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Tank Characterization Report for Single-Shell Tank 241-B-203

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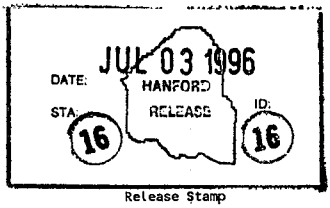
Abstract: This document summarizes the information on the historical uses, present status, and the sampling and analysis results of waste stored in Tank 241-B-203. This report supports the requirements of Tri-Party Agreement Milestone M-44-09.



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Tank Characterization Report for Single-Shell Tank 241-B-203

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EXECUTIVE SUMMARY

This characterization report summarizes information on the historical uses, current status, and sampling and analysis results of waste stored in single-shell underground tank 241-B-203. This report supports requirements of the *Hanford Federal Facility Agreement and Consent Order* Milestone M-44-09 (Ecology et al. 1996).

Tank 241-B-203 is located in the 200 East Area B Tank Farm on the Hanford Site. The tank is connected to tanks 241-B-202 and 241-B-204 through tie-lines. The tank went into service in 1952, receiving an overflow of B Plant lanthanum fluoride finishing (224) waste from tank 241-B-204. Once tank 241-B-203 was filled, the 224 waste overflowed to tank 241-B-202. From tank 241-B-202, the 224 waste flowed to a crib. The entire tie-line series was filled by the third quarter of 1952, and the overflow of waste continued through the first quarter of 1953. No further transfers were received by tank 241-B-203 during its service life. The tank remained full and idle until 1974, when 23 kL (6 kgal) of supernate were transferred to tank 241-B-109. The tank was declared inactive in 1978 and an assumed leaker in 1983, with an approximate leak volume of 1.1 kL (0.3 kgal). Interim stabilization (June 1984) and intrusion prevention (June 1985) have since been completed. A 4 kL (1 kgal) increase in the waste volume was noted in 1993 (Agnew et al. 1996b). Because the tank was out of service and intrusion prevention was complete, this gain is likely due to a level adjustment.

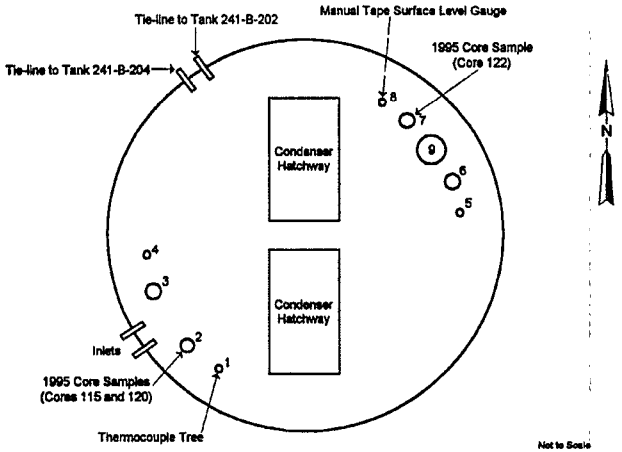
A description and status of tank 241-B-203 are summarized in Table ES-1 and Figure ES-1. The tank has an operating capacity of 210 kL (55 kgal), and presently contains an estimated

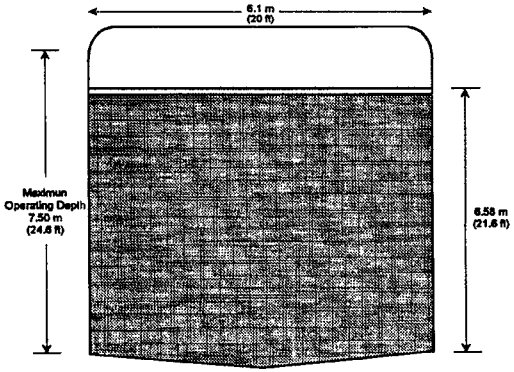
Table ES-1. Description and Status of Tank 241-B-203.

TANK DESCRIPTION	
Type	Single-Shell
Constructed	1943-1944
In-service	1952
Diameter	6.1 m (20 ft)
Operating depth	7.50 m (24.6 ft)
Capacity	210 kL (55 kgal)
Bottom Shape	Dish
Ventilation	Passive
TANK STATUS	
Waste classification	Non-complexed
Total waste volume	193 kL (51 kgal)
Supernatant volume	4 kL (1 kgal)
Sludge volume	189 kL (50 kgal)
Drainable interstitial liquid volume	19 kL (5 kgal)
Waste surface level (1991 - 1996)	658 cm (259 in.) to 662 cm (261 in.)
Temperature (5/75 - 1/96)	7.2 °C (48 °F) to 25.6 °C (78 °F)
Integrity	Assumed leaker 1983

Watch List	None
SAMPLING DATES	
Push-mode core samples	November/December 1995
SERVICE STATUS	
Declared inactive	1978
Interim stabilization	June 1984
Intrusion prevention	June 1985

Figure ES-1. Profile of Tank 241-B-203.





193 kL (51 kgal) of waste. The total amount is estimated to be composed of 189 kL (50 kgal) of sludge, with 4 kL (1 kgal) of supernatant (Hanlon 1996). The sludge contains an estimated 19 kL (5 kgal) of drainable interstitial liquid.

This report summarizes the collection and analysis of the core samples acquired in November and December 1995. The sampling event was performed to satisfy the requirements of the *Tank Safety Screening Data Quality Objective* (Dukelow et al. 1995). The sampling and analyses were performed in accordance with the *Tank 241-B-203 Push Mode Core Sampling and Analysis Plan* (Jo 1996c). The sampling effort involved taking push-mode core samples of the tank waste from two widely spaced risers. Core 115 was obtained from riser 2; however, due to equipment problems encountered during sampling, only 11 segments were obtained, three of which had zero recovery. Because a complete profile of the waste had not been attained with core 115, core 120 was taken from the same riser. Fourteen segments were acquired for core 120, four of which had zero recovery. Core 122, taken from riser 7, also contained 14 segments. Core 115 was archived and only cores 120 and 122 were analyzed.

The safety screening data quality objective (DQO) requires analyses for energetics using differential scanning calorimetry (DSC), percent water by thermogravimetric analysis (TGA), total alpha activity through alpha proportional counting, and bulk density. The safety screening DQO also requires a determination of the flammability of the tank headspace gases. To satisfy this requirement, monitoring within the tank headspace using a combustible gas meter was performed prior to core sampling. The sampling and analysis plan (SAP) also

required analyses for lithium and bromide to check for contamination of the samples by the wash water used during sampling operations. Additional results for other metals and anions were obtained during these analyses.

Three out of the 48 samples analyzed exhibited exothermic reactions during the DSC analysis. Two of these samples exhibited exothermic behavior (on a dry weight basis) exceeding the -480 J/g safety screening notification limit. The initial run on sample number S95T003958 (the drainable liquid from segment 1 of core 120) contained a dry weight exothermic reaction with an enthalpy change (ΔH) of -1,621 J/g. However, an exothermic reaction was not observed in the duplicate. A triplicate analysis was run on this sample, and a dry weight exothermic reaction with a ΔH of -311.2 J/g, below the safety screening limit, was found. All three analyses were rerun. No exothermic reactions were observed in the reruns. The upper limit to the 95 percent confidence interval for all six runs was -855.4 J/g (Jo 1996a). The weight percent water for this sample was 89.17 percent.

The second sample exhibiting an exothermic reaction exceeding the -480 J/g safety screening limit was from the lower half solids of segment 10 from core 122 (sample number S96T000033). The initial run for this sample exhibited an exothermic reaction (dry weight) with a ΔH of -699.2 J/g. The duplicate contained a dry weight exothermic reaction with a ΔH of -368.0 J/g. Both analyses were redone, and no exothermic reactions were detected during the rerun. The upper limit to the 95 percent confidence interval for all four runs was -662.6 J/g (Jo 1996a). The weight percent water for this sample was 75.30 percent.

The SAP required total organic carbon (TOC) analyses on the samples which had DSC results exceeding the -480 J/g limit (Jo 1996c). A notification limit of 30,000 μg C/g (dry weight) was listed in the SAP for the TOC concentration. The dry weight TOC results for the drainable liquid from segment 1 of core 120 and the lower half solids of segment 10, core 122, were 886 μg C/mL and 314 μg C/g, respectively. Since the TOC results were less than 3 weight percent, an analysis for cyanide was performed on the solid sample. The dry weight result of $<$ 23.9 μg/g was far below the notification limit of 39,000 μg/g.

There is low confidence in the initial exothermic behavior that exceeded the safety screening limit for samples S95T003958 and S96T000033. The DSC results for the initial runs on these two samples are considered suspect, because they were not reproducible and are not supported by the low TOC and cyanide concentrations. These DSC results are not believed to represent energetic concerns.

The remaining safety screening analytical requirements were satisfied. The total alpha activity results were well below the notification limit of 51.7 μCi/g. The total alpha activity overall mean for the sludge was 0.214 μCi/g. Ninety-five percent confidence interval upper limits were calculated for each segment, and the largest individual value was 0.637 μCi/g. The overall total alpha activity mean for the liquid was 1.08E-04 μCi/mL. The largest 95 percent confidence interval upper limit for the liquid was 2.12E-04 μCi/mL. The flammability of the tank 241-B-203 headspace gases was measured at 0 percent of the lower flammability limit (LFL). The average analytical values for major analytes and analytes of concern are presented in Table ES-2.

Table ES-2. Major Analytes and Analytes of Concern.[1]

Analyte	Mean Sludge Concentration	Sludge RSD (Mean)	Mean Supernate Concentration	Supernate RSD (Mean)	Total Inventory[2]
METALS	**μg/g**	**%**	**μg/mL**	**%**	**kg**
Bismuth	41,700	5.5	< 20.1	N/A	9,370
Chromium	3,080	4.8	159	6.6	694
Iron	4,410	24.1	< 10.0	N/A	993
Lanthanum	10,400	3.4	< 10.0	N/A	2,350
Manganese	14,200	4.9	< 20.1	N/A	3,180
Potassium	5,120	4.3	5,440	0.7	1,170
Sodium	29,000	3.3	31,100	0.7	6,660
ANIONS	**μg/g**	**%**	**μg/mL**	**%**	**kg**
Cyanide	< 5.91[3]	N/A	---	---	< 1.33
Fluoride	7,790	17.0	6,010	1.5	1,770
Nitrate	63,900	17.6	56,500	1.1	14,600
Phosphate	3,850	17.2	1,890	3.0	874
RADIONUCLIDES	**μCi/g**	**%**	**μCi/mL**	**%**	**Ci**
Total alpha	0.214	4.0	1.08E-04	18.8	48.2
TOTAL CARBON	**μg C/g**	**%**	**μg C/mL**	**%**	**kg**
Total inorganic carbon	645[3]	4.6	2,170[4]	3.3	154
Total organic carbon	77.5[3]	68.4	96.0[4]	3.2	17.8
PHYSICAL PROPERTIES	**Sludge Mean**	**%**	**Supernate Mean**	**%**	
Weight percent water	75.8 %	0.8	89.4 %	0.7	
Density	1.19 g/mL	4.6	1.053 g/mL	0.3	

Table ES-2. Major Analytes and Analytes of Concern.[1]

Notes:

RSD (Mean) = Relative standard deviation of the mean
N/A = Not applicable

[1]This table only contains results for analytes of concern and major analytes present in concentrations greater than 3,000 μg/g. Analytes found in minor concentrations are shown in the body of the report.

