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ENGINEERING CHANGE NOTICE

Page 1 of 2

1. ECN 643786

Proj. ECN

2. ECN Category (mark one)	3. Originator's Name, Organization, MSIN, and Telephone No.	4. USQ Required?	5. Date
Supplemental [] Direct Revision [X] Change ECN [] Temporary [] Standby [] Supersedure [] Cancel/Void []	Todd M. Brown, Technical Basis and Planning, R2-12, 373-4437	[] Yes [X] No	04/16/98
	6. Project Title/No./Work Order No. Tank Waste Characterization Basis	7. Bldg./Sys./Fac. No. N/A	8. Approval Designator N/A
	9. Document Numbers Changed by this ECN (includes sheet no. and rev.) HNF-SD-WM-TA-164, Rev. 3	10. Related ECN No(s). ECNs: 624988, 631599, 635462	11. Related PO No. N/A

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[] Yes (fill out Blk. 12b) [X] No (NA Blks. 12b, 12c, 12d)	N/A	N/A Design Authority/Cog. Engineer Signature & Date	N/A Design Authority/Cog. Engineer Signature & Date

13a. Description of Change

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13b. Design Baseline Document? [] Yes [X] No

14a. Justification (mark one)

Criteria Change	[X]	Design Improvement	[]	Environmental	[]	Facility Deactivation	[]
As-Found	[]	Facilitate Const	[]	Const. Error/Omission	[]	Design Error/Omission	[]

14b. Justification Details

Characterization data is needed to plan and perform waste disposal activities as well as to ensure safe storage and operation of the tanks.

15. Distribution (include name, MSIN, and no. of copies)

See attached distribution.

RELEASE STAMP

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1. ECN (use no. from pg. 1) ECN-643786

16. Design Verification Required	17. Cost Impact				18. Schedule Impact (days)	
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[X] No	Savings	[] $	Savings	[] $	Delay	[]

19. Change Impact Review: Indicate the related documents (other than the engineering documents identified on Side 1) that will be affected by the change described in Block 13. Enter the affected document number in Block 20.

SDD/DD	[]	Seismic/Stress Analysis	[]	Tank Calibration Manual	[]
Functional Design Criteria	[]	Stress/Design Report	[]	Health Physics Procedure	[]
Operating Specification	[]	Interface Control Drawing	[]	Spares Multiple Unit Listing	[]
Criticality Specification	[]	Calibration Procedure	[]	Test Procedures/Specification	[]
Conceptual Design Report	[]	Installation Procedure	[]	Component Index	[]
Equipment Spec.	[]	Maintenance Procedure	[]	ASME Coded Item	[]
Const. Spec.	[]	Engineering Procedure	[]	Human Factor Consideration	[]
Procurement Spec.	[]	Operating Instruction	[]	Computer Software	[]
Vendor Information	[]	Operating Procedure	[]	Electric Circuit Schedule	[]
OM Manual	[]	Operational Safety Requirement	[]	ICRS Procedure	[]
FSAR/SAR	[]	IEFD Drawing	[]	Process Control Menual/Plan	[]
Safety Equipment List	[]	Cell Arrangement Drawing	[]	Process Flow Chart	[]
Radiation Work Permit	[]	Essential Material Specification	[]	Purchase Requisition	[]
Environmental Impact Statement	[]	Fac. Proc. Samp. Schedule	[]	Tickler File	[]
Environmental Report	[]	Inspection Plan	[]		[]
Environmental Permit	[]	Inventory Adjustment Request	[]		[]

20. Other Affected Documents: (NOTE: Documents listed below will not be revised by this ECN.) Signatures below indicate that the signing organization has been notified of other affected documents listed below.

Document Number/Revision	Document Number/Revision	Document Number Revision
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21. Approvals

	Signature	Date		Signature	Date
Design Authority			Design Agent		
Cog. Eng. T.M. Brown	Todd Brown	4/27/98	PE		
Cog. Mgr. J.W. Hunt	J.W. Hunt	4/27/98	QA		
QA			Safety		
Safety			Design		
Environ.			Environ.		
Other			Other		

DEPARTMENT OF ENERGY

Signature or a Control Number that tracks the Approval Signature

ADDITIONAL

S

HNF-SD-WM-TA-164, Rev. 4

Tank Characterization Technical Sampling Basis

Todd M. Brown
Lockheed Martin Hanford, Corp., Richland, WA 99352
U.S. Department of Energy Contract DE-AC06-96RL13200

EDT/ECN: ECN-643786 UC: 2070
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Key Words: Characterization, Strategy, Data Quality Objectives, Safety Issues, Prioritization, Matrix, Criteria, Constraints, Safety Screening

Abstract: This document describes the issues requiring characterization information, the process of determining high priority tanks to obtain information, and the outcome of the prioritization process. In addition, this document provides the reasoning for establishing and revising priorities and plans.

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Page 1

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TANK WASTE CHARACTERIZATION BASIS

CHANGE CONTROL RECORD

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Tank Characterization Technical Sampling Basis

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Prepared for the U. S. Department of Energy
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This document contains technical information only. This document is not intended for, not should it be interpreted as a presentation, agreement, or proposal regarding changes to the Fiscal Year 1998 Characterization Project Multi-Year Work Plan, the contract which Lockheed Martin Corporation has with Fluor Daniel Hanford, Inc. (Contract #80232764-9-K001) or the contract Fluor Daniel Hanford, Inc. has with the U.S. Department of Energy, Richland Operations Office (DE-AC06-96RL13200).

EXECUTIVE SUMMARY

The Hanford Site has 177 underground high-level radioactive waste storage tanks in 18 tank farms. The tanks contain accumulated liquid, sludge, and saltcake wastes from more than 50 years of nuclear weapons material production activities at the Hanford Site. Several types of waste exist in the tanks, and the tank contents vary from homogeneous to highly heterogeneous. The tanks also have a variety of important safety, disposal, regulatory, and operational issues associated with them. In addition to the 177 tanks, several double-contained receiver tanks (DCRTs), catch tanks, and inactive miscellaneous underground storage tanks (IMUSTs) are also in the purview of Tank Waste Remediation Systems (TWRS).

This document establishes an approach to determine the priority of tank sampling at the Hanford Site. The approach is based on data quality objectives (DQOs) and other requirements documents for each issue identified, as well as tank priority inputs from each of the TWRS programs. The DQOs (or other requirements documents) used to direct characterization for each of the issues are listed below:

- Flammable gas (Bauer and Jackson 1997)
- Sluicing of tank 241-C-106. The characterization requirements are documented in a process control plan (Carothers et al. 1998).
- Waste feed delivery (Phase I). Characterization requirements will be documented in problem-specific DQOs, one to confirm the selection of tanks to supply low-activity waste (Certa 1998) and one to confirm the selection of tanks to supply high-level waste, to be issued by May 1998 (problem-specific DQOs #1 and 2, respectively). Ten other problem-specific DQOs will be written (#3 - 10 and 13 - 14). A decision will be made

later to determine which of these 10 problem-specific DQOs will require characterization sampling, if any. Problem-specific DQO #11 will probably be canceled because its requirements are covered by the Privatization low-activity waste DQO (Wiemers and Miller 1997. See next bullet). Problem-specific DQO #12 will be canceled because no further information is required (Murkowski 1997). In addition to the problem-specific DQOs, the retrieval DQO (Bloom and Nguyen 1996) and the mixer pump test plan (Staehr 1996) will be used to direct sampling and analysis of tank 241-AZ-101. The retrieval DQO will be transitioned out of use, to be replaced by the problem-specific DQOs. The mixer pump test plan is being updated to ensure that required data will be obtained and that sufficient detail will be provided to direct sampling and analysis.

- Privatization Phase I - the U.S. Department of Energy (DOE) management of private contract(s). Characterization requirements will be documented in three DQOs, one for low-activity waste (Wiemers and Miller 1997, to be revised later in 1998), one for high-level waste (due in May 1998), and one for regulatory compliance (due in May 1998).

- Privatization Phase I - direct samples to private contractor(s) . Sampling requirements of the private contractors is proprietary until authorization to proceed is awarded by DOE. Specific sampling requirements will be identified during Phase I Part B contract negotiations between DOE and the private contractors. Estimated sampling requirements for technical planning have been provided in Gasper (1998) so that interim planning can be conducted.

- Retrieval, pretreatment, and immobilization (Phase II). Characterization requirements are currently documented in the pretreatment DQO (Slankas et al. 1995). Two other DQOs will be written to (1) define data needs for low-activity waste feed in support of Phase II Privatization contracts and (2) to define data needs for high-level waste feed in support of Phase II Privatization contracts. Phase II retrieval data needs will be defined after experience is gained from the sluicing of tank 241-C-106 and the tank 241-AZ-101 mixer pump test.

- Single-shell tank (SST) waste retrieval and tank closure (Hanford Tanks Initiative [HTI]):

  241-AX-104: A DQO has been written (Miller 1997) with two engineering change notices (ECNs) (Banning 1997 and Banning 1998).

  241-C-106: A DQO to direct core-sampling is scheduled to be prepared in FY 1999.

- Historical Model Evaluation (Simpson and McCain 1997)

- Regulatory - air emissions (Mulkey and Markillie 1995) and dangerous waste (Mulkey 1996)

- Compatibility. Safety-related requirements are identified in Mulkey and Miller (1997) and operations-related requirements are identified in Fowler (1995).
- Evaporator operations. The Von Bargen (1995) DQO is currently being revised.
- Caustic mitigation. Test plans are used where applicable.
- Process sampling. Test plans are used where applicable.
- Safety screening. The Dukelow et al. (1995) DQO is opportunistically applied to all tanks sampled for another purpose. It is not used as a driver for sampling.

Criteria for determining tank sampling priority were established and weighted for each issue. Specific tank priorities for sampling were then determined following the approach outlined in this document. Priority for each issue was assigned by TWRS programs, the U.S. Department of Energy, Richland Operations Office (DOE-RL), and the Washington State Department of Ecology (Ecology). The final product of the sampling priority basis is a tank priority list to support sampling for all TWRS programs. Sampling of tanks high on the overall priority list is expected to accelerate resolution of TWRS issues, and therefore, to the extent possible, tanks should be sampled in the priority order outlined in this report. Some tanks that were sampled previously still have a sampling priority number, indicating a need to resample the tanks. In some cases, the priority to resample tanks is because a new issue applies to the tanks that did not apply when the tank was originally sampled. Another reason for the priority to resample some tanks is that the original sampling effort may have been insufficient to address issues fully.

The *Recommendation 93-5 Implementation Plan* (DOE-RL 1996) identified 28 high-priority tanks which, through sampling and analysis, were expected to optimize the collection of data

for the resolution of Defense Nuclear Facilities Safety Board (DNFSB) key safety and disposal questions. These tanks were initially identified in Brown et al. (1995). Section 7.0 lists the high priority tanks. Twenty high priority tanks have been fully sampled and three have been partially sampled. In March 1998, a report, *High Priority Tank Sampling and Analysis Report* (Brown et al. 1998) provided technical justification to not continue further sampling of high-priority tanks for the purpose of addressing the specific questions identified in DOE-RL (1996). Sufficient information has been obtained from the 23 high priority tanks plus 121 additional tanks to adequately address those questions. Therefore, this report gives the remaining high priority tanks no extra priority over that driven by other TWRS requirements.

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LIST OF TERMS

Btu/hr	British thermal units per hour
BY saltcake	saltcake from in-tank solidification units 1 and 2
DCRT	double-contained receiver tank
DNFSB	Defense Nuclear Facility Safety Board
DOE	U. S. Department of Energy
DOE-RL	DOE Richland Operations Office
DQO	data quality objective
DST	double-shell tank
ECN	engineering change notice
Ecology	Washington State Department of Ecology
EPA	U.S. Environmental Protection Agency
ESW	enhanced sludge washing
ft^3	cubic feet
FY	fiscal year
gal	gallon
HDW	Hanford Defined Waste (model)
HLW	high-level waste
HTI	Hanford Tanks Initiative
IMUST	inactive miscellaneous underground storage tank
LAW	low-activity waste
LDUA	light-duty utility arm
LFL	lower flammability limit
%LFL	percent of the lower flammability limit
PHMC	Project Hanford Management Contract
PSDQO	problem-specific data quality objective
PUREX	plutonium uranium extraction
R1	REDOX sludge generated between 1952 and 1957
R2	REDOX sludge generated between 1958 and 1966
R Saltcake	saltcake from self-concentration of S and SX supernatants
REDOX	reduction oxidation
RGS	retained gas sampler
SHMS	standard hydrogen monitoring system
SORWT	Sort on Radioactive Waste Types
SST	single-shell tank
T2	saltcake waste from 242-T evaporator between 1955 and 1965
TOC	total organic carbon
TWRS	Tank Waste Remediation System
WIRD	Waste Information Requirements Document

1.0 INTRODUCTION

The *Tank Characterization Technical Sampling Basis* (this document) is the first step of an in-place working process to plan characterization activities in an optimal manner. This document will be used to develop the revision of the *Waste Information Requirements Document* (WIRD) (Winkelman et al. 1997) and ultimately, to create sampling schedules. The revised WIRD will define all Characterization Project activities over the course of subsequent fiscal years - 1999 through 2002.

This document establishes priorities for sampling and characterization activities conducted under the Tank Waste Remediation System (TWRS) Tank Waste Characterization Project. The Tank Waste Characterization Project is designed to provide all TWRS programs with information describing the physical, chemical, and radiological properties of the contents of waste storage tanks at the Hanford Site. These tanks contain radioactive waste generated from the production of nuclear weapons materials at the Hanford Site. The waste composition varies from tank to tank because of the large number of chemical processes that were used when producing nuclear weapons materials over the years and because the wastes were mixed during efforts to better use tank storage space. The Tank Waste Characterization Project mission is to provide information and waste sample material necessary for TWRS to define and maintain safe interim storage and to process waste fractions into stable forms for ultimate disposal.

This document integrates the information needed to address safety issues, regulatory requirements, and retrieval, treatment, and immobilization requirements. Characterization sampling to support tank farm operational needs is also discussed.

The document is outlined as follows.

- Section 2.0 outlines the process used to determine tank priorities.
- Section 3.0 describes the issues requiring characterization sampling.
- Section 4.0 defines tank selection criteria.
- Section 5.0 defines the priorities of issues.
- Section 6.0 provides a list of tank priorities.
- Section 7.0 discusses sampling priorities in relation to the *Recommendation 93-5 Implementation Plan* (DOE-RL 1996).

The data quality objective (DQO) process was used to develop information needs of the various TWRS programs requiring information. Information needs (issues) integrated in this document are described in the following references:

- Flammable gas (Bauer and Jackson 1997)

- Sluicing of tank 241-C-106. The characterization requirements are documented in a process control plan (Carothers et al. 1996).

- Waste feed delivery (Phase I). Characterization requirements will be documented in problem-specific DQOs, one to confirm the selection of tanks to supply low-activity waste (Certa 1998) and one to confirm the selection of tanks to supply high-level waste, to be issued by May 1998 (problem-specific DQOs #1 and 2, respectively). Ten other problem-specific DQOs will be written (#3 - 10 and 13 - 14). A decision will be made later to determine which of these problem-specific DQOs will require characterization sampling, if any. Problem-specific DQO #11 will probably be canceled because its requirements are covered by the Privatization low-activity waste DQO (Wiemers and Miller 1997. See next bullet). Problem-specific DQO #12 will be canceled because no further information is required (Murkowski 1997). In addition to the problem-specific DQOs, the retrieval DQO (Bloom and Nguyen 1996) and the mixer pump test plan (Staehr 1996) will be used to direct sampling and analysis of tank 241-AZ-101. The retrieval DQO will be transitioned out of use, to be replaced by the problem-specific DQOs. The mixer pump test plan is being updated to ensure that required data will be obtained and that sufficient detail will be provided to direct sampling and analysis.

- Privatization Phase I - the U.S. Department of Energy (DOE) management of private contract(s). Characterization requirements will be documented in three DQOs, one for low-activity waste (Wiemers and Miller 1997, to be revised later in 1998), one for high-level waste (due in May 1998), and one for regulatory compliance (due in May 1998).

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- Retrieval, pretreatment, and immobilization. Characterization requirements are currently documented in the pretreatment DQO (Slankas et al. 1995). Two other DQOs will be written to (1) define data needs for low-activity waste feed in support of Phase II Privatization contracts and (2) to define data needs for high-level waste feed in support of Phase II Privatization contracts. Phase II retrieval data needs will be defined after experience is gained from the sluicing of tank 241-C-106 and the tank 241-AZ-101 mixer pump test.

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- Compatibility. Safety-related requirements are identified in Mulkey and Miller (1997) and operations-related requirements are identified in Fowler (1995).
- Evaporator operations. The Von Bargen (1995) DQO is currently being revised.
- Caustic mitigation. Test plans are used where applicable.
- Process sampling. Test plans are used where applicable.
- Safety screening. The Dukelow et al. (1995) DQO is opportunistically applied to all tanks sampled for another purpose. It is not used as a driver for sampling.

In addition to the 177 tanks, several double-contained receiver tanks (DCRTs), catch tanks, and inactive miscellaneous underground storage tanks (IMUSTs) are also in the purview of TWRS. Recommendations for sampling and sampling requirements for DCRTs, catch tanks, and IMUSTs are currently being developed and will be documented in an Authorization Basis Status Report, currently being prepared. When recommendations are issued for these tanks, their sampling priority will be integrated into a future revision of the Tank Characterization Technical Sampling Basis.

2.0 PROCESS FOR DETERMINING TANK PRIORITIES

Figure 2-1 shows the overall process used to determine the priority of tanks for sampling. The initial steps of this process were performed by the TWRS programs needing characterization information. A list of criteria was created for selecting tanks associated with each program issue. In this document, "criteria" refers to a set of tank characteristics or tank contents that are used to determine the priority of tanks for sampling.

To formalize and document the process of determining tank priorities, the data and criteria used to select tanks were entered into a computer spreadsheet. Appendix A describes the mechanics of the spreadsheet. Throughout this document, tank priority refers to a number assigned to each tank that indicates the relative priority (or importance) of a tank with respect to the needs of the programs needing characterization information.

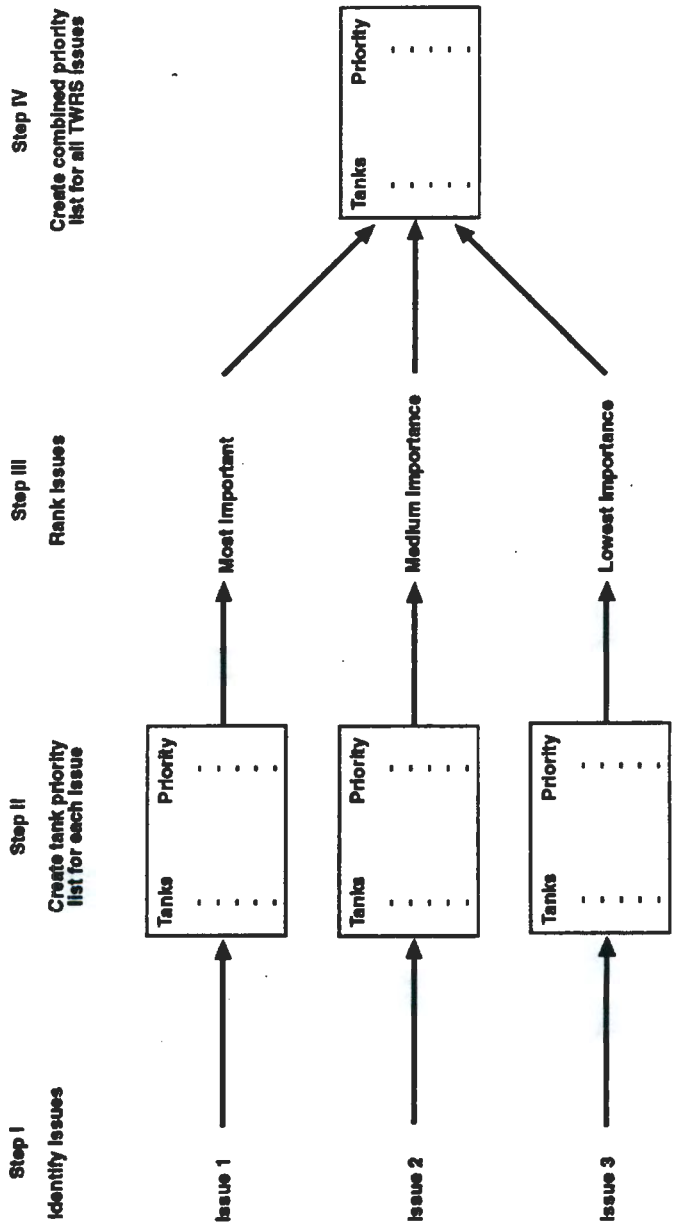
The process of selecting tanks for sampling began with identifying TWRS program issues. For each issue, the criteria that make a tank more or less important were determined. Tanks were then reviewed against these criteria, and the most important tanks associated with each issue were identified using the best available data.

The issues were weighted so that tanks required for addressing higher priority issues received more importance in the overall ranking than tanks required for less important issues. Determining the priorities of issues involved all TWRS programs requesting data and consensus from DOE-RL and Ecology. The tanks that have high priority for multiple issues were ranked higher overall because they provide the greatest information return for the sampling and analysis resource investment.

The final product of the process of determining tank sampling priorities is a list of tanks ranked in priority for sampling. Sampling tanks with a high priority is expected to obtain the most important information about the waste in a cost-effective manner. The priority list is periodically reviewed with the TWRS programs to ensure that their needs continue to be met. The list will be updated as required to accommodate changing needs of TWRS programs as additional information is gained.

Operational and budgetary constraints to sampling tanks are not within the scope of this document, but will be considered when the sampling schedule is created.

Figure 2-1. Process of Determining Priority Tanks for Sampling.



3.0 ISSUES REQUIRING CHARACTERIZATION INFORMATION

Many areas of focus within TWRS require characterization information. These areas will be referred to as "issues" throughout this report. The sampling and data needs for these issues are not uniform in priority or scope. For example, programs in the planning stage of their work may require more sampling than programs nearing completion of their work (or resolution of their issue). Section 3.1 identifies issues that required sampling in revision 3 of *Tank Characterization Technical Sampling Basis* (Brown et al. 1997) (the previous revision of this report) but which now no longer require samples to be taken.

The following general types of TWRS issues will continue to require characterization sampling:

1. Issues that affect the priority of tanks for sampling (safety, disposal, historical model evaluation, and regulatory issues)

2. Operational issues

These issues will be summarized in sections 3.2 and 3.3, respectively. Programmatic requirements (or information needs) for these issues are developed through the DQO process (EPA 1994). Data quality objectives contain detailed information about characterization data requirements for each specific issue. The relevant DQOs are summarized in sections 3.2 and 3.3. Where specified, a requirements document other than a DQO may be used to direct sampling for an issue.

3.1 ISSUES THAT NO LONGER REQUIRE SAMPLING

This section lists issues that required sampling in revision 3 of the *Tank Characterization Technical Sampling Basis* (Brown et al. 1997) but no longer do so. Included in this section is a summary of the current status of these issues.

3.1.1 Organic Fuels (Complexants)

Organic complexant salts were sent to waste tanks. In sufficiently high concentrations with nitrates and/or nitrites and at sufficiently high temperatures, organic complexants could support a propagating chemical reaction. Organic complexant and solvent degradation products have been widely distributed in the tanks as a result of waste management activities (Agnew 1996). The requirements for the organic complexant issue include energetics, moisture, total organic carbon (TOC) measurements, and at times, propagation testing and organic speciation (Schreiber 1997).

In June, 1997, the Organic Complexant Safety Program issued the *Organic Complexant Topical Report* (Meacham et al. 1997). The topical report makes a strong case that the organic complexant material found in Hanford tanks will not propagate if ignited. To completely satisfy the hypothesis that complexants in the tanks will not propagate, seven tanks that were expected to contain high complexant waste were chosen for sampling. The analysis and evaluation of these bounding tanks is expected to be sufficient to resolve the Organic Complexant Safety Issue. The sampling of these seven tanks has been completed. Therefore, no further sampling for the Organic Complexant Safety Issue is necessary. Complete resolution of the issue is expected before the end of fiscal year (FY) 1998.

3.1.2 Safety Screening

The safety screening DQO (Dukelow et al. 1995) was developed to ensure that tanks that were not originally included on a watch-list would be screened to determine if they should be categorized under one of the existing safety issues. The safety screening DQO also tested tanks that were on a watch-list to confirm that the correct safety issues were applied to the tank. The safety screening DQO was not sufficient to remove a tank from a watch list.

Significant improvements in scientific, technical data, and knowledge of safety issues has occurred since the *Recommendation 93-5 Implementation Plan* (DOE-RL 1996) was issued. The ferrocyanide safety issue has been closed; criticality has been closed; the organic solvent topical report has been issued for review; all organic complexant samples have been obtained. The Basis for Interim Operations has been issued and implemented.

The sampling and analysis requirements of the safety screening issue will be met either due to safety issue resolution or requirements being covered by other specific safety issue DQOs (Hunt 1998). In summary, the Safety Program has learned enough about the specific safety issues to render the safety screening issue obsolete as a sole driver for sampling. The issue is, therefore, given no priority value in this document. However, the DQO will continue to be applied opportunistically to all tanks sampled for other issue purposes.

3.1.3 Organic Solvents

Given a sufficient ignition source, there are two potential hazards associated with organic solvents: an organic solvent pool fire or ignition of organic solvent that is entrained in waste solids (a wick fire). Eighty-two tanks have been vapor sampled to evaluate the Organic Solvent Safety Issue (Huckaby and Sklarew 1997).

The Organic Safety Program has been re-evaluating the consequences of a solvent pool fire in the tanks. The revised consequence calculations show that the solvent fire hazard falls below risk evaluation guidelines when controls are applied. This is true even if all tanks were assumed to contain organic solvent. Resolution of the Organic Solvent Safety Issue is expected by the end of FY-1998. Further vapor sampling of tanks for the purpose of evaluating organic solvents is not necessary.

3.1.4 Vapor Space Phenomenology

The Vapor Space Phenomenology issue encompassed three studies: (1) the headspace mixing study, (2) the temporal study, and (3) the ventilation rate study. The first two studies were performed to satisfy commitments made in *Recommendation 93-5 Implementation Plan* (DOE-RL 1996) and the third study was performed to support both the flammable gas and organic safety issues. Sampling and analysis to support the first two of the three studies has been completed. Vapor sampling of DCRT U-244 for the Organic Complexant program will be performed to support the third phenomenology study (ventilation rate study). Further work for the ventilation rate study for the Flammable Gas Safety Program may be forthcoming, but has not been identified at this time.

3.2 ISSUES THAT AFFECT SAMPLING PRIORITY OF TANKS

Issues that affect the sampling priority of tanks are safety, disposal, historical model evaluation, and regulatory. Before creating a tank sampling priority list, criteria must be determined. To do this, it is essential to understand the current status of each issue. For example, it is necessary to know what information has been learned about the issue to date, what decisions require characterization information for resolution, and how sampling can provide necessary information to make decisions.

The process of determining a sampling priority list is optimized by considering what already has been learned about the issue through prior tank characterization. Redundancies in characterization planning can be avoided by providing feedback from the results of prior tank sampling.

3.2.1 Flammable Gas

3.2.1.1 Description of Issue. The possibility of releasing flammable gases into the headspace of a waste tank is a major issue because the ignition of confined gases could result in a release of radioactive and chemical materials to the environment. The requirements of the Flammable Gas Safety Issue are being addressed by *Data Quality Objective to Support Resolution of the Flammable Gas Safety Issue*, Revision 3 (Bauer and Jackson 1997).

