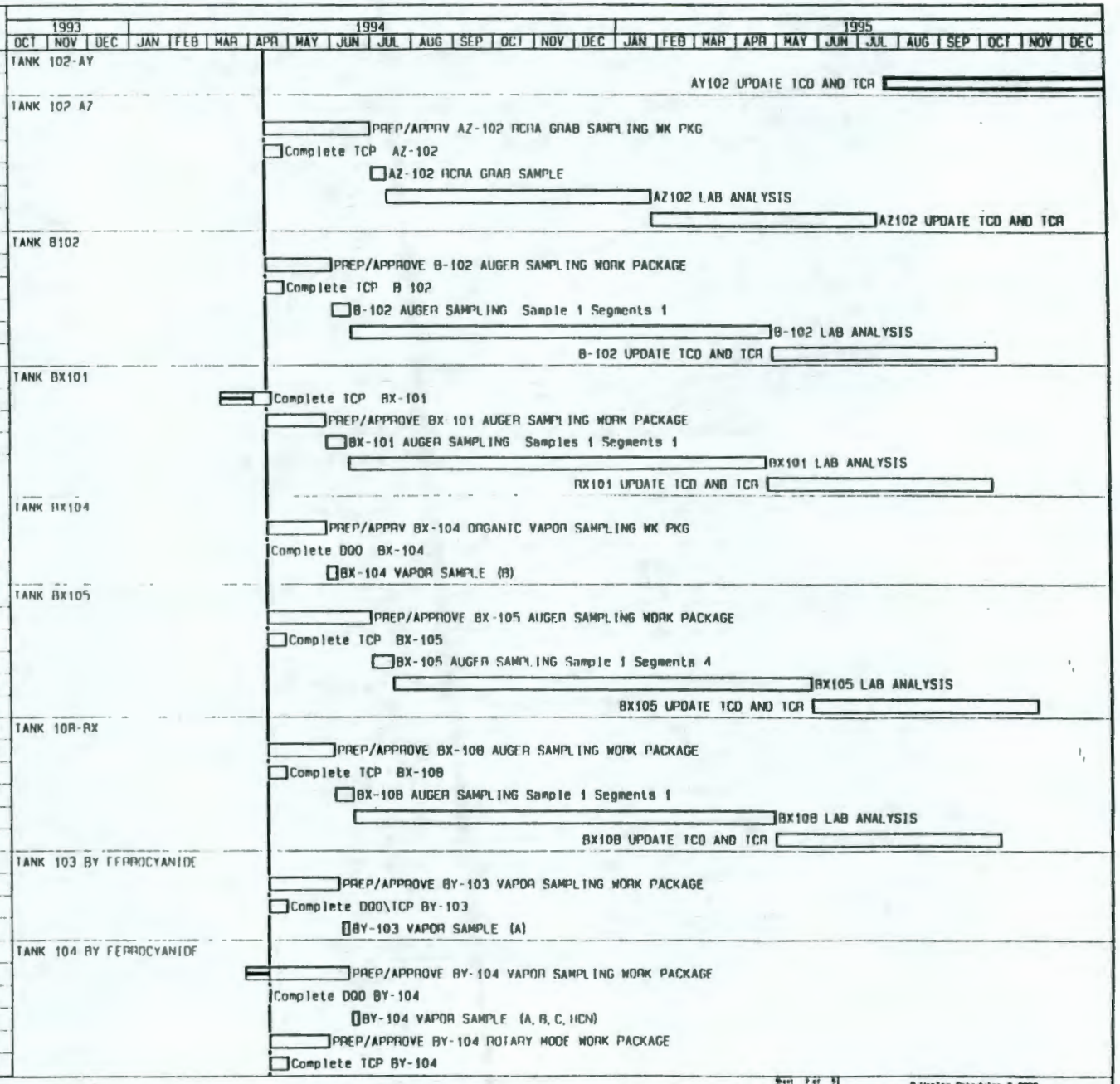
MHC
TANK FARM SAMPLING SCHEDULE
HAMMOCK SUMMARY SCHEDULE

Sheet 1 of 5

B.Healey Scheduler 8-3000

Date	Revision	Checked	Approved

ACTIVITY ID	EARLY START	EARLY FINISH	REM DUR	PCT
TANK 102-AY				
PS06-41	20JUL95	5JAN96	120	0
TANK 102 AZ				
GS06-1	12APR94	30JUN94	57	0
GS06095	12APR94	25APR94	10	0
GS06-4	1JUL94	11JUL94	5	0
GS06-40	12JUL94	25JAN95	136	0
GS06-41	26JAN95	12JUL95	120	0
TANK B102				
AS05-1	12APR94	31MAY94	35	0
AS05095	12APR94	25APR94	10	0
AS05-4	1JUN94	14JUN94	10	0
AS05-40	15JUN94	24APR95	216	0
AS05-41	25APR95	90CT95	120	0
TANK BX101				
AS03095	8MAR94A	15APR94	4	65
AS03-1	12APR94	26MAY94	33	0
AS03-4	27MAY94	10JUN94	10	0
AS03-40	13JUN94	20APR95	216	0
AS03-41	21APR95	50CT95	120	0
TANK BX104				
VS13-1	12APR94	26MAY94	33	0
VS13095	12APR94	12APR94	1	0
VS13-4	27MAY94	3JUN94	5	0
TANK BX105				
AS08-1	12APR94	28JUN94	55	0
AS08095	12APR94	25APR94	10	0
AS08-4	29JUN94	14JUL94	10	0
AS08-40	15JUL94	22MAY95	216	0
AS08-41	23MAY95	6NOV95	120	0
TANK 108-BX				
AS07-1	12APR94	31MAY94	35	0
AS07095	12APR94	25APR94	10	0
AS07-4	1JUN94	14JUN94	10	0
AS07-40	15JUN94	24APR95	216	0
AS07-41	25APR95	90CT95	120	0
TANK 103 BY FERROCYANIDE				
VS41-1	12APR94	3JUN94	38	0
VS41095	12APR94	25APR94	10	0
VS41-4	6JUN94	10JUN94	5	0
TANK 104 BY FERROCYANIDE				
VS06-1	25MAR94A	10JUN94	42	24
VS06095	12APR94	12APR94	1	0
VS06-4	13JUN94	17JUN94	5	0
RS03-1	12APR94	26MAY94	33	0
RS03095	12APR94	25APR94	10	0



Plot Date 12APR94
Data Date 12APR94
Project Start 10CT93
Project Finish 5JAN96

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

WHC
TANK FARM SAMPLING SCHEDULE
HAMMOCK SUMMARY SCHEDULE

Sheet 7 of 9

O Healey Scheduler 2-5000

Date	Revision	Checked	Approved

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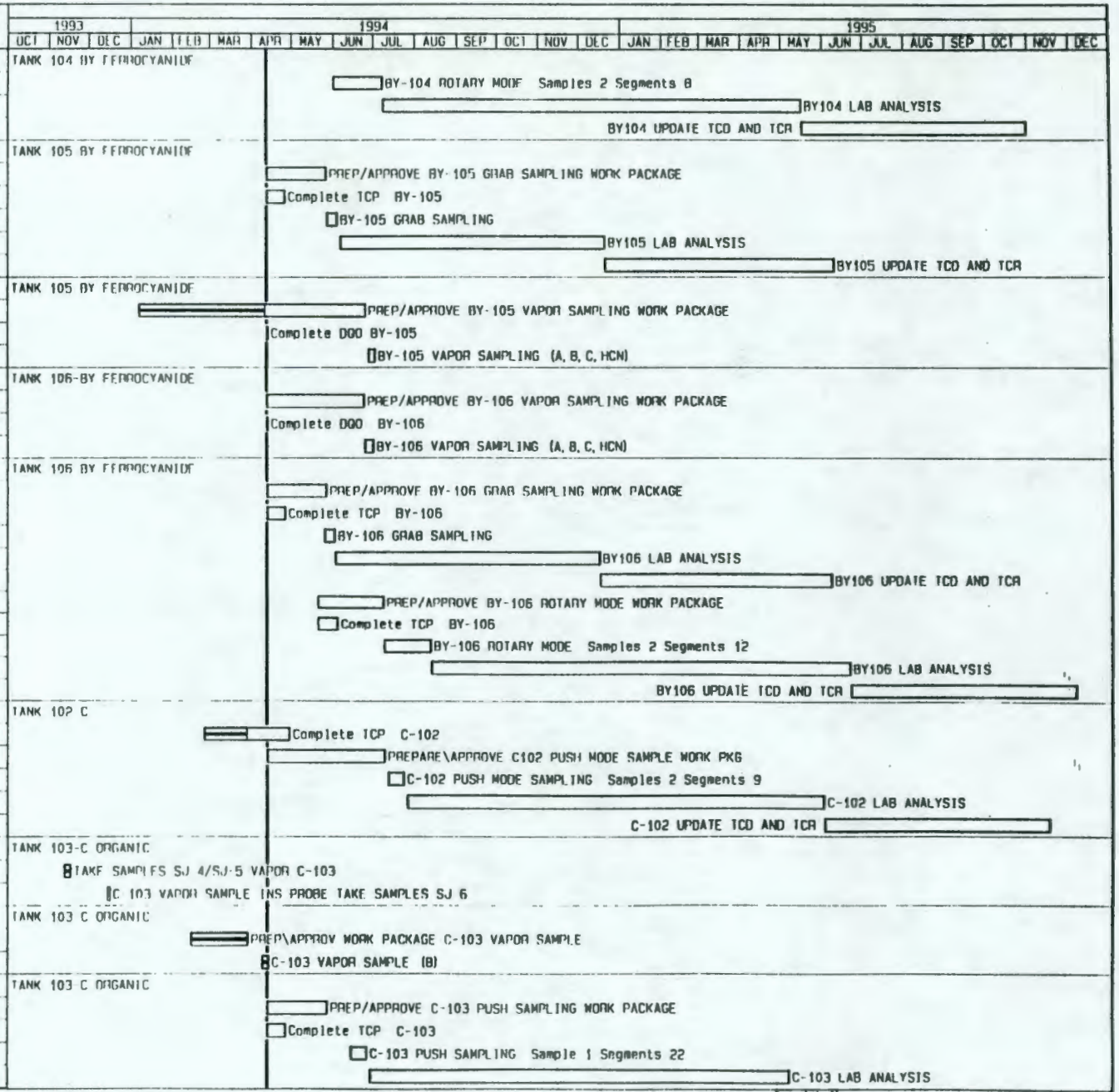
ACTIVITY ID	EARLY START	EARLY FINISH	REM DUR	PCT
TANK 104 BY FERROCYANIDE				
RS03-4	1JUN94	7JUL94	25	0
RS03-40	8JUL94	15MAY95	216	0
RS03-41	16MAY95	30OCT95	120	0
TANK 105 BY FERROCYANIDE				
GS02-1	12APR94	26MAY94	33	0
GS02095	12APR94	25APR94	10	0
GS02-4	27MAY94	3JUN94	5	0
GS02-40	6JUN94	19DEC94	136	0
GS02-41	20DEC94	8JUN95	120	0
TANK 105 BY FERROCYANIDE				
VS07-1	7JAN94A	24JUN94	53	56
VS07095	12APR94	12APR94	1	0
VS07-4	27JUN94	1JUL94	5	0
TANK 106-BY FERROCYANIDE				
VS08-1	12APR94	23JUN94	52	0
VS08095	12APR94	12APR94	1	0
VS08-4	24JUN94	30JUN94	5	0
TANK 106 BY FERROCYANIDE				
GS15-1	12APR94	26MAY94	33	0
GS15095	12APR94	25APR94	10	0
GS15-4	25MAY94	1JUN94	5	0
GS15-40	2JUN94	15DEC94	136	0
GS15-41	16DEC94	6JUN95	120	0
RS04-1	20MAY94	7JUL94	32	0
RS04095	20MAY94	3JUN94	10	0
RS04-4	8JUL94	11AUG94	25	0
RS04-40	12AUG94	19JUN95	216	0
RS04-41	20JUN95	4DEC95	120	0
TANK 102 C				
AS99095	24FEB94A	28APR94	13	50
AS99-1	12APR94	8JUL94	61	0
AS99-4	11JUL94	22JUL94	10	0
AS99-40	25JUL94	30MAY95	216	0
AS99-41	31MAY95	14NOV95	120	0
TANK 103-C ORGANIC				
VS55-4	12NOV93A	16NOV93A	0	100
VS46-4	14DEC93A	15DEC93A	0	100
TANK 103 C ORGANIC				
VS47-1	14FEB94A	28MAR94A	0	100
VS47-4	8APR94A	12APR94	1	90
TANK 103 C ORGANIC				
PS05-1	12APR94	26MAY94	33	0
PS05095	12APR94	25APR94	10	0
PS05-4	13JUN94	24JUN94	10	0
PS05-40	27JUN94	4MAY95	216	0



Plot Date 12APR94
Data Date 12APR94
Project Start 1OCT93
Project Finish 5JAN96

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

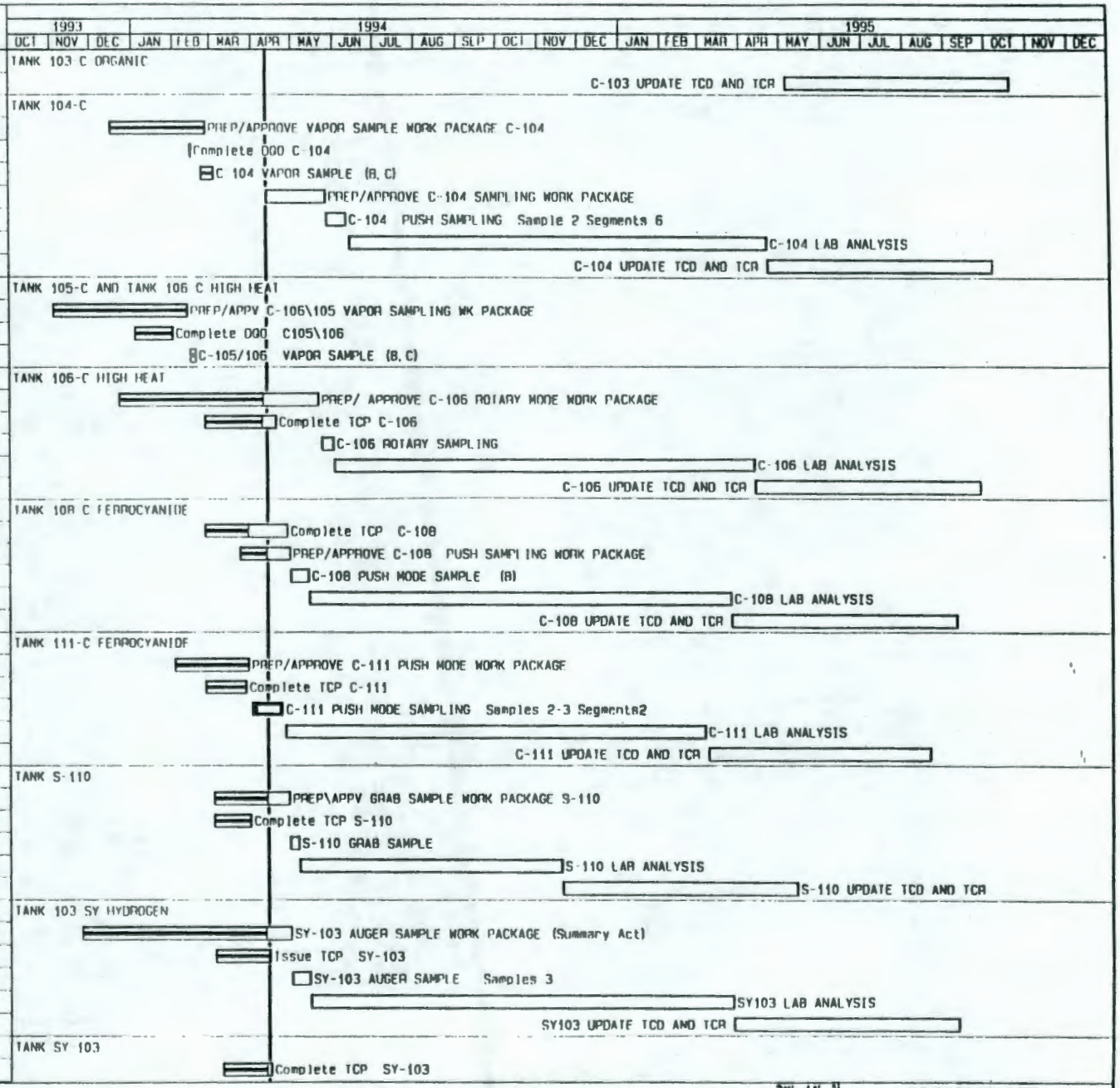
MHC
TANK FARM SAMPLING SCHEDULE
HAMMOCK SUMMARY SCHEDULE

Sheet 3 of 5

B Hesley Scheduler 2-3000

Date	Revision	Checked	Approved

ACTIVITY ID	EARLY START	EARLY FINISH	REM DUR	PCT
TANK 103 C ORGANIC				
PS05-41	5MAY95	19OCT95	120	0
TANK 104-C				
VS99-1	16DEC93A	25FEB94A	0	100
VS99095	14FEB94A	14FEB94A	0	100
VS99-4	22FEB94A	3MAR94A	0	100
PS08-1	12APR94	26MAY94	33	0
PS08-4	27MAY94	10JUN94	10	0
PS08-40	13JUN94	20APR95	216	0
PS08-41	21APR95	5OCT95	120	0
TANK 105-C AND TANK 106 C HIGH HEAT				
VS03-1	3NOV93A	11FEB94A	0	100
VS03095	3JAN94A	31JAN94A	0	100
VS03-4	14FEB94A	17FEB94A	0	100
TANK 106-C HIGH HEAT				
RS02-1	22DEC93A	20MAY94	29	72
RS02095	24FEB94A	18APR94	5	80
RS02-4	23MAY94	31MAY94	6	0
RS02-40	1JUN94	10APR95	216	0
RS02-41	11APR95	25SEP95	120	0
TANK 108 C FERROCYANIDE				
PS11095	24FEB94A	26APR94	11	52
PS11-1	22MAR94A	28APR94	13	54
PS11-4	29APR94	12MAY94	10	0
PS11-40	13MAY94	23MAR95	216	0
PS11-41	24MAR95	7SEP95	120	0
TANK 111-C FERROCYANIDE				
PS01-1	1FEB94A	28MAR94A	0	100
PS01095	24FEB94A	26MAR94A	0	100
PS01-4	31MAR94A	22APR94	9	10
PS01-40	25APR94	3MAR95	216	0
PS01-41	6MAR95	18AUG95	120	0
TANK S-110				
GS54-1	2MAR94A	27APR94	12	71
GS54095	2MAR94A	29MAR94A	0	100
GS54-4	28APR94	4MAY94	5	0
GS54-40	5MAY94	16NOV94	136	0
GS54-41	17NOV94	10MAY95	120	0
TANK 103 SY HYDROGEN				
AS01-1	23NOV93A	28APR94	13	88
AS01095	3MAR94A	12APR94	1	98
AS01-4	29APR94	12MAY94	10	0
AS01-40	13MAY94	23MAR95	216	0
AS01-41	24MAR95	7SEP95	120	0
TANK SY 103				
PS02095	8MAR94A	13APR94	2	90



Plot Date 12APR94
Data Date 12APR94
Project Start 1OCT93
Project Finish 5JAN96

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WHC
TANK FARM SAMPLING SCHEDULE
HAMMOCK SUMMARY SCHEDULE

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D Wesley Scheduler 2-5000

Date	Revision	Checked	Approved

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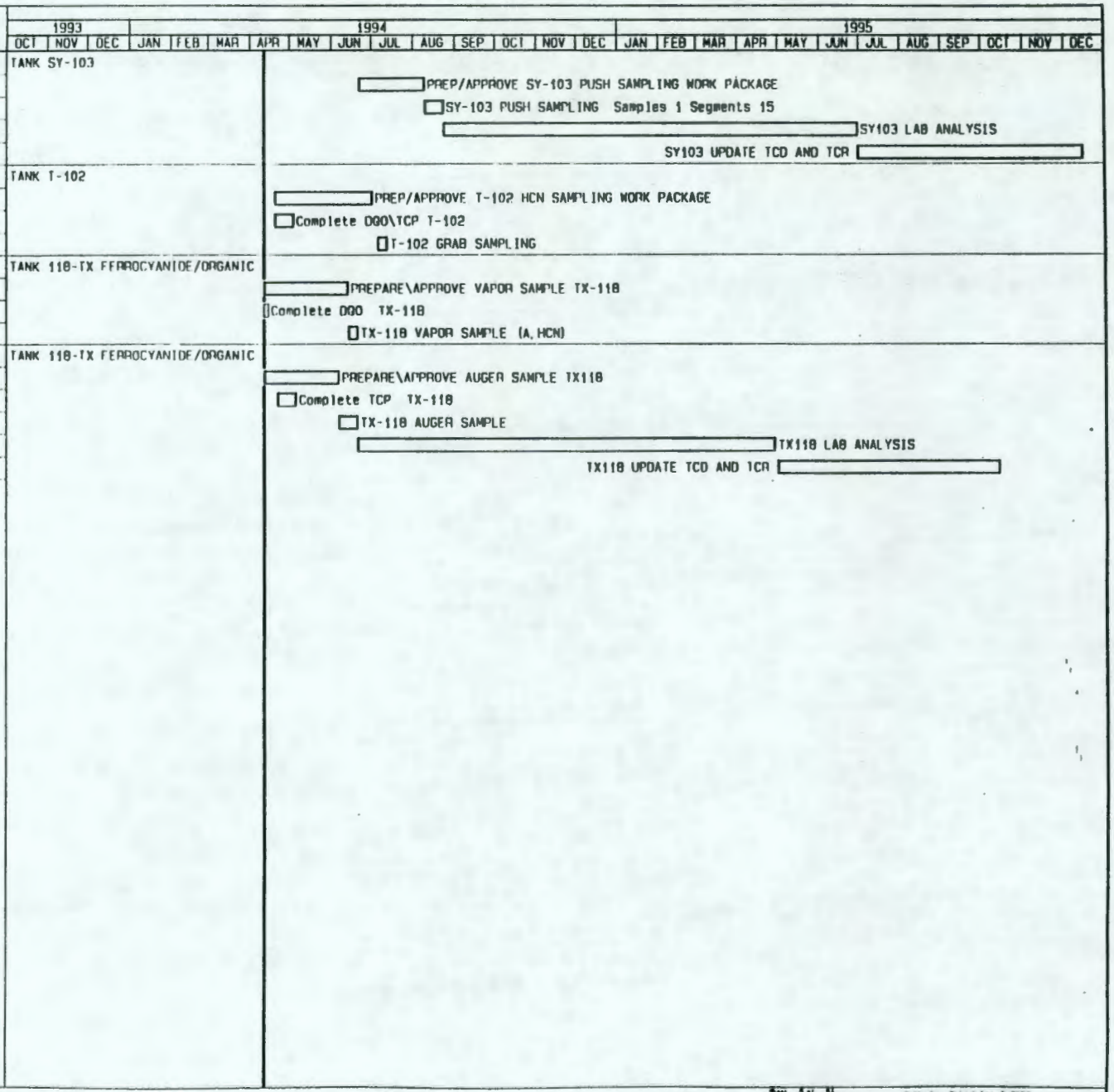
ACTIVITY ID	EARLY START	EARLY FINISH	REM DUR	PCT
TANK SY-103				
PS02-1	22JUN94	9AUG94	33	0
PS02-4	10AUG94	23AUG94	10	0
PS02-40	24AUG94	29JUN95	216	0
PS02-41	30JUN95	14DEC95	120	0
TANK T-102				
VS18-1	20APR94	1JUL94	52	0
VS18095	20APR94	3MAY94	10	0
VS18-4	6JUL94	12JUL94	5	0
TANK 118-TX FERROCYANIDE/ORGANIC				
VS67-1	12APR94	13JUN94	44	0
VS67095	12APR94	14APR94	3	0
VS67-4	14JUN94	20JUN94	5	0
TANK 118-TX FERROCYANIDE/ORGANIC				
AS09-1	12APR94	6JUN94	39	0
AS09095	22APR94	5MAY94	10	0
AS09-4	7JUN94	20JUN94	10	0
AS09-40	21JUN94	28APR95	216	0
AS09-41	1MAY95	13OCT95	120	0



