94-0006091

Department of Energy
Richland Field Office
P.O. Box 550
Richland, Washington 99352

94-CHD-126

The Honorable John T. Conway
Chairman
Defense Nuclear Facilities Safety Board
Suite 700
625 Indiana Avenue, NW
Washington, D.C. 20004

Dear Mr. Conway:

TRANSMITTAL OF CHARACTERIZATION PROGRAM QUARTERLY REPORT FOR THE PERIOD ENDING SEPTEMBER 30, 1994 (DEFENSE NUCLEAR FACILITY SAFETY BOARD 93-5, COMMITMENT 1.10)

Reference: Recommendation 93-5 Implementation Plan, U.S. Department of Energy, Richland Operations Office, RL 94-0001, dated January 1994.

The Department of Energy, Richland Operations Office (RL) is transmitting the Characterization Program Quarterly Report for the period ending September 30, 1994. The transmittal of this document satisfies the recommendation 93-5 Implementation Plan (Referenced), commitment 1.10 that requires a deliverable of a quarterly progress report.

If you have any question please contact Mr. John M. Clark, of my staff on (509) 376-2246.

Sincerely,

T. R. Sheridan, Acting Assistant Manager
Office of Tank Waste Remediation System

Attachment

cc: T. Grumbly, EM-1, HQ
K. Lang, EM-36, HQ
T. Kelley , WHC

EXECUTIVE SUMMARY

Recommendation 93-5 Implementation Plan for resolution of Defense Nuclear Facilities Safety Board *Recommendation 93-5* was accepted by the Defense Nuclear Facilities Safety Board on March 25, 1994. Between December 1993, when the plan was submitted to the U.S. Department of Energy-Headquarters, and September 30, 1994, there have been 63 commitments. Of these commitments, 43 have been submitted to DOE- Richland Operations Office on or ahead of schedule, and 15 commitments have been submitted late. Three commitments are past due and Westinghouse Hanford Company continues to work overtime to reduce future schedule delays. Work on two additional interim milestones, associated with analytical development work, was suspended when it was identified that they were not necessary to meet any data requests received. Recommendations were submitted by Westinghouse Hanford Company to the U.S. Department of Energy, Richland Operations Office to formally delete Commitment 5.1 (install core scanning system in hot cell) and Commitment 5.4 (cyanide speciation technology transfer).

There continues to be improvements and changes in the Characterization Program since June 1994. Additional management changes and additions have been made at Westinghouse Hanford Company to strengthen the program. The push-mode truck was restarted and excellent (>95%) recovery was obtained in most segments. A readiness review has been completed for the rotary truck (truck 2), which is very close to deployment. In addition, twenty tank characterization reports were issued. These combine historical data and modern (post 1987) analytical data. A study to add additional risers was completed and issued. The two type B PAS-1 casks were received. The interim data quality objective report for pretreatment and disposal activities was issued.

The Pacific Northwest Laboratory's 325 Laboratory continues to be in a pause mode. The U.S. Department of Energy, Richland Operations Office Independent Review is expected to be initiated the week of October 17, 1994, with a current startup date of November 9, 1994.

However, continued delays in core sampling because of difficulties with the two types of core sampling systems has continued to impact the overall schedule. A detailed, resource-loaded schedule was developed, which covers all types of sampling and related support activities (riser preparation, work packages, analysis) and indicates that the two (October 1995) and three (October 1996) year schedule will be missed. WHC has been directed to revise the *Recommendation 93-5 Implementation Plan* to reflect both the resources available (trucks, crews) and lessons learned in the last 10 months. In parallel to that activity, a select group of senior U.S. Department of Energy, Richland Operations Office and Westinghouse Hanford Company staff are working with stakeholders to re-evaluate the data needs for safety screening, operational monitoring, and safety resolution. Consequently, this will most likely affect the screening and safety data quality objectives, which in turn may positively affect the schedule.

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BOARD RECOMMENDATION 93-05 FOR THE PERIOD
JULY 1 - SEPTEMBER 30, 1994

1.0 INTRODUCTION

1.1 PURPOSE

This quarterly report provides a status of the activities underway from July 1 to September 30, 1994 at the Hanford Site for characterizing waste in both single- and double-shell tanks, as requested by the Defense Nuclear Facilities Safety Board (DNFSB) in their *Recommendation 93-5* (July 1993). In January 1994, an *Implementation Plan* (WHC 1994) responding to *Recommendation 93-5* was sent to the U.S. Department of Energy (DOE) for transmittal to the DNFSB. The plan was accepted by the DNFSB on March 25, 1994. The status of each commitment is described in Section 2.0 of this report.

1.2 QUARTERLY HIGHLIGHTS

This quarter, samples from the following tanks were taken :

- Vapor: 241-BY-105, 241-BY-106, 241-C-101, 241-C-102, 241-C-107, 241-C-108, 241-C-109, 241-C-110, 241-C-112, 241-TY-101, 241-TY-103, 241-TY-104, 241-TX-118, 241-BY-109.
- Grab: 241-AP-108, 241-T-102, 241-AP-104, 241-U-106, 241-AW-104, 241-AW-103, 241-AY-101
- Auger: 241-BX-108, 241-BX-105
- Push-Mode Core: 241-SY-103 (15 segments from 1 riser).

Completed were the following twenty tank characterization reports (TCRs), which provide detailed evaluation of tank contents based on historical and recent analysis: 241-AP-101, 241-AP-102, 241-AP-103, 241-AP-105, 241-AP-106, 241-AP-107, 241-B-110, 241-C-110; 241-AW-102, 241-AW-105, 241-AW-106, 241-T-105; 241-B-111, 241-B-201, 241-T-102, 241-T-104, 241-T-107, 241-BY-107, 241-T-111, and 241-S-104.

Tank characterization plans (TCPs) for the following tanks were signed and released this quarter: 241-T-102, 241-S-102, 241-SY-103, 241-B-102, 241-BX-105, 241-U-106, 241-U-107, 241-AX-102, 241-AX-104, 241-BY-106, and 241-A-104.

Data on the following tank data were loaded into the electronic Tank Characterization Database (TCD) during this quarter: 241-AP-101, 241-AP-102, 241-AP-105, 241-AP-106, 241-AP-107. (Eberlein 1994) Loading the data packages for a total of 20 tanks involved input of approximately 110,000 different data records, resulting in data from 20 tanks that have been analyzed since 1989. In addition, summary data was added from the Tracks Radioactive Components Database (TRAC), the Safety Analysis Report Estimates of source terms, and the historical tank content estimates (HTCE).

The interim Data Quality Objective (DQO) document addressing characterization needs for waste pretreatment, high level waste immobilization, and low-level waste immobilization was delivered ahead of schedule to DOE-RL on August 22, 1994. This was the final deliverable required under 93-5 Commitment 1.21. (McCain 1994)

The Nominal Waste Type Composition Document (Defined Waste Document) was received on August 1, 1994, from Los Alamos National Laboratory (LANL) and transmitted to RL. (Brown 1994) This document provides waste type composition estimates for the waste types that were historically used at the Hanford Site. The document also explains the methodology used to estimate waste type compositions from historical process information and from records of materials used. The Defined Waste Document is used with the Tank Layering Model to develop historical estimates of the tank contents that are reported in the Historical Tank Content Estimate Report.

Defense Nuclear Facilities Safety Board 93-5 Commitment 3.19, "Complete Engineering Evaluation of Installing New Risers in Single-Shell Tanks," was complete on August 31, 1994. (DeFigh-Price 1994) The engineering study presents five alternatives ranging in cost per riser from $363K to $2 million each. The study concludes that Alternative 3 using a rotary drill should be tested onsite in an existing non-waste, non-contaminated concrete slab to better establish the overall techniques and determine if a tank riser can be safely and properly installed.

The integrated field sampling schedule for FY 1995 to 1996 sampling activities (Commitment 1.11) was issued on September 26, 1994. (Stanton 1994) The schedule incorporates the functions and requirements of twelve activities: Tank Safety Program (for screening and safety issue resolution), Pretreatment Program, tank farm field operations, tank farm planning (for work package preparation), engineering, laboratory, maintenance, tank characterization plan (TCP) preparations, and the Characterization Program. Although this schedule does not meet the two sampling and analysis due dates stated in the DNFSB Recommendation 93-5, it does maximize the available funding and resources currently available. A total of 12 requests were accommodated for a total of 297 separate sampling events.

The rotary-mode sampling truck, Commitment 3.6, is approximately five months behind schedule. The DOE-Richland Operations Office (RL) Operational Readiness Review was completed August 4, 1994. Resolution of the closure items from the pre-start findings on the rotary-mode core sampling truck continues on schedule for completion and expected deployment October 21, 1994. Fourteen of the 15 closure items are now closed out and signed as of September 30, 1994.

Two type B PAS-1 shipping casks were received onsite in July 29, 1994 and were inspected by Quality Assurance (QA) and accepted on August 10, 1994. This completes the 93-5 DNFSB Commitment 5.8 ahead of the scheduled September 30, 1994 commitment. (Frater 1994) In addition, a type A cask called the WARTHOG has been tested and readied for final shipment to LANL. An additional 20 type A containers have been identified for transfer (from LANL) and are currently in the process of purchasing them for the Hanford Site for Tank Waste Remediation System (TWRS).

The Idaho National Engineering Laboratory upgrade is on schedule for a October 31, 1994 startup to provide safety screening and safety resolution analytical support for characterization. The Quality Assessment of Idaho National Engineering Laboratory was performed during the week ending September 23, 1994 and preliminary results indicate that no major issues were identified.

The following 45-day safety screening reports were issued by the 222-S Laboratory this quarter: 241-C-108, 241-BX-101, and 241-BX-108.

RL's Operational Readiness Assessment of the 222-S Laboratory hot cell addition required to support receipt and extrusion of rotary-mode core samples was completed July 27, 1994. The 222-S Laboratory, upon completing 19 prestart items identified by the RL Operational Assessment, received approval from RL to operate the new hot cell addition on August 5, 1994.

The PNL 325 Laboratory remains in a pause mode. The RL Independent Review is expected to begin the week of October 17th with a currently scheduled startup date of November 9, 1994.

1.3 REPORT FORMAT

The quarterly report documents the progress of activities initiated in response to the DNFSB Recommendation 93-5 and is arranged in the same order as the DNFSB *Recommendation 93-5 Implementation Plan* (DOE 1994). To report progress, each of the seven parts are identified, followed by paragraphs explaining the scope of work on each part or subpart of the plan. Subheadings for each task activity report the following items of progress.

- Progress during reporting period
- Planned work for subsequent months
- Issues.

In addition to the information that is provided in these categories, two tables list the DNFSB commitments for fiscal year (FY) 1994 (Table 1) and the first quarter of FY 1995 (Table 2). Included in the tables is shading to indicate which commitments have been submitted, as well as highlighted areas to identify which commitments are outstanding or have been completed ahead of schedule. Note that activities in this quarter were identified as "near term initiatives" in Section 2.0 of the *Implementation Plan*.

1.4 BACKGROUND

The present contents of the 149 single-shell tanks and the 28 double-shell tanks at the Hanford Site represent a diverse chemical processing and waste management history. Waste from three primary reprocessing flow sheets, a variety of materials recovery operations, and numerous waste management oriented operations have led to both chemically and physically heterogeneous waste. This diversity in the stored waste, coupled with an incomplete record of tank waste operations and transfers, creates a complex challenge for waste characterization.

