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Readiness to Proceed: Characterization Planning Basis

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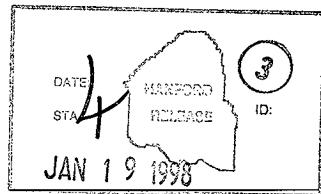
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Readiness to Proceed: Characterization Planning Basis

Prepared for the U.S. Department of Energy
Assistant Secretary for Environmental Management

Project Hanford Management Contractor for the
U.S. Department of Energy under Contract DE-AC06-96RL13200

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**READINESS TO PROCEED:
CHARACTERIZATION PLANNING BASIS**

1.0 INTRODUCTION

This report summarizes characterization requirements, data availability, and data acquisition plans in support of the Phase I Waste Feed Readiness to Proceed Mid-Level Logic. It summarizes characterization requirements for the following program planning documents:

- Waste Feed Readiness Mid-Level Logic and Decomposition (in development)
- Master blue print (not available)
- Tank Waste Remediation System (TWRS) Operations and Utilization Plan (O&UP) and Privatization Contract
- Enabling assumptions (not available)
- Privatization low-activity waste (LAW) Data Quality Objective (DQO)
- Privatization high-level waste (HLW) DQO (draft)
- Problem-specific DQOs (in development)
- Interface control documents (draft).

Section 2.0 defines the primary objectives for this report, Section 3.0 discusses the scope and assumptions, and Section 4.0 identifies general characterization needs and analyte-specific characterization needs or potential needs included in program documents and charts. Section 4.0 also shows the analyses that have been conducted, and the archive samples that are available for additional analyses. Section 5.0 discusses current plans for obtaining additional samples and analyses to meet readiness-to-proceed requirements. Section 6.0 summarizes sampling needs based on preliminary requirements and discusses other potential characterization needs.

Many requirements documents are preliminary. In many cases, problem-specific DQOs have not been drafted, and only general assumptions about the document contents could be obtained from the authors. As a result, the readiness-to-proceed characterization requirements provided in this document are evolving and may change.

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2.0 OBJECTIVES

The overall intent of this report is to verify that characterization planning is able to provide the required information to support Phase I planning activities and/or subactivities. Three primary objectives of this report are to:

1. list characterization requirements specified in program planning documents
2. show the characterization information that does exist and determine whether it is sufficient to meet program planning requirements
3. recommend how characterization information can be made available in sufficient time to meet program needs, if it is not available at this time.

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3.0 SCOPE AND ASSUMPTIONS

Phase I characterization requirements were assessed for the following tanks designated as LAW privatization tanks, HLW privatization tanks, interim feed staging tanks, and feed tanks.

Phase I Low-Activity Waste Privatization Tanks

241-AN-102, 241-AN-103, 241-AN-104, 241-AN-105, 241-AN-106, 241-AN-107
241-AW-101
241-AZ-101, 241-AZ-102
241-SY-101, 241-SY-103

Phase I High-Level Waste Privatization Tanks

241-AZ-101, 241-AZ-102
241-AY-102

Phase I Privatization Interim Feed Staging Tanks

241-AP-102, 241-AP-104

Phase I Privatization Feed Tanks

241-AP-106, 241-AP-108

Data availability was assessed for solids and supernatant samples. The TWRs O&UP document identifies waste envelopes for the tanks within the scope and shows what portion of the tank waste (that is, supernatant, soluble portion, or entire tank) will be transferred as part of Phase I retrieval operations. However, no program document clearly indicates whether analytical requirements apply to supernatant, solids, or both.

Although data is available for the current contents of the privatization interim staging and feed tanks, most current waste inventory is expected to be transferred out of these tanks, and waste from designated privatization tanks will be transferred in. Consequently, current analytical information will not meet all readiness-to-proceed needs, and additional sampling and analyses of these tanks may be required after transfers occur.

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4.0 CHARACTERIZATION REQUIREMENTS AND AVAILABLE INFORMATION

Available program documents were reviewed to determine characterization requirements. Table 4-1 summarizes the general needs, questions, and issues identified in preliminary program documents. Because many documents are in development or are currently being revised, Table 4-1 also shows document status. Table A-1 summarizes analyte-specific characterization program requirements for applicable program documents.

Available analytical data information for each tank was compiled from the Tank Characterization Database (TCD). The data used were obtained after 1989 when the Tri-Party Agreement protocols were established. Data obtained before 1989 are considered unacceptable for making regulatory decisions and were not included in the assessment. The TCD identifies hundreds of types of analyses for each tank and provides results for analyses conducted. In addition to the TCD, data and data assessments are available in Tank Characterization Reports, topical issue reports, and the Surveillance Analysis Computer System (SACS) database.

All designated Phase I LAW and HLW privatization tanks have been sampled, and many analytical needs have been met. Table A-2 identifies and summarizes available data and characterization needs which have not been met for each LAW and HLW tank.

Data for characterization outside the tanks (other than tank waste characterization) were not included in this report because requirements are largely unspecified, and no analyte-specific requirements for characterization outside the tanks are included in the program documents. Many characterization needs outside the tanks (that is, biota, soil samples, raw water, and process water) have not been identified.

Some available information for soils and ground water outside the tank can be obtained from Bechtel or the Pacific Northwest National Laboratory from the Waste Information Data System (WIDS) and ground water monitoring databases. Some biota and ecological survey information may be available in the WIDS and Hanford Environmental Impact Statement documents.

Table. 4-1. General Characterization Requirements for Readiness to Proceed: Phase I.
(6 sheets)

Document/Status	Requirements
Mid-level logic status: Draft A	<p>May need samples/analyses for environmental and nuclear source term envelopes.</p> <p>Do need physical properties of waste (in LAW DQO) to design tank 241-AN-105 mixing and retrieval system.</p> <p>Additional analysis may be needed to update the environmental baseline (i.e., NEPA, TWRS EIS, RCRA, CAA or other permits).</p> <p>New envelope limits (to be established) may include additional analytes. Also need to resolve whether envelope applies to bulk waste or liquid phase only.</p> <p>MLL and other documents require waste compatibility DQO (see Table A-1).</p> <p>Establish Na inventory for LLW tanks, excluding Na and Si; provide volatile oxides inventory for HLW tanks.</p>
MLL decomposition (not completed)	<p>Breakdown major tasks in the MLL. Project schedule and tasks.</p> <p>In addition to analytical needs in the MLL, preliminary decomposition logic specifies the following: RFP envelope analysis, compatibility DQO, sludge wash testing for tank 241-AZ-102 (probably similar to analytical/testing requirements for tank 241-C-106).</p>
Master blueprint (not completed)	<p>The master blueprint is expected to provide an overall picture of the Phase I Readiness-to-Proceed Privatization project (impact requirements are unknown).</p>

Table. 4-1. General Characterization Requirements for Readiness to Proceed: Phase I.
(6 sheets)

Document/Status	Requirements
TWRS O&UP (Rev. 0) and Privatization Contract	Lists analytical requirements for waste delivery processes and plans (see Table A-1). All LAW feed will meet tank farm specifications in OSD-T-151-0007. All feed will have maximum 5 vol. % solids. Table 3.1-8 shows the projected LAW feed processing sequence. It specifies that Envelope A applies to tanks 241-AW-101, 241-AN-105, 241-AN-104 and 241-AN-103. Envelope B applies to tank 241-AZ-101 and 241-AZ-102. Envelope C applies to 241-AN-102, 241-AN-106, 241-AN-107, 241-SY-101 and 241-SY-103. Supernatant only will be removed from tanks 241-AZ-101, 241-AZ-102, 241-AN-102, 241-AN-106 and 241-AN-107. Sludge washing tests for tanks 241-AZ-101, 241-AZ-102, and 241-AY-102 may be required.
Privatization LAW DQO, Rev. 0. (Rev. 1 is in progress).	Includes analyte-specific requirements and defined envelopes for LAW (see Table A-1).
Privatization HLW DQO (being drafted)	Expected to include a list of reportable analytes (see Table A-1), solids screening tests to evaluate solubility, organics, and physical properties. Envelope D will apply to HLW feed.
Problem-specific DQOs (not completed)	13 DQOs. Only preliminary information was available as of October 30, 1997. Most DQOs are in draft stages. See Table A-1 for currently known analyte-specific requirements. General requirements for problem-specific DQOs follow.
Confirm Tank T is appropriate for Batch X (LAW) (not completed)	Documents decision process for selecting LAW feed tank. The scope encompasses the following. 1) Laboratory process testing using approximately 1 L of a representative core or tank composite. Testing includes physical properties and water wash behavior. 2) Statistical evaluation of chemical data for comparison to waste envelope limits. If tank contents are near the limits (within 20 percent) or uncertainty is high, additional sampling and/or analyses may be necessary. Early indications are that analysis of existing core composites (that is, archive samples) will be satisfactory if additional data are needed.
Confirm Tank T is appropriate for Batch X (HLW) (not completed)	<p>Documents decision process for selecting tank for HLW feed staging.</p> <p>No sampling or analytical requirements are specified. Similar to requirements for LAW Tank T.</p>

Table. 4-1. General Characterization Requirements for Readiness to Proceed: Phase I.
(6 sheets)

Document/Status	Requirements
Equipment design (rough draft)	<p>Potential tests and analyses based on the projected sequence of feed delivery activities and the implications for associated equipment.</p> <ol style="list-style-type: none"> 1. Chemistry at the equipment interface 2. Source term for the equipment interface 3. Physical and chemical characteristics of the crust and solid layer 4. In-tank source term (radionuclides) 5. Particle hardness 6. Particle size 7. Composition of particle that could damage the pump and pipe 8. Settling rate 9. Density 10. Viscosity 11. What does it take to soften the crust? 12. When will the crust sink? (amount of water addition) 13. Location of solid layer (at different stages) 14. Amount of diluent required to prevent precipitation in the pipeline 15. Rheology vs. temperature, dilution, and solid content 16. Quality and quantity of entrained solids 17. Saturation chemistry 18. Compatibility to material of construction for the equipments 19. Thermal property of the liquid 20. Determination of the partition fraction at different temperature 21. ICP, IC, bulk density, pH, and percent solid 22. Morphology <p>Also see Table A-1.</p>
Safety Basis	No analytical requirements
Waste Feed Delivery Permitting	Requirements listed in Table A-1 based on WHC-SD-WM-DQO-025, DQOs for Regulatory Requirements for Dangerous Waste Sampling and Analysis and WHC-SD-WM-DQO-021, DQOs for Regulatory Requirements for Hazardous and Radioactive Air Emissions Sampling and Analysis.
DST Inventory Configuration Control	No analytical requirements. This DQO states that the compatibility DQO applies.

Table. 4-1. General Characterization Requirements for Readiness to Proceed: Phase I.
(6 sheets)

Document/Status	Requirements
In Tank Processing (Process Control)	<p>The process control DQO will dictate the sampling and analyses necessary to ensure that adjusted batches are likely to fall within LAW envelope limits. No sampling is possible at this time, and no current characterization data are applicable. Candidate feed tanks will be sampled for process control after decanting pumpable supernatant and diluting, dissolving solids, and mixing the tank.</p> <p>Three samples will be taken from a single riser. Analyses will be limited to ICP metals, bulk density, pH, and percent solids.</p> <p>Process control samples also will be taken in the intermediate feed staging tanks (241-AP-102 and -104). Again, sampling is expected to consist of three samples from one riser. Analyses will be limited to ICP metals, bulk density, pH, and percent solids. Analyses must be completed in a short time period.</p>
Waste Transfer (Delivery) to Private Contractors (LAW)	<p>No sampling is possible at this time, and current characterization data may not be applicable. One sampling event is necessary per intermediate feed staging tank (241-AP-102 or -104) per batch. A reasonable estimate of the sampling necessary is six grab samples (bottle-on-string) per sampling event.</p> <p>Analytical requirements are limited to the analytes stated in the privatization contract. These are the same as the LAW Privatization DQO Group I analytes. These analytes (20-30) include metals, anions, TOC, OH, ¹³⁷Cs, ⁹⁰Sr, ⁹⁹Tc, and TRU. However, the contracts may be renegotiated (the list of analytes and the ratios to sodium may change).</p> <p>This DQO will describe analytical procedures and data analyses as they differ from standard protocols. The protocol for establishing Na content in the batch will be specified.</p>
Waste Transfer (Delivery. to Private Contractors (HLW)	<p>The DQO will require sampling of the feed tank to evaluate whether waste meets envelope D specifications. Envelope D requirements are specified in the TWRS O&UP but may be modified when the Privatization HLW DQO is completed.</p>
ILAW storage and disposal	To be canceled
HLW interim storage	To be canceled

Table. 4-1. General Characterization Requirements for Readiness to Proceed: Phase I.
(6 sheets)

Document/Status	Requirements
Single-shell tank sequencing	Information from previous sampling and analyses will be used. No new tank analysis will be directed by this DQO.
Model validation	Not completed, preliminary requirements listed in Table A-1.
Interface control documents	The following 19 ICDs describe various general interface requirements and needs for readiness to proceed.
ICD-01 Raw Water	Testing, appears to be mostly flow rate tests, may include composition and laboratory analyses.
ICD-02 Potable Water	Water flushing, testing, disinfection and disposal. May include some laboratory analysis to verify water meets drinking water standards.
ICD-03 Radiation Solid Waste	Need to certify as radiation. Waste? Waste disposal analysis required?
ICD-05 Nonradiation. No dangerous effluent.	Verify volume and composition of effluent discharged. Verify "Non-Rad" for 200 Area TEDF to accept effluent. TEDF permit modification analytical support may be required.
ICD-06 Radiation. Dangerous Effluent	Verify volume and composition of effluent discharged. Characterize per Liquid Effluent Retention Facility/Waste analysis plan permit. Analytical data for preliminary screening of liquid or to identify regulatory and environmental concerns?
ICD-09 Land for Siting	Establish baseline site and environmental conditions for NEPA, cultural, biological, seismic, soil and groundwater contamination per environmental checklist. Analytical support to Site Evaluation Reports. Analysis of artifacts or cultural sites.
ICD-10 Deactivated Facility and Site	RCRA closure plan may require analytical support. Verify closed site meets regulatory requirements.
ICD-11,12 Electricity, roads and rails	No characterization requirements specified for electricity. May have siting needs for new roads/rails.

Table. 4-1. General Characterization Requirements for Readiness to Proceed: Phase I.
(6 sheets)

Document/Status	Requirements
ICD-13,14, 15, 16,17,18	<p>May need tests to verify composition before shipping waste samples?</p> <p>Smears and radioactive monitoring of waste and containers.</p> <p>Dose rate monitoring of waste packages.</p> <p>For ¹³⁷Cs intermediate product, drop test required to put it in the Interim Storage facility?</p> <p>Vitrified cesium analyses?</p>
ICD-19,20 LAW and HLW waste feed	ICD-19 includes A, B, and C Envelope requirements for nonradionuclides. ICD-20 includes HLW waste envelope limits for radionuclides, nonradionuclides, and physical properties. Same as the TWRS O&UP.
ICD-21 Waste feed tank support system LAW	<p>May have analytical siting requirements</p> <p>Monitoring during interface: corrosion, heat generation, tank level, master pump shutdown.</p> <p>Tank ventilation monitoring?</p> <p>Data for permits?</p>
ICD-22 Air Emissions	Analysis to comply with regulatory requirements and prepare permits and reports (i.e., Air Operating Permit, Treatment Storage and Disposal, Emergency Planning and Community Right-to-Know Act).

Notes:

CAA	=	Civil Aeronautics Administration
EIS	=	Environmental Impact Study
IC	=	Ion chromatography
ICP	=	Inductively coupled plasma
MLL	=	mid-level logic
RCRA	=	<i>Resource Conservation and Recovery Act</i>
RFP	=	Request for Proposal
TOC	=	total organic carbon
TRU	=	Transuranic

Table 4-2. Solid and Liquid Analytical Data Not Available for Phase I Privatization Tanks.
(2 sheets)

Tank	Solids	Liquids
241-AN-102	No solids samples were taken.	Most ICP and IC, organics, physical properties, and most radionuclides.
241-AN-103	Citrate, HEDTA, ammonia, carbonate, Cs, Hg, Te, Cr ⁺⁶ , many organics, particle size distr., pH, settled solids, shear strength, viscosity, vol. % settled solids, many radionuclides.	Same as solids.
241-AN-104	Citrate, HEDTA, ammonia, carbonate, Cs, Hg, Te, Cr ⁺⁶ , many organics, particle size distr., pH, settled solids, shear strength, viscosity, vol. % settled solids, many radionuclides.	Same as solids.
241-AN-105	Citrate, HEDTA, ammonia, carbonate, Cs, Hg, Pd, Te, Cr ⁺⁶ , many organics, particle size distr., pH, settled solids, shear strength, viscosity, vol. % settled solids, many radionuclides.	Same as solids.
241-AN-106 (transferring supernate only)	No solids samples were taken.	Need all required analyses except percent water, gross alpha, DSC, total organic carbon and SpG.
241-AN-107 (transferring supernate only)	No solids samples were taken.	Need all required analyses except percent water, gross alpha, DSC, total organic carbon and SpG.
241-AW-101	Citrate, formate, HEDTA, ammonia, carbonate, hydroxide, Cs, Hg, Te, many organics, particle size distr., pH, settled solids, shear strength, viscosity, vol. % settled solids, many radionuclides.	Same as solids.

Table 4-2. Solid and Liquid Analytical Data Not Available for Phase I Privatization Tanks.
(2 sheets)

Tank	Solids	Liquids
241-AY-102	No solids samples were taken.	Cyanide, ammonia, carbonate, many ICP metals, many organics, physical properties except SpG, many radionuclides.
241-AZ-101	No solids samples were taken after 1989 (May 1989 core).	Bromide, citrate, formate, HEDTA, ammonia, carbonate, Cr ⁺⁶ , many ICP metals, many organics, physical properties except SpG, many radionuclides.
241-AZ-102 (transferring supernate only.)	No solids samples were taken after 1989 (May 1989 core).	Bromide, citrate, formate, HEDTA, ammonia, carbonate, Cr ⁺⁶ , many ICP metals, many organics, physical properties except SpG, many radionuclides.
241-SY-101	Citrate, formate, HEDTA, ammonia, several ICP metals, many organics, many radionuclides.	Same as solids.
241-SY-103	Citrate, HEDTA, ammonia, carbonate, many ICP metals, many organics, particle size distr., settled solids, shear strength, viscosity, vol. % settled solids, many radionuclides.	
241-AP -102, -104, -106, -108	New samples may be needed after waste transfers.	New samples may be needed after waste transfers.

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5.0 DATA ACQUISITION PLANS

5.1 ARCHIVE SAMPLES

Where possible, archive samples can be analyzed to obtain needed data. Table 5-1 shows the estimated amount and types of archive samples for each tank in the scope, based on information available in the tank archive database. These values should be considered approximate until, and if, a physical inventory of the sample archive is performed.

“Solids” vials may contain saltcake, sludge, or saltcake and sludge and may be centrifuged solids or uncentrifuged. Methods for separating liquids from solids varied. In many cases, liquids were skimmed from the top of a sample after suspended solids settled to the bottom of a container. The content of a vial is considered “uncertain” if the vial was subsampled from a parent vial, is a composite, or the description is such that the nature of the sample cannot be determined. Laboratory reports for applicable samples should be consulted to determine the origin of the archive samples and the method of preparation.

The archive vials will need to be checked to determine whether enough material is available to do a full suite of analyses with duplicates and other quality control samples (for example, 100 ml of liquids or 30 g of solids). Archive samples will probably not be acceptable for semivolatile and volatile analyses because of the short sample retention time required for these analyses. In addition, some physical tests may require additional sampling to obtain larger sample quantities or “undisturbed” samples.

Table 5-1. Available Archive Samples.

Tank ID	Total Vials $A = B + C + D$	Liquid Sample Vials (B)	Solid Sample Vials (C)	Uncertain Vial Content (D)
241-AN-103	7	0	0	7
241-AN-103	95	14	25	56
241-AN-104	84	22	12	50
241-AN-105	97	32	10	55
241-AN-106	0	0	0	0
241-AN-107	14	0	0	14
241-AW-101	110	27	34	49
241-AZ-101	0	0	0	0
241-AZ-102	0	0	0	0
241-SY-101	0	0	0	0
241-SY-103	28	8	5	15

5.2 BEST BASIS ANALYSES

Where archive data cannot be used, another alternative is to determine analytical information based on "best basis" tank inventories. A proposal for using best basis inventory information is included in the draft DQO *Confirm Tank T is an Appropriate Feed Source for Low-Activity Waste Feed Batch X*. Tank best basis inventories have been developed for each LAW and HLW tank and all 177 double-shell and single-shell tanks in the Hanford tank farms. The best basis inventory is based on sample data, engineering assessments, or Hanford Defined Waste model estimates depending on available information. Engineering estimates evaluate tank surveillance data, tank process transfer records, and sample data from tanks containing the same waste types or similar process histories.

Best basis evaluations are available on the Tank Characterization Database and are included as an Appendix in Tank Characterization Reports.

Using best basis values for some required data gaps will probably require approval by regulatory agencies. If best basis evaluations are determined to be insufficient to fill data gaps, then additional samples will have to be taken.

5.3 SAMPLING PLANS

If archive samples are not available for required analyses, and if best basis data are not available or not acceptable, additional sampling is required.

Sampling plans are developed according to the Waste Information Requirements Document which identifies tank characterization activities needed for safe storage, retrieval, and disposal of TWRS tank waste. Characterization planning and scheduling tools include the technical sampling priority basis document, baseline sampling schedule, laboratory analysis schedule, tank characterization report schedule, and associated supporting documents.

Table B-1 shows a schedule (as of October 30, 1997) for obtaining many of the needed tank samples for the tanks in scope. Start and finish dates depend on available resources and sampling priority. Sampling dates are revised frequently and sampling will be conducted according to the most current revision of the Baseline Sampling Schedule as prepared by the TWRS characterization program.

After sampling, samples are sent to the 222-S Laboratory for analysis. Standard analyses to address tank issues and quality control checks are scheduled to be completed within 140 days after receiving samples. Data is then loaded into the TCD and is available on the Internet within seven days after the final data report is completed.

6.0 RECOMMENDATIONS

Analytical and physical tests are needed on samples for the tanks within the scope to meet current Phase I privatization requirements specified in program documents, drafts for future program documents, and problem-specific DQOs. Many analyses have already been completed or can be performed with current archive samples and laboratory equipment.

Table 6-1 summarizes the data not available, available archive samples, sample plans, and potential data needs for characterizing tank waste based on preliminary Phase I analytical requirements as of November 1, 1997.

Samples are planned and/or archive material may be available to meet many current characterization requirements. However, to obtain organic analyses for solids, if required, tanks 241-AN-107, 241-AW-101 and 241-AY-102 will need to be resampled or scheduled grab samples will need to include tank solids. Sampling for solids and liquids is needed but is not scheduled for tank 241-SY-101. New samples may also be needed for all tanks within the scope if "undisturbed samples" are required for physical properties analyses. Where it is available, archive material can be used for other analytical needs.

Additional laboratory equipment and/or laboratory facilities may be needed because some required analyses do not appear to be currently available from any onsite laboratories, and it is questionable whether onsite laboratories will be able to meet the production needs for the privatization program. Most analyses are currently performed by the 222-S Laboratory. Organic speciation and some physical analyses are performed mostly by the Pacific Northwest National 325 Laboratory. Many radionuclide and organic analytes listed as requirements and some physical tests have no procedures established and are not currently performed in an onsite laboratory.

As stated previously, this report does not include a discussion of characterization requirements and needs outside the tank. This is because few analyte specific requirements have been determined, and samples and analyses outside the tank have not been scheduled. Table 4-1 identifies many potential general requirements for samples and analyses outside the tanks. These requirements should be assessed further, and a schedule should be established.

Table 6-1. Summary of Sample Data Not Available and Needs for Tank Privatization.
(3 sheets)

Tank	Sampling and Analyses	Sampling Scheduled	Archive Samples	Remaining Data Gaps
241-AN-102 (LAW)	No solid samples. No analysis for many ICP and IC analytes, most physical properties, organics, and radionuclides.	Liquid grabs	Liquid?	May need solid samples.
241-AN-103 (LAW)	No analyses for most physical properties, organics, radionuclides, some metals and others (solids and liquids).	Liquid grabs	Liquid and solid	May need solids sample for organics.
241-AN-104 (LAW)	No analyses for most physical properties, organics, radionuclides, some metals and others (solids and liquids).	Liquid grabs	Liquid and solid	May need solids sample for organics.
241-AN-105 (LAW)	No analyses for most physical properties, organics, radionuclides, some metals and others (solids and liquids).	Liquid grabs	Liquid and solid	May need solids sample for organics.
241-AN-106 (LAW)	No solid samples. Only have percent water, gross alpha, DSC, total organic carbon and SpG (liquids).	Push liquid grabs	None	None
241-AN-107 (LAW)	No solid samples. Only have % water, gross alpha, DSC, total organic carbon and SpG.	Push grabs	14 vials content unknown	None
241-AW-101 (LAW)	No analyses for anions, most physical properties, organics, radionuclides, some metals (solids and liquids).	Liquid grabs	Liquid and solid	May need solids sample for organics.

Table 6-1. Summary of Sample Data Not Available and Needs for Tank Privatization.
(3 sheets)

Tank	Sampling and Analyses	Sampling Scheduled	Archive Samples	Remaining Data Gaps
241-AY-102 (HLW)	No solid samples. No analyses for many ICP metals, organics, physical properties except SpG, many radionuclides (solids and liquids).	Liquid grabs	None	May need solid samples.
241-AZ-101 (LAW/ HLW)	No solid samples. No analyses for many ICP metals, organics, physical properties except SpG, many radionuclides (solids and liquids).	Liquid and solid grabs	None	None
241-AZ-102 (LAW/ HLW)	No solid samples. No analyses for many ICP metals, organics, physical properties except SpG, many radionuclides (solids and liquids).	Liquid and solid grabs	None	None
241-SY-101 (LAW)	No analyses for some ICP metals, organics, radionuclides (solids and liquids).	Nothing	None	Need liquid and solid samples, may need grab samples before and after tank transfers.
241-SY-103 (LAW)	No analyses for many ICP metals, physical properties, organics, radionuclides (solids and liquids).	Liquid grabs	Liquid and solid	May need solid sample for organics.
241-AP-102 staging tank	NA	Grabs	NA	None
241-AP-104 staging tank	NA	Grabs	NA	None
241-AP-106 feed tank	NA	Grabs	NA	None

Table 6-1. Summary of Sample Data Not Available and Needs for Tank Privatization.
(3 sheets)

Tank	Sampling and Analyses	Sampling Scheduled	Archive Samples	Remaining Data Gaps ¹
241-AP-108 feed tank	NA	October 1997 grab	NA	May need additional grab samples.