Plot Date 12APR94
Data Date 12APR94
Project Start 10CT93
Project Finish 5JAN98

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Activity Bar/Early Bars
Original Activity
Progress Bar
Milestone/Floating Activity

WHC
TANK FARM SAMPLING SCHEDULE
HAMMOCK SUMMARY SCHEDULE

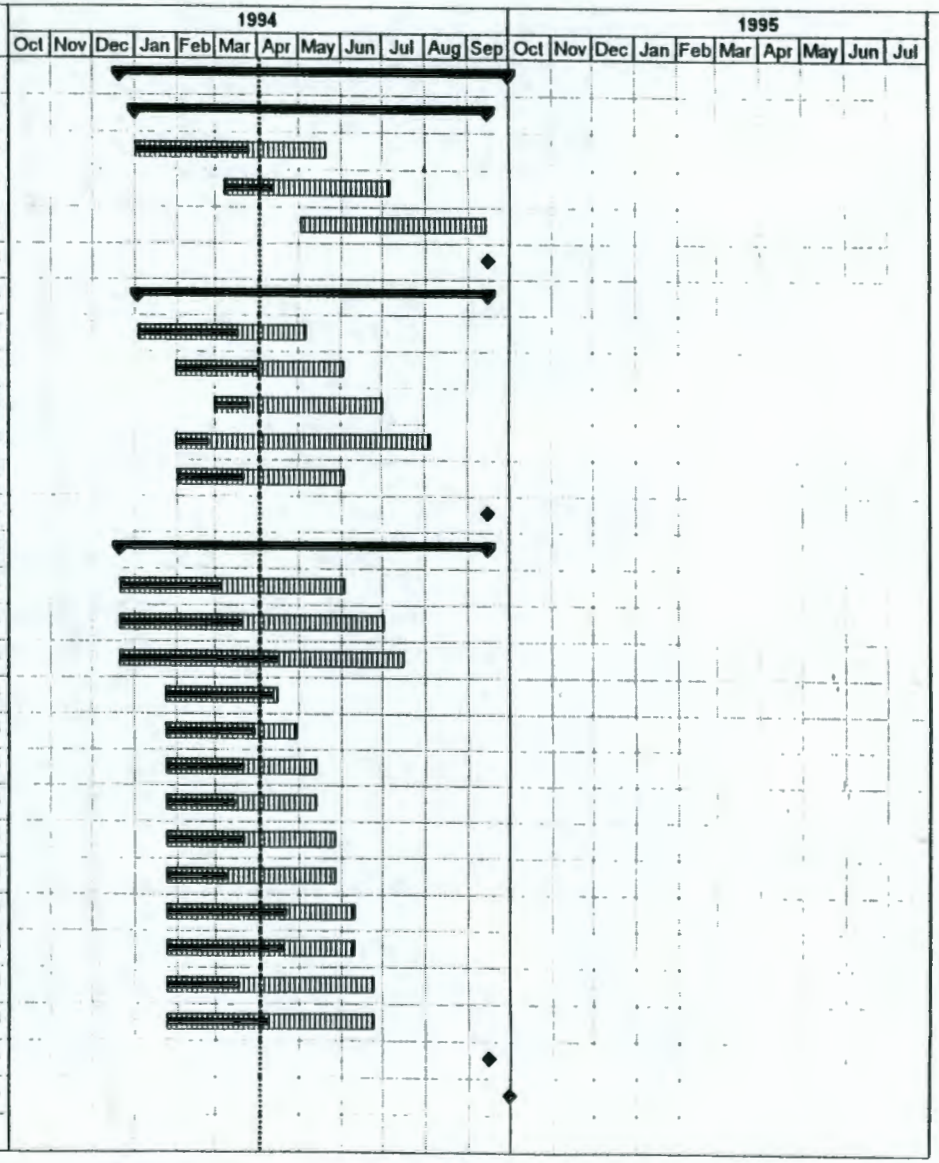
Sheet 5 of 5

D Healey Scheduler 2-3000

Date	Revision	Checked	Approved

Characterization Support Related Milestones

ID	Name	Info	Dur	Start	Finish
29	Tank Characterization Reports (518)		204d	12/21/93	9/30/94
30	PNL to issue 3 TCRs (436)		184d	1/1/94	9/15/94
31	B-201		100d	1/1/94	5/20/94
32	T-102		88d	3/7/94	7/6/94
33	B-111		97d	5/2/94	9/13/94
34	***Issue 3 TCRs	WHC	1d	9/15/94	9/15/94
35	WHC to issue 4 TCRs (437)		184d	1/3/94	9/15/94
36	SY-101		90d	1/3/94	5/6/94
37	BX-107		90d	1/31/94	6/3/94
38	T-104		90d	2/28/94	7/1/94
39	T-107		135d	1/31/94	8/5/94
40	S-104		89d	2/1/94	6/3/94
41	***Issue 4 TCRs	WHC	1d	9/15/94	9/15/94
42	LATA to issue 13 TCRs (520)		193d	12/21/93	9/15/94
43	AP-103		119d	12/21/93	6/3/94
44	AW-106		139d	12/21/93	7/1/94
45	AW-102		149d	12/21/93	7/15/94
46	AP-102		60d	1/24/94	4/15/94
47	AP-101		70d	1/24/94	4/29/94
48	AP-107		80d	1/24/94	5/13/94
49	AP-106		80d	1/24/94	5/13/94
50	AP-105		90d	1/24/94	5/27/94
51	AW-105		90d	1/24/94	5/27/94
52	B-110		100d	1/24/94	6/10/94
53	C-110		100d	1/24/94	6/10/94
54	T-105		110d	1/24/94	6/24/94
55	SY-102		110d	1/24/94	6/24/94
56	***Issue 13 TCRs	WHC	1d	9/15/94	9/15/94
57	***20 Tank Characterization Reports	TPA	1d	9/30/94	9/30/94
58					



Project: Tank Waste Remediation System
Date: 4/12/94 Time: 9 44 am

Critical — Noncritical — Progress — Milestone ◆ — Summary — Rolled Up ◇

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TRI-PARTY AGREEMENT MILESTONES

WASTE TANK SAFETY PROGRAM

STATUS REPORT AS OF: 03/31/94

No.	Title	Due	Remarks
M-40-01	Complete Tank 241-SY-101 Low Speed Mixer Pump Test. (Interim to SI-2g23 - 09/94)	03/1994	**Complete - 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)	03/1994	**Complete - 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)	03/1994	**Complete - 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)	05/1994	Ahead of schedule. Closure documentation and a request for closure were submitted to RL on 03/31/94. DOE-HQ approval is projected to be granted by May 16, 1994.
M-40-11	Close the Unreviewed Safety Question for the Criticality Issue. (SI-2w17 - 03/94)	06/1994	**Complete - 03/17/94.** The letter documenting the completion of this TPA milestone completion is in preparation.

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Handout 6

(6)

HANFORD SITE

241-C-103 FLOATING ORGANIC REMOVAL

presented to

SINGLE SHELL TANK

UNIT MANAGER'S MEETING

by

G. T. DUKELOW

WESTINGHOUSE HANFORD COMPANY

APRIL 12, 1994

M-40-05	Complete Safety Alternative Test in High-Heat Tank 241-C-106. (SI-2x38 - 06/95)	09/1995	Ahead of schedule. Vapor samples to support rotary core drilling have been completed. The process test has been initiated (no cooling water will be added during the test).
M-40-03	Perform Vapor Characterization for all Ferrocyanide Watch List Tanks. (SI-2o37 - 06/95)	11/1995	Ahead of schedule. The order of sampling for FY 1994 has been established.
M-40-08	Perform Vapor Characterization for all Organic Watch List Tanks. (SI-2o37 - 06/95)	11/1995	Ahead of schedule. The order of sampling for FY 1994 has been established.
M-40-10	Complete Vapor Space Monitoring of all Flammable Gas Generating Tanks.	01/1997	On schedule. (See M-40-15)
M-40-09	Close all Unreviewed Safety Questions (USQ) for Double-Shell & Single-Shell Tanks.	09/1998	On schedule. Two USQ are outstanding with the last one scheduled for closure in March 1995.
M-40-12	Resolve Nuclear Criticality Safety Issue.	09/1999	On schedule.
M-40-00	Mitigate/Resolve Tank Safety Issues for High Priority Watch List Tanks.	09/2001	On schedule.

M-40-13	Document 100% Design Completion of Permanent Mitigation Pump for Tank 241-SY-101. (Interim to SI-2e30 - 03/95)	07/1994	On schedule. Design work for the permanent pump continues. However, negotiations are on-going to cancel the permanent pump in favor of building a spare mixer pump for 101-SY (similar to the currently installed mixer pump).
M-40-06	Complete Vapor Sampling Characterization of Tank 241-C-103 (Phase 2) (SI-2m18 - 06/94)	08/1994	Ahead of schedule. The initial field work for Phase 2 vapor sampling of tank 103-C has been completed. Additional testing (sample jobs #7A and #7B) are being conducted for repeatability checks.
M-40-15	Install Gas Monitoring Equipment in the Remaining Five Potentially Flammable DSTs. (Interim to SI-2h36 - 04/95)	09/1994	On schedule. The gas monitoring system has been installed for tank 103-SY, however, the system has not yet been put in operation. Site installation design for 101-AW and the three DSTs in AN farm have been completed.
M-40-02A	Develop Criteria for Upgrading Temperature Monitoring Capabilities in Ferrocyanide. (Interim to SI-2t27 - 12/94)	09/1994	On schedule. A draft document "Criteria for Upgrading Temperature Monitoring in Ferrocyanide Tanks," was completed and transmitted to RL.

M-40-02B	Install Six of Twelve New Thermocouples. (Interim to SI-2t27 - 12/94)	09/1994	Ahead of Schedule. The USQ screening/evaluation for the first four Temperature Vapor Probes (TVP), scheduled for installation in June, has been completed. The pump and equipment trailer used for installing TVPs were delivered on 03/15/94. Fabrication of the second set of four TVPs has been initiated.
M-40-02	Upgrade Temperature Monitoring Capabilities in Ferrocyanide Tanks. (SI-2t27 - 12/94)	04/1995	Ahead of schedule. (See M-40-02B)
M-40-04	Complete Removal of Floating Organic Layer from Tank 241-C-103. (SI-2u33 - 03/95)	06/95	Ahead of schedule. A commercially available floating weir design has been selected for removal of the organic layer. A coalescer capable of separating the organic and the aqueous has been purchased and received for performance evaluation.
M-40-07	Commence Operation of a Vapor Treatment System in Tank 241-C-103. (Interim SI-2n19 - 06/94)	06/1995	On schedule. The systems engineering analysis document has been completed (F&R document). The technology search has been completed.

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PROGRESS ON ORGANIC REMOVAL SINCE FEBRUARY 8, 1994

- Skimmer tests have demonstrated it will be the technology used and not hydrophobic techniques
    - Skimmer appears to remove organic to less than acceptance criteria of 2 millimeters
- Engineering study was completed
- Preliminary Design Report (PDR) was initiated; SAIC and ICF-KEH are preparing
- Coalescer organic/aqueous separator received and being prepared for more extensive testing
- The use of 204-AR with an aqueous wash remains as the baseline method for removal of nuclides if necessary. An additional study is to be performed using ion exchange, possibly for field use
- Numerous studies being conducted to support the PDR, such as instrumentation requirements, pump deployment technique, large pilot plant tank testing, material selection for valve seats and seals, etc.
- Continued review of options for interim storage of organic
    - Storage in tank truck for 1-2 years
    - Removal of radionuclides while in tank truck if necessary
    - Storage in tank farm or in tank farm facilities
    - Loadout into drums for storage in Central Waste Complex (CWC)
    - Installation of bulk storage facility at CWC - consolidate with Purex and B Plant

- Continued review of organic disposal options
  - Idaho Falls calciner
  - Diversified Scientific Services Inc. incineration
  - Scientific Ecology Group - waiting on permit for incinerator
  - Hanford 200 Areas Effluent Treatment Facility - UV/OX process
- Review of regulatory issues and initiation of changes/notices, etc.

Handout 7

7

HANFORD SITE
241-C-103 FLOATING ORGANIC REMOVAL, TREATMENT & DISPOSAL

for information

G. T. Dukelow
WESTINGHOUSE HANFORD COMPANY
April 1, 1994

9513335.0527

ORGANIC REMOVAL MISSION

- Remove organic, separate radionuclides and dispose of a floating layer of organic waste in tank 241-C-103
- Unreviewed Safety Question declared for tank C-103 based on potential flammability - removal of organic layer may be necessary for resolution of safety issue and assists in resolution of vapor issue
- Safety Initiative Milestone of March 1995 established for removal only; program milestone of December 31, 1994
- TPA Milestone of June 1995 for removal only
- Noxious vapors historically traced to C-103 organic layer

SAMPLE ANALYSES

- Samples of organic and aqueous layers taken December 15, 1993 indicate:
  - Organic layer is 1.5" to 2" thick (approx 4,100-5,000 gallons)
  - Organic sample exposure - 5 Mr/hr on contact
  - Aqueous sample exposure - 200 mR/hr on contact

- Organic - Flash Point approx. 256°F
  - Organic is 33% NPH, normal paraffin hydrocarbons (kerosene) and 67% TBP, Tributyl Phosphate
  - Primary activity in Organic is Cs-137 (4.1E-2 uci/gm)

- Aqueous - Supernate comprised of nitrate, nitrite, sulfate and phosphate compounds
  - Primary activity in Aqueous is Cs-137 (5.3E7 pCi/g)

- Organic layer is 8% of DOT LSA shipping limit; however, 80% of truck shipping limit

- One disposal firm, Diversified Scientific Services Inc. (DSSI), limits may restrict to small volume shipments

- Further analyses being completed for comparison to DSSI limits

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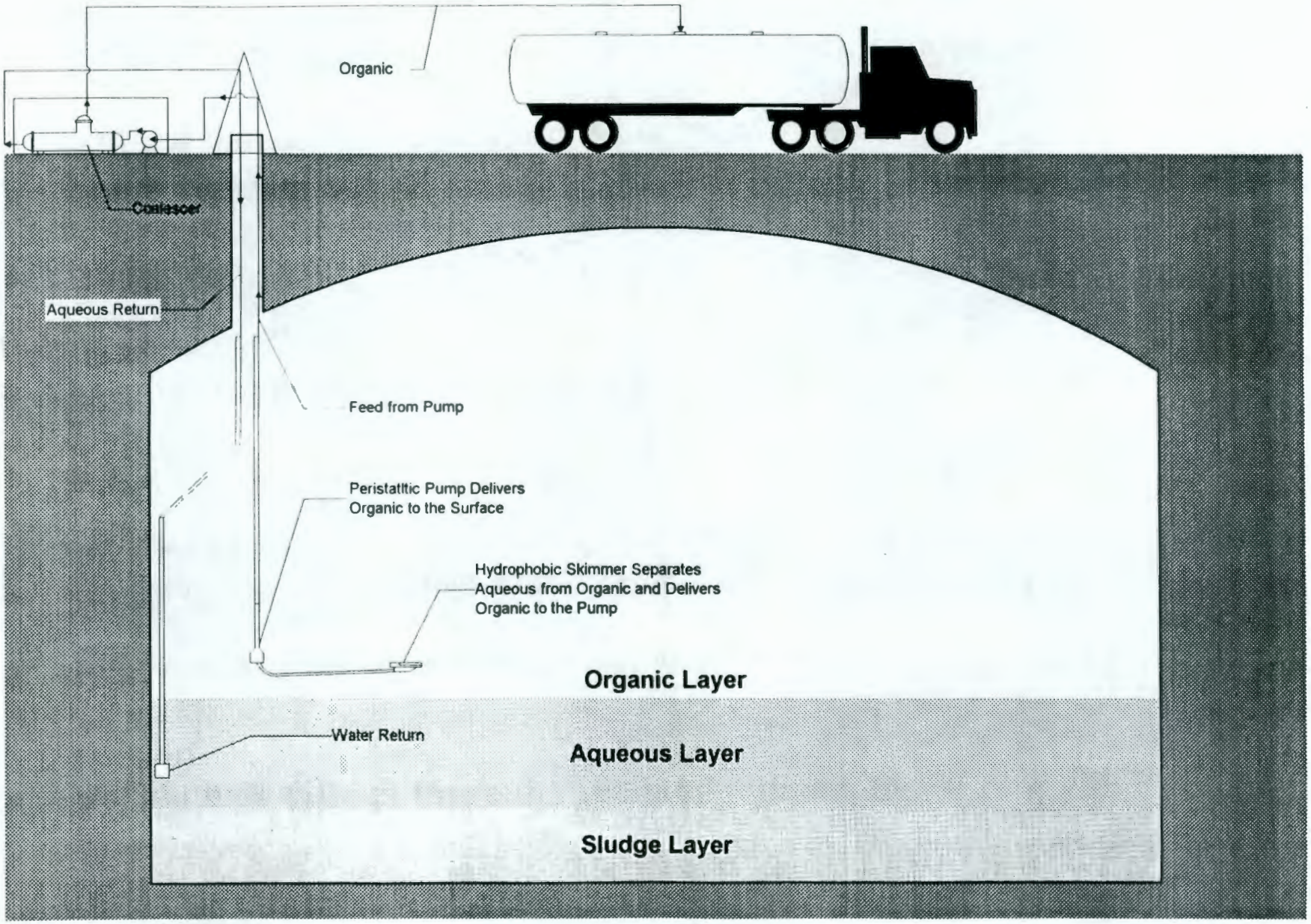
REMOVAL GOALS

- Adapt commercial technologies from ground water remediation and oil spill clean-up
- Utilize technologies which preferentially remove organic only, and/or
- Separate aqueous from organic as part of retrieval operations
- Minimize impact to tank environment, operations and other projects
    - Use available tank risers; not require retrieval of equipment
    - Use existing stabilization transfer pits and routings
    - Use technology that does not require use of exhauster



Tentative Removal Plan

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REMOVAL OF ORGANIC

- Acceptance criteria presently requires removal down to 2 mm of organic (sheen)
- Use of weir-type of pumping (skimmer)
- Hydrophobic/hydrophilic pump which separates organic from aqueous in tank (some concern with interfacial solids plugging up separator)
- use coalescer above-ground which separates organic from aqueous
- Will use prefilter to ensure potential interfacial solids does not plug coalescer
- Small amount of aqueous will be returned to tank
- Pumping rates will be very low to allow organic to move toward pump and not cause separation of organic into puddles
- Might be necessary to use a "ripple" generator to move organic towards pump

REMOVAL OF ORGANIC

- Above ground 12 inch riser will be used to avoid working in pits - pits offer little advantage in this case and take more exposure
- Coalescer and filter will be placed in an enclosure/containment with appropriate shielding as necessary
- Piping to enclosure and truck will be double contained pipe
- Pumping would take weeks based on pumping on dayshift only
- Candidate removal systems have had some testing using simulants; hydrophobic systems rejected and skimmer system works very well
- Coalescer has been successfully tested at the vendor's plant using simulant; additional tests to be performed at CEL

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TANK TRUCK RECEIVER

- Radiation levels of the truck expected to be less than 30 mr at contact
- Two new 5000 gallon truck trailers are available
- A 3000 gallon Purex UNH truck trailer is available
- The tanks would have to be modified with appropriate HEPA filtration, organic vapor handling equipment, liquid level, temperature, sampling capability, etc.
- Options are being developed for storage of tank truck to comply with regulations; removal of radionuclides may be necessary before disposal
    - Storage in C farm or adjacent to tank farm facilities on temporary pad until permanent storage or disposal is available
    - Storage at CWC in drums or bulk storage (new facility)

REMOVAL ROUTING OPTIONS

- Direct transfer to tank truck
- Transfer through stabilization pit to 241 CR Vault
- Transfer through 241 CR Vault to B-Plant
- Transfer through 241 CR Vault to 244 A Lift Station
    - 244A to 204-AR Waste Unloading Facility
    - 244A to 242-A Evaporator
    - 244A to AR Vault

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DISADVANTAGE OF UNDERGROUND TANKS OR EXISTING FACILITIES

- Organic must be transferred to a tank truck or drums anyway, which favors direct transfer to truck
- Organic is likely to be close to shippable limits if not contaminated with underground lines or facilities
- AR vault is essentially out of service and would require far too many upgrades
- 242-A could be used but does not have as much space for radionuclide removal as preferred option
- 244A and CR Vault facilities would be very costly to modify for radionuclide removal
- B Plant initial storage would be costly; mixing with much higher radiation level organic. Subsequent treatment is envisioned to be much more costly
- 204-AR has adequate space and can be modified at least cost

ORGANIC RADIONUCLIDE REMOVAL

- If removal technology successful, the operation retrieves only organic and removal of radionuclides may not be required
- Shipping regulations do permit dilution to allow reduction in radionuclide concentration or radiation dose rate; environmental regulations being checked
- However, if necessary, the separation of radionuclides at 204 AR is the baseline option
- Separation system at 204-AR will be designed to be moved, or out of the way, of normal waste shipments
- Modification of 204-AR would consist of installing additional tank and coalescer with associated piping and instrumentation; organic would be "washed" with aqueous and aqueous discharged to DST
- Another separation option would be to use ion exchange column in the field or 204-AR but further study required