DNFSB Recommendation 93-5 strongly criticized the overall direction and timeliness of the TWRS Characterization Program. Consequently, the DNFSB made the following recommendations.

- The Characterization Program should undergo a comprehensive reexamination and restructuring to accelerate schedules, strengthen technical management, and expedite analyses.

- The Characterization Program should be integrated into the TWRS systems engineering effort.

The DNFSB *Recommendation 93-5* also addressed simplifying tank access protocols and strengthening the management and conduct of sampling.

Table 1. Characterization Program DNFSB Commitments
1st through 4th Quarter Fiscal Year 1994

CHARACTERIZATION PROGRAM
DNFSB Commitments through September 30, 1994

TYPE	#	TITLE OF MDS	DUE DATE	STATUS (WHC to DOE)	DOE to DNFSB
DNFSB	3.1	Init. Construction of 2nd/3rd Rotary Mode trucks	11/30/93	Submitted on 11/1/93	Nov. 93
DNFSB	1.21	Ferrocyanide Safety Issue DQO Report	12/15/93	Submitted on 12/31/93	
DNFSB	1.21	Vapor Rotary Core DQO Final Draft Report	1/20/94	Submitted on 2/14/94	
DNFSB	1.13	Char. Functions/Reqmts in detailed Functional Anal	1/31/94	Submitted on 1/20/94	6/1/94
DNFSB	6.6	Eval. 12 Validated Data Reports for Safety	1/31/94	Submitted on 4/25/94	6/30/94
DNFSB	5.9	Plan to Upgrade INEL Lab	1/31/94	Submitted on 1/31/94	6/28/94
DNFSB	6.3	Initial On-Line Capability (LABCORE-1)	1/31/94	Submitted on 1/31/94	6/23/94
DNFSB	2.2	Safety Screening Module DQO Report	1/31/94	Submitted on 2/23/94	
DNFSB	1.21	C-103 Vapor DQO Draft Report	1/31/94	Submitted on 3/25/94	
DNFSB	1.21	Organic Safety Issue DQO Report (PNL)	1/31/94	Submitted on 4/29/94	
DNFSB	1.7	Streamline DQO Process	1/31/94	Submitted on 12/31/93	5/27/94
DNFSB	6.4	Demonstrate Offsite Access to TCD/Input 3 HLW	1/31/94	Submitted on 1/28/94	
DNFSB	1.21	Safety Screening Module DQO	1/31/94	Submitted on 2/32/94	
DNFSB	4.2	DOE-RL to Submit a request for DOA to DOE-HQ	1/31/94	Submitted on 1/10/94	N/A
DNFSB	3.2	Review Char. Field Procedures Using DOE Conduct of	1/31/94	Submitted on 2/28/94	
DNFSB	4.1	Issue Approved Broad-based Envir. Assessment	2/28/94	Submitted on 2/28/94	N/A
DNFSB	1.8	Release TWRS Characterization QA Plan	2/28/94	Submitted on 2/28/94	5/26/94
DNFSB	1.1	Enhance WHC Char. Program Mgmt Staff	2/28/94	Submitted on 2/28/94	6/27/94
DNFSB	5.11	Dev. Min/Max Lab Capacity Strategy	2/28/94	Submitted on 2/28/94	6/30/94
DNFSB	1.21	Waste Compatibility DQO Report	2/28/94	Submitted on 3/4/94	
DNFSB	1.22	Update FY94 Field Schedule to Incorp. New Techn's	2/28/94	Submitted on 2/3/94	6/27/94
DNFSB	3.3	Complete Qualifcation of First Push-mode Crew	2/28/94	Submitted on 1/26/94	6/30/94
DNFSB	3.5	Complete Training & Qual Reqmts for Sampling Coq	2/28/94	Submitted on 2/24/94	6/27/94
DNFSB	1.21	In-tank Generic Vapor DQO Final	3/03/94	Submitted on 3/7/94	
DNFSB	5.10	Plan to Upgrade LANL Lab	3/29/94	Submitted on 3/28/94	6/30/94
DNFSB	1.2	Reduce Number of Mgmt Layers in WHC TWRS	3/31/94	Submitted on 3/24/94	6/30/94
DNFSB	1.6	Define Responsibilities of Key WHC Managers/Char.	3/31/94	Submitted on 3/31/94	7/12/94
DNFSB	5.3	Letter Assessing New Extruder	3/31/94	Submitted on 3/28/94	
DNFSB	5.5	Issue Results of Sampler Exchange Phase II	3/31/94	Submitted on 3/31/94	6/30/94
DNFSB	3.7	Complete Qual of First Rotary Mode Crews	3/31/94	Submitted on 3/31/94	6/30/94
DNFSB	3.4	Redeploy PM Core Sampling	3/31/94	Submitted on 3/31/94	6/30/94
DNFSB	3.6	Restore Rotary Mode Sampling (TPA)	3/31/94	To be deployed 10/21/94	
DNFSB	1.10	Issue Quarterly Progress Reports (DNFSB/DOE)	4/29/94	Submitted on 5/3/94	5/10/94
DNFSB	1.4	Improve WHC Char Technical Staff Competencies	4/29/94	Submitted on 4/29/94	7/12/94
DNFSB	6.1	Prepare a Customer Needs Analysis	4/29/94	Submitted on 5/2/94	6/23/94
DNFSB	1.21	Hydrogen Generating DQO Final Report	4/29/94	Submitted on 5/13/94	
DNFSB	2.1	DQOs for all 6 Safety Issues	4/29/94	Submitted on 5/13/94	

CHARACTERIZATION PROGRAM

DNFSB Commitments through September 30, 1994

TYPE	#	TITLE OF MDS	DUE DATE	STATUS (WHC to DOE)	DOE to DNFSB
DNFSB	4.3	Delegation of Authority for RL/Safety & Env'l	4/29/94	Submitted on 8/15/94	8/15/94
DNFSB	3.9	Detailed Plans for Acquiring/Training Add'l Crews	4/29/94	Submitted on 4/29/94	6/30/94
DNFSB	1.12	Mgmt Staff Complete Systems Engineering Training	5/31/94	Submitted on 2/15/94	5/25/94
DNFSB	1.9	Plan for Blind Samples	5/31/94	Submitted on 5/24/94	6/15/94
DNFSB	6.2	Issue a Data Mgmt Improvement Plan	5/31/94	Submitted on 5/26/94	5/26/94
DNFSB	1.3	Improve RL Oversight	5/31/94	Submitted on 5/27/94	NA
DNFSB	1.14	Char Portion of Initial Sys Eng Analysis Results	6/30/94	Submitted on 6/30/94	6/30/94
DNFSB	5.6	Evaluate Lab Staff Training	6/30/94	Submitted on 6/30/94	6/13/94
DNFSB	3.15	EEA for In Situ Moisture Monitoring	6/30/94	Submitted on 6/28/94	6/30/94
DNFSB	1.11	Field Schedule for Sampling All Activ's FY95-6	6/30/94	Submitted on 9/26/94	7/13/94
DNFSB	3.10	Qual of 2 Additional Crews/Push & Rotary Trucks	6/30/94	Expected by 10/30/94	
DNFSB	3.17	Review Procedures w/Outside Drilling Experts	6/30/94	Submitted on 6/30/94	8/2/94
DNFSB	1.17	Historical Tank Content Estimate Reports/NE/SW	6/30/94	Submitted on 6/28/94	6/30/94
DNFSB	1.10	Issue Quarterly Progress Reports (DNFSB/DOE)	7/25/94	Submitted on 7/21/94	8/22/94
DNFSB	1.21	Pretreatment DQO Draft Report	8/22/94	Submitted on 8/3/94	
DNFSB	3.19	Eng'g Eval. of Installing New Risers in SSTs	8/31/94	Submitted on 8/31/94	9/12/94
DNFSB	1.20	TWRS Risk Acceptance Criteria	8/31/94	Submitted on 9/30/94	
DNFSB	5.7	Dev. & Implement Training for Laboratory Staff	8/31/94	Submitted on 6/30/94	6/13/94
DNFSB	1.21	HLW Immobilization DQO Draft Report	9/06/94	Submitted on 8/22/94	
DNFSB	1.21	LLW Immobilization DQO Draft Report	9/21/94	Submitted on 8/22/94	
DNFSB	5.1	Install Core Scanning in Hot Cell	9/30/94	Change Request/delete	
DNFSB	5.4	Cyanide Speciation Tech Transfer (PNL)	9/30/94	Change Request/delete	
DNFSB	5.8	Procure & Receive 2 PAS-1 Casks (DOE-RL)	9/30/94	Submitted on 8/10/94	8/25/94
DNFSB	3.11	Additional Rotary Mode Core Systems (DOE-RL)	9/30/94	Expected date: June 1995	
DNFSB	1.16	Historical Tank Layering Models	9/30/94	Submitted on 9/30/94	
DNFSB	6.5	Data Loading of 20 Tanks into TCD (M-44-06)	9/30/94	Submitted on 9/30/94	9/29/94

Table 2. Characterization Program DNFSB Commitments
October 1 to December 31, 1994

CHARACTERIZATION PROGRAM

DNFSB Commitments October 1 through December 31, 1994

TYPE	#	TITLE OF MDS	DUE DATE	STATUS (WHC to DOE)	DOE to DNFSB
DNFSB	1.10	Issue Quarterly Progress Reports	10/21/94	On schedule	
DNFSB	1.15	Integrate Vapor Sampling Program into Char. Prgm	10/31/94	On schedule	
DNFSB	5.12	Upgrade INEL Lab to Ready to Serve Mode	10/31/94	On schedule	
DNFSB	3.12	Hire, Train, and Qualify 4 Add'l Rotary Mode Crews	10/31/94	Expected date: June 1996	
DNFSB	1.23	Identify "Bounding Tanks" for Disposal	11/30/94	On schedule	
DNFSB	1.21	C-103 Dip Sample DQO	12/16/94	Submitted on 8/31/93	
DNFSB	1.21	C-106 High Heat DQO Final Report	12/20/94	Submitted on 1/20/94	
DNFSB	1.19	Dev. Statistical Tools Necessary/Amnt Samples Need	12/30/94	On schedule	

2.0 DEFENSE NUCLEAR FACILITIES SAFETY BOARD IMPLEMENTATION PLAN TASK ACTIVITIES

The DNFSB *Implementation Plan* (DOE 1994) addresses each task activity established in response to the DNFSB Recommendation 93-5. In this report, each part of the recommendation is categorized into one of seven areas and then the progress of Hanford Site activities relating to that part is described.

2.1 Strengthen Technical Management

A large number of specific management issues were identified. These were divided into the following three general areas.

2.1.1 Improve Program Management

Identified were numerous past management problems that affected quality and quantity of sampling.

2.1.2 Integrate Characterization and System Engineering Efforts

TWRS has initiated a systems engineering approach to develop and manage the TWRS Characterization Program needs, which has in turn been included in this approach.

2.1.3 Provide Sound Technical Focus

TWRS is establishing the technical basis upon which the program will make safety related, and other programmatic (retrieval, pretreatment, and disposal) decisions. The U.S. Environmental Protection Agency's DQO process, historical analysis for tank grouping, and sampling priority list will be used to establish the foundation for a sound technical basis for sampling and analyses.

Progress During Reporting Period. In September 1994, a dedicated Characterization Engineering organization was established to centralize responsibility. Also, minor realignments and management changes were made in the operations support area to improve timeliness of work packages and increase efficiency.