Note:

NA = not applicable

¹"None" means that based on current sample plans (see Table B-1) and/or archive samples, no additional sampling needs, beyond those scheduled, have been identified at this time. However, based on preliminary requirements, additional analyses are required for all tanks (see Tables A-2 and A-3).

APPENDIX A

CHARACTERIZATION DATA REQUIREMENTS

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Table A-1. Low-Activity Waste and High-Level Waste Privatization Tank Data Requirements. (8 sheets)

Element Group		Type & Constituent		LAW	HDOO	Group II	Spec.	Spec.	Spec.	Comments
Anions	Chloride	H	L	LH	LH	LH	LH	LH	LH	
Anions	Citrate	L	L	LH	LH	LH	LH	LH	LH	
Anions	Cyanide	H	H	LH	LH	LH	LH	LH	LH	
Anions	EDTA	LH	L	H	LH	LH	LH	LH	LH	
Anions	Fluoride	L	L	LH	LH	LH	LH	LH	LH	
Anions	Formate	L	L	LH	LH	LH	LH	LH	LH	
Anions	HEDTA	LH	L	LH	LH	LH	LH	LH	LH	
Anions	Nitrate	LH	L	LH	LH	LH	LH	LH	LH	
Anions	Nitrite	LH	L	LH	LH	LH	LH	LH	LH	
Anions	Phosphate	L	L	LH	LH	LH	LH	LH	LH	
Anions	Sulfate	L	L	LH	LH	LH	LH	LH	LH	
Inorganics	Ammonia	H	H	L	LH	LH	LH	LH	LH	
Inorganics	Carbonate	LH	L	LH	LH	LH	LH	LH	LH	
Inorganics	Heavy metal chalcogenides									
Inorganics	Hydroxide	L	L	LH	LH	LH	LH	LH	LH	
Inorganics	Total inorganic carbon	LH	L	L	LH	LH	LH	LH	LH	
Inorganics	Total organic carbon	LH	L	L	LH	LH	LH	LH	LH	
Metals	Aluminum	LH	L	H	LH	LH	LH	LH	LH	
Metals	Antimony	H	L	L	LH	LH	LH	LH	LH	
Metals	Arsenic	H	L	H	LH	LH	LH	LH	LH	
Metals	Barium	H	L	H	LH	LH	LH	LH	LH	
Metals	Beryllium	H	L	L	LH	LH	LH	LH	LH	
Metals	Bismuth	H	L	H	LH	LH	LH	LH	LH	
Metals	Cadmium	LH	L	H	LH	LH	LH	LH	LH	
Metals	Calcium	LH	L	H	LH	LH	LH	LH	LH	
Metals	Cerium	H	H	H	LH	LH	LH	LH	LH	
Metals	Cesium	H	H	L	LH	LH	LH	LH	LH	
Metals	Chromium	LH	L	H	LH	LH	LH	LH	LH	
Metals	Cobalt	H	L	L	LH	LH	LH	LH	LH	
Metals	Copper	H	H	L	LH	LH	LH	LH	LH	
Metals	Dysprosium	H	H	H	LH	LH	LH	LH	LH	
Metals	Europium	H	H	H	LH	LH	LH	LH	LH	
Metals	Gadolinium	H	H	L	LH	LH	LH	LH	LH	
Metals	Iron	LH	L	L	LH	LH	LH	LH	LH	

Table A-1. Low-Activity Waste and High-Level Waste Privatization Tank Data Requirements. (8 sheets)

Contaminant Group	Constituent	Tanks & Other Media	QCD	LAW DOE DOE DOE	Heavy Metal DOE	Corrosion Inhibitor DOE	Frac. Metal DOE	Model DOE	Common's DOE
Metals	Lanthanum	LH	L	H	LH	LH	LH	LH	
Metals	Lead	LH	L	H	LH	LH	LH	LH	
Metals	Lithium	H	H	L	H	LH	LH	LH	
Metals	Magnesium	H	H	L	H	LH	H	H	
Metals	Manganese	H	H	L	H	LH	H	H	
Metals	Mercury	LH	L	H	LH	LH	LH	LH	
Metals	Molybdenum	H	H	H	LH	LH	H	H	
Metals	Nickel	LH	L	H	LH	LH	LH	LH	
Metals	Palladium	H	H	L	H	LH	H	H	
Metals	Potassium	LH	L	H	LH	LH	LH	LH	
Metals	Rhenium	H	H	H	LH	LH	H	H	
Metals	Ruthenium	H	H	H	LH	LH	H	H	
Metals	Samarium	H	H	H	LH	LH	H	H	
Metals	Silver	H	H	L	H	LH	LH	LH	
Metals	Sodium	LH	L	H	LH	LH	LH	LH	
Metals	Srontium	H	H	L	H	LH	LH	LH	
Metals	Thorium	H	H	L	H	LH	H	H	
Metals	Tin	H	H	H	LH	LH	H	H	
Metals	Titanium	H	H	H	LH	LH	H	H	
Metals	Tungsten	H	H	H	LH	LH	H	H	
Metals	Uranium	LH	L	H	LH	LH	LH	LH	
Metals	Vanadium	H	H	L	LH	LH	H	H	
Metals	Yttrium	H	H	H	LH	LH	H	H	
Metals	Zinc	H	H	L	LH	LH	H	H	
Metals	Zirconium	H	H	L	LH	LH	LH	LH	
Nonmetals	Boron	H	H	L	H	LH	H	H	
Nonmetals	Phosphorus	H	H	H	LH	LH	H	H	
Nonmetals	Selenium	H	H	L	LH	LH	H	H	
Nonmetals	Silicon	H	H	L	LH	LH	H	H	
Nonmetals	Sulfur	H	H	L	LH	LH	H	H	
Nonmetals	Tellurium	H	H	L	LH	LH	H	H	
Organics	1,1,1-Trichloroethane						LH		

Table A-1. Low-Activity Waste and High-Level Waste Privatization Tank Data Requirements. (8 sheets)

Contaminant Stream	Contaminants	TWRS	HAN	HAN	HAN	HAN	Model	Comments
		Acute Metrics	ICP	ICP	DQO	DOA	DOA	
Organics	1,2-Dichloroethane					LH		
Organics	2,4,5-Trichlorophenol					LH		
Organics	2,4-Dinitrotoluene					LH		
Organics	2-Butanone					LH		
Organics	2-Butoxyethanol					LH		
Organics	2-hexanone					LH		
Organics	2-Pentanone					LH		
Organics	3-heptanone					LH		
Organics	Acetate	L						
Organics	Acetone					LH		
Organics	Benzene					LH		
Organics	Carbon disulfide					LH		
Organics	Carbon tetrachloride					LH		
Organics	Chloroform					LH		
Organics	Ethyl acetate					LH		
Organics	Ethyl ether					LH		
Organics	Glycolate	L						
Organics	Heptachlorobutadiene					LH		
Organics	Heptachloroethane					LH		
Organics	Methylenechloride					LH		
Organics	Naphthalene					LH		
Organics	Nitrobenzene					LH		
Organics	None					LH		
Organics	PCB					LH		
Organics	Pyridine					LH		
Organics	Tetrachloroethene					LH		
Organics	Tetrahydrofuran					LH		
Organics	Toluene					LH		
Organics	Triethyl phosphate					LH		
Organics	Vinyl chloride					LH		
Organics	Xylenes (total)					LH		
Physical Properties	Density	LH	L		LH	LH		
Physical Properties	DSC (exotherm)	L	H		LH	LH	H	
Physical Properties	Particle size	H	L		LH	LH	H	For LAW DQO, the composition of suspended or floating particles should be determined by ICP, IC, total alpha and beta, and Sr-90, particle size.

Table A-1. Low-Activity Waste and High-Level Waste Privatization Tank Data Requirements. (8 sheets)

Characteristic/Screen	Constituent	TWRS Gross Multi Acid	LAW Gross Multi Acid	HLL Gross Multi Acid	Europium SOXO	Ferric Demineralized Water	Magnesium Water	Common
Physical Properties	Percent water	L	H	LH	LH	LH	LH	TGA Free water for comparability DQO.
Physical Properties	pH measurement	LH	H	H				
Physical Properties	Sentied solids	LH	H				H	
Physical Properties	Shear strength	H	H					
Physical Properties	Solid density	H					H	
Physical Properties	Solid volume	L						
Physical Properties	Specific gravity	L	H					
Physical Properties	Temperature						LH	
Physical Properties	Total dissolved solids		H					
Physical Properties	Viscosity		H	L				Apparent Visc. cP, for Equip Design DQO (supermant).
Physical Properties	Volume percent settled solids		L					
Physical Properties	Volume percent solids	L						
Physical Properties	Weight percent oxides		LH					
Physical Properties	Weight percent solids		LH					
Physical Properties	Yield point		H					
Radionuclides	Americium-241		H	L	H			
Radionuclides	Americium-243		H	L	H			
Radionuclides	Anthimony-125		H	H				
Radionuclides	Carbon-14		H	L	H			
Radionuclides	Cerium-144		H					
Radionuclides	Cerium/Prasodymium-144		H					
Radionuclides	Cesium-134		H					
Radionuclides	Cesium-137	L	L	H				
Radionuclides	Coaltite-60		H	L				
Radionuclides	Curium-242		H	L				
Radionuclides	Curium-243/244		L	H				
Radionuclides	Curium-244		H					
Radionuclides	Europium-152		H	L				
Radionuclides	Europium-154		H	L				
Radionuclides	Europium-154/155		H					
Radionuclides	Europium-155		H					
Radionuclides	Gross alpha	L	L					or alpha from contributing radionuclides
Radionuclides	Gross beta		L					Pu-238,239/240, Am-241, maybe Am-242m and Cm-244
Radionuclides	Iodine-129		H	L				
Radionuclides	Neptunium-237		H	L				

Table A-1. Low-Activity Waste and High-Level Waste Privatization Tank Data Requirements. (8 sheets)

Radionuclides	Containment	Tanks		LAW		HLW		Commissary	
		QA/QC	Material	DOE	DOE	DOE	DOE	Model	Comments
Radionuclides	Nickel-59		H			LH			
Radionuclides	Nickel-63		H			H			
Radionuclides	Plutonium-238		H			H			
Radionuclides	Plutonium-239		H			LH			
Radionuclides	Plutonium-239/40					LH			
Radionuclides	Plutonium-238		L			H			
Radionuclides	Plutonium-239		L			H			
Radionuclides	Plutonium-240		L			H			
Radionuclides	Plutonium-241		L			LH			
Radionuclides	Plutonium-242		L			H			
Radionuclides	Ruthenium-106		H			H			
Radionuclides	Selenium-79		H			H			
Radionuclides	Samarium-149/90		L			LH			
Radionuclides	Samarium-90		L			H			
Radionuclides	Technetium-99		L			LH			
Radionuclides	Thorium-228					LH			
Radionuclides	Tin-113								
Radionuclides	Total alpha energy from plutonium					LH			
Radionuclides	Tritium		H			L			
Radionuclides	Uranium-234								
Radionuclides	Uranium-235								
Radionuclides	Uranium-236								
Radionuclides	Uranium-238								
Radionuclides	Uranium-233								
Radionuclides	Uranium-234								
Radionuclides	Uranium-235								
Radionuclides	Uranium-238								
Analytes Not in The Tank Characterization Database									
Radionuclides	Am-242					H			
Radionuclides	Am-242m					H			
Radionuclides	Fe-55					H			
Radionuclides	I-131					H			
Radionuclides	Nb-93m					H			

Table A-1. Low-Activity Waste and High-Level Waste Privatization Tank Data Requirements. (8 sheets)

Radionuclide Group	Constituent	Tanks Excluded Metals	Uranium Dose	Cesium Dose	Strontium Dose	Plutonium Dose	Actinides Dose	Other Actinides	Yttrium Dose	Curium Dose	Neptunium Dose	Americium Dose	Curium Constituents
Radionuclides	Zr-93												
Radionuclides	Rh-106				H	L	H						H
Radionuclides	Pd-107				H		H						H
Radionuclides	Ag-110m				H								H
Radionuclides	Cd-113m				H								H
Radionuclides	In-113m				H								H
Radionuclides	Sn-113				H								H
Radionuclides	Cd-115m				H								H
Radionuclides	Sn-119m				H								H
Radionuclides	Sn-121m				H								H
Radionuclides	Sn-126				H	L							H
Radionuclides	Sn-124				H								H
Radionuclides	Sb-126				H								H
Radionuclides	Sb-126m				H								H
Radionuclides	Te-125m				H								H
Radionuclides	Cs-135				H								H
Radionuclides	Ba-137m				H								H
Radionuclides	Pr-144m				H								H
Radionuclides	Pm-147				H								H
Radionuclides	Sm-151				H								H
Radionuclides	Uranium-236				H	L	H						H
Radionuclides	Plutonium-240				H		H						H
Radionuclides	Plutonium-241				H		H						H
Radionuclides	Plutonium-242				H		H						H
Radionuclides	Th-232					L							H
Metals	Nb				H								H
Metals	Rb				H								H
Metals	Ta				H								H
Metals	Total Pu						LH						H
Metals	Total Np												H
Metals	Total Tc												H
Metals	Total Pm												H
Metals	Total Am												H
Heat Capacity													Cal/g °C

Table A-1. Low-Activity Waste and High-Level Waste Privatization Tank Data Requirements. (8 sheets)

Containment Group	Containment	TWS	240U	Mutated	LAW	HLLW	Cesium	Boron	Lead	Metals	Comments
Metals	Rare Earths			L	H						
Organics	Cresol total									LH	
Organics	1,1-dichloroethylene									LH	
Organics	methyl ethyl ketone									LH	
Organics	trichloroethylene									LH	
Organics	corrosivity									LH	
Organics	ignitability									LH	
Organics	reactivity									LH	
Organics	methyl isobutyl ketone									LH	
Organics	o-cresol									LH	
Organics	p-cresol									LH	
Organics	m-cresol									LH	
Organics	Sb-125									LH	
Organics	Bi-214									LH	
Organics	acetonitrile									LH	
Organics	1,3-butadiene									LH	
Organics	butane									LH	
Organics	n-butyl acetate									LH	
Organics	n-butyl alcohol									LH	
Organics	carbon monoxide									LH	
Organics	dipropyl ketone									LH	
Organics	n-heptane									LH	
Organics	n-hexane									LH	
Organics	methyln- <i>t</i> -amyl ketone									LH	
Organics	nitric oxide									LH	
Organics	nitrogen dioxide									LH	
Organics	octane									LH	
Organics	ozone									LH	
Organics	particulates PM-10									LH	
Organics	pentane									LH	
Organics	sulfur dioxide									LH	
Organics	trichlorofluoromethane									LH	
Organics	vinylidene chloride									LH	
Metals	Praseodymium									H	

Table A-1. Low Activity Waste and High-Level Waste Privatization Tank Data Requirements. (8 sheets)

Constituent Group	Constituent	TWRS	ICP	LAW	ICP	ICP	Model Valid
Meals	Thallium			H			
Caustic demand				LH			
Visual layers				LH			
Depth of tank solids				LH	LH		
Neutron absorbers				LH			
Particle hardness				LH			
Settling rate				LH			
Thermal property				LH			

Notes:

- cm² = square centimeter
- Compat DQO = Compatibility DQO
- cP = continuous
- Equip Design = Equipment Design, Retrieval DQO
- Feed Delivery = Waste Feed Delivery Permitting, Retrieval DQO
- GC/MS = gas chromatography/mass spectrometry
- DQO = data quality objective
- H = high-level waste requirement, preliminary requirements for documents, issued, draft, and pre-draft (see Table 4-1).
- HLW DQO = high-level waste
- IC = ion chromatography
- ICD = Interface Control Documents
- ICP = inductively coupled plasma
- LH = both low-activity waste and high-level waste requirements
- L = low-activity waste requirement
- LAW DQO = low-activity waste, preliminary requirements for documents, issued, draft, and pre-draft (see Table 4-1).
- MIL = Mid-Level Logic and Decomposition of Mid Level Logic
- Model Validation, Retrieval DQO = Model Validation, Retrieval DQO
- O&UP = Operations and Utility Plan
- TWRS = Tank Waste Remediation System
- TWRS O&UP = Tank Waste Remediation System Operation and Utilization Plan

Table A-2. Available and Needed Data for Required Low-Activity Waste Analyses.^{1,2} (41 sheets)

Tank	Constituent Group	Constituent	Units	Sample No.	Sample Analyzed	Physical State
241-AN-102	Anions	Chloride	$\mu\text{g}/\text{mL}$	Supernatant	Grab sample	Liquid
241-AN-102	Anions	Citrate	$\mu\text{g}/\text{mL}$			
241-AN-102	Anions	Fluoride	$\mu\text{g}/\text{mL}$	Supernatant	Grab sample	Liquid
241-AN-102	Anions	Formate	$\mu\text{g}/\text{mL}$			
241-AN-102	Anions	HEDTA	$\mu\text{g}/\text{mL}$	Supernatant	Grab sample	Liquid
241-AN-102	Anions	Nitrate	$\mu\text{g}/\text{mL}$	Supernatant	Grab sample	Liquid
241-AN-102	Anions	Nitrite	$\mu\text{g}/\text{mL}$	Supernatant	Grab sample	Liquid
241-AN-102	Anions	Phosphate	$\mu\text{g}/\text{mL}$	Supernatant	Grab sample	Liquid
241-AN-102	Anions	Sulfate	$\mu\text{g}/\text{mL}$	Supernatant	Grab sample	Liquid
241-AN-102	Inorganics	Ammonia	$\mu\text{g}/\text{mL}$			
241-AN-102	Inorganics	Carbonate	$\mu\text{g}/\text{mL}$			
241-AN-102	Inorganics	Hydroxide	$\mu\text{g}/\text{mL}$	Supernatant	Grab sample	Liquid
241-AN-102	Inorganics	Total inorganic carbon	$\mu\text{g}/\text{mL}$	Supernatant	Grab sample	Liquid
241-AN-102	Inorganics	Total organic carbon	$\mu\text{g}/\text{mL}$	Supernatant	Grab sample	Liquid
241-AN-102	Metals	Aluminum	$\mu\text{g}/\text{mL}$	Supernatant	Grab sample	Liquid
241-AN-102	Metals	Antimony	$\mu\text{g}/\text{mL}$			
241-AN-102	Metals	Arsenic	$\mu\text{g}/\text{mL}$			
241-AN-102	Metals	Barium	$\mu\text{g}/\text{mL}$			
241-AN-102	Metals	Beryllium	$\mu\text{g}/\text{mL}$			
241-AN-102	Metals	Bismuth	$\mu\text{g}/\text{mL}$			
241-AN-102	Metals	Cadmium	$\mu\text{g}/\text{mL}$			
241-AN-102	Metals	Calcium	$\mu\text{g}/\text{mL}$			
241-AN-102	Metals	Cesium	$\mu\text{g}/\text{mL}$			
241-AN-102	Metals	Cobalt	$\mu\text{g}/\text{mL}$			
241-AN-102	Metals	Copper	$\mu\text{g}/\text{mL}$	Supernatant	Grab sample	Liquid
241-AN-102	Metals	Iron	$\mu\text{g}/\text{mL}$			
241-AN-102	Metals	Lanthanum	$\mu\text{g}/\text{mL}$			
241-AN-102	Metals	Lead	$\mu\text{g}/\text{mL}$			
241-AN-102	Metals	Lithium	$\mu\text{g}/\text{mL}$			
241-AN-102	Metals	Magnesium	$\mu\text{g}/\text{mL}$			
241-AN-102	Metals	Manganese	$\mu\text{g}/\text{mL}$	Supernatant	Grab sample	Liquid
241-AN-102	Metals	Mercury	$\mu\text{g}/\text{mL}$			
241-AN-102	Metals	Nickel	$\mu\text{g}/\text{mL}$	Supernatant	Grab sample	Liquid
241-AN-102	Metals	Potassium	$\mu\text{g}/\text{mL}$			
241-AN-102	Metals	Silver	$\mu\text{g}/\text{mL}$			
241-AN-102	Metals	Sodium	$\mu\text{g}/\text{mL}$	Supernatant	Grab sample	Liquid

Table A-2. Available and Needed Data for Required Low-Activity Waste Analyses.^{1,2} (41 sheets)

Tank	Constituent Group	Constituent	This	Sample Type	Sample Analyzed	Physical State
241-AN-102	Metals	Strontrium				
241-AN-102	Metals	Thallium				
241-AN-102	Metals	Uranium	µg/mL	Supernatant		
241-AN-102	Metals	Vanadium				
241-AN-102	Metals	Zinc				
241-AN-102	Metals	Zirconium				
241-AN-102	Nonmetals	Boron				
241-AN-102	Nonmetals	Selenium				
241-AN-102	Nonmetals	Sulfur				
241-AN-102	Nonmetals	Tellurium				
241-AN-102	Organics	1,1,1-Trichloroethane				
241-AN-102	Organics	1,2-Dichloroethane				
241-AN-102	Organics	2,4,5-Trichlorophenol				
241-AN-102	Organics	2,4-Dinitrotoluene				
241-AN-102	Organics	2-Butanone				
241-AN-102	Organics	2-Butoxyethanol				
241-AN-102	Organics	2-Hexanone				
241-AN-102	Organics	2-Pentanone				
241-AN-102	Organics	3-Heptanone				
241-AN-102	Organics	Acetate				
241-AN-102	Organics	Acetone				
241-AN-102	Organics	Benzene				
241-AN-102	Organics	Carbon disulfide				
241-AN-102	Organics	Carbon tetrachloride				
241-AN-102	Organics	Chloroform				
241-AN-102	Organics	Ethyl acetate				
241-AN-102	Organics	Ethyl ether				
241-AN-102	Organics	Glycolate				
241-AN-102	Organics	Hexachlorobutadiene				
241-AN-102	Organics	Methylenechloride				
241-AN-102	Organics	Naphthalene				
241-AN-102	Organics	Nitrobenzene				
241-AN-102	Organics	Nonane				
241-AN-102	Organics	pCB				
241-AN-102	Organics	Pyridine				

Table A-2 Available and Needed Data for Required Low Activity Waste Analyses.^{1,2} (41 sheets)

Rank	Constituent Group	Constituent	Sample Type		Sample Analyzed	Physical State
			Units	Time		
241-AN-102	Organics	Tetrachloroethane				
241-AN-102	Organics	Tetrahydrofuran				
241-AN-102	Organics	Toluene				
241-AN-102	Organics	Tributyl phosphate				
241-AN-102	Organics	Vinyl chloride				
241-AN-102	Organics	Xylenes (total)				
241-AN-102	Physical Properties	DSC (exotherm)				
241-AN-102	Physical Properties	Particle size/density				
241-AN-102	Physical Properties	Percent water				
241-AN-102	Physical Properties	pH				
241-AN-102	Physical Properties	Settled solids				
241-AN-102	Physical Properties	Shear strength				
241-AN-102	Physical Properties	Solid volume				
241-AN-102	Physical Properties	Specific gravity	unitless		Supernatant	Liquid
241-AN-102	Physical Properties	Temperature			Grab sample	
241-AN-102	Physical Properties	Viscosity				
241-AN-102	Physical Properties	Volume percent settled solids				
241-AN-102	Physical Properties	Volume percent solids				
241-AN-102	Physical Properties	Weight percent solids				
241-AN-102	Radionuclides	Americium-241	$\mu\text{Ci/mL}$	Supernatant	Grab sample	Liquid
241-AN-102	Radionuclides	Americium-243				
241-AN-102	Radionuclides	Carbon-14				
241-AN-102	Radionuclides	Cerium-144				
241-AN-102	Radionuclides	Cesium-137	$\mu\text{Ci/mL}$	Supernatant	Grab sample	Liquid
241-AN-102	Radionuclides	Cobalt-60	$\mu\text{Ci/mL}$	Supernatant	Grab sample	Liquid
241-AN-102	Radionuclides	Curium-242				
241-AN-102	Radionuclides	Curium-243/244				
241-AN-102	Radionuclides	Europium-152				
241-AN-102	Radionuclides	Europium-154				
241-AN-102	Radionuclides	Europium-155				
241-AN-102	Radionuclides	Gross alpha				
241-AN-102	Radionuclides	Gross beta				
241-AN-102	Radionuclides	Iodine-129				
241-AN-102	Radionuclides	Nepentium-237				
241-AN-102	Radionuclides	Plutonium-238				

Table A-2. Available and Needed Data for Required Low-Activity Waste Analyses.^{1,2} (41 sheets)