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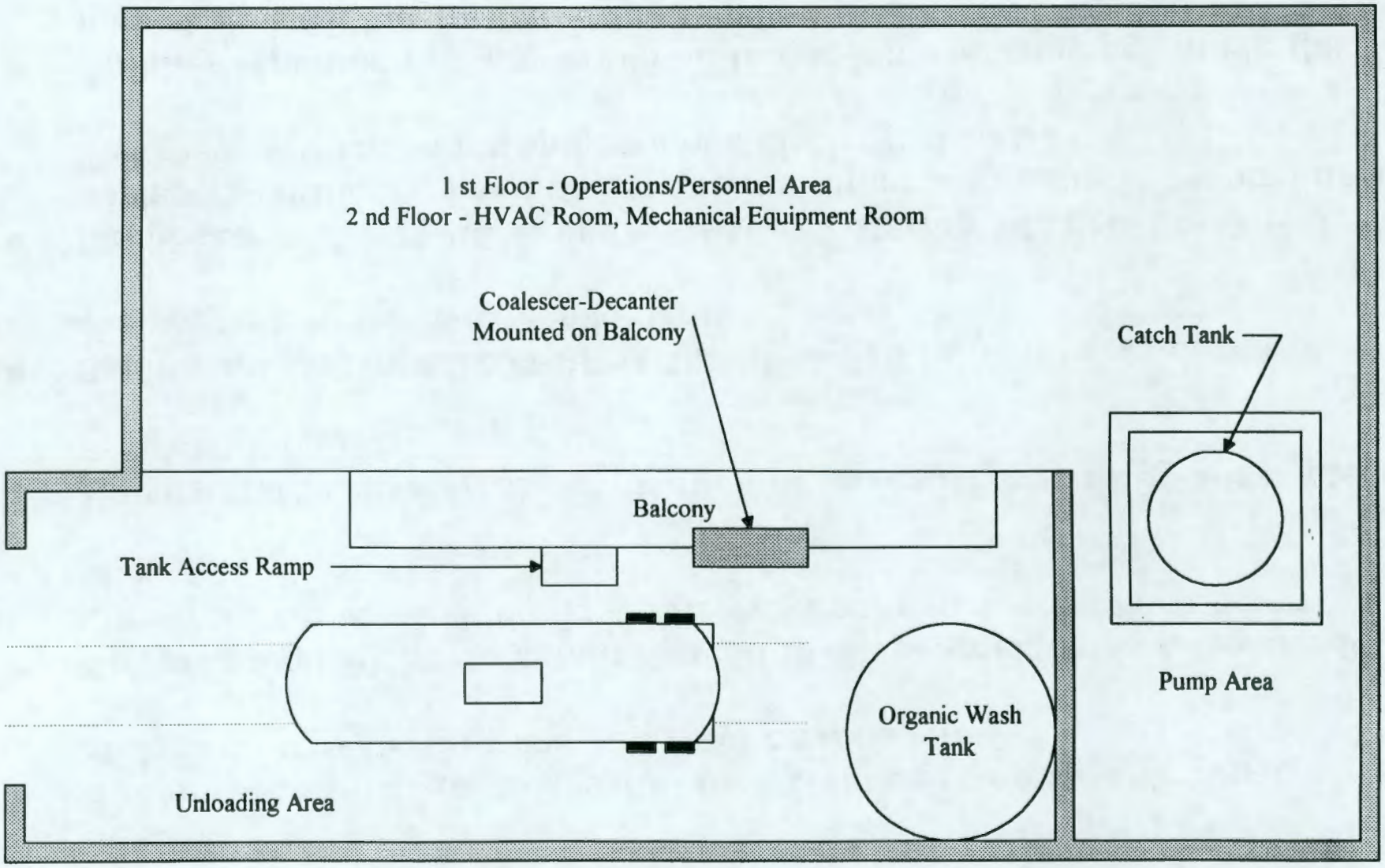
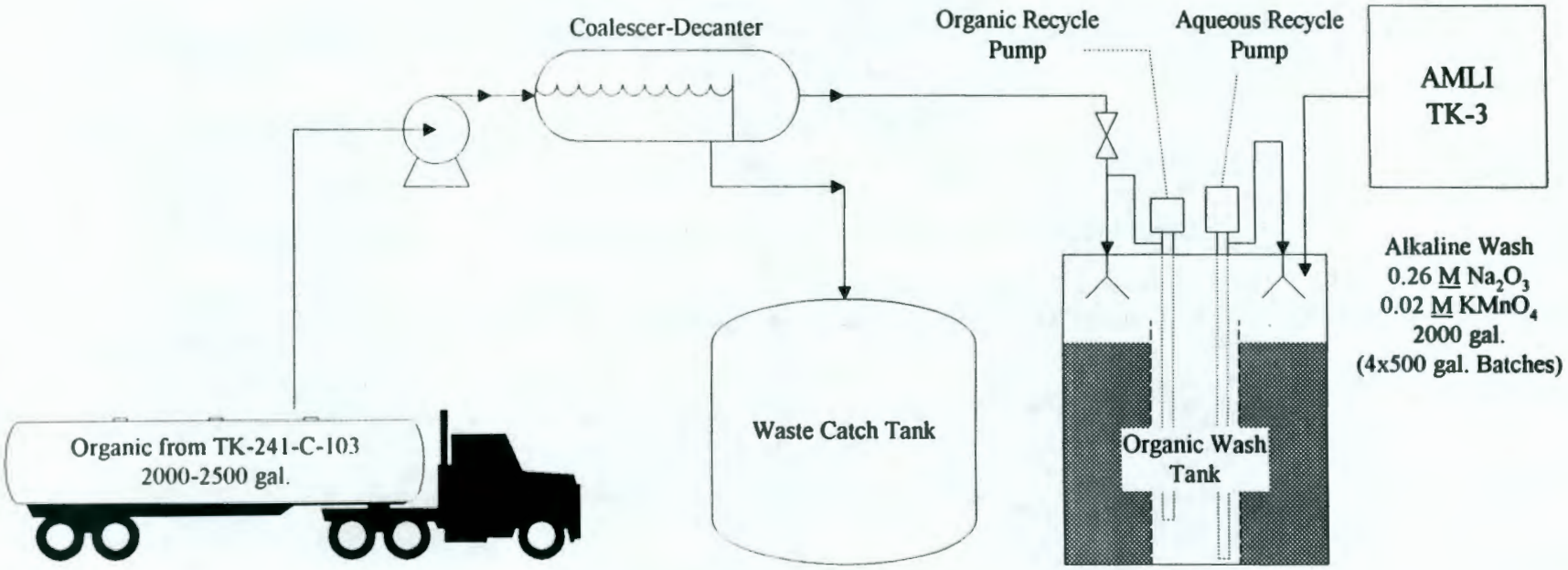


204AR Unloading Facility, Plan View Showing Approximate Location of Waste Tank & Trailer Transport Tank



Step 1. Alkaline wash solution is made up in AMLI TK-3 and pumped to the Organic Wash Tank

Step 2. Organic is received from TK-241-C-103 via trailer transfer tank and pumped to the Coalescer-Decanter. Entrained aqueous drains to the Waste Catch Tank and the organic overflows into the Organic Wash Tank, entering the tank via the organic distributor ring. During organic receipt, the aqueous recycle pump is operating and alkaline wash solution is recycled via the aqueous distribution ring, contacting and washing the organic.

Step 3. After the organic (2000-2500 gal.) is all in the Organic Wash Tank, the trailer tank is flushed with at least two 500-gal. water flushes. The flush solution is pumped through the Coalescer-Decanter to the Waste Catch Tank

Step 4. When the full batch of organic is in the Organic Wash Tank, the organic recirculation pump is started and the organic is recycled together with the alkaline wash solution for at least two hours. This will provide approximately three turnovers of the organic.

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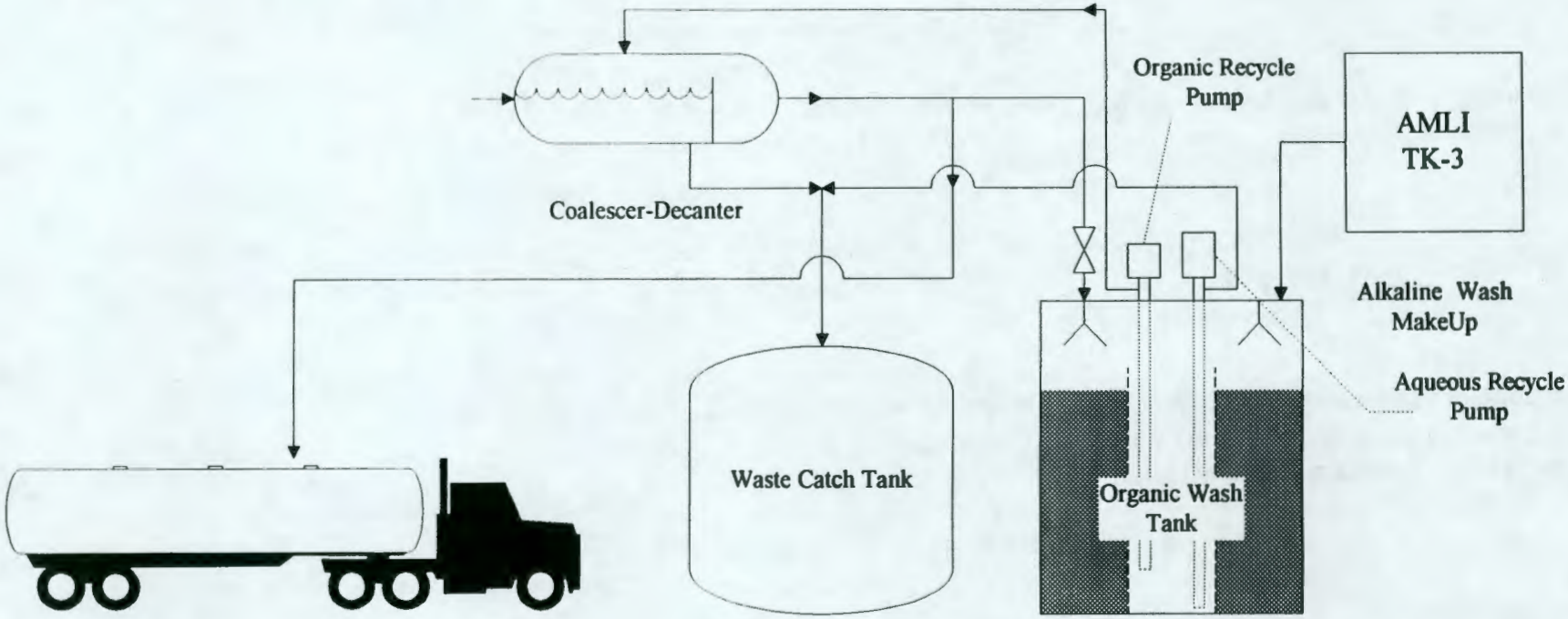

Step 5. After two hours of contacting, the organic in the Wash Tank is sampled and analyses completed for gamma scan, Sr-90, Am-241, and total Pu

Step 6. If the analyses indicate the organic meets shipping specifications, additional wash solution is added to wash tank and the organic-aqueous interface raised above the suction of the organic pump.

Step 7. The discharge from the organic pump is valved to the Coalescer-Decanter and the organic discharge from the Coalescer-Decanter is valved to the trailer tank. The organic is pumped through the Coalescer-Decanter to the trailer tank.

Step 8. Approximately 300 gal. of alkaline wash solution are pumped to the Waste Catch Tank.

Step 9. Steps 2 through 7 are followed for the second batch of organic, except that the second batch of washed organic will be pumped in to the same trailer tank that contains the first batch.

Setp 10. When all of the organic is washed and transferred into the trailer tank, the spent wash solution is transferred, in batches, from the Wash Tank via the Coalescer-Decanter to the Waste Catch Tank, sampled and sent to underground storage.

DISPOSAL OPTIONS

- In general, treated organic will be considered for off-site disposal with licensed Mixed Waste or LLW commercial operator
- Disposal at only permitted commercial vendor, Diversified Scientific Services, using incineration or fuel recovery
- Disposal at Scientific Ecology Group if permit is obtained
- INEL at Idaho Falls using calciner; not clear if facility will still be operational or if shipping conflicts between states can be resolved
- Use of hexone distillation facility was rejected
- Processing through Effluent Treatment Facility using UV-OX system
- Absorption on solid media and disposal as RMW solid waste

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SUMMARY

- Use of organic skimmer/separator in tank
- Use of filter and coalescer (separator) above ground in enclosure
- Use of new 5,000 gallon tank truck/trailer (to be used later for K Basin shipments to ETF)
- If organic meets shipping and disposal criteria limits, shipments will start when all paperwork is complete. Partial shipments may be necessary.
- If organic does not meet limits, separation of radionuclides from organic will be necessary
- Preferred radionuclide separation option, 204-AR, would not have detailed design or modifications completed until, after removal, it was determined that organic does not meet shipping/disposal limits.

Handout 8

(8)

HANFORD SITE
241-C-103 FLOATING ORGANIC REMOVAL METHODS AND REGULATORY IMPLICATIONS

presented to

Single-Shell Tank (SST)
Unit Manager's Meeting

by

D. W. Hendrickson
Westinghouse Hanford Company
April 12, 1994

9513335.0535

ORGANIC REMOVAL MISSION

BACKGROUND

- C-103 organic layer historically implicated with noxious vapors
- Safety Issue resolution response by removal of organic layer

MILESTONE FOR ACHIEVEMENT

- TPA Milestone for removal by June 1995
  - Organic layer pumping planned to begin ca. November 1994

REMOVAL METHODS

- In-tank floating head weir for organic recovery
- Separations module for water separation (ALARA)
- Tanker trailer on storage pad for retention
- Sealed units, breathed back to existing units
  - no active ventilation.

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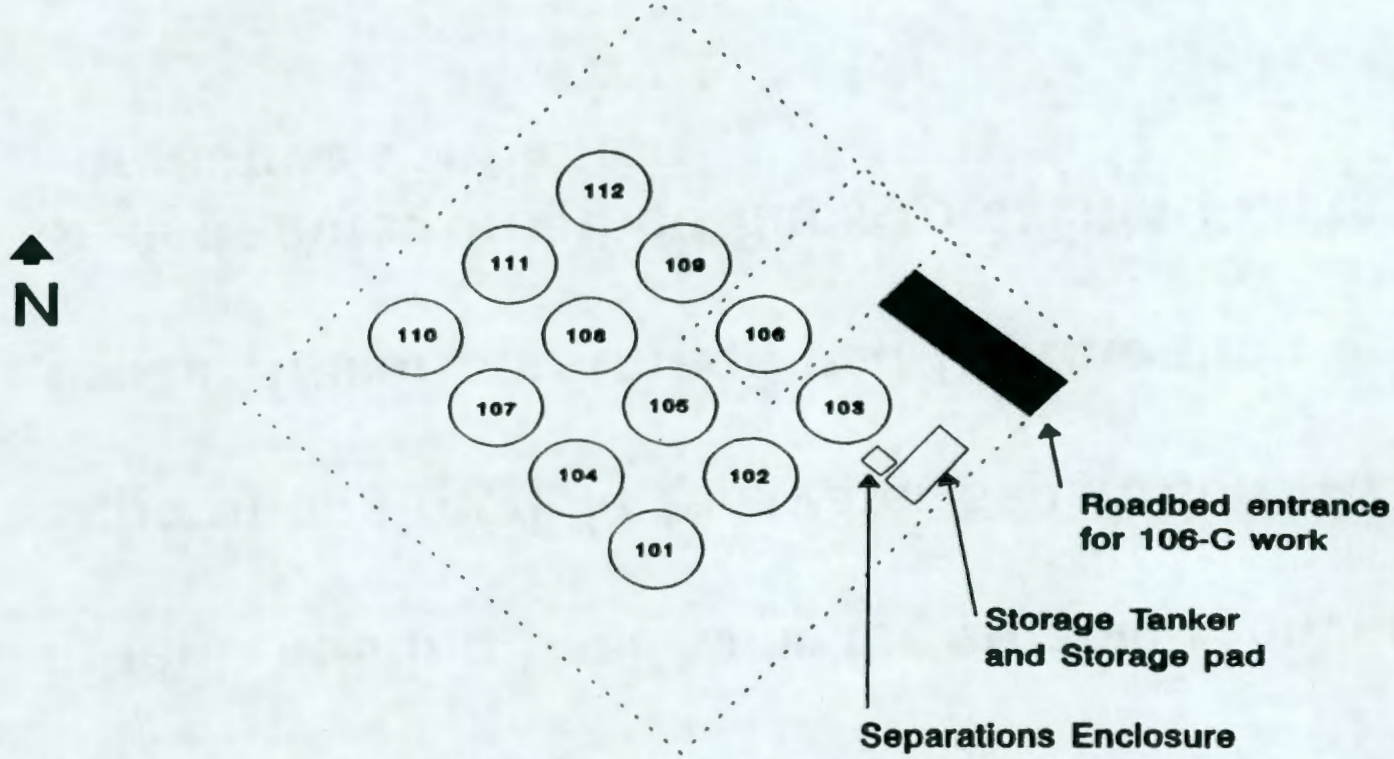
241-C Tank Farm



As expected upon
initiation of 103-C
Organic Layer Removal

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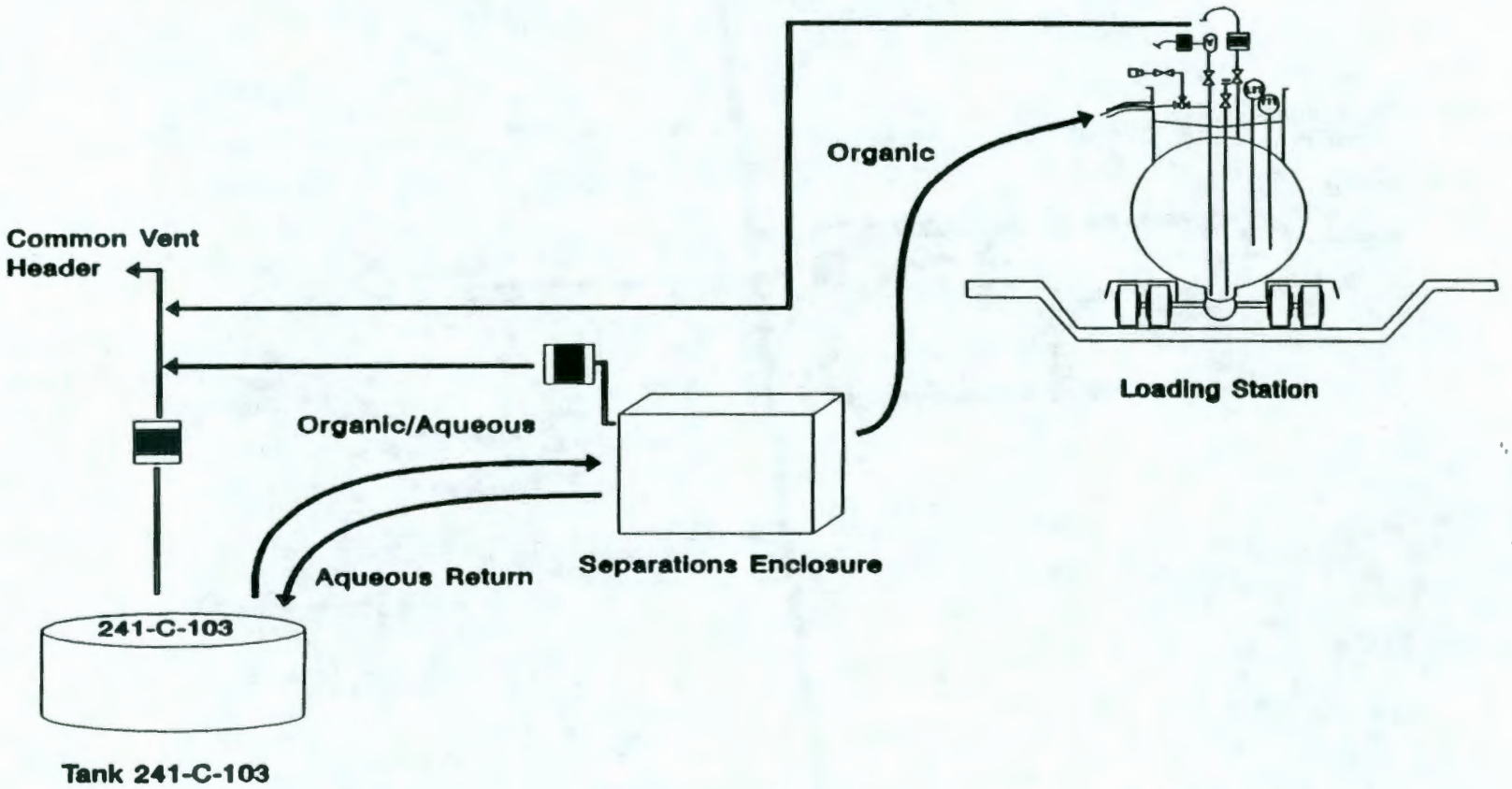
C-103 Organic Removal System
Process Scope



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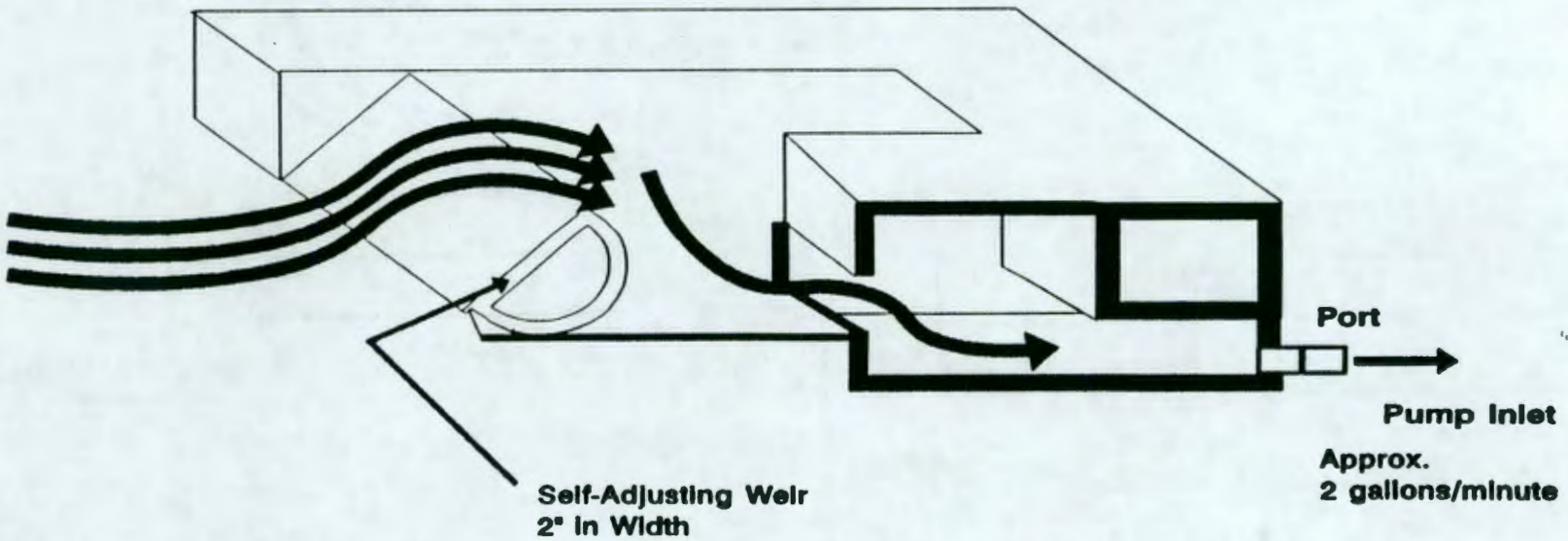
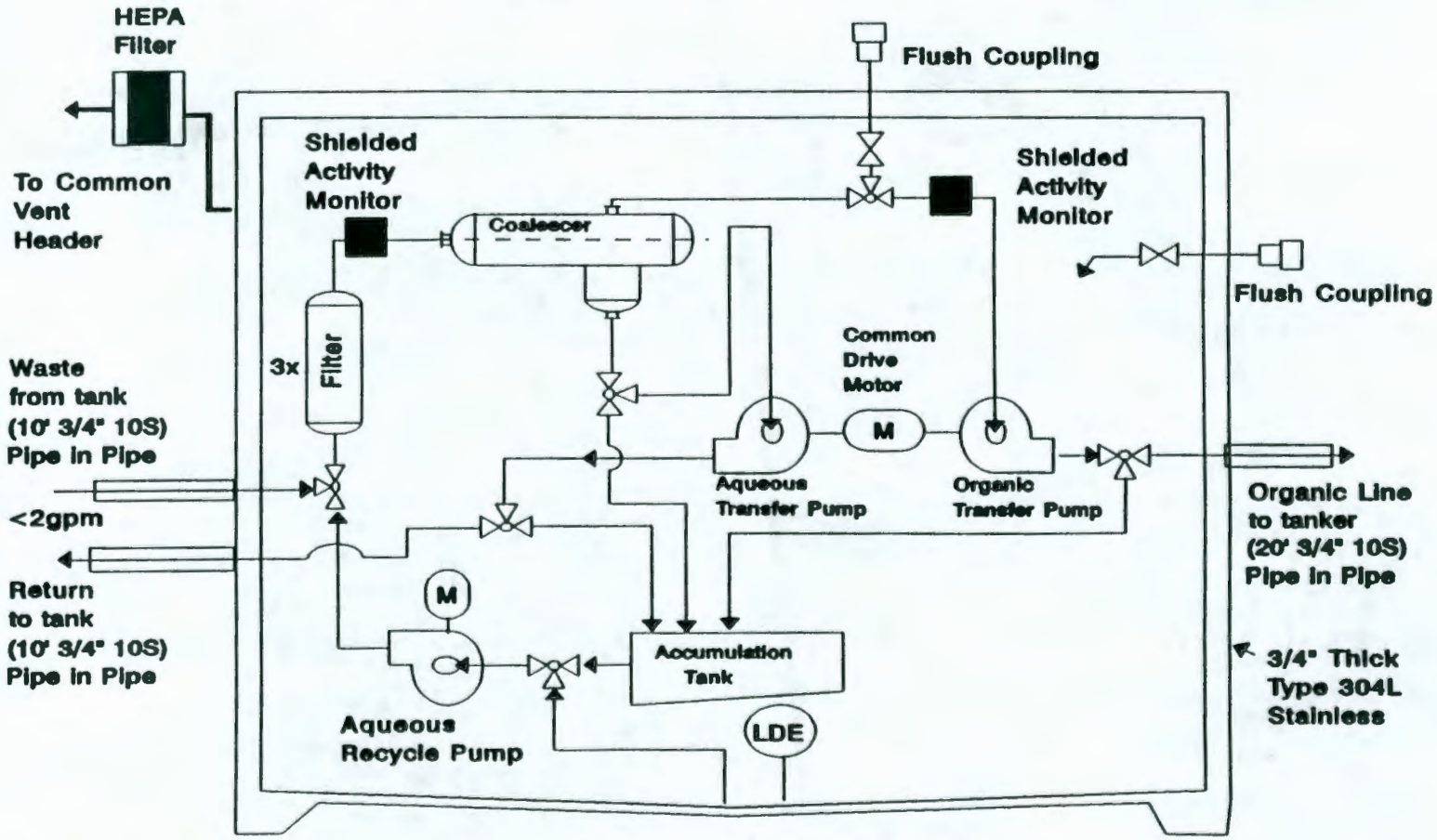
Tank Internal Detail
Weir Section