Commitment 1.11 of the *Implementation Plan* addresses issuing a field schedule for sampling that indicates all sampling activities for FY 1995 and 1996. This integrated schedule is the culmination of six months of effort. A systems engineering approach was used to maximize the sample/analysis results for all the varied players needing support. To understand how to integrate the schedule, a formal decision making process was conducted by WHC. The team included four WHC level 2 managers and representatives from RL. PNL was used to perform the programming and analysis to look at 12 different options. The tanks were given a weighting factor that considered 10 different areas. At the conclusion of the analysis, the decision makers accepted the strategy to perform push and rotary sampling tank farm by tank farm, starting with the tank farm that had the most Watch List tanks, liquid observation

wells, and thermocouple installations. Within the tank farm the weighting factors were used except to afford smooth transition at the start of the schedule. The other areas (vapor, auger, grab, and thermocouple) of installation were accomplished based on needs and weighting factors.

The schedule incorporates the functions and requirements of 12 activities: the Tank Safety Program (for screening and safety issue resolution), Pretreatment Program, tank farm field operations, tank farm planning (work packages), engineering, laboratory, maintenance, TCP preparations, and Characterization Program. A total of 12 requests were accommodated for a total of 297 sampling events.

All field-sampling activities are shown on the schedule. A detailed six-week schedule is generated using the target schedule dates as "no later than" dates for the field sampling. The integrated schedule was sent to RL on September 26, 1994. (Stanton 1994) Although this schedule does not meet the two sampling and analysis due dates it does maximize the available funding and resources currently available. If funding, resources, or strategy should change, the schedule will be updated using internal WHC change control.

The critical path for Watch List sampling will flow through the single-shell flammable gas tanks. These 17 single-shell tanks require additional requirements before they are sampled. The current safety analysis will have to be revised, either system 3 or 4 must be available, and full time gas monitors and full time video cameras must operate during the sampling events. The safety analysis requirement for packaging and shipping addressing concerns raised after the bottom segment of 241-SY-103 was pressurized in the sampler holder will also need to be resolved to support flammable gas single-shell tanks. Because of the large number of rotary samples (82), this type of sampling is the critical path for the overall sampling schedule. The last rotary sample is targeted for completion in the field on September 26, 1997. This date is based on sampling two risers per tank. The schedule also reflects laboratory throughput given available staffing and work package preparation constraints.

WHC provided a copy of the Historical Tank Layering models report to DOE-RL on September 30, 1994 as part of Commitment 1.16. (Eberlein 1994)

On September 6, 1994, RL sent guidance to WHC regarding the requirements for Commitment 1.20, Risk Acceptance Criteria. This guidance included risk acceptance goals for TWRS, and indicated that the criteria required from WHC must be in a form suitable for direct incorporation into the DQO planning process. The risk acceptance criteria report was delivered on September 30 (according to the date extended by DOE-RL) and outlined the process required to identify the acceptable level of risk stemming from characterization for each of the four risk acceptance goals. (Eberlein 1994) The report outlined the actions required to establish the acceptable error levels as input to the DQO planning process.

Commitment 1.21 of the *Recommendation 93-5 Implementation Plan* required that DQOs be established for ten TWRS activities. A single DQO document covering the interdependent needs of pretreatment, low-level waste immobilization and high-level waste immobilization was transmitted to RL on August 22, 1994. (McCain 1994)

WHC continues to work on the Retrieval DQO and on updating earlier issued DQOs. A task group,identified in June 1994, includes external experts, DOE, WHC, and PNL senior staff, to perform specific critiques on all but the one-time use (C-103 Vapor and Dip Sample) DQOs. The review of existing DQO documents was performed during July by onsite team members, with final input from offsite members compiled in August. During August and September, the team met and reviewed the DQO process itself and identified necessary changes in the process and the resulting documentation. The team developed and reviewed draft lessons learned, which will be distributed in October. The review process results will be incorporated into revised DQO guidance and strategy documents.

Acting on recommendations from the team and stakeholders, revisions are underway on the Safety Screening DQO, Flammable Gas Core Sampling DQO, and Rotary-Mode Vapor DQO. The Ferrocyanide DQO revision was completed and released. The Compatibility DQO revision will be released in October. The Organics Program is revising their DQO to incorporate an additional decision. The Vapor Safety Program is reviewing all applicable DQOs based on new vapor data. All revisions will be complete in the first quarter of FY 1995. Furthermore, the overall safety strategy for the data needed for screening and safety issue resolution is being revisited with external stakeholders, which may result in further revisions.

Issues. The statistical basis for the DQOs continues to be a weak area. WHC, PNL, and LANL staff are gathering the necessary data to strengthen the statistical portion of the DQOs. Recent effort has focused on using the data from the 23 tanks that were sampled between 1987 to 1993. A letter report provided on August 11, 1994 reviewed variability of water and total organic carbon content in previous core samples. A draft report on other analytes was provided on September 30, 1994. Both reports indicate that the number of cores needed to ensure high confidence in the data varies widely depending on the analyte in question. If only sampling information is used, a goal of 95% confidence that the measured value is within 10% of the true value may require more than 100 samples for some analytes.

A high-priority activity in first quarter of FY 1995 is to establish the technical basis for using historical information and waste models in combination with sample data to reduce the numbers of samples needed.

Specific approval requirements have not been defined for DQOs and TCPs by DOE and the Washington State Department of Ecology (specifically, which organization and when). However, sampling events or subsequent analyses have not been delayed because all parties agree that it is important to move forward while administrative issues are resolved. All DQOs may be subject to revision following recommendations of the DQO review team who will work to define an acceptable approval plan. An action plan has been

developed to expedite development and approval of TCPs. This plan will be finalized with RL and then reviewed by Ecology.

In the systems engineering area, program elements are not to the level in the systems engineering work to show specific characterization needs. However, the schedule for developing the various levels is at the level anticipated. Key decisions, called trade studies, which must be made before DQOs can be adequately prepared in such areas as retrieval have been identified.

2.2 Accelerate Safety Related Characterization

There are two major data requirements. The first involves confirming which tanks are safe, conditionally safe, and unsafe. Establishing which tanks fall into which group is based on the criteria established in a 1993 policy statement sent to the DNFSB entitled *Strategy for Safety Issue Resolution* (Alumkal 1993). The second major safety data requirement is to screen all non-Watch List tanks to establish which, if any, should be added to the list.

Progress During Reporting Period. All DQOs for safety issues that were issued before July 1994 have been extensively reviewed by the DNFSB staff and select members of the Tank Characterization Advisory Panel, Ecology, and DOE. These review comments have been considered by the DQO Review Team to determine how to improve the overall DQO development process. Revised guidance is being issued for all DQO development. Based on the updated guidance, DQOs are being revised as needed based on the comments from external reviewers, and the feedback from the document end users (TCP and TCR writers).

Planned Work For Subsequent Months. The Safety Screening and Ferrocyanide DQOs will be updated to incorporate internal and external review committee comments. In addition, the overall logic and strategy for what data is due and when it is due is being re-evaluated. If an alternate approach should be selected by stakeholders, the DQOs will require significant revisions.

Issues. Most safety issue DQOs need to be updated to improve overall accuracy and precision requirements as opposed to requirements for the laboratory. Determining the number of samples needed will move from the DQO to the TCP to incorporate tank-specific information into this step. Potentially, there will be inadequate risers if a high degree of accuracy from samples and laboratory analysis is needed under the present course. Many single-shell tanks have only 1 to 3 risers (mostly at the edge of the tank). A study was completed on adding additional risers as one option. Another option is to re-evaluate both the technical and sampling approaches or to explore alternate technologies, such as directional drill bit sampling. Parallel to this, underway are alternate methods of screening tanks besides taking and analyzing cores.

2.3 Improve The Quality And Quantity Of Sampling

Acceleration of sampling will be achieved by (1) acquiring more sampling equipment; (2) training more crews; (3) cross-training crews to work on push-mode or rotary-mode sampling trucks; (4) auger sampling; (5) grab sampling and vapor sampling; (6) working multiple shifts instead of one; (7) phasing sampling to meet programmatic needs; and (8) developing new sampling technologies as needed.

Progress During Reporting Period.

Samples from the following tanks were taken this quarter.

- Vapor: 241-BY-105, 241-BY-106, 241-C-101, 241-C-102, 241-C-107, 241-C-108, 241-C-109, 241-C-110, 241-C-112, 241-TY-101, 241-TY-103, 241-TY-104, 241-TX-118, 241-BY-109.
- Grab: 241-AP-108, 241-T-102, 241-AP-104, 241-U-106, 241-AW-104, 241-AW-103, 241-AY-101
- Auger: 241-BX-108, 241-BX-105
- Push-mode core: 241-SY-103 (15 segments from 1 riser)

Commitment 3.6 of the *Recommendation 93-5 Implementation Plan* addresses restoring rotary-mode sampling capability. The truck is approximately five months behind schedule. The WHC Operational Readiness Review was completed July 11, 1994. The RL Operational Readiness Review was completed July 28, 1994 and was signed off on August 4, 1994. A detailed check sheet of what it takes to close was developed. A detailed schedule was developed in parallel with the checksheet.

The major item of the three prestart items involved repairing platform welds and completing an action plan, which includes random inspection of other rotary truck welds. Other weld inspections are a result of the number of undersized or cracked structural platform welds (dating from the 1980 to 1981 original fabrication).

Resolving the closure items resulting from the pre-start findings on the rotary-mode core sampling truck continues on schedule for completion and deployment by October 21, 1994. Fourteen of the 15 items are now closed out and signed as of September 30, 1994. All of the WHC separate punch list items have been closed.

Field implementation of the push-mode truck has suffered a number of set backs. Only three of a scheduled 11 tanks have been sampled. Poor recovery in C Tank Farm (241-C-108 and 241-C-111) resulted in suspension of push-mode sampling on June 8, 1994. WHC initiated a test program to determine what changes were needed to improve recovery. The test program was completed on August 11, 1994, and resulted in a new drill bit and some minor adjustments in the technique. Results from the first post-test tank (241-SY-103) are encouraging, with an average of better than 95% recovery. While in SY Tank Farm the truck experienced a hydraulic control problem with the shielded receiver that was difficult to correct and resulted in a three-week delay.

The recent entrained, possibly flammable/explosive gas in the last segment of the first riser core sample (241-SY-103) has suspended sampling activities in the flammable gas tanks until we can revise the safety analysis requirements packaging. A schedule for completing the new safety analysis requirements packaging will be available on October 12, 1994.

Although the push-mode truck has had nine years of field operations, it is very similar in design to the rotary-mode truck. Based on problems found with the welds on the rotary truck, an inspection plan is being generated. The truck will be inspected to ensure that the welds are sufficient for continued field operations. If similar weld problems are discovered as were on rotary-truck number 2, this will result in additional delays. Contingency plans are being prepared to minimize the impact.

Commitment 3.10 of the *Implementation Plan* addresses the qualification of a second crew for the rotary system. The second rotary crew was to become qualified by August 31, 1994. Because of the four month delay in the truck deployment, the qualification of the second rotary crew has also been delayed. Presently, both push crews are available. (Sheridan 1994) Current expected date for availability of two qualified rotary crews is October 30, 1994.