Tank	Containment Group	Constituent	Unit	Sample Type	Sample Analyzed	Physical State
241-AN-102	Radionuclides	Plutonium-239	$\mu\text{Ci/mL}$	Supernatant	Grab sample	Liquid
241-AN-102	Radionuclides	Plutonium-239/40	$\mu\text{Ci/mL}$	Supernatant	Grab sample	Liquid
241-AN-102	Radionuclides	Plutonium-240	$\mu\text{Ci/mL}$	Supernatant	Grab sample	Liquid
241-AN-102	Radionuclides	Plutonium-241	$\mu\text{Ci/mL}$	Supernatant	Grab sample	Liquid
241-AN-102	Radionuclides	Plutonium-242	$\mu\text{Ci/mL}$	Supernatant	Grab sample	Liquid
241-AN-102	Radionuclides	Selenium-79	$\mu\text{Ci/mL}$	Supernatant	Grab sample	Liquid
241-AN-102	Radionuclides	Selenium-89/90	$\mu\text{Ci/mL}$	Supernatant	Grab sample	Liquid
241-AN-102	Radionuclides	Sodium	$\mu\text{Ci/mL}$	Supernatant	Grab sample	Liquid
241-AN-102	Radionuclides	Strontium-90	$\mu\text{Ci/mL}$	Supernatant	Grab sample	Liquid
241-AN-102	Radionuclides	Techneium-99	$\mu\text{Ci/mL}$	Supernatant	Grab sample	Liquid
241-AN-102	Radionuclides	Thorium-228	$\mu\text{Ci/mL}$	Supernatant	Grab sample	Liquid
241-AN-102	Radionuclides	Total alpha, plutonium	$\mu\text{Ci/mL}$	Supernatant	Grab sample	Liquid
241-AN-102	Radionuclides	Uranium	$\mu\text{Ci/mL}$	Supernatant	Grab sample	Liquid
241-AN-102	Radionuclides	Uranium-233	$\mu\text{Ci/mL}$	Supernatant	Grab sample	Liquid
241-AN-102	Radionuclides	Uranium-234	$\mu\text{Ci/mL}$	Supernatant	Grab sample	Liquid
241-AN-102	Radionuclides	Uranium-235	$\mu\text{Ci/mL}$	Supernatant	Grab sample	Liquid
241-AN-102	Radionuclides	Uranium-238	$\mu\text{Ci/mL}$	Supernatant	Grab sample	Liquid
241-AN-103	Anions	Chloride	$\mu\text{g/L}$, $\mu\text{sCi/L}$	Core	Core composite, subdivision	Solid, liquid
241-AN-103	Anions	Citrate	$\mu\text{g/L}$, $\mu\text{sCi/L}$	Core	Core composite, subdivision	Solid, liquid
241-AN-103	Anions	Fluoride	$\mu\text{g/L}$, $\mu\text{sCi/L}$	Core	Core composite, subdivision	Solid, liquid
241-AN-103	Anions	Formate	$\mu\text{g/L}$, $\mu\text{sCi/L}$	Core	Core composite, subdivision	Solid, liquid
241-AN-103	Anions	HEDTA	$\mu\text{g/L}$, $\mu\text{sCi/L}$	Core	Core composite, subdivision	Solid, liquid
241-AN-103	Anions	Nitrate	$\mu\text{g/L}$, $\mu\text{sCi/L}$	Core	Core composite, subdivision	Solid, liquid
241-AN-103	Anions	Nitrite	$\mu\text{g/L}$, $\mu\text{sCi/L}$	Core	Core composite, subdivision	Solid, liquid
241-AN-103	Anions	Phosphate	$\mu\text{g/L}$, $\mu\text{sCi/L}$	Core	Core composite, subdivision	Solid, liquid
241-AN-103	Anions	Sulfate	$\mu\text{g/L}$, $\mu\text{sCi/L}$	Core	Core composite, subdivision	Solid, liquid
241-AN-103	Inorganics	Ammonia	$\mu\text{g/L}$, $\mu\text{sCi/L}$	Core	Core composite, subdivision	Solid, liquid
241-AN-103	Inorganics	Carbonate	$\mu\text{g/L}$, $\mu\text{sCi/L}$	Core	Core composite, subdivision	Solid, liquid
241-AN-103	Inorganics	Hydroxide	$\mu\text{g/L}$, $\mu\text{sCi/L}$	Core	Core composite, subdivision	Solid, liquid
241-AN-103	Inorganics	Total inorganic carbon	$\mu\text{g/L}$, $\mu\text{sCi/L}$	Core	Core composite, subdivision	Solid, liquid
241-AN-103	Inorganics	Total organic carbon	$\mu\text{g/L}$, $\mu\text{sCi/L}$	Core	Core composite, subdivision	Solid, liquid
241-AN-103	Metals	Aluminum	$\mu\text{g/L}$, $\mu\text{sCi/L}$	Core	Core composite, subdivision	Solid, liquid
241-AN-103	Metals	Antimony	$\mu\text{g/L}$, $\mu\text{sCi/L}$	Core	Core composite, subdivision	Solid, liquid
241-AN-103	Metals	Arsenic	$\mu\text{g/L}$, $\mu\text{sCi/L}$	Core	Core composite, subdivision	Solid, liquid
241-AN-103	Metals	Barium	$\mu\text{g/L}$, $\mu\text{sCi/L}$	Core	Core composite, subdivision	Solid, liquid
241-AN-103	Metals	Beryllium	$\mu\text{g/L}$, $\mu\text{sCi/L}$	Core	Core composite, subdivision	Solid, liquid
241-AN-103	Metals	Bismuth	$\mu\text{g/E}$, $\mu\text{sCi/L}$	Core	Core composite, subdivision	Solid, liquid

Table A-2. Available and Needed Data for Required Low-Activity Waste Analyses. 12 (41 sheets)

Tank	Constituent Group	Constituent	Units	Sample Type	Sample Analyzed	Physical State
241-AN-103	Metals	Cadmium	$\mu\text{g/l}$, ug/l	Core	Core composite, subdivision	Solid, liquid
241-AN-103	Metals	Calcium	$\mu\text{g/l}$, ug/l	Core	Core composite, subdivision	Solid, liquid
241-AN-103	Metals	Cesium	$\mu\text{g/l}$, ug/l	Core	Core composite, subdivision	Solid, liquid
241-AN-103	Metals	Cobalt	$\mu\text{g/l}$, ug/l	Core	Core composite, subdivision	Solid, liquid
241-AN-103	Metals	Copper	$\mu\text{g/l}$, ug/l	Core	Core composite, subdivision	Solid, liquid
241-AN-103	Metals	Iron	$\mu\text{g/l}$, ug/l	Core	Core composite, subdivision	Solid, liquid
241-AN-103	Metals	Lanthanum	$\mu\text{g/l}$, ug/l	Core	Core composite, subdivision	Solid, liquid
241-AN-103	Metals	Lead	$\mu\text{g/l}$, ug/l	Core	Core composite, subdivision	Solid, liquid
241-AN-103	Metals	Lithium	$\mu\text{g/l}$, ug/l	Core	Core composite, subdivision	Solid, liquid
241-AN-103	Metals	Magnesium	$\mu\text{g/l}$, ug/l	Core	Core composite, subdivision	Solid, liquid
241-AN-103	Metals	Manganese	$\mu\text{g/l}$, ug/l	Core	Core composite, subdivision	Solid, liquid
241-AN-103	Metals	Mercury	$\mu\text{g/l}$, ug/l	Core	Core composite, subdivision	Solid, liquid
241-AN-103	Metals	Nickel	$\mu\text{g/l}$, ug/l	Core	Core composite, subdivision	Solid, liquid
241-AN-103	Metals	Potassium	$\mu\text{g/l}$, ug/l	Core	Core composite, subdivision	Solid, liquid
241-AN-103	Metals	Silver	$\mu\text{g/l}$, ug/l	Core	Core composite, subdivision	Solid, liquid
241-AN-103	Metals	Sodium	$\mu\text{g/l}$, ug/l	Core	Core composite, subdivision	Solid, liquid
241-AN-103	Metals	Strontium	$\mu\text{g/l}$, ug/l	Core	Core composite, subdivision	Solid, liquid
241-AN-103	Metals	Thallium	$\mu\text{g/l}$, ug/l	Core	Core composite, subdivision	Solid, liquid
241-AN-103	Metals	Uranium	$\mu\text{g/l}$, ug/l	Core	Core composite, subdivision	Solid, liquid
241-AN-103	Metals	Vanadium	$\mu\text{g/l}$, ug/l	Core	Core composite, subdivision	Solid, liquid
241-AN-103	Metals	Zinc	$\mu\text{g/l}$, ug/l	Core	Core composite, subdivision	Solid, liquid
241-AN-103	Metals	Zirconium	$\mu\text{g/l}$, ug/l	Core	Core composite, subdivision	Solid, liquid
241-AN-103	Nonmetals	Boron	$\mu\text{g/l}$, ug/l	Core	Core composite, subdivision	Solid, liquid
241-AN-103	Nonmetals	Selenium	$\mu\text{g/l}$, ug/l	Core	Core composite, subdivision	Solid, liquid
241-AN-103	Nonmetals	Silicon	$\mu\text{g/l}$, ug/l	Core	Core composite, subdivision	Solid, liquid
241-AN-103	Nonmetals	Sulfur	$\mu\text{g/l}$, ug/l	Core	Core composite, subdivision	Solid, liquid
241-AN-103	Organics	Tellurium				
241-AN-103	Organics	1,1,1-Trichloroethane				
241-AN-103	Organics	1,2-Dichloroethane				
241-AN-103	Organics	2,4,5-Trichlorophenol				
241-AN-103	Organics	2,4-Dinitrotoluene				
241-AN-103	Organics	2-Butanone				
241-AN-103	Organics	2-Butoxyethanol				
241-AN-103	Organics	2-Hexanone				
241-AN-103	Organics	2-Pentanone				
241-AN-103	Organics	3-Hexanone				

Table A-2. Available and Needed Data for Required Low-Activity Waste Analyses.^{1,2} (41 sheets)

Thick.	Constituent Group	Constituent	Units	Sample Type	Sample Analyzed	Physical State
			µg/l, µCi/l	Core	Core composite, subdivision	Solid, liquid
241-AN-103	Organics	Acetone				
241-AN-103	Organics	Acetone				
241-AN-103	Organics	Benzene				
241-AN-103	Organics	Carbon disulfide				
241-AN-103	Organics	Carbon tetrachloride				
241-AN-103	Organics	Chloroform				
241-AN-103	Organics	Ethyl acetate				
241-AN-103	Organics	Ethyl ether				
241-AN-103	Organics	Glycolate				
241-AN-103	Organics	Hexachlorobutadiene				
241-AN-103	Organics	Methylchloride				
241-AN-103	Organics	Naphthalene				
241-AN-103	Organics	Nitrobenzene				
241-AN-103	Organics	Nonane				
241-AN-103	Organics	PCB				
241-AN-103	Organics	Pyridine				
241-AN-103	Organics	Tetrachloroethene				
241-AN-103	Organics	Tetrahydrofuran				
241-AN-103	Organics	Toluene				
241-AN-103	Organics	Triethyl phosphate				
241-AN-103	Organics	Vinyl chloride				
241-AN-103	Organics	Xylenes (total)				
241-AN-103	Physical Properties	DSC (exotherm)		Core	Core composite, subdivision	Liquid, solid
241-AN-103	Physical Properties	Particle size density	%	Core	Core composite, subdivision	Liquid, solid
241-AN-103	Physical Properties	pH				
241-AN-103	Physical Properties	Settled solids				
241-AN-103	Physical Properties	Shear strength				
241-AN-103	Physical Properties	Solid volume	unitless	Core	Core composite, subdivision	Liquid
241-AN-103	Physical Properties	Specific gravity		SACS		
241-AN-103	Physical Properties	Temperature				
241-AN-103	Physical Properties	Viscosity				
241-AN-103	Physical Properties	Volume percent settled solids				
241-AN-103	Physical Properties	Volume percent solids				
241-AN-103	Physical Properties	Weight percent solids				
241-AN-103	Radionuclides	Americium-241	µCi/l, µCi/l	Core	Core composite	Solid, liquid

Table A-2. Available and Needed Data for Required Low-Activity Waste Analyses.^{1,2} (41 sheets)

Tank	Constituent Group	Constituent	Units	Sample Type	Samples Analyzed	Physical State
241-AN-103	Radionuclides	Americium-243				
241-AN-103	Radionuclides	Carbon-14				
241-AN-103	Radionuclides	Cerium-144				
241-AN-103	Radionuclides	Cesium-137	$\mu\text{Ci/g, } \mu\text{Ci/L}$	Core	Core composite	Solid, liquid
241-AN-103	Radionuclides	Cobalt-60	$\mu\text{Ci/g, } \mu\text{Ci/L}$	Core	Core composite	Solid, liquid
241-AN-103	Radionuclides	Curium-242	$\mu\text{Ci/g, } \mu\text{Ci/L}$	Core	Core composite	Solid, liquid
241-AN-103	Radionuclides	Curium-243/244	$\mu\text{Ci/g, } \mu\text{Ci/L}$	Core	Core composite	Solid, liquid
241-AN-103	Radionuclides	Europium-152				
241-AN-103	Radionuclides	Europium-154	$\mu\text{Ci/g, } \mu\text{Ci/L}$	Core	Core composite	Solid, liquid
241-AN-103	Radionuclides	Europium-154/155				
241-AN-103	Radionuclides	Europium-155	$\mu\text{Ci/g, } \mu\text{Ci/L}$	Core	Core composite	Solid, liquid
241-AN-103	Radionuclides	Gross alpha	$\mu\text{Ci/g, } \mu\text{Ci/L}$	Core	Core composite, subdivision	Solid, liquid
241-AN-103	Radionuclides	Gross beta	$\mu\text{Ci/g, } \mu\text{Ci/L}$	Core	Core composite	Solid, liquid
241-AN-103	Radionuclides	Iodine-129	$\mu\text{Ci/g, } \mu\text{Ci/L}$	Core	Core composite	Solid, liquid
241-AN-103	Radionuclides	Neptunium-237	$\mu\text{Ci/g, } \mu\text{Ci/L}$	Core	Core composite	Solid, liquid
241-AN-103	Radionuclides	Plutonium-238				
241-AN-103	Radionuclides	Plutonium-239				
241-AN-103	Radionuclides	Plutonium-239/40	$\mu\text{Ci/g, } \mu\text{Ci/L}$	Core	Core composite	Solid, liquid
241-AN-103	Radionuclides	Plutonium-240				
241-AN-103	Radionuclides	Plutonium-241				
241-AN-103	Radionuclides	Plutonium-242				
241-AN-103	Radionuclides	Selenium-79				
241-AN-103	Radionuclides	Sternum-89/90	$\mu\text{Ci/g, } \mu\text{Ci/L}$	Core	Core composite	Solid, liquid
241-AN-103	Radionuclides	Sternum-90				
241-AN-103	Radionuclides	Techneium-99	$\mu\text{Ci/g, } \mu\text{Ci/L}$	Core	Core composite	Solid, liquid
241-AN-103	Radionuclides	Thorium-228				
241-AN-103	Radionuclides	Total alpha, plutonium				
241-AN-103	Radionuclides	Tritium	$\mu\text{Ci/g, } \mu\text{Ci/L}$	Core	Core composite	Solid, liquid
241-AN-103	Radionuclides	Uranium-233				
241-AN-103	Radionuclides	Uranium-234				
241-AN-103	Radionuclides	Uranium-235				
241-AN-103	Radionuclides	Uranium-238				
241-AN-104	Anions	Chloride	$\mu\text{g/E, } \mu\text{g/L}$	Core	Core composite, subdivision	Solid, liquid
241-AN-104	Anions	Citrate				
241-AN-104	Anions	Degl.	$\mu\text{g/E, } \mu\text{g/L}$	Core	Core composite, subdivision	Solid, liquid
241-AN-104	Anions	Formate	$\mu\text{g/E, } \mu\text{g/L}$	Core	Core composite, subdivision	Solid, liquid

Table A-2. Available and Needed Data for Required Low-Activity Waste Analyses. 1:2 (41 sheets)

Tank	Constituent Group	Constituent	Units	Sample Type		Sample Analyzed	Physical State
				Core	Core composite, subdivision		
241-AN-104	Anions	HEDTA	$\mu\text{g}/\text{E}, \mu\text{g}/\text{L}$	Core	Core composite, subdivision	Solid, liquid	Solid, liquid
241-AN-104	Anions	Nitrate	$\mu\text{g}/\text{E}, \mu\text{g}/\text{L}$	Core	Core composite, subdivision	Solid, liquid	Solid, liquid
241-AN-104	Anions	Nitrite	$\mu\text{g}/\text{E}, \mu\text{g}/\text{L}$	Core	Core composite, subdivision	Solid, liquid	Solid, liquid
241-AN-104	Anions	Phosphate	$\mu\text{g}/\text{E}, \mu\text{g}/\text{L}$	Core	Core composite, subdivision	Solid, liquid	Solid, liquid
241-AN-104	Anions	Ammonia	$\mu\text{g}/\text{E}, \mu\text{g}/\text{L}$	Core	Core composite, subdivision	Solid, liquid	Solid, liquid
241-AN-104	Inorganics	Carbonate	$\mu\text{g}/\text{E}, \mu\text{g}/\text{L}$	Core	Core composite	Solid, liquid	Solid, liquid
241-AN-104	Inorganics	Hydroxide	$\mu\text{g}/\text{E}, \mu\text{g}/\text{L}$	Core	Core composite	Solid, liquid	Solid, liquid
241-AN-104	Inorganics	Total inorganic carbon	$\mu\text{g}/\text{E}, \mu\text{g}/\text{L}$	Core	Core composite	Solid, liquid	Solid, liquid
241-AN-104	Inorganics	Total organic carbon	$\mu\text{g}/\text{E}, \mu\text{g}/\text{L}$	Core	Core composite	Solid, liquid	Solid, liquid
241-AN-104	Metals	Aluminum	$\mu\text{g}/\text{E}, \mu\text{g}/\text{L}$	Core	Core composite, subdivision	Solid, liquid	Solid, liquid
241-AN-104	Metals	Antimony	$\mu\text{g}/\text{E}, \mu\text{g}/\text{L}$	Core	Core composite, subdivision	Solid, liquid	Solid, liquid
241-AN-104	Metals	Arsenic	$\mu\text{g}/\text{E}, \mu\text{g}/\text{L}$	Core	Core composite, subdivision	Solid, liquid	Solid, liquid
241-AN-104	Metals	Boron	$\mu\text{g}/\text{E}, \mu\text{g}/\text{L}$	Core	Core composite, subdivision	Solid, liquid	Solid, liquid
241-AN-104	Metals	Beryllium	$\mu\text{g}/\text{E}, \mu\text{g}/\text{L}$	Core	Core composite, subdivision	Solid, liquid	Solid, liquid
241-AN-104	Metals	Bismuth	$\mu\text{g}/\text{E}, \mu\text{g}/\text{L}$	Core	Core composite, subdivision	Solid, liquid	Solid, liquid
241-AN-104	Metals	Cadmium	$\mu\text{g}/\text{E}, \mu\text{g}/\text{L}$	Core	Core composite, subdivision	Solid, liquid	Solid, liquid
241-AN-104	Metals	Calcium	$\mu\text{g}/\text{E}, \mu\text{g}/\text{L}$	Core	Core composite, subdivision	Solid, liquid	Solid, liquid
241-AN-104	Metals	Cesium	$\mu\text{g}/\text{E}, \mu\text{g}/\text{L}$	Core	Core composite, subdivision	Solid, liquid	Solid, liquid
241-AN-104	Metals	Cobalt	$\mu\text{g}/\text{E}, \mu\text{g}/\text{L}$	Core	Core composite, subdivision	Solid, liquid	Solid, liquid
241-AN-104	Metals	Copper	$\mu\text{g}/\text{E}, \mu\text{g}/\text{L}$	Core	Core composite, subdivision	Solid, liquid	Solid, liquid
241-AN-104	Metals	Iron	$\mu\text{g}/\text{E}, \mu\text{g}/\text{L}$	Core	Core composite, subdivision	Solid, liquid	Solid, liquid
241-AN-104	Metals	Lanthanum	$\mu\text{g}/\text{E}, \mu\text{g}/\text{L}$	Core	Core composite, subdivision	Solid, liquid	Solid, liquid
241-AN-104	Metals	Lead	$\mu\text{g}/\text{E}, \mu\text{g}/\text{L}$	Core	Core composite, subdivision	Solid, liquid	Solid, liquid
241-AN-104	Metals	Lithium	$\mu\text{g}/\text{E}, \mu\text{g}/\text{L}$	Core	Core composite, subdivision	Solid, liquid	Solid, liquid
241-AN-104	Metals	Magnesium	$\mu\text{g}/\text{E}, \mu\text{g}/\text{L}$	Core	Core composite, subdivision	Solid, liquid	Solid, liquid
241-AN-104	Metals	Manganese	$\mu\text{g}/\text{E}, \mu\text{g}/\text{L}$	Core	Core composite, subdivision	Solid, liquid	Solid, liquid
241-AN-104	Metals	Mercury	$\mu\text{g}/\text{E}, \mu\text{g}/\text{L}$	Core	Core composite, subdivision	Solid, liquid	Solid, liquid
241-AN-104	Metals	Nickel	$\mu\text{g}/\text{E}, \mu\text{g}/\text{L}$	Core	Core composite, subdivision	Solid, liquid	Solid, liquid
241-AN-104	Metals	Potassium	$\mu\text{g}/\text{E}, \mu\text{g}/\text{L}$	Core	Core composite, subdivision	Solid, liquid	Solid, liquid
241-AN-104	Metals	Silver	$\mu\text{g}/\text{E}, \mu\text{g}/\text{L}$	Core	Core composite, subdivision	Solid, liquid	Solid, liquid
241-AN-104	Metals	Sodium	$\mu\text{g}/\text{E}, \mu\text{g}/\text{L}$	Core	Core composite, subdivision	Solid, liquid	Solid, liquid
241-AN-104	Metals	Strontrium	$\mu\text{g}/\text{E}, \mu\text{g}/\text{L}$	Core	Core composite, subdivision	Solid, liquid	Solid, liquid
241-AN-104	Metals	Thallium	$\mu\text{g}/\text{E}, \mu\text{g}/\text{L}$	Core	Core composite, subdivision	Solid, liquid	Solid, liquid
241-AN-104	Metals	Uranium	$\mu\text{g}/\text{E}, \mu\text{g}/\text{L}$	Core	Core composite, subdivision	Solid, liquid	Solid, liquid
241-AN-104	Metals	Vanadium	$\mu\text{g}/\text{E}, \mu\text{g}/\text{L}$	Core	Core composite, subdivision	Solid, liquid	Solid, liquid

Table A-2. Available and Needed Data for Required Low-Activity Waste Analyses, 1:2 (41 sheets)

Sample	Constituent Group	Constituent	Unit	Sample Type	Sample Analyzed	Physical State
241-AN-104	Metals	Zinc	µg/g, µg/L	Core	Core composite, subdivision	Solid, liquid
241-AN-104	Metals	Zirconium	µg/g, µg/L	Core	Core composite, subdivision	Solid, liquid
241-AN-104	Nonmetals	Boron	µg/g, µg/L	Core	Core composite, subdivision	Solid, liquid
241-AN-104	Nonmetals	Selenium	µg/g, µg/L	Core	Core composite, subdivision	Solid, liquid
241-AN-104	Nonmetals	Silicon	µg/g, µg/L	Core	Core composite, subdivision	Solid, liquid
241-AN-104	Nonmetals	Sulfur	µg/g, µg/L	Core	Core composite, subdivision	Solid, liquid
241-AN-104	Nonmetals	Tellurium	µg/g, µg/L	Core	Core composite, subdivision	Solid, liquid
241-AN-104	Organics	1,1,1-Trichloroethane				
241-AN-104	Organics	1,2-Dichloroethane				
241-AN-104	Organics	2,2,5-Trichlorophenol				
241-AN-104	Organics	2,4-Dinitrophenol				
241-AN-104	Organics	2-Butanone				
241-AN-104	Organics	2-Butoxyethanol				
241-AN-104	Organics	2-Hexanone				
241-AN-104	Organics	2-Pentanone				
241-AN-104	Organics	3-Hexanone				
241-AN-104	Organics	Acetate	µg/g, µg/L	Core	Core composite, subdivision	Solid, liquid
241-AN-104	Organics	Acetone				
241-AN-104	Organics	Benzene				
241-AN-104	Organics	Carbon disulfide				
241-AN-104	Organics	Carbon tetrachloride				
241-AN-104	Organics	Chloroethane				
241-AN-104	Organics	Chloroform				
241-AN-104	Organics	Ethane				
241-AN-104	Organics	Ethyl acetate				
241-AN-104	Organics	Ethyl ether				
241-AN-104	Organics	Glycolate				
241-AN-104	Organics	Hexachlorobutadiene				
241-AN-104	Organics	Hexachloroethane				
241-AN-104	Organics	Methylencelloridide				
241-AN-104	Organics	Naphthalene				
241-AN-104	Organics	Nitrobenzene				
241-AN-104	Organics	Nonane				
241-AN-104	Organics	PCB				
241-AN-104	Organics	Phenol				
241-AN-104	Organics	Pyridine				

Table A-2. Available and Needed Data for Required Low-Activity Waste Analyses.^{1,2} (41 sheets)

Sample Type	Sample Name	Constituent	Constituent Group	Tank	Physical State
		Tetrachloroethene	Organics	241-AN-104	
		Tetrahydrofuran	Organics	241-AN-104	
		Toluene	Organics	241-AN-104	
		Tributyl phosphate	Organics	241-AN-104	
		Vinyl chloride	Organics	241-AN-104	
		Xylenes (total)	Organics	241-AN-104	
		Density	Physical Properties	241-AN-104	
		DSC (Exotherm)	Physical Properties	241-AN-104	
		Flow rate	Physical Properties	241-AN-104	
		Particle size, density	Physical Properties	241-AN-104	
		Percent water	Physical Properties	241-AN-104	
		pH measurement	Physical Properties	241-AN-104	
		Shear strength	Physical Properties	241-AN-104	
		Specific gravity	Physical Properties	241-AN-104	
		Temperature	Physical Properties	241-AN-104	
		Viscosity	Physical Properties	241-AN-104	
		Volume percent settled solids	Physical Properties	241-AN-104	
		Volume percent solids	Physical Properties	241-AN-104	
		Weight percent solids	Physical Properties	241-AN-104	
		Americanium-241	Radionuclides	241-AN-104	
		Americanium-243	Radionuclides	241-AN-104	
		Carbon-14	Radionuclides	241-AN-104	
		Cerium-144	Radionuclides	241-AN-104	
		Cesium-137	Radionuclides	241-AN-104	
		Cobalt-60	Radionuclides	241-AN-104	
		Curium-242	Radionuclides	241-AN-104	
		Curium-243/244	Radionuclides	241-AN-104	
		Europium-152	Radionuclides	241-AN-104	
		Europium-154	Radionuclides	241-AN-104	
		Europium-154/155	Radionuclides	241-AN-104	
		Europtium-155	Radionuclides	241-AN-104	
		Gross alpha	Radionuclides	241-AN-104	
		Gross beta	Radionuclides	241-AN-104	
		Iodine-129	Radionuclides	241-AN-104	
		Neptunium-237	Radionuclides	241-AN-104	
		P plutonium-238	Radionuclides	241-AN-104	
		Plutonium-239	Radionuclides	241-AN-104	

Table A-2. Available and Needed Data for Required Low Activity Waste Analyses.^{1,2} (41 sheets)

