0049604 S

ENGINEERING CHANGE NOTICE

Page 1 of 2

1. ECN 643813

Proj. ECN

2. ECN Category (mark one)	3. Originator's Name, Organization, MSIN, and Telephone No.	4. USQ Required?	5. Date
Supplemental [] Direct Revision [X] Change ECN [] Temporary [] Standby [] Supersedure [] Cancel/Void []	Jim G. Field, Data Assessment and Interpretation, R2-12, 376-3756	[] Yes [X] No	07/29/98
	6. Project Title/No./Work Order No.	7. Bldg./Sys./Fac. No.	8. Approval Designator
	Tank 241-AW-101	241-AW-101	N/A
	9. Document Numbers Changed by this ECN (includes sheet no. and rev.)	10. Related ECN No(s).	11. Related PO No.
	WHC-SD-WM-ER-470, Rev. 0 ~~A~~B	ECN-640353	N/A

12a. Modification Work	12b. Work Package No.	12c. Modification Work Complete	12d. Restored to Original Condition (Temp. or Standby ECN only)
[] Yes (fill out Blk. 12b) [X] No (NA Blks. 12b, 12c, 12d)	N/A	N/A Design Authority/Cog. Engineer Signature & Date	N/A Design Authority/Cog. Engineer Signature & Date

13a. Description of Change **13b. Design Baseline Document?** [] Yes [X] No

The document has been totally revised to include the results of recent sampling to address technical issues associated with the waste, and to update the best basis standard inventory.

14a. Justification (mark one)

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

14b. Justification Details

Changes required to incorporate new sampling data.

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

See attached distribution.

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1. ECN (use no. from pg. 1) ECN-643813

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

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

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

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

Document Number/Revision	Document Number/Revision	Document Number Revision
N/A		

21. Approvals

	Signature	Date		Signature	Date
Design Authority			Design Agent		
Cog. Eng. J.G. Field	J G Field	8/18/98	PE		
Cog. Mgr. K.M. Hall	Katalen M. Hall	8/20/98	QA		
QA			Safety		
Safety			Design		
Environ.			Environ.		
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J.G. Kristofzski	MW Kuhl for JG Kristofzski	8/24/98	Signature or a Control Number that tracks the Approval Signature		
			ADDITIONAL		

S

Tank Characterization Report for Double-Shell Tank 241-AW-101

Jim G. Field
Lockheed Martin Hanford Corp., Richland, WA 99352
U.S. Department of Energy Contract DE-AC06-87RL10930

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Abstract: This document summarizes the information on the historical uses, present status, and the sampling and analysis results of waste stored in Tank 241-AW-101. This report supports the requirements of the Tri-Party Agreement Milestone M-44-15B.

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Tank Characterization Report for Double-Shell Tank 241-AW-101

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LIST OF TERMS

AEA	alpha energy analysis
AES	atomic emission spectroscopy
ANOVA	analysis of variance
atm	atmosphere
Btu/hr	British thermal units per hour
Ci	curie
Ci/L	curies per liter
CI	confidence interval
cm	centimeter
DQO	data quality objective
DSC	differential scanning calorimetry
DSSF	double-shell slurry feed
ft	feet
g	gram
g/cm^3	grams per cubic centimeter
GEA	gamma energy analysis
g/L	grams per liter
g/mL	grams per milliliter
HDW	Hanford defined waste
IC	ion chromatography
ICP	inductively coupled plasma spectroscopy
in.	inch
J/g	joules per gram
kg	kilogram
kgal	kilogallon
kL	kiloliter
kW	kilowatt
LFL	lower flammability limit
LL	lower limit
m	meter
m^3	cubic meters
M	moles per liter
MDL	minimum detection limit
mg/L	milligrams per liter
mm	millimeter
mol%	mole percent
n/a	not applicable
nCi/g	nanocuries per gram
n/r	not reported
PHMC	Project Hanford Management Contractor
PL2	PUREX low-level waste

LIST OF TERMS (Continued)

ppm	parts per million
PUREX	plutonium-uranium extraction [plant]
QC	quality control
REML	restricted maximum likelihood estimation
RPD	relative percent difference
RSST	reactive system screening tool
SACS	Surveillance and Analysis Computer System
SAP	sampling and analysis plan
SHMS	standard hydrogen monitoring system
SMM	supernatant mixing model
SMMA2	242-A Evaporator waste
SpG	specific gravity
TCR	tank characterization report
TGA	thermogravimetric analysis
TIC	total inorganic carbon
TLM	tank layer model
TOC	total organic carbon
TWRS	Tank Waste Remediation System
UL	upper limit
W	watt
WSTRS	Waste Status and Transaction Record Summary
wt%	weight percent
%	percent
°C	degrees Celsius
°F	degrees Fahrenheit
μCi/g	microcuries per gram
μCi/L	microcuries per liter
μCi/mL	microcuries per milliliter
μeg/g	microequivalents per gram
μg/g	micrograms per gram
μg/mL	micrograms per milliliter
μmol/L	micromoles per liter

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1.0 INTRODUCTION

A major function of the Tank Waste Remediation System (TWRS) is to characterize waste in support of waste management and disposal activities at the Hanford Site. Analytical data from sampling and analysis and other available information about a tank are compiled and maintained in a tank characterization report (TCR). This report and its appendices serve as the TCR for double-shell tank 241-AW-101. The objectives of this report are 1) to use characterization data in response to technical issues associated with tank 241-AW-101 waste and 2) to provide a standard characterization of this waste in terms of a best-basis inventory estimate. Section 2.0 summarizes the response to technical issues, Section 3.0 shows the best-basis inventory estimate, and Section 4.0 makes recommendations about the tank's safety status and additional sampling needs. The appendices contain supporting data and information. This report supports the requirements of the proposed *Hanford Federal Facility Agreement and Consent Order* (Ecology et al. 1997), Milestone M-44-15b, change request M-44-97-03, to "issue characterization deliverables consistent with Waste Information Requirements Document developed for 1998."

1.1 SCOPE

The characterization information in this report originated from sample analyses and known historical sources. The results of recent sample events will be used to fulfill the requirements of the data quality objectives (DQOs) and memorandums of understanding specified in Brown et al. (1997) for this tank. Other information can be used to support conclusions derived from these results. Appendix A contains historical information for tank 241-AW-101 including surveillance information, records pertaining to waste transfers and tank operations, and expected tank contents derived from a process knowledge model. Appendix B summarizes recent sampling events (see Table 1-1), sample data obtained before 1989, and sampling results. The results of the 1996 sampling events reported in the laboratory data package (Benar 1998), satisfied the data requirements specified in Brown et al. (1997) for this tank. Appendix C reports the statistical analysis and numerical manipulation of data used in issue resolution. Appendix D contains the evaluation to establish the best basis for the inventory estimate. Appendix E is a bibliography that resulted from an in-depth literature search of all known information sources applicable to tank 241-AW-101 and its respective waste types. The reports listed in Appendix E are available in the Lockheed Martin Hanford Corporation Tank Characterization and Safety Resource Center.

Table 1-1. Summary of Recent Sampling.

Sample/Date[1]	Phase	Location	Segmentation	% Recovery
Grab samples (6/96)	Supernatant	Riser 13A	n/a	100%
Combustible gas test (2/96 - 5/96)	Gas	Tank headspace, riser 24B	n/a	n/a
Push core 132 (2/96 - 3/96)	Solid/liquid	Riser 24A	22 segments, upper half and lower half	95%
Push core 139 (4/96 - 5/96)	Solid/liquid	Riser 24B	22 segments, upper half and lower half	95%
Auger 95-AUG-001 (1/95)	Solid	Risers 13A	No segmentation	85%
Auger 95-AUG-004 (1/95)	Solid	Riser 12A	No segmentation	60%
Auger 95-AUG-005 (1/95)	Solid	Riser 24B	No segmentation	60%
Grab samples (6/90)	Supernatant	Risers 16C, 10A, 22A	n/a	100%

Notes:

n/a = not applicable

[1]Dates are in the mm/yy format.

1.2 TANK BACKGROUND

Tank 241-AW-101 is located in the 200 East Area AW Tank Farm on the Hanford Site. The tank went into service in 1980 and had an active transfer history until 1986. The major waste types received by the tank were plutonium-uranium extraction (PUREX) process dilute phosphate and sulfate waste from 100 N Area Evaporator feed, and water from miscellaneous sources. The tank also received concentrated waste from the 242-A Evaporator. In 1986, the tank was nearly emptied in preparation for Evaporator Campaign 86-5. The two receipts of double-shell slurry waste from this evaporator run were the last transfers received by the tank and raised the volume of waste in the tank to its current level. Tank 241-AW-101 remains in active service. However, it is on the Flammable Gas Watch List, and an accompanying unreviewed safety question regarding the potential accumulation of flammable mixtures of hydrogen and nitrous oxide gas under a crust is still associated with it. The tank likely will not experience any further transfer activity until all safety issues surrounding it are resolved.

Table 1-2 summarizes the description of tank 241-AW-101. The tank has a maximum storage capacity of 4,390 kL (1,160 kgal), and presently contains an estimated 4,254 kL (1,124 kgal) of double-shell slurry feed waste (Hanlon 1998). The tank was added to the Flammable Gas Watch List (Public Law 101-510) in June 1993.

Table 1-2. Description of Tank 241-AW-101. (2 sheets)

TANK DESCRIPTION	
Type	Double shell
Constructed	1980
In service	1980
Diameter	22.9 m (75.0 ft)
Operating depth	10.5 m (34.5 ft)
Capacity	4,390 kL (1,160 kgal)
Bottom shape	Flat
Ventilation	Operating exhauster
TANK STATUS	
Waste classification	Double shell slurry feed
Total waste volume[1]	4,254 kL (1,124 kgal)
Supernatant volume	3,096 kL (818 kgal)
Saltcake volume	0 kL (0 kgal)
Sludge volume	1,158 kL (306 kgal)
Drainable interstitial liquid volume	114 kL (30 kgal)
Waste surface level[1,2] (3/31/98)	10.4 m (408.7 in.)
Temperature[2] (3/31/97 to 3/31/98)	21.7°C (71°F) to 38.3°C (101°F)
Integrity	Sound
Watch List	Flammable Gas
Flammable Gas Facility Group	1

Table 1-2. Description of Tank 241-AW-101. (2 sheets)

SAMPLING DATE	
Privatization grab samples	June 1996
Push mode core samples	February through May 1996
Auger samples	January 1995
Grab samples	June 1990
SERVICE STATUS	
Active	

Notes:

[1]Waste volume is estimated from surface level measurements.

[2]Dates are in the mm/dd/yy format.

2.0 RESPONSE TO TECHNICAL ISSUES

The following technical issues have been identified for tank 241-AW-101 (Brown et al. 1997).

- **Safety screening**: Does the waste pose or contribute to any recognized potential safety problems?
- **Flammable gas**: Does a possibility exist for releasing flammable gases into the tank headspace or releasing chemical or radioactive materials into the environment?
- **Organic solvents**: Does an organic solvent pool exist that may cause a fire or ignition of organic solvents in entrained waste solids?
- **Pretreatment**: What fraction of the waste is soluble when treated by sludge washing and leaching?
- **Privatization**: Do the samples taken from tank 241-AW-101 and the subsequent laboratory analysis meet the needs of the privatization low-activity waste DQO (Jones and Weimers 1996)?

Data from the 1996 core sampling event (Benar 1996) and tank headspace measurements provided the means to respond to the safety screening, flammable gas, and pretreatment issues. Grab samples (Baldwin 1997) were taken to address the privatization issue. Auger samples (Sathyanarayana 1994) taken to address "crust burn" concerns showed that this was not an issue for this tank (see Appendix B, Section B2.3). See Appendix B for sample and analysis data for tank 241-AW-101.

2.1 SAFETY SCREENING

The data needed to screen the waste in tank 241-AW-101 for potential safety problems are documented in *Tank Safety Screening Data Quality Objective* (Dukelow et al. 1995). Potential safety problems are exothermic conditions in the waste, flammable gases in the waste and/or tank headspace, and criticality conditions in the waste. Each condition is addressed separately below.

2.1.1 Exothermic Conditions (Energetics)

The first requirement outlined in the safety screening DQO (Dukelow et al. 1995) is to ensure that there are not sufficient exothermic constituents (organic or ferrocyanide) in tank 241-AW-101 to pose a safety hazard. Because of this requirement, energetics in

tank 241-AW-101 waste were evaluated. The safety screening DQO required that the waste sample profile be tested for energetics every 24 cm (9.5 in.) to determine whether the energetics exceeded the safety threshold limit. The threshold limit for energetics is 480 J/g on a dry weight basis. Results obtained using differential scanning calorimetry (DSC) indicated that two samples obtained from tank 241-AW-101 had mean exothermic reactions (on a dry weight basis) exceeding the safety screening DQO limit. The maximum dry weight exotherm observed was 1,030 J/g. The maximum upper limit to a 95 percent confidence interval on the mean was 1,240 J/g from core 139, segment 21, upper half. However, water content was >17 percent and reactive system screening tool (RSST) tests showed that there was no self-heating for these samples. As a result, exothermic activity is not a concern for this tank.

2.1.2 Flammable Gas

Headspace measurements were taken from riser 24B before the 1996 push core samples were taken. Flammable gas was not detected in the tank headspace (0 percent of the lower flammability limit [LFL]) before sampling. During sampling, the LFL in the tank headspace reached 3 percent. This is below the safety screening limit of 25 percent of the LFL. Data for the vapor phase measurements are presented in Appendix B.

2.1.3 Criticality

The safety screening DQO threshold for criticality, based on the total alpha activity, is 1 g/L. Because total alpha activity is measured in μCi/g instead of g/L, the 1 g/L limit is converted into units of μCi/g by assuming that all alpha decay originates from ^{239}Pu. The safety threshold limit is 1 g ^{239}Pu per liter of waste. Assuming that all alpha is from ^{239}Pu for a maximum measured density of 1.86 g/mL, 1 g/L of ^{239}Pu is 33.1 μCi/g of alpha activity. The maximum total alpha activity result was 0.163 μCi/g. Therefore, criticality is not a concern for this tank. Appendix C contains the method used to calculate confidence limits.

2.2 FLAMMABLE GAS DATA QUALITY OBJECTIVE

The flammable gas DQO has been extended to apply to all tanks (Bauer and Jackson 1997). Analyses and evaluations will change according to program needs until this issue is resolved. The unreviewed safety question for flammable gas safety issues is expected to be closed in fiscal year 1998 and final resolution of the flammable gas data quality objective is expected to be completed by September 30, 2001 (Johnson 1997). These dates are consistent with milestone M-40-09 and M-40-00 (Ecology et al. 1997) to close out the unreviewed safety question for Watch List tanks and to close out all flammable gas issues for high priority tanks.

Retained gas samples were taken and analyzed to address flammable gas issues. No specific notification limits or acceptance levels have been determined to meet this DQO. The results of

retained gas sample testing are reported in (Shekarriz et al. 1997) and summarized in Appendix B of this document. The total standard gas volume in tank 241-AW-101 is 141 $\pm$ 43 m^3 (4980 $\pm$ 1,520 ft^3), with 93 $\pm$ 12 m^3 (3,280 $\pm$ 424 ft^3) in the bottom solids (nonconvective) layer, 12 $\pm$ 34 m^3 (424 $\pm$ 1,200 ft^3) in the supernatant (convective) layer, and an estimated crust gas volume of 36 $\pm$ 15 m^3 (1,270 $\pm$ 530 ft^3) at 1 atm (Meyer et al. 1997). The gas/vapor phase (free gas) in the nonconvective (bottom solids) and convective (supernatant) layers is 60 mol% N_2, 31 mol% H_2, and 5.7 mol% NO_2. The remaining gas is composed of ammonia, methane, and other hydrocarbons. Measured local ammonia concentrations ranged from 960 to 2,900 μmol/L of waste, more than 99.9 percent of which dissolved in the liquid.

2.3 ORGANIC SOLVENTS SCREENING

The data required to support the organic solvent screening issue are documented in the *Data Quality Objective to Support Resolution of the Organic Solvent Safety Issue* (Meacham et al. 1997). The DQO requires tank headspace samples be analyzed for total nonmethane organic compounds to determine whether the organic extractant pool in the tank is a hazard. The purpose of this assessment is to ensure that an organic solvent pool fire or ignition of organic solvents cannot occur.

No vapor samples have been taken to estimate the organic pool size. However, the Organic Program has determined that even if an organic solvent pool does exist, the consequence of a fire or ignition of organic solvents is below risk evaluation guidelines for all the tanks (Brown et al. 1998). Consequently, vapor samples are not required for this tank. The organic solvents issue is expected to be closed for all tanks in fiscal year 1998.

2.4 PRETREATMENT

Samples were archived for future pretreatment analyses and evaluation in accordance with *Strategy for Sampling Hanford Site Tanks for Development of Disposal Technology* (Kupfer et al. 1995).

2.5 PRIVATIZATION

Tank 241-AW-101 is within the scope of the privatization low-activity waste DQO (Jones and Wiemers 1996). The purpose of the low-activity waste DQO is to address technical issues pertinent to pretreatment, immobilization, and balance-of-plant for low-activity waste processing. Waste will be characterized to determine whether it falls within the defined process design envelope. Data collected in support of this DQO will be used primarily for planning activities of TWRS privatization contractors as specified in the privatization request for proposals. As of May 31, 1998, no data were analyzed to address this DQO for this tank.

2.6 OTHER TECHNICAL ISSUES

2.6.1 Tank Waste Heat Load

A factor in assessing tank safety is the heat generation and temperature of the waste. Heat is generated in the tanks from radioactive decay. Based on results from the 1996 sampling event, the most significant radioactive contributors in the waste are ^{90}Sr and ^{137}Cs, contributing 53,900 and 1,980,000 curies, respectively. Table 2-1 summarizes the power produced by the radionuclides in the waste. The heat load calculations indicate that 9,343 W (31,900 Btu/hr) of heat are produced in the tank. The heat load estimate based on tank process history was 9,840 W (33,600 Btu/hr) (Agnew et al. 1997) and the estimate based on the tank headspace temperature was 9,370 W (32,000 Btu/hr) (Kummerer 1995). All three estimates are below the limit of 20,500 W (70,000 Btu/hr) for AW Farm tanks.

Table 2-1. Radionuclide Inventory and Projected Heat Load.

Analyte	Total Ci	W/Ci	W
^{241}Am	58.6	0.0328	1.92
^{137}Cs	1.97E+06	0.00472	9,298
$^{239/240}Pu$	75.5	0.0306	2.31
^{90}Sr	5,380	0.00669	36.0
^{99}Tc	793	5.01E-04	0.40
Tritium	14.9	0.261	3.89
Total			9,343

2.6.2 Technical Sampling Basis Revision 4 Issues

Since the sampling and analysis of tank 241-AW-101, Revision 4 of the *Tank Characterization Technical Sampling Basis* (Brown et al. 1998) has been issued. Revision 4 identifies the additional issues of vapor phase sampling and regulatory air emissions. The vapor phase sampling and analysis supports resolution of flammable gas issues. Tank 241-AW-101 is equipped with a standard hydrogen monitoring system (SHMS) for the collection of vapor phase data that support resolution of flammable gas issues. Standard hydrogen monitoring system vapor grab sample data are posted to the tank characterization database (LMHC 1998). In addition, the tank has an SHMS continuous monitoring system and as of February 28, 1998, had logged 150 data days since October 1, 1997. Several small gas release events have been reported. However, all but one of the gas monitoring results were less than 25 percent of the LFL (Wilkins et al. 1997). The *Data Quality Objective for Regulatory Requirements for*

Hazardous and Radioactive Air Emissions Sampling and Analysis (Mulkey and Markillie 1995) governs sampling and analysis to support the regulatory air emissions issue. The regulatory air emissions DQO requires vapor samples and a surface level grab sample of the waste. Sampling and analysis to support this issue have yet to be performed.

2.7 SUMMARY

The results of all analyses performed to address potential safety issues showed that two solid samples exceeded the DSC notification limit of 480 J/g. All other primary analyte results were within the safety screening decision threshold limits.

Flammable gas retained gas samples showed the total standard gas volume in tank 241-AW-101 is 141 m^3 (4,890 ft^3), with 60 mol% N_2, 31 percent H_2 and 5.7 percent N_2O. The remaining gas is composed of ammonia. Flammable gas evaluation and testing will continue through fiscal year 2001. No vapor samples have been taken for the organic solvents issue. However, this issue is expected to be closed in fiscal year 1998. Samples were archived for the pretreatment DQO, and future sampling and/or analyses will be conducted to address the privatization issue for this tank. Results for technical issues are summarized in Table 2-2.

Table 2-2. Summary of Technical Issues.

Issue	Sub-issue	Result
Safety screening	Energetics	Two solid samples exceeded the notification limit. TOC results were 1,440 and 5,150 μg/g. However, RSST results showed no self-heating; therefore, energetics is not a concern.
	Flammable gas	Combustible gas meter readings ranged from 0 to 3% of the LFL.
	Criticality	The upper limits of the one-sided 95% confidence intervals for total alpha activity results were below the notification limits.
Flammable gas	Mechanisms for generation, retention and release Waste models	The total standard gas volume in tank 241-AW-101 is 141 m^3 (4,980 ft^3), with 93 m^3 (3,280 ft^3) in the bottom solids (nonconvective) layer, 12 m^3 (424 ft^3) in the supernatant (convective) layer, and an estimated crust gas volume of 36 m^3 (1,270 ft^3) at 1 atm and 25 °C (77 °F). Gas/vapor phase (free gas) in the nonconvective (bottom solids) and convective (supernatant) layers is 60 mol% N_2, 31 mol% H_2, and 5.7 mol% NO_2. The remaining gas is composed of ammonia, methane, and other hydrocarbons. Measured local ammonia concentrations ranged from 960 to 2,900 μmol/L of waste, more than 99.9% of which dissolved in the liquid.
Organic solvents	Solvent pool size	No vapor samples have been taken. This issue is expected to be closed in fiscal year 1998.
Pretreatment	Analyses for treatment to separate low-level and high-level waste streams	Samples were archived for future analysis.
Privatization	Low-activity waste	Samples have not been analyzed for this issue.

3.0 BEST-BASIS STANDARD INVENTORY ESTIMATE

Information about chemical, radiological, and/or physical properties is used to perform safety analyses, engineering evaluations, and risk assessments associated with waste management activities, and to address regulatory issues. Waste management activities include overseeing tank farm operations and identifying, monitoring, and resolving safety issues associated with these operations and with the tank wastes. Disposal activities involve designing equipment, processes, and facilities for retrieving wastes and processing them into a form that is suitable for long-term storage and disposal.

Chemical and radiological inventory information is generally derived using three approaches: 1) component inventories are estimated using results of sample analyses, 2) component inventories are estimated using the Hanford defined waste (HDW) model based on process knowledge and historical information, or 3) a tank-specific process estimate is made based on process flowsheets, reactor fuel data, essential material usage, and other operating data. The information derived from these different approaches is often inconsistent.

An effort is underway to provide waste inventory estimates that will serve as the standard characterization for the various waste management activities (Hodgson and LeClair 1996). As part of this effort, an evaluation of chemical information for tank 241-AW-101 was performed that included the following:

- Analytical data from two 1996 push mode core samples (see Appendix B)
- Inventory estimates for this tank generated from the HDW model (Agnew et al. 1997)
- Analytical data from past sampling activities: crust layer (Esch 1995), supernatant samples (Welsh 1991), and evaporator waste (Starr 1987).

Based on this engineering assessment, a best-basis inventory was developed for tank 241-AW-101 using the 1996 core sampling analytical data. Where analytical data were not available, the HDW model tank inventory estimates reported by Agnew et al. (1997) are used as the best basis for this tank.

Best-basis tank inventory values were derived for 46 key radionuclides (as defined in Section 3.1 of Kupfer et al. [1997]), all decayed to a common report date of January 1, 1994. The composite samples prepared from the 1996 core samples representing the crust, supernatant, and sludge layer, were analyzed for total beta, total alpha, ^{90}Sr, ^{137}Cs, $^{239/240}Pu$, ^{60}Co, ^{241}Am, ^{99}Tc, ^{154}Eu, ^{155}Eu, and total uranium. The remaining radionuclides were derived by computer models. These models estimate radionuclide activity in batches of reactor fuel, account for the split of radionuclides to various separations plant waste streams, and track their

movement with tank waste transactions. (These computer models are described in Kupfer et al. [1997], Section 6.1, and in Watrous and Wootan [1997]).

Model-generated values for radionuclides in any of the Hanford Site's 177 tanks are reported in the HDW Rev. 4 model results (Agnew et al. 1997). The best-basis value for any one analyte may be either a model result or a sample- or engineering assessment-based result, if available.

The inventory values reported in Tables 3-1 and 3-2 are subject to change. Refer to the Tank Characterization Database for the most current inventory values (LMHC 1998).

Table 3-1. Best-Basis Inventory Estimates for Nonradioactive Components in Tank 241-AW-101 (Effective May 31, 1998). (2 sheets)

Analyte	Total inventory (kg)	Basis (S, M, E, or C)[1]	Comment
Al	1.31E+05	S	
Bi	444	S	
Ca	840	S	
Cl	23,000	S	
TIC as CO_3	87,300	E	
Cr	1,030	S	
F	4,620	S	
Fe	850	S	
Hg	0	E	Simpson (1998)
K	1.53E+05	S	
La	0	E	No La expected based on process history
Mn	490	S	
Na	1.07E+06	S	
Ni	140	S	
NO_2	4.36E+05	S	
NO_3	7.52E+05	S	
OH_{TOTAL}	6.61E+05	C	
Pb	452	S	
PO_4	8,370	S	Based on IC data
Si	1,480	S	

Table 3-1. Best-Basis Inventory Estimates for Nonradioactive Components in Tank 241-AW-101 (Effective May 31, 1998). (2 sheets)

Analyte	Total inventory (kg)	Basis (S, M, E, or C)[1]	Comment
SO_4	7,100	S	Based on IC data
Sr	45.9	S	
TOC	18,100	S	25% of TOC is oxalate
U_{TOTAL}	2,830	S	
Zr	196	S	

Notes:

IC = ion chromatography
TOC = total organic carbon

[1]S = Sample-based (based on 1996 core samples; see Appendix B); M = HDW model-based; E = Engineering assessment-based; C = Calculated by charge balance; includes oxides as "hydroxide," not including CO_3, NO_2, NO_3, PO_4, SO_4, and SiO_3

Table 3-2. Best-Basis Inventory Estimates for Radioactive Components in Tank 241-AW-101 Decayed to January 1, 1994 (Effective May 31, 1998). (3 sheets)

Analyte	Total inventory (Ci)	Basis (S, M, or E)[1]	Comment
^{3}H	14.9	S	
^{14}C	124	M	
^{59}Ni	7.18	M	
^{60}Co	160	M	
^{63}Ni	707	M	
^{79}Se	14.8	M	
^{90}Sr	5,510	S	
^{90}Y	5,510	S	Referenced to ^{90}Sr
^{93}Zr	71.5	M	
^{93m}Nb	52.4	M	
^{99}Tc	793	S	
^{106}Ru	0.0607	M	
^{113m}Cd	362	M	

Table 3-2. Best-Basis Inventory Estimates for Radioactive Components in Tank 241-AW-101 Decayed to January 1, 1994 (Effective May 31, 1998). (3 sheets)

Analyte	Total inventory (Ci)	Basis (S, M, or E)[1]	Comment
^{125}Sb	1,180	M	
^{126}Sn	22.6	M	
^{129}I	11.6	S	
^{134}Cs	265	M	
^{137}Cs	1.97 E+06	S	
^{137m}Ba	1.86E+06	S	Based on 0.946 of ^{137}Cs activity
^{151}Sm	52,400	M	
^{152}Eu	17.9	M	
^{154}Eu	486	S	
^{155}Eu	2,120	S	
^{226}Ra	6.38 E-04	M	
^{227}Ac	0.00402	M	
^{228}Ra	1.31	M	
^{229}Th	0.0304	M	
^{231}Pa	0.0171	M	
^{232}Th	0.127	M	
^{232}U	0.569	S/M	Based on ICP U sample result ratioed to HDW estimates for U isotopes.
^{233}U	2.18	S/M	Based on ICP U sample result ratioed to HDW estimates for U isotopes.
^{234}U	1.27	S/M	Based on ICP U sample result ratioed to HDW estimates for U isotopes.
^{235}U	0.0489	S/M	Based on ICP U sample result ratioed to HDW estimates for U isotopes.
^{236}U	0.0879	S/M	Based on ICP U sample result ratioed to HDW estimates for U isotopes.
^{237}Np	3.31	M	
^{238}Pu	6.05	S/M	Based on $^{239/240}Pu$ sample result ratioed to HDW estimates for alpha isotopes.
^{238}U	0.942	S/M	Based on ICP U sample result ratioed to HDW estimates for U isotopes.

Table 3-2. Best-Basis Inventory Estimates for Radioactive Components in Tank 241-AW-101 Decayed to January 1, 1994 (Effective May 31, 1998). (3 sheets)

Analyte	Total inventory (Ci)	Basis (S, M, or E)[1]	Comment
^{239}Pu	59.2	S/M	Based on $^{239/240}Pu$ sample result ratioed to HDW estimates for alpha isotopes.
^{240}Pu	16.3	S/M	Based on $^{239/240}Pu$ sample result ratioed to HDW estimates for alpha isotopes.
^{241}Am	58.6	S	
^{241}Pu	604	S/M	Based on $^{239/240}Pu$ sample result ratioed to HDW estimates for alpha isotopes.
^{242}Cm	0.105	S/M	Based on ^{241}Am result ratioed to HDW estimates for alpha isotopes.
^{242}Pu	0.00231	S/M	Based on $^{239/240}Pu$ sample result ratioed to HDW estimates for alpha isotopes.
^{243}Am	0.00471	S/M	Based on ^{241}Am sample result ratioed to HDW estimates for alpha isotopes.
^{243}Cm	0.230	S/E	Inventory is 4% of $^{243/244}Cm$ sample result
^{244}Cm	5.53	S/E	Inventory is 96% of $^{243/244}Cm$ sample result

Notes:

ICP = inductively coupled plasma

[1]S = Sample-based (based on 1996 core samples; see Appendix B); M = HDW model-based; E = Engineering assessment-based.

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4.0 RECOMMENDATIONS

The sampling and analysis activities performed for tank 241-AW-101 have met all requirements for the safety screening DQO and the flammable gas DQO. The upper limits of the one-sided 95 percent confidence intervals for total alpha activity results were below the notification limits. Two solid sample results exceeded the safety screening DQO notification limit for DSC. Six solid samples exceeded the DSC notification limit with the upper limit to one-sided 95 percent confidence intervals. However, RSST results showed that there was no self-heating; therefore, exothermic activity is not a concern for this tank. No vapor samples have been obtained to address the organic solvents DQO, but the issue is expected to be closed in fiscal year 1998, and no vapor samples are required for this tank. Samples were archived for future pretreatment evaluations. Samples were taken in 1998 for the privatization issue. As of July 1, 1998, these sample results were in process.

Table 4-1 summarizes the Project Hanford Management Contractor (PHMC) TWRS Program review status and acceptance of the sampling and analysis results reported in this TCR. All issues required to be addressed by sampling and analysis are listed in column 1 of Table 4-1. Column 2 indicates by "yes" or "no" whether issue requirements were met by the sampling and analyses performed. Column 3 indicates concurrence and acceptance by the program in PHMC/TWRS that is responsible for the applicable issue. A "yes" in column 3 indicates that no additional sampling or analyses are needed. Conversely, "no" indicates additional sampling or analyses may be needed to satisfy issue requirements.

Table 4-1. Acceptance of Tank 241-AW-101 Sampling and Analysis.

Issue	Sampling and Analysis Performed	Program[1] Acceptance
Safety screening DQO	Yes	Yes
Flammable gas DQO	Yes	Yes
Organic solvents DQO[2]	No	n/a
Pretreatment DQO	Yes	n/a
Privatization DQO[3]	Partial	In process

Notes:

[1]PHMC TWRS Program Office

[2]The organic solvents safety issue is expected to be closed in fiscal year 1998.

[3]Samples were taken in April 1998 for this issue for this tank. Results were not available as of July 1, 1998.

Table 4-2 summarizes the status of PHMC TWRS Program review and acceptance of the evaluations for characterization information contained in this report. Column 1 lists the different evaluations performed in this report. Column 2 shows whether evaluations have been completed or are or in progress. Column 3 indicates concurrence and acceptance with the evaluation by the program in PHMC/TWRS responsible for the applicable issue. A "yes" indicates that the evaluation is completed and meets all issue requirements. A "no" indicates that evaluations are incomplete.

Table 4-2. Acceptance of Evaluation of Characterization Data and Information for Tank 241-AW-101.

Issue	Evaluation Performed	Program Acceptance[1]
Safety screening DQO	Yes	Yes
Flammable gas DQO[2]	In Progress	n/a
Organic solvents DQO[3]	No	No
Pretreatment DQO	n/a	n/a
Privatization DQO[4]	No	No

Notes:

[1]PHMC TWRS Program Office

[2]The flammable gas unreviewed safety question is expected to be closed in fiscal year 1998. However, sampling and analysis for the flammable gas issue is not expected to be completed until fiscal year 2002.

[3]The organic solvents safety issue is expected to be closed in fiscal year 1998.

[4]Samples were taken in April 1998 for this issue for this tank. Results were not available as of July 1, 1998.

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APPENDIX A

HISTORICAL TANK INFORMATION

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APPENDIX A

HISTORICAL TANK INFORMATION

Appendix A describes tank 241-AW-101 based on historical information. For this report, historical information includes information about the fill history, waste types, surveillance, or modeling data about the tank. This information is necessary for providing a balanced assessment of sampling and analytical results.

This appendix contains the following information.

- **Section A1.0**: Current tank status, including the current waste levels and the tank stabilization and isolation status
- **Section A2.0**: Information about the tank design
- **Section A3.0**: Process knowledge about the tank, the waste transfer history, and the estimated contents of the tank based on modeling data
- **Section A4.0**: Surveillance data for tank 241-AW-101, including surface-level readings, temperatures, and a description of the waste surface based on photographs
- **Section A5.0**: Appendix A references.

A1.0 CURRENT TANK STATUS

As of March 31, 1998, tank 241-AW-101 contained an estimated 4,254 kL (1,124 kgal) of waste classified as double-shell slurry feed (Hanlon 1998). Liquid waste volumes are estimated using a level measurement gauge. The solid waste volumes are estimated using a sludge level measurement device. The solid waste volume was last updated on March 31, 1997. The amounts of various waste phases in the tank are presented in Table A1-1.

Tank 241-AW-101 is categorized as sound and is on the Flammable Gas Watch List (Hanlon 1998). All monitoring systems were in compliance with documented standards as of March 31, 1998 (Hanlon 1998).

Table A1-1. Estimated Tank Contents.[1]

Waste Form	Estimated Volume	
	kL	kgal
Total waste	4,254	1,124
Supernatant liquid	3,096	818
Sludge	1,158	306
Saltcake	0	0
Drainable interstitial liquid	114	30
Drainable liquid remaining	3,210	848
Pumpable liquid remaining	3,126	826

Note:
[1]Hanlon (1998).

A2.0 TANK DESIGN AND BACKGROUND

The 241-AW Tank Farm was constructed from 1978 to 1980 in the 200 East Area. The tank farm contains six double-shell tanks. These tanks have a capacity of 4,390 kL (1,160 kgal) and a diameter of 23 m (75 ft). The tanks were designed to hold boiling waste with a maximum design temperature of 177 °C (350 °F) (Brevick et al. 1997).

Tank 241-AW-101 was constructed with a primary carbon steel liner (heat treated and stress relieved), a secondary carbon steel liner (not heat treated), and a reinforced concrete shell. The bottom of the primary liner is 13 mm (0.5 in.) thick, the lower portion of the sides is 22 mm (0.88 in.) thick, the upper portion of the sides is 13 mm (0.5 in.) thick, and the dome liner is 9.5 mm (0.375 in.) thick. The secondary liner is 9.5 mm (0.375 in.) thick. The concrete walls are 460 mm (1.5 ft) thick, and the dome is 380 mm (1.25 ft) thick. The tank has a flat bottom. The bottoms of the primary and secondary liners are separated by an insulating concrete layer. A grid of drain slots in the concrete foundation beneath the secondary steel liner collects any waste that may leak from the tank and diverts it to the leak detection well.

Tank 241-AW-101 has 27 risers ranging in diameter from 100 mm (4 in.) to 1.1 m (42 in.) that provide access to the tank, and 37 risers that provide access to the annulus. Table A2-1 shows numbers, diameters, and descriptions of the risers (annular risers not included). A plan view that depicts the riser configuration is shown as Figure A2-1. Risers 10A, 13A, 15A, and 16A (each 100 mm [4 in.] in diameter) and risers 7B, 12A, 24A, and 24B (each 300 mm [12 in.] in diameter) are available for use (Lipnicki 1997). A tank cross section showing the approximate waste level, along with a tank equipment schematic, is in Figure A2-2.

Table A2-1. Tank 241-AW-101 Risers.[1] (2 sheets)

New Riser Number	Old Riser Number	Diameter (in.)	Description and Comments
201	1A	4	Liquid level indicator
202	1B	4	Sludge measurement port, (12-in. cover with access plate)
203	1C	4	Sludge measurement port
204	2A	4	ENRAF[2]
205	3A	12	Supernatant pump, central pump pit
206	4A	4	Thermocouple tree
207	5A	42	Manhole/spare
208	5B	42	Manhole/spare (4-flange cover with camera and equipment, engineering change notice 613265, 1/25/95)
211[3]	7A	12	Tank ventilation
212	7B	12	Spare
227[3]	10A	4	Spare, (12-in. cover with access plate)
228	11A	42	Slurry distributor, central pump pit
229	12A	12	Observation port/spare
231[3]	13A	4	Spare
232	13B	4	Tank pressure, (24-in. cover with access plate)
233	14A	4	Supernatant return, central pump pit
234[3]	15A	4	Multifunction instrument tree (second thermocouple tree)
235[3]	16A	4	Sludge measurement port, (12-in. cover with access plate)
236	16B	4	Pressure indicator
237	16C	4	Sludge measurement port
260	21A	4	High-level sensor, (12-in. cover with access plate)
262	22A	4	Sludge measurement port
263[3]	24A	12	Spare
264[3]	24B	12	Spare

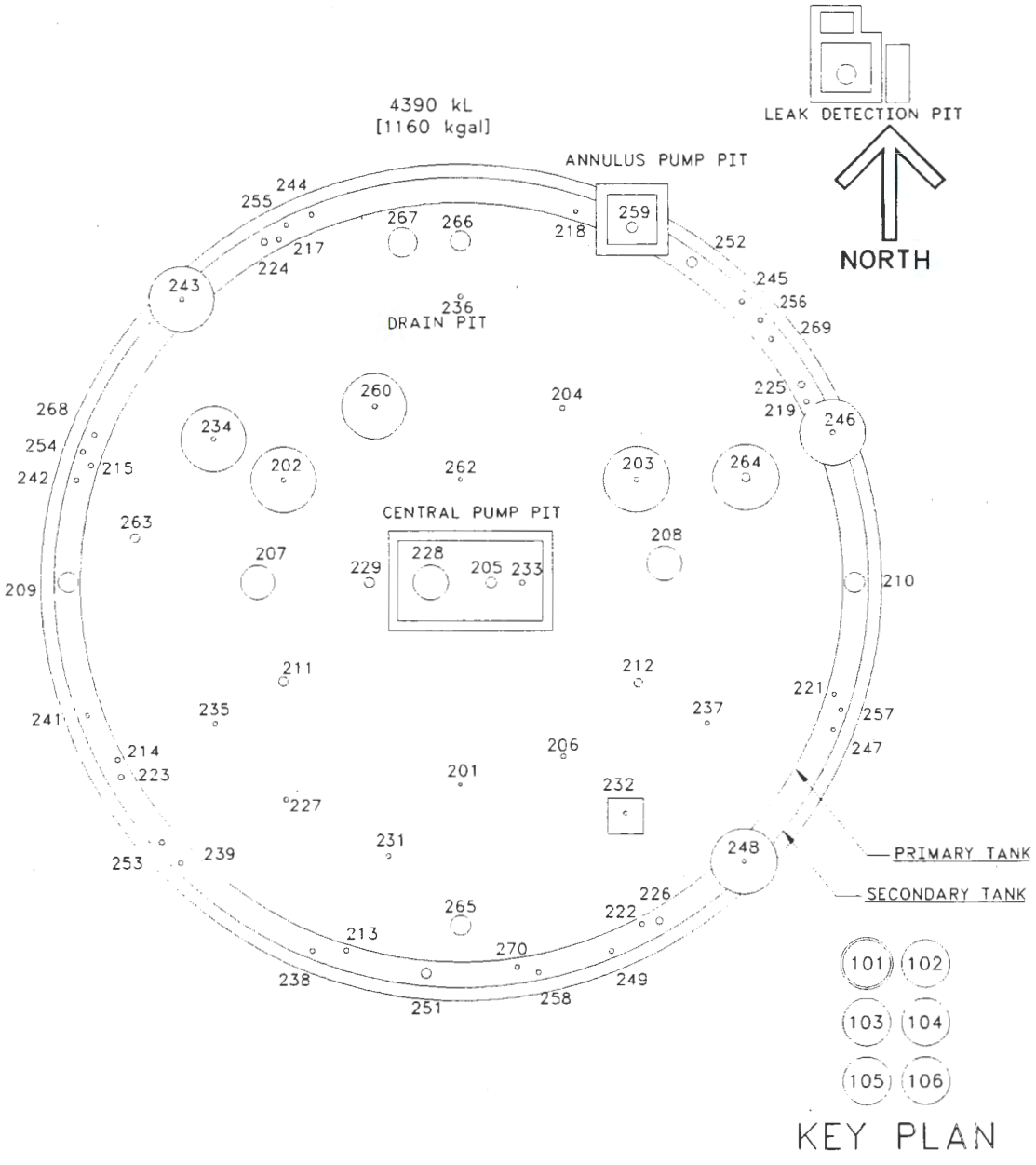
Table A2-1. Tank 241-AW-101 Risers.[1] (2 sheets)

New Riser Number	Old Riser Number	Diameter (in.)	Description and Comments
265	25A	20	Spare
266	25B	20	Spare
267	26A	36	Spare

Notes:

[1]Salazar (1994), LMHC (1997), and WHC (1995)
[2]ENRAF is a registered trademark of ENRAF Corp., Houston, Texas.
[3]Denotes risers tentatively available for sampling (Lipnicki 1997)

Figure A2-1. Riser Configuration for Tank 241-AW-101.



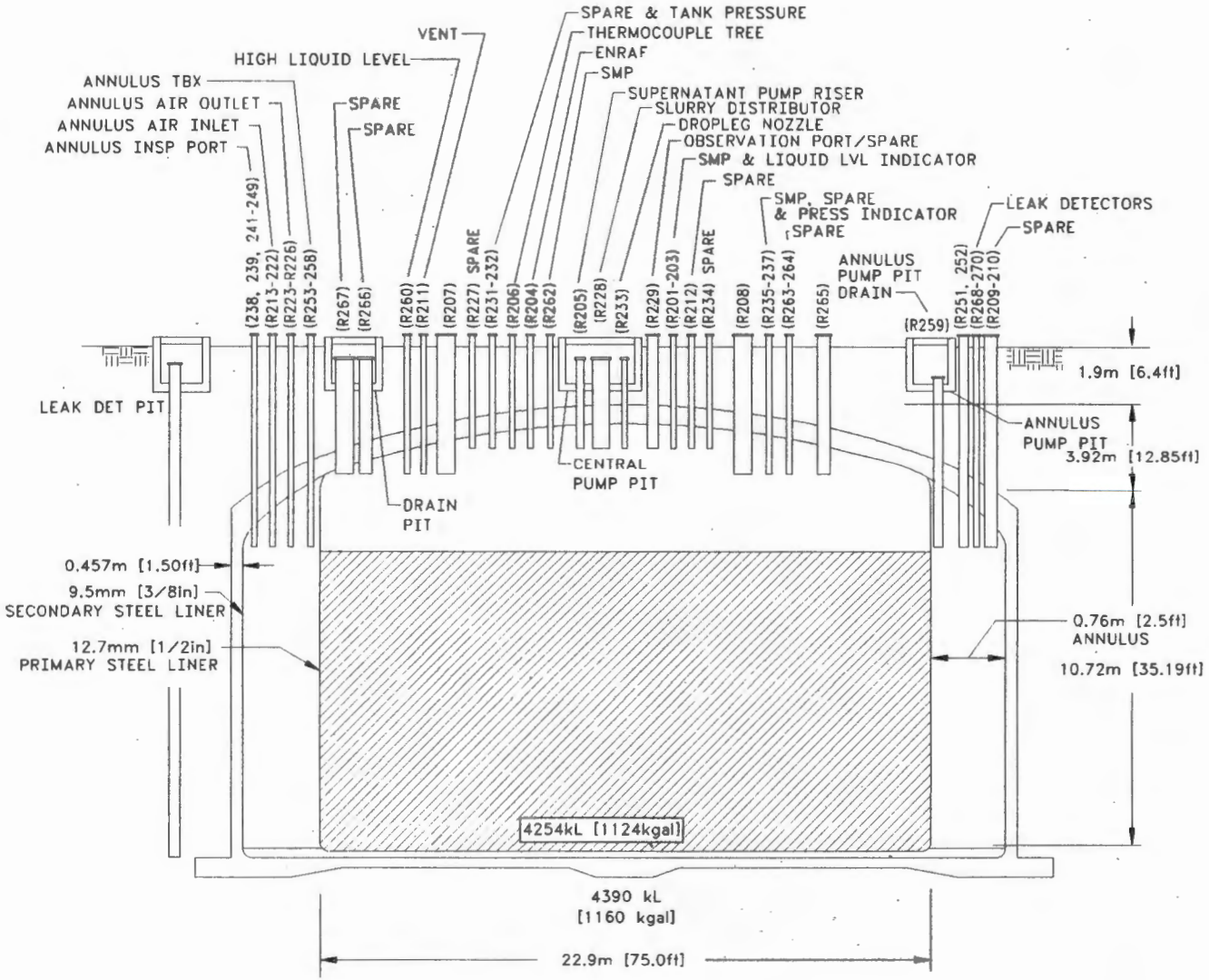


Figure A2-2. Tank 241-AW-101 Cross Section and Schematic.

A3.0 PROCESS KNOWLEDGE

The sections below 1) provide information about the transfer history of tank 241-AW-101, 2) describe the process wastes that made up the transfers, and 3) estimate the current tank contents based on transfer history.

A3.1 WASTE TRANSFER HISTORY

Table A3-1 summarizes the waste transfer history of tank 241-AW-101 (Agnew et al. 1997b). Waste was initially added to tank 241-AW-101 in the third quarter of 1980 with the addition of dilute caustic solution. From the first quarter of 1981 to the first quarter of 1986, the tank received flush waste from miscellaneous sources and low-level waste from PUREX. In support of the 242-A Evaporator, dilute, noncomplexed waste was sent to and received from tank 241-AW-102 from the fourth quarter of 1981 to the second quarter of 1986.

Table A3-1. Tank 241-AW-101 Major Transfers.[1, 2] (2 sheets)

Transfer Source	Transfer Destination	Waste Type	Time Period	Estimated Waste Volume	
				kL	kgal
Misc. sources		DCS	1980	34	9
PUREX		PL2	1981, 1982, 1984 - 1986	10,460	2,764
241-AW-102		DN	1981, 1982, 1984, 1986	20,120	5,314
	241-AW-102	DN	1982, 1984-1986	29,240	7,724
Misc. sources		Water	1981-1986	1,631	431
100 N Area		Dilute phosphate	1982	30	9
241-SY-102		SU	1982	1,150	303
100 N Area		Dilute sulfate	1982	405	124
241-AW-105		SU	1983	3,853	1,018
241-AZ-101 241-AZ-102		SU	1983	443	41
	241-AZ-101	SU	1983	160	41
	241-AN-102	SU	1984	4,099	1,083
241-AN-101		SU	1984	57	15
	241-AY-102		1985	761	201
300 and 400 areas		Laboratory waste	1985	30	8

Table A3-1. Tank 241-AW-101 Major Transfers.[1,2] (2 sheets)

Transfer Source	Transfer Destination	Waste Type	Time Period	Estimated Waste Volume	
				kL	kgal
241-B-109 241-T-101 241-TX-101 241-TX-114		Salt well liquor	1985	270	72

Notes:

DCS	=	Dilute caustic solution	PL2	=	PUREX low-level waste
DN	=	Dilute non-complexed	SU	=	Supernatant waste

[1]Waste volumes and types are best estimates based on historical data. Minor fluctuations from unknown transfers, lancing, barometric variation, evaporation, or off-gas events are not included.

[2]Agnew et al. (1997b)

In the first quarter of 1982, tank 241-AW-101 received dilute phosphate and sulfate waste from the 100 N Area and supernatant waste from tank 241-SY-102. Tank 241-AW-101 remained nearly empty until the second quarter of 1983, when a large volume of supernatant waste was added from tank 241-AW-105. During the third and fourth quarters of 1983, the tank exchanged waste with tank 241-AZ-101 and received waste from tank 241-AZ-102.

Waste was sent to tank 241-AN-102, which nearly emptied tank 241-AW-101, in the third quarter of 1984. Also, during the third quarter of 1984, a small amount of supernatant waste was transferred into the tank from tank 241-AN-101.

In the first quarter of 1985, dilute, noncomplexed waste was transferred into tank 241-AW-101 from the 300 and 400 Area laboratories. Liquid waste from salt well pumping of several single-shell tanks was transferred to tank 241-AW-101 in the first and second quarters of 1985. During this time, supernatant waste was sent to tank 241-AY-102.

Tank 241-AW-101 had no major waste additions after the third quarter of 1986. The waste volume has varied because of slurry growth caused by gas generation within the tank, and because of gas outflow from waste lancing.

A3.2 HISTORICAL ESTIMATION OF TANK CONTENTS

The historical transfer data used for this estimate are from the following sources:

- The *Waste Status and Transaction Record Summary (WSTRS), Rev. 4*, (Agnew et al. 1997b) is a tank-by-tank quarterly summary spreadsheet of waste transactions.

- The *Hanford Tank Chemical and Radionuclide Inventories: HDW Model Rev. 4* (Agnew et al. 1997a) contains the HDW list, the supernatant mixing model (SMM), the tank layer model (TLM), and the historical tank content estimate (HTCE).

- The HDW list is comprised of approximately 50 waste types defined by concentration for major analyses/compounds for sludge and supernatant layers.

- The TLM defines the sludge and saltcake layers in each tank using waste composition and waste transfer information.

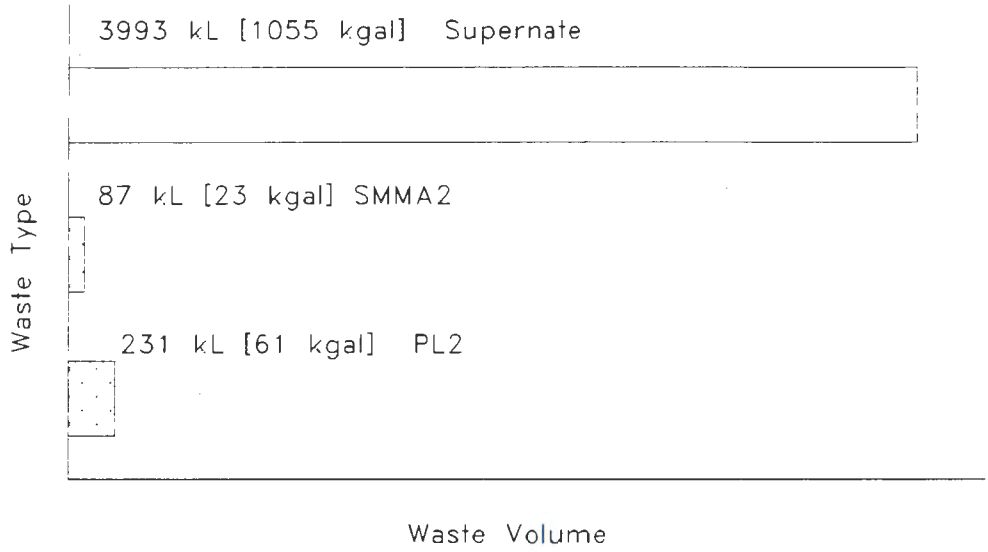
- The SMM is a subroutine within the HDW model that calculates the volume and composition of certain supernatant blends and concentrates.

Using these records, the HDW history and TLM define the sludge and saltcake layers in each tank. The SMM uses information from the WSTRS, the TLM, and the HDW list to describe the supernatants and concentrates in each tank. Together, the WSTRS, TLM, SMM, and HDW list determine the inventory estimate for each tank. These model predictions are considered estimates that require further evaluation using analytical data.

Based on the TLM and the SMM, in 1994, tank 241-AW-101 contained two layers of waste, not including the 3,993 kL (1,055 kgal) of supernatant (current volume of supernatant is 3,096 kL [818 kgal]), 87 kL (23 kgal) of 242-A Evaporator waste (SMMA2), and 231 kL (61 kgal) of PUREX low-level waste (PL2). The SMMA2 waste composition is calculated by the SMM on a tank-by-tank basis and is considered a concentrated supernatant. Figure A3-1 shows a graphical representation of the estimated waste types and volumes for each tank layer.

The PL2 layer should contain, from highest concentration above one weight percent, the following constituents: hydroxide, iron carbonate, calcium, nitrate uranium, and sodium. Constituents contained in this layer above a tenth of a weight percent are nickel and phosphate. Table A3-2 shows an estimate of the expected waste constituents and concentrations.

Figure A3-1. Tank Layer Model.[1]



Note:

[1]Based on Agnew (1997a), not consistent with current waste volume.

Table A3-2. Historical Tank Inventory Estimate.[1,2,3] (4 sheets)

Total Inventory Estimate					
Physical Properties				**-95 CI**	**+95 CI**
Total waste	7.13E+06 kg (1.14E+03 kgal)				
Heat load	7.45 kW (2.55E+04 Btu/hr)			6.96	7.99
Bulk density[4]	1.65 (g/cm^3)			1.59	1.71
Water wt%[4]	28.3			24.6	31.7
TOC wt% C (wet)[4]	1.09			0.779	1.39
Constituents	***M***	**ppm**	**kg[5]**	**-95 CI**	**+95 CI**
Na^+	15.3	2.13E+05	1.52E+06	13.8	16.9
Al^{3+}	1.55	2.52E+04	1.80E+05	1.37	1.67
Fe^{3+}	0.118	3.97E+03	2.83E+04	0.110	0.120
Cr^{3+}	0.114	3.58E+03	2.55E+04	0.102	0.123
Bi^{3+}	1.08E-03	137	973	1.02E-03	1.14E-03
La^{3+}	1.38E-05	1.16	8.29	1.02E-05	1.75E-05
Hg^{2+}	1.85E-05	2.25	16.0	1.18E-05	1.95E-05
Zr	3.13E-03	173	1.23E+03	1.55E-03	3.53E-03
Pb^{2+}	1.21E-03	151	1.08E+03	1.02E-03	1.39E-03
Ni^{2+}	1.61E-02	573	4.08E+03	1.00E-02	1.79E-02
Sr^{2+}	0	0	0	0	0
Mn^{4+}	1.54E-02	511	3.64E+03	8.32E-03	2.23E-02
Ca^{2+}	8.59E-02	2.08E+03	1.48E+04	5.89E-02	9.47E-02
K^+	0.299	7.08E+03	5.05E+04	7.82E-02	0.530
OH^-	9.72	9.99E+04	7.12E+05	8.65	10.8
NO^{3-}	5.63	2.11E+05	1.50E+06	5.22	6.03
NO^{2-}	1.93	5.37E+04	3.83E+05	1.63	2.17
CO_3^{2-}	0.854	3.10E+04	2.21E+05	0.706	0.983
PO_4^{3-}	0.230	1.32E+04	9.43E+04	0.148	0.313
SO_4^{2-}	0.251	1.46E+04	1.04E+05	0.216	0.278
Si	7.75E-02	1.32E+03	9.39E+03	6.33E-02	9.10E-02
F^-	0.296	3.40E+03	2.43E+04	6.72E-02	0.372
Cl^-	0.255	5.47E+03	3.90E+04	0.227	0.284
$C_6H_5O_7^{3-}$	3.30E-02	3.78E+03	2.69E+04	2.61E-02	4.00E-02

Table A3-2. Historical Tank Inventory Estimate.[1,2,3] (4 sheets)

Total Inventory Estimate					
Constituents (Cont'd)	***M***	**ppm**	**kg[5]**	**-95 CI**	**+95 CI**
$EDTA^{4-}$	1.94E-02	3.39E+03	2.41E+04	6.80E-03	3.23E-02
$HEDTA^{3-}$	3.37E-02	5.58E+03	3.98E+04	8.41E-03	5.94E-02
Glycolate	0.210	9.55E+03	6.80E+04	0.118	0.303
Acetate	1.66E-02	592	4.22E+03	1.37E-02	2.11E-02
Oxalate	1.81E-05	0.966	6.88	1.62E-05	2.01E-05
Dibutyl phosphate	2.60E-02	3.31E+03	2.36E+04	2.20E-02	3.02E-02
Butanol	2.60E-02	1.17E+03	8.32E+03	2.20E-02	3.02E-02
NH_3	0.831	8.55E+03	6.09E+04	6.05E-02	1.63
$Fe(CN)_6^{4-}$	0	0	0	0	0
Radiological Constituents	**Ci/L**	**μCi/g**	**Ci[5]**	**-95 CI (Ci/L)**	**+95 CI (Ci/L)**
^{3}H	2.22E-04	0.134	958	1.60E-04	2.51E-04
^{14}C	2.87E-05	1.73E-02	124	1.56E-05	2.95E-05
^{59}Ni	1.67E-06	1.01E-03	7.18	1.05E-06	1.73E-06
^{63}Ni	1.64E-04	9.92E-02	707	1.03E-04	1.70E-04
^{60}Co	4.01E-05	2.42E-02	173	2.51E-05	4.41E-05
^{79}Se	3.43E-06	2.08E-03	14.8	2.60E-06	4.02E-06
^{90}Sr	0.110	66.8	4.76E+05	0.105	0.115
^{90}Y	0.110	66.8	4.76E+05	8.16E-02	0.116
^{93}Zr	1.66E-05	1.00E-02	71.5	1.24E-05	1.95E-05
^{93m}Nb	1.22E-05	7.36E-03	52.4	9.24E-06	1.42E-05
^{99}Tc	2.14E-04	0.129	922	1.65E-04	2.68E-04
^{106}Ru	1.41E-08	8.52E-06	6.07E-02	1.05E-08	1.76E-08
^{113m}Cd	8.40E-05	5.08E-02	362	5.9E-05	1.02E-04
^{125}Sb	2.75E-04	0.166	1.18E+03	1.82E-04	3.72E-04
^{126}Sn	5.23E-06	3.17E-03	22.6	3.98E-06	6.12E-06
^{129}I	4.13E-07	2.50E-04	1.78	3.19E-07	5.19E-07
^{134}Cs	6.16E-05	3.72E-02	265	2.03E-05	1.05E-04
^{137}Cs	0.210	127	9.07E+05	0.190	0.237
^{137m}Ba	0.199	120	8.58E+05	0.169	0.216

Table A3-2. Historical Tank Inventory Estimate.[1,2,3] (4 sheets)

Total Inventory Estimate					
Radiological Constituents (Cont'd)	**Ci/L**	**μCi/g**	**Ci[5]**	**-95 CI (Ci/L)**	**+95 CI (Ci/L)**
^{151}Sm	1.21E-02	7.35	5.24E+04	9.23E-03	1.42E-02
^{152}Eu	4.16E-06	2.52E-03	17.9	3.13E-06	4.85E-06
^{154}Eu	6.23E-04	0.377	2.69E+03	4.15E-04	7.29E-04
^{155}Eu	2.65E-04	0.160	1.14E+03	2.03E-04	3.07E-04
^{226}Ra	1.48E-10	8.95E-08	6.38E-04	1.11E-10	1.68E-10
^{228}Ra	3.03E-07	1.84E-04	1.31	1.35E-07	4.03E-07
^{227}Ac	9.33E-10	5.64E-07	4.02E-03	7.18E-10	1.04E-09
^{231}Pa	3.98E-09	2.41E-06	1.71E-02	3.14E-09	4.57E-09
^{229}Th	7.05E-09	4.26E-06	3.04E-02	3.16E-09	9.23E-09
^{232}Th	2.94E-08	1.78E-05	0.127	8.60E-09	4.06E-08
^{232}U	1.05E-06	6.36E-04	4.53	7.26E-07	1.45E-06
^{233}U	4.03E-06	2.44E-03	17.4	2.78E-06	5.55E-06
^{234}U	2.35E-06	1.42E-03	10.1	1.59E-06	2.81E-06
^{235}U	9.04E-08	5.47E-05	0.390	6.14E-08	1.08E-07
^{236}U	1.62E-07	9.82E-05	0.700	9.95E-08	2.00E-07
^{238}U	2.04E-06	1.23E-03	8.79	1.52E-06	2.35E-06
^{237}Np	7.67E-07	4.64E-04	3.31	6.08E-07	9.44E-07
^{238}Pu	1.94E-05	1.17E-02	83.4	1.55E-05	2.04E-05
^{239}Pu	1.89E-04	0.115	817	1.59E-04	1.98E-04
^{240}Pu	5.21E-05	3.15E-02	225	4.27E-05	5.46E-05
^{241}Pu	1.93E-03	1.17	8.33E+03	1.54E-03	2.04E-03
^{242}Pu	7.39E-09	4.47E-06	3.19E-02	5.94E-09	7.78E-09
^{241}Am	9.00E-05	5.44E-02	388	7.08E-05	1.05E-04
^{243}Am	7.23E-09	4.37E-06	3.11E-02	3.18E-09	9.44E-09
^{242}Cm	1.62E-07	9.79E-05	0.698	1.19E-07	1.88E-07
^{243}Cm	1.65E-08	9.99E-06	7.12E-02	1.25E-08	1.92E-08

Table A3-2. Historical Tank Inventory Estimate.[1,2,3] (4 sheets)

Total Inventory Estimate					
Totals		**μg/g**	**kg**	**-95 CI (*M* or g/L)**	**+95 CI (*M* or g/L)**
^{244}Cm	2.32E-07	1.40E-04	1.00	1.59E-07	2.92E-07
Pu	3.12E-03		13.5	2.58E-03	3.27E-03
U	2.19E-02	3.16E+03	2.25E+04	1.53E-02	2.59E-02

Notes:

CI = confidence interval

[1]Agnew et al. (1997a); current tank volume is 4,254 kL (1,124 kgal).

[2]These predictions have not been validated and should be used with caution.

[3]Unknowns in tank solids inventory are assigned by the TLM.

[4]This is the volume average for density, mass average water wt%, and TOC wt% carbon.

[5]Differences exist among the inventories in this column and the inventories calculated from the two sets of concentrations.

A4.0 SURVEILLANCE DATA

Tank 241-AW-101 surveillance consists of surface-level measurements (liquid and solid) and temperature monitoring inside the tank (waste and headspace). The tank annulus is equipped with leak-detection instrumentation consisting of continuous air monitors and conductivity probes. Surveillance data provide the basis for determining tank integrity. For double-shell tanks, the leak detection instruments are the primary means of detecting a leak from the primary tank; liquid level measurements may be used to confirm a possible leak detected by the annulus instruments. No occurrence reports have been written against tank 241-AW-101 that would indicate a leak from the primary tank. Solid level measurements indicate physical changes in and consistency of the tank's solid layers.

A4.1 SURFACE-LEVEL READINGS

A Food Instrument Corporation gauge was used to monitor the waste surface level in tank 241-AW-101 through riser 2A in the automatic mode until January 20, 1995, and in the manual mode until September 2, 1995. A manual tape was used between June 13, 1983, and December 15, 1997. A manual ENRAF™ system began recording on August 18, 1995. On

March 31, 1998 the waste surface level was 1,038 cm (408.7 in.). A graphical representation of the volume measurements is presented as a level history graph in Figure A4-1.

A4.2 INTERNAL TANK TEMPERATURES

Tank 241-AW-101 has a single thermocouple tree, located in riser 4A, with 18 thermocouples to monitor the waste temperature. The tank also has a multifunction instrument tree in riser 15A, with 22 thermocouples. Elevations are available for all thermocouples. Temperature readings are available from the Surveillance Analysis Computer System (SACS) from July 1989 to March 1998 (LMHC 1998). Plots of individual thermocouple readings can be found in the AW Tank Farm supporting document for the historical tank content estimate (Brevick et al. 1997).

Temperature data were available for 6 thermocouples: 1, 3, 5, 7, 11, and 17. The average temperature provided by the SACS data is 36.3 °C (97.3 °F), the minimum is 21.7 °C (71 °F), and the maximum is 42.8 °C (109 °F). The average temperature provided by the SACS data over the last year (March 31, 1997 through March 31, 1998) was 33.3 °C (92 °F), the minimum was 21.7 °C (71 °F), and the maximum was 38.3 °C (101 °F). The high temperature on March 30, 1998, was 36.1 °C (97 °F) on thermocouple 5 (located in the waste) and the minimum was 22.2 °C (72 °F) on thermocouple 17 (located in the vapor space). Figure A4-2 shows a graph of the weekly high temperatures.

A4.3 TANK 241-AW-101 PHOTOGRAPHS

The March, 1988 photographic montage of tank 241-AW-101's interior shows a dark liquid mixed with a white saltcake (Brevick et al. 1997). Equipment visible in the photograph are a level probe, a thermocouple tree, a supernatant pump, and a high-level sensor. Although tank 241-AW-101 is considered an active tank, there have been no large changes in the waste volume since the photographs were taken. Most changes in volume are attributed to slurry growth from gas generation. Therefore, the photographic montage should closely resemble the current appearance of the waste surface. Video scans of the tank waste were taken in 1995.

Figure A4-1. Tank 241-AW-101 Level History.