3.2.1.2 Current Status of Issue. Although progress has been made in the flammable gas issue, some phenomena are still not fully understood. To further explain and mitigate flammable gas retention, three data collection approaches are used:

1. Measure gases released into the headspace.

2. Monitor gas retention in the liquid and solid waste.

3. Measure chemical and physical properties of the waste that could affect gas generation, retention, and release.

The first approach is implemented by measuring gas concentration and composition in the headspace. Work for the first approach is ongoing, and data are being collected by planned vapor grab sampling events using standard hydrogen monitoring system (SHMS) cabinets to collect samples. Vapor grab samples of four DCRTs, A-244, S-244, BX-244, and TX-244, are also being planned. Opportunistic vapor grab samples are also desired, particularly when high flammable gas measurements are observed during any tank intrusive activity. The analyses desired from such vapor grab samples are hydrogen, ammonia, methane, and nitrous oxide. Modeling and analysis of data to predict the degree to which a tank could develop a flammable gas problem is being performed. The two major references for predicting flammable gas producing tanks are, *Methodology for Flammable Gas Evaluations*, (Hopkins 1996) and *Evaluation of Hanford Tanks for Trapped Gas*, (Hodgson et al. 1996).

The second approach uses the retained gas sampler (RGS) device and the void fraction instrument to measure retained gas in the waste. The RGS is designed for use with push-mode sampling.

The third approach is implemented by measuring the chemical and physical properties of liquid and solid waste in flammable gas producing tanks. In particular, the chemical and physical properties of wastes predicted to affect gas generation, retention, and release are studied. Tank waste sampling and analysis is the primary method of determining the chemical and physical properties of the waste.

The motivation for the third approach is to develop a quantitative understanding of specific phenomena in the waste that tend to produce flammable gas. Understanding the phenomena of gas production, retention, and release will help to avoid flammable gas problems in the future and to identify options for remediating tanks that are known to have, or are suspected to have a flammable gas condition.

3.2.1.3 Basis for Tank Selection Criteria. The flammable gas DQO directs sampling for the three approaches listed in section 3.2.1.2.

The first approach, to measure gases in the headspace, is already being implemented by vapor sampling of tanks with SHMS cabinets. The criteria for selecting tanks for the first approach is discussed in Section 4.1.

The second approach, to monitor gas retention in the liquid and solid waste, has been completed for double-shell tanks (DSTs) of interest and is being performed for several bounding single-shell tanks (SSTs). When selecting tanks for the second approach, the criterion considered included tanks that are expected to produce high levels of flammable gas, tanks that represent different waste types, and tanks that contain waste soft enough to recover

representative samples with the RGS system. The criteria for selecting tanks for the second approach is discussed in Section 4.1.

The third approach, to measure chemical and physical properties of the waste, is being performed opportunistically on tanks that are being sampled for other programs. This means that samples that are taken for another program from a tank in scope of the flammable gas DQO should have physical and chemical analyses performed as specified in the flammable gas DQO. Since the flammable gas issue does not affect the priority of these tanks, the third approach is not discussed in Section 4.1.

A new activity that is currently being planned involves the vapor sampling of miscellaneous tanks. Since the criteria for selecting these tanks for vapor sampling are only now being developed, this activity is not integrated in this report. When more information is developed, this report will be revised as required.

3.2.2 Sluicing of Tank 241-C-106

3.2.2.1 Description of Issue. Tank 241-C-106 has been used for radioactive waste storage since mid-1947. Based on its capacity to store waste, this tank unintentionally received an excess of sludge containing high levels of strontium-90. Tank 241-C-106 is a SST with an estimated heat load for January 1997 of 123,000 Btu/hr (Ogden 1997), which exceeds the heat load limit of 40,000 Btu/hr and classifies the tank as a high-heat load tank. Tank 241-C-106 is the only SST on the Hanford Site which requires water additions to maintain active cooling. Tank 241-C-106 was identified as a Watch List Tank because of the requirement for water additions.

3.2.2.2 Current Status of Issue. To maintain tank 241-C-106 within safe operating limits, water is added monthly to the actively-ventilated tank. The water additions promote evaporative heat transfer to the tank headspace, thereby lowering the waste temperature to within safe limits. However, because some SSTs on the Hanford Site have become assumed leakers, water addition for maintaining temperature control is an unsatisfactory compromise between waste management and environmental protection. A chiller unit has been fabricated and installed on tank 241-C-106 by Project W-320 as an alternative cooling method to water additions. However, the chiller will not be operational until late FY 1998. If tank 241-C-106 were to start leaking, continued water additions could increase the amount of leakage to the ground. However, if repeated water additions were discontinued, the tank could exceed structural temperature limits, potentially causing a dome collapse and possibly a radioactive release to the environment (Schreiber et al. 1997; Bander 1996).

Approaches to resolution and closure of the high-heat safety issue were evaluated. Partial waste retrieval by sluicing and transfer of tank 241-C-106 waste to DST 241-AY-102 was selected. Retrieval of the sludge from tank 241-C-106 is anticipated to eliminate the high heat safety concern. After partial retrieval, the resolution of the safety issue is possible. Partial

retrieval of the tank 241-C-106 waste (Phase I) will be accomplished through Project W-320 for which, much of the construction has been completed and operational plans are being finalized. Following the completion of Phase 1 by Project W-320 (remove approximately two feet of sludge by sluicing), the High Heat Safety Program will monitor tank 241-C-106 tank data and perform thermal hydraulic analysis to show that water additions are no longer required for tank cooling, thus eliminating the high heat safety issue. These analyses will allow closure of the safety issue prior to complete retrieval consistent with the scheduled date for closure of the high heat safety issue.

The characterization data needs for the tank 241-C-106 retrieval activity include obtaining grab samples from tank 241-AY-102 before and during the sluicing campaign. A process control plan (Carothers et al. 1998) identifies when samples are needed during the sluicing process, and what analyses are to be performed on these samples. Before sluicing, knowledge of the sludge composition in tank 241-C-106 and the supernatant composition in tank 241-AY-102 are important for planning a successful campaign. To verify earlier analytical results used to plan the retrieval project, sludge and supernatant grab samples were obtained from tank 241-C-106 in February and March 1996. This sampling event also gathered radionuclide information which was used to supplement the tank 241-C-106 heat load calculations.

3.2.2.3 Basis for Tank Selection Criteria. Because tank 241-AY-102 is the only tank that requires sampling for the high-heat issue, a comprehensive list of tank priority criteria do not need to be developed.

3.2.3 Waste Feed Delivery (Phase I)

3.2.3.1 Description of Issue. In 1996, the DOE proposed a strategy to retrieve and treat the waste in the Hanford Site's tanks using a combination of existing DOE contractors and privatized contractor teams. The DOE divided treatment of the tank waste into a demonstration phase (Phase I) and a full-scale production mode (Phase II). Phase I is planned to last 10 to 14 years and will process 6% to 13% of the total Hanford Site tank waste (Acree 1998).

In Phase I, the Project Hanford Management Contract (PHMC) team will upgrade the associated tank farms and transfer piping, move the waste feed to staging tanks, adjust feed as necessary to meet specifications, and deliver the feed to the private contractors. The private contractors will treat and immobilize the wastes and transfer the immobilized waste to the DOE for storage and disposal (Acree 1998). The work performed by the PHMC team to ensure that waste is delivered to the private contractors is referred to as "feed delivery" in this report.

Characterization requirements to support Phase I feed delivery will be outlined in problem-specific DQOs (PSDQOs), in the retrieval DQO (Bloom and Nguyen 1996) and the AZ-101

mixer pump test plan (Staehr 1996). Currently, twelve PSDQOs have been identified as being necessary to support the feed delivery effort for Phase I, although more may be identified as feed delivery proceeds. Of the twelve problem-specific DQOs currently identified, two will definitely direct characterization sampling:

- PSDQO #1: *Data Quality Objectives for TWRS Privatization Phase I: Confirm Tank T is an Appropriate Feed Source for Low-Activity Waste Feed Batch X* (Certa 1998)

- PSDQO #2: *Data Quality Objectives for TWRS Privatization Phase I: Confirm Tank T is an Appropriate Feed Source for High-Level Waste Feed Batch X* (To be published).

The low-activity waste (LAW) PSDQO was just released, and the high-level waste (HLW) PSDQO is expected to be completed by May 1, 1998. Ten other PSDQOs may require characterization sampling. Prior to the publication of these PSDQOs, it will be determined which will require sampling. These 10 PSDQOs are:

- PSDQO #3 - *Data Quality Objectives for TWRS Privatization Phase I: Equipment Design*

- PSDQO #4 - *Data Quality Objectives for TWRS Privatization Phase I: Safety Basis*

- PSDQO #5 - *Data Quality Objectives for TWRS Privatization Phase I: Environmental Permitting and Compliance for Feed Delivery*

- PSDQO #6 - *Data Quality Objectives for TWRS Privatization Phase I: Environmental Permitting and Compliance for Waste Returns from Private Contractors*

- PSDQO #7 - *Data Quality Objectives for TWRS Privatization Phase I: Tank Waste Transfer Control*

- PSDQO #8 - *Data Quality Objectives for TWRS Privatization Phase I: Process Control*

- PSDQO #9 - *Data Quality Objectives for TWRS Privatization Phase I: Low-Activity Waste Feed Delivery Transfer to Private Contractors*

- PSDQO #10 - *Data Quality Objectives for TWRS Privatization Phase I: High-Level Waste Feed Delivery Transfer to Private Contractor*

- PSDQO #13 - *Data Quality Objectives for TWRS: Single-Shell Tank Retrieval Sequencing*

- PSDQO #14 - *Data Quality Objectives for TWRS Phase II: SOWRT Model Validation.*

Problem-specific DQO #11 will probably be canceled because its requirements are covered by the Privatization low-activity waste DQO (Wiemers and Miller 1997). Problem-specific DQO #12 will be canceled because the information is no longer required (Murkowski 1997). These PSDQOs are:

- PSDQO #11 - *Data Quality Objectives for TWRS Privatization Phase I: Immobilized Low-Activity Waste Storage and Disposal*

- PSDQO #12 - *Data Quality Objectives for TWRS Privatization Phase I: High-Level Waste Interim Storage.*

3.2.3.2 Current Status of Issue. Sixteen tanks (14 DSTs and 2 SSTs) have been selected as available source tanks for Phase I feed. The tanks in scope of Phase I are listed in Section 4.3. To date, inventory estimates (Best-Basis Inventory) have been determined for all Phase I feed tanks. Process testing to determine the physical characteristics, dilution, and pretreatment requirements of waste materials is also being performed for many of the Phase I feed tanks. A mixer pump test is planned in tank 241-AZ-101 to verify actual mixer pump performance and empirical correlations developed to predict pump performance.

3.2.3.3 Basis for Tank Selection Criteria. Waste from all tanks in scope of Phase I feed delivery will be sent to the private contractors for processing. Sampling is desired after the tanks become static (transfers of waste in or out of the tank have ended). Some of the Phase I feed staging tanks are already static and have been sampled. These tanks have no further priority for sampling for the feed delivery issue provided the information needs have been or can be satisfied with the existing samples. Tanks not yet static have no priority for sampling until they becomes static. Tank 241-AZ-101 will need to be sampled during the Project W-151 mixer pump test.

3.2.4 Privatization Phase I - DOE Management of Private Contract(s)

3.2.4.1 Description of Issue. The DOE is evaluating private contractors in preparation for awarding contracts to one or more to immobilize low-activity and high-level waste. The DOE is responsible for managing the private contractors(s) and the site contractor for TWRS Privatization. The DOE will request samples for two reasons: (1) to support DOE planning and management of the private contracts and (2) to provide samples to the private contractor(s). The first function, DOE management of the private contracts, will be discussed in this section. The second function, to provide samples to the private contractor(s), will be discussed in section 3.2.5 (Privatization Phase I - Direct Samples to Private Contractor[s]).

Data is being gathered according to the *Low-Activity Waste Feed Data Quality Objectives* (Wiemers and Miller 1997) except for Section 3.6, Environmental Planning. Ecology has approved this document with the exception of Section 3.6. The LAW DQO is to be revised by July 1998. The Environmental Planning section will be deleted and replaced with a data quality objectives document to support regulatory compliance for Privatization. The regulatory compliance DQO will cover regulatory compliance for low-activity and high-level waste in both Phase I and II. In addition, a *High-Level Waste Feed Data Quality Objectives* is being prepared for completion by May 31, 1998.

The data for low-activity waste will be used to:

- verify the feed staging baseline
- provide information for contractor process and facility designs
- provide information for immobilized LAW storage and disposal design/specifications
- support completion of the LAW performance assessments for disposal
- substantiate the ability to comply with U.S. Nuclear Regulatory Commission guidelines for incidental waste.

Use of data for HLW will be similar to that of the LAW.

3.2.4.2 Current Status of Issue. The tanks in scope of the Privatization - DOE management of private contract(s) function are the same tanks as the tanks in the feed delivery (Phase I) function (see Section 4.3). Sixteen tanks (14 DSTs and 2 SSTs) have been selected by the Project Hanford Management Contract team as available source tanks for Phase I. DOE has determined that these tanks are acceptable for the "Privatization - DOE management of private contract(s)" section.

3.2.4.3 Basis for Tank Selection Criteria. The criteria to determine tank priorities of the tanks in scope of the Privatization Phase I - DOE management function are the same as for feed delivery. That is, priority is given to tanks as they become static.

3.2.5 Privatization Phase I - Direct Samples to Private Contractor(s)

Authorization to proceed with waste disposal efforts is expected to be issued to private contractor(s) in summer 1998. When issued, the private contractor(s) may require samples from tanks for the purpose of testing their process design. Providing samples to the private contractor(s) is the second function of Privatization, identified in Section 3.2.4.

Specific sampling requirements of the private contractor(s) is proprietary until authorization to proceed is awarded by DOE. Specific sampling requirements will be identified during Phase I Part B contract negotiations between DOE and the private contractor(s).

Estimated sampling requirements for technical planning have been provided (Gasper 1998) so that interim planning can be performed. When the authorization to proceed is issued, the sampling priority of tanks identified by the private contractors will be adjusted as required.

3.2.6 Retrieval and Immobilization (Phase II)

3.2.6.1 Description of Issue. The current DOE strategy is to procure retrieval and treatment services from private contractors during Phase II. The SST waste and the waste remaining in the DSTs after Phase I will be processed during Phase II.

Phase II planning activities will be directed by a DQO to define data needs for low-activity waste feed in support of Phase II Privatization contracts and a second DQO to define data needs for high-level waste feed in support of Phase II Privatization contracts. Phase II retrieval data needs will be defined after experience is gained from the sluicing of tank 241-C-106 and the tank 241-AZ-101 mixer pump test. Until these DQOs are completed, the current pretreatment DQO (Slankas et al. 1995) and test plans will be used to direct characterization efforts for Phase II planning activities.

3.2.6.2 Current Status of Issue. Phase II activities can be divided into four primary areas of focus, as summarized in the following sections.

3.2.6.2.1 Single-Shell Tank Retrieval Sequence. Single-shell tank sequencing studies determine a sequence for retrieval of SSTs which produces an acceptable and near minimum volume of HLW glass, and which reduces the relative risk associated with waste storage by retrieving higher risk waste earlier in the sequence. These are only examples of the measures used to evaluate retrieval sequences, since other measures not listed are also used. Development of SST retrieval sequences requires as input (among other things): waste inventories, water wash factors, and caustic leach factors. Further refinement of the single-shell tank retrieval sequence is an end use for data from enhanced sludge washing (ESW) tests planned for FY 1998 and FY 1999. Some new samples are needed to complete characterization needs defined by the ESW activity.

The goal of sludge wash testing is to test a sufficient number of samples from defined waste "types" which have been determined to best represent all Hanford SST waste. Tanks from which samples have been determined to be needed to support the ESW testing goal are specified in *Strategy for Sampling Hanford Site Tank Wastes for Development of Disposal Technology* (Kupfer et al. 1995). To date, most of the tanks listed in Kupfer et al. (1995) have been sampled and evaluated for sludge washing characteristics (Lumetta and Rapko 1994, Lumetta et al. 1994, Lumetta et al. 1996, Lumetta et al. 1997, Rapko et al. 1995, Temer and Villarreal 1995a, 1995b, 1996, and 1997). Some additional samples remain to be obtained and tested to complete the ESW testing. Single-shell tank sequencing will be supported by PSDQO #13 (see Section 3.2.3.1).

3.2.6.2.2 Sort On Radioactive Waste Type (SORWT) Group Model Validation. The goal of this activity is to study the validity of using the SORWT grouping model (Hill et al. 1995) to extrapolate ESW data obtained from representative tanks to untested and uncharacterized SSTs. The SORWT group model validation does not at this time require any sampling activities. Validation of the SORWT model will be supported by PSDQO #14 (see Section 3.2.3.1).

3.2.6.2.3 Single-Shell Tank Saltcake Dissolution. The goal of current saltcake dissolution testing is to provide laboratory data from actual tank waste samples to support engineering evaluations of retrieval technologies and to improve and validate the thermodynamic computer model used to predict waste solubility behavior. The testing will use actual tank waste samples representing three different types of single shell tank saltcake. The three salt cake types are a) high sodium nitrate saltcake, b) high sodium carbonate saltcake, and c) high sodium phosphate or high sodium aluminate or high sodium sulfate saltcake, depending on sample availability. Currently, samples for the saltcake dissolution testing activity are expected to be met by using existing archive samples. The saltcake testing described above is being performed in FY 1998 and is expected to be expanded in FY 1999 to include those containing insoluble chromium and other saltcake types. If future saltcake testing requires sampling, such requirements will be integrated into this document. No new sampling needs or activities are required to support the SST saltcake dissolution activities at this time.

3.2.6.2.4 Single-Shell Tank Retrieval Equipment. Activities related to this issue attempt to determine how to introduce water or some aqueous solution into a tank to dissolve saltcakes and mobilize sludges while avoiding leaks to the environment in those tank with compromised containments. Many of the data needs to support this issue are expected to be addressed by the results obtained from Phase I tank retrieval activities. No new sampling needs or activities are required to support the SST retrieval equipment activities at this time.

3.2.6.3 Basis for Tank Selection Criteria. Of the Phase II activities, characterization sampling is required only for ESW testing at this time (see section 3.2.6.2.1). The required samples can be described as coming from three general categories listed in order of higher relative priority; tanks containing reduction-oxidation plant (REDOX) sludge, tanks which contain miscellaneous untested sludge types, and tanks which contain miscellaneous saltcake types which are either untested or are of interest for further study (Kupfer et al. 1995). Section 4.6 specifies criteria for selecting Phase II tanks.

3.2.7 SST Waste Retrieval and Tank Closure (Hanford Tanks Initiative)

3.2.7.1 Description of Issue. Single-shell tank waste retrieval and tank closure will be demonstrated through the Hanford Tanks Initiative (HTI) project. The HTI is a four-year project (1997-2000) resulting from the technical and financial partnership of the DOE Office of Waste Management and the Office of Science and Technology. The purpose of the HTI is to accelerate activities to gain key technical, cost performance, and regulatory perspectives on two high-level waste tanks (tanks 241-AX-104 and 241-C-106). The HTI will define the

process, criteria, and technology to support retrieval and closure performance objectives for a single-shell tank.

The first tank to be sampled for the HTI is tank 241-AX-104. Tank 241-AX-104 was chosen for HTI because it is expected to represent the configuration of an assumed leaker single-shell tank after sluicing. A sluiced tank is the baseline of the retrieval process. The objective of HTI in sampling tank 241-AX-104 is to characterize the constituents and volume of waste in the tank in order to develop a process for tank closure. The current tank closure criteria is to leave either no more than 360 ft^3 of waste in the tank, or the limit of best waste retrieval technology.

The other tank that is planned to be rotary-sampled for the HTI is tank 241-C-106. Once the soft-sludge sluicing retrieval of tank 241-C-106 is completed, the remaining waste in the tank will be mainly comprised of a layer of hard-heel sludge. This sludge has physical properties very different from the soft sludge layer above it and is not expected to be dislodged and removed during the Project W-320 sluicing activities. The HTI will apply technologies and processes to remove this hard-heel and any other waste remaining in tank 241-C-106. The objective is to demonstrate the ability to close a tank by removing enough waste so that the residue is less than 360 ft^3 or the limit of waste retrieval technology. The hard heel sludge from tank 241-C-106 is to be transferred to double-shell tank 241-AY-102.

3.2.7.2 Current Status of Issue. A DQO to direct the characterization activities of tank 241-AX-104 to support HTI objectives was prepared in September, 1997 (Miller 1997), with two subsequent ECNs (Banning 1997 and Banning 1998). Four auger samples were taken from two risers in November 1997. Results of the analysis of the auger samples is pending. Light-duty utility arm (LDUA) sampling is scheduled for June 1998. The LDUA samples are planned to be taken from the floor, walls, and dome of the tank, as well as from equipment inside the tank. All characterization sampling of tank 241-AX-104 will be used to support the basis for waste retrieval and tank closure of a SST.

Additionally, a DQO for vadose zone cone penetrometer work in the AX Tank Farm for tank 241-AX-104 has been completed (Miller and Oates 1998). The vadose zone cone penetrometer is expected to be used to support tank farm closure and risk assessment.

The HTI is in the early planning stages of the closure demonstration process for tank 241-C-106. In order to obtain the best retrieval technology proposals, HTI must determine as much information as possible on the composition of the tank's hard heel. Without information on the physical properties of the hard heel waste, the tooling for the hard heel retrieval will need to be over designed to bound all possible waste compositions. This could result in more expensive technology than is necessary. Very little information regarding the hard heel of tank 241-C-106 is currently available. A core sample of the tank was obtained in 1986, but this core sample (which included both the hard heel and the soft sludge) was composited. Because the physical properties of the hard heel waste are different from that of the soft sludge layer, composited information is not useful to HTI. Therefore, identified

characterization data needs for HTI include obtaining at least two rotary core samples of the hard heel in tank 241-C-106. Physical and chemical analyses are necessary to satisfy the objectives of HTI and to complete the compatibility assessment of tank 241-C-106 waste with tank 241-AY-102 waste.

3.2.7.3 Basis for Tank Selection Criteria. Each tank being addressed by the HTI was chosen to address a specific requirement. The sampling schedule is based upon the timing required to meet HTI milestone objectives. Therefore, there is no need to determine the priority of sampling for the two tanks.

3.2.8 Historical Model Evaluation

3.2.8.1 Description of Issue. The Hanford defined waste (HDW) model, developed by the Los Alamos National Laboratory, uses historical information to predict the contents of waste tanks (Agnew 1997). The HDW model uses information from waste transfer logs, chemical purchase records, and process flow sheets to estimate the inventory of certain analytes in the tank. Currently, the HDW model is not used in decision-making because the data quality used in the model and the assumptions driving the model have not been fully validated. Few historical composition estimates are available that have analytical data or error estimates associated with waste composition. At the same time, it is extremely difficult to interpret or use contemporary data that cannot be placed in a historical context. If the model estimates have not been rigorously examined and the uncertainties have not been quantified, the estimates are of limited use. The implications of making an incorrect or inappropriate decision based on historical data must be weighed by users.

The purpose of the historical model evaluation DQO (Simpson and McCain 1997) is to evaluate the ability of the HDW model to accurately predict tank waste composition by quantifying the uncertainties inherent to the model estimates and sample data.

3.2.8.2 Current Status of Issue. Several tanks of interest have been sampled to evaluate the HDW model. Observations have been made regarding the assumptions used in the historical model particularly with respect to source terms, waste distribution, and analyte solubility. Systematic biases, parameter sensitivities, and some computational discrepancies in the HDW model have been revealed.

The following questions have been asked about the historical model evaluation.

1. How well do data from segment samples correlate with the HDW model to predict the expected position/configuration of a waste type within a tank and in defining/quantifying specific waste types?

2. How well do the data from a sampling-based inventory estimate of a tank correlate with the inventory derived from the HDW model?

3.2.8.3 Basis for Tank Selection Criteria. Characterization information is necessary to provide estimates of uncertainty that will determine the appropriate uses of the HDW model. To provide information for this evaluation, tanks were selected from a variety of categories and configurations. The tanks selected fall into three categories: spatially complex tanks that receive several types of waste; tanks rich in REDOX, Plutonium Uranium Extraction Plant (PUREX), saltcake, and uranium recovery waste types; and tanks that have multiple risers available in different lateral configurations.

Criteria for selecting tanks to sample for the historical model evaluation are based on these three categories and are listed in Section 4.11.

3.2.9 Regulatory

3.2.9.1 Description of Issue. The 200 East and 200 West Tank Farms contain mixed waste. There are a number of Federal and Washington State laws and regulations which define information on these waste materials and emissions that may originate from them. This information is used to determine the applicability of the various environmental requirements and to help assess hazards to the public and the environment. When regulations do not mandate sampling, they usually mandate that correct actions be taken. Generally when process knowledge is used to determine regulatory requirements, it must be documented. Historically, process knowledge has been used for compliance issues at the Hanford Site, but the basis for the use of process knowledge has not in all cases been well documented. In the past several years there have been inconsistencies between analytical data and previously accepted process knowledge.

In order to properly determine regulatory requirements and document the basis for these requirements, some analytical information will be needed to supplement process knowledge. Sampling and analysis requirements for select tanks is needed to supply information for regulatory compliance.

3.2.9.2 Current Status of Issue. The regulatory issue is to be supported by two separate characterization activities: (1) vapor sampling and liquid surface sampling for air emissions, and (2) liquid and solid (composite) sampling for dangerous waste. Each of the two activities is directed by a different regulatory DQO.

The first activity, sampling for air emissions, is conducted to measure hazardous and radioactive vapors. Current requirements are in accordance with the latest version of *Data Quality Objectives for Regulatory Requirements for Hazardous and Radioactive Air Emissions Sampling and Analysis* (Mulkey and Markillie 1995). This DQO is applicable to DSTs and SSTs, both actively and passively ventilated. When the vapor sample is taken, analysis is to include all analytes listed in the DQO. Sampling and analysis for the analytes in the air emissions DQO is only required to be performed once per tank as long as process knowledge indicates that the waste and vapor space contents have not significantly changed.

Sampling of the surface of the supernatant layer of each applicable tank for total organic concentration is also needed for the air emissions DQO in order to establish whether or not a floating organic layer is present, and its effect on air emissions. If a surface layer grab sample has already been collected and the tank has had no transfers since the prior collection, additional sampling is not required.

The second activity, sampling for dangerous waste, is needed for SSTs and DSTs prior to final retrieval of the waste. Tables of required analytes are found in *Data Quality Objectives for Regulatory Requirements for Dangerous Waste Sampling and Analysis* (Mulkey 1996). These tables indicate that the analytes are to be determined one time only for each tank with the exception that analyses are to be repeated if subsequent process knowledge indicates that the contents may have changed to alter the applicability of the regulation. Two full profile samples are specified in the dangerous waste DQO for each tank sampled. The data used may be from analysis of composite materials for each sample (core or grab), rather than from collective segments. If the tank is homogeneous (has been mixed), a grab sample may be adequate.

The Privatization Phase I environment planning DQO discussed earlier in Section 3.2.4.1 will be compared to the air emissions and dangerous waste DQOs to determine if the latter will remain applicable.