[2]Total Inventory = sludge inventory plus supernate inventory

[3]The overall mean is based on the results from one sample/duplicate pair taken from the lower half solids of segment 10, core 122. No other results were available.

[4]The overall mean is based on the results from one sample/duplicate pair taken from the drainable liquid from segment 1 of core 120. No other results were available.

An estimate of the tank heat load could not be calculated from the 1995 analytical data because the primary heat-producing radionuclides were not evaluated during the sampling and analysis event. Instead, a heat load estimate was derived from radionuclide data from a 1978 historical sampling event. The calculated value was 13.9 W (58.2 Btu/hr). Correcting this value for decay would reduce this number by roughly half. A heat load prediction of 0 W (0 Btu/hr) was available from the historical tank content estimate (HTCE), and Kummerer (1994) listed an estimate of 42.8 W (146 Btu/hr) based on headspace temperatures. All heat load estimates were well below the 11,700 W (40,000 Btu/hr) threshold differentiating high-heat from low-heat tanks (Bergmann 1991).

Finally, several conclusions were drawn from the analytical results. The waste currently in tank 241-B-203 may continue to be safely stored in the tank without special action. Also, no additional characterization efforts are needed at this time. Lastly, there were no unexpected findings that could affect the ability to retrieve and dispose of the waste safely.

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LIST OF TERMS

224	lanthanum fluoride finishing
ANOVA	analysis of variance
Btu/hr	British thermal units per hour
Ci	curies
Ci/g	curies per gram
cm	centimeters
DQO	data quality objective
DSC	differential scanning calorimetry
DL	drainable liquid
ft	feet
gal	gallons
g	grams
g/g	grams per gram
g/L	grams per liter
g/mL	grams per milliliter
HDW	Hanford Defined Waste
HTCE	historical tank content estimate
in.	inches
IC	ion chromatography
ICP	inductively coupled plasma spectroscopy
J/g	joules per gram
kg	kilograms
kgal	kilogallons
kL	kiloliters
kW	kilowatts
L	liters
LEL	lower explosive limit
LFL	lower flammability limit
LL	liner liquid
m	meters
mg	milligrams
mL	milliliters
mm	millimeters
mol/L	moles per liter
mR/hr	milliroentgens per hour
ppm	parts per million
QC	quality control
RPD	relative percent difference
RSD	relative standard deviation
SAP	sampling and analysis plan
TLM	Tank Layer Model
TGA	thermogravimetric analysis

LIST OF TERMS (Continued)

TIC	total inorganic carbon
TOC	total organic carbon
W	watts
WHC	Westinghouse Hanford Company
WSTRS	Waste Status and Transaction Record Summary
wt%	weight percent
ΔH	change in enthalpy
°C	degrees Celsius
°F	degrees Fahrenheit
μCi/g	microcuries per gram
μCi/mL	microcuries per milliliter
μeq/g	microequivalents per gram
μg/g	micrograms per gram
μg/mL	micrograms per milliliter
μg C/g	micrograms carbon per gram
μg C/mL	micrograms carbon per milliliter

1.0 INTRODUCTION

This tank characterization report presents an overview of single-shell tank 241-B-203 and its waste contents. It provides estimated concentrations and inventories for the waste constituents based on the latest sampling and analysis activities, in combination with background tank information. The characterization of tank 241-B-203 is based on the results from a core sampling event in November and December 1995. For informational purposes, results from two historical sampling events (in 1978 and 1982) have also been presented.

Tank 241-B-203 was declared inactive in 1978. Interim stabilization and intrusion prevention have since been completed; therefore, the composition of the waste should not change appreciably until pretreatment and retrieval activities commence. The analyte concentrations reported in this document reflect the best composition estimates of the waste based on the available analytical data and historical models. This report supports the requirements of the *Hanford Federal Facility Agreement and Consent Order* Milestone M-44-09 (Ecology et al. 1996).

1.1 PURPOSE

The purpose of this report is to summarize the information concerning the use and contents of tank 241-B-203. When possible, this information will be used to assess issues associated with safety, operations, environmental, and process activities. This report also serves as a reference point for more detailed information about tank 241-B-203.

1.2 SCOPE

The November/December 1995 core sampling event for tank 241-B-203 supported the evaluation of the tank waste according to the *Tank Safety Screening Data Quality Objective* (Dukelow et al. 1995). As directed in the *Tank 241-B-203 Push Mode Core Sampling and Analysis Plan* (Jo 1996c), safety screening analyses were performed on the two core samples to screen the tank for three safety issues: energetics, criticality, and headspace flammability. The required analyses were differential scanning calorimetry (DSC) to evaluate fuel level and energetics, thermogravimetric analysis (TGA) to determine moisture content, total alpha activity analysis (to evaluate criticality potential), and bulk density. Combustible gas meter readings of the tank headspace vapors were also taken to address flammability concerns. In addition to the analyses required to satisfy the safety screening DQO, the sampling and analysis plan (SAP) required analyses for lithium by inductively coupled plasma spectroscopy (ICP) and bromide by ion chromatography (IC) to check for sample contamination from the wash water used during sampling. Results for additional analytes were obtained from the ICP and IC analyses.

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2.0 HISTORICAL TANK INFORMATION

This section describes tank 241-B-203 based on historical information. The first part details the current condition of the tank. This is followed by discussions of the tank's design, transfer history, and the process sources that contributed to the tank waste, including an estimate of the current contents based on the process history. Conditions that may be related to tank safety issues, such as potentially hazardous tank contents or off-normal operating temperatures, are included. The final part summarizes available surveillance data for the tank. Solid and liquid level data are used to determine tank integrity (leaks) and to provide clues to internal activity in the solid layers of the tank. Temperature data are provided to evaluate the heat-generating characteristics of the waste.

2.1 TANK STATUS

As of February 29, 1996, tank 241-B-203 contained an estimated 193 kL (51 kgal) of waste classified as non-complexed (Hanlon 1996). The volume of liquids and solids in the tank was estimated using a photographic evaluation method and manual tape level measurements. The last solids volume estimate was made on May 31, 1984. The amounts of various waste phases existing in the tank are presented in Table 2-1.

Table 2-1. Estimated Tank Contents.

Waste Form	Volume	
	kL	kgal
Total waste	193	51
Supernatant liquid	4	1
Drainable interstitial liquid	19	5
Drainable liquid remaining	23	6
Pumpable liquid remaining	0	0
Sludge	189	50
Saltcake	0	0

Tank 241-B-203 was declared an assumed leaker in 1983 with a leak volume of approximately 1,100 L (300 gal). Interim stabilization was completed in June 1984 and intrusion prevention (interim isolation) was completed in June 1985. Tank 241-B-203 was

declared inactive in the first quarter of 1978 (Anderson 1990), is passively ventilated, and is not on any Watch Lists. All monitoring systems were in compliance with documented standards as of February 29, 1996 (Hanlon 1996).

2.2 TANK DESIGN AND BACKGROUND

Tank 241-B-203 was constructed during 1943 and 1944. It is one of four 210-kL (55-kgal) tanks in the B Tank Farm. These tanks were designed for nonboiling waste with a maximum fluid temperature of 104 °C (220 °F). As with all B Farm tanks, equipment to monitor and maintain the waste is sparse (Alstad 1993).

This single-shell tank is constructed of 300-mm (1-ft)-thick reinforced concrete with a 6.4-mm (0.25-in.) mild carbon steel liner on the bottom and sides and a 300-mm (1-ft)-thick flat concrete top. The tank has a 150-mm (6-in.) dished bottom with a 900-mm (3-ft) radius knuckle and a 7.50-m (24.6-ft) operating depth. The tank is set on a reinforced concrete foundation. The tank was waterproofed on the sides and top with tar and a cement-like mixture, and was covered with approximately 3.5 m (11.5 ft) of overburden. The four smaller tanks of the B tank farm are at the same elevation. Tank 241-B-203 is connected to tanks 241-B-202 and 241-B-204 by 76-mm (3-in.) tie-lines (Brevick et al. 1994). The tie-lines are at the same elevation, which allowed waste to flow from one tank to another and equalize tank volumes.

A list of tank 241-B-203 risers, showing the size and typical use, is provided in Table 2-2. A plan view that depicts the riser configuration is shown as Figure 2-1. A tank cross-section showing the approximate waste level along with a schematic of the tank equipment is found in Figure 2-2.

Tank 241-B-203 has eight grade level risers ranging in diameter from 100 mm (4 in.) to 300 mm (12 in.) that provide surface level access to the underground tank. The tank has a 1.1-m (42-in.) construction manhole. Risers 2, 3, and 6, which are 300 mm (12 in.) in diameter, and riser 5, which is 100 mm (4 in.) in diameter, are available for sampling. These risers would give access to two opposite sides of the tank. Locations are shown on Figure 2-1.

Figure 2-1. Riser Configuration for Tank 241-B-203.

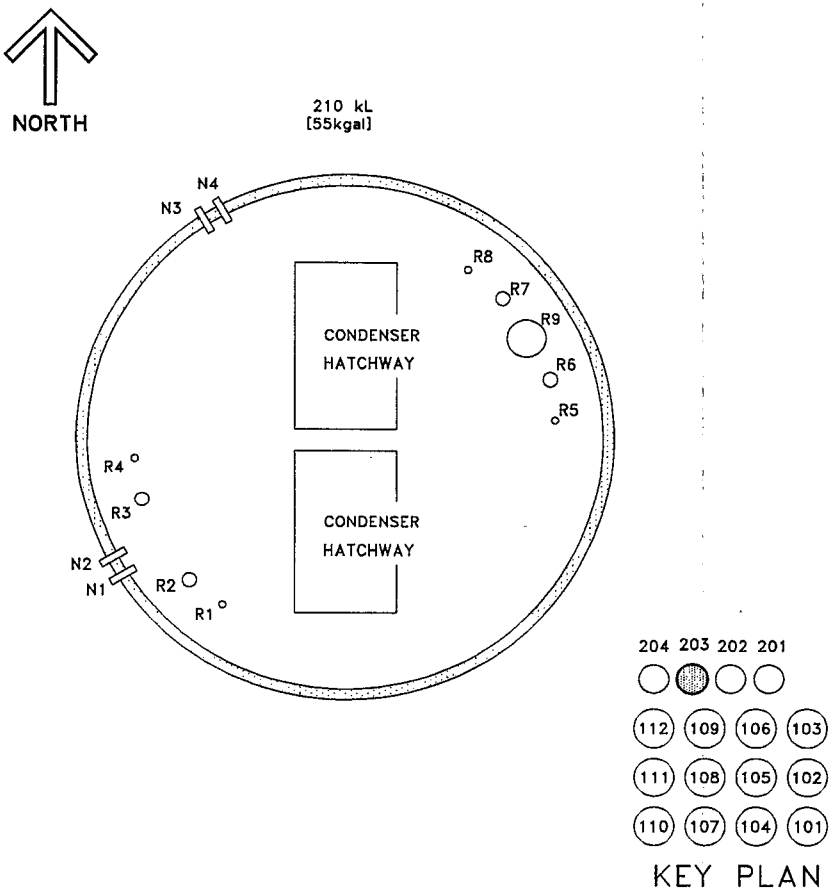


Table 2-2. Tank 241-B-203 Risers.[1,2]

