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START

Meeting Minutes Transmittal/Approval
Unit Managers Meeting: Single-Shell Tanks
2440 Stevens Center/Room 1200
Richland, Washington

May 18, 1994

From/
Appvl: Wendell Wrzesinski, SST Unit Manager, DOE-RL — Date: 2/16/95

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

Appvl: Dave Einan, SST Unit Manager, EPA Region X — Date: 16 Feb 95

Appvl: Lisa Garner, WHC, Contractor Representative — Date: 2/14/95

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

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

Handout 1 - Single-Shell Tanks Interim Stabilization/Isolation
Handout 2 - T-111 DOE HQ Issues
Handout 3 - Milestone #M-41-07
Handout 4 - Tank U-109 Liquid Level Readings
Handout 5 - Double and Single-Shell Tank Characterization M-44-00
Handout 6 - Waste Tank Safety Program Status Report 4/29/94
Handout 7 - Complete Closure of All Single Shell Tank Farms M-45-00
Handout 8 - W-320 Tank 241-C-106 Sluicing
Handout 9 - Single Shell Tanks Closure Plan
Handout 10 - Leak Detection/Electrical Resistance Tomography

MAR 1995
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EDMC

Attachment 1

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

May 18, 1994

INTERIM STABILIZATION (Bishop/Engelman/Rainey/Barnes) [Handouts #1, 2, 3, 4]:

Accomplishments:

Pumping of BX-111 was completed on April 29, 1994. Emergency pumping of T-111 began on May 17, 1994. The C-farm pumping has been delayed a month because of T-111. Transfer lines in S-farm have failed, requiring over ground transfer lines to be constructed.

Restoration of 244-U double contained receiving tank is six months ahead of the TPA milestone.

T-111 DOE-HQ Issues - The emergency pumping of T-111 will have an impact on the milestones. The FIC and LOW data and photographs show condensation and depth drop, indicating a leak. Because there is not enough energy within the tank, it is unlikely T-111 is an exotherm source. To resolve the concern about drying out the waste, new laboratory tests were run. No energetics were found. Evaporation would only minimally affect the tank moisture content. The conclusion is that the tank is safe to pump.

M-41-07 - The question about flammable gas is the gas release event (GRE) potential. Although how it reacts is unknown, answers will be sought by monitoring, sampling and analysis. Scott McKinney asked what is scheduled for the SSTs GRE determination. Roger Christensen would have to answer this. How does this determination process fit into the Data Quality Objectives (DQO) process? After evaluation, it would be folded into the DQO process. Additional data may be needed but could still be used in the DQOs. S. McKinney thinks the stakeholders may question why more data needed if a safety review has already been performed.

ACTION: D. Engelman will meet with C. DeFigh-Price of Characterization to integrate with the DQO process.

John Clark stated that ten additional tanks were added to the organic watch tank list on May 17, 1994.

In June, the agreement should be inserted in M-43 regarding liquid level monitoring. A change request will be prepared to provide for agreement on monitoring SST liquid levels, and what will be done to improve monitoring ability, specifically the installation of additional LOW's and the new Enraf instruments. The change request will also include the implementation of the OSD for monitoring SST liquid levels and monitoring milestones for FY-94 work.

M-44 Tank Characterization (J. Clark) [Handout #5]:

Milestones are on or ahead of schedule.

M-40 SAFETY (G. Wilson) [Handout # 6]:

See handout.

M-45 RETRIEVAL/CLOSURE (W. Wrzesinski, F. Ruck, D. Iwatate) [Handouts #7, 8, 9, 10]:

An annotated outline will be given to S. McKinney at the next Unit Managers meeting. The SST Closure Work Plan will be submitted by April 30, 1995.

S. McKinney advised that the Closure Work Plan be written to focus on issues so Ecology can establish policy. Issues to be addressed include landfills, how to move equipment, and how to dispose of contaminated soils and equipment.

Regarding the State Waste Discharge Permit, S. McKinney stated no action for a water permit means it is okay and no SEPA is required.

Attachment 2

UNIT MANAGERS' MEETING
MAY 18, 1994
AGENDA

12:30-1:30	Interim Stabilization	Bishop
1:30-2:15	Tank Waste Characterization (M-44)	Clark
2:15-2:30	Safety	Christensen
2:30-3:15	Retrieval/Closure	Wrzesinski

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Attachment 3

Single-Shell Tanks Unit managers meeting

Name	Organization	Phone
Lisa Garner	WHC	(509)373-1505
Suzette Thompson	R. WHC	(509) 372-0958
Scott McKinney	Ecology	(206) 407-7146
Fengjang Ma	Ecology	(509) 736-3035
Lily Bishop	DOE	509-372-1856
Don Engelman	WHC	509-373-3452
Charles Mulkey	WHC/TFEE	(509) 373-5609
John M. Clark	DOE-RL	376-2246
Ken D. Gibson	WHC/TWRS-SAGE	376-0265
Mary Ann McLaughlin	WHC/TPA	376-4084
Carl Haller	WHC/CHAR	373-1765
Mardine Campbell	WHC/TWRS EC	373-1131
George Stanton	WHC/CHAR	373-5590
Steve Moore	Ecology	736-3023
Fred Ruck	WHC/RCRA Closures	376-[illegible]076
Marc Stevenson	WHC/TPAI	376-9668
Wendell Wrzesinski	DOE-RL	376-6751
Deborah Iwatate	WHC (TWRS/F&EE)	376-8856.
Dale A. Guthrie	WHC/RCRA Closures	376-7542

Handout 1

1

Single-Shell Tanks
Interim Stabilization/Isolation

T. E. Rainey

Single-Shell Tank Unit Managers Meeting

May 18, 1994

ACCOMPLISHMENTS

- Completed emergency pumping 241-BX-111 on April 29, 1994. 105,000 gallons transferred

  Equipment problems continue with 241-BX-110

- Change Package M-41-94-01 Approved

- Milestone M-41-16A, Start Emergency Pumping T-111

  Completed all physical preparations for emergency pumping 241-T-111

  Addressed DOE-HQ concerns on moisture content after pumping

PUMPING STARTED MAY 17, 1994

Milestone M-41-16A Complete

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ACCOMPLISHMENTS CONT.

- Milestone M-41-01-T03, Start Pumping 2 Tanks in BY Farm

  Equipment testing in BY Farm completed

  Repairs in BY Farm completed

  Pumping procedures issued

  OSD/OSR review completed

  On schedule to start pumping in May, 1994

- Milestone M-41-01-T01, Start Pumping 3 Tanks in C-Farm

  Work delayed due to T-111 emergency pumping preparations

  Fresh air requirements for C-Farm revised

  OSD/OSR review completed

  On schedule to start pumping in September, 1994

ACCOMPLISHMENTS CONT.

- Milestone M-41-09, Start Pumping 7 Tanks in S Farm

  Transfer lines from S-106 were pressure tested, both failed
  Additional overground piping required

  Field work delayed due to T-111, but recoverable

- Milestone M-41-02-T4, Restore 244-U DCRT

  Effluent monitoring system procurement initiated

  On Schedule for completion in September, 1994

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ACCOMPLISHMENTS CONT.

- Milestone M-41-06, provide Draft Maintenance Training Program

  Task lists completed

  Draft curricula completed for I&C, Electrical, Pipefitters, and Millwrights

  Course descriptions completed for all four programs

  Implementation schedules are being drafted

  On schedule for completion in June, 1994

- Milestone M-41-03.B, Procure HLLW Cask

  Proposal received from vendor, technical review ongoing

CURRENT ACTIVITIES

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

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

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

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

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

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

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

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

Finalizing design for overground piping system (M-41-02-T02)

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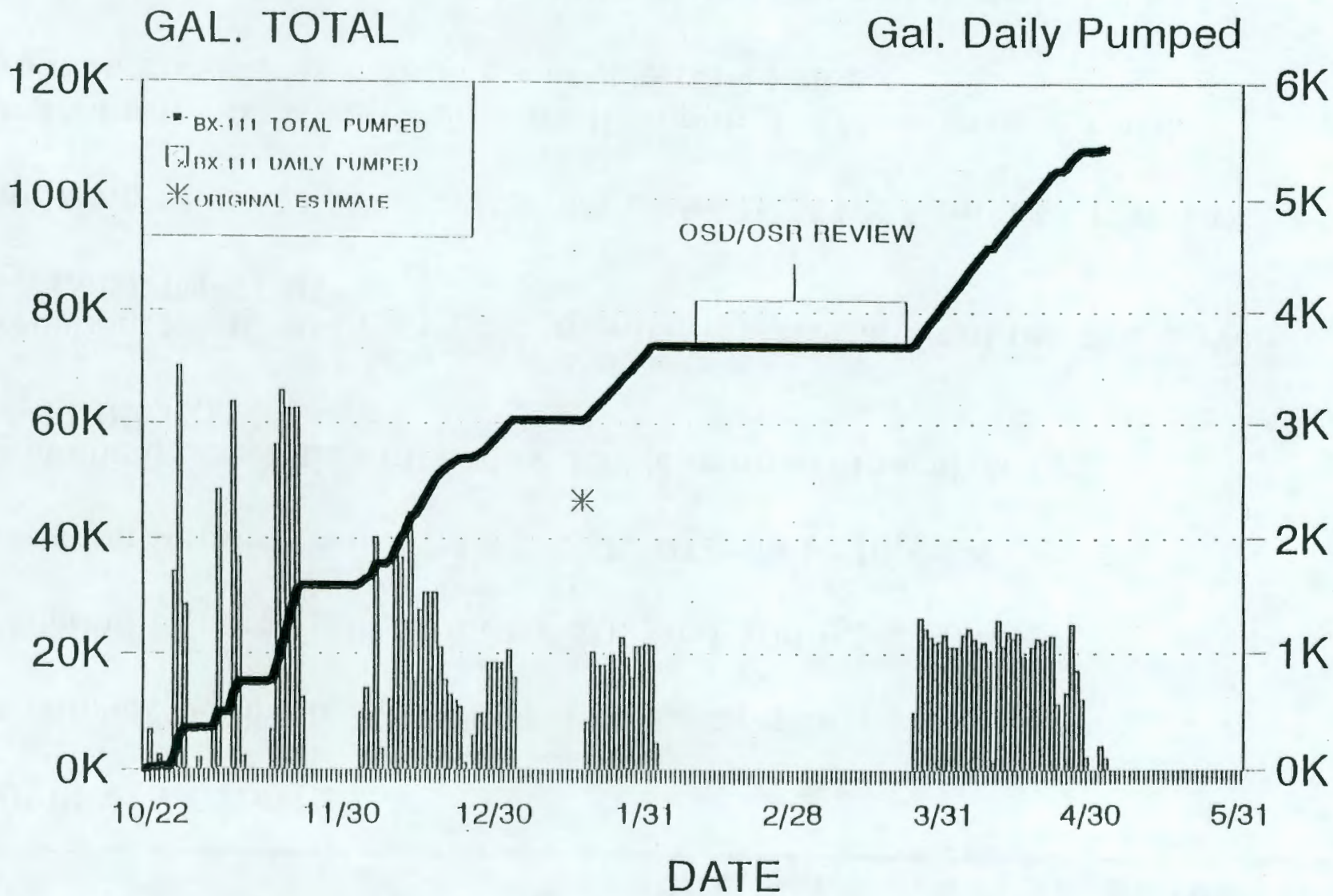
BX-111 EMERGENCY PUMPING

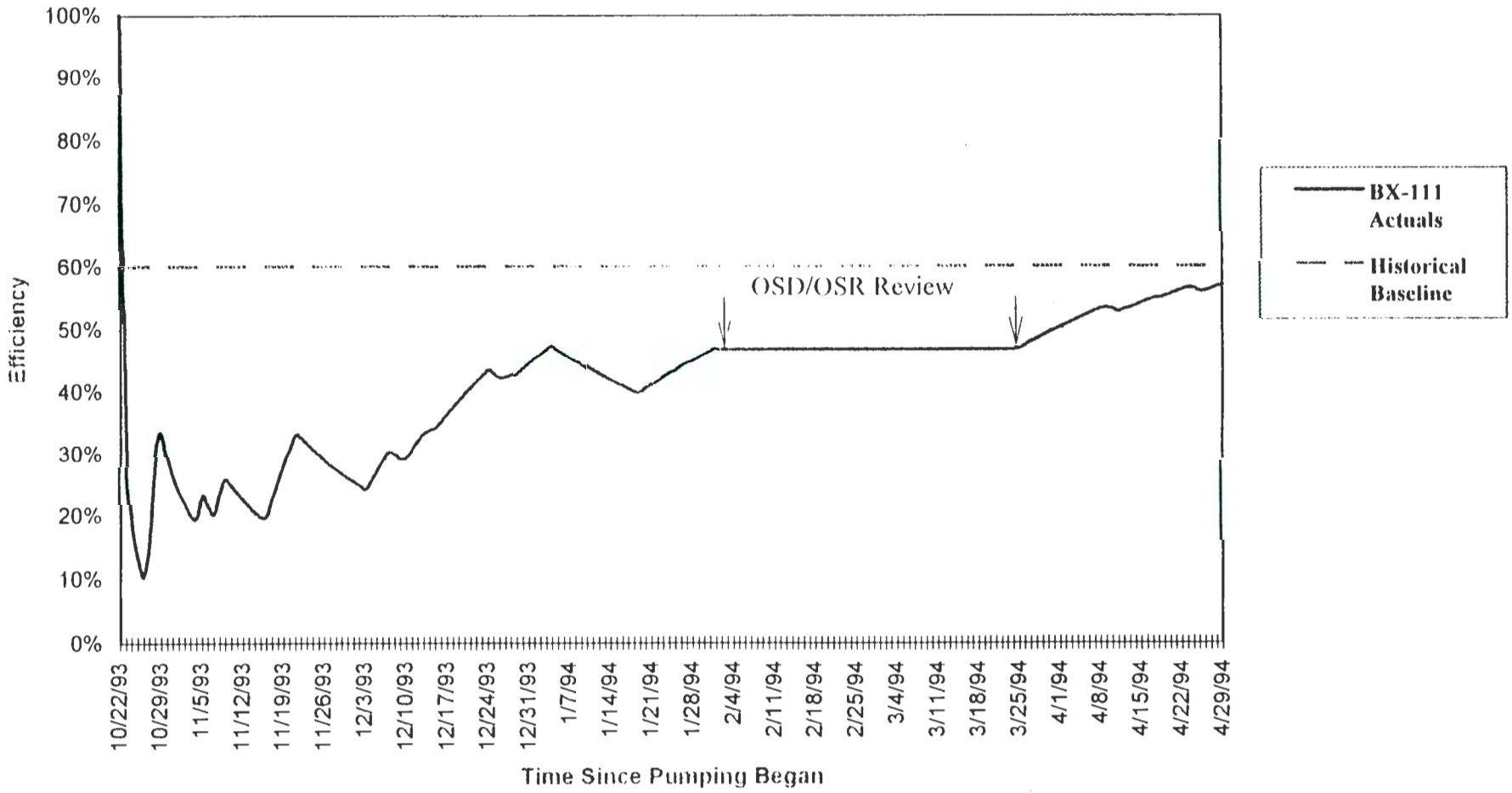


DATA DATE 05/03/94

BX111PMA.CH3

BX-111 Pumping Efficiency

Efficiency as used here refers to operational utilization, i.e. the amount of time the pumps actually ran versus the total time since pumping began. This has no relation to volume pumped.