3.2.9.3 Basis for Tank Selection Criteria. Planned modification to the DST and SST systems will require new permits and modifications to existing permits. In order to provide defensible information for these permitting activities, analytical data on tank contents is needed. Since there are a number of analytes which have not been requested by other DQO drivers, it is prudent that the analytical information required by the regulatory DQOs be obtained in a timely manner from tanks which will be subject to these permit actions.

For the first activity, sampling for air emissions, priority will be given to tanks identified as requiring an air permit. Examples of specific activities which may trigger a permit include sluicing, mixer pump installation, and changes in ventilation rates.

For the second activity, sampling for dangerous waste, priority will be given to static tanks in preparation for feed delivery.

3.3 OPERATIONAL ISSUES

Tank farm operations requires characterization sampling for the compatibility of waste transfers, caustic mitigation, the 242-A Evaporator, and process sampling. These functions are discussed in this section.

Operational issues do not affect sampling priority of tanks for this document. However, the issues are important. Operational needs are not integrated into the tank priority in this

document because they cannot effectively be foreseen in advance. Operational needs for characterization sampling are driven by day-to-day operations schedules which are dynamic and change too often to be incorporated into an integrating document. When the need arises to sample a tank for operations, the need will be incorporated into the sampling schedule after assessing the impact of sampling other priority tanks.

3.3.1 Compatibility of Waste Transfers

Characterization sampling to support waste compatibility issues and waste transfer is performed before transferring waste. Compatibility sampling and analysis is performed in accordance with the *Data Quality Objectives for Tank Farms Waste Compatibility Program*, Revision 2 (Mulkey and Miller 1997) for safety-related requirements, and in Revision 1 (Fowler 1995) for operations-related requirements. Waste transfers that require sampling for the compatibility DQOs are DST to DST, SST to DST, and waste generating processes to DSTs.

All DSTs are within the scope of the compatibility DQO. The SSTs are within the scope of the compatibility DQOs only if waste is scheduled to be transferred out of an SST, for example, for tank stabilization. Another example is the retrieval of waste from tank 241-C-106.

The compatibility DQOs have two functions. The first is to ensure that DSTs comply with existing requirements and guidelines including operating specification document limits, operational safety requirements, and criticality prevention specifications. The guidelines are based on chemical or physical measurements of the waste. The second is to ensure that the potential for release of waste products is not increased by performing the transfer.

When waste is scheduled to be transferred to a DST, both the receiver and the source tanks (SST, DST, or process tank) will be sampled according to the compatibility DQOs.

Before sampling is performed for the compatibility DQOs, the effect of the sampling effort on the sampling of other priority tanks is evaluated.

3.3.2 Evaporator Operations

Successful operation of the 242-A Evaporator requires sampling and analysis of the evaporator feed waste. Sampling and analysis is directed by *242-A Evaporator/Liquid Effluent Retention Facility Data Quality Objectives* (Von Bargen 1995).

Several tanks are associated with evaporator operations. Tank 241-AW-102 is the feed tank to the evaporator. Tank 241-AW-106 receives the evaporator bottoms after waste evaporation and is called the slurry tank. Evaporator condensate is sent to the Liquid Effluent Retention

Facility. Tanks that transfer waste to the feed tank for processing in the evaporator are called candidate feed tanks. Candidate feed tanks include tanks 241-AP-103, 241-AP-104, 241-AP-105, 241-AP-106, 241-AP-107, 241-AP-108, and 241-AN-101. Candidate feed tanks are the only tanks that will be sampled in accordance with the evaporator DQO. An exception to this will occur in FY 1999 when liquid waste to be evaporated will be sent directly to tank 241-AW-102 and not staged first in one of the candidate feed tanks. Tank 241-AW-102 is expected to be sampled for the evaporator DQO in January 1999.

The evaporator DQO has three functions.

1. Process control evaluation ensures the evaporator operates efficiently with minimal equipment depreciation. Process control evaluation also compares the waste compatibility in the candidate feed tanks with the wastes in the feed and slurry tanks.

2. Safety evaluation ensures that hazardous wastes do not endanger workers or the environment.

3. Environmental compliance evaluation ensures the waste released to the slurry tank, the gases released to the air, and the water released to Liquid Effluent Retention Facility are in compliance with environmental limits.

Sampling to support evaporator operations will be performed on candidate feed tanks involved in upcoming evaporator campaigns. The characterization sampling of candidate feed tanks will be driven by operations schedules.

Before sampling for the evaporator DQO is performed, the effect of the sampling effort on the sampling of other priority tanks is evaluated.

3.3.3 Caustic Mitigation

Some DST studies have predicted corrosion rates that are not within the operating specifications determined by the compatibility DQO. These tanks are referred to as "caustic deficient." Operations require characterization sampling and analysis of such tanks to properly mitigate caustic deficiency. Sometimes sampling is performed to track tanks that may become caustic deficient in the future. Currently, no DQO exists to direct the sampling and analysis of caustic deficient tanks. When sampling and analysis is required, operations provides a request for sampling analysis or a process memo to direct characterization work.

Only DSTs are required to remain within the operating specifications outlined in the compatibility DQO. The DSTs, which are not currently within the operating specifications and are labeled as caustic deficient, are tanks 241-AN-107, 241-AN-102, 241-AY-101, 241-AP-104, and 241-AP-107.

Sampling and analysis of caustic deficient tanks is performed to determine the predicted corrosion rate of the tank. Characterization information obtained for caustic deficient tanks is evaluated to determine whether caustic additions to the tank will bring the tank back within specification or whether some other type of mitigation effort is necessary.

The sampling and analysis of caustic deficient tanks is schedule-driven. When a DST falls out of operating limits, operations schedules will determine whether characterization sampling and analysis is required.

Before sampling for caustic mitigation is performed, the effect of the sampling effort on the sampling of other priority tanks is evaluated.

3.3.4 Process Sampling

Occasionally, a safety or tank farm operations issue arises within TWRS that requires characterization sampling that may not be covered by any of the safety or operations issues identified earlier in this report. When such an issue arises, a mechanism must be in place to ensure that the correct characterization sampling is performed. This mechanism is referred to in this report as process sampling.

Process sampling includes characterization sampling to meet operational needs, specifically including industrial safety hazards and other safety issues. Much of the sampling of inactive facilities and K-basin sludge is covered by this issue as is emerging issues for tank 241-Z-361.

When a process sampling need is identified, a test plan or letter to specify sampling and analytical requirements is generated. Before process sampling is performed, the effect of the sampling effort on the sampling of other priority tanks is evaluated.

4.0 TANK SELECTION CRITERIA

This section provides a description of the criteria used for tank selection. Tank selection criteria refers to a standard set of characteristics of the tanks or tank contents important to TWRS programs. The criteria are used to determine the overall priority of tanks for sampling in support of previously discussed issues.

This section applies to only those issues that have an influence on the priority ranking of tanks for sampling. It does not discuss operational issues.

The following information is addressed for each issue:

- The tanks within the scope of each issue. If the list of tanks within the scope of an issue is too large, a reference may be provided.
- The tank selection criteria for each issue as determined from the basis provided in Section 3.2.

The following information is provided for each individual criterion as necessary:

- The relative priority of each criterion (high, medium, or low).
- The source of data that will be used to determine the priority of each tank with regard to the criterion within the scope of the issue (including a description of the data source).
- The tank ranking (high, medium or low priority) for each criterion.

This section leads to a priority list of tanks for each individual issue. The priority lists are generated using the tank selection criteria. A spreadsheet matrix is used to determine the priority order of all tanks within the scope of each issue. Appendix A describes the spreadsheet matrix. Appendixes C1 through C9 provide a printout of the matrix for each issue. Section 6.0 discusses the overall priority list of tanks from combined issues.

4.1 FLAMMABLE GAS CRITERIA

All 177 tanks are in scope of the Flammable Gas Safety Issue. Fifty-eight of these tanks are in scope of the flammable gas DQO (Bauer and Jackson 1997). The remaining 119 tanks have no current flammable gas sampling needs.

Section 3.2.1 listed three approaches for collection of data to support the flammable gas issue. Two of these approaches, measuring gases in the headspace and measuring gas retention, will

affect the priority of the sampling of tanks. These approaches are discussed in the following sections. The third approach, to measure chemical and physical properties of the waste, will be performed through opportunistic analysis. This means that samples that are taken for another program from a tank in scope of the flammable gas DQO should have physical and chemical analyses performed as specified in the flammable gas DQO.

4.1.1 Vapor Sampling of Headspace Gases

An initial screening has been completed on all tanks in scope of the flammable gas DQO to determine the flammability of headspace gases. Some tanks require further monitoring and have been installed with SHMS cabinets. Tanks with operational SHMS cabinets require vapor grab sampling once per quarter. In addition to tanks with SHMS cabinets, DCRTs A-244, S-244, BX-244, and TX-244 will be vapor sampled for the flammable gas issue. Tanks with SHMS cabinets and the four DCRTs have equal priority for vapor sampling. Therefore, criteria for setting priority is not needed. Tanks with SHMS cabinets and the four DCRTs are listed in Appendix A-1.

4.1.2 Retained Gas Sampling

When RGS sampling was initiated, only DSTs were sampled for the flammable gas issue. The DSTs are the most important tanks for the flammable gas issue because of their episodic releases of flammable gases. Sampling tanks that experience episodic gas releases remains the highest priority within the flammable gas issue. All known DSTs that exhibit episodic gas release have been RGS sampled. The current focus, therefore, is to ensure that bounding flammable gas SSTs will be RGS sampled. The most important criteria for determining priority for RGS sampling of flammable gas SSTs is the ability of the tank waste to retain gases. Of secondary importance, is the need to understand different types of waste. Finally, since the RGS only collects representative samples in soft waste, only SSTs with waste soft enough to push will be considered for core sampling. Currently, tanks 241-S-102, 241-S-111, and 241-U-109 are intended to be RGS sampled.

<u>Criterion 1: Episodic Gas Release</u>

Priority:	High
Data Source:	Some DSTs experience episodic releases of flammable gas. These are the Watch List DSTs reported in the *Waste Tank Summary Report for Month Ending January 31, 1998* (Hanlon 1998).
Tank Ranking:	High priority is assigned to all tanks that exhibit episodic gas releases. Low priority is assigned to all other tanks.

Criterion 2: Gas Retention

Priority: High

Data Source: Gas retention is documented in Hodgson et al. (1996) which evaluated all 177 tanks for trapped flammable gas using the flammable gas criteria in Hopkins (1994). Flammable gas concentrations are given as a percent of the lower flammability limit (LFL) and are estimated from the steady-state concentration in the tank headspace and the volume of the trapped gas using the methodology given in Hopkins (1996). Steady state values for %LFL were calculated from hydrogen and ammonia concentrations in the headspace samples (if recently sampled) or by using a method discussed in Hopkins (1996). The volume of the trapped gas was calculated based on surface-level rise and the barometric pressure/surface-level correlation.

Tank Ranking: Priority is assigned to each tank based upon Hodgson et al. (1996). The greater %LFL (steady-state LFL + surface-level rise LFL or steady-state LFL + barometric-pressure LFL) is used to assign the priority.

High: %LFL $\geq$ 200

Medium: %LFL between 100 and 200

Low: %LFL $\leq$ 100

Criterion 3: Waste Type

Priority: Medium

Data Source: Waste types recognized as potentially having different properties with respect to the flammable gas issue are documented in *Gas Retention and Release Behavior in Hanford Single-Shell Waste Tanks* (Stewart et al. 1996). Tanks were categorized into four waste configurations. Configuration 1A and 1B contain a mixture of saltcake and salt slurry, configurations 2A and 2B contain primarily saltcake, configurations 3A and 3B contain sludge and saltcake, and configuration 4 contains primarily sludge.

Tank Ranking: High: The tank with the highest LFL from each configuration 1A, 1B, and 2A. Two tanks are assigned high priority from configuration 2B.

Medium: All other tanks in configurations 1A, 1B, 2A, 2B, 3A, and 3B.

Low: All tanks in configuration 4 and tanks not assigned to any waste configuration. Sludge tanks are considered to be low priority with respect to the flammable gas issue.

Criterion 4: Tanks with Soft Waste

Priority: High

Data Source: Currently, the RGS sampler can only yield representative results with soft waste. Tanks that can be push-mode sampled are documented in the *Baseline Sampling Schedule, Change 98-01* (Stanton 1998).

Tank Ranking: Tanks that cannot be push-mode sampled are not considered. Definition of high/low priority is unnecessary.

4.2 SLUICING OF TANK 241-C-106 CRITERIA

Double-shell tank 241-AY-102 is the only tank within scope for sampling of the high-heat issue. Therefore, there is no need to define criteria to determine the priority of tanks. The tank must be sampled to support removal of the waste in tank 241-C-106.

High priority is given to tank 241-AY-102.

4.3 WASTE FEED DELIVERY (PHASE I) CRITERIA

Tanks within scope of the Phase I waste feed delivery issue belong to or will be conditioned to fit one of four feed envelopes: A, B, C, or D. Feed envelopes are defined by the type of waste in the tank as follows:

Envelope A: waste that will test the production capacity and fission-product removal efficiency of the plants and will produce a final product in which waste loading will be limited by sodium.

Envelope B: similar to Envelope A except that waste loading in the final product will be limited by minor component concentrations. Private contractor will be challenged by working in a high-activity/high-heat environment.

Envelope C: waste with complexing agents that may interfere with strontium-90 or TRU decontamination and will, therefore, require demonstration of organic destruction or another acceptable mitigation technology.

Envelope D: high-level waste sludge fraction. The bulk of the high-level waste feed components are in the form of insoluble suspended solids in an aqueous slurry.

All tanks in scope of the Phase I feed delivery issue have either been sampled or will require sampling when the tank waste becomes static. The priority for sampling is 0 until the tank is static. There is no technical criterion to rank one tank higher priority over another tank. However, tanks scheduled to be delivered earlier have greater urgency. All tanks in this issue have the same priority for sampling (100) when the tank becomes static. If the tank has already been sufficiently sampled, then the priority for sampling is set to 0.

Table 4-1 summarizes the sampling requirements of tanks in scope of the Phase I feed delivery issue. Column 1 of Table 4-1 depicts the feed envelope that the tank supports, as well as whether the waste is low-activity waste or high-level waste. Column 2 lists the tanks that are in scope of feed delivery. Note that most of these same tanks are also in scope of the Privatization and Regulatory-Dangerous waste issues. Waste feed delivery, Privatization - DOE management, and Privatization - direct samples to contractor(s) will be competing for waste samples and archive samples from the tanks listed. For this reason, Table 4-1 includes a listing of feed delivery and Privatization requirements, in terms of sample amount. Column 3 lists the type of sample required from the tank. Columns 4, 5, and 6 list the amount of sample material required for the feed delivery, Privatization - DOE management issues, and Privatization - direct samples to contractor(s) issues, respectively. Sampling may not be necessary if sample material is already available in archive at the 222-S Laboratory. The sample material must be of the correct type and quantity for each issue (feed delivery and Privatization) to negate the need for sampling for these issues. If there is only enough archive sample material for one of the issues, feed delivery gets priority, followed by Privatization - DOE management of contract(s) (see Section 5.0). Column 7 shows the amount of sample material available in archive. Column 8 summarizes whether or not sampling will be required for the feed delivery and/or Privatization issues. Column 9 lists the date that the tank waste is expected to become static, or if the tank already is static. Column 10 lists the latest possible date that a tank may be sampled to support the feed delivery issue, as determined from the Level 1 logic (Kirkbride et al. 1997).

Table 4-1. Summary of Sampling Needs of Phase I Feed Tanks. (3 sheets)

Envelope	Tank	Sample Type[1, 2]	Waste Feed Delivery	Privatization - DOE Management of Contract(s)	Privatization - Provide Sample to Contractor(s)	Available in Lab[3]	Further Samples Required[2]	Expected Static Date	Latest Sampling Date for Feed Delivery
A (LAW)	AN-103	C	2,000 g	-	-	5,880 g	-	Now	Nov. 1998
		L[4]	-	1.00 L	1.50 - 2.00 L	4.63 L	-		
	AN-104	C	2,000 g[5]	-	-	n/a	-	Now	Apr. 1999
		L[4]	-	1.00 L[5]	1.50 - 2.00 L	3.26 L	-		
	AN-105	C	15 g	-	-	3,179 g	-	Now	Feb. 2000
		L[4]	0.08 L	1.00 L	1.50 - 2.00 L	2.12 L	PC		
	AP-101	C	1,000 g	-	-	-	F	April 1999	-
	AW-101	C	2,000 g[5]	-	-	n/a	-	Now	Sept. 1999
		L[4]	-	1.00 L	1.50 - 2.00 L	0.46 L	P, PC		
	AW-104	C	1,000 g	-	-	-	F	Oct. 1999	-
B (LAW)	AZ-101[6]	L	0.40 L	1.00 L	-	-	F, P	Now	Oct. 1998
	AZ-102[6]	L	0.20 L	1.00 L	1.50 - 2.00 L[7]	-	PC, F, P	Now	Oct. 1998
C (LAW)	AN-102[8]	L	0.33 L	1.00 L	25.00 - 30.00 L	7.15 L	PC	Now	Aug. 2001
	AN-106[8]	C	2,000 g	-	-	-	F	July 1999	-
	AN-107[8]	L	0.33 L	1.00 L	1.50 - 2.00 L	0.355 L[9]	PC, P	Now	Mar. 2000
	SY-101	C	2,000 g	-	-	-	F	Now	July 2006
		L	-	1.00 L	1.50 - 2.00 L[10]	-	PC, P		
	SY-103	C	2,000 g	-	-	-[11]	F	Now	Dec. 2000
		L	-	1.00 L	1.50 - 2.00 L[10]	1.03 L	PC		

Table 4-1. Summary of Sampling Needs of Phase I Feed Tanks. (3 sheets)

Envelope	Tank	Sample Type[1, 2]	Waste Feed Delivery	Privatization - DOE Management of contract(s)	Privatization - Provide Sample to Contractor(s)	Available in Lab[3]	Further Samples Required[2]	Expected Static Date	Latest Sampling Date for Feed Delivery
D (HLW)	AY-102	C (F), S (P, PC)	2 cores	200 g	200 - 250 g	-	PC, F, P	Oct. 1999	June 2000
	AZ-101	L	1.00 L[12]	-	-	-	F	Now	Sept. 1998
		S	-	200 g	-	-	P		
	AZ-102	S	900 g	200 g	200 - 250 g[7]	-	PC, F, P	Now	May 1998
		L	3.00 L	-	-	-	F		
	C-104	C (F), S (P, PC)	600 g	200 g	500 g	1700 g[13]	F	Now	Oct. 2007
	C-106	S	hard heel[14]	-	500 g[15]	-	PC, F	Oct. 1999	June 2000
Mixer Pump Test[16]	AZ-101	L	0.6 L	-	-	-	F	Now	-

Notes:

n/a = Requirements satisfied, more sample may be available in the laboratory.

1 L = sample from the liquid layer of the tank, S = sample from the solid layer of the tank, C = Sample composite representative of waste.

2 F = Feed Delivery, P = Privatization - DOE Management of Contract(s), PC = Privatization - Provide Sample to Contractor(s).

3 To approximate Liters, a density of 1.4 g/ml was used; a density of 1.49 g/ml was used to convert desired amount of AZ-102 from milliliters to grams.

4 Drainable liquid from core samples is used to satisfy requirements.

5 These samples have already been taken from the laboratory.

Table 4-1. Summary of Sampling Needs of Phase I Feed Tanks. (3 sheets)

6 At a later time, the supernatant from these two tanks will be decanted into tank AY-101, but for now Waste Feed Delivery and Privatization consider these two tanks as "static". A 60 ml sludge sample, available in archive, is desired from tank AY-101 for Waste Feed Delivery prior to decanting.

7 Samples for both Envelope B and D for AZ-102 may come from tank AZ-101. If AZ-101 is used, samples should be taken immediately following the mixer pump test.

8 These tanks are currently caustic deficient. Caustic may be added to these tanks at a later time, but for now Waste Feed Delivery and Privatization consider tank AN-102 and AN-107 "static" and will consider tank AN-106 as "static" after it receives its last transfer of waste. If caustic addition is anticipated, additional solid and liquid samples may be required before and after caustic adjustment.

9 This is the amount of representative sample. 182 mL of the sludge layer is available in addition to the representative amount shown here.

10 This sample could be from either tank SY-101 or tank SY-103.

11 No crust sample is available to make a representative composite sample. 605.2 g of non-drainable liquid sample is available.

12 Tank AZ-101 slurry samples for Waste Feed Delivery should be taken during mixer pump test.

13 Only 9 g is available as a representative composite (feed delivery requirement).

14 Samples to be taken after tank has been sluiced and prior to complete tank waste retrieval.

15 Samples taken prior to sluicing are acceptable.

16 Samples needed as defined in the AZ-101 Mixer Pump Test Plan (Symons and Staehr 1996).

4.4 PRIVATIZATION PHASE I - DOE MANAGEMENT OF PRIVATE CONTRACT(S) CRITERIA

The tanks in scope of the Privatization Phase I - DOE management of private contract(s) are (approximately) the same tanks as the tanks in the feed delivery (Phase I) function and are listed in column 2 of Table 4-1. As with feed delivery, Privatization - DOE management tanks all have equal priority of 100, effective when the tanks become static (see column 9 of Table 4-1). Unlike feed delivery, Privatization - DOE management tanks must be sampled by the end of 1999.

Privatization Phase I - DOE management of private contract(s) and feed delivery (Phase I) are competing for samples and for archive samples. Table 4-1 shows which tanks have archive material and which archive samples may be used for Privatization. Refer to Section 4.3 for a complete description of Table 4-1. Privatization Phase I - DOE management of private contract(s) are shown in column 5 of Table 4-1. Column 8 lists which tanks will require further sampling for Privatization Phase I - DOE management of private contract(s).

4.5 PRIVATIZATION PHASE I - DIRECT SAMPLES TO PRIVATE CONTRACTOR(S) CRITERIA

The tanks in scope of the Privatization Phase I - direct samples to private contractor(s) are (approximately) the same tanks as the tanks in the feed delivery (Phase I) function and are listed in column 2 of Table 4-1. As with feed delivery, Privatization - direct samples to private contractor(s) tanks all have equal priority of 100, effective when the tanks become static (see column 9 of Table 4-1).

Privatization and waste feed delivery (Phase I) are competing for samples and for archive samples. Table 4-1 shows which tanks have archive material and which archive samples may be used for Privatization. Refer to Section 4.3 for a complete description of Table 4-1. Privatization Phase I - direct samples to private contractor(s) requirements are shown in column 6 of Table 4-1. These requirements are taken from the planning assumptions provided in Gasper (1998). Column 8 lists which tanks will require further sampling for Privatization Phase I - direct samples to private contractor(s).

4.6 RETRIEVAL AND IMMOBILIZATION (PHASE II) CRITERIA

Enhanced Sludge Washing (ESW) is the only Phase II related activity which currently has a need for as yet unobtained samples. Thus only the criteria and sample needs of the ESW activity is discussed here.

Tanks within the scope of ESW activities are defined in Kupfer et al. (1995). The basic characterization need for ESW is to get samples from as many waste types as possible for the

purpose of process testing (Kupfer et al. 1995). Although some waste types have a higher priority than others, all tank waste types need to be considered. REDOX waste (R1 and R2 sludge and R saltcake) is of particular interest because it contributes significantly to the total sludge volume and is expected to contain bounding values for a number of analytes that limit glass production. Sludge waste is more important than saltcake for pretreatment because insoluble sludge contributes to the volume of HLW product.

It is important to note that the following criteria are not the criteria used to select tanks to be within the scope of ESW but are the criteria used to determine the priority of the tanks from which samples are needed to fulfill the remaining data needs of the ESW activities. Tank selection for sludge washing was done in Kupfer et al. (1995), with additional tanks listed below.

Criterion 1: Tanks Containing R2 Sludge

Priority: High

Data Source: The tanks containing R2 (REDOX waste generated between 1958 and 1966) sludge were predicted using the tank layering model reported in Agnew (1997).

Tank Ranking: High priority is assigned to tanks with higher volumes of R2 sludge. R2 sludge from four primary tanks is necessary for sampling and testing to fulfill data requirements. Medium priority is assigned to one alternate tank. Priority is assigned as follows:

High: primary tanks 241-SX-111, 241-SX-114, 241-SX-110, and 241-SX-107

Medium: alternate tank 241-SX-112

Criterion 2: Tanks Containing R1 Sludge

Priority: High

Data Source: Tank layering model (Agnew 1997)

Tank Ranking: High priority is assigned to tanks with higher volumes of R1 (REDOX waste generated between 1952 and 1957) sludge. R1 sludge from three (or more) primary tanks is necessary for sampling and testing to fulfill data requirements. Some R1 sludge tanks have already been sampled and tested. Medium priority is assigned to one alternate tank. Priority is assigned as follows:

High: primary tanks 241-SX-101, 241-SX-104, and 241-S-110

Medium: alternate tank 241-SX-112

Criterion 3: Miscellaneous Untested Sludge Types

Priority: Medium

Data Source: Tank layering model (Agnew 1997)

Tank Ranking: Tank 241-TY-105 is selected as high priority within this criteria. Tank 241-TY-105 contains uranium recovery waste from the bismuth phosphate process. No alternate tank has been selected for the first priority tank within this criterion.

Criterion 4: Waste High in Recalcitrant Cr for Cr Oxidation Scoping Tests

Priority: Medium

Data Source: A workshop report, *HLW Volume Reduction* (Independent Technical Review Team 1997), identifies tanks 241-SY-101 and 241-SY-103 as priority tanks for chromium oxidation scoping tests. Currently, not enough material from tank 241-SY-101 is archived to support this need. A new sample from this tank needs to be taken.

Tank Ranking: High: Tank 241-SY-101

Criterion 5: Tanks Containing T2 Saltcake

Priority: Medium

Data Source: Tank layering model (Agnew 1997)

Tank Ranking: High priority is assigned to tanks with higher volumes of T2 (saltcake waste generated from the 242-T evaporator from 1955 and 1965) saltcake. T2 saltcake from two (or more) primary tanks is necessary for sampling and testing to fulfill data requirements. One desired T2 saltcake tank (241-U-102) has been sampled already. Medium priority is assigned to five alternate tanks. Priority is assigned as follows:

High: primary tanks 241-TX-105 and 241-TX-118

Medium: alternate tanks 241-TX-115, 241-TX-110, 241-TX-113, 241-TX-106, and 241-TX-116

Criterion 6: Tanks Containing R Saltcake

Priority: Medium

Data Source: Tank layering model (Agnew 1997)

Tank Ranking: High priority is assigned to tanks with higher volumes of R saltcake (saltcake formed from self-concentration of supernatants in S and SX Tank Farms). R saltcake from two (or more) primary tanks is necessary for sampling and testing to fulfill data requirements. One desired R saltcake tank (241-S-104) has already been sampled. Medium priority is assigned to two alternate tanks. Priority is assigned as follows:

High: primary tanks 241-SX-109 and 241-SX-114

Medium: alternate tanks 241-SX-103 and 241-SX-101

Criterion 7: Tanks Containing BY Saltcake

Priority: Medium

Data Source: Tank layering model (Agnew 1997)

Tank Ranking: High priority is assigned to tanks with higher volumes of BY saltcake (saltcake waste generated from in-tank solidification units 1 and 2 between 1965 and 1974). BY saltcake from one primary tank is necessary for sampling and testing to fulfill data requirements. Medium priority is assigned to one alternate tank. Priority is assigned as follows:

High: primary tank 241-BY-105

Medium: alternate tanks 241-BY-101

4.7 SST WASTE RETRIEVAL AND TANK CLOSURE CRITERIA

Single-shell tanks 241-AX-104 and 241-C-106 are the only tanks within the scope of the HTI. Because the sampling of both tanks is essential to the successful completion of HTI objectives, there is no need to define criteria to determine tank priority.