The *93-5 Implementation Plan* Commitment 3.11 committed to deploying trucks 3 and 4 by October 1, 1994. Continued schedule delays on these two systems prompted WHC to assign an experienced project manager to complete the trucks. Obtaining these two additional rotary-mode core sampling systems is seven to eight months behind based on problems with completing the second rotary-mode system and obtaining the exhauster for the third and fourth systems. The new spark-free exhauster is the module farthest behind. Its design is different from the original exhauster, which cannot be used on flammable-gas tanks. The fabrication efforts on the two additional rotary-mode core sample systems is behind schedule and is presently planned to be completed in June 1995. This schedule has been delayed because of longer than anticipated delivery times on major components, i.e., Longyear drill engines (two months), fabrication of two coded vessels (on going), procurement of substitute parts for no longer available parts, and time to incorporate lessons learned from truck 2. In addition, the design documentation (fabrication drawings) required longer than anticipated to verify design changes and additions to support ICF Kaiser Hanford Company required delivery.

Work on Commitment 3.18, develop means for measuring complete sample recovery (January 1995), was initiated by developing a detailed statement of work and issuing a purchase order to Southwest Research Institute. The Southwest Research Institute will design, fabricate, and test a sample verification instrument receiver based on the onsite transfer cask. The receiver will contain a load cell, neutron absorption, and dry-coupled ultrasonic instruments to determine whether the sampler contains a full sample. A kickoff meeting will be held in early October.

Work on Commitment 3.19, a study on new riser installation, was completed on August 31, 1994. (DeFigh-Price 1994) The study presents five alternatives ranging in cost from $363K to $2M per 30-cm (12-in.) riser

with the cost per riser diminishing somewhat if five or more risers are installed. The study concludes that Alternative 3, a core drill, should be tested in a concrete slab free of waste and contamination. The test will better establish the method, techniques, and costs, and help determine if a riser can be safely installed in a single-shell tank. A 60% draft plan to do the onsite demonstration test has been distributed for review.

Planned Work For Subsequent Months. The commitments associated with improving the quality and quantity of sampling are outlined in Table 2. A detailed sampling schedule for the next several years, events are outlined in the Integrated Sampling Schedule 3.4. Additional details on the upcoming commitments can be found in the *Recommendation 93-5 Implementation Plan.*

Commitment 3.13 covers the deployment of a prototype cone penetrometer by May 1995. To deploy a prototype cone penetrometer, all the required measurements for two parallel procurements have been initiated. The cone penetrometer with a specialized bottom detection and temperature sensors as well as the standard characterization sensor package is one procurement, and a specialized moisture sensor is a second procurement. The initial deployment is planned to include standard physical parameter sensors used with cone penetrometers. These include tip pressure, sleeve friction, core pressure, and temperature. From these readings, it is expected that physical properties (such as compressive strength, shear strength, and tensile strength) can be determined. Parallel development of moisture measurement sensors is proceeding for deployment soon after, if not in parallel with, the penetrometer system.

A purchase order was issued to Science Applications International Corporation (SAIC) for the development and fabrication of a field-ready moisture sensor on May 29, 1994. SAIC completed the proof-of-principle testing of this contract on July 13, 1994 with excellent results. The testing verified their moisture sensor would give accurate moisture measurements when operating in a cone penetrometer rod while subjected to tank temperature, radiation, and neutron absorbing contamination conditions. Optimization testing and final design testing is currently in progress. The scheduled delivery of the system for installation on the cone penetrometer is September 1, 1996.

A purchase order was issued to Applied Research Associates for the testing, design, and fabrication of a field-ready cone penetrometer system on September 19, 1994. The contract is specified to be performed in phases. The first phase will be to conduct a series of cone penetrometer tests on simulated Hanford Site tank wastes. The tests will establish a data base for comparison characterization when actual tank cone penetrometer measurements are taken. The tests will also determine critical design criteria for the vendor. If the testing results in a good data base that warrants the cone penetrometer's use in tanks, direction to perform final design and fabrication will be given to the vendor. Preliminary schedule estimates from Applied Research Associates show that the May 1995 delivery date will not be met. Several changes to the basic penetrometer system design are required for use in the tanks. The cone clamping system must be modified to ensure that the cone cannot be dropped into a tank while being inserted. The relatively long

e. other firearms-related concerns, training issues, and training developments within the DOE organization.

The committee shall help ensure that this Firearms Safety Standard, and the Range Design Criteria Guide remain current and reflect the latest and best information as changes in firearms and firearms training methods and technologies occur.

The meeting format shall provide voting members and interested representatives from DOE and contractor organizations with an opportunity to present issues and provides a forum for firearms safety policy and practices. Only members officially designated as DOE voting members or designated alternates shall vote on policy issues. A voting member who is unable to attend a meeting can transfer his or her vote to another voting member. This action shall be submitted in writing to one of the committee cochairpersons.

The presence of a simple majority of the DOE Firearms Safety Committee voting members constitutes a quorum for conducting business. A simple majority of the total DOE Firearms Safety Committee voting members is required to make a recommendation for change to existing DOE policy or standards, to initiate action for new DOE firearms safety policy or standards, or to revisit an issue previously voted on.

Minutes of the meeting shall summarize discussions and recommendations. Copies of the minutes shall be distributed to members, attendees, and appropriate interested DOE and contractor organizations.

Any item requiring formal DOE Headquarters action or approval is presented through established channels of communication by the committee cochairpersons.

January 1995. At that time, it will be installed on one of the new core sample trucks and included in the functional testing of that truck. Details of incorporating the temperature monitor into the fabrication of trucks 3 and 4 will be resolved in the meantime.

Work continues on Commitment 3.18, to develop means for measuring complete sample recovery, which is due January 1995. In the last quarter of FY 1994, a contract was approved for the design and fabrication of an instrumented sample receiving cask. The cask will contain a load cell, neutron probe, and ultrasonic probe to indicate the amount of material in the sampler. The vendor (Southwest Research Institute) began conceptual design and evaluation of software and hardware options. Conceptual design and evaluation will continue and final design will be started. The preliminary schedule from Southwest Research Institute has prototype fabrication in November 1994 and prototype testing in February 1995. This schedule does not meet the commitment date for completion of design and testing. WHC will be working with Southwest Research Institute to identify potential ways to accelerate the schedule.

Issues. The rotary-mode sampling truck, Commitment 3.6, is approximately five months behind schedule. The DOE-RL Operational Readiness Review was completed August 4, 1994. Resolution of the closure items from the pre-start findings on the rotary-mode core sampling truck continues on schedule for completion and expected deployment October 21, 1994. Fourteen of the 15 closure items are now closed out and signed as of September 30, 1994.

Vendor schedules indicate the cone penetrometer, the core bit monitor, and the instrumented cask will not be completed by the DNFSB commitment dates.

The *93-5 Implementation Plan* Commitment 3.11 committed to deploying trucks 3 and 4 by October 1, 1994. Continued schedule delays on these two systems prompted WHC to assign an experienced project manager to complete the trucks. Obtaining these two additional rotary-mode core sampling systems is seven to eight months behind based on problems with completing the second rotary-mode system and obtaining the exhauster for the third and fourth systems. The new spark-free exhauster is the module farthest behind. Its design is different from the original exhauster, which cannot be used on flammable-gas tanks. The fabrication efforts on the two additional rotary-mode core sample systems is behind schedule and is presently planned to be completed in June 1995. This schedule has been delayed because of longer than anticipated delivery times on major components, i.e., Longyear drill engines (two months), fabrication of two coded vessels (on going), procurement of substitute parts for no longer available parts, and time to incorporate lessons learned from truck 2. In addition, the design documentation (fabrication drawings) required longer than anticipated to verify design changes and additions to support ICF Kaiser Hanford Company required delivery.

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was completed on August 11, 1994, and resulted in a new drill bit and some minor adjustments in the technique. Results from the first post-test tank (241-SY-103) are encouraging, with an average of better than 95% recovery. While in SY Tank Farm the truck experienced a hydraulic control problem with the shielded receiver that was difficult to correct and resulted in a three-week delay.

One key area of continued concern is riser availability to allow additional samples. The installation of thermocouples in tanks 241-B-103, 241-BX-102, 241-BY-103, 241-BY-108, 241-C-111, 241-T-107, 241-TY-101, 241-TY-103, 241-TY-104, 241-U-106, 241-U-107, and 241-U-111 has been delayed as a result until the tanks are either sampled or when it is determined adequate risers exist to allow thermocouple installation prior to sampling. Installing a thermocouple would eliminate a riser from being sampled. This has been addressed in the integrated schedule.

Due to schedule delays associated with the field sampling activity in fiscal year 1994 to meet the proposed integrated sampling schedule, three laboratory-related milestones have been subsequently impacted. The milestones all pertain to completion of safety screening results for single shell tank core samples, auger samples, and double shell tank core samples.

2.4 Streamline Tank Access

To access Unreviewed Safety Question tanks for sampling activities, an adequate safety and environmental basis must be developed. This process for tank access will be streamlined and shortened without compromising the necessary rigor.

Progress During Reporting Period. Commitment 4.3, delegation of authority to RL, was given by DOE-HQ via a memorandum dated August 15, 1994. (Grumbly 1994) The delegation of authority was originally due to be established by April, 1994.

Planned Work For Subsequent Months. No formal actions are left. However, work continues to expedite work packages and TCPs to allow more field work.

Issues. None.

2.5 Improve The Quality And Quantity Of Analyses

Key areas of interest include (1) core sampling rates and laboratory capacity; (2) laboratory capacity and readiness of offsite laboratories; (3) shipping cask availability; (4) laboratory sample exchange/evaluation and TWRS blind sample plan programs; and (5) development of new or modified procedures and instruments to improve analytical operations.

Progress During Reporting Period.

Commitment 5.8 is to procure and receive two Nuclear Regulatory Commission (NRC) PAS-1 type B shipping casks (September 1994). The two PAS-1 casks were received onsite July 29, 1994, approximately 60 days ahead of schedule. The casks were inspected for quality assurance and

accepted on August 10, 1994. Delivery to the 222-S Laboratory was scheduled for the first week of August 1994. These casks will be used for shipping Hanford Site waste tank samples to offsite laboratory facilities. This completes the *Recommendation 93-5* DNFSB commitment 5.8 ahead of the scheduled September 30, 1994 commitment. (Frater 1994) In addition, a type A cask, called the WARTHOG, has been tested and readied for final shipment to LANL. An additional 20 type A containers have been identified for transfer (from LANL) and WHC is currently in the process of purchasing them for the Hanford Site for TWRS use.

Development activities addressed two areas: new instrumentation to allow acceleration of the analytical process and procedures to ensure that analytical data are responsive to the DQO needs. Testing laser and infrared based spectroscopy for scanning cores in hot cells and evaluation of traditional laboratory methods continued. The spectroscopic techniques originally were envisioned to aid safety-related analyses, however, the Unreviewed Safety Questions are being addressed without the need for the more extensive analyses originally thought to be necessary. Time and cost savings may be possible with these techniques, and cost benefit evaluations are planned to determine whether continued development is justified.

The core scanning system, Commitment 5.1, is a multi-axis platform to aid deployment of various fiber optic probes for spectroscopic (such as Raman and infrared) scanning of extruded core samples (September 1994). Design and installation of the platform was planned to be completed ahead of the related spectroscopic technology developments. Installation was planned for the new hot cells at the 222-S Laboratory before they became operational. The platform was also considered to be a prototype for testing and demonstration before contamination of the new hot cell. Design problems delayed completion of the platform and it was not available for installation by September 30. WHC plans to complete the design and fabrication of a scanning platform for mockup testing to support final design of a platform for installation. Fabrication and installation of the platform will be coordinated with the development and implementation of the scanning technologies. Though still considered a potential cost saver, there has been no work identified in any of the DQOs to date that identify this table as needed to meet specific requests. Therefore, a letter recommending deletion of this as a formal commitment was sent to RL September 1, 1994. (Forehand 1994) If DOE still wishes to pursue this, design and cold testing is planned to be completed in early FY 1995. Future work on installation will be coordinated with the development, evaluation, and deployment of core scanning technologies. DOE-RL has requested that this issue be addressed in the revised *Implementation Plan*.