Handout 2

(2)

T-111 DOE HQ ISSUES

D. B. Engelman

Single Shell Tank Unit Managers Meeting

May 18, 1994

DOE HQ ISSUES

- Impact on Program Milestones
- Stakeholder Involvement
- Leaking or Non-Leaking
- Unknown source of energetics
- Drying out the waste
- Compatibility
- DST space

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T-111 HQ Issues

Stakeholder Involvement

- State notified as soon as leak declared
- TPA milestone established

T-111 HQ Issues

Leaking or Non-leaking

- FIC data indicates
- LOW data indicates leak
- Photos indicate leak

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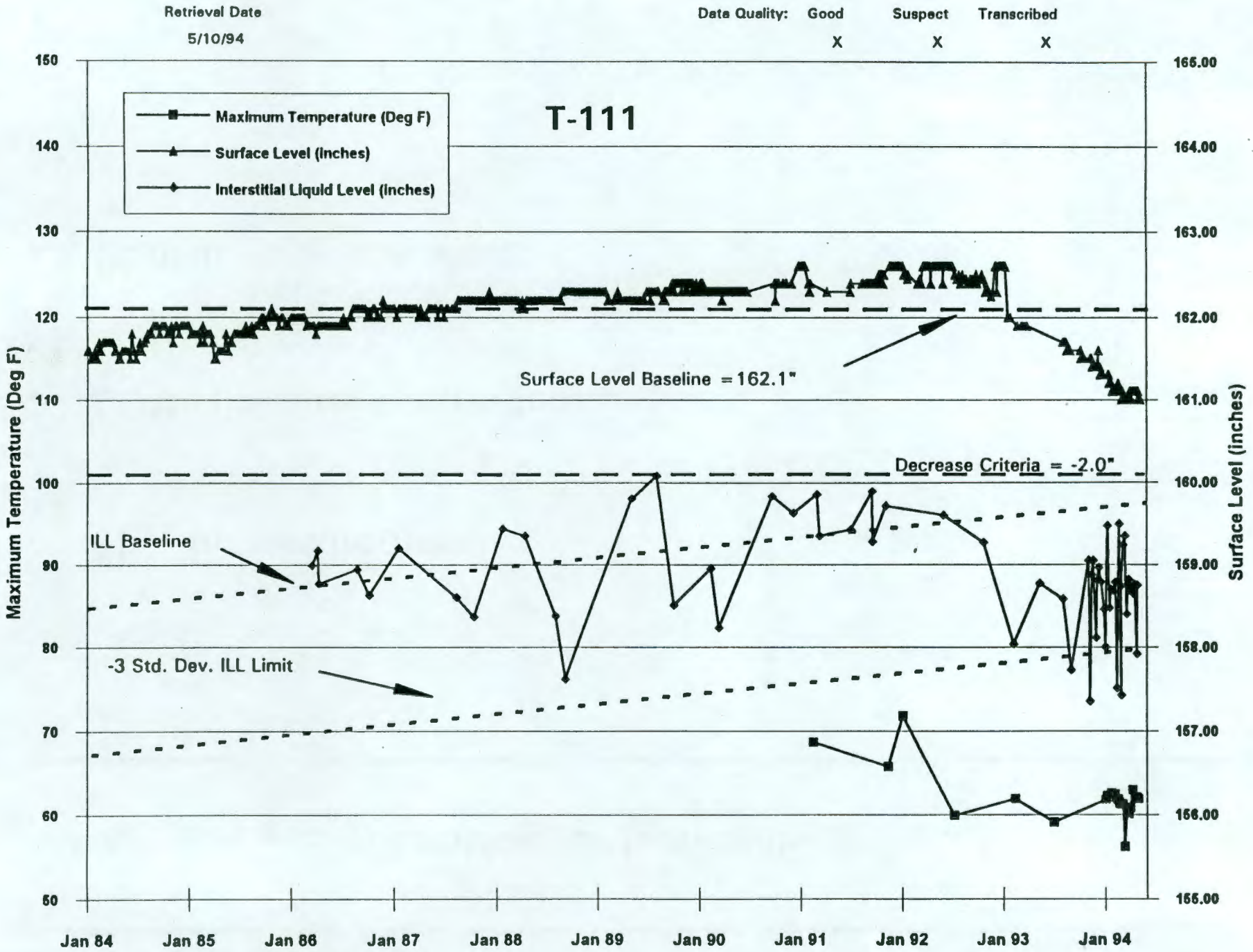
Retrieval Date
5/10/94
Data Quality: Good Suspect Transcribed
X X X
T-111
Maximum Temperature (Deg F)
Surface Level (inches)
Interstitial Liquid Level (inches)
Surface Level Baseline = 162.1"
Decrease Criteria = -2.0"
ILL Baseline
-3 Std. Dev. ILL Limit
Maximum Temperature (Deg F)
Surface Level (inches)
150
140
130
120
110
100
90
80
70
60
50
166.00
164.00
163.00
162.00
161.00
160.00
159.00
158.00
157.00
156.00
155.00
Jan 84
Jan 85
Jan 86
Jan 87
Jan 88
Jan 89
Jan 90
Jan 91
Jan 92
Jan 93
Jan 94

Unknown Exotherm Source

- Discovered in 1991 core samples
- Top few segments (down to about 40 inches)
- Very low energetics, elevated temperatures
- Early discussions claimed tank safe due to excess water

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Drying out the waste - The problem

- Will removing water result in an unsafe condition?
- Don't know source of energetics
- HQ didn't trust earlier centrifuge data
- Need about 36% water in the sludge

T-111 HQ Issues

Drying out the waste - Resolution

- Re-calculated moisture needed
  - 27% vs. 36% from first calculation
- Ran centrifuge test, open bottom tubes
  - Equilibrium - 59% to 65% rough calculation
- Re-run laboratory tests - energetics
  - Minimal/no energetics found - more rigorous test
  - Not using these results for safety analysis

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Drying out the waste - Conclusion

- You can't get below 59% water by pumping
- Evaporation may decrease water, but will take several centuries
  {Note - pumped tank in 1970's - moisture content in 1990's still at 80%}
- Tank is safe to pump

T-111 HQ Issues

Impact on Program Milestones

- Relatively minor impacts
- Few months delay in other stabilization milestones
- Some impacts to West Area Operations
- Relatively short response time limited impact

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T-111 HQ Issues

Compatibility

- Liquid samples taken
- Compatibility study
- Mixing study
- No compatibility issues

DST Space

- Will pump to 102-SY
- Approximately 43,000 gallons
- 102-SY contents 732,000 out of 1,000,000
- Sufficient to handle T-111 waste

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MILESTONE # M-41-07

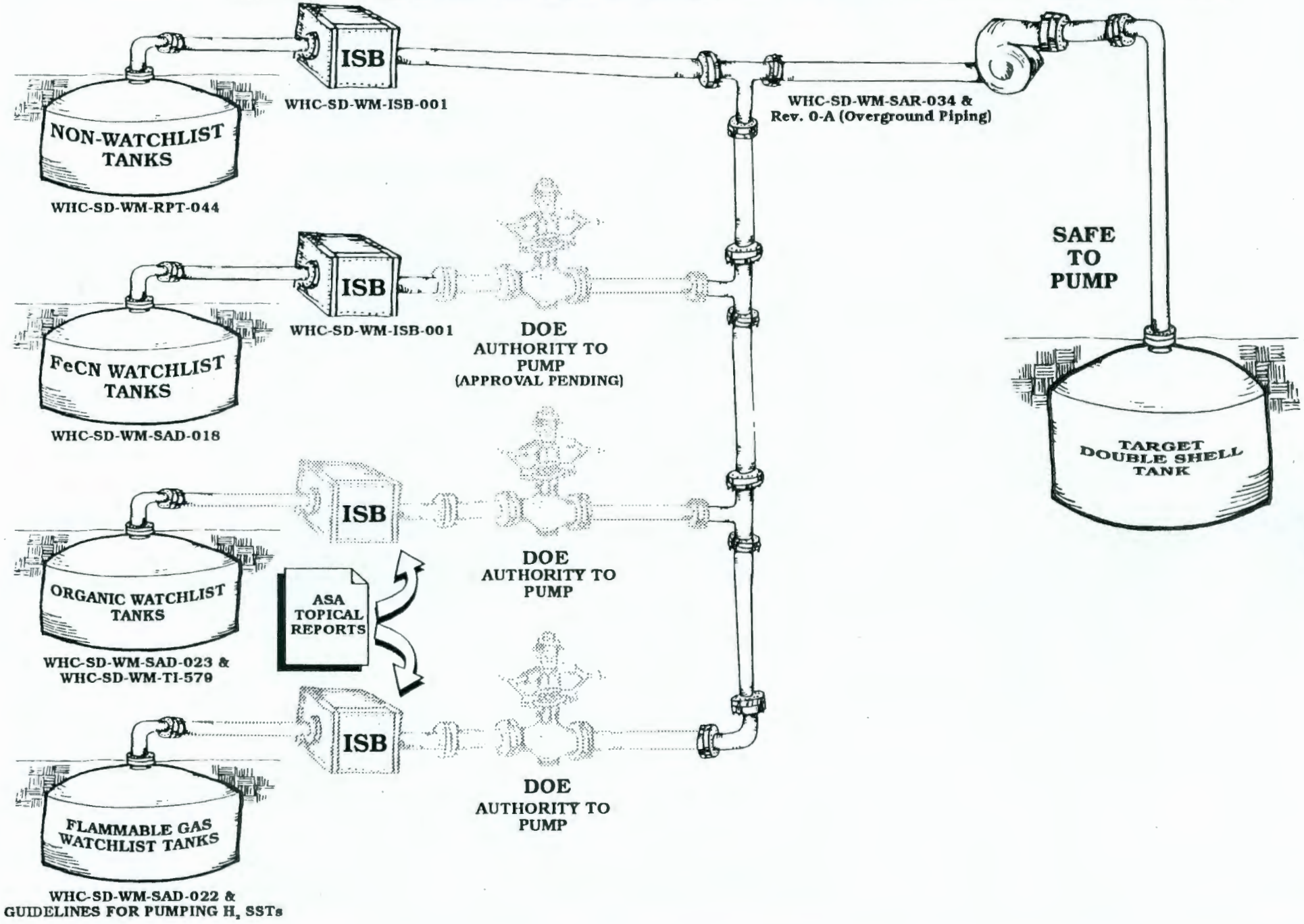
- Complete safety studies & analysis on Interim Stabilization of remaining Watchlist Tanks & provide report to Ecology and EPA. Studies to include:

  A. Ferrocyanide Tanks
  B. Hydrogen Flammable Gas Tanks
  C. Organic Tanks

- If these studies recommend that a Watchlist Tank not be pumped, DOE shall submit to Ecology & EPA a Justification Report which contains the rationale for not pumping.

- The Rationale will be presented on a Tank-by-Tank basis.

SAFETY ENVELOPE FOR INTERIM STABILIZATION OF SINGLE SHELL TANKS



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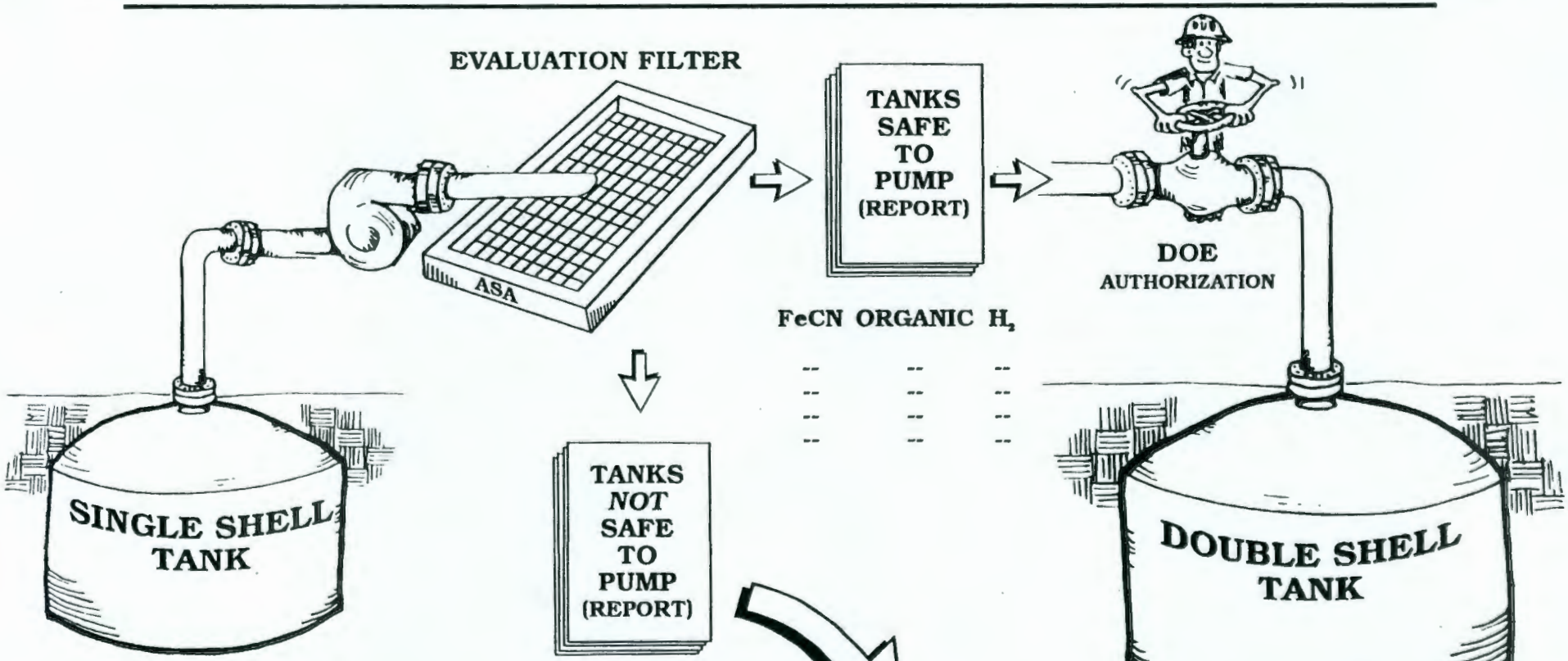
Guidelines to Pumping Flammable Gas Watchlist SSTs

Safe Activities and Procedures:

- **Hardware**
- **Controls**
- **Unknowns/Uncertainties**
  - Gas Release Event (GRE) Potential
  - Cycle Time for a GRE
  - Volume of Releasable Gas in Waste
  - Waste Compatibility
  - Post-Pumping Stability of Waste

INTERIM STABILIZATION SAFETY EVALUATION OF NON-INTERIM STABILIZED SINGLE SHELL WATCHLIST TANKS



FeCN	ORGANIC	H_2
BX-106	C-103	A-101
BY-103	S-102	AX-101
BY-105	SX-106	S-111
BY-106	T-111	S-112
T-107	U-106	SX-101
	U-107	SX-102
	U-111	SX-103
		SX-104
		SX-105
		SX-106
		T-110
		U-103
		U-105
		U-108
		U-109