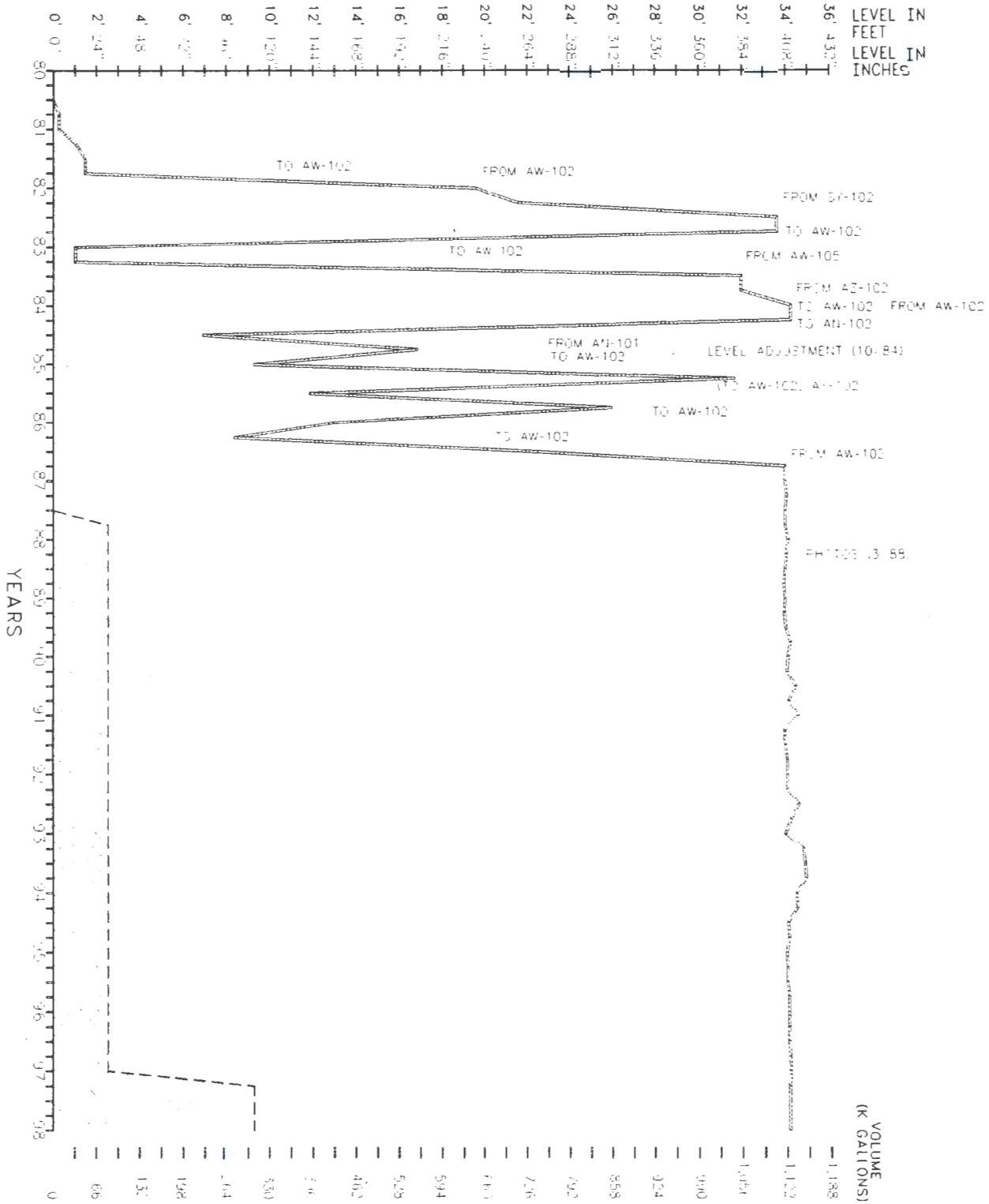
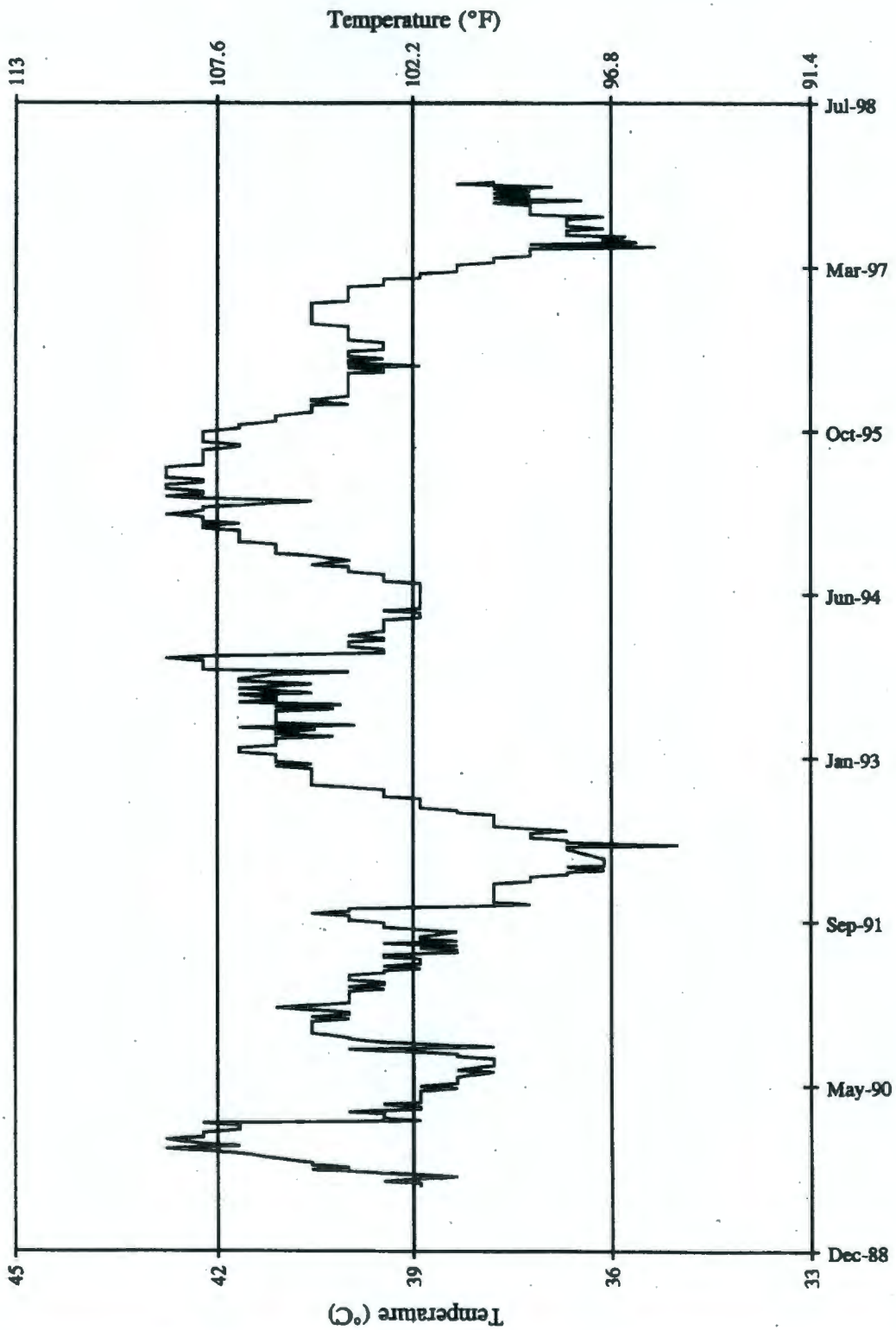


Figure A4-2. Tank 241-AW-101 High Temperature Plot.



A5.0 APPENDIX A REFERENCES

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APPENDIX B

SAMPLING OF TANK 241-AW-101

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APPENDIX B

SAMPLING OF TANK 241-AW-101

Appendix B provides sampling and analysis information for each known sampling event for tank 241-AW-101 and assesses the sample results. It includes the following:

- **Section B1.0**: Tank Sampling Overview
- **Section B2.0**: Sampling Events
- **Section B3.0**: Assessment of Characterization Results
- **Section B4.0**: Appendix B References.

B1.0 TANK SAMPLING OVERVIEW

This section describes the four latest sampling and analysis events for tank 241-AW-101 with emphasis on the 1996 push mode core sampling event. Any sampling events conducted before 1986 do not represent current tank contents because the tank was almost emptied in 1986. Consequently, sampling events conducted before 1986 are not included in this report.

A core sample was taken in 1987 to assess the level of transuranic contamination in the waste heel. In June 1990, 12 grab samples of supernatant were obtained to characterize the chemical and radiological constituents of the tank waste. The samples were taken to resolve waste preparation issues for the Hanford Grout Disposal Program and the waste treatment and disposal concerns of the Hanford Grout Treatment Facility. In January 1995, three auger samples were obtained in order to resolve the crust burn flammable gas safety issue. In 1996, two core samples, each containing 22 segments, were obtained from tank 241-AW-101 to satisfy the requirements of the *Tank Safety Screening Data Quality Objective* (Dukelow et al. 1995), and the *Data Quality Objective to Support Resolution of the Flammable Gas Safety Issue* (Bauer and Jackson 1997).

The sampling and analyses of the 1996 core samples were performed in accordance with the *Tank 241-AW-101 Push Mode Core Sampling and Analysis Plan* (Benar 1996). The SAP instructed the remaining solid sample material and some supernatant be sent to the Pacific Northwest National Laboratory for additional analyses requested by the Flammable Gas Project. The remaining supernatant sample was used by the Pretreatment Project for test work performed in the 222-S Laboratory to qualify a cesium sorbent which will meet the cesium removal requirements of the Hanford privatization initiative (DOE-RL 1996). Details of this work are described in *Cesium Removal Tests Using Hanford DSSF Supernatants* (Hendrickson and Duncan 1996). For additional information on the sampling and analysis procedures, refer to the *Tank Characterization Reference Guide* (DeLorenzo et al. 1994).

B2.0 SAMPLING EVENTS

This section describes sampling events. The analytical results used to characterize current tank contents were the 1996 core sample results. Table B2-1 summarizes the sampling and analytical requirements from the safety screening and flammable gas DQOs (Dukelow et al. 1995 and Bauer and Jackson 1997).

Table B2-1. Integrated Data Quality Objective Requirements for Tank 241-AW-101.[1]

Sampling Event	Applicable Data Quality Objectives	Sampling Requirements	Analytical Requirements
Push mode core sampling	Safety screening - Energetics - Moisture content - Total alpha - Flammable gas Dukelow et al. (1995) Flammable gas Bauer and Jackson (1997) Pretreatment (DOE-RL 1996) Privatization (Jones and Wiemers 1996)	Core samples from a minimum of two risers separated radially to the maximum extent possible. Combustible gas measurement	Flammability, energetics, moisture, total alpha activity, density, anions, cations, radionuclides, TOC, separable organics, phyical properties, TIC, pH, Cr(VI)
Vapor sampling	Organic solvents Meacham et al. (1997)	Steel canisters, triple sorbent traps, sorbent trap systems	Flammable gas, organic vapors, permanent gases

B2.1 1996 PUSH MODE CORE SAMPLING EVENT

Two core samples were collected from tank 241-AW-101: core sample 132 from riser 24A on February 14 through March 25, 1996, and core sample 139 from riser 24B on April 2 through May 24, 1996. A total of 48 solid samples, 3 solid composite samples (crust layer, convective layer, nonconvective layer), 29 liquid samples, and 1 liquid composite sample were analyzed in accordance with the *Tank 241-AW-101 Push Mode Core Sampling* and Analysis Plan (Benar 1996). Benar also instructed that if enough sample was recovered, supernatant material would be retained for pretreatment studies as guided in the *Strategy for Sampling Hanford Site Tank Wastes for Development of Disposal Technology* (Kupfer et al. 1995). The samples were

received, extruded, and analyzed by the 222-S Laboratory and underwent analyses consistent with the *Tank Safety Screening Data Quality Objective* (Dukelow et al. 1995), and *Data Quality Objective to Support Resolution of the Flammable Gas Safety Issue* (Bauer and Jackson 1997). Table B2-1 summarizes the sampling and analytical requirements.

B2.1.1 Sample Handling

Table B2-2 summarizes the sample extrusion results for tank 241-AW-101 segments from cores 132 and 139, respectively. For each segment, the solid and liquid recoveries and a description of the material, as it was extruded, are included.

Based on the sample observations made during the extrusion process, tank 241-AW-101 comprises three layers: the top crust layer, a middle convective supernatant layer, and the bottom nonconvective sludge layer. The crust layer appears to consist of the first 2 segments and resembles wet sludge. The convective supernatant layer consists of segments 3 through 16 and resembles salt slurry with drainable liquid. The nonconvective layer consists of segments 18 through 22 and resembles wet saltcake. Segment 17 appears to be composed of waste from the convective layer and the nonconvective layer. Segment 2 of core 139 appears to be composed of waste from the crust layer and the convective layer.

Core samples from segments 6, 8, 17, 19, and 21 of core 132; and segments 18, 20, and 22 of core 139 were collected for the retained gas sampling project.

Table B2-2. Tank 241-AW-101 Subsampling Scheme and Sample Description.[1] (3 sheets)

Segment	Solid (g)	Liquid (g)	Sample Portion	Sample Characteristics
Core 132				
1	223.4	0	Upper half	Dark brown wet sludge
	71.4	0	Lower half	Dark brown wet sludge
2	213.0	0	Upper half	Dark brown wet sludge
	62.8	0	Lower half	Dark brown wet sludge
	0	59.0	Drainable liquid	
3	45.2		Upper half	White salt slurry
		380.4	Drainable liquid	Pale yellow liquid
4	40.2	0	Upper half	White salt slurry
		351.4	Drainable liquid	yellow/brown clear liquid
5	53.8	0	Upper half	White salt slurry
		364.8	Drainable liquid	yellow/brown opaque liquid
7R	35.5	0	Upper half	White salt slurry
	0	365.4	Drainable liquid	Yellow opaque liquid
9	40.8	0	Upper half	White salt slurry
	0	401.6	Drainable liquid	Yellow/brown opaque liquid
10	37.9	0	Upper half	White salt slurry
	0	354.3	Drainable liquid	Pale yellow opaque liquid
11	41.5	0	Upper half	White salt slurry
	0	354.2	Drainable liquid	Yellow opaque liquid
12	31.3	0	Upper half	White salt slurry
	0	355.3	Drainable liquid	Yellow opaque liquid
13	30.4	0	Upper half	Pale yellow salt slurry
	0	377.4	Drainable liquid	Yellow clear liquid
14	53.8	0	Upper half	White salt slurry
	0	373.7	Drainable liquid	Yellow opaque liquid
15	41.8	0	Lower half	White salt slurry
	0	368.2	Drainable liquid	Yellow opaque liquid
16	52.2	0	Upper half	White salt slurry
	0	359.9	Drainable liquid	Yellow opaque liquid
18	210.9	0	Upper half	Dark gray wet sludge
	201.5	0	Lower half	Dark gray wet sludge

Table B2-2. Tank 241-AW-101 Subsampling Scheme and Sample Description.[1] (3 sheets)

Segment	Solid (g)	Liquid (g)	Sample Portion	Sample Characteristics
Core 132 (Cont'd)				
20	138.9	0	Upper half	Dark gray wet sludge
	194.3	0	Lower half	Dark gray wet sludge
	89.7	0	Subsample	Dark gray wet sludge
22	216.4	0	Upper half	Dark gray wet sludge
	125.9	0	Lower half	Dark gray wet sludge
	64.4	0	Subsample	Dark gray wet sludge
Core 139				
1	106.6	0	Upper half	Dark gray wet sludge
2	51.5	0	Quarter A	Brown wet sludge (to Pacific Northwest National Laboratory)
	35.9	0	Quarter B	Brown wet sludge
	41.1	0	Quarter C	White salt slurry
	4.7	0	Quarter D	White salt slurry
	0	152.6	Drainable liquid	Brown opaque liquid
3	21.7	0	Upper half	White salt slurry
	0	364.9	Drainable liquid	Yellow opaque liquid
4	29.0	0	Upper half	White salt slurry
	0	377.7	Drainable liquid	Yellow opaque liquid
5	31.4	0	Upper half	White salt slurry
	0	384.5	Drainable liquid	Yellow opaque liquid
6	31.4	0	Upper half	White/gray salt slurry
	0	375.1	Drainable liquid	Yellow clear liquid
7	37.9	0	Upper half	White salt slurry
	0	356.4	Drainable liquid	Yellow clear liquid
8	27.0	0	Upper half	White salt slurry
	0	367.2	Drainable liquid	Yellow clear liquid
9	34.1	0	Upper half	White salt slurry
	0	354.4	Drainable liquid	Yellow clear liquid
10	28.3	0	Upper half	White salt slurry
	0	359.1	Drainable liquid	Yellow clear liquid
11	24.3	0	Upper half	White salt slurry
	0	367.7	Drainable liquid	Yellow clear liquid

Table B2-2. Tank 241-AW-101 Subsampling Scheme and Sample Description.[1] (3 sheets)

Segment	Solid (g)	Liquid (g)	Sample Portion	Sample Characteristics
Core 139 (Cont'd)				
12	20.4	0	Upper half	White salt slurry
	0	160.6	Drainable liquid	Yellow clear liquid
13	25.9	0	Upper half	White salt slurry
	0	369.4	Drainable liquid	Yellow clear liquid
14	26.8	0	Upper half	White salt slurry
	0	369.1	Drainable liquid	Yellow clear liquid
15	34.7	0	Upper half	White salt slurry
	0	370.4	Drainable liquid	Yellow clear liquid
16R	18.9	0	Lower half	White salt slurry
	0	371.8	Drainable liquid	Yellow clear liquid
16R1	20.8	0	Lower half	White salt slurry
	0	374.3	Drainable liquid	Yellow opaque liquid
16R2	40.6	0	Upper half	White salt slurry
	0	365.3	Drainable liquid	Yellow clear liquid
17R	117.5	0	Upper half	Dark gray salt slurry
	91.2	0	Lower half	Dark gray salt slurry
	0	156.6	Drainable liquid	Dark gray opaque liquid
19	167.9	0	Upper half	Gray/black wet salt
	166.6	0	Lower half	Gray/black wet salt
	103.8	0	Pacific Northwest National Laboratory	Gray/black wet salt
21	175.7	0	Upper half	Dark gray wet salt
	154.0	0	Lower half	Dark gray wet salt
	99.6	0	Pacific Northwest National Laboratory	Dark gray wet salt

Note:

[1]Benar (1998)

B2.1.2 Sample Analysis (1996)

The analyses performed on subsegment samples were limited to those required by the safety screening DQO. These analyses included analyses for thermal properties by DSC, moisture content by thermogravimetric analysis (TGA), and content of fissile material by total alpha activity analysis. The flammable gas DQO required analyses on the composite core samples from each layer of waste.

Quality control tests included performing the analyses in duplicate and using standards.

Total alpha activity measurements were performed on samples that had been fused in a solution of potassium hydroxide, then dissolved in acid. The resulting solution was dried on a counting planchet and counted in an alpha proportional counter. Quality control tests included standards, spikes, blanks, and duplicate analyses.

Ion chromatography was performed on samples that had been prepared by water digestion. Quality control tests included standards, spikes, blanks, and duplicate analyses. Benar (1998) required measuring the full suite of IC analytes.

Inductively coupled plasma spectrometry was performed on samples that had been prepared by an acid digestion procedure. Quality control tests included standards, blanks, spikes, and duplicate analyses. Benar (1998) required analyzing the full suite of ICP elements for stratum composite samples.

All reported analyses were performed according to approved laboratory procedures (see Table B2-3). Table B2-4 summarizes sample portions, sample numbers, and the analyses performed on each sample.

Table B2-3. Analytical Procedures.[1] (2 sheets)

Analysis	Method	Procedure Number
Energetics	Differential scanning calorimetry	LA-514-113, Rev. C-1 LA-514-114, Rev. C-1
Percent water	Thermogravimetric analyses	LA-560-112, Revs. B-1, C-1 LA-514-114, Rev. C-1
Total alpha activity	Alpha proportional counter	LA-508-101, Rev. D-2
Flammable gas	Combustible gas analyzer	WHC-IP-0030 IH 1.4 and IH-2.1[2]
TOC/TIC	Coulometer	LA-342-100, Rev. C-0
Metals by ICP/AES	Inductively coupled plasma spectrometer	LA-505-151, Rev. D-3 LA-505-161, Revs. B-0, B-1
Anions by IC	Ion chromatograph	LA-533-105, Rev. D-1

Table B2-3. Analytical Procedures.[1] (2 sheets)

Analysis	Method	Procedure Number
Radionuclides	Gamma energy analysis	LA-548-121, Rev. E-0
Uranium	Kinetic phosphorescence	LA-925-009, Rev. A-1
^{90}Sr	Beta proportional counter	LA-220-101, Rev. D-1
Total beta activity	Beta proportional counter	LA-508-101, Rev. D-2
$^{243/244}Cm$ and ^{241}Am	Atomic emission spectroscopy	LA-953-103, Rev. B-0
$^{239/240}Pu$	Pu	LA-943-128, Rev. B-0
^{99}Tc	^{99}Tc	LA-438-101, Rev. D-2
Specific gravity	Direct	LA-510-112, Rev. C-3
Bulk density	Gravimetry	LO-160-103, Rev. B-0

Notes:

AES = Atomic emission spectroscopy

[1]Benar (1998)

[2]Safety Department Administrative Manuals, Westinghouse Hanford Company, Richland, Washington:
IH 1.4, Industrial Hygiene Direct Reading Instrument Survey
IH 2.1, Standard Operating Procedure, MSA Model 260 Combustible Gas and Oxygen Analyzer

Table B2-4. Tank 241-AW-101 Sample Analysis Summary.[1] (10 sheets)

Riser	Sample ID	Sample Portion	Sample Number	Analyses
24A	Segment 1	Upper half	S96T000800	DSC, TGA
			S96T002266	ICP
			S96T000802	IC
		Lower half	S96T000792	Bulk density
			S96T000794	DSC, TGA
			S96T000795	Total alpha
			S96T002265 S96T000796	ICP
			S96T000797	IC
	Segment 2	Upper half	S96T000815	DSC, TGA
			S96T002268 S96T000816	ICP
			S96T000817	IC

Table B2-4. Tank 241-AW-101 Sample Analysis Summary.[1] (10 sheets)

Riser	Sample ID	Sample Portion	Sample Number	Analyses
24A (Cont'd)	Segment 2 (Cont'd)	Lower half	S96T000807	Bulk density
			S96T000809	DSC, TGA
			S96T000810	Total alpha
			S96T002267 S96T000811	ICP
			S96T000812	IC
		Drainable liquid	S96T000806	DSC, TGA, ICP, IC, TOC*
	Segment 3	Upper half	S96T000824	DSC, TGA
			S96T004492 S96T002269 S96T000825	ICP
			S96T000852	Total alpha
			S96T000826	IC
		Drainable liquid	S96T000821	DSC, TGA, ICP, IC, TOC
	Segment 4	Upper half	S96T000833	DSC, TGA
			S96T000834 S96T004493 S96T002271	ICP
			S96T000853	Total alpha
			S96T000835	IC
		Drainable liquid	S96T000830	DSC, TGA, ICP, IC, TOC, specific gravity
	Segment 5	Upper half	S96T000846	Bulk density
			S96T000848	DSC, TGA
			S96T000849 S96T004494 S96T002272	ICP
			S96T000850	Total alpha
			S96T000851	IC
		Drainable liquid	S96T000845	DSC, TGA, ICP, IC, TOC, specific gravity

Table B2-4. Tank 241-AW-101 Sample Analysis Summary.[1] (10 sheets)

Riser	Sample ID	Sample Portion	Sample Number	Analyses
24B (Cont'd)	Segment 7R	Upper half	S96T002151	DSC, TGA
			S96T002152	Total alpha
			S96T004495 S96T002153	ICP
			S96T002154	IC
		Drainable liquid	S96T002146	DSC, TGA, ICP, IC, total alpha, specific gravity
	Segment 9	Upper half	S96T001749	DSC, TGA
			S96T001750	Total alpha
			S96T001751	ICP
			S96T001752	IC
		Drainable liquid	S96T001747	DSC, TGA, ICP, IC, total alpha, specific gravity
	Segment 10	Upper half	S96T001753	Bulk density
			S96T001754	DSC, TGA
			S96T001755	Total alpha
			S96T001756	ICP
			S96T001757	IC
		Drainable liquid	S96T001764	DSC, TGA, ICP, IC, total alpha, specific gravity
	Segment 11	Upper half	S96T001770	DSC, TGA
			S96T001771	Total alpha
			S96T001772	ICP
			S96T001773	IC
		Drainable liquid	S96T001768	DSC, TGA, ICP, IC, total alpha, specific gravity
	Segment 12	Upper half	S96T001942	DSC, TGA
			S96T001951	Total alpha
			S96T001952	ICP
			S96T001955	IC
		Drainable liquid	S96T001950	DSC, TGA, ICP, IC, total alpha, specific gravity

Table B2-4. Tank 241-AW-101 Sample Analysis Summary.[1] (10 sheets)

Riser	Sample ID	Sample Portion	Sample Number	Analyses
24A (Cont'd)	Segment 13	Upper half	S96T002030	DSC, TGA
			S96T002031	Total alpha
			S96T002032	ICP
			S96T002033	IC
		Drainable liquid	S96T002028	DSC, TGA, ICP, IC, specific gravity, total alpha
	Segment 14	Upper half	S96T001945	DSC, TGA
			S96T001961	Total alpha
			S96T001962	ICP
			S96T001963	IC
		Drainable liquid	S96T001960	DSC, TGA, ICP, IC, total alpha, specific gravity
	Segment 15	Lower half	S96T001947	DSC, TGA
			S96T001965	Total alpha
			S96T001966	ICP
			S96T001967	IC
		Drainable liquid	S96T001964	DSC, TGA, ICP, IC, total alpha, specific gravity
	Segment 16	Upper half	S96T001932	Bulk density
			S96T001949	DSC, TGA
			S96T001969	Total alpha
			S96T001970	ICP
			S96T001971	IC
		Lower half	S96T001931	DSC, TGA
		Drainable liquid	S96T001968	DSC, TGA, ICP, IC total alpha, specific gravity
	Segment 18	Upper half	S96T001933	Bulk density
			S96T001972	DSC, TGA
			S96T001974	ICP
			S96T001975	IC
		Lower half	S96T001934	Bulk density
			S96T001976	DSC, TGA
			S96T001977	Total alpha
			S96T001978	ICP
			S96T001979	IC

Table B2-4. Tank 241-AW-101 Sample Analysis Summary.[1] (10 sheets)

Riser	Sample ID	Sample Portion	Sample Number	Analyses
24A (Cont'd)	Segment 20	Upper half	S96T001935	Bulk density
			S96T001980	DSC, TGA
			S96T001981	ICP
			S96T001982	IC
		Lower half	S96T001937	Bulk density
			S96T001983	DSC, TGA
			S96T001984	Total alpha
			S96T001985	ICP
			S96T001986	IC
	Segment 22	Upper half	S96T001938	Bulk density
			S96T001987	DSC, TGA
			S96T001988	ICP
			S96T001989	IC
		Lower half	S96T001940	Bulk density
			S96T001990	DSC, TGA
			S96T001991	Total alpha
			S96T001992	ICP
			S96T001993	IC
	Stratum composite	Crust	S96T002732	DSC, TGA, TOC, TIC, Cr IV
		Filtered Solid from SU	S96T002741	
		Sludge	S96T002749	
		Crust	S96T002729	Bulk density
		Filtered Solid from SU	S96T002740	
		Sludge	S96T002747	
		Crust	S96T002739	IC
		Filtered Solid from SU	S96T002744	
		Sludge	S96T002752	

Table B2-4. Tank 241-AW-101 Sample Analysis Summary.[1] (10 sheets)

Riser	Sample ID	Sample Portion	Sample Number	Analyses
24A (Cont'd)	Stratum composite (Cont'd)	Crust	S96T002738	ICP
		Filtered Solid from SU	S96T002743	
		Sludge	S96T002751	
		Crust	S96T002734	U, GEA, alpha, beta, $^{89/90}$Sr, $^{239/240}$Pu, AEA, ^{99}Tc
		Filtered Solid from SU	S96T002742	
		Sludge	S96T002750	
		Filtered SU	S96T002767	DSC, TGA, TOC, TIC, Cr IV, specific gravity, IC, ICP, U, GEA, alpha, beta, $^{89/90}$Sr, $^{239/240}$Pu, AEA, ^{99}Tc, tritium
24B	Segment 1	Upper half	S96T002415	Bulk density
			S96T002416	DSC, TGA
			S96T002417	Total alpha
			S96T004496 S96T002418	ICP
			S96T002419	IC
	Segment 2	Quarter B	S96T002529	DSC, TGA
			S96T004497 S96T002530	ICP
			S96T002531	IC
		Quarter C	S96T002532	Bulk density
			S96T002533	DSC, TGA
			S96T002534	Total alpha
			S96T004498 S96T002535	ICP
			S96T002536	IC
		Quarter D	S96T002537	DSC, TGA
			S96T004499 S96T002538	ICP
			S96T002539	IC
		Drainable liquid	S96T002527	DSC, TGA, ICP, IC, total alpha, specific gravity

Table B2-4. Tank 241-AW-101 Sample Analysis Summary.[1] (10 sheets)

Riser	Sample ID	Sample Portion	Sample Number	Analyses
24B (Cont'd)	Segment 3	Upper half	S96T002560	DSC, TGA
			S96T002561	Total alpha
			S96T004500 S96T002571	ICP
			S96T002572	IC
		Drainable liquid	S96T002558	DSC, TGA, ICP, IC, total alpha, specific gravity
	Segment 4	Upper half	S96T002578	DSC, TGA
			S96T002579	Total alpha
			S96T004501 S96T002580	ICP
			S96T002581	IC
		Drainable liquid	S96T002575	DSC, TGA, ICP, IC, total alpha, specific gravity
	Segment 5	Upper half	S96T002594	Bulk density
			S96T002595	DSC, TGA
			S96T002596	Total alpha
			S96T002597	ICP
			S96T002598	IC
		Drainable liquid	S96T002584	DSC, TGA, ICP, IC, total alpha, specific gravity
	Segment 6	Upper half	S96T002424	DSC, TGA
			S96T002425	Total alpha
			S96T002426	ICP
			S96T002427	IC
		Drainable liquid	S96T002422	DSC, TGA, ICP, IC, total alpha, specific gravity
	Segment 7	Upper half	S96T002432	DSC, TGA, TOC, TIC
			S96T002433	Total alpha
			S96T002434	ICP
			S96T002435	IC
			S96T004514	Reactive system screening tool
		Drainable liquid	S96T002430	DSC, TGA, ICP, IC, total alpha, specific gravity

Table B2-4. Tank 241-AW-101 Sample Analysis Summary.[1] (10 sheets)

Riser	Sample ID	Sample Portion	Sample Number	Analyses
24B (Cont'd)	Segment 8	Upper half	S96T002441	DSC, TGA
			S96T002442	Total alpha
			S96T002450	ICP
			S96T002451	IC
		Drainable	S96T002439	DSC, TGA, ICP, IC, total alpha, specific gravity
	Segment 9	Upper half	S96T002456	DSC, TGA
			S96T002457	Total alpha
			S96T002458	ICP
			S96T002459	IC
		Drainable liquid	S96T002454	DSC, TGA, ICP, IC, total alpha, specific gravity
	Segment 10	Upper half	S96T002464	DSC, TGA
			S96T002465	Total alpha
			S96T002466	ICP
			S96T002467	IC
		Drainable liquid	S96T002462	DSC, TGA, ICP, IC, total alpha, specific gravity
	Segment 11	Upper half	S96T002681	DSC, TGA
			S96T002682	Total alpha
			S96T004502 S96T002683	ICP
			S96T002684	IC
		Drainable liquid	S96T002679	DSC, TGA, ICP, IC, total alpha, specific gravity
	Segment 12	Upper half	S96T002689	DSC, TGA
			S96T002690	Total alpha
			S96T004503 S96T002691	ICP
			S96T002692	IC
		Drainable liquid	S96T002687	DSC, TGA, ICP, IC, total alpha, specific gravity

Table B2-4. Tank 241-AW-101 Sample Analysis Summary.[1] (10 sheets)

Riser	Sample ID	Sample Portion	Sample Number	Analyses
24B (Cont'd)	Segment 13	Upper half	S96T002697	DSC, TGA
			S96T002698	Total alpha
			S96T004504 S96T002699	ICP
			S96T002700	IC
		Drainable liquid	S96T002695	DSC, TGA, ICP, IC, total alpha, specific gravity
	Segment 14	Upper half	S96T002706	DSC, TGA
			S96T002707	Total alpha
			S96T004505 S96T002708	ICP
			S96T002709	IC
		Drainable liquid	S96T002704	DSC, TGA, ICP, IC, total alpha, specific gravity
	Segment 15	Upper half	S96T002714	DSC, TGA
			S96T002715	Total alpha
			S96T004506 S96T002716	ICP
			S96T002717	IC
		Drainable liquid	S96T002712	DSC, TGA, ICP, IC, total alpha, specific gravity
	Segment 16R	Lower half	S96T003238	DSC, TGA
			S96T003239	Total alpha
			S96T003240	ICP
			S96T003241	IC
		Drainable liquid	S96T003236	DSC, TGA, ICP, IC, total alpha, specific gravity
	Segment 16R1	Lower half	S96T003519	DSC, TGA
			S96T003520	Total alpha
			S96T003521	ICP
			S96T003522	IC
	Segment 16R2	Upper half	S96T003532	Bulk density
			S96T003533	DSC, TGA
			S96T003534	Total alpha
			S96T003536	ICP
			S96T003539	IC

Table B2-4. Tank 241-AW-101 Sample Analysis Summary.[1] (10 sheets)

Riser	Sample ID	Sample Portion	Sample Number	Analyses
24B (Cont'd)	Segment 17R	Lower half	S96T003552	Bulk density
			S96T003555	DSC, TGA
			S96T003556	Total alpha
			S96T003557	ICP
			S96T003560	IC
		Upper half	S96T003549	DSC, TGA
			S96T003550	ICP
			S96T003551	IC
		Drainable liquid	S96T003545	DSC, TGA, ICP, IC, total alpha, specific gravity
	Segment 19	Upper half	S96T003571	DSC, TGA
			S96T004508 S96T003572	ICP
			S96T003573	IC
		Lower half	S96T003561	Bulk density
			S96T003564	DSC, TGA
			S96T003565	Total alpha
			S96T004507 S96T003566	ICP
			S96T003567	IC
	Segment 21	Upper half	S96T003585	DSC, TGA, TIC, TOC
			S96T004510 S96T003586	ICP
			S96T003587	IC
		Lower half	S96T003575	Bulk density
			S96T003578	DSC, TGA
			S96T003579	Total alpha
			S96T004509 S96T003580	ICP
			S96T003581	IC

Note:

[1]Benar (1998)

B2.1.3 Analytical Results

This section summarizes the sampling and analytical results associated with the 1996 sampling and analysis of tank 241-AW-101. Table B2-5 is an index to analytical data tables for this tank. The analytical results are documented in Benar (1998).

Table B2-5. Analytical Tables.

Analysis	Table Number
Summary data for metals by ICP	B2-9 to B2-45
Uranium	B2-46 and 47
Anion by IC	B2-48 to B2-55
Bulk density	B2-56
Differential scanning calorimetry	B2-57
Percent water	B2-58
Specific gravity	B2-59
^{241}Am and $^{243/244}$Cm (AEA)	B2-60 and B2-61
Total alpha	B2-62
Total beta	B2-63
^{241}Am	B2-64
$^{243/244}$Cm	B2-65
Gamma energy analysis (GEA)	B2-66 to B2-70
^{129}I	B2-71
$^{239/240}$Pu (AEA)	B2-72
Tritium	B2-73
$^{89/90}$Sr	B2-74
^{99}Tc	B2-75
Hexavalent chromium (Cr +6)	B2-76
Total inorganic carbon	B2-77
Total organic carbon	B2-78

Note:
AEA = Alpha energy analysis.

The four quality control (QC) parameters assessed in conjunction with tank 241-AW-101 samples were standard recoveries, spike recoveries, duplicate analyses (relative percent

differences [RPDs]), and blanks. Benar (1996) does not give separate spike and standard requirements but gives an "accuracy" requirement which goes from 90 to 110 percent or 80 to 120 percent, depending on the analysis. Relative percent difference precision requirements range from ±10 percent to ±20 percent. The limits for spikes and blanks are set forth in guidelines followed by the laboratory. Sample and duplicate pairs, in which any of the QC parameters were outside QC requirements or laboratory limits, are footnoted in the sample mean column of the following data summary tables with an a, b, c, d, e, or f as follows:

- "a" indicates the standard recovery was below the QC limit
- "b" indicates the standard recovery was above the QC limit
- "c" indicates the spike recovery was below the QC limit
- "d" indicates the spike recovery was above the QC limit
- "e" indicates the RPD was above the QC limit
- "f" indicates blank contamination.

In the analytical tables in this section, the "mean" is the average of the result and duplicate value. All values, including those below the detection level (denoted by " < ") were averaged. If both sample and duplicate values were nondetected or if one value was detected and the other was not, the mean is expressed as a nondetected value. If both values were detected, the mean is expressed as a detected value.

B2.1.3.1 Total Alpha Activity. Analyses for total alpha activity were performed on the samples recovered from tank 241-AW-101. The samples were prepared by fusion digestion. Two fusions were prepared for each sample (for duplicate results). Each fused dilution was analyzed twice, and the results were averaged and reported as one value. The highest result returned was 0.163 μCi/g.

B2.1.3.2 Thermogravimetric Analysis. Thermogravimetric analysis measures the mass of a sample as its temperature is increased at a constant rate. Nitrogen is passed over the sample during heating to remove any released gases. A decrease in the weight of a sample during TGA represents a loss of gaseous matter from the sample, through evaporation or through a reaction that forms gas phase products. The moisture content is estimated by assuming that all TGA sample weight loss up to a certain temperature (typically 150 to 200 °C [300 to 390 °F]) is caused by water evaporation. The temperature limit for moisture loss is chosen by the operator at an inflection point on the TGA plot. Other volatile matter fractions can often be differentiated by inflection points as well.

Thermogravimetric analyses were performed on 48 solid subsegment samples, 3 stratum composites (crust layer, convective layer, nonconvective layer), 29 liquid subsegment samples, 1 field blank, and 1 liquid composite from tank 241-AW-101. Of the 48 solid samples, 6 samples are from the crust layer, 29 samples are from the convective layer, 10 samples are from the nonconvective layer, 3 samples are from transition layers.

The 6 crust layer samples had moisture content values ranging from 40 to 46 weight percent water. Of the 29 convective layer samples analyzed, 2 samples had moisture content values below 17 weight percent water, and the remaining samples had values ranging from 18 to 49 weight percent water. The 10 nonconvective layer samples had moisture content values ranging from 41 to 49 weight percent water, and the 29 liquid samples analyzed had moisture content values ranging from 41 to 50 weight percent water. The 3 solid samples in the transition layers had moisture content values ranging from 44 to 48 weight percent water. The field blank and liquid composite had moisture values of 100 and 50 weight percent water, respectively.

B2.1.3.3 Differential Scanning Calorimetry. In a DSC analysis, heat absorbed or emitted by a substance is measured while the sample is heated at a constant rate. Nitrogen is passed over the sample material to remove any gases being released. The onset temperature for an endothermic or exothermic event is determined graphically.

Differential thermal analyses were performed on 48 solid subsegment samples, 3 stratum composites (crust layer, convective layer, nonconvective layer) and 31 liquid subsamples, which includes 1 field blank and 1 composite from tank 241-AW-101. Of the 48 solid samples, 6 samples are from the crust layer, 29 samples are from the convective layer, 10 samples are from the nonconvective layer, and 3 samples are from the transition layers. Twenty nine liquid samples, 1 field blank, and 1 liquid composite sample were analyzed for DSC.

Most of the analyzed samples fell below the safety screening notification limit of 480 J/g (dry weight basis) specified in Dukelow et al. 1995. The DSC limit was exceeded by solid samples from segments 7 and 21, core 139, which are from the convective layer and nonconvective layer, respectively. Both samples have moisture content values exceeding 17 weight percent water. In addition, 7 solid samples and 5 liquid samples exceeded the notification limit with the upper limit to the one-sided 95 percent confidence intervals. All samples are from the convective layer except for the solid sample from the transition layer between the convective layer and the nonconvective layer.

B2.1.3.4 Inductively Coupled Plasma. Inductively coupled plasma analysis for a suite of cations was performed on all solid and liquid samples, as well as on core composite samples. Each solid sample and core composite sample was prepared using an acid digest procedure. Specific cations requested for the flammable gas issue included sodium, aluminum, chromium, calcium, iron, potassium, nickel, zinc, zirconium, barium, silicon, boron, bismuth, lithium, manganese, and uranium.

The safety screening DQO requires the analysis of lithium to determine whether there has been contamination of the waste by the hydrostatic head fluid.

Lithium levels ranged from less than detectable to 96 μg/g indicating that hydrostatic head fluid contaimination was negligible.

B2.1.3.5 Ion Chromatography. Ion chromatography analysis for bromide was performed on each solid and liquid subsegment as directed by Dukelow et al. (1995). A full suite of IC analyses was performed on each core composite sample. The bromide analysis was performed to determine whether there was any hydrostatic head fluid contamination from the core sampling process. According to Benar (1996), only one spike per batch was required. Bromide was detected in two solid samples and five liquid samples. Bromide results indicated that hydrostatic head fluid intrusion was negligible.

B2.1.3.6 Strontium 89/90. Core composites were analyzed for ^{90}Sr. Results ranged from 0.222 to 52.4 μg/g.

B2.1.3.7 Gamma Energy Analysis. Core composites were analyzed for ^{137}Cs, ^{60}Co, ^{241}Am, and ^{154}Eu. The ^{137}Cs results were 2.7E+02 μCi/g in the crust and bottom sludge layer and 2.8E+02 μCi/g in the solid portion of the supernatant. The liquid composite result was 4.7E+02 μCi/g. The ^{241}Am results were less than the detection limits in the solids composite from the supernatant and 4.3E-02 μCi/g and 4.8E-02 μCi/g for the crust and bottom sludge layers, respectively. The liquid composite result was 2.8E-04 μCi/g. The ^{60}Co results and the ^{154}Eu results were all less than the detection limits.

B2.1.3.8 Total Beta Activity. The total beta analysis was performed on the core composites. The results were 3.3E+02 μCi/g on the crust composite, 2.7E+02 μCi/g on the solids composite from the supernatant, 3.7E+02 μCi/g from the bottom sludge layer composite, and 3.8E+02 μCi/g from the liquid composite.

B2.1.3.9 Specific Gravity and Bulk Density. Measurements for bulk density and specific gravity were performed on solid and liquid samples. Bulk density values on the crust samples, solid supernatant samples, and sludge samples ranged from 1.6 g/mL to 1.8 g/mL. The liquid specific gravity results ranged from 1.4 to 1.6.

B2.1.3.10 Total Organic Carbon. The TOC analysis was performed on samples exceeding the DSC notification limit of 480 J/g and on layer composite samples. The results for samples exceeding the DSC limit were 1.44E+03 μg/g and 5.15E+03 μg/g. The TOC results for composite samples ranged from 2.4E+03 μg/g to 4.9E+03 μg/g.

B2.1.3.11 Total Uranium. The total uranium analysis was performed on the layer composite samples. The result of the supernatant solids composite was 8.20E+01 μg/g and the supernatant liquid composite was 2.40E+02 μg/g. The crust composite was 1.20E+03 μg/g, and the sludge composite was 1.60E+03 μg/g.

B2.1.3.12 Adiabatic Calorimetry, Adiabatic calorimetry was performed as a reactive system screening tool (RSST) on solid samples from core 139 segment levels 7 and 21. The samples did not reveal significant self-heating (Benar 1998).

B2.2 1996 GRAB SAMPLES FOR PRIVATIZATION ENVELOPE A

Forty-five grab samples of supernatant taken from tank 241-AW-101 were received at the 222-S Laboratory, composited, subsampled, and analyzed in accordance with the *Grab Sampling and Analysis Plan for Tanks 241-AN-107 and 241-AW-101in Support of the Privatization Request for Proposals* (Baldwin 1997), the 222-S Laboratory test plan *Preparation of Privatization Samples for Envelopes "A" and "C"* (Winters 1996), and *Letter of Instruction (LOI) for TWRS Privatization Contractor Samples* (Jones 1996). A summary of the sampling, compositing, and analysis of this sampling event can be found in the final analytical report titled *Tank Waste Remediation System (TWRS) Privatization Contractor Samples Low-Activity Waste Envelope "A" Tank 241-AW-101* (Hardy 1998). This sampling event was performed in support of the TWRS privatization project and assesses the quality of the data relative to the project objectives and analytical methods used.

The grab samples were received from tank 241-AW-101 between June 25, 1996, and June 28, 1996. All samples were taken from riser 13A at a sample elevation of 247 in. Sample elevation is measured from the tank bottom to the mouth of the sample bottle. At ambient temperatures (less than 35 °C [95 °F]), there was an average of approximately 19.5 percent settled solids by volume. Light-colored settled solids were predominant and appeared to be precipitated salts. These salts appeared to redissolve as the sample material was heated. In addition, there were darker flocculent solids that did not appear to dissolve appreciably by heating.

B2.3 1995 AUGER SAMPLING EVENT

In January 1995, three auger samples were taken from Tank 241-AW-101 in accordance with the tank characterization plan (Sathyanarayana 1994). This characterization effort was focused on the resolution of the crust burn flammable gas safety issue. Flammable gas generation, retention, and release is a top priority waste tank safety issue at the Hanford Site. To resolve these issues, tank characterization including intrusive tank sampling (such as core sampling) was necessary. Before core sampling could occur, the potential for secondary ignition of organic nitrate-nitrite mixtures in the crust layer, caused by friction during core sampling, needs to be assessed.

On January 25 to 27, 1995, three auger samples were taken from tank 241-AW-101 using 10-in. augers. Eight inches of sample were expected to be recovered from each auger (Sathyanarayana 1994). The samples were taken from widely spaced risers: risers 12A, 13A, and 24B. Risers 12A and 24B are 30 cm (12 in.) in diameter; while riser 13A is 10 cm (4 in.) in diameter.

Waste tank sample engineering personnel did not take a field/trip blank for this sampling event because the data obtained from these analyses are not being used to make decisions regarding treatment or disposal of waste.

B2.3.1 Sample Handling (1995)

The samples were received at the 222-S Laboratory on January 27, 1995, and extrusion took place on February 7 and 8, 1995, in accordance with the tank characterization plan (Sathyanarayana 1994). After extrusion, the material was sampled from specific flutes of each auger. Additionally, a composite sample was assembled from the material obtained from riser 13A. Waste from each auger was also composited to establish archive samples.

B2.3.2 Sample Analysis (1995)

All three auger samples were analyzed in accordance with the general sampling and analysis scheme, which assumed that an adequate sample (including a dry crust layer) existed to perform all analyses.

Because the net exothermic energy was significantly below the modification limit of 586 J/g (140 cal/g), reactive system screening tool - adiabatic calorimetry and radiochemical analyses were not required, and the crust burn issue was closed.

Table B2-6 shows the sample results for TIC and TOC analyses (Esch 1995). There were no notification limits. All results met the accuracy criteria set for this sampling scheme except for one sample, which was slightly outside of the 20 percent precision range. No rerun was ordered because of the heterogenous nature of these samples. All results were well below the notification limit of 30,000 μg/g.

B2.4 1990 GRAB SAMPLING EVENT

In June 1990, 12 grab samples were taken to characterize the supernatant portion of the tank waste in support of the Hanford Grout Disposal Program. The 12 sample locations were selected for tank 241-AW-101 using a randomized sampling plan. Three of eight available risers were selected using a random number generator. Sampling elevation was randomly selected from four horizontal sections. (The horizontal sections were determined by dividing the liquid height of the tank by 4.) The decision to choose three risers only (16C, 10A, and 22A) was made to keep radiological exposures as low as reasonably achievable.

Twelve 100-mL samples were collected on June 28, 1990, using the "bottle on a string" technique (now referred to as grab sampling). Samples were obtained by opening a riser and lowering a weighted glass bottle to the desired depth below the surface of the liquid. Because of the radioactivity of the samples, they were not preserved with nitric acid in the field. The only problem encountered during the sampling was getting the bottles through the crust.

Table B2-6. Tank 241-AW-101 Analytical Data for 1995 Crust Sample: Total Organic Carbon.

Analyte	Sample number	Sample identification	Result
		Material and location	μg/g
PS/Coul.TOC	S95T000106	Composite	6,520
	S95T000107	Material from upper half of auger	4,840
	S95T000111	Material from lower half of auger	7,140
	S95T000114	Material from lower half of auger	11,800
A/Coul.TIC	S95T000106	Composite	8,400
	S95T000107	Material from upper lower half of auger	8,640
	S95T000111	Material from lower half of auger	4,840
	S95T000114	Material from lower half of auger	3,100

Note:

μg/g = microgram/gram.

B2.4.1 Sample Handling (1990)

The twelve supernatant samples were received by the 222-S Analytical Chemistry on June 28, 1990. Subsamples of each waste sample were submitted to the 222-S Laboratory for analysis on July 17, 1990. Each of the 12 samples was stirred with a magnetic stir bar and heated to 40 °C (104 °F). Subsamples were formed by pipetting the required amount of material into a vial. A composite sample also was prepared to determine the average waste composition and to test analytical procedures for making grout in the hot cell. Two water blanks also were submitted to the laboratory for analysis.

The samples were analyzed for chemical and radiochemical constituents and for density and percent water. An analysis for phosphorus by ICP was requested but not completed because of instrument failure. Three additional analytes (carbonate, hydroxide, and mercury) were added to the list of requested analyses. In general, the 12 sample analytical results indicated that tank 241-AW-101 contents were homogenous (Welsh 1991).

A composite sample was prepared on February 4, 1991, by combining equal volumes of each of the 12 samples. The procedure called for each sample to be stirred with a magnetic stir bar and heated to 40 °C (104 °F). Aliquots of 40-mL samples (in 10 mL increments) were pipeted from each sample and transferred to a 1-L Erlenmeyer flask. Eight subsamples made from different dilutions of the composite sample were submitted to the laboratory for analysis on March 4, 1991. Dilutions were determined by the analysis requested. Nitrite analysis was performed by two methods: spectrophotometric and IC.

The composite samples were analyzed for chemical and radiochemical constituents and for density. Additionally, volatile and semivolatile organic analyses were performed on a composite sample after it was discovered the TOC in the tank exceeded 2 g/mL. The organic analyses were performed according to *Resource Conservation and Recovery Act of 1976* protocol with the following exceptions: sample radioactivity did not allow for the required preparation and preservation, and sample bottles could not be confirmed for zero headspace; refrigeration of the sample was not possible, and because of hot cell handling requirements, holding times were exceeded. These deviations were not expected to have had a serious impact on the sample results because of the waste history.

B2.4.2 Analytical Results (1990)

This section summarizes the sampling and analytical results associated with the 1990 sampling and analysis of tank 241-AW-101. Table B2-7 shows the 1990 grab sample analytical data summary.

Table B2-7. 1990 Grab Sample Analytical Data Summary for Tank 241-AW-101.[1] (3 sheets)

Analyte	Mean	Standard Deviation of the Data	Calculated Mean	Projected Inventory
Metal	***M***	***M***	**μg/mL**	**kg**
ICP.Al	1.033	0.0350	27,900	1.10E+05
AAS.As	<1.33E-07	--	<0.00996	<0.0392
ICP.Ba	<6.80E-05	--	<9.32	<36.7
ICP.Bi	<5.79E-04	--	<121	<476
ICP.Cd	<1.08E-04	--	<12.1	<47.6
ICP.Ca	8.26E-04	7.05E-04	33.1	130
ICP.Cr	0.00309	0.00143	161	632
ICP.Cu	<3.81E-04	--	24.2	95.3
ICP.Fe	<7.86E-04	--	<43.9	<173
ICP.Pb	<0.00146	--	<302	<1,190
ICP.Mg	0.00216	0.00205	52.4	206
ICP.Mn	4.76E-04	6.54E-04	26.1	103
ICP.Hg	<0.157 mg/L	--	<0.157	<0.617
ICP.Mo	6.00E-04	4.04E-05	57.5	226
ICP.K	1.07	0.201	41,800	1.64E+05

Table B2-7. 1990 Grab Sample Analytical Data Summary for Tank 241-AW-101.[1] (3 sheets)

Analyte	Mean	Standard Deviation of the Data	Calculated Mean	Projected Inventory
Metal (Cont'd)	***M***	***M***	**μg/mL**	**kg**
AAS.Se	4.20E-07	1.38E-07	0.0331	0.131
ICP.Si	<0.00436	--	<123	<483
ICP.Ag	<3.09E-04	--	<33.4	<131
ICP.Na	10.0	0.310	2.30E+05	9.06E+05
ICP.Ti	<9.88E-05	--	<4.73	<18.6
LF.U	9.39E-04	1.99E-04	224	880
ICP.Zn	<0.00484	--	<317	<1,250
ICP.Zr	<5.54E-04	--	<50.5	<1,995
Ions	***M***	***M***	**μg/mL**	**kg**
NH_3/NH_4^+	0.0145	0.00212	247	971
CO_3^{2-}	0.205	0.0623	12,300	48,500
IC.Cl^-	0.146	0.0114	5,180	20,400
Dist.CN^-	0.00103	2.83E-05	26.8	105
IC.F^-	<0.00402	--	<76.3	<300
Titra.OH^-	5.07	0.115	86,200	3.40E+05
IC.NO_3^-	3.46	0.119	2.14E+05	8.44E+05
IC.NO_2^-	2.21	0.104	1.02E+05	4.01E+05
Spec.NO_2^-	2.16	0.0560	99,500	3.92E+05
IC.PO_4^{3-}	0.0222	0.0152	2,110	8,300
IC.SO_4^{2-}	0.0107	0.00448	1,030	4,060
Radchem	**μCi/L**	**μCi/L**	**μCi/mL**	**Ci**
AEA.^{241}Am	1.20	0.376	0.00120	4.74
AEA.$^{243/244}$Cm	0.0533	0.00438	5.33E-05	0.210
LSC.^{14}C	0.370	0.0113	3.70E-04	1.47
GEA.^{134}Cs	1,530	49.0	1.53	6,010
GEA.^{137}Cs	5.20E+05	17,400	520	2.05E+06
GEA.^{60}Co	<29.6	--	<0.0296	<117
GEA.^{129}I	0.303	0.0750	3.03E-04	1.19
AEA.^{237}Np	<2.16	--	<0.00216	<8.50

Table B2-7. 1990 Grab Sample Analytical Data Summary for Tank 241-AW-101.[1] (3 sheets)

Analyte	Mean	Standard Deviation of the Data	Calculated Mean	Projected Inventory
Radchem (Cont'd)	**μCi/L**	**μCi/L**	**μCi/mL**	**Ci**
GEA. ^{94}Nb	<68.2	--	<0.0682	<269
AEA. $^{239/240}$Pu	1.15	0.149	0.00115	4.51
GEA. ^{106}Ru/Rh	<3,700	--	<3.70	<14,600
LSC. ^{79}Se	0.480	0.0226	4.80E-04	1.89
BPC. $^{89/90}$Sr	1,090	77.8	1.09	4,270
LSC. ^{99}Tc	152	33.9	0.152	598
LSC. ^{3}H	7.07	0.410	0.00707	27.8
Physical Properties				
Gravity wt% H_2O	43.6% H_2O	1.98%		
Density	1.56 g/mL	0.0240 g/mL		
Carbon	**g/L**	**g/L**	**μg/mL**	**kg**
TOC	2.46	0.0990	2,460	9,690

Note:
[1]Welsh (1991)

B2.5 1987 PUSH MODE CORE SAMPLING EVENT

In February 1987, an analysis of the waste heel in tank 241-AW-101 was requested to assess the level of transuranic contamination. If significant levels of transuranics develop in the supernatant from the waste heel, the supernatant would be rendered unsuitable for use as grout feed material. Classification of the supernatant as tranuranic-contaminated (> 100 nCi/g total transuranic) would increase the cost of disposal.

One core sample, composed of two approximately 48-cm (19-in.) long segments, was obtained from the bottom of the tank in September 1986. The upper segment was approximately two-thirds liquid and one-third solid. The solid was composed of two distinct phases: half was gray "slush;" the other half was brown sludge. The lower segment was a uniform solid dark brown sludge.

The 1987 sampling and analysis of tank 241-AW-101 was conducted under the management of Rockwell Hanford Operations. Information regarding the specific riser from which the core

was obtained, the depths at which the segments were taken, and the percent recovery of each segment was not available. It is also unknown whether hydrostatic head fluid was used during sampling.

B2.5.1 Sample Handling (1987)

The supernate liquid from the first segment was decanted from the solid. The solids from each segment were blended into a homogenous mixture. After the supernate liquid was separated from the solid fraction in the upper segment, solids precipitated in the liquid portion. To prepare the liquid for analysis, the sample was gently warmed and mixed with 50 percent deionized water to redissolve the solids. No further precipitation occurred. Preparation of the solid portions for analysis involved dissolving the sample with aqua regia/hydrofluoric acid at elevated temperature and pressure. Two dissolutions were made on portions of the upper segment composite and one on the lower segment composite.

During the preparation of the dissolutions, the majority of solids readily dissolved in the reagent before the bomb (bomb calorimeter) was sealed and heated. An additional dissolution was performed on an upper segment fraction using a *5M* HCl solution, which served as a check on the initial dissolution procedure.

B2.5.2 Sample Analysis (1987)

The prepared solutions were submitted to the 222-S Laboratory for analysis of the following constituents: plutonium, americium, neptunium, uranium, and gamma activity. Based on these data, the supernatant associated with the heel in tank 241-AW-101 is most likely not transuranic. The upper segment results were below the transuranic limit; the lower segment data exceeded the transuranic limit of 100 nCi/g. However, these results are based on a single 2.5-cm (1-in.) diameter core sample from a 23-m (75-ft) diameter tank.

B2.5.3 Analytical Results (1987)

This section summarizes the sampling and analytical results associated with the 1987 sampling and analysis of tank 241-AW-101. Table B2-8 shows the analytical results associated with this tank. These results are documented in Weiss (1987).

Table B2-8. 1987 Core Sample Analysis for Tank 241-AW-101.[1]

Analyte	Sample Source			
	Supernatant Composite (nCi/g)	Upper Segment $HCl/HNO_3/HF$ (nCi/g)	Upper Segment HCl Dissolution (nCi/g)	Lower Segment $HCl/HNO_3/HF$ (nCi/g)
$^{239/240}Pu$	0.82	14.7	11.5	92.1
^{241}Am	2.2	25.8	18.4	248.5
Np	.0002	<0.01	<0.01	<0.01
U	.0058 (g/L)	0.4 (μg/g)	0.4 (μg/g)	0.4 (μg/g)
^{134}Cs[2]	-	2,685	2,830	1,560
^{137}Cs	548,000	341,000	351,000	230,000
$^{106}Ru/Rh$[2]	-	45,800	46,800	-
$^{144}Ce/Pr$[2]	-	-	-	48,500

Notes:

[1]Weiss (1987)

[2]These isotopes have short half-lives and would not be present in significant quantities today.

B2.6 VAPOR PHASE MEASUREMENT

Before the February through May 1996 core sampling of tank 241-AW-101, a tank headspace vapor phase measurement was taken. Additional measurements were made in March 1996. These measurements supported the hazardous vapor safety screening DQO (Dukelow et al. 1995). The vapor phase screening was taken for flammability issues. The vapor phase measurements were taken (6.1 m) 20 ft below riser 24B in the headspace of the tank, and results were obtained in the field (that is, no gas sample was sent to the laboratory for analysis). The results of the headspace measurements are provided in Table B2-9.

Table B2-9. Results of Headspace Measurements of Tank 241-AW-101.

Measurement	Result	
	February 29, 1996	March 21, 1996
Total organic carbon	2.3 ppm	10 ppm
Lower explosive limit	0.0% of lower explosive limit	3.0% of lower explosive limit
Oxygen	20.4%	21.0%
Ammonia	60 ppm	150 ppm

B2.7 1996 PUSH CORE DATA TABLES

This section contains the 1997 core sample tables.