Commitment 5.4, cyanide speciation (complete technology transfer from PNL, September 1994), also includes hot cell gamma and thermal conductivity methods. Development and evaluation of methods was completed but the accompanying procedures and training were not. The 222-S Laboratory has the capability to perform these procedures on an as-requested basis. Procedures and training for routine use will be completed in early FY 1995. WHC's ability to satisfy current DQOs is not affected with only one laboratory having this capability, as very few DQOs (and tanks) will require these specific measurements. Therefore, a

letter recommending deletion of this commitment was sent to the RL on September 1, 1994. (Forehand 1994) DOE-RL has requested that this issue be addressed in the revised *Implementation Plan.*

The following 45 day reports were issued during this period by the 222-S Laboratory in support of safety screening DQOs: C-108 (Core, 3 days early), SY-103 (Auger, 6 days early), BX-101 (Auger, 2 days early), and BX-108 (Auger, 6 days early).

PNL 325 Laboratory Major Accomplishments:

- Transmittal of the 108-AP Data Package to Hanford Analytical Services in support of the TWRS Evaporator Program. Delivery of this data package on September 30 met the turn-around-time commitment.

- 325 Laboratory restart activities included development of the restart criteria checklist and approval by DOE-RL.

- Task Activity Packages were developed as a process to fulfill the multiple restart criteria. These packages included the Laboratory Operational Discipline Assessment, Safe Operating Procedures, Radiological Control Protocols, Radiological Work Permits, and staff Training and Dosimetry.

- Sixteen Task Activity Packages were completed to support TWRS Characterization activities in the 325 Laboratory.

- Improved operational discipline required the generation and/or revision of 24 Safe Operating Procedures. In addition, all analytical labs required to support TWRS Characterization were surveyed and reposted to comply with DOE RADCON requirements.

- The PNL Safety Review Council completed their readiness review of the 325 Laboratory and identified items requiring corrective action.

- The DOE Line Review Team completed their assessment of the 325 Laboratory in parallel with the SRC readiness review. The DOE Line Review Team assign pre-start and post start corrective actions.

- Three demonstration projects were identified and scheduled to be conducted during the various readiness reviews. These activities will serve to demonstrate the 325 Laboratory's improved operational discipline.

- Phase 1 of the Extruder Demonstration Project was completed. This included the preparation, removal and storage of the old sample extruder from the High Level Radiochemistry Facility hot cell.

Planned Work For Subsequent Months. This quarter's commitments, associated with improving the quality and quantity of analyses, are outlined in Table 2. More detail of the upcoming commitments can be found in the *Recommendation 93-5 Implementation Plan.*

The Idaho National Engineering Laboratory (INEL) upgrade continues on schedule for an October 31, 1994, startup to provide safety screening and safety resolution analytical support for characterization. An assessment of INEL's Laboratory readiness is planned for the week of September 20, 1994. A pre-assessment visit by 222-S Laboratory, 325 Laboratory, and Program Management and Integration personnel on August 16 and 17, 1994, revealed procedure compliance and deficiency issues. INEL has placed a high priority on correcting deficiencies noted.

Issues

The 325 Laboratory continues to remain on status of radiological activity suspension since April 21, 1994. Progress continues towards resumption of radiological activities and highlights include the following.

- PNL started readiness to restart 325 Building on September 26, 1994.
- Independent review by PNL's Safety Review Council and DOE Line were completed in October.
- All prestart action items identified by PNL's Safety Review Council and DOE Line Team during their assessment have been completed by PNL.
- DOE Independent Review Team has provided start and finish dates to 325 management. The team will begin their activities on October 17, 1994, with a target completion date of November 2, 1994.
- TWRS analytical work is schedule to restart November 9, 1994.
- All work activity packages for resumption of TWRS 45-day screening activities have been completed.
- PNL has performed the following two demonstration tasks; (1) analysis of low hazard samples in laboratory 421, and (2) removal of the existing core extruder from high level radiochemistry facility hot cell.
- The following demonstration tasks remain to be done: (1) install the new extruder in the high-level radiochemistry facility hot cell; and (2) repair of the two 325 Building vacuum pumps.

2.6 Improve Data Management

Without access to useable data in a timely manner, other improvements discussed earlier will have little value.

The ultimate goal of the Characterization Program is to provide the necessary analytical information to its data users (e.g., TWRS program elements, DOE, EPA, and Ecology). Easy access to this data in a form the users can understand is essential.

Progress During Reporting Period. PNL has completed input of characterization information for 20 tanks into the Tank Characterization

Database on September 7, 1994. This completes ahead of schedule DNFSB Commitment 6.5.

Data on the following tank data were loaded into the electronic Tank Characterization Database (TCD) during this quarter: 241-AP-101, 241-AP-102, 241-AP-105, 241-AP-106, 241-AP-107. (Eberlein 1994) Loading the data packages for a total of 20 tanks involved input of approximately 110,000 different data records, resulting in data from 20 tanks that have been analyzed since 1989. In addition, summary data was added from the Tracks Radioactive Components Database (TRAC), the Safety Analysis Report Estimates of source terms, and the historical tank content estimates (HTCE).

Other Accomplishments During Quarter. The Characterization Data Catalog was updated and distributed to the WHC Characterization Program manager on July 31, 1994. This catalog provides references to all available tank characterization information.

TWRS received the Defined Waste Document from LANL. The Defined Waste Document provides waste type composition estimates to the waste types that were used historically at Hanford. The document also provides the methodology used to estimate waste type compositions from historical process information and from records of materials used. The Defined Waste Document is used with the Tank Layering Model to develop historical estimates of the tank contents which are reported in the Historical Content Estimate Report.

WHC provided the annual Tank Waste Analysis Plan (TWAP) to DOE-RL. The TWAP will cover safety, retrieval, pretreatment, and other processing needs. The TWAP identifies sampling and analysis activities projected for the following fiscal year. The TWAP describes the Tank Characterization Plans (TCPs) to be issued for the year. The TCPs cover sampling and analysis activities for each double shell tank and single shell tank to be characterized in the following fiscal year. The TWAP specifies the contents of the Tank Characterization Reports (TCRs) to be submitted in the next fiscal year.

Two draft historical tank content estimates reports (HTCE) for the northwest and southeast quadrants were completed on September 29, 1994. Also completed were the six supporting documents for the six tank farms addressed in the northeast quadrant HTCE and the three supporting documents for the southwest quadrant HTCE.

Two releases of software enhancements were issued on September 29, 1994 for the tank characterization database.

The WHC Characterization Program successfully installed the LABCORE-5 (PNL) system on August 31, 1994. The commitment had several requirements for the Laboratory Information Management System (LIMS). The PNL analytical chemistry laboratory completed a study of the requirements for a LIMS in May 1994. Instead of procuring a complete system, equipment and associated software were moved from the 222-S/WSCF laboratory systems

to the PNL laboratory. Installation of LABCORE-5 did not include configuration and implementation of the application.

Planned Work For Subsequent Months. Specific DNFSB 93-5 Commitments associated with improving data management are now complete. WHC is implementing the improvements identified in the characterization Data Management Improvement Plan.

Issues. None

2.7 Change Control

The 93-5 *Implementation Plan* is based on certain assumptions that were used to develop commitment dates. If significant changes in outyear funding, staffing levels, or mission changes occur, the original date for commitments may require modification. Any anticipated significant changes in completion dates and department commitments will be promptly brought to the attention of the DNFSB prior to the commitment date. These changes, and the appropriate corrective action,will be formally discussed in the quarterly progress reports and submitted (where appropriate)to the DNFSB as a revision to the *Implementation Plan*.

Progress During Reporting Period. On September 20, 1993, WHC formally informed DOE-RL that the two major DNFSB dates (October 1995 to sample/analyze all Watch List tanks and October 1996 to safety screen all tanks) will be missed (Alumkal 1994). This is primarily because of difficulties in core/recovery delaying push-mode sampling and delays associated with trucks 2, 3, and 4. DOE-RL has directed WHC to prepare the implementation plan update. A revision is underway, however, because of the efforts to resolve a significant funding cut to TWRS overall, actual submittal to the DNFSB will most likely occur in second quarter 1995. This additional time is required to ensure what additional resources could be added to recover the schedule. Furthermore, other specific minor additions or deletions, especially in the technology area (scanning table) will be addressed based on the previous ten-month experience. Work has started on a revision based on an updated integrated schedule. Recommendations were submitted by WHC to RL to formally delete Commitments 5.1 and 5.4. These two items have been determined not to meet any DQO. In parallel to the basic update, which is oriented to no strategy changes, a select group of senior DOE and WHC managers are meeting with stakeholders to re-evaluate the strategy for safety screening and resolution. Once this is done (estimated first quarter FY 1995) then the group will focus on the disposal data needs. This will be evaluated as an alternate strategy for implementation.

Planned Work For Subsequent Months. Updates are underway and will be submitted in the next quarter.

Issues. Preliminary schedule estimates show that the May 1995 delivery date for Commitment 3.13, deploy prototype cone penetrometer, will not be met. To use the basic penetrometer system design in the tanks, several changes are required. Also, access to the tank farm risers requires