DWH:C103E:4/5/94

Separations Enclosure Detail



Coalescer Volume ~ 6.5 gallons Accumulation Tank ~ 26 gallons

DWH:C103D:4/5/94

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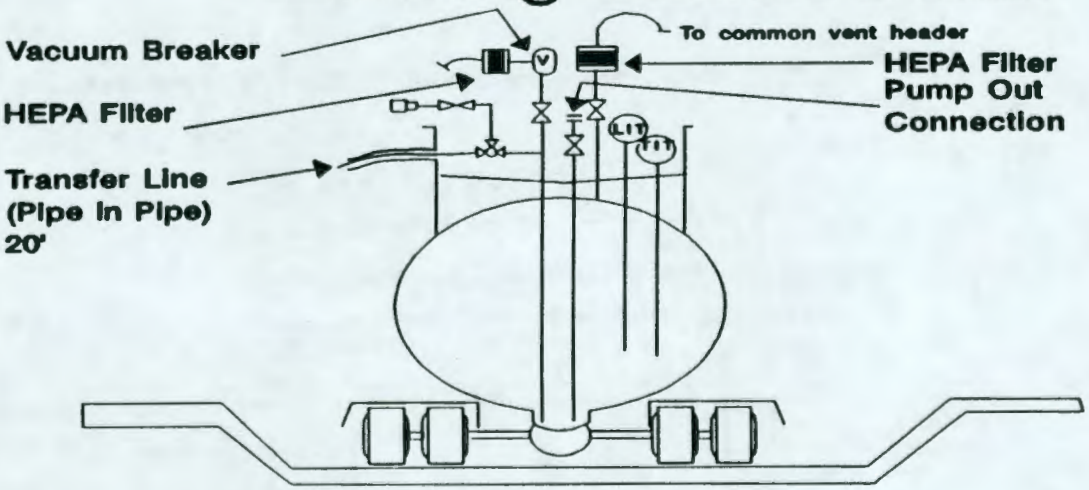
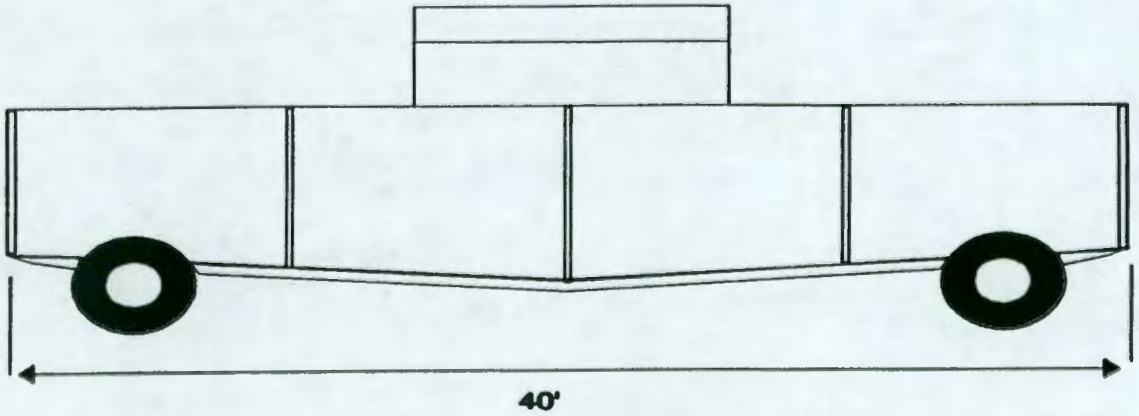
Loading Station Detail



Loading Station



Tanker Specifications

DOT MC312

Capacity:
5000 gal. nom.
5116 gal. max.

Pressure Rating:
40 psig design
60 psig tested

Thermal:
Design 125F

Construction:
3/16" Stainless steel
All welded

Drawing Ref: H-2-79957

DWH:C103C:4/4/94

REGULATORY IMPLICATIONS

Dangerous Waste Regulations

- Separations external to the tank constitute additional treatment
- Greater than 90-day storage pad required
  - Secondary containment of piping required
  - Separations enclosure provides secondary containment

Radioactive Emissions (NESHAP and RAEP)

- No impact as existing operations purged and breathe

Toxic Air Pollutants

- Minor process change

9513335.0539

REGULATORY PERMITTING REQUIREMENTS AND SCHEDULE

- PERMITS AND APPROVALS
  - WAC 173-303 NOI - request waiver as partial closure
  - WAC 173-303 Part A change
  - NESHAP - no change - notification at most
  - RAEP - no change - notification at most
  - TAPS - completing analysis to demonstrate no to insignificant change in aggregate.
  - SEPA Checklist required

REGULATORY PERMITTING REQUIREMENTS AND SCHEDULE - continued

- SCHEDULE

  Long lead item is NOI and Part A change - potentially >300 days. Could delay TPA Milestone completion if this long.

- TARGET SCHEDULE

  Complete permitting approvals and notifications by October 1, 1994.

  Initiate pumping circa November 1994.

  Complete pumping in approximately two months.

9513335.0540

TWRS BASELINE PLANNING

Program Element

Waste Tank Safety Program

WBS 1.1.1.2.02

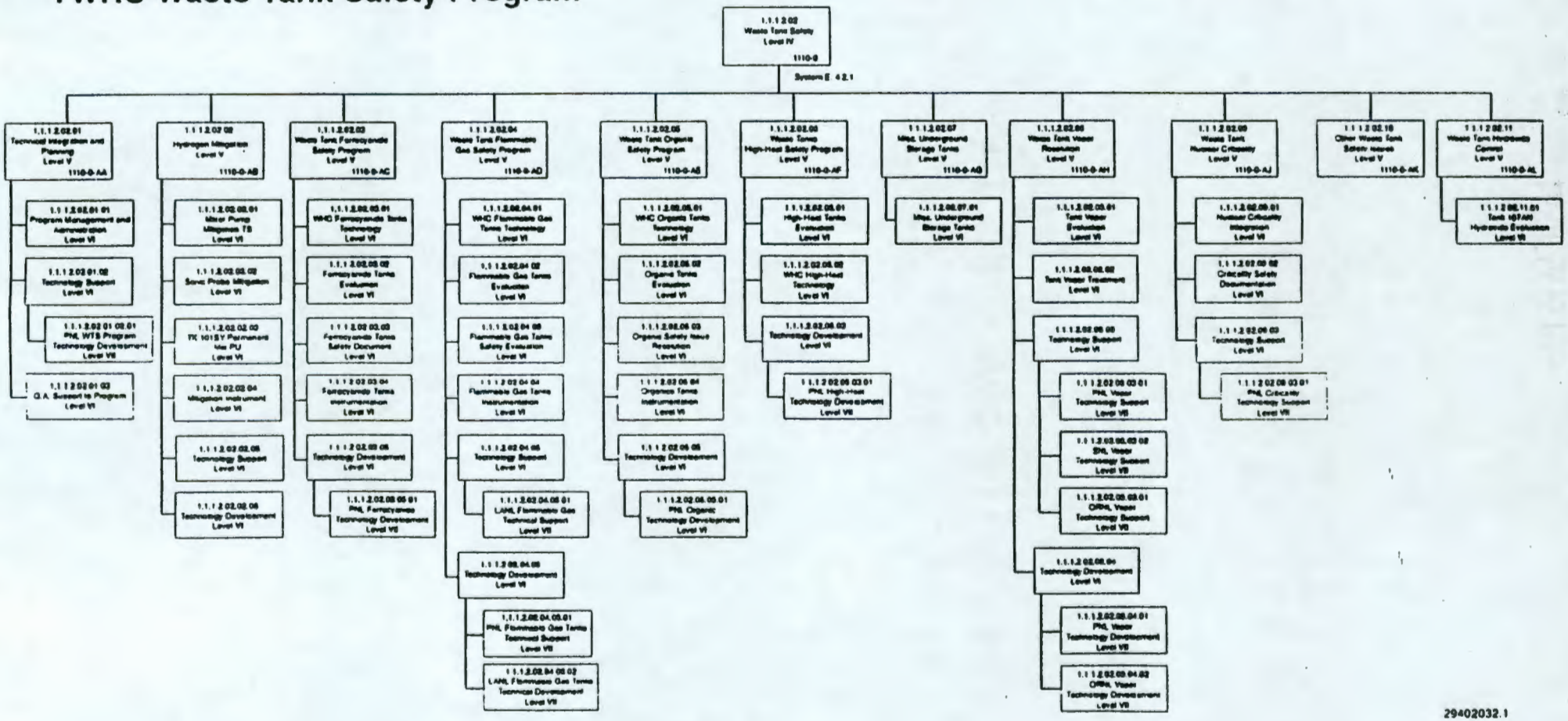
MA Payne, Manager

Greg A. Hanson
Office: 373-2079 (R2-08)
Home: 783-4779

9513335.0541

WORK BREAKDOWN STRUCTURE

TWRS Waste Tank Safety Program



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MILESTONES

SCHEDULED TPA MILESTONES

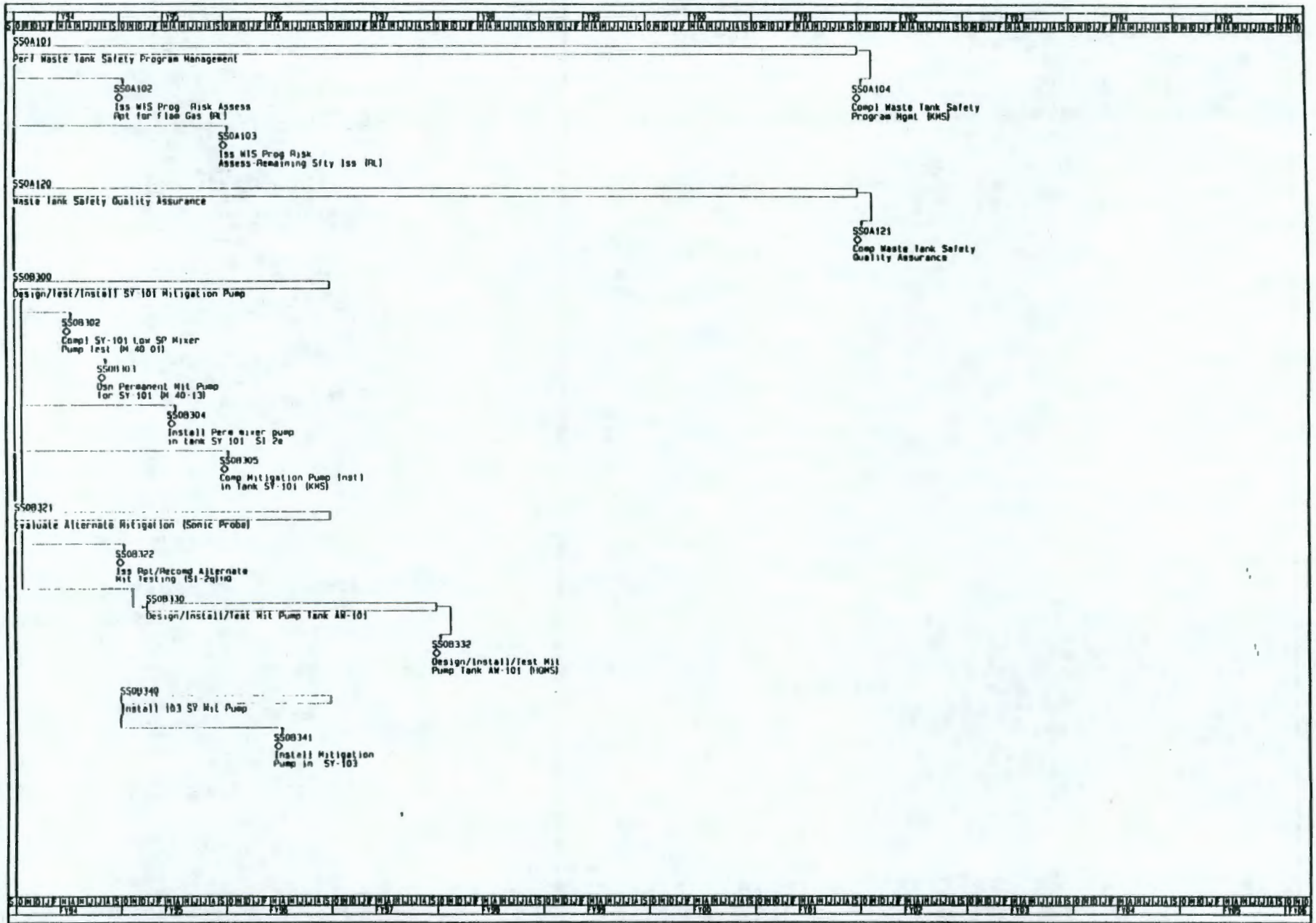
The following are the TPA major milestone (M-40-00) and the supporting interim milestones for Tank Safety Issue Resolution. These milestones were agreed to in the Tri-Party Agreement approved on January 26, 1994. A milestone date followed by an (A) indicates the actual completion date.

Tank Safety Issue Resolution

M-40-00	Mitigate/Resolve Tank Safety Issues for high priority Watch List tanks.	Sep 2001
M-40-01	Complete Tank 241-SY-101 low speed mixer pump test.	Mar 1994
M-40-14	Close Ferrocyanide Unreviewed Safety Question	Mar 1994
M-40-16	Complete Sampling and Safety Evaluation of Liquid Organic in Tank 241-C-103	Mar 1994
M-40-17	Close Tank 241-C-103 Unreviewed Safety Question	May 1994
M-40-11	Close the Unreviewed Safety Question for the Criticality Issue.	June 1994
M-40-13	Document 100% Design Completion of Permanent Mitigation Pump for Tank 241-SY-101	July 1994
M-40-06	Complete vapor sampling characterization of Tank 241-C-103 (Phase 2).	Aug. 1994
M-40-15	Install Gas Monitoring Equipment in the Remaining Five Potentially Flammable DSTs	Sept 1994
M-40-02A	Develop criteria for upgraded temperature monitoring capabilities in Ferrocyanide tanks.	Sept 1994
M-40-02B	Install Six of Twelve New Thermocouple Trees in Ferrocyanide Tanks	Sept 1994
M-40-02	Upgrade temperature monitoring capabilities in Ferrocyanide tanks.	Apr. 1995
M-40-04	Complete removal of floating organic layer from Tank 241-C-103.	June 1995
M-40-07	Commence operation of a Vapor Treatment System in Tank 241-C-103.	June 1995
M-40-05	Complete safety alternative test in high heat Tank 241-C-106.	Sep. 1995

M-40-03	Perform vapor characterization for all Ferrocyanide tanks.	Nov. 1995
M-40-08	Perform vapor characterization for all Organic Watch List tanks.	Nov. 1995
M-40-10	Complete vapor space monitoring for all Flammable Gas generating tanks.	Jan. 1997
M-40-09	Close all Unreviewed Safety Questions for SSTs and DSTs.	Sep. 1998
M-40-12	Resolve nuclear criticality safety issue.	Sep. 1999

MASTER OPERATING SCHEDULE



Plot Date 25FEB94
Data Date 10C193
Project Start 10C193
Project Finish 30SEP05

(c) Primavera Systems, Inc.

Act ID — Activity Bar/Early Dates; Critical Activity; Progress Bar; Milestone/Flag Activity

KYSP

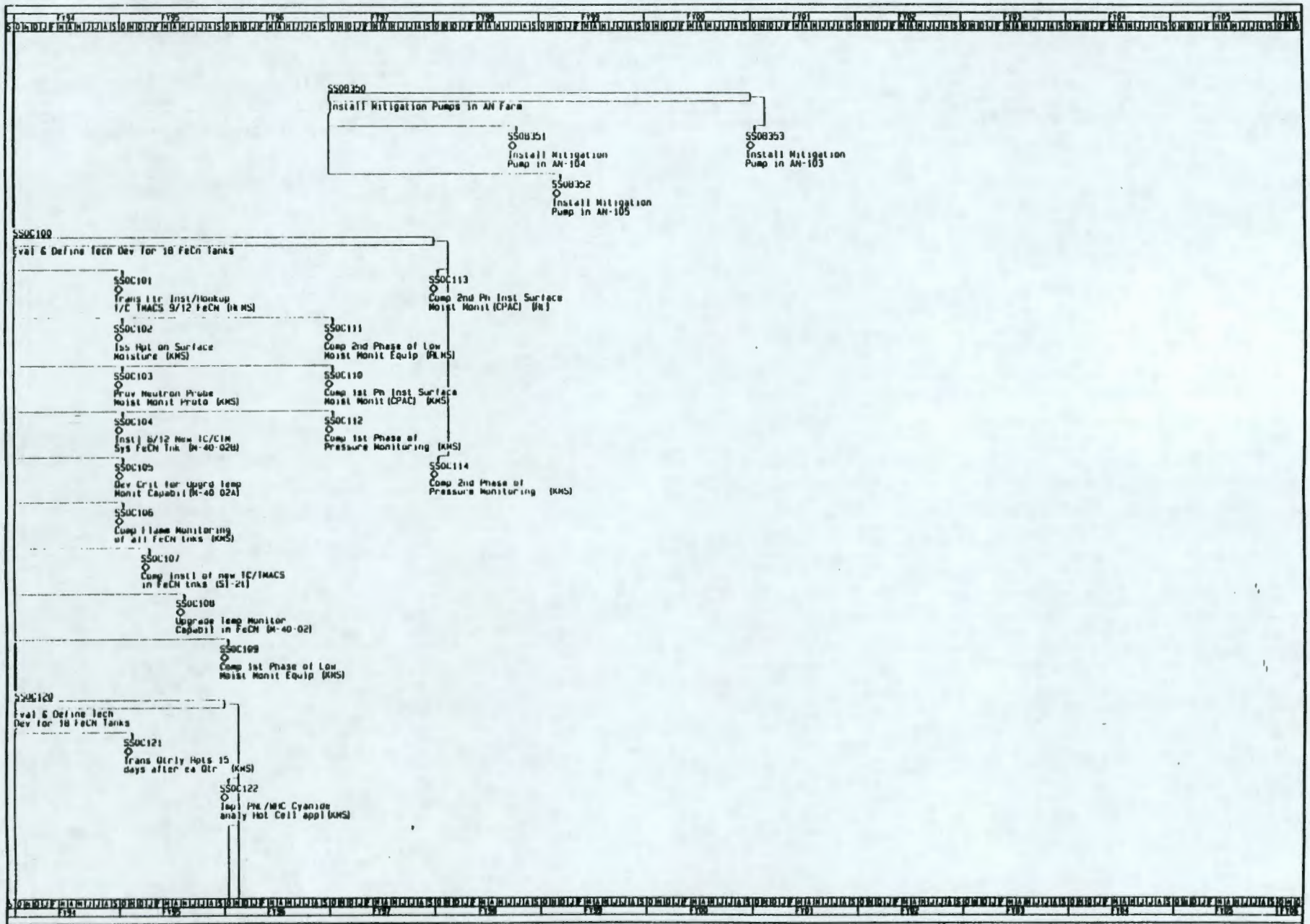
Sheet 1 of 9

TWRS PROGRAM ELEMENT SCHEDULE
1.1.1.2.02 WASTE TANK SAFETY
REV. 1 (2/23/94)

PREPARED BY L. YEATER 373-1903 hpIV

Date	Revision	Checked	Approved

9513335.0544



Plot Date 25FEB94
Data Date 10C193
Project Start 10C193
Project Finish 30SEP05

(c) Primavera Systems, Inc

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

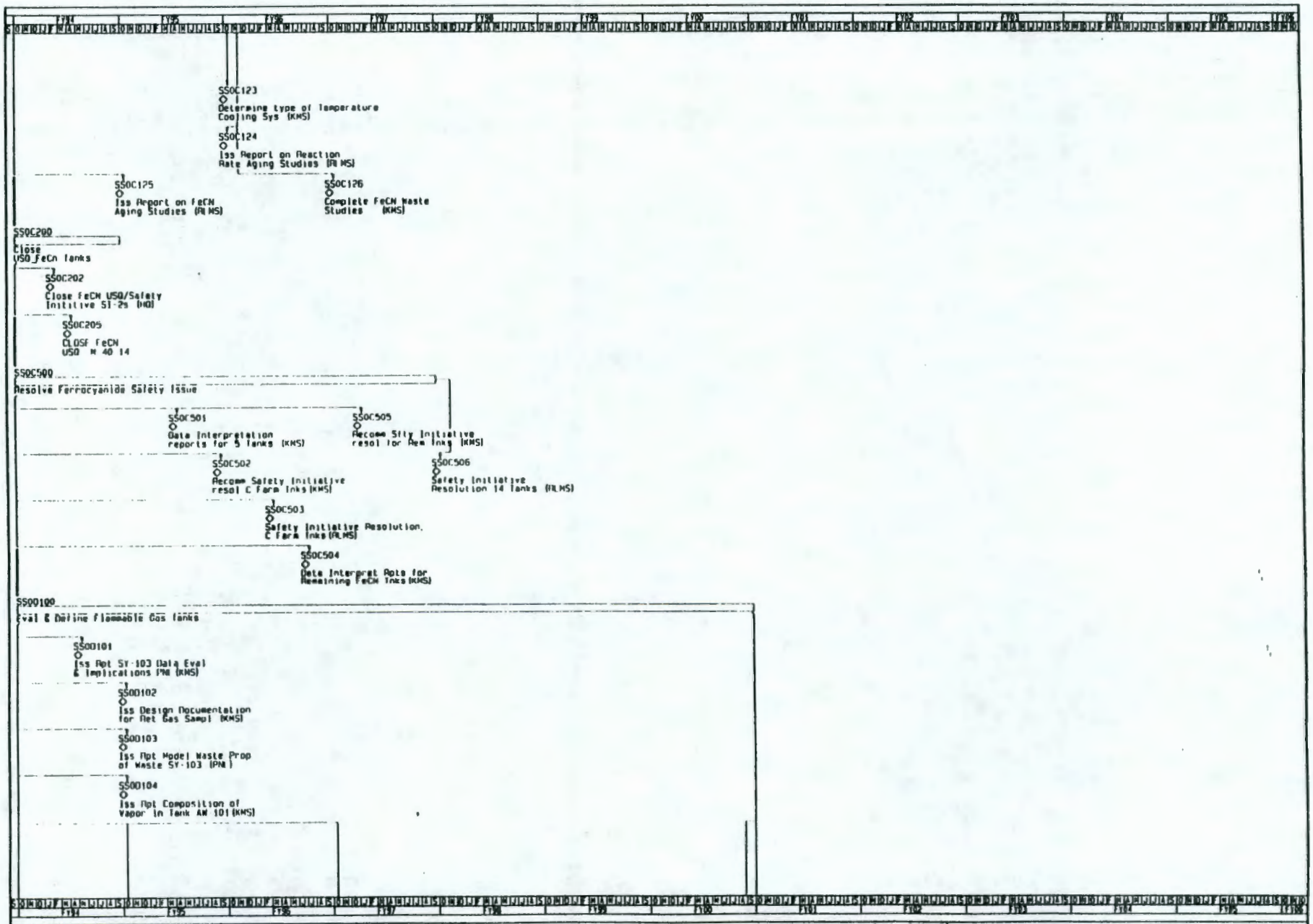
KYSP

Sheet 2 of 5

TWRS PROGRAM ELEMENT SCHEDULE
1.1.1.2.02 WASTE TANK SAFETY
REV. 1 (2/23/94)