Link	Containment Group	Constituent	Units	Sample Type	Samples Analyzed	Physical State
241-AN-104	Radionuclides	Plutonium-239/40	$\mu\text{Ci/g, }\mu\text{Ci/L}$	Core	Core composite	Solid, liquid
241-AN-104	Radionuclides	Plutonium-240				
241-AN-104	Radionuclides	Plutonium-241				
241-AN-104	Radionuclides	Plutonium-242				
241-AN-104	Radionuclides	Selenium-75				
241-AN-104	Radionuclides	Strontium-89/90	$\mu\text{Ci/g, }\mu\text{Ci/L}$	Core	Core composite	Solid, liquid
241-AN-104	Radionuclides	Strontium-90				
241-AN-104	Radionuclides	Technetium-99	$\mu\text{Ci/g, }\mu\text{Ci/L}$	Core	Core composite	Solid, liquid
241-AN-104	Radionuclides	Thorium-228				
241-AN-104	Radionuclides	Total alpha, plutonium	$\mu\text{Ci/g, }\mu\text{Ci/L}$	Core	Core composite	Solid, liquid
241-AN-104	Radionuclides	Tritium	$\mu\text{Ci/g, }\mu\text{Ci/L}$	Core	Core composite	Solid, liquid
241-AN-104	Radionuclides	Uranium-233				
241-AN-104	Radionuclides	Uranium-234				
241-AN-104	Radionuclides	Uranium-235				
241-AN-104	Radionuclides	Uranium-238				
241-AN-105	Anions	Chloride	$\mu\text{g/g, }\mu\text{g/L}$	Core	Core composite, subdivision	Solid, liquid
241-AN-105	Anions	Citrate	$\mu\text{g/g, }\mu\text{g/L}$	Core	Core composite, subdivision	Solid, liquid
241-AN-105	Anions	Fluoride	$\mu\text{g/g, }\mu\text{g/L}$	Core	Core composite, subdivision	Solid, liquid
241-AN-105	Anions	Formate	$\mu\text{g/g, }\mu\text{g/L}$	Core	Core composite, subdivision	Solid, liquid
241-AN-105	Anions	HEDTA	$\mu\text{g/g, }\mu\text{g/L}$	Core	Core composite, subdivision	Solid, liquid
241-AN-105	Anions	Nitrate	$\mu\text{g/g, }\mu\text{g/L}$	Core	Core composite, subdivision	Solid, liquid
241-AN-105	Anions	Nitrite	$\mu\text{g/g, }\mu\text{g/L}$	Core	Core composite, subdivision	Solid, liquid
241-AN-105	Anions	Phosphate	$\mu\text{g/g, }\mu\text{g/L}$	Core	Core composite, subdivision	Solid, liquid
241-AN-105	Anions	Sulfate	$\mu\text{g/g, }\mu\text{g/L}$	Core	Core composite, subdivision	Solid, liquid
241-AN-105	Inorganics	Ammonia				
241-AN-105	Inorganics	Carbonate				
241-AN-105	Inorganics	Hydroxide	$\mu\text{g/g, }\mu\text{g/L}$	Core	Core composite	Solid, liquid
241-AN-105	Inorganics	Total inorganic carbon	$\mu\text{g/g, }\mu\text{g/L}$	Core	Core composite	Solid, liquid
241-AN-105	Inorganics	Total organic carbon	$\mu\text{g/g, }\mu\text{g/L}$	Core	Core composite	Solid, liquid
241-AN-105	Metals	Aluminum	$\mu\text{g/g, }\mu\text{g/L}$	Core	Core composite, subdivision	Solid, liquid
241-AN-105	Metals	Antimony	$\mu\text{g/g, }\mu\text{g/L}$	Core	Core composite, subdivision	Solid, liquid
241-AN-105	Metals	Arsenic	$\mu\text{g/g, }\mu\text{g/L}$	Core	Core composite, subdivision	Solid, liquid
241-AN-105	Metals	Barium	$\mu\text{g/g, }\mu\text{g/L}$	Core	Core composite, subdivision	Solid, liquid
241-AN-105	Metals	Beryllium	$\mu\text{g/g, }\mu\text{g/L}$	Core	Core composite, subdivision	Solid, liquid
241-AN-105	Metals	Bismuth	$\mu\text{g/g, }\mu\text{g/L}$	Core	Core composite, subdivision	Solid, liquid
241-AN-105	Metals	Cadmium	$\mu\text{g/g, }\mu\text{g/L}$	Core	Core composite, subdivision	Solid, liquid

Table A-2. Available and Needed Data for Required Low-Activity Waste Analyses 1-2 (41 sheets)

Rank	Constituent Group	Constituent	Units	Sample Type	Sample Analyzed	Physical State
241-AN-105	Metals	Calcium	$\mu\text{g/L}$	Core	Core composite, subdivision	Solid, liquid
241-AN-105	Metals	Cesium	$\mu\text{g/L}$	Core	Core composite, subdivision	Solid, liquid
241-AN-105	Metals	Cobalt	$\mu\text{g/L}$	Core	Core composite, subdivision	Solid, liquid
241-AN-105	Metals	Copper	$\mu\text{g/L}$	Core	Core composite, subdivision	Solid, liquid
241-AN-105	Metals	Iron	$\mu\text{g/L}$	Core	Core composite, subdivision	Solid, liquid
241-AN-105	Metals	Lanthanum	$\mu\text{g/L}$	Core	Core composite, subdivision	Solid, liquid
241-AN-105	Metals	Lead	$\mu\text{g/L}$	Core	Core composite, subdivision	Solid, liquid
241-AN-105	Metals	Lithium	$\mu\text{g/L}$	Core	Core composite, subdivision	Solid, liquid
241-AN-105	Metals	Magnesium	$\mu\text{g/L}$	Core	Core composite, subdivision	Solid, liquid
241-AN-105	Metals	Manganese	$\mu\text{g/L}$	Core	Core composite, subdivision	Solid, liquid
241-AN-105	Metals	Mercury	$\mu\text{g/L}$	Core	Core composite, subdivision	Solid, liquid
241-AN-105	Metals	Nickel	$\mu\text{g/L}$	Core	Core composite, subdivision	Solid, liquid
241-AN-105	Metals	Palladium	$\mu\text{g/L}$	Core	Core composite, subdivision	Solid, liquid
241-AN-105	Metals	Potassium	$\mu\text{g/L}$	Core	Core composite, subdivision	Solid, liquid
241-AN-105	Metals	Silver	$\mu\text{g/L}$	Core	Core composite, subdivision	Solid, liquid
241-AN-105	Metals	Sodium	$\mu\text{g/L}$	Core	Core composite, subdivision	Solid, liquid
241-AN-105	Metals	Stron튬	$\mu\text{g/L}$	Core	Core composite, subdivision	Solid, liquid
241-AN-105	Metals	Thallium	$\mu\text{g/L}$	Core	Core composite, subdivision	Solid, liquid
241-AN-105	Metals	Uranium	$\mu\text{g/L}$	Core	Core composite, subdivision	Solid, liquid
241-AN-105	Metals	Vanadium	$\mu\text{g/L}$	Core	Core composite, subdivision	Solid, liquid
241-AN-105	Metals	Zinc	$\mu\text{g/L}$	Core	Core composite, subdivision	Solid, liquid
241-AN-105	Metals	Zirconium	$\mu\text{g/L}$	Core	Core composite, subdivision	Solid, liquid
241-AN-105	Nonmetals	Boron	$\mu\text{g/L}$	Core	Core composite, subdivision	Solid, liquid
241-AN-105	Nonmetals	Selenium	$\mu\text{g/L}$	Core	Core composite, subdivision	Solid, liquid
241-AN-105	Nonmetals	Silicon	$\mu\text{g/L}$	Core	Core composite, subdivision	Solid, liquid
241-AN-105	Nonmetals	Sulfur	$\mu\text{g/L}$	Core	Core composite, subdivision	Solid, liquid
241-AN-105	Organics	Tellurium				
241-AN-105	Organics	1,1,1-Trichloroethane				
241-AN-105	Organics	1,2-Dichloroethane				
241-AN-105	Organics	2,4,5-Trichlorophenol				
241-AN-105	Organics	2,4-Dinitrotoluene				
241-AN-105	Organics	2-Butanone				
241-AN-105	Organics	2-Butoxyethanol				
241-AN-105	Organics	2-Hexanone				
241-AN-105	Organics	2-Pentanone				
241-AN-105	Organics	3-Hexanone				

Table A-2. Available and Needed Data for Required Low-Activity Waste Analyses.^{1,2} (41-sheets)

Rank	Constituent Group	Constituent	Sample Type		Physical State
			Ultr.	$\mu\text{g}/\mu\text{L}$	
241-AN-105	Organics	Acetone			Solid, liquid
241-AN-105	Organics	Acetone			
241-AN-105	Organics	Benzene			
241-AN-105	Organics	Carbon disulfide			
241-AN-105	Organics	Carbon tetrachloride			
241-AN-105	Organics	Chloroethane			
241-AN-105	Organics	Chloroform			
241-AN-105	Organics	Ethane			
241-AN-105	Organics	Ethyl acetate			
241-AN-105	Organics	Ethyl ether			
241-AN-105	Organics	Glycolate			
241-AN-105	Organics	Hexachlorobutadiene			
241-AN-105	Organics	Hexachloroethane			
241-AN-105	Organics	Methylbenzenechloride			
241-AN-105	Organics	Naphthalene			
241-AN-105	Organics	Nitrobenzene			
241-AN-105	Organics	Nonane			
241-AN-105	Organics	PCB			
241-AN-105	Organics	Phenol			
241-AN-105	Organics	Pyridine			
241-AN-105	Organics	Tetrachloroethane			
241-AN-105	Organics	Tetrahydrofuran			
241-AN-105	Organics	Toluene			
241-AN-105	Organics	Tributyl phosphate			
241-AN-105	Organics	Vinyl chloride			
241-AN-105	Organics	Xylenes (total)			
241-AN-105	Physical Properties	Density			
241-AN-105	Physical Properties	DSC (exotherm)	J/g		
241-AN-105	Physical Properties	Particle size/density			
241-AN-105	Physical Properties	Percent water	%		
241-AN-105	Physical Properties	pH measurement			
241-AN-105	Physical Properties	Settled solids			
241-AN-105	Physical Properties	Shear strength			
241-AN-105	Physical Properties	Solid volume			
241-AN-105	Physical Properties	Specific gravity	unitless		
241-AN-105	Physical Properties	Temperature	SACS		Liquid

Table A-2. Available and Needed Data for Required Low-Activity Waste Analyses. 1:2 (41 sheets)

Rank	Containment Group	Constituent	Units	Sample Type	Samples Analyzed	Physical State
241-AN-105	Physical Properties	Viscosity				
241-AN-105	Physical Properties	Volume percent settled solids				
241-AN-105	Physical Properties	Volume percent solids				
241-AN-105	Physical Properties	Weight percent solids				
241-AN-105	Radionuclides	Americium-243	$\mu\text{Ci/g}, \mu\text{Ci/L}$	Core	Core composite	Solid, liquid
241-AN-105	Radionuclides	Carbon-14				
241-AN-105	Radionuclides	Cerium-144				
241-AN-105	Radionuclides	Cesium-137	$\mu\text{Ci/g}, \mu\text{Ci/L}$	Core	Core composite	Solid, liquid
241-AN-105	Radionuclides	Coval-60	$\mu\text{Ci/g}, \mu\text{Ci/L}$	Core	Core composite	Solid, liquid
241-AN-105	Radionuclides	Curium-242				
241-AN-105	Radionuclides	Curium-243/244				
241-AN-105	Radionuclides	Europium-152	$\mu\text{Ci/g}, \mu\text{Ci/L}$	Core	Core composite	Solid, liquid
241-AN-105	Radionuclides	Europium-154	$\mu\text{Ci/g}, \mu\text{Ci/L}$	Core	Core composite	Solid, liquid
241-AN-105	Radionuclides	Europium-154/155				
241-AN-105	Radionuclides	Europium-155	$\mu\text{Ci/g}, \mu\text{Ci/L}$	Core	Core composite	Solid, liquid
241-AN-105	Radionuclides	Gross alpha	$\mu\text{Ci/g}, \mu\text{Ci/L}$	Core	Core composite, subdivision	Solid, liquid
241-AN-105	Radionuclides	Gross beta	$\mu\text{Ci/g}, \mu\text{Ci/L}$	Core	Core composite	Solid, liquid
241-AN-105	Radionuclides	Iodine-129	$\mu\text{Ci/g}, \mu\text{Ci/L}$	Core	Core composite	Solid, liquid
241-AN-105	Radionuclides	Nepentium-237	$\mu\text{Ci/g}, \mu\text{Ci/L}$	Core	Core composite	Solid, liquid
241-AN-105	Radionuclides	Plutonium-238				
241-AN-105	Radionuclides	Plutonium-239				
241-AN-105	Radionuclides	Plutonium-239/40	$\mu\text{Ci/g}, \mu\text{Ci/L}$	Core	Core composite	Solid, liquid
241-AN-105	Radionuclides	Plutonium-239 to Pu isotopic percent				
241-AN-105	Radionuclides	Plutonium-240				
241-AN-105	Radionuclides	Plutonium-241				
241-AN-105	Radionuclides	Plutonium-242				
241-AN-105	Radionuclides	Selenium-79				
241-AN-105	Radionuclides	Strontium-89/90	$\mu\text{Ci/g}, \mu\text{Ci/L}$	Core	Core composite	Solid, liquid
241-AN-105	Radionuclides	Strontium-90				
241-AN-105	Radionuclides	Technetium-99	$\mu\text{Ci/g}, \mu\text{Ci/L}$	Core	Core composite	Solid, liquid
241-AN-105	Radionuclides	Thorium-228				
241-AN-105	Radionuclides	Tin-113				
241-AN-105	Radionuclides	Total alpha, plutonium				
241-AN-105	Radionuclides	Tritium	$\mu\text{Ci/g}, \mu\text{Ci/L}$	Core	Core composite	Solid, liquid
241-AN-105	Radionuclides	Uranium-223				

Table A-2. Available and Needed Data for Required Low-Activity Waste Analyses.^{1,2} (41 sheets)

Sample	Constituent Group	Constitution	Sample Type	Sample Analysis		Physical State
				Batch	Sample	
241-AN-105	Radionuclides	Uranium-234				
241-AN-105	Radionuclides	Uranium-235				
241-AN-105	Radionuclides	Uranium-238				
241-AN-106	Anions	Bromide				
241-AN-106	Anions	Chloride				
241-AN-106	Anions	Citrate				
241-AN-106	Anions	Fluoride				
241-AN-106	Anions	Formate				
241-AN-106	Anions	HEDTA				
241-AN-106	Anions	Nitrate				
241-AN-106	Anions	Nitrite				
241-AN-106	Anions	Phosphate				
241-AN-106	Anions	Sulfate				
241-AN-106	Inorganics	Ammonia				
241-AN-106	Inorganics	Carbonate				
241-AN-106	Inorganics	Hexavalent chromium				
241-AN-106	Inorganics	Hydroxide				
241-AN-106	Inorganics	Total carbon				
241-AN-106	Inorganics	Total inorganic carbon				
241-AN-106	Inorganics	Total organic carbon				
241-AN-106	Metals	Aluminum				
241-AN-106	Metals	Antimony				
241-AN-106	Metals	Arsenic				
241-AN-106	Metals	Barium				
241-AN-106	Metals	Beryllium				
241-AN-106	Metals	Bismuth				
241-AN-106	Metals	Cadmium				
241-AN-106	Metals	Calcium				
241-AN-106	Metals	Cesium				
241-AN-106	Metals	Cobalt				
241-AN-106	Metals	Copper				
241-AN-106	Metals	Iron				
241-AN-106	Metals	Lanthanum				
241-AN-106	Metals	Lead				
241-AN-106	Metals	Lithium				
241-AN-106	Metals	Magnesium				

Table A-2. Available and Needed Data for Required Low-Activity Waste Analyses.^{1,2} (41 sheets)

Tank	Constituent Group	Constituent	Unit	Sample Type	Sampled Analyzed	Material Status
241-AN-106	Metals	Manganese				
241-AN-106	Metals	Mercury				
241-AN-106	Metals	Nickel				
241-AN-106	Metals	Potassium				
241-AN-106	Metals	Silver				
241-AN-106	Metals	Sodium				
241-AN-106	Metals	Stronitium				
241-AN-106	Metals	Thallium				
241-AN-106	Metals	Uranium				
241-AN-106	Metals	Vanadium				
241-AN-106	Metals	Zinc				
241-AN-106	Metals	Zirconium				
241-AN-106	Nonmetals	Boron				
241-AN-106	Nonmetals	Selenium				
241-AN-106	Nonmetals	Silicon				
241-AN-106	Nonmetals	Sulfur				
241-AN-106	Nonmetals	Tellurium				
241-AN-106	Organics	1,1,1-Trichloroethane				
241-AN-106	Organics	1,2-Dichloroethane				
241-AN-106	Organics	4,5-Trichlorophenol				
241-AN-106	Organics	2,4-Dinitroethylene				
241-AN-106	Organics	2-Butanone				
241-AN-106	Organics	2-Ethoxyethanol				
241-AN-106	Organics	2-Hexanone				
241-AN-106	Organics	2-Pentanone				
241-AN-106	Organics	3-Heptanone				
241-AN-106	Organics	Acetone				
241-AN-106	Organics	Benzene				
241-AN-106	Organics	Carbon disulfide				
241-AN-106	Organics	Carbon tetrachloride				
241-AN-106	Organics	Chloroethane				
241-AN-106	Organics	Chloroform				
241-AN-106	Organics	Ethane				
241-AN-106	Organics	Ethyl acetate				
241-AN-106	Organics	Ethyl ether				

Table A-2. Available and Needed Data for Required Low-Acivity Waste Analyses. 1:2 (41 sheets)

Tank	Constituent Group	Constituent	Sample Type	Sample Analyzed	Physical State
241-AN-106	Organics	Glycolic acid	Batch		
241-AN-106	Organics	Hexachlorobutadiene			
241-AN-106	Organics	Hexachlorodthane			
241-AN-106	Organics	Methylenechloride			
241-AN-106	Organics	Naphthalene			
241-AN-106	Organics	Nitrobenzene			
241-AN-106	Organics	Nonane			
241-AN-106	Organics	PCB			
241-AN-106	Organics	Phenol			
241-AN-106	Organics	Pyridine			
241-AN-106	Organics	Tetrachloroethene			
241-AN-106	Organics	Tetrahydrofuran			
241-AN-106	Organics	Toluene			
241-AN-106	Organics	Trityl phosphate			
241-AN-106	Organics	Vinyl chloride			
241-AN-106	Organics	Xylenes (total)			
241-AN-106	Physical Properties	Density			
241-AN-106	Physical Properties	Drainable liquid weight			
241-AN-106	Physical Properties	Emulphy change - transition I			
241-AN-106	Physical Properties	Particle size density			
241-AN-106	Physical Properties	Percent water	%	Supernatant	Liquid
241-AN-106	Physical Properties	PH measurement		Grab sample	
241-AN-106	Physical Properties	Shear strength			
241-AN-106	Physical Properties	Solid volume			
241-AN-106	Physical Properties	Temperature			
241-AN-106	Physical Properties	Viscosity			
241-AN-106	Physical Properties	Volume percent settled solids			
241-AN-106	Physical Properties	Weight percent solids			
241-AN-106	Radionuclides	Americium-241			
241-AN-106	Radionuclides	Americium-243			
241-AN-106	Radionuclides	Carbon-14			
241-AN-106	Radionuclides	Cerium-144			
241-AN-106	Radionuclides	Cesium-137			
241-AN-106	Radionuclides	Cobalt-60			
241-AN-106	Radionuclides	Curium-242			
241-AN-106	Radionuclides	Curium-243/244			

Table A-2. Available and Needed Data for Required Low-Activity Waste Analyses, 1:2 (41 sheets)

Rank	Contaminant Group	Constituent	Unit	Sample Type	Sample Analyzed	Physical State
241-AN-106	Radionuclides	Europium-152				
241-AN-106	Radionuclides	Europium-154				
241-AN-106	Radionuclides	Europium-154/155				
241-AN-106	Radionuclides	Europium-155				
241-AN-106	Radionuclides	Gross alpha	$\mu\text{Ci/L}$	Grab sample		Liquid
241-AN-106	Radionuclides	Iodine-129				
241-AN-106	Radionuclides	Neptunium-237				
241-AN-106	Radionuclides	Plutonium-238				
241-AN-106	Radionuclides	Plutonium-239				
241-AN-106	Radionuclides	Plutonium-239/40				
241-AN-106	Radionuclides	Plutonium-240				
241-AN-106	Radionuclides	Plutonium-241				
241-AN-106	Radionuclides	Plutonium-242				
241-AN-106	Radionuclides	Selenium-79				
241-AN-106	Radionuclides	Sternumium-89/90				
241-AN-106	Radionuclides	Stron튬-90				
241-AN-106	Radionuclides	Technetium-99				
241-AN-106	Radionuclides	Thorium-228				
241-AN-106	Radionuclides	Th-13				
241-AN-106	Radionuclides	Trinium				
241-AN-106	Radionuclides	Uranium-233				
241-AN-106	Radionuclides	Uranium-234				
241-AN-106	Radionuclides	Uranium-235				
241-AN-106	Radionuclides	Uranium-238				
241-AN-107	Anions	Bromide				
241-AN-107	Anions	Chloride				
241-AN-107	Anions	Chrate				
241-AN-107	Anions	Fluoride				
241-AN-107	Anions	Formate				
241-AN-107	Anions	HEDTA				
241-AN-107	Anions	Nitrate				
241-AN-107	Anions	Nitrite				
241-AN-107	Anions	Phosphate				
241-AN-107	Anions	Sulfate				
241-AN-107	Inorganics	Ammonia				

Table A-2. Available and Needed Data for Required Low-Activity Waste Analyses, 1:2 (41 sheets)

Sample Rank	Constituent Group	Constituent	Units	Sample Type	Sample Analyzed	Physical State
241-AN-1-07	Inorganics	Carbonate				
241-AN-1-07	Inorganics	Hexavalent chromium				
241-AN-1-07	Inorganics	Hydroxide				
241-AN-1-07	Inorganics	Total inorganic carbon	$\mu\text{g}/\text{g}, \mu\text{g}/\text{L}$	Supernatant	Grab sample	Solid, liquid
241-AN-1-07	Inorganics	Total organic carbon	$\mu\text{g}/\text{g}, \mu\text{g}/\text{L}$	Supernatant	Grab sample	Solid, liquid
241-AN-1-07	Metals	Aluminum				
241-AN-1-07	Metals	Antimony				
241-AN-1-07	Metals	Arsenic				
241-AN-1-07	Metals	Barium				
241-AN-1-07	Metals	Beryllium				
241-AN-1-07	Metals	Bismuth				
241-AN-1-07	Metals	Cadmium				
241-AN-1-07	Metals	Calcium				
241-AN-1-07	Metals	Cesium				
241-AN-1-07	Metals	Cobalt				
241-AN-1-07	Metals	Copper				
241-AN-1-07	Metals	Iron				
241-AN-1-07	Metals	Lanthanum				
241-AN-1-07	Metals	Lead				
241-AN-1-07	Metals	Lithium				
241-AN-1-07	Metals	Magnesium				
241-AN-1-07	Metals	Manganese				
241-AN-1-07	Metals	Mercury				
241-AN-1-07	Metals	Nickel				
241-AN-1-07	Metals	Potassium				
241-AN-1-07	Metals	Silver				
241-AN-1-07	Metals	Sodium				
241-AN-1-07	Metals	Strontium				
241-AN-1-07	Metals	Thallium				
241-AN-1-07	Metals	Uranium				
241-AN-1-07	Metals	Vanadium				
241-AN-1-07	Metals	Zinc				
241-AN-1-07	Metals	Zirconium				
241-AN-1-07	Nonmetals	Boron				
241-AN-1-07	Nonmetals	Selenium				
241-AN-1-07	Nonmetals	Silicon				

Table A-2. Available and Needed Data for Required Low-Activity Waste Analyses.^{1,2} (41 sheets)

Rank	Containment Group	Contaminant	Date	Sample Type	Sample Analyzed	Physical State
241-AN-107	Nonmetals	Sulfur				
241-AN-107	Nonmetals	Tellurium				
241-AN-107	Organics	1,1,1-Trichloroethane				
241-AN-107	Organics	1,2-Dichloroethane				
241-AN-107	Organics	4,5-Trichlorophenol				
241-AN-107	Organics	2,4-Dinitroethylene				
241-AN-107	Organics	2-Butanone				
241-AN-107	Organics	2-Butoxyethanol				
241-AN-107	Organics	2-Hexanone				
241-AN-107	Organics	2-Pentanone				
241-AN-107	Organics	3-Heptanone				
241-AN-107	Organics	Acetone				
241-AN-107	Organics	Benzene				
241-AN-107	Organics	Carbon disulfide				
241-AN-107	Organics	Carbon tetrachloride				
241-AN-107	Organics	Chloroethane				
241-AN-107	Organics	Chloroform				
241-AN-107	Organics	Ethane				
241-AN-107	Organics	Ethyl acetate				
241-AN-107	Organics	Ethyl ether				
241-AN-107	Organics	Glycolate				
241-AN-107	Organics	Hexachlorobutadiene				
241-AN-107	Organics	Methylacochloride				
241-AN-107	Organics	Naphthalene				
241-AN-107	Organics	Nitrobenzene				
241-AN-107	Organics	Nonane				
241-AN-107	Organics	PCB				
241-AN-107	Organics	Phenol				
241-AN-107	Organics	Pyridine				
241-AN-107	Organics	Tetrachloroethene				
241-AN-107	Organics	Tetrahydrofuran				
241-AN-107	Organics	Toluene				
241-AN-107	Organics	Vinyl phosphate				
241-AN-107	Organics	Vinyl chloride				

Table A-2. Available and Needed Data for Required Low-Activity Waste Analyses 1,2 (41 sheets)

Talk	Constituent Group	Constitution	Units	Sample Type		Physical State
				Simple	Analyzed	
241-AN-107	Organics	Xylenes (total)				
241-AN-107	Physical Properties	Density				
241-AN-107	Physical Properties	Drainable liquid weight				
241-AN-107	Physical Properties	DSC (exotherm)	%	Supernatant		Liquid, solid
241-AN-107	Physical Properties	Particle size density				
241-AN-107	Physical Properties	Percent water	%	Supernatant		Liquid, solid
241-AN-107	Physical Properties	pH measurement				
241-AN-107	Physical Properties	Settled solids				
241-AN-107	Physical Properties	Shear strength				
241-AN-107	Physical Properties	Solid volume				
241-AN-107	Physical Properties	Specific gravity				
241-AN-107	Physical Properties	Temperature				
241-AN-107	Physical Properties	Viscosity				
241-AN-107	Physical Properties	Volume percent settled solids				
241-AN-107	Physical Properties	Volume percent solids				
241-AN-107	Physical Properties	Weight percent solids				
241-AN-107	Radionuclides	Americium-241				
241-AN-107	Radionuclides	Americium-243				
241-AN-107	Radionuclides	Carbon-14				
241-AN-107	Radionuclides	Cerium-144				
241-AN-107	Radionuclides	Cesium-137				
241-AN-107	Radionuclides	Cobalt-60				
241-AN-107	Radionuclides	Curium-242				
241-AN-107	Radionuclides	Curium-243/244				
241-AN-107	Radionuclides	Europium-152				
241-AN-107	Radionuclides	Europium-154				
241-AN-107	Radionuclides	Europium-154/155				
241-AN-107	Radionuclides	Europium-155				
241-AN-107	Radionuclides	Gross alpha	$\mu\text{Ci/g}, \mu\text{Ci/L}$	Supernatant		Grab sample
241-AN-107	Radionuclides	Gross beta				
241-AN-107	Radionuclides	Iodine-129				
241-AN-107	Radionuclides	Nepalium-237				
241-AN-107	Radionuclides	Plutonium-238				
241-AN-107	Radionuclides	Plutonium-239				
241-AN-107	Radionuclides	Plutonium-239/40				
241-AN-107	Radionuclides	Plutonium-240				