REQUIRES ADDITIONAL:
- MONITORING
- SAMPLING
- ANALYSIS

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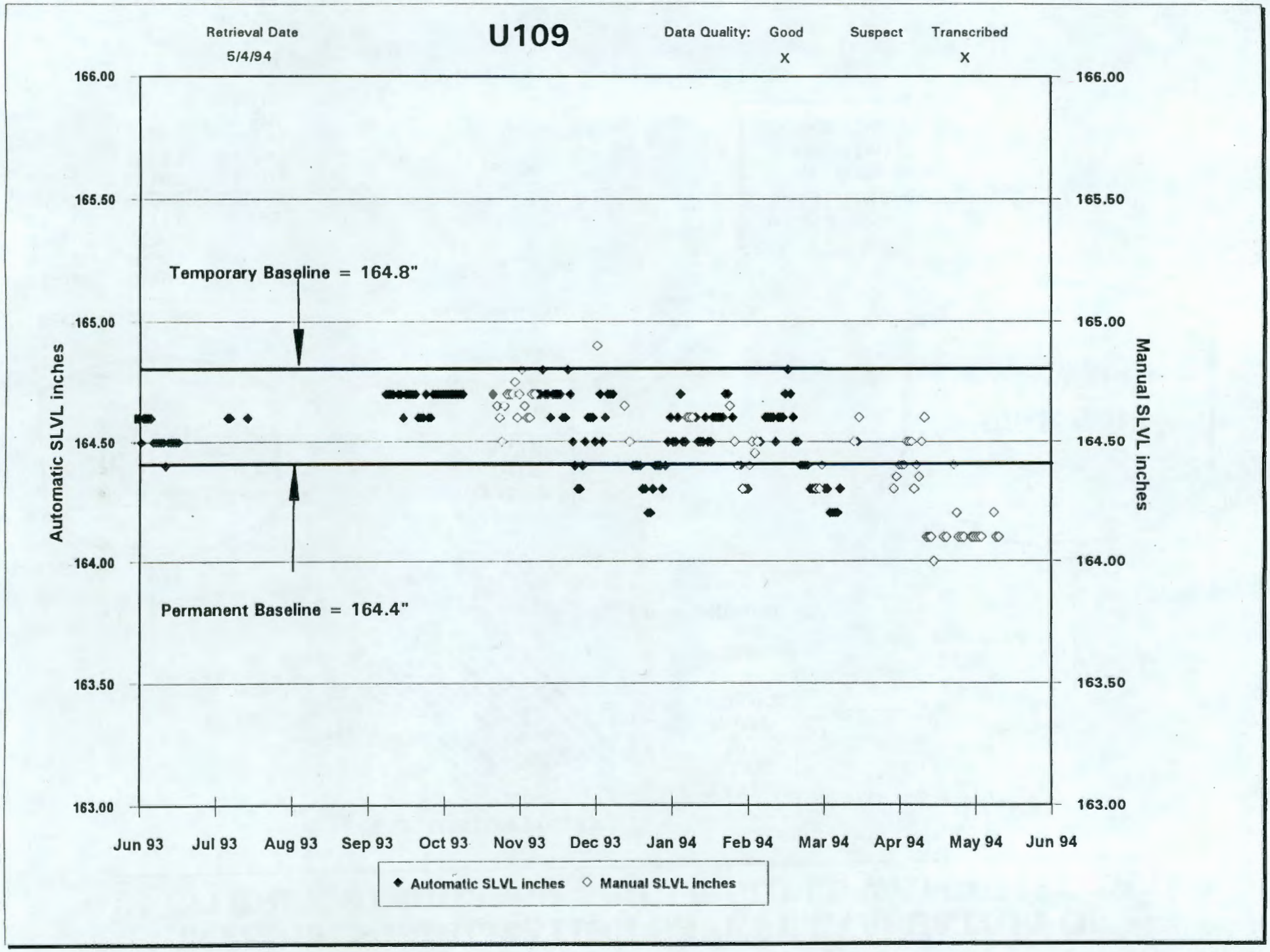
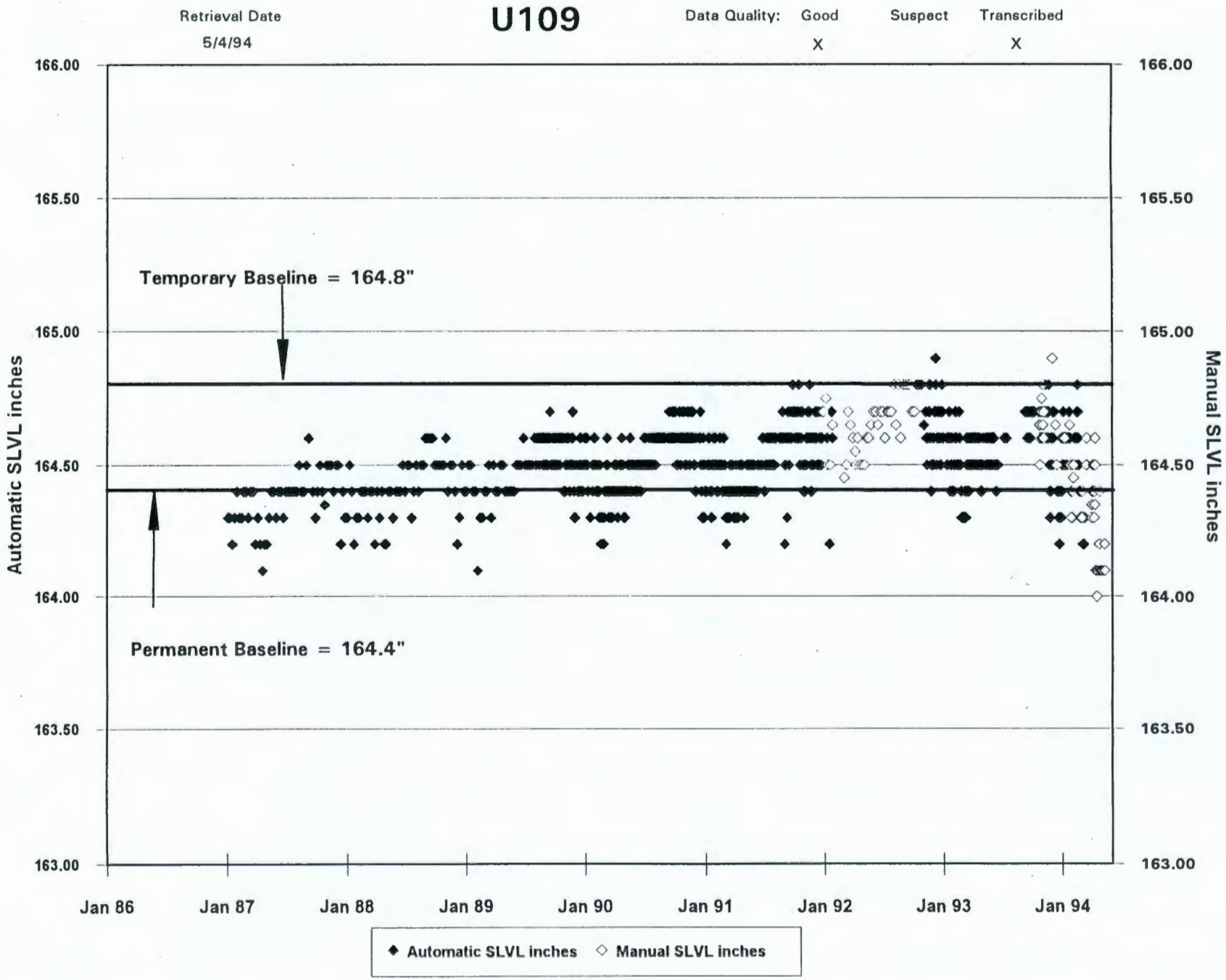
Handout 4 #5


Retrieval Date
5/4/94
U109
Data Quality: Good Suspect Transcribed
X X
166.00
165.50
165.00
164.50
164.00
163.50
163.00
Temporary Baseline = 164.8"
Permanent Baseline = 164.4"
Automatic SLVL inches
Manual SLVL inches
Jun 93
Jul 93
Aug 93
Sep 93
Oct 93
Nov 93
Dec 93
Jan 94
Feb 94
Mar 94
Apr 94
May 94
Jun 94
Automatic SLVL inches
Manual SLVL inches



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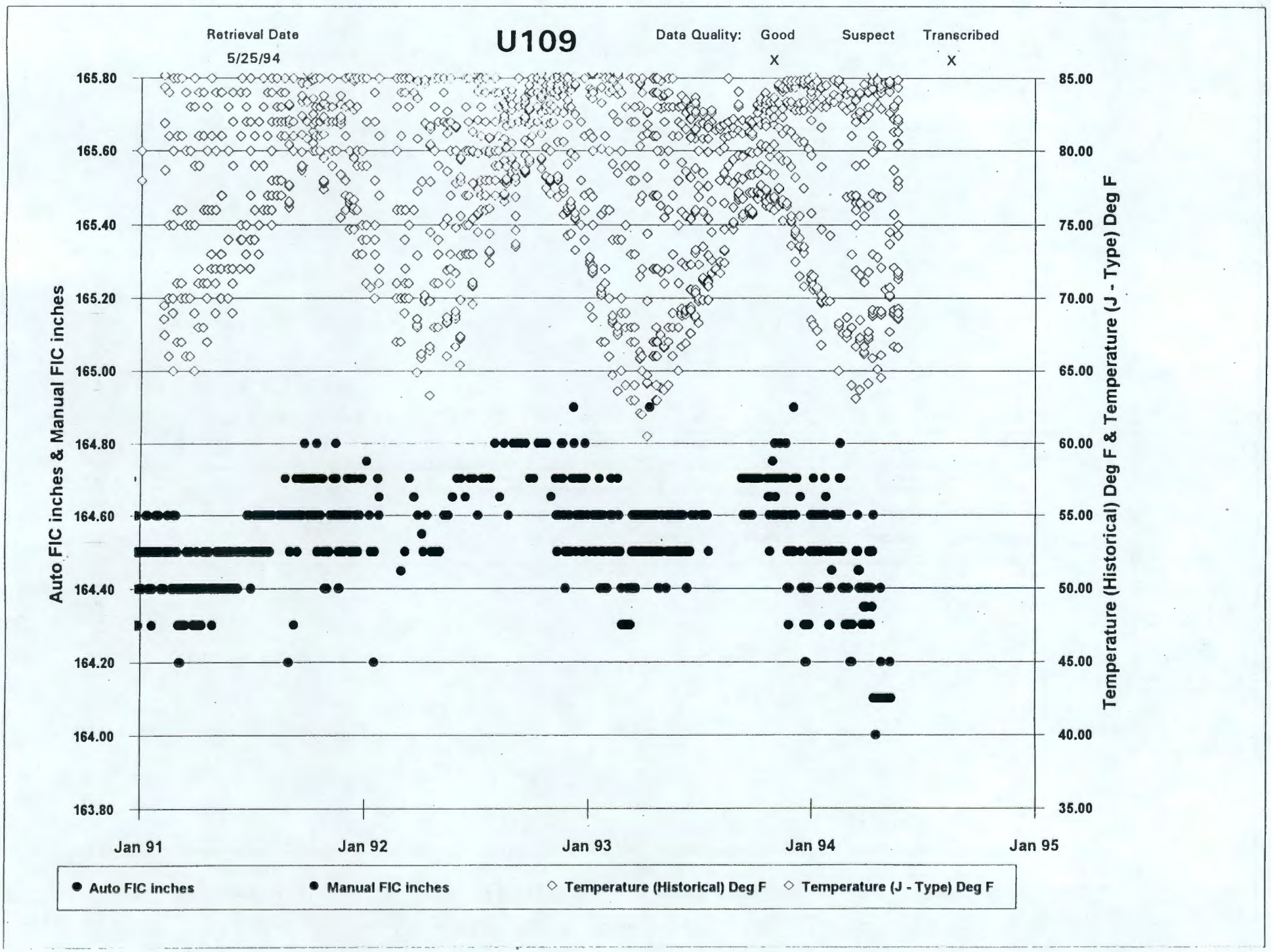
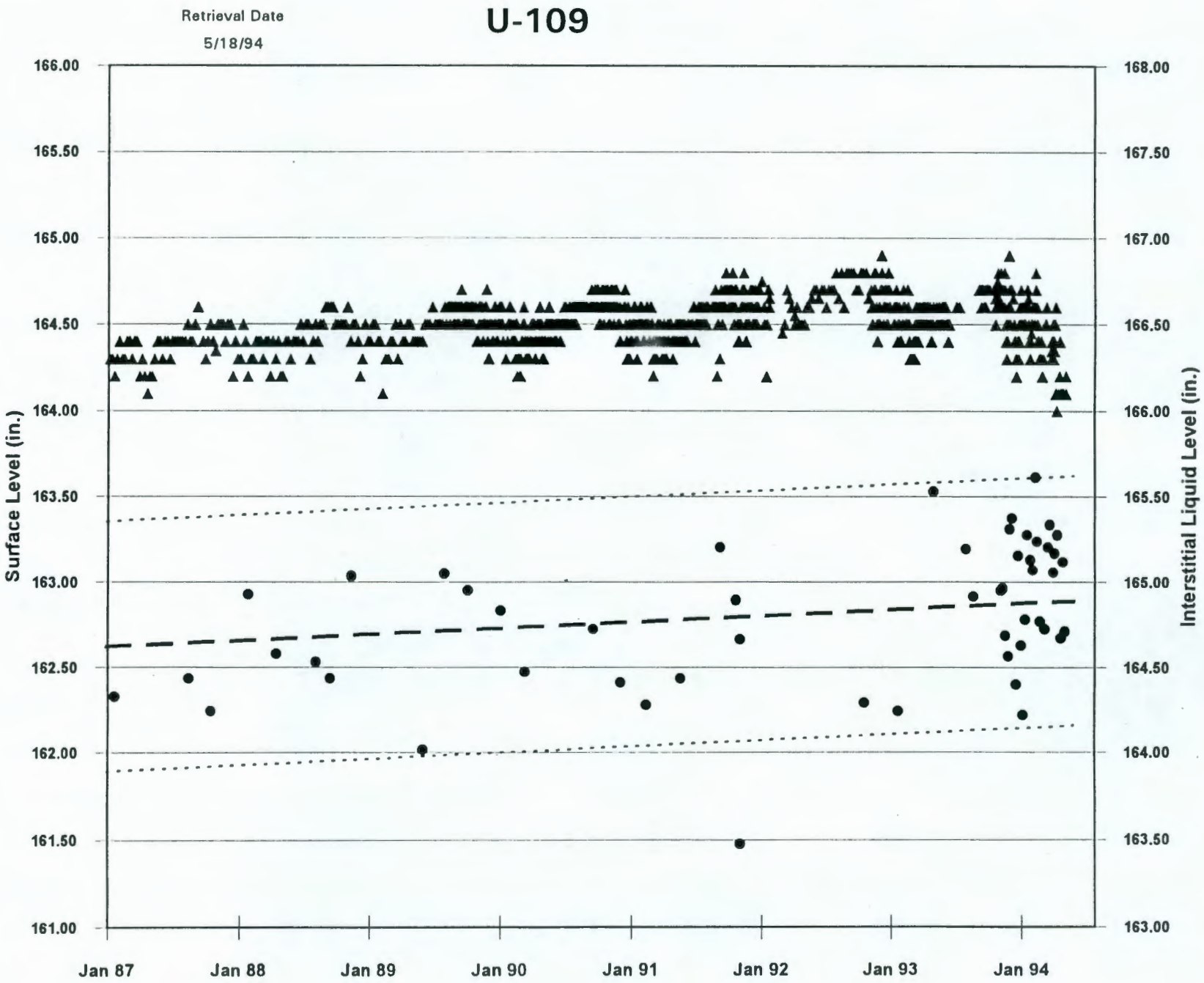

Retrieval Date
5/25/94
U109
Data Quality: Good Suspect Transcribed
X X
Auto FIC inches & Manual FIC inches
Temperature (Historical) Deg F & Temperature (J - Type) Deg F
165.80
165.60
165.40
165.20
165.00
164.80
164.60
164.40
164.20
164.00
163.80
85.00
80.00
75.00
70.00
65.00
60.00
55.00
50.00
45.00
40.00
35.00
Jan 91
Jan 92
Jan 93
Jan 94
Jan 95
Auto FIC inches
Manual FIC inches
Temperature (Historical) Deg F
Temperature (J - Type) Deg F



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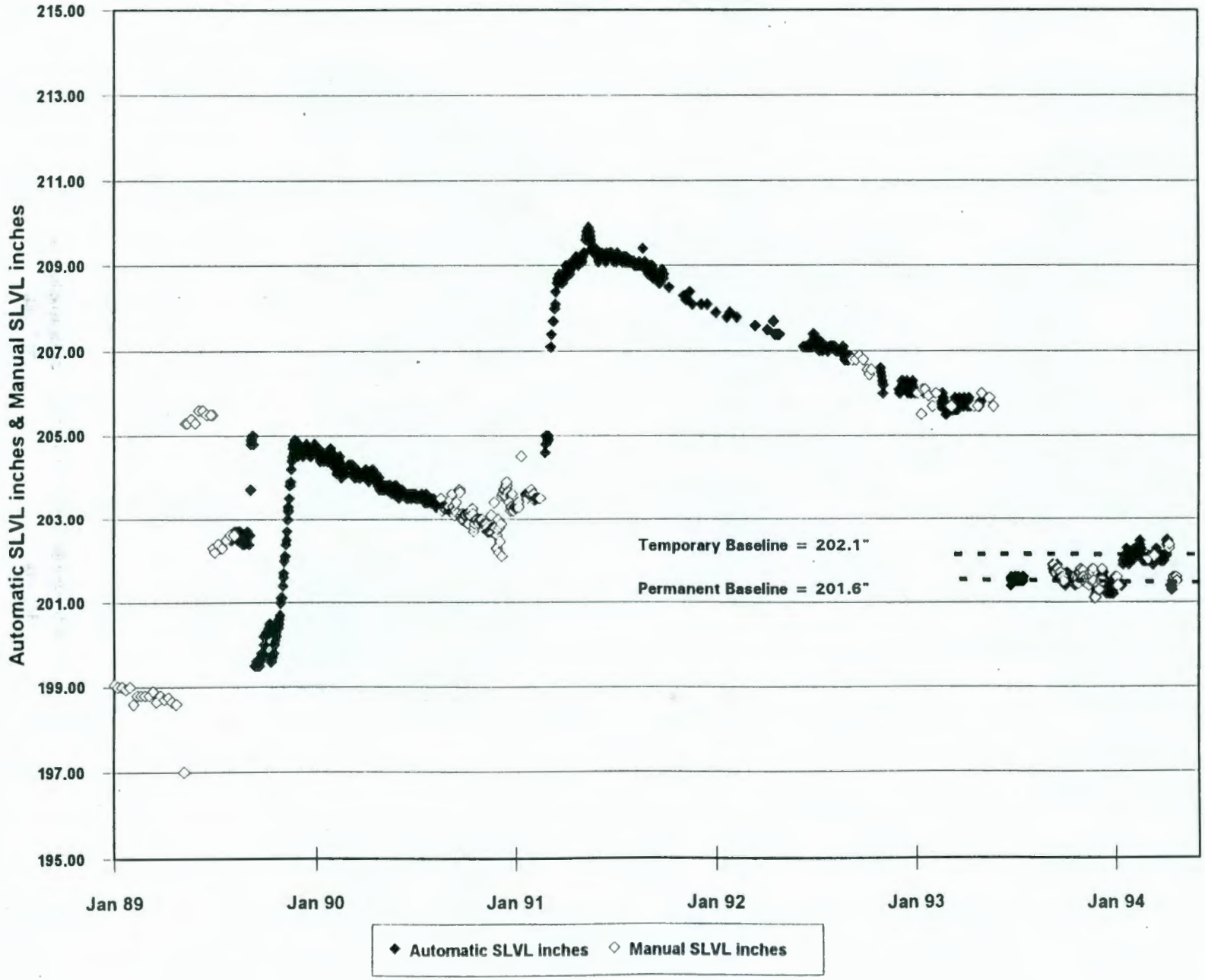
Retrieval Date
5/17/94