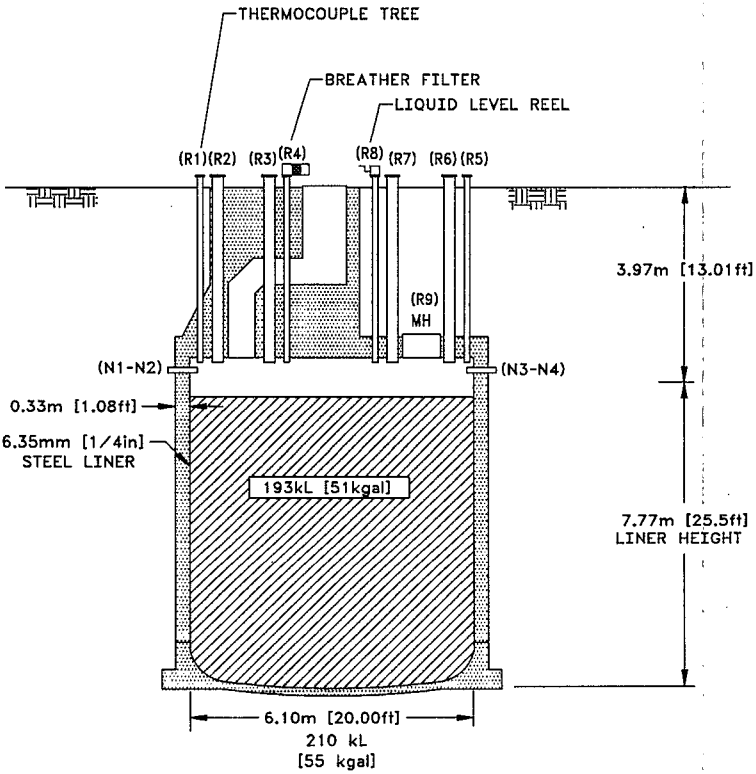
Riser Number	Diameter (inches)	Description and Comments
R1	4	Thermocouple tree
R2	12	Flange/observation port
R3	12	Flange
R4	4	Breather filter, G1 housing
R5	4	Flange
R6	12	Flange
R7	12	Blind flange
R8	4	Liquid level reel
R9	42	Manhole, below grade
Nozzle Number	**Diameter (inches)**	**Description and Comments**
N1	3	Line V-294
N2	3	Line V-295
N3	3	Line from tank B-204
N4	3	Line from tank B-202

Notes:

[1]Alstad (1993)

[2]Vitro Engineering Corporation (1986)

Figure 2-2. Tank 241-B-203 Cross-Section.



2.3 PROCESS KNOWLEDGE

These sections present the waste transfer history of tank 241-B-203. Section 2.3.1 and Table 2-3 present the major waste transfers that involved tank 241-B-203, along with a narrative describing these transfers.

2.3.1 Waste Transfer History

Waste was first added to tank 241-B-203 in the second quarter of 1952 from an overflow of 224 waste from tank 241-B-204. During the quarter, the 224 waste overflowed into tank 241-B-202, and then into a crib after the three-tank series was filled. Waste from tank 241-B-204 continued to overflow through tanks 241-B-203 and 241-B-202 until the first quarter of 1953. During the first quarter of 1953, tank 241-B-203 was noted as receiving B Plant flushes, but no waste transfers were noted in historical records until the first quarter of 1974, when supernate from tank 241-B-203 was transferred to tank 241-B-109. Tank 241-B-203 was declared inactive in the first quarter of 1978. A gain of 4 kL (1 kgal) occurred in 1993. Because the tank was out of service, the gain was not a transfer. An intrusion was not likely, because intrusion prevention of the tank was completed in 1985. Therefore, the small gain in 1993 was probably due to a level adjustment.

Table 2-3. Summary of Tank 241-B-203 Process History.[1,2]

Transfer Source	Transfer Destination	Waste Type	Time Period	Estimated Waste Volume	
				kL	kgal
Tank 241-B-204	---	224	1952 - 1953	1,200	317
---	Tank 241-B-202	224	1952 - 1953	- 992	- 262
---	Tank 241-B-109	224	1974	- 23	- 6
Level adjustment	---	Level adjustment	1993	4	1

Notes:

[1]Agnew et al. (1996b)

[2]Waste volumes and types are best estimates based on historical data.

2.3.2 Historical Estimation of Tank Contents

The following is an estimate of the contents for tank 241-B-203 based on historical transfer data. The estimates have not been validated and thus should be used with caution. The historical data used for the estimates are from the *Waste Status and Transaction Record*

Summary for the Northeast Quadrant (WSTRS) (Agnew et al. 1996b), and the *Hanford Tank Chemical and Radionuclide Inventories: HDW Model Rev. 3* (Agnew et al. 1996a). Agnew et al. (1996a) contains the Hanford Defined Waste (HDW) list, the Tank Layer Model (TLM), and the Historical Tank Content Estimate (HTCE) predictions. The WSTRS is a compilation of available waste transfer and volume status data. The HDW provides the assumed typical compositions for Hanford Site waste types. In most cases, the available data are incomplete, reducing the reliability of the transfer data and the modeling results derived from it. The TLM takes the WSTRS data, models the waste deposition processes, and, using additional data from the HDW (which may introduce more error), generates an estimate of the tank contents. Thus, these model predictions can only be considered an estimate that requires further evaluation using analytical data.

Based on the TLM, tank 241-B-203 contains a top layer of 4 kL (1 kgal) of supernatant waste, above a bottom solids layer of 189 kL (50 kgal) of 224 waste. A graphical representation of the estimated waste types and volumes for these layers can be seen in Figure 2-3.

The 224 waste layer should contain primarily sodium, strontium, hydroxide, nitrate, and fluoride, with trace amounts of iron, lanthanum, carbonate, oxalate, and plutonium. Because very small amounts of radiological constituents exist in the layer, very little activity will be found. The specifics on the supernatant waste layer are not well defined, though the waste should contain constituents similar to the 224 waste layer. Table 2-4 shows an estimate of the expected waste constituents and their concentrations.

Figure 2-3. Tank Layer Model for Tank 241-B-203.

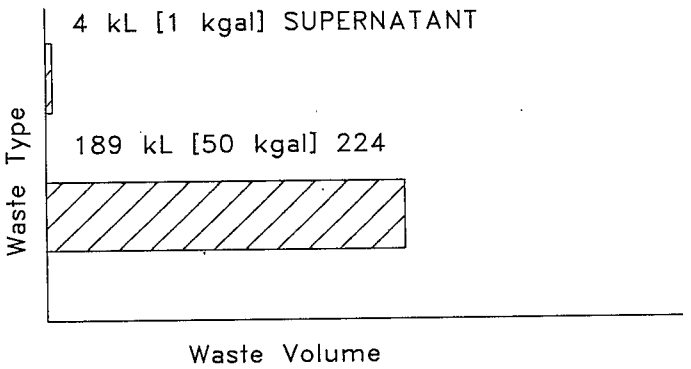


Table 2-4. Tank 241-B-203 Inventory Estimate.[1,2] (2 sheets)

Total Inventory Estimate			
Physical Properties			
Total waste	2.64E+05 kg (51 kgal)		
Heat load	0 kW (0 Btu/hr)		
Bulk density	1.37 (g/mL)		
Water wt%	56.4		
Total organic carbon wt% carbon (wet)	1.10		
Chemical Constituents	**mol/L**	**ppm**	**kg[3]**
Na^+	4.43	74,400	19,700
Al^{3+}	0	0	0
Fe^{3+} (total Fe)	0.354	14,400	3,810
Cr^{3+}	0.00337	128	33.9
Bi^{3+}	0.0592	9,040	2,390
La^{3+}	0.232	23,600	6,220
Ce^{3+}	0	0	0
Zr (as $ZrO(OH)_2$)	0	0	0
Pb^{2+}	0	0	0
Ni^{2+}	0.00132	56.5	14.9
Sr^{2+}	1.54	98,300	26,000
Mn^{4+}	0.00379	152	40.1
Ca^{2+}	0.239	7,000	1,850
K^+	0.223	6,370	1,680
OH^-	4.82	59,900	15,800
NO_3^-	1.30	59,000	15,600
NO_2^-	7.17E-07	0.0259	0.00684
CO_3^{2-}	0.239	10,500	2,770
PO_4^{3-}	0.0946	6,560	1,730
SO_4^{2-}	0.00132	92.4	24.4
Si (as SiO_3^{2-})	0	0	0
F^-	1.99	27,700	7,320
Cl^-	0.0244	632	167

Table 2-4. Tank 241-B-203 Inventory Estimate.[1,2] (2 sheets)

Total Inventory Estimate			
Chemical Constituents (Cont'd)	**mol/L**	**ppm**	**kg[3]**
citrate^{3-}	0	0	0
EDTA^{4-}	0	0	0
HEDTA^{3-}	0	0	0
glycolate^{-}	0	0	0
acetate^{-}	0	0	0
oxalate^{2-}	0.630	40,500	10,700
DBP	0	0	0
butanol	0	0	0
NH_3	0	0	0
$Fe(CN)_6^{4-}$	0	0	0
Radiological Constituents			
Pu	---	0.00988 (μCi/g)	0.0435 (kg)
U	0	0	0
Cs	0	0	0
Sr	0	0	0

Notes:

[1]Agnew et al. (1996a)

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

[3]Small differences appear to exist among the inventories in this column and the inventories calculated from the two sets of concentrations.

2.4 SURVEILLANCE DATA

Tank 241-B-203 surveillance consists of surface level measurements (liquid and solid) and temperature monitoring inside the tank (waste and headspace). The data provide the basis for determining tank integrity.

Liquid level measurement may indicate if there is a major leak from a tank. Solid surface level measurements provide an indication of physical changes and consistency of the solid layers of a tank. Tank 241-B-203 has no liquid observation wells or drywells.

2.4.1 Surface Level

The surface level of the waste is monitored daily with a manual tape through riser 8. The maximum allowed deviations from the 6.6-m (260-in.) baseline established for tank 241-B-203 are a 50-mm (2-in.) increase and a 50-mm (2-in.) decrease. The surface level readings have varied slightly from 1991 to 1996, varying between 6.58 m (259 in.) and 6.62 m (261 in.). A graph representing the level measurement history is presented in Figure 2-4. The surface level on March 14, 1996, was 6.6 m (259.75 in.).

2.4.2 Internal Tank Temperatures

Tank 241-B-203 has a single thermocouple tree with 12 thermocouples to monitor the waste temperature. The design of the thermocouple tree is unclear and the elevations of the individual thermocouples are unknown. No temperature data are available prior to 1975. A gap in the data exists between April 1982 and July 1989.