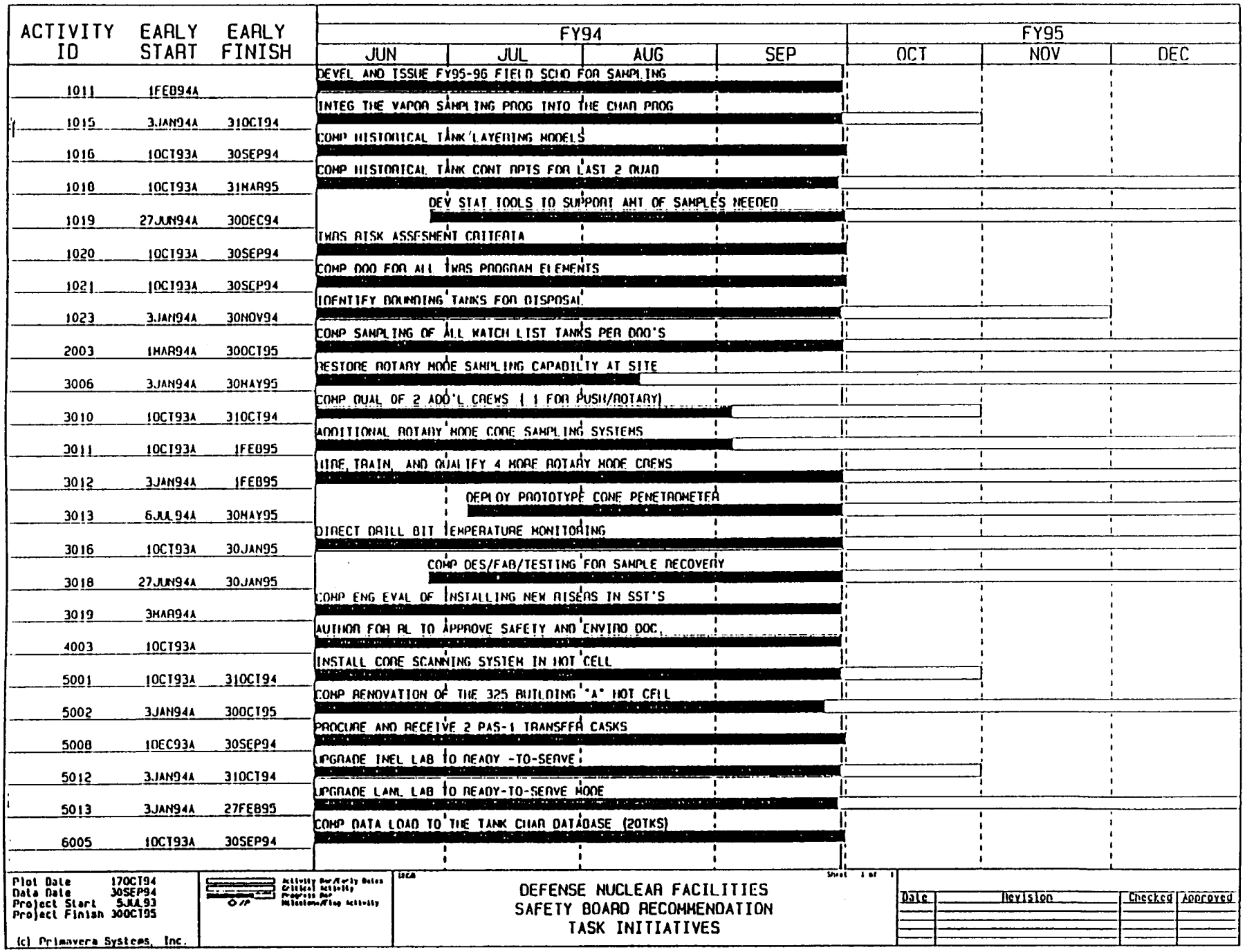
additional modifications to the basic penetrometer system so that samples can be taken from the rear of the truck.

Conceptual design and evaluation will continue on Commitment 3.18, develop means for measuring complete sample recovery, and final design will be started. The preliminary schedule from Southwest Research Institute has prototype fabrication in November 1994 and prototype testing in February 1995. This schedule does not meet the commitment date for completion of design and testing. WHC will work with Southwest Research Institute to identify possible ways to accelerate the schedule.

DOE-RL is currently developing a Workforce Restructuring Plan for implementation at the Hanford site. This plan would offer an incentivized early retirement option and subsequently (depending on the participation levels of the early retirement program) may offer a limited voluntary reduction of force.

3.0 SCHEDULES

3.1 Characterization Program Schedule


ACTIVITY ID
EARLY START
EARLY FINISH
FY94
FY95
JUN
JUL
AUG
SEP
OCT
NOV
DEC
1011 1FEB94A
DEVEL AND ISSUE FY95-96 FIELD SCHD FOR SAMPLING
1015 3JAN94A 31OCT94
INTEG THE VAPOR SAMPLING PROG INTO THE CHAR PROG
1016 1OCT93A 30SEP94
COMP HISTORICAL TANK/LAYERING MODELS
1018 1OCT93A 31MAR95
COMP HISTORICAL TANK CONT RPTS FOR LAST 2 QUAD
1019 27JUN94A 30DEC94
DEV STAT TOOLS TO SUPPORT AMT OF SAMPLES NEEDED
1020 1OCT93A 30SEP94
TWRS RISK ASSESMENT CRITERIA
1021 1OCT93A 30SEP94
COMP DQO FOR ALL TWRS PROGRAM ELEMENTS
1023 3JAN94A 30NOV94
IDENTIFY BOUNDING TANKS FOR DISPOSAL
2003 1MAR94A 30OCT95
COMP SAMPLING OF ALL WATCH LIST TANKS PER DQO'S
3006 3JAN94A 30MAY95
RESTORE ROTARY MODE SAMPLING CAPABILITY AT SITE
3010 1OCT93A 31OCT94
COMP QUAL OF 2 ADD'L CREWS (1 FOR PUSH/ROTARY)
3011 1OCT93A 1FEB95
ADDITIONAL ROTARY MODE CORE SAMPLING SYSTEMS
3012 3JAN94A 1FEB95
LINE, TRAIN, AND QUALIFY 4 MORE ROTARY MODE CREWS
3013 6JUL94A 30MAY95
DEPLOY PROTOTYPE CONE PENETROMETER
3016 1OCT93A 30JAN95
DIRECT DRILL BIT TEMPERATURE MONITORING
3018 27JUN94A 30JAN95
COMP DES/FAB/TESTING FOR SAMPLE RECOVERY
3019 3MAR94A
COMP ENG EVAL OF INSTALLING NEW RISERS IN SST'S
4003 1OCT93A
AUTHOR FOR RL TO APPROVE SAFETY AND ENVIRO DOC.
5001 1OCT93A 31OCT94
INSTALL CORE SCANNING SYSTEM IN HOT CELL
5002 3JAN94A 30OCT95
COMP RENOVATION OF THE 325 BUILDING "A" HOT CELL
5008 1DEC93A 30SEP94
PROCURE AND RECEIVE 2 PAS-1 TRANSFER CASKS
5012 3JAN94A 31OCT94
UPGRADE INEL LAB TO READY -TO-SERVE
5013 3JAN94A 27FEB95
UPGRADE LANL LAB TO READY-TO-SERVE MODE
6005 1OCT93A 30SEP94
COMP DATA LOAD TO THE TANK CHAR DATABASE (20TKS)
Plot Date 17OCT94
Data Date 30SEP94
Project Start 5JUL93
Project Finish 30OCT95
(c) Primavera Systems, Inc.
Activity Bar/Early Dates
Critical Activity
Progress Bar
Milestone/Top Activity
DOE
Sheet 1 of 1
DEFENSE NUCLEAR FACILITIES
SAFETY BOARD RECOMMENDATION
TASK INITIATIVES
Date
Revision
Checked
Approved

rifle, and handgun), except during night firing and initial raining where the instructor-to-shooter ratio shall be no greater than one-to-four. When using an indoor range, whether daylight or simulated night fire, the instructor-to-shooter ratio shall be on greater than one-to-five.

A range safety officer or an instructor with specific delineated responsibilities for range safety (e.g., monitoring the safety performance of the shooters as well as overall safety of the firing range) shall be present during all firearms training activities, qualification, or re-qualification activities.

When the shooter-to-instructor ratio requires only one instructor on the firing line, he or she shall be the lead instructor and may be assigned range safety responsibilities if approved by the range master.

When the shooter-to-instructor ratio requires two or more instructors on the firing line, there shall be a lead instructor presiding over the firing activities (i.e., "calling the line") who will not be assigned additional instructional duties or be included in the shooter-to-instructor ratio, but may be assigned range safety responsibilities. To accomplish these activities, the lead instructor may be positioned either behind the firing line, in a booth, or in a tower, whichever location provides the greatest safety and control.

All personnel involved in firearms training shall be required to comply with the personal protective equipment rules in effect at each training location. In particular, eye and hearing protective equipment shall be worn.

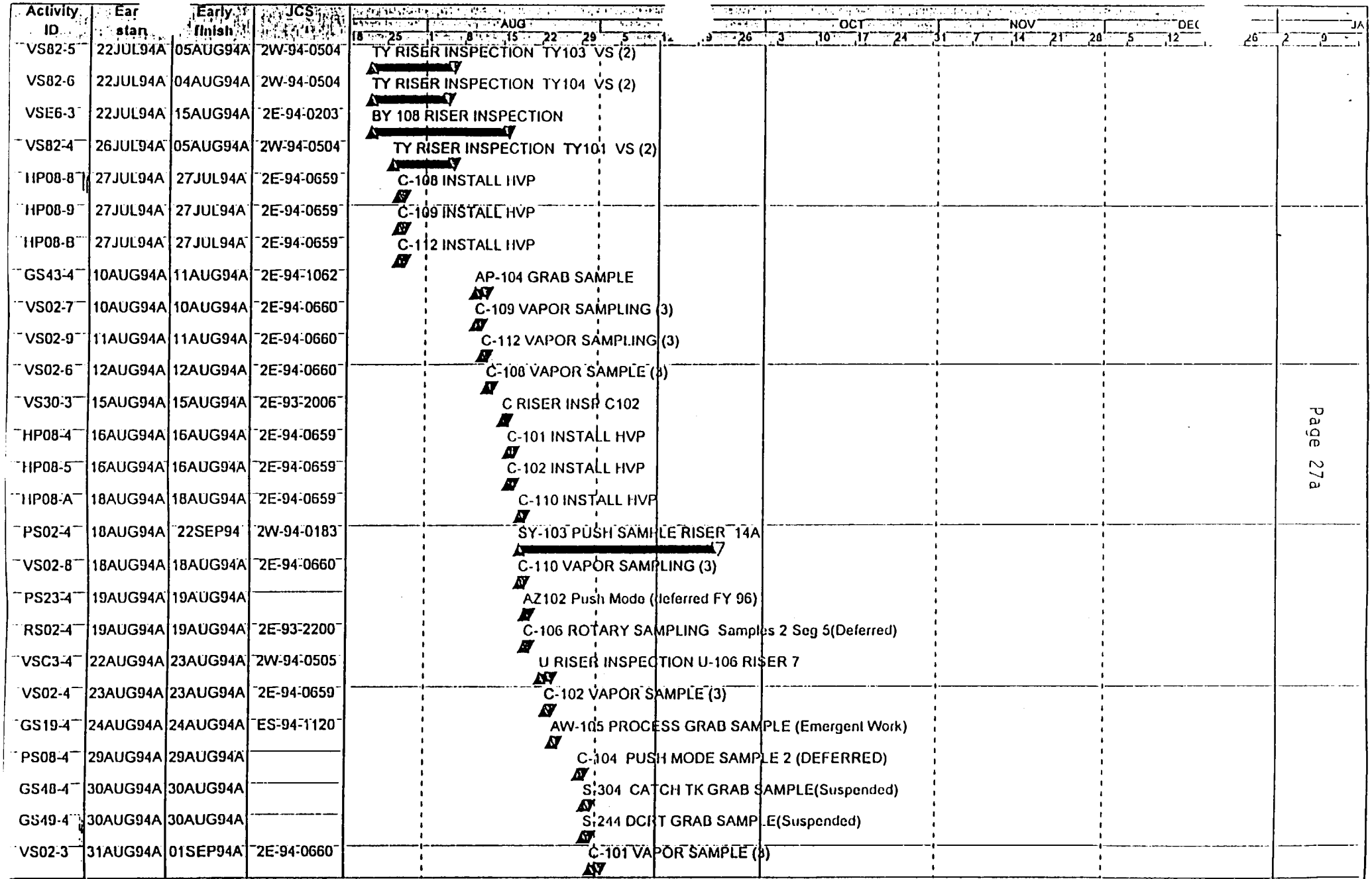
Any injury/illness sustained during firearms training, regardless of degree, shall be reported immediately to an instructor. The