Table A-2. Available and Needed Data for Required Low-Activity Waste Analyses. 1,2 (41 sheets)

Task	Constituent Group	Constituent	Unit	Sample Type	Sample Analyzed	Physical State
241-AN-107	Radionuclides	Plutonium-241				
241-AN-107	Radionuclides	Plutonium-242				
241-AN-107	Radionuclides	Selenium-79				
241-AN-107	Radionuclides	Stron튬-89/90				
241-AN-107	Radionuclides	Strontium-90				
241-AN-107	Radionuclides	Techneium-99				
241-AN-107	Radionuclides	Thorium-228				
241-AN-107	Radionuclides	Thorium-13				
241-AN-107	Radionuclides	Triflum				
241-AN-107	Radionuclides	Uranium-233				
241-AN-107	Radionuclides	Uranium-234				
241-AN-107	Radionuclides	Uranium-235				
241-AN-107	Radionuclides	Uranium-238				
241-AN-101	Anions	Bromide	$\mu\text{g}/\text{L}$	Core	Core composite, subdivision	Solid, liquid
241-AW-101	Anions	Chloride	$\mu\text{g}/\text{L}$	Core	Core composite	Solid, liquid
241-AW-101	Anions	Citrate	$\mu\text{g}/\text{L}$	Core	Core composite	Solid, liquid
241-AW-101	Anions	Fluoride	$\mu\text{g}/\text{L}$	Core	Core composite	Solid, liquid
241-AW-101	Anions	Formate				
241-AW-101	Anions	HEDTA				
241-AW-101	Anions	Nitrate	$\mu\text{g}/\text{L}$	Core	Core composite	Solid, liquid
241-AW-101	Anions	Nitrite	$\mu\text{g}/\text{L}$	Core	Core composite	Solid, liquid
241-AW-101	Anions	Phosphate	$\mu\text{g}/\text{L}$	Core	Core composite	Solid, liquid
241-AW-101	Anions	Sulfate	$\mu\text{g}/\text{L}$	Core	Core composite	Solid, liquid
241-AW-101	Inorganics	Ammonia				
241-AW-101	Inorganics	Carbonate				
241-AW-101	Inorganics	Hexavalent chromium	$\mu\text{g}/\text{L}$	Core	Core composite	Solid, liquid
241-AW-101	Inorganics	Hydroxide				
241-AW-101	Inorganics	Total inorganic carbon	$\mu\text{g}/\text{L}$	Core	Core composite, subdivision	Solid, liquid
241-AW-101	Inorganics	Total organic carbon	$\mu\text{g}/\text{L}$	Core	Core composite, subdivision	Solid, liquid
241-AW-101	Metals	Aluminum	$\mu\text{g}/\text{L}$	Core	Core composite, subdivision	Solid, liquid
241-AW-101	Metals	Antimony	$\mu\text{g}/\text{L}$	Core	Core composite, subdivision	Solid, liquid
241-AW-101	Metals	Arsenic	$\mu\text{g}/\text{L}$	Core	Core composite, subdivision	Solid, liquid
241-AW-101	Metals	Barium	$\mu\text{g}/\text{L}$	Core	Core composite, subdivision	Solid, liquid
241-AW-101	Metals	Beryllium	$\mu\text{g}/\text{L}$	Core	Core composite, subdivision	Solid, liquid
241-AW-101	Metals	Bismuth	$\mu\text{g}/\text{L}$	Core	Core composite, subdivision	Solid, liquid
241-AW-101	Metals	Cadmium	$\mu\text{g}/\text{L}$	Core	Core composite, subdivision	Solid, liquid

Table A-2. Available and Needed Data for Required Low-Activity Waste Analyses.^{1,2} (41 sheets)

Rank	Constituent Group	Constituent	Unit	Sample Type	Sample Analyzed	Physical State
241-AW-101	Metals	Calcium	$\mu\text{g/L}$, $\mu\text{M/L}$	Core	Core composite, subdivision	Solid, liquid
241-AW-101	Metals	Cesium	$\mu\text{g/L}$, $\mu\text{M/L}$	Core	Core composite, subdivision	Solid, liquid
241-AW-101	Metals	Cobalt	$\mu\text{g/L}$, $\mu\text{M/L}$	Core	Core composite, subdivision	Solid, liquid
241-AW-101	Metals	Copper	$\mu\text{g/L}$, $\mu\text{M/L}$	Core	Core composite, subdivision	Solid, liquid
241-AW-101	Metals	Iron	$\mu\text{g/L}$, $\mu\text{M/L}$	Core	Core composite, subdivision	Solid, liquid
241-AW-101	Metals	Lanthanum	$\mu\text{g/L}$, $\mu\text{M/L}$	Core	Core composite, subdivision	Solid, liquid
241-AW-101	Metals	Lead	$\mu\text{g/L}$, $\mu\text{M/L}$	Core	Core composite, subdivision	Solid, liquid
241-AW-101	Metals	Lithium	$\mu\text{g/L}$, $\mu\text{M/L}$	Core	Core composite, subdivision	Solid, liquid
241-AW-101	Metals	Magnesium	$\mu\text{g/L}$, $\mu\text{M/L}$	Core	Core composite, subdivision	Solid, liquid
241-AW-101	Metals	Manganese	$\mu\text{g/L}$, $\mu\text{M/L}$	Core	Core composite, subdivision	Solid, liquid
241-AW-101	Metals	Mercury	$\mu\text{g/L}$, $\mu\text{M/L}$	Core	Core composite, subdivision	Solid, liquid
241-AW-101	Metals	Nickel	$\mu\text{g/L}$, $\mu\text{M/L}$	Core	Core composite, subdivision	Solid, liquid
241-AW-101	Metals	Potassium	$\mu\text{g/L}$, $\mu\text{M/L}$	Core	Core composite, subdivision	Solid, liquid
241-AW-101	Metals	Silver	$\mu\text{g/L}$, $\mu\text{M/L}$	Core	Core composite, subdivision	Solid, liquid
241-AW-101	Metals	Sodium	$\mu\text{g/L}$, $\mu\text{M/L}$	Core	Core composite, subdivision	Solid, liquid
241-AW-101	Metals	Strontrium	$\mu\text{g/L}$, $\mu\text{M/L}$	Core	Core composite, subdivision	Solid, liquid
241-AW-101	Metals	Thallium	$\mu\text{g/L}$, $\mu\text{M/L}$	Core	Core composite, subdivision	Solid, liquid
241-AW-101	Metals	Uranium	$\mu\text{g/L}$, $\mu\text{M/L}$	Core	Core composite, subdivision	Solid, liquid
241-AW-101	Metals	Vanadium	$\mu\text{g/L}$, $\mu\text{M/L}$	Core	Core composite, subdivision	Solid, liquid
241-AW-101	Metals	Zinc	$\mu\text{g/L}$, $\mu\text{M/L}$	Core	Core composite, subdivision	Solid, liquid
241-AW-101	Nonmetals	Zirconium	$\mu\text{g/L}$, $\mu\text{M/L}$	Core	Core composite, subdivision	Solid, liquid
241-AW-101	Nonmetals	Boron	$\mu\text{g/L}$, $\mu\text{M/L}$	Core	Core composite, subdivision	Solid, liquid
241-AW-101	Nonmetals	Selenium	$\mu\text{g/L}$, $\mu\text{M/L}$	Core	Core composite, subdivision	Solid, liquid
241-AW-101	Nonmetals	Silicon	$\mu\text{g/L}$, $\mu\text{M/L}$	Core	Core composite, subdivision	Solid, liquid
241-AW-101	Nonmetals	Sulfur	$\mu\text{g/L}$, $\mu\text{M/L}$	Core	Core composite, subdivision	Solid, liquid
241-AW-101	Nonmetals	Tellurium	$\mu\text{g/L}$, $\mu\text{M/L}$	Core	Core composite, subdivision	Solid, liquid
241-AW-101	Organics	1,1,1-Trichloroethane				
241-AW-101	Organics	1,2-Dichloroethane				
241-AW-101	Organics	2,4,5-Trichlorophenol				
241-AW-101	Organics	2,4-Dinitrophenol				
241-AW-101	Organics	2-Butanone				
241-AW-101	Organics	2-Butoxyethanol				
241-AW-101	Organics	2-Hexanone				
241-AW-101	Organics	2-Pentanone				
241-AW-101	Organics	1-Heptanone				
241-AW-101	Organics	Acetate				

Table A-2. Available and Needed Data for Required Low-Activity Waste Analyses.^{1,2} (41 sheets)

Tank	Contaminant Group	Constituent	Sample Type	Sampled Analyzed	Method Used
241-AW-101	Organics	Acetone			
241-AW-101	Organics	Benzene			
241-AW-101	Organics	Carbon disulfide			
241-AW-101	Organics	Carbon tetrachloride			
241-AW-101	Organics	Chloroethane			
241-AW-101	Organics	Chloroform			
241-AW-101	Organics	Ethane			
241-AW-101	Organics	Ethyl acetate			
241-AW-101	Organics	Ethyl ether			
241-AW-101	Organics	Glycolate			
241-AW-101	Organics	Hexachlorobutadiene			
241-AW-101	Organics	Hexachloroethane			
241-AW-101	Organics	Methylenechloride			
241-AW-101	Organics	Methylbenzene			
241-AW-101	Organics	Nitrobenzene			
241-AW-101	Organics	Nonane			
241-AW-101	Organics	PCB			
241-AW-101	Organics	Phenol			
241-AW-101	Organics	Pyridine			
241-AW-101	Organics	Tetrachloroethene			
241-AW-101	Organics	Tetrahydrofuran			
241-AW-101	Organics	Toluene			
241-AW-101	Organics	Tributyl phosphate			
241-AW-101	Organics	Vinyl chloride			
241-AW-101	Organics	Xylenes (total)			
241-AW-101	Physical Properties	Density			
241-AW-101	Physical Properties	Drainable liquid weight			
241-AW-101	Physical Properties	DSC (exotherm)	%	Core	Core composite, subdivision
241-AW-101	Physical Properties	Particle size density		Core	Core composite, subdivision
241-AW-101	Physical Properties	Percent water	%		Liquid, solid
241-AW-101	Physical Properties	pH measurement			
241-AW-101	Physical Properties	Settled solids			
241-AW-101	Physical Properties	Shear strength			
241-AW-101	Physical Properties	Solid volume			
241-AW-101	Physical Properties	Specific gravity	unitless	Core	Core composite, subdivision
241-AW-101	Physical Properties	Temperature		SAQS	Liquid

Table A-2. Available and Needed Data for Required Low-Activity Waste Analyses. 1:2 (41 sheets)

Sample	Containment Group	Containment	Element	Sample type	Sample analyzed	Physical State
241-AW-101	Physical Properties	Viscosity				
241-AW-101	Physical Properties	Volume percent settled solids				
241-AW-101	Physical Properties	Volume percent solids				
241-AW-101	Physical Properties	Weight percent solids				
241-AW-101	Radionuclides	Americium-243	$\mu\text{Ci/g, } \mu\text{Ci/L}$	Core	Core composite	Solid, liquid
241-AW-101	Radionuclides	Carbon-14				
241-AW-101	Radionuclides	Cerium-144	$\mu\text{Ci/g, } \mu\text{Ci/L}$	Core	Core composite	Solid, liquid
241-AW-101	Radionuclides	Cobalt-60	$\mu\text{Ci/g, } \mu\text{Ci/L}$	Core	Core composite	Solid, liquid
241-AW-101	Radionuclides	Curium-242				
241-AW-101	Radionuclides	Curium-243/244	$\mu\text{Ci/g, } \mu\text{Ci/L}$	Core	Core composite	Solid, liquid
241-AW-101	Radionuclides	Europium-152				
241-AW-101	Radionuclides	Europium-154	$\mu\text{Ci/g, } \mu\text{Ci/L}$	Core	Core composite	Solid, liquid
241-AW-101	Radionuclides	Europium-154/155				
241-AW-101	Radionuclides	Europium-155	$\mu\text{Ci/g, } \mu\text{Ci/L}$	Core	Core composite	Solid, liquid
241-AW-101	Radionuclides	Gross alpha	$\mu\text{Ci/g, } \mu\text{Ci/L}$	Core	Core composite, subdivision	Solid, liquid
241-AW-101	Radionuclides	Gross beta	$\mu\text{Ci/g, } \mu\text{Ci/L}$	Core	Core composite	Solid, liquid
241-AW-101	Radionuclides	Iodine-129	$\mu\text{Ci/g}$	Core	Core composite	Solid
241-AW-101	Radionuclides	Neptunium-237				
241-AW-101	Radionuclides	Plutonium-238				
241-AW-101	Radionuclides	Plutonium-239				
241-AW-101	Radionuclides	Plutonium-239/40	$\mu\text{Ci/g, } \mu\text{Ci/L}$	Core	Core composite	Solid, liquid
241-AW-101	Radionuclides	Plutonium-240				
241-AW-101	Radionuclides	Plutonium-241				
241-AW-101	Radionuclides	Plutonium-242				
241-AW-101	Radionuclides	Selenium-79	$\mu\text{Ci/g, } \mu\text{Ci/L}$	Core	Core composite	Solid, liquid
241-AW-101	Radionuclides	Stron튬-89/90				
241-AW-101	Radionuclides	Stron튬-90				
241-AW-101	Radionuclides	Thorium-226	$\mu\text{Ci/g, } \mu\text{Ci/L}$	Core	Core composite	Solid, liquid
241-AW-101	Radionuclides	Tin-113				
241-AW-101	Radionuclides	Tritium	$\mu\text{Ci/L}$	Core	Core composite	Liquid
241-AW-101	Radionuclides	Uranium-233				
241-AW-101	Radionuclides	Uranium-234				
241-AW-101	Radionuclides	Uranium-235				

Table A-2. Available and Needed Data for Required Low-Activity Waste Analyses 1,2 (41 sheets)

Falk	Constituent Group	Constituent	Units	Sample Type	Sample Analyzed	Physical State
241-AW-101	Radionuclides	Uranium-238				
241-AZ-101	Anions	Bromide				
241-AZ-101	Anions	Chloride	µg/L	Supernatant		Liquid
241-AZ-101	Anions	Chlorate				
241-AZ-101	Anions	Fluoride	µg/L	Supernatant		Liquid
241-AZ-101	Anions	Formate				
241-AZ-101	Anions	HEDTA				
241-AZ-101	Anions	Nitrate	µg/L	Supernatant		Liquid
241-AZ-101	Anions	Nitrite	µg/L	Supernatant		Liquid
241-AZ-101	Anions	Phosphate	µg/L	Grab sample		Liquid
241-AZ-101	Anions	Sulfate	µg/L	Grab sample		Liquid
241-AZ-101	Inorganics	Ammonia		Supernatant		Liquid
241-AZ-101	Inorganics	Carbonate				
241-AZ-101	Inorganics	Hexavalent chromium				
241-AZ-101	Inorganics	Hydroxide	µg/L	Supernatant		Liquid
241-AZ-101	Inorganics	Total inorganic carbon	µg/L	Supernatant		Liquid
241-AZ-101	Inorganics	Total organic carbon	µg/L	Supernatant		Liquid
241-AZ-101	Metals	Aluminum	µg/L	Supernatant		Liquid
241-AZ-101	Metals	Antimony				
241-AZ-101	Metals	Arsenic				
241-AZ-101	Metals	Barium				
241-AZ-101	Metals	Beryllium				
241-AZ-101	Metals	Bismuth				
241-AZ-101	Metals	Cadmium				
241-AZ-101	Metals	Calcium				
241-AZ-101	Metals	Cesium				
241-AZ-101	Metals	Cobalt				
241-AZ-101	Metals	Copper				
241-AZ-101	Metals	Iron	µg/L	Supernatant		Liquid
241-AZ-101	Metals	Lanthanum				
241-AZ-101	Metals	Lead				
241-AZ-101	Metals	Lithium				
241-AZ-101	Metals	Magnesium				
241-AZ-101	Metals	Manganese				
241-AZ-101	Metals	Mercury				
241-AZ-101	Metals	Nickel				

Table A-2. Available and Needed Data for Required Low-Activity Waste Analyses.^{1,2} (41 sheets)

Tank	Constituent Group	Constituent	Units	Sample Type	Samples Analyzed	Physical State
			µg/L	Superant	Grab sample	Liquid
241-AZ-101	Metals	Potassium				
241-AZ-101	Metals	Silver				
241-AZ-101	Metals	Sodium				
241-AZ-101	Metals	Stronium				
241-AZ-101	Metals	Thallium				
241-AZ-101	Metals	Uranium				
241-AZ-101	Metals	Vanadium				
241-AZ-101	Metals	Zinc				
241-AZ-101	Metals	Zirconium				
241-AZ-101	Nonmetals	Boron				
241-AZ-101	Nonmetals	Selenium				
241-AZ-101	Nonmetals	Silicon				
241-AZ-101	Nonmetals	Sulfur				
241-AZ-101	Nonmetals	Tellurium				
241-AZ-101	Organics	1,1,1-Trichloroethane				
241-AZ-101	Organics	1,2-Dichloroethane				
241-AZ-101	Organics	2,4,5-Trichlorophenol				
241-AZ-101	Organics	2,4-Dinitrophenol				
241-AZ-101	Organics	2-Butanone				
241-AZ-101	Organics	2-Butoxyethanol				
241-AZ-101	Organics	2-Hexanone				
241-AZ-101	Organics	2-Pentanone				
241-AZ-101	Organics	3-Heptanone				
241-AZ-101	Organics	Acetate				
241-AZ-101	Organics	Acetone				
241-AZ-101	Organics	Benzene				
241-AZ-101	Organics	Carbon disulfide				
241-AZ-101	Organics	Carbon tetrachloride				
241-AZ-101	Organics	Chloroethane				
241-AZ-101	Organics	Chloroform				
241-AZ-101	Organics	Ethane				
241-AZ-101	Organics	Ethyl acetate				
241-AZ-101	Organics	Ethyl ether				
241-AZ-101	Organics	Glycolate				
241-AZ-101	Organics	Hexachlorobutadiene				
241-AZ-101	Organics	Hexachloroethane				

Table A-2. Available and Needed Data for Required Low-Activity Waste Analyses^{1,2} (41 sheets)

Detail	Constituent Group	Constituent	Unit	Sample Type	Sample Analyzed	Physical State
241-AZ-101	Organics	Methylenechloride				
241-AZ-101	Organics	Naphthalene				
241-AZ-101	Organics	Nitrobenzene				
241-AZ-101	Organics	Nonane				
241-AZ-101	Organics	PCB				
241-AZ-101	Organics	Phenol				
241-AZ-101	Organics	Pyridine				
241-AZ-101	Organics	Tetrachloroethene				
241-AZ-101	Organics	Tetrahydrofuran				
241-AZ-101	Organics	Toluene				
241-AZ-101	Organics	Triethyl phosphate				
241-AZ-101	Organics	Vinyl chloride				
241-AZ-101	Organics	Xylenes (total)				
241-AZ-101	Physical Properties	Density				
241-AZ-101	Physical Properties	Drainable liquid weight				
241-AZ-101	Physical Properties	DSC (exotherm)	%	Supernatant	Grab sample	Liquid
241-AZ-101	Physical Properties	Particle size density				
241-AZ-101	Physical Properties	Percent water	%	Supernatant	Grab sample	Liquid
241-AZ-101	Physical Properties	pH measurement	unitless	Supernatant	Grab sample	Liquid
241-AZ-101	Physical Properties	Settled solids				
241-AZ-101	Physical Properties	Shear strength				
241-AZ-101	Physical Properties	Solid volume				
241-AZ-101	Physical Properties	Specific gravity	unitless	Supernatant	Grab sample	Liquid
241-AZ-101	Physical Properties	Temperature		SACs		
241-AZ-101	Physical Properties	Viscosity				
241-AZ-101	Physical Properties	Volume percent settled solids				
241-AZ-101	Physical Properties	Weight percent solids				
241-AZ-101	Radionuclides	Americium-241	$\mu\text{Ci/L}$	Supernatant	Grab sample	Liquid
241-AZ-101	Radionuclides	Americium-243				
241-AZ-101	Radionuclides	Carbon-14				
241-AZ-101	Radionuclides	Cesium-137	$\mu\text{Ci/L}$	Supernatant	Grab sample	Liquid
241-AZ-101	Radionuclides	Cobalt-60				
241-AZ-101	Radionuclides	Curium-242				
241-AZ-101	Radionuclides	Curium-243/244				
241-AZ-101	Radionuclides	Europium-152				
241-AZ-101	Radionuclides	Europium-154				

Table A-2. Available and Needed Data for Required Low-Activity Waste Analyses 1,2 (41 sheets)

Tank	Constituent Group	Constituent	Units	Sample Type	Samples Analyzed	Physical State
241-AZ-101	Radionuclides	Europium-154/155				
241-AZ-101	Radionuclides	Europium-155				
241-AZ-101	Radionuclides	Gross alpha				
241-AZ-101	Radionuclides	Gross beta				
241-AZ-101	Radionuclides	Iodine-129				
241-AZ-101	Radionuclides	Nepentium-237				
241-AZ-101	Radionuclides	Neptunium-238	$\mu\text{Ci/L}$	Supernatant	Grab sample	Liquid
241-AZ-101	Radionuclides	Plutonium-239	$\mu\text{Ci/L}$	Supernatant	Grab sample	Liquid
241-AZ-101	Radionuclides	Plutonium-239/40	$\mu\text{Ci/L}$	Supernatant	Grab sample	Liquid
241-AZ-101	Radionuclides	Plutonium-238	$\mu\text{Ci/L}$	Supernatant	Grab sample	Liquid
241-AZ-101	Radionuclides	Plutonium-240	$\mu\text{Ci/L}$	Supernatant	Grab sample	Liquid
241-AZ-101	Radionuclides	Plutonium-241	$\mu\text{Ci/L}$	Supernatant	Grab sample	Liquid
241-AZ-101	Radionuclides	Plutonium-242	$\mu\text{Ci/L}$	Supernatant	Grab sample	Liquid
241-AZ-101	Radionuclides	Strontium-79	$\mu\text{Ci/L}$	Supernatant	Grab sample	Liquid
241-AZ-101	Radionuclides	Strontium-89/90	$\mu\text{Ci/L}$	Supernatant	Grab sample	Liquid
241-AZ-101	Radionuclides	Strontium-90	$\mu\text{Ci/L}$	Supernatant	Grab sample	Liquid
241-AZ-101	Radionuclides	Technetium-99				
241-AZ-101	Radionuclides	Thorium-228				
241-AZ-101	Radionuclides	Tin-113				
241-AZ-101	Radionuclides	Tritium				
241-AZ-101	Radionuclides	Uranium-233				
241-AZ-101	Radionuclides	Uranium-234				
241-AZ-101	Radionuclides	Uranium-235				
241-AZ-101	Radionuclides	Uranium-238				
241-AZ-102	Anions	Bromide	$\mu\text{g/L}$	Supernatant	Grab sample	Liquid
241-AZ-102	Anions	Chloride	$\mu\text{g/L}$	Supernatant	Grab sample	Liquid
241-AZ-102	Anions	Citrate	$\mu\text{g/L}$	Supernatant	Grab sample	Liquid
241-AZ-102	Anions	Fluoride	$\mu\text{g/L}$	Supernatant	Grab sample	Liquid
241-AZ-102	Anions	Formate				
241-AZ-102	Anions	EDTA				
241-AZ-102	Anions	Nitrate	$\mu\text{g/L}$	Supernatant	Grab sample	Liquid
241-AZ-102	Anions	Nitrite	$\mu\text{g/L}$	Supernatant	Grab sample	Liquid
241-AZ-102	Anions	Phosphate	$\mu\text{g/L}$	Supernatant	Grab sample	Liquid
241-AZ-102	Anions	Sulfate	$\mu\text{g/L}$	Supernatant	Grab sample	Liquid
241-AZ-102	Inorganics	Ammonia				
241-AZ-102	Inorganics	Carbonate				

Table A-2. Available and Needed Data for Required Low-Activity Waste Analyses.^{1,2} (41 sheets)

Rank	Contaminant Group	Condition	Time	Sample Type		Physical State
				Sample Analyzed	Grab Sample	
241-AZ-102	Inorganics	Hexavalent chromium		Supernatant	Grab sample	Liquid
241-AZ-102	Inorganics	Hydroxide	μg/L	Supernatant	Grab sample	Liquid
241-AE-102	Inorganics	Total inorganic carbon	μg/L	Supernatant	Grab sample	Liquid
241-AZ-102	Inorganics	Total organic carbon	μg/L	Supernatant	Grab sample	Liquid
241-AE-102	Metals	Aluminum	μg/L	Supernatant	Grab sample	Liquid
241-AZ-102	Metals	Antimony				
241-AE-102	Metals	Arsenic				
241-AZ-102	Metals	Barium				
241-AE-102	Metals	Baryllium				
241-AZ-102	Metals	Bismuth				
241-AZ-102	Metals	Cadmium				
241-AZ-102	Metals	Calcium				
241-AZ-102	Metals	Cesium				
241-AZ-102	Metals	Cobalt				
241-AZ-102	Metals	Copper				
241-AZ-102	Metals	Iron	μg/L	Supernatant	Grab sample	Liquid
241-AZ-102	Metals	Lanthanum				
241-AZ-102	Metals	Lead				
241-AZ-102	Metals	Lithium				
241-AZ-102	Metals	Magnesium				
241-AZ-102	Metals	Manganese				
241-AE-102	Metals	Mercury				
241-AZ-102	Metals	Nickel				
241-AE-102	Metals	Potassium				
241-AZ-102	Metals	Silver				
241-AZ-102	Metals	Sodium	μg/L	Supernatant	Grab sample	Liquid
241-AZ-102	Metals	Strontium				
241-AZ-102	Metals	Thallium				
241-AZ-102	Metals	Uranium				
241-AE-102	Metals	Vanadium				
241-AZ-102	Metals	Zinc				
241-AE-102	Nonmetals	Zirconium				
241-AZ-102	Nonmetals	Boron				
241-AE-102	Nonmetals	Selenium				
241-AZ-102	Nonmetals	Silicon				
241-AZ-102	Nonmetals	Sulfur				

Table A-2. Available and Needed Data for Required Low-Activity Waste Analyses.^{1,2} (41 sheets)