Temperature data are recorded quarterly for this tank. The mean temperature for data recorded between May 1975 and January 1996 was 16.7 °C (62.1 °F) with a minimum of 7.2 °C (48 °F) and a maximum of 25.6 °C (78 °F). The mean temperature for the last year (all thermocouples for three recordings) was 14.7 °C (58.5 °F) with a minimum of 10 °C (50 °F) and a maximum of 16.8 °C (62.2 °F).

On January 9, 1996, the high temperature was 16.8 °C (62.2 °F) recorded by thermocouple 7, and the low temperature was 13.8 °C (56.9 °F) recorded by thermocouple 11. A graph of the weekly high temperature is provided as Figure 2-5. Plots of the individual thermocouple readings can be found in Brevick et al. (1994).

2.4.3 Tank 241-B-203 Photographs

The 1986 photographic montage of the interior of tank 241-B-203 indicates a thin supernate surface with dark brown sludge underneath. Because of the high waste level and the flat dome, the photographs were taken horizontally across the tank; therefore, both the waste surface and tank dome appear in the montage. The inlet nozzle and thermocouple tree were overexposed because they were too close to the flash. This photograph should correspond to the current tank contents because no transfers have taken place since this photograph was taken.

Figure 2-4. Tank 241-B-203 Level History.

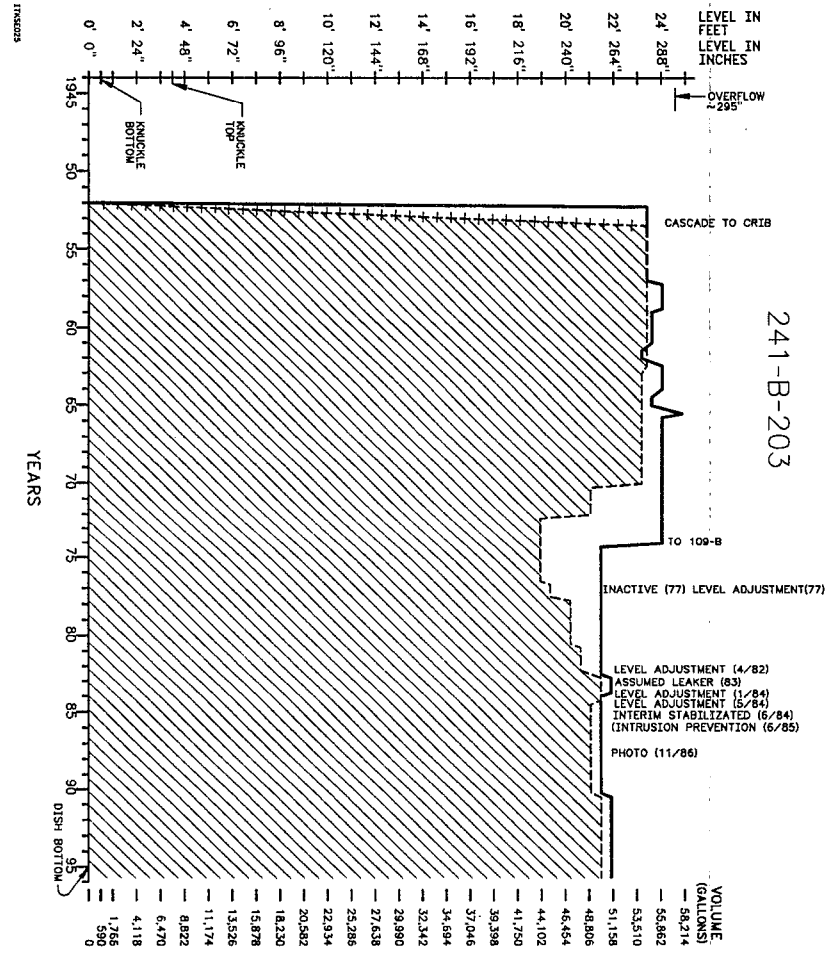
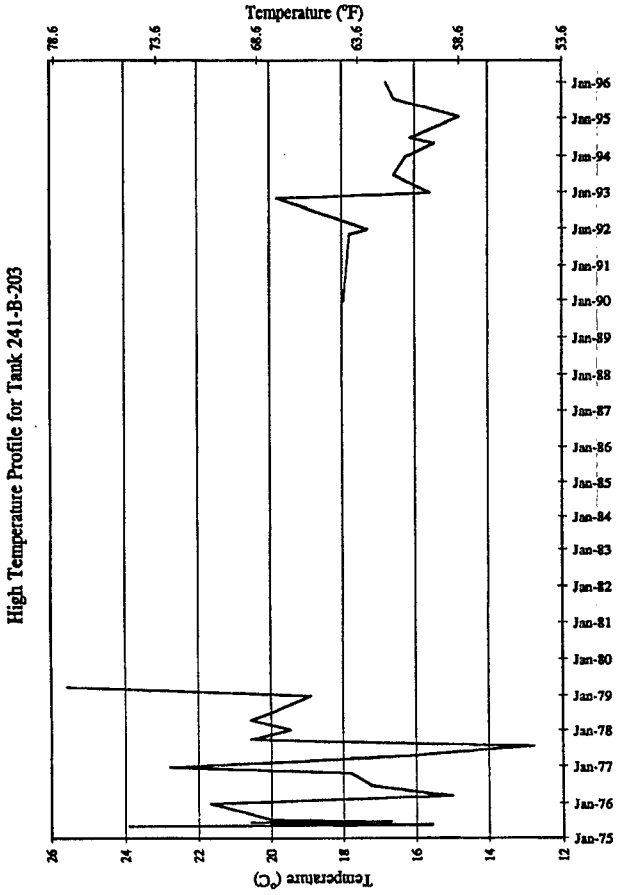


Figure 2-5. Tank 241-B-203 High Temperature Plot.



3.0 TANK SAMPLING OVERVIEW

This section describes the November/December 1995 sampling and analysis event for tank 241-B-203. Push-mode core samples were taken to satisfy the requirements of the *Tank Safety Screening Data Quality Objective* (Dukelow et al. 1995). The sampling and analysis were performed in accordance with the *Tank 241-B-203 Push Mode Core Sampling and Analysis Plan* (Jo 1996c). Further discussions of the sampling and analysis procedures can be found in the *Tank Characterization Reference Guide* (DeLorenzo et al. 1994).

3.1 DESCRIPTION OF SAMPLING EVENT

All core samples were taken using the push-mode core sampling method. Core 115 was obtained from riser 2; however, due to equipment problems encountered during sampling, only 11 segments were acquired, three of which did not contain any waste material. Consequently, core 120 was taken from the same riser in an attempt to obtain a full profile of the waste. Core 122 was acquired from riser 7. All three cores were obtained during the period from November 20 through December 14, 1995. A field blank was also taken and delivered with core 120.

Prior to core sampling, the tank headspace was sampled to determine the flammable gas concentration as outlined in the safety screening DQO. Sampling of the vapor headspace was performed periodically from October 25 to December 14, 1995, through risers 2, 4, 6, and 7 (Jo 1996a).

Wash water was used to flush the drill bit (when plugged) during core sampling operations. A tracer (lithium bromide) was added to the wash water to gauge contamination of the segments by the wash water. However, because the chain-of-custody forms did not mention the use of wash water, a wash water blank was not obtained. If needed, the blank data from the tank 241-B-204 sampling event may be used (Jo 1996a).

All analyses were performed by the Westinghouse Hanford Company (WHC) 222-S Laboratory in accordance with the referenced SAP (Jo 1996c). Table 3-1 summarizes the sampling and analysis requirements of the safety screening DQO (Dukelow et al. 1995). Table 3-2 summarizes sample location (riser number), sample numbering, and dose rate information.

Table 3-1. Integrated Data Quality Objective Requirements for Tank 241-B-203.[1]

Sampling Event	Applicable DQOs	Sampling Requirements	Analytical Requirements
Push-mode core sampling	Safety screening	Core samples from a minimum of two risers separated radially to the maximum extent possible	▸ Energetics ▸ Moisture content ▸ Total alpha ▸ Density ▸ Flammable gas

Note:
[1]Jo (1996c)

Table 3-2. Push-Mode Cores 115, 120, and 122 Sample Information.[1] (2 sheets)

Segment	Sample Number	Drill String Dose Rate (mR/hr)	Segment	Sample Number	Drill String Dose Rate (mR/hr)
Core 115 - Riser 2					
1	95-261	< 0.5	7	95-267	< 0.5
2	95-262	< 0.5	8	95-268	< 0.5
3	95-263	< 0.5	9	95-269	< 0.5
4	95-264	< 0.5	10	95-270	< 0.5
5	95-265	< 0.5	11	95-271	< 0.5
6	95-266	< 0.5			
Core 120 - Riser 2					
1	95-295	< 0.5	8	95-302	< 0.5
2	95-296	< 0.5	9	95-303	< 0.5
3	95-297	< 0.5	10	95-304	< 0.5
4	95-298	< 0.5	11	95-305	< 0.5
5	95-299	< 0.5	12	95-306	< 0.5
6	95-300	< 0.5	13	95-307	< 0.5
7	95-301	< 0.5	14	95-308	< 0.5

Table 3-2. Push-Mode Cores 115, 120, and 122 Sample Information.[1] (2 sheets)

Segment	Sample Number	Drill String Dose Rate (mR/hr)	Segment	Sample Number	Drill String Dose Rate (mR/hr)
Core 122 - Riser 7					
1	95-322	< 0.5	8	95-329	< 0.5
2	95-323	< 0.5	9	95-330	< 0.5
3	95-324	< 0.5	10	95-331	< 0.5
4	95-325	< 0.5	11	95-332	< 0.5
5	95-326	< 0.5	12	95-333	< 0.5
6	95-327	< 0.5	13	95-334	< 0.5
7	95-328	< 0.5	14	95-335	< 0.5

Note:

[1]Jo (1996b)

3.2 SAMPLE HANDLING

Core 115 was received by the Westinghouse Hanford Company 222-S Laboratory between November 21 and November 29, 1995, and was extruded from November 29 through December 14, 1995. It was decided to archive core 115 rather than analyze it because, due to equipment problems, the bottom 3 segments were not obtained. Furthermore, a full 14-segment core (core 120) was obtained from the same riser (riser 2) as core 115. Cores 120 and 122 were received between December 6 and December 19, 1995, and were extruded between December 6, 1995 and January 3, 1996.

Equipment problems may have also played a role in the poor recovery of some segments. No samples were recovered from segments 2, 3, and 11 of core 115 and segments 2, 3, 11, and 12 of core 120. The top segment of each of the three cores, as well as segment 3 of core 122, contained drainable liquid (DL). Small amounts of liner liquid (LL) were also found for most of the samples. All solids obtained from different segments of the three cores were a damp, soft and black sludge. No solids were recovered from the top segment of cores 120 and 122. No separable organic layer was observed in any of the segments. One field blank was delivered to the 222-S Laboratory with core 120. Cores 120 and 122 were subsampled at the half-segment level for analysis, except for segment 2 of core 122, which was analyzed at the whole-segment level due to low recovery.

Table 3-3 presents a description of the subsampling scheme, mass, and visual characteristics.