Table B2-10. Tank 241-AW-101 Analytical Results: Aluminum (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: acid digest			µg/g	µg/g	µg/g
S96T000801	132:1	Upper half	15,400	15,100	15,300
S96T002266		Upper half	16,400	11,700	14,100[QC:e]
S96T000796		Lower half	17,200	15,800	16,500
S96T002265		Lower half	17,500	18,400	18,000[QC:c]
S96T000816	132:2	Upper half	15,200	15,100	15,200
S96T002268		Upper half	16,600	15,900	16,300
S96T000811		Lower half	15,400	16,000	15,700
S96T002267		Lower half	16,000	16,800	16,400
S96T000825	132:3	Upper half	18,500	17,200	17,900
S96T004492		Upper half	9,810	14,300	12,100[QC:a,d,e]
S96T000834	132:4	Upper half	17,500	17,500	17,500
S96T004493		Upper half	16,100	16,600	16,400[QC:a]
S96T000849	132:5	Upper half	14,800	14,600	14,700
S96T004494		Upper half	9,370	9,720	9,550[QC:a]
S96T001735	132:7	Upper half	43,600	44,300	44,000
S96T004495	132:7R	Upper half	8,320	13,900	11,100[QC:a,e]
S96T001751	132:9	Upper half	11,500	11,600	11,600
S96T001756	132:10	Upper half	9,790	11,300	10,500
S96T001772	132:11	Upper half	11,700	15,600	13,700[QC:e]
S96T001952	132:12	Upper half	9,480	10,100	9,790[QC:c]
S96T002032	132:13	Upper half	15,200	14,400	14,800
S96T001962	132:14	Upper half	8,770	9,910	9,340
S96T001966	132:15	Lower half	7,870	9,480	8,680

Table B2-10. Tank 241-AW-101 Analytical Results: Aluminum (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: acid digest (Cont'd)			µg/g	µg/g	µg/g
S96T001970	132:16	Upper half	7,880	7,870	7,880
S96T001974	132:18	Upper half	14,800	15,200	15,000
S96T001978		Lower half	15,400	16,100	15,800
S96T001981	132:20	Upper half	14,600	15,700	15,200
S96T001985		Lower half	14,500	15,100	14,800[QC:d]
S96T001988	132:22	Upper half	14,700	16,200	15,500
S96T001992		Lower half	16,900	15,800	16,400
S96T002418	139:1	Upper half	16,600	16,800	16,700[QC:c]
S96T004496		Upper half	17,400	17,200	17,300[QC:a,c]
S96T002530	139:2	Subsegment B	16,700	16,100	16,400
S96T004497		Subsegment B	16,800	17,100	17,000[QC:a]
S96T002535		Subsegment C	17,700	17,700	17,700
S96T004498		Subsegment C	18,100	18,600	18,400[QC:a]
S96T002538		Subsegment D Lower half	9,370	8,990	9,180
S96T004499		Subsegment D Lower half	6,040	5,940	5,990[QC:a]
S96T002571	139:3	Upper half	10,100	9,130	9,620
S96T004500		Upper half	9,580	8,800	9,190[QC:a]
S96T002580	139:4	Upper half	8,710	8,110	8,410
S96T004501		Upper half	8,020	6,450	7,240[QC:c,e]
S96T002597	139:5	Upper half	14,700	7,530	11,100[QC:d,e]
S96T002426	139:6	Upper half	7,460	10,100	8,780[QC:e]
S96T002434	139:7	Upper half	8,320	6,830	7,580
S96T002450	139:8	Upper half	7,020	8,030	7,530
S96T002458	139:9	Upper half	12,500	13,800	13,200
S96T002466	139:10	Upper half	9,330	9,090	9,210
S96T002683	139:11	Upper half	11,100	12,900	12,000[QC:d]
S96T004502		Upper half	8,730	10,400	9,570

Table B2-10. Tank 241-AW-101 Analytical Results: Aluminum (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: acid digest (Cont'd)			**µg/g**	**µg/g**	**µg/g**
S96T002691	139:12	Upper half	7,680	9,670	8,680[QC:e]
S96T004503		Upper half	13,800	8,820	11,300[QC:e]
S96T002699	139:13	Upper half	10,600	9,740	10,200
S96T004504		Upper half	8,420	8,070	8,250
S96T002708	139:14	Upper half	11,100	11,900	11,500
S96T004505		Upper half	16,800	8,530	12,700[QC:e]
S96T002716	139:15	Upper half	11,100	11,800	11,500
S96T004506		Upper half	10,900	8,140	9,520[QC:c,e]
S96T003240	139:16R	Lower half	6,810	8,750	7,780[QC:d,e]
S96T003521	139:16R1	Lower half	8,230	8,650	8,440[QC:d]
S96T003536	139:16R2	Upper half	12,500	12,500	12,500
S96T003550	139:17R	Upper half	17,200	16,900	17,100
S96T003557		Lower half	16,900	17,100	17,000
S96T003572	139:19	Upper half	15,700	15,600	15,700[QC:b]
S96T004508		Upper half	16,500	16,700	16,600
S96T003566		Lower half	16,800	16,200	16,500[QC:b]
S96T004507		Lower half	17,200	16,100	16,700
S96T003586	139:21	Upper half	16,200	16,600	16,400[QC:b]
S96T004510		Upper half	15,600	16,100	15,900
S96T003580		Lower half	16,100	16,000	16,100[QC:b]
S96T004509		Lower half	16,000	15,600	15,800
S96T002738	Core 132	Solid composite	15,700	16,200	16,000[QC:d]
S96T002743		Solid composite	17,500	18,400	18,000
S96T002751		Solid composite	16,100	16,400	16,300
Liquids			**µg/g**	**µg/g**	**µg/g**
S96T001715	132:7	Drainable liquid	27,600	24,600	26,100[QC:c]
S96T002146	132:7R	Drainable liquid	19,900	20,800	20,300[QC:d]
S96T001747	132:9	Drainable liquid	19,600	24,800	22,200[QC:d,e]
S96T001764	132:10	Drainable liquid	19,800	20,800	20,300[QC:c]
S96T001768	132:11	Drainable liquid	19,600	20,800	20,200[QC:d]

Table B2-10. Tank 241-AW-101 Analytical Results: Aluminum (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids (Cont'd)			µg/g	µg/g	µg/g
S96T001950	132:12	Drainable liquid	20,400	18,800	19,600[QC:c]
S96T002028	132:13	Drainable liquid	19,400	19,000	19,200[QC:c]
S96T001944	132:14	Drainable liquid	444	448	446
S96T001960		Drainable liquid	19,600	20,100	19,800[QC:c]
S96T001964	132:15	Drainable liquid	20,000	20,000	20,000
S96T001968	132:16	Drainable liquid	21,000	20,100	20,600[QC:c]
S96T002527	139:2	Drainable liquid	17,800	18,900	18,300[QC:d]
S96T002558	139:3	Drainable liquid	20,400	18,900	19,700[QC:c]
S96T002575	139:4	Drainable liquid	20,000	18,700	19,300[QC:d]
S96T002584	139:5	Drainable liquid	18,500	17,800	18,100[QC:d]
S96T002422	139:6	Drainable liquid	19,300	18,800	19,000[QC:d]
S96T002430	139:7	Drainable liquid	19,000	21,300	20,100[QC:d]
S96T002439	139:8	Drainable liquid	22,200	20,600	21,400[QC:c]
S96T002454	139:9	Drainable liquid	20,600	19,700	20,200[QC:c]
S96T002462	139:10	Drainable liquid	19,800	19,800	19,800
S96T002679	139:11	Drainable liquid	19,400	19,800	19,600[QC:d]
S96T002687	139:12	Drainable liquid	19,600	19,500	19,600[QC:c]
S96T002695	139:13	Drainable liquid	20,300	20,700	20,500[QC:c]
S96T002704	139:14	Drainable liquid	20,100	20,800	20,400[QC:c]
S96T002712	139:15	Drainable liquid	20,300	21,100	20,700[QC:d]
S96T003236	139:16R	Drainable liquid	19,500	19,400	19,400[QC:d]
S96T003545	139:17R	Drainable liquid	18,900	16,700	17,800[QC:d]
S96T002767	Core 132	Liquid composite	19,400	20,700	20,000[QC:d]

Table B2-11. Tank 241-AW-101 Analytical Results: Antimony (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: acid digest			µg/g	µg/g	µg/g
S96T000801	132:1	Upper half	<22.1	<20.4	<21.3
S96T002266		Upper half	<54.4	<54.7	<54.5
S96T000796		Lower half	<25.1	<25.2	<25.1[QC:c]
S96T002265		Lower half	124	124	124
S96T000816	132:2	Upper half	<23.4	<21.7	<22.5
S96T002268		Upper half	85.4	62.4	73.9[QC:e]
S96T000811		Lower half	<24.6	<23.2	<23.9
S96T002267		Lower half	64.1	<55.6	<59.8
S96T000825	132:3	Upper half	<20.6	<22.5	<21.6
S96T004492		Upper half	<24.3	<22.1	<23.2
S96T000834	132:4	Upper half	<22.4	<25.3	<23.9
S96T004493		Upper half	<25	<24.6	<24.8
S96T000849	132:5	Upper half	<20.4	<21.8	<21.1
S96T004494		Upper half	<23.6	<23	<23.3
S96T001735	132:7	Upper half	<26.8	<26.2	<26.5
S96T004495	132:7R	Upper half	<22.7	<21	<21.9
S96T001751	132:9	Upper half	<26.9	<24.5	<25.7
S96T001756	132:10	Upper half	<26.2	<23.4	<24.8
S96T001772	132:11	Upper half	<25.4	<23.6	<24.5
S96T001952	132:12	Upper half	<26.1	<25.5	<25.8
S96T002032	132:13	Upper half	<24.1	<24.2	<24.1
S96T001962	132:14	Upper half	<21.1	<22.5	<21.8[QC:a]
S96T001966	132:15	Lower half	<26.1	<26	<26.1[QC:a]
S96T001970	132:16	Upper half	<26.2	<22.5	<24.4[QC:a]
S96T001974	132:18	Upper half	<24.9	<22.6	<23.8[QC:a]
S96T001978		Lower half	<21.7	<22.9	<22.3[QC:a]

Table B2-11. Tank 241-AW-101 Analytical Results: Antimony (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: acid digest (Cont'd)			µg/g	µg/g	µg/g
S96T001981	132:20	Upper half	<22.7	<22.3	<22.5[QC:a]
S96T001985		Lower half	<58.9	<59.1	<59
S96T001988	132:22	Upper half	<52	<51.8	<51.9
S96T001992		Lower half	<52.5	<52.6	<52.5
S96T002418	139:1	Upper half	<23.1	<21.7	<22.4[QC:c]
S96T004496		Upper half	<21.1	<23.8	<22.5
S96T002530	139:2	Subsegment B	<23.9	<23.1	<23.5
S96T004497		Subsegment B	<24	<23.5	<23.8
S96T002535		Subsegment C	<27.1	<24.3	<25.7
S96T004498		Subsegment C	<22.8	<22.4	<22.6
S96T002538		Subsegment D lower half	<23.3	<23.6	<23.5
S96T004499		Subsegment D lower half	71.7	70.1	70.9
S96T002571	139:3	Upper half	<25.2	<24.8	<25
S96T004500		Upper half	<22.8	<22.8	<22.8
S96T002580	139:4	Upper half	<27.4	<27.8	<27.6
S96T004501		Upper half	<24.4	<24.2	<24.3
S96T002597	139:5	Upper half	<23.2	<24.3	<23.8
S96T002426	139:6	Upper half	<23.1	<23.8	<23.5
S96T002434	139:7	Upper half	<21.1	<22.2	<21.6
S96T002450	139:8	Upper half	<23.3	<24.4	<23.9
S96T002458	139:9	Upper half	<24.2	<22	<23.1
S96T002466	139:10	Upper half	<21.5	<22.3	<21.9
S96T002683	139:11	Upper half	<24.4	<28	<26.2[QC:c]
S96T004502		Upper half	<22.9	<22.2	<22.5
S96T002691	139:12	Upper half	<28.2	<24.7	<26.4
S96T004503		Upper half	<22	<22.8	<22.4
S96T002699	139:13	Upper half	<27.3	<27.7	<27.5
S96T004504		Upper half	<24.3	<24.1	<24.2

Table B2-11. Tank 241-AW-101 Analytical Results: Antimony (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: acid digest (Cont'd)			µg/g	µg/g	µg/g
S96T002708	139:14	Upper half	<29.6	<25.7	<27.6
S96T004505		Upper half	<23.8	<23.6	<23.7
S96T002716	139:15	Upper half	<23.7	<23.1	<23.4
S96T004506		Upper half	<23.7	<23.2	<23.4
S96T003240	139:16R	Lower half	<23.3	<22.4	<22.9
S96T003521	139:16R1	Lower half	<23.5	<22.7	<23.1
S96T003536	139:16R2	Upper half	<20.8	<20.9	<20.9
S96T003550	139:17R	Upper half	<23.7	<23.8	<23.8
S96T003557		Lower half	<23.6	<23.3	<23.5
S96T003572	139:19	Upper half	<28.8	<26.4	<27.6[QC:b]
S96T004508		Upper half	<23.8	<24	<23.9
S96T003566		Lower half	<23	<23.1	<23.1[QC:b,c]
S96T004507		Lower half	<23.4	<24.1	<23.8
S96T003586	139:21	Upper half	<22.1	<20.3	<21.2[QC:b]
S96T004510		Upper half	<24.1	<24.3	<24.2
S96T003580		Lower half	<26.8	<23.6	<25.2[QC:b]
S96T004509		Lower half	<23.8	<23.8	<23.8
S96T002738	Core 132	Solid composite	<23.4	<23.1	<23.3[QC:a]
S96T002743		Solid composite	<23.5	<23.5	<23.5[QC:a]
S96T002751		Solid composite	<23.4	<21.6	<22.5[QC:a]
Liquids			µg/g	µg/g	µg/g
S96T001715	132:7	Drainable liquid	<45.1	<45.1	<45.1
S96T002146	132:7R	Drainable liquid	<45.1	<45.1	<45.1[QC:c]
S96T001747	132:9	Drainable liquid	<45.1	<45.1	<45.1
S96T001764	132:10	Drainable liquid	<45.1	<45.1	<45.1[QC:c]
S96T001768	132:11	Drainable liquid	<45.1	<45.1	<45.1
S96T001950	132:12	Drainable liquid	<22.6	<22.6	<22.6
S96T002028	132:13	Drainable liquid	<22.6	<22.6	<22.6
S96T001944	132:14	Drainable liquid	<3.79	<3.79	<3.79
S96T001960		Drainable liquid	<22.6	<22.6	<22.6

Table B2-11. Tank 241-AW-101 Analytical Results: Antimony (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids (Cont'd)			µg/g	µg/g	µg/g
S96T001964	132:15	Drainable liquid	<22.6	<22.6	<22.6
S96T001968	132:16	Drainable liquid	<22.6	<22.6	<22.6
S96T002527	139:2	Drainable liquid	<45.1	<45.1	<45.1
S96T002558	139:3	Drainable liquid	<45.1	<45.1	<45.1
S96T002575	139:4	Drainable liquid	<45.1	<45.1	<45.1
S96T002584	139:5	Drainable liquid	<45.1	<45.1	<45.1
S96T002422	139:6	Drainable liquid	<45.1	<45.1	<45.1
S96T002430	139:7	Drainable liquid	<45.1	<45.1	<45.1
S96T002439	139:8	Drainable liquid	<45.1	<45.1	<45.1
S96T002454	139:9	Drainable liquid	45.9	<45.1	<45.5
S96T002462	139:10	Drainable liquid	<45.1	<45.1	<45.1
S96T002679	139:11	Drainable liquid	<45.1	<45.1	<45.1
S96T002687	139:12	Drainable liquid	<45.1	<45.1	<45.1
S96T002695	139:13	Drainable liquid	<45.1	<45.1	<45.1
S96T002704	139:14	Drainable liquid	<45.1	<45.1	<45.1
S96T002712	139:15	Drainable liquid	<45.1	<45.1	<45.1
S96T003236	139:16R	Drainable liquid	<45.1	<45.1	<45.1[QC:c]
S96T003545	139:17R	Drainable liquid	<45.1	<45.1	<45.1
S96T002767	Core 132	Liquid composite	<45.1	<45.1	<45.1[QC:c]

Table B2-12. Tank 241-AW-101 Analytical Results: Arsenic (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: acid digest			µg/g	µg/g	µg/g
S96T000801	132:1	Upper half	<36.9	<33.9	<35.4
S96T002266		Upper half	<90.6	<91.2	<90.9
S96T000796		Lower half	<41.8	<42	<41.9
S96T002265		Lower half	<105	<151	<128
S96T000816	132:2	Upper half	<39.1	<36.2	<37.7
S96T002268		Upper half	<92.1	<93.5	<92.8
S96T000811		Lower half	<41	<38.7	<39.9
S96T002267		Lower half	<90.9	<92.6	<91.8
S96T000825	132:3	Upper half	<34.3	<37.5	<35.9
S96T004492		Upper half	<40.5	<36.8	<38.6[QC:a]
S96T000834	132:4	Upper half	<37.4	<42.2	<39.8
S96T004493		Upper half	<41.6	<41	<41.3[QC:a]
S96T000849	132:5	Upper half	<34	<36.3	<35.1
S96T004494		Upper half	<39.4	<38.4	<38.9[QC:a]
S96T001735	132:7	Upper half	<44.7	<43.7	<44.2
S96T004495	132:7R	Upper half	<37.9	<35.1	<36.5[QC:a]
S96T001751	132:9	Upper half	<44.8	<40.9	<42.8
S96T001756	132:10	Upper half	<43.7	<39.1	<41.4
S96T001772	132:11	Upper half	<42.4	<39.3	<40.8
S96T001952	132:12	Upper half	<43.5	<42.5	<43
S96T002032	132:13	Upper half	<40.1	<40.3	<40.2
S96T001962	132:14	Upper half	<35.2	<37.4	<36.3
S96T001966	132:15	Lower half	<43.5	<43.3	<43.4
S96T001970	132:16	Upper half	<43.7	<37.5	<40.6
S96T001974	132:18	Upper half	<41.6	<37.7	<39.7
S96T001978		Lower half	<36.2	<38.2	<37.2

Table B2-12. Tank 241-AW-101 Analytical Results: Arsenic (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: acid digest (Cont'd)			µg/g	µg/g	µg/g
S96T001981	132:20	Upper half	<37.8	<37.2	<37.5
S96T001985		Lower half	<98.2	<98.5	<98.3
S96T001988	132:22	Upper half	<86.7	<86.4	<86.6
S96T001992		Lower half	<87.5	<87.7	<87.6
S96T002418	139:1	Upper half	<38.4	<36.2	<37.3[QC:c]
S96T004496		Upper half	<35.1	<39.6	<37.4[QC:c]
S96T002530	139:2	Subsegment B	<39.9	<38.5	<39.2
S96T004497		Subsegment B	<40.1	<39.2	<39.7
S96T002535		Subsegment C	<45.2	<40.5	<42.9
S96T004498		Subsegment C	<38	<37.3	<37.6
S96T002538		Subsegment D Lower half	<38.8	<39.4	<39.1
S96T004499		Subsegment D Lower half	<37.8	<37.8	<37.8
S96T002571	139:3	Upper half	<42	<41.4	<41.7
S96T004500		Upper half	<38	<37.9	<38
S96T002580	139:4	Upper half	<45.6	<46.3	<46
S96T004501		Upper half	<40.7	<40.3	<40.5
S96T002597	139:5	Upper half	<38.7	<40.6	<39.7
S96T002426	139:6	Upper half	<38.4	<39.7	<39
S96T002434	139:7	Upper half	<35.2	<37	<36.1
S96T002450	139:8	Upper half	<38.8	<40.7	<39.8
S96T002458	139:9	Upper half	<40.4	<36.6	<38.5
S96T002466	139:10	Upper half	<35.9	<37.2	<36.5
S96T002683	139:11	Upper half	<40.7	<46.7	<43.7[QC:c]
S96T004502		Upper half	<38.2	<37	<37.6
S96T002691	139:12	Upper half	<46.9	<41.1	<44
S96T004503		Upper half	<36.7	<38	<37.4
S96T002699	139:13	Upper half	<45.5	<46.1	<45.8
S96T004504		Upper half	<40.4	<40.2	<40.3

Table B2-12. Tank 241-AW-101 Analytical Results: Arsenic (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: acid digest (Cont'd)			**µg/g**	**µg/g**	**µg/g**
S96T002708	139:14	Upper half	<49.4	<42.9	<46.1
S96T004505		Upper half	<39.7	<39.4	<39.5
S96T002716	139:15	Upper half	<39.4	<38.4	<38.9
S96T004506		Upper half	<39.6	<38.6	<39.1
S96T003240	139:16R	Lower half	<38.9	<37.3	<38.1
S96T003521	139:16R1	Lower half	<39.1	<37.8	<38.5
S96T003536	139:16R2	Upper half	<34.7	<34.8	<34.8
S96T003550	139:17R	Upper half	<39.5	<39.7	<39.6
S96T003557		Lower half	<39.4	<38.9	<39.1
S96T003572	139:19	Upper half	<48	<44.1	<46[QC:b]
S96T004508		Upper half	<39.7	<40	<39.9
S96T003566		Lower half	<38.3	<38.5	<38.4[QC:b,d]
S96T004507		Lower half	<39.1	<40.2	<39.7
S96T003586	139:21	Upper half	<36.8	<33.8	<35.3[QC:b]
S96T004510		Upper half	<40.1	<40.5	<40.3
S96T003580		Lower half	<44.6	<39.4	<42[QC:b]
S96T004509		Lower half	<39.7	<39.7	<39.7
S96T002738	Core 132	Solid composite	<38.9	<38.5	<38.7[QC:a]
S96T002743		Solid composite	<39.1	<39.1	<39.1[QC:a]
S96T002751		Solid composite	<38.9	<36	<37.5[QC:a]
Liquids			**µg/g**	**µg/g**	**µg/g**
S96T001715	132:7	Drainable liquid	<75	<75	<75
S96T002146	132:7R	Drainable liquid	<75	<75	<75
S96T001747	132:9	Drainable liquid	<75	<75	<75
S96T001764	132:10	Drainable liquid	<75	<75	<75
S96T001768	132:11	Drainable liquid	<75	<75	<75
S96T001950	132:12	Drainable liquid	<37.6	<37.6	<37.6
S96T002028	132:13	Drainable liquid	<37.6	<37.6	<37.6
S96T001944	132:14	Drainable liquid	<6.31	<6.31	<6.31
S96T001960		Drainable liquid	<37.6	<37.6	<37.6

Table B2-12. Tank 241-AW-101 Analytical Results: Arsenic (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids (Cont'd)			µg/g	µg/g	µg/g
S96T001964	132:15	Drainable liquid	<37.6	<37.6	<37.6
S96T001968	132:16	Drainable liquid	<37.6	<37.6	<37.6
S96T002527	139:2	Drainable liquid	<75	<75	<75
S96T002558	139:3	Drainable liquid	<75	<75	<75
S96T002575	139:4	Drainable liquid	<75	<75	<75
S96T002584	139:5	Drainable liquid	<75	<75	<75
S96T002422	139:6	Drainable liquid	<75	<75	<75
S96T002430	139:7	Drainable liquid	<75	<75	<75
S96T002439	139:8	Drainable liquid	<75	<75	<75
S96T002454	139:9	Drainable liquid	<75	<75	<75
S96T002462	139:10	Drainable liquid	<75	<75	<75
S96T002679	139:11	Drainable liquid	<75	<75	<75
S96T002687	139:12	Drainable liquid	<75	<75	<75
S96T002695	139:13	Drainable liquid	<75	<75	<75
S96T002704	139:14	Drainable liquid	<75	<75	<75
S96T002712	139:15	Drainable liquid	<75	<75	<75
S96T003236	139:16R	Drainable liquid	<75	<75	<75
S96T003545	139:17R	Drainable liquid	<75	<75	<75
S96T002767	Core 132	Liquid composite	<75	<75	<75

Table B2-13. Tank 241-AW-101 Analytical Results: Barium (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: acid digest			µg/g	µg/g	µg/g
S96T000801	132:1	Upper half	<18.4	<17	<17.7
S96T002266		Upper half	<45.3	<45.6	<45.5
S96T000796		Lower half	<20.9	<21	<20.9[QC:c]
S96T002265		Lower half	<52.6	<75.4	<64
S96T000816	132:2	Upper half	<19.5	<18.1	<18.8
S96T002268		Upper half	<46.1	<46.7	<46.4
S96T000811		Lower half	<20.5	<19.4	<19.9
S96T002267		Lower half	<45.4	<46.3	<45.8
S96T000825	132:3	Upper half	<17.1	<18.7	<17.9
S96T004492		Upper half	<20.2	<18.4	<19.3[QC:a,c]
S96T000834	132:4	Upper half	<18.7	<21.1	<19.9
S96T004493		Upper half	<20.8	<20.5	<20.6[QC:a]
S96T000849	132:5	Upper half	<17	<18.1	<17.6
S96T004494		Upper half	<19.7	<19.2	<19.4[QC:a]
S96T001735	132:7	Upper half	<22.3	<21.9	<22.1
S96T004495	132:7R	Upper half	<19	<17.5	<18.3[QC:a]
S96T001751	132:9	Upper half	<22.4	<20.4	<21.4
S96T001756	132:10	Upper half	<21.9	<19.5	<20.7
S96T001772	132:11	Upper half	<21.2	<19.7	<20.4
S96T001952	132:12	Upper half	<21.7	<21.3	<21.5
S96T002032	132:13	Upper half	<20	<20.2	<20.1
S96T001962	132:14	Upper half	<17.6	<18.7	<18.1
S96T001966	132:15	Lower half	<21.7	<21.6	<21.6
S96T001970	132:16	Upper half	<21.9	<18.8	<20.4
S96T001974	132:18	Upper half	<20.8	<18.8	<19.8
S96T001978		Lower half	<18.1	<19.1	<18.6

Table B2-13. Tank 241-AW-101 Analytical Results: Barium (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: acid digest (Cont'd)			µg/g	µg/g	µg/g
S96T001981	132:20	Upper half	<18.9	<18.6	<18.8
S96T001985		Lower half	<49.1	<49.3	<49.2
S96T001988	132:22	Upper half	<43.3	<43.2	<43.3
S96T001992		Lower half	<43.7	<43.9	<43.8
S96T002418	139:1	Upper half	<19.2	<18.1	<18.6[QC:c]
S96T004496		Upper half	<17.6	<19.8	<18.7[QC:a,c]
S96T002530	139:2	Subsegment B	<19.9	<19.2	<19.5
S96T004497		Subsegment B	<20	<19.6	<19.8[QC:a]
S96T002535		Subsegment C	<22.6	<20.2	<21.4
S96T004498		Subsegment C	<19	<18.6	<18.8[QC:a]
S96T002538		Subsegment D lower half	<19.4	<19.7	<19.5
S96T004499		Subsegment D lower half	<18.9	<18.9	<18.9[QC:a]
S96T002571	139:3	Upper half	<21	<20.7	<20.9
S96T004500		Upper half	<19	<19	<19[QC:a]
S96T002580	139:4	Upper half	<22.8	<23.1	<23
S96T004501		Upper half	<20.4	<20.2	<20.3
S96T002597	139:5	Upper half	<19.4	<20.3	<19.9
S96T002426	139:6	Upper half	<19.2	<19.9	<19.5
S96T002434	139:7	Upper half	<17.6	<18.5	<18.1
S96T002450	139:8	Upper half	<19.4	<20.4	<19.9
S96T002458	139:9	Upper half	<20.2	<18.3	<19.3
S96T002466	139:10	Upper half	<17.9	<18.6	<18.3
S96T002683	139:11	Upper half	<20.3	<23.3	<21.8[QC:c]
S96T004502		Upper half	<19.1	<18.5	<18.8
S96T002691	139:12	Upper half	<23.5	<20.6	<22.1
S96T004503		Upper half	<18.4	<19	<18.7
S96T002699	139:13	Upper half	<22.7	<23.1	<22.9
S96T004504		Upper half	<20.2	<20.1	<20.1

Table B2-13. Tank 241-AW-101 Analytical Results: Barium (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: acid digest (Cont'd)			**µg/g**	**µg/g**	**µg/g**
S96T002708	139:14	Upper half	<24.7	<21.4	<23
S96T004505		Upper half	<19.8	<19.7	<19.8
S96T002716	139:15	Upper half	<19.7	<19.2	<19.4
S96T004506		Upper half	<19.8	<19.3	<19.6
S96T003240	139:16R	Lower half	<19.4	<18.7	<19
S96T003521	139:16R1	Lower half	<19.6	<18.9	<19.3
S96T003536	139:16R2	Upper half	<17.3	<17.4	<17.4
S96T003550	139:17R	Upper half	<19.7	<19.9	<19.8
S96T003557		Lower half	<19.7	<19.4	<19.5
S96T003572	139:19	Upper half	<24	<22	<23[QC:b]
S96T004508		Upper half	<19.8	<20	<19.9
S96T003566		Lower half	<19.2	<19.3	<19.3[QC:b,d]
S96T004507		Lower half	<19.5	<20.1	<19.8
S96T003586	139:21	Upper half	<18.4	<16.9	<17.6[QC:b]
S96T004510		Upper half	<20	<20.2	<20.1
S96T003580		Lower half	<22.3	<19.7	<21[QC:b]
S96T004509		Lower half	<19.9	<19.8	<19.9
S96T002738	Core 132	Solid composite	<19.5	<19.3	<19.4
S96T002743		Solid composite	<19.6	<19.5	<19.6
S96T002751		Solid composite	<19.5	<18	<18.8
Liquids			**µg/g**	**µg/g**	**µg/g**
S96T001715	132:7	Drainable liquid	<37.6	<37.6	<37.6
S96T002146	132:7R	Drainable liquid	<37.6	<37.6	<37.6
S96T001747	132:9	Drainable liquid	<37.6	<37.6	<37.6
S96T001764	132:10	Drainable liquid	<37.6	<37.6	<37.6
S96T001768	132:11	Drainable liquid	<37.6	<37.6	<37.6
S96T001950	132:12	Drainable liquid	<18.8	<18.8	<18.8
S96T002028	132:13	Drainable liquid	<18.8	<18.8	<18.8
S96T001944	132:14	Drainable liquid	<3.16	<3.16	<3.16
S96T001960		Drainable liquid	<18.8	<18.8	<18.8

Table B2-13. Tank 241-AW-101 Analytical Results: Barium (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids (Cont'd)			µg/g	µg/g	µg/g
S96T001964	132:15	Drainable liquid	<18.8	<18.8	<18.8
S96T001968	132:16	Drainable liquid	<18.8	<18.8	<18.8
S96T002527	139:2	Drainable liquid	<37.6	<37.6	<37.6
S96T002558	139:3	Drainable liquid	<37.6	<37.6	<37.6
S96T002575	139:4	Drainable liquid	<37.6	<37.6	<37.6
S96T002584	139:5	Drainable liquid	<37.6	<37.6	<37.6
S96T002422	139:6	Drainable liquid	<37.6	<37.6	<37.6
S96T002430	139:7	Drainable liquid	<37.6	<37.6	<37.6
S96T002439	139:8	Drainable liquid	<37.6	<37.6	<37.6
S96T002454	139:9	Drainable liquid	<37.6	<37.6	<37.6
S96T002462	139:10	Drainable liquid	<37.6	<37.6	<37.6
S96T002679	139:11	Drainable liquid	<37.6	<37.6	<37.6
S96T002687	139:12	Drainable liquid	<37.6	<37.6	<37.6
S96T002695	139:13	Drainable liquid	<37.6	<37.6	<37.6
S96T002704	139:14	Drainable liquid	<37.6	<37.6	<37.6
S96T002712	139:15	Drainable liquid	<37.6	<37.6	<37.6
S96T003236	139:16R	Drainable liquid	<37.6	<37.6	<37.6
S96T003545	139:17R	Drainable liquid	<37.6	<37.6	<37.6
S96T002767	Core 132	Liquid composite	<37.6	<37.6	<37.6

Table B2-14. Tank 241-AW-101 Analytical Results: Beryllium (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: acid digest			µg/g	µg/g	µg/g
S96T000801	132:1	Upper half	<1.84	<1.7	<1.77
S96T002266		Upper half	<4.53	<4.56	<4.54
S96T000796		Lower half	<2.09	<2.1	<2.09
S96T002265		Lower half	<5.26	<7.54	<6.4[QC:e]
S96T000816	132:2	Upper half	<1.95	<1.81	<1.88
S96T002268		Upper half	<4.61	<4.67	<4.64
S96T000811		Lower half	<2.05	<1.94	<1.99
S96T002267		Lower half	<4.54	<4.63	<4.59
S96T000825	132:3	Upper half	1.77	<1.87	<1.82
S96T004492		Upper half	<2.02	<1.84	<1.93[QC:a]
S96T000834	132:4	Upper half	<1.87	<2.11	<1.99
S96T004493		Upper half	<2.08	<2.05	<2.06[QC:a]
S96T000849	132:5	Upper half	<1.7	<1.81	<1.75
S96T004494		Upper half	<1.97	<1.92	<1.94[QC:a]
S96T001735	132:7	Upper half	<2.23	<2.19	<2.21
S96T004495	132:7R	Upper half	<1.9	<1.75	<1.83[QC:a]
S96T001751	132:9	Upper half	<2.24	<2.04	<2.14
S96T001756	132:10	Upper half	<2.19	<1.95	<2.07
S96T001772	132:11	Upper half	<2.12	<1.97	<2.04
S96T001952	132:12	Upper half	<2.17	<2.13	<2.15
S96T002032	132:13	Upper half	<2	<2.02	<2.01
S96T001962	132:14	Upper half	<1.76	<1.87	<1.82
S96T001966	132:15	Lower half	<2.17	<2.16	<2.17
S96T001970	132:16	Upper half	<2.19	<1.88	<2.04
S96T001974	132:18	Upper half	<2.08	<1.88	<1.98
S96T001978		Lower half	<1.81	<1.91	<1.86
S96T001981	132:20	Upper half	<1.89	<1.86	<1.88
S96T001985		Lower half	<4.91	<4.93	<4.92
S96T001988	132:22	Upper half	<4.33	<4.32	<4.33
S96T001992		Lower half	<4.37	<4.39	<4.38

Table B2-14. Tank 241-AW-101 Analytical Results: Beryllium (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: acid digest (Cont'd)			µg/g	µg/g	µg/g
S96T002418	139:1	Upper half	<1.92	<1.81	<1.87[QC:c]
S96T004496		Upper half	<1.76	<1.98	<1.87[QC:c]
S96T002530	139:2	Subsegment B	<1.99	<1.92	<1.96
S96T004497		Subsegment B	<2	<1.96	<1.98
S96T002535		Subsegment C	<2.26	<2.02	<2.14
S96T004498		Subsegment C	<1.9	<1.86	<1.88
S96T002538		Subsegment D lower half	<1.94	<1.97	<1.96
S96T004499		Subsegment D lower half	<1.89	<1.89	<1.89
S96T002571	139:3	Upper half	<2.1	<2.07	<2.08
S96T004500		Upper half	<1.9	<1.9	<1.9
S96T002580	139:4	Upper half	<2.28	<2.31	<2.29
S96T004501		Upper half	<2.04	<2.02	<2.03
S96T002597	139:5	Upper half	<1.94	<2.03	<1.98
S96T002426	139:6	Upper half	<1.92	<1.99	<1.96
S96T002434	139:7	Upper half	<1.76	<1.85	<1.81
S96T002450	139:8	Upper half	<1.94	<2.04	<1.99
S96T002458	139:9	Upper half	<2.02	<1.83	<1.93
S96T002466	139:10	Upper half	<1.79	<1.86	<1.83
S96T002683	139:11	Upper half	<2.03	<2.33	<2.18[QC:c]
S96T004502		Upper half	<1.91	<1.85	<1.88
S96T002691	139:12	Upper half	<2.35	<2.06	<2.21
S96T004503		Upper half	<1.84	<1.9	<1.87
S96T002699	139:13	Upper half	<2.27	<2.31	<2.29
S96T004504		Upper half	<2.02	<2.01	<2.01

Table B2-14. Tank 241-AW-101 Analytical Results: Beryllium (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: acid digest (Cont'd)			µg/g	µg/g	µg/g
S96T002708	139:14	Upper half	<2.47	<2.14	<2.31
S96T004505		Upper half	<1.98	<1.97	<1.98
S96T002716	139:15	Upper half	<1.97	<1.92	<1.94
S96T004506		Upper half	<1.98	<1.93	<1.96
S96T003240	139:16R	Lower half	<1.94	<1.87	<1.91
S96T003521	139:16R1	Lower half	<1.96	<1.89	<1.92
S96T003536	139:16R2	Upper half	<1.73	<1.74	<1.73
S96T003550	139:17R	Upper half	<1.97	<1.99	<1.98
S96T003557		Lower half	<1.97	<1.94	<1.96
S96T003572	139:19	Upper half	<2.4	<2.2	<2.3
S96T004508		Upper half	<1.98	<2	<1.99
S96T003566		Lower half	<1.92	<1.93	<1.92[QC:c]
S96T004507		Lower half	<1.95	<2.01	<1.98
S96T003586	139:21	Upper half	<1.84	<1.69	<1.77
S96T004510		Upper half	<2	<2.02	<2.01
S96T003580		Lower half	<2.23	<1.97	<2.1
S96T004509		Lower half	<1.99	<1.98	<1.98
S96T002738	Core 132	Solid composite	<1.95	<1.93	<1.94
S96T002743		Solid composite	<1.96	<1.95	<1.96
S96T002751		Solid composite	<1.95	<1.8	<1.88
Liquids			µg/g	µg/g	µg/g
S96T001715	132:7	Drainable liquid	<3.75	<3.75	<3.75
S96T002146	132:7R	Drainable liquid	<3.75	<3.75	<3.75
S96T001747	132:9	Drainable liquid	<3.75	<3.75	<3.75
S96T001764	132:10	Drainable liquid	<3.75	<3.75	<3.75
S96T001768	132:11	Drainable liquid	<3.75	<3.75	<3.75
S96T001950	132:12	Drainable liquid	<1.88	<1.88	<1.88
S96T002028	132:13	Drainable liquid	<1.88	<1.88	<1.88
S96T001944	132:14	Drainable liquid	<0.316	<0.316	<0.316
S96T001960		Drainable liquid	<1.88	<1.88	<1.88

Table B2-14. Tank 241-AW-101 Analytical Results: Beryllium (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids (Cont'd)			µg/g	µg/g	µg/g
S96T001964	132:15	Drainable liquid	<1.88	<1.88	<1.88
S96T001968	132:16	Drainable liquid	<1.91	<1.88	<1.89
S96T002527	139:2	Drainable liquid	<3.75	<3.75	<3.75
S96T002558	139:3	Drainable liquid	<3.75	<3.75	<3.75
S96T002575	139:4	Drainable liquid	<3.75	<3.75	<3.75
S96T002584	139:5	Drainable liquid	<3.75	<3.75	<3.75
S96T002422	139:6	Drainable liquid	<3.75	<3.75	<3.75
S96T002430	139:7	Drainable liquid	<3.75	<3.75	<3.75
S96T002439	139:8	Drainable liquid	<3.75	<3.75	<3.75
S96T002454	139:9	Drainable liquid	<3.75	<3.75	<3.75
S96T002462	139:10	Drainable liquid	<3.75	<3.75	<3.75
S96T002679	139:11	Drainable liquid	<3.75	<3.75	<3.75
S96T002687	139:12	Drainable liquid	<3.75	<3.75	<3.75
S96T002695	139:13	Drainable liquid	<3.75	<3.75	<3.75
S96T002704	139:14	Drainable liquid	<3.75	<3.75	<3.75
S96T002712	139:15	Drainable liquid	<3.75	<3.75	<3.75
S96T003236	139:16R	Drainable liquid	<3.75	<3.75	<3.75
S96T003545	139:17R	Drainable liquid	<3.75	<3.75	<3.75
S96T002767	Core 132	Liquid composite	<3.75	<3.75	<3.75

Table B2-15. Tank 241-AW-101 Analytical Results: Bismuth (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: acid digest			µg/g	µg/g	µg/g
S96T000801	132:1	Upper half	<36.9	<33.9	<35.4
S96T002266		Upper half	<90.6	<91.2	<90.9
S96T000796		Lower half	<41.8	<42	<41.9[QC:c]
S96T002265		Lower half	<105	<151	<128
S96T000816	132:2	Upper half	<39.1	<36.2	<37.7
S96T002268		Upper half	<92.1	<93.5	<92.8
S96T000811		Lower half	<41	<38.7	<39.9
S96T002267		Lower half	<90.9	<92.6	<91.8
S96T000825	132:3	Upper half	<34.3	<37.5	<35.9
S96T004492		Upper half	<40.5	<36.8	<38.6[QC:a,c]
S96T000834	132:4	Upper half	<37.4	<42.2	<39.8
S96T004493		Upper half	<41.6	<41	<41.3[QC:a]
S96T000849	132:5	Upper half	<34	<36.3	<35.1
S96T004494		Upper half	<39.4	<38.4	<38.9[QC:a]
S96T001735	132:7	Upper half	<44.7	<43.7	<44.2
S96T004495	132:7R	Upper half	<37.9	<35.1	<36.5[QC:a]
S96T001751	132:9	Upper half	<44.8	<40.9	<42.8
S96T001756	132:10	Upper half	<43.7	<39.1	<41.4
S96T001772	132:11	Upper half	<42.4	<39.3	<40.8
S96T001952	132:12	Upper half	<43.5	<42.5	<43
S96T002032	132:13	Upper half	<40.1	<40.3	<40.2
S96T001962	132:14	Upper half	<35.2	<37.4	<36.3
S96T001966	132:15	Lower half	<43.5	<43.3	<43.4
S96T001970	132:16	Upper half	<43.7	<37.5	<40.6
S96T001974	132:18	Upper half	<41.6	<37.7	<39.7
S96T001978		Lower half	<36.2	<38.2	<37.2

Table B2-15. Tank 241-AW-101 Analytical Results: Bismuth (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: acid digest (Cont'd)			µg/g	µg/g	µg/g
S96T001981	132:20	Upper half	<37.8	<37.2	<37.5
S96T001985		Lower half	<98.2	<98.5	<98.3
S96T001988	132:22	Upper half	<86.7	<86.4	<86.6
S96T001992		Lower half	<87.5	<87.7	<87.6
S96T002418	139:1	Upper half	<38.4	<36.2	<37.3[QC:c]
S96T004496		Upper half	<35.1	<39.6	<37.4[QC:a,c]
S96T002530	139:2	Subsegment B	<39.9	<38.5	<39.2
S96T004497		Subsegment B	<40.1	<39.2	<39.7[QC:a]
S96T002535		Subsegment C	<45.2	<40.5	<42.9
S96T004498		Subsegment C	<38	<37.3	<37.6[QC:a]
S96T002538		Subsegment D lower half	<38.8	<39.4	<39.1
S96T004499		Subsegment D lower half	<37.8	<37.8	<37.8[QC:a]
S96T002571	139:3	Upper half	<42	<41.4	<41.7
S96T004500		Upper half	<38	<37.9	<38[QC:a]
S96T002580	139:4	Upper half	<45.6	<46.3	<46
S96T004501		Upper half	<40.7	<40.3	<40.5
S96T002597	139:5	Upper half	<38.7	<40.6	<39.7
S96T002426	139:6	Upper half	<38.4	<39.7	<39
S96T002434	139:7	Upper half	<35.2	<37	<36.1
S96T002450	139:8	Upper half	<38.8	<40.7	<39.8
S96T002458	139:9	Upper half	<40.4	<36.6	<38.5
S96T002466	139:10	Upper half	<35.9	<37.2	<36.5
S96T002683	139:11	Upper half	<40.7	<46.7	<43.7[QC:c]
S96T004502		Upper half	<38.2	<37	<37.6
S96T002691	139:12	Upper half	<46.9	<41.1	<44
S96T004503		Upper half	<36.7	<38	<37.4
S96T002699	139:13	Upper half	<45.5	<46.1	<45.8
S96T004504		Upper half	<40.4	<40.2	<40.3

Table B2-15. Tank 241-AW-101 Analytical Results: Bismuth (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: acid digest (Cont'd)			µg/g	µg/g	µg/g
S96T002708	139:14	Upper half	<49.4	<42.9	<46.1
S96T004505		Upper half	<39.7	<39.4	<39.5
S96T002716	139:15	Upper half	<39.4	<38.4	<38.9
S96T004506		Upper half	<39.6	<38.6	<39.1
S96T003240	139:16R	Lower half	<38.9	<37.3	<38.1
S96T003521	139:16R1	Lower half	<39.1	<37.8	<38.5
S96T003536	139:16R2	Upper half	<34.7	<34.8	<34.8
S96T003550	139:17R	Upper half	<39.5	<39.7	<39.6
S96T003557		Lower half	<39.4	<38.9	<39.1
S96T003572	139:19	Upper half	<48	<44.1	<46
S96T004508		Upper half	<39.7	<40	<39.9
S96T003566		Lower half	<38.3	<38.5	<38.4[QC:c]
S96T004507		Lower half	<39.1	<40.2	<39.7
S96T003586	139:21	Upper half	<36.8	<33.8	<35.3
S96T004510		Upper half	<40.1	<40.5	<40.3
S96T003580		Lower half	<44.6	<39.4	<42
S96T004509		Lower half	<39.7	<39.7	<39.7
S96T002738	Core 132	Solid composite	<38.9	<38.5	<38.7[QC:a]
S96T002743		Solid composite	<39.1	<39.1	<39.1[QC:a]
S96T002751		Solid composite	<38.9	<36	<37.5[QC:a]
Liquids			µg/g	µg/g	µg/g
S96T001715	132:7	Drainable liquid	<75	<75	<75
S96T002146	132:7R	Drainable liquid	<75	<75	<75
S96T001747	132:9	Drainable liquid	<75	<75	<75
S96T001764	132:10	Drainable liquid	<75	<75	<75
S96T001768	132:11	Drainable liquid	<75	<75	<75
S96T001950	132:12	Drainable liquid	<37.6	<37.6	<37.6
S96T002028	132:13	Drainable liquid	<37.6	<37.6	<37.6
S96T001944	132:14	Drainable liquid	<6.31	<6.31	<6.31
S96T001960		Drainable liquid	<37.6	<37.6	<37.6

Table B2-15. Tank 241-AW-101 Analytical Results: Bismuth (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids (Cont'd)			µg/g	µg/g	µg/g
S96T001964	132:15	Drainable liquid	<37.6	<37.6	<37.6
S96T001968	132:16	Drainable liquid	<37.6	<37.6	<37.6
S96T002527	139:2	Drainable liquid	<75	<75	<75
S96T002558	139:3	Drainable liquid	<75	<75	<75
S96T002575	139:4	Drainable liquid	<75	<75	<75
S96T002584	139:5	Drainable liquid	<75	<75	<75
S96T002422	139:6	Drainable liquid	<75	<75	<75
S96T002430	139:7	Drainable liquid	<75	<75	<75
S96T002439	139:8	Drainable liquid	<75	<75	<75
S96T002454	139:9	Drainable liquid	<75	<75	<75
S96T002462	139:10	Drainable liquid	<75	<75	<75
S96T002679	139:11	Drainable liquid	<75	<75	<75
S96T002687	139:12	Drainable liquid	<75	<75	<75
S96T002695	139:13	Drainable liquid	<75	<75	<75
S96T002704	139:14	Drainable liquid	<75	<75	<75
S96T002712	139:15	Drainable liquid	<75	<75	<75
S96T003236	139:16R	Drainable liquid	<75	<75	<75
S96T003545	139:17R	Drainable liquid	<75	<75	<75
S96T002767	Core 132	Liquid composite	<75	<75	<75

Table B2-16. Tank 241-AW-101 Analytical Results: Boron (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: acid digest			µg/g	µg/g	µg/g
S96T000801	132:1	Upper half	40.3	31.6	36[QC:e]
S96T002266		Upper half	98.8	141	120[QC:e]
S96T000796		Lower half	39.4	37.3	38.3[QC:e]
S96T002265		Lower half	126	249	188[QC:e]
S96T000816	132:2	Upper half	82	53.6	67.8[QC:e]
S96T002268		Upper half	110	135	123[QC:e]
S96T000811		Lower half	29.9	53	41.5[QC:e]
S96T002267		Lower half	111	162	137[QC:e]
S96T000825	132:3	Upper half	52.6	67.9	60.3[QC:e]
S96T004492		Upper half	183	350	267[QC:e]
S96T000834	132:4	Upper half	29.9	42.4	36.1[QC:e]
S96T004493		Upper half	96.7	114	105
S96T000849	132:5	Upper half	28.5	126	77.3[QC:e]
S96T004494		Upper half	230	121	176[QC:e]
S96T001735	132:7	Upper half	171	158	165
S96T004495	132:7R	Upper half	116	93.2	105[QC:e]
S96T001751	132:9	Upper half	144	176	160
S96T001756	132:10	Upper half	139	169	154
S96T001772	132:11	Upper half	169	146	158
S96T001952	132:12	Upper half	162	144	153
S96T002032	132:13	Upper half	148	144	146
S96T001962	132:14	Upper half	34.7	83.9	59.3[QC:e]
S96T001966	132:15	Lower half	28.9	51.9	40.4[QC:e]
S96T001970	132:16	Upper half	39.7	52.3	46[QC:e]
S96T001974	132:18	Upper half	73.9	81.5	77.7
S96T001978		Lower half	56.8	139	97.9[QC:e]

Table B2-16. Tank 241-AW-101 Analytical Results: Boron (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: acid digest (Cont'd)			µg/g	µg/g	µg/g
S96T001981	132:20	Upper half	73.1	119	96[QC:e]
S96T001985		Lower half	62.7	127	94.8[QC:e]
S96T001988	132:22	Upper half	50	120	85[QC:e]
S96T001992		Lower half	62.7	88.6	75.7[QC:e]
S96T002418	139:1	Upper half	164	136	150[QC:c]
S96T004496		Upper half	112	196	154[QC:e]
S96T002530	139:2	Subsegment B	167	141	154
S96T004497		Subsegment B	119	168	144[QC:e]
S96T002535		Subsegment C	177	152	165
S96T004498		Subsegment C	148	170	159
S96T002538		Subsegment D lower half	142	172	157
S96T004499		Subsegment D lower half	166	141	154
S96T002571	139:3	Upper half	159	129	144[QC:e]
S96T004500		Upper half	85.9	166	126[QC:e]
S96T002580	139:4	Upper half	178	118	148[QC:e]
S96T004501		Upper half	32.6	63.6	48.1[QC:e]
S96T002597	139:5	Upper half	136	159	148
S96T002426	139:6	Upper half	109	144	127[QC:e]
S96T002434	139:7	Upper half	131	110	121
S96T002450	139:8	Upper half	111	130	121
S96T002458	139:9	Upper half	156	123	140[QC:e]
S96T002466	139:10	Upper half	111	121	116
S96T002683	139:11	Upper half	134	29.4	81.7[QC:c,e]
S96T004502		Upper half	45.1	48.9	47
S96T002691	139:12	Upper half	217	142	180[QC:e]
S96T004503		Upper half	100	40.3	70.2[QC:e]
S96T002699	139:13	Upper half	223	174	199[QC:e]
S96T004504		Upper half	27.1	50.4	38.8[QC:e]

Table B2-16. Tank 241-AW-101 Analytical Results: Boron (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: acid digest (Cont'd)			**µg/g**	**µg/g**	**µg/g**
S96T002708	139:14	Upper half	186	159	173
S96T004505		Upper half	54.7	35.3	45[QC:e]
S96T002716	139:15	Upper half	154	141	148
S96T004506		Upper half	47.1	67.1	57.1[QC:e]
S96T003240	139:16R	Lower half	115	89	102[QC:e]
S96T003521	139:16R1	Lower half	107	96	102
S96T003536	139:16R2	Upper half	85.8	91	88.4
S96T003550	139:17R	Upper half	128	114	121
S96T003557		Lower half	140	106	123[QC:e]
S96T003572	139:19	Upper half	121	154	138[QC:e]
S96T004508		Upper half	59.9	105	82.5[QC:e]
S96T003566		Lower half	107	120	114[QC:e]
S96T004507		Lower half	193	46.8	120[QC:e]
S96T003586	139:21	Upper half	113	103	108
S96T004510		Upper half	77.5	83.3	80.4
S96T003580		Lower half	117	105	111
S96T004509		Lower half	71.6	105	88.3[QC:e]
S96T002738	Core 132	Solid composite	101	129	115[QC:e]
S96T002743		Solid composite	114	144	129[QC:e]
S96T002751		Solid composite	93.2	116	105[QC:e]
Liquids			**µg/g**	**µg/g**	**µg/g**
S96T001715	132:7	Drainable liquid	<37.6	<37.6	<37.6
S96T002146	132:7R	Drainable liquid	37.6	40.9	39.3
S96T001747	132:9	Drainable liquid	37.6	46.4	42[QC:e]
S96T001764	132:10	Drainable liquid	<37.6	<39.4	<38.5
S96T001768	132:11	Drainable liquid	39.2	39.8	39.5
S96T001950	132:12	Drainable liquid	41.4	38.2	39.8
S96T002028	132:13	Drainable liquid	40.8	38	39.4
S96T001944	132:14	Drainable liquid	3.33	3.46	3.39
S96T001960		Drainable liquid	41	44	42.5

Table B2-16. Tank 241-AW-101 Analytical Results: Boron (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids (Cont'd)			µg/g	µg/g	µg/g
S96T001964	132:15	Drainable liquid	38.5	41	39.8
S96T001968	132:16	Drainable liquid	40.6	43.1	41.9
S96T002527	139:2	Drainable liquid	<37.6	<37.6	<37.6
S96T002558	139:3	Drainable liquid	38.4	<37.6	<38
S96T002575	139:4	Drainable liquid	<37.6	<37.6	<37.6
S96T002584	139:5	Drainable liquid	<37.6	<37.6	<37.6
S96T002422	139:6	Drainable liquid	<37.6	<37.6	<37.6
S96T002430	139:7	Drainable liquid	<37.6	37.8	<37.7
S96T002439	139:8	Drainable liquid	41.3	<37.6	<39.4
S96T002454	139:9	Drainable liquid	<37.6	<37.6	<37.6
S96T002462	139:10	Drainable liquid	<37.6	<37.6	<37.6
S96T002679	139:11	Drainable liquid	<37.6	<37.6	<37.6
S96T002687	139:12	Drainable liquid	<37.6	<37.6	<37.6
S96T002695	139:13	Drainable liquid	<37.6	<37.6	<37.6
S96T002704	139:14	Drainable liquid	<37.6	<37.6	<37.6
S96T002712	139:15	Drainable liquid	<37.6	<37.6	<37.6
S96T003236	139:16R	Drainable liquid	<37.6	<37.6	<37.6
S96T003545	139:17R	Drainable liquid	<37.6	<37.6	<37.6
S96T002767	Core 132	Liquid composite	<37.6	<37.6	<37.6

Table B2-17. Tank 241-AW-101 Analytical Results: Cadmium (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: acid digest			µg/g	µg/g	µg/g
S96T000801	132:1	Upper half	7.08	7.58	7.33
S96T002266		Upper half	7.35	<4.56	<5.96[QC:e]
S96T000796		Lower half	7.53	5.21	6.37[QC:c,e]
S96T002265		Lower half	5.56	7.84	6.7[QC:e]
S96T000816	132:2	Upper half	6.03	6.01	6.02
S96T002268		Upper half	7.01	6.18	6.59
S96T000811		Lower half	3.57	3.48	3.52
S96T002267		Lower half	4.81	5.33	5.07
S96T000825	132:3	Upper half	1.78	<1.87	<1.83
S96T004492		Upper half	<2.02	<1.84	<1.93[QC:a,c]
S96T000834	132:4	Upper half	<1.87	<2.11	<1.99
S96T004493		Upper half	<2.08	<2.05	<2.06[QC:a]
S96T000849	132:5	Upper half	<1.7	<1.81	<1.75
S96T004494		Upper half	<1.97	<1.92	<1.94[QC:a]
S96T001735	132:7	Upper half	3.32	3.97	3.65
S96T004495	132:7R	Upper half	<1.9	<1.75	<1.83[QC:a]
S96T001751	132:9	Upper half	<2.24	<2.04	<2.14
S96T001756	132:10	Upper half	<2.19	<1.95	<2.07
S96T001772	132:11	Upper half	<2.12	<1.97	<2.04
S96T001952	132:12	Upper half	<2.17	<2.13	<2.15
S96T002032	132:13	Upper half	2.09	<2.02	<2.05
S96T001962	132:14	Upper half	<1.76	<1.87	<1.82[QC:a]
S96T001966	132:15	Lower half	<2.17	<2.16	<2.17[QC:a]
S96T001970	132:16	Upper half	<2.19	<1.88	<2.04[QC:a]
S96T001974	132:18	Upper half	9.19	9.42	9.3[QC:a]
S96T001978		Lower half	6.02	5.52	5.77[QC:a]

Table B2-17. Tank 241-AW-101 Analytical Results: Cadmium (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: acid digest (Cont'd)			µg/g	µg/g	µg/g
S96T001981	132:20	Upper half	8.21	7.52	7.87[QC:a]
S96T001985		Lower half	13.5	12	12.8
S96T001988	132:22	Upper half	13.4	10.1	11.8[QC:e]
S96T001992		Lower half	11.4	12.9	12.2
S96T002418	139:1	Upper half	8.14	8.48	8.31[QC:c]
S96T004496		Upper half	8.76	8.13	8.45[QC:a,c]
S96T002530	139:2	Subsegment B	6.74	7.9	7.32
S96T004497		Subsegment B	7.51	8.2	7.85[QC:a]
S96T002535		Subsegment C	5.69	3.94	4.82[QC:e]
S96T004498		Subsegment C	4.23	3.88	4.05[QC:a]
S96T002538		Subsegment D lower half	2.03	<1.97	<2
S96T004499		Subsegment D lower half	<1.89	<1.89	<1.89[QC:a]
S96T002571	139:3	Upper half	<2.1	<2.07	<2.08
S96T004500		Upper half	<1.9	<1.9	<1.9[QC:a]
S96T002580	139:4	Upper half	<2.28	<2.31	<2.29
S96T004501		Upper half	<2.04	<2.02	<2.03
S96T002597	139:5	Upper half	<1.94	<2.03	<1.98
S96T002426	139:6	Upper half	3.01	<1.99	<2.5[QC:e]
S96T002434	139:7	Upper half	<1.76	<1.85	<1.81
S96T002450	139:8	Upper half	<1.94	<2.04	<1.99
S96T002458	139:9	Upper half	<2.02	<1.83	<1.93
S96T002466	139:10	Upper half	<1.79	<1.86	<1.83
S96T002683	139:11	Upper half	<2.03	<2.33	<2.18[QC:c]
S96T004502		Upper half	<1.91	<1.85	<1.88
S96T002691	139:12	Upper half	<2.35	<2.06	<2.21
S96T004503		Upper half	1.92	<1.9	<1.91
S96T002699	139:13	Upper half	<2.27	<2.31	<2.29
S96T004504		Upper half	<2.02	<2.01	<2.01

Table B2-17. Tank 241-AW-101 Analytical Results: Cadmium (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: acid digest (Cont'd)			**µg/g**	**µg/g**	**µg/g**
S96T002708	139:14	Upper half	<2.47	<2.14	<2.31
S96T004505		Upper half	<1.98	<1.97	<1.98
S96T002716	139:15	Upper half	<1.97	<1.92	<1.94
S96T004506		Upper half	<1.98	<1.93	<1.96
S96T003240	139:16R	Lower half	<1.94	<1.87	<1.91
S96T003521	139:16R1	Lower half	<1.96	<1.89	<1.92
S96T003536	139:16R2	Upper half	<1.73	<1.74	<1.73
S96T003550	139:17R	Upper half	8.3	7.83	8.07
S96T003557		Lower half	9.46	9.17	9.32
S96T003572	139:19	Upper half	8.05	8.9	8.48
S96T004508		Upper half	11.2	13.1	12.1
S96T003566		Lower half	8.91	8.98	8.95[QC:c]
S96T004507		Lower half	11.6	10.1	10.8
S96T003586	139:21	Upper half	10.7	10.7	10.7
S96T004510		Upper half	14.8	12.4	13.6
S96T003580		Lower half	11.9	12.3	12.1
S96T004509		Lower half	17.4	13.5	15.4[QC:e]
S96T002738	Core 132	Solid composite	7.45	8.21	7.83[QC:a]
S96T002743		Solid composite	<1.96	1.96	<1.96[QC:a]
S96T002751		Solid composite	9	9.57	9.29[QC:a]
Liquids			**µg/g**	**µg/g**	**µg/g**
S96T001715	132:7	Drainable liquid	<3.75	<3.75	<3.75
S96T002146	132:7R	Drainable liquid	<3.75	<3.75	<3.75
S96T001747	132:9	Drainable liquid	<3.75	<3.75	<3.75
S96T001764	132:10	Drainable liquid	<3.75	<3.75	<3.75
S96T001768	132:11	Drainable liquid	<3.75	<3.75	<3.75
S96T001950	132:12	Drainable liquid	<1.88	<1.88	<1.88
S96T002028	132:13	Drainable liquid	<1.88	<1.88	<1.88
S96T001944	132:14	Drainable liquid	<0.316	<0.316	<0.316
S96T001960		Drainable liquid	2.15	1.97	2.06

Table B2-17. Tank 241-AW-101 Analytical Results: Cadmium (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids (Cont'd)			µg/g	µg/g	µg/g
S96T001964	132:15	Drainable liquid	2.41	2.13	2.27
S96T001968	132:16	Drainable liquid	2.23	2.01	2.12
S96T002527	139:2	Drainable liquid	<3.75	<3.75	<3.75
S96T002558	139:3	Drainable liquid	<3.75	<3.75	<3.75
S96T002575	139:4	Drainable liquid	<3.75	<3.75	<3.75
S96T002584	139:5	Drainable liquid	<3.75	<3.75	<3.75
S96T002422	139:6	Drainable liquid	<3.75	<3.75	<3.75
S96T002430	139:7	Drainable liquid	<3.75	<3.75	<3.75
S96T002439	139:8	Drainable liquid	<3.75	<3.75	<3.75
S96T002454	139:9	Drainable liquid	<3.75	<3.75	<3.75
S96T002462	139:10	Drainable liquid	<3.75	<3.75	<3.75
S96T002679	139:11	Drainable liquid	<3.75	<3.75	<3.75
S96T002687	139:12	Drainable liquid	<3.75	<3.75	<3.75
S96T002695	139:13	Drainable liquid	<3.75	<3.75	<3.75
S96T002704	139:14	Drainable liquid	<3.75	<3.75	<3.75
S96T002712	139:15	Drainable liquid	<3.75	<3.75	<3.75
S96T003236	139:16R	Drainable liquid	<3.75	<3.75	<3.75
S96T003545	139:17R	Drainable liquid	<3.75	<3.75	<3.75
S96T002767	Core 132	Liquid composite	<3.75	<3.75	<3.75

Table B2-18. Tank 241-AW-101 Analytical Results: Calcium (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: acid digest			µg/g	µg/g	µg/g
S96T000801	132:1	Upper half	498	362	430[QC:e]
S96T002266		Upper half	393	322	358
S96T000796		Lower half	428	491	460[QC:e]
S96T002265		Lower half	333	471	402[QC:e]
S96T000816	132:2	Upper half	414	344	379
S96T002268		Upper half	384	471	428[QC:e]
S96T000811		Lower half	309	284	297
S96T002267		Lower half	318	293	306
S96T000825	132:3	Upper half	135	138	137
S96T004492		Upper half	116	73.3	94.7[QC:e]
S96T000834	132:4	Upper half	115	98.3	107
S96T004493		Upper half	58.4	49.8	54.1
S96T000849	132:5	Upper half	159	102	131[QC:e]
S96T004494		Upper half	57.6	41.6	49.6[QC:e]
S96T001735	132:7	Upper half	93.9	96.9	95.4
S96T004495	132:7R	Upper half	56.1	100	78[QC:e]
S96T001751	132:9	Upper half	97.1	112	105
S96T001756	132:10	Upper half	105	68.3	86.7[QC:e]
S96T001772	132:11	Upper half	88.9	80.9	84.9
S96T001952	132:12	Upper half	79.5	76.5	78
S96T002032	132:13	Upper half	66	56.4	61.2
S96T001962	132:14	Upper half	124	105	115
S96T001966	132:15	Lower half	200	168	184
S96T001970	132:16	Upper half	158	139	149
S96T001974	132:18	Upper half	419	437	428
S96T001978		Lower half	297	280	289

Table B2-18. Tank 241-AW-101 Analytical Results: Calcium (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: acid digest (Cont'd)			µg/g	µg/g	µg/g
S96T001981	132:20	Upper half	395	359	377
S96T001985		Lower half	612	543	578
S96T001988	132:22	Upper half	609	393	501[QC:e]
S96T001992		Lower half	480	489	485
S96T002418	139:1	Upper half	221	232	227[QC:c]
S96T004496		Upper half	503	272	388[QC:c,e]
S96T002530	139:2	Subsegment B	222	299	261[QC:e]
S96T004497		Subsegment B	254	282	268
S96T002535		Subsegment C	177	112	145[QC:e]
S96T004498		Subsegment C	131	114	123
S96T002538		Subsegment D lower half	73.1	59.6	66.3[QC:e]
S96T004499		Subsegment D lower half	73.1	91.2	82.2[QC:e]
S96T002571	139:3	Upper half	<42	44.1	<43
S96T004500		Upper half	85.3	141	113[QC:e]
S96T002580	139:4	Upper half	48.6	<46.3	<47.5
S96T004501		Upper half	96.7	46.3	71.5[QC:e]
S96T002597	139:5	Upper half	44.1	<40.6	<42.4
S96T002426	139:6	Upper half	<38.4	<39.7	<39
S96T002434	139:7	Upper half	<35.2	158	<96.6[QC:e]
S96T002450	139:8	Upper half	<38.8	<40.7	<39.8
S96T002458	139:9	Upper half	44.1	42.8	43.5
S96T002466	139:10	Upper half	<35.9	66.1	<51[QC:e]
S96T002683	139:11	Upper half	54.3	77.3	65.8[QC:c,e]
S96T004502		Upper half	110	49	79.5[QC:e]
S96T002691	139:12	Upper half	50.3	<41.1	<45.7[QC:e]
S96T004503		Upper half	89.1	213	151[QC:e]
S96T002699	139:13	Upper half	118	168	143[QC:e]
S96T004504		Upper half	128	240	184[QC:e]

Table B2-18. Tank 241-AW-101 Analytical Results: Calcium (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: acid digest (Cont'd)			**µg/g**	**µg/g**	**µg/g**
S96T002708	139:14	Upper half	68	77.5	72.8
S96T004505		Upper half	144	107	126[QC:e]
S96T002716	139:15	Upper half	51.4	62.6	57
S96T004506		Upper half	85.7	141	113[QC:e]
S96T003240	139:16R	Lower half	<38.9	43.8	<41.3
S96T003521	139:16R1	Lower half	<39.1	<37.8	<38.5
S96T003536	139:16R2	Upper half	<34.7	<34.8	<34.8
S96T003550	139:17R	Upper half	278	262	270
S96T003557		Lower half	290	280	285
S96T003572	139:19	Upper half	298	308	303
S96T004508		Upper half	510	543	527
S96T003566		Lower half	308	325	317[QC:c]
S96T004507		Lower half	492	484	488
S96T003586	139:21	Upper half	426	402	414
S96T004510		Upper half	608	518	563
S96T003580		Lower half	596	393	495[QC:e]
S96T004509		Lower half	617	538	578
S96T002738	Core 132	Solid composite	264	288	276
S96T002743		Solid composite	50.3	64.1	57.2[QC:e]
S96T002751		Solid composite	392	428	410
Liquids			**µg/g**	**µg/g**	**µg/g**
S96T001715	132:7	Drainable liquid	<75	<75	<75
S96T002146	132:7R	Drainable liquid	<75	<75	<75
S96T001747	132:9	Drainable liquid	<75	<75	<75
S96T001764	132:10	Drainable liquid	<75	<75	<75
S96T001768	132:11	Drainable liquid	<75	<75	<75
S96T001950	132:12	Drainable liquid	<37.6	<37.6	<37.6
S96T002028	132:13	Drainable liquid	<37.6	<37.6	<37.6
S96T001944	132:14	Drainable liquid	<6.31	<6.31	<6.31
S96T001960		Drainable liquid	<37.6	<37.6	<37.6

Table B2-18. Tank 241-AW-101 Analytical Results: Calcium (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids (Cont'd)			µg/g	µg/g	µg/g
S96T001964	132:15	Drainable liquid	<37.6	<37.6	<37.6
S96T001968	132:16	Drainable liquid	<37.6	<37.6	<37.6
S96T002527	139:2	Drainable liquid	<75	<75	<75
S96T002558	139:3	Drainable liquid	<75	<75	<75
S96T002575	139:4	Drainable liquid	<75	<75	<75
S96T002584	139:5	Drainable liquid	<75	<75	<75
S96T002422	139:6	Drainable liquid	<75	<75	<75
S96T002430	139:7	Drainable liquid	<75	<75	<75
S96T002439	139:8	Drainable liquid	<75	<75	<75
S96T002454	139:9	Drainable liquid	<75	<75	<75
S96T002462	139:10	Drainable liquid	<75	<75	<75
S96T002679	139:11	Drainable liquid	<75	<75	<75
S96T002687	139:12	Drainable liquid	<75	<75	<75
S96T002695	139:13	Drainable liquid	<75	<75	<75
S96T002704	139:14	Drainable liquid	<75	<75	<75
S96T002712	139:15	Drainable liquid	<75	<75	<75
S96T003236	139:16R	Drainable liquid	<75	<75	<75
S96T003545	139:17R	Drainable liquid	<75	<75	<75
S96T002767	Core 132	Liquid composite	<75	<75	<75

Table B2-19. Tank 241-AW-101 Analytical Results: Cerium (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: acid digest			µg/g	µg/g	µg/g
S96T000801	132:1	Upper half	<36.9	<33.9	<35.4
S96T002266		Upper half	<90.6	<91.2	<90.9
S96T000796		Lower half	<41.8	<42	<41.9
S96T002265		Lower half	<105	<151	<128
S96T000816	132:2	Upper half	<39.1	<36.2	<37.7
S96T002268		Upper half	<92.1	<93.5	<92.8
S96T000811		Lower half	<41	<38.7	<39.9
S96T002267		Lower half	<90.9	<92.6	<91.8
S96T000825	132:3	Upper half	<34.3	<37.5	<35.9
S96T004492		Upper half	<40.5	<36.8	<38.6[QC:a]
S96T000834	132:4	Upper half	<37.4	<42.2	<39.8
S96T004493		Upper half	<41.6	<41	<41.3[QC:a]
S96T000849	132:5	Upper half	<34	<36.3	<35.1
S96T004494		Upper half	<39.4	<38.4	<38.9[QC:a]
S96T001735	132:7	Upper half	<44.7	<43.7	<44.2
S96T004495	132:7R	Upper half	<37.9	<35.1	<36.5[QC:a]
S96T001751	132:9	Upper half	<44.8	<40.9	<42.8
S96T001756	132:10	Upper half	<43.7	<39.1	<41.4
S96T001772	132:11	Upper half	<42.4	<39.3	<40.8
S96T001952	132:12	Upper half	<43.5	<42.5	<43
S96T002032	132:13	Upper half	<40.1	<40.3	<40.2
S96T001962	132:14	Upper half	<35.2	<37.4	<36.3
S96T001966	132:15	Lower half	<43.5	<43.3	<43.4
S96T001970	132:16	Upper half	<43.7	<37.5	<40.6
S96T001974	132:18	Upper half	<41.6	<37.7	<39.7
S96T001978		Lower half	<36.2	<38.2	<37.2

Table B2-19. Tank 241-AW-101 Analytical Results: Cerium (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: acid digest (Cont'd)			µg/g	µg/g	µg/g
S96T001981	132:20	Upper half	<37.8	<37.2	<37.5
S96T001985		Lower half	<98.2	<98.5	<98.3
S96T001988	132:22	Upper half	<86.7	<86.4	<86.6
S96T001992		Lower half	<87.5	<87.7	<87.6
S96T002418	139:1	Upper half	<38.4	<36.2	<37.3[QC:c]
S96T004496		Upper half	<35.1	<39.6	<37.4[QC:c]
S96T002530	139:2	Subsegment B	<39.9	<38.5	<39.2
S96T004497		Subsegment B	<40.1	<39.2	<39.7
S96T002535		Subsegment C	<45.2	<40.5	<42.9
S96T004498		Subsegment C	<38	<37.3	<37.6
S96T002538		Subsegment D lower half	<38.8	<39.4	<39.1
S96T004499		Subsegment D lower half	<37.8	<37.8	<37.8
S96T002571	139:3	Upper half	<42	<41.4	<41.7
S96T004500		Upper half	<38	<37.9	<38
S96T002580	139:4	Upper half	<45.6	<46.3	<46
S96T004501		Upper half	<40.7	<40.3	<40.5
S96T002597	139:5	Upper half	<38.7	<40.6	<39.7
S96T002426	139:6	Upper half	<38.4	<39.7	<39
S96T002434	139:7	Upper half	<35.2	<37	<36.1
S96T002450	139:8	Upper half	<38.8	<40.7	<39.8
S96T002458	139:9	Upper half	<40.4	<36.6	<38.5
S96T002466	139:10	Upper half	<35.9	<37.2	<36.5
S96T002683	139:11	Upper half	<40.7	<46.7	<43.7[QC:c]
S96T004502		Upper half	<38.2	<37	<37.6
S96T002691	139:12	Upper half	<46.9	<41.1	<44
S96T004503		Upper half	<36.7	<38	<37.4
S96T002699	139:13	Upper half	<45.5	<46.1	<45.8
S96T004504		Upper half	<40.4	<40.2	<40.3