Falk	Constituent Group	Constituent	Unit	Sample Type	Sample Analyzed	Physical State
241-AZ-102	Nonmetals	Tellurium				
241-AZ-102	Organics	1,1,1-Trichloroethane				
241-AZ-102	Organics	1,2-Dichloroethane				
241-AZ-102	Organics	2,4,4-Trichlorophenol				
241-AZ-102	Organics	2,4-Dinitrotoluene				
241-AZ-102	Organics	2-Butanone				
241-AZ-102	Organics	2-Butoxyethanol				
241-AZ-102	Organics	2-Hexanone				
241-AZ-102	Organics	2-Pentanone				
241-AZ-102	Organics	3-Heptanone				
241-AZ-102	Organics	Acetate				
241-AZ-102	Organics	Acetone				
241-AZ-102	Organics	Benzene				
241-AZ-102	Organics	Carbon disulfide				
241-AZ-102	Organics	Carbon tetrachloride				
241-AZ-102	Organics	Chloroethane				
241-AZ-102	Organics	Chloroform				
241-AZ-102	Organics	Ethane				
241-AZ-102	Organics	Ethyl acetate				
241-AZ-102	Organics	Ethyl ether				
241-AZ-102	Organics	Glycolic				
241-AZ-102	Organics	Hexachlorobutadiene				
241-AZ-102	Organics	Hexachloroethane				
241-AZ-102	Organics	Methylchloroethide				
241-AZ-102	Organics	Naphthalene				
241-AZ-102	Organics	Nitrobenzene				
241-AZ-102	Organics	Nonane				
241-AZ-102	Organics	PCB				
241-AZ-102	Organics	Phenol				
241-AZ-102	Organics	Pyridine				
241-AZ-102	Organics	Tetrachloroethene				
241-AZ-102	Organics	Tetrahydrofuran				
241-AZ-102	Organics	Toluene				
241-AZ-102	Organics	Tributyl phosphate				
241-AZ-102	Organics	Vinyl chloride				
241-AZ-102	Organics	Xylenes (total)				

Table A-2. Available and Needed Data for Required Low-Activity Waste Analyses.^{1,2} (41 sheets)

Sample	Constituent Group	Constituent	Units	Sample Type	Sample Analyzed	Physical State
241-AZ-102	Physical Properties	Density				
241-AZ-102	Physical Properties	Drainable liquid weight				
241-AZ-102	Physical Properties	DSC (exotherm)	%	Supernatant	Grab sample	Liquid
241-AZ-102	Physical Properties	Particle size density				
241-AZ-102	Physical Properties	Percent water	%	Supernatant	Grab sample	Liquid
241-AZ-102	Physical Properties	pH measurement	unitless	Supernatant	Grab sample	Liquid
241-AZ-102	Physical Properties	Settled solids				
241-AZ-102	Physical Properties	Shear strength				
241-AZ-102	Physical Properties	Solid volume				
241-AZ-102	Physical Properties	Specific gravity	unitless	Supernatant	Grab sample	Liquid
241-AZ-102	Physical Properties	Temperature				
241-AZ-102	Physical Properties	Viscosity				
241-AZ-102	Physical Properties	Volume percent settled solids				
241-AZ-102	Physical Properties	Volume percent solids				
241-AZ-102	Physical Properties	Weight percent solids				
241-AZ-102	Radionuclides	Americium-241	$\mu Ci/L$	Supernatant	Grab sample	Liquid
241-AZ-102	Radionuclides	Americium-243				
241-AZ-102	Radionuclides	Curium-144				
241-AZ-102	Radionuclides	Cesium-137	$\mu Ci/L$	Supernatant	Grab sample	Liquid
241-AZ-102	Radionuclides	Cobalt-60				
241-AZ-102	Radionuclides	Curium-242				
241-AZ-102	Radionuclides	Curium-243/244				
241-AZ-102	Radionuclides	Europium-152				
241-AZ-102	Radionuclides	Europium-154				
241-AZ-102	Radionuclides	Europium-154/155				
241-AZ-102	Radionuclides	Europium-155				
241-AZ-102	Radionuclides	Gross alpha				
241-AZ-102	Radionuclides	Gross beta				
241-AZ-102	Radionuclides	Iodine-129				
241-AZ-102	Radionuclides	Neputonium-237				
241-AZ-102	Radionuclides	Plutonium-238	$\mu Ci/L$	Supernatant	Grab sample	Liquid
241-AZ-102	Radionuclides	Plutonium-239				
241-AZ-102	Radionuclides	Plutonium-239/40	$\mu Ci/L$	Supernatant	Grab sample	Liquid
241-AZ-102	Radionuclides	Plutonium-238				
241-AZ-102	Radionuclides	Plutonium				

Table A-2. Available and Needed Data for Required Low-Activity Waste Analyses^{1,2} (41 sheets)

Sample	Constituent Group	Constituent	Date	Sample Type	Sample Analyzed	Physical State
241-AZ-102	Radionuclides	Plutonium-241				
241-AZ-102	Radionuclides	Plutonium-242				
241-AZ-102	Radionuclides	Selenium-79				
241-AZ-102	Radionuclides	Stron튬-89/90				
241-AZ-102	Radionuclides	Stron튬-90	ECML	Grab sample	Liquid	
241-AZ-102	Radionuclides	Techneium-99				
241-AZ-102	Radionuclides	Thorium-228				
241-AZ-102	Radionuclides	Tin-133				
241-AZ-102	Radionuclides	Uranium				
241-AZ-102	Radionuclides	Uranium-233				
241-AZ-102	Radionuclides	Uranium-234				
241-AZ-102	Radionuclides	Uranium-235				
241-AZ-102	Radionuclides	Uranium-238				
241-SY-101	Anions	Bromide				
241-SY-101	Anions	Chloride	$\mu\text{g/g}$, $\mu\text{g/L}$	Core, surface	Liquid, solid	
241-SY-101	Anions	Citrate	$\mu\text{g/g}$, $\mu\text{g/L}$			
241-SY-101	Anions	Fluoride	$\mu\text{g/g}$, $\mu\text{g/L}$	Core, surface	Liquid, solid	
241-SY-101	Anions	Formate	$\mu\text{g/g}$, $\mu\text{g/L}$			
241-SY-101	Anions	HEDTA	$\mu\text{g/g}$, $\mu\text{g/L}$			
241-SY-101	Anions	Nitrate	$\mu\text{g/g}$, $\mu\text{g/L}$	Core, surface	Grab composite, grab sample	Liquid, solid
241-SY-101	Anions	Nitrite	$\mu\text{g/g}$, $\mu\text{g/L}$	Core, surface	Grab composite, grab sample	Liquid, solid
241-SY-101	Anions	Phosphate	$\mu\text{g/g}$, $\mu\text{g/L}$	Core, surface	Grab composite, grab sample	Liquid, solid
241-SY-101	Anions	Sulfate	$\mu\text{g/g}$, $\mu\text{g/L}$	Core, surface	Grab composite, grab sample	Liquid, solid
241-SY-101	Inorganics	Ammonia	$\mu\text{g/g}$	Surface	Grab sample	Solid
241-SY-101	Inorganics	Carbonate	$\mu\text{g/g}$			
241-SY-101	Inorganics	Hexavalent chromium	$\mu\text{g/g}$	Core	Cone composite	Liquid, solid
241-SY-101	Inorganics	Hydroxide	$\mu\text{g/g}$, $\mu\text{g/L}$	Core, surface	Subdivision, grab sample	Liquid, solid
241-SY-101	Inorganics	Total inorganic carbon	$\mu\text{g/g}$, $\mu\text{g/L}$	Core, surface	Subdivision, grab sample	Liquid, solid
241-SY-101	Inorganics	Total organic carbon	$\mu\text{g/g}$, $\mu\text{g/L}$	Core, surface	Grab composite, grab sample	Liquid, solid
241-SY-101	Metals	Aluminum	$\mu\text{g/g}$, $\mu\text{g/L}$	Core, surface	Grab composite, grab sample	Liquid, solid
241-SY-101	Metals	Antimony	$\mu\text{g/g}$			
241-SY-101	Metals	Arsenic	$\mu\text{g/g}$	Core	Cone composite	Solid
241-SY-101	Metals	Barium	$\mu\text{g/g}$			
241-SY-101	Metals	Beryllium	$\mu\text{g/g}$			
241-SY-101	Metals	Bismuth	$\mu\text{g/g}$			
241-SY-101	Metals	Cadmium	$\mu\text{g/g}$			

Table A-2. Available and Needed Data for Required Low-Activity Waste Analyses 1.2 (41 sheets)

Sample Tank	Containment Group	Constituent	Sample Type		Physical State	
			Units	Sample Analyzed	Units	Sample Analyzed
241-SY-101	Metals	Calcium	$\mu\text{g/L}$	Core, surface	Subdivision, grab sample	Liquid, solid
241-SY-101	Metals	Cesium	$\mu\text{g/L}$			
241-SY-101	Metals	Cobalt	$\mu\text{g/L}$			
241-SY-101	Metals	Copper	$\mu\text{g/L}$	Core, surface	Subdivision, grab sample	Liquid, solid
241-SY-101	Metals	Iron	$\mu\text{g/L}$			
241-SY-101	Metals	Lanthanum	$\mu\text{g/L}$			
241-SY-101	Metals	Lead	$\mu\text{g/g}$	Surface	Subdivision	Solid
241-SY-101	Metals	Lithium	$\mu\text{g/g}$			
241-SY-101	Metals	Magnesium	$\mu\text{g/L}$	Core	Subdivision	Liquid
241-SY-101	Metals	Manganese	$\mu\text{g/g}$	Core	Core composite	Solid
241-SY-101	Metals	Mercury	$\mu\text{g/g}$	Core	Core composite, segment	Liquid, solid
241-SY-101	Metals	Nickel	$\mu\text{g/L}$	Core, surface	Segment, grab sample	Liquid, solid
241-SY-101	Metals	Potassium	$\mu\text{g/g}$	Core, surface	Segment, grab sample	Liquid, solid
241-SY-101	Metals	Silver	$\mu\text{g/g}$			
241-SY-101	Metals	Sodium	$\mu\text{g/g}$	Core, surface	Grab composite, grab sample	Liquid, solid
241-SY-101	Metals	Strontronium	$\mu\text{g/g}$			
241-SY-101	Metals	Thallium	$\mu\text{g/g}$			
241-SY-101	Metals	Uranium	$\mu\text{g/g}$	Core, surface	Subdivision, grab sample	Liquid, solid
241-SY-101	Metals	Vanadium	$\mu\text{g/g}$			
241-SY-101	Metals	Zinc	$\mu\text{g/g}$	Core	Segment, subdivision	Liquid, solid
241-SY-101	Nonmetals	Zirconium	$\mu\text{g/g}$			
241-SY-101	Nonmetals	Boron	$\mu\text{g/g}$			
241-SY-101	Nonmetals	Selenium	$\mu\text{g/g}$	Core	Core composite	Liquid, solid
241-SY-101	Nonmetals	Silicon	$\mu\text{g/g}$	Surface	Grab sample	Solid
241-SY-101	Nonmetals	Sulfur	$\mu\text{g/L}$	Core	Subdivision	Liquid
241-SY-101	Organics	Tellurium	$\mu\text{g/g}$			
241-SY-101	Organics	1,1,1-Trichloroethane	$\mu\text{g/g}$			
241-SY-101	Organics	1,2-Dichloroethane	$\mu\text{g/g}$			
241-SY-101	Organics	2,2,5-Trichlorophenol	$\mu\text{g/g}$			
241-SY-101	Organics	2,4-Dinitrophenol	$\mu\text{g/g}$			
241-SY-101	Organics	2-Butanone	$\mu\text{g/g}$			
241-SY-101	Organics	2-Butoxyethanol	$\mu\text{g/g}$			
241-SY-101	Organics	2-Hexanone	$\mu\text{g/g}$			
241-SY-101	Organics	2-Pentanone	$\mu\text{g/g}$			
241-SY-101	Organics	2-Hexanone	$\mu\text{g/g}$	Surface	Grab sample	Solid
241-SY-101	Organics	Acetone	$\mu\text{g/g}$			

Table A-2. Available and Needed Data for Required Low-Activity Waste Analyses 1:2 (41 sheets)

Rank	Contingency Group	Constituent	Units	Sample Type	Sample Analyzed	Physical State
241-SY-101	Organics	Acetone				
241-SY-101	Organics	Benzene				
241-SY-101	Organics	Carbon disulfide				
241-SY-101	Organics	Carbon tetrachloride				
241-SY-101	Organics	Chloroethane				
241-SY-101	Organics	Chloroform				
241-SY-101	Organics	Ethane				
241-SY-101	Organics	Ethyl acetate				
241-SY-101	Organics	Ethyl ether				
241-SY-101	Organics	Glycolate				
241-SY-101	Organics	Hexachlorobutadiene				
241-SY-101	Organics	Hexachloroethane				
241-SY-101	Organics	Methyl enecarbamate				
241-SY-101	Organics	Naphthalene				
241-SY-101	Organics	Nitrobenzene				
241-SY-101	Organics	Nonane				
241-SY-101	Organics	PCB				
241-SY-101	Organics	Phenol				
241-SY-101	Organics	Puridine				
241-SY-101	Organics	Tetrachloroethene				
241-SY-101	Organics	Tetrahydrofuran				
241-SY-101	Organics	Toluene				
241-SY-101	Organics	Tributyl phosphate				
241-SY-101	Organics	Vinyl chloride				
241-SY-101	Organics	Xylenes (total)				
241-SY-101	Physical Properties	Density	g/mL	Core	Segment, subdivision	Liquid, solid
241-SY-101	Physical Properties	Drainable liquid weight				
241-SY-101	Physical Properties	DSC (exotherm)	%	Core, surface	Grab composite, grab sample	Liquid, solid
241-SY-101	Physical Properties	Particle size density				
241-SY-101	Physical Properties	Percent water	%	Core, surface	Grab composite, grab sample	Liquid, solid
241-SY-101	Physical Properties	pH measurement	unitless	Core, surface	Subdivision, grab sample	Solid, liquid
241-SY-101	Physical Properties	Settled solids	%	Core	Segment, subdivision	Solid
241-SY-101	Physical Properties	Shear strength	dynes/cm ²	Core	Segment, subdivision	Solid
241-SY-101	Physical Properties	Solid volume	unitless	Core, surface	Subdivision, grab sample	Liquid
241-SY-101	Physical Properties	Specific gravity	unitless	Core, surface	Subdivision, grab composite	Solid
241-SY-101	Physical Properties	Temperature	°C	Core	Subdivision, grab composite	Solid

Table A-2. Available and Needed Data for Required Low-Activity Waste Analyses 1,2 (41 sheets)

Sample Rank	Contaminant Group	Constituent	Units		Sample Type	Samples Analyzed	Physical State
			cP	%			
241-SY-101	Physical Properties	Viscosity	µC/g, kC/L	Core	Segment	Solid	Solid
241-SY-101	Physical Properties	Volume percent settled solids	%	Core	Segment	Solid	Solid
241-SY-101	Physical Properties	Volume percent solids	%	Core	Subdivision, grab composite	Solid	Solid
241-SY-101	Physical Properties	Weight percent solids	%	Core	Subdivision, grab sample	Liquid, solid	Liquid, solid
241-SY-101	Radionuclides	Americium-241	µC/g, kC/L	Core, surface	Subdivision, grab sample		
241-SY-101	Radionuclides	Americium-243	µC/g	Core	Core composite	Solid	Solid
241-SY-101	Radionuclides	Carbon-14	µC/g	Core	Core composite		
241-SY-101	Radionuclides	Cerium-144	µC/g, kC/L	Core, surface	Subdivision, grab sample	Liquid, solid	Liquid, solid
241-SY-101	Radionuclides	Cesium-137	µC/g, kC/L	Core, surface	Grab sample	Solid	Solid
241-SY-101	Radionuclides	Cobalt-60	µC/g	Surface	Grab sample		
241-SY-101	Radionuclides	Curium-242					
241-SY-101	Radionuclides	Curium-243/244					
241-SY-101	Radionuclides	Europium-152					
241-SY-101	Radionuclides	Europium-154					
241-SY-101	Radionuclides	Europium-154/155					
241-SY-101	Radionuclides	Europium-155					
241-SY-101	Radionuclides	Gross Alpha	µC/g, kC/L	Core, surface	Subdivision, grab sample	Liquid, solid	Liquid, solid
241-SY-101	Radionuclides	Gross Beta	µC/g, kC/L	Core, surface	Subdivision, grab sample	Liquid, solid	Liquid, solid
241-SY-101	Radionuclides	Iodine-129	µC/g, kC/L	Core, surface	Subdivision, grab sample	Liquid, solid	Liquid, solid
241-SY-101	Radionuclides	Neptunium-237	µC/g, kC/L	Core, surface	Subdivision, grab sample	Liquid, solid	Liquid, solid
241-SY-101	Radionuclides	Plutonium-238					
241-SY-101	Radionuclides	Plutonium-239					
241-SY-101	Radionuclides	Plutonium-239/40	µC/g, kC/L	Core, surface	Subdivision, grab sample	Liquid, solid	Liquid, solid
241-SY-101	Radionuclides	Plutonium-240					
241-SY-101	Radionuclides	Plutonium-241					
241-SY-101	Radionuclides	Plutonium-242					
241-SY-101	Radionuclides	Selenium-79					
241-SY-101	Radionuclides	Strontium-89/90					
241-SY-101	Radionuclides	Strontium-90	µC/g, kC/L	Core, surface	Subdivision, grab sample	Liquid, solid	Liquid, solid
241-SY-101	Radionuclides	Techneium-99	µC/g, kC/L	Core, surface	Subdivision, grab sample	Liquid, solid	Liquid, solid
241-SY-101	Radionuclides	Thorium-228					
241-SY-101	Radionuclides	Tin-113					
241-SY-101	Radionuclides	Tritium					
241-SY-101	Radionuclides	Uranium-233					
241-SY-101	Radionuclides	Uranium-234					
241-SY-101	Radionuclides	Uranium-235					

Table A-2. Available and Needed Data for Required Low-Activity Waste Analyses.^{1,2} (41 sheets)

Table	Constituent Group	Constituent	Sample Type		Samples Analyzed	Physical State
			Total	Core		
241-SY-101	Radionuclides	Uranium-238	$\mu\text{g}/\text{L}$, $\mu\text{Bq}/\text{L}$	Core	Subdivision, segment	Solid, liquid
241-SY-103	Anions	Bromide	$\mu\text{g}/\text{L}$, $\mu\text{Bq}/\text{L}$	Core	Core composite, segment	Solid, liquid
241-SY-103	Anions	Chloride	$\mu\text{g}/\text{L}$, $\mu\text{Bq}/\text{L}$	Core	Subdivision, segment	Solid, liquid
241-SY-103	Anions	Citrate	$\mu\text{g}/\text{L}$, $\mu\text{Bq}/\text{L}$	Core	Core composite, segment	Solid, liquid
241-SY-103	Anions	Fluoride	$\mu\text{g}/\text{L}$, $\mu\text{Bq}/\text{L}$	Core	Core composite, segment	Solid, liquid
241-SY-103	Anions	Formate	$\mu\text{g}/\text{L}$, $\mu\text{Bq}/\text{L}$	Core	Core composite, segment	Solid, liquid
241-SY-103	Anions	HEDTA	$\mu\text{g}/\text{L}$, $\mu\text{Bq}/\text{L}$	Core	Core composite, segment	Solid, liquid
241-SY-103	Anions	Nitrate	$\mu\text{g}/\text{L}$, $\mu\text{Bq}/\text{L}$	Core	Core composite, segment	Solid, liquid
241-SY-103	Anions	Nitrite	$\mu\text{g}/\text{L}$, $\mu\text{Bq}/\text{L}$	Core	Core composite, segment	Solid, liquid
241-SY-103	Anions	Phosphate	$\mu\text{g}/\text{L}$, $\mu\text{Bq}/\text{L}$	Core	Core composite, segment	Solid, liquid
241-SY-103	Anions	Sulfate	$\mu\text{g}/\text{L}$, $\mu\text{Bq}/\text{L}$	Core	Core composite, segment	Solid, liquid
241-SY-103	Inorganics	Ammonia	$\mu\text{g}/\text{L}$, $\mu\text{Bq}/\text{L}$	Core	Core composite, segment	Solid, liquid
241-SY-103	Inorganics	Carbonate	$\mu\text{g}/\text{L}$, $\mu\text{Bq}/\text{L}$	Core	Core composite, segment	Solid, liquid
241-SY-103	Inorganics	Hexavalent chromium	$\mu\text{g}/\text{L}$, $\mu\text{Bq}/\text{L}$	Core	Core composite, segment	Solid, liquid
241-SY-103	Inorganics	Hydroxide	$\mu\text{g}/\text{L}$, $\mu\text{Bq}/\text{L}$	Core	Core composite, segment	Solid, liquid
241-SY-103	Inorganics	Total inorganic carbon	$\mu\text{g}/\text{L}$	Core, surface	Subdivision, grab composite	Solid
241-SY-103	Inorganics	Total organic carbon	$\mu\text{g}/\text{L}$	Core, surface	Grab composite, segment	Solid, liquid
241-SY-103	Metals	Aluminum	$\mu\text{g}/\text{L}$, $\mu\text{Bq}/\text{L}$	Core	Subdivision, segment	Solid, liquid
241-SY-103	Metals	Antimony				
241-SY-103	Metals	Arsenic				
241-SY-103	Metals	Barium	$\mu\text{g}/\text{L}$	Core	Core composite, segment	Liquid
241-SY-103	Metals	Beryllium				
241-SY-103	Metals	Bismuth	$\mu\text{g}/\text{L}$	Core	Core composite, segment	Liquid
241-SY-103	Metals	Cadmium				
241-SY-103	Metals	Calcium	$\mu\text{g}/\text{L}$, $\mu\text{Bq}/\text{L}$	Core	Subdivision, segment	Solid, liquid
241-SY-103	Metals	Cesium				
241-SY-103	Metals	Cobalt				
241-SY-103	Metals	Copper				
241-SY-103	Metals	Iron	$\mu\text{g}/\text{L}$, $\mu\text{Bq}/\text{L}$	Core	Subdivision, segment	Solid, liquid
241-SY-103	Metals	Lanthanum				
241-SY-103	Metals	Lead				
241-SY-103	Metals	Lithium	$\mu\text{g}/\text{L}$, $\mu\text{Bq}/\text{L}$	Core	Subdivision, core composite	Solid, liquid
241-SY-103	Metals	Magnesium				
241-SY-103	Metals	Manganese				
241-SY-103	Metals	Mercury				
241-SY-103	Metals	Nickel	$\mu\text{g}/\text{L}$, $\mu\text{Bq}/\text{L}$	Core	Subdivision, segment	Solid, liquid

Table A-2 Available and Needed Data for Required Low Activity Waste Analyses.^{1,2} (41 sheets)

Tank	Characteristic Group	Constituent	Units	Sample Type		Sample Analyzed	Physical State
				Core	Subdivision, segment		
241-SY-103	Metals	Potassium	$\mu\text{g/L}$, ug/L	Core			Solid, liquid
241-SY-103	Metals	Silver	$\mu\text{g/L}$, ug/L	Core			
241-SY-103	Metals	Sodium	$\mu\text{g/L}$, ug/L	Core	Subdivision, segment		Solid, liquid
241-SY-103	Metals	Stronium					
241-SY-103	Metals	Thallium	$\mu\text{g/L}$, ug/L	Core			
241-SY-103	Metals	Uranium	$\mu\text{g/L}$, ug/L	Core	Subdivision, segment		Solid, liquid
241-SY-103	Metals	Vanadium					
241-SY-103	Metals	Zinc	$\mu\text{g/L}$, ug/L	Core	Subdivision, segment		Solid, liquid
241-SY-103	Metals	Zirconium	$\mu\text{g/L}$, ug/L	Core			Solid, liquid
241-SY-103	Nonmetals	Boron	$\mu\text{g/L}$, ug/L	Core	Core composite, segment		Liquid
241-SY-103	Nonmetals	Selenium					
241-SY-103	Nonmetals	Silicon	$\mu\text{g/L}$, ug/L	Core	Core composite, segment		Liquid
241-SY-103	Nonmetals	Sulfur					
241-SY-103	Nonmetals	Tellurium					
241-SY-103	Organics	1,1,1-Trichloroethane					
241-SY-103	Organics	1,2-Dichloroethane					
241-SY-103	Organics	2,4,5-Trichlorophenol					
241-SY-103	Organics	2,4-Diminitrobenzene					
241-SY-103	Organics	2-Butanone					
241-SY-103	Organics	2-Butoxyethanol					
241-SY-103	Organics	2-Hexanone					
241-SY-103	Organics	2-Pentanone					
241-SY-103	Organics	3-Hexanone					
241-SY-103	Organics	Acetate	$\mu\text{g/L}$, ug/L	Core	Core composite, segment		Solid, liquid
241-SY-103	Organics	Acetone					
241-SY-103	Organics	Benzene					
241-SY-103	Organics	Carbon disulfide					
241-SY-103	Organics	Carbon tetrachloride					
241-SY-103	Organics	Chloroethane					
241-SY-103	Organics	Chloroform					
241-SY-103	Organics	Ethane					
241-SY-103	Organics	Ethyl acetate					
241-SY-103	Organics	Ethyl ether					
241-SY-103	Organics	Glycolate					
241-SY-103	Organics	Hexachlorobutadiene					
241-SY-103	Organics	Hexachloroethane					

Table A-2 Available and Needed Data for Required Low Activity Waste Analyses.^{1,2} (41 sheets)

Rank	Constituent Group	Constituent	Units	Sample Type	Sample Analyzed	Physical State
241-SY-103	Organics	Methylenechloride				
241-SY-103	Organics	Naphthalene				
241-SY-103	Organics	Nitrobenzene				
241-SY-103	Organics	Nonane				
241-SY-103	Organics	PCB				
241-SY-103	Organics	Phenol				
241-SY-103	Organics	Pyridine				
241-SY-103	Organics	Tetrahydrocetene				
241-SY-103	Organics	Tetrahydrofuran				
241-SY-103	Organics	Toluene				
241-SY-103	Organics	Tributyl phosphate				
241-SY-103	Organics	Vinyl chloride				
241-SY-103	Organics	Xylenes (total)				
241-SY-103	Physical Properties	Density				
241-SY-103	Physical Properties	Drainable liquid weight		Core, surface	Subdivision, grab sample	Liquid, solid
241-SY-103	Physical Properties	DSC (exotherm)	%			
241-SY-103	Physical Properties	Particle size probability number density mean				
241-SY-103	Physical Properties	Percent water	%	Core, surface	Subdivision, grab sample	Liquid, solid
241-SY-103	Physical Properties	pH measurement	unitless	Core	Core composite, segment	Liquid, solid
241-SY-103	Physical Properties	Sediment solids				
241-SY-103	Physical Properties	Shear strength				
241-SY-103	Physical Properties	Solid volume				
241-SY-103	Physical Properties	Specific gravity				
241-SY-103	Physical Properties	Temperature		SACS		
241-SY-103	Physical Properties	Viscosity				
241-SY-103	Physical Properties	Volume percent settled solids				
241-SY-103	Physical Properties	Volume percent solids				
241-SY-103	Physical Properties	Weight percent solids				
241-SY-103	Radionuclides	Americium-241	$\mu\text{Ci/g}, \mu\text{Ci/L}$	Core	Subdivision, segment	Solid, liquid
241-SY-103	Radionuclides	Americium-243				
241-SY-103	Radionuclides	Carbon-14				
241-SY-103	Radionuclides	Cerium-144				
241-SY-103	Radionuclides	Cesium-137	$\mu\text{Ci/g}, \mu\text{Ci/L}$	Core	Subdivision, segment	Solid, liquid
241-SY-103	Radionuclides	Cobalt-60	$\mu\text{Ci/g}, \mu\text{Ci/L}$	Core	Core composite, segment	Solid, liquid
241-SY-103	Radionuclides	Curium-242				
241-SY-103	Radionuclides	Curium-243/244	$\mu\text{Ci/g}, \mu\text{Ci/L}$	Core	Subdivision, segment	Solid, liquid