Table 3-3. Subsampling Scheme, Recovery, and Sample Description.[1] (4 sheets)

Core	Segment	Subsegment	Recovery	Description
115	1	Whole	57.5 g	DL was initially opaque and black but upon settling became clear with black solids. 9 cm (3.5 in.) of black sludge was extruded. Estimated sample volume was 150 mL.
		DL	155.3 g	
		LL	12.2 g	
	2	N/A	None	N/A
	3	N/A	None	N/A
	4	Upper ½	110.0 g	15 cm (6 in.) of solids extruded. Solids were a black, damp, and soft sludge that retained its shape. No facies, DL, or LL.
	5	Upper ½	150.6 g	38 cm (15 in.) of solids extruded. Solids were a black, damp, and soft sludge that retained its shape. No facies or DL.
		Lower ½	91.5 g	
		LL	< 5 mL	
	6	Upper ½	159.0 g	43 cm (17 in.) of solids extruded. Solids were a black, damp, and soft sludge that retained its shape. No facies, DL, or LL.
		Lower ½	147.0 g	
	7	Upper ½	169.1 g	46 cm (18 in.) of solids extruded. Solids were a black, damp, and soft sludge that retained its shape. No facies, DL, or LL.
		Lower ½	148.9 g	
	8	Upper ½	180.9 g	48 cm (19 in.) of solids extruded. Solids were a black, damp, and soft sludge that retained its shape. No facies, DL, or LL.
		Lower ½	180.0 g	
	9	Upper ½	163.7 g	48 cm (19 in.) of solids extruded. Solids were a black, damp, and soft sludge that retained its shape. No facies, DL, or LL.
		Lower ½	162.8 g	
	10	Upper ½	154.8 g	38 cm (15 in.) of solids extruded. Solids were a black, damp, and soft sludge that retained its shape. No facies, DL, or LL.
		Lower ½	149.7 g	
	11	N/A	None	N/A

Table 3-3. Subsampling Scheme, Recovery, and Sample Description.[1] (4 sheets)

Core	Segment	Subsegment	Recovery	Description
120	1	DL	29.8 g	DL was clear and light yellow. No solids present. Estimated volume was 30 mL.
	2	N/A	None	N/A
	3	N/A	None	N/A
	4	Upper ½	154.8 g	35 cm (14 in.) of solids extruded. Solids were a black, damp, and soft sludge that retained its shape. No facies or DL.
		Lower ½	95.4 g	
		LL	< 5 mL	
	5	Upper ½	103.0 g	30 cm (12 in.) of solids extruded. Solids were a black, damp, and soft sludge that retained its shape. No facies or DL.
		Lower ½	101.0 g	
		LL	< 5 mL	
	6	Upper ½	138.7 g	33 cm (13 in.) of solids extruded. Solids were a black, damp, and soft sludge that retained its shape. No facies or DL.
		Lower ½	107.3 g	
		LL	< 5 mL	
	7	Upper ½	163.6 g	46 cm (18 in.) of solids extruded. Solids were a black, damp, and soft sludge that retained its shape. No facies or DL.
		Lower ½	144.6 g	
		LL	< 5 mL	
	8	Upper ½	172.7 g	35 cm (14 in.) of solids extruded. Solids were a black, damp, and soft sludge that retained its shape. No facies or DL.
		Lower ½	73.5 g	
		LL	< 5 mL	
	9	Upper ½	125.6 g	38 cm (15 in.) of solids extruded. Solids were a black, damp, and soft sludge that retained its shape. No facies or DL.
		Lower ½	146.5 g	
		LL	< 5 mL	
	10	Upper ½	162.9 g	48 cm (19 in.) of solids extruded. Solids were a black, damp, and soft sludge that retained its shape. No facies or DL.
		Lower ½	182.7 g	
		LL	< 20 mL	
	11	N/A	None	N/A

Table 3-3. Subsampling Scheme, Recovery, and Sample Description.[1] (4 sheets)

Core	Segment	Subsegment	Recovery	Description
120 (Cont'd)	12	N/A	None	N/A
	13	Upper ½	180.3 g	48 cm (19 in.) of solids extruded. Solids were a black, damp, and soft sludge that retained its shape. No facies or DL.
		Lower ½	195.4 g	
		LL	< 5 mL	
	14	Upper ½	185.3 g	48 cm (19 in.) of solids extruded. Solids were a black, damp, and soft sludge that retained its shape. No facies or DL.
		Lower ½	187.3 g	
		LL	< 5 mL	
122	1	DL	229.6 g	DL was initially opaque and black but upon settling became clear and colorless with black solids. Estimated sample volume was 220 mL.
	2	Whole	15.7 g	2.5 cm (1 in.) of solids extruded. Solids were a black, damp, and soft sludge. No facies, DL, or LL.
	3	Upper ½	146.5 g	25 cm (10 in.) of solids extruded. Solids were a black, damp, and soft sludge that retained its shape. Approximately 40 mL of black opaque DL collected. No facies.
		Lower ½	22.1 g	
		DL	25.3 g	
		LL	< 5 mL	
	4	Upper ½	115.0 g	35 cm (14 in.) of solids extruded. Solids were a black, damp, and soft sludge that retained its shape. No facies, DL, or LL.
		Lower ½	126.7 g	
	5	Upper ½	158.6 g	43 cm (17 in.) of solids extruded. Solids were a black, damp, and soft sludge that retained its shape. No facies, DL, or LL.
		Lower ½	168.3 g	
	6	Upper ½	174.9 g	48 cm (19 in.) of solids extruded. Solids were a black, damp, and soft sludge that retained its shape. No facies or DL.
		Lower ½	169.7 g	
		LL	< 10 mL	
	7	Upper ½	170.2 g	48 cm (19 in.) of solids extruded. Solids were a black, damp, and soft sludge that retained its shape. No DL.
		Lower ½	169.5 g	
		LL	< 5 mL	

Table 3-3. Subsampling Scheme, Recovery, and Sample Description.[1] (4 sheets)

Core	Segment	Subsegment	Recovery	Description
122 (Cont'd)	8	Upper ½	177.8 g	48 cm (19 in.) of solids extruded. Solids were a black, damp, and soft sludge that retained its shape. No facies or DL.
		Lower ½	184.6 g	
		LL	< 5 mL	
	9	Upper ½	134.0 g	35 cm (14 in.) of solids extruded. Solids were a black, damp, and soft sludge that retained its shape. No facies or DL.
		Lower ½	132.0 g	
		LL	< 5 mL	
	10	Upper ½	169.8 g	43 cm (17 in.) of solids extruded. Solids were a black, damp, and soft sludge that retained its shape. No facies or DL.
		Lower ½	147.9 g	
		LL	< 5 mL	
	11	Upper ½	81.5 g	25 cm (10 in.) of solids extruded. Solids were a black, damp, and soft sludge that retained its shape. No facies or DL.
		Lower ½	108.6 g	
		LL	< 5 mL	
	12	Upper ½	132.8 g	38 cm (15 in.) of solids extruded. Solids were a black, damp, and soft sludge that retained its shape. No facies or DL.
		Lower ½	144.4 g	
		LL	< 5 mL	
	13	Upper ½	130.7 g	35 cm (14 in.) of solids extruded. Solids were a black, damp, and soft sludge that retained its shape. No facies or DL.
		Lower ½	127.2 g	
		LL	< 15 mL	
	14	Upper ½	182.8 g	48 cm (19 in.) of solids extruded. Solids were a black, damp, and soft sludge that retained its shape. No facies or DL.
		Lower ½	183.9 g	
		LL	< 5 mL	
Field blank			259.5 g	Clear and colorless liquid. No solids or liner liquid.

Notes:

N/A = Not applicable

[1]Jo (1996a)

3.3 SAMPLE ANALYSIS

The analyses performed on the core samples were those required by the safety screening DQO. These included analyses for thermal properties by DSC, moisture by TGA, fissile content by total alpha analysis, and bulk density. In addition to the core sample analyses, the tank headspace flammability was measured using a combustible gas meter prior to core sampling.

Bromide analysis by IC and lithium analysis by ICP were also performed to determine the amount of wash wastes contamination in the samples. Anion IC results and ICP data for other elements were also reported on an opportunistic basis. These additional analyses were not required by the safety screening DQO. However, the data were generated when analyses for bromide and lithium were performed and were reported as requested by the SAP.

Two TOC analyses were performed on samples exhibiting exothermic reactions that exceeded the action limit of -480 J/g (dry weight basis). Although not required, total inorganic carbon (TIC) data were also generated when TOC analyses were run. One sludge sample exhibiting an exothermic reaction exceeding -480 J/g (dry weight basis) also had a TOC result well below 3 weight percent. Therefore, a cyanide analysis was performed, as required, to determine whether or not the ferrocyanide safety program DQO should be applied. The other sample exhibiting an exothermic reaction exceeding the safety screening limit also had a TOC result well below 3 weight percent. However, a cyanide analysis was not requested because the sample was liquid and the cyanide precipitates are not found in the liquid phase.

Quality control (QC) checks including laboratory control standards, matrix spikes, duplicate analyses, and blanks were applied to the total alpha activity analysis. Laboratory control standards and duplicate analysis quality control checks were used for the TGA and DSC analyses. An assessment of the QC procedures and data is presented in Section 5.1.2 of this report.

All reported analyses were performed in accordance with approved laboratory procedures. A list of the sample number and applicable analyses is presented in Table 3-4. Analyses of liner liquid samples can be found in Jo (1996b); they are not included in this report because they are not representative of the waste. Table 3-5 displays the analytical procedures by title and number. No deviations or modifications were noted by the laboratory.

Table 3-4. Summary of Samples and Analyses.[1] (6 sheets)

Core	Segment	Segment Portion	Labcore Number	Analyses
120	1	DL	S95T003958	TGA, SpG, DSC, ICP, IC, Total alpha
			S96T000600	TIC, TOC
	4	Upper ½	S95T003965	Bulk density
			S95T004048	TGA, DSC
			S95T004087	ICP
			S95T004077	IC
		Lower ½	S95T003964	Bulk density
			S95T004039	TGA, DSC
			S95T004078	ICP
			S95T004068	IC
			S95T004088	Total alpha
	5	Upper ½	S95T003966	Bulk density
			S95T004049	TGA, DSC
			S95T004105	ICP
			S95T004097	IC
		Lower ½	S95T003974	Bulk density
			S95T004040	TGA, DSC
			S95T004079	ICP
			S95T004069	IC
			S95T004089	Total alpha
	6	Upper ½	S95T004050	TGA, DSC
			S95T004106	ICP
			S95T004098	IC
		Lower ½	S95T003975	Bulk density
			S95T004041	TGA, DSC
			S95T004080	ICP
			S95T004070	IC
			S95T004090	Total alpha
	7	Upper ½	S95T003968	Bulk density
			S95T004051	TGA, DSC
			S95T004107	ICP
			S95T004099	IC
		Lower ½	S95T003976	Bulk density
			S95T004042	TGA, DSC
			S95T004081	ICP
			S95T004071	IC
			S95T004091	Total alpha

Table 3-4. Summary of Samples and Analyses.[1] (6 sheets)