High priority will be given to tanks 241-AX-104 and 241-C-106.

4.8 HISTORICAL MODEL EVALUATION CRITERIA

The tanks that are within the scope of the HDW model (Agnew 1997) evaluation are those listed in the *Historical Model Evaluation Data Requirements* (Simpson and McCain 1997). The criteria used to determine priority of tanks for the historical model evaluation are tanks with REDOX, saltcake, PUREX, uranium recovery wastes, and tanks with a high predicted vertical variability. Finally, tanks with several available risers for sampling are given priority (to be able to measure horizontal variability). Tanks with bismuth phosphate waste are not given priority for the historical model evaluation issue because many tanks containing bismuth phosphate waste have been sampled already. The majority of the tanks listed in the historical DQO have been sampled, with only five primary tanks and eight secondary tanks remaining to be sampled.

Criteria 1-4: Typical REDOX, Saltcake, PUREX, and Uranium Recovery Waste

Priority: High: Typical REDOX waste

High: Typical saltcake waste

Medium: Typical PUREX waste

Medium: Typical uranium recovery waste

Data Source: The tank layering model (Agnew 1997) was used to select tanks with large predicted amounts of REDOX, saltcake, PUREX, and uranium recovery wastes. It should be noted that the purpose of the historical model evaluation DQO is to evaluate the accuracy of the HDW model (including the tank layering model).

Tank Ranking: Each tank is assigned priority based on the estimated likelihood that waste was present in significant quantity.

High: Particular waste type (REDOX, saltcake, PUREX, or uranium recovery) is present and represents 50 percent or more of the total waste. Tanks with uncomplicated process histories were identified as generally more desirable. Tanks with overall high volumes of wastes were preferred. Tanks possessing single waste layers at least 1 m (40 in.) in depth, or tanks with the desired waste layer situated on the top were selected. The criterion of approximately 1 m was selected because that depth constitutes slightly more than two 48 cm (19 in.) segments as provided by the rotary-mode or push-mode core sampling systems. If the waste layer is greater than two segments deep, at least

one core segment should contain the single waste type of interest with limited mixing of other waste types.

Medium: Particular waste type is present but is < 50 percent of the total.

Low: REDOX, saltcake, PUREX, or uranium recovery waste is not expected in the tank.

Criterion 5: Vertical Spatial Variability

Priority: Medium

Data Source: The tank layering model (Agnew 1997) was used to evaluate tanks for the criterion of vertical spatial variability.

Tank Ranking: Each tank is assigned a priority based on the number of discernable layers (over 50,000 gal, or over 10,000 gal if on the surface). This criterion complements criteria 1-4, which require thick layers of specific waste types. The vertical spatial variability criterion still requires thick layers but favors tanks where thick layers of more than one waste type may be obtained so that information can be gained on several waste types in a single sampling event.

High: Four or more layers.

Medium: Two or three layers.

Low: One discernible layer.

Note: Tanks with more than five discernible layers are possible but highly unlikely.

Criterion 6: Ability to Measure Horizontal Spatial Variability

Priority: Low

Data Source: Criterion 6 is different from criterion 5, because priority is determined based on the ability to measure the horizontal variability in the tank rather than setting priorities based on predictable vertical variability in the tank. Horizontal variability is much more difficult to observe than vertical variability. The ability to measure horizontal variability depends on how many risers are available for sampling, and how well

those risers are distributed. Riser availability information comes from two different sources. The first is the *Riser Configuration Document for Single-Shell Waste Tanks* (Alstad 1993). This document contains riser information (for all SSTs) about what equipment is in each riser, and which risers have no equipment (spare). An estimate of riser availability can be made by counting the number of spare risers. This estimate may be low because some equipment can be removed for sampling. The second source of information about riser availability is *Waste Tank Risers Available for Sampling* (Lipnicki 1996), which records information obtained from field inspections of the tanks.

Tank Ranking: Each tank is assigned a priority based on the availability of risers in the tanks. The number of risers available in the center of the tank was also considered, because a good estimate of horizontal variability can be gained by considering estimates from both the sides and middle of the tank.

High: Five or more risers are available, or three or more risers are available, one of which is in the center of the tank.

Medium: Three or four risers are available, or two risers are available, one of which is in the center portion of the tank (within one-half of the total radius of the tank from the center).

Low: Only one or two risers are available from the side of the tank.

4.9 REGULATORY CRITERIA

Tanks with a forthcoming need for an air permit become in scope of the air emissions DQO. Tanks with waste that is anticipated to be retrieved in the near-term become in scope of the dangerous waste DQO. The two activities associated with sampling for the regulatory issue, sampling for air emissions and sampling for dangerous waste, are discussed in the following two sections.

4.9.1 Sampling for Air Emissions

Criterion: Tanks Requiring an Air Permit

Priority: High

Data Source: Tanks that have an immediate need for an air permit for such projects as mixer pump installation, sluicing, and ventilation changes.

Tank Ranking: Currently, 11 tanks are in the permitting process to receive an air permit. All 11 of these tanks are in the scope of the W-211 project (to receive a mixer pump). These tanks are 241-AN-103, 241-AN-104, 241-AN-105, 241-AN-107, 241-AP-102, 241-AP-104, 241-AW-101, 241-AY-102, 241-AZ-101, 241-AZ-102, and 241-SY-102. These 11 tanks have high priority for sampling for this criterion. All other tanks have no priority for this criterion.

4.9.2 Sampling for Dangerous Waste

Criterion: Feed Delivery Tanks and Evaporator Candidate Feed Tanks

Priority: High

Data Source: Feed delivery tanks are listed in Table 4-1.

Tank Ranking: High priority is given to tanks for the dangerous waste DQO when the tanks become static. All other tanks have no priority. The sample must be representative of the entire waste, whether this is from a full-depth core sample or from a grab sample taken from the tank after the waste has been homogenized.

5.0 ISSUE PRIORITIES

During the process of determining tank priority for sampling, each TWRS program identified the criteria by which tanks are ranked for a specific issue and the relative importance of each issue requiring characterization sampling.

A decision analysis process was applied to all TWRS issues requiring characterization sampling. The decision analysis process involved four steps:

1. Identifying issues that require characterization sampling (see Section 3.0).

2. Determining the maximum benefit of sampling for each issue (assuming that the correct tanks are selected). The maximum benefit of sampling for each issue provides a basis for comparison of the issues.

3. Ranking issues in order of importance by considering the maximum benefit derived from sampling for each issue. It is also necessary to consider the contribution that sampling makes in supporting the best outcome. For some issues, sampling information is a deciding factor; for others it is less important.

4. Assigning weights to the ranked issues indicating the relative importance.

The process of determining issue priorities was completed in a facilitated session by representatives of the TWRS programs requiring sample data, DOE-RL, and Ecology (Hunt 1998). The weighted issue priorities determined in the decision analysis process are shown in Table 5-1.

It is important to note that operational issues are included in Table 5-1 even though operational issues are not considered in the process of determining tank priorities. Operational issues are not considered when determining tank priorities because operational functions that require sampling information are schedule driven. In other words, either characterization can support the operational need or it cannot, and tank priority has no meaning. Operational needs must still be incorporated into the final sampling schedule. Therefore, an indication of the relative importance of operational issues to the other issues requiring sampling is documented.

The weighted issue priorities determined in the decision analysis process are used in the spreadsheet that creates the final tank priority list. Appendix A provides details of the spreadsheet matrix.

Table 5-1. Results of Ranking Issues in Priority Order.

Issue[1]	Issue Rank	Relative Issue Weight
Compatibility	1	100
Flammable Gas	2	93
Waste Feed Delivery (Phase I)	3	84
Evaporator	4	74
Process Sampling	5	65
Privatization Phase I - DOE Management of Private Contract(s)[2]	6	59
Caustic Mitigation	7	51
Sluicing of Tank 241-C-106	8	43
Regulatory Issues	9	33
SST Waste Retrieval and Tank Closure (HTI)	10	26
Privatization Phase I - Direct Samples to Private Contractor(s)[3]	11	21
Retrieval and Immobilization (Phase II)	12	11
Historical Model Evaluation	13	4

Notes:

1. Safety screening is given no issue weight as a sole driver for sampling (Hunt 1998). However, the safety screening DQO (Dukelow et al. 1995) will be applied opportunistically to all tanks sampled for other issue purposes.

2. The issue "Privatization Phase I - DOE Management of Private Contract(s)" was referred to as "Waste Integration (Phase I)" in the January 26, 1998 meeting.

3. The issue "Privatization Phase I - Direct Samples to Private Contractor(s)" was referred to as "Contract Support - Private Vendors/Glass (Phase I)" in the January 26, 1998 meeting.

6.0 TANK PRIORITIES

Table 6-1 shows the tank priority list for sampling for combined issues. The tank list was developed using a spreadsheet. Appendix A provides details of the method used to generate the list.

The first column in Table 6-1 is a list of all 177 single and double-shell tanks. Columns 2, 3, and 4 provide the tank priority for each mode of sampling (solid, liquid, and vapor phase sampling, respectively). The priority numbers in columns 2, 3, and 4 are ordered from 0 to 100. The tank with a solids priority number of 100 (tank 241-SY-101) is the highest priority tank for sampling using a solid phase sampling method. Tanks with a solids priority number of 0 have no priority for sampling using a solid phase sampling method. Likewise, liquid and vapor priority numbers are assigned to each tank, indicating the need for liquid or vapor phase sampling for each tank. A tank that has been sampled within a particular phase, for which each issue has been successfully addressed, is assigned a priority number of 0. The tanks in Table 6-1 are sorted based upon the solids priority number in column 2.

Column 5 summarizes past sampling in the tanks. If samples were taken in 1989 or after, but before February 28, 1998, that sampling is indicated in column 5. Letter denominators of C, A, G, or V are used in this column to represent past core, auger, grab, or vapor sampling, respectively. Column 5 does not indicate whether the past sampling was sufficient to meet the sampling needs of the respective issues of the tank.

Column 6 identifies desired future sampling dates for the TWRS programs. Programs that have requested sampling by a specific date are listed in this column. The year that the sample is desired and the requesting program are identified. Refer to the table footnote for program abbreviations. Where a date is not specified, the sampling need is immediate.

Column 7 summarizes issues that are to be addressed by sampling. Tanks having issues that are not addressed (as summarized in column 7) will require sampling unless future technical justification can be provided to not sample the tank.

Column 8 provides comments useful for clarifying the sampling priority for each tank.

Table 6-1. Tank Priorities. (10 sheets)

Tanks	Solids Priority Number	Supernatant Priority Number	Vapor Priority Number	Samples Taken[1]	Program Requested Future Sample Date[2]	Issues To Be Addressed From Sampling[2]	Sampling Comments[3]
SY-101	100	0	74	A, C, G		FG, FD, PM, PC, SW, DW	Tank contains SHMS; samples for private contractor(s) may come from this tank or tank SY-103
AZ-102	96	19	100	C, G		FD, PM, PC, FG, AE, DW	Tank contains SHMS; vapor sampling needed for permit; private contractor will accept samples from AZ-101 instead (taken during mixer pump test)
SY-103	67	0	74	C		FD, FG, PM, PC, DW	Tank contains SHMS; samples for private contractor(s) may come from this tank or tank SY-101
C-104	57	0	0	C, V		FD, DW	Need core samples
S-102	45	0	74	C, G, V		FG	RGS samples needed; tank contains SHMS
U-109	45	0	74	C, G, V		FG	RGS samples needed; tank contains SHMS
AZ-101	45	100	100	C, G	FY99 (FD)	FD, PM, FG, AE, DW	Tank contains SHMS; vapor sampling needed for permit; core sample for solids needed now; feed delivery grab samples are required to be taken during mixer pump test; samples for private contractor are expected to be taken from tank AZ-102, priority on tank AZ-101 will increase if it is not possible to retrieve enough sample from AZ-102
S-111	40	0	74	C, V		FG	RGS samples needed; tank contains SHMS

Table 6-1. Tank Priorities. (10 sheets)

Tanks	Solids Priority Number	Supernatant Priority Number	Vapor Priority Number	Samples Taken[1]	Program Requested Future Sample Date[2]	Issues To Be Addressed From Sampling[2]	Sampling Comments[3]
AN-107	16	64	100	G, V		PM, PC, FG, AE, DW	Need supernatant samples; tank contains SHMS; vapor sampling needed for permit; solid sampling for regulatory only
AW-101	16	64	100	A, C, G		AE, DW, FG, PM, PC	Vapor sampling needed for permit; tank contains SHMS; solid sampling for regulatory only
AN-105	16	31	100	C		AE, DW, FG, PC	Vapor sampling needed for permit; tank contains SHMS; solid sampling for regulatory only
AN-103	16	19	100	C		AE, DW, FG	Vapor sampling needed for permit; tank contains SHMS; solid/liquid sampling for regulatory only;
AN-104	16	19	100	C		AE, DW, FG	Vapor sampling needed for permit; tank contains SHMS; solid/liquid sampling for regulatory only;
AN-102	16	12	0	C, G		DW, PC	
AX-104	13	0	0	A, V		HTI	LDUA samples needed
C-106	13	0	74	G, V	FY00 (FD, DW)	FG, HTI, DW, FD	Need core samples after waste transferred; priority for representative samples will increase when tank becomes static; tank contains SHMS
SX-101	7	0	74	C, V		FG, SW, HM	Tank contains SHMS
SX-104	7	0	74	G, V		FG, SW, HM	Tank contains SHMS
TX-118	6	0	0	V		SW, HM	
SX-103	6	0	74	G, V		FG, SW, HM	Tank contains SHMS
TX-113	6	0	0	V		SW, HM	
TX-116	6	0	0	V		SW, HM	

Table 6-1. Tank Priorities. (10 sheets)

Tanks	Solids Priority Number	Supernatant Priority Number	Vapor Priority Number	Samples Taken[1]	Program Requested Future Sample Date[2]	Issues To Be Addressed From Sampling[2]	Sampling Comments[3]
TX-105	5	0	0	V		SW, HM	
TX-110	5	0	0	V		SW, HM	
TX-115	5	0	0	V		SW, HM	
SX-114	5	0	0	V		SW	
S-110	5	0	0	C, G, V		SW	
SX-107	5	0	0	V		SW	
SX-110	5	0	0	V		SW	
SX-111	5	0	0	V		SW	
SX-112	5	0	0	V		SW	
TY-105	4	0	0	V		SW	
BY-105	4	0	74	C, G, V		FG, SW	Tank contains SHMS
SX-109	4	0	74	V		FG, SW	Tank contains SHMS
TX-106	4	0	0	V		SW	
C-102	1	0	0	A, V		HM	Need core samples
TX-111	1	0	0	V		HM	
AY-102	0	43	100	G	FY00 (FD, PM, PC, DW)	W-320, FD, PM, PC, FG, AE, DW	Need core samples after waste from C-106 transferred; need liquid samples from AY-102 prior to C-106 sluicing; tank contains SHMS; priority for representative samples will increase when tank becomes static; vapor sampling needed for permit
AP-102	0	19	26	G		AE	Vapor sampling needed for permit
AP-104	0	19	26	G		AE	Vapor sampling needed for permit
SY-102	0	19	100	C, G	FY98 (AE)	FG, AE	Tank contains SHMS; vapor sampling needed for permit

Table 6-1. Tank Priorities. (10 sheets)

Tanks	Solids Priority Number	Supernatant Priority Number	Vapor Priority Number	Samples Taken[1]	Program Requested Future Sample Date[2]	Issues To Be Addressed From Sampling[2]	Sampling Comments[3]
A-101	0	0	74	C, G, V		FG	Tank contains SHMS
A-102	0	0	0	A, V			
A-103	0	0	0	V			
A-104	0	0	0				Insufficient auger recovery
A-105	0	0	0				
A-106	0	0	0	V			
AN-101	0	0	74	G		FG	Tank contains SHMS
AN-106	0	0	0	G	FY99 (FD, DW)	FD, DW	Need representative supernatant samples when tank becomes static; priority for representative samples will increase when tank becomes static; solid/vapor sampling for regulatory only
AP-101	0	0	0	G	FY99 (FD, DW)	FD, DW	Need representative supernatant samples when tank becomes static; priority for representative samples will increase when tank becomes static; vapor sampling for regulatory only
AP-103	0	0	0	G			
AP-105	0	0	0	C, G			
AP-106	0	0	0	G			
AP-107	0	0	0	G			
AP-108	0	0	0	G			
AW-102	0	0	0	G			
AW-103	0	0	0	C, G			
AW-104	0	0	0	C, G	FY 00 (FD, DW)	FD, DW	Need core samples when tank becomes static; priority for representative samples will increase when tank becomes static; liquid/vapor sampling for regulatory only
AW-105	0	0	0	C, G			

Table 6-1. Tank Priorities. (10 sheets)

Tanks	Solids Priority Number	Supernatant Priority Number	Vapor Priority Number	Samples Taken[1]	Program Requested Future Sample Date[2]	Issues To Be Addressed From Sampling[2]	Sampling Comments[3]
AW-106	0	0	0	G			
AX-101	0	0	74	C, G, V		FG	Tank contains SHMS
AX-102	0	0	0	A, F, V, G			
AX-103	0	0	74	C, V		FG	Tank contains SHMS
AY-101	0	0	0	G			
B-101	0	0	0	C			
B-102	0	0	0	A, V			
B-103	0	0	0	A, V			
B-104	0	0	0	C			
B-105	0	0	0	V			
B-106	0	0	0	C			
B-107	0	0	0	C, V			
B-108	0	0	0	C			
B-109	0	0	0	C			
B-110	0	0	0	C			
B-111	0	0	0	C			
B-112	0	0	0	A			
B-201	0	0	0	C			
B-202	0	0	0	C, V			
B-203	0	0	0	C			
B-204	0	0	0	C			
BX-101	0	0	0	A			
BX-102	0	0	0	V			
BX-103	0	0	0	C, V			
BX-104	0	0	0	C, V			

Table 6-1. Tank Priorities. (10 sheets)

Tanks	Solids Priority Number	Supernatant Priority Number	Vapor Priority Number	Samples Taken[1]	Program Requested Future Sample Date[2]	Issues To Be Addressed From Sampling[2]	Sampling Comments[3]
BX-105	0	0	0	A, V			
BX-106	0	0	0	A, G, V			
BX-107	0	0	0	C, V			
BX-108	0	0	0	A			
BX-109	0	0	0	C			
BX-110	0	0	0	A, C, V			
BX-111	0	0	0	C, V			
BX-112	0	0	0	A, C			
BY-101	0	0	0	C, V			
BY-102	0	0	0	C, V			
BY-103	0	0	74	A, G, V		FG	Tank contains SHMS
BY-104	0	0	0	A, C, V			
BY-106	0	0	74	C, V		FG	Tank contains SHMS
BY-107	0	0	0	C, V			
BY-108	0	0	0	A, C, V			
BY-109	0	0	74	C		FG	Tank contains SHMS
BY-110	0	0	0	C, V			
BY-111	0	0	0	C, V			
BY-112	0	0	0	C, V			
C-101	0	0	0	A, V			
C-103	0	0	0	C, V			
C-105	0	0	0	C, V			
C-107	0	0	0	C, V			
C-108	0	0	0	A, V			
C-109	0	0	0	C, V			

Table 6-1. Tank Priorities. (10 sheets)

Tanks	Solids Priority Number	Supernatant Priority Number	Vapor Priority Number	Samples Taken[1]	Program Requested Future Sample Date[2]	Issues To Be Addressed From Sampling[2]	Sampling Comments[3]
C-110	0	0	0	C, G, V			
C-111	0	0	0	A, C, V			
C-112	0	0	0	C, V			
C-201	0	0	0	A, F, V			
C-202	0	0	0	A, F, C, V			
C-203	0	0	0	A			
C-204	0	0	0	A, V			
S-101	0	0	74	C, G, V		FG	Tank contains SHMS
S-103	0	0	0	G, V			
S-104	0	0	0	C			
S-105	0	0	0	V			
S-106	0	0	74	C, G, V		FG	Tank contains SHMS
S-107	0	0	74	C, G, V		FG	Tank contains SHMS
S-108	0	0	0	V			
S-109	0	0	74	C, V		FG	Tank contains SHMS
S-112	0	0	74	G, V		FG	Tank contains SHMS
SX-102	0	0	74	V		FG	Tank contains SHMS
SX-105	0	0	74	C, V		FG	Tank contains SHMS
SX-106	0	0	74	C, V		FG	Tank contains SHMS
SX-108	0	0	0	A, V			
SX-113	0	0	0	A			
SX-115	0	0	0	A, F			
T-101	0	0	0	G, V			
T-102	0	0	0	C, G			
T-103	0	0	0	G			

Table 6-1. Tank Priorities. (10 sheets)

Tanks	Solids Priority Number	Supernatant Priority Number	Vapor Priority Number	Samples Taken[1]	Program Requested Future Sample Date[2]	Issues To Be Addressed From Sampling[2]	Sampling Comments[3]
T-104	0	0	0	C, V			
T-105	0	0	0	C			
T-106	0	0	0	A			
T-107	0	0	0	C, V			
T-108	0	0	0	A			
T-109	0	0	0	A			
T-110	0	0	74	C, G, V		FG	Tank contains SHMS
T-111	0	0	0	C, G, V			
T-112	0	0	0	C, G			
T-201	0	0	0	C			
T-202	0	0	0	C			
T-203	0	0	0	C			
T-204	0	0	0	C			
TX-101	0	0	0	V			
TX-102	0	0	0	V			
TX-103	0	0	0	V			
TX-104	0	0	0	C, V			
TX-107	0	0	0	A			
TX-108	0	0	0	V			
TX-109	0	0	0				
TX-112	0	0	0	V			
TX-114	0	0	0	V			
TX-117	0	0	0	V			
TY-101	0	0	0	V			
TY-102	0	0	0	V			

Table 6-1. Tank Priorities. (10 sheets)

Tanks	Solids Priority Number	Supernatant Priority Number	Vapor Priority Number	Samples Taken[1]	Program Requested Future Sample Date[2]	Issues To Be Addressed From Sampling[2]	Sampling Comments[3]
TY-103	0	0	0	V			
TY-104	0	0	0	A, V			
TY-106	0	0	0	A			
U-101	0	0	0	G			
U-102	0	0	74	C, G, V		FG	Tank contains SHMS
U-103	0	0	74	C, G, V		FG	Tank contains SHMS
U-104	0	0	0	V			
U-105	0	0	74	C, G, V		FG	Tank contains SHMS
U-106	0	0	0	C, G, V			
U-107	0	0	74	C, G, V		FG	Tank contains SHMS
U-108	0	0	74	C, G, V		FG	Tank contains SHMS
U-110	0	0	0	C			
U-111	0	0	0	V			
U-112	0	0	0	C, V			
U-201	0	0	0	C			
U-202	0	0	0	C			
U-203	0	0	0	C, V			
U-204	0	0	0	C, V			
244-A	0	0	74			FG	
244-BX	0	0	74			FG	
244-S	0	0	74			FG	
244-TX	0	0	74			FG	
244-U	0	0	0				Vapor sample needed for organic issue resolution; no priority assigned

Table 6-1. Tank Priorities.

Notes:

[1] A = Auger, C = Core, G = Grab, F = Finger, V = Vapor

[2]
AE = Air Emissions,
DW = Dangerous Waste,
FD = Waste Feed Delivery,
FG = Flammable Gas,
HM = Historical Model,
HTI = SST Waste Retrieval and Tank Closure,
PC = Privatization - Provide Samples to Contractor(s)
PM = Privatization - DOE Management of Contract(s),
SW = Sludge Washing, and
W-320 = W-320 Sluicing of tank 241-C-106,

[3]
LDUA = Light Duty Utility Arm
RGS = Retained Gas Sampler, and
SHMS = Standard Hydrogen Monitoring System

Some previously sampled tanks still have a sampling priority number, indicating a need to resample the tanks. In some cases, the priority to resample a tank is caused because a new issue applies that did not apply when the tank was originally sampled. Another reason for the priority to resample a tank is that the original sampling effort did not properly address the issues fully. In an ongoing effort, all tanks having a priority for resampling are being studied to see whether a need for resampling exists or whether sufficient information exists to resolve the issues without resampling. Such information includes archived samples and historical information to resolve issues. If sufficient information exists to resolve the issues, the next revision of this report will indicate zero priority for resampling these tanks.

7.0 RECOMMENDATION 93-5 IMPLEMENTATION PLAN REQUIREMENTS

The *Recommendation 93-5 Implementation Plan* (DOE-RL 1996) identified high-priority tanks for near term sampling. Sampling and analysis of these tanks was intended to provide scientific and technical data to confirm assumptions, calibrate models, and measure safety related phenomenological characteristics of the waste. Analyses of samples from these tanks were expected to resolve Defense Nuclear Facilities Safety Board (DNFSB) key questions described in the Implementation Plan. These tanks were initially identified in Brown et al. (1995). The high-priority tanks were as follows:

241-A-101	241-BY-106	241-SX-103
241-AN-103	241-BY-108	241-SX-104
241-AN-104	241-BY-110	241-TX-111
241-AN-105	241-C-104	241-TX-118
241-AW-101	241-S-101	241-U-103
241-AX-101	241-S-102	241-U-105
241-B-104	241-S-107	241-U-107
241-BY-103	241-S-110	241-U-108
241-BY-104	241-SX-101	241-U-109
241-BY-105		

Twenty high priority tanks have been fully sampled and three have been partially sampled. In March 1998, a report, *High Priority Tank Sampling and Analysis Report* (Brown et al. 1998) provided technical justification to not continue further sampling of high-priority tanks for the purpose of addressing the specific questions identified in DOE-RL (1996). Sufficient information has been obtained from the 23 high priority tanks plus 121 additional tanks to adequately address those questions. Therefore, this report gives the remaining high priority tanks no extra priority over that driven by other TWRS requirements.

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APPENDIX A

TANK PRIORITY MATRIX

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A.0 TANK PRIORITY MATRIX

Appendix A describes the priority matrix. The priority matrix refers to a spreadsheet used to determine the sampling priorities of all single-shell and double-shell tanks. The issue criteria in this report constitutes the input. The results of the priority matrix are in Appendices B through E. To enhance understanding of the matrix, tank 241-SY-101 is used as an example of the workings of the matrix.

A.1 TANKS IN SCOPE OF ISSUES

Appendix B outlines the tanks that are within the scope of each issue defined in the technical basis report. All tanks are listed in alphabetical order starting with single-shell tanks. All issues discussed in Section 3.1 are shown. A letter indicates the tank is within the scope of the issue. A blank indicates the tank is outside the scope.

For example, Appendix B indicates that tank 241-SY-101 is within the scope of the flammable gas, waste feed delivery, Privatization - DOE management of contract(s), Privatization - provide samples to contractor(s), sludge washing, and the dangerous waste issues.

A.2 ISSUE PRIORITY LISTS

Appendixes C1 through C9 provides a priority matrix for each specific issue. The issues include the following:

- Flammable Gas: Appendix C1
- Waste Feed Delivery: Appendix C2
- Privatization - DOE Management of Contract(s): Appendix C3
- W-320 Sluicing of Tank 241-C-106: Appendix C4
- Regulatory Issues: Appendix C5
- SST Waste Retrieval and Tank Closure: Appendix C6
- Privatization - Provide Samples to Contractor(s): Appendix C7
- Retrieval and Immobilization: Appendix C8
- Historical Model Evaluation: Appendix C9

For each TWRS program issue, a separate spreadsheet was created in order to generate an issue priority list. The first step was to determine what criteria have an influence on the selection of tanks for sampling (for each particular issue). For example, the criteria influencing tank selection for the sludge washing issue are tanks containing R2 sludge, tanks containing R1 sludge, miscellaneous untested sludge types, waste high in recalcitrant Cr, tanks containing T2 saltcake, tanks containing R saltcake, and tanks containing BY saltcake. Criteria are documented in Section 4.0.