Table B2-19. Tank 241-AW-101 Analytical Results: Cerium (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: acid digest (Cont'd)			**µg/g**	**µg/g**	**µg/g**
S96T002708	139:14	Upper half	<49.4	<42.9	<46.1
S96T004505		Upper half	<39.7	<39.4	<39.5
S96T002716	139:15	Upper half	<39.4	<38.4	<38.9
S96T004506		Upper half	<39.6	<38.6	<39.1
S96T003240	139:16R	Lower half	<38.9	<37.3	<38.1
S96T003521	139:16R1	Lower half	<39.1	<37.8	<38.5
S96T003536	139:16R2	Upper half	<34.7	<34.8	<34.8
S96T003550	139:17R	Upper half	<39.5	<39.7	<39.6
S96T003557		Lower half	<39.4	<38.9	<39.1
S96T003572	139:19	Upper half	<48	<44.1	<46
S96T004508		Upper half	<39.7	<40	<39.9
S96T003566		Lower half	<38.3	<38.5	<38.4[QC:c]
S96T004507		Lower half	<39.1	<40.2	<39.7
S96T003586	139:21	Upper half	<36.8	<33.8	<35.3
S96T004510		Upper half	<40.1	<40.5	<40.3
S96T003580		Lower half	<44.6	<39.4	<42
S96T004509		Lower half	<39.7	<39.7	<39.7
S96T002738	Core 132	Solid composite	<38.9	<38.5	<38.7
S96T002743		Solid composite	<39.1	<39.1	<39.1
S96T002751		Solid composite	<38.9	<36	<37.5
Liquids			**µg/g**	**µg/g**	**µg/g**
S96T001715	132:7	Drainable liquid	<75	<75	<75
S96T002146	132:7R	Drainable liquid	<75	<75	<75
S96T001747	132:9	Drainable liquid	<75	<75	<75
S96T001764	132:10	Drainable liquid	<75	<75	<75
S96T001768	132:11	Drainable liquid	<75	<75	<75
S96T001950	132:12	Drainable liquid	<37.6	<37.6	<37.6
S96T002028	132:13	Drainable liquid	<37.6	<37.6	<37.6
S96T001944	132:14	Drainable liquid	<6.31	<6.31	<6.31
S96T001960		Drainable liquid	<37.6	<37.6	<37.6

Table B2-19. Tank 241-AW-101 Analytical Results: Cerium (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids (Cont'd)			µg/g	µg/g	µg/g
S96T001964	132:15	Drainable liquid	<37.6	<37.6	<37.6
S96T001968	132:16	Drainable liquid	<37.6	<37.6	<37.6
S96T002527	139:2	Drainable liquid	<75	<75	<75
S96T002558	139:3	Drainable liquid	<75	<75	<75
S96T002575	139:4	Drainable liquid	<75	<75	<75
S96T002584	139:5	Drainable liquid	<75	<75	<75
S96T002422	139:6	Drainable liquid	<75	<75	<75
S96T002430	139:7	Drainable liquid	<75	<75	<75
S96T002439	139:8	Drainable liquid	<75	<75	<75
S96T002454	139:9	Drainable liquid	<75	<75	<75
S96T002462	139:10	Drainable liquid	<75	<75	<75
S96T002679	139:11	Drainable liquid	<75	<75	<75
S96T002687	139:12	Drainable liquid	<75	<75	<75
S96T002695	139:13	Drainable liquid	<75	<75	<75
S96T002704	139:14	Drainable liquid	<75	<75	<75
S96T002712	139:15	Drainable liquid	<75	<75	<75
S96T003236	139:16R	Drainable liquid	<75	<75	<75
S96T003545	139:17R	Drainable liquid	<75	<75	<75
S96T002767	Core 132	Liquid composite	<75	<75	<75

Table B2-20. Tank 241-AW-101 Analytical Results: Chromium (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: acid digest			µg/g	µg/g	µg/g
S96T000801	132:1	Upper half	595	633	614
S96T002266		Upper half	635	471	553[QC:e]
S96T000796		Lower half	444	402	423[QC:c]
S96T002265		Lower half	389	466	428
S96T000816	132:2	Upper half	362	360	361
S96T002268		Upper half	359	368	364
S96T000811		Lower half	214	210	212
S96T002267		Lower half	227	244	236
S96T000825	132:3	Upper half	72.3	67.7	70
S96T004492		Upper half	44	57.1	50.5[QC:a,e]
S96T000834	132:4	Upper half	66.9	67.5	67.2
S96T004493		Upper half	60.6	64.8	62.7[QC:a]
S96T000849	132:5	Upper half	57.6	56.8	57.2
S96T004494		Upper half	36.4	38.4	37.4[QC:a]
S96T001735	132:7	Upper half	597	603	600
S96T004495	132:7R	Upper half	33.5	52.4	43[QC:a,e]
S96T001751	132:9	Upper half	53.8	53.1	53.5
S96T001756	132:10	Upper half	40.1	45.6	42.9
S96T001772	132:11	Upper half	46.6	60	53.3[QC:e]
S96T001952	132:12	Upper half	37.5	39.8	38.6
S96T002032	132:13	Upper half	59.7	56.6	58.2
S96T001962	132:14	Upper half	33.9	39.3	36.6
S96T001966	132:15	Lower half	31.2	36.8	34
S96T001970	132:16	Upper half	35.6	34.5	35
S96T001974	132:18	Upper half	521	513	517
S96T001978		Lower half	333	311	322

Table B2-20. Tank 241-AW-101 Analytical Results: Chromium (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: acid digest (Cont'd)			µg/g	µg/g	µg/g
S96T001981	132:20	Upper half	466	404	435
S96T001985		Lower half	596	584	590
S96T001988	132:22	Upper half	694	454	574[QC:e]
S96T001992		Lower half	532	551	542
S96T002418	139:1	Upper half	383	403	393[QC:c]
S96T004496		Upper half	405	410	408[QC:a,c]
S96T002530	139:2	Subsegment B	359	399	379
S96T004497		Subsegment B	423	416	420[QC:a]
S96T002535		Subsegment C	225	181	203[QC:e]
S96T004498		Subsegment C	188	190	189[QC:a]
S96T002538		Subsegment D lower half	84.6	85.7	85.2
S96T004499		Subsegment D lower half	59	63.4	61.2[QC:a]
S96T002571	139:3	Upper half	59	44.3	51.6[QC:e]
S96T004500		Upper half	43.6	40.9	42.3[QC:a]
S96T002580	139:4	Upper half	35	33.9	34.5
S96T004501		Upper half	31.7	25.5	28.6[QC:e]
S96T002597	139:5	Upper half	61.2	34.4	47.8[QC:d,e]
S96T002426	139:6	Upper half	34.3	45.8	40[QC:e]
S96T002434	139:7	Upper half	33.8	29.4	31.6
S96T002450	139:8	Upper half	29.9	35.7	32.8
S96T002458	139:9	Upper half	56	63.5	59.8
S96T002466	139:10	Upper half	39.1	38.5	38.8
S96T002683	139:11	Upper half	43.2	49.8	46.5[QC:c]
S96T004502		Upper half	34.2	40.6	37.4
S96T002691	139:12	Upper half	32.4	40.4	36.4[QC:e]
S96T004503		Upper half	56.2	37.4	46.8[QC:e]
S96T002699	139:13	Upper half	43	38.2	40.6
S96T004504		Upper half	33.1	32.1	32.6

Table B2-20. Tank 241-AW-101 Analytical Results: Chromium (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: acid digest (Cont'd)			**µg/g**	**µg/g**	**µg/g**
S96T002708	139:14	Upper half	44.1	50.1	47.1
S96T004505		Upper half	65.5	33.5	49.5[QC:e]
S96T002716	139:15	Upper half	43.2	45.3	44.3
S96T004506		Upper half	42.9	32.4	37.6[QC:e]
S96T003240	139:16R	Lower half	26.3	33.8	30[QC:e]
S96T003521	139:16R1	Lower half	31.1	34.4	32.8
S96T003536	139:16R2	Upper half	46.6	47.4	47
S96T003550	139:17R	Upper half	468	416	442
S96T003557		Lower half	494	466	480
S96T003572	139:19	Upper half	454	475	465
S96T004508		Upper half	612	687	650
S96T003566		Lower half	468	469	469[QC:c]
S96T004507		Lower half	567	526	547
S96T003586	139:21	Upper half	553	584	569
S96T004510		Upper half	754	624	689
S96T003580		Lower half	604	600	602
S96T004509		Lower half	847	699	773
S96T002738	Core 132	Solid composite	485	508	497[QC:a]
S96T002743		Solid composite	67.5	72.1	69.8[QC:a]
S96T002751		Solid composite	512	530	521[QC:a]
Liquids			**µg/g**	**µg/g**	**µg/g**
S96T001715	132:7	Drainable liquid	15	13.1	14
S96T002146	132:7R	Drainable liquid	70	73.8	71.9
S96T001747	132:9	Drainable liquid	72.5	85.6	79.1
S96T001764	132:10	Drainable liquid	70	75	72.5
S96T001768	132:11	Drainable liquid	71.3	75	73.1
S96T001950	132:12	Drainable liquid	75	68.8	71.9
S96T002028	132:13	Drainable liquid	70.6	70.6	70.6
S96T001944	132:14	Drainable liquid	3.29	3.36	3.32
S96T001960		Drainable liquid	72.5	73.1	72.8

Table B2-20. Tank 241-AW-101 Analytical Results: Chromium (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids (Cont'd)			µg/g	µg/g	µg/g
S96T001964	132:15	Drainable liquid	73.1	72.5	72.8
S96T001968	132:16	Drainable liquid	77.5	75	76.3
S96T002527	139:2	Drainable liquid	58.1	60.8	59.5
S96T002558	139:3	Drainable liquid	73.1	67.5	70.3
S96T002575	139:4	Drainable liquid	67.5	64.4	65.9
S96T002584	139:5	Drainable liquid	62.4	60.8	61.6
S96T002422	139:6	Drainable liquid	66.9	67.5	67.2
S96T002430	139:7	Drainable liquid	65.6	76.3	70.9
S96T002439	139:8	Drainable liquid	82.5	73.8	78.1
S96T002454	139:9	Drainable liquid	74.4	71.3	72.8
S96T002462	139:10	Drainable liquid	70	73.1	71.6
S96T002679	139:11	Drainable liquid	70	70.6	70.3
S96T002687	139:12	Drainable liquid	70	65	67.5
S96T002695	139:13	Drainable liquid	71.9	75	73.4
S96T002704	139:14	Drainable liquid	75.6	71.9	73.8
S96T002712	139:15	Drainable liquid	71.9	71.9	71.9
S96T003236	139:16R	Drainable liquid	71.9	70	70.9
S96T003545	139:17R	Drainable liquid	63.1	56.1	59.6
S96T002767	Core 132	Liquid composite	65.6	73.1	69.4

Table B2-21. Tank 241-AW-101 Analytical Results: Cobalt (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: acid digest			**µg/g**	**µg/g**	**µg/g**
S96T000801	132:1	Upper half	<7.37	<6.78	<7.08
S96T002266		Upper half	<18.1	<18.2	<18.1
S96T000796		Lower half	<8.36	<8.39	<8.38[QC:c]
S96T002265		Lower half	<21	<30.2	<25.6
S96T000816	132:2	Upper half	<7.81	<7.24	<7.53
S96T002268		Upper half	<18.4	<18.7	<18.5
S96T000811		Lower half	<8.19	<7.75	<7.97
S96T002267		Lower half	<18.2	<18.5	<18.4
S96T000825	132:3	Upper half	<6.86	<7.49	<7.18
S96T004492		Upper half	<8.09	<7.37	<7.73[QC:a]
S96T000834	132:4	Upper half	<7.48	<8.44	<7.96
S96T004493		Upper half	<8.33	<8.2	<8.27[QC:a]
S96T000849	132:5	Upper half	<6.79	<7.25	<7.02
S96T004494		Upper half	<7.87	<7.67	<7.77[QC:a]
S96T001735	132:7	Upper half	<8.93	<8.75	<8.84
S96T004495	132:7R	Upper half	<7.58	<7.02	<7.3[QC:a]
S96T001751	132:9	Upper half	<8.95	<8.18	<8.56
S96T001756	132:10	Upper half	<8.75	<7.82	<8.29
S96T001772	132:11	Upper half	<8.47	<7.87	<8.17
S96T001952	132:12	Upper half	<8.7	<8.51	<8.61
S96T002032	132:13	Upper half	<8.02	<8.06	<8.04
S96T001962	132:14	Upper half	<7.04	<7.49	<7.27
S96T001966	132:15	Lower half	<8.7	<8.65	<8.68
S96T001970	132:16	Upper half	<8.74	<7.5	<8.12
S96T001974	132:18	Upper half	<8.31	<7.53	<7.92
S96T001978		Lower half	<7.24	<7.65	<7.45

Table B2-21. Tank 241-AW-101 Analytical Results: Cobalt (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: acid digest (Cont'd)			µg/g	µg/g	µg/g
S96T001981	132:20	Upper half	<7.56	<7.43	<7.49
S96T001985		Lower half	<19.6	<19.7	<19.6
S96T001988	132:22	Upper half	<17.3	<17.3	<17.3
S96T001992		Lower half	<17.5	<17.5	<17.5
S96T002418	139:1	Upper half	<7.69	<7.24	<7.46[QC:c]
S96T004496		Upper half	<7.03	<7.93	<7.48[QC:c]
S96T002530	139:2	Subsegment B	<7.97	<7.7	<7.84
S96T004497		Subsegment B	<8.01	<7.83	<7.92
S96T002535		Subsegment C	<9.03	<8.1	<8.56
S96T004498		Subsegment C	<7.61	<7.45	<7.53
S96T002538		Subsegment D lower half	<7.77	<7.88	<7.82
S96T004499		Subsegment D lower half	<7.56	<7.55	<7.55
S96T002571	139:3	Upper half	<8.4	<8.28	<8.34
S96T004500		Upper half	<7.6	<7.59	<7.59
S96T002580	139:4	Upper half	<9.13	<9.25	<9.19
S96T004501		Upper half	<8.14	<8.06	<8.1
S96T002597	139:5	Upper half	<7.75	<8.11	<7.93
S96T002426	139:6	Upper half	<7.69	<7.95	<7.82
S96T002434	139:7	Upper half	<7.05	<7.39	<7.22
S96T002450	139:8	Upper half	<7.76	<8.14	<7.95
S96T002458	139:9	Upper half	<8.08	<7.32	<7.7
S96T002466	139:10	Upper half	<7.17	<7.44	<7.3
S96T002683	139:11	Upper half	<8.13	<9.33	<8.73[QC:c]
S96T004502		Upper half	<7.64	<7.4	<7.52
S96T002691	139:12	Upper half	<9.39	<8.23	<8.81
S96T004503		Upper half	<7.34	<7.6	<7.47
S96T002699	139:13	Upper half	<9.09	<9.22	<9.16
S96T004504		Upper half	<8.08	<8.04	<8.06

Table B2-21. Tank 241-AW-101 Analytical Results: Cobalt (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: acid digest (Cont'd)			**µg/g**	**µg/g**	**µg/g**
S96T002708	139:14	Upper half	<9.87	<8.57	<9.22
S96T004505		Upper half	<7.93	<7.88	<7.9
S96T002716	139:15	Upper half	<7.89	<7.69	<7.79
S96T004506		Upper half	<7.91	<7.73	<7.82
S96T003240	139:16R	Lower half	<7.78	<7.47	<7.63
S96T003521	139:16R1	Lower half	<7.82	<7.55	<7.69
S96T003536	139:16R2	Upper half	<6.94	<6.97	<6.96
S96T003550	139:17R	Upper half	<7.9	<7.95	<7.93
S96T003557		Lower half	<7.88	<7.77	<7.82
S96T003572	139:19	Upper half	<9.59	<8.81	<9.2[QC:b]
S96T004508		Upper half	<7.94	<8	<7.97
S96T003566		Lower half	<7.67	<7.7	<7.69[QC:b,c]
S96T004507		Lower half	<7.81	<8.04	<7.92
S96T003586	139:21	Upper half	<7.36	<6.76	<7.06[QC:b]
S96T004510		Upper half	<8.02	<8.09	<8.05
S96T003580		Lower half	<8.92	<7.87	<8.39[QC:b]
S96T004509		Lower half	<7.95	<7.94	<7.95
S96T002738	Core 132	Solid composite	<7.79	<7.71	<7.75
S96T002743		Solid composite	<7.82	<7.82	<7.82
S96T002751		Solid composite	<7.79	<7.19	<7.49
Liquids			**µg/g**	**µg/g**	**µg/g**
S96T001715	132:7	Drainable liquid	<15	<15	<15
S96T002146	132:7R	Drainable liquid	<15	<15	<15
S96T001747	132:9	Drainable liquid	<15	<15	<15
S96T001764	132:10	Drainable liquid	<15	<15	<15
S96T001768	132:11	Drainable liquid	<15	<15	<15
S96T001950	132:12	Drainable liquid	<7.5	<7.5	<7.5
S96T002028	132:13	Drainable liquid	<7.5	<7.5	<7.5
S96T001944	132:14	Drainable liquid	<1.26	<1.26	<1.26
S96T001960		Drainable liquid	<7.5	<7.5	<7.5

Table B2-21. Tank 241-AW-101 Analytical Results: Cobalt (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids (Cont'd)			µg/g	µg/g	µg/g
S96T001964	132:15	Drainable liquid	<7.5	<7.5	<7.5
S96T001968	132:16	Drainable liquid	<7.5	<7.5	<7.5
S96T002527	139:2	Drainable liquid	<15	<15	<15
S96T002558	139:3	Drainable liquid	<15	<15	<15
S96T002575	139:4	Drainable liquid	<15	<15	<15
S96T002584	139:5	Drainable liquid	<15	<15	<15
S96T002422	139:6	Drainable liquid	<15	<15	<15
S96T002430	139:7	Drainable liquid	<15	<15	<15
S96T002439	139:8	Drainable liquid	<15	<15	<15
S96T002454	139:9	Drainable liquid	<15	<15	<15
S96T002462	139:10	Drainable liquid	<15	<15	<15
S96T002679	139:11	Drainable liquid	<15	<15	<15
S96T002687	139:12	Drainable liquid	<15	<15	<15
S96T002695	139:13	Drainable liquid	<15	<15	<15
S96T002704	139:14	Drainable liquid	<15	<15	<15
S96T002712	139:15	Drainable liquid	<15	<15	<15
S96T003236	139:16R	Drainable liquid	<15	<15	<15
S96T003545	139:17R	Drainable liquid	<15	<15	<15
S96T002767	Core 132	Liquid composite	<15	<15	<15

Table B2-22. Tank 241-AW-101 Analytical Results: Copper (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: acid digest			µg/g	µg/g	µg/g
S96T000801	132:1	Upper half	8.83	9.73	9.28
S96T002266		Upper half	<9.06	<9.12	<9.09
S96T000796		Lower half	8.57	7.94	8.26[QC:c]
S96T002265		Lower half	<10.5	<15.1	<12.8
S96T000816	132:2	Upper half	7.25	7.5	7.38
S96T002268		Upper half	13.8	14.9	14.4
S96T000811		Lower half	6.05	5.96	6
S96T002267		Lower half	<9.09	13.2	<11.1[QC:e]
S96T000825	132:3	Upper half	<3.43	<3.75	<3.59
S96T004492		Upper half	<4.05	<3.68	<3.87[QC:a]
S96T000834	132:4	Upper half	<3.74	<4.22	<3.98
S96T004493		Upper half	<4.16	<4.1	<4.13[QC:a]
S96T000849	132:5	Upper half	<3.4	<3.63	<3.51
S96T004494		Upper half	<3.94	<3.84	<3.89[QC:a]
S96T001735	132:7	Upper half	70.3	72.7	71.5
S96T004495	132:7R	Upper half	<3.79	<3.51	<3.65[QC:a]
S96T001751	132:9	Upper half	9.09	4.44	6.77[QC:e]
S96T001756	132:10	Upper half	4.97	3.97	4.47[QC:e]
S96T001772	132:11	Upper half	9.9	5.29	7.6[QC:e]
S96T001952	132:12	Upper half	<4.35	6.27	<5.31[QC:e]
S96T002032	132:13	Upper half	6.17	<4.03	<5.1[QC:e]
S96T001962	132:14	Upper half	5.35	<3.74	<4.54[QC:e]
S96T001966	132:15	Lower half	<4.35	6.88	<5.62[QC:e]
S96T001970	132:16	Upper half	9.27	9.68	9.47
S96T001974	132:18	Upper half	11.6	13.3	12.4
S96T001978		Lower half	7.76	7.81	7.79

Table B2-22. Tank 241-AW-101 Analytical Results: Copper (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: acid digest (Cont'd)			µg/g	µg/g	µg/g
S96T001981	132:20	Upper half	15.3	9.42	12.4[QC:e]
S96T001985		Lower half	12.2	10.8	11.5
S96T001988	132:22	Upper half	16.7	9.56	13.1[QC:e]
S96T001992		Lower half	37	11.5	24.3[QC:e]
S96T002418	139:1	Upper half	29.8	35.7	32.8[QC:c]
S96T004496		Upper half	28.9	31.6	30.3[QC:a,c]
S96T002530	139:2	Subsegment B	9.26	12.1	10.7[QC:e]
S96T004497		Subsegment B	9.17	10	9.59[QC:a]
S96T002535		Subsegment C	6.51	5.18	5.84[QC:e]
S96T004498		Subsegment C	5.64	5.86	5.75[QC:a]
S96T002538		Subsegment D lower half	4.21	5.68	4.95[QC:e]
S96T004499		Subsegment D lower half	<3.78	<3.78	<3.78[QC:a]
S96T002571	139:3	Upper half	5.35	9.46	7.41[QC:e]
S96T004500		Upper half	3.86	5.21	4.54[QC:a,e]
S96T002580	139:4	Upper half	<4.56	<4.63	<4.59
S96T004501		Upper half	<4.07	<4.03	<4.05
S96T002597	139:5	Upper half	7.01	6.2	6.61
S96T002426	139:6	Upper half	8.78	5.18	6.98[QC:e]
S96T002434	139:7	Upper half	<3.52	4.42	<3.97[QC:e]
S96T002450	139:8	Upper half	5.51	8.75	7.13[QC:e]
S96T002458	139:9	Upper half	<4.04	8.89	<6.46[QC:e]
S96T002466	139:10	Upper half	5.48	5.01	5.25
S96T002683	139:11	Upper half	4.52	<4.67	<4.59[QC:c]
S96T004502		Upper half	<3.82	<3.7	<3.76
S96T002691	139:12	Upper half	<4.69	12.2	<8.45[QC:e]
S96T004503		Upper half	6.24	<3.8	<5.02[QC:e]
S96T002699	139:13	Upper half	4.74	<4.61	<4.68
S96T004504		Upper half	9.27	<4.02	<6.64[QC:e]

Table B2-22. Tank 241-AW-101 Analytical Results: Copper (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: acid digest (Cont'd)			**µg/g**	**µg/g**	**µg/g**
S96T002708	139:14	Upper half	5.27	<4.29	<4.78[QC:e]
S96T004505		Upper half	<3.97	<3.94	<3.96
S96T002716	139:15	Upper half	5.1	<3.84	<4.47[QC:e]
S96T004506		Upper half	<3.96	<3.86	<3.91
S96T003240	139:16R	Lower half	<3.89	<3.73	<3.81
S96T003521	139:16R1	Lower half	<3.91	<3.78	<3.84
S96T003536	139:16R2	Upper half	6.9	4.03	5.46[QC:e]
S96T003550	139:17R	Upper half	11.1	9.44	10.3
S96T003557		Lower half	9.68	10.2	9.94
S96T003572	139:19	Upper half	8.66	8.57	8.62
S96T004508		Upper half	9.88	12.7	11.3[QC:e]
S96T003566		Lower half	9.93	8.78	9.36[QC:e]
S96T004507		Lower half	10.9	9.01	9.96
S96T003586	139:21	Upper half	10.5	9.54	10
S96T004510		Upper half	14.5	9.7	12.1[QC:e]
S96T003580		Lower half	10.4	10.4	10.4
S96T004509		Lower half	19.1	11.5	15.3[QC:e]
S96T002738	Core 132	Solid composite	6.24	7.86	7.05[QC:e]
S96T002743		Solid composite	<3.91	<3.91	<3.91
S96T002751		Solid composite	7.92	8.29	8.11
Liquids			**µg/g**	**µg/g**	**µg/g**
S96T001715	132:7	Drainable liquid	52.7	45.9	49.3
S96T002146	132:7R	Drainable liquid	<7.5	<7.5	<7.5
S96T001747	132:9	Drainable liquid	<7.5	<7.5	<7.5
S96T001764	132:10	Drainable liquid	<7.5	<7.5	<7.5
S96T001768	132:11	Drainable liquid	<7.5	<7.5	<7.5
S96T001950	132:12	Drainable liquid	<3.76	<3.76	<3.76
S96T002028	132:13	Drainable liquid	<3.76	<3.76	<3.76
S96T001944	132:14	Drainable liquid	2.13	2.24	2.19
S96T001960		Drainable liquid	<3.76	<3.76	<3.76

Table B2-22. Tank 241-AW-101 Analytical Results: Copper (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids (Cont'd)			µg/g	µg/g	µg/g
S96T001964	132:15	Drainable liquid	<3.76	<3.76	<3.76
S96T001968	132:16	Drainable liquid	<3.76	<3.76	<3.76
S96T002527	139:2	Drainable liquid	<7.5	<7.5	<7.5
S96T002558	139:3	Drainable liquid	<7.5	<7.5	<7.5
S96T002575	139:4	Drainable liquid	<7.5	<7.5	<7.5
S96T002584	139:5	Drainable liquid	<7.5	<7.5	<7.5
S96T002422	139:6	Drainable liquid	<7.5	<7.5	<7.5
S96T002430	139:7	Drainable liquid	<7.5	<7.5	<7.5
S96T002439	139:8	Drainable liquid	<7.5	<7.5	<7.5
S96T002454	139:9	Drainable liquid	<7.5	<7.5	<7.5
S96T002462	139:10	Drainable liquid	<7.5	<7.5	<7.5
S96T002679	139:11	Drainable liquid	<7.5	<7.5	<7.5
S96T002687	139:12	Drainable liquid	<7.5	<7.5	<7.5
S96T002695	139:13	Drainable liquid	<7.5	<7.5	<7.5
S96T002704	139:14	Drainable liquid	<7.5	<7.5	<7.5
S96T002712	139:15	Drainable liquid	<7.5	<7.5	<7.5
S96T003236	139:16R	Drainable liquid	<7.5	<7.5	<7.5
S96T003545	139:17R	Drainable liquid	<7.5	<7.5	<7.5
S96T002767	Core 132	Liquid composite	<7.5	<7.5	<7.5

Table B2-23. Tank 241-AW-101 Analytical Results: Iron (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: acid digest			µg/g	µg/g	µg/g
S96T000801	132:1	Upper half	359	366	363
S96T002266		Upper half	393	291	342[QC:e]
S96T000796		Lower half	292	265	279[QC:c]
S96T002265		Lower half	260	356	308[QC:e]
S96T000816	132:2	Upper half	335	600	468[QC:e]
S96T002268		Upper half	537	470	504
S96T000811		Lower half	197	144	171[QC:e]
S96T002267		Lower half	198	206	202
S96T000825	132:3	Upper half	32.3	35.2	33.8
S96T004492		Upper half	43.8	42.6	43.2[QC:a,c]
S96T000834	132:4	Upper half	18.8	<21.1	<20
S96T004493		Upper half	<20.8	<20.5	<20.6[QC:a]
S96T000849	132:5	Upper half	<17	<18.1	<17.6
S96T004494		Upper half	<19.7	<19.2	<19.4[QC:a]
S96T001735	132:7	Upper half	4,550	3,530	4,040[QC:e]
S96T004495	132:7R	Upper half	<19	<17.5	<18.3[QC:a]
S96T001751	132:9	Upper half	46.1	30.5	38.3[QC:e]
S96T001756	132:10	Upper half	45	34.7	39.9[QC:e]
S96T001772	132:11	Upper half	54.5	44.5	49.5[QC:e]
S96T001952	132:12	Upper half	23.4	31.9	27.6[QC:e]
S96T002032	132:13	Upper half	44.2	35	39.6[QC:e]
S96T001962	132:14	Upper half	20	22.4	21.2
S96T001966	132:15	Lower half	36.1	23.4	29.8[QC:e]
S96T001970	132:16	Upper half	72.4	54.1	63.3[QC:e]
S96T001974	132:18	Upper half	475	1150	813[QC:e]
S96T001978		Lower half	256	245	251

Table B2-23. Tank 241-AW-101 Analytical Results: Iron (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: acid digest (Cont'd)			µg/g	µg/g	µg/g
S96T001981	132:20	Upper half	384	328	356
S96T001985		Lower half	674	593	634
S96T001988	132:22	Upper half	663	421	542[QC:e]
S96T001992		Lower half	502	522	512
S96T002418	139:1	Upper half	290	279	285[QC:c]
S96T004496		Upper half	263	265	264[QC:c]
S96T002530	139:2	Subsegment B	280	356	318[QC:e]
S96T004497		Subsegment B	360	302	331
S96T002535		Subsegment C	248	168	208[QC:e]
S96T004498		Subsegment C	136	115	126
S96T002538		Subsegment D lower half	66.5	80.3	73.4
S96T004499		Subsegment D lower half	60.6	66.5	63.5
S96T002571	139:3	Upper half	155	108	132[QC:e]
S96T004500		Upper half	84.6	75.2	79.9
S96T002580	139:4	Upper half	42.8	39.2	41
S96T004501		Upper half	20.5	<20.2	<20.4
S96T002597	139:5	Upper half	32.5	27.1	29.8
S96T002426	139:6	Upper half	110	129	120
S96T002434	139:7	Upper half	23.8	25.3	24.6
S96T002450	139:8	Upper half	23.4	31.7	27.5[QC:e]
S96T002458	139:9	Upper half	52.4	53.8	53.1
S96T002466	139:10	Upper half	36.6	32.7	34.7
S96T002683	139:11	Upper half	25.2	54.1	39.6[QC:c,e]
S96T004502		Upper half	22.4	27.4	24.9[QC:e]
S96T002691	139:12	Upper half	48.9	44	46.5
S96T004503		Upper half	38.1	40.9	39.5
S96T002699	139:13	Upper half	40.8	38.8	39.8
S96T004504		Upper half	<20.2	40.7	<30.5[QC:e]

Table B2-23. Tank 241-AW-101 Analytical Results: Iron (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: acid digest (Cont'd)			**µg/g**	**µg/g**	**µg/g**
S96T002708	139:14	Upper half	<24.7	42	<33.4[QC:e]
S96T004505		Upper half	35.8	<19.7	<27.8[QC:e]
S96T002716	139:15	Upper half	22.8	20.1	21.5
S96T004506		Upper half	<19.8	37.5	<28.6[QC:e]
S96T003240	139:16R	Lower half	38.5	27.9	33.2[QC:e]
S96T003521	139:16R1	Lower half	27.1	<18.9	<23[QC:e]
S96T003536	139:16R2	Upper half	32.7	125	78.8[QC:e]
S96T003550	139:17R	Upper half	489	790	640[QC:e]
S96T003557		Lower half	402	446	424
S96T003572	139:19	Upper half	426	450	438[QC:b]
S96T004508		Upper half	517	612	565
S96T003566		Lower half	404	403	404[QC:b]
S96T004507		Lower half	507	437	472
S96T003586	139:21	Upper half	577	512	545[QC:b]
S96T004510		Upper half	707	590	649
S96T003580		Lower half	532	539	536[QC:b]
S96T004509		Lower half	777	634	706[QC:e]
S96T002738	Core 132	Solid composite	366	654	510[QC:e]
S96T002743		Solid composite	63.7	51	57.4[QC:e]
S96T002751		Solid composite	503	477	490
Liquids			**µg/g**	**µg/g**	**µg/g**
S96T001715	132:7	Drainable liquid	<37.6	<37.6	<37.6
S96T002146	132:7R	Drainable liquid	<37.6	<37.6	<37.6
S96T001747	132:9	Drainable liquid	<37.6	<37.6	<37.6
S96T001764	132:10	Drainable liquid	<37.6	<37.6	<37.6
S96T001768	132:11	Drainable liquid	<37.6	<37.6	<37.6
S96T001950	132:12	Drainable liquid	<18.8	<18.8	<18.8
S96T002028	132:13	Drainable liquid	<18.8	<18.8	<18.8
S96T001944	132:14	Drainable liquid	<3.16	<3.16	<3.16
S96T001960		Drainable liquid	<18.8	<18.8	<18.8

Table B2-23. Tank 241-AW-101 Analytical Results: Iron (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids (Cont'd)			µg/g	µg/g	µg/g
S96T001964	132:15	Drainable liquid	<18.8	<18.8	<18.8
S96T001968	132:16	Drainable liquid	<18.8	<18.8	<18.8
S96T002527	139:2	Drainable liquid	<37.6	<37.6	<37.6
S96T002558	139:3	Drainable liquid	<37.6	<37.6	<37.6
S96T002575	139:4	Drainable liquid	<37.6	<37.6	<37.6
S96T002584	139:5	Drainable liquid	<37.6	<37.6	<37.6
S96T002422	139:6	Drainable liquid	<37.6	<37.6	<37.6
S96T002430	139:7	Drainable liquid	<37.6	<37.6	<37.6
S96T002439	139:8	Drainable liquid	<37.6	<37.6	<37.6
S96T002454	139:9	Drainable liquid	<37.6	<37.6	<37.6
S96T002462	139:10	Drainable liquid	<37.6	<37.6	<37.6
S96T002679	139:11	Drainable liquid	<37.6	<37.6	<37.6
S96T002687	139:12	Drainable liquid	<37.6	<37.6	<37.6
S96T002695	139:13	Drainable liquid	<37.6	<37.6	<37.6
S96T002704	139:14	Drainable liquid	<37.6	<37.6	<37.6
S96T002712	139:15	Drainable liquid	<37.6	<37.6	<37.6
S96T003236	139:16R	Drainable liquid	<37.6	<37.6	<37.6
S96T003545	139:17R	Drainable liquid	<37.6	<37.6	<37.6
S96T002767	Core 132	Liquid composite	<37.6	<37.6	<37.6

Table B2-24. Tank 241-AW-101 Analytical Results: Lanthanum (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: acid digest			µg/g	µg/g	µg/g
S96T000801	132:1	Upper half	<18.4	<17	<17.7
S96T002266		Upper half	<45.3	<45.6	<45.5
S96T000796		Lower half	<20.9	<21	<20.9
S96T002265		Lower half	<52.6	<75.4	<64[QC:e]
S96T000816	132:2	Upper half	<19.5	<18.1	<18.8
S96T002268		Upper half	<46.1	<46.7	<46.4
S96T000811		Lower half	<20.5	<19.4	<19.9
S96T002267		Lower half	<45.4	<46.3	<45.8
S96T000825	132:3	Upper half	<17.1	<18.7	<17.9
S96T004492		Upper half	<20.2	<18.4	<19.3[QC:a]
S96T000834	132:4	Upper half	<18.7	<21.1	<19.9
S96T004493		Upper half	<20.8	<20.5	<20.6[QC:a]
S96T000849	132:5	Upper half	<17	<18.1	<17.6
S96T004494		Upper half	<19.7	<19.2	<19.4[QC:a]
S96T001735	132:7	Upper half	<22.3	<21.9	<22.1
S96T004495	132:7R	Upper half	<19	<17.5	<18.3[QC:a]
S96T001751	132:9	Upper half	<22.4	<20.4	<21.4
S96T001756	132:10	Upper half	<21.9	<19.5	<20.7
S96T001772	132:11	Upper half	<21.2	<19.7	<20.4
S96T001952	132:12	Upper half	<21.7	<21.3	<21.5
S96T002032	132:13	Upper half	<20	<20.2	<20.1
S96T001962	132:14	Upper half	<17.6	<18.7	<18.1
S96T001966	132:15	Lower half	<21.7	<21.6	<21.6
S96T001970	132:16	Upper half	<21.9	<18.8	<20.4
S96T001974	132:18	Upper half	<20.8	<18.8	<19.8
S96T001978		Lower half	<18.1	<19.1	<18.6

Table B2-24. Tank 241-AW-101 Analytical Results: Lanthanum (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: acid digest (Cont'd)			µg/g	µg/g	µg/g
S96T001981	132:20	Upper half	<18.9	<18.6	<18.8
S96T001985		Lower half	<49.1	<49.3	<49.2
S96T001988	132:22	Upper half	<43.3	<43.2	<43.3
S96T001992		Lower half	<43.7	<43.9	<43.8
S96T002418	139:1	Upper half	<19.2	<18.1	<18.6[QC:c]
S96T004496		Upper half	<17.6	<19.8	<18.7[QC:c]
S96T002530	139:2	Subsegment B	<19.9	<19.2	<19.5
S96T004497		Subsegment B	<20	<19.6	<19.8
S96T002535		Subsegment C	<22.6	<20.2	<21.4
S96T004498		Subsegment C	<19	<18.6	<18.8
S96T002538		Subsegment D lower half	<19.4	<19.7	<19.5
S96T004499		Subsegment D lower half	<18.9	<18.9	<18.9
S96T002571	139:3	Upper half	<21	<20.7	<20.9
S96T004500		Upper half	<19	<19	<19
S96T002580	139:4	Upper half	<22.8	<23.1	<23
S96T004501		Upper half	<20.4	<20.2	<20.3
S96T002597	139:5	Upper half	<19.4	<20.3	<19.9
S96T002426	139:6	Upper half	<19.2	<19.9	<19.5
S96T002434	139:7	Upper half	<17.6	<18.5	<18.1
S96T002450	139:8	Upper half	<19.4	<20.4	<19.9
S96T002458	139:9	Upper half	<20.2	<18.3	<19.3
S96T002466	139:10	Upper half	<17.9	<18.6	<18.3
S96T002683	139:11	Upper half	<20.3	<23.3	<21.8[QC:c]
S96T004502		Upper half	<19.1	<18.5	<18.8
S96T002691	139:12	Upper half	<23.5	<20.6	<22.1
S96T004503		Upper half	<18.4	<19	<18.7
S96T002699	139:13	Upper half	<22.7	<23.1	<22.9
S96T004504		Upper half	<20.2	<20.1	<20.1

Table B2-24. Tank 241-AW-101 Analytical Results: Lanthanum (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: acid digest (Cont'd)			**µg/g**	**µg/g**	**µg/g**
S96T002708	139:14	Upper half	<24.7	<21.4	<23
S96T004505		Upper half	<19.8	<19.7	<19.8
S96T002716.	139:15	Upper half	<19.7	<19.2	<19.4
S96T004506		Upper half	<19.8	<19.3	<19.6
S96T003240	139:16R	Lower half	<19.4	<18.7	<19
S96T003521	139:16R1	Lower half	<19.6	<18.9	<19.3
S96T003536	139:16R2	Upper half	<17.3	<17.4	<17.4
S96T003550	139:17R	Upper half	<19.7	<19.9	<19.8
S96T003557		Lower half	<19.7	<19.4	<19.5
S96T003572	139:19	Upper half	<24	<22	<23
S96T004508		Upper half	<19.8	<20	<19.9
S96T003566		Lower half	<19.2	<19.3	<19.3[QC:c]
S96T004507		Lower half	<19.5	<20.1	<19.8
S96T003586	139:21	Upper half	<18.4	<16.9	<17.6
S96T004510		Upper half	<20	<20.2	<20.1
S96T003580		Lower half	<22.3	<19.7	<21
S96T004509		Lower half	<19.9	<19.8	<19.9
S96T002738	Core 132	Solid composite	<19.5	<19.3	<19.4
S96T002743		Solid composite	<19.6	<19.5	<19.6
S96T002751		Solid composite	<19.5	<18	<18.8
Liquids			**µg/g**	**µg/g**	**µg/g**
S96T001715	132:7	Drainable liquid	<37.6	<37.6	<37.6
S96T002146	132:7R	Drainable liquid	<37.6	<37.6	<37.6
S96T001747	132:9	Drainable liquid	<37.6	<37.6	<37.6
S96T001764	132:10	Drainable liquid	<37.6	<37.6	<37.6
S96T001768	132:11	Drainable liquid	<37.6	<37.6	<37.6
S96T001950	132:12	Drainable liquid	<18.8	<18.8	<18.8
S96T002028	132:13	Drainable liquid	<18.8	<18.8	<18.8
S96T001944	132:14	Drainable liquid	<3.16	<3.16	<3.16
S96T001960		Drainable liquid	<18.8	<18.8	<18.8

Table B2-24. Tank 241-AW-101 Analytical Results: Lanthanum (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids (Cont'd)			µg/g	µg/g	µg/g
S96T001964	132:15	Drainable liquid	<18.8	<18.8	<18.8
S96T001968	132:16	Drainable liquid	<18.8	<18.8	<18.8
S96T002527	139:2	Drainable liquid	<37.6	<37.6	<37.6
S96T002558	139:3	Drainable liquid	<37.6	<37.6	<37.6
S96T002575	139:4	Drainable liquid	<37.6	<37.6	<37.6
S96T002584	139:5	Drainable liquid	<37.6	<37.6	<37.6
S96T002422	139:6	Drainable liquid	<37.6	<37.6	<37.6
S96T002430	139:7	Drainable liquid	<37.6	<37.6	<37.6
S96T002439	139:8	Drainable liquid	<37.6	<37.6	<37.6
S96T002454	139:9	Drainable liquid	<37.6	<37.6	<37.6
S96T002462	139:10	Drainable liquid	<37.6	<37.6	<37.6
S96T002679	139:11	Drainable liquid	<37.6	<37.6	<37.6
S96T002687	139:12	Drainable liquid	<37.6	<37.6	<37.6
S96T002695	139:13	Drainable liquid	<37.6	<37.6	<37.6
S96T002704	139:14	Drainable liquid	<37.6	<37.6	<37.6
S96T002712	139:15	Drainable liquid	<37.6	<37.6	<37.6
S96T003236	139:16R	Drainable liquid	<37.6	<37.6	<37.6
S96T003545	139:17R	Drainable liquid	<37.6	<37.6	<37.6
S96T002767	Core 132	Liquid composite	<37.6	<37.6	<37.6

Table B2-25. Tank 241-AW-101 Analytical Results: Lead (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: acid digest			µg/g	µg/g	µg/g
S96T000801	132:1	Upper half	<36.9	43.1	<40
S96T002266		Upper half	<90.6	<91.2	<90.9
S96T000796		Lower half	55.2	<42	<48.6[QC:c,e]
S96T002265		Lower half	<105	<151	<128
S96T000816	132:2	Upper half	39.1	38.1	38.6
S96T002268		Upper half	<92.1	93.5	<92.8
S96T000811		Lower half	<41	<38.7	<39.9
S96T002267		Lower half	<90.9	<92.6	<91.8
S96T000825	132:3	Upper half	<34.3	<37.5	<35.9
S96T004492		Upper half	<40.5	<36.8	<38.6[QC:a]
S96T000834	132:4	Upper half	<37.4	<42.2	<39.8
S96T004493		Upper half	<41.6	43.6	<42.6[QC:a]
S96T000849	132:5	Upper half	<34	<36.3	<35.1
S96T004494		Upper half	<39.4	<38.4	<38.9[QC:a]
S96T001735	132:7	Upper half	77.9	91.6	84.8
S96T004495	132:7R	Upper half	<37.9	<35.1	<36.5[QC:a]
S96T001751	132:9	Upper half	<44.8	<40.9	<42.8
S96T001756	132:10	Upper half	<43.7	<39.1	<41.4
S96T001772	132:11	Upper half	<42.4	<39.3	<40.8
S96T001952	132:12	Upper half	<43.5	<42.5	<43
S96T002032	132:13	Upper half	<40.1	<40.3	<40.2
S96T001962	132:14	Upper half	<35.2	<37.4	<36.3[QC:a]
S96T001966	132:15	Lower half	45.9	77.4	61.7[QC:a,e]
S96T001970	132:16	Upper half	69.6	<37.5	<53.5[QC:a,e]
S96T001974	132:18	Upper half	46.3	53.2	49.8[QC:a]
S96T001978		Lower half	58.2	56.6	57.4[QC:a]

Table B2-25. Tank 241-AW-101 Analytical Results: Lead (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: acid digest (Cont'd)			µg/g	µg/g	µg/g
S96T001981	132:20	Upper half	59.8	89.1	74.4[QC:a,e]
S96T001985		Lower half	<98.2	<98.5	<98.3
S96T001988	132:22	Upper half	<86.7	<86.4	<86.6
S96T001992		Lower half	<87.5	<87.7	<87.6
S96T002418	139:1	Upper half	<38.4	43.7	<41[QC:c]
S96T004496		Upper half	50.9	54.1	52.5[QC:a,c]
S96T002530	139:2	Subsegment B	54.6	403	229[QC:e]
S96T004497		Subsegment B	45.2	55.9	50.5[QC:a,e]
S96T002535		Subsegment C	68.7	<40.5	<54.6[QC:e]
S96T004498		Subsegment C	<38	42	<40[QC:a]
S96T002538		Subsegment D lower half	<38.8	<39.4	<39.1
S96T004499		Subsegment D lower half	6,560	6,210	6,390[QC:a]
S96T002571	139:3	Upper half	<42	<41.4	<41.7
S96T004500		Upper half	<38	<37.9	<38[QC:a]
S96T002580	139:4	Upper half	<45.6	<46.3	<46
S96T004501		Upper half	<40.7	<40.3	<40.5
S96T002597	139:5	Upper half	<38.7	<40.6	<39.7
S96T002426	139:6	Upper half	971	<39.7	<505[QC:e]
S96T002434	139:7	Upper half	<35.2	<37	<36.1
S96T002450	139:8	Upper half	<38.8	<40.7	<39.8
S96T002458	139:9	Upper half	<40.4	41.5	<41
S96T002466	139:10	Upper half	<35.9	<37.2	<36.5
S96T002683	139:11	Upper half	<40.7	<46.7	<43.7[QC:c]
S96T004502		Upper half	<38.2	38.5	<38.4
S96T002691	139:12	Upper half	<46.9	<41.1	<44
S96T004503		Upper half	<36.7	<38	<37.4
S96T002699	139:13	Upper half	<45.5	<46.1	<45.8
S96T004504		Upper half	<40.4	<40.2	<40.3

Table B2-25. Tank 241-AW-101 Analytical Results: Lead (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: acid digest (Cont'd)			**µg/g**	**µg/g**	**µg/g**
S96T002708	139:14	Upper half	<49.4	63.7	<56.5[QC:e]
S96T004505		Upper half	<39.7	<39.4	<39.5
S96T002716	139:15	Upper half	<39.4	<38.4	<38.9
S96T004506		Upper half	<39.6	<38.6	<39.1
S96T003240	139:16R	Lower half	<38.9	<37.3	<38.1
S96T003521	139:16R1	Lower half	<39.1	<37.8	<38.5
S96T003536	139:16R2	Upper half	<34.7	<34.8	<34.8
S96T003550	139:17R	Upper half	<39.5	45.5	<42.5
S96T003557		Lower half	43.6	42.1	42.9
S96T003572	139:19	Upper half	<48	46.9	<47.5[QC:b]
S96T004508		Upper half	52.9	61.3	57.1
S96T003566		Lower half	53.1	48.3	50.7[QC:b,c]
S96T004507		Lower half	57.2	48.9	53
S96T003586	139:21	Upper half	49.5	57.4	53.5[QC:b]
S96T004510		Upper half	72.1	55.9	64[QC:e]
S96T003580		Lower half	55.2	50.3	52.8[QC:b]
S96T004509		Lower half	71.5	58.7	65.1
S96T002738	Core 132	Solid composite	<38.9	51.7	<45.3[QC:a,e]
S96T002743		Solid composite	<39.1	<39.1	<39.1[QC:a]
S96T002751		Solid composite	44.2	43	43.6[QC:a]
Liquids			**µg/g**	**µg/g**	**µg/g**
S96T001715	132:7	Drainable liquid	77.5	<75	<76.3
S96T002146	132:7R	Drainable liquid	<75	<75	<75
S96T001747	132:9	Drainable liquid	<75	<75	<75
S96T001764	132:10	Drainable liquid	<75	<75	<75
S96T001768	132:11	Drainable liquid	<75	<75	<75
S96T001950	132:12	Drainable liquid	<37.6	<37.6	<37.6
S96T002028	132:13	Drainable liquid	<37.6	<37.6	<37.6

Table B2-25. Tank 241-AW-101 Analytical Results: Lead (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids (Cont'd)			µg/g	µg/g	µg/g
S96T001944	132:14	Drainable liquid	<6.31	<6.31	<6.31
S96T001960		Drainable liquid	38.8	<37.6	<38.2
S96T001964	132:15	Drainable liquid	38.8	<37.6	<38.2
S96T001968	132:16	Drainable liquid	<37.6	<37.6	<37.6
S96T002527	139:2	Drainable liquid	<75	<75	<75
S96T002558	139:3	Drainable liquid	<75	<75	<75
S96T002575	139:4	Drainable liquid	<75	<75	<75
S96T002584	139:5	Drainable liquid	<75	<75	<75
S96T002422	139:6	Drainable liquid	<75	<75	<75
S96T002430	139:7	Drainable liquid	<75	<75	<75
S96T002439	139:8	Drainable liquid	<75	<75	<75
S96T002454	139:9	Drainable liquid	<75	<75	<75
S96T002462	139:10	Drainable liquid	<75	<75	<75
S96T002679	139:11	Drainable liquid	<75	<75	<75
S96T002687	139:12	Drainable liquid	<75	<75	<75
S96T002695	139:13	Drainable liquid	<75	<75	<75
S96T002704	139:14	Drainable liquid	<75	<75	<75
S96T002712	139:15	Drainable liquid	<75	<75	<75
S96T003236	139:16R	Drainable liquid	<75	<75	<75
S96T003545	139:17R	Drainable liquid	<75	<75	<75
S96T002767	Core 132	Liquid composite	<75	<75	<75

Table B2-26. Tank 241-AW-101 Analytical Results: Lithium (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: acid digest			µg/g	µg/g	µg/g
S96T000801	132:1	Upper half	<3.69	<3.39	<3.54
S96T002266		Upper half	<9.06	<9.12	<9.09
S96T000796		Lower half	<4.18	<4.2	<4.19
S96T002265		Lower half	<10.5	<15.1	<12.8
S96T000816	132:2	Upper half	7.17	7.77	7.47
S96T002268		Upper half	<9.21	<9.35	<9.28
S96T000811		Lower half	<4.1	4.05	<4.07
S96T002267		Lower half	<9.09	<9.26	<9.18
S96T000825	132:3	Upper half	<3.43	<3.75	<3.59
S96T004492		Upper half	<4.05	<3.68	<3.87[QC:a]
S96T000834	132:4	Upper half	<3.74	<4.22	<3.98
S96T004493		Upper half	<4.16	<4.1	<4.13[QC:a]
S96T000849	132:5	Upper half	<3.4	<3.63	<3.51
S96T004494		Upper half	<3.94	<3.84	<3.89[QC:a]
S96T001735	132:7	Upper half	2,560	2,630	2,600
S96T004495	132:7R	Upper half	<3.79	<3.51	<3.65[QC:a]
S96T001751	132:9	Upper half	29.6	29.5	29.6
S96T001756	132:10	Upper half	<4.37	<3.91	<4.14
S96T001772	132:11	Upper half	8.34	9.69	9.02
S96T001952	132:12	Upper half	<4.35	<4.25	<4.3
S96T002032	132:13	Upper half	10.5	11.5	11
S96T001962	132:14	Upper half	<3.52	<3.74	<3.63
S96T001966	132:15	Lower half	5.09	6.08	5.59
S96T001970	132:16	Upper half	9.63	8.36	9
S96T001974	132:18	Upper half	4.88	4.93	4.9
S96T001978		Lower half	<3.62	<3.82	<3.72

Table B2-26. Tank 241-AW-101 Analytical Results: Lithium (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: acid digest (Cont'd)			µg/g	µg/g	µg/g
S96T001981	132:20	Upper half	9.32	8.25	8.79
S96T001985		Lower half	<9.82	<9.85	<9.84
S96T001988	132:22	Upper half	8.84	<8.64	<8.74
S96T001992		Lower half	<8.75	<8.77	<8.76
S96T002418	139:1	Upper half	<3.84	<3.62	<3.73[QC:c]
S96T004496		Upper half	<3.51	<3.96	<3.73[QC:c]
S96T002530	139:2	Subsegment B	8.79	9.99	9.39
S96T004497		Subsegment B	10.2	10.1	10.1
S96T002535		Subsegment C	5.56	5.54	5.55
S96T004498		Subsegment C	5.94	6	5.97
S96T002538		Subsegment D lower half	13.4	13.3	13.4
S96T004499		Subsegment D lower half	13.6	15	14.3
S96T002571	139:3	Upper half	41.8	46.5	44.1
S96T004500		Upper half	40.6	39.8	40.2
S96T002580	139:4	Upper half	<4.56	<4.63	<4.59
S96T004501		Upper half	<4.07	<4.03	<4.05
S96T002597	139:5	Upper half	68.1	65	66.5
S96T002426	139:6	Upper half	66	78.8	72.4
S96T002434	139:7	Upper half	<3.52	<3.7	<3.61
S96T002450	139:8	Upper half	31.8	38.1	35
S96T002458	139:9	Upper half	24.8	29.9	27.4
S96T002466	139:10	Upper half	11.1	11.3	11.2
S96T002683	139:11	Upper half	4.98	5.38	5.18[QC:c]
S96T004502		Upper half	4.96	4.89	4.92
S96T002691	139:12	Upper half	18	23.6	20.8[QC:e]
S96T004503		Upper half	32.5	22	27.3[QC:e]
S96T002699	139:13	Upper half	5.18	11	8.09[QC:e]
S96T004504		Upper half	4.55	4.48	4.52

Table B2-26. Tank 241-AW-101 Analytical Results: Lithium (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: acid digest (Cont'd)			**µg/g**	**µg/g**	**µg/g**
S96T002708	139:14	Upper half	9.52	17.3	13.4[QC:e]
S96T004505		Upper half	13.5	7.53	10.5[QC:e]
S96T002716	139:15	Upper half	5.6	6.85	6.22[QC:e]
S96T004506		Upper half	6.59	5.39	5.99[QC:e]
S96T003240	139:16R	Lower half	<3.89	<3.73	<3.81
S96T003521	139:16R1	Lower half	4.66	5.42	5.04
S96T003536	139:16R2	Upper half	<3.47	<3.48	<3.48
S96T003550	139:17R	Upper half	109	83.1	96[QC:e]
S96T003557		Lower half	32.6	19.8	26.2[QC:e]
S96T003572	139:19	Upper half	10.1	10.5	10.3
S96T004508		Upper half	11.5	12.1	11.8
S96T003566		Lower half	12	12.1	12.1[QC:e]
S96T004507		Lower half	13.8	12.5	13.2
S96T003586	139:21	Upper half	17.4	17.1	17.3
S96T004510		Upper half	22	18.6	20.3
S96T003580		Lower half	11.5	10.7	11.1
S96T004509		Lower half	13.1	11.7	12.4
S96T002738	Core 132	Solid composite	<3.89	<3.85	<3.87
S96T002743		Solid composite	9.02	9.16	9.09
S96T002751		Solid composite	5.03	5.46	5.25
Liquids			**µg/g**	**µg/g**	**µg/g**
S96T000806	132:2	Drainable liquid	5.27	5.36	5.31
S96T000821	132:3	Drainable liquid	<3.76	<3.76	<3.76
S96T000830	132:4	Drainable liquid	<3.76	<3.76	<3.76
S96T000845	132:5	Drainable liquid	<3.76	<3.76	<3.76
S96T001715	132:7	Drainable liquid	<7.5	<7.5	<7.5
S96T002146	132:7R	Drainable liquid	<7.5	<7.5	<7.5
S96T001747	132:9	Drainable liquid	<7.5	<7.5	<7.5
S96T001764	132:10	Drainable liquid	<7.5	<7.5	<7.5
S96T001768	132:11	Drainable liquid	<7.5	<7.5	<7.5

Table B2-26. Tank 241-AW-101 Analytical Results: Lithium (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids (Cont'd)			µg/g	µg/g	µg/g
S96T001950	132:12	Drainable liquid	4.31	4.08	4.19
S96T002028	132:13	Drainable liquid	7	7	7
S96T001944	132:14	Drainable liquid	524	528	526
S96T001960		Drainable liquid	5.58	5.53	5.56
S96T001964	132:15	Drainable liquid	9.31	9.19	9.25
S96T001968	132:16	Drainable liquid	6.88	6.81	6.84
S96T002527	139:2	Drainable liquid	<7.5	<7.5	<7.5
S96T002558	139:3	Drainable liquid	14.1	12.9	13.5
S96T002575	139:4	Drainable liquid	<7.5	<7.5	<7.5
S96T002584	139:5	Drainable liquid	12	11.6	11.8
S96T002422	139:6	Drainable liquid	<7.5	<7.5	<7.5
S96T002430	139:7	Drainable liquid	<7.5	<7.5	<7.5
S96T002439	139:8	Drainable liquid	<7.5	<7.5	<7.5
S96T002454	139:9	Drainable liquid	<7.5	<7.5	<7.5
S96T002462	139:10	Drainable liquid	<7.5	<7.5	<7.5
S96T002679	139:11	Drainable liquid	<7.5	<7.5	<7.5
S96T002687	139:12	Drainable liquid	7.94	<7.5	<7.72
S96T002695	139:13	Drainable liquid	<7.5	<7.5	<7.5
S96T002704	139:14	Drainable liquid	<7.5	<7.5	<7.5
S96T002712	139:15	Drainable liquid	7.69	<7.5	<7.59
S96T003236	139:16R	Drainable liquid	7.81	<7.5	<7.66
S96T003545	139:17R	Drainable liquid	9.19	9.63	9.41
S96T002767	Core 132	Liquid composite	<7.5	<7.5	<7.5

Table B2-27. Tank 241-AW-101 Analytical Results: Magnesium (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: acid digest			µg/g	µg/g	µg/g
S96T000801	132:1	Upper half	70	67.9	69
S96T002266		Upper half	<90.6	<91.2	<90.9
S96T000796		Lower half	65.2	58.6	61.9[QC:c]
S96T002265		Lower half	<105	<151	<128
S96T000816	132:2	Upper half	62.3	54.7	58.5
S96T002268		Upper half	<92.1	<93.5	<92.8
S96T000811		Lower half	<41	42.4	<41.7
S96T002267		Lower half	<90.9	<92.6	<91.8
S96T000825	132:3	Upper half	<34.3	<37.5	<35.9
S96T004492		Upper half	<40.5	<36.8	<38.6[QC:a,c]
S96T000834	132:4	Upper half	<37.4	<42.2	<39.8
S96T004493		Upper half	<41.6	<41	<41.3[QC:a]
S96T000849	132:5	Upper half	<34	<36.3	<35.1
S96T004494		Upper half	<39.4	<38.4	<38.9[QC:a]
S96T001735	132:7	Upper half	1,060	1,060	1,060
S96T004495	132:7R	Upper half	<37.9	<35.1	<36.5[QC:a]
S96T001751	132:9	Upper half	<44.8	<40.9	<42.8
S96T001756	132:10	Upper half	<43.7	<39.1	<41.4
S96T001772	132:11	Upper half	<42.4	<39.3	<40.8
S96T001952	132:12	Upper half	<43.5	<42.5	<43
S96T002032	132:13	Upper half	<40.1	<40.3	<40.2
S96T001962	132:14	Upper half	<35.2	<37.4	<36.3
S96T001966	132:15	Lower half	<43.5	<43.3	<43.4
S96T001970	132:16	Upper half	<43.7	<37.5	<40.6
S96T001974	132:18	Upper half	84.2	81.7	83
S96T001978		Lower half	58	54	56

Table B2-27. Tank 241-AW-101 Analytical Results: Magnesium (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: acid digest (Cont'd)			µg/g	µg/g	µg/g
S96T001981	132:20	Upper half	84.5	70.9	77.7
S96T001985		Lower half	139	137	138
S96T001988	132:22	Upper half	126	<86.4	<106[QC:e]
S96T001992		Lower half	99.6	102	101
S96T002418	139:1	Upper half	<38.4	<36.2	<37.3[QC:c]
S96T004496		Upper half	<35.1	<39.6	<37.4[QC:a,c]
S96T002530	139:2	Subsegment B	48.8	56.1	52.5
S96T004497		Subsegment B	52	51.2	51.6[QC:a]
S96T002535		Subsegment C	<45.2	<40.5	<42.9
S96T004498		Subsegment C	<38	<37.3	<37.6[QC:a]
S96T002538		Subsegment D lower half	<38.8	<39.4	<39.1
S96T004499		Subsegment D lower half	<37.8	<37.8	<37.8[QC:a]
S96T002571	139:3	Upper half	<42	<41.4	<41.7
S96T004500		Upper half	<38	<37.9	<38[QC:a]
S96T002580	139:4	Upper half	<45.6	<46.3	<46
S96T004501		Upper half	<40.7	<40.3	<40.5
S96T002597	139:5	Upper half	<38.7	<40.6	<39.7
S96T002426	139:6	Upper half	<38.4	<39.7	<39
S96T002434	139:7	Upper half	<35.2	<37	<36.1
S96T002450	139:8	Upper half	<38.8	<40.7	<39.8
S96T002458	139:9	Upper half	<40.4	<36.6	<38.5
S96T002466	139:10	Upper half	<35.9	<37.2	<36.5
S96T002683	139:11	Upper half	<40.7	<46.7	<43.7[QC:c]
S96T004502		Upper half	<38.2	<37	<37.6
S96T002691	139:12	Upper half	<46.9	<41.1	<44
S96T004503		Upper half	<36.7	<38	<37.4
S96T002699	139:13	Upper half	<45.5	<46.1	<45.8
S96T004504		Upper half	<40.4	<40.2	<40.3

Table B2-27. Tank 241-AW-101 Analytical Results: Magnesium (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: acid digest (Cont'd)			**µg/g**	**µg/g**	**µg/g**
S96T002708	139:14	Upper half	<49.4	<42.9	<46.1
S96T004505		Upper half	<39.7	<39.4	<39.5
S96T002716	139:15	Upper half	<39.4	<38.4	<38.9
S96T004506		Upper half	<39.6	<38.6	<39.1
S96T003240	139:16R	Lower half	<38.9	<37.3	<38.1
S96T003521	139:16R1	Lower half	<39.1	<37.8	<38.5
S96T003536	139:16R2	Upper half	<34.7	<34.8	<34.8
S96T003550	139:17R	Upper half	60.3	55.6	58
S96T003557		Lower half	69.4	61.1	65.3
S96T003572	139:19	Upper half	62.9	64.8	63.8
S96T004508		Upper half	91.4	103	97.2
S96T003566		Lower half	68.3	63.5	65.9[QC:c]
S96T004507		Lower half	80.7	72.4	76.6
S96T003586	139:21	Upper half	97.5	95.3	96.4
S96T004510		Upper half	138	109	124[QC:e]
S96T003580		Lower half	92.1	93	92.5
S96T004509		Lower half	130	106	118[QC:e]
S96T002738	Core 132	Solid composite	53.9	67.4	60.7[QC:a,e]
S96T002743		Solid composite	<39.1	<39.1	<39.1[QC:a]
S96T002751		Solid composite	92.7	81.8	87.3[QC:a]
Liquids			**µg/g**	**µg/g**	**µg/g**
S96T001715	132:7	Drainable liquid	<75	<75	<75
S96T002146	132:7R	Drainable liquid	<75	<75	<75
S96T001747	132:9	Drainable liquid	<75	<75	<75
S96T001764	132:10	Drainable liquid	<75	<75	<75
S96T001768	132:11	Drainable liquid	<75	<75	<75
S96T001950	132:12	Drainable liquid	<37.6	<37.6	<37.6
S96T002028	132:13	Drainable liquid	<37.6	<37.6	<37.6
S96T001944	132:14	Drainable liquid	<6.31	<6.31	<6.31
S96T001960		Drainable liquid	<37.6	<37.6	<37.6

Table B2-27. Tank 241-AW-101 Analytical Results: Magnesium (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: acid digest (Cont'd)			µg/g	µg/g	µg/g
S96T001964	132:15	Drainable liquid	<37.6	<37.6	<37.6
S96T001968	132:16	Drainable liquid	<37.6	<37.6	<37.6
S96T002527	139:2	Drainable liquid	<75	<75	<75
S96T002558	139:3	Drainable liquid	<75	<75	<75
S96T002575	139:4	Drainable liquid	<75	<75	<75
S96T002584	139:5	Drainable liquid	<75	<75	<75
S96T002422	139:6	Drainable liquid	<75	<75	<75
S96T002430	139:7	Drainable liquid	<75	<75	<75
S96T002439	139:8	Drainable liquid	<75	<75	<75
S96T002454	139:9	Drainable liquid	<75	<75	<75
S96T002462	139:10	Drainable liquid	<75	<75	<75
S96T002679	139:11	Drainable liquid	<75	<75	<75
S96T002687	139:12	Drainable liquid	<75	<75	<75
S96T002695	139:13	Drainable liquid	<75	<75	<75
S96T002704	139:14	Drainable liquid	<75	<75	<75
S96T002712	139:15	Drainable liquid	<75	<75	<75
S96T003236	139:16R	Drainable liquid	<75	<75	<75
S96T003545	139:17R	Drainable liquid	<75	<75	<75
S96T002767	Core 132	Liquid composite	<75	<75	<75

Table B2-28. Tank 241-AW-101 Analytical Results: Manganese (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: acid digest			µg/g	µg/g	µg/g
S96T000801	132:1	Upper half	300	323	312
S96T002266		Upper half	347	255	301[QC:e]
S96T000796		Lower half	261	234	248[QC:c]
S96T002265		Lower half	230	291	261[QC:e]
S96T000816	132:2	Upper half	240	234	237
S96T002268		Upper half	259	255	257
S96T000811		Lower half	118	114	116
S96T002267		Lower half	133	143	138
S96T000825	132:3	Upper half	4.28	3.91	4.1
S96T004492		Upper half	4.25	<3.68	<3.96[QC:a,c]
S96T000834	132:4	Upper half	<3.74	<4.22	<3.98
S96T004493		Upper half	<4.16	<4.1	<4.13[QC:a]
S96T000849	132:5	Upper half	<3.4	<3.63	<3.51
S96T004494		Upper half	<3.94	<3.84	<3.89[QC:a]
S96T001735	132:7	Upper half	105	91.6	98.3
S96T004495	132:7R	Upper half	<3.79	<3.51	<3.65[QC:a]
S96T001751	132:9	Upper half	<4.48	<4.09	<4.29
S96T001756	132:10	Upper half	<4.37	<3.91	<4.14
S96T001772	132:11	Upper half	<4.24	<3.93	<4.08
S96T001952	132:12	Upper half	<4.35	<4.25	<4.3
S96T002032	132:13	Upper half	<4.01	<4.03	<4.02
S96T001962	132:14	Upper half	<3.52	<3.74	<3.63[QC:a]
S96T001966	132:15	Lower half	<4.35	<4.33	<4.34[QC:a]
S96T001970	132:16	Upper half	4.62	4.25	4.44[QC:a]
S96T001974	132:18	Upper half	379	370	375[QC:a]
S96T001978		Lower half	231	210	221[QC:a]