Core	Segment	Segment Portion	Labcore Number	Analyses
120 (Cont'd)	8	Upper ½	S95T003969 S95T004052 S95T004108 S95T004100	Bulk density TGA, DSC ICP IC
		Lower ½	S95T003977 S95T004043 S95T004082 S95T004072 S95T004092	Bulk density TGA, DSC ICP IC Total alpha
	9	Upper ½	S95T003970 S95T004053 S95T004109 S95T004101	Bulk density TGA, DSC ICP IC
		Lower ½	S95T003978 S95T004044 S95T004083 S95T004073 S95T004093	Bulk density TGA, DSC ICP IC Total alpha
	10	Upper ½	S95T003971 S95T004054 S95T004110 S95T004102	Bulk density TGA, DSC ICP IC
		Lower ½	S95T003979 S95T004045 S95T004084 S95T004074 S95T004094	Bulk density TGA, DSC ICP IC Total alpha
	13	Upper ½	S95T003972 S95T004055 S95T004111 S95T004103	Bulk density TGA, DSC ICP IC
		Lower ½	S95T003980 S95T004046 S95T004085 S95T004075 S95T004095	Bulk density TGA, DSC ICP IC Total alpha

Table 3-4. Summary of Samples and Analyses.[1] (6 sheets)

Core	Segment	Segment Portion	Labcore Number	Analyses
120 (Cont'd)	14	Upper ½	S95T003973 S95T004056 S95T004112 S95T004104	Bulk density TGA, DSC ICP IC
		Lower ½	S95T003981 S95T004047 S95T004086 S95T004076 S95T004096	Bulk density TGA, DSC ICP IC Total alpha
122	1	DL	S95T004003	TGA, SpG, DSC, ICP, IC, Total alpha
		Whole	S95T004007 S95T004023 S95T004021 S95T004025	TGA, DSC ICP IC Total alpha
	3	DL	S95T004004	TGA, SpG, DSC, ICP, IC, Total alpha
		Upper ½	S95T004000 S95T004009 S95T004032 S95T004029	Bulk density TGA, DSC ICP IC
		Lower ½	S95T003997 S95T004008 S95T004024 S95T004022 S95T004026	Bulk density TGA, DSC ICP IC Total alpha
	4	Upper ½	S95T004001 S95T004014 S95T004037 S95T004035	Bulk density TGA, DSC ICP IC
		Lower ½	S95T003998 S95T004012 S95T004030 S95T004027 S95T004033	Bulk density TGA, DSC ICP IC Total alpha

Table 3-4. Summary of Samples and Analyses.[1] (6 sheets)

Core	Segment	Segment Portion	Labcore Number	Analyses
122 (Cont'd)	5	Upper ½	S95T004002 S95T004015 S95T004038 S95T004036	Bulk density TGA, DSC ICP IC
		Lower ½	S95T003999 S95T004013 S95T004031 S95T004028 S95T004034	Bulk density TGA, DSC ICP IC Total alpha
	6	Upper ½	S95T004218 S95T004227 S95T004245 S95T004242	Bulk density TGA, DSC ICP IC
		Lower ½	S95T004214 S95T004233 S95T004239 S95T004221 S95T004236	Bulk density TGA, DSC ICP IC Total alpha
	7	Upper ½	S95T004219 S95T004228 S95T004246 S95T004243	Bulk density TGA, DSC ICP IC
		Lower ½	S95T004215 S95T004234 S95T004240 S95T004222 S95T004237	Bulk density TGA, DSC ICP IC Total alpha
	8	Upper ½	S95T004220 S95T004229 S95T004247 S95T004244	Bulk density TGA, DSC ICP IC
		Lower ½	S95T004216 S95T004235 S95T004241 S95T004223 S95T004238	Bulk density TGA, DSC ICP IC Total alpha

Table 3-4. Summary of Samples and Analyses.[1] (6 sheets)

Core	Segment	Segment Portion	Labcore Number	Analyses
122 (Cont'd)	9	Upper ½	S96T000026 S96T000038 S96T000080 S96T000074	Bulk density TGA, DSC ICP IC
		Lower ½	S96T000020 S96T000032 S96T000062 S96T000056 S96T000068	Bulk density TGA, DSC ICP IC Total alpha
	10	Upper ½	S96T000027 S96T000039 S96T000081 S96T000075	Bulk density TGA, DSC ICP IC
		Lower ½	S96T000021 S96T000033 S96T000063 S96T000057 S96T000069 S96T000602	Bulk density TGA, DSC ICP IC Total alpha CN^-, TIC, TOC
	11	Upper ½	S96T000028 S96T000040 S96T000082 S96T000076	Bulk density TGA, DSC ICP IC
		Lower ½	S96T000022 S96T000034 S96T000064 S96T000058 S96T000070	Bulk density TGA, DSC ICP IC Total alpha
	12	Upper ½	S96T000029 S96T000041 S96T000083 S96T000077	Bulk density TGA, DSC ICP IC
		Lower ½	S96T000023 S96T000035 S96T000065 S96T000059 S96T000071	Bulk density TGA, DSC ICP IC Total alpha

Table 3-4. Summary of Samples and Analyses.[1] (6 sheets)

Core	Segment	Segment Portion	Labcore Number	Analyses
122 (Cont'd)	13	Upper ½	S96T000030 S96T000042 S96T000084 S96T000078	Bulk density TGA, DSC ICP IC
		Lower ½	S96T000024 S96T000036 S96T000066 S96T000060 S96T000072	Bulk density TGA, DSC ICP IC Total alpha
	14	Upper ½	S96T000031 S96T000043 S96T000085 S96T000079	Bulk density TGA, DSC ICP IC
		Lower ½	S96T000025 S96T000037 S96T000067 S96T000061 S96T000073	Bulk density TGA, DSC ICP IC Total alpha
Field blank	N/A	N/A	S95T003957	TGA, SpG, DSC, IC, total alpha, ICP
Vapor tests	Tank headspace		N/A	Combustible gas meter readings for: flammable gas concentration, oxygen, total organic vapors, ammonia

Notes:

SpG = Specific gravity

[1]Jo (1996a)

Table 3-5. Analytical Procedures.[1] (2 sheets)

Analyte	Method	Preparation Procedure[2]	Analytical Procedure[2]
Energetics	DSC (Mettler™ Perkin-Elmer™)	N/A	LA-514-113, Rev. C-1 LA-514-114, Rev. C-1
Percent water	TGA (Mettler™ Perkin-Elmer™)	N/A	LA-560-112, Rev. B-1 LA-514-114, Rev. C-1
Total alpha activity	Alpha proportional counting	LA-549-141, Rev. D-0	LA-508-101, Rev. D-2
Liquid specific gravity	N/A	N/A	LA-510-112, Rev. C-3
Solid bulk density	N/A	N/A	LO-160-103, Rev. A-7
Lithium and other metals	Inductively coupled plasma spectroscopy	LA-505-159, Rev. C-0	LA-505-151, Rev. D-3 LA-505-161, Rev. B-0
Bromide and other anions	Ion chromatography	LA-504-101, Rev. D-0	LA-533-105, Rev. D-1
Total inorganic carbon	Acidification/ coulometry	N/A	LA-342-100, Rev. C-0
Total organic carbon (solids)	Persulfate/ coulometry	N/A	LA-342-100, Rev. C-0
Total organic carbon (liquids)	Furnace oxidation	N/A	LA-344-105, Rev. C-0
Cyanide	Microdistillation	N/A	LA-695-102, Rev. E-0
Flammable gas	Combustible gas meter readings	N/A	WHC-IP-0030 IH 1.4 and IH 2.1

Notes:

Rev. = revision

Mettler™ is a registered trademark of Mettler Electronics, Anaheim, California.

Perkin-Elmer™ is a registered trademark of Perkins Research and Manufacturing Company, Inc., Canoga Park, California.

[1]Jo (1995a and 1995b)

[2]All procedures are from Westinghouse Hanford Company, Richland, Washington

3.4 DESCRIPTION OF HISTORICAL SAMPLING EVENTS

This section presents a discussion of two historical sampling and analysis events. The first event was reported in Horton (1978), and was taken for the purpose of characterizing the tank waste. No specific information was available as to date of sampling, the sample riser or depth, or the procedures used for the analysis. The second sampling event was reported in Jansky (1983), and was taken for the purpose of assessing the potential hazards the waste could have presented to the surrounding biosphere if any of the waste solids leached from the tank, which was of questionable integrity at the time, into the soil. As in the 1978 event, no specific information was available about the sample operation or the laboratory analyses. The analytical results for the historical sampling events are presented in Appendix C.

3.4.1 Sample Handling and Analysis (1978)

The sample was described as black with the consistency of soft grease. Water and acid washes were used to prepare the sample for analysis.

3.4.2 Sample Handling and Analysis (1982)

The 1982 sample was received by the Separations Process Development Unit as a liquid with approximately ten volume percent settled solids, after having had some of the liquid removed for analysis by the Analytical Laboratories. The sample was shaken, an aliquot of the slurry was centrifuged, the solids were retained for analysis, and the supernate was discarded. After a water wash of the solids, which revealed that the solids were about 25 percent soluble, the remaining solids were successively washed with hydrochloric, nitric, and hydrofluoric acids. No appreciable dissolution was noted until the hydrofluoric acid was added. A second aliquot of the slurry was centrifuged, the supernate discarded, and the solids washed with water and acetone and subjected to analysis by x-ray emission and diffraction. The water leachate from the second slurry aliquot was also subjected to analysis.

4.0 ANALYTICAL RESULTS

This section presents a summary of the analytical results associated with the November/December 1995 sampling of tank 241-B-203. The sampling and analyses were performed as directed in the SAP (Jo 1996c). This plan integrated all documents related to sampling and analytical requirements, including applicable DQOs. Analysis of cores 120 and 122 was performed at the Westinghouse Hanford Company 222-S Laboratory (core 115 was archived and not analyzed).

The tabulated locations of analytical results are given in Table 4-1. Comprehensive analytical data are found in Appendix A. Only analyte overall means are reported in Section 4. Appendix B contains data for lithium and bromide, the analytes evaluated to gauge the amount of contamination by the wash water.

Table 4-1. Analytical Data Presentation Tables.

Analysis	Tabulated Location
Chemical data summary	Table 4-2
1995 comprehensive analytical data	Appendix A
Wash water contamination check data	Appendix B

4.1 DATA PRESENTATION

This section summarizes the analytical results from the November/December 1995 sampling of tank 241-B-203. The subsections below provide information about the chemical, physical, vapor, and wash water contamination check data. The data were originally reported in *45-Day Safety Screening Results for Tank 241-B-203, Push Mode Cores 115, 120 and 122* (Jo 1996a) and *Final Report for Tank 241-B-203, Push Mode Cores 115, 120 and 122* (Jo 1996b).

4.1.1 Chemical Data Summary

Table 4-2 presents the mean concentration estimates and inventories for the sludge and drainable liquid results separately, as well as a total tank inventory based on both waste phases. Data from the two cores were combined to derive the overall concentration means for all analytes. The overall means reported are weighted means, and were calculated by first taking a simple mean of all subsegment values for a particular segment. Next, the segment means for an individual core were averaged to derive a core mean. Finally, the two core means were averaged to obtain the overall mean. When 50 percent or more of the

individual sample/duplicate measurements had detected results, the overall mean was reported as a detected value. Conversely, when results for more than half of the individual sample/duplicate results were nondetected, the overall mean was reported as a less than (<) value.