SX106

Data Quality:	Good	Suspect	Transcribed
	X		X



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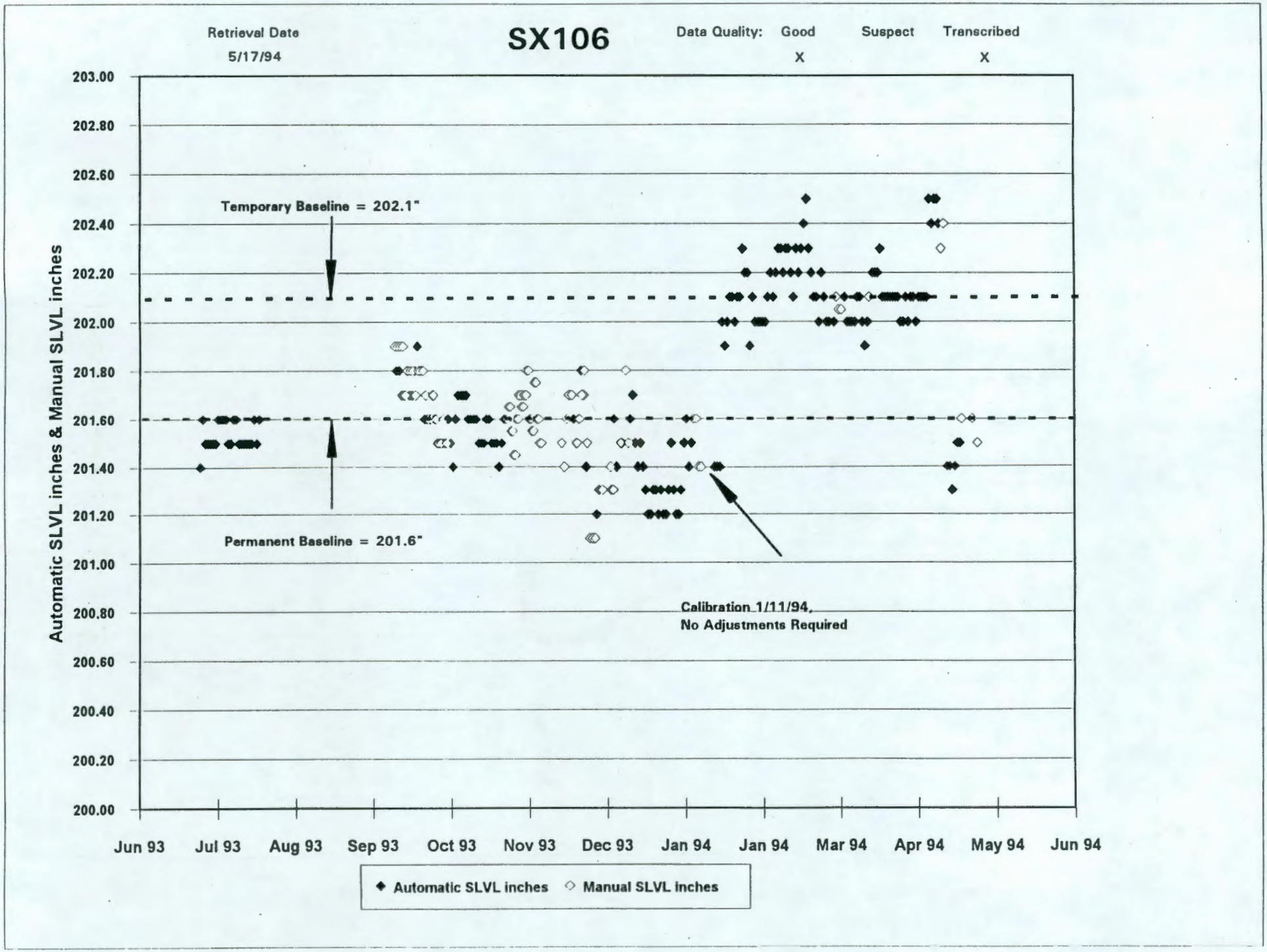
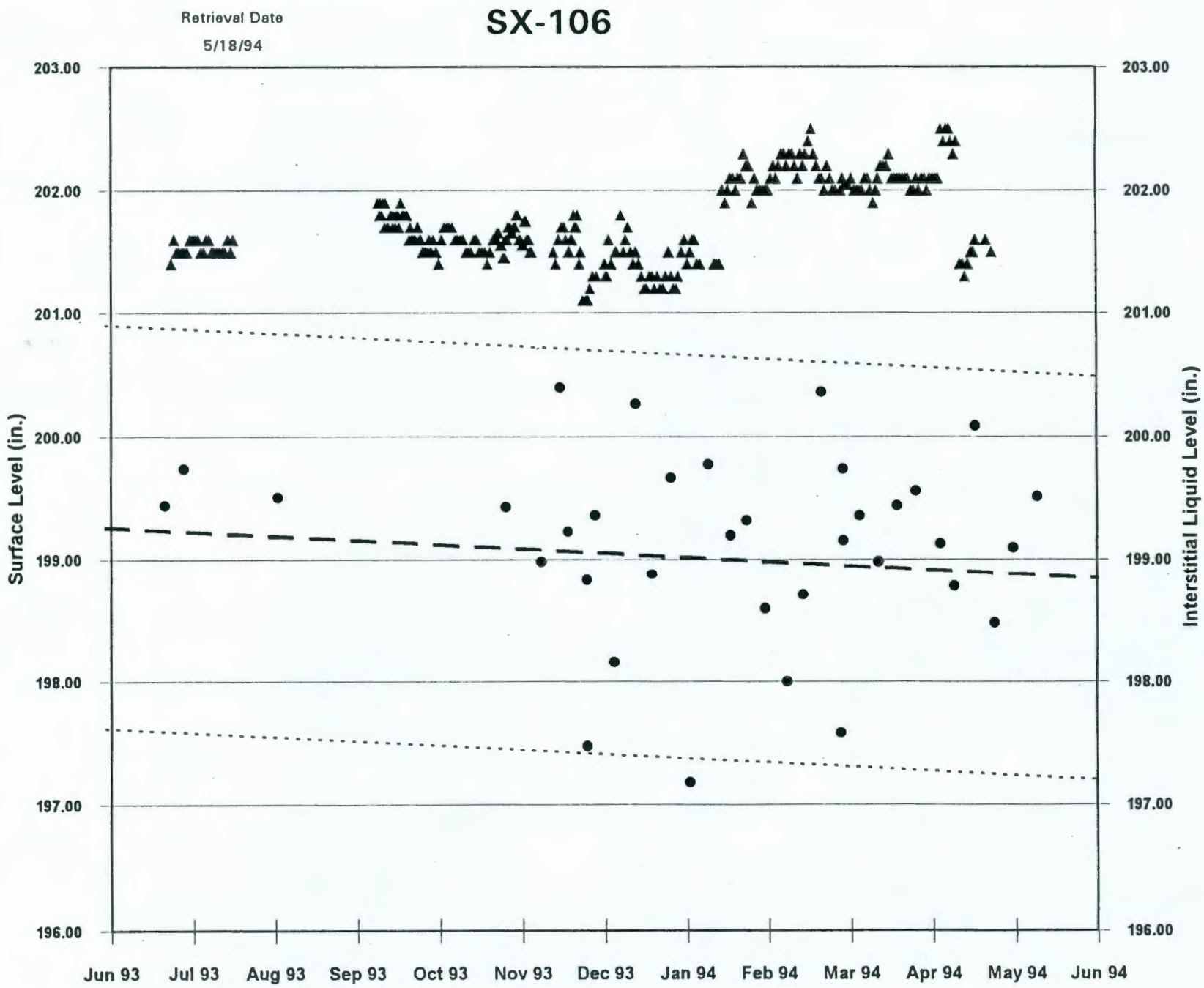

Retrieval Date
5/17/94
SX106
Data Quality: Good Suspect Transcribed
X X
Temporary Baseline = 202.1"
Permanent Baseline = 201.6"
Calibration 1/11/94,
No Adjustments Required
Automatic SLVL inches & Manual SLVL inches
203.00
202.80
202.60
202.40
202.20
202.00
201.80
201.60
201.40
201.20
201.00
200.80
200.60
200.40
200.20
200.00
Jun 93
Jul 93
Aug 93
Sep 93
Oct 93
Nov 93
Dec 93
Jan 94
Jan 94
Mar 94
Apr 94
May 94
Jun 94
Automatic SLVL inches
Manual SLVL inches



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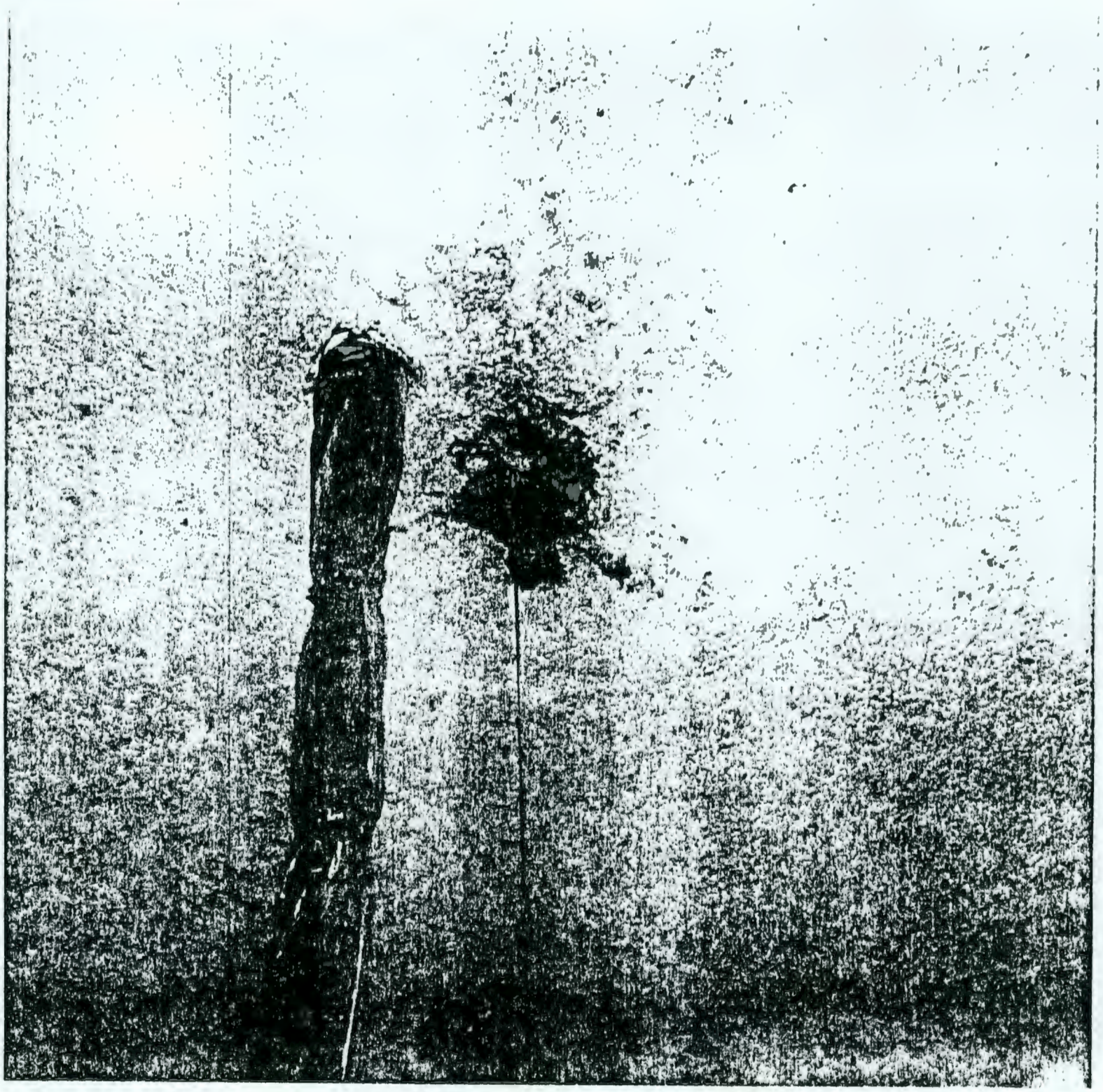

5

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

May 18, 1994
Richland, Washington

9513335.0600

DOUBLE AND SINGLE-SHELL TANK CHARACTERIZATION

MILESTONE M-44-00

TOPICS

- Accomplishments
- FY 1994 Milestone Status
- Special Topics

ACCOMPLISHMENTS

- Waste Compatibility Data Quality Objective was completed on March 4, 1994. However, the product needs revisions.
- In-Tank Generic Vapor Data Quality Objective was completed on March 7, 1994.
- The DQO process for the Crust Burn Issue associated with Flammable Gas Tanks was complete on March 14, 1994.
- Issued the Organic Safety Issue Data Quality Objective on April 29, 1994.
- Push Mode samples were attempted from Tank 241-C-111. Sampling was unsuccessful due to poor sample recovery.
- Supernate samples were taken from Tanks SY-102 and T-111.
- Vapor samples were taken from Tanks: C-103, C-104, BY-107, and BY-108.

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ACCOMPLISHMENTS (Cont'd)

- Loaded previous Characterization data from Single-Shell Tanks T-102, B-111, AW-105, and SY-101 into Tank Characterization Database

- Prepared Tank Characterization Plans for sampling Waste Tanks: 241-C-106, 241-C-108, 241-C-111, 241-S-110, 241-AN-107, and 241-SY-103.

FY 1994 Milestone Status

- M-44-07 Complete all FY 1992 and 1993 core sample analyses and complete validation of the resulting data.
  - Completed - ahead of schedule - on November 18, 1993
- M-44-04 Input Data from 3 HLW Tanks into Tank Characterization Database by January 31, 1994
  - Completed - ahead of schedule - on January 13, 1994
- M-44-01A Issue Draft of FY95 Tanks Waste Analysis Plan to Ecology and EPA
  - On schedule for submittal on May 31, 1994
- M-44-05 Issue 20 Tank Characterization Reports in accordance with approved Tank Characterization Plans.
  - On schedule for completion on September 15, 1994

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FY 1994 Milestone Status

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

NOTE: The old M-10 milestone for restart of Rotary Mode Sampling by March 30, 1994 was missed. Current best estimate is now June 21, 1994.

SPECIAL TOPICS

- Status of Rotary-Mode Core Sampling Equipment

PROBLEMS

Getting truck completely repaired, inadequate performance of grapple system, requirement of redesign and replacement of major components. Schedule delays for new equipment development for additional requirements such as truck mounted fresh air breathing provisions and truck mounted communication provisions. Resource schedule problems due to emergency pumping of C-111 and recalibration activities due to schedule extensions.

CORRECTIVE ACTIONS

Additional resources are being added to complete repairs on system and perform demonstration for WHC RRB as soon as possible. Additional manager placed on special assignment to aid in getting truck through WHC and DOE operational readiness review process. Upper level meetings are being held to refocus required attention to get the truck completed.

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SPECIAL TOPICS

- Status of Push-Mode Core Sampling Events

PROBLEMS

Initial sampling events in C Farm resulted in poor recovery, potentially due to dry waste. In the first core a very small amount of material was recovered and majority of it was a good sized rock. The second sample the waste looked very dry and crusty. There was no improved recovery in the third sample.

CORRECTIVE ACTIONS

Still investigating improved methods for Push-Mode sampling.

Plan to install still photographs of risers prior to sampling. Also using video cameras to ensure we obtain better recovery.

DISCUSSION

- FY-95 Tank Waste Analysis Plan (TWAP)
- DST RCRA Part B Waste Analysis Plan (WAP), Approvals of Resultant Tank Characterization Plans (TCP's), and the Interim Status (i.e., the SST) Waste Analysis Plan (IWAP)
- Updated Schedule of FY-94 Sampling Activities

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TRI-PARTY AGREEMENT MILESTONES

WASTE TANK SAFETY PROGRAM

STATUS REPORT AS OF: 04/29/94

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.** Completion of this TPA milestone was documented by WHC in a letter to RL dated April 6, 1994.

No.	Title	Due	Remarks
M-40-06	Complete Vapor Sampling Characterization of Tank 241-C-103 (Phase 2) (SI-2m18 - 06/94)	08/1994	Ahead of schedule. Sample Job #7B (a repeatability check) has been delayed until 05/20/94. There is a 30 day float beyond this date before the delay would cause the milestone to be missed. Also, the data obtained from this sample job is not expected to alter the results of the characterization work already completed.
M-40-13	Design and Fabricate a Spare Mixer Pump for Tank 241-SY-101.	09/1994	On schedule. This milestone has been revised (Change Number M-40-94-1, April 26, 1994). Design work for the permanent pump has been terminated. A spare mixer pump for 101-SY (similar to the currently installed mixer pump) will be designed and fabricated by September 1994.
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 that has been installed for tank 103-SY is scheduled to be put in operation by the first week in May. Installation for DST 101-AW and the three DSTs in AN farm is scheduled to start in June. An automatic (high hydrogen excursion) grab sample capability has been tested and is to be installed with the continuous gas monitoring system.
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 in March 1994. Comments from RL, WDOE, and EPA have not been received for incorporation.