PREPARED BY L. YEATER 373-1903 hplV

Date	Revision	Checked	Approved



Plot Date 25FEB94
Data Date 10CT93
Project Start 10CT93
Project Finish 30SEP05

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Act Id — Activity Bar/Early Dates; Critical Activity; Progress Bar; Milestone/Flag Activity

MYSP

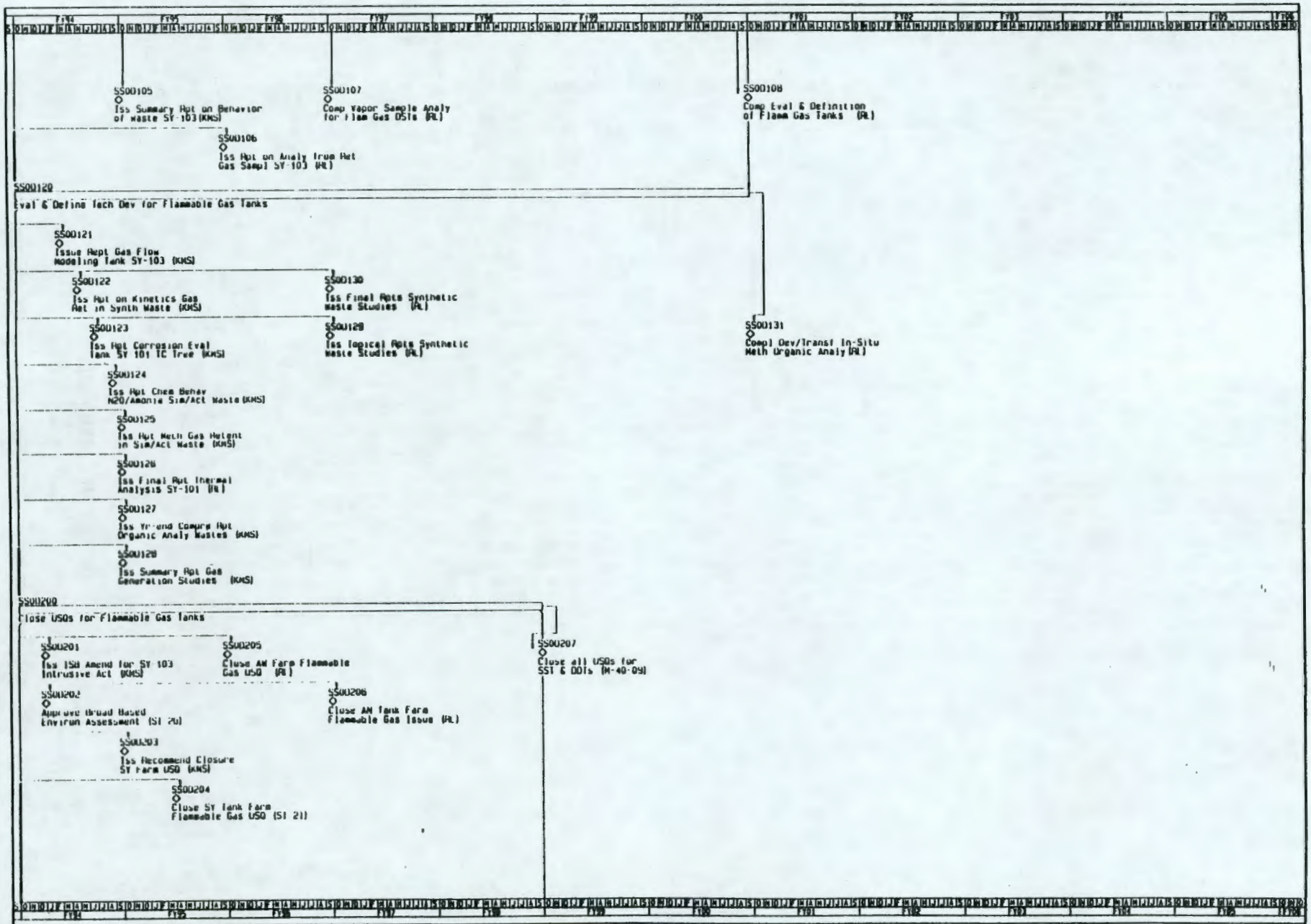
Sheet 3 of 5

TWRS PROGRAM ELEMENT SCHEDULE
1.1.1.2.02 WASTE TANK SAFETY
REV. 1 (2/23/94)

PREPARED BY L. YEATER 373-1903 hplV

Date	Revision	Checked	Approved

9513335.0545



Plot Date 25FEB94
Data Date 10CT93
Project Start 10CT93
Project Finish 30SEP05

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

Sheet 4 of 5

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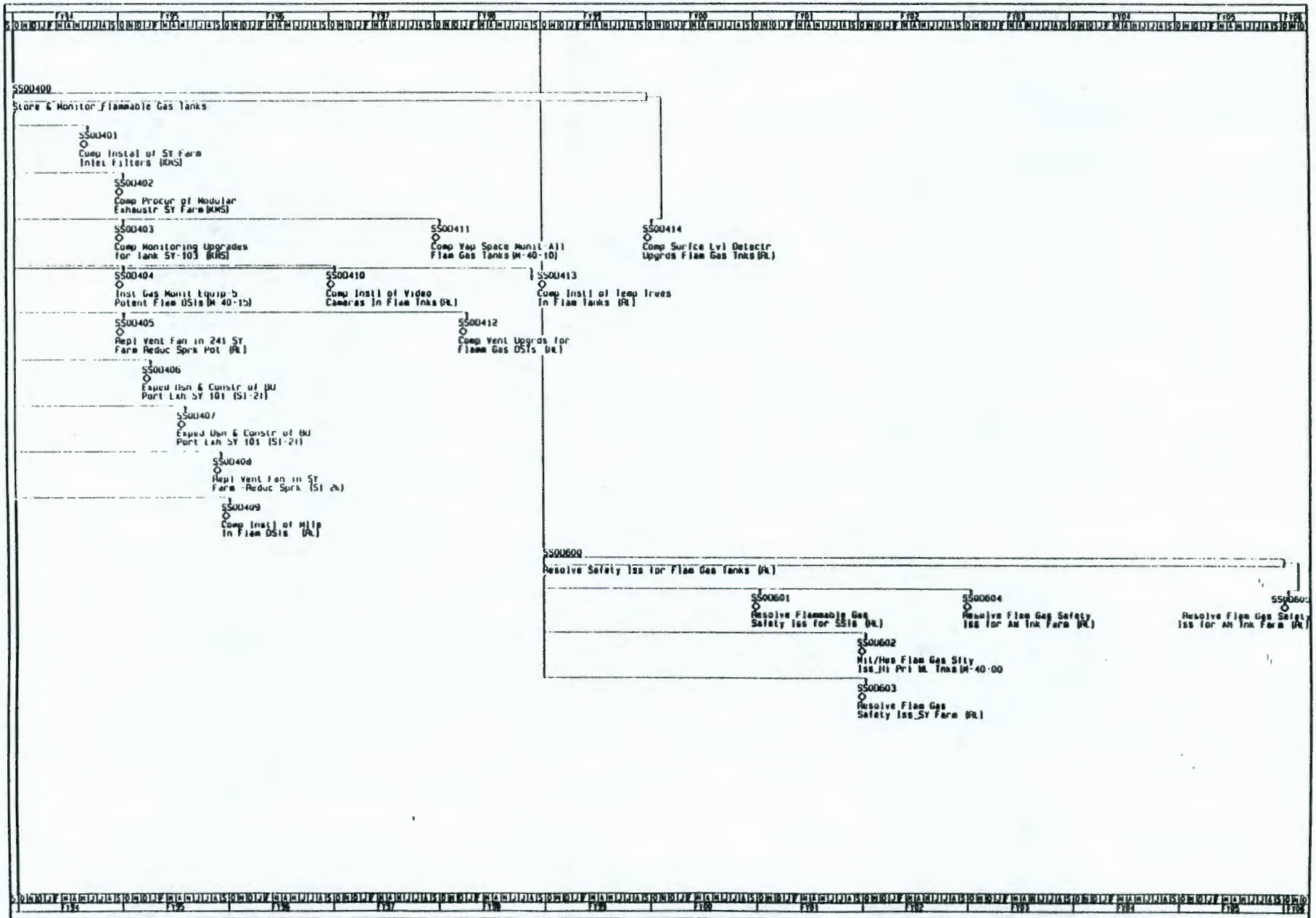

Plot Date 25FEB94
Data Date 10CT93
Project Start 10CT93
Project Finish 30SEP05

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act id — Activity Bar/Early Dates
Critical Activity
Progress Bar
Milestone/Flag Activity

Sheet 5 of 5

TWRS PROGRAM ELEMENT SCHEDULE
1.1.1.2.02 WASTE TANK SAFETY
REV. 1 (2/23/94)

PREPARED BY L. YEATER 373-1903 np1V

Date	Revision	Checked	Approved

9513335.0546

FY94 FY95 FY96 FY97 FY98 FY99 FY00 FY01 FY02 FY03 FY04 FY05 FY06

SSOE 100
Evaluate and Define for Organic Tanks

SSOE 101
Comp Samp/Sfty Eval of C-103 Org (IPA N-40 16)

SSOE 102
Comp Samp/Safty Eval of Organics in C-103 (WHO)

SSOE 110
Eval & Define Tech Dev for Org Tanks

SSOE 121
Iss Program Plan Report to DOE-RL (KMS)

SSOE 124
Iss Rpt on Tank Safety Criteria w/sim waste (KMS)

SSOE 122
Iss Recomend for Org Tanks WL To DOE HQ (DK)

SSOE 125
Iss Rpt on Tank Safety Criteria w/act waste (WU)

SSOE 123
Iss Status Rpt for Org Solubility Study (KMS)

SSOE 510
Resolve Safety Issue Organic Tanks

SSOE 512
Recomd Org tanks Safety Iss Resolut (WU)

SSOE 511
Recomd Tank C 103 Safety Iss Resolut (DK)

SSOE 220
Close USQ C-103 Organic Tanks

SSOE 221
Close Tank C 103 USQ SI 2) (WHO)

SSOE 222
Close Tank 241-C 103 USQ (IPA N 40-17)

SSOE 300
Mitigate C-103 Organic Issue

SSOE 301
Iss Status Rpt of Rem/Disp of Org Layer (KMS)

SSOE 302
Comp of Select Mitig Concepts- Org tanks (WU)

SSOE 303
Remove Organic Layer from Tank C-103 (SI-2v)

SSOE 304
Comp Rem of Float Org Layer from C-103 (N 40 04)

FY94 FY95 FY96 FY97 FY98 FY99 FY00 FY01 FY02 FY03 FY04 FY05 FY06

Plot Date 25FEB94
Data Date 10CT93
Project Start 10CT93
Project Finish 30SEP05

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ES 10 — Activity Bar/Early Dates
Critical Activity
Progress Bar
Milestone/Flag Activity

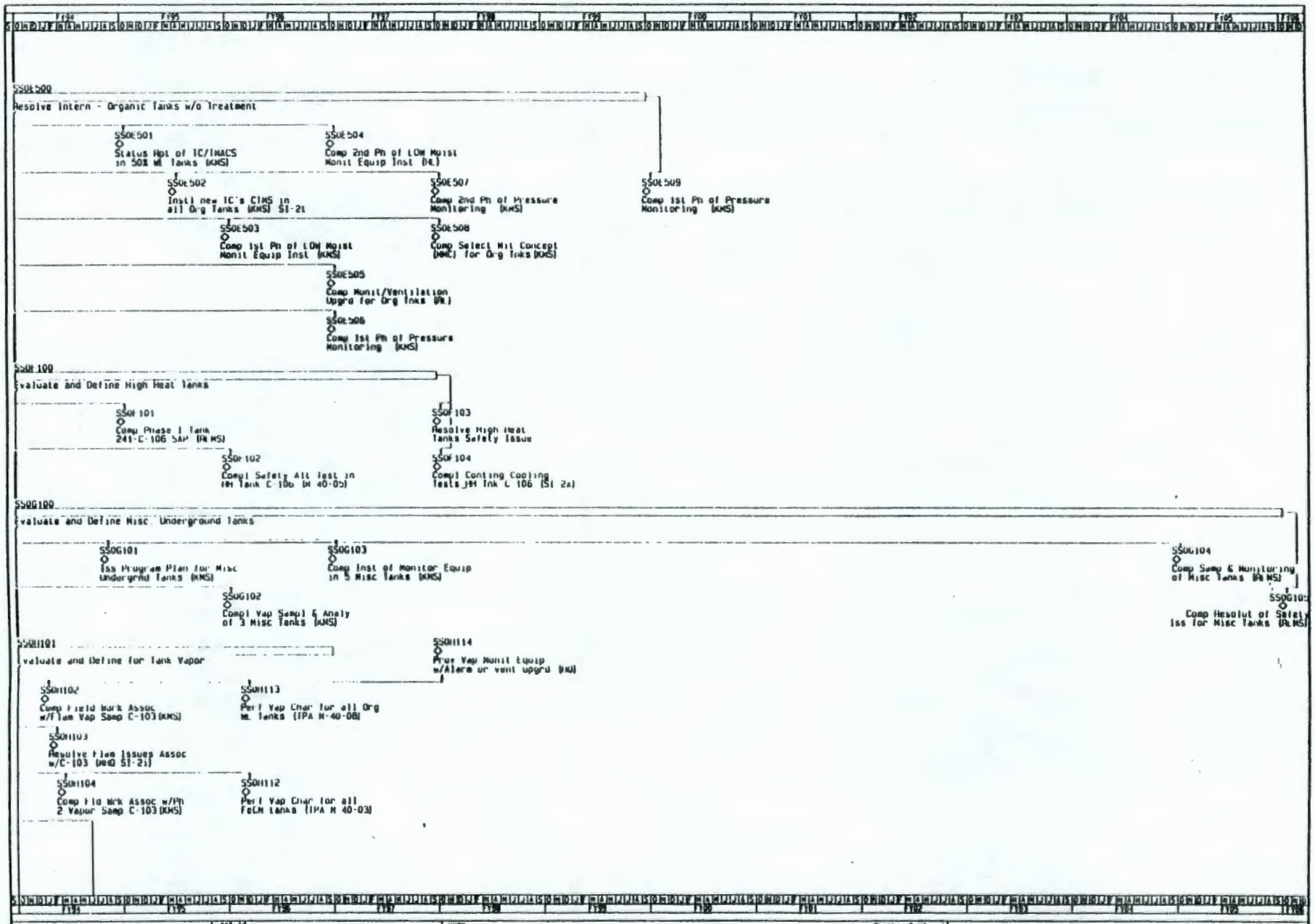
HTSP

Sheet 1 of 4

TWRS PROGRAM ELEMENT SCHEDULE
1.1.1.2.02 WASTE TANK SAFETY
REV. 1 (2/23/94)

PREPARED BY L. YEATER 373-1903 hp1V

Date	Revision	Checked	Approved



Plot Date 25FEB94
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Project Finish 30SEP05

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

HYSP

Sheet 2 of 4

TWRS PROGRAM ELEMENT SCHEDULE
1.1.1.2.02 WASTE TANK SAFETY
REV. 1 (2/23/94)

PREPARED BY L. YEATER 373-1903 hplV

Date	Revision	Checked	Approved

9513335.0547

SS011105
Comp Quant Analy By
SNL/Ogist of Vap C-103 (KMS)

SS011106
Comp Vap Samp/Char Analy
of C 103 (SI-2m) (KMS

SS011107
Comp Vap Samp Char of
Tank C-103 (N 40 Db)

SS011108
Compl Ph 3 Vap Samp/Char
of Suspect Tanks (KMS)

SS011109
Comp Fld Wk Assoc w/Ph
3 Vap Samp Tanks (KMS)

SS011110
Iss Annual Rpt on Ph
1, 2, 3/In-situ Vap Samp (KMS)

SS011111
Samp & Char Remaing
Suspect Tanks SI-2m (KM)

SS011121
Eval & Define-Tech Dev for Tank Vapor

SS011122
Del Rpt Spec Quant
Analy to Prg Mgr (KMS)

SS011123
Del Rpt on Quantitive
Analysis of C-103 Vap (KMS)

SS011124
Enhance Summa Analysis
Capability at PNL (KMS)

SS011125
Enhance Multi-Sorbent
Tube Analy at ORNL (KMS)

SS011321
Mitigate - Tech Dev
for Tk Vapor Safety

SS011322
Oper of Vap Flow Monitor
Device in C 103 (KMS)

SS011501
Resolve Internal Tk Vapor Issues

SS011502
Comp EA for Treat of
C-103 Vap Space SI 2m (NKO)

Plot Date 25FEB94
Data Date 10CT93
Project Start 10CT93
Project Finish 30SEP05

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

KYSP

Sheet 3 of 4

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REV. 1 (2/23/94)

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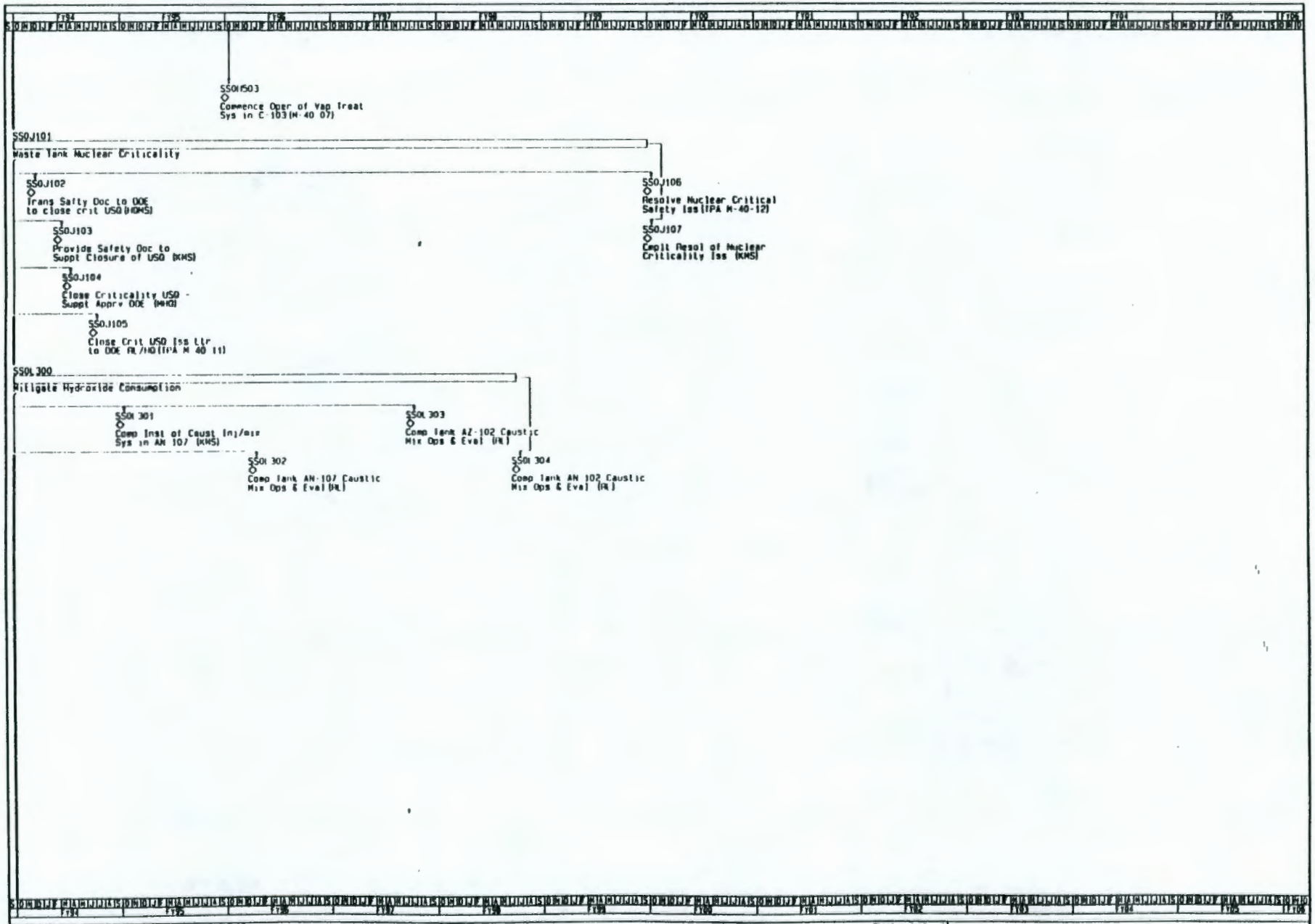


Plot Date 25FEB94
Data Date 10C193
Project Start 10C193
Project Finish 30SEP05

(c) Primavera Systems, Inc.