Table 4-2 presents the overall means in columns two and five for the sludge and supernate portions of the waste, respectively. The original subsegment analytical data are listed in Appendix A.

Relative standard deviations of the mean (RSD [Mean]), defined as 100 times the standard deviation of the mean divided by the tank mean, were calculated using standard analysis of variance (ANOVA) statistical techniques. They are reported in columns three and six of Table 4-2, and were calculated only for those analytes that had 50 percent or more of their individual sample/duplicate results above the detection limit.

The sludge inventory, presented in column four, was calculated by multiplying the overall mean by the sludge density (1.19 g/mL) and the sludge waste volume (189 kL [50 kgal]), and then dividing by a unit conversion factor of 1E+03. The supernate inventory, given in column seven, was calculated by multiplying the overall mean by the supernate waste volume (4 kL [1 kgal]), and dividing by a unit conversion factor of 1E+03. Total inventory results are the summation of the sludge and supernate inventories, and are listed in column eight.

Table 4-2. Chemical Data Summary for Tank 241-B-203. (3 sheets)

Analyte	Mean Sludge Concentration	Sludge RSD (Mean)	Sludge Inventory	Mean Supernate Concentration	Supernate RSD (Mean)	Supernate Inventory	Total Inventory
METALS	µg/g	%	kg	µg/mL	%	kg	kg
Aluminum	52.1	7.5	11.7	< 10.0	N/A	< 0.0400	11.7
Antimony	< 18.9	N/A	< 4.24	< 12.1	N/A	< 0.0484	< 4.29
Arsenic	< 53.0	N/A	< 11.9	< 20.1	N/A	< 0.0804	< 12.0
Barium	122	50.8	27.3	< 10.0	N/A	< 0.0400	27.3
Beryllium	< 1.56	N/A	< 0.349	< 1.00	N/A	< 0.00400	< 0.353
Bismuth	41,700	5.5	9,370	< 20.1	N/A	< 0.0804	9,370
Boron	132	10.7	29.7	< 10.0	N/A	< 0.0400	29.7
Cadmium	< 1.57	N/A	< 0.353	< 1.00	N/A	< 0.0400	< 0.393
Calcium	222	8.9	49.9	< 20.1	N/A	< 0.0804	50.0
Cerium	50.2	3.3	11.3	< 20.1	N/A	< 0.0804	11.4
Chromium	3,080	4.8	693	159	6.6	0.636	694
Cobalt	< 6.29	N/A	< 1.41	< 4.02	N/A	< 0.0161	< 1.43
Copper	6.99	13	1.57	< 20.1	N/A	< 0.00804	158
Iron	4,410	24.1	993	< 10.0	N/A	< 0.0400	993
Lanthanum	10,400	3.4	2,350	< 10.0	N/A	< 0.0400	2,350
Lead	< 473	N/A	< 106	< 20.1	N/A	< 0.0804	< 106
Magnesium	52.6	7.5	11.8	< 20.1	N/A	< 0.0804	11.9
Manganese	14,200	4.9	3,180	< 20.1	N/A	< 0.0804	3,180
Molybdenum	< 15.7	N/A	< 3.53	< 10.0	N/A	< 0.0400	3.57
Neodymium	< 31.5	N/A	< 7.08	< 20.1	N/A	< 0.0804	< 7.16
Nickel	183	6.1	41.1	< 4.02	N/A	< 0.0161	41.1
Phosphorous	2,180	2.0	491	511	1.7	2.04	493
Potassium	5,120	4.3	1,150	5,440	0.7	21.8	1,170

Table 4-2. Chemical Data Summary for Tank 241-B-203. (3 sheets)

Analyte	Mean Sludge Concentration	Sludge RSD (Mean)	Sludge Inventory	Mean Supernate Concentration	Supernate RSD (Mean)	Supernate Inventory	Total Inventory
METALS (Cont'd)	µg/g	%	kg	µg/mL	%	kg	kg
Samarium	< 31.5	N/A	< 7.08	< 20.1	N/A	< 0.0804	< 7.16
Selenium	< 31.6	N/A	< 7.11	< 20.4	N/A	< 0.0814	< 7.19
Silicon	925	12.8	208	76.4	15.5	0.306	208
Silver	4.25	5.8	0.956	< 2.01	N/A	< 0.00804	0.964
Sodium	29,000	3.3	6,530	31,100	0.7	125	6,660
Strontium	493	6.4	111	< 2.01	N/A	< 0.00804	111
Sulfur	87.6	14.7	19.7	97.8	3.4	0.390	20.1
Thallium	< 62.9	N/A	< 14.1	< 40.2	N/A	< 0.161	< 14.3
Titanium	< 3.74	N/A	< 0.841	< 2.01	N/A	< 0.00804	< 0.849
Uranium	< 192	N/A	< 43.2	174	4.5	0.695	< 43.9[1]
Vanadium	< 15.7	N/A	< 3.54	< 10.0	N/A	< 0.0400	< 3.58
Zinc	60.4	49.9	13.6	< 2.01	N/A	< 0.00804	13.6
Zirconium	< 3.15	N/A	< 0.708	< 2.01	N/A	< 0.00804	< 0.716
ANIONS	µg/g	%	kg	µg/mL	%	kg	kg
Chloride	861	16.8	194	676	0.9	2.71	197
Cyanide	< 5.91[2]	N/A	< 1.33	---	---	---	< 1.33
Fluoride	7,790	17.0	1,750	6,010	1.5	24.0	1,770
Nitrate	63,900	17.6	14,400	56,500	1.1	226	14,600
Nitrite	730	13.5	164	1,620	8.3	6.46	170
Oxalate	2,020	20.0	454	< 209	N/A	< 0.836	455
Phosphate	3,850	17.2	866	1,890	3.0	7.56	874
Sulfate	702	20.0	158	586	12.3	2.34	160

Table 4-2. Chemical Data Summary for Tank 241-B-203. (3 sheets)

Analyte	Mean Sludge Concentration	Sludge RSD (Mean)	Sludge Inventory	Mean Supernate Concentration	Supernate RSD (Mean)	Supernate Inventory	Total Inventory
RADIONUCLIDES	**μCi/g**	**%**	**Ci**	**μCi/mL**	**%**	**Ci**	**Ci**
Total alpha	0.214	4.0	48.2	1.08E-04	18.8	4.32E-04	48.2
TOTAL CARBON	**μg C/g**	**%**	**kg**	**μg C/mL**	**%**	**kg**	**kg**
Total inorganic carbon	645[2]	4.6	145	2,170[3]	3.3	8.68	154
Total organic carbon	77.5[2]	68.4	17.4	96.0[3]	3.2	0.384	17.8
PHYSICAL PROPERTIES	**Overall Sludge Mean**	**Sludge RSD (Mean)**	**Sludge Inventory**	**Overall Supernate Mean**	**Supernate RSD (Mean)**	**Supernate Inventory**	**Total Inventory**
Water	75.8 wt.%	0.8%	1.70E+05 kg	89.4 wt.%	0.7%	3,770 kg	1.71E+05 kg
Density	1.19 g/mL	4.6%		1.053 g/mL	0.3%		

Notes:

[1]In most cases for deriving the total inventory, when a nondetected number and a detected value were added, the resulting sum was designated a detected value since the larger of the two results was detected. However, for uranium, the larger value was nondetected, so the total inventory was listed as a nondetected number.

[2]The overall mean is based on the results from one sample/duplicate pair taken from the lower half solids of segment 10, core 122.

[3]The overall mean is based on the results from one sample/duplicate pair taken from the drainable liquid from segment 1 of core 120.

4.1.2 Physical Data Summary

Thermal analyses were performed on the tank 241-B-203 core samples to satisfy the requirements of the safety screening DQO (Dukelow et al. 1995), which dictated that TGA and DSC be performed both on solid and liquid phases of the waste samples. Density determinations were also performed on the core samples as mandated by the DQO.

4.1.2.1 Thermogravimetric Analysis. In a TGA, the mass of a sample is measured while its temperature is increased at a constant rate. Nitrogen is passed over the sample during the heating to remove any released gases. Any decrease in the weight of a sample represents a loss of gaseous matter from the sample either 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 °C [302 °F]) is due to water evaporation. Weight percent water by TGA was performed by the 222-S Laboratory using procedures LA-560-112, Rev. B-1 (Mettler™) and LA-514-114, Rev. C-1 (Perkin-Elmer™).

The TGA percent water data for tank 241-B-203 are presented in Table A-45 in Appendix A. Results ranged from 48.49 to 81.33 weight percent water for the solids, with most results in the mid- to upper-70 percent range. The solids mean was 75.8 weight percent water. Drainable liquids ranged from 88.71 to 89.87 weight percent water, with a mean of 89.4 percent. Although not included in Table A-45, one liner liquid sample (core 115, segment 1) was analyzed, and had an average result of 93.54 weight percent water. All sample means were calculated by equal weighting of the two cores, the segments, and the subsegments.

4.1.2.2 Differential Scanning Calorimetry. In a DSC analysis, heat absorbed or emitted by a substance is measured while the substance is exposed to a linear increase in temperature. While the substance is being heated, nitrogen is passed over the waste material to remove any gases being released. The onset temperature for an endothermic (characterized by or causing the absorption of heat) or an exothermic (characterized by or causing the release of heat) event is determined graphically. Analyses by DSC were performed by the 222-S Laboratory using either procedure LA-514-113, Rev. C-1 (Mettler™) or procedure LA-514-114, Rev. C-1 (Perkin-Elmer™).

The DSC results are presented in Table A-46 in Appendix A. The peak temperatures and magnitude of the enthalpy changes are provided for each transition. Most samples exhibited only one transition, which represented the endothermic reaction associated with the evaporation of free and interstitial water. Four samples did have a second transition. For three of these, the second transition was exothermic. Because exothermic reactions are associated with negative enthalpy changes, they have been denoted in Table A-46 with a negative sign. All results reported in the table are on a wet weight basis.

For a comparison of the exothermic enthalpy changes with the safety screening notification limit of -480 J/g, the exothermic values had to be converted to a dry weight basis using the respective sample weight percent water. After conversion to a dry weight basis, it was determined that two of the three samples that had exothermic reactions had enthalpy changes

exceeding the -480 J/g limit. For one of the samples (drainable liquid from segment 1 of core 120), the thermogram for the primary sample showed an exothermic reaction beginning at approximately 350 °C. However, the duplicate thermogram for the same sample showed an endothermic reaction beginning at this temperature (Jo 1996a). Consequently, a triplicate was run on this sample. An exothermic reaction was observed in the triplicate analysis, but it had an enthalpy change below the -480 J/g limit.

Appropriate notifications were made concerning the two samples that had exothermic reactions greater than the safety screening limit, and reruns were requested for both samples. The rerun results did not show any exothermic reactions for either sample. These rerun results, together with the low TOC and cyanide concentrations, suggest that the initial exothermic reactions observed are suspect and do not represent energetics concerns.