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No.	Title	Due	Remarks
M-40-02B	Install Six of Twelve New Thermocouples. (Interim to SI-2t27 - 12/94)	09/1994	Ahead of Schedule. The first Temperature Vapor Probe was installed in a ferrocyanide leaker tank 107-BY. Only 4 gallons of water were added to the tank vs. several hundred using the old installation system. All installations are on hold pending resolution of the DNFSB recommendation to defer all installations in any tank riser until core sampling of the tank is completed (the argument is based on the possible need for more than two core samples from a given tank). The issue is being resolved.
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. The Preliminary Design Report is 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, is undergoing a performance evaluation.

No.	Title	Due	Remarks
M-40-07	Commence Operation of a Vapor Treatment System in Tank 241-C-103. (Interim SI-2n19 - 06/94)	06/1995	On schedule. Changes to the vapor space model are still occurring as new information relative to 103-C becomes available. Ways to compress the time for making changes to the model are being developed.
M-40-05	Complete Safety Alternative Test in High-Heat Tank 241-C-106. (SI-2x38 - 06/95)	09/1995	Ahead of schedule. The process test is continuing (no cooling water will be added during the test). An in tank video was taken on 04/25/94. A liquid surface was observed.
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. BY-104, BY-107 & BY-108 have been vapor sampled.
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. C-103 has been sampled.
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.

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No.	Title	Due	Remarks
M-40-00	Mitigate/Resolve Tank Safety Issues for High Priority Watch List Tanks.	09/2001	On schedule.

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

W.R. Wrzesinski, DOE-RL

May 18, 1994

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

- Concurrence with the SST Part A permit application modification received from Ecology.
- Ecology indicated on April 12, 1994 that no CAA Phase I permit required as activities identified do not constitute new emission source to the air.
- EPA and Ecology 30% design review documentation.

  Documentation delayed due to release requirements.
  Delivery in conjunction with WHC June 8-9, 1994 structural review meeting to be held in Seattle, WA.
- NEPA Environmental Assessment (EA) revision completed as per panel reviews (March 14, 1994 and April 4, 1994). Approval of preliminary safety evaluation (PSE) supporting EA delayed based on additional comments from Sandia and Brookhaven. Schedule revised for completion of PSE/EA by end of month.
- Potential for June visit of ERS testing at cold test facility.
- Performed video inspection of C-106 internals on April 22, 1994.
- Management review presentation for information.

2) Mid-Year TDPO Review Questions/Clarifications

DST Technology Development/Mixer Pump Development
SST Technology Development/Alternates
Barrier Feasibility Study
Leak Detection

3) SST Closure/Corrective Action Workplan

4) Leak Detection Testing

5) June Meetings to Discuss Sub-Surface Barriers

8

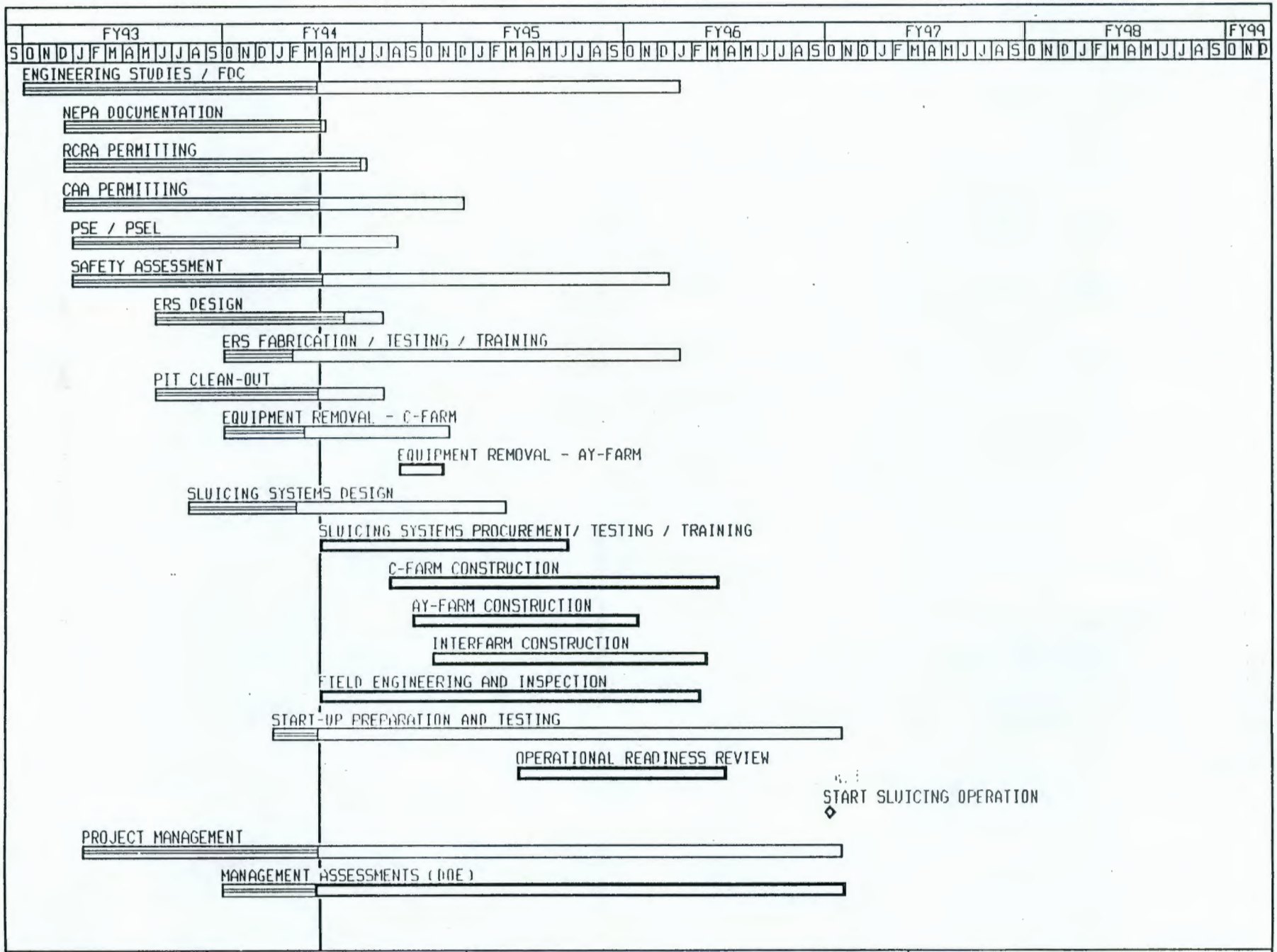
Management Review Meeting

March 1994

W-320 Tank 241-C-106 Sluicing

AGENDA

• Cost / Schedule Status	W. M. Lane
• Engineering and Design	K. G. Squires
• Construction and Start-up	T. N. Shaw
• Project Management	J. P. Harris
• Project Manager's Assessment	W. M. Lane



Plot Date 25APR94
Data Date 28MAR94
Project Start 10CT92
Project Finish 5NOV96

(c) Primavera Systems, Inc

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

GUN2

Sheet 1 of 1

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

BC-25

Date	Revision	Checked	Approved

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241-C-106 Sluicing
Project W-320

Cost Performance Report
($ in 000's)

March 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
Operating Expense										
Project Management	434.9	693.3	127.0	258.4	566.3	2,508.2	2,339.8	1,633.6	(168.4)	706.2
Engineering	897.6	1,079.3	689.8	181.7	389.5	4,142.6	3,720.4	3,749.3	(422.2)	(28.9)
Construction	996.4	(1,083.8)	1,037.8	(2,080.2)	(2,121.6)	2,605.0	2,002.8	2,020.9	(602.2)	(18.1)
Startup	46.4	(1.9)	24.5	(48.3)	(26.4)	211.2	37.2	82.3	(174.0)	(45.1)
Total Expense	2,375.3	686.9	1,879.1	(1,688.4)	(1,192.2)	9,467.0	8,100.2	7,486.1	(1,366.8)	614.1
CENRTC	440.9	342.4	475.2	(98.5)	(132.8)	1,402.1	1,325.7	1,013.6	(76.4)	312.1
Total Project	2,816.2	1,029.3	2,354.3	(1,786.9)	(1,325.0)	10,869.1	9,425.9	8,499.7	(1,443.2)	926.2

Management Review Meeting

March 1994

W-320 Tank 241-C-106 Sluicing

Variance Explanation

Project Management

Schedule Variance

Completion of safety documentation is approximately one month behind schedule due to resolution of unanticipated comments from external reviews.

Completion of the structural analysis efforts have been delayed due to later than planned issuance of contract to ADVENT Engineering and discontinuance of the CRAY computer.

Cost Variance

Variance primarily due to late than planned issuance of contract to ADVENT Engineering and discontinuance of the CRAY computer.

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W-320 Tank 241-C-106 Sluicing

Variance Explanation (Con't)

Engineering

Schedule Variance Explanation

Sluicing definitive design is approximately 6 weeks 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 procurement and fabrication are approximately one month behind schedule, due to later than planned placement of purchase orders for equipment and delays in fabrication due to delays in procurement.

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

March 1994

W-320 Tank 241-C-106 Sluicing

Engineering and Design

Accomplishments

- Incorporated all 30% design review comments on drawings except for 2 generic ones (equipment numbering and as-built existing structures)
- Identified drawings to be issued as"Rev A" to freeze design
- Identified drawings to be issued with early construction package June 1, 1994
- Started the development of Process Control Descriptions, that will provide system descriptions required to base the balance of the design
- Completed slurry/sluice pump specification except for RL approval
- ICF KH development control engineering work plan for ERS was released
- Awarded contract for ERS transformer
- Awarded Gantry Cranes contract for Solid Waste Storage complex

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Management Review Meeting

March 1994

W-320 Tank 241-C-106 Sluicing

Engineering and Design

Accomplishments

- Incorporated all 30% design review comments on drawings except for 2 generic ones (equipment numbering and as-built existing structures)
- Identified drawings to be issued as"Rev A" to freeze design
- Identified drawings to be issued with early construction package June 1, 1994
- Started the development of Process Control Descriptions, that will provide system descriptions required to base the balance of the design
- Completed slurry/sluice pump specification except for RL approval
- ICF KH development control engineering work plan for ERS was released
- Awarded contract for ERS transformer
- Awarded Gantry Cranes contract for Solid Waste Storage complex

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W-320 Tank 241-C-106 Sluicing

Engineering and Design

Issues/Recommendations

- Schedule
  - Sluicing design is approximately 6 weeks behind the early start schedule, though 11 of 14 design packages are expected to be complete on or ahead of schedule. Evaluations have determined that:
    - All of the packages behind schedule have some incorrect logic ties which creates most of the negative float. This will be corrected in the next schedule revision
    - I&C design is understaffed. Staff will increase 50% by early April and another 50% by late April
  - Development of an early construction package has required diversion of engineering resources from scheduled tasks.

W-320 Tank 241-C-106 Sluicing

Engineering and Design

Near-Term Activities

Issue Rev A drawings to freeze design

Issue other documents resulting from 30% design review:

- Process Control Descriptions
- Configuration Management Plan

- Issue ICE design media review package containing 200 ± ICF KH drawings, and 100 ± WHC drawings/specifications

Issue first HVAC Specification

Initiate development control for procurement and fabrication of shielded HVAC off-gas process skid

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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. One issue remaining; Farm Key control (resolution in progress)
  - Finished 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 ready for transfer to cold test site

Management Review Meeting

March 1994

W-320 Tank 241-C-106 Sluicing

Procurement and Construction

Accomplishments (Con't)

- Completed Geotechnical survey along transfer pipeline route in support of detailed design
- Tank Farm Operations plans to remove fresh air requirement in C-Farm with the exception of C-102 and 103 tanks. Full face respirator required for entry into C-farm
- A design/build contract awarded to AMRO Manufacturing Corp. for Hydraulic Trailer. Delivery planned for May 1994
- Performed C-Farm/C-106 to check current status of field conditions

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W-320 Tank 241-C-106 Sluicing

Procurement and Construction

Accomplishments (Con't)

- Cold test facility preparations in progress. Work around the rotary core sampler is slow
- ICF KH Construction prepared estimates and is mobilizing in support of decontamination of surfaces in and around C-Farm - Started March 1994
- Negotiated overall C-Farm clean up strategy and funding sources with Operations
- Excellent progress is being made by ICF KH on ERS fabrication activities.
    - Container 1 and 2 fabrication completed
    - Container #3 fabrication nearing completion
    - Strongback fabrication completed

W-320 Tank 241-C-106 Sluicing

Procurement and Construction

Accomplishments (Con't)

- Hydraulic trailer design completed, fabrication initiated expected completion date May 22, 1994

- Gantry crane procurement specification completed and procurement placed. Engineering submittals reviewed & approved. On schedule for May 25, 1994 delivery

- All ICF KH designed ERS components released for fabrication under development control. Fabrication nearing completion for mockups and components needed for heel jet removal

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W-320 Tank 241-C-106 Sluicing

Procurement and Construction

Accomplishments (Con't)

- Coverblock containers received and ready for use
- Flexible receiver and work platform storage/disposal boxes design completed and procurement placed
- Phase III IGRIP model (computer simulation video) nearing completion
- Flexible receiver and hydraulic trailer/container models completed
- Design complete on container transport trailer and released for fabrication
- Go-No/Go gauge design released and in fabrication

W-320 Tank 241-C-106 Sluicing

Procurement and Construction

Issues and Recommendations

- Project W-320 has been unable to secure adequate dedicated Operator support. Must be resolved or in-field work will be impacted
  - Two HPT's, will be assigned on 4/1/94 for near-term work
  - Up to four more HPT's required this fiscal year
  - Issue raised to Sr. Management for tank farm operator support
  - Operation staff increases underway and lead operator postings out for Project W-320

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W-320 Tank 241-C-106 Sluicing

Procurement and Construction

Issues and Recommendations (Con't)

- Receipt of Finding of No Significant Impact is imperative to maintaining schedule
- Impacts
  - Delays equipment removal activities from August
  - Historical seasonal winds and temperatures from October through March may impact equipment removal activities
  - This impacts construction in 2 pits in C-farm and 1 pit in AY-farm which may impact project completion up to 6 months
- Recommend proceeding with long lead procurement RFP's in parallel with final steps of NEPA review

W-320 Tank 241-C-106 Sluicing

Procurement and Construction

Near-term Activities

- Operations is preparing plans to initiate surface contamination control measures in C-Farm - April 1994
- Perform video inspection of C-106 internals - April 22, 1994
- Equipment Removal
  - Roadway stabilization around C-Farm - Delay due to FONSI
  - Site preparation for equipment removal laydown and staging areas - including change trailer and WRAM station - Start May 1994 if FONSI approved
  - Pump removal - start August 1994 in question by NEPA documentation and safety documentation

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W-320 Tank 241-C-106 Sluicing

Procurement and Construction

Near-term Activities (Cont)

- Pump procurement specification in approval/signature cycle
- HVAC chiller skid procurement specification in development
- Tank farm operations rotary core sampler ATP at the cold test site has delayed W-320 cold testing activities until May 2, 1992. (4 week delay)

Management Review Meeting

March 1994

W-320 Tank 241-C-106 Sluicing

RCRA/CAA Permitting Status

- 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 on April 4, 1994

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Management Review Meeting

March 1994

W-320 Tank 241-C-106 Sluicing

NEPA Status

- Accomplishments
  - Resolved comments received from Yakima Indian Nation and DOE-HQ
  - RL initiated final EA review in March 1994 for decision on issuance of FONSI
- Near-Term Activities
  - PSE review/approval to be completed in April as a pre-requisite to issuance of FONSI
- Issues/Recommendations
  - Significant final review comments have impacted initiation of procurement milestones. Comments will be addressed upon receipt

Management Review Meeting

March 1994

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. April 1994
  - Perform 30 percent cost estimate review and update project baseline. April-May 1994

Management Review Meeting

March 1994

W-320 Tank 241-C-106 Sluicing

Project Reviews

- Accomplishments
  - Completed ARES project review report - March 1994
- Near Term Activities
  - Support DOE Management Assessments for approval to start construction
  - Distribute final ARES report - April 1994

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Management Review Meeting

March 1994

W-320 Tank 241-C-106 Sluicing

Milestone Status Table

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

Management Review Meeting

March 1994

W-320 Tank 241-C-106 Sluicing

Milestone Status Table (Cont)