The second step was to rank the priority of each criterion. This was accomplished by assigning each criterion a priority of high, medium, or low. High priority was assigned a value of 5, medium priority a value of 3, and low priority a value of 1. For example, for the sludge washing issue, tanks containing R2 sludge and tanks containing R1 sludge have high priority, with the other five criteria having medium priority (for example, a tank expected to have high quantities of REDOX sludge has more priority than a tank with saltcake only). The priorities of each criteria are documented in Section 4.0.

The third step was to determine the priority of each tank with respect to each separate criterion. This was accomplished by defining the bounds for high, medium, and low priority for each criterion. These priority ratings are entered into the spreadsheet for each tank for each criterion. For example, for the sludge washing criterion of waste high in recalcitrant Cr, tanks are assigned high priority if they are predicted to be priority tanks for chromium oxidation scoping tests, and low if they are not. Based on each criterion, a tank with a high priority was assigned an arbitrary value of 5, medium priority tanks a value of 3, and low priority tanks a value of 1. After each tank is assigned a priority for each criterion, the tank was assigned a weighted priority value for each criterion. This weighted priority value was calculated for each tank by multiplying the tank priority (1, 3, or 5) by the criterion priority (1, 3, or 5).

The final step in creating the issue-specific priority lists was to sum the weighted priority values for each tank for each separate criterion. This sum represented the relative priority for each tank within the scope of the issue. These numbers were normalized so that the most important tank within the scope of the issue received a priority ranking of 100.

Tank 241-SY-101 is high priority for the criterion of waste high in recalcitrant Cr, medium priority for the criteria of tanks containing R2 sludge and tanks containing R1 sludge, and low priority for the remaining criteria. The total priority ranking for tank 241-SY-101 for sludge washing was calculated as follows:

Total Priority = (tank priority for tanks containing)*(criterion priority for tanks containing R2 sludge) + (tank priority for tanks containing R1 sludge)*(criterion priority for tanks containing R1 sludge) + (tank priority for miscellaneous untested waste type)*(criterion priority for miscellaneous waste type) + (tank priority for high in recalcitrant Cr)*(criterion priority for high in recalcitrant Cr) + (tank priority for tanks containing T2 saltcake)*(criterion priority for tanks containing T2 saltcake) + (tank priority for tanks containing R saltcake)*(criterion priority for tanks containing R saltcake) + (tank priority for tanks containing BY saltcake)*(criterion priority for tanks containing BY saltcake)

Total Priority = (1*5) + (1*5) + (1*3) + (5*3) + (1*3) + (1*3) + (1*3) = 37

After the total priority values for each tank within the scope of the issue were calculated, the values were normalized so that the tank with the highest total priority number received a normalized value of 100. All other tanks received numbers between 0 and 100 depending on their relative importance to the other tanks within the scope of the issue.

One final step was to determine whether past characterization sampling had resolved the issue need already. If there is no priority for sampling, the issue priority was set to 0 regardless of the priority determined in the above steps.

After normalizing the total safety screening priority for tank 241-SY-101 with the total priority of all other tanks, the normalized priority for tank 241-SY-101 for sludge washing = 65 (out of 100).

A.3 MULTI-ISSUE PRIORITY LIST

In Appendix D, each individual issue priority list has been collected in one table. Appendix D is a quick reference for individual issue priority scores for all issues. Each row represents an issue. Each column represents one tank. Tanks that are not within the scope of an issue are shown as "n/a."

Tank 241-SY-101 has a flammable gas - RGS priority of 0, a flammable gas - vapor priority of 100, a waste feed delivery priority of 100, a Privatization - DOE management of contract(s) priority of 100, a Privatization - provide samples to contractor(s) priority of 100, a dangerous waste priority of 100, and a sludge washing priority of 65. All other issues are outside the scope. Note that although tank 241-SY-101 has a priority of 0 for flammable gas - RGS, it is still within scope of the issue. Priority of 0 indicates a tank is within the scope of the issue but has no priority for sampling for that issue.

A.4 COMBINED ISSUE PRIORITY LIST

Appendix E provides a combined issue priority list for solid, liquid, and vapor phase sampling. Individual issue priority lists are combined using the issue weights developed in Section 5.0. The issue weights are referred to as "width" in the matrix. The width number has a multiplying effect on the weight of the separate issue priority numbers for each tank.

One other number used in the matrix is referred to as the "shift." The shift is used for issues that do not have all 177 tanks within the scope of the issue. Shift represents the importance of the least important tank within an issue compared to the most important tank within an issue. The shift for flammable gas is 0.5 and the width is 93. This means the lowest priority flammable gas tank is 50 percent as important as the highest priority flammable gas tank. For issues that have all 177 tanks (or all 149 SSTs) within their scope, a shift of 0 is used.

Once the width and shift values are entered into the matrix, the spreadsheet calculates a new priority value for each tank for each issue. The original (normalized) priority value for each tank is multiplied by the width number, then added to the shift number. The result of this manipulation is that every tank has a number that represents its importance to each issue further weighted by the importance of the issue. Therefore, tanks that are high priority for an important issue are given more overall priority than tanks that are high priority for a low-priority issue.

Finally, the priority numbers for each issue are summed together for each tank. This final sum represents the overall priority for each tank with all issues considered. Again, these numbers are normalized so that the most important tank has a priority of 100. The tanks that are at the top of the priority list are those that are important to several issues. Tanks with a priority of 0 have no need for sampling. Note that the final manipulation was performed separately for solid, liquid, and vapor phases. This was done to ensure that, for example, an issue that requires information in the vapor phase does not affect the priority number for solid sampling.

At the bottom of each page in Appendix E, a combined priority list is provided for solid, liquid, and vapor phases. Tank 241-SY-101 has a solids priority of 100 (out of 100) a liquid priority of 19 and vapor priority of 74. This indicates that solid sampling of tank 241-SY-101 is twice as important as the solid sampling of tank 241-AZ-101 which has a solid priority of 48. Liquid sampling of tank 241-SY-101 is approximately one-fifth (20 percent) as important as the liquid sampling of tank 241-AZ-101. Vapor sampling of tanks 241-SY-101 is approximately 3 times more important then the vapor sampling of the tanks with the lowest vapor phase sampling priority.

APPENDIX B

TANKS IN SCOPE OF ISSUES

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TANKS IN SCOPE OF ISSUES[1]

APPLICABLE DQOs

TANK	Flammable Gas[3]		Waste Feed Delivery		Privatization - DOE Management of Contract(s)		W-320 Sluicing of tank 241-C-106		Regulatory Issues		SST Waste Retrieval and Tank Closure		Privatization - Provide Samples to Contractor(s)		Retrieval, Pretreatment, and Immobilization		Historical Model Evaluation	
Tank status:	need	met	need	met	need	met	need	met	need	met	need	met	need	met	need	met	need	met
A-101	A, C	B														O		P
A-102	A																	
A-103	A																	
A-104																		
A-105																		
A-106																		
AX-101	A, C																	P
AX-102																		
AX-103	A, C																	
AX-104											L							
B-101																		
B-102																		
B-103																O		
B-104																O		P
B-105																		
B-106																O		P
B-107																		
B-108																		P
B-109																		
B-110																O		
B-111																O		
B-112																		
B-201	A															O		
B-202	A															O		
B-203																		
B-204																		
BX-101																		
BX-102																		
BX-103																O		
BX-104																		
BX-105																O		
BX-106																		
BX-107	A															O		
BX-108																		
BX-109																O		P

TANKS IN SCOPE OF ISSUES[1]

APPLICABLE DQOs

TANK	Flammable Gas[2]		Waste Feed Delivery		Privatization - DOE Management of Contract(s)		W-320 Sluicing of tank 241-C-106		Regulatory Issues		SST Waste Retrieval and Tank Closure		Privatization - Provide Samples to Contractor(s)		Retrieval, Pretreatment, and Immobilization		Historical Model Evaluation	
Tank status:	need	met	need	met	need	met	need	met	need	met	need	met	need	met	need	met	need	met
BX-110																O		
BX-111																		
BX-112																		P
BY-101	A	B													O			
BY-102	A																	
BY-103	A, C																	
BY-104																O		P
BY-105	A, C														O			P
BY-106	A, C																	P
BY-107																		P
BY-108																O		P
BY-109	A, C	B																
BY-110																O		P
BY-111																		
BY-112																		
C-101																		
C-102																	P	
C-103																O		
C-104	A		E			G, H			K					N		O		P
C-105																O		
C-106	C		E					I	K		M			N				
C-107	A															O		
C-108																O		
C-109																O		
C-110																		
C-111																		
C-112																O		
C-201																		
C-202																		
C-203																		
C-204																		
S-101	A, C															O		P
S-102	A, C	B														O		P
S-103	A																	
S-104																O		

TANKS IN SCOPE OF ISSUES[1]

APPLICABLE DQOs

TANK	Flammable Gas[3]		Waste Feed Delivery		Privatization - DOE Management of Contract(s)		W-320 Sluicing of tank 241-C-106		Regulatory Issues		SST Waste Retrieval and Tank Closure		Privatization - Provide Samples to Contractor(s)		Retrieval, Pretreatment, and Immobilization		Historical Model Evaluation	
Tank status:	need	met	need	met	need	met	need	met	need	met	need	met	need	met	need	met	need	met
S-105	A																	
S-106	A, B, C																	P
S-107	A, C															O		P
S-108																		
S-109	A, C															O		P
S-110															O			P
S-111	A, B, C															O		P
S-112	A, C																	
SX-101	A, C														O		P	
SX-102	A, C																	
SX-103	A, C														O		P	
SX-104	A, C														O		P	
SX-105	A, C																	
SX-106	A, C	B																
SX-107															O			
SX-108																O		P
SX-109	A, C														O			
SX-110															O			
SX-111															O			
SX-112															O			
SX-113																O		
SX-114															O			
SX-115																		
T-101																		
T-102																		
T-103																		
T-104																O		
T-105																		
T-106																		
T-107																O		
T-108																		P
T-109																O		P
T-110	A, C																	
T-111																O		
T-112																		

TANKS IN SCOPE OF ISSUES[1]

APPLICABLE DQOs

TANK	Flammable Gas[2]		Waste Feed Delivery		Privatization - DOE Management of Contract(s)		W-320 Sluicing of tank 241-C-106		Regulatory Issues		SST Waste Retrieval and Tank Closure		Privatization - Provide Samples to Contractor(s)		Retrieval, Pretreatment, and Immobilization		Historical Model Evaluation	
Tank status:	need	met	need	met	need	met	need	met	need	met	need	met	need	met	need	met	need	met
T-201	A																	
T-202	A																	
T-203																		
T-204	A																	
TX-101																		
TX-102	A																	
TX-103																		
TX-104																		
TX-105															O		P	
TX-106															O			
TX-107																		
TX-108																		
TX-109																		
TX-110															O		P	
TX-111	A																P	
TX-112	A																	
TX-113	A														O		P	
TX-114																		
TX-115	A														O		P	
TX-116															O		P	
TX-117																		
TX-118															O		P	
TY-101																		
TY-102																		
TY-103																		
TY-104																O		
TY-105															O			
TY-106																		
U-101																		
U-102	A, C															O		P
U-103	A, C	B																
U-104																		
U-105	A, C																	P
U-106	A																	P
U-107	A, C															O		P

TANKS IN SCOPE OF ISSUES[1]

APPLICABLE DQOs

TANK	Flammable Gas[2]		Waste Feed Delivery		Privatization - DOE Management of Contract(s)		W-320 Sluicing of tank 241-C-106		Regulatory Issues		SST Waste Retrieval and Tank Closure		Privatization - Provide Samples to Contractor(s)		Retrieval, Pretreatment, and Immobilization		Historical Model Evaluation	
Tank status:	need	met	need	met	need	met	need	met	need	met	need	met	need	met	need	met	need	met
U-108	A, C															O		P
U-109	A, B, C															O		P
U-110																O		
U-111	A																	
U-112																		
U-201																		
U-202																		
U-203																		
U-204																		
AN-101	C																	
AN-102				D		F, H			K				N					
AN-103	A, C	B		D		F, H			J, K					N				
AN-104	A, C	B		D		F, H			J, K					N		O		
AN-105	A, C	B		D		F, H			J, K				N					
AN-106			D						K									
AN-107	A, C			D	F, H				J, K				N			O		
AP-101			D						K									
AP-102									J									
AP-103																		
AP-104									J									
AP-105																		
AP-106																		
AP-107																		
AP-108																		
AW-101	A, C	B		D	F, H				J, K				N			O		
AW-102																		
AW-103																		
AW-104	A		D						K									
AW-105																		
AW-106																		
AY-101	A			D												O		
AY-102	C		E		G, H		I		J, K				N			O		
AZ-101	C		D, E		F, G, H				J, K				N[3]					
AZ-102	C		D, E		F, G, H				J, K				N					
SY-101	A, C	B	D		F, H				K				N		O			

TANKS IN SCOPE OF ISSUES[1]

APPLICABLE DQOs

TANK	Flammable Gas[2]		Waste Feed Delivery		Privatization - DOE Management of Contract(s)		W-320 Sluicing of tank 241-C-106		Regulatory Issues		SST Waste Retrieval and Tank Closure		Privatization - Provide Samples to Contractor(s)		Retrieval, Pretreatment, and Immobilization		Historical Model Evaluation	
Tank status:	need	met	need	met	need	met	need	met	need	met	need	met	need	met	need	met	need	met
SY-102	C								J									
SY-103	A, C	B	D			F, H			K				N			O		
244-A	C																	
244-BX	C																	
244-S	C																	
244-TX	C																	

Notes:

A = Opportunistic chemical and physical analysis - Flammable Gas DQO (Bauer and Jackson 1997)
B = RGS - Flammable Gas DQO (Bauer and Jackson 1997)
C = Vapor (SHMS and DCRTs) - Flammable Gas DQO (Bauer and Jackson 1997)
D = Low Activity Waste - T Batch X DQO (Certa 1998)
E = High Level Waste - T Batch X DQO (to be issued May 1998)
F = Low Activity Waste - Privatization DQO (Wiemers and Miller 1997)
G = High Level Waste - Privatization DQO (to be issued May 1998)
H = Regulatory Compliance - Privatization DQO (to be issued May 1998)
I = C-106 Sluicing Process Control Plan (Carothers et. al 1998)
J = Air Emissions DQO (Mulkey and Markillie 1995)
K = Dangerous Waste DQO (Mulkey 1996)
L = AX-104 DQO (Banning 1998)
M = C-106 DQO (to be issued in FY99)
N = Planning Basis For Privatization Contractors' Sample Needs (Gasper 1998)
O = Pretreatment DQO (Slankas et. al 1995) and Disposal Technology Development Strategy (Kupfer et. al 1995)
P = Historical Model Evaluation DQO (Simpson and McCain 1997)

[1] Safety screening is given no issue weight as a sole driver for sampling (Hunt 1998). However, the safety screening DQO (Dukelow et al. 1995) will be applied opportunistically to all tanks sampled for other issue purposes.

[2] All tanks are in scope of the Flammable Gas issue. However, the tanks listed in the table are in scope of the Flammable Gas DQO and represent tanks that have a need for sampling. All other tanks have no sampling requirements.

[3] Tank AZ-101 should only be sampled for Privatization - Provide Samples to Contractor(s) if the samples from AZ-102 do not satisfy the requirements.

APPENDIX C1

FLAMMABLE GAS

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Retained Gas Sampler

FLAMMABLE GAS

CRITERIA	WEIGHT	A-101	BY-101	BY-109	S-102	S-106	S-111	SX-106	U-103	U-109
Specific Waste Type		1B	2B	2B	1A	2A	2A	1A	1A	1A
Primary/Secondary		P	P	P	S	P	S	S	P	S
Gas Retention	H	H	L	L	H	H	M	L	M	H
Waste Type	M	H	H	H	H	H	M	M	M	H
Tanks with soft waste	H	H	H	H	H	H	H	H	H	H
Episodic Release	H	L	L	L	L	L	L	L	L	L

NUMERICAL ASSIGNMENTS

		A-101	BY-101	BY-109	S-102	S-106	S-111	SX-106	U-103	U-109
Gas Retention	5	25	5	5	25	25	15	5	15	25
Waste Type	3	15	15	15	15	15	9	9	9	15
RGS Ability	5	25	25	25	25	25	25	25	25	25
Episodic Release	5	5	5	5	5	5	5	5	5	5
Priority for Sampling		N	N	N	Y	N	Y	N	N	Y
Total		0	0	0	70	0	54	0	0	70
Relative total (%)		0	0	0	100	0	77	0	0	100

CRITERIA	WEIGHT	AN-103	AN-104	AN-105	AW-101	SY-101	SY-103
Specific Waste Type							
Primary/Secondary							
Gas Retention	H	H	H	H	H	L	L
Waste Type	M	L	L	L	L	L	L
Tanks with soft waste	H	H	H	H	H	H	H
Episodic Release	H	H	H	H	H	L	H

NUMERICAL ASSIGNMENTS

		AN-103	AN-104	AN-105	AW-101	SY-101	SY-103
Gas Retention	5	25	25	25	25	5	5
Waste Type	3	3	3	3	3	3	3
RGS Ability	5	25	25	25	25	25	25
Episodic Release	5	25	25	25	25	5	25
Priority for Sampling		N	N	N	N	N	N
Total		0	0	0	0	0	0
Relative total (%)		0	0	0	0	0	0

Vapor

FLAMMABLE GAS

CRITERIA	WEIGHT	A-101	AX-101	AX-103	BY-103	BY-105	BY-106	BY-109	C-106	S-101
Tank waste info needed	H	H	H	H	H	H	H	H	H	H

NUMERICAL ASSIGNMENTS

		A-101	AX-101	AX-103	BY-103	BY-105	BY-106	BY-109	C-106	S-101
Tank waste info needed	5	25	25	25	25	25	25	25	25	25
Priority for Sampling		N	N	N	N	N	N	N	N	N
Total		25	25	25	25	25	25	25	25	25
Relative total (%)		100	100	100	100	100	100	100	100	100

CRITERIA	WEIGHT	S-102	S-106	S-107	S-109	S-111	S-112	SX-101	SX-102	SX-103
Tank waste info needed	H	H	H	H	H	H	H	H	H	H

NUMERICAL ASSIGNMENTS

		S-102	S-106	S-107	S-109	S-111	S-112	SX-101	SX-102	SX-103
Tank waste info needed	5	25	25	25	25	25	25	25	25	25
Priority for Sampling		N	N	N	N	N	N	N	N	N
Total		25	25	25	25	25	25	25	25	25
Relative total (%)		100	100	100	100	100	100	100	100	100

CRITERIA	WEIGHT	SX-104	SX-105	SX-106	SX-109	T-110	U-102	U-103	U-105	U-107
Tank waste info needed	H	H	H	H	H	H	H	H	H	H

NUMERICAL ASSIGNMENTS

		SX-104	SX-105	SX-106	SX-109	T-110	U-102	U-103	U-105	U-107
Tank waste info needed	5	25	25	25	25	25	25	25	25	25
Priority for Sampling		N	N	N	N	N	N	N	N	N
Total		25	25	25	25	25	25	25	25	25
Relative total (%)		100	100	100	100	100	100	100	100	100

Vapor

FLAMMABLE GAS

CRITERIA	U-108	U-109	AN-101	AN-103	AN-104	AN-105	AN-107	AW-101	AY-102
Tank waste info needed	H	H	H	H	H	H	H	H	H

NUMERICAL ASSIGNMENT

	U-108	U-109	AN-101	AN-103	AN-104	AN-105	AN-107	AW-101	AY-102
Tank waste info needed	25	25	25	25	25	25	25	25	25
Priority for Sampling	N	N	N	N	N	N	N	N	N
Total	25	25	25	25	25	25	25	25	25
Relative total (%)	100	100	100	100	100	100	100	100	100

CRITERIA	AZ-101	AZ-102	SY-101	SY-102	SY-103	244-A	244-BX	244-S	244-TX
Tank waste info needed	H	H	H	H	H	H	H	H	H

NUMERICAL ASSIGNMENT

	AZ-101	AZ-102	SY-101	SY-102	SY-103	244-A	244-BX	244-S	244-TX
Tank waste info needed	25	25	25	25	25	25	25	25	25
Priority for Sampling	N	N	N	N	N	N	N	N	N
Total	25	25	25	25	25	25	25	25	25
Relative total (%)	100	100	100	100	100	100	100	100	100

CRITERIA
Tank waste info needed

NUMERICAL ASSIGNMENT

Tank waste info needed
Priority for Sampling
Total
Relative total (%)

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APPENDIX C2

WASTE FEED DELIVERY

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WASTE FEED DELIVERY

CRITERIA	WEIGHT	C-104	C-106	AN-102	AN-103	AN-104	AN-105	AN-106	AN-107
Tank waste info needed	H	H	H	H	H	H	H	H	H

NUMERICAL ASSIGNMENTS

		C-104	C-106	AN-102	AN-103	AN-104	AN-105	AN-106	AN-107
Tank waste info needed	5	25	25	25	25	25	25	25	25
Priority for Sampling		Y	N	N	N	N	N	N	N
Total Score		25	0	0	0	0	0	0	0
Relative Score (%)		100	0	0	0	0	0	0	0

CRITERIA	WEIGHT	AP-101	AW-101	AW-104	AY-101	AY-102	AZ-101	AZ-102	SY-101
Tank waste info needed	H	H	H	H	H	H	H	H	H

NUMERICAL ASSIGNMENTS

		AP-101	AW-101	AW-104	AY-101	AY-102	AZ-101	AZ-102	SY-101
Tank waste info needed	5	25	25	25	25	25	25	25	25
Priority for Sampling		N	N	N	N	N	Y	Y	Y
Total Score		0	0	0	0	0	25	25	25
Relative Score (%)		0	0	0	0	0	100	100	100

WASTE FEED DELIVERY

CRITERIA	WEIGHT	SY-103
Tank waste info needed	H	H

NUMERICAL ASSIGNMENTS

		SY-103
Tank waste info needed	5	25
Priority for Sampling		Y
Total Score		25
Relative Score (%)		100

CRITERIA	WEIGHT
Tank waste info needed	H

NUMERICAL ASSIGNMENTS

Tank waste info needed	5
Priority for Sampling	
Total Score	
Relative Score (%)	

APPENDIX C3

PRIVATIZATION - DOE MANAGEMENT OF CONTRACT(S)

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PRIVATIZATION - DOE Management of Contract(s)

CRITERIA	WEIGHT	C-104	C-106	AN-102	AN-103	AN-104	AN-105	AN-106	AN-107
Tank waste info needed	H	H	H	H	H	H	H	H	H

NUMERICAL ASSIGNMENTS

		C-104	C-106	AN-102	AN-103	AN-104	AN-105	AN-106	AN-107
Tank waste info needed	5	25	25	25	25	25	25	25	25
Priority for Sampling		N	N	N	N	N	N	N	Y
Total Score		0	0	0	0	0	0	0	25
Relative Score (%)		0	0	0	0	0	0	0	100

CRITERIA	WEIGHT	AW-101	AY-102	AZ-101	AZ-102	SY-101	SY-103
Tank waste info needed	H	H	H	H	H	H	H

NUMERICAL ASSIGNMENTS

		AW-101	AY-102	AZ-101	AZ-102	SY-101	SY-103
Tank waste info needed	5	25	25	25	25	25	25
Priority for Sampling		Y	N	Y	Y	Y	N
Total Score		25	0	25	25	25	0
Relative Score (%)		100	0	100	100	100	0

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APPENDIX C4

W-320 SLUICING OF TANK 241-C-106

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W-320 SLUICING OF TANK 241-C-106

CRITERIA	WEIGHT	C-106	AY-102
Tank waste retrieval info needed	H	H	H

NUMERICAL ASSIGNMENTS

		C-106	AY-102
Tank waste retrieval info needed	1	1	1
Priority for Sampling		N	Y
Total Score		**0**	**1**
Relative Score (%)		**0**	**100**

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APPENDIX C5

REGULATORY ISSUES

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REGULATORY ISSUES

Air Emissions

CRITERIA	WEIGHT	AN-103	AN-104	AN-105	AN-107	AP-102	AP-104	AW-101	AY-102	AZ-101
Tank waste retrieval info needed	H	H	H	H	H	H	H	H	H	H

NUMERICAL ASSIGNMENTS

		AN-103	AN-104	AN-105	AN-107	AP-102	AP-104	AW-101	AY-102	AZ-101
Tank waste retrieval info needed	5	25	25	25	25	25	25	25	25	25
Priority for Sampling		Y	Y	Y	Y	Y	Y	Y	Y	Y
Total Score		25	25	25	25	25	25	25	25	25
Relative Score (%)		100	100	100	100	100	100	100	100	100

CRITERIA	WEIGHT	AZ-102	SY-102
Tank waste retrieval info needed	H	H	H

NUMERICAL ASSIGNMENTS

		AZ-102	SY-102
Tank waste retrieval info needed	5	25	25
Priority for Sampling		Y	Y
Total Score		25	25
Relative Score (%)		100	100

REGULATORY ISSUES

Dangerous Waste

CRITERIA	WEIGHT	C-104	C-106	AN-102	AN-103	AN-104	AN-105	AN-106	AN-107	AP-101
Tank waste info needed	H	H	H	H	H	H	H	H	H	H

NUMERICAL ASSIGNMENTS

		C-104	C-106	AN-102	AN-103	AN-104	AN-105	AN-106	AN-107	AP-101
Tank waste info needed	5	25	25	25	25	25	25	25	25	25
Priority for Sampling		Y	N	Y	Y	Y	Y	N	Y	N
Total Score		25	0	25	25	25	25	0	25	0
Relative Score (%)		100	0	100	100	100	100	0	100	0

CRITERIA	WEIGHT	AW-101	AW-104	AY-102	AZ-101	AZ-102	SY-101	SY-103
Tank waste info needed	H	H	H	H	H	H	H	H

NUMERICAL ASSIGNMENTS

		AW-101	AW-104	AY-102	AZ-101	AZ-102	SY-101	SY-103
Tank waste info needed	5	25	25	25	25	25	25	25
Priority for Sampling		Y	N	N	Y	Y	Y	Y
Total Score		25	0	0	25	25	25	25
Relative Score (%)		100	0	0	100	100	100	100

APPENDIX C6

SST WASTE RETRIEVAL AND TANK CLOSURE

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SST WASTE RETRIEVAL AND TANK CLOSURE

CRITERIA	WEIGHT	AX-104	C-106
Sampling Needed	H	H	H

NUMERICAL ASSIGNMENTS

		AX-104	C-106
Sampling Needed	1	1	1
Priority for Sampling		Y	Y
Total Score		1	1
Relative Score (%)		100	100

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APPENDIX C7

PRIVATIZATION - PROVIDE SAMPLES TO CONTRACTOR(S)

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PRIVATIZATION - Provide Samples To Contractor(s)

CRITERIA	WEIGHT	C-104	C-106	AN-102	AN-103	AN-104	AN-105	AN-107	AW-101
Tank waste info needed	H	H	H	H	H	H	H	H	H