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

HYSP

Sheet 4 of 4

TWRS PROGRAM ELEMENT SCHEDULE
1.1.1.2.02 WASTE TANK SAFETY
REV. 1 (2/23/94)

PREPARED BY L. YEATER 373-1903 hplV

Date	Revision	Checked	Approved

9513335.0548

BUDGET ESTIMATES

WESTINGHOUSE HANFORD

PRIMAVERA PROJECT PLANNER

REPORT DATE 04MAR94 RUN NO. 348
11:58

COST LOADING REPORT

R005:Total Cost by Fiscal Year-Summary By Act

TOTAL USAGE FOR YEAR

ACT ID	DESC	TOTAL	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005
1120201 -														
SS0A101	Perf Waste Tank Safety Program Management	49261	6258	6258	6258	6258	6258	6258	6258	5458				
SS0A120	Waste Tank Safety Quality Assurance	13267	1711	1711	1711	1711	1711	1711	1711	1288				
TOTAL	1120201	62528	7969	7969	7969	7969	7969	7969	7969	6746				
1120202 -														
SS0B300	Design/Test/Install SY-101 Mitigation Pump	45094	20789	20670	3634									
SS0B321	Evaluate Alternate Mitigation (Sonic Probe)	4431	1193	1460	1777									
SS0B330	Design/Install/Test Mit Pump Tank AW-101	17716		1643	6886	9186								
SS0B340	Install 103-SY Mit Pump	24342		3649	20692									
SS0B350	Install Mitigation Pumps in AN Farm	95295				21394	25193	25316	23392					
TOTAL	1120202	186877	21982	27423	32989	30580	25193	25316	23392					
1120203 -														
SS0C100	Eval & Define for 18 FeCn Tanks	18204	4793	5250	4638	3522								
SS0C120	Eval & Define Tech Dev for 18 FeCN Tanks	7279	3865	3414										
SS0C200	Close USQ_FeCn Tanks	474	474											
SS0C500	Resolve Ferrocyanide Safety Issue	5624	1269	1469	1451	1435								
TOTAL	1120203	31581	10401	10133	6090	4957								
1120204 -														
SS0D100	Eval & Define Flammable Gas Tanks	20427	3244	3460	3142	2952	2731	2549	2348					
SS0D120	Eval & Define Tech Dev for Flammable Gas Tanks	23291	3300	4122	4065	3433	2868	2751	2751					
SS0D200	Close USQs for Flammable Gas Tanks	7388	1965	1726	1518	1209	971							
SS0D400	Store & Monitor Flammable Gas Tanks	49768	8761	9791	11142	9243	6838	3993						
SS0D600	Resolve Safety Iss for Flam Gas Tanks (RL)	2086						411	374	338	298	258	222	185
TOTAL	1120204	102960	17270	19099	19868	16837	13407	9705	5474	338	298	258	222	185
1120205 -														
SS0E100	Evaluate and Define for Organic Tanks	2868	527	685	983	674								
SS0E110	Eval & Define Tech dev for Org Tanks	12209	1336	2259	3007	3000	2001	606						
SS0E220	Close USQ C-103 Organic Tanks	399	399											
SS0E300	Mitigate C-103 Organic Issue	10232		1836	3527	4869								
SS0E500	Resolve Intern - Organic Tanks w/o Treatment	58932	4137	4778	12456	13689	12889	10983						
SS0E510	Resolve Safety Issue Organic Tanks	134			134									
TOTAL	1120205	84773	6399	9557	20107	22232	14889	11589						

WESTINGHOUSE HANFORD

PRIMAVERA PROJECT PLANNER

REPORT DATE 04MAR94 RUN NO. 348
11:58

COST LOADING REPORT

R005:Total Cost by Fiscal Year-Summary By Act

TOTAL USAGE FOR YEAR

ACT ID	DESC	TOTAL	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005
1120206 -														
SS0F100	Evaluate and Define High Heat Tanks	3017	1299	955	446	317								
TOTAL	1120206	3017	1299	955	446	317								
1120207 -														
SS0G100	Evaluate and Define Misc. Underground Tanks	15819	295	1008	1356	1518	1637	1652	1672	1688	1588	1458	1322	626
TOTAL	1120207	15819	295	1008	1356	1518	1637	1652	1672	1688	1588	1458	1322	626
1120208 -														
SS0H101	Evaluate and Define for Tank Vapor	7987	5053	2588	346									
SS0H121	Eval & Define-Tech Dev for Tank Vapor	2924	1737	1188										
SS0H321	Mitigate - Tech Dev for Tk Vapor Safety	503	346	157										
SS0H501	Resolve Internal Tk Vapor Issues	1683	362	1322										
TOTAL	1120208	13097	7497	5255	346									
1120209 -														
SS0J101	Waste Tank Nuclear Criticality	8029	855	1585	1774	1774	1185	855						
TOTAL	1120209	8029	855	1585	1774	1774	1185	855						
1120211 -														
SS0L300	Mitigate Hydroxide Consumption	7976	1741	1943	2089	1505	698							
TOTAL	1120211	7976	1741	1943	2089	1505	698							
	REPORT TOTAL	516657	75708	84928	93033	87688	64979	57086	38507	8771	1886	1716	1544	811

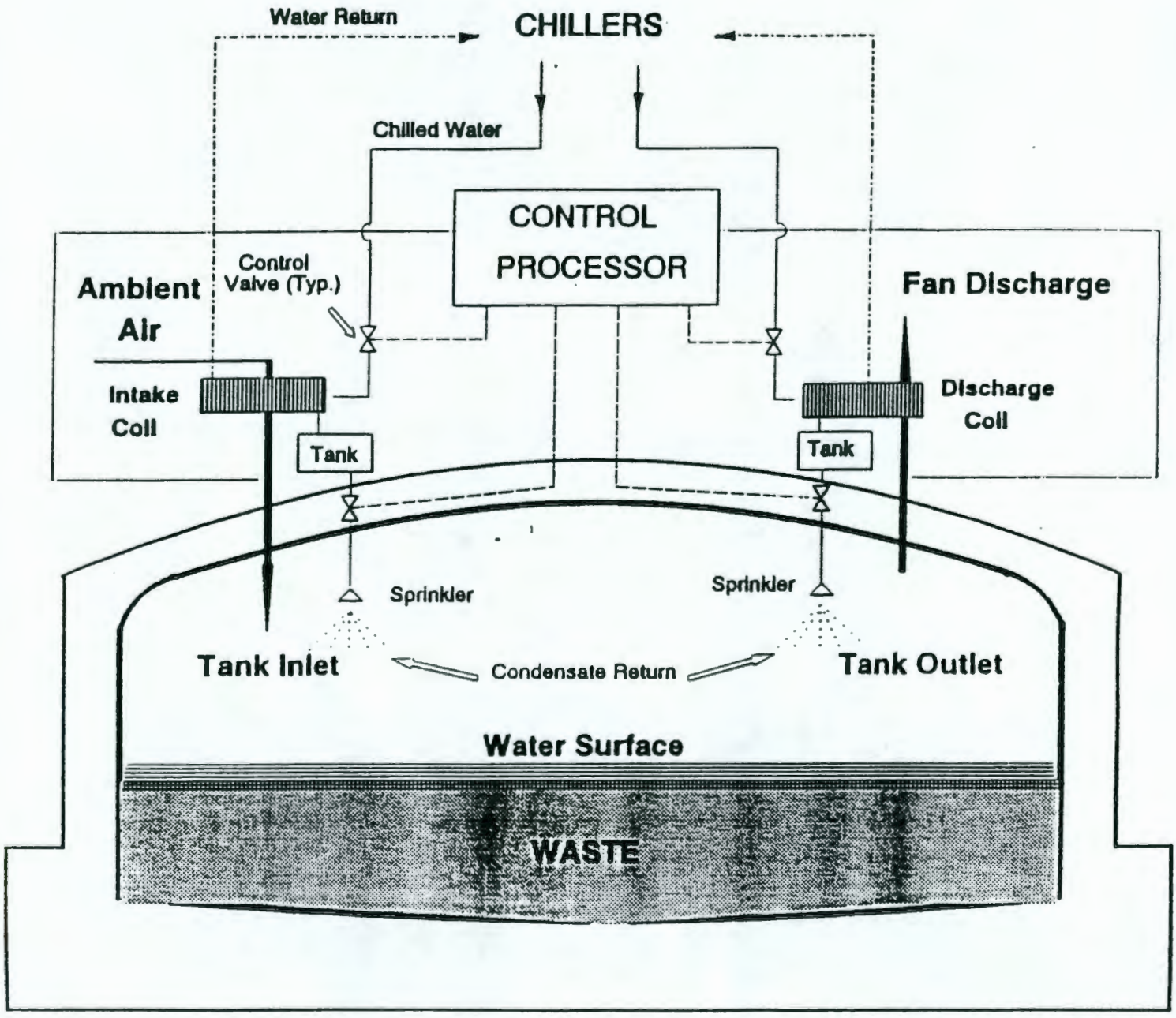
HIGH-HEAT TANK 241-C-106 STATUS REPORT

- PROCESS TEST TO REDUCE DRAINABLE LIQUID
  - REDUCE DRAINABLE LIQUID TO MINIMIZE POTENTIAL ENVIRONMENTAL CONCERN
  - FACILITATE RETRIEVAL IN 1966
- CONTINGENCY SYSTEM DESIGN AND ACTION PLAN
  - HEAT LOAD REEVALUATION
  - AIR-CHILLER DESIGN FOR LEAKING TANK
  - SPRINKLER/ATOMIZER OPTION
- 1996 RETRIEVAL (PROJECT W-320)
  - ON TIME FOR 10/96 RETRIEVAL
  - 70% RETRIEVAL NEEDED FOR SAFETY ISSUE RESOLUTION
- CORROSION CONTROL (TREATED WATER AND LOW OPERATING TEMPERATURES)
  - DEARBORN-66 (SODIUM SULFITE) AT pH = 10
  - LOW LINER TEMPERATURE AT < 140 deg-F
- CORE SAMPLE ANALYSES
  - CONFIRMATION OF THERMAL CONDUCTIVITY, PERMEABILITY AND HEAT PROFILE
- PROGRAM PLAN

FY 1994 -	PROCESS TEST, CONTINGENCY SYSTEM DESIGN, AND CORE SAMPLE ANALYSES
FY 1995 -	EVALUATION OF PT AND SAMPLING RESULTS, PRERETRIEVAL SUPPORT, AND CONTINGENCY ACTION UPDATE
FY 1996 -	RETRIEVAL INTEGRATION/SUPPORT, RESOLUTION OF HIGH-HEAT SAFETY ISSUE, AND DOCUMENTATION (TPA MILESTONES AND SAFETY INITIATIVES)

OTHER HIGH-HEAT TANKS

- TANK 241-C-105
  - ONGOING PROCESS TEST FOR INTERIM STABILIZATION
- TWO A-FARM AND SEVEN SX-FARM TANKS
  - REASSESSMENT OF HEAT LOADS
  - MOST WILL BE REMOVED FROM HIGH-HEAT LIST



Proposed Cooling Arrangement for Tank C-106

FIGURE 4

(11)

Single-Shell Tanks
Interim Stabilization/Isolation

T. E. Rainey

Single-Shell Tank Unit Managers Meeting

April 12, 1994

ACCOMPLISHMENTS

- Emergency Pumping 241-T-111
  - Schedule for emergency pumping established
  - Liquid Samples taken for T-111 and SY-102
  - Emergency pumping skid equipment calibrated
  - Jet pump run-in
  - Jet pump jumper pressure tested
  - West Tank Farm Operations trained
  - Pressure testing of transfer line completed

9513335.0552

PLANNED ACTIVITIES

WORKING TPA MILESTONES

Prepare to emergency pump tank 241-T-111

Prepare to pump tanks 241-BY-102 and 109 (M-41-01-T3)

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

Continue restoration of 244-U double-contained receiver tank (M-41-02-T2)

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

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

Provide the draft curriculum for the upgraded Maintenance Training Program and implementation schedule (M-41-06)

ISSUES/CONCERNS	CORRECTIVE/ACTION
Emergency Pumping 241-T-111 may remove resources from other activities.	Impacts to other programs and milestones being assessed. Impacts to TPA milestones will be negotiated.

9513335.0553

Handout 12 (12) SA104

Tank Stabilization & Engineering Support

D. B. Engelman
Unit Managers Meeting

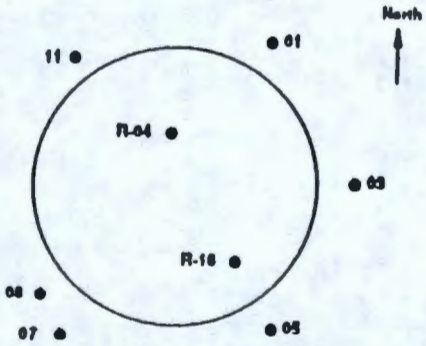
April 12, 1994

BACKGROUND

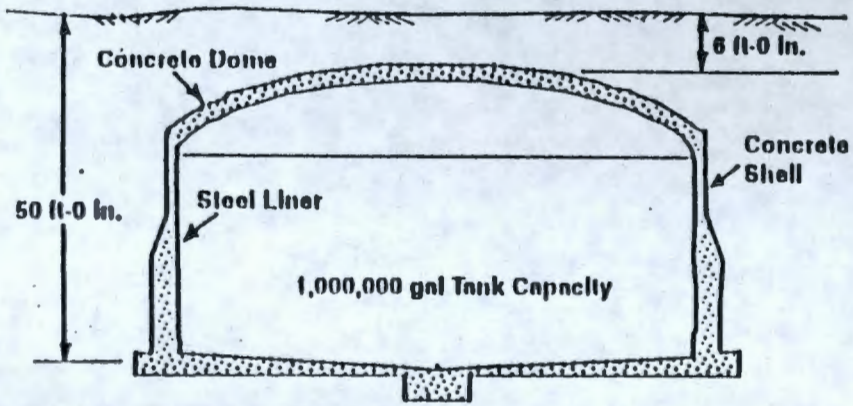
- SX-104 LOWs have both failed
- No liquid level measurements
- Attempting to obtain level measurement
- Hydrogen Watchlist tank

9613335.0554

241-SX-104



Riser and Drywell Locations
Tank 241-SX-104



75 ft Diameter Single-Shell Tank
Tank Farms: A*, AX*, SX

* A and AX have flat bottoms

- 1 Million gallon capacity
- Hydrogen Watchlist
- Assumed Leaker
- Nothing detected in dry-wells
- Partially Interim Isolated - 1985

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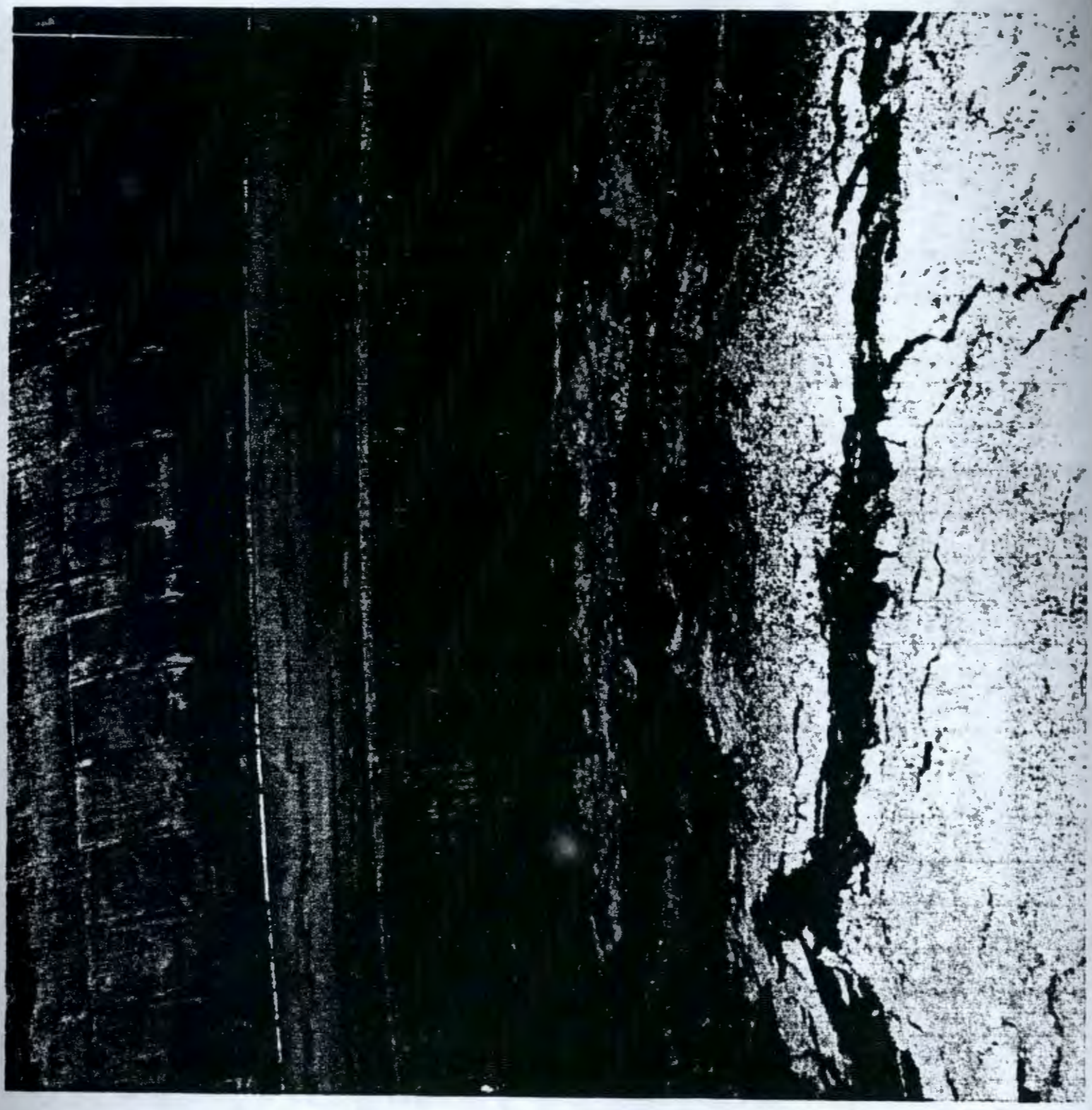

241-SX-104 FAILED LOW INVESTIGATION

PARAMETER	RISER 14	RISER 16
Material	TEFZEL	Fiberglass
Gauge	40.5 feet	20-25 feet
Conductivity	None	None
Plummet	No Moisture	Dry, Dusty
Gas Sample	8.1 PPM Organic 2 PPM NH_3	No Organics or Flammable
Radiation Level	>1 million dpm through 1 mil plastic bag	30,000 dpm Beta/Gamma

NOTE:

1. Projected ILL at about 213 inches (17.75 feet).
   Expected to see liquid in LOW at about 34.8 feet from riser top.

2. Flammable Gas Watch List tank.

241-SX-104 FAILED LOW INVESTIGATION

PLANNED ACTION

- Determine feasibility of an ILL measurement through sleeved LOW (Riser 14)
- Place H_2 monitor in SX-Farm exhaust header
- Develop safety assessment:
  - Decision/Activity Logic
  - LANL H_2 SST bounding analysis
  - Topical Report on Flammable Gas SST's
- Develop resource-loaded schedule for LOW replacement

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W-340, Tank 241-C-106 Manipulator Retrieval System

Management Review

March 23, 1994

Management Review Meeting

February 1994

W-340, Tank 241-C-106 Manipulator Retrieval System

HQ Project No. 96L-EWW-340

Description

FY 1997 Major System Acquisition (MSA) [Candidate Project]
Program: Retrieval
ADS No: 1210-0-AQ
WBS No.:1.1.2.2.11
Project Authorization No. N/A

TEC: $77.6M
TPC: $115.1M
B&R No. EW3130010
Authorized Funds: $2,200K

The Tank 241-C-106 Manipulator Retrieval System will provide an arm-based waste retrieval system to remove the hard heel waste in tank 241-C-106. The project includes utility upgrades and tank modifications required to deploy and operate the retrieval system

Project Team

WHC PM: J. M. Henderson
WHC PE: L. B. McDaniel/D. C. Ramsower
RL PE: P. T. Furlong
KEH DM: W. D. Gallo

Milestones

		Current	Forecast
RL TBD-94-210	Complete F&R for LRM Project	01/30/94	03/02/94 (A)
RL TDB-94-248	Hazard Classification	01/30/94	02/11/94 (A)
RL TDB-94-250	LRM Procurement Specification	07/30/94	07/30/94
RL TDB-94-249	Conceptual Design Criteria	06/30/94	06/30/94

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Project Status

- The F&OR document was approved by WHC, and will be transmitted to RL for approval the first week of March
- Pre-procurement plan was approved by WHC and will be issued during the first week in March
- Environmental documentation plan was approved by WHC and will be issued during the first week in March
- Detailed replanning underway to delay conceptual design while proceeding with the procurement specification development. Change request drafted; to be reviewed with RL in March. See issues section
- Procurement specification development underway. EM-30 is now funding all work on the Retrieval System Procurement Specification, including support from ORNL, SNL, and PNL

Project Status (Cont)

Significant Issues - Proposed Action

- Procurement specification is still behind schedule

  Proposed Action: Additional resources have been placed on the development of the procurement specification. Expected completion date of May 30, 1994. Resources include team from LATA, BNFL, TRW, and SWRI

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Upcoming Activities

- Submit W-340 F&OR to RL for approval (March 1994)
- Begin work on Preliminary Safety Equipment List (March 1994)
- Submit change request for FY-94 replanning (April 1994)
- Accelerate work on Retrieval System Procurement Specification

W-340, Tank 241-C-106 Manipulator Retrieval System HQ Project No. 96L-EWW-340

Variance Analysis

Schedule Variance

Engineering

- One engineering study not completed (Operations Requirements) - forecast completion April 1, 1994
- Conceptual Design Criteria document on hold; to be addressed in Project change request
- F&ORs completed one month late - delayed from Program Office comments

Procurement

- Procurement specification development delayed due to lack of resources - Resources have been identified and specification development is underway. The RFP is still targeted for July 1994

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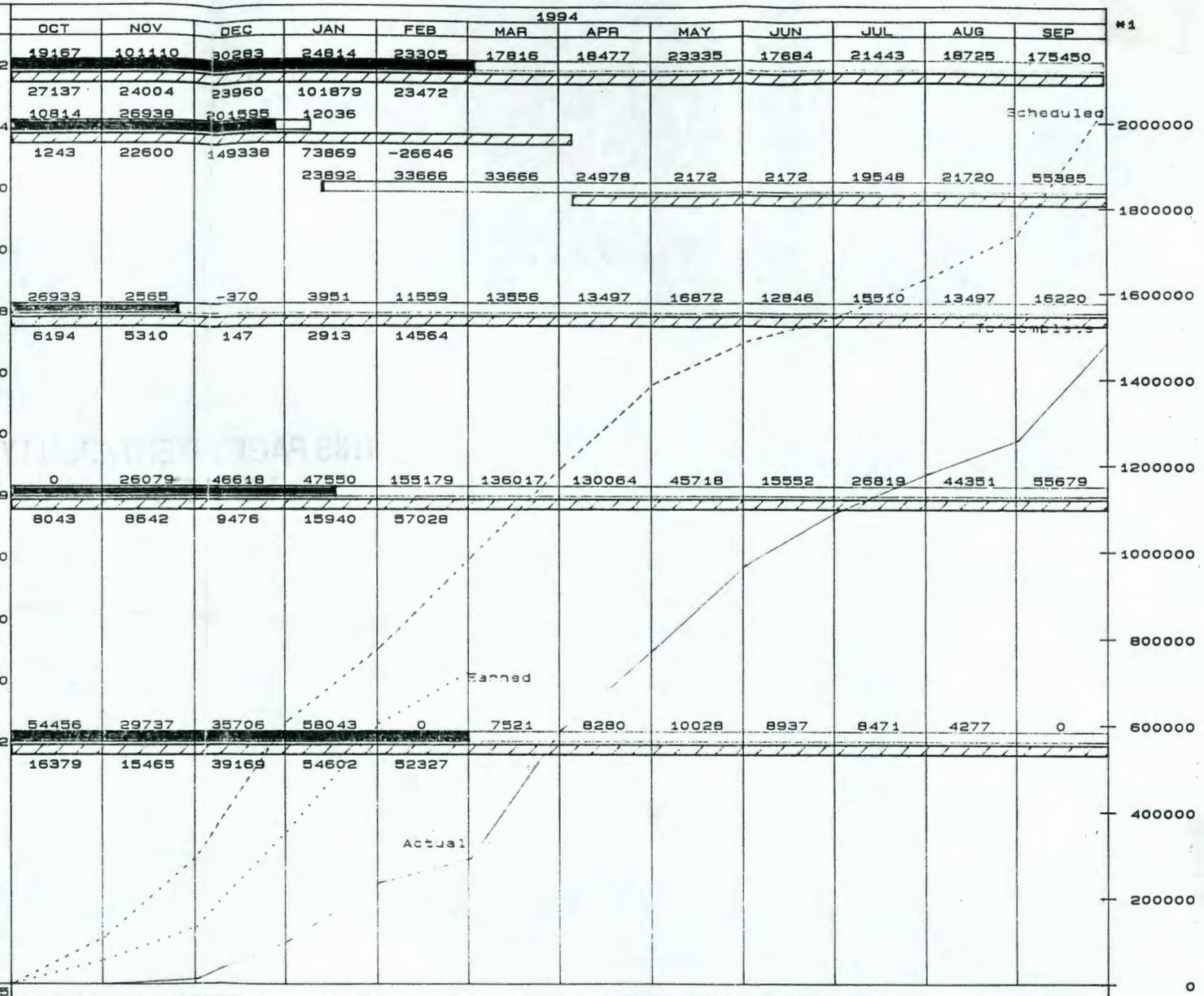
	Budg	WT %	BCWS	BCWP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
					1994											
1-D2-Q-01-AA W-340 PROJECT MANAGEMENT WORK PACKAGE	491610	24	198680	200452	19167	101110	30283	24814	23305	17816	18477	23335	17684	21443	18725	175450
					27137	24004	23960	101879	23472							
1-D2-Q-01-BB W-340 ENGINEERING STUDIES WORK PACKAGE	234790	11	234790	220404	10814	26938	201595	12036								
					1243	22600	149338	73869	-26646							
1-D2-Q-01-DD W-340 CDR WORK PACKAGE	217199	11	57558	0				23892	33666	33666	24978	2172	2172	19548	21720	55385
1-D2-Q-01-GG W-340 DETAILED DESIGN WORK PACKAGE	0	0	0	0												
1-D2-Q-01-HH W-340 PERMITTING WORK PACKAGE	146636	7	44638	29128	26933	2565	-370	3951	11559	13556	13497	16872	12846	15510	13497	16220
					6194	5310	147	2913	14564							
1-D2-Q-01-KK W-340 RCRA WORK PACKAGE	0	0	0	0												
1-D2-Q-01-LL W-340 CAA WORK PACKAGE	0	0	0	0												
1-D2-Q-01-MM W-340 PROCUREMENT WORK PACKAGE	729626	36	275426	99129	0	26079	46618	47550	155179	136017	130064	45718	15552	26819	44351	55679
					8043	8642	9476	15940	57028							
1-D2-Q-01-NN W-340 CONSTRUCTION WORK PACKAGE	0	0	0	0												
1-D2-Q-01-PP W-340 START-UP WORK PACKAGE	0	0	0	0												
1-D2-Q-01-QQ W-340 OPERATIONS WORK PACKAGE	0	0	0	0												
1-D2-Q-01-RR W-340 SAFETY WORK PACKAGE	225456	11	177942	177942	54456	29737	35706	58043	0	7521	8280	10028	8937	8471	4277	0
					16379	15465	39169	54602	52327							
TOTALS	2045317	100	989034	727055												
				BCWS	111370	186430	313832	170286	207117	208576	195296	98125	57191	91791	102570	302734
				BCWP	58997	76021	222090	249203	120745							
				ACWP	796	14320	86904	135883	55428							
				ETC	0	0	0	0	0	299065	185776	194354	123297	89410	78107	226066
				CUM BCWS	111370	297799	611631	781917	989034	1197610	1392906	1491031	1548222	1640013	1742583	2045317
				CUM BCWP	58997	135018	357108	606310	727055							
				CUM ACWP	796	15115	102019	237902	293330							
				LRE	796	15115	102019	237902	293330	592395	778171	972525	1095822	1185232	1263339	1489405