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

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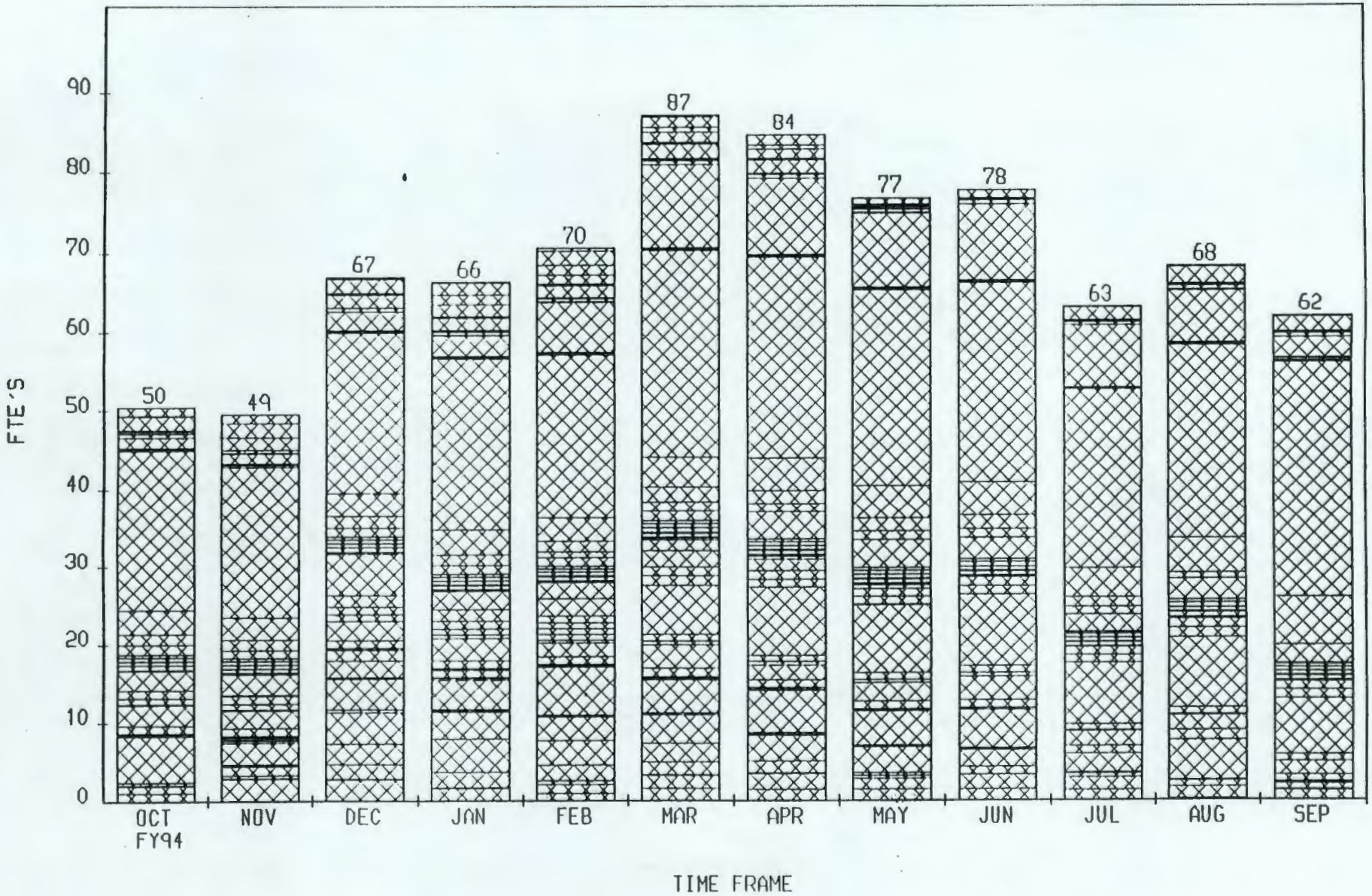


WR # 98800010

Project Start 10CT92 Project Finish 10NOV98 Data Date 10CT93 Plot Date 3MAY94 (c) Primavera Systems, Inc.	TX02	WHC LABOR W-320 106-C SLUICING FTE HISTOGRAM (TOTAL PROJECT)	Sheet 1 of 1

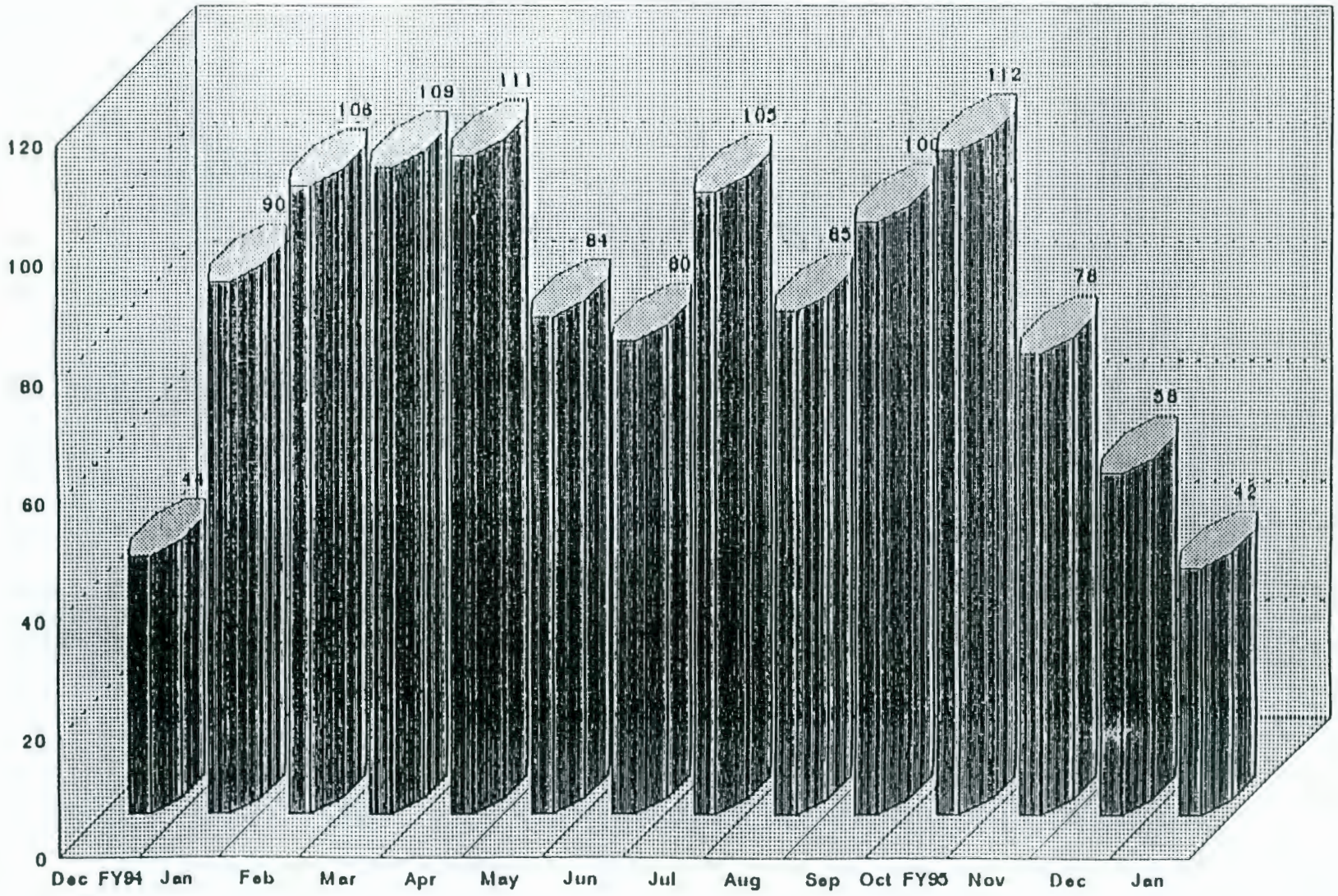
RC-00

Date	Revision	Checked	Approved

ICF Kaiser Hanford

Tank 241-C-106 Sluicing

Total Manpower



February 1994

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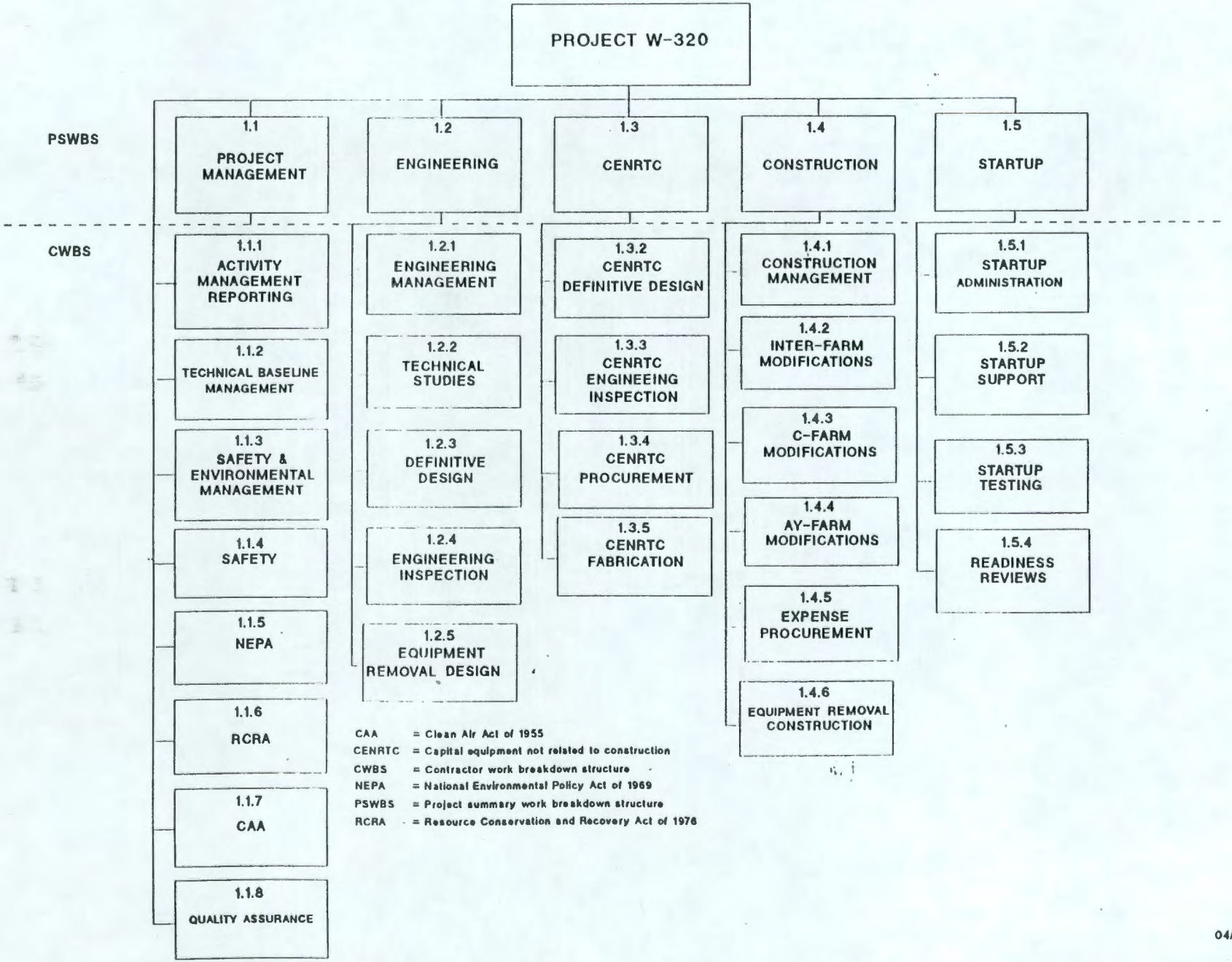
PROJECT W-320
PSWBS
CWBS
1.1 PROJECT MANAGEMENT
1.2 ENGINEERING
1.3 CENRTC
1.4 CONSTRUCTION
1.5 STARTUP
1.1.1 ACTIVITY MANAGEMENT REPORTING
1.1.2 TECHNICAL BASELINE MANAGEMENT
1.1.3 SAFETY & ENVIRONMENTAL MANAGEMENT
1.1.4 SAFETY
1.1.5 NEPA
1.1.6 RCRA
1.1.7 CAA
1.1.8 QUALITY ASSURANCE
1.2.1 ENGINEERING MANAGEMENT
1.2.2 TECHNICAL STUDIES
1.2.3 DEFINITIVE DESIGN
1.2.4 ENGINEERING INSPECTION
1.2.5 EQUIPMENT REMOVAL DESIGN
1.3.2 CENRTC DEFINITIVE DESIGN
1.3.3 CENRTC ENGINEEING INSPECTION
1.3.4 CENRTC PROCUREMENT
1.3.5 CENRTC FABRICATION
1.4.1 CONSTRUCTION MANAGEMENT
1.4.2 INTER-FARM MODIFICATIONS
1.4.3 C-FARM MODIFICATIONS
1.4.4 AY-FARM MODIFICATIONS
1.4.5 EXPENSE PROCUREMENT
1.4.6 EQUIPMENT REMOVAL CONSTRUCTION
1.5.1 STARTUP ADMINISTRATION
1.5.2 STARTUP SUPPORT
1.5.3 STARTUP TESTING
1.5.4 READINESS REVIEWS
CAA = Clean Air Act of 1955
CENRTC = Capital equipment not related to construction
CWBS = Contractor work breakdown structure
NEPA = National Environmental Policy Act of 1969
PSWBS = Project summary work breakdown structure
RCRA = Resource Conservation and Recovery Act of 1976

04/26/94 - AJD

Management Review Meeting

March 1994

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) finalized in March 1994. Project to establish and maintain access control through construction and start-up testing

- Major focus for April-June 1994: obtain approvals of NEPA and safety documents; complete management assessment; prepare for construction; obtain KD #3

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SINGLE SHELL TANKS CLOSURE PLAN

F. A. Ruck
RCRA Closures

May 18, 1994

SST CLOSURE WORK PLAN

STATUS

- Closure Plan outline has been prepared per TPA M-45-06 milestone description
- Issues to be addressed in Closure Plan have been tentatively identified (additional input/comments from Ecology is requested)
- Chapter/section assignments have been made
- Manpower resource estimates are in preparation for FY 94-95
- FY 94 work scope is funded
- FY 95 work scope is budgeted
- Work has been initiated

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ECOLOGY COMMENTS ON "Regulatory Analysis for Closure of a Treatment and Storage Tank as a Landfill"

- Ecology position on "clean closure" will be addressed in Regulatory Issues section of SST Closure Work Plan, including "Potential conflicts between Atomic Energy Act of 1954 and Resource Conservation and Recovery Act of 1976"

- Assessment of tradeoffs between worker exposure and increased short-term public health and safety risk vs. reduced long-term risks to public will be critical to decision on landfill closure vs. clean closure

ECOLOGY COMMENTS ON "Risk-Based Preliminary Assessment Supporting Closure of the Hanford Site Single-Shell Tanks as Landfills"

- Ecology comments on numerical criteria, point of exposure, and infiltration rate will be addressed in Regulatory Issues and Closure Strategy Issues sections of the SST Closure Work Plan
- Performance criteria definition, model development, data acquisition, and assessment will be critical elements in support of closure decisions
- Additional performance assessment model development is planned for FY 94, addressing multiple sources and compliance with 40 CFR 191 criteria on individual and groundwater protection

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LEAK DETECTION/
ELECTRICAL RESISTANCE TOMOGRAPHY

Deborah F. Iwatate
May 17, 1994

Leak Detection/Electrical Resistance Tomography (ERT)

- Leak Detection
  - Current aspects
  - Future considerations
  - Approach
- Electrical Resistance Tomography (ERT)
  - Concept of operation
  - Why the system is being tested
  - Site testing
  - Schedule
- Summary

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Leak Detection/Electrical Resistance Tomography (Cont.)