NUMERICAL ASSIGNMENTS

		C-104	C-106	AN-102	AN-103	AN-104	AN-105	AN-107	AW-101
Tank waste info needed	5	25	25	25	25	25	25	25	25
Priority for Sampling		N	N	Y	N	N	Y	Y	Y
Total Score		0	0	25	0	0	25	25	25
Relative Score (%)		0	0	100	0	0	100	100	100

CRITERIA	WEIGHT	AY-102	AZ-101	AZ-102	SY-101	SY-103
Tank waste info needed	H	H	H	H	H	H

NUMERICAL ASSIGNMENTS

		AY-102	AZ-101	AZ-102	SY-101	SY-103
Tank waste info needed	5	25	25	25	25	25
Priority for Sampling		N	N	Y	Y	Y
Total Score		0	0	25	25	25
Relative Score (%)		0	0	100	100	100

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APPENDIX C8

RETRIEVAL, PRETREATMENT, AND IMMOBILIZATION

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RETRIEVAL, PRETREATMENT, AND IMMOBILIZATION

Sludge Washing

CRITERIA	WEIGHT	A-101	B-103	B-104	B-106	B-110	B-111	B-201	B-202	BX-103	BX-105	BX-107	BX-109
Tanks Containing R2 Sludge	H	L	L	L	L	L	L	L	L	L	L	L	L
Tanks Containing R1 Sludge	H	L	L	L	L	L	L	L	L	L	L	L	L
Misc. Untested Sludge Types	M	L	L	L	L	L	L	L	L	L	L	L	L
High in Recalcitrant Cr	M	L	L	L	L	L	L	L	L	L	L	L	L
Tanks Containing T2 Saltcake	M	L	L	L	L	L	L	L	L	L	L	L	L
Tanks Containing R Saltcake	M	L	L	L	L	L	L	L	L	L	L	L	L
Tanks Containing BY Saltcake	M	L	L	L	L	L	L	L	L	L	L	L	L

NUMERICAL ASSIGNMENTS

		A-101	B-103	B-104	B-106	B-110	B-111	B-201	B-202	BX-103	BX-105	BX-107	BX-109
Tanks Containing R2 Sludge	5	5	5	5	5	5	5	5	5	5	5	5	5
Tanks Containing R1 Sludge	5	5	5	5	5	5	5	5	5	5	5	5	5
Misc. Untested Sludge Types	3	3	3	3	3	3	3	3	3	3	3	3	3
High in Recalcitrant Cr	3	3	3	3	3	3	3	3	3	3	3	3	3
Tanks Containing T2 Saltcake	3	3	3	3	3	3	3	3	3	3	3	3	3
Tanks Containing R Saltcake	3	3	3	3	3	3	3	3	3	3	3	3	3
Tanks Containing BY Saltcake	3	3	3	3	3	3	3	3	3	3	3	3	3
Priority for Sampling		N	N	N	N	N	N	N	N	N	N	N	N
Total		0	0	0	0	0	0	0	0	0	0	0	0
Relative total (%)		0	0	0	0	0	0	0	0	0	0	0	0

CRITERIA	WEIGHT	BX-110	BY-101	BY-104	BY-105	BY-108	BY-110	C-103	C-104	C-105	C-107	C-108	C-109
Tanks Containing R2 Sludge	H	L	L	L	L	L	L	L	L	L	L	L	L
Tanks Containing R1 Sludge	H	L	L	L	L	L	L	L	L	L	L	L	L
Misc. Untested Sludge Types	M	H	L	L	L	L	L	L	L	L	L	L	L
High in Recalcitrant Cr	M	L	L	L	L	L	L	L	L	L	L	L	L
Tanks Containing T2 Saltcake	M	L	L	L	L	L	L	L	L	L	L	L	L
Tanks Containing R Saltcake	M	L	L	L	L	L	L	L	L	L	L	L	L
Tanks Containing BY Saltcake	M	L	M	L	H	L	L	L	L	L	L	L	L

NUMERICAL ASSIGNMENTS

		BX-110	BY-101	BY-104	BY-105	BY-108	BY-110	C-103	C-104	C-105	C-107	C-108	C-109
Tanks Containing R2 Sludge	5	5	5	5	5	5	5	5	5	5	5	5	5
Tanks Containing R1 Sludge	5	5	5	5	5	5	5	5	5	5	5	5	5
Misc. Untested Sludge Types	3	15	3	3	3	3	3	3	3	3	3	3	3
High in Recalcitrant Cr	3	3	3	3	3	3	3	3	3	3	3	3	3
Tanks Containing T2 Saltcake	3	3	3	3	3	3	3	3	3	3	3	3	3
Tanks Containing R Saltcake	3	3	3	3	3	3	3	3	3	3	3	3	3
Tanks Containing BY Saltcake	3	3	9	3	15	3	3	3	3	3	3	3	3
Priority for Sampling		N	N	N	Y	N	N	N	N	N	N	N	N
Total		0	0	0	37	0	0	0	0	0	0	0	0
Relative total (%)		0	0	0	65	0	0	0	0	0	0	0	0

RETRIEVAL, PRETREATMENT, AND IMMOBILIZATION

Sludge Washing

CRITERIA	WEIGHT	C-112	S-101	S-102	S-104	S-107	S-109	S-110	S-111	SX-101	SX-103	SX-104	SX-107
Tanks Containing R2 Sludge	H	L	L	L	L	L	L	L	L	L	L	L	H
Tanks Containing R1 Sludge	H	L	H	L	L	L	L	H	H	H	L	H	L
Misc. Untested Sludge Types	M	L	L	L	L	L	L	L	L	L	L	L	L
High in Recalcitrant Cr	M	L	L	L	L	L	L	L	L	L	L	L	L
Tanks Containing T2 Saltcake	M	L	L	L	L	L	L	L	L	L	L	L	L
Tanks Containing R Saltcake	M	L	M	L	H	L	L	L	L	M	M	L	L
Tanks Containing BY Saltcake	M	L	L	L	L	L	L	L	L	L	L	L	L

NUMERICAL ASSIGNMENTS

		C-112	S-101	S-102	S-104	S-107	S-109	S-110	S-111	SX-101	SX-103	SX-104	SX-107
Tanks Containing R2 Sludge	5	5	5	5	5	5	5	5	5	5	5	5	25
Tanks Containing R1 Sludge	5	5	25	5	5	5	5	25	25	25	5	25	5
Misc. Untested Sludge Types	3	3	3	3	3	3	3	3	3	3	3	3	3
High in Recalcitrant Cr	3	3	3	3	3	3	3	3	3	3	3	3	3
Tanks Containing T2 Saltcake	3	3	3	3	3	3	3	3	3	3	3	3	3
Tanks Containing R Saltcake	3	3	9	3	15	3	3	3	3	9	9	3	3
Tanks Containing BY Saltcake	3	3	3	3	3	3	3	3	3	3	3	3	3
Priority for Sampling		N	N	N	N	N	N	Y	N	Y	Y	Y	Y
Total		0	0	0	0	0	0	45	0	51	31	45	45
Relative total (%)		0	0	0	0	0	0	88	0	100	61	88	88

CRITERIA	WEIGHT	SX-108	SX-109	SX-110	SX-111	SX-112	SX-113	SX-114	T-104	T-107	T-109	T-111	TX-105
Tanks Containing R2 Sludge	H	L	L	H	H	M	L	H	L	L	L	L	L
Tanks Containing R1 Sludge	H	L	L	L	L	M	L	L	L	L	L	L	L
Misc. Untested Sludge Types	M	L	L	L	L	L	L	L	L	L	L	L	L
High in Recalcitrant Cr	M	L	L	L	L	L	L	L	L	L	L	L	L
Tanks Containing T2 Saltcake	M	L	L	L	L	L	L	L	L	L	L	L	H
Tanks Containing R Saltcake	M	L	H	L	L	L	L	H	L	L	L	L	L
Tanks Containing BY Saltcake	M	L	L	L	L	L	L	L	L	L	L	L	L

NUMERICAL ASSIGNMENTS

		SX-108	SX-109	SX-110	SX-111	SX-112	SX-113	SX-114	T-104	T-107	T-109	T-111	TX-105
Tanks Containing R2 Sludge	5	5	5	25	25	15	5	25	5	5	5	5	5
Tanks Containing R1 Sludge	5	5	5	5	5	15	5	5	5	5	5	5	5
Misc. Untested Sludge Types	3	3	3	3	3	3	3	3	3	3	3	3	3
High in Recalcitrant Cr	3	3	3	3	3	3	3	3	3	3	3	3	3
Tanks Containing T2 Saltcake	3	3	3	3	3	3	3	3	3	3	3	3	15
Tanks Containing R Saltcake	3	3	15	3	3	3	3	15	3	3	3	3	3
Tanks Containing BY Saltcake	3	3	3	3	3	3	3	3	3	3	3	3	3
Priority for Sampling		N	Y	Y	Y	Y	N	Y	N	N	N	N	Y
Total		0	37	45	45	45	0	57	0	0	0	0	37
Relative total (%)		0	65	79	79	79	0	100	0	0	0	0	65

RETRIEVAL, PRETREATMENT, AND IMMOBILIZATION

Sludge Washing

CRITERIA	WEIGHT	TX-106	TX-110	TX-113	TX-115	TX-116	TX-118	TY-104	TY-105	U-102	U-107	U-108	U-109
Tanks Containing R2 Sludge	H	L	L	L	L	L	L	L	L	L	L	L	L
Tanks Containing R1 Sludge	H	L	L	L	L	L	L	L	L	L	L	L	L
Misc. Untested Sludge Types	M	L	L	L	L	L	L	L	H	L	L	L	L
High in Recalcitrant Cr	M	L	L	L	L	L	L	L	L	L	L	L	L
Tanks Containing T2 Saltcake	M	M	M	M	M	M	H	L	L	H	L	L	L
Tanks Containing R Saltcake	M	L	L	L	L	L	L	L	L	L	L	L	L
Tanks Containing BY Saltcake	M	L	L	L	L	L	L	L	L	L	L	L	L

NUMERICAL ASSIGNMENTS

		TX-106	TX-110	TX-113	TX-115	TX-116	TX-118	TY-104	TY-105	U-102	U-107	U-108	U-109
Tanks Containing R2 Sludge	5	5	5	5	5	5	5	5	5	5	5	5	5
Tanks Containing R1 Sludge	5	5	5	5	5	5	5	5	5	5	5	5	5
Misc. Untested Sludge Types	3	3	3	3	3	3	3	3	15	3	3	3	3
High in Recalcitrant Cr	3	3	3	3	3	3	3	3	3	3	3	3	3
Tanks Containing T2 Saltcake	3	9	9	9	9	9	15	3	3	15	3	3	3
Tanks Containing R Saltcake	3	3	3	3	3	3	3	3	3	3	3	3	3
Tanks Containing BY Saltcake	3	3	3	3	3	3	3	3	3	3	3	3	3
Priority for Sampling		Y	Y	Y	Y	Y	Y	N	Y	N	N	N	N
Total		31	31	31	31	31	37	0	37	0	0	0	0
Relative total (%)		61	61	61	61	61	73	0	73	0	0	0	0

CRITERIA	WEIGHT	U-110	SY-101
Tanks Containing R2 Sludge	H	L	L
Tanks Containing R1 Sludge	H	L	L
Misc. Untested Sludge Types	M	L	L
High in Recalcitrant Cr	M	L	H
Tanks Containing T2 Saltcake	M	L	L
Tanks Containing R Saltcake	M	L	L
Tanks Containing BY Saltcake	M	L	L

NUMERICAL ASSIGNMENTS

		U-110	SY-101
Tanks Containing R2 Sludge	5	5	5
Tanks Containing R1 Sludge	5	5	5
Misc. Untested Sludge Types	3	3	3
High in Recalcitrant Cr	3	3	15
Tanks Containing T2 Saltcake	3	3	3
Tanks Containing R Saltcake	3	3	3
Tanks Containing BY Saltcake	3	3	3
Priority for Sampling		N	Y
Total		0	37
Relative total (%)		0	65

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APPENDIX C9

HISTORICAL EVALUATION

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HISTORICAL EVALUATION

CRITERIA	WEIGHT	A-101	AX-101	B-104	B-106	B-108	BX-109	BX-112	BY-104	BY-105	BY-106
Typical Redox	H	L	L	L	L	L	L	L	L	L	L
Typical Salt Cake	H	H	H	M	H	M		M	H	H	H
Typical Purex	M	L	M	L	L	L	L	L	L	L	L
Typical UR waste	M	L	L	L	L	L	H	L	L	L	L
Greatest spatial variability - vertical	M	M	M	M	L	L	L	M	M	M	M
Greatest spatial variability - horizontal	L	H	H	L	H	M	M	M	L	M	M

NUMERICAL ASSIGNMENTS

		A-101	AX-101	B-104	B-106	B-108	BX-109	BX-112	BY-104	BY-105	BY-106
Typical Redox	5	5	5	5	5	5	5	5	5	5	5
Typical Salt Cake	5	25	25	15	25	15	0	15	25	25	25
Typical Purex	3	3	9	3	3	3	3	3	3	3	3
Typical UR waste	3	3	3	3	3	3	15	3	3	3	3
Greatest spatial variability - vertical	3	9	9	9	3	3	3	9	9	9	9
Greatest spatial variability - horizontal	1	5	5	1	5	3	3	3	1	3	3
Priority for Sampling		N	N	N	N	N	N	N	N	N	N
Total Score		0	0	0	0	0	0	0	0	0	0
Relative Score (%)		0	0	0	0	0	0	0	0	0	0

CRITERIA	WEIGHT	BY-107	BY-108	BY-110	C-102	C-104	S-101	S-102	S-106	S-107	S-109
Typical Redox	H	L	L	L	L	L	M	L	L	M	L
Typical Salt Cake	H	H	M	H	L	L	H	H	H	H	H
Typical Purex	M	L	L	L	H	H	L	L	L	L	L
Typical UR waste	M	M	L	L	M	L	L	L	L	L	L
Greatest spatial variability - vertical	M	L	M	M	M	M	H	M	L	M	L
Greatest spatial variability - horizontal	L	H	H	H	L	L	H	H	H	H	H

NUMERICAL ASSIGNMENTS

		BY-107	BY-108	BY-110	C-102	C-104	S-101	S-102	S-106	S-107	S-109
Typical Redox	5	5	5	5	5	5	15	5	5	15	5
Typical Salt Cake	5	25	15	25	5	5	25	25	25	25	25
Typical Purex	3	3	3	3	15	15	3	3	3	3	3
Typical UR waste	3	9	3	3	9	3	3	3	3	3	3
Greatest spatial variability - vertical	3	3	9	9	9	9	15	9	3	9	3
Greatest spatial variability - horizontal	1	5	5	5	1	1	5	5	5	5	5
Priority for Sampling		N	N	N	Y	N	N	N	N	N	N
Total Score		0	0	0	44	0	0	0	0	0	0
Relative Score (%)		0	0	0	58	0	0	0	0	0	0

HISTORICAL EVALUATION

CRITERIA	WEIGHT	S-110	S-111	SX-101	SX-103	SX-104	SX-108	T-108	T-109	TX-105	TX-110
Typical Redox	H	M	M	H	L	M	H	L	L	L	L
Typical Salt Cake	H	H	H	H	H	H	L	M	M	H	H
Typical Purex	M	L	L	L	L	L	L	L	L	L	L
Typical UR waste	M	L	L	L	L	L	L	L	L	L	L
Greatest spatial variability - vertical	M	M	M	H	M	M	M	L	L	L	L
Greatest spatial variability - horizontal	L	M	H	H	H	H	H	M	M	M	H

NUMERICAL ASSIGNMENTS

		S-110	S-111	SX-101	SX-103	SX-104	SX-108	T-108	T-109	TX-105	TX-110
Typical Redox	5	15	15	25	5	15	25	5	5	5	5
Typical Salt Cake	5	25	25	25	25	25	5	15	15	25	25
Typical Purex	3	3	3	3	3	3	3	3	3	3	3
Typical UR waste	3	3	3	3	3	3	3	3	3	3	3
Greatest spatial variability - vertical	3	9	9	15	9	9	9	3	3	3	3
Greatest spatial variability - horizontal	1	3	5	5	5	5	5	3	3	3	5
Priority for Sampling		N	N	Y	Y	Y	N	N	N	Y	Y
Total Score		0	0	76	50	60	0	0	0	42	44
Relative Score (%)		**0**	**0**	**100**	**66**	**79**	**0**	**0**	**0**	**55**	**58**

CRITERIA	WEIGHT	TX-111	TX-113	TX-115	TX-116	TX-118	U-102	U-105	U-106	U-107	U-108
Typical Redox	H	L	L	L	L	L	L	L	L	L	L
Typical Salt Cake	H	H	H	H	H	H	H	H	H	H	H
Typical Purex	M	L	L	L	L	M	L	L	L	L	L
Typical UR waste	M	L	L	L	L	L	L	L	L	L	L
Greatest spatial variability - vertical	M	L	M	L	M	M	M	M	L	M	M
Greatest spatial variability - horizontal	L	H	H	H	H	H	M	M	M	M	M

NUMERICAL ASSIGNMENTS

		TX-111	TX-113	TX-115	TX-116	TX-118	U-102	U-105	U-106	U-107	U-108
Typical Redox	5	5	5	5	5	5	5	5	5	5	5
Typical Salt Cake	5	25	25	25	25	25	25	25	25	25	25
Typical Purex	3	3	3	3	3	9	3	3	3	3	3
Typical UR waste	3	3	3	3	3	3	3	3	3	3	3
Greatest spatial variability - vertical	3	3	9	3	9	9	9	9	3	9	9
Greatest spatial variability - horizontal	1	5	5	5	5	5	3	3	3	3	3
Priority for Sampling		Y	Y	Y	Y	Y	N	N	N	N	N
Total Score		44	50	44	50	56	0	0	0	0	0
Relative Score (%)		**58**	**66**	**58**	**66**	**74**	**0**	**0**	**0**	**0**	**0**

HISTORICAL EVALUATION

CRITERIA	WEIGHT	U-109
Typical Redox	H	L
Typical Salt Cake	H	H
Typical Purex	M	L
Typical UR waste	M	L
Greatest spatial variability - vertical	M	M
Greatest spatial variability - horizontal	L	M

NUMERICAL ASSIGNMENTS

		U-109
Typical Redox	5	5
Typical Salt Cake	5	25
Typical Purex	3	3
Typical UR waste	3	3
Greatest spatial variability - vertical	3	9
Greatest spatial variability - horizontal	1	3
Priority for Sampling		N
Total Score		0
Relative Score (%)		0

CRITERIA	WEIGHT
Typical Redox	H
Typical Salt Cake	H
Typical Purex	M
Typical UR waste	M
Greatest spatial variability - vertical	M
Greatest spatial variability - horizontal	L

NUMERICAL ASSIGNMENTS

Typical Redox	5
Typical Salt Cake	5
Typical Purex	3
Typical UR waste	3
Greatest spatial variability - vertical	3
Greatest spatial variability - horizontal	1
Priority for Sampling	
Total Score	
Relative Score (%)	

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APPENDIX D

INDIVIDUAL ISSUE PRIORITIES

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INDIVIDUAL ISSUE PRIORITIES

ISSUES	A-101	A-102	A-103	A-104	A-105	A-106	AX-101	AX-102	AX-103	AX-104	B-101
Flammable Gas - RGS	0	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Flammable Gas - vapor	100	n/a	n/a	n/a	n/a	n/a	100	n/a	100	n/a	n/a
Waste Feed Delivery	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Privatization - DOE management	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
W-320 Sluicing of tank 241-C-106	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Regulatory - Air Emissions	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Regulatory - Dangerous Waste	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
SST Waste Retrieval and Tank Closure	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	100	n/a
Privatization - samples to contractor(s)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Retrieval/Pretreatment/Immobilization	0	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Historical Model Evaluation	0	n/a	n/a	n/a	n/a	n/a	0	n/a	n/a	n/a	n/a

ISSUES	B-102	B-103	B-104	B-105	B-106	B-107	B-108	B-109	B-110	B-111	B-112
Flammable Gas - RGS	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Flammable Gas - vapor	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Waste Feed Delivery	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Privatization - DOE management	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
W-320 Sluicing of tank 241-C-106	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Regulatory - Air Emissions	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Regulatory - Dangerous Waste	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
SST Waste Retrieval and Tank Closure	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Privatization - samples to contractor(s)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Retrieval/Pretreatment/Immobilization	n/a	0	0	n/a	0	n/a	n/a	n/a	0	0	n/a
Historical Model Evaluation	n/a	n/a	0	n/a	0	n/a	0	n/a	n/a	n/a	n/a

n/a = Currently tank does not have this issue and not in scope

INDIVIDUAL ISSUE PRIORITIES

ISSUES	B-201	B-202	B-203	B-204	BX-101	BX-102	BX-103	BX-104	BX-105	BX-106	BX-107
Flammable Gas - RGS	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Flammable Gas - vapor	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Waste Feed Delivery	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Privatization - DOE management	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
W-320 Sluicing of tank 241-C-106	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Regulatory - Air Emissions	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Regulatory - Dangerous Waste	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
SST Waste Retrieval and Tank Closure	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Privatization - samples to contractor(s)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Retrieval/Pretreatment/Immobilization	0	0	n/a	n/a	n/a	n/a	0	n/a	0	n/a	0
Historical Model Evaluation	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

ISSUES	BX-108	BX-109	BX-110	BX-111	BX-112	BY-101	BY-102	BY-103	BY-104	BY-105	BY-106
Flammable Gas - RGS	n/a	n/a	n/a	n/a	n/a	0	n/a	n/a	n/a	n/a	n/a
Flammable Gas - vapor	n/a	n/a	n/a	n/a	n/a	n/a	n/a	100	n/a	100	100
Waste Feed Delivery	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Privatization - DOE management	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
W-320 Sluicing of tank 241-C-106	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Regulatory - Air Emissions	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Regulatory - Dangerous Waste	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
SST Waste Retrieval and Tank Closure	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Privatization - samples to contractor(s)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Retrieval/Pretreatment/Immobilization	n/a	0	0	n/a	n/a	n/a	n/a	n/a	0	65	n/a
Historical Model Evaluation	n/a	0	n/a	n/a	0	n/a	n/a	n/a	0	0	0

n/a = Currently tank does not have this issue and not in scope

INDIVIDUAL ISSUE PRIORITIES

ISSUES	BY-107	BY-108	BY-109	BY-110	BY-111	BY-112	C-101	C-102	C-103	C-104	C-105
Flammable Gas - RGS	n/a	n/a	0	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Flammable Gas - vapor	n/a	n/a	100	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Waste Feed Delivery	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	100	n/a
Privatization - DOE management	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	0	n/a
W-320 Sluicing of tank 241-C-106	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Regulatory - Air Emissions	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Regulatory - Dangerous Waste	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	100	n/a
SST Waste Retrieval and Tank Closure	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Privatization - samples to contractor(s)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	0	n/a
Retrieval/Pretreatment/Immobilization	n/a	0	n/a	0	n/a	n/a	n/a	n/a	0	0	0
Historical Model Evaluation	0	0	n/a	0	n/a	n/a	n/a	58	n/a	0	n/a

ISSUES	C-106	C-107	C-108	C-109	C-110	C-111	C-112	C-201	C-202	C-203	C-204
Flammable Gas - RGS	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Flammable Gas - vapor	100	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Waste Feed Delivery	0	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Privatization - DOE management	0	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
W-320 Sluicing of tank 241-C-106	0	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Regulatory - Air Emissions	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Regulatory - Dangerous Waste	0	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
SST Waste Retrieval and Tank Closure	100	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Privatization - samples to contractor(s)	0	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Retrieval/Pretreatment/Immobilization	n/a	0	0	0	n/a	n/a	0	n/a	n/a	n/a	n/a
Historical Model Evaluation	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

n/a = Currently tank does not have this issue and not in scope

INDIVIDUAL ISSUE PRIORITIES

ISSUES	S-101	S-102	S-103	S-104	S-105	S-106	S-107	S-108	S-109	S-110	S-111
Flammable Gas - RGS	n/a	100	n/a	n/a	n/a	0	n/a	n/a	n/a	n/a	77
Flammable Gas - vapor	100	100	n/a	n/a	n/a	100	100	n/a	100	n/a	100
Waste Feed Delivery	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Privatization - DOE management	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
W-320 Sluicing of tank 241-C-106	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Regulatory - Air Emissions	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Regulatory - Dangerous Waste	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
SST Waste Retrieval and Tank Closure	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Privatization - samples to contractor(s)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Retrieval/Pretreatment/Immobilization	0	0	n/a	0	n/a	n/a	0	n/a	0	88	0
Historical Model Evaluation	0	0	n/a	n/a	n/a	0	0	n/a	0	0	0

ISSUES	S-112	SX-101	SX-102	SX-103	SX-104	SX-105	SX-106	SX-107	SX-108	SX-109	SX-110
Flammable Gas - RGS	n/a	n/a	n/a	n/a	n/a	n/a	0	n/a	n/a	n/a	n/a
Flammable Gas - vapor	100	100	100	100	100	100	100	n/a	n/a	100	n/a
Waste Feed Delivery	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Privatization - DOE management	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
W-320 Sluicing of tank 241-C-106	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Regulatory - Air Emissions	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Regulatory - Dangerous Waste	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
SST Waste Retrieval and Tank Closure	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Privatization - samples to contractor(s)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Retrieval/Pretreatment/Immobilization	n/a	100	n/a	61	88	n/a	n/a	88	0	65	79
Historical Model Evaluation	n/a	100	n/a	66	79	n/a	n/a	n/a	0	n/a	n/a

n/a = Currently tank does not have this issue and not in scope

INDIVIDUAL ISSUE PRIORITIES

ISSUES	SX-111	SX-112	SX-113	SX-114	SX-115	T-101	T-102	T-103	T-104	T-105	T-106
Flammable Gas - RGS	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Flammable Gas - vapor	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Waste Feed Delivery	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Privatization - DOE management	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
W-320 Sluicing of tank 241-C-106	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Regulatory - Air Emissions	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Regulatory - Dangerous Waste	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
SST Waste Retrieval and Tank Closure	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Privatization - samples to contractor(s)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Retrieval/Pretreatment/Immobilization	79	79	0	100	n/a	n/a	n/a	n/a	0	n/a	n/a
Historical Model Evaluation	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

ISSUES	T-107	T-108	T-109	T-110	T-111	T-112	T-201	T-202	T-203	T-204	TX-101
Flammable Gas - RGS	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Flammable Gas - vapor	n/a	n/a	n/a	100	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Waste Feed Delivery	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Privatization - DOE management	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
W-320 Sluicing of tank 241-C-106	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Regulatory - Air Emissions	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Regulatory - Dangerous Waste	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
SST Waste Retrieval and Tank Closure	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Privatization - samples to contractor(s)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Retrieval/Pretreatment/Immobilization	0	n/a	0	n/a	0	n/a	n/a	n/a	n/a	n/a	n/a
Historical Model Evaluation	n/a	0	0	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

n/a = Currently tank does not have this issue and not in scope

INDIVIDUAL ISSUE PRIORITIES

ISSUES	TX-102	TX-103	TX-104	TX-105	TX-106	TX-107	TX-108	TX-109	TX-110	TX-111	TX-112
Flammable Gas - RGS	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Flammable Gas - vapor	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Waste Feed Delivery	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Privatization - DOE management	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
W-320 Sluicing of tank 241-C-106	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Regulatory - Air Emissions	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Regulatory - Dangerous Waste	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
SST Waste Retrieval and Tank Closure	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Privatization - samples to contractor(s)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Retrieval/Pretreatment/Immobilization	n/a	n/a	n/a	65	61	n/a	n/a	n/a	61	n/a	n/a
Historical Model Evaluation	n/a	n/a	n/a	55	n/a	n/a	n/a	n/a	58	58	n/a