Table B2-28. Tank 241-AW-101 Analytical Results: Manganese (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: acid digest (Cont'd)			µg/g	µg/g	µg/g
S96T001981	132:20	Upper half	351	295	323[QC:a]
S96T001985		Lower half	609	538	574
S96T001988	132:22	Upper half	599	381	490[QC:e]
S96T001992		Lower half	486	502	494
S96T002418	139:1	Upper half	157	158	158[QC:c]
S96T004496		Upper half	170	159	165[QC:a,c]
S96T002530	139:2	Subsegment B	233	262	248
S96T004497		Subsegment B	277	267	272[QC:a]
S96T002535		Subsegment C	175	89.7	132[QC:e]
S96T004498		Subsegment C	95.5	95.5	95.5[QC:a]
S96T002538		Subsegment D lower half	40.3	40.4	40.3
S96T004499		Subsegment D lower half	46.6	49.1	47.9[QC:a]
S96T002571	139:3	Upper half	6.52	5.44	5.98
S96T004500		Upper half	4.75	4.53	4.64[QC:a]
S96T002580	139:4	Upper half	<4.56	<4.63	<4.59
S96T004501		Upper half	<4.07	<4.03	<4.05
S96T002597	139:5	Upper half	<3.87	<4.06	<3.96
S96T002426	139:6	Upper half	<3.84	<3.97	<3.91
S96T002434	139:7	Upper half	<3.52	<3.7	<3.61
S96T002450	139:8	Upper half	<3.88	<4.07	<3.98
S96T002458	139:9	Upper half	5.76	6.09	5.92
S96T002466	139:10	Upper half	<3.59	<3.72	<3.66
S96T002683	139:11	Upper half	<4.07	<4.67	<4.37[QC:c]
S96T004502		Upper half	<3.82	<3.7	<3.76
S96T002691	139:12	Upper half	<4.69	<4.11	<4.4
S96T004503		Upper half	<3.67	<3.8	<3.73
S96T002699	139:13	Upper half	<4.55	<4.61	<4.58
S96T004504		Upper half	<4.04	<4.02	<4.03

Table B2-28. Tank 241-AW-101 Analytical Results: Manganese (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: acid digest (Cont'd)			**µg/g**	**µg/g**	**µg/g**
S96T002708	139:14	Upper half	<4.94	<4.29	<4.62
S96T004505		Upper half	<3.97	<3.94	<3.96
S96T002716	139:15	Upper half	<3.94	<3.84	<3.89
S96T004506		Upper half	<3.96	<3.86	<3.91
S96T003240	139:16R	Lower half	<3.89	<3.73	<3.81
S96T003521	139:16R1	Lower half	<3.91	<3.78	<3.84
S96T003536	139:16R2	Upper half	<3.47	<3.48	<3.48
S96T003550	139:17R	Upper half	308	266	287
S96T003557		Lower half	330	312	321
S96T003572	139:19	Upper half	338	358	348[QC:b]
S96T004508		Upper half	473	537	505
S96T003566		Lower half	357	358	358[QC:b,c]
S96T004507		Lower half	452	404	428
S96T003586	139:21	Upper half	477	489	483[QC:b]
S96T004510		Upper half	659	543	601
S96T003580		Lower half	538	534	536[QC:b]
S96T004509		Lower half	774	627	701[QC:e]
S96T002738	Core 132	Solid composite	298	313	306[QC:a]
S96T002743		Solid composite	<3.91	<3.91	<3.91[QC:a]
S96T002751		Solid composite	402	420	411[QC:a]
Liquids			**µg/g**	**µg/g**	**µg/g**
S96T001715	132:7	Drainable liquid	<7.5	<7.5	<7.5
S96T002146	132:7R	Drainable liquid	<7.5	<7.5	<7.5
S96T001747	132:9	Drainable liquid	<7.5	<7.5	<7.5
S96T001764	132:10	Drainable liquid	<7.5	<7.5	<7.5
S96T001768	132:11	Drainable liquid	<7.5	<7.5	<7.5
S96T001950	132:12	Drainable liquid	<3.76	<3.76	<3.76
S96T002028	132:13	Drainable liquid	<3.76	<3.76	<3.76
S96T001944	132:14	Drainable liquid	<0.631	<0.631	<0.631
S96T001960		Drainable liquid	<3.76	<3.76	<3.76

Table B2-28. Tank 241-AW-101 Analytical Results: Manganese (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids (Cont'd)			µg/g	µg/g	µg/g
S96T001964	132:15	Drainable liquid	<3.76	<3.76	<3.76
S96T001968	132:16	Drainable liquid	<3.76	<3.76	<3.76
S96T002527	139:2	Drainable liquid	<7.5	<7.5	<7.5
S96T002558	139:3	Drainable liquid	<7.5	<7.5	<7.5
S96T002575	139:4	Drainable liquid	<7.5	<7.5	<7.5
S96T002584	139:5	Drainable liquid	<7.5	<7.5	<7.5
S96T002422	139:6	Drainable liquid	<7.5	<7.5	<7.5
S96T002430	139:7	Drainable liquid	<7.5	<7.5	<7.5
S96T002439	139:8	Drainable liquid	<7.5	<7.5	<7.5
S96T002454	139:9	Drainable liquid	<7.5	<7.5	<7.5
S96T002462	139:10	Drainable liquid	<7.5	<7.5	<7.5
S96T002679	139:11	Drainable liquid	<7.5	<7.5	<7.5
S96T002687	139:12	Drainable liquid	<7.5	<7.5	<7.5
S96T002695	139:13	Drainable liquid	<7.5	<7.5	<7.5
S96T002704	139:14	Drainable liquid	<7.5	<7.5	<7.5
S96T002712	139:15	Drainable liquid	<7.5	<7.5	<7.5
S96T003236	139:16R	Drainable liquid	<7.5	<7.5	<7.5
S96T003545	139:17R	Drainable liquid	<7.5	<7.5	<7.5
S96T002767	Core 132	Liquid composite	<7.5	<7.5	<7.5

Table B2-29. Tank 241-AW-101 Analytical Results: Molybdenum (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: acid digest			µg/g	µg/g	µg/g
S96T000801	132:1	Upper half	31.3	30.6	31
S96T002266		Upper half	<45.3	<45.6	<45.5
S96T000796		Lower half	34.6	33	33.8[QC:c]
S96T002265		Lower half	<52.6	<75.4	<64
S96T000816	132:2	Upper half	32.3	31.5	31.9
S96T002268		Upper half	<46.1	<46.7	<46.4
S96T000811		Lower half	32.5	36.3	34.4
S96T002267		Lower half	<45.4	<46.3	<45.8
S96T000825	132:3	Upper half	36.7	36.3	36.5
S96T004492		Upper half	22.5	30.4	26.4[QC:e]
S96T000834	132:4	Upper half	37	37.1	37
S96T004493		Upper half	35.2	35.3	35.3
S96T000849	132:5	Upper half	30.4	30.1	30.3
S96T004494		Upper half	<19.7	20.7	<20.2
S96T001735	132:7	Upper half	31.3	35.1	33.2
S96T004495	132:7R	Upper half	<19	29.6	<24.3[QC:e]
S96T001751	132:9	Upper half	23.3	23.7	23.5
S96T001756	132:10	Upper half	<21.9	22.6	<22.3
S96T001772	132:11	Upper half	23.9	32.5	28.2[QC:e]
S96T001952	132:12	Upper half	<21.7	<21.3	<21.5
S96T002032	132:13	Upper half	30.4	28	29.2
S96T001962	132:14	Upper half	18.8	20.3	19.6
S96T001966	132:15	Lower half	<21.7	<21.6	<21.6
S96T001970	132:16	Upper half	<21.9	<18.8	<20.4
S96T001974	132:18	Upper half	29.2	29.8	29.5
S96T001978		Lower half	31.9	33	32.5

Table B2-29. Tank 241-AW-101 Analytical Results: Molybdenum (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: acid digest (Cont'd)			µg/g	µg/g	µg/g
S96T001981	132:20	Upper half	29.3	32	30.6
S96T001985		Lower half	<49.1	<49.3	<49.2
S96T001988	132:22	Upper half	<43.3	<43.2	<43.3
S96T001992		Lower half	<43.7	<43.9	<43.8
S96T002418	139:1	Upper half	35.4	36.1	35.8[QC:c]
S96T004496		Upper half	38	36.7	37.4
S96T002530	139:2	Subsegment B	35	33.7	34.4
S96T004497		Subsegment B	35.1	36.5	35.8
S96T002535		Subsegment C	35.4	37.6	36.5
S96T004498		Subsegment C	38.2	37.5	37.9
S96T002538		Subsegment D lower half	19.5	<19.7	<19.6
S96T004499		Subsegment D lower half	<18.9	<18.9	<18.9
S96T002571	139:3	Upper half	21	<20.7	<20.9
S96T004500		Upper half	20.3	<19	<19.6
S96T002580	139:4	Upper half	<22.8	<23.1	<23
S96T004501		Upper half	<20.4	<20.2	<20.3
S96T002597	139:5	Upper half	31.6	<20.3	<26[QC:e]
S96T002426	139:6	Upper half	<19.2	21.3	<20.3
S96T002434	139:7	Upper half	18.4	<18.5	<18.4
S96T002450	139:8	Upper half	<19.4	<20.4	<19.9
S96T002458	139:9	Upper half	27.7	28.9	28.3
S96T002466	139:10	Upper half	20.5	20	20.3
S96T002683	139:11	Upper half	21.5	24.6	23.1[QC:c]
S96T004502		Upper half	19.7	22.2	20.9
S96T002691	139:12	Upper half	<23.5	<20.6	<22.1
S96T004503		Upper half	30.6	20.3	25.5[QC:e]
S96T002699	139:13	Upper half	<22.7	<23.1	<22.9
S96T004504		Upper half	<20.2	<20.1	<20.1

Table B2-29. Tank 241-AW-101 Analytical Results: Molybdenum (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: acid digest (Cont'd)			**µg/g**	**µg/g**	**µg/g**
S96T002708	139:14	Upper half	<24.7	24	<24.4
S96T004505		Upper half	36.1	<19.7	<27.9[QC:e]
S96T002716	139:15	Upper half	21.9	23.1	22.5
S96T004506		Upper half	23.7	<19.3	<21.5[QC:e]
S96T003240	139:16R	Lower half	<19.4	<18.7	<19
S96T003521	139:16R1	Lower half	<19.6	<18.9	<19.3
S96T003536	139:16R2	Upper half	25.3	25.8	25.6
S96T003550	139:17R	Upper half	32.4	32.4	32.4
S96T003557		Lower half	32.5	33.6	33
S96T003572	139:19	Upper half	30.2	30.4	30.3
S96T004508		Upper half	34.9	35.1	35
S96T003566		Lower half	33.3	30.7	32[QC:c]
S96T004507		Lower half	35.4	34.2	34.8
S96T003586	139:21	Upper half	31.9	32.2	32
S96T004510		Upper half	33.1	34.4	33.8
S96T003580		Lower half	31.8	32	31.9
S96T004509		Lower half	34.1	33.7	33.9
S96T002738	Core 132	Solid composite	32.2	42.9	37.5[QC:e]
S96T002743		Solid composite	35.8	37.9	36.8
S96T002751		Solid composite	33.4	33.4	33.4
Liquids			**µg/g**	**µg/g**	**µg/g**
S96T001715	132:7	Drainable liquid	<37.6	<37.6	<37.6
S96T002146	132:7R	Drainable liquid	37.9	40.2	39.1
S96T001747	132:9	Drainable liquid	37.9	47.9	42.9[QC:e]
S96T001764	132:10	Drainable liquid	39.6	40.4	40
S96T001768	132:11	Drainable liquid	38.4	40.6	39.5
S96T001950	132:12	Drainable liquid	42.1	37.8	40
S96T002028	132:13	Drainable liquid	40.4	39.5	40
S96T001944	132:14	Drainable liquid	<3.16	<3.16	<3.16
S96T001960		Drainable liquid	40.2	41.6	40.9

Table B2-29. Tank 241-AW-101 Analytical Results: Molybdenum (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids (Cont'd)			µg/g	µg/g	µg/g
S96T001964	132:15	Drainable liquid	41.3	41.6	41.4
S96T001968	132:16	Drainable liquid	43.7	42.3	43
S96T002527	139:2	Drainable liquid	<37.6	<37.6	<37.6
S96T002558	139:3	Drainable liquid	42.7	39.6	41.1
S96T002575	139:4	Drainable liquid	39.7	<37.6	<38.6
S96T002584	139:5	Drainable liquid	<37.6	<37.6	<37.6
S96T002422	139:6	Drainable liquid	38.9	<37.6	<38.3
S96T002430	139:7	Drainable liquid	<37.6	41.1	<39.3
S96T002439	139:8	Drainable liquid	46.6	40.1	43.3
S96T002454	139:9	Drainable liquid	39.8	42.2	41
S96T002462	139:10	Drainable liquid	39.1	41.2	40.1
S96T002679	139:11	Drainable liquid	38.8	39.4	39.1
S96T002687	139:12	Drainable liquid	41.1	40	40.6
S96T002695	139:13	Drainable liquid	41.2	41.7	41.5
S96T002704	139:14	Drainable liquid	42	40.6	41.3
S96T002712	139:15	Drainable liquid	42.6	42.3	42.5
S96T003236	139:16R	Drainable liquid	38.5	39.9	39.2
S96T003545	139:17R	Drainable liquid	<37.6	<37.6	<37.6
S96T002767	Core 132	Liquid composite	37.8	39.9	38.8

Table B2-30. Tank 241-AW-101 Analytical Results: Neodymium (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: acid digest			µg/g	µg/g	µg/g
S96T000801	132:1	Upper half	<36.9	<33.9	<35.4
S96T002266		Upper half	<90.6	<91.2	<90.9
S96T000796		Lower half	<41.8	<42	<41.9
S96T002265		Lower half	<105	<151	<128
S96T000816	132:2	Upper half	<39.1	<36.2	<37.7
S96T002268		Upper half	<92.1	<93.5	<92.8
S96T000811		Lower half	<41	<38.7	<39.9
S96T002267		Lower half	<90.9	<92.6	<91.8
S96T000825	132:3	Upper half	<34.3	<37.5	<35.9
S96T004492		Upper half	<40.5	<36.8	<38.6[QC:a]
S96T000834	132:4	Upper half	<37.4	<42.2	<39.8
S96T004493		Upper half	<41.6	<41	<41.3[QC:a]
S96T000849	132:5	Upper half	<34	<36.3	<35.1
S96T004494		Upper half	<39.4	<38.4	<38.9[QC:a]
S96T001735	132:7	Upper half	<44.7	<43.7	<44.2
S96T004495	132:7R	Upper half	<37.9	<35.1	<36.5[QC:a]
S96T001751	132:9	Upper half	<44.8	<40.9	<42.8
S96T001756	132:10	Upper half	<43.7	<39.1	<41.4
S96T001772	132:11	Upper half	<42.4	<39.3	<40.8
S96T001952	132:12	Upper half	<43.5	<42.5	<43
S96T002032	132:13	Upper half	<40.1	<40.3	<40.2
S96T001962	132:14	Upper half	<35.2	<37.4	<36.3
S96T001966	132:15	Lower half	<43.5	<43.3	<43.4
S96T001970	132:16	Upper half	<43.7	<37.5	<40.6
S96T001974	132:18	Upper half	<41.6	<37.7	<39.7
S96T001978		Lower half	<36.2	<38.2	<37.2

Table B2-30. Tank 241-AW-101 Analytical Results: Neodymium (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: acid digest (Cont'd)			µg/g	µg/g	µg/g
S96T001981	132:20	Upper half	<37.8	<37.2	<37.5
S96T001985		Lower half	<98.2	<98.5	<98.3
S96T001988	132:22	Upper half	<86.7	<86.4	<86.6
S96T001992		Lower half	<87.5	<87.7	<87.6
S96T002418	139:1	Upper half	<38.4	<36.2	<37.3[QC:c]
S96T004496		Upper half	<35.1	<39.6	<37.4[QC:c]
S96T002530	139:2	Subsegment B	<39.9	<38.5	<39.2
S96T004497		Subsegment B	<40.1	<39.2	<39.7
S96T002535		Subsegment C	<45.2	<40.5	<42.9
S96T004498		Subsegment C	<38	<37.3	<37.6
S96T002538		Subsegment D lower half	<38.8	<39.4	<39.1
S96T004499		Subsegment D lower half	<37.8	<37.8	<37.8
S96T002571	139:3	Upper half	<42	<41.4	<41.7
S96T004500		Upper half	<38	<37.9	<38
S96T002580	139:4	Upper half	<45.6	<46.3	<46
S96T004501		Upper half	<40.7	<40.3	<40.5
S96T002597	139:5	Upper half	<38.7	<40.6	<39.7
S96T002426	139:6	Upper half	<38.4	<39.7	<39
S96T002434	139:7	Upper half	<35.2	<37	<36.1
S96T002450	139:8	Upper half	<38.8	<40.7	<39.8
S96T002458	139:9	Upper half	<40.4	<36.6	<38.5
S96T002466	139:10	Upper half	<35.9	<37.2	<36.5
S96T002683	139:11	Upper half	<40.7	<46.7	<43.7[QC:c]
S96T004502		Upper half	<38.2	<37	<37.6
S96T002691	139:12	Upper half	<46.9	<41.1	<44
S96T004503		Upper half	<36.7	<38	<37.4
S96T002699	139:13	Upper half	<45.5	<46.1	<45.8
S96T004504		Upper half	<40.4	<40.2	<40.3

Table B2-30. Tank 241-AW-101 Analytical Results: Neodymium (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: acid digest (Cont'd)			**µg/g**	**µg/g**	**µg/g**
S96T002708	139:14	Upper half	<49.4	<42.9	<46.1
S96T004505		Upper half	<39.7	<39.4	<39.5
S96T002716	139:15	Upper half	<39.4	<38.4	<38.9
S96T004506		Upper half	<39.6	<38.6	<39.1
S96T003240	139:16R	Lower half	<38.9	<37.3	<38.1
S96T003521	139:16R1	Lower half	<39.1	<37.8	<38.5
S96T003536	139:16R2	Upper half	<34.7	<34.8	<34.8
S96T003550	139:17R	Upper half	<39.5	<39.7	<39.6
S96T003557		Lower half	<39.4	<38.9	<39.1
S96T003572	139:19	Upper half	<48	<44.1	<46
S96T004508		Upper half	<39.7	<40	<39.9
S96T003566		Lower half	<38.3	<38.5	<38.4[QC:c]
S96T004507		Lower half	<39.1	<40.2	<39.7
S96T003586	139:21	Upper half	<36.8	<33.8	<35.3
S96T004510		Upper half	<40.1	<40.5	<40.3
S96T003580		Lower half	<44.6	<39.4	<42
S96T004509		Lower half	<39.7	<39.7	<39.7
S96T002738	Core 132	Solid composite	<38.9	<38.5	<38.7
S96T002743		Solid composite	<39.1	<39.1	<39.1
S96T002751		Solid composite	<38.9	<36	<37.5
Liquids			**µg/g**	**µg/g**	**µg/g**
S96T001715	132:7	Drainable liquid	<75	<75	<75
S96T002146	132:7R	Drainable liquid	<75	<75	<75
S96T001747	132:9	Drainable liquid	<75	<75	<75
S96T001764	132:10	Drainable liquid	<75	<75	<75
S96T001768	132:11	Drainable liquid	<75	<75	<75
S96T001950	132:12	Drainable liquid	<37.6	<37.6	<37.6
S96T002028	132:13	Drainable liquid	<37.6	<37.6	<37.6
S96T001944	132:14	Drainable liquid	<6.31	<6.31	<6.31
S96T001960		Drainable liquid	<37.6	<37.6	<37.6

Table B2-30. Tank 241-AW-101 Analytical Results: Neodymium (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids (Cont'd)			µg/g	µg/g	µg/g
S96T001964	132:15	Drainable liquid	<37.6	<37.6	<37.6
S96T001968	132:16	Drainable liquid	<37.6	<37.6	<37.6
S96T002527	139:2	Drainable liquid	<75	<75	<75
S96T002558	139:3	Drainable liquid	<75	75	<75
S96T002575	139:4	Drainable liquid	<75	<75	<75
S96T002584	139:5	Drainable liquid	<75	<75	<75
S96T002422	139:6	Drainable liquid	<75	<75	<75
S96T002430	139:7	Drainable liquid	<75	<75	<75
S96T002439	139:8	Drainable liquid	<75	<75	<75
S96T002454	139:9	Drainable liquid	<75	<75	<75
S96T002462	139:10	Drainable liquid	<75	<75	<75
S96T002679	139:11	Drainable liquid	<75	<75	<75
S96T002687	139:12	Drainable liquid	<75	<75	<75
S96T002695	139:13	Drainable liquid	<75	<75	<75
S96T002704	139:14	Drainable liquid	<75	<75	<75
S96T002712	139:15	Drainable liquid	<75	<75	<75
S96T003236	139:16R	Drainable liquid	<75	<75	<75
S96T003545	139:17R	Drainable liquid	<75	<75	<75
S96T002767	Core 132	Liquid composite	<75	<75	<75

Table B2-31. Tank 241-AW-101 Analytical Results: Nickel (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: acid digest			µg/g	µg/g	µg/g
S96T000801	132:1	Upper half	41.9	42.5	42.2
S96T002266		Upper half	49.4	36.2	42.8[QC:e]
S96T000796		Lower half	41.1	34.6	37.9[QC:c]
S96T002265		Lower half	39.4	45.8	42.6
S96T000816	132:2	Upper half	36.3	36.1	36.2
S96T002268		Upper half	41.6	40.4	41
S96T000811		Lower half	25	21.2	23.1
S96T002267		Lower half	24.6	29.4	27
S96T000825	132:3	Upper half	9.33	7.62	8.47[QC:e]
S96T004492		Upper half	<8.09	<7.37	<7.73[QC:a]
S96T000834	132:4	Upper half	9.29	<8.44	<8.86
S96T004493		Upper half	<8.33	<8.2	<8.27[QC:a]
S96T000849	132:5	Upper half	<6.79	<7.25	<7.02
S96T004494		Upper half	<7.87	<7.67	<7.77[QC:a]
S96T001735	132:7	Upper half	49.9	55.9	52.9
S96T004495	132:7R	Upper half	<7.58	<7.02	<7.3[QC:a]
S96T001751	132:9	Upper half	<8.95	<8.18	<8.56
S96T001756	132:10	Upper half	<8.75	<7.82	<8.29
S96T001772	132:11	Upper half	<8.47	<7.87	<8.17
S96T001952	132:12	Upper half	<8.7	<8.51	<8.61
S96T002032	132:13	Upper half	8.02	9.58	8.8
S96T001962	132:14	Upper half	<7.04	<7.49	<7.27
S96T001966	132:15	Lower half	<8.7	<8.65	<8.68
S96T001970	132:16	Upper half	<8.74	<7.5	<8.12
S96T001974	132:18	Upper half	55.5	49.7	52.6
S96T001978		Lower half	34.1	28.2	31.1

Table B2-31. Tank 241-AW-101 Analytical Results: Nickel (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: acid digest (Cont'd)			**µg/g**	**µg/g**	**µg/g**
S96T001981	132:20	Upper half	46.6	39.2	42.9
S96T001985		Lower half	65.9	67	66.5
S96T001988	132:22	Upper half	72.8	47.3	60[QC:e]
S96T001992		Lower half	56.9	57.3	57.1
S96T002418	139:1	Upper half	41.3	43.2	42.3[QC:c]
S96T004496		Upper half	43.7	42.5	43.1[QC:c]
S96T002530	139:2	Subsegment B	38.8	45.2	42
S96T004497		Subsegment B	44.7	43.3	44
S96T002535		Subsegment C	28.6	22.5	25.6[QC:e]
S96T004498		Subsegment C	21.9	23.3	22.6
S96T002538		Subsegment D lower half	11.2	13.8	12.5[QC:e]
S96T004499		Subsegment D lower half	11.6	11	11.3
S96T002571	139:3	Upper half	12.7	<8.28	<10.5[QC:e]
S96T004500		Upper half	<7.6	<7.59	<7.59
S96T002580	139:4	Upper half	<9.13	<9.25	<9.19
S96T004501		Upper half	<8.14	<8.06	<8.1
S96T002597	139:5	Upper half	<7.75	<8.11	<7.93
S96T002426	139:6	Upper half	<7.69	<7.95	<7.82
S96T002434	139:7	Upper half	13.1	<7.39	<10.2[QC:e]
S96T002450	139:8	Upper half	<7.76	<8.14	<7.95
S96T002458	139:9	Upper half	<8.08	7.55	<7.81
S96T002466	139:10	Upper half	<7.17	<7.44	<7.3
S96T002683	139:11	Upper half	<8.13	<9.33	<8.73[QC:c]
S96T004502		Upper half	<7.64	<7.4	<7.52
S96T002691	139:12	Upper half	<9.39	<8.23	<8.81
S96T004503		Upper half	<7.34	<7.6	<7.47
S96T002699	139:13	Upper half	<9.09	<9.22	<9.16
S96T004504		Upper half	<8.08	<8.04	<8.06

Table B2-31. Tank 241-AW-101 Analytical Results: Nickel (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: acid digest (Cont'd)			**µg/g**	**µg/g**	**µg/g**
S96T002708	139:14	Upper half	<9.87	<8.57	<9.22
S96T004505		Upper half	<7.93	<7.88	<7.9
S96T002716	139:15	Upper half	<7.89	<7.69	<7.79
S96T004506		Upper half	<7.91	<7.73	<7.82
S96T003240	139:16R	Lower half	<7.78	<7.47	<7.63
S96T003521	139:16R1	Lower half	<7.82	<7.55	<7.69
S96T003536	139:16R2	Upper half	<6.94	<6.97	<6.96
S96T003550	139:17R	Upper half	54.1	43.6	48.9[QC:e]
S96T003557		Lower half	52.1	50.3	51.2
S96T003572	139:19	Upper half	46.4	49.7	48[QC:b]
S96T004508		Upper half	64	74.2	69.1
S96T003566		Lower half	44.1	44.4	44.3[QC:b,c]
S96T004507		Lower half	61.3	56.3	58.8
S96T003586	139:21	Upper half	60.6	59.5	60[QC:b]
S96T004510		Upper half	84.3	69.5	76.9
S96T003580		Lower half	60.6	61.7	61.2[QC:b]
S96T004509		Lower half	93.9	78.7	86.3
S96T002738	Core 132	Solid composite	42.4	45.2	43.8[QC:a]
S96T002743		Solid composite	9.89	7.82	8.86[QC:a,e]
S96T002751		Solid composite	52	52.6	52.3[QC:a]
Liquids			**µg/g**	**µg/g**	**µg/g**
S96T001715	132:7	Drainable liquid	<15	<15	<15
S96T002146	132:7R	Drainable liquid	<15	<15	<15
S96T001747	132:9	Drainable liquid	<15	<15	<15
S96T001764	132:10	Drainable liquid	<15	<15	<15
S96T001768	132:11	Drainable liquid	<15	<15	<15
S96T001950	132:12	Drainable liquid	8.87	<7.5	<8.19
S96T002028	132:13	Drainable liquid	<7.5	7.87	<7.69
S96T001944	132:14	Drainable liquid	1.34	<1.26	<1.3
S96T001960		Drainable liquid	<7.5	<7.5	<7.5

Table B2-31. Tank 241-AW-101 Analytical Results: Nickel (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids (Cont'd)			µg/g	µg/g	µg/g
S96T001964	132:15	Drainable liquid	8.87	7.81	8.34
S96T001968	132:16	Drainable liquid	10.3	7.56	8.94[QC:e]
S96T002527	139:2	Drainable liquid	<15	<15	<15
S96T002558	139:3	Drainable liquid	<15	<15	<15
S96T002575	139:4	Drainable liquid	<15	<15	<15
S96T002584	139:5	Drainable liquid	<15	<15	<15
S96T002422	139:6	Drainable liquid	<15	<15	<15
S96T002430	139:7	Drainable liquid	<15	16.1	<15.5
S96T002439	139:8	Drainable liquid	<15	<15	<15
S96T002454	139:9	Drainable liquid	<15	<15	<15
S96T002462	139:10	Drainable liquid	<15	<15	<15
S96T002679	139:11	Drainable liquid	<15	<15	<15
S96T002687	139:12	Drainable liquid	<15	<15	<15
S96T002695	139:13	Drainable liquid	<15	<15	<15
S96T002704	139:14	Drainable liquid	<15	<15	<15
S96T002712	139:15	Drainable liquid	<15	<15	<15
S96T003236	139:16R	Drainable liquid	<15	<15	<15
S96T003545	139:17R	Drainable liquid	<15	<15	<15
S96T002767	Core 132	Liquid composite	<15	<15	<15

Table B2-32. Tank 241-AW-101 Analytical Results: Phosphorus (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: acid digest			µg/g	µg/g	µg/g
S96T000801	132:1	Upper half	3,110	3,270	3,190
S96T002266		Upper half	3,030	1,960	2,500[QC:e]
S96T000796		Lower half	1,410	1,160	1,290[QC:c]
S96T002265		Lower half	1,160	1,280	1,220[QC:c]
S96T000816	132:2	Upper half	1,110	727	919[QC:e]
S96T002268		Upper half	978	1,120	1,050
S96T000811		Lower half	593	552	573
S96T002267		Lower half	739	778	759
S96T000825	132:3	Upper half	453	449	451
S96T004492		Upper half	1,180	891	1,040[QC:c,e]
S96T000834	132:4	Upper half	312	260	286
S96T004493		Upper half	367	387	377
S96T000849	132:5	Upper half	441	439	440
S96T004494		Upper half	620	650	635
S96T001735	132:7	Upper half	452	411	432
S96T004495	132:7R	Upper half	913	554	734[QC:e]
S96T001751	132:9	Upper half	900	865	883
S96T001756	132:10	Upper half	811	891	851
S96T001772	132:11	Upper half	1,040	1,100	1,070
S96T001952	132:12	Upper half	594	566	580
S96T002032	132:13	Upper half	898	895	897
S96T001962	132:14	Upper half	522	579	551
S96T001966	132:15	Lower half	363	404	384
S96T001970	132:16	Upper half	447	396	422
S96T001974	132:18	Upper half	860	814	837
S96T001978		Lower half	575	490	533

Table B2-32. Tank 241-AW-101 Analytical Results: Phosphorus (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: acid digest (Cont'd)			**µg/g**	**µg/g**	**µg/g**
S96T001981	132:20	Upper half	1,300	1,060	1,180[QC:e]
S96T001985		Lower half	3,940	3,520	3,730
S96T001988	132:22	Upper half	2,190	1,660	1,930[QC:e]
S96T001992		Lower half	1,450	1,860	1,660[QC:e]
S96T002418	139:1	Upper half	1,950	1,970	1,960[QC:c]
S96T004496		Upper half	3,000	2,140	2,570[QC:c,e]
S96T002530	139:2	Subsegment B	1,350	1,250	1,300
S96T004497		Subsegment B	2,190	1,750	1,970[QC:e]
S96T002535		Subsegment C	480	497	489
S96T004498		Subsegment C	539	596	568
S96T002538		Subsegment D lower half	529	468	499
S96T004499		Subsegment D lower half	597	668	633
S96T002571	139:3	Upper half	933	1,120	1,030
S96T004500		Upper half	912	903	908
S96T002580	139:4	Upper half	553	644	599
S96T004501		Upper half	587	594	591
S96T002597	139:5	Upper half	1,600	1,340	1,470[QC:d]
S96T002426	139:6	Upper half	756	816	786
S96T002434	139:7	Upper half	710	777	744
S96T002450	139:8	Upper half	859	979	919
S96T002458	139:9	Upper half	693	815	754
S96T002466	139:10	Upper half	864	1,030	947
S96T002683	139:11	Upper half	708	741	725[QC:c]
S96T004502		Upper half	418	476	447
S96T002691	139:12	Upper half	790	874	832
S96T004503		Upper half	1,100	605	853[QC:e]
S96T002699	139:13	Upper half	577	509	543
S96T004504		Upper half	488	530	509

Table B2-32. Tank 241-AW-101 Analytical Results: Phosphorus (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: acid digest (Cont'd)			**µg/g**	**µg/g**	**µg/g**
S96T002708	139:14	Upper half	1,030	1,620	1,330[QC:e]
S96T004505		Upper half	1,160	705	933[QC:e]
S96T002716	139:15	Upper half	686	828	757
S96T004506		Upper half	755	810	783
S96T003240	139:16R	Lower half	304	440	372[QC:e]
S96T003521	139:16R1	Lower half	419	483	451
S96T003536	139:16R2	Upper half	446	395	421
S96T003550	139:17R	Upper half	767	661	714
S96T003557		Lower half	590	627	609
S96T003572	139:19	Upper half	695	678	687
S96T004508		Upper half	907	1,080	994
S96T003566		Lower half	1,050	1,570	1,310[QC:c,e]
S96T004507		Lower half	1,350	3,360	2,360[QC:e]
S96T003586	139:21	Upper half	2,370	1,600	1,990[QC:e]
S96T004510		Upper half	2,180	1,970	2,080
S96T003580		Lower half	2,100	2,560	2,330
S96T004509		Lower half	2,790	2,630	2,710
S96T002738	Core 132	Solid composite	1,720	1,890	1,810[QC:d]
S96T002743		Solid composite	538	563	551
S96T002751		Solid composite	769	1,240	1,000[QC:e]
Liquids			**µg/g**	**µg/g**	**µg/g**
S96T001715	132:7	Drainable liquid	164	<150	<157
S96T002146	132:7R	Drainable liquid	<150	<150	<150[QC:d]
S96T001747	132:9	Drainable liquid	<150	153	<151[QC:d]
S96T001764	132:10	Drainable liquid	<150	<150	<150[QC:d]
S96T001768	132:11	Drainable liquid	<150	<150	<150[QC:d]
S96T001950	132:12	Drainable liquid	173	153	163
S96T002028	132:13	Drainable liquid	146	166	156
S96T001944	132:14	Drainable liquid	30.4	31.4	30.9
S96T001960		Drainable liquid	155	160	158

Table B2-32. Tank 241-AW-101 Analytical Results: Phosphorus (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids (Cont'd)			µg/g	µg/g	µg/g
S96T001964	132:15	Drainable liquid	158	159	158
S96T001968	132:16	Drainable liquid	166	173	169
S96T002527	139:2	Drainable liquid	< 150	< 150	< 150[QC:d]
S96T002558	139:3	Drainable liquid	159	< 150	< 155
S96T002575	139:4	Drainable liquid	< 150	< 150	< 150[QC:d]
S96T002584	139:5	Drainable liquid	< 150	< 150	< 150[QC:d]
S96T002422	139:6	Drainable liquid	< 150	< 150	< 150[QC:d]
S96T002430	139:7	Drainable liquid	< 150	< 150	< 150[QC:d]
S96T002439	139:8	Drainable liquid	191	165	178
S96T002454	139:9	Drainable liquid	165	191	178
S96T002462	139:10	Drainable liquid	153	164	158
S96T002679	139:11	Drainable liquid	154	157	155
S96T002687	139:12	Drainable liquid	159	167	163
S96T002695	139:13	Drainable liquid	171	171	171
S96T002704	139:14	Drainable liquid	174	176	175
S96T002712	139:15	Drainable liquid	158	180	169
S96T003236	139:16R	Drainable liquid	< 150	< 150	< 150[QC:d]
S96T003545	139:17R	Drainable liquid	< 150	< 150	< 150[QC:d]
S96T002767	Core 132	Liquid composite	< 150	< 150	< 150[QC:d]

Table B2-33. Tank 241-AW-101 Analytical Results: Potassium (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: acid digest			µg/g	µg/g	µg/g
S96T000801	132:1	Upper half	22,700	22,900	22,800
S96T002266		Upper half	22,800	16,400	19,600[QC:e]
S96T000796		Lower half	26,400	24,100	25,300
S96T002265		Lower half	23,900	25,900	24,900[QC:c]
S96T000816	132:2	Upper half	23,600	23,400	23,500
S96T002268		Upper half	24,200	22,600	23,400
S96T000811		Lower half	25,800	24,800	25,300
S96T002267		Lower half	25,900	26,600	26,300
S96T000825	132:3	Upper half	22,300	23,400	22,900
S96T004492		Upper half	74,200	48,600	61,400[QC:a,c,e]
S96T000834	132:4	Upper half	21,300	21,400	21,400
S96T004493		Upper half	37,300	38,200	37,800[QC:a]
S96T000849	132:5	Upper half	32,100	31,800	32,000
S96T004494		Upper half	65,000	63,600	64,300[QC:a]
S96T001735	132:7	Upper half	27,800	27,100	27,500
S96T004495	132:7R	Upper half	64,600	46,800	55,700[QC:a,e]
S96T001751	132:9	Upper half	62,700	64,000	63,400
S96T001756	132:10	Upper half	73,900	68,300	71,100
S96T001772	132:11	Upper half	67,800	51,100	59,500[QC:e]
S96T001952	132:12	Upper half	56,800	58,100	57,500[QC:d]
S96T002032	132:13	Upper half	39,600	40,500	40,100
S96T001962	132:14	Upper half	61,600	59,300	60,500[QC:c]
S96T001966	132:15	Lower half	61,500	58,900	60,200
S96T001970	132:16	Upper half	66,300	72,400	69,400
S96T001974	132:18	Upper half	21,800	21,900	21,900
S96T001978		Lower half	20,500	20,900	20,700

Table B2-33. Tank 241-AW-101 Analytical Results: Potassium (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: acid digest (Cont'd)			µg/g	µg/g	µg/g
S96T001981	132:20	Upper half	21,300	21,300	21,300
S96T001985		Lower half	23,400	21,000	22,200[QC:d]
S96T001988	132:22	Upper half	20,800	20,600	20,700
S96T001992		Lower half	24,200	22,300	23,300
S96T002418	139:1	Upper half	24,200	23,500	23,900[QC:d]
S96T004496		Upper half	26,100	24,700	25,400[QC:a,c]
S96T002530	139:2	Subsegment B	24,500	24,200	24,400
S96T004497		Subsegment B	27,100	26,400	26,800[QC:a]
S96T002535		Subsegment C	27,900	28,500	28,200
S96T004498		Subsegment C	25,500	26,100	25,800[QC:a]
S96T002538		Subsegment D lower half	61,800	56,200	59,000
S96T004499		Subsegment D lower half	89,500	99,600	94,600[QC:a]
S96T002571	139:3	Upper half	72,100	82,000	77,100
S96T004500		Upper half	86,200	81,500	83,900[QC:a]
S96T002580	139:4	Upper half	76,000	81,800	78,900
S96T004501		Upper half	81,300	86,400	83,900[QC:d]
S96T002597	139:5	Upper half	47,000	81,500	64,300[QC:c,e]
S96T002426	139:6	Upper half	94,100	72,300	83,200[QC:e]
S96T002434	139:7	Upper half	79,100	76,700	77,900
S96T002450	139:8	Upper half	85,400	86,400	85,900
S96T002458	139:9	Upper half	56,400	44,800	50,600[QC:e]
S96T002466	139:10	Upper half	56,500	54,800	55,700
S96T002683	139:11	Upper half	58,200	49,100	53,700[QC:c]
S96T004502		Upper half	66,100	70,600	68,400
S96T002691	139:12	Upper half	87,200	75,700	81,500
S96T004503		Upper half	63,900	75,900	69,900
S96T002699	139:13	Upper half	50,700	51,400	51,100
S96T004504		Upper half	56,500	55,500	56,000

Table B2-33. Tank 241-AW-101 Analytical Results: Potassium (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: acid digest (Cont'd)			**µg/g**	**µg/g**	**µg/g**
S96T002708	139:14	Upper half	73,400	70,800	72,100
S96T004505		Upper half	42,000	64,400	53,200[QC:e]
S96T002716	139:15	Upper half	47,900	51,800	49,900
S96T004506		Upper half	54,400	78,400	66,400[QC:d,e]
S96T003240	139:16R	Lower half	51,800	56,000	53,900[QC:d]
S96T003521	139:16R1	Lower half	80,600	71,100	75,900[QC:d]
S96T003536	139:16R2	Upper half	53,800	51,400	52,600
S96T003550	139:17R	Upper half	27,100	30,600	28,900
S96T003557		Lower half	24,200	25,000	24,600
S96T003572	139:19	Upper half	23,400	24,900	24,200
S96T004508		Upper half	21,600	22,200	21,900
S96T003566		Lower half	24,600	25,700	25,200[QC:c]
S96T004507		Lower half	22,900	23,900	23,400
S96T003586	139:21	Upper half	24,600	24,400	24,500
S96T004510		Upper half	22,900	22,600	22,800
S96T003580		Lower half	25,600	25,900	25,800
S96T004509		Lower half	23,200	21,700	22,500
S96T002738	Core 132	Solid composite	22,400	23,600	23,000[QC:a,d]
S96T002743		Solid composite	26,500	26,000	26,300[QC:a]
S96T002751		Solid composite	20,200	20,300	20,300[QC:a]
Liquids			**µg/g**	**µg/g**	**µg/g**
S96T001715	132:7	Drainable liquid	17,500	15,600	16,500[QC:c]
S96T002146	132:7R	Drainable liquid	22,600	23,400	23,000[QC:d]
S96T001747	132:9	Drainable liquid	21,100	25,000	23,000[QC:d]
S96T001764	132:10	Drainable liquid	21,500	21,700	21,600[QC:c]
S96T001768	132:11	Drainable liquid	21,700	23,000	22,300[QC:d]
S96T001950	132:12	Drainable liquid	24,000	21,900	22,900[QC:c]
S96T002028	132:13	Drainable liquid	23,100	22,700	22,900[QC:c]
S96T001944	132:14	Drainable liquid	1,240	1,250	1,240
S96T001960		Drainable liquid	22,800	23,100	22,900[QC:c]

Table B2-33. Tank 241-AW-101 Analytical Results: Potassium (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids (Cont'd)			µg/g	µg/g	µg/g
S96T001964	132:15	Drainable liquid	23,200	23,300	23,200
S96T001968	132:16	Drainable liquid	25,000	23,900	24,500[QC:c]
S96T002527	139:2	Drainable liquid	21,500	22,500	22,000[QC:d]
S96T002558	139:3	Drainable liquid	22,900	21,400	22,100[QC:c]
S96T002575	139:4	Drainable liquid	22,800	21,300	22,100[QC:d]
S96T002584	139:5	Drainable liquid	21,800	20,700	21,200[QC:d]
S96T002422	139:6	Drainable liquid	22,200	21,300	21,700[QC:d]
S96T002430	139:7	Drainable liquid	21,700	24,100	22,900[QC:d]
S96T002439	139:8	Drainable liquid	25,300	23,900	24,600[QC:c]
S96T002454	139:9	Drainable liquid	23,500	21,900	22,700[QC:c]
S96T002462	139:10	Drainable liquid	22,600	22,400	22,500[QC:c]
S96T002679	139:11	Drainable liquid	21,400	21,900	21,600[QC:d]
S96T002687	139:12	Drainable liquid	22,100	22,200	22,200[QC:d]
S96T002695	139:13	Drainable liquid	22,500	23,400	23,000[QC:c]
S96T002704	139:14	Drainable liquid	22,300	23,500	22,900
S96T002712	139:15	Drainable liquid	22,100	22,800	22,500[QC:d]
S96T003236	139:16R	Drainable liquid	21,600	21,100	21,400[QC:d]
S96T003545	139:17R	Drainable liquid	21,100	22,300	21,700[QC:d]
S96T002767	Core 132	Liquid composite	21,400	22,800	22,100[QC:d]

Table B2-34. Tank 241-AW-101 Analytical Results: Samarium (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: acid digest			µg/g	µg/g	µg/g
S96T000801	132:1	Upper half	<36.9	<33.9	<35.4
S96T002266		Upper half	<90.6	<91.2	<90.9
S96T000796		Lower half	<41.8	<42	<41.9[QC:c]
S96T002265		Lower half	<105	<151	<128[QC:e]
S96T000816	132:2	Upper half	<39.1	<36.2	<37.7
S96T002268		Upper half	<92.1	<93.5	<92.8
S96T000811		Lower half	<41	<38.7	<39.9
S96T002267		Lower half	<90.9	<92.6	<91.8
S96T000825	132:3	Upper half	<34.3	<37.5	<35.9
S96T004492		Upper half	<40.5	<36.8	<38.6[QC:a,c]
S96T000834	132:4	Upper half	<37.4	<42.2	<39.8
S96T004493		Upper half	<41.6	<41	<41.3[QC:a]
S96T000849	132:5	Upper half	<34	<36.3	<35.1
S96T004494		Upper half	<39.4	<38.4	<38.9[QC:a]
S96T001735	132:7	Upper half	<44.7	<43.7	<44.2
S96T004495	132:7R	Upper half	<37.9	<35.1	<36.5[QC:a]
S96T001751	132:9	Upper half	<44.8	<40.9	<42.8
S96T001756	132:10	Upper half	<43.7	<39.1	<41.4
S96T001772	132:11	Upper half	<42.4	<39.3	<40.8
S96T001952	132:12	Upper half	<43.5	<42.5	<43
S96T002032	132:13	Upper half	<40.1	<40.3	<40.2
S96T001962	132:14	Upper half	<35.2	<37.4	<36.3
S96T001966	132:15	Lower half	<43.5	<43.3	<43.4
S96T001970	132:16	Upper half	<43.7	<37.5	<40.6
S96T001974	132:18	Upper half	<41.6	<37.7	<39.7
S96T001978		Lower half	<36.2	<38.2	<37.2

Table B2-34. Tank 241-AW-101 Analytical Results: Samarium (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: acid digest (Cont'd)			µg/g	µg/g	µg/g
S96T001981	132:20	Upper half	<37.8	<37.2	<37.5
S96T001985		Lower half	<98.2	<98.5	<98.3
S96T001988	132:22	Upper half	<86.7	<86.4	<86.6
S96T001992		Lower half	<87.5	<87.7	<87.6
S96T002418	139:1	Upper half	<38.4	<36.2	<37.3[QC:c]
S96T004496		Upper half	<35.1	<39.6	<37.4[QC:a,c]
S96T002530	139:2	Subsegment B	<39.9	<38.5	<39.2
S96T004497		Subsegment B	<40.1	<39.2	<39.7[QC:a]
S96T002535		Subsegment C	<45.2	<40.5	<42.9
S96T004498		Subsegment C	<38	<37.3	<37.6[QC:a]
S96T002538		Subsegment D lower half	<38.8	<39.4	<39.1
S96T004499		Subsegment D lower half	<37.8	<37.8	<37.8[QC:a]
S96T002571	139:3	Upper half	<42	<41.4	<41.7
S96T004500		Upper half	<38	<37.9	<38[QC:a]
S96T002580	139:4	Upper half	<45.6	<46.3	<46
S96T004501		Upper half	<40.7	<40.3	<40.5
S96T002597	139:5	Upper half	<38.7	<40.6	<39.7
S96T002426	139:6	Upper half	<38.4	<39.7	<39
S96T002434	139:7	Upper half	<35.2	<37	<36.1
S96T002450	139:8	Upper half	<38.8	<40.7	<39.8
S96T002458	139:9	Upper half	<40.4	<36.6	<38.5
S96T002466	139:10	Upper half	<35.9	<37.2	<36.5
S96T002683	139:11	Upper half	<40.7	<46.7	<43.7[QC:c]
S96T004502		Upper half	<38.2	<37	<37.6
S96T002691	139:12	Upper half	<46.9	<41.1	<44
S96T004503		Upper half	<36.7	<38	<37.4
S96T002699	139:13	Upper half	<45.5	<46.1	<45.8
S96T004504		Upper half	<40.4	<40.2	<40.3

Table B2-34. Tank 241-AW-101 Analytical Results: Samarium (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: acid digest (Cont'd)			**µg/g**	**µg/g**	**µg/g**
S96T002708	139:14	Upper half	<49.4	<42.9	<46.1
S96T004505		Upper half	<39.7	<39.4	<39.5
S96T002716	139:15	Upper half	<39.4	<38.4	<38.9
S96T004506		Upper half	<39.6	<38.6	<39.1
S96T003240	139:16R	Lower half	<38.9	<37.3	<38.1
S96T003521	139:16R1	Lower half	<39.1	<37.8	<38.5
S96T003536	139:16R2	Upper half	<34.7	<34.8	<34.8
S96T003550	139:17R	Upper half	<39.5	<39.7	<39.6
S96T003557		Lower half	<39.4	<38.9	<39.1
S96T003572	139:19	Upper half	<48	<44.1	<46
S96T004508		Upper half	<39.7	<40	<39.9
S96T003566		Lower half	<38.3	<38.5	<38.4[QC:c]
S96T004507		Lower half	<39.1	<40.2	<39.7
S96T003586	139:21	Upper half	<36.8	<33.8	<35.3
S96T004510		Upper half	<40.1	<40.5	<40.3
S96T003580		Lower half	<44.6	<39.4	<42
S96T004509		Lower half	<39.7	<39.7	<39.7
S96T002738	Core 132	Solid composite	<38.9	<38.5	<38.7
S96T002743		Solid composite	<39.1	<39.1	<39.1
S96T002751		Solid composite	<38.9	<36	<37.5
Liquids			**µg/g**	**µg/g**	**µg/g**
S96T001715	132:7	Drainable liquid	<75	<75	<75
S96T002146	132:7R	Drainable liquid	<75	<75	<75
S96T001747	132:9	Drainable liquid	<75	<75	<75
S96T001764	132:10	Drainable liquid	<75	<75	<75
S96T001768	132:11	Drainable liquid	<75	<75	<75
S96T001950	132:12	Drainable liquid	<37.6	<37.6	<37.6
S96T002028	132:13	Drainable liquid	<37.6	<37.6	<37.6
S96T001944	132:14	Drainable liquid	<6.31	<6.31	<6.31
S96T001960		Drainable liquid	<37.6	<37.6	<37.6

Table B2-34. Tank 241-AW-101 Analytical Results: Samarium (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids (Cont'd)			µg/g	µg/g	µg/g
S96T001964	132:15	Drainable liquid	<37.6	<37.6	<37.6
S96T001968	132:16	Drainable liquid	<37.6	<37.6	<37.6
S96T002527	139:2	Drainable liquid	<75	<75	<75
S96T002558	139:3	Drainable liquid	<75	<75	<75
S96T002575	139:4	Drainable liquid	<75	<75	<75
S96T002584	139:5	Drainable liquid	<75	<75	<75
S96T002422	139:6	Drainable liquid	<75	<75	<75
S96T002430	139:7	Drainable liquid	<75	<75	<75
S96T002439	139:8	Drainable liquid	<75	<75	<75
S96T002454	139:9	Drainable liquid	<75	<75	<75
S96T002462	139:10	Drainable liquid	<75	<75	<75
S96T002679	139:11	Drainable liquid	<75	<75	<75
S96T002687	139:12	Drainable liquid	<75	<75	<75
S96T002695	139:13	Drainable liquid	<75	<75	<75
S96T002704	139:14	Drainable liquid	<75	<75	<75
S96T002712	139:15	Drainable liquid	<75	<75	<75
S96T003236	139:16R	Drainable liquid	<75	<75	<75
S96T003545	139:17R	Drainable liquid	<75	<75	<75
S96T002767	Core 132	Liquid composite	<75	<75	<75

Table B2-35. Tank 241-AW-101 Analytical Results: Selenium (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: acid digest			µg/g	µg/g	µg/g
S96T000801	132:1	Upper half	<36.9	<33.9	<35.4
S96T002266		Upper half	159	163	161
S96T000796		Lower half	<41.8	<42	<41.9[QC:c]
S96T002265		Lower half	163	<151	<157
S96T000816	132:2	Upper half	<39.1	<36.2	<37.7
S96T002268		Upper half	170	159	165
S96T000811		Lower half	<41	<38.7	<39.9
S96T002267		Lower half	134	122	128
S96T000825	132:3	Upper half	<34.3	<37.5	<35.9
S96T004492		Upper half	<40.5	<36.8	<38.6[QC:a,c]
S96T000834	132:4	Upper half	<37.4	<42.2	<39.8
S96T004493		Upper half	<41.6	<41	<41.3[QC:a]
S96T000849	132:5	Upper half	<34	<36.3	<35.1
S96T004494		Upper half	<39.4	<38.4	<38.9[QC:a]
S96T001735	132:7	Upper half	<44.7	<43.7	<44.2
S96T004495	132:7R	Upper half	<37.9	<35.1	<36.5[QC:a]
S96T001751	132:9	Upper half	<44.8	<40.9	<42.8
S96T001756	132:10	Upper half	<43.7	<39.1	<41.4
S96T001772	132:11	Upper half	<42.4	<39.3	<40.8
S96T001952	132:12	Upper half	<43.5	<42.5	<43
S96T002032	132:13	Upper half	<40.1	<40.3	<40.2
S96T001962	132:14	Upper half	<35.2	<37.4	<36.3[QC:a]
S96T001966	132:15	Lower half	<43.5	<43.3	<43.4[QC:a]
S96T001970	132:16	Upper half	<43.7	<37.5	<40.6[QC:a]
S96T001974	132:18	Upper half	<41.6	<37.7	<39.7[QC:a]
S96T001978		Lower half	<36.2	<38.2	<37.2[QC:a]

Table B2-35. Tank 241-AW-101 Analytical Results: Selenium (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: acid digest (Cont'd)			**µg/g**	**µg/g**	**µg/g**
S96T001981	132:20	Upper half	<37.8	<37.2	<37.5[QC:a]
S96T001985		Lower half	<98.2	<98.5	<98.3
S96T001988	132:22	Upper half	<86.7	<86.4	<86.6
S96T001992		Lower half	<87.5	<87.7	<87.6
S96T002418	139:1	Upper half	<38.4	<36.2	<37.3[QC:c]
S96T004496		Upper half	<35.1	<39.6	<37.4[QC:a,c]
S96T002530	139:2	Subsegment B	<39.9	<38.5	<39.2
S96T004497		Subsegment B	<40.1	<39.2	<39.7[QC:a]
S96T002535		Subsegment C	<45.2	<40.5	<42.9
S96T004498		Subsegment C	<38	<37.3	<37.6[QC:a]
S96T002538		Subsegment D Lower half	<38.8	<39.4	<39.1
S96T004499		Subsegment D Lower half	<37.8	<37.8	<37.8[QC:a]
S96T002571	139:3	Upper half	<42	<41.4	<41.7
S96T004500		Upper half	<38	<37.9	<38[QC:a]
S96T002580	139:4	Upper half	<45.6	<46.3	<46
S96T004501		Upper half	<40.7	<40.3	<40.5
S96T002597	139:5	Upper half	<38.7	<40.6	<39.7
S96T002426	139:6	Upper half	<38.4	<39.7	<39
S96T002434	139:7	Upper half	<35.2	<37	<36.1
S96T002450	139:8	Upper half	<38.8	<40.7	<39.8
S96T002458	139:9	Upper half	<40.4	<36.6	<38.5
S96T002466	139:10	Upper half	<35.9	<37.2	<36.5
S96T002683	139:11	Upper half	<40.7	<46.7	<43.7[QC:c]
S96T004502		Upper half	<38.2	<37	<37.6
S96T002691	139:12	Upper half	<46.9	<41.1	<44
S96T004503		Upper half	<36.7	<38	<37.4
S96T002699	139:13	Upper half	<45.5	<46.1	<45.8
S96T004504		Upper half	<40.4	<40.2	<40.3

Table B2-35. Tank 241-AW-101 Analytical Results: Selenium (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: acid digest (Cont'd)			**µg/g**	**µg/g**	**µg/g**
S96T002708	139:14	Upper half	<49.4	<42.9	<46.1
S96T004505		Upper half	<39.7	<39.4	<39.5
S96T002716	139:15	Upper half	<39.4	<38.4	<38.9
S96T004506		Upper half	<39.6	<38.6	<39.1
S96T003240	139:16R	Lower half	<38.9	<37.3	<38.1
S96T003521	139:16R1	Lower half	<39.1	<37.8	<38.5
S96T003536	139:16R2	Upper half	<34.7	<34.8	<34.8
S96T003550	139:17R	Upper half	<39.5	<39.7	<39.6
S96T003557		Lower half	<39.4	<38.9	<39.1
S96T003572	139:19	Upper half	<48	<44.1	<46[QC:b]
S96T004508		Upper half	<39.7	<40	<39.9
S96T003566		Lower half	<38.3	<38.5	<38.4[QC:b,d]
S96T004507		Lower half	<39.1	<40.2	<39.7
S96T003586	139:21	Upper half	<36.8	<33.8	<35.3[QC:b]
S96T004510		Upper half	<40.1	<40.5	<40.3
S96T003580		Lower half	<44.6	<39.4	<42[QC:b]
S96T004509		Lower half	<39.7	<39.7	<39.7
S96T002738	Core 132	Solid composite	<38.9	<38.5	<38.7[QC:a]
S96T002743		Solid composite	<39.1	<39.1	<39.1[QC:a]
S96T002751		Solid composite	<38.9	<36	<37.5[QC:a]
Liquids			**µg/g**	**µg/g**	**µg/g**
S96T001715	132:7	Drainable liquid	<75	<75	<75
S96T002146	132:7R	Drainable liquid	<75	<75	<75
S96T001747	132:9	Drainable liquid	<75	<75	<75
S96T001764	132:10	Drainable liquid	<75	<75	<75
S96T001768	132:11	Drainable liquid	<75	<75	<75
S96T001950	132:12	Drainable liquid	<37.6	<37.6	<37.6
S96T002028	132:13	Drainable liquid	<37.6	<37.6	<37.6
S96T001944	132:14	Drainable liquid	<6.31	<6.31	<6.31
S96T001960		Drainable liquid	<37.6	<37.6	<37.6

Table B2-35. Tank 241-AW-101 Analytical Results: Selenium (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids (Cont'd)			µg/g	µg/g	µg/g
S96T001964	132:15	Drainable liquid	<37.6	<37.6	<37.6
S96T001968	132:16	Drainable liquid	<37.6	<37.6	<37.6
S96T002527	139:2	Drainable liquid	<75	<75	<75
S96T002558	139:3	Drainable liquid	<75	<75	<75
S96T002575	139:4	Drainable liquid	<75	<75	<75
S96T002584	139:5	Drainable liquid	<75	<75	<75
S96T002422	139:6	Drainable liquid	<75	<75	<75
S96T002430	139:7	Drainable liquid	<75	<75	<75
S96T002439	139:8	Drainable liquid	<75	<75	<75
S96T002454	139:9	Drainable liquid	<75	<75	<75
S96T002462	139:10	Drainable liquid	<75	<75	<75
S96T002679	139:11	Drainable liquid	<75	<75	<75
S96T002687	139:12	Drainable liquid	<75	<75	<75
S96T002695	139:13	Drainable liquid	<75	<75	<75
S96T002704	139:14	Drainable liquid	<75	<75	<75
S96T002712	139:15	Drainable liquid	<75	<75	<75
S96T003236	139:16R	Drainable liquid	<75	<75	<75
S96T003545	139:17R	Drainable liquid	<75	<75	<75
S96T002767	Core 132	Liquid composite	<75	<75	<75

Table B2-36. Tank 241-AW-101 Analytical Results: Silicon (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: acid digest			µg/g	µg/g	µg/g
S96T000801	132:1	Upper half	280	268	274
S96T002266		Upper half	506	406	456[QC:b,e]
S96T000796		Lower half	243	231	237[QC:c]
S96T002265		Lower half	597	897	747[QC:b,d,e]
S96T000816	132:2	Upper half	316	209	263[QC:e]
S96T002268		Upper half	611	215	413[QC:b,e]
S96T000811		Lower half	218	200	209
S96T002267		Lower half	382	438	410[QC:b]
S96T000825	132:3	Upper half	72.3	181	127[QC:e]
S96T004492		Upper half	641	388	515[QC:b,c,e]
S96T000834	132:4	Upper half	95.8	120	108[QC:e]
S96T004493		Upper half	308	381	345[QC:b,e]
S96T000849	132:5	Upper half	78.1	161	120[QC:e]
S96T004494		Upper half	408	446	427[QC:b]
S96T001735	132:7	Upper half	490	835	663[QC:a,e]
S96T004495	132:7R	Upper half	333	251	292[QC:b,e]
S96T001751	132:9	Upper half	597	574	586[QC:a]
S96T001756	132:10	Upper half	278	558	418[QC:a,e]
S96T001772	132:11	Upper half	434	428	431[QC:a]
S96T001952	132:12	Upper half	478	520	499[QC:a]
S96T002032	132:13	Upper half	466	448	457[QC:a]
S96T001962	132:14	Upper half	178	203	191[QC:b,d]
S96T001966	132:15	Lower half	176	196	186[QC:b]
S96T001970	132:16	Upper half	146	144	145[QC:b]
S96T001974	132:18	Upper half	350	358	354[QC:b]
S96T001978		Lower half	269	310	290[QC:b]

Table B2-36. Tank 241-AW-101 Analytical Results: Silicon (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: acid digest (Cont'd)			µg/g	µg/g	µg/g
S96T001981	132:20	Upper half	345	344	345[QC:b]
S96T001985		Lower half	410	432	421[QC:b,d]
S96T001988	132:22	Upper half	443	330	387[QC:b,e]
S96T001992		Lower half	359	371	365[QC:b]
S96T002418	139:1	Upper half	515	591	553[QC:a,c]
S96T004496		Upper half	441	566	504[QC:b,e]
S96T002530	139:2	Subsegment B	726	599	663[QC:a]
S96T004497		Subsegment B	379	416	398[QC:b]
S96T002535		Subsegment C	602	476	539[QC:a,e]
S96T004498		Subsegment C	362	381	372[QC:b]
S96T002538		Subsegment D Lower half	1,020	877	949[QC:a]
S96T004499		Subsegment D Lower half	1,540	1,280	1,410[QC:b]
S96T002571	139:3	Upper half	330	374	352[QC:a]
S96T004500		Upper half	324	367	346[QC:b]
S96T002580	139:4	Upper half	663	454	559[QC:a,e]
S96T004501		Upper half	136	127	132[QC:a,c]
S96T002597	139:5	Upper half	310	417	364[QC:a,d,e]
S96T002426	139:6	Upper half	358	539	449[QC:a,e]
S96T002434	139:7	Upper half	143	357	250[QC:a,e]
S96T002450	139:8	Upper half	357	503	430[QC:a,e]
S96T002458	139:9	Upper half	418	389	404[QC:a]
S96T002466	139:10	Upper half	333	345	339[QC:a]
S96T002683	139:11	Upper half	559	393	476[QC:a,c,e]
S96T004502		Upper half	221	202	212[QC:a]
S96T002691	139:12	Upper half	798	567	683[QC:a,e]
S96T004503		Upper half	214	156	185[QC:a,e]
S96T002699	139:13	Upper half	725	756	741[QC:a]
S96T004504		Upper half	121	145	133[QC:a]

Table B2-36. Tank 241-AW-101 Analytical Results: Silicon (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: acid digest (Cont'd)			**µg/g**	**µg/g**	**µg/g**
S96T002708	139:14	Upper half	632	617	625[QC:a]
S96T004505		Upper half	204	132	168[QC:a,e]
S96T002716	139:15	Upper half	644	521	583[QC:a,e]
S96T004506		Upper half	161	162	162[QC:a]
S96T003240	139:16R	Lower half	129	105	117[QC:a,c,e]
S96T003521	139:16R1	Lower half	99.4	110	105[QC:c]
S96T003536	139:16R2	Upper half	121	134	128
S96T003550	139:17R	Upper half	252	288	270
S96T003557		Lower half	303	299	301
S96T003572	139:19	Upper half	377	439	408[QC:b]
S96T004508		Upper half	352	309	331[QC:a]
S96T003566		Lower half	387	374	381[QC:b,c]
S96T004507		Lower half	359	275	317[QC:a,e]
S96T003586	139:21	Upper half	448	397	423[QC:b]
S96T004510		Upper half	200	277	239[QC:a,e]
S96T003580		Lower half	525	425	475[QC:b,e]
S96T004509		Lower half	255	240	248[QC:a]
S96T002738	Core 132	Solid composite	291	629	460[QC:b,d,e]
S96T002743		Solid composite	326	515	421[QC:b,e]
S96T002751		Solid composite	387	619	503[QC:b,e]
Liquids			**µg/g**	**µg/g**	**µg/g**
S96T001715	132:7	Drainable liquid	228	201	214
S96T002146	132:7R	Drainable liquid	159	168	164
S96T001747	132:9	Drainable liquid	156	206	181[QC:d,e]
S96T001764	132:10	Drainable liquid	147	151	149
S96T001768	132:11	Drainable liquid	152	168	160
S96T001950	132:12	Drainable liquid	179	167	173
S96T002028	132:13	Drainable liquid	169	167	168
S96T001944	132:14	Drainable liquid	143	146	144[QC:d]
S96T001960		Drainable liquid	163	164	163

Table B2-36. Tank 241-AW-101 Analytical Results: Silicon (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids (Cont')			µg/g	µg/g	µg/g
S96T001964	132:15	Drainable liquid	169	166	168
S96T001968	132:16	Drainable liquid	174	170	172
S96T002527	139:2	Drainable liquid	238	251	244
S96T002558	139:3	Drainable liquid	152	142	147
S96T002575	139:4	Drainable liquid	127	113	120
S96T002584	139:5	Drainable liquid	116	108	112
S96T002422	139:6	Drainable liquid	136	134	135
S96T002430	139:7	Drainable liquid	121	147	134
S96T002439	139:8	Drainable liquid	161	154	158
S96T002454	139:9	Drainable liquid	128	125	127
S96T002462	139:10	Drainable liquid	123	126	125
S96T002679	139:11	Drainable liquid	113	117	115
S96T002687	139:12	Drainable liquid	124	125	124
S96T002695	139:13	Drainable liquid	114	116	115
S96T002704	139:14	Drainable liquid	119	115	117
S96T002712	139:15	Drainable liquid	131	143	137
S96T003236	139:16R	Drainable liquid	104	103	103
S96T003545	139:17R	Drainable liquid	119	110	114
S96T002767	Core 132	Liquid composite	118	126	122