Scale 1: 1

BCWS Baseline — Scheduled
Current — Earned
BCWP — Actual
Progress — To Complete

TANK 241-C-106 MANIPULATOR RET'L SYS
PROJECT W-340 PERFORMANCE BAR CHART

Plot Date : 14MAR94
Start Date : 10CT92
Finish Date: 10JUL 7
Status Date: 28FEB94

Parade (R)

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Variance Analysis (Cont)

Schedule Variance

Environmental/Safety

- Environmental documentation originally scheduled to begin this year is delayed until FY-95 due to CDR being delayed until FY-95. To be addressed in Project change request

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Variance Analysis

Cost Variance

- The work is being accomplished for less than originally estimated
- Underrun projected for original work scope

Corrective Actions

- Schedule variance: Apply additional resources from ICF KH and out-side contractor team for completion of procurement specification
- Cost Variance: Process change request for FY-94 work plan to delay CDR and associated environmental documentation. Provide funding support to DOE laboratories for procurement specification. Perform additional engineering study work to complete system engineering basis for project, and update project engineering study and cost estimate for FY-95 design-only validation

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

Management Review

March 23, 1994

9513335.0562

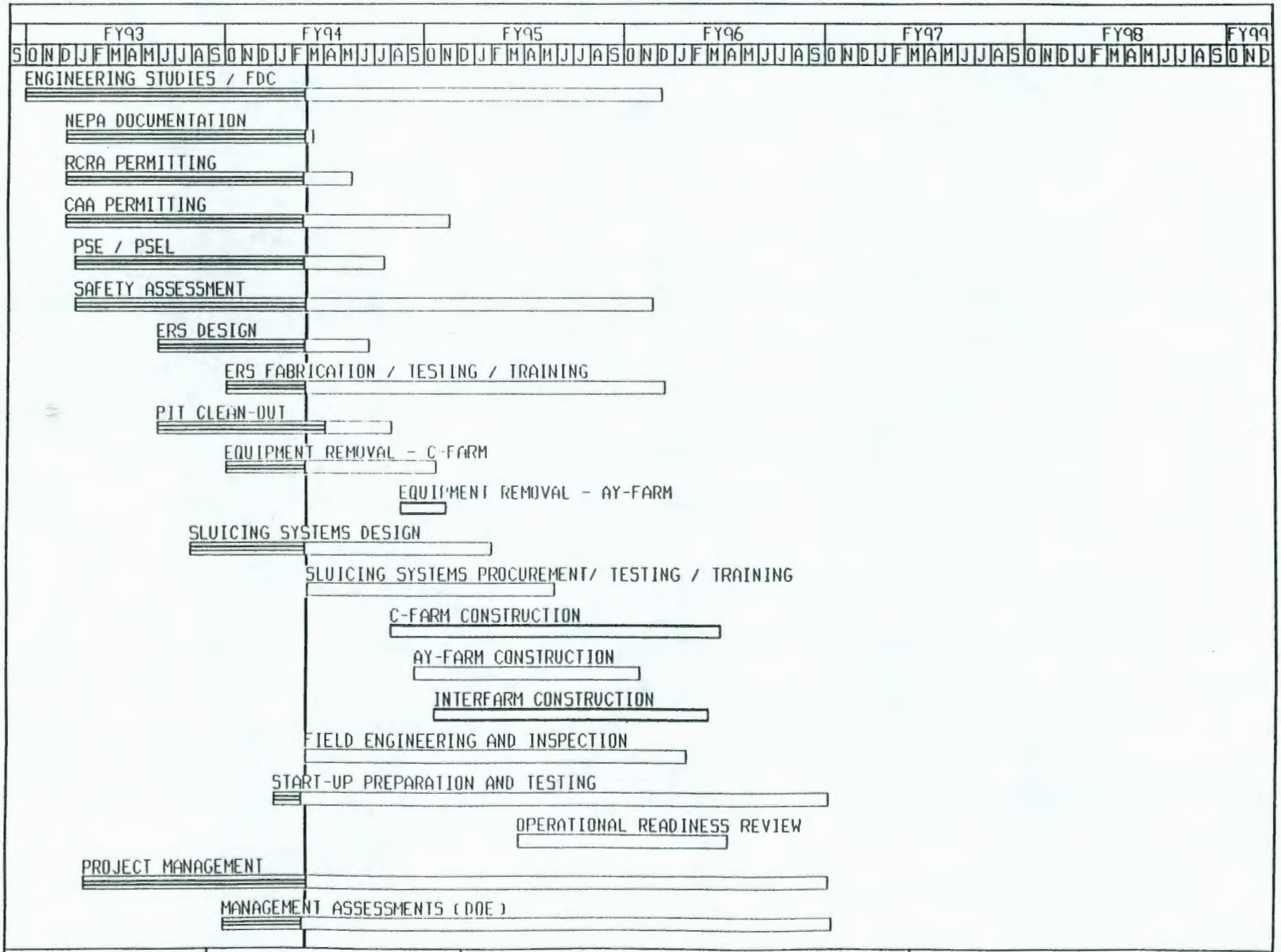
Management Review Meeting

February 1994

W-320 Tank 241-C-106 Sluicing

AGENDA

• Cost / Schedule Status	J. M. Henderson
• Engineering and Design	K. G. Squires
• Construction and Start-up	W. M. Lane
• Project Management	J. P. Harris
• Project Manager's Assessment	J. M. Henderson



Plot Date 22MAR94
Data Date 28FEB94
Project Start 10CT92
Project Finish 80CT96

(c) Primavera Systems, Inc.

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

GUN1

Sheet 1 of 1

W-320 241-C-106 SLUICING
W-320 LEVEL "0" SCHEDULE TASKS

BC-25

Date	Revision	Checked	Approved

9513335.0563

241-C-106 Sluicing
Project W-320

Cost Performance Report
($ in 000's)

February 1994

WBS Element	Current Period					Cumulative to Date				
	Budgeted Cost		Actual Cost	Variance		Budgeted Cost		Actual Cost	Variance	
	Work Scheduled	Work Performed	Work Performed	Schedule	Cost	Work Scheduled	Work Performed	Work Performed	Schedule	Cost
Project Management	586.7	586.7	255.4	0.0	331.3	2,073.3	1,646.5	1,506.6	(426.8)	139.9
Engineering	749.9	749.9	739.4	0.0	10.5	3,245.0	2,641.1	2,951.8	(603.9)	(310.7)
Construction	65.3	65.3	248.0	0.0	(182.7)	333.7	3,086.6	1,462.8	2,752.9	1,623.8
Startup	38.3	38.3	20.2	0.0	18.1	164.8	39.1	57.9	(125.7)	(18.8)
CENRTC	313.3	313.3	538.4	0.0	(225.1)	961.2	983.3	538.4	22.1	444.9
Total	1,753.5	1,753.5	1,801.4	0.0	(47.9)	6,778.0	8,396.6	6,517.5	1,618.6	1,879.1

W-320 Tank 241-C-106 Sluicing

Variance Explanation

Engineering

Schedule Variance Explanation

Sluicing definitive design is approximately one month behind schedule due to staffing shortages. Discussions are being held with ICF KH on workaround plans to recover the schedule slippage.

Construction

Schedule Variance

Equipment Removal activities to support the project acceleration were initiated earlier than planned the planned 4th quarter FY 1994 start. The construction schedule is going to be replanned based on the current project schedule acceleration. The actual progress (cumulative BCWP) of the Equipment Removal activities appears to be overstated.

Cost Variance

The actual progress (cumulative BCWP) of the Equipment Removal activities appears to be overstated.

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W-320 Tank 241-C-106 Sluicing

Variance Explanation (Cont)

Capital Equipment not Related to Construction (CENRTC)

Cost Variance

CENRTC purchase orders have been placed and funds have been committed, costs have not been posted.

Management Review Meeting

February 1994

W-320 Tank 241-C-106 Sluicing

Engineering and Design

Accomplishments

- Completed 30% Design Review
  - Reviewed approximately 90 drawings
  - No show stoppers found
  - Fewer technical comments than expected
  - Sluicer, inter-farm piping, and electrical design significantly beyond 30% complete
- ICF KH assigned a new Principal Lead Engineer, D. L. Evans, to the design team
- ICF KH, WHC Engineering, Project Management, and QA have developed a method to use "Development Control" on ICF KH approved drawings to allow early fabrication of components
- ICF KH consolidated all waste retrieval activities in one department in the 200E Area

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W-320 Tank 241-C-106 Sluicing

Engineering and Design

Accomplishments (Cont)

- Issued procurement on transformer
- Initiated Procurement Specification on slurry pump
- Issued procurement specification for Gantery Cranes for Solid Waste Storage complex

Management Review Meeting

February 1994

W-320 Tank 241-C-106 Sluicing

Engineering and Design

Issues/Recommendations

- Schedule
  - Sluicing design is approximately one month behind schedule. Schedule shows 11 of the 14 design packages completing by the early finish date. Evaluations are underway to regain and accelerate design schedule
  - ERS Design - all major design components will be in fabrication or procurement by early March. ICF KH design will be issued to "Development Control" in early March. All major WHC component in fabrication, odds & ends to be issued in early March

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W-320 Tank 241-C-106 Sluicing

Engineering and Design

Near-Term Activities

- Incorporate 30% Design Review comments
- As a result of the 30% Design Review
  - Issue P&IDs, site plans, general arrangement drawings, and electrical one-lines as Revision A (approximately 25 plus drawings)
  - Prepare System Description/Design Basis documents
  - Support preparation of 30% cost/schedule project baseline
- Prepare Design Media package to support ICE Review

W-320 Tank 241-C-106 Sluicing

Engineering and Design

Near-Term Activities (Cont)

- Issue procurement specifications for remaining pumps
- Place sluicer design in development control
- Complete ERS design activities
- Re-define design packages to allow early construction start - June 1994

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W-320 Tank 241-C-106 Sluicing

Procurement and Construction

Accomplishments

- Work Control/Access Control
  - Finalized Memorandum of Understanding (MOU) with Tank Farm Operations and to be signed in March
  - Initiated modification of WHC-IP-0842, Section 11.1. This procedure will implement a uniform method of work control for ICF KH activities within Tank Farms
- Grout Equipment Transfer
  - One Portable Instrument House transferred to the project and moved to 3000 Area for rework

W-320 Tank 241-C-106 Sluicing

Procurement and Construction

Accomplishments (Cont)

- Completed Geotechnical Drilling along transfer pipeline route in support of detailed design
- Tank Farm Operations announced plans to remove fresh air requirement in C-Farm in March 1994
- Excellent progress is being made by ICF KH on ERS fabrication activities. Strongback completion scheduled for April 1994
- A design/build contract awarded to AMRO Manufacturing Corp. in February for Hydraulic Trailer. Delivery planned for May 1994
- Performed C-Farm/C-106 walk-down to check current status of field conditions - February 1994

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W-320 Tank 241-C-106 Sluicing

Procurement and Construction

Accomplishments (Cont)

- Letter of Instruction issued to ICF KH for initiation of C-Farm and Cold Test Facility site clean up in support of equipment removal from C-106

- ICF KH Construction prepared estimates and is mobilizing in support of decontamination of surfaces in and around C-Farm - Start March 1994

Management Review Meeting

February 1994

W-320 Tank 241-C-106 Sluicing

Procurement and Construction

Issues and Recommendations

- Project W-320 has been unable to secure dedicated HPT or Operator support. Must be resolved or in-field work will be impacted in March

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W-320 Tank 241-C-106 Sluicing

Procurement and Construction

Near-term Activities

- Negotiate overall C-Farm clean up strategy and funding sources with Operations - March 1994
- Operations is preparing plans to initiate surface contamination control measures in C-Farm - April 1994
- Equipment Removal
  - Roadway stabilization around C-Farm - Start April 1994
  - Site preparation for equipment removal laydown and staging areas - including change trailer and WRAM station - Start May 1994
  - Pump removal - start August 1994
- Pump procurement specification in development

Management Review Meeting

February 1994

W-320 Tank 241-C-106 Sluicing

RCRA/CAA Permitting Status

- Accomplishments
  - DOH approved Phase I CAA permit application, February 1994
  - EPA approved air permit for project March 1994 (combined Phase I and Phase II, since EPA has no provision for phased approvals)
  - Received verbal approval from Ecology on RCRA Part A modification in February 1994. Written notification expected by April 1994
- Near-Term Activities
  - Receive remaining approvals for Phase I CAA (Ecology's letter of determination)
  - Phase II CAA Permit will be submitted for parallel WHC/RL review/approval in March 1994

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W-320 Tank 241-C-106 Sluicing

NEPA Status

- Accomplishments
  - Resolved comments received from Yakima Indian Nation
- Near-Term Activities
  - RL to initiate final EA review in March 1994 for decision on issuance of FONSI
- Issues/Recommendations
  - Significant final review comments may impact initiation of procurement milestones. Comments will be addressed upon receipt

W-320 Tank 241-C-106 Sluicing

Safety Documentation

- Accomplishments
  - PSE issued to RL for review
- Near-Term Activities
  - Initiated draft safety assessment (SA) on December 28, 1993. The SA will be submitted for DOE-RL review/approval in September 1994

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W-320 Tank 241-C-106 Sluicing

Baseline Management

- Baseline Management Near-Term Activities
  - Process change request for Project acceleration, cost reduction changes, and impacts of administrative hold. March 1994
  - Perform 30 percent cost estimate review and update project baseline. March 1994

Management Review Meeting

February 1994

W-320 Tank 241-C-106 Sluicing

Project Reviews

- Accomplishments
  - Completed ARES project review interviews - February 1994
- Near Term Activities
  - Complete ARES project review report - March 1994
  - Perform DOE Management Assessments for approval to start construction

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Management Review Meeting

February 1994

W-320 Tank 241-C-106 Sluicing

Milestone Status Table

	Current	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	03/31/94
Prepare draft CAA permit application Phase II	06/01/94	03/31/94	

Management Review Meeting

February 1994

W-320 Tank 241-C-106 Sluicing

Milestone Status Table (Cont)

	Current	Accelerated	Forecast
Prepare Part A RCRA Modification	07/01/94	03/31/94	12/28/93
Issue HVAC specification to procurement	08/01/94	04/22/94	
Prepare revalidation package	04/22/94	04/22/94	
Begin DST modification work	10/03/94	09/01/94	
Start construction	04/28/95	08/01/94	
Complete C-106 pump removal	12/01/94	10/19/94	
Begin readiness review	06/01/95	04/15/95	
Complete safety documentation	01/31/95	12/31/94	
Complete definitive design	04/28/95	12/31/94	
Completed 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	

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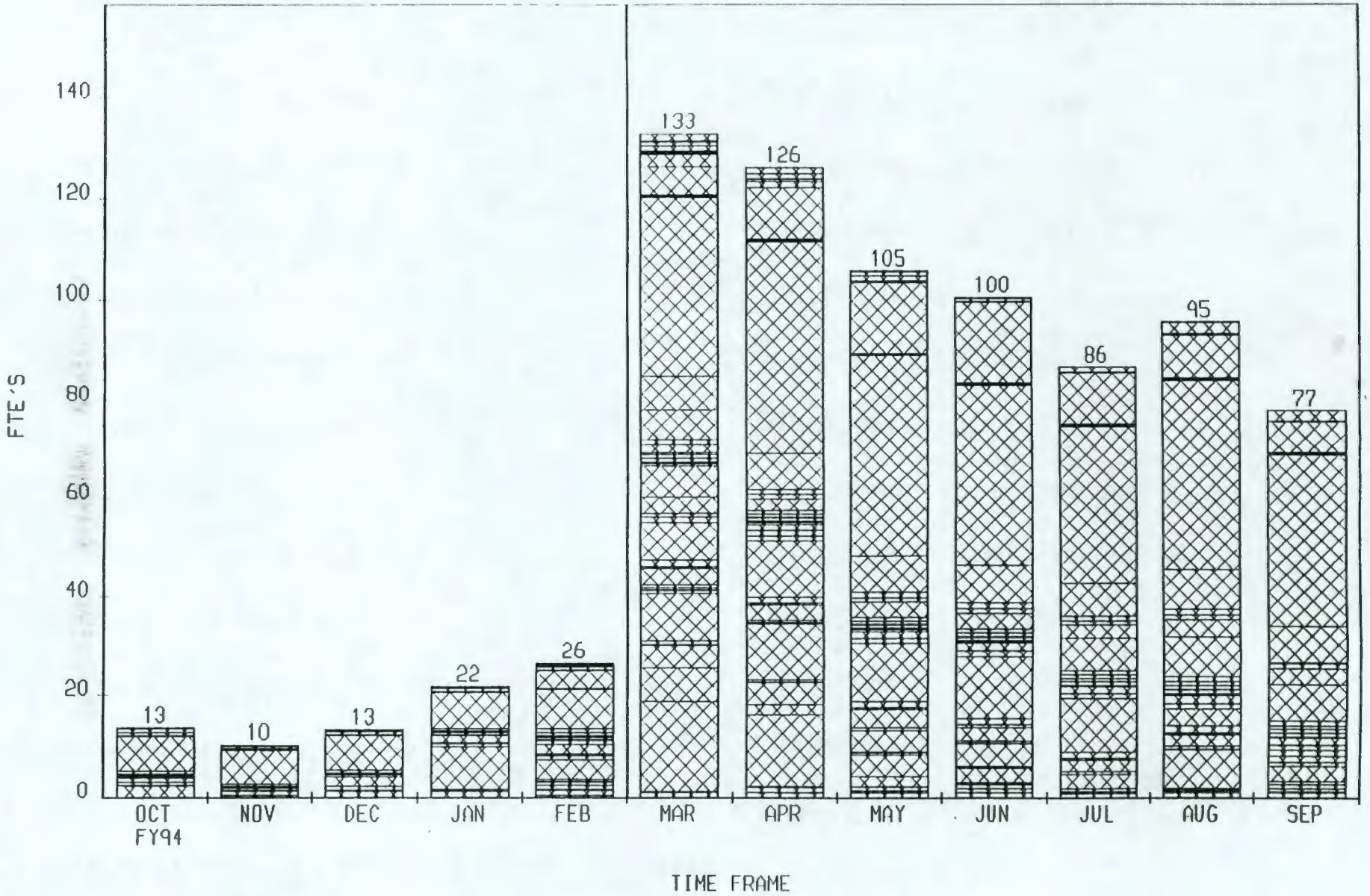

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Project Start 10CT92 Project Finish 5MAR01 Data Date 28FEB94 Plot Date 15MAR94 (c) Primavera Systems, Inc.	AX01	WHC LABOR W-320 106-C SLUICING FTE HISTOGRAM (TOTAL PROJECT)	Sheet 1 of 1

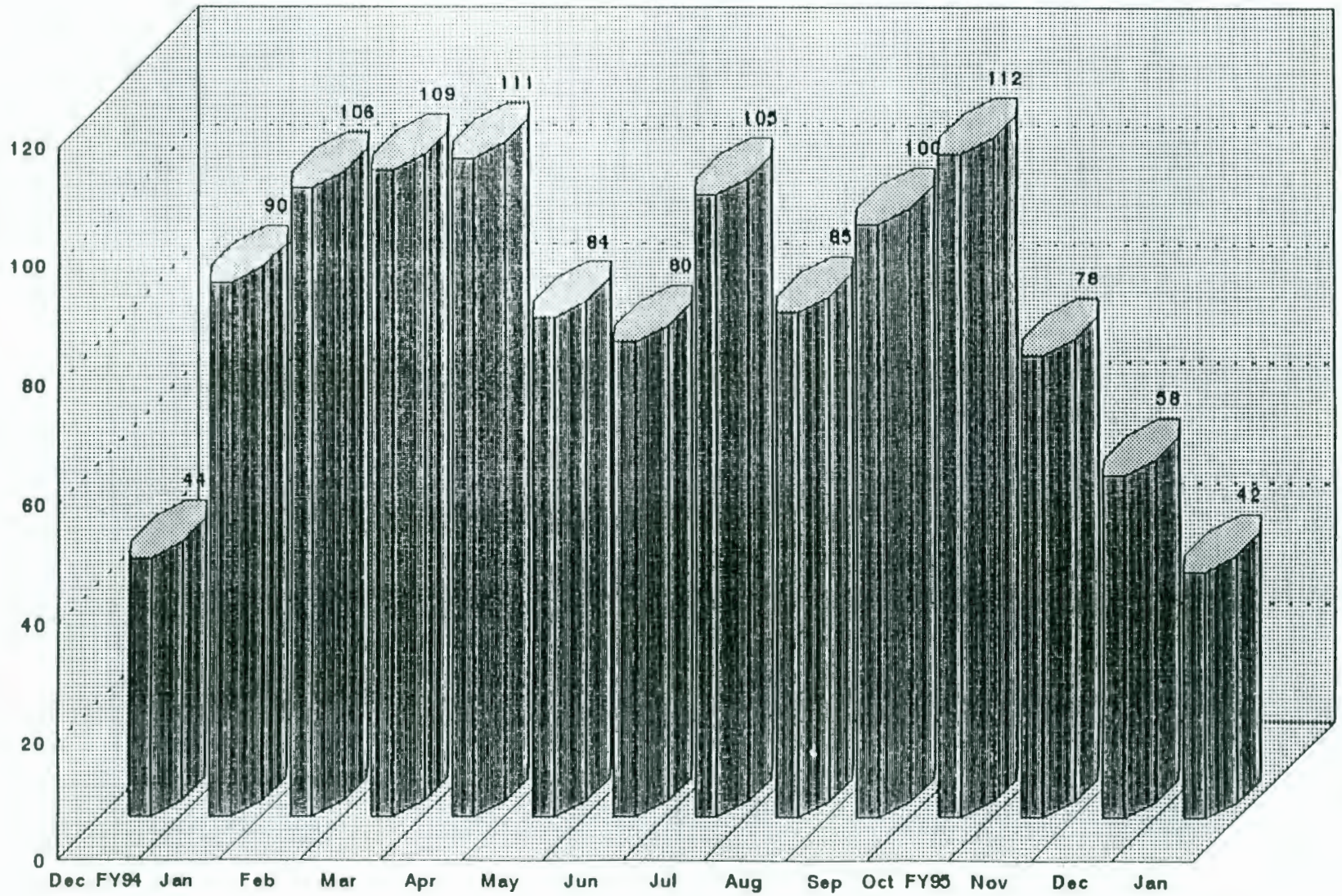
RC-00

Date	Revision	Checked	Approved

ICF Kaiser Hanford

Tank 241-C-106 Sluicing

Total Manpower



February 1994

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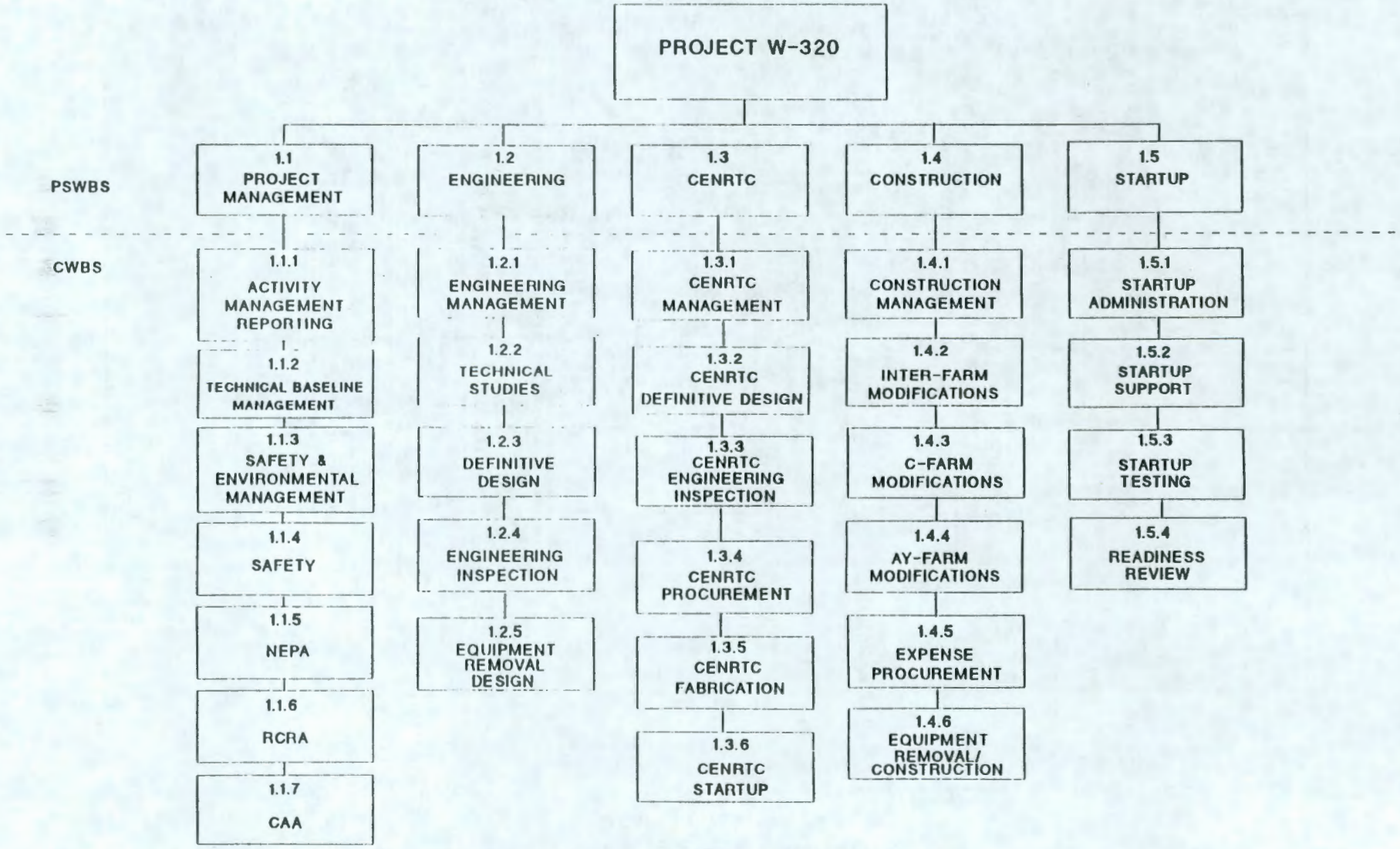
PROJECT SUMMARY WORK BREAKDOWN STRUCTURE