ISSUES	TX-113	TX-114	TX-115	TX-116	TX-117	TX-118	TY-101	TY-102	TY-103	TY-104	TY-105
Flammable Gas - RGS	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Flammable Gas - vapor	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Waste Feed Delivery	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Privatization - DOE management	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
W-320 Sluicing of tank 241-C-106	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Regulatory - Air Emissions	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Regulatory - Dangerous Waste	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
SST Waste Retrieval and Tank Closure	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Privatization - samples to contractor(s)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Retrieval/Pretreatment/Immobilization	61	n/a	61	61	n/a	73	n/a	n/a	n/a	0	73
Historical Model Evaluation	66	n/a	58	66	n/a	74	n/a	n/a	n/a	n/a	n/a

n/a = Currently tank does not have this issue and not in scope

INDIVIDUAL ISSUE PRIORITIES

ISSUES	TY-106	U-101	U-102	U-103	U-104	U-105	U-106	U-107	U-108	U-109	U-110
Flammable Gas - RGS	n/a	n/a	n/a	0	n/a	n/a	n/a	n/a	n/a	100	n/a
Flammable Gas - vapor	n/a	n/a	100	100	n/a	100	n/a	100	100	100	n/a
Waste Feed Delivery	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Privatization - DOE management	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
W-320 Sluicing of tank 241-C-106	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Regulatory - Air Emissions	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Regulatory - Dangerous Waste	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
SST Waste Retrieval and Tank Closure	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Privatization - samples to contractor(s)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Retrieval/Pretreatment/Immobilization	n/a	n/a	0	n/a	n/a	n/a	n/a	0	0	0	0
Historical Model Evaluation	n/a	n/a	0	n/a	n/a	0	0	0	0	0	n/a

ISSUES	U-111	U-112	U-201	U-202	U-203	U-204	AN-101	AN-102	AN-103	AN-104	AN-105
Flammable Gas - RGS	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	0	0	0
Flammable Gas - vapor	n/a	n/a	n/a	n/a	n/a	n/a	100	n/a	100	100	100
Waste Feed Delivery	n/a	n/a	n/a	n/a	n/a	n/a	n/a	0	0	0	0
Privatization - DOE management	n/a	n/a	n/a	n/a	n/a	n/a	n/a	0	0	0	0
W-320 Sluicing of tank 241-C-106	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Regulatory - Air Emissions	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	100	100	100
Regulatory - Dangerous Waste	n/a	n/a	n/a	n/a	n/a	n/a	n/a	100	100	100	100
SST Waste Retrieval and Tank Closure	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Privatization - samples to contractor(s)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	100	0	0	100
Retrieval/Pretreatment/Immobilization	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Historical Model Evaluation	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

n/a = Currently tank does not have this issue and not in scope

INDIVIDUAL ISSUE PRIORITIES

ISSUES	AN-106	AN-107	AP-101	AP-102	AP-103	AP-104	AP-105	AP-106	AP-107	AP-108	AW-101
Flammable Gas - RGS	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	0
Flammable Gas - vapor	n/a	100	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	100
Waste Feed Delivery	0	0	0	n/a	n/a	n/a	n/a	n/a	n/a	n/a	0
Privatization - DOE management	0	100	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	100
W-320 Sluicing of tank 241-C-106	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Regulatory - Air Emissions	n/a	100	n/a	100	n/a	100	n/a	n/a	n/a	n/a	100
Regulatory - Dangerous Waste	0	100	0	n/a	n/a	n/a	n/a	n/a	n/a	n/a	100
SST Waste Retrieval and Tank Closure	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Privatization - samples to contractor(s)	n/a	100	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	100
Retrieval/Pretreatment/Immobilization	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Historical Model Evaluation	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

ISSUES	AW-102	AW-103	AW-104	AW-105	AW-106	AY-101	AY-102	AZ-101	AZ-102	SY-101	SY-102
Flammable Gas - RGS	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	0	n/a
Flammable Gas - vapor	n/a	n/a	n/a	n/a	n/a	n/a	100	100	100	100	100
Waste Feed Delivery	n/a	n/a	0	n/a	n/a	0	0	100	100	100	n/a
Privatization - DOE management	n/a	n/a	n/a	n/a	n/a	n/a	0	100	100	100	n/a
W-320 Sluicing of tank 241-C-106	n/a	n/a	n/a	n/a	n/a	n/a	100	n/a	n/a	n/a	n/a
Regulatory - Air Emissions	n/a	n/a	n/a	n/a	n/a	n/a	100	100	100	n/a	100
Regulatory - Dangerous Waste	n/a	n/a	0	n/a	n/a	n/a	0	100	100	100	n/a
SST Waste Retrieval and Tank Closure	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Privatization - samples to contractor(s)	n/a	n/a	n/a	n/a	n/a	n/a	0	0	100	100	n/a
Retrieval/Pretreatment/Immobilization	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	65	n/a
Historical Model Evaluation	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

n/a = Currently tank does not have this issue and not in scope

INDIVIDUAL ISSUE PRIORITIES

ISSUES	SY-103	244-A	244-BX	244-S	244-TX	244-U
Flammable Gas - RGS	0	n/a	n/a	n/a	n/a	n/a
Flammable Gas - vapor	100	100	100	100	100	n/a
Waste Feed Delivery	100	n/a	n/a	n/a	n/a	n/a
Privatization - DOE management	0	n/a	n/a	n/a	n/a	n/a
W-320 Sluicing of tank 241-C-106	n/a	n/a	n/a	n/a	n/a	n/a
Regulatory - Air Emissions	n/a	n/a	n/a	n/a	n/a	n/a
Regulatory - Dangerous Waste	100	n/a	n/a	n/a	n/a	n/a
SST Waste Retrieval and Tank Closure	n/a	n/a	n/a	n/a	n/a	n/a
Privatization - samples to contractor(s)	100	n/a	n/a	n/a	n/a	n/a
Retrieval/Pretreatment/Immobilization	n/a	n/a	n/a	n/a	n/a	n/a
Historical Model Evaluation	n/a	n/a	n/a	n/a	n/a	n/a

ISSUES

Flammable Gas - RGS
Flammable Gas - vapor
Waste Feed Delivery
Privatization - DOE management
W-320 Sluicing of tank 241-C-106
Regulatory - Air Emissions
Regulatory - Dangerous Waste
SST Waste Retrieval and Tank Closure
Privatization - samples to contractor(s)
Retrieval/Pretreatment/Immobilization
Historical Model Evaluation

n/a = Currently tank does not have this issue and not in scope

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APPENDIX E

ISSUE PRIORITIES AND WEIGHTS

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ISSUE PRIORITIES AND WEIGHTS

WASTE PHASE IN TANK	A-101	A-102	A-103	A-104	A-105
Solid →	x	x	x	x	x
Supernatant →					
Vapor →	x	x	x	x	x

ISSUES	SAMPLING REQUIREMENTS			WEIGHTS		A-101	A-102	A-103	A-104	A-105
	Solid	Liquid	Vapor	Shift	Width					
Flammable Gas - RGS	x			0.5	93	0	0	0	0	0
Flammable Gas - vapor			x	0.5	93	93	0	0	0	0
Waste Feed Delivery	x	x		0.4	84	0	0	0	0	0
Privatization - DOE Management	x	x		0.4	59	0	0	0	0	0
W-320 Sluicing of tank 241-C-106		x		0.4	43	0	0	0	0	0
Regulatory - Air Emissions		x	x	0.5	33	0	0	0	0	0
Regulatory - Dangerous Waste	x	x		0.5	33	0	0	0	0	0
SST Waste Retrieval and Tank Closure	x			0.4	26	0	0	0	0	0
Privatization - samples to contractor(s)	x	x		0.4	21	0	0	0	0	0
Retrieval/Pretreatment/Immobilization	x			0.4	11	0	0	0	0	0
Historical Model Evaluation	x			0.2	4	0	0	0	0	0

PRIORITIZATION - SOLID	A-101	A-102	A-103	A-104	A-105
Total Score	0	0	0	0	0
Relative Score % (0 to 100)	0	0	0	0	0
TCR Written?	Y	Y	N	N	N

PRIORITIZATION - SUPERNATANT	A-101	A-102	A-103	A-104	A-105
Total Score	0	0	0	0	0
Relative Score % (0 to 100)	0	0	0	0	0

PRIORITIZATION - VAPOR	A-101	A-102	A-103	A-104	A-105
Total Score	93	0	0	0	0
Relative Score % (0 to 100)	74	0	0	0	0

Notes:

[1]Core required for tank will retrieve both solid and supernatant

[2]No solid samples are needed for Feed Delivery or Privatization

[3]Solids/Supernatant sample only required by Privatization

ISSUE PRIORITIES AND WEIGHTS

	A-106	AX-101	AX-102	AX-103	AX-104	B-101	B-102	B-103	B-104
	x	x	x	x	x	x	x	x	x
	x	x	x	x	x	x	x	x	x

ISSUES	A-106	AX-101	AX-102	AX-103	AX-104	B-101	B-102	B-103	B-104
Flammable Gas - RGS	0	0	0	0	0	0	0	0	0
Flammable Gas - vapor	0	93	0	93	0	0	0	0	0
Waste Feed Delivery	0	0	0	0	0	0	0	0	0
Privatization - DOE Management	0	0	0	0	0	0	0	0	0
W-320 Sluicing of tank 241-C-106	0	0	0	0	0	0	0	0	0
Regulatory - Air Emissions	0	0	0	0	0	0	0	0	0
Regulatory - Dangerous Waste	0	0	0	0	0	0	0	0	0
SST Waste Retrieval and Tank Closure	0	0	0	0	26	0	0	0	0
Privatization - samples to contractor(s)	0	0	0	0	0	0	0	0	0
Retrieval/Pretreatment/Immobilization	0	0	0	0	0	0	0	0	0
Historical Model Evaluation	0	0	0	0	0	0	0	0	0

PRIORITIZATION - SOLID	A-106	AX-101	AX-102	AX-103	AX-104	B-101	B-102	B-103	B-104
Total Score	0	0	0	0	26	0	0	0	0
Relative Score % (0 to 100)	0	0	0	0	13	0	0	0	0
TCR Written?	N	N	Y	N	N	Y	Y	Y	Y

PRIORITIZATION - SUPERNATANT	A-106	AX-101	AX-102	AX-103	AX-104	B-101	B-102	B-103	B-104
Total Score	0	0	0	0	0	0	0	0	0
Relative Score % (0 to 100)	0	0	0	0	0	0	0	0	0

PRIORITIZATION - VAPOR	A-106	AX-101	AX-102	AX-103	AX-104	B-101	B-102	B-103	B-104
Total Score	0	93	0	93	0	0	0	0	0
Relative Score % (0 to 100)	0	74	0	74	0	0	0	0	0

Notes:

[1]Core required for tank will retrieve both solid and supernatant

[2]No solid samples are needed for Feed Delivery or Privatization

[3]Solids/Supernatant sample only required by Privatization

ISSUE PRIORITIES AND WEIGHTS

	B-105	B-106	B-107	B-108	B-109	B-110	B-111	B-112	B-201
	x	x	x	x	x	x	x	x	x
	x	x	x	x	x	x	x	x	x

ISSUES	B-105	B-106	B-107	B-108	B-109	B-110	B-111	B-112	B-201
Flammable Gas - RGS	0	0	0	0	0	0	0	0	0
Flammable Gas - vapor	0	0	0	0	0	0	0	0	0
Waste Feed Delivery	0	0	0	0	0	0	0	0	0
Privatization - DOE Management	0	0	0	0	0	0	0	0	0
W-320 Sluicing of tank 241-C-106	0	0	0	0	0	0	0	0	0
Regulatory - Air Emissions	0	0	0	0	0	0	0	0	0
Regulatory - Dangerous Waste	0	0	0	0	0	0	0	0	0
SST Waste Retrieval and Tank Closure	0	0	0	0	0	0	0	0	0
Privatization - samples to contractor(s)	0	0	0	0	0	0	0	0	0
Retrieval/Pretreatment/Immobilization	0	0	0	0	0	0	0	0	0
Historical Model Evaluation	0	0	0	0	0	0	0	0	0

PRIORITIZATION - SOLID	B-105	B-106	B-107	B-108	B-109	B-110	B-111	B-112	B-201
Total Score	0	0	0	0	0	0	0	0	0
Relative Score % (0 to 100)	0	0	0	0	0	0	0	0	0
TCR Written?	N	Y	N	Y	Y	Y	Y	Y	Y

PRIORITIZATION - SUPERNATANT	B-105	B-106	B-107	B-108	B-109	B-110	B-111	B-112	B-201
Total Score	0	0	0	0	0	0	0	0	0
Relative Score % (0 to 100)	0	0	0	0	0	0	0	0	0

PRIORITIZATION - VAPOR	B-105	B-106	B-107	B-108	B-109	B-110	B-111	B-112	B-201
Total Score	0	0	0	0	0	0	0	0	0
Relative Score % (0 to 100)	0	0	0	0	0	0	0	0	0

Notes:

[1]Core required for tank will retrieve both solid and supernatant

[2]No solid samples are needed for Feed Delivery or Privatization

[3]Solids/Supernatant sample only required by Privatization

ISSUE PRIORITIES AND WEIGHTS

	B-202	B-203	B-204	BX-101	BX-102	BX-103	BX-104	BX-105	BX-106
	x	x	x	x	x	x	x	x	x
	x	x	x	x	x	x	x	x	x

ISSUES	B-202	B-203	B-204	BX-101	BX-102	BX-103	BX-104	BX-105	BX-106
Flammable Gas - RGS	0	0	0	0	0	0	0	0	0
Flammable Gas - vapor	0	0	0	0	0	0	0	0	0
Waste Feed Delivery	0	0	0	0	0	0	0	0	0
Privatization - DOE Management	0	0	0	0	0	0	0	0	0
W-320 Sluicing of tank 241-C-106	0	0	0	0	0	0	0	0	0
Regulatory - Air Emissions	0	0	0	0	0	0	0	0	0
Regulatory - Dangerous Waste	0	0	0	0	0	0	0	0	0
SST Waste Retrieval and Tank Closure	0	0	0	0	0	0	0	0	0
Privatization - samples to contractor(s)	0	0	0	0	0	0	0	0	0
Retrieval/Pretreatment/Immobilization	0	0	0	0	0	0	0	0	0
Historical Model Evaluation	0	0	0	0	0	0	0	0	0

PRIORITIZATION - SOLID	B-202	B-203	B-204	BX-101	BX-102	BX-103	BX-104	BX-105	BX-106
Total Score	0	0	0	0	0	0	0	0	0
Relative Score % (0 to 100)	0	0	0	0	0	0	0	0	0
TCR Written?	Y	Y	Y	Y	N	Y	Y	Y	Y

PRIORITIZATION - SUPERNATANT	B-202	B-203	B-204	BX-101	BX-102	BX-103	BX-104	BX-105	BX-106
Total Score	0	0	0	0	0	0	0	0	0
Relative Score % (0 to 100)	0	0	0	0	0	0	0	0	0

PRIORITIZATION - VAPOR	B-202	B-203	B-204	BX-101	BX-102	BX-103	BX-104	BX-105	BX-106
Total Score	0	0	0	0	0	0	0	0	0
Relative Score % (0 to 100)	0	0	0	0	0	0	0	0	0

Notes:

[1]Core required for tank will retrieve both solid and supernatant

[2]No solid samples are needed for Feed Delivery or Privatization

[3]Solids/Supernatant sample only required by Privatization

ISSUE PRIORITIES AND WEIGHTS

	BX-107	BX-108	BX-109	BX-110	BX-111	BX-112	BY-101	BY-102	BY-103
	x	x	x	x	x	x	x	x	x
	x	x	x	x	x	x	x	x	x

ISSUES	BX-107	BX-108	BX-109	BX-110	BX-111	BX-112	BY-101	BY-102	BY-103
Flammable Gas - RGS	0	0	0	0	0	0	0	0	0
Flammable Gas - vapor	0	0	0	0	0	0	0	0	93
Waste Feed Delivery	0	0	0	0	0	0	0	0	0
Privatization - DOE Management	0	0	0	0	0	0	0	0	0
W-320 Sluicing of tank 241-C-106	0	0	0	0	0	0	0	0	0
Regulatory - Air Emissions	0	0	0	0	0	0	0	0	0
Regulatory - Dangerous Waste	0	0	0	0	0	0	0	0	0
SST Waste Retrieval and Tank Closure	0	0	0	0	0	0	0	0	0
Privatization - samples to contractor(s)	0	0	0	0	0	0	0	0	0
Retrieval/Pretreatment/Immobilization	0	0	0	0	0	0	0	0	0
Historical Model Evaluation	0	0	0	0	0	0	0	0	0

PRIORITIZATION - SOLID	BX-107	BX-108	BX-109	BX-110	BX-111	BX-112	BY-101	BY-102	BY-103
Total Score	0	0	0	0	0	0	0	0	0
Relative Score % (0 to 100)	0	0	0	0	0	0	0	0	0
TCR Written?	Y	Y	Y	Y	N	Y	N	Y	N

PRIORITIZATION - SUPERNATANT	BX-107	BX-108	BX-109	BX-110	BX-111	BX-112	BY-101	BY-102	BY-103
Total Score	0	0	0	0	0	0	0	0	0
Relative Score % (0 to 100)	0	0	0	0	0	0	0	0	0

PRIORITIZATION - VAPOR	BX-107	BX-108	BX-109	BX-110	BX-111	BX-112	BY-101	BY-102	BY-103
Total Score	0	0	0	0	0	0	0	0	93
Relative Score % (0 to 100)	0	0	0	0	0	0	0	0	74

Notes:

[1]Core required for tank will retrieve both solid and supernatant

[2]No solid samples are needed for Feed Delivery or Privatization

[3]Solids/Supernatant sample only required by Privatization

ISSUE PRIORITIES AND WEIGHTS

	BY-104	BY-105	BY-106	BY-107	BY-108	BY-109	BY-110	BY-111	BY-112
	x	x	x	x	x	x	x	x	x
	x	x	x	x	x	x	x	x	x

ISSUES	BY-104	BY-105	BY-106	BY-107	BY-108	BY-109	BY-110	BY-111	BY-112
Flammable Gas - RGS	0	0	0	0	0	0	0	0	0
Flammable Gas - vapor	0	93	93	0	0	93	0	0	0
Waste Feed Delivery	0	0	0	0	0	0	0	0	0
Privatization - DOE Management	0	0	0	0	0	0	0	0	0
W-320 Sluicing of tank 241-C-106	0	0	0	0	0	0	0	0	0
Regulatory - Air Emissions	0	0	0	0	0	0	0	0	0
Regulatory - Dangerous Waste	0	0	0	0	0	0	0	0	0
SST Waste Retrieval and Tank Closure	0	0	0	0	0	0	0	0	0
Privatization - samples to contractor(s)	0	0	0	0	0	0	0	0	0
Retrieval/Pretreatment/Immobilization	0	9	0	0	0	0	0	0	0
Historical Model Evaluation	0	0	0	0	0	0	0	0	0

PRIORITIZATION - SOLID	BY-104	BY-105	BY-106	BY-107	BY-108	BY-109	BY-110	BY-111	BY-112
Total Score	0	9	0	0	0	0	0	0	0
Relative Score % (0 to 100)	0	4	0	0	0	0	0	0	0
TCR Written?	Y	Y	Y	Y	Y	N	Y	Y	Y

PRIORITIZATION - SUPERNATANT	BY-104	BY-105	BY-106	BY-107	BY-108	BY-109	BY-110	BY-111	BY-112
Total Score	0	0	0	0	0	0	0	0	0
Relative Score % (0 to 100)	0	0	0	0	0	0	0	0	0

PRIORITIZATION - VAPOR	BY-104	BY-105	BY-106	BY-107	BY-108	BY-109	BY-110	BY-111	BY-112
Total Score	0	93	93	0	0	93	0	0	0
Relative Score % (0 to 100)	0	74	74	0	0	74	0	0	0

Notes:

[1]Core required for tank will retrieve both solid and supernatant

[2]No solid samples are needed for Feed Delivery or Privatization

[3]Solids/Supernatant sample only required by Privatization

ISSUE PRIORITIES AND WEIGHTS

	C-101	C-102	C-103	C-104	C-105	C-106	C-107	C-108	C-109
	x	x	x	x	x	x	x	x	x
						x			
	x	x	x	x	x	x	x	x	x

ISSUES	C-101	C-102	C-103	C-104	C-105	C-106	C-107	C-108	C-109
Flammable Gas - RGS	0	0	0	0	0	0	0	0	0
Flammable Gas - vapor	0	0	0	0	0	93	0	0	0
Waste Feed Delivery	0	0	0	84	0	0	0	0	0
Privatization - DOE Management	0	0	0	0	0	0	0	0	0
W-320 Sluicing of tank 241-C-106	0	0	0	0	0	0	0	0	0
Regulatory - Air Emissions	0	0	0	0	0	0	0	0	0
Regulatory - Dangerous Waste	0	0	0	33	0	0	0	0	0
SST Waste Retrieval and Tank Closure	0	0	0	0	0	26	0	0	0
Privatization - samples to contractor(s)	0	0	0	0	0	0	0	0	0
Retrieval/Pretreatment/Immobilization	0	0	0	0	0	0	0	0	0
Historical Model Evaluation	0	3	0	0	0	0	0	0	0

PRIORITIZATION - SOLID	C-101	C-102	C-103	C-104	C-105	C-106	C-107	C-108	C-109
Total Score	0	3	0	117	0	26	0	0	0
Relative Score % (0 to 100)	0	1	0	57	0	13	0	0	0
TCR Written?	Y	N	Y	Y	Y	Y	Y	Y	Y

PRIORITIZATION - SUPERNATANT	C-101	C-102	C-103	C-104	C-105	C-106	C-107	C-108	C-109
Total Score	0	0	0	0	0	0	0	0	0
Relative Score % (0 to 100)	0	0	0	0	0	0	0	0	0

PRIORITIZATION - VAPOR	C-101	C-102	C-103	C-104	C-105	C-106	C-107	C-108	C-109
Total Score	0	0	0	0	0	93	0	0	0
Relative Score % (0 to 100)	0	0	0	0	0	74	0	0	0

Notes:

[1]Core required for tank will retrieve both solid and supernatant

[2]No solid samples are needed for Feed Delivery or Privatization

[3]Solids/Supernatant sample only required by Privatization

ISSUE PRIORITIES AND WEIGHTS

	C-110	C-111	C-112	C-201	C-202	C-203	C-204	S-101	S-102
	x	x	x	x	x	x	x	x	x
	x	x	x	x	x	x	x	x	x

ISSUES	C-110	C-111	C-112	C-201	C-202	C-203	C-204	S-101	S-102
Flammable Gas - RGS	0	0	0	0	0	0	0	0	93
Flammable Gas - vapor	0	0	0	0	0	0	0	93	93
Waste Feed Delivery	0	0	0	0	0	0	0	0	0
Privatization - DOE Management	0	0	0	0	0	0	0	0	0
W-320 Sluicing of tank 241-C-106	0	0	0	0	0	0	0	0	0
Regulatory - Air Emissions	0	0	0	0	0	0	0	0	0
Regulatory - Dangerous Waste	0	0	0	0	0	0	0	0	0
SST Waste Retrieval and Tank Closure	0	0	0	0	0	0	0	0	0
Privatization - samples to contractor(s)	0	0	0	0	0	0	0	0	0
Retrieval/Pretreatment/Immobilization	0	0	0	0	0	0	0	0	0
Historical Model Evaluation	0	0	0	0	0	0	0	0	0

PRIORITIZATION - SOLID	C-110	C-111	C-112	C-201	C-202	C-203	C-204	S-101	S-102
Total Score	0	0	0	0	0	0	0	0	93
Relative Score % (0 to 100)	0	0	0	0	0	0	0	0	45
TCR Written?	Y	Y	Y	Y	Y	Y	Y	Y	Y

PRIORITIZATION - SUPERNATANT	C-110	C-111	C-112	C-201	C-202	C-203	C-204	S-101	S-102
Total Score	0	0	0	0	0	0	0	0	0
Relative Score % (0 to 100)	0	0	0	0	0	0	0	0	0

PRIORITIZATION - VAPOR	C-110	C-111	C-112	C-201	C-202	C-203	C-204	S-101	S-102
Total Score	0	0	0	0	0	0	0	93	93
Relative Score % (0 to 100)	0	0	0	0	0	0	0	74	74

Notes:

[1]Core required for tank will retrieve both solid and supernatant

[2]No solid samples are needed for Feed Delivery or Privatization

[3]Solids/Supernatant sample only required by Privatization

ISSUE PRIORITIES AND WEIGHTS

	S-103	S-104	S-105	S-106	S-107	S-108	S-109	S-110	S-111
	x	x	x	x	x	x	x	x	x
	x	x	x	x	x	x	x	x	x

ISSUES	S-103	S-104	S-105	S-106	S-107	S-108	S-109	S-110	S-111
Flammable Gas - RGS	0	0	0	0	0	0	0	0	82
Flammable Gas - vapor	0	0	0	93	93	0	93	0	93
Waste Feed Delivery	0	0	0	0	0	0	0	0	0
Privatization - DOE Management	0	0	0	0	0	0	0	0	0
W-320 Sluicing of tank 241-C-106	0	0	0	0	0	0	0	0	0
Regulatory - Air Emissions	0	0	0	0	0	0	0	0	0
Regulatory - Dangerous Waste	0	0	0	0	0	0	0	0	0
SST Waste Retrieval and Tank Closure	0	0	0	0	0	0	0	0	0
Privatization - samples to contractor(s)	0	0	0	0	0	0	0	0	0
Retrieval/Pretreatment/Immobilization	0	0	0	0	0	0	0	10	0
Historical Model Evaluation	0	0	0	0	0	0	0	0	0

PRIORITIZATION - SOLID	S-103	S-104	S-105	S-106	S-107	S-108	S-109	S-110	S-111
Total Score	0	0	0	0	0	0	0	10	82
Relative Score % (0 to 100)	0	0	0	0	0	0	0	5	40
TCR Written?	N	Y	N	N	Y	N	Y	N	Y

PRIORITIZATION - SUPERNATANT	S-103	S-104	S-105	S-106	S-107	S-108	S-109	S-110	S-111
Total Score	0	0	0	0	0	0	0	0	0
Relative Score % (0 to 100)	0	0	0	0	0	0	0	0	0

PRIORITIZATION - VAPOR	S-103	S-104	S-105	S-106	S-107	S-108	S-109	S-110	S-111
Total Score	0	0	0	93	93	0	93	0	93
Relative Score % (0 to 100)	0	0	0	74	74	0	74	0	74

Notes:

[1]Core required for tank will retrieve both solid and supernatant

[2]No solid samples are needed for Feed Delivery or Privatization

[3]Solids/Supernatant sample only required by Privatization

ISSUE PRIORITIES AND WEIGHTS

	S-112	SX-101	SX-102	SX-103	SX-104	SX-105	SX-106	SX-107	SX-108
	x	x	x	x	x	x	x	x	x
	x	x	x	x	x	x	x	x	x