- Current Leak Detection

  - Variety of Methods used
    - In tank level monitoring (FIC, manual tape)
    - Point source monitoring (conductivity probe)
    - Other (visual inspection, moisture detection, pressure check, radiation monitoring)

  - Several reasons
    - Safety
    - Operations
    - Regulatory

  - System capabilities and limitations vary
    - Sensitivity
    - Accuracy
    - Reliability
    - Response time

Leak Detection/Electrical Resistance Tomography (ERT)

- Future Considerations

  - Improved capabilities
  - Retrieval via sluicing
  - Changing site activities

- Approach

  - Identify evolving leak detection and monitoring needs
  - Investigate existing and developing leak detection and monitoring technologies
  - Test and evaluate systems
  - Develop plan and implement course of action

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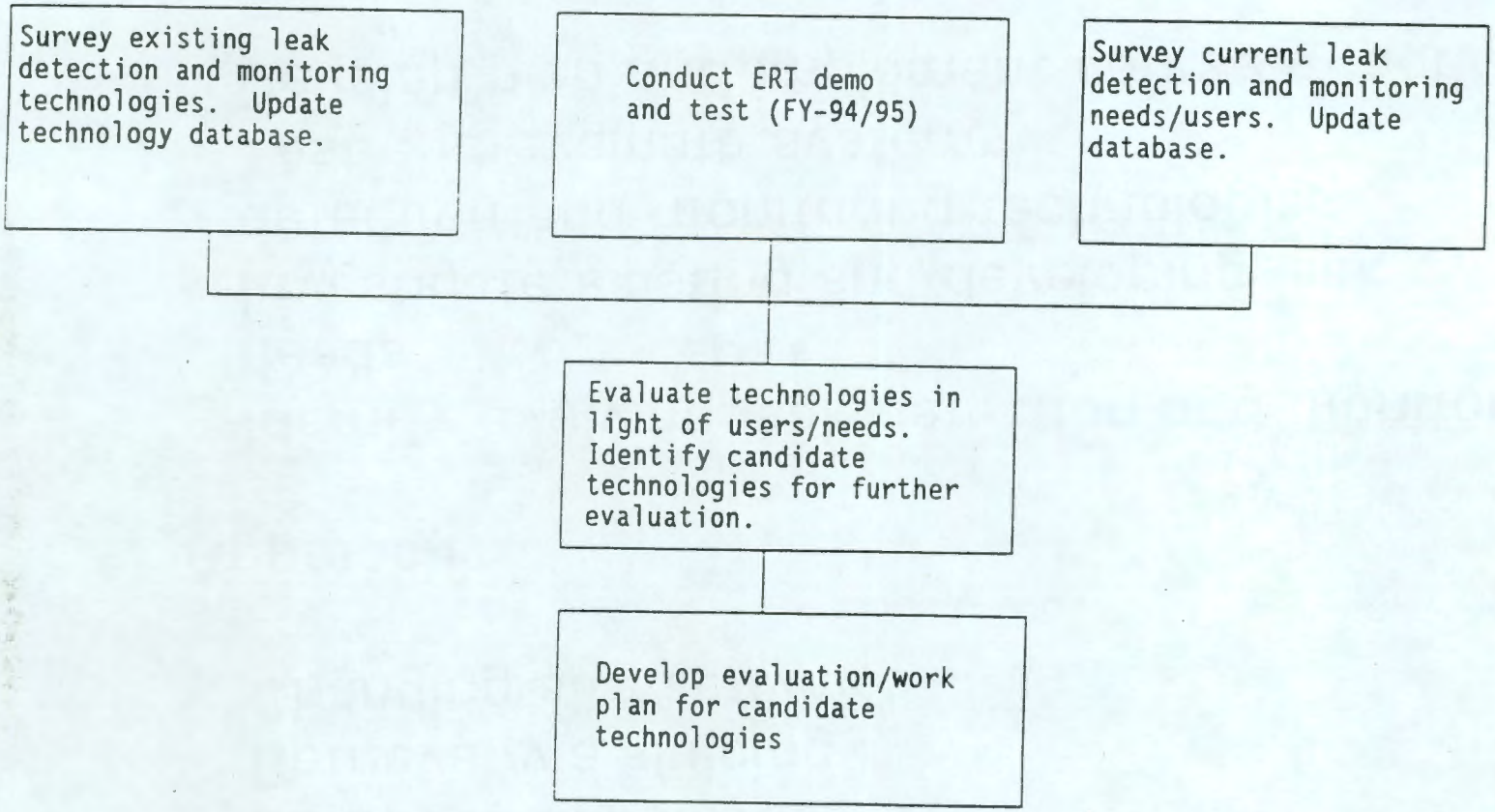
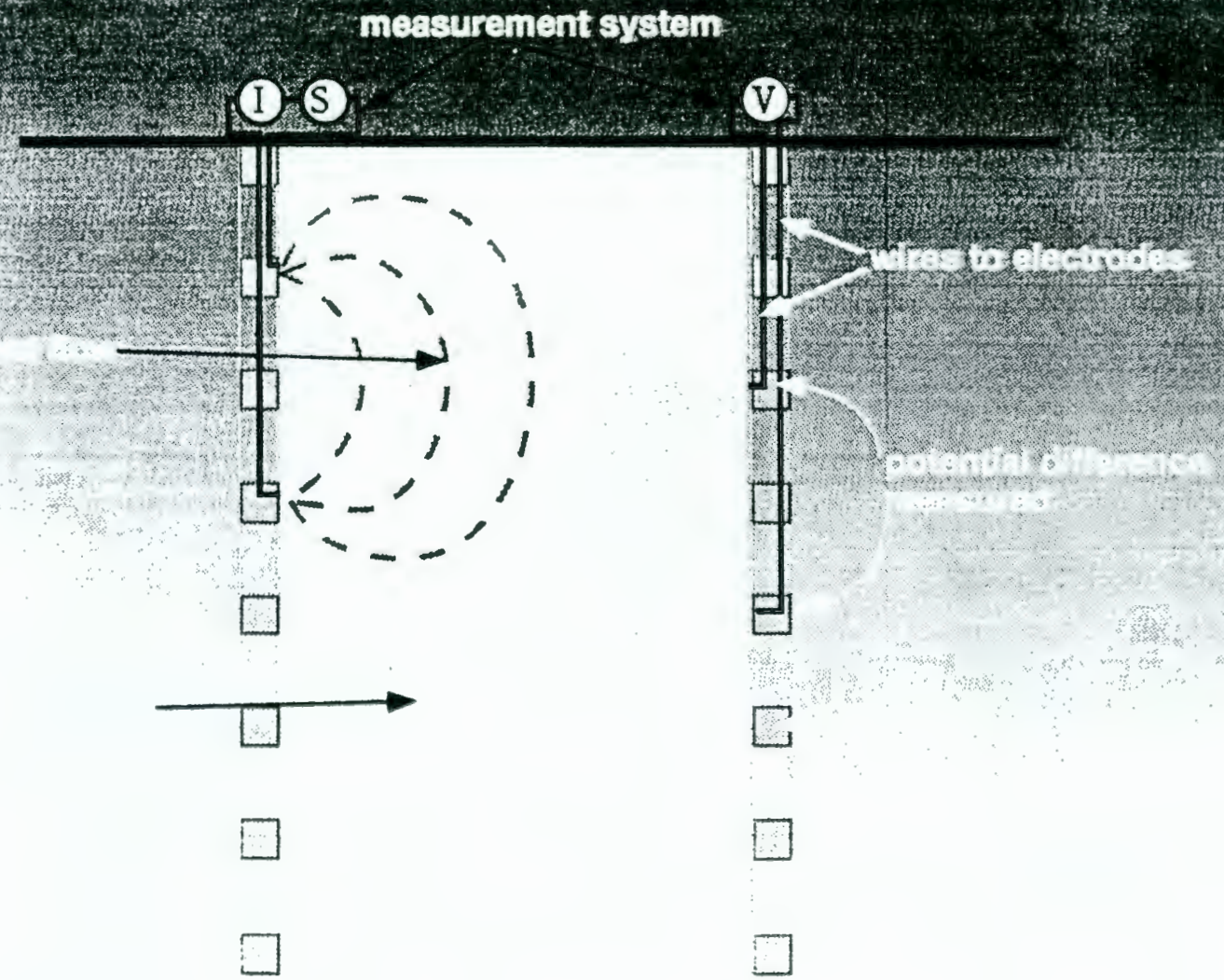
Approach Logic Flowsheet for Leak Detection and Monitoring



We want to map the subsurface resistivity structure



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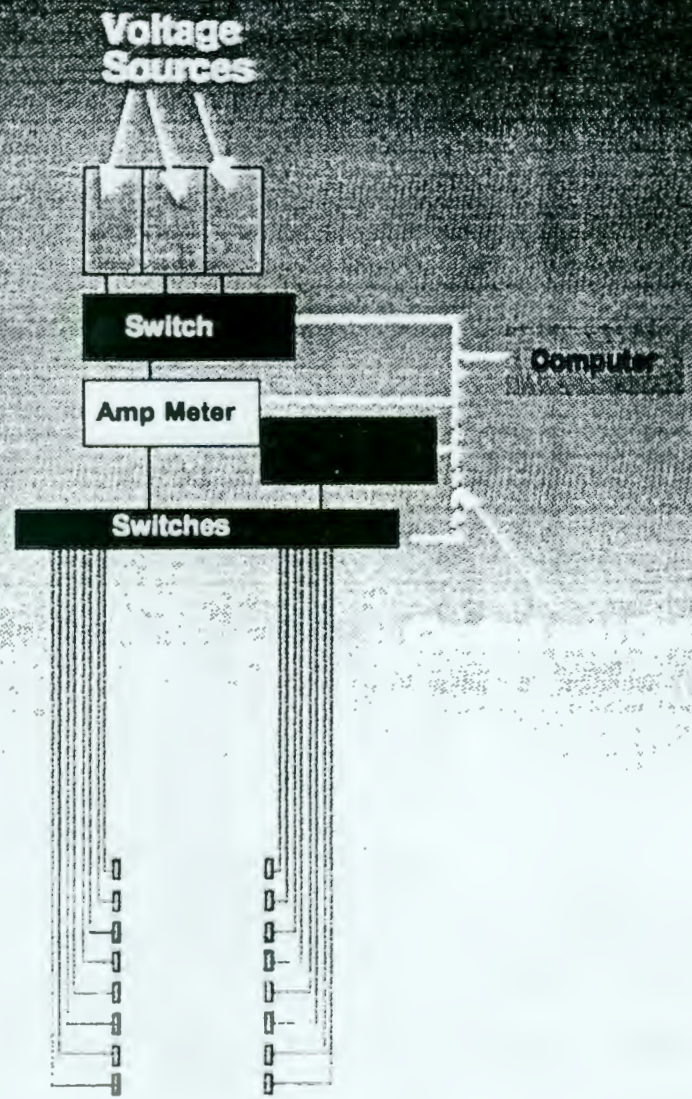
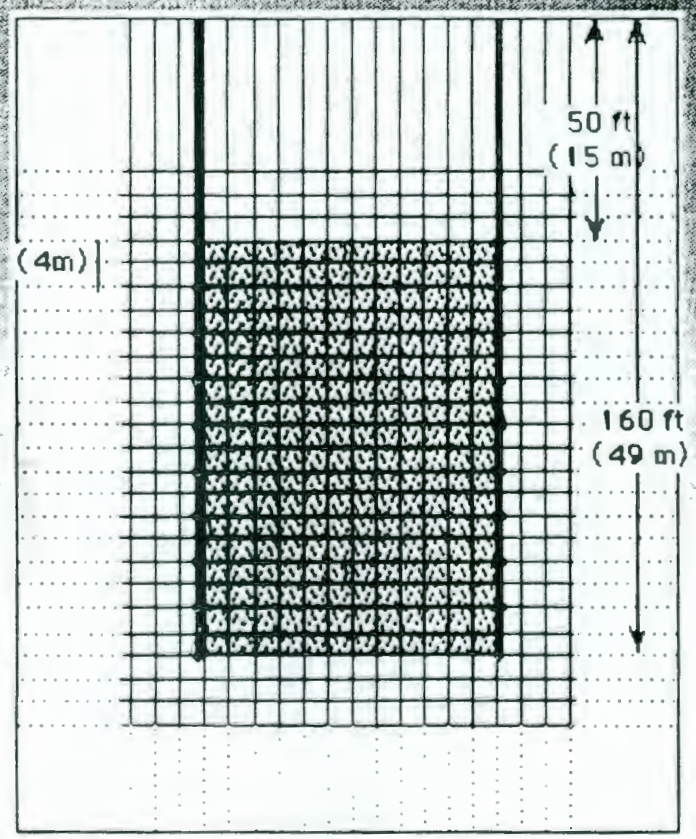
Data was collected with an automatic data collection system



<u>system characteristics</u>:

- electrodes connected together and to instruments by switches
- user friendly, simple, robust
- collects approx. 500 measurements / hr
- requires only one technician to operate

We use a proven robust algorithm for tomograph reconstructions



The algorithm characteristics are:

- finite element scheme
- current flow is 3-dimensional
- resistivity structure is 2-dimensional
- assumes point electrodes
- accounts explicitly for data noise
- robust under normal field conditions

What we know about ERT:

- ERT has been successful in selected geological environments.

- ERT has multiple potential applications.

  - Leak detection
  - Leak location
  - Leak volume estimation
  - Plume tracking

- ERT detects and monitors changes, not pre-existing conditions.

What we don't know about ERT:

- Will it work in Hanford's arid soils?
- Will it work in the proximity of large subsurface conductive objects?
- Will it work when subjected to field conditions (electrical noise, cathodic protection systems, vibration, underground piping)?
- What effect will weather changes have on the system?
- What is the detection limits, accuracy, and reliability of the system under Hanford field conditions.

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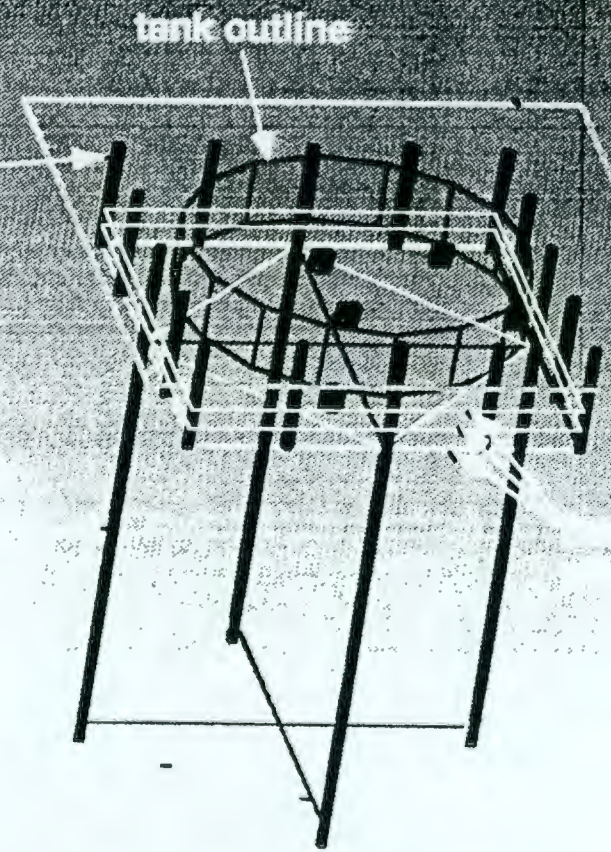
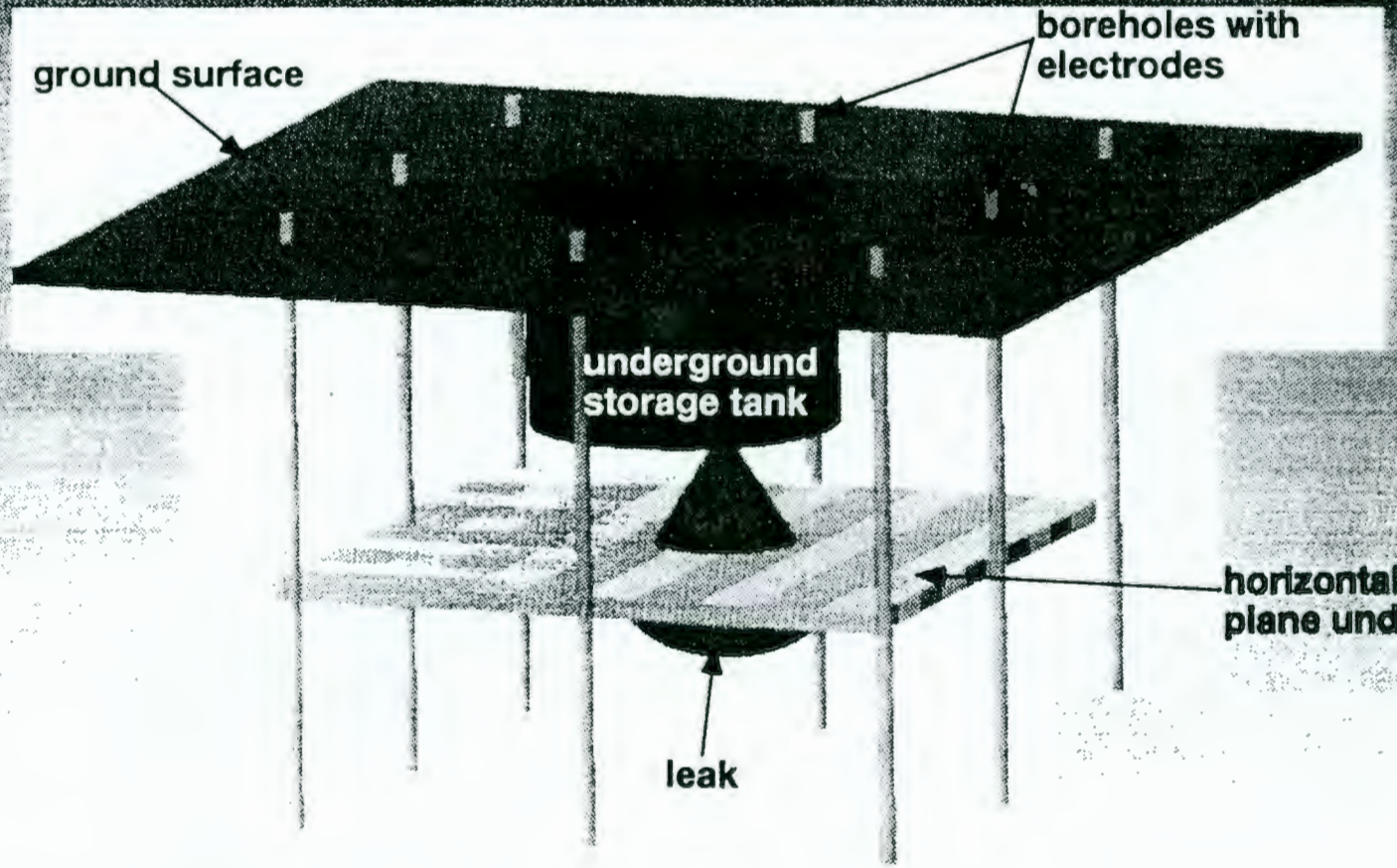
EM-30 is providing a test site for leak detection tests

Site is located in the 200 E Area of the Hanford Res.