Table A-2. Available and Needed Data for Required Low Activity Waste Analyses.^{1,2} (41 sheets)

Tank	Constituent Group	Constituent	Units	Sample Type	Sample Analyzed	Physical State
241-SY-103	Radionuclides	Europium-152	$\mu\text{Ci/g}$, $\mu\text{Ci/L}$	Core	Core composite, segment	Solid, liquid
241-SY-103	Radionuclides	Europium-154	$\mu\text{Ci/g}$, $\mu\text{Ci/L}$	Core	Core composite, segment	Solid, liquid
241-SY-103	Radionuclides	Europium-154/155	$\mu\text{Ci/g}$, $\mu\text{Ci/L}$	Core	Core composite, segment	Solid, liquid
241-SY-103	Radionuclides	Europium-155	$\mu\text{Ci/g}$, $\mu\text{Ci/L}$	Core	Core composite, segment	Solid, liquid
241-SY-103	Radionuclides	Gross alpha	$\mu\text{Ci/g}$, $\mu\text{Ci/L}$	Core	Subdivision, segment	Solid, liquid
241-SY-103	Radionuclides	Gross beta	$\mu\text{Ci/g}$, $\mu\text{Ci/L}$	Core	Subdivision, segment	Solid, liquid
241-SY-103	Radionuclides	Iodine-129	$\mu\text{Ci/g}$, $\mu\text{Ci/L}$	Core	Subdivision, segment	Solid, liquid
241-SY-103	Radionuclides	Nepentium-237	$\mu\text{Ci/g}$, $\mu\text{Ci/L}$	Core	Subdivision, segment	Solid, liquid
241-SY-103	Radionuclides	Plutonium-238	$\mu\text{Ci/g}$, $\mu\text{Ci/L}$	Core	Subdivision, segment	Solid, liquid
241-SY-103	Radionuclides	Plutonium-239	$\mu\text{Ci/g}$, $\mu\text{Ci/L}$	Core	Subdivision, segment	Solid, liquid
241-SY-103	Radionuclides	Plutonium-239/40	$\mu\text{Ci/g}$, $\mu\text{Ci/L}$	Core	Subdivision, segment	Solid, liquid
241-SY-103	Radionuclides	Plutonium-238	$\mu\text{Ci/g}$, $\mu\text{Ci/L}$	Core	Subdivision, segment	Solid, liquid
241-SY-103	Radionuclides	Plutonium-240	$\mu\text{Ci/g}$, $\mu\text{Ci/L}$	Core	Subdivision, segment	Solid, liquid
241-SY-103	Radionuclides	Plutonium-241	$\mu\text{Ci/g}$, $\mu\text{Ci/L}$	Core	Subdivision, segment	Solid, liquid
241-SY-103	Radionuclides	Plutonium-242	$\mu\text{Ci/g}$, $\mu\text{Ci/L}$	Core	Subdivision, segment	Solid, liquid
241-SY-103	Radionuclides	Selenium-79	$\mu\text{Ci/g}$, $\mu\text{Ci/L}$	Core	Subdivision, segment	Solid, liquid
241-SY-103	Radionuclides	Strontium-89/90	$\mu\text{Ci/g}$, $\mu\text{Ci/L}$	Core	Subdivision, segment	Solid, liquid
241-SY-103	Radionuclides	Strontium-90	$\mu\text{Ci/g}$, $\mu\text{Ci/L}$	Core	Subdivision, segment	Solid, liquid
241-SY-103	Radionuclides	Technetium-99	$\mu\text{Ci/g}$, $\mu\text{Ci/L}$	Core	Subdivision, segment	Solid, liquid
241-SY-103	Radionuclides	Thorium-228	$\mu\text{Ci/g}$, $\mu\text{Ci/L}$	Core	Subdivision, segment	Solid, liquid
241-SY-103	Radionuclides	Tin-113	$\mu\text{Ci/g}$, $\mu\text{Ci/L}$	Core	Core composite, segment	Solid, liquid
241-SY-103	Radionuclides	Tritium	$\mu\text{Ci/g}$, $\mu\text{Ci/L}$	Core	Core composite, segment	Solid, liquid
241-SY-103	Radionuclides	Uranium-233	$\mu\text{Ci/g}$, $\mu\text{Ci/L}$	Core	Core composite, segment	Solid, liquid
241-SY-103	Radionuclides	Uranium-234	$\mu\text{Ci/g}$, $\mu\text{Ci/L}$	Core	Core composite, segment	Solid, liquid
241-SY-103	Radionuclides	Uranium-235	$\mu\text{Ci/g}$, $\mu\text{Ci/L}$	Core	Core composite, segment	Solid, liquid
241-SY-103	Radionuclides	Uranium-238	$\mu\text{Ci/g}$, $\mu\text{Ci/L}$	Core	Core composite, segment	Solid, liquid

Notes:

¹ Requirements and available data are shown for each LAW and HLW tank in scope. No data is available where columns 4, 5, 6, and 7 are blank.
² Analyses listed in column 3 are those included in the Tank Characterization Database. This table does not include requirements not listed in TCD.

SACS = Surveillance Analysis Computer System
cm² = square centimeters
J/g = joules per gram
 $\mu\text{C/M/L}$ = micromoles per liter
 $\mu\text{Ci/ml}$ = microcuries per milliliter

$\mu\text{G/ml}$ = micrograms per milliliter
 $\mu\text{g/g}$ = micrograms per gram
 $\mu\text{g/L}$ = micrograms per liter
% = percent

Table A-3. Available and Needed Data for High-Level Waste Privatization Requirements^{1,2} (13 sheets)

Rank	Constituent Group	Constituent	Units	Available Analytes		Physical State
				Simple Typ.	Supernatant	
241-AY-102	Anions	Chloride	$\mu\text{g}/\text{L}$	Grab sample	Grab sample	Liquid
241-AY-102	Anions	Cyanide	$\mu\text{g}/\text{L}$			
241-AY-102	Anions	Fluoride	$\mu\text{g}/\text{L}$	Grab sample	Grab sample	Liquid
241-AY-102	Anions	Nitrate	$\mu\text{g}/\text{L}$	Supernatant	Supernatant	Liquid
241-AY-102	Anions	Nitrite	$\mu\text{g}/\text{L}$	Supernatant	Supernatant	Liquid
241-AY-102	Inorganics	Ammonia	$\mu\text{g}/\text{L}$	Grab sample	Grab sample	Liquid
241-AY-102	Inorganics	Carbonate	$\mu\text{g}/\text{L}$			
241-AY-102	Inorganics	Hydroxide	$\mu\text{g}/\text{L}$	Supernatant	Supernatant	Liquid
241-AY-102	Inorganics	Total inorganic carbon	$\mu\text{g}/\text{L}$	Grab sample	Grab sample	Liquid
241-AY-102	Inorganics	Total organic carbon	$\mu\text{g}/\text{L}$	Supernatant	Supernatant	Liquid
241-AY-102	Metals	Aluminum	$\mu\text{g}/\text{L}$	Grab sample	Grab sample	Liquid
241-AY-102	Metals	Antimony	$\mu\text{g}/\text{L}$	Supernatant	Supernatant	Liquid
241-AY-102	Metals	Arsenic	$\mu\text{g}/\text{L}$	Grab sample	Grab sample	Liquid
241-AY-102	Metals	Barium	$\mu\text{g}/\text{L}$	Supernatant	Supernatant	Liquid
241-AY-102	Metals	Beryllium	$\mu\text{g}/\text{L}$	Grab sample	Grab sample	Liquid
241-AY-102	Metals	Bismuth	$\mu\text{g}/\text{L}$	Supernatant	Supernatant	Liquid
241-AY-102	Metals	Cadmium	$\mu\text{g}/\text{L}$	Grab sample	Grab sample	Liquid
241-AY-102	Metals	Calcium	$\mu\text{g}/\text{L}$	Supernatant	Supernatant	Liquid
241-AY-102	Metals	Cerium	$\mu\text{g}/\text{L}$	Grab sample	Grab sample	Liquid
241-AY-102	Metals	Cesium	$\mu\text{g}/\text{L}$			
241-AY-102	Metals	Cobalt	$\mu\text{g}/\text{L}$	Supernatant	Supernatant	Liquid
241-AY-102	Metals	Dysprosium	$\mu\text{g}/\text{L}$			
241-AY-102	Metals	Europium	$\mu\text{g}/\text{L}$			
241-AY-102	Metals	Gadolinium	$\mu\text{g}/\text{L}$			
241-AY-102	Metals	Iron	$\mu\text{g}/\text{L}$	Supernatant	Supernatant	Liquid
241-AY-102	Metals	Lanthanum	$\mu\text{g}/\text{L}$	Grab sample	Grab sample	Liquid
241-AY-102	Metals	Lead	$\mu\text{g}/\text{L}$	Supernatant	Supernatant	Liquid
241-AY-102	Metals	Lithium	$\mu\text{g}/\text{L}$	Grab sample	Grab sample	Liquid
241-AY-102	Metals	Magnesium	$\mu\text{g}/\text{L}$	Supernatant	Supernatant	Liquid
241-AY-102	Metals	Manganese	$\mu\text{g}/\text{L}$	Grab sample	Grab sample	Liquid
241-AY-102	Metals	Mercury	$\mu\text{g}/\text{L}$			
241-AY-102	Metals	Molybdenum	$\mu\text{g}/\text{L}$	Supernatant	Supernatant	Liquid
241-AY-102	Metals	Neodymium	$\mu\text{g}/\text{L}$	Grab sample	Grab sample	Liquid
241-AY-102	Metals	Nickel	$\mu\text{g}/\text{L}$	Supernatant	Supernatant	Liquid
241-AY-102	Metals	Palladium	$\mu\text{g}/\text{L}$	Grab sample	Grab sample	Liquid

Table A-3. Available and Needed Data for High-Level Waste Privatization Requirements.^{1,2} (13 sheets)

Path	Constituent Group	Constitution	Units	Sample Type	Available Analyte	Physical State
241-AY-102	Metals	Potassium	$\mu\text{g/L}$	Supernatant	Grab sample	Liquid
241-AY-102	Metals	Rhenium	$\mu\text{g/L}$	Supernatant	Grab sample	Liquid
241-AY-102	Metals	Rhodium	$\mu\text{g/L}$	Supernatant	Grab sample	Liquid
241-AY-102	Metals	Ruthenium	$\mu\text{g/L}$	Supernatant	Grab sample	Liquid
241-AY-102	Metals	Samarium	$\mu\text{g/L}$	Supernatant	Grab sample	Liquid
241-AY-102	Metals	Silver	$\mu\text{g/L}$	Supernatant	Grab sample	Liquid
241-AY-102	Metals	Sodium	$\mu\text{g/L}$	Supernatant	Grab sample	Liquid
241-AY-102	Metals	Strontrium	$\mu\text{g/L}$	Supernatant	Grab sample	Liquid
241-AY-102	Metals	Tantalum	$\mu\text{g/L}$	Supernatant	Grab sample	Liquid
241-AY-102	Metals	Thorium	$\mu\text{g/L}$	Supernatant	Grab sample	Liquid
241-AY-102	Metals	Tin	$\mu\text{g/L}$	Supernatant	Grab sample	Liquid
241-AY-102	Metals	Titanium	$\mu\text{g/L}$	Supernatant	Grab sample	Liquid
241-AY-102	Metals	Tungsten	$\mu\text{g/L}$	Supernatant	Grab sample	Liquid
241-AY-102	Metals	Uranium	$\mu\text{g/L}$	Supernatant	Grab sample	Liquid
241-AY-102	Metals	Vanadium	$\mu\text{g/L}$	Supernatant	Grab sample	Liquid
241-AY-102	Metals	Yttrium	$\mu\text{g/L}$	Supernatant	Grab sample	Liquid
241-AY-102	Metals	Zinc	$\mu\text{g/L}$	Supernatant	Grab sample	Liquid
241-AY-102	Metals	Zirconium	$\mu\text{g/L}$	Supernatant	Grab sample	Liquid
241-AY-102	Nonmetals	Boron	$\mu\text{g/L}$	Supernatant	Grab sample	Liquid
241-AY-102	Nonmetals	Phosphorus	$\mu\text{g/L}$	Supernatant	Grab sample	Liquid
241-AY-102	Nonmetals	Selenium	$\mu\text{g/L}$	Supernatant	Grab sample	Liquid
241-AY-102	Nonmetals	Silicon	$\mu\text{g/L}$	Supernatant	Grab sample	Liquid
241-AY-102	Nonmetals	Sulfur	$\mu\text{g/L}$	Supernatant	Grab sample	Liquid
241-AY-102	Nonmetals	Tellurium	$\mu\text{g/L}$	Supernatant	Grab sample	Liquid
241-AY-102	Organics	1,1,1-Trichloroethane				
241-AY-102	Organics	1,2-Dichloroethane				
241-AY-102	Organics	2-Pentanone				
241-AY-102	Organics	2,4,5-Trichlorophenol				
241-AY-102	Organics	2,4-Dinitrotoluene				
241-AY-102	Organics	2-Butanone				
241-AY-102	Organics	2-Butoxyethanol				
241-AY-102	Organics	2-Hexanone				
241-AY-102	Organics	2-Pentanone				
241-AY-102	Organics	3-Heptanone				
241-AY-102	Organics	Acetone	$\mu\text{g/L}$	Supernatant	Grab sample	Liquid
241-AY-102	Organics	Benzene				
241-AY-102	Organics	Carbon disulfide				

Table A-3. Available and Needed Data for High-Level Waste Privatization Requirements.^{1,2} (13 sheets)

Part	Constituent Group	Containment	Units	Sample Type	Available Analyte	Physical Status
241-AY-102	Organics	Carbon tetrachloride				
241-AY-102	Organics	Chloroethane				
241-AY-102	Organics	Chloroform				
241-AY-102	Organics	Ethane				
241-AY-102	Organics	Ethyl acetate				
241-AY-102	Organics	Ethyl ether				
241-AY-102	Organics	Hexachlorobutadiene				
241-AY-102	Organics	Hexachloroethane				
241-AY-102	Organics	Methylenechloride				
241-AY-102	Organics	Naphthalene				
241-AY-102	Organics	Nitrobenzene				
241-AY-102	Organics	Nonane				
241-AY-102	Organics	PCB				
241-AY-102	Organics	Phenol				
241-AY-102	Organics	Pyridine				
241-AY-102	Organics	Tetrachloroethene				
241-AY-102	Organics	Tetrahydrofuran				
241-AY-102	Organics	Toluene				
241-AY-102	Organics	Triaryl phosphate				
241-AY-102	Organics	Vinyl chloride				
241-AY-102	Organics	Xylenes (total)				
241-AY-102	Physical Properties	Density				
241-AY-102	Physical Properties	DSC (exotherm)	%	Supernatant	Grab sample	Liquid
241-AY-102	Physical Properties	Particle size density				
241-AY-102	Physical Properties	Percent water	%	Supernatant	Grab sample	Liquid
241-AY-102	Physical Properties	pH measurement	unitless	Supernatant	Grab sample	Liquid
241-AY-102	Physical Properties	Settled solids				
241-AY-102	Physical Properties	Shear strength				
241-AY-102	Physical Properties	Solid density	unitless	Supernatant	Grab sample	Liquid
241-AY-102	Physical Properties	Specific gravity		SACS		
241-AY-102	Physical Properties	Temperature				
241-AY-102	Physical Properties	Total dissolved solids				
241-AY-102	Physical Properties	Viscosity				
241-AY-102	Physical Properties	Weight percent oxides				
241-AY-102	Physical Properties	Weight percent solids	%	Supernatant	Grab sample	Liquid
241-AY-102	Physical Properties	Yield point				

Table A-3. Available and Needed Data for High-Level Waste Privatization Requirements.^{1,2} (13 sheets)

Tank	Constituent Group	Cesium	Strontium	Uranium	Sample Type	Available Analyte	Physical State
241-AY-102	Radioisotopes	Americium-241		$\mu\text{Ci/L}$	Supernatant	Grab sample	Liquid
241-AY-102	Radioisotopes	Americium-243					
241-AY-102	Radioisotopes	Antimony-125					
241-AY-102	Radioisotopes	Carbon-14					
241-AY-102	Radioisotopes	Cerium-144					
241-AY-102	Radioisotopes	Cerium/Pradysmum-144					
241-AY-102	Radioisotopes	Cesium-134					
241-AY-102	Radioisotopes	Cesium-137		$\mu\text{Ci/L}$	Supernatant	Grab sample	Liquid
241-AY-102	Radioisotopes	Cobalt-60		$\mu\text{Ci/L}$	Supernatant	Grab sample	Liquid
241-AY-102	Radioisotopes	Curium-242					
241-AY-102	Radioisotopes	Curium-243/244					
241-AY-102	Radioisotopes	Curium-244					
241-AY-102	Radioisotopes	Europium-152					
241-AY-102	Radioisotopes	Europium-154					
241-AY-102	Radioisotopes	Europium-155					
241-AY-102	Radioisotopes	Gross alpha					
241-AY-102	Radioisotopes	Gross beta					
241-AY-102	Radioisotopes	Iodine-129					
241-AY-102	Radioisotopes	Nepunium-237					
241-AY-102	Radioisotopes	Nickel-59					
241-AY-102	Radioisotopes	Nickel-63					
241-AY-102	Radioisotopes	Pontium-238					
241-AY-102	Radioisotopes	Plutonium-239					
241-AY-102	Radioisotopes	Plutonium-239/240		$\mu\text{Ci/L}$	Supernatant	Grab sample	Liquid
241-AY-102	Radioisotopes	Plutonium-240					
241-AY-102	Radioisotopes	Plutonium-241					
241-AY-102	Radioisotopes	Plutonium-242					
241-AY-102	Radioisotopes	Ruthenium-106					
241-AY-102	Radioisotopes	Selenium-79					
241-AY-102	Radioisotopes	Stronitium-90					
241-AY-102	Radioisotopes	Technetium-99					
241-AY-102	Radioisotopes	Thorium-228					
241-AY-102	Radioisotopes	Tin-113					
241-AY-102	Radioisotopes	Total alpha - plutonium					
241-AY-102	Radioisotopes	Tritium					
241-AY-102	Radioisotopes	Uranium-236					

Table A-3. Available and Needed Data for High-Level Waste Privatization Requirements.^{1,2} (13 sheets)

Tank	Constituent Group	Constitution		Sample Type	Available Analytes	Physical State
		Element	Unit			
241-AY-102	Radioisotopes	Uranium	233			
241-AY-102	Radionuclides	Uranium	234			
241-AY-102	Radionuclides	Uranium	235			
241-AY-102	Radionuclides	Uranium	238			
241-AY-101	Anions	Chloride	µg/L	Supernatant	Grab sample	Liquid
241-AZ-101	Anions	Cyanide	µg/L	Supernatant	Grab sample	Liquid
241-AZ-101	Anions	Fluoride	µg/L	Supernatant	Grab sample	Liquid
241-AZ-101	Anions	Nitrate	µg/L	Supernatant	Grab sample	Liquid
241-AZ-101	Anions	Nitrite	µg/L	Supernatant	Grab sample	Liquid
241-AZ-101	Inorganics	Ammonia				
241-AZ-101	Inorganics	Carbonate				
241-AZ-101	Inorganics	Hydroxide	µg/L	Supernatant	Grab sample	Liquid
241-AZ-101	Inorganics	Total inorganic carbon	µg/L	Supernatant	Grab sample	Liquid
241-AZ-101	Inorganics	Total organic carbon	µg/L	Supernatant	Grab sample	Liquid
241-AZ-101	Metals	Aluminum	µg/L	Supernatant	Grab sample	Liquid
241-AZ-101	Metals	Antimony				
241-AZ-101	Metals	Arsenic				
241-AZ-101	Metals	Barium				
241-AZ-101	Metals	Beryllium				
241-AZ-101	Metals	Bismuth				
241-AZ-101	Metals	Cadmium				
241-AZ-101	Metals	Calcium				
241-AZ-101	Metals	Cerium				
241-AZ-101	Metals	Cesium				
241-AZ-101	Metals	Cobalt				
241-AZ-101	Metals	Copper				
241-AZ-101	Metals	Dysprosium				
241-AZ-101	Metals	Europium				
241-AZ-101	Metals	Gadolinium				
241-AZ-101	Metals	Iron	µg/L	Supernatant	Grab sample	Liquid
241-AZ-101	Metals	Lanthanum				
241-AZ-101	Metals	Lead				
241-AZ-101	Metals	Lithium				
241-AZ-101	Metals	Magnesium				
241-AZ-101	Metals	Manganese				
241-AZ-101	Metals	Mercury				

Table A-3. Available and Needed Data for High-Level Waste Privatization Requirements.^{1,2} (13 sheets)

Rank	Constituent Group	Containment	Unit	Sample Type	Available Analytes	Physical State
241-AZ-101	Metals	Molybdenum				
241-AZ-101	Metals	Neodymium				
241-AZ-101	Metals	Nickel				
241-AZ-101	Metals	Palladium				
241-AZ-101	Metals	Potassium				
241-AZ-101	Metals	Rhenium				
241-AZ-101	Metals	Rhodium				
241-AZ-101	Metals	Ruthenium				
241-AZ-101	Metals	Samarium				
241-AZ-101	Metals	Silver				
241-AZ-101	Metals	Sodium	µg/L	Supernatant		Liquid
241-AZ-101	Metals	Strontrium				
241-AZ-101	Metals	Thorium				
241-AZ-101	Metals	Tin				
241-AZ-101	Metals	Titanium				
241-AZ-101	Metals	Tungsten				
241-AZ-101	Metals	Uranium				
241-AZ-101	Metals	Vanadium				
241-AZ-101	Metals	Yttrium				
241-AZ-101	Metals	Zinc				
241-AZ-101	Metals	Zirconium				
241-AZ-101	Nonmetals	Boron				
241-AZ-101	Nonmetals	Phosphorus				
241-AZ-101	Nonmetals	Selenium				
241-AZ-101	Nonmetals	Silicon				
241-AZ-101	Nonmetals	Sulfur				
241-AZ-101	Nonmetals	Tellurium				
241-AZ-101	Organics	1,1,1-Trichloroethane				
241-AZ-101	Organics	1,2-Dichloroethane				
241-AZ-101	Organics	2,4,5-Trichlorophenol				
241-AZ-101	Organics	2,4-Dinitrotoluene				
241-AZ-101	Organics	2-Butanone				
241-AZ-101	Organics	2-Butoxyethanol				
241-AZ-101	Organics	2-Hexanone				
241-AZ-101	Organics	2-Pentanone				

Table A-3. Available and Needed Data for High-Level Waste Privatization Requirements.^{1,2} (13 sheets)

Tank	Containment Group	Containment	Batch	Sample Type	Available Analytes	Physical State
241-AZ-101	Organics	3-Hexanone				
241-AZ-101	Organics	Acetone				
241-AZ-101	Organics	Benzene				
241-AZ-101	Organics	Carbon disulfide				
241-AZ-101	Organics	Carbon tetrachloride				
241-AZ-101	Organics	Chloroethane				
241-AZ-101	Organics	Chloroform				
241-AZ-101	Organics	Ethane				
241-AZ-101	Organics	Ethyl acetate				
241-AZ-101	Organics	Ethyl ether				
241-AZ-101	Organics	Hexachlorobutadiene				
241-AZ-101	Organics	Hexachloroethane				
241-AZ-101	Organics	Methylenechloride				
241-AZ-101	Organics	Naphthalene				
241-AZ-101	Organics	Nitrobenzene				
241-AZ-101	Organics	Nonane				
241-AZ-101	Organics	PCB				
241-AZ-101	Organics	Pheanol				
241-AZ-101	Organics	Pyridine				
241-AZ-101	Organics	Tetrachloroethane				
241-AZ-101	Organics	Tetrahydrofuran				
241-AZ-101	Organics	Toluene				
241-AZ-101	Organics	Tributyl phosphate				
241-AZ-101	Organics	Vinyl chloride				
241-AZ-101	Organics	Xylenes (total)				
241-AZ-101	Physical Properties	Density	%	Supernatant	Grab sample	Liquid
241-AZ-101	Physical Properties	DSC (exotherm)	%	Supernatant	Grab sample	Liquid
241-AZ-101	Physical Properties	Particle size/density	%	Supernatant	Grab sample	Liquid
241-AZ-101	Physical Properties	Percent water	%	Supernatant	Grab sample	Liquid
241-AZ-101	Physical Properties	pH measurement	unfilled	Supernatant	Grab sample	Liquid
241-AZ-101	Physical Properties	Settled solids				
241-AZ-101	Physical Properties	Shear strength				
241-AZ-101	Physical Properties	Solid density				
241-AZ-101	Physical Properties	Specific gravity				
241-AZ-101	Physical Properties	Temperature				
241-AZ-101	Physical Properties	Total dissolved solids				

Table A-3 - Available and Needed Data for High-Level Waste Privatization Requirements.^{1,2} (13 sheets)