ISSUES	S-112	SX-101	SX-102	SX-103	SX-104	SX-105	SX-106	SX-107	SX-108
Flammable Gas - RGS	0	0	0	0	0	0	0	0	0
Flammable Gas - vapor	93	93	93	93	93	93	93	0	0
Waste Feed Delivery	0	0	0	0	0	0	0	0	0
Privatization - DOE Management	0	0	0	0	0	0	0	0	0
W-320 Sluicing of tank 241-C-106	0	0	0	0	0	0	0	0	0
Regulatory - Air Emissions	0	0	0	0	0	0	0	0	0
Regulatory - Dangerous Waste	0	0	0	0	0	0	0	0	0
SST Waste Retrieval and Tank Closure	0	0	0	0	0	0	0	0	0
Privatization - samples to contractor(s)	0	0	0	0	0	0	0	0	0
Retrieval/Pretreatment/Immobilization	0	11	0	8	10	0	0	10	0
Historical Model Evaluation	0	4	0	3	3	0	0	0	0

PRIORITIZATION - SOLID	S-112	SX-101	SX-102	SX-103	SX-104	SX-105	SX-106	SX-107	SX-108
Total Score	0	15	0	11	14	0	0	10	0
Relative Score % (0 to 100)	0	7	0	6	7	0	0	5	0
TCR Written?	N	N	N	N	N	N	N	N	Y

PRIORITIZATION - SUPERNATANT	S-112	SX-101	SX-102	SX-103	SX-104	SX-105	SX-106	SX-107	SX-108
Total Score	0	0	0	0	0	0	0	0	0
Relative Score % (0 to 100)	0	0	0	0	0	0	0	0	0

PRIORITIZATION - VAPOR	S-112	SX-101	SX-102	SX-103	SX-104	SX-105	SX-106	SX-107	SX-108
Total Score	93	93	93	93	93	93	93	0	0
Relative Score % (0 to 100)	74	74	74	74	74	74	74	0	0

Notes:

[1]Core required for tank will retrieve both solid and supernatant

[2]No solid samples are needed for Feed Delivery or Privatization

[3]Solids/Supernatant sample only required by Privatization

ISSUE PRIORITIES AND WEIGHTS

	SX-109	SX-110	SX-111	SX-112	SX-113	SX-114	SX-115	T-101	T-102
	x	x	x	x	x	x	x	x	x
	x	x	x	x	x	x	x	x	x

ISSUES	SX-109	SX-110	SX-111	SX-112	SX-113	SX-114	SX-115	T-101	T-102
Flammable Gas - RGS	0	0	0	0	0	0	0	0	0
Flammable Gas - vapor	93	0	0	0	0	0	0	0	0
Waste Feed Delivery	0	0	0	0	0	0	0	0	0
Privatization - DOE Management	0	0	0	0	0	0	0	0	0
W-320 Sluicing of tank 241-C-106	0	0	0	0	0	0	0	0	0
Regulatory - Air Emissions	0	0	0	0	0	0	0	0	0
Regulatory - Dangerous Waste	0	0	0	0	0	0	0	0	0
SST Waste Retrieval and Tank Closure	0	0	0	0	0	0	0	0	0
Privatization - samples to contractor(s)	0	0	0	0	0	0	0	0	0
Retrieval/Pretreatment/Immobilization	9	10	10	10	0	11	0	0	0
Historical Model Evaluation	0	0	0	0	0	0	0	0	0

PRIORITIZATION - SOLID	SX-109	SX-110	SX-111	SX-112	SX-113	SX-114	SX-115	T-101	T-102
Total Score	9	10	10	10	0	11	0	0	0
Relative Score % (0 to 100)	4	5	5	5	0	5	0	0	0
TCR Written?	N	N	N	N	Y	N	N	N	Y

PRIORITIZATION - SUPERNATANT	SX-109	SX-110	SX-111	SX-112	SX-113	SX-114	SX-115	T-101	T-102
Total Score	0	0	0	0	0	0	0	0	0
Relative Score % (0 to 100)	0	0	0	0	0	0	0	0	0

PRIORITIZATION - VAPOR	SX-109	SX-110	SX-111	SX-112	SX-113	SX-114	SX-115	T-101	T-102
Total Score	93	0	0	0	0	0	0	0	0
Relative Score % (0 to 100)	74	0	0	0	0	0	0	0	0

Notes:

[1]Core required for tank will retrieve both solid and supernatant

[2]No solid samples are needed for Feed Delivery or Privatization

[3]Solids/Supernatant sample only required by Privatization

ISSUE PRIORITIES AND WEIGHTS

	T-103	T-104	T-105	T-106	T-107	T-108	T-109	T-110	T-111
	x	x	x	x	x	x	x	x	x
	x	x	x	x	x	x	x	x	x

ISSUES	T-103	T-104	T-105	T-106	T-107	T-108	T-109	T-110	T-111
Flammable Gas - RGS	0	0	0	0	0	0	0	0	0
Flammable Gas - vapor	0	0	0	0	0	0	0	93	0
Waste Feed Delivery	0	0	0	0	0	0	0	0	0
Privatization - DOE Management	0	0	0	0	0	0	0	0	0
W-320 Sluicing of tank 241-C-106	0	0	0	0	0	0	0	0	0
Regulatory - Air Emissions	0	0	0	0	0	0	0	0	0
Regulatory - Dangerous Waste	0	0	0	0	0	0	0	0	0
SST Waste Retrieval and Tank Closure	0	0	0	0	0	0	0	0	0
Privatization - samples to contractor(s)	0	0	0	0	0	0	0	0	0
Retrieval/Pretreatment/Immobilization	0	0	0	0	0	0	0	0	0
Historical Model Evaluation	0	0	0	0	0	0	0	0	0

PRIORITIZATION - SOLID	T-103	T-104	T-105	T-106	T-107	T-108	T-109	T-110	T-111
Total Score	0	0	0	0	0	0	0	0	0
Relative Score % (0 to 100)	0	0	0	0	0	0	0	0	0
TCR Written?	N	Y	Y	Y	Y	Y	Y	Y	Y

PRIORITIZATION - SUPERNATANT	T-103	T-104	T-105	T-106	T-107	T-108	T-109	T-110	T-111
Total Score	0	0	0	0	0	0	0	0	0
Relative Score % (0 to 100)	0	0	0	0	0	0	0	0	0

PRIORITIZATION - VAPOR	T-103	T-104	T-105	T-106	T-107	T-108	T-109	T-110	T-111
Total Score	0	0	0	0	0	0	0	93	0
Relative Score % (0 to 100)	0	0	0	0	0	0	0	74	0

Notes:

[1]Core required for tank will retrieve both solid and supernatant

[2]No solid samples are needed for Feed Delivery or Privatization

[3]Solids/Supernatant sample only required by Privatization

ISSUE PRIORITIES AND WEIGHTS

	T-112	T-201	T-202	T-203	T-204	TX-101	TX-102	TX-103	TX-104
	x	x	x	x	x	x	x	x	x
	x	x	x	x	x	x	x	x	x

ISSUES	T-112	T-201	T-202	T-203	T-204	TX-101	TX-102	TX-103	TX-104
Flammable Gas - RGS	0	0	0	0	0	0	0	0	0
Flammable Gas - vapor	0	0	0	0	0	0	0	0	0
Waste Feed Delivery	0	0	0	0	0	0	0	0	0
Privatization - DOE Management	0	0	0	0	0	0	0	0	0
W-320 Sluicing of tank 241-C-106	0	0	0	0	0	0	0	0	0
Regulatory - Air Emissions	0	0	0	0	0	0	0	0	0
Regulatory - Dangerous Waste	0	0	0	0	0	0	0	0	0
SST Waste Retrieval and Tank Closure	0	0	0	0	0	0	0	0	0
Privatization - samples to contractor(s)	0	0	0	0	0	0	0	0	0
Retrieval/Pretreatment/Immobilization	0	0	0	0	0	0	0	0	0
Historical Model Evaluation	0	0	0	0	0	0	0	0	0

PRIORITIZATION - SOLID	T-112	T-201	T-202	T-203	T-204	TX-101	TX-102	TX-103	TX-104
Total Score	0	0	0	0	0	0	0	0	0
Relative Score % (0 to 100)	0	0	0	0	0	0	0	0	0
TCR Written?	N	Y	Y	Y	Y	N	N	N	N

PRIORITIZATION - SUPERNATANT	T-112	T-201	T-202	T-203	T-204	TX-101	TX-102	TX-103	TX-104
Total Score	0	0	0	0	0	0	0	0	0
Relative Score % (0 to 100)	0	0	0	0	0	0	0	0	0

PRIORITIZATION - VAPOR	T-112	T-201	T-202	T-203	T-204	TX-101	TX-102	TX-103	TX-104
Total Score	0	0	0	0	0	0	0	0	0
Relative Score % (0 to 100)	0	0	0	0	0	0	0	0	0

Notes:

[1]Core required for tank will retrieve both solid and supernatant

[2]No solid samples are needed for Feed Delivery or Privatization

[3]Solids/Supernatant sample only required by Privatization

ISSUE PRIORITIES AND WEIGHTS

	TX-105	TX-106	TX-107	TX-108	TX-109	TX-110	TX-111	TX-112	TX-113
	x	x	x	x	x	x	x	x	x
	x	x	x	x	x	x	x	x	x

ISSUES	TX-105	TX-106	TX-107	TX-108	TX-109	TX-110	TX-111	TX-112	TX-113
Flammable Gas - RGS	0	0	0	0	0	0	0	0	0
Flammable Gas - vapor	0	0	0	0	0	0	0	0	0
Waste Feed Delivery	0	0	0	0	0	0	0	0	0
Privatization - DOE Management	0	0	0	0	0	0	0	0	0
W-320 Sluicing of tank 241-C-106	0	0	0	0	0	0	0	0	0
Regulatory - Air Emissions	0	0	0	0	0	0	0	0	0
Regulatory - Dangerous Waste	0	0	0	0	0	0	0	0	0
SST Waste Retrieval and Tank Closure	0	0	0	0	0	0	0	0	0
Privatization - samples to contractor(s)	0	0	0	0	0	0	0	0	0
Retrieval/Pretreatment/Immobilization	9	8	0	0	0	8	0	0	8
Historical Model Evaluation	3	0	0	0	0	3	3	0	3

PRIORITIZATION - SOLID	TX-105	TX-106	TX-107	TX-108	TX-109	TX-110	TX-111	TX-112	TX-113
Total Score	11	8	0	0	0	11	3	0	11
Relative Score % (0 to 100)	5	4	0	0	0	5	1	0	6
TCR Written?	N	N	Y	N	N	N	N	N	N

PRIORITIZATION - SUPERNATANT	TX-105	TX-106	TX-107	TX-108	TX-109	TX-110	TX-111	TX-112	TX-113
Total Score	0	0	0	0	0	0	0	0	0
Relative Score % (0 to 100)	0	0	0	0	0	0	0	0	0

PRIORITIZATION - VAPOR	TX-105	TX-106	TX-107	TX-108	TX-109	TX-110	TX-111	TX-112	TX-113
Total Score	0	0	0	0	0	0	0	0	0
Relative Score % (0 to 100)	0	0	0	0	0	0	0	0	0

Notes:

[1]Core required for tank will retrieve both solid and supernatant

[2]No solid samples are needed for Feed Delivery or Privatization

[3]Solids/Supernatant sample only required by Privatization

ISSUE PRIORITIES AND WEIGHTS

	TX-114	TX-115	TX-116	TX-117	TX-118	TY-101	TY-102	TY-103	TY-104
	x	x	x	x	x	x	x	x	x
	x	x	x	x	x	x	x	x	x

ISSUES	TX-114	TX-115	TX-116	TX-117	TX-118	TY-101	TY-102	TY-103	TY-104
Flammable Gas - RGS	0	0	0	0	0	0	0	0	0
Flammable Gas - vapor	0	0	0	0	0	0	0	0	0
Waste Feed Delivery	0	0	0	0	0	0	0	0	0
Privatization - DOE Management	0	0	0	0	0	0	0	0	0
W-320 Sluicing of tank 241-C-106	0	0	0	0	0	0	0	0	0
Regulatory - Air Emissions	0	0	0	0	0	0	0	0	0
Regulatory - Dangerous Waste	0	0	0	0	0	0	0	0	0
SST Waste Retrieval and Tank Closure	0	0	0	0	0	0	0	0	0
Privatization - samples to contractor(s)	0	0	0	0	0	0	0	0	0
Retrieval/Pretreatment/Immobilization	0	8	8	0	9	0	0	0	0
Historical Model Evaluation	0	3	3	0	3	0	0	0	0

PRIORITIZATION - SOLID	TX-114	TX-115	TX-116	TX-117	TX-118	TY-101	TY-102	TY-103	TY-104
Total Score	0	11	11	0	12	0	0	0	0
Relative Score % (0 to 100)	0	5	5	0	6	0	0	0	0
TCR Written?	N	N	N	N	N	N	N	N	Y

PRIORITIZATION - SUPERNATANT	TX-114	TX-115	TX-116	TX-117	TX-118	TY-101	TY-102	TY-103	TY-104
Total Score	0	0	0	0	0	0	0	0	0
Relative Score % (0 to 100)	0	0	0	0	0	0	0	0	0

PRIORITIZATION - VAPOR	TX-114	TX-115	TX-116	TX-117	TX-118	TY-101	TY-102	TY-103	TY-104
Total Score	0	0	0	0	0	0	0	0	0
Relative Score % (0 to 100)	0	0	0	0	0	0	0	0	0

Notes:

[1]Core required for tank will retrieve both solid and supernatant

[2]No solid samples are needed for Feed Delivery or Privatization

[3]Solids/Supernatant sample only required by Privatization

ISSUE PRIORITIES AND WEIGHTS

	TY-105	TY-106	U-101	U-102	U-103	U-104	U-105	U-106	U-107
	x	x	x	x	x	x	x	x	x
	x	x	x	x	x	x	x	x	x

ISSUES	TY-105	TY-106	U-101	U-102	U-103	U-104	U-105	U-106	U-107
Flammable Gas - RGS	0	0	0	0	0	0	0	0	0
Flammable Gas - vapor	0	0	0	93	93	0	93	0	93
Waste Feed Delivery	0	0	0	0	0	0	0	0	0
Privatization - DOE Management	0	0	0	0	0	0	0	0	0
W-320 Sluicing of tank 241-C-106	0	0	0	0	0	0	0	0	0
Regulatory - Air Emissions	0	0	0	0	0	0	0	0	0
Regulatory - Dangerous Waste	0	0	0	0	0	0	0	0	0
SST Waste Retrieval and Tank Closure	0	0	0	0	0	0	0	0	0
Privatization - samples to contractor(s)	0	0	0	0	0	0	0	0	0
Retrieval/Pretreatment/Immobilization	9	0	0	0	0	0	0	0	0
Historical Model Evaluation	0	0	0	0	0	0	0	0	0

PRIORITIZATION - SOLID	TY-105	TY-106	U-101	U-102	U-103	U-104	U-105	U-106	U-107
Total Score	9	0	0	0	0	0	0	0	0
Relative Score % (0 to 100)	4	0	0	0	0	0	0	0	0
TCR Written?	N	Y	N	Y	N	N	Y	Y	Y

PRIORITIZATION - SUPERNATANT	TY-105	TY-106	U-101	U-102	U-103	U-104	U-105	U-106	U-107
Total Score	0	0	0	0	0	0	0	0	0
Relative Score % (0 to 100)	0	0	0	0	0	0	0	0	0

PRIORITIZATION - VAPOR	TY-105	TY-106	U-101	U-102	U-103	U-104	U-105	U-106	U-107
Total Score	0	0	0	93	93	0	93	0	93
Relative Score % (0 to 100)	0	0	0	74	74	0	74	0	74

Notes:

[1]Core required for tank will retrieve both solid and supernatant

[2]No solid samples are needed for Feed Delivery or Privatization

[3]Solids/Supernatant sample only required by Privatization

ISSUE PRIORITIES AND WEIGHTS

	U-108	U-109	U-110	U-111	U-112	U-201	U-202	U-203	U-204
	x	x	x	x	x	x	x	x	x
	x	x	x	x	x	x	x	x	x

ISSUES	U-108	U-109	U-110	U-111	U-112	U-201	U-202	U-203	U-204
Flammable Gas - RGS	0	93	0	0	0	0	0	0	0
Flammable Gas - vapor	93	93	0	0	0	0	0	0	0
Waste Feed Delivery	0	0	0	0	0	0	0	0	0
Privatization - DOE Management	0	0	0	0	0	0	0	0	0
W-320 Sluicing of tank 241-C-106	0	0	0	0	0	0	0	0	0
Regulatory - Air Emissions	0	0	0	0	0	0	0	0	0
Regulatory - Dangerous Waste	0	0	0	0	0	0	0	0	0
SST Waste Retrieval and Tank Closure	0	0	0	0	0	0	0	0	0
Privatization - samples to contractor(s)	0	0	0	0	0	0	0	0	0
Retrieval/Pretreatment/Immobilization	0	0	0	0	0	0	0	0	0
Historical Model Evaluation	0	0	0	0	0	0	0	0	0

PRIORITIZATION - SOLID	U-108	U-109	U-110	U-111	U-112	U-201	U-202	U-203	U-204
Total Score	0	93	0	0	0	0	0	0	0
Relative Score % (0 to 100)	0	45	0	0	0	0	0	0	0
TCR Written?	Y	Y	Y	N	N	Y	Y	Y	Y

PRIORITIZATION - SUPERNATANT	U-108	U-109	U-110	U-111	U-112	U-201	U-202	U-203	U-204
Total Score	0	0	0	0	0	0	0	0	0
Relative Score % (0 to 100)	0	0	0	0	0	0	0	0	0

PRIORITIZATION - VAPOR	U-108	U-109	U-110	U-111	U-112	U-201	U-202	U-203	U-204
Total Score	93	93	0	0	0	0	0	0	0
Relative Score % (0 to 100)	74	74	0	0	0	0	0	0	0

Notes:

[1]Core required for tank will retrieve both solid and supernatant

[2]No solid samples are needed for Feed Delivery or Privatization

[3]Solids/Supernatant sample only required by Privatization

ISSUE PRIORITIES AND WEIGHTS

	AN-101	AN-102	AN-103	AN-104	AN-105	AN-106	AN-107	AP-101	AP-102
	x	x	x	x	x	x	x		
	x	x	x	x	x	x	x	x	x
	x	x	x	x	x	x	x	x	x

ISSUES	AN-101	AN-102	AN-103	AN-104	AN-105	AN-106	AN-107	AP-101	AP-102
Flammable Gas - RGS	0	0	0	0	0	0	0	0	0
Flammable Gas - vapor	93	0	93	93	93	0	93	0	0
Waste Feed Delivery	0	0	0	0	0	0	0	0	0
Privatization - DOE Management	0	0	0	0	0	0	59	0	0
W-320 Sluicing of tank 241-C-106	0	0	0	0	0	0	0	0	0
Regulatory - Air Emissions	0	0	33	33	33	0	33	0	33
Regulatory - Dangerous Waste	0	33	33	33	33	0	33	0	0
SST Waste Retrieval and Tank Closure	0	0	0	0	0	0	0	0	0
Privatization - samples to contractor(s)	0	21	0	0	21	0	21	0	0
Retrieval/Pretreatment/Immobilization	0	0	0	0	0	0	0	0	0
Historical Model Evaluation	0	0	0	0	0	0	0	0	0

PRIORITIZATION - SOLID	AN-101	AN-102[2]	AN-103	AN-104	AN-105[2]	AN-106	AN-107[2]	AP-101	AP-102
Total Score	0	33	33	33	33	0	33	0	0
Relative Score % (0 to 100)	0	16	16	16	16	0	16	0	0
TCR Written?	Y	Y	Y	Y	Y	Y	Y	Y	Y

PRIORITIZATION - SUPERNATANT	AN-101	AN-102	AN-103	AN-104	AN-105	AN-106	AN-107[3]	AP-101	AP-102
Total Score	0	21	33	33	54	0	113	0	33
Relative Score % (0 to 100)	0	12	19	19	31	0	64	0	19

PRIORITIZATION - VAPOR	AN-101	AN-102	AN-103	AN-104	AN-105	AN-106	AN-107	AP-101	AP-102
Total Score	93	0	126	126	126	0	126	0	33
Relative Score % (0 to 100)	74	0	100	100	100	0	100	0	26

Notes:

[1]Core required for tank will retrieve both solid and supernatant

[2]No solid samples are needed for Feed Delivery or Privatization

[3]Solids/Supernatant sample only required by Privatization

ISSUE PRIORITIES AND WEIGHTS

	AP-103	AP-104	AP-105	AP-106	AP-107	AP-108	AW-101	AW-102	AW-103
	x		x				x	x	x
	x	x	x	x	x	x	x	x	x
	x	x	x	x	x	x	x	x	x

ISSUES	AP-103	AP-104	AP-105	AP-106	AP-107	AP-108	AW-101	AW-102	AW-103
Flammable Gas - RGS	0	0	0	0	0	0	0	0	0
Flammable Gas - vapor	0	0	0	0	0	0	33	0	0
Waste Feed Delivery	0	0	0	0	0	0	0	0	0
Privatization - DOE Management	0	0	0	0	0	0	33	0	0
W-320 Sluicing of tank 241-C-106	0	0	0	0	0	0	0	0	0
Regulatory - Air Emissions	0	33	0	0	0	0	33	0	0
Regulatory - Dangerous Waste	0	0	0	0	0	0	33	0	0
SST Waste Retrieval and Tank Closure	0	0	0	0	0	0	0	0	0
Privatization - samples to contractor(s)	0	0	0	0	0	0	21	0	0
Retrieval/Pretreatment/Immobilization	0	0	0	0	0	0	0	0	0
Historical Model Evaluation	0	0	0	0	0	0	0	0	0

PRIORITIZATION - SOLID	AP-103	AP-104	AP-105	AP-106	AP-107	AP-108	AW-101[2]	AW-102	AW-103
Total Score	0	0	0	0	0	0	33	0	0
Relative Score % (0 to 100)	0	0	0	0	0	0	10	0	0
TCR Written?	Y	Y	Y	Y	Y	Y	Y	Y	Y

PRIORITIZATION - SUPERNATANT	AP-103	AP-104	AP-105	AP-106	AP-107	AP-108	AW-101	AW-102	AW-103
Total Score	0	33	0	0	0	0	113	0	0
Relative Score % (0 to 100)	0	19	0	0	0	0	64	0	0

PRIORITIZATION - VAPOR	AP-103	AP-104	AP-105	AP-106	AP-107	AP-108	AW-101	AW-102	AW-103
Total Score	0	33	0	0	0	0	126	0	0
Relative Score % (0 to 100)	0	26	0	0	0	0	100	0	0

Notes:

[1] Core required for tank will retrieve both solid and supernatant

[2] No solid samples are needed for Feed Delivery or Privatization

[3] Solids/Supernatant sample only required by Privatization

ISSUE PRIORITIES AND WEIGHTS

	AW-104	AW-105	AW-106	AY-101	AY-102	AZ-101	AZ-102	SY-101	SY-102
	x	x	x	x	x	x	x	x	x
	x	x	x	x	x	x	x	x	x
	x	x	x	x	x	x	x	x	x

ISSUES	AW-104	AW-105	AW-106	AY-101	AY-102	AZ-101	AZ-102	SY-101	SY-102
Flammable Gas - RGS	0	0	0	0	0	0	0	0	0
Flammable Gas - vapor	0	0	0	0	93	93	93	93	93
Waste Feed Delivery	0	0	0	0	0	84	84	84	0
Privatization - DOE Management	0	0	0	0	0	59	59	59	0
W-320 Sluicing of tank 241-C-106	0	0	0	0	43	0	0	0	0
Regulatory - Air Emissions	0	0	0	0	33	33	33	0	33
Regulatory - Dangerous Waste	0	0	0	0	0	33	33	33	0
SST Waste Retrieval and Tank Closure	0	0	0	0	0	0	0	0	0
Privatization - samples to contractor(s)	0	0	0	0	0	0	21	21	0
Retrieval/Pretreatment/Immobilization	0	0	0	0	0	0	0	9	0
Historical Model Evaluation	0	0	0	0	0	0	0	0	0

PRIORITIZATION - SOLID	AW-104	AW-105	AW-106	AY-101	AY-102	AZ-101[3]	AZ-102	SY-101	SY-102
Total Score	0	0	0	0	0	92	197	206	0
Relative Score % (0 to 100)	0	0	0	0	0	45	96	100	0
TCR Written?	Y	Y	Y	Y	Y	Y	Y	Y	Y

PRIORITIZATION - SUPERNATANT	AW-104[1]	AW-105	AW-106	AY-101	AY-102	AZ-101	AZ-102[1]	SY-101[1]	SY-102
Total Score	0	0	0	0	76	176	33	0	33
Relative Score % (0 to 100)	0	0	0	0	43	100	19	0	19

PRIORITIZATION - VAPOR	AW-104	AW-105	AW-106	AY-101	AY-102	AZ-101	AZ-102	SY-101	SY-102
Total Score	0	0	0	0	126	126	126	93	126
Relative Score % (0 to 100)	0	0	0	0	100	100	100	74	100

Notes:

[1] Core required for tank will retrieve both solid and supernatant

[2] No solid samples are needed for Feed Delivery or Privatization

[3] Solids/Supernatant sample only required by Privatization

ISSUE PRIORITIES AND WEIGHTS

	SY-103	244-A	244-BX	244-S	244-TX	244-U
	x		x			
	x	x	x	x	x	
	x	x	x	x	x	x

ISSUES	SY-103	244-A	244-BX	244-S	244-TX	244-U
Flammable Gas - RGS	0	0	0	0	0	0
Flammable Gas - vapor	93	93	93	93	93	0
Waste Feed Delivery	84	0	0	0	0	0
Privatization - DOE Management	0	0	0	0	0	0
W-320 Sluicing of tank 241-C-106	0	0	0	0	0	0
Regulatory - Air Emissions	0	0	0	0	0	0
Regulatory - Dangerous Waste	33	0	0	0	0	0
SST Waste Retrieval and Tank Closure	0	0	0	0	0	0
Privatization - samples to contractor(s)	21	0	0	0	0	0
Retrieval/Pretreatment/Immobilization	0	0	0	0	0	0
Historical Model Evaluation	0	0	0	0	0	0

PRIORITIZATION - SOLID	SY-103	244-A	244-BX	244-S	244-TX	244-U
Total Score	138	0	0	0	0	0
Relative Score % (0 to 100)	67	0	0	0	0	0
TCR Written?	Y	N	N	N	N	N

PRIORITIZATION - SUPERNATANT	SY-103[1]	244-A	244-BX	244-S	244-TX	244-U
Total Score	0	0	0	0	0	0
Relative Score % (0 to 100)	0	0	0	0	0	0

PRIORITIZATION - VAPOR	SY-103	244-A	244-BX	244-S	244-TX	244-U
Total Score	93	93	93	93	93	0
Relative Score % (0 to 100)	74	74	74	74	74	0

Notes:

[1]Core required for tank will retrieve both solid and supernatant

[2]No solid samples are needed for Feed Delivery or Privatization

[3]Solids/Supernatant sample only required by Privatization

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Distribution	Technical Basis and Planning	Date 04/16/98
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HNF-SD-WM-TA-164, Rev. 4, Tank Characterization Technical Sampling Basis		ECN No. ECN-643786

Name	MSIN	Text With All Attach.	Text Only	Attach./ Appendix Only	EDT/ECN Only
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Pacific Northwest National Laboratory					
A. F. Noonan	K9-91	X			
K. D. Wiemers	A0-21	X			
SGN Eurisys Services Corporation					
K. M. Eager	H5-27	X			
Waste Management Federal Services of Hanford					
M. D. Guthrie	S6-72	X			
R. J. Nicklas	S6-72	X			