Table B2-37. Tank 241-AW-101 Analytical Results: Silver (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: acid digest			µg/g	µg/g	µg/g
S96T000801	132:1	Upper half	26.1	26.6	26.4
S96T002266		Upper half	19.7	15.2	17.4[QC:a,e]
S96T000796		Lower half	25.6	22.4	24[QC:c]
S96T002265		Lower half	14.4	17.2	15.8[QC:a]
S96T000816	132:2	Upper half	23.1	23.5	23.3
S96T002268		Upper half	16.4	18.1	17.3[QC:a]
S96T000811		Lower half	18.2	18.1	18.1
S96T002267		Lower half	11.2	12.3	11.8[QC:a]
S96T000825	132:3	Upper half	10.6	9.96	10.3
S96T004492		Upper half	11.5	11.1	11.3[QC:a]
S96T000834	132:4	Upper half	10.3	9.78	10
S96T004493		Upper half	11.7	11.6	11.6[QC:a]
S96T000849	132:5	Upper half	9.66	9.45	9.55
S96T004494		Upper half	12.4	11.6	12[QC:a]
S96T001735	132:7	Upper half	10	9.65	9.82
S96T004495	132:7R	Upper half	11.8	11.7	11.8[QC:a]
S96T001751	132:9	Upper half	12.7	12.4	12.6
S96T001756	132:10	Upper half	11.4	11.4	11.4
S96T001772	132:11	Upper half	11.5	11	11.3
S96T001952	132:12	Upper half	11.4	11.6	11.5[QC:c]
S96T002032	132:13	Upper half	10.8	10.7	10.8
S96T001962	132:14	Upper half	10.3	10.3	10.3
S96T001966	132:15	Lower half	11.1	11.1	11.1
S96T001970	132:16	Upper half	11	10.4	10.7
S96T001974	132:18	Upper half	35	34.4	34.7
S96T001978		Lower half	26.3	24.9	25.6

Table B2-37. Tank 241-AW-101 Analytical Results: Silver (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: acid digest (Cont'd)			µg/g	µg/g	µg/g
S96T001981	132:20	Upper half	33.8	29.7	31.8
S96T001985		Lower half	27.3	20.9	24.1[QC:e]
S96T001988	132:22	Upper half	64.3	35.2	49.8[QC:e]
S96T001992		Lower half	28.7	29.6	29.1
S96T002418	139:1	Upper half	19.6	19.8	19.7[QC:c]
S96T004496		Upper half	21.3	20.8	21.1[QC:a,c]
S96T002530	139:2	Subsegment B	25	27.4	26.2
S96T004497		Subsegment B	28.5	28	28.3[QC:a]
S96T002535		Subsegment C	17.2	16.5	16.9
S96T004498		Subsegment C	17	17	17[QC:a]
S96T002538		Subsegment D Lower half	14.5	13.7	14.1
S96T004499		Subsegment D Lower half	13.8	13.9	13.9[QC:a]
S96T002571	139:3	Upper half	11.7	11.3	11.5
S96T004500		Upper half	11	11.7	11.3[QC:a]
S96T002580	139:4	Upper half	11.5	11.1	11.3
S96T004501		Upper half	12.2	12.4	12.3[QC:a,c]
S96T002597	139:5	Upper half	11	11.9	11.4[QC:c]
S96T002426	139:6	Upper half	10.4	10.9	10.7
S96T002434	139:7	Upper half	10.9	9.48	10.2
S96T002450	139:8	Upper half	10.6	9.29	9.95
S96T002458	139:9	Upper half	10.6	10.2	10.4
S96T002466	139:10	Upper half	12.3	12	12.2
S96T002683	139:11	Upper half	11.5	11.6	11.6[QC:c]
S96T004502		Upper half	12.7	11.7	12.2[QC:a]
S96T002691	139:12	Upper half	11.4	10.7	11.1
S96T004503		Upper half	11.1	12.1	11.6[QC:a]
S96T002699	139:13	Upper half	12.3	11.7	12
S96T004504		Upper half	13.4	13.7	13.6[QC:a]

Table B2-37. Tank 241-AW-101 Analytical Results: Silver (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: acid digest (Cont'd)			**µg/g**	**µg/g**	**µg/g**
S96T002708	139:14	Upper half	9.51	10.3	9.91
S96T004505		Upper half	11.8	12.8	12.3[QC:a]
S96T002716	139:15	Upper half	12.6	11.7	12.1
S96T004506		Upper half	12.8	12.4	12.6[QC:a,c]
S96T003240	139:16R	Lower half	9.21	11.3	10.3[QC:e]
S96T003521	139:16R1	Lower half	11.7	11.3	11.5
S96T003536	139:16R2	Upper half	11.3	11.3	11.3
S96T003550	139:17R	Upper half	25.6	22.2	23.9
S96T003557		Lower half	29.6	27.7	28.6
S96T003572	139:19	Upper half	34.9	36	35.5
S96T004508		Upper half	44.2	49.1	46.7[QC:a]
S96T003566		Lower half	35.7	34.1	34.9[QC:c]
S96T004507		Lower half	39.3	37.3	38.3[QC:a]
S96T003586	139:21	Upper half	37.4	36.7	37
S96T004510		Upper half	43.7	40.8	42.3[QC:a]
S96T003580		Lower half	36.4	36.5	36.5
S96T004509		Lower half	46.3	40	43.1[QC:a]
S96T002738	Core 132	Solid composite	24.6	25.4	25[QC:a]
S96T002743		Solid composite	11.8	11	11.4[QC:a]
S96T002751		Solid composite	32.7	33.7	33.2[QC:a]
Liquids			**µg/g**	**µg/g**	**µg/g**
S96T001715	132:7	Drainable liquid	<7.5	<7.5	<7.5
S96T002146	132:7R	Drainable liquid	<7.5	<7.5	<7.5
S96T001747	132:9	Drainable liquid	<7.5	<7.5	<7.5
S96T001764	132:10	Drainable liquid	<7.5	<7.5	<7.5
S96T001768	132:11	Drainable liquid	<7.5	<7.5	<7.5
S96T001950	132:12	Drainable liquid	11.4	10.5	10.9
S96T002028	132:13	Drainable liquid	11.3	11.3	11.3
S96T001944	132:14	Drainable liquid	<0.631	<0.631	<0.631
S96T001960		Drainable liquid	11	11.1	11

Table B2-37. Tank 241-AW-101 Analytical Results: Silver (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids (Cont'd)			µg/g	µg/g	µg/g
S96T001964	132:15	Drainable liquid	11.4	11.2	11.3
S96T001968	132:16	Drainable liquid	11.5	11.2	11.3
S96T002527	139:2	Drainable liquid	<7.5	<7.5	<7.5
S96T002558	139:3	Drainable liquid	11.8	11.3	11.5
S96T002575	139:4	Drainable liquid	<7.5	<7.5	<7.5
S96T002584	139:5	Drainable liquid	<7.5	<7.5	<7.5[QC:c]
S96T002422	139:6	Drainable liquid	<7.5	<7.5	<7.5
S96T002430	139:7	Drainable liquid	<7.5	<7.5	<7.5
S96T002439	139:8	Drainable liquid	<7.5	<7.5	<7.5
S96T002454	139:9	Drainable liquid	<7.5	<7.5	<7.5
S96T002462	139:10	Drainable liquid	<7.5	<7.5	<7.5
S96T002679	139:11	Drainable liquid	<7.5	<7.5	<7.5
S96T002687	139:12	Drainable liquid	<7.5	<7.5	<7.5
S96T002695	139:13	Drainable liquid	<7.5	<7.5	<7.5
S96T002704	139:14	Drainable liquid	<7.5	<7.5	<7.5
S96T002712	139:15	Drainable liquid	<7.5	<7.5	<7.5
S96T003236	139:16R	Drainable liquid	<7.5	<7.5	<7.5
S96T003545	139:17R	Drainable liquid	<7.5	<7.5	<7.5
S96T002767	Core 132	Liquid composite	<7.5	<7.5	<7.5

Table B2-38. Tank 241-AW-101 Analytical Results: Sodium (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: acid digest			µg/g	µg/g	µg/g
S96T000801	132:1	Upper half	1.60E+05	1.58E+05	1.59E+05
S96T002266		Upper half	1.59E+05	1.16E+05	1.38E+05[QC:e]
S96T000796		Lower half	1.76E+05	1.61E+05	1.69E+05
S96T002265		Lower half	1.59E+05	1.74E+05	1.67E+05[QC:c]
S96T000816	132:2	Upper half	1.57E+05	1.55E+05	1.56E+05
S96T002268		Upper half	1.61E+05	1.53E+05	1.57E+05
S96T000811		Lower half	1.54E+05	1.55E+05	1.55E+05
S96T002267		Lower half	1.49E+05	1.55E+05	1.52E+05
S96T000825	132:3	Upper half	1.50E+05	1.46E+05	1.48E+05
S96T004492		Upper half	1.66E+05	1.55E+05	1.61E+05[QC:d]
S96T000834	132:4	Upper half	1.44E+05	1.45E+05	1.45E+05
S96T004493		Upper half	1.62E+05	1.63E+05	1.63E+05
S96T000849	132:5	Upper half	1.41E+05	1.39E+05	1.40E+05
S96T004494		Upper half	1.75E+05	1.71E+05	1.73E+05
S96T001735	132:7	Upper half	1.41E+05	1.42E+05	1.42E+05[QC:b]
S96T004495	132:7R	Upper half	1.70E+05	1.65E+05	1.68E+05
S96T001751	132:9	Upper half	1.70E+05	1.70E+05	1.70E+05[QC:b]
S96T001756	132:10	Upper half	1.65E+05	1.66E+05	1.66E+05[QC:b]
S96T001772	132:11	Upper half	1.66E+05	1.65E+05	1.66E+05[QC:b]
S96T001952	132:12	Upper half	1.71E+05	1.76E+05	1.74E+05[QC:b,d]
S96T002032	132:13	Upper half	1.61E+05	1.64E+05	1.63E+05[QC:b]
S96T001962	132:14	Upper half	1.46E+05	1.44E+05	1.45E+05[QC:c]
S96T001966	132:15	Lower half	1.50E+05	1.51E+05	1.51E+05
S96T001970	132:16	Upper half	1.45E+05	1.45E+05	1.45E+05
S96T001974	132:18	Upper half	1.66E+05	1.68E+05	1.67E+05
S96T001978		Lower half	1.56E+05	1.57E+05	1.57E+05

Table B2-38. Tank 241-AW-101 Analytical Results: Sodium (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: acid digest (Cont'd)			µg/g	µg/g	µg/g
S96T001981	132:20	Upper half	1.67E+05	1.68E+05	1.68E+05
S96T001985		Lower half	1.74E+05	1.71E+05	1.73E+05[QC:d]
S96T001988	132:22	Upper half	1.75E+05	1.62E+05	1.69E+05
S96T001992		Lower half	1.80E+05	1.72E+05	1.76E+05
S96T002418	139:1	Upper half	1.63E+05	1.63E+05	1.63E+05[QC:c]
S96T004496		Upper half	1.75E+05	1.69E+05	1.72E+05[QC:c]
S96T002530	139:2	Subsegment B	1.72E+05	1.80E+05	1.76E+05
S96T004497		Subsegment B	1.79E+05	1.76E+05	1.78E+05
S96T002535		Subsegment C	1.64E+05	1.62E+05	1.63E+05
S96T004498		Subsegment C	1.68E+05	1.69E+05	1.69E+05
S96T002538		Subsegment D Lower half	1.70E+05	1.58E+05	1.64E+05
S96T004499		Subsegment D Lower half	1.66E+05	1.61E+05	1.64E+05
S96T002571	139:3	Upper half	1.62E+05	1.57E+05	1.60E+05
S96T004500		Upper half	1.53E+05	1.60E+05	1.57E+05
S96T002580	139:4	Upper half	1.58E+05	1.57E+05	1.58E+05
S96T004501		Upper half	1.69E+05	1.73E+05	1.71E+05[QC:c]
S96T002597	139:5	Upper half	1.57E+05	1.65E+05	1.61E+05[QC:d]
S96T002426	139:6	Upper half	1.47E+05	1.52E+05	1.50E+05
S96T002434	139:7	Upper half	1.53E+05	1.35E+05	1.44E+05
S96T002450	139:8	Upper half	1.46E+05	1.39E+05	1.43E+05
S96T002458	139:9	Upper half	1.49E+05	1.38E+05	1.44E+05
S96T002466	139:10	Upper half	1.68E+05	1.66E+05	1.67E+05
S96T002683	139:11	Upper half	1.73E+05	1.74E+05	1.74E+05[QC:c]
S96T004502		Upper half	1.75E+05	1.64E+05	1.70E+05
S96T002691	139:12	Upper half	1.52E+05	1.61E+05	1.57E+05
S96T004503		Upper half	1.57E+05	1.67E+05	1.62E+05
S96T002699	139:13	Upper half	1.78E+05	1.79E+05	1.79E+05
S96T004504		Upper half	1.85E+05	1.85E+05	1.85E+05

Table B2-38. Tank 241-AW-101 Analytical Results: Sodium (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: acid digest (Cont'd)			**µg/g**	**µg/g**	**µg/g**
S96T002708	139:14	Upper half	1.52E+05	1.56E+05	1.54E+05
S96T004505		Upper half	1.64E+05	1.80E+05	1.72E+05
S96T002716	139:15	Upper half	1.71E+05	1.72E+05	1.72E+05
S96T004506		Upper half	1.81E+05	1.76E+05	1.79E+05[QC:c]
S96T003240	139:16R	Lower half	1.39E+05	1.70E+05	1.55E+05[QC:b,d,]
S96T003521	139:16R1	Lower half	1.70E+05	1.61E+05	1.66E+05[QC:b,d]
S96T003536	139:16R2	Upper half	1.64E+05	1.66E+05	1.65E+05[QC:b]
S96T003550	139:17R	Upper half	1.77E+05	1.75E+05	1.76E+05[QC:b]
S96T003557		Lower half	1.86E+05	1.85E+05	1.86E+05[QC:b]
S96T003572	139:19	Upper half	1.72E+05	1.73E+05	1.73E+05[QC:b]
S96T004508		Upper half	1.89E+05	1.97E+05	1.93E+05
S96T003566		Lower half	1.82E+05	1.80E+05	1.81E+05[QC:b,c]
S96T004507		Lower half	1.90E+05	1.89E+05	1.90E+05
S96T003586	139:21	Upper half	1.87E+05	1.84E+05	1.86E+05[QC:b]
S96T004510		Upper half	1.97E+05	1.88E+05	1.93E+05
S96T003580		Lower half	1.81E+05	1.82E+05	1.82E+05[QC:b]
S96T004509		Lower half	1.99E+05	1.83E+05	1.91E+05
S96T002738	Core 132	Solid composite	1.58E+05	1.64E+05	1.61E+05[QC:d]
S96T002743		Solid composite	1.49E+05	1.55E+05	1.52E+05
S96T002751		Solid composite	1.69E+05	1.72E+05	1.71E+05
Liquids			**µg/g**	**µg/g**	**µg/g**
S96T001715	132:7	Drainable liquid	1.39E+05	1.24E+05	1.31E+05[QC:c]
S96T002146	132:7R	Drainable liquid	1.57E+05	1.61E+05	1.59E+05[QC:d]
S96T001747	132:9	Drainable liquid	1.50E+05	1.83E+05	1.66E+05[QC:d]
S96T001764	132:10	Drainable liquid	1.55E+05	1.57E+05	1.56E+05[QC:c]
S96T001768	132:11	Drainable liquid	1.51E+05	1.61E+05	1.56E+05[QC:d]
S96T001950	132:12	Drainable liquid	1.64E+05	1.50E+05	1.57E+05[QC:c]
S96T002028	132:13	Drainable liquid	1.55E+05	1.52E+05	1.53E+05[QC:c]
S96T001944	132:14	Drainable liquid	7,810	7,880	7,840[QC:d]
S96T001960		Drainable liquid	1.57E+05	1.61E+05	1.59E+05[QC:c]

Table B2-38. Tank 241-AW-101 Analytical Results: Sodium (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids (Cont'd)			µg/g	µg/g	µg/g
S96T001964	132:15	Drainable liquid	1.59E+05	1.61E+05	1.60E+05[QC:d]
S96T001968	132:16	Drainable liquid	1.69E+05	1.61E+05	1.65E+05[QC:c]
S96T002527	139:2	Drainable liquid	1.46E+05	1.53E+05	1.49E+05[QC:d]
S96T002558	139:3	Drainable liquid	1.71E+05	1.58E+05	1.64E+05[QC:c]
S96T002575	139:4	Drainable liquid	1.60E+05	1.50E+05	1.55E+05[QC:d]
S96T002584	139:5	Drainable liquid	1.48E+05	1.43E+05	1.46E+05[QC:d]
S96T002422	139:6	Drainable liquid	1.54E+05	1.49E+05	1.52E+05[QC:d]
S96T002430	139:7	Drainable liquid	1.53E+05	1.67E+05	1.60E+05[QC:d]
S96T002439	139:8	Drainable liquid	1.73E+05	1.64E+05	1.68E+05[QC:c]
S96T002454	139:9	Drainable liquid	1.65E+05	1.55E+05	1.60E+05[QC:c]
S96T002462	139:10	Drainable liquid	1.59E+05	1.56E+05	1.57E+05[QC:c]
S96T002679	139:11	Drainable liquid	1.53E+05	1.58E+05	1.56E+05[QC:d]
S96T002687	139:12	Drainable liquid	1.56E+05	1.58E+05	1.57E+05[QC:d]
S96T002695	139:13	Drainable liquid	1.62E+05	1.68E+05	1.65E+05[QC:c]
S96T002704	139:14	Drainable liquid	1.58E+05	1.66E+05	1.62E+05[QC:d]
S96T002712	139:15	Drainable liquid	1.59E+05	1.65E+05	1.62E+05[QC:d]
S96T003236	139:16R	Drainable liquid	1.51E+05	1.49E+05	1.50E+05[QC:d]
S96T003545	139:17R	Drainable liquid	1.48E+05	1.50E+05	1.49E+05[QC:d]
S96T002767	Core 132	Liquid composite	1.50E+05	1.61E+05	1.55E+05[QC:d]

Table B2-39. Tank 241-AW-101 Analytical Results: Strontium (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: acid digest			**µg/g**	**µg/g**	**µg/g**
S96T000801	132:1	Upper half	3.95	4.26	4.11
S96T002266		Upper half	<9.06	<9.12	<9.09
S96T000796		Lower half	<4.18	<4.2	<4.19[QC:c]
S96T002265		Lower half	<10.5	<15.1	<12.8
S96T000816	132:2	Upper half	<3.91	<3.62	<3.77
S96T002268		Upper half	<9.21	<9.35	<9.28
S96T000811		Lower half	<4.1	<3.87	<3.98
S96T002267		Lower half	<9.09	<9.26	<9.18
S96T000825	132:3	Upper half	<3.43	<3.75	<3.59
S96T004492		Upper half	<4.05	<3.68	<3.87[QC:a,c]
S96T000834	132:4	Upper half	<3.74	<4.22	<3.98
S96T004493		Upper half	<4.16	<4.1	<4.13[QC:a]
S96T000849	132:5	Upper half	<3.4	<3.63	<3.51
S96T004494		Upper half	<3.94	<3.84	<3.89[QC:a]
S96T001735	132:7	Upper half	<4.47	<4.37	<4.42
S96T004495	132:7R	Upper half	<3.79	<3.51	<3.65[QC:a]
S96T001751	132:9	Upper half	<4.48	<4.09	<4.29
S96T001756	132:10	Upper half	<4.37	<3.91	<4.14
S96T001772	132:11	Upper half	<4.24	<3.93	<4.08
S96T001952	132:12	Upper half	<4.35	<4.25	<4.3
S96T002032	132:13	Upper half	<4.01	<4.03	<4.02
S96T001962	132:14	Upper half	<3.52	<3.74	<3.63
S96T001966	132:15	Lower half	<4.35	<4.33	<4.34
S96T001970	132:16	Upper half	<4.37	<3.75	<4.06
S96T001974	132:18	Upper half	5.31	5.16	5.23
S96T001978		Lower half	<3.62	<3.82	<3.72

Table B2-39. Tank 241-AW-101 Analytical Results: Strontium (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: acid digest (Cont'd)			µg/g	µg/g	µg/g
S96T001981	132:20	Upper half	5.02	4.27	4.64
S96T001985		Lower half	9.83	9.85	9.84
S96T001988	132:22	Upper half	8.79	8.64	8.71
S96T001992		Lower half	<8.75	<8.77	<8.76
S96T002418	139:1	Upper half	<3.84	<3.62	<3.73[QC:c]
S96T004496		Upper half	<3.51	<3.96	<3.73[QC:a,c]
S96T002530	139:2	Subsegment B	<3.99	<3.85	<3.92
S96T004497		Subsegment B	<4.01	<3.92	<3.96[QC:a]
S96T002535		Subsegment C	<4.52	<4.05	<4.29
S96T004498		Subsegment C	<3.8	<3.73	<3.76[QC:a]
S96T002538		Subsegment D Lower half	<3.88	<3.94	<3.91
S96T004499		Subsegment D Lower half	<3.78	<3.78	<3.78[QC:a]
S96T002571	139:3	Upper half	<4.2	<4.14	<4.17
S96T004500		Upper half	<3.8	<3.79	<3.8[QC:a]
S96T002580	139:4	Upper half	<4.56	<4.63	<4.59
S96T004501		Upper half	<4.07	<4.03	<4.05
S96T002597	139:5	Upper half	<3.87	<4.06	<3.96
S96T002426	139:6	Upper half	<3.84	<3.97	<3.91
S96T002434	139:7	Upper half	<3.52	<3.7	<3.61
S96T002450	139:8	Upper half	<3.88	<4.07	<3.98
S96T002458	139:9	Upper half	<4.04	<3.66	<3.85
S96T002466	139:10	Upper half	<3.59	<3.72	<3.66
S96T002683	139:11	Upper half	<4.07	<4.67	<4.37[QC:c]
S96T004502		Upper half	<3.82	<3.7	<3.76
S96T002691	139:12	Upper half	<4.69	<4.11	<4.4
S96T004503		Upper half	<3.67	<3.8	<3.73
S96T002699	139:13	Upper half	<4.55	<4.61	<4.58
S96T004504		Upper half	<4.04	<4.02	<4.03

Table B2-39. Tank 241-AW-101 Analytical Results: Strontium (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: acid digest (Cont'd)			**µg/g**	**µg/g**	**µg/g**
S96T002708	139:14	Upper half	<4.94	<4.29	<4.62
S96T004505		Upper half	<3.97	<3.94	<3.96
S96T002716	139:15	Upper half	<3.94	<3.84	<3.89
S96T004506		Upper half	<3.96	<3.86	<3.91
S96T003240	139:16R	Lower half	<3.89	<3.73	<3.81
S96T003521	139:16R1	Lower half	<3.91	<3.78	<3.84
S96T003536	139:16R2	Upper half	<3.47	<3.48	<3.48
S96T003550	139:17R	Upper half	4.22	<3.97	<4.09
S96T003557		Lower half	4.62	4.39	4.5
S96T003572	139:19	Upper half	<4.8	4.8	<4.8
S96T004508		Upper half	6.47	7.38	6.92
S96T003566		Lower half	4.73	4.81	4.77[QC:c]
S96T004507		Lower half	5.99	5.38	5.69
S96T003586	139:21	Upper half	6.29	6.09	6.19
S96T004510		Upper half	8.72	7.09	7.91[QC:e]
S96T003580		Lower half	6.45	6.22	6.34
S96T004509		Lower half	9.21	7.51	8.36[QC:e]
S96T002738	Core 132	Solid composite	4	4.56	4.28
S96T002743		Solid composite	<3.91	<3.91	<3.91
S96T002751		Solid composite	5.62	5.81	5.71
Liquids			**µg/g**	**µg/g**	**µg/g**
S96T001715	132:7	Drainable liquid	<7.5	<7.5	<7.5
S96T002146	132:7R	Drainable liquid	<7.5	<7.5	<7.5
S96T001747	132:9	Drainable liquid	<7.5	<7.5	<7.5
S96T001764	132:10	Drainable liquid	<7.5	<7.5	<7.5
S96T001768	132:11	Drainable liquid	<7.5	<7.5	<7.5
S96T001950	132:12	Drainable liquid	<3.76	<3.76	<3.76
S96T002028	132:13	Drainable liquid	<3.76	<3.76	<3.76
S96T001944	132:14	Drainable liquid	<0.631	<0.631	<0.631
S96T001960		Drainable liquid	<3.76	<3.76	<3.76

Table B2-39. Tank 241-AW-101 Analytical Results: Strontium (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids (Cont'd)			**µg/g**	**µg/g**	**µg/g**
S96T001964	132:15	Drainable liquid	<3.76	<3.76	<3.76
S96T001968	132:16	Drainable liquid	<3.76	<3.76	<3.76
S96T002527	139:2	Drainable liquid	<7.5	<7.5	<7.5
S96T002558	139:3	Drainable liquid	<7.5	<7.5	<7.5
S96T002575	139:4	Drainable liquid	<7.5	<7.5	<7.5
S96T002584	139:5	Drainable liquid	<7.5	<7.5	<7.5
S96T002422	139:6	Drainable liquid	<7.5	<7.5	<7.5
S96T002430	139:7	Drainable liquid	<7.5	<7.5	<7.5
S96T002439	139:8	Drainable liquid	<7.5	<7.5	<7.5
S96T002454	139:9	Drainable liquid	<7.5	<7.5	<7.5
S96T002462	139:10	Drainable liquid	<7.5	<7.5	<7.5
S96T002679	139:11	Drainable liquid	<7.5	<7.5	<7.5
S96T002687	139:12	Drainable liquid	<7.5	<7.5	<7.5
S96T002695	139:13	Drainable liquid	<7.5	<7.5	<7.5
S96T002704	139:14	Drainable liquid	<7.5	<7.5	<7.5
S96T002712	139:15	Drainable liquid	<7.5	<7.5	<7.5
S96T003236	139:16R	Drainable liquid	<7.5	<7.5	<7.5
S96T003545	139:17R	Drainable liquid	<7.5	<7.5	<7.5
S96T002767	Core 132	Liquid composite	<7.5	<7.5	<7.5

Table B2-40. Tank 241-AW-101 Analytical Results: Sulfur (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: acid digest			µg/g	µg/g	µg/g
S96T000801	132:1	Upper half	1,040	1,040	1,040
S96T002266		Upper half	1,070	796	933[QC:e]
S96T000796		Lower half	1,190	1,110	1,150[QC:c]
S96T002265		Lower half	1,060	1,290	1,180[QC:c]
S96T000816	132:2	Upper half	1,150	1,130	1,140
S96T002268		Upper half	1,210	1,240	1,230
S96T000811		Lower half	765	741	753
S96T002267		Lower half	842	872	857
S96T000825	132:3	Upper half	270	254	262
S96T004492		Upper half	173	214	194[QC:e]
S96T000834	132:4	Upper half	254	262	258
S96T004493		Upper half	236	243	240
S96T000849	132:5	Upper half	219	216	218
S96T004494		Upper half	146	151	149
S96T001735	132:7	Upper half	252	243	248
S96T004495	132:7R	Upper half	142	202	172[QC:e]
S96T001751	132:9	Upper half	196	195	196
S96T001756	132:10	Upper half	165	189	177
S96T001772	132:11	Upper half	194	245	220[QC:e]
S96T001952	132:12	Upper half	158	165	162
S96T002032	132:13	Upper half	255	238	247
S96T001962	132:14	Upper half	155	176	166
S96T001966	132:15	Lower half	138	176	157[QC:e]
S96T001970	132:16	Upper half	148	147	148
S96T001974	132:18	Upper half	1,650	1,610	1,630
S96T001978		Lower half	1,340	1,200	1,270

Table B2-40. Tank 241-AW-101 Analytical Results: Sulfur (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: acid digest (Cont'd)			µg/g	µg/g	µg/g
S96T001981	132:20	Upper half	1,800	1,600	1,700
S96T001985		Lower half	2,260	2,200	2,230
S96T001988	132:22	Upper half	2,510	1,490	2,000[QC:e]
S96T001992		Lower half	1,970	1,930	1,950
S96T002418	139:1	Upper half	2,540	2,710	2,630[QC:c]
S96T004496		Upper half	3,000	2,840	2,920[QC:c]
S96T002530	139:2	Subsegment B	1,100	1,380	1,240[QC:e]
S96T004497		Subsegment B	1,280	1,300	1,290
S96T002535		Subsegment C	1,630	518	1,070[QC:e]
S96T004498		Subsegment C	555	572	564
S96T002538		Subsegment D Lower half	301	291	296
S96T004499		Subsegment D Lower half	283	306	295
S96T002571	139:3	Upper half	152	143	148
S96T004500		Upper half	139	138	139
S96T002580	139:4	Upper half	136	127	132
S96T004501		Upper half	117	105	111
S96T002597	139:5	Upper half	218	117	168[QC:d,e]
S96T002426	139:6	Upper half	118	158	138[QC:e]
S96T002434	139:7	Upper half	131	107	119[QC:e]
S96T002450	139:8	Upper half	119	120	120
S96T002458	139:9	Upper half	198	211	205
S96T002466	139:10	Upper half	159	146	153
S96T002683	139:11	Upper half	175	206	191[QC:c]
S96T004502		Upper half	144	158	151
S96T002691	139:12	Upper half	132	156	144
S96T004503		Upper half	211	140	176[QC:e]
S96T002699	139:13	Upper half	172	157	165
S96T004504		Upper half	132	124	128

Table B2-40. Tank 241-AW-101 Analytical Results: Sulfur (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: acid digest (Cont'd)			**µg/g**	**µg/g**	**µg/g**
S96T002708	139:14	Upper half	176	188	182
S96T004505		Upper half	260	135	198[QC:e]
S96T002716	139:15	Upper half	181	187	184
S96T004506		Upper half	172	137	155[QC:e]
S96T003240	139:16R	Lower half	131	160	146
S96T003521	139:16R1	Lower half	132	148	140
S96T003536	139:16R2	Upper half	186	188	187
S96T003550	139:17R	Upper half	1,330	1,180	1,260
S96T003557		Lower half	1,500	1,470	1,490
S96T003572	139:19	Upper half	1,590	1,650	1,620
S96T004508		Upper half	2,120	2,420	2,270
S96T003566		Lower half	1,790	1,860	1,830[QC:c]
S96T004507		Lower half	2,190	2,060	2,130
S96T003586	139:21	Upper half	1,960	1,890	1,930
S96T004510		Upper half	2,810	2,160	2,490[QC:e]
S96T003580		Lower half	1,940	1,890	1,920
S96T004509		Lower half	2,730	2,210	2,470[QC:e]
S96T002738	Core 132	Solid composite	1,240	1,290	1,270[QC:a]
S96T002743		Solid composite	256	268	262[QC:a]
S96T002751		Solid composite	1,720	1,800	1,760[QC:a]
Liquids			**µg/g**	**µg/g**	**µg/g**
S96T001715	132:7	Drainable liquid	238	214	226
S96T002146	132:7R	Drainable liquid	254	267	260
S96T001747	132:9	Drainable liquid	267	338	302[QC:d,e]
S96T001764	132:10	Drainable liquid	263	274	268
S96T001768	132:11	Drainable liquid	269	286	278
S96T001950	132:12	Drainable liquid	288	270	279
S96T002028	132:13	Drainable liquid	276	271	273
S96T001944	132:14	Drainable liquid	91.3	101	96.3
S96T001960		Drainable liquid	272	281	277

Table B2-40. Tank 241-AW-101 Analytical Results: Sulfur (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids (Cont'd)			µg/g	µg/g	µg/g
S96T001964	132:15	Drainable liquid	282	286	284
S96T001968	132:16	Drainable liquid	294	289	292
S96T002527	139:2	Drainable liquid	220	233	226
S96T002558	139:3	Drainable liquid	274	265	270
S96T002575	139:4	Drainable liquid	258	243	250
S96T002584	139:5	Drainable liquid	242	242	242
S96T002422	139:6	Drainable liquid	249	251	250
S96T002430	139:7	Drainable liquid	241	276	259
S96T002439	139:8	Drainable liquid	308	271	289
S96T002454	139:9	Drainable liquid	271	268	269
S96T002462	139:10	Drainable liquid	261	267	264
S96T002679	139:11	Drainable liquid	259	267	263
S96T002687	139:12	Drainable liquid	280	274	277
S96T002695	139:13	Drainable liquid	291	285	288
S96T002704	139:14	Drainable liquid	279	286	282
S96T002712	139:15	Drainable liquid	293	293	293
S96T003236	139:16R	Drainable liquid	256	255	255
S96T003545	139:17R	Drainable liquid	241	225	233
S96T002767	Core 132	Liquid composite	254	269	262

Table B2-41. Tank 241-AW-101 Analytical Results: Thallium (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: acid digest			µg/g	µg/g	µg/g
S96T000801	132:1	Upper half	<73.7	<67.8	<70.8
S96T002266		Upper half	<181	<182	<182
S96T000796		Lower half	<83.6	<83.9	<83.8[QC:c]
S96T002265		Lower half	<210	<302	<256
S96T000816	132:2	Upper half	<78.1	<72.4	<75.3
S96T002268		Upper half	<184	<187	<186
S96T000811		Lower half	<81.9	<77.5	<79.7
S96T002267		Lower half	<182	<185	<184
S96T000825	132:3	Upper half	<68.6	<74.9	<71.8
S96T004492		Upper half	<80.9	<73.7	<77.3[QC:a,c]
S96T000834	132:4	Upper half	<74.8	<84.4	<79.6
S96T004493		Upper half	<83.3	<82	<82.7[QC:a]
S96T000849	132:5	Upper half	<67.9	<72.5	<70.2
S96T004494		Upper half	<78.7	<76.7	<77.7[QC:a]
S96T001735	132:7	Upper half	<89.3	<87.5	<88.4
S96T004495	132:7R	Upper half	<75.8	<70.2	<73[QC:a]
S96T001751	132:9	Upper half	<89.5	<81.8	<85.7
S96T001756	132:10	Upper half	<87.5	<78.2	<82.8
S96T001772	132:11	Upper half	<84.7	<78.7	<81.7
S96T001952	132:12	Upper half	<87	<85.1	<86
S96T002032	132:13	Upper half	<80.2	<80.6	<80.4
S96T001962	132:14	Upper half	<70.4	<74.9	<72.7[QC:a]
S96T001966	132:15	Lower half	<87	<86.5	<86.8[QC:a]
S96T001970	132:16	Upper half	<87.4	<75	<81.2[QC:a]
S96T001974	132:18	Upper half	<83.1	<75.3	<79.2[QC:a]
S96T001978		Lower half	<72.4	<76.5	<74.5[QC:a]

Table B2-41. Tank 241-AW-101 Analytical Results: Thallium (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: acid digest (Cont'd)			µg/g	µg/g	µg/g
S96T001981	132:20	Upper half	<75.6	<74.3	<74.9[QC:a]
S96T001985		Lower half	<196	<197	<197
S96T001988	132:22	Upper half	<173	<173	<173
S96T001992		Lower half	<175	<175	<175
S96T002418	139:1	Upper half	<76.9	<72.4	<74.7[QC:c]
S96T004496		Upper half	<70.3	<79.3	<74.8[QC:a,c]
S96T002530	139:2	Subsegment B	<79.7	<77	<78.3
S96T004497		Subsegment B	<80.1	<78.3	<79.2[QC:a]
S96T002535		Subsegment C	<90.3	<81	<85.7
S96T004498		Subsegment C	<76.1	<74.5	<75.3[QC:a]
S96T002538		Subsegment D Lower half	<77.7	<78.8	<78.3
S96T004499		Subsegment D Lower half	<75.6	<75.5	<75.5[QC:a]
S96T002571	139:3	Upper half	<84	<82.8	<83.4
S96T004500		Upper half	<76	<75.9	<76[QC:a]
S96T002580	139:4	Upper half	<91.3	<92.5	<91.9
S96T004501		Upper half	<81.4	<80.6	<81
S96T002597	139:5	Upper half	<77.5	<81.1	<79.3
S96T002426	139:6	Upper half	<76.9	<79.5	<78.2
S96T002434	139:7	Upper half	<70.5	<73.9	<72.2
S96T002450	139:8	Upper half	<77.6	<81.4	<79.5
S96T002458	139:9	Upper half	<80.8	<73.2	<77
S96T002466	139:10	Upper half	<71.7	<74.4	<73.1
S96T002683	139:11	Upper half	<81.3	<93.3	<87.3[QC:c]
S96T004502		Upper half	<76.4	<74	<75.2
S96T002691	139:12	Upper half	<93.9	<82.3	<88.1
S96T004503		Upper half	<73.4	<76	<74.7
S96T002699	139:13	Upper half	<90.9	<92.2	<91.6
S96T004504		Upper half	<80.8	<80.4	<80.6

Table B2-41. Tank 241-AW-101 Analytical Results: Thallium (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: acid digest (Cont'd)			**µg/g**	**µg/g**	**µg/g**
S96T002708	139:14	Upper half	<98.7	<85.7	<92.2
S96T004505		Upper half	<79.3	<78.8	<79
S96T002716	139:15	Upper half	<78.9	<76.9	<77.9
S96T004506		Upper half	<79.1	<77.3	<78.2
S96T003240	139:16R	Lower half	<77.8	<74.7	<76.3
S96T003521	139:16R1	Lower half	<78.2	<75.5	<76.8
S96T003536	139:16R2	Upper half	<69.4	<69.7	<69.6
S96T003550	139:17R	Upper half	<79	<79.5	<79.3
S96T003557		Lower half	<78.8	<77.7	<78.3
S96T003572	139:19	Upper half	<95.9	<88.1	<92[QC:b]
S96T004508		Upper half	<79.4	<80	<79.7
S96T003566		Lower half	<76.7	<77	<76.8[QC:b,d]
S96T004507		Lower half	<78.1	<80.4	<79.3
S96T003586	139:21	Upper half	<73.6	<67.6	<70.6[QC:b]
S96T004510		Upper half	<80.2	<80.9	<80.6
S96T003580		Lower half	<89.2	<78.7	<84[QC:b]
S96T004509		Lower half	<79.5	<79.4	<79.5
S96T002738	Core 132	Solid composite	<77.9	<77.1	<77.5[QC:a]
S96T002743		Solid composite	<78.2	<78.2	<78.2[QC:a]
S96T002751		Solid composite	<77.9	<71.9	<74.9[QC:a]
Liquids			**µg/g**	**µg/g**	**µg/g**
S96T001715	132:7	Drainable liquid	<150	<150	<150
S96T002146	132:7R	Drainable liquid	<150	<150	<150
S96T001747	132:9	Drainable liquid	<150	<150	<150
S96T001764	132:10	Drainable liquid	<150	<150	<150
S96T001768	132:11	Drainable liquid	<150	<150	<150
S96T001950	132:12	Drainable liquid	<75	<75	<75
S96T002028	132:13	Drainable liquid	<75	<75	<75
S96T001944	132:14	Drainable liquid	<12.6	<12.6	<12.6
S96T001960		Drainable liquid	<75	<75	<75

Table B2-41. Tank 241-AW-101 Analytical Results: Thallium (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids (Cont'd)			µg/g	µg/g	µg/g
S96T001964	132:15	Drainable liquid	<75	<75	<75
S96T001968	132:16	Drainable liquid	<75	<75	<75
S96T002527	139:2	Drainable liquid	<150	<150	<150
S96T002558	139:3	Drainable liquid	<150	<150	<150
S96T002575	139:4	Drainable liquid	<150	<150	<150
S96T002584	139:5	Drainable liquid	<150	<150	<150
S96T002422	139:6	Drainable liquid	<150	<150	<150
S96T002430	139:7	Drainable liquid	<150	<150	<150
S96T002439	139:8	Drainable liquid	<150	<150	<150
S96T002454	139:9	Drainable liquid	<150	<150	<150
S96T002462	139:10	Drainable liquid	<150	<150	<150
S96T002679	139:11	Drainable liquid	<150	<150	<150
S96T002687	139:12	Drainable liquid	<150	<150	<150
S96T002695	139:13	Drainable liquid	<150	<150	<150
S96T002704	139:14	Drainable liquid	<150	<150	<150
S96T002712	139:15	Drainable liquid	<150	<150	<150
S96T003236	139:16R	Drainable liquid	<150	<150	<150
S96T003545	139:17R	Drainable liquid	<150	<150	<150
S96T002767	Core 132	Liquid composite	<150	<150	<150

Table B2-42. Tank 241-AW-101 Analytical Results: Titanium (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: acid digest			µg/g	µg/g	µg/g
S96T000801	132:1	Upper half	<3.69	<3.39	<3.54[QC:a]
S96T002266		Upper half	<9.06	<9.12	<9.09
S96T000796		Lower half	<4.18	<4.2	<4.19[QC:a,c]
S96T002265		Lower half	<10.5	<15.1	<12.8[QC:e]
S96T000816	132:2	Upper half	<3.91	<3.62	<3.77[QC:a]
S96T002268		Upper half	<9.21	<9.35	<9.28
S96T000811		Lower half	<4.1	<3.87	<3.98[QC:a]
S96T002267		Lower half	<9.09	<9.26	<9.18
S96T000825	132:3	Upper half	<3.43	<3.75	<3.59[QC:a]
S96T004492		Upper half	<4.05	<3.68	<3.87
S96T000834	132:4	Upper half	<3.74	<4.22	<3.98[QC:a]
S96T004493		Upper half	<4.16	<4.1	<4.13
S96T000849	132:5	Upper half	<3.4	<3.63	<3.51[QC:a]
S96T004494		Upper half	<3.94	<3.84	<3.89
S96T001735	132:7	Upper half	19.9	19.9	19.9
S96T004495	132:7R	Upper half	<3.79	<3.51	<3.65
S96T001751	132:9	Upper half	<4.48	<4.09	<4.29
S96T001756	132:10	Upper half	<4.37	<3.91	<4.14
S96T001772	132:11	Upper half	<4.24	<3.93	<4.08
S96T001952	132:12	Upper half	<4.35	<4.25	<4.3
S96T002032	132:13	Upper half	<4.01	<4.03	<4.02
S96T001962	132:14	Upper half	<3.52	<3.74	<3.63
S96T001966	132:15	Lower half	<4.35	<4.33	<4.34
S96T001970	132:16	Upper half	<4.37	<3.75	<4.06
S96T001974	132:18	Upper half	<4.16	<3.77	<3.96
S96T001978		Lower half	<3.62	<3.82	<3.72

Table B2-42. Tank 241-AW-101 Analytical Results: Titanium (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: acid digest (Cont'd)			µg/g	µg/g	µg/g
S96T001981	132:20	Upper half	<3.78	<3.72	<3.75
S96T001985		Lower half	<9.82	<9.85	<9.84
S96T001988	132:22	Upper half	<8.67	<8.64	<8.66
S96T001992		Lower half	<8.75	<8.77	<8.76
S96T002418	139:1	Upper half	<3.84	<3.62	<3.73[QC:c]
S96T004496		Upper half	<3.51	<3.96	<3.73
S96T002530	139:2	Subsegment B	<3.99	<3.85	<3.92
S96T004497		Subsegment B	<4.01	<3.92	<3.96
S96T002535		Subsegment C	<4.52	<4.05	<4.29
S96T004498		Subsegment C	<3.8	<3.73	<3.76
S96T002538		Subsegment D Lower half	<3.88	<3.94	<3.91
S96T004499		Subsegment D Lower half	<3.78	<3.78	<3.78
S96T002571	139:3	Upper half	<4.2	<4.14	<4.17
S96T004500		Upper half	<3.8	<3.79	<3.8
S96T002580	139:4	Upper half	<4.56	<4.63	<4.59
S96T004501		Upper half	<4.07	<4.03	<4.05
S96T002597	139:5	Upper half	<3.87	<4.06	<3.96
S96T002426	139:6	Upper half	<3.84	<3.97	<3.91
S96T002434	139:7	Upper half	<3.52	<3.7	<3.61
S96T002450	139:8	Upper half	<3.88	<4.07	<3.98
S96T002458	139:9	Upper half	<4.04	<3.66	<3.85
S96T002466	139:10	Upper half	<3.59	<3.72	<3.66
S96T002683	139:11	Upper half	<4.07	<4.67	<4.37[QC:c]
S96T004502		Upper half	<3.82	<3.7	<3.76
S96T002691	139:12	Upper half	<4.69	<4.11	<4.4
S96T004503		Upper half	<3.67	<3.8	<3.73
S96T002699	139:13	Upper half	<4.55	<4.61	<4.58
S96T004504		Upper half	<4.04	<4.02	<4.03

Table B2-42. Tank 241-AW-101 Analytical Results: Titanium (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: acid digest (Cont'd)			**µg/g**	**µg/g**	**µg/g**
S96T002708	139:14	Upper half	<4.94	<4.29	<4.62
S96T004505		Upper half	<3.97	<3.94	<3.96
S96T002716	139:15	Upper half	<3.94	<3.84	<3.89
S96T004506		Upper half	<3.96	<3.86	<3.91
S96T003240	139:16R	Lower half	<3.89	<3.73	<3.81
S96T003521	139:16R1	Lower half	<3.91	<3.78	<3.84
S96T003536	139:16R2	Upper half	<3.47	<3.48	<3.48
S96T003550	139:17R	Upper half	<3.95	<3.97	<3.96
S96T003557		Lower half	<3.94	<3.89	<3.92
S96T003572	139:19	Upper half	<4.8	<4.41	<4.61
S96T004508		Upper half	<3.97	<4	<3.99
S96T003566		Lower half	<3.83	<3.85	<3.84[QC:c]
S96T004507		Lower half	<3.91	<4.02	<3.96
S96T003586	139:21	Upper half	<3.68	<3.38	<3.53
S96T004510		Upper half	4.03	<4.05	<4.04
S96T003580		Lower half	<4.46	<3.94	<4.2
S96T004509		Lower half	4.12	<3.97	<4.04
S96T002738	Core 132	Solid composite	<3.89	12.6	<8.24[QC:e]
S96T002743		Solid composite	<3.91	<3.91	<3.91
S96T002751		Solid composite	4.22	<3.6	<3.91
Liquids			**µg/g**	**µg/g**	**µg/g**
S96T001715	132:7	Drainable liquid	<7.5	<7.5	<7.5
S96T002146	132:7R	Drainable liquid	<7.5	<7.5	<7.5
S96T001747	132:9	Drainable liquid	<7.5	<7.5	<7.5
S96T001764	132:10	Drainable liquid	<7.5	<7.5	<7.5
S96T001768	132:11	Drainable liquid	<7.5	<7.5	<7.5
S96T001950	132:12	Drainable liquid	<3.76	<3.76	<3.76
S96T002028	132:13	Drainable liquid	<3.76	<3.76	<3.76
S96T001944	132:14	Drainable liquid	<0.631	<0.631	<0.631
S96T001960		Drainable liquid	<3.76	<3.76	<3.76

Table B2-42. Tank 241-AW-101 Analytical Results: Titanium (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids (Cont'd)			µg/g	µg/g	µg/g
S96T001964	132:15	Drainable liquid	<3.76	<3.76	<3.76
S96T001968	132:16	Drainable liquid	<3.76	<3.76	<3.76
S96T002527	139:2	Drainable liquid	<7.5	<7.5	<7.5
S96T002558	139:3	Drainable liquid	<7.5	<7.5	<7.5
S96T002575	139:4	Drainable liquid	<7.5	<7.5	<7.5
S96T002584	139:5	Drainable liquid	<7.5	<7.5	<7.5
S96T002422	139:6	Drainable liquid	<7.5	<7.5	<7.5
S96T002430	139:7	Drainable liquid	<7.5	<7.5	<7.5
S96T002439	139:8	Drainable liquid	<7.5	<7.5	<7.5
S96T002454	139:9	Drainable liquid	<7.5	<7.5	<7.5
S96T002462	139:10	Drainable liquid	<7.5	<7.5	<7.5
S96T002679	139:11	Drainable liquid	<7.5	<7.5	<7.5
S96T002687	139:12	Drainable liquid	<7.5	<7.5	<7.5
S96T002695	139:13	Drainable liquid	<7.5	<7.5	<7.5
S96T002704	139:14	Drainable liquid	<7.5	<7.5	<7.5
S96T002712	139:15	Drainable liquid	<7.5	<7.5	<7.5
S96T003236	139:16R	Drainable liquid	<7.5	<7.5	<7.5
S96T003545	139:17R	Drainable liquid	<7.5	<7.5	<7.5
S96T002767	Core 132	Liquid composite	<7.5	<7.5	<7.5

Table B2-43. Tank 241-AW-101 Analytical Results: Total Uranium (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: acid digest			µg/g	µg/g	µg/g
S96T000801	132:1	Upper half	1,120	1,220	1,170
S96T002266		Upper half	1,340	924	1,130[QC:e]
S96T000796		Lower half	1,000	906	953[QC:c]
S96T002265		Lower half	864	1,140	1,000[QC:c,e]
S96T000816	132:2	Upper half	1,040	1,000	1,020
S96T002268		Upper half	1,230	1,110	1,170
S96T000811		Lower half	490	489	490
S96T002267		Lower half	575	610	593
S96T000825	132:3	Upper half	<171	<187	<179
S96T004492		Upper half	<202	<184	<193[QC:a,c]
S96T000834	132:4	Upper half	<187	<211	<199
S96T004493		Upper half	<208	<205	<207[QC:a]
S96T000849	132:5	Upper half	<170	<181	<176
S96T004494		Upper half	<197	<192	<195[QC:a]
S96T001735	132:7	Upper half	<223	<219	<221
S96T004495	132:7R	Upper half	<190	<175	<183[QC:a]
S96T001751	132:9	Upper half	<224	<204	<214
S96T001756	132:10	Upper half	<219	<195	<207
S96T001772	132:11	Upper half	<212	<197	<205
S96T001952	132:12	Upper half	<217	<213	<215
S96T002032	132:13	Upper half	<200	<202	<201
S96T001962	132:14	Upper half	<176	<187	<182
S96T001966	132:15	Lower half	<217	<216	<217
S96T001970	132:16	Upper half	<219	<188	<204
S96T001974	132:18	Upper half	1,620	1,560	1,590
S96T001978		Lower half	1,030	924	977

Table B2-43. Tank 241-AW-101 Analytical Results: Total Uranium (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: acid digest (Cont'd)			µg/g	µg/g	µg/g
S96T001981	132:20	Upper half	1,530	1,270	1,400
S96T001985		Lower half	2,770	2,400	2,590
S96T001988	132:22	Upper half	2,660	1,600	2,130[QC:e]
S96T001992		Lower half	2,100	2,110	2,110
S96T002418	139:1	Upper half	500	495	498[QC:c]
S96T004496		Upper half	522	499	511[QC:a,c]
S96T002530	139:2	Subsegment B	1,020	1,160	1,090
S96T004497		Subsegment B	1,160	1,110	1,140[QC:a]
S96T002535		Subsegment C	751	346	549[QC:e]
S96T004498		Subsegment C	362	363	363[QC:a]
S96T002538		Subsegment D Lower half	<194	<197	<196
S96T004499		Subsegment D Lower half	<189	<189	<189[QC:a]
S96T002571	139:3	Upper half	<210	<207	<209
S96T004500		Upper half	<190	<190	<190[QC:a]
S96T002580	139:4	Upper half	<228	<231	<230
S96T004501		Upper half	<204	<202	<203
S96T002597	139:5	Upper half	<194	<203	<199
S96T002426	139:6	Upper half	<192	<199	<196
S96T002434	139:7	Upper half	<176	<185	<181
S96T002450	139:8	Upper half	<194	<204	<199
S96T002458	139:9	Upper half	<202	<183	<193
S96T002466	139:10	Upper half	<179	<186	<183
S96T002683	139:11	Upper half	<203	<233	<218[QC:c]
S96T004502		Upper half	<191	<185	<188
S96T002691	139:12	Upper half	<235	<206	<221
S96T004503		Upper half	<184	<190	<187
S96T002699	139:13	Upper half	<227	<231	<229
S96T004504		Upper half	<202	<201	<202

Table B2-43. Tank 241-AW-101 Analytical Results: Total Uranium (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: acid digest (Cont'd)			**µg/g**	**µg/g**	**µg/g**
S96T002708	139:14	Upper half	<247	<214	<231
S96T004505		Upper half	<198	<197	<198
S96T002716	139:15	Upper half	<197	<192	<195
S96T004506		Upper half	<198	<193	<196
S96T003240	139:16R	Lower half	<194	<187	<191
S96T003521	139:16R1	Lower half	<196	<189	<193
S96T003536	139:16R2	Upper half	<173	<174	<174
S96T003550	139:17R	Upper half	1,270	1,080	1,180
S96T003557		Lower half	1,460	1,420	1,440
S96T003572	139:19	Upper half	1,440	1,520	1,480
S96T004508		Upper half	2,020	2,290	2,160
S96T003566		Lower half	1,540	1,540	1,540[QC:e]
S96T004507		Lower half	1,880	1,720	1,800
S96T003586	139:21	Upper half	2,070	2,010	2,040
S96T004510		Upper half	2,840	2,310	2,580[QC:e]
S96T003580		Lower half	2,130	2,110	2,120
S96T004509		Lower half	3,140	2,530	2,840[QC:e]
S96T002738	Core 132	Solid composite	1,260	1,300	1,280
S96T002743		Solid composite	<196	<195	<196
S96T002751		Solid composite	1,810	1,860	1,840
Liquids			**µg/g**	**µg/g**	**µg/g**
S96T001715	132:7	Drainable liquid	<375	<375	<375
S96T002146	132:7R	Drainable liquid	<375	<375	<375
S96T001747	132:9	Drainable liquid	<375	<375	<375
S96T001764	132:10	Drainable liquid	<375	<375	<375
S96T001768	132:11	Drainable liquid	<375	<375	<375
S96T001950	132:12	Drainable liquid	<188	<188	<188
S96T002028	132:13	Drainable liquid	<188	<188	<188
S96T001944	132:14	Drainable liquid	<31.6	<31.6	<31.6
S96T001960		Drainable liquid	<188	<188	<188

Table B2-43. Tank 241-AW-101 Analytical Results: Total Uranium (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids (Cont'd)			µg/g	µg/g	µg/g
S96T001964	132:15	Drainable liquid	<188	<188	<188
S96T001968	132:16	Drainable liquid	<188	<188	<188
S96T002527	139:2	Drainable liquid	<375	<375	<375
S96T002558	139:3	Drainable liquid	<375	<375	<375
S96T002575	139:4	Drainable liquid	<375	<375	<375
S96T002584	139:5	Drainable liquid	<375	<375	<375
S96T002422	139:6	Drainable liquid	<375	<375	<375
S96T002430	139:7	Drainable liquid	<375	<375	<375
S96T002439	139:8	Drainable liquid	<375	<375	<375
S96T002454	139:9	Drainable liquid	<375	<375	<375
S96T002462	139:10	Drainable liquid	<375	<375	<375
S96T002679	139:11	Drainable liquid	<375	<375	<375
S96T002687	139:12	Drainable liquid	<375	<375	<375
S96T002695	139:13	Drainable liquid	<375	<375	<375
S96T002704	139:14	Drainable liquid	<375	<375	<375
S96T002712	139:15	Drainable liquid	<375	<375	<375
S96T003236	139:16R	Drainable liquid	<375	<375	<375
S96T003545	139:17R	Drainable liquid	<375	<375	<375
S96T002767	Core 132	Liquid composite	<375	<375	<375

Table B2-44. Tank 241-AW-101 Analytical Results: Vanadium (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: acid digest			µg/g	µg/g	µg/g
S96T000801	132:1	Upper half	<18.4	<17	<17.7
S96T002266		Upper half	<45.3	<45.6	<45.5
S96T000796		Lower half	<20.9	<21	<20.9[QC:c]
S96T002265		Lower half	<52.6	<75.4	<64[QC:e]
S96T000816	132:2	Upper half	<19.5	<18.1	<18.8
S96T002268		Upper half	<46.1	<46.7	<46.4
S96T000811		Lower half	<20.5	<19.4	<19.9
S96T002267		Lower half	<45.4	<46.3	<45.8
S96T000825	132:3	Upper half	<17.1	<18.7	<17.9
S96T004492		Upper half	<20.2	<18.4	<19.3[QC:a,c]
S96T000834	132:4	Upper half	<18.7	<21.1	<19.9
S96T004493		Upper half	<20.8	<20.5	<20.6[QC:a]
S96T000849	132:5	Upper half	<17	<18.1	<17.6
S96T004494		Upper half	<19.7	<19.2	<19.4[QC:a]
S96T001735	132:7	Upper half	<22.3	<21.9	<22.1
S96T004495	132:7R	Upper half	<19	<17.5	<18.3[QC:a]
S96T001751	132:9	Upper half	<22.4	<20.4	<21.4
S96T001756	132:10	Upper half	<21.9	<19.5	<20.7
S96T001772	132:11	Upper half	<21.2	<19.7	<20.4
S96T001952	132:12	Upper half	<21.7	<21.3	<21.5
S96T002032	132:13	Upper half	<20	<20.2	<20.1
S96T001962	132:14	Upper half	<17.6	<18.7	<18.1
S96T001966	132:15	Lower half	<21.7	<21.6	<21.6
S96T001970	132:16	Upper half	<21.9	<18.8	<20.4
S96T001974	132:18	Upper half	<20.8	<18.8	<19.8
S96T001978		Lower half	<18.1	<19.1	<18.6

Table B2-44. Tank 241-AW-101 Analytical Results: Vanadium (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: acid digest (Cont'd)			µg/g	µg/g	µg/g
S96T001981	132:20	Upper half	<18.9	<18.6	<18.8
S96T001985		Lower half	<49.1	<49.3	<49.2
S96T001988	132:22	Upper half	<43.3	<43.2	<43.3
S96T001992		Lower half	<43.7	<43.9	<43.8
S96T002418	139:1	Upper half	<19.2	<18.1	<18.6[QC:c]
S96T004496		Upper half	<17.6	<19.8	<18.7[QC:a,c]
S96T002530	139:2	Subsegment B	<19.9	<19.2	<19.5
S96T004497		Subsegment B	<20	<19.6	<19.8[QC:a]
S96T002535		Subsegment C	<22.6	<20.2	<21.4
S96T004498		Subsegment C	<19	<18.6	<18.8[QC:a]
S96T002538		Subsegment D Lower half	<19.4	<19.7	<19.5
S96T004499		Subsegment D Lower half	<18.9	<18.9	<18.9[QC:a]
S96T002571	139:3	Upper half	<21	<20.7	<20.9
S96T004500		Upper half	<19	<19	<19[QC:a]
S96T002580	139:4	Upper half	<22.8	<23.1	<23
S96T004501		Upper half	<20.4	<20.2	<20.3
S96T002597	139:5	Upper half	<19.4	<20.3	<19.9
S96T002426	139:6	Upper half	<19.2	<19.9	<19.5
S96T002434	139:7	Upper half	<17.6	<18.5	<18.1
S96T002450	139:8	Upper half	<19.4	<20.4	<19.9
S96T002458	139:9	Upper half	<20.2	<18.3	<19.3
S96T002466	139:10	Upper half	<17.9	<18.6	<18.3
S96T002683	139:11	Upper half	<20.3	<23.3	<21.8[QC:c]
S96T004502		Upper half	<19.1	<18.5	<18.8
S96T002691	139:12	Upper half	<23.5	<20.6	<22.1
S96T004503		Upper half	<18.4	<19	<18.7
S96T002699	139:13	Upper half	<22.7	<23.1	<22.9
S96T004504		Upper half	<20.2	<20.1	<20.1

Table B2-44. Tank 241-AW-101 Analytical Results: Vanadium (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: acid digest (Cont'd)			µg/g	µg/g	µg/g
S96T002708	139:14	Upper half	<24.7	<21.4	<23
S96T004505		Upper half	<19.8	<19.7	<19.8
S96T002716	139:15	Upper half	<19.7	<19.2	<19.4
S96T004506		Upper half	<19.8	<19.3	<19.6
S96T003240	139:16R	Lower half	<19.4	<18.7	<19
S96T003521	139:16R1	Lower half	<19.6	<18.9	<19.3
S96T003536	139:16R2	Upper half	<17.3	<17.4	<17.4
S96T003550	139:17R	Upper half	<19.7	<19.9	<19.8
S96T003557		Lower half	<19.7	<19.4	<19.5
S96T003572	139:19	Upper half	<24	<22	<23[QC:b]
S96T004508		Upper half	<19.8	<20	<19.9
S96T003566		Lower half	<19.2	<19.3	<19.3[QC:b,c]
S96T004507		Lower half	<19.5	<20.1	<19.8
S96T003586	139:21	Upper half	<18.4	<16.9	<17.6[QC:b]
S96T004510		Upper half	<20	<20.2	<20.1
S96T003580		Lower half	<22.3	<19.7	<21[QC:b]
S96T004509		Lower half	<19.9	<19.8	<19.9
S96T002738	Core 132	Solid composite	<19.5	<19.3	<19.4
S96T002743		Solid composite	<19.6	<19.5	<19.6
S96T002751		Solid composite	<19.5	<18	<18.8
Liquids			µg/g	µg/g	µg/g
S96T001715	132:7	Drainable liquid	<37.6	<37.6	<37.6
S96T002146	132:7R	Drainable liquid	<37.6	<37.6	<37.6
S96T001747	132:9	Drainable liquid	<37.6	<37.6	<37.6
S96T001764	132:10	Drainable liquid	<37.6	<37.6	<37.6
S96T001768	132:11	Drainable liquid	<37.6	<37.6	<37.6
S96T001950	132:12	Drainable liquid	<18.8	<18.8	<18.8
S96T002028	132:13	Drainable liquid	<18.8	<18.8	<18.8
S96T001944	132:14	Drainable liquid	<3.16	<3.16	<3.16
S96T001960		Drainable liquid	<18.8	<18.8	<18.8

Table B2-44. Tank 241-AW-101 Analytical Results: Vanadium (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids (Cont'd)			µg/g	µg/g	µg/g
S96T001964	132:15	Drainable liquid	<18.8	<18.8	<18.8
S96T001968	132:16	Drainable liquid	<18.8	<18.8	<18.8
S96T002527	139:2	Drainable liquid	<37.6	<37.6	<37.6
S96T002558	139:3	Drainable liquid	<37.6	<37.6	<37.6
S96T002575	139:4	Drainable liquid	<37.6	<37.6	<37.6
S96T002584	139:5	Drainable liquid	<37.6	<37.6	<37.6
S96T002422	139:6	Drainable liquid	<37.6	<37.6	<37.6
S96T002430	139:7	Drainable liquid	<37.6	<37.6	<37.6
S96T002439	139:8	Drainable liquid	<37.6	<37.6	<37.6
S96T002454	139:9	Drainable liquid	<37.6	<37.6	<37.6
S96T002462	139:10	Drainable liquid	<37.6	<37.6	<37.6
S96T002679	139:11	Drainable liquid	<37.6	<37.6	<37.6
S96T002687	139:12	Drainable liquid	<37.6	<37.6	<37.6
S96T002695	139:13	Drainable liquid	<37.6	<37.6	<37.6
S96T002704	139:14	Drainable liquid	<37.6	<37.6	<37.6
S96T002712	139:15	Drainable liquid	<37.6	<37.6	<37.6
S96T003236	139:16R	Drainable liquid	<37.6	<37.6	<37.6
S96T003545	139:17R	Drainable liquid	<37.6	<37.6	<37.6
S96T002767	Core 132	Liquid composite	<37.6	<37.6	<37.6

Table B2-45. Tank 241-AW-101 Analytical Results: Zinc (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: acid digest			µg/g	µg/g	µg/g
S96T000801	132:1	Upper half	21.1	14.6	17.9[QC:e]
S96T002266		Upper half	39.6	26.3	33[QC:e]
S96T000796		Lower half	21	17.7	19.4[QC:c]
S96T002265		Lower half	60.7	68.7	64.7
S96T000816	132:2	Upper half	15.1	14.8	14.9
S96T002268		Upper half	50.7	50.4	50.5
S96T000811		Lower half	15.9	16	15.9
S96T002267		Lower half	44.7	41.6	43.2
S96T000825	132:3	Upper half	14.6	14.3	14.4
S96T004492		Upper half	15.9	17.5	16.7[QC:a,c]
S96T000834	132:4	Upper half	16.6	16.5	16.6
S96T004493		Upper half	16.2	17	16.6[QC:a]
S96T000849	132:5	Upper half	12.3	11.5	11.9
S96T004494		Upper half	12.6	11	11.8[QC:a]
S96T001735	132:7	Upper half	562	568	565
S96T004495	132:7R	Upper half	13.9	15.6	14.8[QC:a]
S96T001751	132:9	Upper half	36.4	29.1	32.8[QC:e]
S96T001756	132:10	Upper half	27.4	23.9	25.6
S96T001772	132:11	Upper half	27.1	31.7	29.4
S96T001952	132:12	Upper half	17.4	28.8	23.1[QC:e]
S96T002032	132:13	Upper half	35.5	26	30.8[QC:e]
S96T001962	132:14	Upper half	21.6	17.8	19.7[QC:a]
S96T001966	132:15	Lower half	25.6	22.9	24.3[QC:a]
S96T001970	132:16	Upper half	24.4	23	23.7[QC:a]
S96T001974	132:18	Upper half	26.7	25.2	25.9[QC:a]
S96T001978		Lower half	22.4	25	23.7[QC:a]

Table B2-45. Tank 241-AW-101 Analytical Results: Zinc (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: acid digest (Cont'd)			**µg/g**	**µg/g**	**µg/g**
S96T001981	132:20	Upper half	31.6	25.3	28.5[QC:a,e]
S96T001985		Lower half	45.7	29.1	37.4[QC:e]
S96T001988	132:22	Upper half	43.4	37.6	40.5
S96T001992		Lower half	45.4	64.4	54.9[QC:e]
S96T002418	139:1	Upper half	19.1	20.6	19.9[QC:c]
S96T004496		Upper half	20.2	16.5	18.4[QC:a,c,e]
S96T002530	139:2	Subsegment B	23.5	26.2	24.9
S96T004497		Subsegment B	18.3	20.3	19.3[QC:a]
S96T002535		Subsegment C	17.8	21.1	19.5
S96T004498		Subsegment C	14.8	14.1	14.4[QC:a]
S96T002538		Subsegment D Lower half	16	16.9	16.4
S96T004499		Subsegment D Lower half	194	187	191[QC:a]
S96T002571	139:3	Upper half	21.8	18.5	20.1
S96T004500		Upper half	14.2	16.6	15.4[QC:a]
S96T002580	139:4	Upper half	22.1	21.7	21.9
S96T004501		Upper half	27.2	22.8	25
S96T002597	139:5	Upper half	21.4	16.3	18.9[QC:e]
S96T002426	139:6	Upper half	22.1	24.4	23.3
S96T002434	139:7	Upper half	12.7	14.8	13.8
S96T002450	139:8	Upper half	14.3	15.7	15
S96T002458	139:9	Upper half	19	21	20
S96T002466	139:10	Upper half	16.5	17.7	17.1
S96T002683	139:11	Upper half	16	19.3	17.6[QC:c]
S96T004502		Upper half	61.9	21.9	41.9[QC:e]
S96T002691	139:12	Upper half	16.6	24.2	20.4[QC:e]
S96T004503		Upper half	26.4	25.8	26.1
S96T002699	139:13	Upper half	23.1	28	25.6
S96T004504		Upper half	26	29	27.5