Tank Characterization Plan Schedule
July - December, 1994

TANK	SAMPLING TYPE	COMPLETION DATE	ACTUAL DATE
241-T-102	GRAB	7-Jul-94	7-Jul-94
241-S-102	GRAB	18-Jul-94	18-Jul-94
241-SY-103	PUSH	18-Jul-94	18-Jul-94
241-B-102	AUGER	15-Aug-94	15-Aug-94
241-BX-105	AUGER	15-Aug-94	15-Aug-94
241-U-106	GRAB	17-Aug-94	17-Aug-94
241-U-107	GRAB	17-Aug-94	17-Aug-94
241-AX-102	AUGER	26-Aug-94	26-Aug-94
241-AX-104	AUGER	26-Aug-94	26-Aug-94
241-BY-106	ROTARY	1-Sep-94	1-Sep-94
241-A-104	AUGER	16-Sep-94	16-Sep-94
241-C-103	PUSH	6-Oct-94	
244A	GRAB	10-Oct-94	
241-BY-103	VAPOR*	21-Oct-94	
241-BY-107	VAPOR*	20-Oct-94	
241-BY-108	VAPOR*	21-Oct-94	
ER311	GRAB	20-Oct-94	
241-C-108	AUGER	20-Oct-94	
241-BY-105	ROTARY	24-Oct-94	
241-C-106	GRAB	27-Oct-94	
241-C-105	PUSH	27-Oct-94	
241-BY-110	VAPOR*	31-Oct-94	
241-C-106	GRAB	31-Oct-94	
241-BY-108	AUGER	3-Nov-94	
241-BY-111	VAPOR*	3-Nov-94	
241-AP-106	GRAB	7-Nov-94	
241-BY-112	VAPOR*	8-Nov-94	
241-AN-107	VAPOR*	17-Nov-94	
241-AP-104	GRAB	21-Nov-94	
241-AW-101	AUGER	21-Nov-94	
241-TX-105	VAPOR*	22-Nov-94	
241-AY-102	GRAB	23-Nov-94	
241-BY-108	ROTARY	23-Nov-94	
241-AP-101	GRAB	24-Nov-94	
241-TX-118	VAPOR*	25-Nov-94	
241-C-102	AUGER	28-Nov-94	
241-BX-104	VAPOR*	30-Nov-94	
241-AZ-102	GRAB	1-Dec-94	
241-BX-102	VAPOR*	5-Dec-94	
241-C-101	PUSH	5-Dec-94	
241-C-111	AUGER	5-Dec-94	
241-AZ-101	GRAB	8-Dec-94	
241-BX-106	VAPOR*	8-Dec-94	
241-BY-103	ROTARY	9-Dec-94	
241-T-107	VAPOR*	15-Dec-94	
241-AP-103	GRAB	19-Dec-94	
241-T-111	VAPOR*	20-Dec-94	
241-BY-104	ROTARY	23-Dec-94	
241-U-103	GRAB	26-Dec-94	
241-U-108	GRAB	26-Dec-94	
241-AX-102	AUGER	28-Dec-94	
241-C-107	PUSH	28-Dec-94	
241-TY-104	AUGER	28-Dec-94	
241-U-103	VAPOR*	28-Dec-94	
241-B-103	VAPOR*	30-Dec-94	

* On hold pending resolution of QA issue.

3.3 Sampling Schedule for Fourth Quarter Activities
July 1 - September 30, 1994



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Project Start 01OCT93
Project Finish 26AUG96
Data Date 12SEP94
Plot Date 14SEP94

Early Bar
Early Bar
Progress Bar
Critical Activity

(c) Primavera Systems, Inc.

CHA4

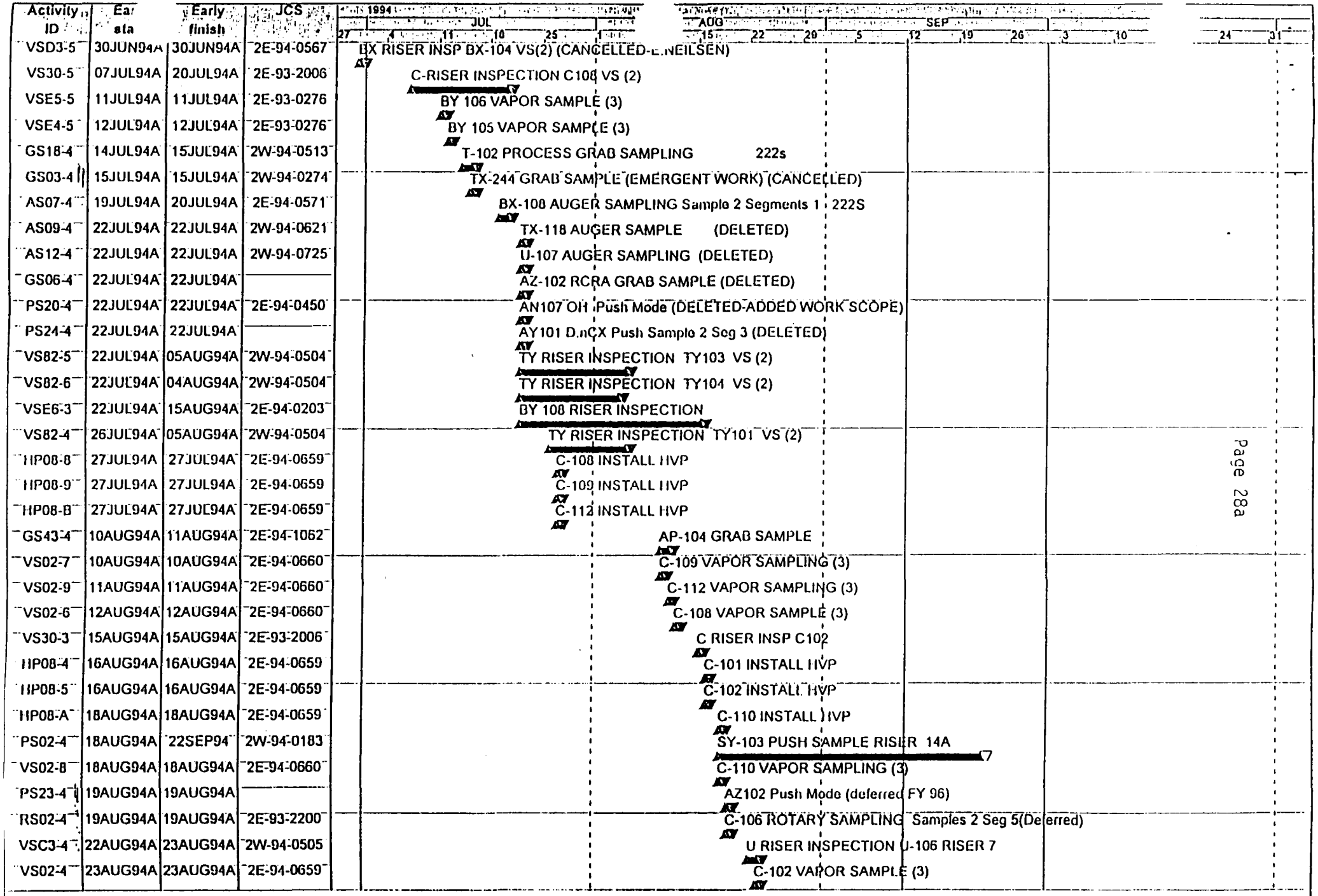
WESTINGHOUSE-HANFORD
TANK FARM OPERATIONS
SAMPLING SCHEDULE

Sheet 1 of 1

Developed DA Healey

Date	Revision	Checked	Approved

3.4 Upcoming Sampling Schedule for First Quarter Activities October 1 - December 31, 1994



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Project Start 01OCT93
Project Finish 26AUG96
Data Date 12SEP94
Plot Date 14SEP94