Yank	Constituent Group	Chemical	Units	Sample Type	Available Analytes	Physical State
241-AZ-101	Physical Properties	Viscosity				
241-AZ-101	Physical Properties	Weight percent oxides				
241-AZ-101	Physical Properties	Weight percent solids				
241-AZ-101	Physical Properties	Yield point				
241-AZ-101	Radioisotopes	Americium-241	$\mu\text{Ci/L}$	Grab sample	Liquid	
241-AZ-101	Radioisotopes	Americium-243				
241-AZ-101	Radioisotopes	Antimony-125				
241-AZ-101	Radioisotopes	Carbon-14				
241-AZ-101	Radioisotopes	Cerium-144				
241-AZ-101	Radioisotopes	Cerium/Praseodymium-144				
241-AZ-101	Radioisotopes	Cesium-134				
241-AZ-101	Radioisotopes	Cesium-137	$\mu\text{Ci/L}$	Grab sample	Liquid	
241-AZ-101	Radioisotopes	Cobalt-60				
241-AZ-101	Radioisotopes	Curium-242				
241-AZ-101	Radioisotopes	Curium-243/244				
241-AZ-101	Radioisotopes	Curium-244				
241-AZ-101	Radioisotopes	Europium-152				
241-AZ-101	Radioisotopes	Europium-154				
241-AZ-101	Radioisotopes	Europium-155				
241-AZ-101	Radioisotopes	Gross alpha				
241-AZ-101	Radioisotopes	Gross beta				
241-AZ-101	Radioisotopes	Iodine-129				
241-AZ-101	Radioisotopes	Neprium-237				
241-AZ-101	Radioisotopes	Nickel-59				
241-AZ-101	Radioisotopes	Nickel-63				
241-AZ-101	Radioisotopes	Plutonium-238	$\mu\text{Ci/L}$	Grab sample	Liquid	
241-AZ-101	Radioisotopes	Plutonium-239				
241-AZ-101	Radioisotopes	Plutonium-239/40	$\mu\text{Ci/L}$	Grab sample	Liquid	
241-AZ-101	Radioisotopes	Plutonium-238				
241-AZ-101	Radioisotopes	Plutonium-239				
241-AZ-101	Radioisotopes	Plutonium-240				
241-AZ-101	Radioisotopes	Plutonium-241				
241-AZ-101	Radioisotopes	Plutonium-242				
241-AZ-101	Radioisotopes	Ruthenium-106				
241-AZ-101	Radioisotopes	Selenium-79				
241-AZ-101	Radioisotopes	Srontium-90	$\mu\text{Ci/L}$	Grab sample	Liquid	

Table A-3 Available and Needed Data for High-Level Waste Privatization Requirements.^{1,2} (13 sheets)

Task	Constituent Group	Containment	Type	Sample Type	Available Analyte	Physical State
241-AZ-101	Radionuclides	Techetrium-99				
241-AZ-101	Radionuclides	Thorium-228				
241-AZ-101	Radionuclides	Tin-113				
241-AZ-101	Radionuclides	Total alpha, plutonium				
241-AZ-101	Radionuclides	Tritium				
241-AZ-101	Radionuclides	Uranium-236				
241-AZ-101	Radionuclides	Uranium-233				
241-AZ-101	Radionuclides	Uranium-234				
241-AZ-101	Radionuclides	Uranium-235				
241-AZ-101	Radionuclides	Uranium-238				
241-AZ-102	Anions	Chloride	µg/L	Supernatant	Grab sample	Liquid
241-AZ-102	Anions	Cyanide	µg/L	Supernatant	Grab sample	Liquid
241-AZ-102	Anions	Fluoride	µg/L	Supernatant	Grab sample	Liquid
241-AZ-102	Anions	Nitrate	µg/L	Supernatant	Grab sample	Liquid
241-AZ-102	Inorganics	Nitrite	µg/L	Supernatant	Grab sample	Liquid
241-AZ-102	Inorganics	Ammonia				
241-AZ-102	Inorganics	Carbonate				
241-AZ-102	Inorganics	Hydroxide	µg/L	Supernatant	Grab sample	Liquid
241-AZ-102	Inorganics	Total inorganic carbon	µg/L	Supernatant	Grab sample	Liquid
241-AZ-102	Inorganics	Total organic carbon	µg/L	Supernatant	Grab sample	Liquid
241-AZ-102	Metals	Aluminum	µg/L	Supernatant	Grab sample	Liquid
241-AZ-102	Metals	Antimony				
241-AZ-102	Metals	Arsenic				
241-AZ-102	Metals	Barium				
241-AZ-102	Metals	Beryllium				
241-AZ-102	Metals	Bismuth				
241-AZ-102	Metals	Cadmium				
241-AZ-102	Metals	Calcium				
241-AZ-102	Metals	Cerium				
241-AZ-102	Metals	Cesium				
241-AZ-102	Metals	Cobalt				
241-AZ-102	Metals	Copper				
241-AZ-102	Metals	Dysprosium				
241-AZ-102	Metals	Europium				
241-AZ-102	Metals	Gadolinium				
241-AZ-102	Metals	Iron	µg/L	Supernatant	Grab sample	Liquid

Table A-3. Available and Needed Data for High-Level Waste Privatization Requirements.^{1,2} (13 sheets)

Rank	Constituent Group	Constituent	Units	Sample Type	Available Analytes	Physical State
241-AZ-102	Metals	Lanthanum				
241-AZ-102	Metals	Lead				
241-AZ-102	Metals	Lithium				
241-AZ-102	Metals	Magnesium				
241-AZ-102	Metals	Manganese				
241-AZ-102	Metals	Mercury				
241-AZ-102	Metals	Molybdenum				
241-AZ-102	Metals	Neodymium				
241-AZ-102	Metals	Nickel				
241-AZ-102	Metals	Palladium				
241-AZ-102	Metals	Potassium				
241-AZ-102	Metals	Rhenium				
241-AZ-102	Metals	Rhodium				
241-AZ-102	Metals	Ruthenium				
241-AZ-102	Metals	Samarium				
241-AZ-102	Metals	Silver				
241-AZ-102	Metals	Sodium				
241-AZ-102	Metals	Srontium				
241-AZ-102	Metals	Thallium				
241-AZ-102	Metals	Thorium				
241-AZ-102	Metals	Tin				
241-AZ-102	Metals	Titanium				
241-AZ-102	Metals	Tungsten				
241-AZ-102	Metals	Uranium				
241-AZ-102	Metals	Vanadium				
241-AZ-102	Metals	Yttrium				
241-AZ-102	Metals	Zinc				
241-AZ-102	Metals	Zirconium				
241-AZ-102	Nonmetals	Boron				
241-AZ-102	Nonmetals	Phosphorus				
241-AZ-102	Nonmetals	Selenium				
241-AZ-102	Nonmetals	Silicon				
241-AZ-102	Nonmetals	Sulfur				
241-AZ-102	Organics	Tellurium				
241-AZ-102	Organics	1,1,-Trichloroethane				
241-AZ-102	Organics	1,2-Dichloroethane				

Table A-3 Available and Needed Data for High-Level Waste Privatization Requirements.¹² (13 sheets)

Task	Constituent Group	Constituent	Units	Sample Type	Available Analytes	Physical State
241-AZ-102	Organics	2,4,5-Trichlorophenol				
241-AZ-102	Organics	2,4-Dinitrotoluene				
241-AZ-102	Organics	2-Butanone				
241-AZ-102	Organics	2-Butoxyethanol				
241-AZ-102	Organics	2-Hexanone				
241-AZ-102	Organics	2-Pentanone				
241-AZ-102	Organics	Acetone				
241-AZ-102	Organics	Benzene				
241-AZ-102	Organics	Carbon disulfide				
241-AZ-102	Organics	Carbon tetrachloride				
241-AZ-102	Organics	Chloroethane				
241-AZ-102	Organics	Chloroform				
241-AZ-102	Organics	Ethane				
241-AZ-102	Organics	Ethyl acetate				
241-AZ-102	Organics	Ethyl ether				
241-AZ-102	Organics	Hexachlorobutadiene				
241-AZ-102	Organics	Hexahlorethane				
241-AZ-102	Organics	Methylbenzothiophene				
241-AZ-102	Organics	Naphthalene				
241-AZ-102	Organics	Nitrobenzene				
241-AZ-102	Organics	Nonane				
241-AZ-102	Organics	PCB				
241-AZ-102	Organics	Phenol				
241-AZ-102	Organics	Pyridine				
241-AZ-102	Organics	Tetrachlorethene				
241-AZ-102	Organics	Tetrahydrofuran				
241-AZ-102	Organics	Toluene				
241-AZ-102	Organics	Vinyl chloride				
241-AZ-102	Organics	Xylenes (total)				
241-AZ-102	Physical Properties	Density	%	Supernatant	Grab sample	Liquid
241-AZ-102	Physical Properties	DSC (exotherm)	%	Supernatant	Grab sample	Liquid
241-AZ-102	Physical Properties	Particle size density	%	Supernatant	Grab sample	Liquid
241-AZ-102	Physical Properties	Percent water	%	Supernatant	Grab sample	Liquid
241-AZ-102	Physical Properties	pH measurement	unitsless	Supernatant	Grab sample	Liquid
241-AZ-102	Physical Properties	Settled solids				
241-AZ-102	Physical Properties	Shear strength				

Table A-3 Available and Needed Data for High-Level Waste Privatization Requirements.^{1,2} (13 sheets)

Tank	Constituent Group	Constituent	Type	Sample Type	Available Analyses	Physical State
241-AZ-102	Physical Properties	Solid density				
241-AZ-102	Physical Properties	Specific gravity				
241-AZ-102	Physical Properties	Temperature				
241-AZ-102	Physical Properties	Total dissolved solids				
241-AZ-102	Physical Properties	Viscosity				
241-AZ-102	Physical Properties	Weight percent oxides				
241-AZ-102	Physical Properties	Weight percent solids				
241-AZ-102	Physical Properties	Yield point				
241-AZ-102	Radionuclides	Americium-241	$\mu\text{Ci/L}$	Supernatant	Grab sample	Liquid
241-AZ-102	Radionuclides	Americium-243				
241-AZ-102	Radionuclides	Antimony-125				
241-AZ-102	Radionuclides	Carbon-14				
241-AZ-102	Radionuclides	Cerium-144				
241-AZ-102	Radionuclides	Cerium/Promethium-144				
241-AZ-102	Radionuclides	Cesium-134				
241-AZ-102	Radionuclides	Cesium-137	$\mu\text{Ci/L}$	Supernatant	Grab sample	Liquid
241-AZ-102	Radionuclides	Cobalt-60				
241-AZ-102	Radionuclides	Curium-242				
241-AZ-102	Radionuclides	Curium-243/244				
241-AZ-102	Radionuclides	Curium-244				
241-AZ-102	Radionuclides	Europium-152				
241-AZ-102	Radionuclides	Europium-154				
241-AZ-102	Radionuclides	Europium-155				
241-AZ-102	Radionuclides	Gross alpha				
241-AZ-102	Radionuclides	Gross beta				
241-AZ-102	Radionuclides	Iodine-129				
241-AZ-102	Radionuclides	Neprium-237				
241-AZ-102	Radionuclides	Nickel-59				
241-AZ-102	Radionuclides	Nickel-63				
241-AZ-102	Radionuclides	Plutonium-238	$\mu\text{Ci/L}$	Supernatant	Grab sample	Liquid
241-AZ-102	Radionuclides	Plutonium-239				
241-AZ-102	Radionuclides	Plutonium-239/40	$\mu\text{Ci/L}$	Supernatant	Grab sample	Liquid
241-AZ-102	Radionuclides	Plutonium-238				
241-AZ-102	Radionuclides	Plutonium-239				
241-AZ-102	Radionuclides	Plutonium-241				

Table A-3. Available and Needed Data for High-Level Waste Privatization Requirements.^{1,2} (13 sheets)

Tank	Constituent Group	Constituent	Sample Type	Available Analytes	Physical State
241-AZ-102	Radioisotopes	Plutonium-242	Tritium		
241-AZ-102	Radioisotopes	Ruthenium-106			
241-AZ-102	Radioisotopes	Selenium-75			
241-AZ-102	Radioisotopes	Strontium-90	$\mu\text{Ci/L}$	Grab sample	Liquid
241-AZ-102	Radioisotopes	Technetium-99			
241-AZ-102	Radioisotopes	Thorium-228			
241-AZ-102	Radioisotopes	Tin-113			
241-AZ-102	Radioisotopes	Total alpha, plutonium			
241-AZ-102	Radioisotopes	Tritium			
241-AZ-102	Radioisotopes	Uranium-236			
241-AZ-102	Radioisotopes	Uranium-233			
241-AZ-102	Radioisotopes	Uranium-234			
241-AZ-102	Radioisotopes	Uranium-235			
241-AZ-102	Radioisotopes	Uranium-238			

Notes:

¹ Requirements and available data are shown for each LAW and HLW tank in scope. No data is available where columns 4, 5, 6, and 7 are blank.² Analytes listed in column 3 are those included in the Tank Characterization Database. This table does not include requirements not listed in TCD.

$$\begin{aligned}
 \mu\text{g/L} &= \text{micrograms per liter} \\
 \% &= \text{percent} \\
 \mu &= \text{microcuries per liter}
 \end{aligned}$$

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APPENDIX B

TANK SAMPLING PLANS

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Table B-1. Tank Sampling Plans as of October 10, 1997. (4 sheets)

Sample	Early Start	Early Finish	Comments
241-AN-02 Grab Sample Privatization - Wimmers	12-Dec-97	16-Dec-97	
241-AN-02 Grab Sample Compatibility Batch 9 (NCF)	5-Jul-06	6-Jul-06	
241-AN-02 Grab Sample Process Control Batch 9 (NCF)	1-Aug-06	1-Aug-06	
241-AN-02 Grab Sample Process Control Batch 5 (NCF)	1-Sep-06	5-Sep-06	
241-AN-02 Grab Sample Compatibility Batch 5 (NCF)	04-Sep-01	05-Sep-01	
241-AN-03 Grab Sample Process Control Batch 5 (NCF)	01-Nov-04	02-Nov-04	
241-AN-03 Grab Sample Process Control Batch 5 (NCF)	01-Dec-04	02-Dec-04	
241-AN-04 Grab Sample Compatibility Batch 3 (NCF)	03-Feb-03	04-Feb-03	
241-AN-04 Grab Sample Process Control Batch 3 (NCF)	01-Apr-03	02-Apr-03	
241-AN-04 Grab Sample Process Control Batch 3 (NCF)	01-May-03	02-May-03	
241-AN-05 Grab Sample Compatibility Batch 1 (NCF)	01-Feb-01	02-Feb-01	
241-AN-05 Grab Sample Process Control Batch 1 (NCF)	02-Apr-01	03-Apr-01	
241-AN-05 Grab Sample Process Control Batch 1 (NCF)	01-May-01	02-May-01	
241-AN-06 Push Sample 2 Segments 5	27-Mar-00	21-Apr-00	Requires tank full for privatization
241-AN-06 Grab Sample Compatibility Batch 10 (NCF)	01-Dec-06	04-Dec-06	
241-AN-06 Grab Sample Process Control Batch 10 (NCF)	01-Feb-07	02-Feb-07	
241-AN-06 Grab Sample Process Control Batch 10 (NCF)	01-Mar-07	02-Mar-07	
241-AN-06 Grab Sample Sample Compatibility Batch 11 (NCF)	03-Aug-07	06-Aug-07	
241-AN-06 Grab Sample Process Control Batch 11 (NCF)	01-Nov-07	02-Nov-07	
241-AN-06 Grab Sample Process Control Batch 11 (NCF)	15-Nov-07	16-Nov-07	
241-AN-107 Push Sample 2 Segments 22	28-Jan-00	25-Feb-00	Requires tank full for privatization, requires pH adjustment.
241-AN-07 Grab Sample Compatibility Batch 7 (NCF)	01-Feb-06	02-Feb-06	
241-AN-07 Grab Sample Process Control Batch 7 (NCF)	15-Feb-06	16-Feb-06	
241-AN-07 Grab Sample Process Control Batch 7 (NCF)	01-Mar-06	02-Mar-06	
241-AP-02 Grab Sample Process Control Batch 1 (NCF)	04-Apr-01	05-Apr-01	
241-AP-02 Grab Sample Process Control Batch 1 (NCF)	03-May-01	04-May-01	
241-AP-02 Grab Sample Qualification Batch 1 (NCF)	01-Jun-01	04-Jun-01	
241-AP-02 Grab Sample Process Control Batch 1 (NCF)	01-Nov-01	02-Nov-01	
241-AP-02 Grab Sample Qualification Batch 2 (NCF)	01-Oct-02	02-Oct-02	
241-AP-02 Grab Sample Qualification Batch 2 (NCF)	15-Oct-02	16-Oct-02	
241-AP-02 Grab Sample Qualification Batch 2 (NCF)	01-Nov-02	04-Nov-02	
241-AP-02 Grab Sample Qualification Batch 3 (NCF)	03-Apr-03	04-Apr-03	
241-AP-02 Grab Sample Process Control Batch 3 (NCF)	05-May-03	06-May-03	
241-AP-02 Grab Sample Qualification Batch 3 (NCF)	03-Jun-03	04-Jun-03	
241-AP-02 Grab Sample Process Control Batch 4 (NCF)	09-Jan-04	12-Jan-04	
241-AP-02 Grab Sample Process Control Batch 4 (NCF)	02-Feb-04	03-Feb-04	
241-AP-02 Grab Sample Qualification Batch 4 (NCF)	01-Mar-04	02-Mar-04	
241-AP-102 Grab Sample Process Control Batch 5 (NCF)	03-Dec-04	06-Dec-04	

Table B-1. Tank Sampling Plans as of October 10, 1997. (4 sheets)

Sample	Start	End	Comments
241-AF-1-02 Grab Sample Qualification Batch 5 (NCF)	03-Jan-05	04-Jan-05	
241-AF-1-02 Grab Sample Qualification Batch 6 (NCF)	01-Sep-05	02-Sep-05	
241-AF-1-02 Grab Sample Process Control Batch 7 (NCF)	17-Feb-06	21-Feb-06	
241-AF-1-02 Grab Sample Process Control Batch 7 (NCF)	03-Mar-06	06-Mar-06	
241-AF-1-02 Grab Sample Qualification Batch 7 (NCF)	03-Apr-06	04-Apr-06	
241-AF-1-02 Grab Sample Qualification Batch 9 (NCF)	03-Aug-06	04-Aug-06	
241-AF-1-02 Grab Sample Process Control Batch 9 (NCF)	06-Sep-06	07-Sep-06	
241-AF-1-02 Grab Sample Qualification Batch 9 (NCF)	04-Oct-06	05-Oct-06	
241-AF-1-02 Grab Sample Process Control Batch 10 (NCF)	05-Feb-07	06-Feb-07	
241-AF-1-02 Grab Sample Process Control Batch 10 (NCF)	05-Mar-07	06-Mar-07	
241-AF-1-02 Grab Sample Qualification Batch 10 (NCF)	02-Apr-07	03-Apr-07	
241-AF-1-02 Grab Sample Process Control Batch 11 (NCF)	05-Nov-07	06-Nov-07	
241-AF-1-02 Grab Sample Process Control Batch 11 (NCF)	03-Dec-07	04-Dec-07	
241-AF-1-02 Grab Sample Qualification Batch 11 (NCF)	02-Jan-08	03-Jan-08	
241-AF-1-02 Grab Sample Process Control Batch 12 (NCF)	02-Sep-08	03-Sep-08	
241-AF-1-02 Grab Sample Process Control Batch 12 (NCF)	01-Oct-08	02-Oct-08	
241-AF-1-02 Grab Sample Qualification Batch 12 (NCF)	03-Nov-08	04-Nov-08	
241-AF-1-04 Grab Sample Process Control Batch 1 (NCF)	06-Apr-01	09-Apr-01	
241-AF-1-04 Grab Sample Process Control Batch 1 (NCF)	07-May-01	08-May-01	
241-AF-1-04 Grab Sample Qualification Batch 1 (NCF)	05-Jun-01	06-Jun-01	
241-AF-1-04 Grab Sample Qualification Batch 2 (NCF)	03-Oct-02	04-Oct-02	
241-AF-1-04 Grab Sample Process Control Batch 2 (NCF)	07-Oct-02	08-Oct-02	
241-AF-1-04 Grab Sample Qualification Batch 2 (NCF)	05-Nov-02	06-Nov-02	
241-AF-1-04 Grab Sample Process Control Batch 2 (NCF)	07-Apr-03	08-Apr-03	
241-AF-1-04 Grab Sample Process Control Batch 3 (NCF)	07-May-03	08-May-03	
241-AF-1-04 Grab Sample Qualification Batch 3 (NCF)	05-Jun-03	06-Jun-03	
241-AF-1-04 Grab Sample Process Control Batch 4 (NCF)	13-Jan-04	14-Jan-04	
241-AF-1-04 Grab Sample Qualification Batch 4 (NCF)	04-Feb-04	05-Feb-04	
241-AF-1-04 Grab Sample Process Control Batch 4 (NCF)	03-Mar-04	04-Mar-04	
241-AF-1-04 Grab Sample Process Control Batch 5 (NCF)	03-Nov-04	04-Nov-04	
241-AF-1-04 Grab Sample Process Control Batch 5 (NCF)	08-Dec-04	08-Dec-04	
241-AF-1-04 Grab Sample Qualification Batch 5 (NCF)	05-Jan-05	06-Jan-05	
241-AF-1-04 Grab Sample Qualification Batch 6 (NCF)	06-Sep-05	07-Sep-05	
241-AF-1-04 Grab Sample Process Control Batch 7 (NCF)	22-Feb-06	23-Feb-06	
241-AF-1-04 Grab Sample Qualification Batch 7 (NCF)	07-Mar-06	08-Mar-06	
241-AF-1-04 Grab Sample Qualification Batch 9 (NCF)	05-Apr-06	06-Apr-06	
241-AF-1-04 Grab Sample Process Control Batch 9 (NCF)	07-Aug-06	08-Aug-06	

Table B-1. Tank Sampling Plans as of October 10, 1997. (4 sheets)

Sampling	Date Start	Date End	Comments
241-AP-104 Grab Sample Process Control Batch 9 (NCF)	08-Sep-06	11-Sep-06	
241-AP-104 Grab Sample Qualification Batch 9 (NCF)	02-Oct-06	03-Oct-06	
241-AP-104 Grab Sample Process Control Batch 10 (NCF)	07-Feb-07	08-Feb-07	
241-AP-104 Grab Sample Process Control Batch 10 (NCF)	07-Mar-07	08-Mar-07	
241-AP-104 Grab Sample Qualification Batch 10 (NCF)	04-Apr-07	05-Apr-07	
241-AP-104 Grab Sample Process Control Batch 11 (NCF)	07-Nov-07	08-Nov-07	
241-AP-104 Grab Sample Process Control Batch 11 (NCF)	05-Dec-07	06-Dec-07	
241-AP-104 Grab Sample Qualification Batch 11 (NCF)	04-Jan-08	07-Jan-08	
241-AP-104 Grab Sample Process Control Batch 12 (NCF)	04-Sep-08	05-Sep-08	
241-AP-104 Grab Sample Process Control Batch 12 (NCF)	03-Oct-08	06-Oct-08	
241-AP-104 Grab Sample Qualification Batch 12 (NCF)	05-Nov-08	06-Nov-08	
241-AW-101 Grab Sample Compatibility Batch 4 (NCF)	01-Dec-03	02-Dec-03	
241-AW-101 Grab Sample Compatibility Batch 4 (NCF)	15-Jan-04	16-Jan-04	
241-AW-101 Grab Sample Process Control Batch 4 (NCF)	06-Feb-04	09-Feb-04	
241-AV-101 Grab Sample Compatibility Batch 4 (NCF)	01-Mar-05	02-Mar-05	
241-AV-101 Grab Sample Compatibility Batch 12 (NCF)	07-Jul-08	08-Jul-08	
241-AV-102 Grab Sample Liquid Compat Batch 5.9 (NCF)	11-Jun-03	17-Jun-03	
241-AV-102 Grab Sample Sludge Prewash Batch 5.9 (NCF)	25-Jun-03	01-Jul-03	
241-AV-102 Grab Sample Sludge PC Batch 5.9	17-Jul-03	23-Jul-03	
241-AV-102 Grab Sample Liquid Compat Batch 5.9 (NCF)	25-Aug-03	29-Aug-03	
241-AV-102 Grab Sample PHMC Batch 5.9 (NCF)	02-Jan-04	08-Jan-04	
241-AZ-101 Grab Sample Marshall/Wiemers	09-Mar-98	11-Mar-98	After mixer pump run, requires supernate and sludge.
241-AZ-101 Grab Sample Certa		01-Dec-98	
241-AZ-101 Grab Sample Liquid Compat Batch 1-2 (NCF)	01-Jun-00	07-Jun-00	
241-AZ-101 Grab Sample Sludge Prewash Batch 1-2 (NCF)	05-Jul-00	11-Jul-00	
241-AZ-101 Grab Sample Sludge PC Batch 1-2 (NCF)	24-Jul-00	28-Jul-00	
241-AZ-101 Grab Sample Liquid Compat Batch 1-2 (NCF)	28-Aug-00	01-Sep-00	
241-AZ-101 Grab Sample Sludge Prewash Batch 1-2 (NCF)	26-Sep-00	02-Oct-00	
241-AZ-101 Grab Sample Liquid Compat Batch 1-2 (NCF)	02-Nov-00	08-Nov-00	
241-AZ-101 Grab Sample Sludge Prewash Batch 1-2 (NCF)	04-Dec-00	08-Dec-00	
241-AZ-101 Grab Sample Liquid Compat Batch 1-2 (NCF)	08-Jan-01	12-Jan-01	
241-AZ-101 Grab Sample PHMC Batch 1-2 (NCF)	02-Jul-01	09-Jul-01	
241-AZ-102 Rotary Sample 2 Segments 19	06-Mar-98	08-Apr-98	Minor modifications including temporary shielding required.
241-AZ-102 Grab Sample Liquid Compat Batch 3-4 (NCF)	08-Oct-01	12-Oct-01	
241-AZ-102 Grab Sample Sludge Prewash Batch 3-4 (NCF)	22-Oct-01	26-Oct-01	
241-AZ-102 Grab Sample Sludge PC Batch 3-4 (NCF)	05-Nov-01	09-Nov-01	
241-AZ-102 Grab Sample Liquid Compat Batch 3-4 (NCF)	17-Dec-01	21-Dec-01	

Table B-1. Tank Sampling Plans as of October 10, 1997. (4 sheets)

Sample	Start Date	Early Start	Early Finish	Comments
241-AZ-102 Grab Sample Sldg PC Batch 3-4 (NCF)	16-Jan-02			
241-AZ-102 Grab Sample Liquid Compat Batch 3-4 (NCF)	22-Jan-02			
241-AZ-102 Grab Sample Sldg Prewash Batch 3-4 (NCF)	25-Feb-02			
241-AZ-102 Grab Sample Liquid Compat Batch 3-4 (NCF)	25-Mar-02			
241-AZ-102 Grab Sample Liquid Compat Batch 3-4 (NCF)	30-Apr-02			
241-AZ-102 Grab Sample PHMC Batch 3-4 (NCF)	24-Oct-02			
241-SY-103 Grab Sample - Privatization - Winters	09-Apr-98			
241-SY-103 Push Samples 1 Segments 15	23-Feb-01	15-Mar-01		Requires Unresolved Safety Question Review for Group 1 Tank - Complete

Notes:

Compat = Compatibility
 NCF = Not currently funded
 PC = process control
 PHMC = Project Hanford Management Contractor
 Sldg = Sludge

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HNF-2117, Rev. 0, "Readiness to Proceed: Characterization Planning Basis"		ECN No.	N/A		
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