Table B2-45. Tank 241-AW-101 Analytical Results: Zinc (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: acid digest (Cont'd)			**µg/g**	**µg/g**	**µg/g**
S96T002708	139:14	Upper half	17.7	24.1	20.9[QC:e]
S96T004505		Upper half	35.4	17.6	26.5[QC:e]
S96T002716	139:15	Upper half	18.5	19.5	19
S96T004506		Upper half	32.3	35.6	34
S96T003240	139:16R	Lower half	15.2	16.6	15.9
S96T003521	139:16R1	Lower half	14.6	14.7	14.6
S96T003536	139:16R2	Upper half	20.9	27.6	24.3[QC:e]
S96T003550	139:17R	Upper half	38.9	38.8	38.8
S96T003557		Lower half	32.2	30.4	31.3
S96T003572	139:19	Upper half	19.2	19.9	19.5[QC:b]
S96T004508		Upper half	31	41.1	36[QC:e]
S96T003566		Lower half	19.5	19.5	19.5[QC:b,c]
S96T004507		Lower half	45	30.6	37.8[QC:e]
S96T003586	139:21	Upper half	27.5	19.8	23.6[QC:b,e]
S96T004510		Upper half	34.3	35.9	35.1
S96T003580		Lower half	22.4	19.5	20.9[QC:b]
S96T004509		Lower half	38.8	29.1	34[QC:e]
S96T002738	Core 132	Solid composite	17.4	16.8	17.1[QC:a]
S96T002743		Solid composite	22	18.3	20.1[QC:a]
S96T002751		Solid composite	19.2	20.3	19.8[QC:a]
Liquids			**µg/g**	**µg/g**	**µg/g**
S96T001715	132:7	Drainable liquid	58.9	53	56
S96T002146	132:7R	Drainable liquid	<7.5	<7.5	<7.5
S96T001747	132:9	Drainable liquid	<7.5	7.75	<7.63
S96T001764	132:10	Drainable liquid	8.19	7.94	8.06
S96T001768	132:11	Drainable liquid	8.06	8.69	8.38
S96T001950	132:12	Drainable liquid	36.9	33.9	35.4
S96T002028	132:13	Drainable liquid	14.5	14.1	14.3
S96T001944	132:14	Drainable liquid	22.1	22.7	22.4
S96T001960		Drainable liquid	14.4	14.8	14.6

Table B2-45. Tank 241-AW-101 Analytical Results: Zinc (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids (Cont'd)			µg/g	µg/g	µg/g
S96T001964	132:15	Drainable liquid	16.9	16.4	16.6
S96T001968	132:16	Drainable liquid	15.3	14.4	14.8
S96T002527	139:2	Drainable liquid	<7.5	<7.5	<7.5
S96T002558	139:3	Drainable liquid	16.9	15.5	16.2
S96T002575	139:4	Drainable liquid	10.9	9.81	10.3
S96T002584	139:5	Drainable liquid	<7.5	<7.5	<7.5
S96T002422	139:6	Drainable liquid	<7.5	<7.5	<7.5
S96T002430	139:7	Drainable liquid	<7.5	<7.5	<7.5
S96T002439	139:8	Drainable liquid	<7.5	<7.5	<7.5
S96T002454	139:9	Drainable liquid	<7.5	<7.5	<7.5
S96T002462	139:10	Drainable liquid	<7.5	<7.5	<7.5
S96T002679	139:11	Drainable liquid	<7.5	<7.5	<7.5
S96T002687	139:12	Drainable liquid	<7.5	<7.5	<7.5
S96T002695	139:13	Drainable liquid	<7.5	<7.5	<7.5
S96T002704	139:14	Drainable liquid	<7.5	<7.5	<7.5
S96T002712	139:15	Drainable liquid	<7.5	<7.5	<7.5
S96T003236	139:16R	Drainable liquid	<7.5	<7.5	<7.5
S96T003545	139:17R	Drainable liquid	9.5	8.94	9.22
S96T002767	Core 132	Liquid composite	<7.5	<7.5	<7.5

Table B2-46. Tank 241-AW-101 Analytical Results: Zirconium (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: acid digest			µg/g	µg/g	µg/g
S96T000801	132:1	Upper half	84.3	90	87.2[QC:a]
S96T002266		Upper half	85.3	65	75.2[QC:e]
S96T000796		Lower half	71.1	64.8	67.9[QC:a,c]
S96T002265		Lower half	55.4	74.3	64.8[QC:e]
S96T000816	132:2	Upper half	71.5	68.8	70.2[QC:a]
S96T002268		Upper half	72.2	67.2	69.7
S96T000811		Lower half	38.1	38.3	38.2[QC:a]
S96T002267		Lower half	40.6	43.3	42
S96T000825	132:3	Upper half	8.96	7.55	8.26[QC:a]
S96T004492		Upper half	5.85	7.02	6.43
S96T000834	132:4	Upper half	7.27	6.86	7.06[QC:a]
S96T004493		Upper half	6.45	7.33	6.89
S96T000849	132:5	Upper half	6.5	6.76	6.63[QC:a]
S96T004494		Upper half	4.08	4.71	4.39
S96T001735	132:7	Upper half	15.8	16	15.9
S96T004495	132:7R	Upper half	<3.79	6.64	<5.21[QC:e]
S96T001751	132:9	Upper half	<4.48	4.95	<4.71
S96T001756	132:10	Upper half	<4.37	5.26	<4.81
S96T001772	132:11	Upper half	4.94	6.84	5.89[QC:e]
S96T001952	132:12	Upper half	<4.35	5.06	<4.71
S96T002032	132:13	Upper half	7.19	6.55	6.87
S96T001962	132:14	Upper half	<3.52	3.9	<3.71
S96T001966	132:15	Lower half	<4.35	<4.33	<4.34
S96T001970	132:16	Upper half	<4.37	<3.75	<4.06
S96T001974	132:18	Upper half	103	100	102
S96T001978		Lower half	66.2	62.4	64.3

Table B2-46. Tank 241-AW-101 Analytical Results: Zirconium (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: acid digest (Cont'd)			µg/g	µg/g	µg/g
S96T001981	132:20	Upper half	96.7	82.9	89.8
S96T001985		Lower half	151	140	146
S96T001988	132:22	Upper half	147	94.5	121[QC:e]
S96T001992		Lower half	119	124	122
S96T002418	139:1	Upper half	42.6	41.7	42.2[QC:c]
S96T004496		Upper half	45.3	43.6	44.5
S96T002530	139:2	Subsegment B	72.6	79.7	76.2
S96T004497		Subsegment B	83.2	80.8	82
S96T002535		Subsegment C	55.6	31.7	43.6[QC:e]
S96T004498		Subsegment C	33.4	33.5	33.5
S96T002538		Subsegment D Lower half	14.7	14.6	14.6
S96T004499		Subsegment D Lower half	14.9	16.1	15.5
S96T002571	139:3	Upper half	5.32	4.55	4.94
S96T004500		Upper half	4.95	4.26	4.61
S96T002580	139:4	Upper half	5.17	4.64	4.9
S96T004501		Upper half	<4.07	<4.03	<4.05
S96T002597	139:5	Upper half	7.51	4.29	5.9[QC:e]
S96T002426	139:6	Upper half	3.92	5.5	4.71[QC:e]
S96T002434	139:7	Upper half	5.09	4.28	4.69
S96T002450	139:8	Upper half	<3.88	4.6	<4.24
S96T002458	139:9	Upper half	7.98	8.3	8.14
S96T002466	139:10	Upper half	5.01	5.21	5.11
S96T002683	139:11	Upper half	4.62	5.53	5.08[QC:c]
S96T004502		Upper half	3.91	5.04	4.47[QC:e]
S96T002691	139:12	Upper half	<4.69	4.12	<4.41
S96T004503		Upper half	6.39	4.23	5.31[QC:e]
S96T002699	139:13	Upper half	5.3	4.9	5.1
S96T004504		Upper half	4.22	<4.02	<4.12

Table B2-46. Tank 241-AW-101 Analytical Results: Zirconium (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: acid digest (Cont'd)			µg/g	µg/g	µg/g
S96T002708	139:14	Upper half	5.62	5.81	5.71
S96T004505		Upper half	8.45	<3.94	<6.19[QC:e]
S96T002716	139:15	Upper half	5.03	5.56	5.29
S96T004506		Upper half	5.33	4.25	4.79[QC:e]
S96T003240	139:16R	Lower half	<3.89	<3.73	<3.81
S96T003521	139:16R1	Lower half	<3.91	<3.78	<3.84
S96T003536	139:16R2	Upper half	3.78	4.42	4.1
S96T003550	139:17R	Upper half	86.9	75	81
S96T003557		Lower half	97.3	92.8	95
S96T003572	139:19	Upper half	94.5	99.7	97.1
S96T004508		Upper half	130	149	140
S96T003566		Lower half	99.2	98.6	98.9[QC:e]
S96T004507		Lower half	126	111	119
S96T003586	139:21	Upper half	131	129	130
S96T004510		Upper half	182	149	166
S96T003580		Lower half	141	135	138
S96T004509		Lower half	206	46.8	126[QC:e]
S96T002738	Core 132	Solid composite	86.8	101	93.9
S96T002743		Solid composite	7.27	7.82	7.54
S96T002751		Solid composite	111	117	114
Liquids			µg/g	µg/g	µg/g
S96T001715	132:7	Drainable liquid	8.75	8.38	8.56
S96T002146	132:7R	Drainable liquid	9.06	11.1	10.1
S96T001747	132:9	Drainable liquid	9.56	15.5	12.5[QC:e]
S96T001764	132:10	Drainable liquid	10.7	10.7	10.7
S96T001768	132:11	Drainable liquid	9	12	10.5[QC:e]
S96T001950	132:12	Drainable liquid	9.81	9.69	9.75
S96T002028	132:13	Drainable liquid	9.81	9.63	9.72
S96T001944	132:14	Drainable liquid	<0.631	<0.631	<0.631
S96T001960		Drainable liquid	9.5	9.75	9.63

Table B2-46. Tank 241-AW-101 Analytical Results: Zirconium (ICP). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids (Cont'd)			**µg/g**	**µg/g**	**µg/g**
S96T001964	132:15	Drainable liquid	10.4	10.1	10.3
S96T001968	132:16	Drainable liquid	11	10.9	10.9
S96T002527	139:2	Drainable liquid	<7.5	<7.5	<7.5
S96T002558	139:3	Drainable liquid	8.81	7.87	8.34
S96T002575	139:4	Drainable liquid	9.25	<7.5	<8.38[QC:e]
S96T002584	139:5	Drainable liquid	8.31	7.94	8.13
S96T002422	139:6	Drainable liquid	8.13	<7.5	<7.81
S96T002430	139:7	Drainable liquid	<7.5	9.44	<8.47[QC:e]
S96T002439	139:8	Drainable liquid	10.2	11.8	11
S96T002454	139:9	Drainable liquid	8.13	9.56	8.84
S96T002462	139:10	Drainable liquid	<7.5	<7.5	<7.5
S96T002679	139:11	Drainable liquid	10	10.7	10.4
S96T002687	139:12	Drainable liquid	9.25	9.38	9.31
S96T002695	139:13	Drainable liquid	10.3	9.94	10.1
S96T002704	139:14	Drainable liquid	9.75	9.06	9.41
S96T002712	139:15	Drainable liquid	<7.5	9.38	<8.44[QC:e]
S96T003236	139:16R	Drainable liquid	10.6	9.81	10.2
S96T003545	139:17R	Drainable liquid	8.44	<7.5	<7.97
S96T002767	Core 132	Liquid composite	12.1	12.3	12.2

Table B2-47. Tank 241-AW-101 Analytical Results: Total Uranium (U).

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: fusion			**µg/g**	**µg/g**	**µg/g**
S96T002734	Core 132	Solid composite	1,190	1,270	1,230[QC:f]
S96T002742		Solid composite	85	78.7	81.8[QC:f]
S96T002750		Solid composite	1,620	1,650	1,640

Table B2-48. Tank 241-AW-101 Analytical Results: Total Uranium (Kinetic Phosphorescence).

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids			**µg/g**	**µg/g**	**µg/g**
S96T002767	Core 132	Liquid composite	153	149	151[QC:f]

Table B2-49. Tank 241-AW-101 Analytical Results: Bromide (IC). (3 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: water digest			µg/g	µg/g	µg/g
S96T000802	132:1	Upper half	<524	<522	<523
S96T000797		Lower half	<484	<452	<468
S96T000817	132:2	Upper half	646	673	660
S96T000812		Lower half	603	592	598
S96T000826	132:3	Upper half	<236	642	<439[QC:e]
S96T000835	132:4	Upper half	<292	<277	<285
S96T000851	132:5	Upper half	<480	<523	<502
S96T001743	132:7	Upper half	<541	<519	<530
S96T002154	132:7R	Upper half	<1,070	<1,090	<1,080
S96T001752	132:9	Upper half	<1,020	<999	<1,010
S96T001757	132:10	Upper half	<1,060	<1,030	<1,040
S96T001773	132:11	Upper half	<984	<979	<981
S96T001955	132:12	Upper half	<1,060	<1,050	<1,050
S96T002033	132:13	Upper half	<981	<914	<948
S96T001963	132:14	Upper half	<1,070	<1,000	<1,030
S96T001967	132:15	Lower half	<908	<927	<917
S96T001971	132:16	Upper half	<942	<910	<926
S96T001975	132:18	Upper half	<978	<994	<986
S96T001979		Lower half	<490	<467	<478
S96T001982	132:20	Upper half	<512	<495	<503
S96T001986		Lower half	<475	<476	<475
S96T001989	132:22	Upper half	<510	<528	<519
S96T001993		Lower half	<915	<905	<910
S96T002419	139:1	Upper half	<496	<596	<546
S96T002531	139:2	Subsegment B	<554	<553	<554
S96T002536		Subsegment C	<515	<525	<520
S96T002539		Subsegment D Lower half	<566	<562	<564
S96T002572	139:3	Upper half	<588	<608	<598
S96T002581	139:4	Upper half	<1,240	<1,260	<1,250

Table B2-49. Tank 241-AW-101 Analytical Results: Bromide (IC). (3 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: water digest (Cont'd)			**µg/g**	**µg/g**	**µg/g**
S96T002598	139:5	Upper half	<1,100	<1,090	<1,100
S96T002427	139:6	Upper half	<992	<1,010	<1,000
S96T002435	139:7	Upper half	<982	<1,020	<1,000
S96T002451	139:8	Upper half	<926	<900	<913
S96T002459	139:9	Upper half	<981	<936	<959
S96T002467	139:10	Upper half	<891	<903	<897
S96T002684	139:11	Upper half	<527	<516	<522
S96T002692	139:12	Upper half	<977	<962	<970
S96T002700	139:13	Upper half	<1,040	<1,070	<1,050
S96T002709	139:14	Upper half	<908	<887	<898
S96T002717	139:15	Upper half	<1,050	<1,030	<1,040
S96T003241	139:16R	Lower half	<1,000	<981	<993
S96T003522	139:16R1	Lower half	<1,360	<1,330	<1,340
S96T003539	139:16R2	Upper half	<1,230	<1,190	<1,210
S96T003551	139:17R	Upper half	<496	<489	<492
S96T003560		Lower half	<966	<981	<974
S96T003573	139:19	Upper half	<489	<540	<514
S96T003567		Lower half	<530	<581	<556
S96T003587	139:21	Upper half	<498	<486	<492
S96T003581		Lower half	<515	<564	<540
S96T002739	Core 132	Solid composite	<583	<559	<571
S96T002744		Solid composite	<504	<493	<498
S96T002752		Solid composite	<509	<559	<534
Liquids			**µg/g**	**µg/g**	**µg/g**
S96T000806	132:2	Drainable liquid	655	<326	<491[QC:e]
S96T000821	132:3	Drainable liquid	<326	<326	<326
S96T000830	132:4	Drainable liquid	<803	<806	<805
S96T000845	132:5	Drainable liquid	<803	<806	<805
S96T002146	132:7R	Drainable liquid	<406	<406	<406

Table B2-49. Tank 241-AW-101 Analytical Results: Bromide (IC). (3 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids (Cont'd)			µg/g	µg/g	µg/g
S96T001747	132:9	Drainable liquid	<141	<141	<141
S96T001764	132:10	Drainable liquid	<406	<406	<406
S96T001768	132:11	Drainable liquid	<406	<406	<406
S96T001950	132:12	Drainable liquid	<326	<326	<326
S96T002028	132:13	Drainable liquid	<326	<326	<326
S96T001960	132.14	Drainable liquid	<326	<326	<326
S96T001964	132:15	Drainable liquid	<207	<207	<207
S96T001968	132:16	Drainable liquid	381	385	383
S96T002527	139:2	Drainable liquid	<803	<806	<805
S96T002558	139:3	Drainable liquid	<803	<806	<805
S96T002575	139:4	Drainable liquid	<326	<326	<326
S96T002584	139: 5	Drainable liquid	508	526	517
S96T002422	139: 6	Drainable liquid	263	279	271
S96T002430	139: 7	Drainable liquid	557	528	542
S96T002439	139: 8	Drainable liquid	<406	<406	<406
S96T002454	139: 9	Drainable liquid	<326	<326	<326
S96T002462	139:10	Drainable liquid	<326	<326	<326
S96T002679	139:11	Drainable liquid	<141	<141	<141
S96T002687	139:12	Drainable liquid	696	669	682
S96T002695	139:13	Drainable liquid	<207	<207	<207
S96T002704	139:14	Drainable liquid	<207	<207	<207
S96T002712	139:15	Drainable liquid	<207	<207	<207
S96T003236	139:16R	Drainable liquid	<167	<167	<167
S96T003545	139:17R	Drainable liquid	<167	<167	<167
S96T002767	Core 132	Liquid composite	<406	<406	<406

Table B2-50. Tank 241-AW-101 Analytical Results: Chloride (IC).

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: water digest			**µg/g**	**µg/g**	**µg/g**
S96T002739	Core 132	Solid composite	3,710	3,560	3,630
S96T002744		Solid composite	4,070	4,300	4,190
S96T002752		Solid composite	3,680	3,670	3,670
Liquids			**µg/g**	**µg/g**	**µg/g**
S96T002767	Core 132	Liquid composite	3,210	3,180	3,190

Table B2-51. Tank 241-AW-101 Analytical Results: Fluoride (IC).

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: water digest			**µg/g**	**µg/g**	**µg/g**
S96T002739	Core 132	Solid composite	2,330	2,310	2,320
S96T002744		Solid composite	451	483	467
S96T002752		Solid composite	4,190	4,270	4,230
Liquids			**µg/g**	**µg/g**	**µg/g**
S96T002767	Core 132	Liquid composite	<41.8	<41.9	<41.9

Table B2-52. Tank 241-AW-101 Analytical Results: Nitrate (IC).

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: water digest			**µg/g**	**µg/g**	**µg/g**
S96T002739	Core 132	Solid composite	1.43E+05	1.40E+05	1.41E+05
S96T002744		Solid composite	1.62E+05	1.59E+05	1.60E+05
S96T002752		Solid composite	1.22E+05	1.18E+05	1.20E+05
Liquids			**µg/g**	**µg/g**	**µg/g**
S96T002767	Core 132	Liquid composite	97,600	98,100	97,900

Table B2-53. Tank 241-AW-101 Analytical Results: Nitrite (IC).

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: water digest			**µg/g**	**µg/g**	**µg/g**
S96T002739	Core 132	Solid composite	69,300	64,900	67,100
S96T002744		Solid composite	71,900	74,100	73,000
S96T002752		Solid composite	68,300	65,900	67,100
Liquids			**µg/g**	**µg/g**	**µg/g**
S96T002767	Core 132	Liquid composite	61,600	61,800	61,700

Table B2-54. Tank 241-AW-101 Analytical Results: Phosphate (IC).

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: water digest			**µg/g**	**µg/g**	**µg/g**
S96T002739	Core 132	Solid composite	4,360	5,240	4,800
S96T002744		Solid composite	1,190	1,800	1,500[QC:e]
S96T002752		Solid composite	2,270	2,020	2,140
Liquids			**µg/g**	**µg/g**	**µg/g**
S96T002767	Core 132	Liquid composite	<383	<383	<383

Table B2-55. Tank 241-AW-101 Analytical Results: Sulfate (IC).

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: water digest			**µg/g**	**µg/g**	**µg/g**
S96T002739	Core 132	Solid composite	4,000	3,890	3,940
S96T002744		Solid composite	<543	<532	<538
S96T002752		Solid composite	5,640	5,620	5,630
Liquids			**µg/g**	**µg/g**	**µg/g**
S96T002767	Core 132	Liquid composite	<438	<438	<438

Table B2-56. Tank 241-AW-101 Analytical Results: Oxalate (IC).

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: water digest			**µg/g**	**µg/g**	**µg/g**
S96T002739	Core 132	Solid composite	12,100	11,900	12,000
S96T002744		Solid composite	<420	<411	<415
S96T002752		Solid composite	11,600	11,800	11,700
Liquids			**µg/g**	**µg/g**	**µg/g**
S96T002767	Core 132	Liquid composite	<338	<338	<338

Table B2-57. Tank 241-AW-101 Analytical Results: Bulk Density.

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids			**g/mL**	**g/mL**	**g/mL**
S96T000792	132:1	Lower half	1.61	N/A	1.61
S96T000807	132:2	Lower half	1.54	N/A	1.54
S96T000846	132:5	Upper half	1.54	N/A	1.54
S96T001716	132:7	Upper half	1.54	N/A	1.54
S96T001753	132:10	Upper half	1.7	N/A	1.7
S96T001932	132:16	Upper half	1.65	N/A	1.65
S96T001933	132:18	Upper half	1.54	N/A	1.54
S96T001934		Lower half	1.54	N/A	1.54
S96T001935	132:20	Upper half	1.59	N/A	1.59
S96T001937		Lower half	1.54	N/A	1.54
S96T001938	132:22	Upper half	1.59	N/A	1.59
S96T001940		Lower half	1.6	N/A	1.6
S96T002415	139:1	Upper half	1.7	N/A	1.7
S96T002532	139:2	Subsegment C	1.53	N/A	1.53
S96T002594	139:5	Upper half	1.86	N/A	1.86
S96T003532	139:16R2	Upper half	1.73	N/A	1.73
S96T003552	139:17R	Lower half	1.51	N/A	1.51
S96T003561	139:19	Lower half	1.59	N/A	1.59
S96T003575	139:21	Lower half	1.56	N/A	1.56
S96T002729	Core 132	Solid composite	1.62	N/A	1.62
S96T002740		Solid composite	1.68	N/A	1.68
S96T002747		Solid composite	1.58	N/A	1.58

Table B2-58. Tank 241-AW-101 Analytical Results: Exotherm (DSC). (2 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids			**J/g**	**J/g**	**J/g**
S96T000800	132:1	Upper half	39.7	109	74.5[QC:e]
S96T000794		Lower half	51	61.7	56.4
S96T001972	132:18	Upper half	34.6	20.4	27.5[QC:e]
S96T001976		Lower half	38.5	37.1	37.8
S96T001980	132:20	Upper half	29.8	16.5	23.1[QC:e]
S96T001983		Lower half	96.9	124	111
S96T002529	139:2	Subsegment B	136	106	121
S96T002533		Subsegment C	39.8	49.2	44.5
S96T002595	139:5	Upper half	50.1	7	28.6[QC:e]
S96T002424	139:6	Upper half	213		213
S96T002424		Upper half		125	122
S96T002432	139:7	Upper half	247		247
S96T002706	139:14	Upper half	199	120	160[QC:e]
S96T002706		Upper half	15.7		15.7
S96T002714	139:15	Upper half	157	87.6	122[QC:e]
S96T003238	139:16R	Lower half	35.8	56.1	46[QC:e]
S96T003519	139:16R1	Lower half	79.1	73.9	76.5
S96T003555	139:17R	Lower half	79	132	105[QC:e]
S96T003555		Lower half	5.4	30.7	18.1[QC:e]
S96T003564	139:19	Lower half	49	64	56.5
S96T003585	139:21	Upper half	536	580	558
S96T002732	Core 132	Solid composite	120	131	125
S96T002741		Solid composite	95.3	158	137[QC:e]
S96T002749		Solid composite	101	77.5	89.4
Liquids			**J/g**	**J/g**	**J/g**
S96T001715	132:7	Drainable liquid	89.1	94	91.5
S96T001747	132:9	Drainable liquid	68.8	65.8	67.3
S96T001768	132:11	Drainable liquid	97.9	159	129[QC:e]
S96T001950	132:12	Drainable liquid	78.1	77.1	77.6
S96T002028	132:13	Drainable liquid	94	152	123[QC:e]

Table B2-58. Tank 241-AW-101 Analytical Results: Exotherm (DSC). (2 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids (Cont'd)			**J/g**	**J/g**	**J/g**
S96T001960	132:14	Drainable liquid	74.7	78.1	76.4
S96T002527	139:2	Drainable liquid	62.4	93.3	77.8[QC:e]
S96T002558	139:3	Drainable liquid	51.1	130	90.5[QC:e]
S96T002575	139:4	Drainable liquid	69.3	73.5	71.4
S96T002584	139:5	Drainable liquid	73.2	77.6	75.4
S96T002422	139:6	Drainable liquid	10.7	139	74.6[QC:e]
S96T002454	139:9	Drainable liquid	102	106	104
S96T002462	139:10	Drainable liquid	101	69.6	85.1[QC:e]
S96T002679	139:11	Drainable liquid	89.7	94.1	91.9
S96T002687	139:12	Drainable liquid	138	93.2	116[QC:e]
S96T002695	139:13	Drainable liquid	70.3	72	71.2
S96T002704	139:14	Drainable liquid	68.8	73.7	71.3
S96T002712	139:15	Drainable liquid	95.3	110	103
S96T002767	Core 132	Liquid composite	102	102	102
S96T002146	132: 7R	Drainable liquid	124	95.4	110[QC:e]
S96T001764	132:10	Drainable liquid	106	114	110
S96T003236	139:16R	Drainable liquid	119	112	115
S96T003545	139:17R	Drainable liquid	127	117	122
Solids			**J/g**	**J/g**	**J/g**
S96T001942	132:12	Upper half	191	129	160[QC:e]
S96T001945	132:14	Upper half	207	92	149[QC:e]
S96T001931	132:16	Lower half	121	123	122
S96T001987	132:22	Upper half	115	121	118
S96T001990		Lower half	111	126	119
S96T002416	139: 1	Upper half	28.8	33.5	31.1
S96T003533	139:16R2	Upper half	160	151	156
S96T003549	139:17R	Upper half	132	154	143
S96T003578	139:21	Lower half	131	157	144

Table B2-59. Tank 241-AW-101 Analytical Results: Percent Water (TGA). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids			%	%	%
S96T000806	132:2	Drainable liquid	49.1	49	49.1
S96T000821	132:3	Drainable liquid	48.9	48.5	48.7
S96T002146	132:7R	Drainable liquid	49.2	49.4	49.3
S96T001764	132:10	Drainable liquid	49	48.8	48.9
S96T001964	132:15	Drainable liquid	49.5	49.7	49.6
S96T001968	132:16	Drainable liquid	49.3	49.7	49.5
S96T002430	139:7	Drainable liquid	49.1	49.1	49.1
S96T002439	139:8	Drainable liquid	49.2	49	49.1
S96T003236	139:16R	Drainable liquid	49.6	49.1	49.3
S96T003545	139:17R	Drainable liquid	49.6	49.4	49.5
Solids			%	%	%
S96T000815	132:2	Upper half	42	42.4	42.2
S96T000809		Lower half	39.9	41.5	40.7
S96T000824	132:3	Upper half	34.8	38.9	36.9
S96T000833	132:4	Upper half	29.8	37.7	34.9
S96T001722	132:7	Upper half	47	47.9	47.5
S96T002151	132:7R	Upper half	47.4	48.6	48
S96T001749	132:9	Upper half	45.2	27.6	36.4[QC:e]
S96T001942	132:12	Upper half	48.9	48.1	48.5
S96T002030	132:13	Upper half	1.47	29.6	18.3[QC:e]
S96T001945	132:14	Upper half	45.7	41.3	43.5
S96T001947	132:15	Lower half	23.9	19.2	21.6
S96T001949	132:16	Upper half	20.8	23.9	22.3
S96T001931		Lower half	48.2	50.6	49.4
S96T001987	132:22	Upper half	49.1	48.3	48.7
S96T001990		Lower half	48.8	47.2	48
S96T002416	139:1	Upper half	44.7	45.6	45.2
S96T002560	139:3	Upper half	47.2	47.6	47.4
S96T002578	139:4	Upper half	11.6	2.59	7.08[QC:e]
S96T002441	139:8	Upper half	42.1	40.1	41.1

Table B2-59. Tank 241-AW-101 Analytical Results: Percent Water (TGA). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids (Cont'd)			%	%	%
S96T002456	139:9	Upper half	38.1	27.6	32.9[QC:e]
S96T002464	139:10	Upper half	40.1	45.6	42.9
S96T003533	139:16R2	Upper half	47.8	46.9	47.3
S96T003549	139:17R	Upper half	44.1	44.4	44.3
S96T003571	139:19	Upper half	47	47.7	47.4
S96T003578	139:21	Lower half	48.2	45.7	47
S96T000800	132:1	Upper half	43.2	44.3	43.7
S96T000794		Lower half	42.8	42.4	42.6
S96T000848	132:5	Upper half	31.3	22.3	26.8[QC:e]
S96T001754	132:10	Upper half	49.4	47.3	48.4
S96T001770	132:11	Upper half	49.5	48.3	48.9
S96T001947	132:15	Lower half	43.2	30	36.6[QC:e]
S96T001949	132:16	Upper half	30.1	23.7	26.9
S96T001972	132:18	Upper half	41.7	40.5	41.1
S96T001976		Lower half	42.5	44.8	43.6
S96T001980	132:20	Upper half	48.9	48.3	48.6
S96T001983		Lower half	48.8	48.7	48.7
S96T002529	139:2	Subsegment B	45.8	45.4	45.6
S96T002533		Subsegment C	45.2	52.1	48.7
S96T002537		Subsegment D Lower half	19.3	18.5	18.9
S96T002595	139:5	Upper half	38.3	25.7	32[QC:e]
S96T002424	139:6	Upper half	49	49.1	49
S96T002432	139:7	Upper half	48.9	48.9	48.9
S96T002456	139:9	Upper half	34.9	45.5	40.2

Table B2-59. Tank 241-AW-101 Analytical Results: Percent Water (TGA). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids (Cont'd)			%	%	%
S96T002681	139:11	Upper half	34.9	26.2	30.5
S96T002689	139:12	Upper half	30.5	21.8	26.2[QC:e]
S96T002697	139:13	Upper half	31.9	32.3	32.1
S96T002706	139:14	Upper half	47.6	48.5	48.1
S96T002714	139:15	Upper half	48.8	49	48.9
S96T003238	139:16R	Lower half	44.7	46	45.4
S96T003519	139:16R1	Lower half	30.7	34.7	32.7
S96T003555	139:17R	Lower half	45.8	43.5	44.6
S96T003564	139:19	Lower half	46.5	46.7	46.6
S96T003585	139:21	Upper half	44.2	43.4	43.8
S96T002732	Core 132	Solid composite	44.8	44	44.4
S96T002741		Solid composite	47.2	48.2	47.7
S96T002749		Solid composite	44.2	45.3	44.7
Liquids			%	%	%
S96T000830	132:4	Drainable liquid	42	41.9	42
S96T000845	132:5	Drainable liquid	41.2	40.6	40.9
S96T001715	132:7	Drainable liquid	54.1	54.2	54.2
S96T001747	132:9	Drainable liquid	49.2	49.4	49.3
S96T001759	132:10	Drainable liquid	87.6	85.7	86.7
S96T001768	132:11	Drainable liquid	49.6	49.4	49.5
S96T001950	132:12	Drainable liquid	49	49.7	49.4
S96T002028	132:13	Drainable liquid	49.5	49.7	49.6
S96T001944	132:14	Drainable liquid	93.3	94.3	93.8
S96T001960		Drainable liquid	50.8	48.2	49.5

Table B2-59. Tank 241-AW-101 Analytical Results: Percent Water (TGA). (4 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids (Cont'd)			%	%	%
S96T002527	139:2	Drainable liquid	49.7	49.8	49.8
S96T002558	139:3	Drainable liquid	49.2	49.5	49.3
S96T002575	139:4	Drainable liquid	49.7	49.5	49.6
S96T002584	139:5	Drainable liquid	49.5	49.7	49.6
S96T002422	139:6	Drainable liquid	49.6	49.6	49.6
S96T002454	139:9	Drainable liquid	50.4	49.2	49.8
S96T002462	139:10	Drainable liquid	49.4	49.8	49.6
S96T002679	139:11	Drainable liquid	49.4	49.6	49.5
S96T002687	139:12	Drainable liquid	50.1	50.4	50.3
S96T002695	139:13	Drainable liquid	49.4	49.4	49.4
S96T002704	139:14	Drainable liquid	49.5	49.9	49.7
S96T002712	139:15	Drainable liquid	50.9	49.9	50.4
S96T002767	Core 132	Liquid composite	49.8	49.9	49.8

Table B2-60. Tank 241-AW-101 Analytical Results: Specific Gravity. (2 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids			unitless	unitless	unitless
S96T000806	132: 2	Drainable liquid	1.47	1.49	1.48
S96T000821	132: 3	Drainable liquid	1.47	1.47	1.47
S96T000830	132: 4	Drainable liquid	1.48	1.43	1.45
S96T000845	132: 5	Drainable liquid	1.48	1.5	1.49
S96T001715	132: 7	Drainable liquid	1.37	1.37	1.37
S96T002146	132: 7R	Drainable liquid	1.39	1.39	1.39
S96T001747	132: 9	Drainable liquid	1.51	1.49	1.5
S96T001764	132:10	Drainable liquid	1.45	1.36	1.4
S96T001768	132:11	Drainable liquid	1.41	1.39	1.4
S96T001950	132:12	Drainable liquid	1.37	1.37	1.37
S96T002028	132:13	Drainable liquid	1.43	1.46	1.45

Table B2-60. Tank 241-AW-101 Analytical Results: Specific Gravity. (2 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids (Cont'd)			unitless	unitless	unitless
S96T001960	132:14	Drainable liquid	1.38	1.38	1.38
S96T001964	132:15	Drainable liquid	1.38	1.38	1.38
S96T001968	132:16	Drainable liquid	1.37	1.34	1.35
S96T002527	139: 2	Drainable liquid	1.42	1.42	1.42
S96T002558	139: 3	Drainable liquid	1.48	1.49	1.49
S96T002575	139: 4	Drainable liquid	1.46	1.43	1.44
S96T002584	139: 5	Drainable liquid	1.43	1.44	1.44
S96T002422	139: 6	Drainable liquid	1.5	1.5	1.5
S96T002430	139: 7	Drainable liquid	1.47	1.45	1.46
S96T002439	139: 8	Drainable liquid	1.44	1.45	1.44
S96T002454	139: 9	Drainable liquid	1.46	1.48	1.47
S96T002462	139:10	Drainable liquid	1.48	1.48	1.48
S96T002679	139:11	Drainable liquid	1.47	1.45	1.46
S96T002687	139:12	Drainable liquid	1.47	1.48	1.48
S96T002695	139:13	Drainable liquid	1.51	1.52	1.52
S96T002704	139:14	Drainable liquid	1.47	1.42	1.45
S96T002712	139:15	Drainable liquid	1.48	1.47	1.48
S96T003236	139:16R	Drainable liquid	1.4	1.4	1.4
S96T003545	139:17R	Drainable liquid	1.51	1.41	1.46
S96T002767	Core 132	Liquid composite	1.39	1.41	1.4

Table B2-61. Tank 241-AW-101 Analytical Results: Americium-241 (AEA).

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: fusion			**µCi/g**	**µCi/g**	**µCi/g**
S96T002734	Core 132	Solid composite	0.041	0.0441	0.0426
S96T002742		Solid composite	0.00123	<0.00122	<0.00123
S96T002750		Solid composite	0.0504	0.0457	0.048

Table B2-62. Tank 241-AW-101 Analytical Results: Cm-243/244 (AEA).

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: fusion			**µCi/g**	**µCi/g**	**µCi/g**
S96T002734	Core 132	Solid composite	<0.00366	<0.00365	<0.00366
S96T002742		Solid composite	<0.00116	<0.00122	<0.00119
S96T002750		Solid composite	<0.00422	<0.00403	<0.00413

Table B2-63. Tank 241-AW-101 Analytical Results: Total Alpha. (3 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids			µCi/mL	µCi/mL	µCi/mL
S96T001715	132:7	Drainable liquid	<0.0203	<0.0205	<0.0204
S96T002146	132:7R	Drainable liquid	<0.0167	<0.0819	<0.0493
S96T001747	132:9	Drainable liquid	<0.031	<0.0275	<0.0293
S96T001759	132:10	Drainable liquid	<4.42E-04	<7.99E-04	<6.21E-04
S96T001764		Drainable liquid	<0.0203	<0.0292	<0.0248
S96T001768	132:11	Drainable liquid	<0.00535	<0.0182	<0.0118
S96T001950	132:12	Drainable liquid	<0.0112	<0.0148	<0.013
S96T002028	132:13	Drainable liquid	<0.0165	<0.0116	<0.0141
S96T001960	132:14	Drainable liquid	<0.013	<0.0159	<0.0145
S96T001964	132:15	Drainable liquid	<0.0112	<0.00771	<0.00946
S96T001968	132:16	Drainable liquid	<0.0165	<0.0148	<0.0157
S96T002527	139:2	Drainable liquid	<0.00789	<0.00789	<0.00789
S96T002558	139:3	Drainable liquid	<0.00789	<0.00789	<0.00789
S96T002575	139:4	Drainable liquid	<0.00805	<0.00805	<0.00805
S96T002584	139:5	Drainable liquid	<0.00789	<0.00789	<0.00789
S96T002422	139:6	Drainable liquid	<0.00775	<0.00593	<0.00684
S96T002430	139:7	Drainable liquid	<0.00939	<0.011	<0.0102
S96T002439	139:8	Drainable liquid	<0.00902	<0.00902	<0.00902
S96T002454	139:9	Drainable liquid	0.00693	<0.0121	<0.00951[QC:e]
S96T002462	139:10	Drainable liquid	<0.00745	<0.00902	<0.00823
S96T002679	139:11	Drainable liquid	0.00524	<0.0132	<0.00922
S96T002687	139:12	Drainable liquid	1.01E-06	0.00815	0.00408
S96T002695	139:13	Drainable liquid	<0.0136	<0.0136	<0.0136
S96T002704	139:14	Drainable liquid	<0.0136	<0.0152	<0.0144
S96T002712	139:15	Drainable liquid	<0.0136	<0.0281	<0.0209
S96T003236	139:16R	Drainable liquid	0.0037	0.0104	0.00705[QC:e]
S96T003545	139:17R	Drainable liquid	<0.00471	<0.00621	<0.00546
S96T002767	Core 132	Liquid composite	<0.0114	<0.0114	<0.0114

Table B2-63. Tank 241-AW-101 Analytical Results: Total Alpha. (3 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: fusion			**µCi/g**	**µCi/g**	**µCi/g**
S96T000795	132:1	Lower half	0.0759	0.0796	0.0778
S96T000810	132:2	Lower half	0.0653	0.0457	0.0555[QC:e]
S96T000852	132:3	Upper half	<0.0193	<0.0149	<0.0171
S96T000853	132:4	Upper half	<0.0145	<0.00943	<0.012
S96T000850	132:5	Upper half	<0.00973	<0.0144	<0.0121
S96T001734	132:7	Upper half	0.0172	0.0438	0.0305[QC:e]
S96T002152	132:7R	Upper half	<0.00993	<0.0097	<0.00982
S96T001750	132:9	Upper half	<0.0149	<0.0171	<0.016
S96T001755	132:10	Upper half	<0.0294	<0.0222	<0.0258
S96T001771	132:11	Upper half	<0.0119	<0.0118	<0.0119
S96T001951	132:12	Upper half	<0.0055	0.00358	<0.00454
S96T002031	132:13	Upper half	<0.0115	<0.00762	<0.00956
S96T001961	132:14	Upper half	<0.0052	<0.00516	<0.00518
S96T001965	132:15	Lower half	<0.00699	<0.00476	<0.00588
S96T001969	132:16	Upper half	<0.0057	<0.00727	<0.00649
S96T001977	132:18	Lower half	0.123	0.0994	0.111[QC:f]
S96T001984	132:20	Lower half	0.141	0.185	0.163[QC:f]
S96T001991	132:22	Lower half	0.165	0.123	0.144[QC:f]
S96T002417	139:1	Upper half	0.0728	0.0602	0.0665
S96T002534	139:2	Subsegment C	0.0426	0.047	0.0448
S96T002561	139:3	Upper half	<0.0292	<0.0182	<0.0237
S96T002579	139:4	Upper half	<0.0106	<0.00782	<0.00921
S96T002596	139:5	Upper half	<0.0101	<0.00991	<0.01
S96T002425	139:6	Upper half	<0.00695	<0.00916	<0.00806
S96T002433	139:7	Upper half	0.00348	<0.00923	<0.00636
S96T002442	139:8	Upper half	<0.00404	<0.00476	<0.0044
S96T002457	139:9	Upper half	<0.00403	0.00592	<0.00498
S96T002465	139:10	Upper half	<3.80E-04	<7.07E-04	<5.43E-04
S96T002682	139:11	Upper half	<5.22E-04	<6.08E-04	<5.65E-04
S96T002690	139:12	Upper half	<5.43E-04	<6.24E-04	<5.84E-04

Table B2-63. Tank 241-AW-101 Analytical Results: Total Alpha. (3 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: fusion (Cont'd)			**µCi/g**	**µCi/g**	**µCi/g**
S96T002698	139:13	Upper half	<0.0043	<0.00333	<0.00382
S96T002707	139:14	Upper half	<0.00481	0.00322	<0.00402
S96T002715	139:15	Upper half	0.00409	<0.00396	<0.00403
S96T003239	139:16R	Lower half	<0.00355	<0.00599	<0.00477
S96T003520	139:16R1	Lower half	<0.00169	0.00284	<0.00227
S96T003534	139:16R2	Upper half	<0.00135	<0.00166	<0.00151
S96T003556	139:17R	Lower half	0.0826	0.0745	0.0786
S96T003565	139:19	Lower half	0.117	0.101	0.109
S96T003579	139:21	Lower half	0.0912	0.122	0.107
S96T002734	Core 132	Solid composite	0.101	0.0948	0.0979
S96T002742		Solid composite	0.00613	0.00914	0.00764
S96T002750		Solid composite	0.105	0.117	0.111

Table B2-64. Tank 241-AW-101 Analytical Results: Total Beta.

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids			**µCi/mL**	**µCi/mL**	**µCi/mL**
S96T002767	Core 132	Liquid composite	382	375	379[QC:f]
Solids: fusion			**µCi/g**	**µCi/g**	**µCi/g**
S96T002734	Core 132	Solid composite	346	321	334
S96T002742		Solid composite	265	273	269
S96T002750		Solid composite	370	376	373

Table B2-65. Tank 241-AW-101 Analytical Results: Americium-241.

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids			**µCi/mL**	**µCi/mL**	**µCi/mL**
S96T002767	Core 132	Liquid composite	2.89E-04	2.71E-04	2.80E-04

Table B2-66. Tank 241-AW-101 Analytical Results: Curium-243/244.

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids			**µCi/mL**	**µCi/mL**	**µCi/mL**
S96T002767	Core 132	Liquid composite	<3.81E-05	<3.74E-05	<3.77E-05

Table B2-67. Tank 241-AW-101 Analytical Results: Americium-241 (GEA).

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: fusion			**µCi/g**	**µCi/g**	**µCi/g**
S96T002734	Core 132	Solid composite	<0.207	<0.22	<0.213
S96T002742		Solid composite	<0.2	<0.192	<0.196
S96T002750		Solid composite	<0.224	<0.224	<0.224
Liquids			**µCi/mL**	**µCi/mL**	**µCi/mL**
S96T002767	Core 132	Liquid composite	<0.236	<0.236	<0.236

Table B2-68. Tank 241-AW-101 Analytical Results: Cesium-137 (GEA).

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: fusion			**µCi/g**	**µCi/g**	**µCi/g**
S96T002734	Core 132	Solid composite	262	264	263
S96T002742		Solid composite	280	274	277
S96T002750		Solid composite	266	269	267
Liquids			**µCi/mL**	**µCi/mL**	**µCi/mL**
S96T002767	Core 132	Liquid composite	476	471	474

Table B2-69. Tank 241-AW-101 Analytical Results: Cobalt-60 (GEA).

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: fusion			**µCi/g**	**µCi/g**	**µCi/g**
S96T002734	Core 132	Solid composite	<0.0478	<0.0551	<0.0514
S96T002742		Solid composite	<0.0392	<0.0402	<0.0397
S96T002750		Solid composite	<0.0504	<0.0561	<0.0533
Liquids			**µCi/mL**	**µCi/mL**	**µCi/mL**
S96T002767	Core 132	Liquid composite	<0.0207	<0.0232	<0.0219

Table B2-70. Tank 241-AW-101 Analytical Results: Europium-154 (GEA).

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: fusion			**µCi/g**	**µCi/g**	**µCi/g**
S96T002734	Core 132	Solid composite	<0.152	<0.185	<0.168
S96T002742		Solid composite	<0.0999	<0.134	<0.117
S96T002750		Solid composite	<0.168	<0.173	<0.171
Liquids			**µCi/mL**	**µCi/mL**	**µCi/mL**
S96T002767	Core 132	Liquid composite	<0.0633	<0.0653	<0.0643

Table B2-71. Tank 241-AW-101 Analytical Results: Europium-155 (GEA).

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: fusion			**µCi/g**	**µCi/g**	**µCi/g**
S96T002734	Core 132	Solid composite	<0.378	<0.398	<0.388
S96T002742		Solid composite	<0.369	<0.361	<0.365
S96T002750		Solid composite	<0.405	<0.41	<0.408
Liquids			**µCi/mL**	**µCi/mL**	**µCi/mL**
S96T002767	Core 132	Liquid composite	<0.449	<0.447	<0.448

Table B2-72. Tank 241-AW-101 Analytical Results: Iodine-129.

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: fusion			**µCi/g**	**µCi/g**	**µCi/g**
S96T002734	Core 132	Solid composite	<0.00545	<0.00642	<0.00594
S96T002742		Solid composite	<0.00588	<0.0097	<0.00779
S96T002750		Solid composite	<0.00476	<0.00473	<0.00475

Table B2-73. Tank 241-AW-101 Analytical Results: Plutonium-239/240.

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids			**µCi/g**	**µCi/g**	**µCi/g**
S96T002734	Core 132	Solid composite	0.0443	0.0476	0.046
S96T002742		Solid composite	<0.00136	<0.00134	<0.00135
S96T002750		Solid composite	0.0665	0.0707	0.0686
Liquids			**µCi/mL**	**µCi/mL**	**µCi/mL**
S96T002767	Core 132	Liquid composite	8.46E-04	8.54E-04	8.50E-04

Table B2-74. Tank 241-AW-101 Analytical Results: Tritium (Scintillation).

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids			**µCi/mL**	**µCi/mL**	**µCi/mL**
S96T002767	Core 132	Liquid composite	0.00481	0.00482	0.00482

Table B2-75. Tank 241-AW-101 Analytical Results: Strontium-89/90.

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: fusion			**µCi/g**	**µCi/g**	**µCi/g**
S96T002734	Core 132	Solid composite	32.3	33.3	32.8[QC:f]
S96T002742		Solid composite	0.222	0.367	0.295[QC:e]
S96T002750		Solid composite	52.2	52.4	52.3
Liquids			**µCi/mL**	**µCi/mL**	**µCi/mL**
S96T002767	Core 132	Liquid composite	0.0456	0.0394	0.0425

Table B2-76. Tank 241-AW-101 Analytical Results: Technetium-99.

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: fusion			**µCi/g**	**µCi/g**	**µCi/g**
S96T002734	Core 132	Solid composite	0.151	0.157	0.154[QC:f]
S96T002742		Solid composite	0.12	0.111	0.115[QC:f]
S96T002750		Solid composite	0.163	0.153	0.158[QC:f]
Liquids			**µCi/mL**	**µCi/mL**	**µCi/mL**
S96T002767	Core 132	Liquid composite	0.177	0.161	0.169

Table B2-77. Tank 241-AW-101 Analytical Results: Hexavalent Chromium (Cr+6).

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids			**µg/g**	**µg/g**	**µg/g**
S96T002767	Core 132	Liquid composite	43.4	47.5	45.4
Solids: water digest			**µg/g**	**µg/g**	**µg/g**
S96T002739	Core 132	Solid composite	161	148	155
S96T002744		Solid composite	67.8	14.9	41.4[QC:e]
S96T002752		Solid composite	92.4	87	89.7

Table B2-78. Tank 241-AW-101 Analytical Results: Total Inorganic Carbon (TIC).

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids			**µg/g**	**µg/g**	**µg/g**
S96T002432	139:7	Upper half	1,080	1,320	1,250[QC:d,e]
S96T003585	139:21	Upper half	8,830	8,300	8,570
S96T002732	Core 132	Solid composite	6,950	6,830	6,890
S96T002741		Solid composite	1,530	1,680	1,610[QC:d]
S96T002749		Solid composite	10,600	10,400	10,500
Liquids			**µg/g**	**µg/g**	**µg/g**
S96T002767	Core 132	Liquid composite	1,080	1,140	1,110[QC:f]

Table B2-79. Tank 241-AW-101 Analytical Results: Total Organic Carbon.

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids			**µg/g**	**µg/g**	**µg/g**
S96T002432	139:7	Upper half	1,260	1,620	1,460[QC:e]
S96T003585	139:21	Upper half	5,130	5,170	5,150
S96T002732	Core 132	Solid composite	4,900	4,880	4,890
S96T002741		Solid composite	2,320	2,500	2,410
S96T002749		Solid composite	4,870	4,200	4,540
Liquids			**µg/g**	**µg/g**	**µg/g**
S96T000806	132:2	Drainable liquid	1,900	2,140	2,020[QC:f]
S96T000821	132:3	Drainable liquid	1,960	2,040	2,000[QC:f]
S96T000830	132:4	Drainable liquid	2,180	2,160	2,170
S96T000845	132:5	Drainable liquid	2,130	2,070	2,100
S96T002767	Core 132	Liquid composite	2,240	2,060	2,150[QC:f]

B3.0 ASSESSMENT OF CHARACTERIZATION RESULTS

This section discusses the overall quality and consistency of the current sampling results for tank 241-AW-101. This section also evaluates sampling and analysis factors that may impact data interpretation. These factors are used to assess overall data quality and consistency and to identify limitations in data use.

B3.1 FIELD OBSERVATIONS

Two cores, 22 segments each, were expected from tank 241-AW-101 during the 1996 core sampling event. All segments were obtained. However, some segment levels were sampled repeatedly because of the large sample amounts that were required. Segments were reserved for retained gas sampling were not subject to analytical testing.

B3.2 QUALITY CONTROL ASSESSMENT

The usual QC assessment includes an evaluation of the appropriate standard recoveries, spike recoveries, duplicate analyses, and blanks performed in conjunction with the chemical analyses. All pertinent QC tests were conducted on the 1996 core samples, allowing a full assessment regarding the accuracy and precision of the data. Benar (1996) established specific criteria for all analytes. Sample and duplicate pairs that had one or more QC results outside the specified criteria were identified by footnotes in the data summary tables.

The standard and spike recovery results provide an estimate of analysis accuracy. If a standard or spike recovery is above or below the given criterion, the analytical results may be biased high or low, respectively. The precision is estimated by the relative percent difference (RPD), which is defined as the absolute value of the difference between the primary and duplicate samples, divided by their mean, times 100.

Eighteen solid samples were retested because of failures with percent standard recovery, percent spike recovery, and RPD values. Although most samples improved, a few did not. No additional testing was requested because all sample and duplicate results, as well as the upper limits to the one-sided 95 percent confidence interval, were well below the notification limit.

Many samples exhibited RPDs greater than 15 percent. Analytes that had more than three RPD failures or poor spike recoveries were boron, calcium, silicon, potassium, iron, chromium, and aluminum. Reruns were performed on solid samples from core 132, segment levels 1, 2, 3, 4, 5, 7 and from core 139, segment levels 1, 2, 3, 4, 13, 14, 15, 19, 21. The waste samples contain large amounts of potassium, aluminum, and sodium, which may have contributed to the poor spike recovery values for these constituents. Finally, no sample exceeded the criterion for preparation blanks; therefore, contamination was not a problem.

In summary, the vast majority of QC results were within the boundaries specified in the sampling and analysis plans (SAPs). The discrepancies mentioned here and footnoted in the data summary tables should not impact data validity or use.

B3.3 DATA CONSISTENCY CHECKS

Comparing different analytical methods for the same analyte can help to assess the consistency and quality of the data. A comparison was made of phosphorous and sulfur as analyzed by ICP with phosphate and sulfate as analyzed by IC. In addition, mass and charge balances were calculated to help assess the overall data consistency.

B3.3.1 Comparison of Results from Different Analytical Methods

The following data consistency checks compare the results from two analytical methods. Agreement between the two methods strengthens the credibility of both results, but poor agreement brings the reliability of the data into question. All analytical mean results were taken from Section B2.0 tables.

The analytical phosphorous mean result as determined by ICP was 1,120 μg/g which converts to 3,432 μg/g of phosphate. The IC phosphate mean result was 2,810 μg/g. The ratio between the two methods was 1.2 (see Table B3-1). This suggests that the phoshate is not entirely soluble.

The analytical sulfur mean result as determined by ICP was 1,100 μg/g which converts to 3,300 μg/g of sulfate. This compares well with the IC sulfate mean result of 3,370 μg/g (see Table B3-1) and suggests the sulfate is entirely soluble.

Table B3-1. Tank 241-AW-101 Comparison of Phosphorus and Sulfur Concentrations with the Equivalent Concentrations of Phosphate and Sulfate.

Analyte	Overall Mean (μg/g)
Measured mean phosphate concentration by IC	2,810
Phosphate concentration from phosphorus by ICP	3,432
Ratio	1.2
Measured mean sulfate concentration by IC	3,370
Sulfate concentration from sulfur by ICP	3,300
Ratio	1.02

B3.3.2 Mass and Charge Balance

The principal objective in performing mass and charge balances is to determine whether measurements are consistent. In calculating the balances, only the analytes listed in Section B2.0, which were detected at a concentration of 1,000 μg/g or greater, were considered.

Except for sodium, all cations listed in Table B3-2 were assumed to be in their most common hydroxide or oxide form, and the concentrations of the assumed species were calculated stoichiometrically. Because precipitates are neutral species, all positive charge was attributed to the sodium and potassium cations. The anions listed in Table B3-3 were assumed to be present as sodium or potassium salts and were expected to balance the positive charge

exhibited by the cations. Phosphate and sulfate, as determined by IC, were assumed to be completely water soluble and appear only in the anion mass and charge calculations. The concentrations of cationic species in Table B3-2, the anionic species in Table B3-3, and the percent water were ultimately used to calculate the mass balance (see Table B3-4).

The mass balance was calculated from the formula below. The factor 0.0001 is the conversion factor from μg/g to weight percent.

$$\text{Mass balance} = \%\ \text{Water} + 0.0001 \times \{\text{total analyte concentration}\}$$
$$= \%\ \text{Water} + 0.0001 \times \{Al(OH)_3 + K^+ + Na^+ + F^- + NO_3^- + PO_4^{-3} + Cl^- + NO_2^- + SO_4^{-2} + C_2H_3O_2^- + CO_3^{-2}$$

The total analyte concentrations calculated from the above equation is 504,820 μg/g. The mean weight percent water (see Section B3.4) is 45.6 percent or 456,000 μg/g. The mass balance resulting from adding the percent water to the total analyte concentration is 96 percent.

The following equations demonstrate the derivation of total cations and total anions; the charge balance is the ratio of these two values.

<u>Total cations</u> (μeq/g) = $[Na^+]/23.0 + [K+]/39.1 = 7{,}593\ \mu eq/g$

<u>Total anions</u> (μeq/g) = $[F^-]/19.0 + [NO_3^-]/62.0 + [PO_4^{-3}]/31.7 + [Cl^-]/35.5 + [NO_2^-]/46 + [SO_4^{-2}]/48.1 + [C_2H_3O_2^-]/59.0 + [CO_3^{-2}]/30.0 + [C_2O_4^{-2}]/44 = 5{,}769\ \mu eq/g$

The charge balance obtained by dividing the sum of the positive charge by the sum of the negative charge was 1.32. Assuming hydroxide is the primary analyte not accounted for by the mass and charge balance, the total hydroxide concentration would be 31,000 μg/g with a negative charge of 1,824, a net charge balance ratio of 1.00, and a mass balance of 99 percent.

In summary, the above calculations yield reasonable mass and charge balance values (close to 1.00 for charge balance and 100 percent for mass balance), indicating the analytical results are generally consistent.

Table B3-2. Cation Mass and Charge Data.

Analyte	Concentration (μg/g)	Assumed Species	Concentration of Assumed Species (μg/g)	Charge (μeq/g)
Aluminum	16,700	$Al(OH)_3$	48,240	0
Sodium	161,000	Na^+	161,000	7,000
Potassium	23,200	K^+	23,200	593
Total			232,440	7,593

Table B3-3. Anion Mass and Charge Data.

Analyte	Concentration (μg/g)	Assumed Species	Concentration of Assumed Species (μg/g)	Charge (μeq/g)
TOC	3,950	$C_2H_3O_2^-$	9,710	165
TIC	6,330	CO_3^{-2}	31,650	1,055
Fluoride	2,340	F^-	2,340	123
Nitrate	141,000	NO_3^-	141,000	2,274
Nitrite	69,000	NO_2^-	69,000	1,500
Phosphate	3,432	PO_4^{-3}	3,430	108
Sulfate	3,370	SO_4^{-2}	3,370	70.1
Chloride	3,830	Cl^-	3,830	108
Oxalate	8,050	$C_2O_4^{-2}$	8,050	366
Total			272,380	-5,769

Table B3-4. Mass and Charge Balance Totals.

Totals	Concentrations (μg/g)	Charge (μeq/g)
Total from Table B3-2 (cations)	232,440	+7,593
Total from Table B3-3 (anions)	272,380	-5,769
Water percent	456,000	0
Total	960,820	+1,824

B3.4 MEAN CONCENTRATIONS AND CONFIDENCE INTERVALS

B3.4.1 Solid Data

A nested analysis of variance (ANOVA) model was fit to the solid segment data. Mean values, and 95 percent confidence intervals on the mean, were determined from the ANOVA. Four variance components were used in the calculations. The variance components represent concentration differences between core samples, segments, laboratory samples, and analytical replicates. The model that was fit to the solid segment data was:

$$Y_{ijkm} = \mu + C_i + S_{ij} + L_{ijk} + A_{ijkm},$$

$$i=1,2,\ldots,a;\ j=1,2,\ldots,b_i;\ k=1,2,\ldots,c_{ij};m=1,2,\ldots,n_{ijk}$$

where

Y_{ijkm}	=	concentration from the mth analytical result of the kth sample of the jth segment of the ith riser
μ	=	the mean
C_i	=	the effect of the ith core
S_{ij}	=	the effect of the jth segment from the ith core
L_{ijk}	=	the effect of the kth sample from the jth segment of the ith core
A_{ijkm}	=	the analytical error
a	=	the number of core samples
b_i	=	the number of segments from the ith core
c_{ij}	=	the number of samples from the jth segment of the ith core
n_{ijk}	=	the number of analytical results from the ijk^{th} sample.

The variables C_i, S_{ij}, and L_{ijk} are random effects. These variables, as well as A_{ijkm}, are assumed to be uncorrelated and normally distributed with means zero and variances $\sigma^2(C)$, $\sigma^2(S)$, $\sigma^2(L)$ and $\sigma^2(A)$, respectively.

The restricted maximum likelihood method (REML) was used to estimate the mean concentration and standard deviation of the mean for all analytes that had 50 percent or more of their reported values greater than the detection limit. The mean value and standard

deviation of the mean were used to calculate the 95 percent confidence intervals. Table B3-5 gives the mean, degrees of freedom, and confidence interval for each constituent.

Some analytes had results that were below the detection limit. In these cases the value of the detection limit was used for non-detected results. For analytes with a majority of results below the detection limit, a simple average is all that is reported.

The lower and upper limits, LL(95%) and UL(95%), of a two-sided 95 percent confidence interval on the mean were calculated using the following equation:

The lower limits (LL) (95 percent) and upper limits (UL) (95 percent), of a two-sided 95 percent confidence interval on the mean were calculated using the following equation:

$$LL(95\%) = \hat{\mu} - t_{(df,\,0.025)} \times \hat{\sigma}(\hat{\mu}),$$
$$UL(95\%) = \hat{\mu} + t_{(df,\,0.025)} \times \hat{\sigma}(\hat{\mu}).$$

In this equation, $\hat{\mu}$ is the REML estimate of the mean concentration, $\hat{\sigma}(\hat{\mu})$ is the REML estimate of the standard deviation of the mean, and $t_{(df,\ 0.025)}$ is the quantile from Student's t distribution with *df* degrees of freedom. The degrees of freedom equals the number of risers with data minus one. In cases where the LL of the confidence interval was negative, it is reported as zero.

Table B3-5. Tank 241-AW-101 95 Percent Two-Sided Confidence Interval for the Mean Concentration for Solid Subdivision Data. (2 sheets)

Analyte	Method	Mean	df	LL	UL	Units
Aluminum	ICP:A	1.30E+04	1	0.00E+00	3.40E+04	μg/g
Antimony[1]	ICP:A	<2.88E+01	n/a	n/a	n/a	μg/g
Arsenic[1]	ICP:A	<4.53E+01	n/a	n/a	n/a	μg/g
Barium[1]	ICP:A	<2.26E+01	n/a	n/a	n/a	μg/g
Beryllium[1]	ICP:A	<2.26E+00	n/a	n/a	n/a	μg/g
Bismuth[1]	ICP:A	<4.53E+01	n/a	n/a	n/a	μg/g
Boron	ICP:A	1.13E+02	1	3.09E+01	1.96E+02	μg/g
Bromide[1]	IC:W	<7.83E+02	n/a	n/a	n/a	μg/g
Bulk density	Bulk density	1.61E+00	1	1.27E+00	1.95E+00	g/mL
Cadmium[1]	ICP:A	<4.81E+00	n/a	n/a	n/a	μg/g
Calcium[1]	ICP:A	1.65E+02	1	0.00E+00	5.43E+02	μg/g
Cerium[1]	ICP:A	<4.53E+01	n/a	n/a	n/a	μg/g
Chromium	ICP:A	1.69E+02	1	0.00E+00	5.97E+02	μg/g
Cobalt[1]	ICP:A	<9.05E+00	n/a	n/a	n/a	μg/g

Table B3-5. Tank 241-AW-101 95 Percent Two-Sided Confidence Interval for the Mean Concentration for Solid Subdivision Data. (2 sheets)

Analyte	Method	Mean	df	LL	UL	Units
Copper[1]	ICP:A	9.00E+00	1	0.00E+00	3.20E+01	μg/g
Gross alpha[1]	Alpha:F	<3.11E-02	n/a	n/a	n/a	μCi/g
Iron[1]	ICP:A	2.45E+02	1	0.00E+00	1.74E+03	μg/g
Lanthanum[1]	ICP:A	<2.26E+01	n/a	n/a	n/a	μg/g
Lead[1]	ICP:A	<1.49E+02	n/a	n/a	n/a	μg/g
Lithium[1]	ICP:A	8.09E+01	1	0.00E+00	9.22E+02	μg/g
Magnesium[1]	ICP:A	<6.99E+01	n/a	n/a	n/a	μg/g
Manganese[1]	ICP:A	9.46E+01	1	0.00E+00	4.35E+02	μg/g
Molybdenum[1]	ICP:A	2.83E+01	1	0.00E+00	6.42E+01	μg/g
Neodymium[1]	ICP:A	<4.53E+01	n/a	n/a	n/a	μg/g
Nickel[1]	ICP:A	2.00E+01	1	0.00E+00	6.05E+01	μg/g
Percent H_2O	DSC/TGA	4.07E+01	1	2.32E+01	5.81E+01	%
Phosphorus	ICP:A	9.73E+02	1	0.00E+00	2.25E+03	μg/g
Potassium	ICP:A	4.96E+04	1	0.00E+00	1.38E+05	μg/g
Samarium[1]	ICP:A	<4.53E+01	n/a	n/a	n/a	μg/g
Selenium[1]	ICP:A	<4.82E+01	n/a	n/a	n/a	μg/g
Silicon	ICP:A	3.77E+02	1	3.55E+01	7.20E+02	μg/g
Silver	ICP:A	1.59E+01	1	0.00E+00	3.46E+01	μg/g
Sodium	ICP:A	1.63E+05	1	1.21E+05	2.05E+05	μg/g
Strontium[1]	ICP:A	<4.84E+00	n/a	n/a	n/a	μg/g
Sulfur	ICP:A	5.68E+02	1	0.00E+00	2.07E+03	μg/g
Thallium[1]	ICP:A	<9.05E+01	n/a	n/a	n/a	μg/g
Titanium[1]	ICP:A	<4.75E+00	n/a	n/a	n/a	μg/g
Total inorganic carbon	TIC/TOC	4.91E+03	1	0.00E+00	5.14E+04	μg/g
Total organic carbon	TIC/TOC	3.31E+03	1	0.00E+00	2.67E+04	μg/g
Uranium[1]	ICP:A	<7.01E+02	n/a	n/a	n/a	μg/g
Vanadium[1]	ICP:A	<2.26E+01	n/a	n/a	n/a	μg/g
Zinc	ICP:A	3.50E+01	1	0.00E+00	1.45E+02	μg/g
Zirconium[1]	ICP:A	2.79E+01	1	0.00E+00	1.13E+02	μg/g

Note:

[1]A "less than" value was used in the calculation.