Leaks are detected by probing the soil below a tank's bottom



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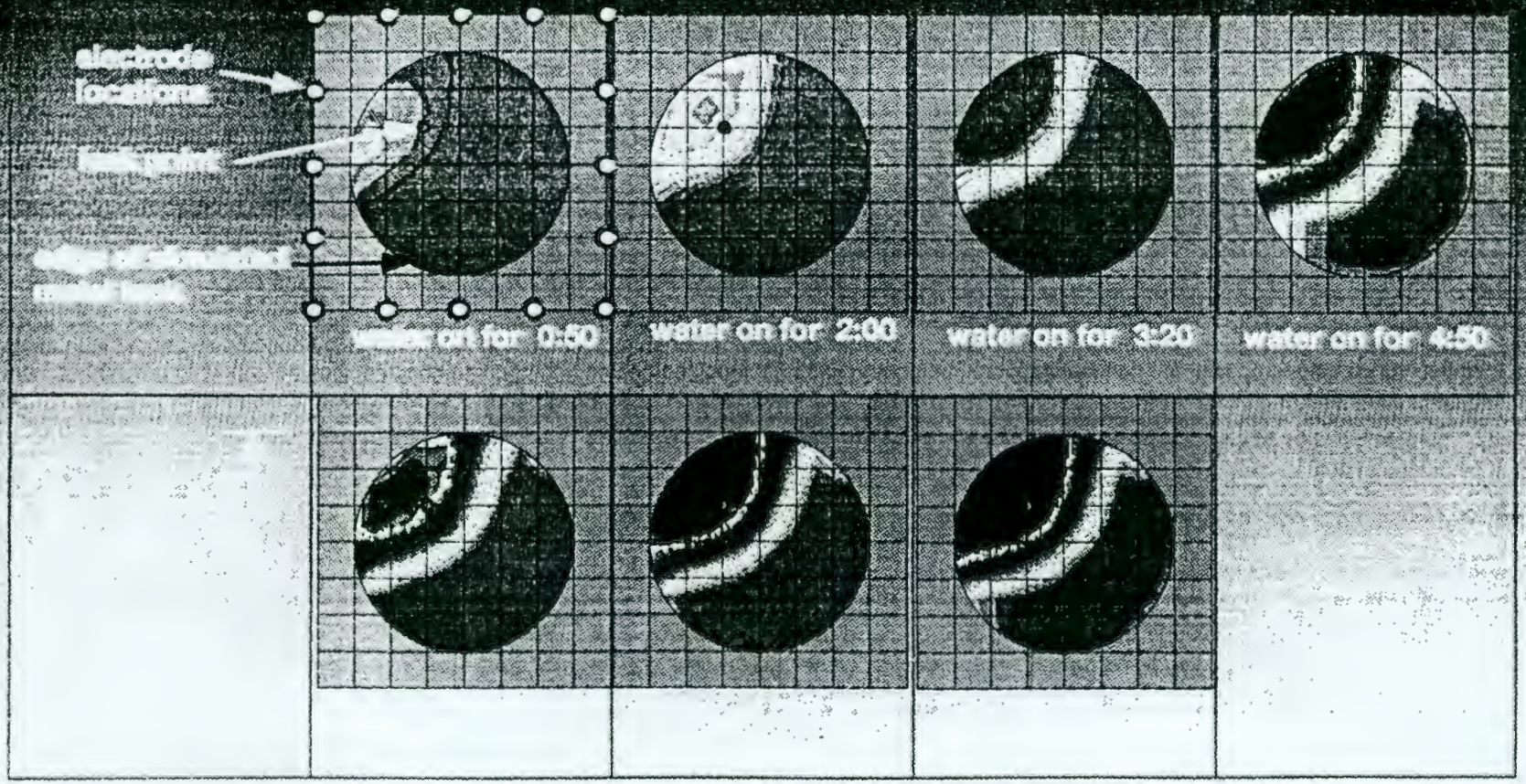
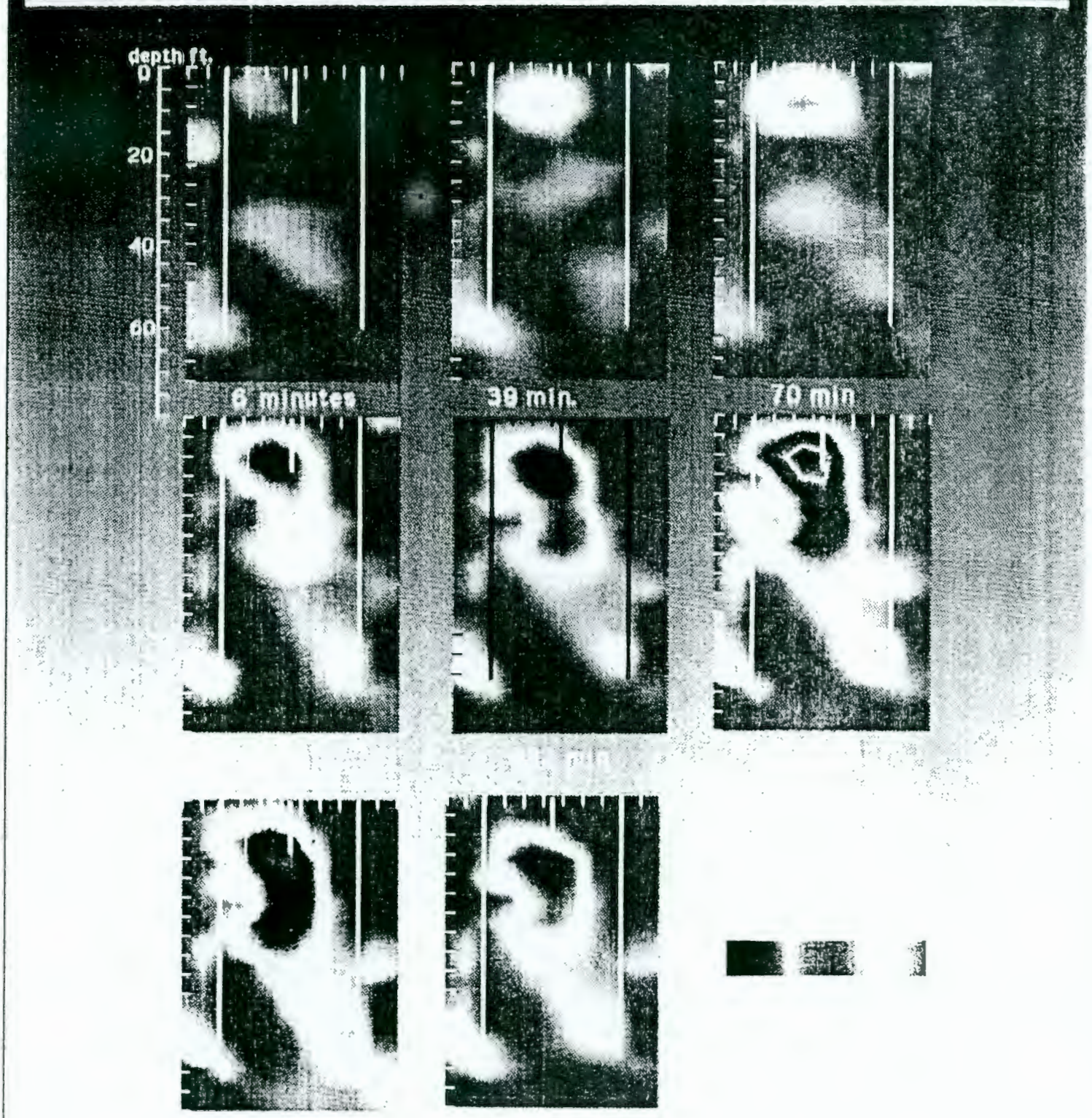
Results of small scale leak tests are encouraging

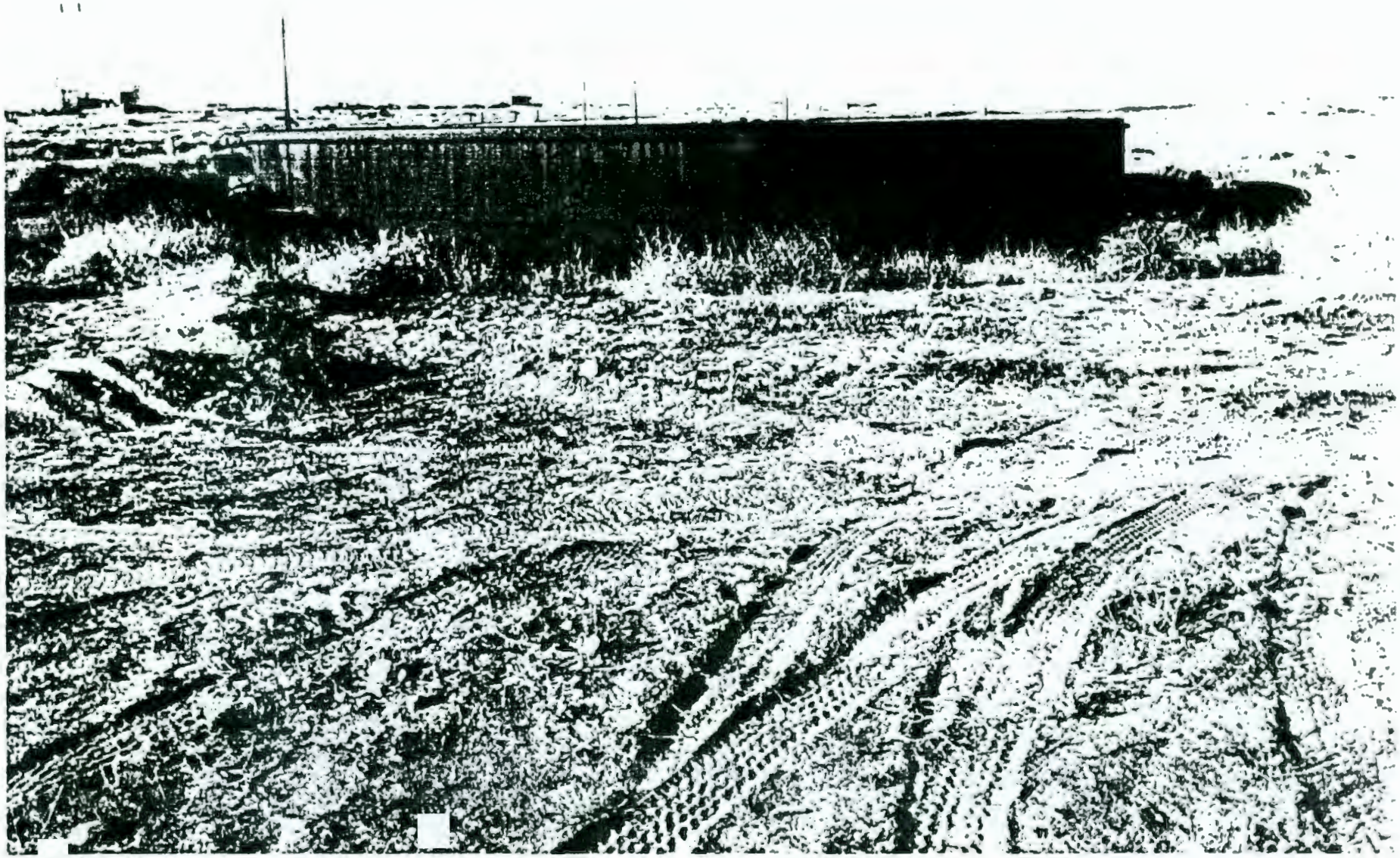


ERT can be used for plume tracking



200L/105A MOCK Tank Site

100E 105A Mock Tank Site



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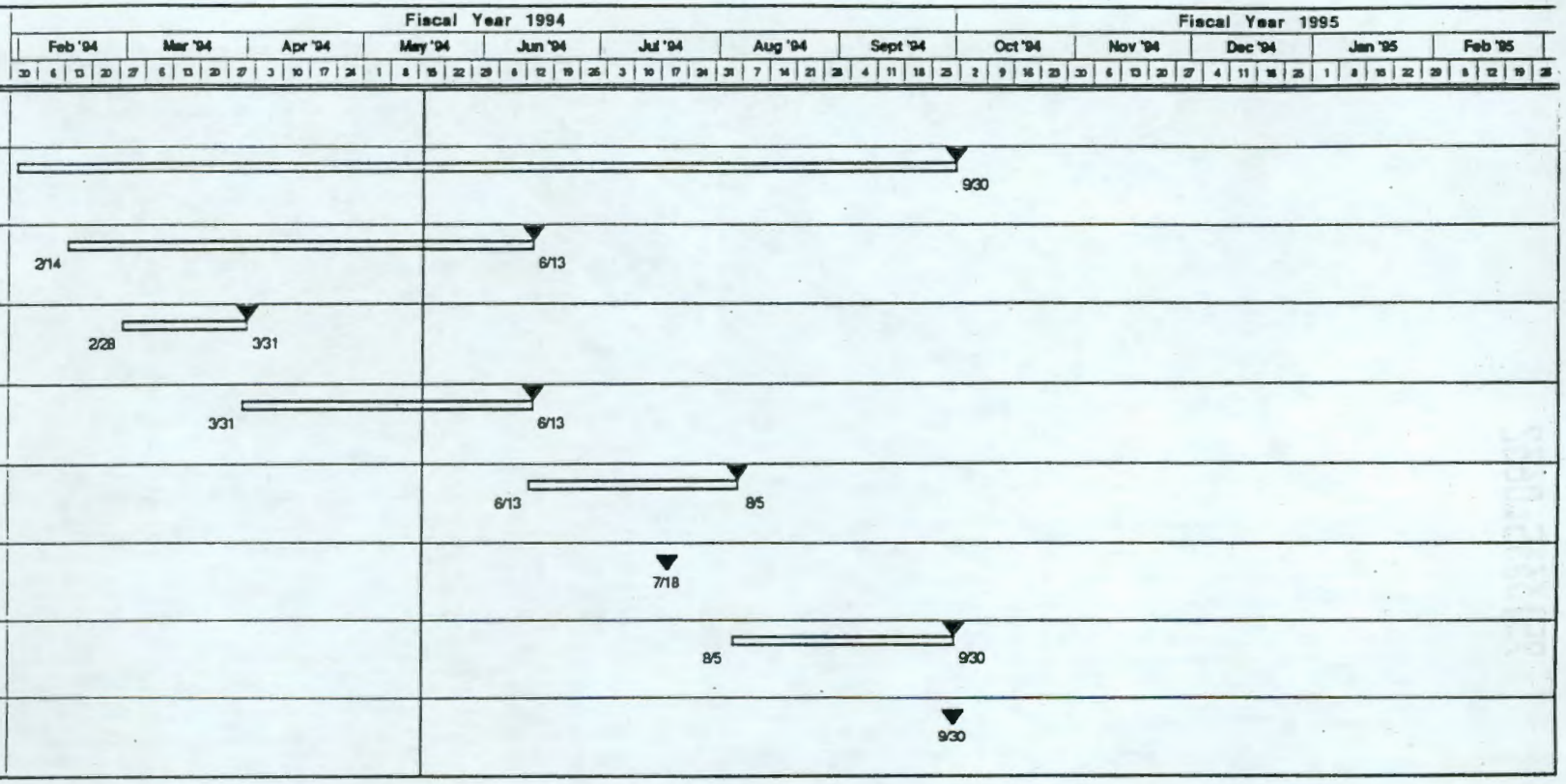
No.	Activity
1	ERT Demo/Test
2	ERT Demo/Test Permit Process
3	ERT Test Site Evaluation
4	ERT Test Site Preparation
5	Phase I ERT test/demo activities
6	Decision Point for Phase II test/demo
7	Phase II ERT test/demo activities
8	Release ERT test/demo evaluation report



Electrical Resistance Tomography Proposed Phase I and II Demonstration/Test Schedule

day, May 16, 1994

Summary

- Leak Detection needs and technologies are evolving.

- ERT will be tested to assess the viability and potential usefulness of this technology in support of the Hanford Mission.

- Test site preparations are on going at this time.

- Testing could begin as early as June 13, 1994 provided:

  - Construction completes on schedule, and
  - The "State Waste Discharge Permit (SWDP) application for Electrical Resistance Tomography testing (DOE/RL-94-32 Rev. 0)" is approved.

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