W-320 Tank 241-C-106 Sluicing

Project Manager's Assessment

- Permitting activities and regulator interfaces are positive, and support the accelerated schedule

- Retrieval system design effort making good progress. The 30% Design Review completed. ERS design and fabrication underway. Slight schedule variance to be recovered through parallel WHC-ICF KH reviews and placement of portions of the ERS under development control

- Very positive interaction with operations. Firm agreements (Memorandum of Understanding) to be finalized in February - March 1994. Project to establish and maintain access control through construction and start-up testing

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

W.R. Wrzesinski, DOE-RL
Les Fort, WHC

April 12, 1994

1) M-45-01 Develop SST Retrieval Technology (September 1994)

- Continuing on a path to provide documentation as per correspondence provided to fulfill milestone requirements.

2) M-45-03A Initiate Sluicing Retrieval of C-106 (October 1997)

- Concurrence with the SST Part A permit Application modification submitted in December, 1993 needed from Ecology by early April

- EPA and Ecology will be receiving 30% design review documentation in April .

  Independent Cost Estimate (ICE) review
  Revision A Design Documents available in Lacy

- CAA permitting, need approvals from Ecology by early April

- NEPA Environmental Assessment being revised as per panel review comments week of March 14, 1994 and HQ discussions during week of April 4, 1994. Schedule for ROD to result in FONSI, Limited FONSI, or need for EIS by the end of April.

- Video on Equipment Removal System (ERS)

  Potential for June visit of ERS testing at cold test facility.

- Key Decision 3 planned in June for construction initiation

  Requires approved preliminary safety evaluation, EA, and DOE-RL management assessment

- ARES Review complete as internal assessment by WHC, copies available if desired

- Management review presentation for information.

3) M-45-03 T2 Initiate Final Retrieval Demonstration of C-106 (June 2002)

- Management review presentation for information.

4) SST External Review Panel Closeout/Notebook

5) SST Closure/Corrective Action Workplan

BACKGROUND

- SST Closure/Corrective Action Work Plan (DOE/RL 89-16)issued August 1989 (TPA M-20-03)
- FY 1993 update to SST Closure Work Plan placed on hold pending TWRS rebaselining
- Revised TPA (M-45-06) commits to resubmit SST Closure Work Plan

  serves as roadmap for SST closure; addressing issues, status, integration, retrieval, characterization, technology development, regulatory pathway, and strategy

FUTURE PLANS

- SST Closure Work Plan intended to be resubmitted in FY 1995

  TWRS waste retrieval responsibility starting in FY 1995

- FY 1994 work involves planning, scheduling, and preparation of an initial draft of the SST Closure Work Plan to address new technical strategy for TWRS as reflected in the TPA, and integration of O&E Contract scope (WHC) with ER Contract scope (Bechtel)

6) Leak Detection Testing Dangerous Waste Discharge Permit

- Prepared permit to allow for up to 6000 gallons of 0.1M NaCl solution to support leak detection testing
- Concern over establishing precedence for permit requirements based on insignificant actions
- To be provided to Melodie Selby, Ecology who intends to "not act"
- Potential for significant cost savings in other Hanford programs through not having to file for permits when not warranted

7) Retrieval Program Element Information

- FY 95/96 Budget Submission Information
- SMS Reports (Questions?)

8) May/June Meetings to Discuss Sub-Surface Barriers/Leak Detection

FY95/FY96 TANK WASTE REMEDIATION SYSTEM PRIORITY LIST
PROGRAM ELEMENT: WASTE RETRIEVAL

ADS # / WBS #	ACTIVITY #	Activity Description	Pri	Justification / Impact Statement	$,000 FY95	$,000 FY96
1210-0-0A	R00100	Program Definition, Planning and Integration	A2	Provide program management, integration, baseline planning, budgeting and controls for retrieval technology, engineering, projects and operations. Provides functional and technical requirements for the program. Provides for program interface, including regulators and stakeholders.	2.1	2.2
11.2.05.01						
1210-4-0J	R00219	D/C Sluicing WR Demo C-106	A1	Provide a water sluicing based retrieval system to remove the high-heat generating sludge from Tank C-106 to resolve the associated tank safety issue.	22.4	11.9
11.2.05.09				Unresolved safety issue; missed TPA milestone M-45-03A.		
1210-3-0F	R00116	D/C Initial DST WR System Phase 1	A1	Provide retrieval systems for the first 10 double-shell tanks (DST) to be retrieved. Retrieval will support resolution of tank safety issues (first designated tank as 101-SY) provide tank waste feed for ultimate disposal and open tank space to facilitate SST waste transfer (TPA).	9.6	19.5
11.2.05.06				Unresolved safety issue; delays to SST retrieval and TPA milestone.		
1210-0-0B	R00110	Define Characterization Needs/Dev Simulants	B1	Provide and maintain data quality objectives (DQO) for the retrieval program. Develop simulants which match the selected physical and/or chemical properties selected to characterize the performance of retrieval equipment/processes. Preceeds pump tests.	0.8	1.0
11.2.05.02				Delay DST retrieval projects design.		
1210-0-0B	R00111	Test/Analyze Mixer Pump Performance	B1	Define test program to demonstrate mixer pump performance. Develop analytical models to provide basis for predicting performance of waste retrieval equipment. Provide appropriate scale test facilities to demonstrate retrieval equipment performance. Provide data to develop and/or verify designs of DST waste retrieval projects.	4.0	4.0
11.2.05.02				Delay DST retrieval projects design.		
1210-0-0B	R00112	Develop/Test Enhanced Alt DST WR Systems	B1	Define requirements for retrieval of high shear strength DST sludges. Identify candidate systems to improve the performance, cost, or operational efficiency over existing mixer pump based systems. Define, develop and procure improved mixer pump designs as a cooperative activity with Savannah River site. Provide data to support design of DST retrieval projects.	0.6	0.7
11.2.05.02				No improvements in reliability to current DST baseline system.		
1210-0-0B	R00200	Develop 1st Generation Arm Based Systems (EM-50)	B1	EM-50 funded activity. Provide specification input and evaluation criteria.	0.1	0.1
11.2.05.02				Delay W-340 project demo and M-45-03 (TPA).		
1210-0-0B	R00210	Develop SST WR End Effectors (EM-50)	B1	EM-50 funded activity. Identify, develop and evaluate end effectors.	0.0	0.0
11.2.05.02				Delay W-340 project - TPA milestone M-45-03.		

ADS # / WBS #	ACTIVITY #	Activity Description	Pri	Justification / Impact Statement	$,000 FY95	$,000 FY96
1210-0-0B	R00212	Develop Enhanced SST WR Technologies	B1	Identify, develop, and evaluate enhancements to the reference SST retrieval systems that require expanded capabilities to address tanks with saltcake and in-tank hardware. Sluicing enhancements will be evaluated to improve sluicing retrieval performance, reduce cost, and reduce tank leakage potential.	0.9	1.0
11.2.05.02				Delay TPA milestone M-45-04.		
1210-0-0D	R00218	Define Arm-Based SST WR Project	B1	Define and establish the first arm based retrieval project engineering trade studies necessary to bound project scope, establish functional requirements, complete the engineering study and project documentation necessary to obtain key decision 0. Meets TPA milestone.	3.3	1.8
11.2.05.04				Delay TPA milestone M-45-03.		
1210-0-0D	R00114	Define Initial DST WR Systems Project	B1	Prepare engineering trade studies, assessments, project definition, and project level functions and requirements. Perform systems engineering assessments of needs and interfaces with other TWRS elements. Prepare test and evaluation plan.	0.2	0.5
11.2.05.04				Delay DST retrieval projects design.		
1210-0-0D	R00205	Define WR Infrastructure Requirements	B1	Define the tank farm and supporting infrastructure requirements necessary to achieve mission and objectives. These requirements will be provided and integrated with the Tank Farms Upgrades Program. The requirements include electrical power, lighting, compressed air, tank ventilation systems, and waste transfer interfaces.	0.3	0.1
11.2.05.04				Delay Upgrades projects and TPA M-45-04.		
1210-0-0E	R00113	D/C DST WR Process Test	B1	Provide design, procurement, construction, installation and startup of sludge mobilization and tank monitoring equipment and facilities for sludge mobilization operations in Tank 101-AZ. Demonstrate mixer pump operation and sludge mobilization of NCAW waste in Tank 101-AZ; develop equipment and procedures for removal of tank internal components, and obtain test data on tank parameters during mixer pump operations. Information obtained will provide the basis for pretreatment and subsequent retrieval activities.	8.6	0.3
11.2.05.05				Delay to pretreatment activities.		
1210-0-0C	R00115	Perform DST WR Process Test	B1	Prepare the test plan for the retrieval process test in tank 101-AZ. Train personnel. Perform the operational readiness reviews and perform the test.	0.0	0.3
11.2.05.03				Delay to pretreatment activities and DST retrieval projects design.		
1210-0-0D	R00217	Define SST WR Training/Test Requirements	B1	Define and develop the SST retrieval systems training and test requirements to support retrieval of all 149 SSTs. Prepare functions and requirements, evaluate facility options, perform trade studies, and complete the engineering study.	0.3	0.8
11.2.05.04				Delay to TPA milestone M-45-04.		
1210-0-0D	R00220	Define Initial SST WR Support Service Facility	B1	Define and establish the waste receiver and support facility requirements necessary to provide the SST retrieval system operations for the first tank farm. Provide requirements to Tank Farm Upgrades.	0.2	0.2

ADS # / WBS #	ACTIVITY #	Activity Description	Pri	Justification / Impact Statement	$,000 FY95	$,000 FY96
11.2.05.04				Delay Upgrades projects and TPA milestone M-45-04.		
1210-0-0D	R00216	Define Initial SST WR System Project	B1	Define and establish the initial SST retrieval systems. Includes the engineering trade studies necessary to bound project scope and select retrieval technologies for specific tanks. Establish functional, technical and design requirements, and complete the engineering study and project documentation necessary to obtain key decision 0. Meets TPA milestone.	0.7	1.5
11.2.05.04				Delay TPA milestone M-45-04.		
1210-0-0L	R00222	D/C/T Arm-Based SST WR Demo	B1	Provide the design, construction, procurement, and installation of the waste retrieval systems necessary to complete retrieval of tank 241-C-106, following sluicing operations. Provides for the testing and demonstration of long reach manipulator retrieval systems and the development of such a retrieval system. Meets TPA milestone.	1.0	8.2
11.2.05.11				Delay TPA milestone M-45-03.		
1210-0-0B	R00213	Evaluate and Test SST Leak Detection Methods	B1	Provide leak detection and monitoring system functions and requirements, evaluate the available technologies, and select technologies for engineering development/testing. Test the selected technologies. Provide the leak detection and monitoring system.	1.5	2.0
11.2.05.02				Potential delay to start of sluicing and TPA milestone M-45-04.		
1210-0-0B	R00311	D/C & Perform SST Barrier Feature Tests/Demo	B1	Provide the feasibility study, development, procurement, site modification, construction, installation, and performance testing of small scale sub-surface barriers in order to demonstrate the performance of barriers as a leak confinement system for SSTs. Meet TPA and safety initiative milestones.	3.1	4.6
11.2.05.02				Delays TPA milestone M-45-07.		
1210-0-0D	R00313	Prepare Closure Reg. Requirements Assessment	B1	Prepare analysis of federal and state regulations to identify issues relating to closure of SSTs. Update SST closure work plan.	0.3	0.8
11.2.05.04				Delays TPA milestone M-45-06.		
1210-0-0B	R00201	Evaluate Alt. SST Tech	B1	Evaluate alternate approaches to SST retrieval. Establish a competitive system development approach through an industry "fly-off" concept.	0.7	0.8
11.2.05.02						
1210-0-0H	R00124	D/C Small Volume WR System	B1	Design, develop, and provide a Pilot-Scale Retrieval System to obtain small volumes of tank waste materials or planned scale test facilities supporting waste pretreatment process testing, bench-scale melter testing, in-tank sludge washing tests, and other pretreatment/disposal activities.	0.7	0.7
11.2.05.08				Delays to pretreatment and disposal project designs.		
				PROGRAM TOTAL	61.4	63.0

EARLY START	EARLY FINISH	ORIG DUR	
			Retrieval Technical Integration and Planning
10CT93	31DEC28	423	A00100 Program Definition, Planning and Integration
			Retrieval Tech Development & Applied Engineering
10CT93	30SEP02	108	A00110 Define Characterization Needs/Dev Simulants
10CT93	30SEP98	60	A00111 Test/Analyze Mixer Pump Performance
10CT93	30SEP97	48	A00112 Develop/Test Enhanced Alt DST WR Systems
10CT93	31DEC94	15	A00200 Develop 1st Generation Arm Based Systems (EM-50)
10CT93	30SEP96	36	A00201 Evaluate Alternate SST Technology
10CT99	30SEP02	36	A00202 Demonstrate Alternate SST Technology
10CT93	31DEC94	15	A00210 Develop SST WR End Effectors (EM-50)
10CT96	30SEP99	36	A00211 Develop Alternate SST WR Technologies
10CT93	30SEP98	60	A00212 Develop Enhanced SST WR Technologies
10CT93	30SEP96	36	A00213 Evaluate and Test SST Leak Detection Methods
10CT09	30APR22	151	A00235 Sample/Characterize Residual Wastes in SSTs
10CT93	30SEP94	12	A00300 Evaluate Feasibility of Barriers
10CT94	31JAN95	4	A00310 Decision - Proceed with Demonstration
1JAN94	28FEB97	38	A00311 O/C & Perform SST Barrier Feature Tests/Demo
10CT01	30SEP04	36	A00400 Assess/Develop MUST WR Technology
	30SEP94	0	A00415 M-45-01 Develop SST WR Technology
	30SEP94	0	A00432 M-45-07A Cmplt Evaluation of Barrier Feasibility
	31MAR95	0	A00433 M-45-07-101 Establish/Perf Criticality/Test Spec
	31OCT95	0	A00434 M-45-07-102 Initiate Demo Test Sel Barrier Tech
	31MAR97	0	A00435 M-45-07-103 Cmplt Eval Barrier Demo Test Results
	30SEP97	0	A00436 M-45-07 Cmplt Eval/Demo Test Small Scale Barrier
	30JUN97	0	A00437 M-45-07-104 Decision to Proceed with Barriers
	30SEP97	0	A00438 M-45-07C Establish Milestone Barrier Implement.
	30SEP17	0	A00441 M-45-02 Submit Annual SST WR Sequence Document
	31JAN95	0	A00450 M-45-07B Make Decision to Proceed with Demo
			Retrieval Facility Operations
10DEC96	30NOV97	12	A00115 Perform DST WR Process Test
10CT98	30SEP00	24	A00120 Retrieve SY-101, SY-103
10CT02	31MAR14	138	A00121 Retrieve Remaining DSTs
1FEB98	31JAN06	96	A00125 Operate Small Volume WR System
1APR16	31MAR24	96	A00127 Rem/Dispose Of DST WR System/Prepare For Closure
10CT11	31MAR26	174	A00128 Transfer of DSTs to ER for Closure
10CT97	31DEC98	15	A00223 Perform Sluicing WR Demo C-106
1JAN02	31DEC17	192	A00224 Perform SST WR Training/Testing
1JUN02	31AUG03	15	A00225 Perform Arm-Based SST WR Demo C-106
10CT03	30SEP08	60	A00229 Perform Initial SST WR

Plot Date 17MAR94
Data Date 10CT93
Project Start 10CT93
Project Finish 31DEC39

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Activity Bar/Early Dates
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EARLY START	EARLY FINISH	ORIG DUR	
			Retrieval Facility Operations
10CT08	30SEP18	120	A00232 Perform WA of Remaining SSTs
1JAN10	31JUL23	163	A00233 Rem/Dispose of SST WA System for Closure
1AUG12	31JUL23	132	A00234 Transfer SST Farm to ER Program for Closure
10CT08	31MAR09	6	A00236 Transfer 1st SST Farm to ER Program for Closure
10CT09	30SEP19	120	A00413 Perform MUST WA
10CT10	30SEP21	132	A00414 Transfer MUSTs to ER for Closure
	31OCT97	0	A00417 M-45-03A Initiate C-106 Sluicing WA
	30JUN02	0	A00418 M-45-03-T02 Initiate Final WA Demo of C-106
	30SEP03	0	A00419 M-45-03-T01 Complete SST WA Demo
	31DEC03	0	A00424 M-45-05-T01 Initiate WA From One SST
	30SEP04	0	A00425 M-45-05-T02 Initiate WA from 2 Additional SSTs
	30SEP05	0	A00426 M-45-05-T03 Initiate WA from 3 Additional SSTs
	30SEP06	0	A00427 M-45-05-T04 Initiate WA from 4 Additional SSTs
	30SEP07	0	A00428 M-45-05-T05 Initiate WA from 5 Additional SSTs
	30SEP08	0	A00429 M-45-05-T06 Initiate WA 5 Additional SSTs'
	30SEP15	0	A00430 M-45-05-T13 Initiate WA from 20 Additional SSTs
	30SEP18	0	A00431 M-45-05 Retrieve Waste from all Remaining SSTs
	30SEP09	0	A00442 M-45-05-T07 Initiate Tank WA from 7 Add SSTs
	30SEP10	0	A00443 M-45-05-T08 Initiate Tank WA from 8 Add SSTs
	30SEP11	0	A00444 M-45-05-T09 Initiate Tank WA from 10 Add SSTs
	30SEP12	0	A00445 M-45-05-T10 Initiate Tank WA from 12 Add SSTs
	30SEP13	0	A00446 M-45-05-T11 Initiate Tank WA from 14 Add SSTs
	30SEP14	0	A00447 M-45-05-T12 Initiate Tank WA from 17 Add SSTs
	30SEP16	0	A00448 M-45-05-T14 Initiate Tank WA from 20 Add SSTs
	30SEP17	0	A00449 M-45-05-T15 Initiate Tank WA from 20 Add SSTs
			Retrieval System Definition
10CT93	30SEP95	24	A00114 Define Initial OST WA Systems Project
10CT97	31MAR00	30	A00117 Define Final OST WA System Project
10CT00	30SEP03	36	A00123 Prepare OST Closure Plan
10CT93	30SEP96	36	A00205 Define WA Infrastructure Requirements
10CT00	30SEP02	24	A00215 Define Remaining SST WA System Project
10CT94	31MAY96	20	A00216 Define Initial SST WA System Project
1FEB94	31DEC97	47	A00217 Define SST WA Training/Test Requirements
10CT93	31MAR96	30	A00218 Define Arm-Based SST WA Project
10CT94	29FEB96	17	A00220 Define Initial SST WA Support Service Facility
10CT00	30SEP02	24	A00228 Define Remaining SST WA Support Service Facility
10CT01	30SEP04	36	A00250 Prepare Tank Closure EIS
10DEC96	28FEB97	3	A00312 Decide on Proceeding with Barriers

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Date	Revision	Checked	Approved

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EARLY START	EARLY FINISH	ORIG DUR	
			Retrieval System Definition
10CT93	30SEP96	36	A00313 Prepare Closure Reg. Requirements Assessment
10CT97	30SEP01	48	A00314 Conduct Closure Trade Studies and Alternates
10CT00	30SEP04	48	A00315 Conduct Performance Assessment of SST Closure
10CT04	30SEP06	24	A00316 Establish SST Closure Plan
10CT01	30SEP04	36	A00410 Develop MUST Closure Plan
10CT04	30SEP07	36	A00411 Define MUST WR Projects
	30SEP96	0	A00416 M-45-02A Submit Initial SST WR Doc for Ecology
	30NOV04	0	A00419 M-45-06-T01 Submit Drft Close Plan 1st Ink Farm
	30SEP06	0	A00440 M-45-06-T02 Issue Final Approved Closure Plan
			W-151 101 AZ Retrieval
10CT93	31JUL96	34	A00113 O/C DST WR Process Test
			W-211 Initial Retrieval System
10CT93	31AUG99	71	A00116 O/C Initial DST WR System Phase 1
1MAY97	30APR10	156	A00118 O/C Initial WR Systems - Phase 2
			Final DST Retrieval System
1APR00	31JUL11	136	A00119 O/C Final DST WR System
			W-315 Pilot Scale Retrieval
10CT93	31JAN98	52	A00124 O/C Small Volume WR System
			Retrieval W-320 106-C Sluicing
10CT93	30SEP97	48	A00219 O/C Sluicing WR Demo C-106
			Retrieval SST Training & Test Facility
1JAN98	31DEC01	48	A00221 O/C SST WR Training/Test Facility
			Retrieval W-340 Long Reach Arm
1APR96	31MAY02	74	A00222 O/C/I Arm-Based SST WR Demo
			Retrieval SST Closure Demonstration
10CT96	31MAR15	222	A00227 O/C SST WR System
	30APR97	0	A00420 M-45-04A Complete Initial SST WR System CDR
	31DEC00	0	A00421 M-45-04-T02 Cmplt Design of Initial SST WR Sys
	30JUN03	0	A00422 M-45-04-T03 Cmplt Construct. Initial SST WR SYS
	31MAR15	0	A00423 M-45-04-T01 Provide Initial SST WR System
			Misc Underground Stroage Tanks Retrieval Systems
10CT07	30SEP12	60	A00412 O/C MUST WR Systems

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