The following ANOVA was fit to the solid core composite data:

$$Y_{ijk} = \mu + L_i + A_{ij},$$

$$i=1,2,\ldots,a;\ j=1,2,\ldots,n_i;$$

where

Y_{ij}	=	concentration from the jth analytical result of the ith sample
μ	=	the mean
L_i	=	the effect of the ith laboratory sample
A_{ij}	=	the analytical error.

The variables L_i is a random effect, L_i and A_{ij} are normally distributed with means zero and variances $\sigma^2(L)$ and $\sigma^2(A)$, respectively. The degrees of freedom, *df*, associated with the standard deviation of the mean is the number of laboratory samples minus one. Table B3-6 gives the mean, degrees of freedom, and confidence intervals for each constituent.

Table B3-6. Tank 241-AW-101 95 Percent Two-Sided Confidence Interval for the Mean Concentration for Solid Core Composite Data. (3 sheets)

Analyte	Method	Mean	df	LL	UL	Units
Aluminum	ICP:A	1.67E+04	2	1.40E+04	1.94E+04	µg/g
Americium-241[1]	AEA:F	3.06E-02	2	0.00E+00	9.42E-02	µCi/g
Americium-241[1]	GEA:F	<2.11E-01	n/a	n/a	n/a	µCi/g
Antimony[1]	ICP:A	<2.31E+01	n/a	n/a	n/a	µg/g
Arsenic[1]	ICP:A	<3.84E+01	n/a	n/a	n/a	µg/g
Barium[1]	ICP:A	<1.92E+01	n/a	n/a	n/a	µg/g
Beryllium[1]	ICP:A	<1.92E+00	n/a	n/a	n/a	µg/g
Bismuth[1]	ICP:A	<3.84E+01	n/a	n/a	n/a	µg/g
Boron	ICP:A	1.16E+02	2	8.38E+01	1.49E+02	µg/g
Bromide[1]	IC:W	<5.34E+02	n/a	n/a	n/a	µg/g
Bulk density	Bulk density	1.63E+00	2	1.50E+00	1.75E+00	g/mL
Cadmium[1]	ICP:A	6.36E+00	2	0.00E+00	1.60E+01	µg/g
Calcium	ICP:A	2.48E+02	2	0.00E+00	6.90E+02	µg/g
Cerium[1]	ICP:A	<3.84E+01	n/a	n/a	n/a	µg/g
Cesium-137	GEA:F	2.69E+02	2	2.51E+02	2.87E+02	µCi/g
Chloride	IC:W	3.83E+03	2	3.06E+03	4.60E+03	µg/g

Table B3-6. Tank 241-AW-101 95 Percent Two-Sided Confidence Interval for the Mean Concentration for Solid Core Composite Data. (3 sheets)

Analyte	Method	Mean	df	LL	UL	Units
Chromium	ICP:A	3.62E+02	2	0.00E+00	9.93E+02	μg/g
Cobalt[1]	ICP:A	<7.69E+00	n/a	n/a	n/a	μg/g
Cobalt-60[1]	GEA:F	<4.81E-02	n/a	n/a	n/a	μCi/g
Copper[1]	ICP:A	6.36E+00	2	9.34E-01	1.18E+01	μg/g
Curium-243/244[1]	AEA:F	<2.99E-03	n/a	n/a	n/a	μCi/g
Europium-154[1]	GEA:F	<1.52E-01	n/a	n/a	n/a	μCi/g
Europium-155[1]	GEA:F	<3.87E-01	n/a	n/a	n/a	μCi/g
Fluoride	IC:W	2.34E+03	2	0.00E+00	7.01E+03	μg/g
Gross alpha[1]	Alpha:F	7.22E-02	2	0.00E+00	2.12E-01	μCi/g
Gross beta	Alpha:F	3.25E+02	2	1.95E+02	4.56E+02	μCi/g
Hexavalent chromium	Cr+6:W	9.52E+01	2	0.00E+00	2.36E+02	μg/g
Iodine-129[1]	I129:F	<6.16E-03	n/a	n/a	n/a	μCi/g
Iron	ICP:A	3.52E+02	2	0.00E+00	9.88E+02	μg/g
Lanthanum[1]	ICP:A	<1.92E+01	n/a	n/a	n/a	μg/g
Lead[1]	ICP:A	4.27E+01	2	3.39E+01	5.14E+01	μg/g
Lithium[1]	ICP:A	6.07E+00	2	0.00E+00	1.28E+01	μg/g
Magnesium[1]	ICP:A	6.23E+01	2	2.42E+00	1.22E+02	μg/g
Manganese[1]	ICP:A	2.40E+02	2	0.00E+00	7.65E+02	μg/g
Molybdenum	ICP:A	3.59E+01	2	2.89E+01	4.29E+01	μg/g
Neodymium[1]	ICP:A	<3.84E+01	n/a	n/a	n/a	μg/g
Nickel[1]	ICP:A	3.50E+01	2	0.00E+00	9.22E+01	μg/g
Nitrate	IC:W	1.41E+05	2	9.05E+04	1.91E+05	μg/g
Nitrite	IC:W	6.90E+04	2	6.06E+04	7.75E+04	μg/g
Oxalate[1]	IC:W	8.05E+03	2	0.00E+00	2.45E+04	μg/g
Percent H_2O	DSC/TGA	4.56E+01	2	4.11E+01	5.01E+01	%
Phosphate	IC:W	2.81E+03	2	0.00E+00	7.16E+03	μg/g
Phosphorus	ICP:A	1.12E+03	2	0.00E+00	2.70E+03	μg/g
Plutonium-239/240[1]	PU239/240	3.86E-02	2	0.00E+00	1.24E-01	μCi/g
Potassium	ICP:A	2.32E+04	2	1.57E+04	3.06E+04	μg/g
Samarium[1]	ICP:A	<3.84E+01	n/a	n/a	n/a	μg/g
Selenium[1]	ICP:A	<3.84E+01	n/a	n/a	n/a	μg/g

Table B3-6. Tank 241-AW-101 95 Percent Two-Sided Confidence Interval for the Mean Concentration for Solid Core Composite Data. (3 sheets)

Analyte	Method	Mean	df	LL	UL	Units
Silicon	ICP:A	4.61E+02	2	2.02E+02	7.20E+02	μg/g
Silver	ICP:A	2.32E+01	2	0.00E+00	5.06E+01	μg/g
Sodium	ICP:A	1.61E+05	2	1.38E+05	1.84E+05	μg/g
Strontium[1]	ICP:A	4.63E+00	2	2.27E+00	7.00E+00	μg/g
Strontium-89/90	Sr:F	2.85E+01	2	0.00E+00	9.37E+01	μCi/g
Sulfate[1]	IC:W	3.37E+03	2	0.00E+00	9.82E+03	μg/g
Sulfur	ICP:A	1.10E+03	2	0.00E+00	2.99E+03	μg/g
Technetium-99	Te:F	1.43E-01	2	8.42E-02	2.01E-01	μCi/g
Thallium[1]	ICP:A	<7.69E+01	n/a	n/a	n/a	μg/g
Titanium[1]	ICP:A	<5.36E+00	n/a	n/a	n/a	μg/g
Total inorganic carbon	TIC/TOC	6.33E+03	2	0.00E+00	1.74E+04	μg/g
Total organic carbon	TIC/TOC	3.95E+03	2	6.13E+02	7.28E+03	μg/g
Uranium[1]	ICP:A	1.10E+03	2	0.00E+00	3.17E+03	μg/g
Uranium	U:F	9.82E+02	2	0.00E+00	2.98E+03	μg/g
Vanadium[1]	ICP:A	<1.92E+01	n/a	n/a	n/a	μg/g
Zinc	ICP:A	1.90E+01	2	1.49E+01	2.31E+01	μg/g
Zirconium	ICP:A	7.18E+01	2	0.00E+00	2.12E+02	μg/g

Note:

[1]A "less than" value was used in the calculation.

B3.4.2 Liquid Data

A nested ANOVA model was fit to the liquid segment data. The model determined the mean value and 95 percent confidence interval for each constituent (Table B3-7). Three variance components were used in the calculations. The variance components represent concentration differences between samples taken from different cores, between segments within each core, and between analytical replicates. The model is:

$$Y_{ijk} = \mu + C_i + S_{ij} + A_{ijk},$$

$$i=1,2,\ldots,a;\ j=1,2,\ldots,n_i;$$

where:

Y_{ijk} = concentration from the kth analytical result of the jth segment from the ith core

μ = the mean

C_i = the effect of the ith core

S_{ij} = the effect of the ij^{th} segment

a = the number of core samples

b_i = the number of segments from the ith core

n_{ij} = the number of analytical results from the ij^{th} segment.

The variables C_i and Sij are random effects. The *df* associated with the standard deviation of the mean is the number of cores with data missing. These variables, along with A_{ijk}, are assumed to be uncorrelated and normally distributed with means zero and variances $\sigma^2(C)$, $\sigma^2(S)$, and $\sigma^2(A)$ respectively.

Table B3-7. Tank 241-AW-101 95 Percent Two-Sided Confidence Interval for the Mean Concentration for Liquid Subdivision Data. (2 sheets)

Analyte	Method	Mean	df	LL	UL	Units
Aluminum	ICP	3.18E+04	1	2.56E+04	3.81E+04	μg/mL
Antimony[1]	ICP	<6.49E+01	n/a	n/a	n/a	μg/mL
Arsenic[1]	ICP	<1.08E+02	n/a	n/a	n/a	μg/mL
Barium[1]	ICP	<5.41E+01	n/a	n/a	n/a	μg/mL
Beryllium[1]	ICP	<5.40E+00	n/a	n/a	n/a	μg/mL
Bismuth[1]	ICP	<1.08E+02	n/a	n/a	n/a	μg/mL
Boron[1]	ICP	<6.18E+01	n/a	n/a	n/a	μg/mL
Bromide[1]	IC	<6.32E+02	n/a	n/a	n/a	μg/mL
Cadmium[1]	ICP	<5.45E+00	n/a	n/a	n/a	μg/mL
Calcium[1]	ICP	<1.08E+02	n/a	n/a	n/a	μg/mL
Cerium[1]	ICP	<1.08E+02	n/a	n/a	n/a	μg/mL
Chromium	ICP	1.14E+02	1	6.97E+01	1.58E+02	μg/mL
Cobalt[1]	ICP	<2.16E+01	n/a	n/a	n/a	μg/mL

Table B3-7. Tank 241-AW-101 95 Percent Two-Sided Confidence Interval for the Mean Concentration for Liquid Subdivision Data. (2 sheets)

Analyte	Method	Mean	df	LL	UL	Units
Copper[1]	ICP	<1.08E+01	n/a	n/a	n/a	μg/mL
Gross alpha[1]	Alpha radiation	<1.33E-02	n/a	n/a	n/a	μCi/mL
Iron[1]	ICP	<5.41E+01	n/a	n/a	n/a	μg/mL
Lanthanum[1]	ICP	<5.41E+01	n/a	n/a	n/a	μg/mL
Lead[1]	ICP	<1.08E+02	n/a	n/a	n/a	μg/mL
Lithium[1]	ICP	<1.17E+01	n/a	n/a	n/a	μg/mL
Magnesium[1]	ICP	<1.08E+02	n/a	n/a	n/a	μg/mL
Manganese[1]	ICP	<1.08E+01	n/a	n/a	n/a	μg/mL
Molybdenum[1]	ICP	6.44E+01	1	5.61E+01	7.27E+01	μg/mL
Neodymium[1]	ICP	<1.08E+02	n/a	n/a	n/a	μg/mL
Nickel[1]	ICP	<2.18E+01	n/a	n/a	n/a	μg/mL
Percent H2O	DSC/TGA	4.89E+01	1	3.93E+01	5.84E+01	%
Phosphorus[1]	ICP	2.53E+02	1	2.14E+02	2.93E+02	μg/mL
Potassium	ICP	3.62E+04	1	2.98E+04	4.25E+04	μg/mL
Samarium[1]	ICP	<1.08E+02	n/a	n/a	n/a	μg/mL
Selenium[1]	ICP	<1.08E+02	n/a	n/a	n/a	μg/mL
Silicon	ICP	2.39E+02	1	0.00E+00	5.78E+02	μg/mL
Silver[1]	ICP	<1.34E+01	n/a	n/a	n/a	μg/mL
Sodium	ICP	2.52E+05	1	2.29E+05	2.76E+05	μg/mL
Specific gravity	Specific gravity	1.44E+00	1	1.20E+00	1.69E+00	Unitless
Strontium[1]	ICP	<1.08E+01	n/a	n/a	n/a	μg/mL
Sulfur	ICP	4.33E+02	1	2.70E+02	5.96E+02	μg/mL
Thallium[1]	ICP	<2.16E+02	n/a	n/a	n/a	μg/mL
Titanium[1]	ICP	<1.08E+01	n/a	n/a	n/a	μg/mL
TOC	TIC/TOC	3.32E+03	3	3.12E+03	3.51E+03	μg/mL
Uranium[1]	ICP	<5.40E+02	n/a	n/a	n/a	μg/mL
Vanadium[1]	ICP	<5.41E+01	n/a	n/a	n/a	μg/mL
Zinc[1]	ICP	<1.67E+01	n/a	n/a	n/a	μg/mL
Zirconium[1]	ICP	1.54E+01	1	0.00E+00	3.16E+01	μg/mL

Note:

[1]A "less than" value was used in the calculation.

The ANOVA model fit to the liquid composite data had the following form:

$$Y_i = \mu + A_i ,$$
$$i = 1,2,\ldots,n;$$

where A_i is normally distributed with mean zero and variance $\sigma^2(A)$. The *df* associated with the standard deviation of the mean is the number of analytical results minus one. Table B3-8 gives the mean, degrees of freedom, and confidence interval for each constituent.

Table B3-8. Tank 241-AW-101 95 Percent Two-Sided Confidence Interval for the Mean Concentration for Liquid Core Composite Data. (3 sheets)

Analyte	Method	Mean	df	LL	UL	Units
Aluminum	ICP	3.21E+04	1	1.32E+04	5.09E+04	μg/mL
Americium-241	Am-241	2.80E-04	1	1.18E-04	4.42E-04	μCi/mL
Americium-241[1]	GEA	<2.36E-01	n/a	n/a	n/a	μCi/mL
Antimony[1]	ICP	<7.21E+01	n/a	n/a	n/a	μg/mL
Arsenic[1]	ICP	<1.20E+02	n/a	n/a	n/a	μg/mL
Barium[1]	ICP	<6.01E+01	n/a	n/a	n/a	μg/mL
Beryllium[1]	ICP	<6.00E+00	n/a	n/a	n/a	μg/mL
Bismuth[1]	ICP	<1.20E+02	n/a	n/a	n/a	μg/mL
Boron[1]	ICP	<6.01E+01	n/a	n/a	n/a	μg/mL
Bromide[1]	IC	<6.49E+02	n/a	n/a	n/a	μg/mL
Cadmium[1]	ICP	<6.00E+00	n/a	n/a	n/a	μg/mL
Calcium[1]	ICP	<1.20E+02	n/a	n/a	n/a	μg/mL
Cerium[1]	ICP	<1.20E+02	n/a	n/a	n/a	μg/mL
Cesium-137	GEA	4.74E+02	1	4.29E+02	5.18E+02	μCi/mL
Chloride	IC	5.10E+03	1	4.67E+03	5.54E+03	μg/mL
Chromium	ICP	1.11E+02	1	3.19E+00	2.19E+02	μg/mL
Cobalt[1]	ICP	<2.40E+01	n/a	n/a	n/a	μg/mL
Cobalt-60[1]	GEA	<2.19E-02	n/a	n/a	n/a	μCi/mL
Copper[1]	ICP	<1.20E+01	n/a	n/a	n/a	μg/mL
Curium-243/244[1]	Am-241	<3.77E-05	n/a	n/a	n/a	μCi/mL
Europium-154[1]	GEA	<6.43E-02	n/a	n/a	n/a	μCi/mL
Europium-155[1]	GEA	<4.48E-01	n/a	n/a	n/a	μCi/mL
Fluoride[1]	IC	<6.70E+01	n/a	n/a	n/a	μg/mL

Table B3-8. Tank 241-AW-101 95 Percent Two-Sided Confidence Interval for the Mean Concentration for Liquid Core Composite Data. (3 sheets)

Analyte	Method	Mean	df	LL	UL	Units
Gross alpha[1]	Alpha radiation	<1.14E-02	n/a	n/a	n/a	μCi/mL
Gross beta	Alpha radiation	3.79E+02	1	3.16E+02	4.41E+02	μCi/mL
Hexavalent chromium	Cr+6	7.27E+01	1	1.34E+01	1.32E+02	μg/mL
Iron[1]	ICP	<6.01E+01	n/a	n/a	n/a	μg/mL
Lanthanum[1]	ICP	<6.01E+01	n/a	n/a	n/a	μg/mL
Lead[1]	ICP	<1.20E+02	n/a	n/a	n/a	μg/mL
Lithium[1]	ICP	<1.20E+01	n/a	n/a	n/a	μg/mL
Magnesium[1]	ICP	<1.20E+02	n/a	n/a	n/a	μg/mL
Manganese[1]	ICP	<1.20E+01	n/a	n/a	n/a	μg/mL
Molybdenum	ICP	6.21E+01	1	3.16E+01	9.26E+01	μg/mL
Neodymium[1]	ICP	<1.20E+02	n/a	n/a	n/a	μg/mL
Nickel[1]	ICP	<2.40E+01	n/a	n/a	n/a	μg/mL
Nitrate	IC	1.57E+05	1	1.49E+05	1.64E+0	μg/mL
Nitrite	IC	9.87E+04	1	9.72E+04	1.00E+05	μg/mL
Oxalate[1]	IC	<5.41E+02	n/a	n/a	n/a	μg/mL
Percent H_2O	DSC/TGA	4.98E+01	1	4.83E+01	5.14E+01	%
Phosphate[1]	IC	<6.12E+02	n/a	n/a	n/a	μg/mL
Phosphorus[1]	ICP	<2.40E+02	n/a	n/a	n/a	μg/mL
Plutonium-239/240	PU239/240	8.50E-04	1	7.78E-04	9.22E-04	μCi/mL
Potassium	ICP	3.54E+04	1	1.56E+04	5.52E+04	μg/mL
Samarium[1]	ICP	<1.20E+02	n/a	n/a	n/a	μg/mL
Selenium[1]	ICP	<1.20E+02	n/a	n/a	n/a	μg/mL
Silicon	ICP	1.96E+02	1	7.87E+01	3.12E+0	μg/mL
Silver[1]	ICP	<1.20E+01	n/a	n/a	n/a	μg/mL
Sodium	ICP	2.49E+05	1	9.58E+04	4.01E+05	μg/mL
Specific gravity	Specific gravity	1.40E+00	1	1.23E+00	1.57E+00	Unitless
Strontium[1]	ICP	<1.20E+01	n/a	n/a	n/a	μg/mL
Strontium-89/90	Sr	4.25E-02	1	0.00E+00	9.82E-02	μCi/mL
Sulfate[1]	IC	<7.00E+02	n/a	n/a	n/a	μg/mL
Sulfur	ICP	4.19E+02	1	2.03E+02	6.35E+02	μg/mL

Table B3-8. Tank 241-AW-101 95 Percent Two-Sided Confidence Interval for the Mean Concentration for Liquid Core Composite Data. (3 sheets)

Analyte	Method	Mean	df	LL	UL	Units
Technetium-99	^{99}Tc	1.69E-01	1	2.52E-02	3.13E-01	μCi/mL
Thallium[1]	ICP	<2.40E+02	n/a	n/a	n/a	μg/mL
Titanium[1]	ICP	<1.20E+01	n/a	n/a	n/a	μg/mL
TIC	TIC/TOC	1.78E+03	1	8.82E+02	2.68E+03	μg/mL
TOC	TIC/TOC	3.44E+03	1	9.24E+02	5.96E+03	μg/mL
Tritium	Scintillation	4.82E-03	1	4.73E-03	4.90E-03	μCi/mL
Uranium[1]	ICP	<6.00E+02	n/a	n/a	n/a	μg/mL
Uranium	Uranium Gross (Kinetic Phosphoresence)	2.42E+02	1	1.79E+02	3.04E+02	μg/mL
Vanadium[1]	ICP	<6.01E+01	n/a	n/a	n/a	μg/mL
Zinc[1]	ICP	<1.20E+01	n/a	n/a	n/a	μg/mL
Zirconium	ICP	1.94E+01	1	1.68E+01	2.21E+01	μg/mL

Note:

[1]A "less than" value was used in the calculation.

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APPENDIX C

STATISTICAL ANALYSIS FOR ISSUE RESOLUTION

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APPENDIX C

STATISTICAL ANALYSIS FOR ISSUE RESOLUTION

Appendix C documents the results of the analyses and statistical and numerical manipulations required by the DQOs applicable for tank 241-AW-101. The analyses required for tank 241-AW-101 are reported as follows:

- **Section C1.0**: Statistical analysis and numerical manipulations supporting the safety screening DQO (Dukelow et al. 1995)
- **Section C2.0**: Appendix C references.

C1.0 STATISTICS FOR THE SAFETY SCREENING DATA QUALITY OBJECTIVE

The safety screening DQO (Dukelow et al. 1995) defines decision limits in terms of one-sided 95 percent confidence intervals. The safety screening DQO limits for tank 241-AW-101 are 33.1 μCi/g for gross alpha and 480 J/g for DSC.

Confidence intervals were calculated for the mean values from each laboratory sample. The data used in the computations were from the 1997 core sampling event data package. Table C1-1 shows the gross alpha results, and the DSC results are shown in Table C1-2.

The UL of a one-sided 95 percent confidence interval on the mean is

$$\hat{\mu} + t_{(df,0.05)}\, \hat{\sigma}_{\hat{\mu}}.$$

In this equation, $\hat{\mu}$ is the arithmetic mean of the data, $\hat{\sigma}_{\hat{\mu}}$ is the estimate of the standard deviation of the mean, and $t_{(df,0.05)}$ is the quantile from Student's t distribution with *df* degrees of freedom. The degrees of freedom equals the number of samples minus one.

For sample numbers with at least one value above the detection limit, the upper limit of a 95 percent confidence interval is given in Table C1-1. Each confidence interval can be used to make the following statement. If the upper limit is less than 33.1 μCi/g (61.5 μCi/mL for drainable liquid), then one would reject the null hypothesis that the alpha is greater than or equal to 33.1 μCi/g (61.5 μCi/mL for drainable liquid) at the 0.05 level of significance.

The UL closest to the threshold was 1.85E-01 μCi/g, for core 132, segment 20, lower half. This is well below the limit of 33.1 μCi/g.

Table C1-1. 95 Percent Upper Confidence Limits for Gross Alpha.

Lab Sample ID	Description	$\hat{\mu}$	df	UL	Units
S96T000795F	Core 132, segment 1, lower half	7.78E-02	1	8.94E-02	μCi/g
S96T000810F	Core 132, segment 2, lower half	5.55E-02	1	1.17E-01	μCi/g
S96T001734F	Core 132, segment 7, upper half	3.05E-02	1	1.14E-01	μCi/g
S96T001951F[1]	Core 132, segment 12, upper half	4.54E-03	1	1.06E-02	μCi/g
S96T001977F	Core 132, segment 18, lower half	1.11E-01	1	1.86E-01	μCi/g
S96T001984F	Core 132, segment 20, lower half	1.63E-01	1	3.02E-01	μCi/g
S96T001991F	Core 132, segment 22, lower half	1.44E-01	1	2.77E-01	μCi/g
S96T002417F	Core 139, segment 1, upper half	6.65E-02	1	1.06E-01	μCi/g
S96T002433F[1]	Core 139, segment 7, upper half	6.36E-03	1	2.45E-02	μCi/g
S96T002454[1]	Core 139, segment 9	9.51E-03	1	2.58E-02	μCi/mL
S96T002457F[1]	Core 139, segment 9, upper half	4.98E-03	1	1.09E-02	μCi/g
S96T002534F	Core 139, segment 2, third quarter	4.48E-02	1	5.87E-02	μCi/g
S96T002679[1]	Core 139, segment 11	9.22E-03	1	3.43E-02	μCi/mL
S96T002687	Core 139, segment 12	4.08E-03	1	2.98E-02	μCi/mL
S96T002707F[1]	Core 139, segment 14, upper half	4.02E-03	1	9.03E-03	μCi/g
S96T002715F[1]	Core 139, segment 15, upper half	4.03E-03	1	4.44E-03	μCi/g
S96T002734F	Core 132, stratum	9.79E-02	1	1.17E-01	μCi/g
S96T002742F[1]	Core 132, stratum	7.64E-03	1	1.71E-02	μCi/g
S96T002750F	Core 132, stratum	1.11E-01	1	1.49E-01	μCi/g
S96T003236	Core 139, segment 16R	7.05E-03	1	2.82E-02	μCi/mL
S96T003520F[1]	Core 139, segment 16, lower half	2.26E-03	1	5.90E-03	μCi/g
S96T003556F	Core 139, segment 17, lower half	7.86E-02	1	1.04E-01	μCi/g
S96T003565F	Core 139, segment 19, lower half	1.09E-01	1	1.60E-01	μCi/g
S96T003579F	Core 139, segment 21, lower half	1.07E-01	1	2.04E-01	μCi/g

Note:

[1]A "less than" value was used in the calculation.

All DSC results had an exothermic reaction. For each lab sample identification number, a 95 percent upper confidence limit is given in Table C1-2. All of the results are expressed on a dry weight basis. Each confidence interval can be used to make the following statement. If the upper limit is less than 480 J/g, then one would reject the null hypothesis that DSC is

greater than or equal to 480 J/g at the 0.05 level of significance. Eleven samples had upper limits in excess of 480 J/g. The maximum upper limit to a 95 percent CI on the mean for DSC was 1.24E+03 J/g dry weight, for core 139, segment 21, upper half. This is above the threshold limit of 480 J/g.

Table C1-2. 95 Percent Upper Confidence Limits for Exotherms. (2 sheets)

Lab Sample-ID	Description	$\hat{\mu}$	df	UL	Units (Dry Weight)
S96T000794	Core 132, segment 1, lower half	9.82E+01	1	1.57E+02	J/g
S96T000800	Core 132, segment 1, upper half	1.32E+02	1	5.22E+02	J/g
S96T001747	Core 132, segment 9	1.33E+02	1	1.51E+02	J/g
S96T001764	Core 132, segment 10	2.15E+02	1	2.68E+02	J/g
S96T001768	Core 132, segment 11	2.55E+02	1	6.39E+02	J/g
S96T001931	Core 132, segment 16, lower half	2.42E+02	1	2.53E+02	J/g
S96T001942	Core 132, segment 12, upper half	3.11E+02	1	6.92E+02	J/g
S96T001945	Core 132, segment 14, upper half	2.64E+02	1	9.05E+02	J/g
S96T001950	Core 132, segment 12	1.53E+02	1	1.60E+02	J/g
S96T001960	Core 132, segment 14	1.51E+02	1	1.73E+02	J/g
S96T001972	Core 132, segment 18, upper half	4.67E+01	1	1.23E+02	J/g
S96T001976	Core 132, segment 18, lower half	6.71E+01	1	7.49E+01	J/g
S96T001980	Core 132, segment 20, upper half	4.51E+01	1	1.27E+02	J/g
S96T001983	Core 132, segment 20, lower half	2.16E+02	1	3.83E+02	J/g
S96T001987	Core 132, segment 22, upper half	2.29E+02	1	2.67E+02	J/g
S96T001990	Core 132, segment 22, lower half	2.28E+02	1	3.20E+02	J/g
S96T002028	Core 132, segment 13	2.44E+02	1	6.09E+02	J/g
S96T002146	Core 132, segment 7R	2.16E+02	1	3.94E+02	J/g
S96T002416	Core 139, segment 1, upper half	5.68E+01	1	8.41E+01	J/g
S96T002422	Core 139, segment 6	1.48E+02	1	9.49E+02	J/g
S96T002424	Core 139, segment 6, upper half	2.87E+02	2	4.79E+02	J/g
S96T002432[1]	Core 139, segment 7, upper half	4.83E+02	0	NA	J/g
S96T002454	Core 139, segment 9	2.07E+02	1	2.33E+02	J/g
S96T002462	Core 139, segment 10	1.69E+02	1	3.63E+02	J/g
S96T002527	Core 139, segment 2	1.55E+02	1	3.49E+02	J/g
S96T002529	Core 139, segment 2, second quarter	2.23E+02	1	3.98E+02	J/g
S96T002533	Core 139, segment 2, third quarter	8.67E+01	1	1.44E+02	J/g

Table C1-2. 95 Percent Upper Confidence Limits for Exotherms. (2 sheets)

Lab Sample-ID	Description	$\hat{\mu}$	df	UL	Units (Dry Weight)
S96T002558	Core 139, segment 3	1.78E+02	1	6.68E+02	J/g
S96T002575	Core 139, segment 4	1.42E+02	1	1.68E+02	J/g
S96T002584	Core 139, segment 5	1.50E+02	1	1.77E+02	J/g
S96T002595	Core 139, segment 5, upper half	4.20E+01	1	2.42E+02	J/g
S96T002679	Core 139, segment 11	1.82E+02	1	2.10E+02	J/g
S96T002687	Core 139, segment 12	2.32E+02	1	5.17E+02	J/g
S96T002695	Core 139, segment 13	1.41E+02	1	1.51E+02	J/g
S96T002704	Core 139, segment 14	1.42E+02	1	1.73E+02	J/g
S96T002706	Core 139, segment 14, upper half	2.15E+02	2	5.14E+02	J/g
S96T002712	Core 139, segment 15	2.07E+02	1	3.00E+02	J/g
S96T002714	Core 139, segment 15, upper half	2.39E+02	1	6.70E+02	J/g
S96T002732	Core 132, stratum	2.25E+02	1	2.88E+02	J/g
S96T002741	Core 132, stratum	2.63E+02	2	3.80E+02	J/g
S96T002749	Core 132, stratum	1.62E+02	1	2.98E+02	J/g
S96T002767	Core 132, stratum	2.03E+02	1	2.07E+02	J/g
S96T003236	Core 139, segment 16R	2.27E+02	1	2.69E+02	J/g
S96T003238	Core 139, segment 16, lower half	8.41E+01	1	2.01E+02	J/g
S96T003519	Core 139, segment 16, lower half	1.14E+02	1	1.38E+02	J/g
S96T003533	Core 139, segment 16, upper half	2.95E+02	1	3.54E+02	J/g
S96T003545	Core 139, segment 17R	2.42E+02	1	3.02E+02	J/g
S96T003549	Core 139, segment 17, upper half	2.56E+02	1	3.80E+02	J/g
S96T003555	Core 139, segment 17, lower half	1.13E+02	3	2.32E+02	J/g
S96T003564	Core 139, segment 19, lower half	1.06E+02	1	1.94E+02	J/g
S96T003578	Core 139, segment 21, lower half	2.72E+02	1	4.28E+02	J/g
S96T003585	Core 139, segment 21, upper half	9.94E+02	1	1.24E+03	J/g

Note:

[1]No duplicate result.

C2.0 APPENDIX C REFERENCES

Dukelow, G. T., J. W. Hunt, H. Babad, and J. E. Meacham, 1995, *Tank Safety Screening Data Quality Objective*, WHC-SD-WM-SP-004, Rev. 2, Westinghouse Hanford Company, Richland, Washington.

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APPENDIX D

EVALUATION TO ESTABLISH BEST-BASIS INVENTORY FOR TANK 241-AW-101

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APPENDIX D

EVALUATION TO ESTABLISH BEST-BASIS INVENTORY FOR DOUBLE-SHELL TANK 241-AW-101

An effort is underway to provide waste inventory estimates that will serve as standard characterization source terms for the various waste management activities (Hodgson and LeClair 1996). As part of this effort, an evaluation of available information for double-shell tank 241-AW-101 was performed, and a best-basis inventory was established. This work, detailed in the following sections, follows the methodology that was established by the standard inventory task.

D1.0 CHEMICAL INFORMATION SOURCES

Characterization results from the most recent sampling event for this tank are provided in Appendix B. Two core samples (cores 132 and 139) were obtained in 1996 from two different risers. The component concentrations are based on segment means from which a core mean and overall tank mean were derived. The analytical data from crust samples obtained in 1995 (Esch 1995), supernatant samples obtained in 1990 (Welsh 1991), supernatant samples obtained in 1996 for the privatization contractor (Hardy 1998), and samples during the evaporator run 86-5 (Starr 1987) provided useful comparison information. The HDW model (Agnew et al. 1997a) also provides tank content estimates in terms of component concentrations and inventories.

D2.0 COMPARISON OF COMPONENT INVENTORY VALUES

Previous best-basis inventories (LMHC 1998) and HDW model inventories (Agnew et al. 1997a), are compared in Tables D2-1 and D2-2. (The chemical species are reported without charge designation per the best-basis inventory convention.) A total waste volume of 4,258 kL (1,125 kgal) was used to generate the previous best-basis inventory. The total volume used to calculate the HDW inventory was 4,315 kL (1,140 kgal). The density used to calculate both the previous best-basis and HDW model inventories was 1.65 g/mL.

A list of references used in this evaluation is provided in Section D5.0.

Table D2-1. Previous Best-Basis and Hanford Defined Waste-Based Inventory Estimates for Nonradioactive Components in Tank 241-AW-101.

Analyte	Previous Best Basis[1] (kg)	HDW Model Inventory[2] (kg)	Analyte	Previous Best Basis[1] (kg)	HDW Model Inventory[2] (kg)
Al	110,000	1.80E+05	NO_2	4.01E+05	3.83E+05
Bi	973	973	NO_3	8.57E+05	1.50E+06
Ca	4,610	14,800	PO_4	61,100	94,300
Cl	23,500	39,000	Pb	1,080	1,080
Cr	888	25,500	Si	1,040	9,390
F	9,620	24,300	SO_4	9,220	1.04E+05
Fe	28,300	28,300	Sr	n/r	0
Hg	16	16.0	TIC as CO_3	97,700	2.21E+05
K	1.64E+05	50,500	TOC	21,400	77,700
La	8.29	8.29	U_{TOTAL}	1,028	22,500
Mn	3,640	3,640	Zr	1,230	1,230
Na	9.87E+05	1.52E+06	OH_{TOTAL}	5.43E+05	712,000
Ni	4,080	4,080			

Notes:

n/r = not reported
TIC = total inorganic carbon

[1]LMHC (1998), effective January 31, 1997. Does not include 1996 core sample results.
2Agnew et al. (1997a)

Table D2-2. Previous Best-Basis and Hanford Defined Waste Inventory Estimates for Radioactive Components in Tank 241-AW-101 (Curie Values Decayed to January 1, 1994).

Analyte	Previous Best-Basis[1] (Ci)	HDW Model[2] (Ci)
^{137}Cs	1.83E+06	9.07E+05
^{90}Sr	31,300	4.76E+05

Notes:

[1]LMHC (1998), effective January 31, 1997. Does not include 1996 core sample results.

[2]Appendix E of Agnew (1997a).

D3.0 COMPONENT INVENTORY EVALUATION

The following evaluation of tank contents was performed to identify potential errors and/or missing information that would influence the sampling-based and HDW model component inventories.

D3.1 WASTE HISTORY TANK 241-AW-101

The double-shell tank 241-AW-101 went into service in 1980. From 1980 through the third quarter of 1985, this tank was filled and emptied a number of times. During this time period the tank received PUREX process miscellaneous wastes, dilute noncomplexed waste, water, complex concentrate, dilute phosphate waste from the 100 N Reactor, and double-shell slurry from the 242-A Evaporator.

In 1986, the tank was emptied down to approximately 200 kL (approximately 50 kgal) in preparation to receive double-shell slurry feed from the 242-A Evaporator. In 1986, the tank received approximately 4,000 kL (approximately 1,000 kgal) of double-shell slurry feed produced during evaporator campaign 86-5. The tank has not received any waste transfers since 1986. For a more complete history of the waste in this tank, refer to the *Waste Status and Transaction Record Summary* (Agnew et al. 1997b) and Section A3.1 of this TCR.

D3.2 EXPECTED TYPE OF WASTE BASED ON THIS ASSESSMENT

The total waste volume of tank 241-AW-101 is listed by Agnew et al. (1997a) as 4,319 kL (1,141 kgal), and by Hanlon (1998) as 4,254 kL (1,124 kgal).

Agnew et al. (1997a) identifies the waste in the tank as 4,088 kL (1,080 kgal) of SMM waste and 231 kL (61 kgal) of TLM solids. The SMM waste consists of 87.1 kL (23 kgal) of SMMA2, and 4,000 kL (1,057 kgal) of supernatant liquids. The SMMA2 is a concentrated supernatant from the 242-A Evaporator that, upon cooling, often forms a saltcake. The TLM solids composite is identified as PUREX low-level waste sludge (PL2).

Hanlon (1998) lists the tank as containing 3,096 kL (818 kgal) of supernatant liquids and 1,158 kL (306 kgal) of sludge. The sludge volume presented in Hanlon (1998) likely consists of both PL2 sludge and precipitated saltcake. The Hanlon volumes for supernatant and solids correlate relatively well with sample observations, and are used as the best-basis for this tank.

D3.3 SUPERNATANT WASTE

Sample data were obtained from the analysis of the supernatant samples collected during the 1996 core sampling event of tank 241-AW-101. Analytical results were obtained at the segment level, from two cores, and from composite samples representing each layer. Composite liquid results are compared with the double-shell slurry feed analysis and the SMM estimates reported by Agnew et al. (1997a) in Table D3-1.

The supernatant in tank 241-AW-101 was characterized extensively in 1990 to support the Hanford Grout Disposal Program. The samples were collected according to a statistically designed sampling plan. A statistical analysis of the analytical data was reported by Welsh (1991). The sampling, analyses, and data evaluations are reported in other sections of this TCR.

Supernatant samples from tank 241-AW-101 were obtained in 1996 as part of the TWRS privatization efforts. However, the 1996 sampling event was not designed to provide data that would be representative of the complete supernatant layer. The analytical data from the 1996 supernatant sampling event can be found in Hardy (1998).

In general, good agreement exists between the 1996 core sampling analytical data and HDW modeling results.

Table D3-1. Supernatant Analysis Data Summary for Tank 241-AW-101. (2 sheets)

Analyte	Slurry feed Analyses[1] (μg/mL)	1990 Supernatant Analyses[2] (μg/mL)	1996 Supernatant Analyses[3] (μg/mL)	HDW, SMM Estimate[4] (μg/mL)
Al	23,900	27,800	3.21E+04	26,300
Bi	n/r	n/r	<120	142
Ca	87.4	33.1	<120	1,550
Cl	5,740	5,180	5,100	5,690
Cr	197	161	111	3,710
F	2,360	n/r	<67.0	3,540
Fe	n/r	81.5	<60.1	552
K	32,6004	41,800	35,400	7,360
Mn	n/r	26.2	<12.0	522
Na	2.41E+05	2.30E+05	2.49E+05	2.22E+05
NH_3	459	247	n/r	8,890
Ni	n/r	n/r	<24.0	375
NO_2	80,800	1.02E+05	98,700	55,900
NO_3	2.09E+05	2.14E+05	1.57E+05	2.19E+05
OH	83,900	86,200	n/r	1.00E+05
Pb	n/r	n/r	120	157
PO_4	14,600	2,110	<612	13,600
SO_4	2,210	1,030	<700	15,200
CO_3	22,100	12,300	n/r	31,100
U_{TOTAL}	n/r	224	242	2,840
TOC	62,500	29,500	3,440	11,300
Density (g/mL)	1.49	1.56	1.40	1.68
H_2O (wt%)	50.1	43.6	49.8	26.4

Table D3-1. Supernatant Analysis Data Summary for Tank 241-AW-101. (2 sheets)

Analyte	Slurry feed Analyses[1] (μg/mL)	1990 Supernatant Analyses[2] (μg/mL)	1996 Supernatant Analyses[3] (μg/mL)	HDW, SMM Estimate[4] (μg/mL)
Radionuclides (μCi/mL) (decayed to January 1, 1994)				
^{134}Cs	0.342	0.398	n/r	0.0651
^{137}Cs		474	474	222
$^{239/240}Pu$	n/r	n/r	8.50E-04	0.0729
^{99}Tc	340	n/r	0.169	0.226
^{90}Sr	6.97	0.991	0.0425	117

Notes:

MDL = minimum detection limit

[1] Starr (1987)
[2] Welsh (1991)
[3] Benar (1998)
[4] Agnew et al. (1997a)

D3.4 SOLIDS WASTE

Table D3-2 compares analytical results for 1996 core composite solid samples, with HDW model (Agnew et al. 1997a) solids compositions for PL2 and 242-A Evaporator saltcake.

The analytical results for the solid composite samples show good correlation with expected composition for 242-A Evaporator saltcake. However, it appears from both the composite data shown in Table D3-2 and on segment data that very little, if any, of the PL2 waste heel was recovered. A drier layer was observed in the bottom four segments, but no apparent difference was observed in the appearance or ICP metals composition of the solids in the bottom 4 segments and the top 18 segments.

Table D3-2. Solids Data Summary for Tank 241-AW-101.

Analyte	1996 Composite Solids Analyses (μg/g)	242-A Evaporator Saltcake(A1)[1] (μg/g)	PUREX Low Level Waste (PL2)[2] (μg/g)
Al	16,700	31,700	0
Bi	38.4	788	0
Ca	248	1,200	15,300
Cl	3,830	2,160	102
Cr	362	3,830	308
F	2,340	1,140	0
Fe	352	456	88,200
K	23,200	2,190	198
Mn	240	159	244
Na	161,000	233,000	10,900
Ni	35.0	316	5,450
NO_2	69,000	75,200	340
NO_3	141,000	263,000	11,800
OH	n/r	101,000	88,500
Pb	42.7	114	7
PO_4	3,430	21,100	4,880
SO_4	3,370	20,800	287
CO_3	31,650	19,300	27,400
U_{TOTAL}	982	2,270	n/r
TOC	3,950	7,790	363
Density	1.63 g/mL	1.90	1.2 g/mL
H_2O (wt%)	45.6	22.8	73.5
Radionuclide[2]	**(μCi/g)**	**(μCi/g)**	**(μCi/g)**
Total alpha	0.0722	n/r	n/r
$^{239/240}Pu$	3.86E-02	0.048	1.87
^{241}Am	3.06E-02	0.030	0
^{137}Cs	2.69E+02	151	0

Notes:

[1] Agnew et al. (1997a)

[2] Radionuclides decayed to 1994.

D3.5 COMPARISON OF INVENTORY ESTIMATES

A total tank inventory estimate was developed using composite sample results from the 1996 core samples (Benar 1998). The solids inventory estimate was derived based on a solids volume of 1,158 kL (306 kgal) and a composite density of 1.63 g/mL. The supernatant inventory was calculated using a volume of 3,096 kL (818 kgal). The inventory estimates based on 1996 core sampling data (Benar 1998) and HDW model inventory estimates (Agnew et al. 1997a) are included in Table D3-3.

Table D3-3. Inventory Estimates for Tank 241-AW-101. (2 sheets)

Analyte	Supernatant Inventory (kg)	Solids Inventory (kg)	Total Inventory (kg)	HDW[1] (kg)
Al	99,400	31,500	1.31E+05	1.80E+05
Bi	372	72.5	444	973
Ca	372	468	840	14,800
Cl	15,800	7,230	23,000	39,000
Cr	344	683	1,030	25,500
F	207	4,417	4,620	24,300
Fe	186	664	850	28,300
K	1.10E+05	43,800	1.53E+05	50,500
Mn	37.2	453	490	3,640
Na	7.71E+05	3.04E+05	1.07E+06	1.52 E+06
Ni	74.3	66.1	140	4,080
NO_2	3.06E+05	1.30E+05	4.36E+05	383,000
NO_3	4.86E+05	2.66E+05	7.52E+05	1.50 E+06
Pb	372	80.6	452	1,080
PO_4	1,890	6,470	8,370	94,300
Si	607	870	1,480	9,390
Sr	37.2	8.74	45.9	0
SO_4	743	6,360	7,100	1.04E+05
CO_3	27,600	59,700	87,300	2.21E+05
TOC	10,700	7,460	18,100	77,700
U_{TOTAL}	749	2,080	2,830	22,500
Zr	60.1	136	196	1230

Table D3-3. Inventory Estimates for Tank 241-AW-101. (2 sheets)

Analyte	Supernatant Inventory (kg)	Solids Inventory (kg)	Total Inventory (kg)	HDW[1] (kg)
Radionuclides (Ci) (decayed to January 1, 1994)				
^{137}Cs	1.47E+6	5.08+05	1.97E+06	9.07E+05
$^{239/240}Pu$	2.63	72.9	75.5	1,042
^{99}Tc	523	270	793	922
$^{89/90}Sr$	132	5,380	5,510	4.76E+05
^{241}Am	0.8668	57.8	58.6	388
^{60}Co	67.8	90.8	158.6	173
$^{243/244}Cm$	0.12	5.64	5.76	1.07
^{154}Eu	199	287	486	2,690
^{155}Eu	1,390	730	2,120	1,140
^{129}I	0	11.6	11.6	1.78
Tritium	14.9	0	14.9	958

Notes:

[1] Agnew et al. (1997a)

Analytical results that compared relatively well with the HDW model were aluminum, chloride, sodium, nitrite, and nitrate. Results that did not compare well were calcium, chromium, iron, nickel, lead, phosphate, sulfate, plutonium and strontium.

Once the best-basis inventories were determined, the hydroxide inventory was calculated by performing a charge balance with the valence of other analytes. This charge balance approach is consistent with that used by Agnew et al. (1997a).

D4.0 DEFINE THE BEST-BASIS AND ESTABLISH COMPONENT INVENTORIES

Information about chemical, radiological, and/or physical properties is used to perform safety analyses, engineering evaluations, and risk assessments associated with waste management activities, as well as to address regulatory issues. Waste management activities include overseeing tank farm operations and identifying, monitoring, and resolving safety issues

associated with these operations and with the tank wastes. Disposal activities involve designing equipment, processes, and facilities for retrieving wastes and processing them into a form that is suitable for long-term storage and disposal.

Chemical and radiological inventory information are generally derived using three approaches: 1) component inventories are estimated using results of sample analyses, 2) component inventories are estimated using the HDW model based on process knowledge and historical information, or 3) a tank-specific process estimate is made based on process flowsheets, reactor fuel data, essential material usage, and other operating data. The information derived from these different approaches is often inconsistent.

An effort is underway to provide waste inventory estimates that will serve as the standard characterization for the various waste management activities (Hodgson and LeClair 1996). As part of this effort, an evaluation of chemical information for tank 241-AW-101 was performed that included the following:

- Analytical data from two 1996 push mode core samples (see Appendix B)
- Inventory estimates for this tank generated from the HDW model (Agnew et al. 1997a)
- Analytical data from past sampling activities: crust layer (Esch 1995), supernatant samples (Welsh 1991), and evaporator waste (Starr 1987).

Based on this engineering assessment, a best-basis inventory was developed for tank 241-AW-101 using the 1996 core sampling analytical data. Where analytical data were not available, the HDW model tank inventory estimates reported by Agnew et al. (1997a) are used as the best basis for this tank.

Best-basis tank inventory values were derived for 46 key radionuclides (as defined in Section 3.1 of Kupfer et al. [1997]), all decayed to a common report date of January 1, 1994. The composite samples prepared from the 1996 core samples representing the crust, supernatant, and sludge layer, were analyzed for total beta, total alpha, ^{90}Sr, ^{137}Cs, $^{239/240}Pu$, ^{60}Co, ^{241}Am, ^{99}Tc, ^{154}Eu, ^{155}Eu, and total uranium. The remaining radionuclides were derived by computer models. These models estimate radionuclide activity in batches of reactor fuel, account for the split of radionuclides to various separations plant waste streams, and track their movement with tank waste transactions. (These computer models are described in Kupfer et al. [1997], Section 6.1, and in Watrous and Wootan [1997]).

Model-generated values for radionuclides in any of the 177 Hanford Site tanks are reported in the HDW Rev. 4 model results (Agnew et al. 1997a). The best-basis value for any one analyte may be either a model result or a sample- or engineering assessment-based result, if available.

The inventory values reported in Tables D4-1 and D4-2 are subject to change. Refer to the Tank Characterization Database for the most current inventory values (LMHC 1998).

Table D4-1. Best-Basis Inventory Estimates for Nonradioactive Components in Tank 241-AW-101 (Effective May 31, 1998). (2 sheets)

Analyte	Total inventory (kg)	Basis (S, M, E, or C)[1]	Comment
Al	1.31E+05	S	
Bi	444	S	
Ca	840	S	
Cl	23,000	S	
TIC as CO_3	87,300	E	
Cr	1,030	S	
F	4,620	S	
Fe	850	S	
Hg	0	E	Simpson (1998)
K	1.53E+05	S	
La	0	E	No La expected based on process history
Mn	490	S	
Na	1.07E+06	S	
Ni	140	S	
NO_2	4.36E+05	S	
NO_3	7.52E+05	S	
OH_{TOTAL}	6.61E+05	C	
Pb	452	S	
PO_4	8,370	S	Based on IC data
Si	1,480	S	
SO_4	7,100	S	Based on IC data
Sr	45.9	S	

Table D4-1. Best-Basis Inventory Estimates for Nonradioactive Components in Tank 241-AW-101 (Effective May 31, 1998). (2 sheets)

Analyte	Total inventory (kg)	Basis (S, M, E, or C)[1]	Comment
TOC	18,100	S	25% of TOC is oxalate
U_{TOTAL}	2,830	S	
Zr	196	S	

Notes:

[1]S = sample-based, M = HDW model-based, E = Engineering assessment-based, and C = Calculated by charge balance; includes oxides as "hydroxide," not including CO_3, NO_2, NO_3, PO_4, SO_4, and SiO_3.

Table D4-2. Best-Basis Inventory Estimates for Radioactive Components in Tank 241-AW-101 Decayed to January 1, 1994 (Effective May 31, 1998). (3 sheets)

Analyte	Total inventory (Ci)	Basis (S, M, or E)[1]	Comment
^{3}H	14.9	S	
^{14}C	124	M	
^{59}Ni	7.18	M	
^{60}Co	160	M	
^{63}Ni	707	M	
^{79}Se	14.8	M	
^{90}Sr	5,510	S	
^{90}Y	5,510	S	Referenced to ^{90}Sr
^{93}Zr	71.5	M	
^{93m}Nb	52.4	M	
^{99}Tc	793	S	
^{106}Ru	0.0607	M	
^{113m}Cd	362	M	
^{125}Sb	1,180	M	
^{126}Sn	22.6	M	
^{129}I	11.6	S	

Table D4-2. Best-Basis Inventory Estimates for Radioactive Components in Tank 241-AW-101 Decayed to January 1, 1994 (Effective May 31, 1998). (3 sheets)

Analyte	Total inventory (Ci)	Basis (S, M, or E)[1]	Comment
^{134}Cs	265	M	
^{137}Cs	1.97E+06	S	
^{137m}Ba	1.86E+06	S	Based on 0.946 of ^{137}Cs activity
^{151}Sm	52,400	M	
^{152}Eu	17.9	M	
^{154}Eu	486	S	
^{155}Eu	2,120	S	
^{226}Ra	6.38E-04	M	
^{227}Ac	0.00402	M	
^{228}Ra	1.31	M	
^{229}Th	0.0304	M	
^{231}Pa	0.0171	M	
^{232}Th	0.127	M	
^{232}U	0.569	S/M	Based on ICP U sample result ratioed to HDW estimates for U isotopes.
^{233}U	2.18	S/M	Based on ICP U sample result ratioed to HDW estimates for U isotopes.
^{234}U	1.27	S/M	Based on ICP U sample result ratioed to HDW estimates for U isotopes.
^{235}U	0.0489	S/M	Based on ICP U sample result ratioed to HDW estimates for U isotopes.
^{236}U	0.0879	S/M	Based on ICP U sample result ratioed to HDW estimates for U isotopes.
^{237}Np	3.31	M	
^{238}Pu	6.05	S/M	Based on $^{239/240}Pu$ sample result ratioed to HDW estimates for alpha isotopes.
^{238}U	0.942	S/M	Based on ICP U sample result ratioed to HDW estimates for U isotopes.
^{239}Pu	59.2	S/M	Based on $^{239/240}Pu$ sample result ratioed to HDW estimates for alpha isotopes.

Table D4-2. Best-Basis Inventory Estimates for Radioactive Components in Tank 241-AW-101 Decayed to January 1, 1994 (Effective May 31, 1998). (3 sheets)

Analyte	Total inventory (Ci)	Basis (S, M, or E)[1]	Comment
^{240}Pu	16.3	S/M	Based on $^{239/240}Pu$ sample result ratioed to HDW estimates for alpha isotopes.
^{241}Am	58.6	S	
^{241}Pu	604	S/M	Based on $^{239/240}Pu$ sample result ratioed to HDW estimates for alpha isotopes.
^{242}Cm	0.105	S/M	Based on ^{241}Am sample result ratioed to HDW estimates for alpha isotopes.
^{242}Pu	0.00231	S/M	Based on $^{239/240}Pu$ sample result ratioed to HDW estimates for alpha isotopes.
^{243}Am	0.00471	S/M	Based on ^{241}Am sample result ratioed to HDW estimates for alpha isotopes.
^{243}Cm	0.230	S/E	Inventory is 4% of $^{243/244}Cm$ sample result.
^{244}Cm	5.53	S/E	Inventory is 96% of $^{243/244}Cm$ sample result.

Note:

S = sample-based, M = HDW model-based, and E = Engineering assessment-based.

D5.0 APPENDIX D REFERENCES

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APPENDIX E

BIBLIOGRAPHY FOR TANK 241-AW-101

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APPENDIX E

BIBLIOGRAPHY FOR TANK 241-AW-101

Appendix E is a bibliography that supports characterization of tank 241-AW-101. This bibliography represents an in-depth literature search of all known sources that provide information on sampling, analysis, surveillance, modeling, and processing occurrences associated with tank 241-AW-101 and its respective waste types.

The references in this bibliography are separated into three categories broken down into subgroups. These categories and their subgroups are listed below.

I. NON-ANALYTICAL DATA

- Ia. Models/Waste Type Inventories/Campaign Information
- Ib. Fill History/Waste Transfer Records
- Ic. Surveillance/Tank Configuration
- Id. Sample Planning/Tank Prioritization
- Ie. Data Quality Objectives/Customers of Characterization Data

II. ANALYTICAL DATA - SAMPLING OF TANK WASTE AND WASTE TYPES

- IIa. Sampling of Tank 241-AW-101
- IIb. Sampling of 242-A Evaporator Streams

III. COMBINED ANALYTICAL/NON-ANALYTICAL DATA

- IIIa. Inventories Using Both Campaign and Analytical Information
- IIIb. Compendium of Existing Physical and Chemical Documented Data Sources

The bibliography is broken down into the appropriate sections of material with an annotation at the end of each reference describing the information source. Most information listed below is available in the Lockheed Martin Hanford Corporation Tank Characterization and Safety Resource Center.

I. NON-ANALYTICAL DATA

Ia. Models/Waste Type Inventories/Campaign Information

Jungfleisch, F. M., and B. C. Simpson, 1993, *Preliminary Estimation of the Waste Inventories in Hanford Tanks Through 1980*, WHC-SD-WM-TI-057 Rev. 0A, Westinghouse Hanford Company, Richland, Washington.

- A model based on process knowledge and radioactive decay estimations using ORIGEN for different compositions of process waste streams assembled for total, solution, and solids compositions per tank. Assumptions about waste/waste types and solubility parameters and constraints are also given.

Ib. Fill History/Waste Transfer Records

Agnew, S. F., R. A. Corbin, T. B. Duran, K. A. Jurgensen, T. P. Ortiz, and B. L. Young, 1997, *Waste Status and Transaction Record Summary (WSTRS) Rev. 4*, LA-UR-97-311, Rev. 0, Los Alamos National Laboratory, Los Alamos, New Mexico.

- Contains spreadsheets showing all available data on tank additions and transfers.

Koreski, G. M., 1998, *Double-Shell Tank Inventory and Material Balance Report for May, 1998*, (internal letter 7A140-98-027 to Distribution, June 15, Lockheed Martin Hanford Corp. for Fluor Daniel Hanford, Inc., Richland, Washington.

- Contains tank transfer data and tank inventory information for all double-shell tanks.

Ic. Surveillance/Tank Configuration

Lipnicki, J., 1997, *Waste Tank Risers Available for Sampling*, HNF-SD-RE-TI-710, Rev. 4, Lockheed Martin Hanford Corp. for Fluor Daniel Hanford, Inc., Richland, Washington.

- Identifies riser locations for each tank. An estimate of the risers available for sampling is also included.

Salazar, B. E., 1994, *Double-Shell Underground Waste Storage Tanks Riser Survey*, WHC-SD-RE-TI-093, Rev. 4, Westinghouse Hanford Company, Richland, Washington.

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- Contains riser and thermocouple information for Hanford Site waste tanks.

Id. Sample Planning/Tank Prioritization

Baldwin, J. H., 1997, *Grab Sampling and Analysis Plan for Tanks 241-AN-107 and 241-AW-101 in Support of the Privatization Request for Proposals,* WHC-SD-WM-TSAP-103, Rev. 1B, Lockheed Martin Hanford Corp. for Fluor Daniel Hanford Inc., Richland, Washington.

- Identifies characterization objectives for sample collection and laboratory storage requirements for samples from tank 241-AW-101.

Bates, J. M., 1995, *Sampling Plan for Tank 241-AW-101 Retained Gas Sampler Deployment,* PNLMIT:092595, Pacific Northwest Laboratory, Richland, Washington.

- Defines sampling and analytical requirements for retained gas samples from tank 241-AW-101.

Benar, C. J., 1996, *Tank 241-AW-101 Push Mode Core Sampling and Analysis Plan,* WHC-SD-WM-TSAP-024, Rev. 0B, Westinghouse Hanford Company, Richland, Washington.

- Identifies characterization objectives pertaining to sample collection, laboratory analytical evaluation, and reporting requirements for vapor samples and push mode core samples from tank 241-AW-101.

Benar, C. J., 1998, *Tank 241-AW-101 Privatization Grab Sampling and Analysis Plan,* HNF-2379, Rev. 0, Lockheed Martin Hanford Corp. for Fluor Daniel Hanford, Inc., Richland, Washington.

- Identifies characterization objectives pertaining to sample collection, laboratory analytical requirements, and reporting requirements to meet privatization contractor(s) needs.

Brown, T. M., J. W. Hunt, and L. J. Fergestrom, 1997, *Tank Characterization Technical Sampling Basis*, HNF-SD-WM-TA-164, Rev. 3, Lockheed Martin Hanford Corp. for Fluor Daniel Hanford, Inc., Richland, Washington.

- Summarizes the technical basis for characterizing tank waste and assigns a priority number to each tank.

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- Describes of the organic solvents issue and other tank issues.

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II. ANALYTICAL DATA - SAMPLING OF TANK WASTE AND WASTE TYPES

IIa. Sampling of Tank 241-AW-101

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Weiss, R. L., 1987, *Analysis of 101-AW Heel Samples*, (internal letter 65453-87-042 to W. G. Richmond, March 26), Rockwell Hanford Operations, Richland, Washington.

- Contains historical sample analysis results from two core segments of Tank 241-AW-101 heel samples.

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- Contains sample analysis results from June 1990 grab sampling events for the Hanford Grout Disposal Program.

IIb. Sampling 242 A-Evaporator Waste Streams

Jansky, M. T., 1984, *Feeds for 242A Evaporator Run 84-4,* (internal letter 65453-84-092 to N. L. Pontious, April 3), Rockwell Hanford Operations, Richland, Washington.

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- Contains historical sample analysis results and X-ray analysis of solids from samples.

Mauss, B. M., 1986, *86-5 Evaporator Campaign: Laboratory Analysis of Samples,* (internal letter 65453-86-114 to J. C. Starr, September 18), Rockwell Hanford Operations, Richland, Washington.

- Contains historical sample analysis results of slurry and feed samples taken for 86-5 evaporator campaign.

Pontious, N. L., 1984, *242-A Evaporator/Crystallizer FY '84 Campaign Run 84-4 Post Run Document*, SD-WM-PE-017, Rev. 0, Rockwell Hanford Operations, Richland, Washington.

- Contains historical sample analysis results of samples.

III. COMBINED ANALYTICAL/NON-ANALYTICAL DATA

IIIa. Inventories from Campaign and Analytical Information

Agnew, S. F., J. Boyer, R. A. Corbin, T. B. Duran, J. R. Fitzpatrick, K. A. Jurgensen, T. P. Ortiz, and B. L. Young, 1997, *Hanford Tank Chemical and Radionuclide Inventories: HDW Model Rev. 4*, LA-UR-96-3860, Rev. 0, Los Alamos National Laboratory, Los Alamos, New Mexico.

- Contains waste type summaries and primary chemical compound/analyte and radionuclide estimates for sludge, supernatant, and solids.

Brevick, C. H., J. L. Stroup, and J. W. Funk, 1997, *Historical Tank Content Estimate for the Southeast Quadrant of the Hanford 200 Areas*, WHC-SD-MW-ER-350, Rev. 1, Fluor Daniel Northwest, Inc., Richland, Washington.

- Contains summary information from the supporting document, in-tank photo collages, and historical inventory estimates.

Schmittroth, F. A., 1995, *Inventories for Low-Level Tank Waste*, WHC-SD-WM-RPT-164, Rev. 0, Westinghouse Hanford Company, Richland, Washington.

- Contains a global inventory based on process knowledge and radioactive decay estimations using ORIGEN2. Plutonium and Uranium waste contributions are taken at 1 percent of the amount used in processes. Also compares information on ^{99}Tc from both ORIGEN2 and analytical data.

IIIb. Compendium of Data from Other Physical and Chemical Sources

Brevick, C. H., J. L Stroup, and J. W. Funk, 1997, *Supporting Document for the Southeast Quadrant Historical Tank Content Estimate Report for AW-Tank Farm (Volumes I and II),* HNF-SD-WM-ER-316, Rev. 1, Fluor Daniel Northwest, Inc. for Fluor Daniel Hanford, Inc., Richland, Washington.

- Summarizes historical information such as waste history, temperature profiles, psychometric data, tank integrity, inventory estimates, and tank level history.

Jones, T. E., R. T. Winward, and M. J. Kupfer, 1997, *Tank Characterization Report for Double-Shell Tank 241-AW-101,* WHC-SD-WM-ER-470, Rev. 0A, Westinghouse Hanford Company, Richland, Washington,

- Contains the best-basis inventory for double-shell tank 241-AW-101.

Fox, G. L. and D. D. Stepnewski, 1994, *Hazard Assessment of Double-Shell Flammable Gas Tanks,* WHC-SD-WM-SAR-064, Rev. 0, Westinghouse Hanford Corporation, Richland, Washington.

- Examines the flammable gas hazards associated with double-shell tanks.

Wilkins, N. E., 1994, *Evaluation of Tank 241-AW-101 Flammable Gas Tank Behavior,* WHC-SD-WM-TI-617, Rev. 0, Westinghouse Hanford Company, Richland, Washington.

- Describes flammable gas behavior in tank 241-AW-101.

Brevick, C. H., L. A. Gaddis, and E. D. Johnson, 1995, *Tank Waste Source Term Inventory Validation, Volumes I & II.*, WHC-SD-WM-ER-400, Rev. 0, Westinghouse Hanford Company, Richland, Washington.

- Contains a quick reference to sampling information in spreadsheet or graphical form for 23 chemicals and 11 radionuclides for all the Hanford Site tanks.

De Lorenzo, D. S., A. T. DiCenso, D. B. Hiller, K. W. Johnson, J. H. Rutherford, D. J. Smith, and B. C. Simpson, 1994, *Tank Characterization Reference Guide,* WHC-SD-WM-TI-648, Rev. 0A, Westinghouse Hanford Company, Richland, Washington.

- Summarizes issues surrounding characterization of nuclear wastes stored in Hanford Site waste tanks.

Gauglitz, P. A., and J. T. Aikin, *Waste Behavior During Horizontal Extrusion: Effect of Waste Strength for Bentonite and Kaolin/Ludox Simulants and Strength Estimates for Wastes from Hanford Waste Tanks 241-SY-103, AW-101, AN-103, and S-102*, PNNL-11706, Rev. 0, Pacific Northwest National Laboratory, Richland, Washington.

- Documents tank 241-AW-101 waste behavior and strength.

Hanlon, B. M., 1998, *Waste Tank Summary Report for Month Ending March 31, 1998*, WHC-EP-0182-*116*, Lockheed Martin Hanford Corp. for Fluor Daniel Hanford, Inc., Richland, Washington.

- Contains a monthly summary of the following: fill volumes, Watch List tanks, occurrences, integrity information, equipment readings, equipment status, tank location, and other miscellaneous tank information.

Husa, E. I., 1993, *Hanford Site Waste Storage Tank Information Notebook*, WHC-EP-0625, Westinghouse Hanford Company, Richland, Washington.

- Contains in-tank photographs and summaries of the tank description, leak detection system, and tank status.

Husa, E. I., 1995, *Hanford Waste Tank Preliminary Dryness Evaluation*, WHC-SD-WM-TI-703, Rev. 0, Westinghouse Hanford Company, Richland, Washington.

- Assesses relative dryness between tanks.

Kubic, W. L., 1997, *Data Reconciliation Study of Tank 241-AW-101 at the Hanford Site*, LA-UR-97-2214, Los Alamos National Laboratory, Los Alamos, New Mexico.

- Assesses flammable gas data for tank 241-AW-101 and concludes that a flammable gas release is unlikely at the current time.

LMHC, 1998, *Tank Characterization Database*, May 1998, Internet at http:/twins.pul.gov:8001/TCD/main.html, Lockheed Martin Hanford Corp. for Fluor Daniel Hanford, Inc., Richland, Washington.

- Tank characterization database.

Shelton, L. W., 1996, *Chemical and Radionuclide Inventory for Single- and Double-Shell Tanks*, (internal letter 74A20-96-30 to D. J. Washenfelder, February 28), Westinghouse Hanford Company, Richland, Washington.

- Contains a tank inventory estimate based on analytical information.

Van Vleet, R. J., *1993, Radionuclide and Chemical Inventories for the Double Shell Tanks*, WHC-SD-WM-TI-543, Rev. 1, Westinghouse Hanford Company, Richland, Washington.

- Contains selected sample analysis tables prior to 1993 for double-shell tanks.

Wilkins, N. E., R. E. Bauer, and D. M. Ogden, 1997, *Results of Vapor Space Monitoring of Flammable Gas Watch List Tanks,* HNF-SD-WM-TI-797, Rev. 2, Lockheed Martin Hanford Corp. for Fluor Daniel Hanford, Inc., Richland, Washington.

- Documents headspace gas concentrations and monitoring results.

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