(c) Primavera Systems, Inc

Early Bar
Progress Bar
Critical Activity

CHA4

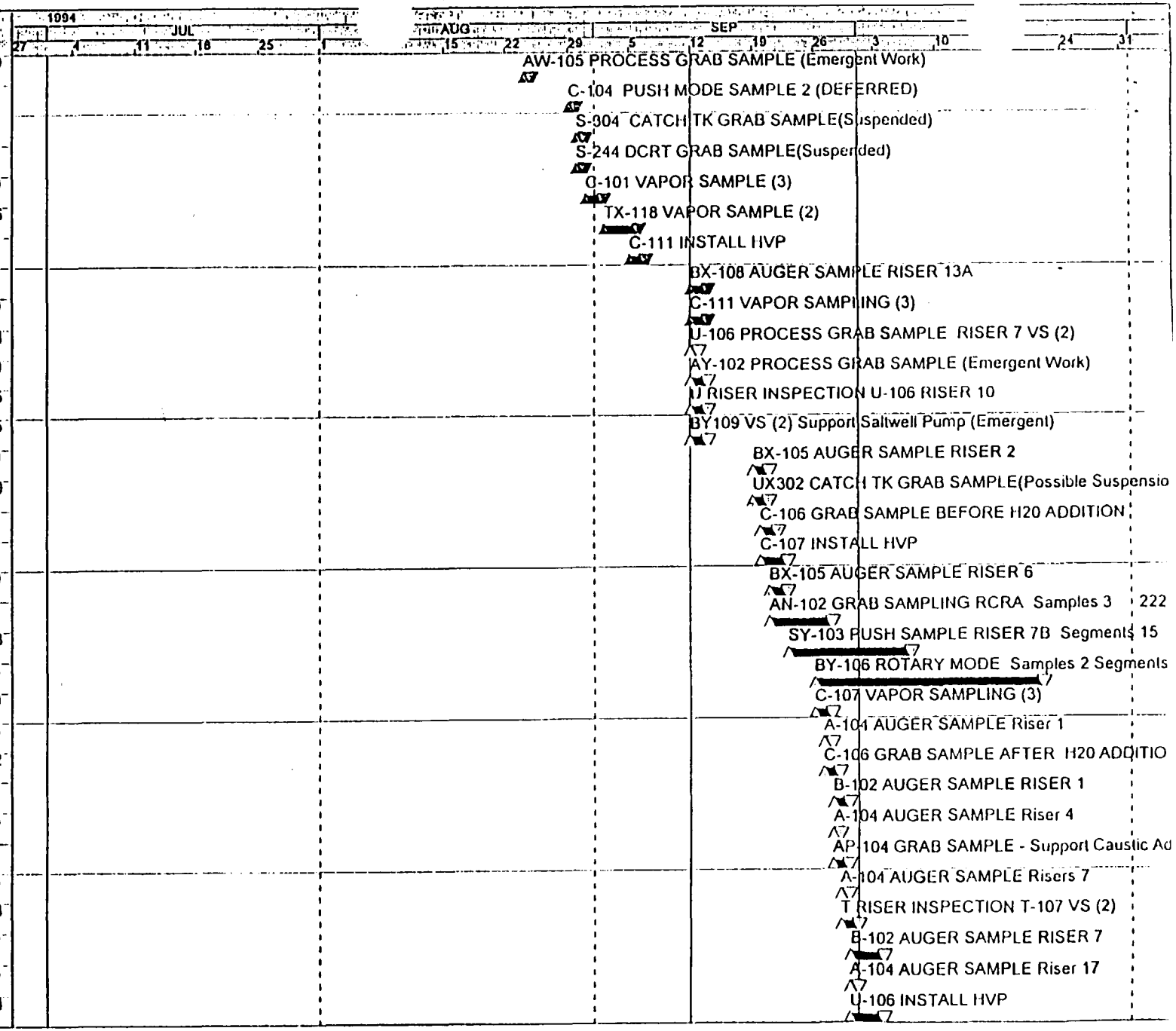
Sheet 1 of 2

WESTINGHOUSE HANFORD
TANK FARM OPERATIONS
SAMPLING SCHEDULE

Date	Revision	Checked	Approved

Developed DA Healey

Activity ID	E. sta.	Early finish	JCS
GS19-4	24AUG94A	24AUG94A	ES-94-1120
PS08-4	29AUG94A	29AUG94A	
GS48-4	30AUG94A	30AUG94A	
GS49-4	30AUG94A	30AUG94A	
VS02-3	31AUG94A	01SEP94A	2E-94-0660
VS67-4	02SEP94A	05SEP94A	2W-94-0506
HP30-4	05SEP94A	06SEP94A	2E-94-0659
AS07-5	12SEP94A	13SEP94A	2E-94-0571
VS02-A	12SEP94A	13SEP94A	2E-94-0660
GS09-4	12SEP94	12SEP94	2W-94-0754
GS20-4	12SEP94*	13SEP94	ES-94-1119
VSC3-C	12SEP94*	13SEP94	2W-94-0505
VSF3-4	12SEP94*	13SEP94	2W-94-0505
AS08-4	19SEP94*	20SEP94	2E-94-0570
GS47-4	19SEP94*	20SEP94	2W-94-0840
GS65-4	20SEP94*	21SEP94	ES-94-1121
HP29-6	20SEP94	22SEP94	2E-94-0367
AS08-5	21SEP94	22SEP94	2E-94-0570
GS21-4	21SEP94	27SEP94	2E-94-0671
PS02-5	23SEP94	06OCT94	2W-94-0183
RS04-4	26SEP94	21OCT94	2E-94-0808
VS02-5	26SEP94*	27SEP94	2E-94-0660
AS11-4	27SEP94*	27SEP94	2E-94-0703
GS66-4	27SEP94*	28SEP94	ES-94-1122
AS05-4	28SEP94*	29SEP94	2E-93-2242
AS11-5	28SEP94*	28SEP94	2E-94-0703
GS67-4	28SEP94*	29SEP94	
AS11-6	29SEP94*	29SEP94	2E-94-0703
VS33-4	29SEP94	30SEP94	2W-94-0503
AS05-5	30SEP94	03OCT94	2E-93-2242
AS11-7	30SEP94*	30SEP94	2E-94-0703
HP03-5	30SEP94*	03OCT94	2W-94-0514



3.5 Data Quality Objective Status

4.0 REFERENCES

Alumkal, W. T., 1994, *Defense Nuclear Facilities Safety Board 93-5 Progress*, (external letter 9456306 to T. R. Sheridan, RL, September 20), Westinghouse Hanford Company, Richland, Washington.

Brown, T. M., 1994, *Completion of Department of Energy Richland Operations Office Milestone TW4-94-435, Nominal Waste Type Composition Document (Defined Waste Document)*, (external letter 9455293 to R. E. Gerton, RL, August 1), Westinghouse Hanford Company, Richland, Washington.

DeFigh-Price, C., 1994, *Defense Nuclear Facilities Safety Board Commitment 3.19, Complete Engineering Evaluation of Installing New Risers in Single-Shell Tanks*, (external letter 9455522 to R. E. Gerton, RL, August 31), Westinghouse Hanford Company, Richland, Washington.

DOE-RL, 1994, *Recommendation 93-5 Implementation Plan*, DOE-RL 94-0001, U.S. Department of Energy, Richland Operations Office, Richland, Washington.

Eberlein, S. J., 1994a, *Completion of Hanford Federal Facility Agreement and Consent Order Milestone M-44-06, Input of Data for 20 Tanks Into the Tank Characterization Database*, (external letter 9456154 to R. E. Gerton, RL, September 13), Westinghouse Hanford Company, Richland, Washington.

Eberlein, S. J., 1994b, *Completion of Hanford Federal Facility Agreement and Consent Order Milestone M-44-06, Input of 20 Tanks into Tank Characterization Database*, (external letter 9406065 to D. R. Sherwood, EPA, September 28), Westinghouse Hanford Company, Richland, Washington.

Eberlein, S. J., 1994c, *Defense Nuclear Facilities Safety Board Commitment 1.16, Complete Historical Tank Layering Models*, (external letter 9456737 to J. M. Clark, RL, September 30), Westinghouse Hanford Company, Richland, Washington.

Eberlein, S. J., 1994d, *Defense Nuclear Facilities Safety Board Commitment 1.20, TWRS Risk Acceptance Criteria*, (external letter 9456746 to J. M. Clark, RL, September 30), Westinghouse Hanford Company, Richland, Washington.

Eberlein, S. J., 1994e, *Tank Characterization Reports for Fiscal Year 1995*, (external letter 9456534 to J. M. Clark, RL, September 28), Westinghouse Hanford Company, Richland, Washington.

Frater, G. T., 1994, *Completion of Defense Nuclear Facilities Safety Board Milestone Commitment 5.8*, (external letter 9455639 to R. E. Gerton, RL, August 18), Westinghouse Hanford Company, Richland, Washington.

Forehand, G. D., 1994, *Proposed Deletion of Defense Nuclear Facilities Safety Board 93-5 Implementation Plan Commitments 5.1 and 5.4*, (external letter 9455940 to R. E. Gerton, RL, September 1), Westinghouse Hanford Company, Richland, Washington.

Grumbly, T. P., 1994, *Delegation of Reporting Responsibility for Defense Nuclear Facilities Safety Board Recommendation 93-5 Implementation Plan Commitments*, (external letter 9406243 to Manager, RL, August 8), U.S. Department of Energy Headquarters, Washington, D.C.

Grumbly, T. P., 1993b, *Strategy for Safety Issue Resolution*, (letter to J. T. Conway, Chairman, Defense Nuclear Facilities Safety Board, August 25), U.S. Department of Energy, Washington, D.C.

McCain, D. J., 1994, *Completion of Defense Nuclear Facilities Safety Board Commitment 1.21*, (external letter 9455386 to R. E. Gerton, RL, August 22), Westinghouse Hanford Company, Richland, Washington.

Sheridan, T. R., 1994a, *Transmittal of Westinghouse Hanford Company Document Title ER5511ES, Engineering Study for Installation of New Risers in Single Shell Tanks, WHC-SD-WM-ES-299, Revision 0, dated August 1994*, (external letter 9406257 to J. T. Conway, DNFSB, September 15), U.S. Department of Energy, Richland Operations Office, Richland, Washington.

Sheridan, T. R., 1994a, *Transmittal of Westinghouse Hanford Company Letters in Accordance with Commitments 1.11 (Develop and Issue a Field Schedule for All Sampling Activities) and 3.10 (Complete Qualification of Two Additional Crews) of the Department of Energy Implementation Plan for Board Recommendation 93-5*, (external letter 94-OCH-062 to J. T. Conway, DNFSB, July 13), U.S. Department of Energy, Richland Operations Office, Richland, Washington.

Stanton, G. A., 1994, *Completion of Defense Nuclear Facilities Safety Board Milestone Commitment 1.11*, (external letter 9404502-R1 to R. E. Gerton, RL, September 26), Westinghouse Hanford Company, Richland, Washington.

STATUS REPORT, DATA QUALITY OBJECTIVES
TWRS CHARACTERIZATION PROGRAM
Chart compiled by D. J. McCain 373-1023
Effective date: 9/30/94
Shading indicates DQO is no longer active

TYPE	DOCUMENT NUMBER	DOCUMENT TITLE	DUE DATE/STATUS/ TRANSMITTAL NUMBER
Ferrocyanide	WHC-SD-WM-DQO-007	Data Requirements for the Ferrocyanide Safety Issue Developed through the Data Quality Objectives Process	Issued 8/24/94 CCRN 9455679 Originally issued 12/31/93, WHC-EP-0728 CCRN 9361056
C-106 High Heat	WHC-SD-WM-DQO-015	Tank 241-C-106 Sampling Data Requirements Developed Through the DQO Process	Original issued 1/20/94, WHC-EP-0723 CCRN 9450464 Revision initiated, but curtailed, pending Retrieval DQO issuance.
Safety Screening	WHC-SD-WM-DQO-012	Tank Safety Screening Data Quality Objectives (Steps 1 - 5)	In revision by author Original Issued 2/23/94 CCRN 9451671
Vapor Rotary Mode	WHC-SD-WM-SP-003	Rotary Core Vapor Sampling Data Quality Objective	2/25/94 Complete-Issued CCRN 9451694 An effort is underway to discontinue this DQO, covering the issues in operating procedures and In-Tank Generic Vapor DQO
Waste Compatibility	WHC-SD-WM-DQO-001	Data Quality Objective for Waste Compatibility Program	3/4/94 Complete-Issued CCRN 9451694
C-103 Vapor	WHC-EP-0774	Tank 241-C-103 Vapor and Gas Sampling Data Quality Objectives	2/28/94 Complete-Issued CCRN 9451694 This DQO is now on inactive status.
In-Tank Generic Vapor	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

Crust Burn Flammable Gas	WHC-SD-WM-DQO-003	Data Requirements Required Through the Data Quality Objectives Process for the Crust Burn Issue Associated with Flammable Gas Tanks	4/27/94 Rev.1 Complete-Issued CCRN 9453471
DST Flammable Gas	WHC-SD-WM-DQO-004	Flammable Gas Tank Safety Program: Data Requirements for Core Sample Analysis Developed through the Data Quality Objectives (DQO) Process	Under revision Original issued 5/13/94 CCRN 9453471
Flammable Gas Monitoring	WHC-SD-WM-DQO-016	Flammable Gas Tank Safety Program: Data Requirements for Gas Analysis and Monitoring Developed through the Data Quality Objectives (DQO) Process	Being developed
Organics	WHC-SD-WM-DQO-006	Data Quality Objective to Support Resolution of the Organic Fuel Rich Tank Safety Issue	4/29/94 Complete-Issued CCRN 9453093 Revision in progress
C-103 Dip Sample	PNL-8871 UC-510	Organic Layer Sampling for SST 241-C-103 Background, and Data Quality Objectives, and Analytical Plan	8/93 Complete-Issued This DQO is now on inactive status.
Retrieval	WHC-SD-WM-DQO-008	Characterization Data Needs for Development, Design and Selection of Retrieval Equipment and Process for SSTs and DSTs, Developed through the DQO Process	A preliminary document, WHC-SD-WM-RD-039, is being rewritten. Draft scheduled for 10/15/94, Final to be out by 11/15/94.
DST Waste Analysis Plan (WAP)	WHC-SD-WM-DQO-013	Double Shell Tank System Waste Analysis Plan	Revision 2 comments for the draft WAP went under discussion
Regulatory DQO			This DQO is planned to cover environmental regulation concerns, such as clean air, clean water. Anticipated completion in July, 1995.

Evaporator Operations	WHC-SD-WM-DQO-014	242-A Evaporator/LERF Data Quality Objectives	Issued 9/29/94 Not considered a Characterization Program Document
Pretreatment	WHC-SD-WM-DQO-011	Interim Data Quality Objectives for Waste Pretreatment and Vitrification (Steps 1 through 5)	Rev. 1 issued 9/15/94 Rev. 0 issued 8/3/94 CCRN 9455386
HLW-LLW Immobilization	WHC-SD-WM-DQO-010	Pretreatment Data Quality Objectives in Support of High-Level and Low-Level Waste Feed (Steps 1-5)	See Pretreatment DQO status in row above.
Process Control			
Tank Operating Specifications			Reference is made to this concern in the Pretreatment DQO
Waste Disposal (Drums, Equip.)			
Historical Data Acquisition Model Verification			