For the three samples with exothermic DSC results, the upper limits of a one-sided 95 percent confidence interval were calculated. The upper limits of the 95 percent confidence intervals ranged from -304.0 to -855.4 J/g (dry weight basis) (Jo 1996a).

Table 4-3 presents the three samples which had exothermic reactions, along with the weight percent water for conversion to a dry weight, the converted exothermic value, and the upper limits of the 95 percent confidence intervals.

4.1.2.3 Density. Bulk density measurements were performed on the solid samples using procedure LO-160-103, Rev. A-7. Specific gravity measurements were performed on the liquid samples using procedure LA-510-112, Rev. C-3. The mean density of the sludge was 1.19 g/mL, while that of the drainable liquid was 1.053 g/mL. The analytical data are presented in Table A-47 in Appendix A.

4.1.3 Tank Headspace Flammability

As discussed in Section 3.1, sampling of the tank 241-B-203 headspace was performed prior to core sampling. Combustible gas meter readings were taken periodically from October 25 through December 14, 1995, to determine the flammability of the headspace gases. The safety screening DQO notification limit for flammable gas concentration is 25 percent of the lower flammability limit (LFL) (Dukelow et al. 1995). The combustible gas meter reports results as a percentage of the lower explosive limit (LEL). Because the National Fire Protection Association defines the terms LFL and LEL identically, the two terms may be used interchangeably (NFPA 1995). Sampling was done in the headspace through risers 2, 4, 6, and 7. The average flammable vapor content was 0 percent of the lower flammability limit, indicating no flammability concerns. During the flammable gas monitoring, the concentrations of oxygen (20.6 percent), total organic vapors (0 ppm), and ammonia (0 ppm) were also measured (Jo 1996b).

Table 4-3. DSC Exothermic Results and 95 Percent Confidence Interval Upper Limits.[1]

Sample Number	Core: Segment	Subseg.	Run	Wet Wt. ΔH J/g	Sample Wt% Water %	Dry Wt. ΔH J/g	Mean J/g	95% Confidence Interval Upper Limits J/g
S95T003958	120:1	DL	1	-175.6	89.17	-1621	-322.03	-855.4
			2	0		0		
			3	-33.7		-311.2		
			4	0		0		
			5	0		0		
			6	0		0		
S96T000033	122:10	Lower ½	1	-172.7	75.30	-699.2	-266.80	-662.6
			2	-90.9		-368.0		
			3	0		0		
			4	0		0		
S96T000036	122:13	Lower ½	1	-71.7	74.23	-278.2	-273.35	-304.0
			2	-69.2		-268.5		

Notes:

Exo. = exothermic
Subseg. = subsegment
Wt. = weight

[1]Jo (1996a)

4.1.4 Wash Water Contamination Check

Water was used during sampling to flush the drill string when it became plugged. Lithium bromide was added to the wash water so that the amount of contamination of the samples by the wash water could be estimated. This check, through chemical analyses for lithium and bromide, was prescribed by the SAP (Jo 1996c). The analytical results indicated that there was only a small amount of contamination (less than 2 percent) in the samples from the wash water. Therefore, no adjustments were made for the TGA results (Jo 1996b). The analytical data for lithium and bromide are presented in Appendix B. An overall mean and tank inventory were not calculated for these two analytes because they are not constituents of the tank waste.

5.0 INTERPRETATION OF CHARACTERIZATION RESULTS

The purpose of this chapter is to discuss the overall quality and consistency of the current sampling results for tank 241-B-203, and to assess and compare these results against historical information and program requirements.

5.1 ASSESSMENT OF SAMPLING AND ANALYTICAL RESULTS

This section evaluates sampling and analysis factors that may impact interpretation of the data. These factors are used to assess the overall quality and consistency of the data and to identify any limitations in the use of the data.

5.1.1 Field Observations

The safety screening DQO (Dukelow et al. 1995) objective that vertical profiles be obtained from at least two widely spaced risers was fulfilled. No waste material was recovered from 4 of the 14 segments from core 120, whereas all 14 segments from core 122 did contain some waste. Sample recovery of sludge from the individual segments of both cores was generally fair, ranging from 25 to 48 cm (10 to 19 in.) for all segments with the exception of segment 2 of core 122, in which only 2.5 cm (1 in.) was recovered. Recovery of the drainable liquid samples ranged from 30 to 220 mL, depending on the subsegment. No further anomalies were noted.

5.1.2 Quality Control Assessment

The usual QC assessment includes an evaluation of the appropriate standard recoveries, spike recoveries, duplicate analyses, and blanks that are performed in conjunction with the chemical analyses. All the pertinent QC tests were conducted on the 1995 core samples, allowing a full assessment regarding the accuracy and precision of the data. The SAP (Jo 1996c) established the specific criteria for the primary and secondary analytes required by the safety screening DQO, whereas the opportunistic analytes (TIC, and ICP/IC analytes other than lithium and bromide) were governed by the laboratory criteria (DOE 1995). Quality control results outside the specified criteria for all analytes are identified by footnotes in the Appendix A tables.

The standard and spike recovery results provide an estimate of the accuracy of the analysis. If a standard or spike recovery is above or below the given criterion, then 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 one hundred. Total alpha activity had two standards and several spikes and RPDs outside the SAP specified limits.

These deviations were due to low sample activities and the high dissolved solids in the samples (leading to subsequent self-shielding). Bromide and lithium each had one spike recovery below their limits, and the TGA and DSC results each had two RPDs outside their criterion. In the case of DSC, these two RPDs occurred on the samples that gave exothermic reactions above the -480 J/g safety screening notification limit. Both samples were rerun, and the results indicated no exothermic reactions. This would lead to RPD results of zero in both cases (Jo 1996a). The TOC and cyanide results both substantiate the lack of fuel present in the tank. Finally, none of the samples exceeded the criterion for preparation blanks; thus, contamination was not a problem for any of the analyses.

In summary, the majority of the QC results were within the boundaries specified in the SAP. Although a few were outside their target levels, they were not found to substantially impact either the validity or the use of the data. Because the opportunistic analytes were not specifically requested in the SAP, their QC results are not discussed in detail in this section.

5.1.3 Data Consistency Checks

Comparisons of different analytical methods can help to assess the consistency and quality of the data. The quantity of data available enabled calculations of mass and charge balance, along with comparisons of the ICP phosphorus and sulfur results with the IC phosphate and sulfate results, respectively. Only the sludge portion of the waste was considered in these comparisons because it comprises 98 percent of the total waste volume.

5.1.3.1 Comparison of Results from Different Analytical Methods. The following data consistency checks compare results from two different analytical methods. A close correlation between the two methods strengthens the credibility of both results, whereas a poor correlation brings the reliability of the data into question. All analytical mean results were taken from Table 4-2.

The analytical phosphorus mean by ICP was 2,180 μg/g, which represents total phosphorus. This amount of phosphorus converts to 6,680 μg/g of phosphate. The IC phosphate result was 3,850 μg/g, and the RPD between the two numbers is 54 percent. This large RPD is probably due to the existence of a portion of the phosphate in an insoluble form that was not detected by the IC analysis.

The ICP sulfur value of 87.6 μg/g, which represents total sulfur, is equivalent to 262 μg/g of sulfate. The IC result for sulfate was 702 μg/g, with an RPD between the two values of 91 percent. These results are contradictory to expected behavior. Because ICP measures total sulfur, its result is usually larger than or equal to the IC sulfate value, which is a measurement of the soluble sulfur. There are a couple of possible explanations for the unexpected results. At low concentrations, the sulfur results by ICP can be unreliable. Also, some metal sulfates are insoluble in acid and more soluble in basic media. It is possible that the water leach performed prior to the IC analysis solubilized some of these compounds better than the acid digestion done before the ICP analysis.

5.1.3.2 Mass and Charge Balances. The principle objective in performing mass and charge balances is to determine if the measurements were self-consistent. In calculating the balances, only analytes listed in Table 4-2 that were detected at a concentration of 1,000 μg/g or greater were considered.

With the exception of sodium and potassium, all cations listed in Table 5-1 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 anionic analytes listed in Table 5-2 were assumed to be present as sodium and/or potassium salts and were expected to balance the positive charge exhibited by the cations. Phosphorus is assumed to be present as the soluble phosphate ion and the insoluble compound bismuth phosphate. The concentration of the insoluble phosphate was found by subtracting soluble phosphate, determined by IC, from the total amount of phosphate, calculated from total phosphorus by ICP. The concentrations of the cationic species in Table 5-1, the anionic species in Table 5-2, and the percent water were ultimately used to calculate the mass balance. The uncertainty estimates (RSDs) associated with each analyte are also given in the tables. The uncertainty estimates for the cation and anion totals, as well as the overall uncertainty given in Table 5-3, were computed by a statistical technique known as the propagation of errors (Nuclear Regulatory Commission 1988).

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

$$\text{Mass balance} = \% \text{ Water} + 0.0001 \times \{\text{Total Analyte Concentration}\}$$
$$= 75.8 + 0.0001 \times \{Na^+ + K^+ + BiPO_4 + Bi_2O_3 + Cr(OH)_3 + FeO(OH) + La(OH)_3 + MnO(OH) + F^- + NO_3^- + (COO)_2^{2-} + PO_4^{-3}\}$$

The total analyte concentration calculated from the above equation is 211,000 μg/g. The mean weight percent water obtained from thermogravimetric analysis reported in Table 4-2 is 75.8 percent, or 758,000 μg/g. The mass balance resulting from adding the percent water to the total analyte concentration is 969,000 μg/g, or 96.9 percent (see Table 5-3).

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

Total cations (μeq/g) = $[Na^+]/23.0 + [K^+]/39.1 = 1{,}390$ μeq/g

Total anions (μeq/g) = $[F^-]/19.0 + [NO_3^-]/62.0 + [COO]_2^{2-}/44.0 + [PO_4^{-3}]/31.7 =$ 1,610 μeq/g

The charge balance obtained by dividing the sum of the positive charge by the sum of the negative charge was 0.86.

Table 5-1. Cation Mass and Charge Data.

Analyte	Concentration µg/g	Assumed Species	Concentration of Assumed Species µg/g	RSD (Mean) %	Charge µeq/g
Bismuth	6,230	$BiPO_4$	9,060	5.5	0
Bismuth	35,500	Bi_2O_3	39,600	5.5	0
Chromium	3,080	$Cr(OH)_3$	6,100	4.8	0
Iron	4,410	FeO(OH)	7,020	24.1	0
Lanthanum	10,400	LaF_3	14,700	3.4	0
Manganese	14,200	MnO(OH)	22,700	4.9	0
Potassium	5,120	K^+	5,120	4.3	131
Sodium	29,000	Na^+	29,000	3.3	1,260
Total			133,000	2.4	1,390

Table 5-2. Anion Mass and Charge Data.

Analyte	Concentration µg/g	Assumed Species	Concentration of Assumed Species µg/g	RSD (Mean) %	Charge µeq/g
Fluoride	7,790	F^-	7,790	17.0	410
Nitrate	63,900	NO_3^-	63,900	17.6	1,030
Oxalate	2,020	$(COO)_2^{2-}$	2,020	20.0	46
Phosphate	3,850	PO_4^{3-}	3,850	17.2	122
Total			77,600	14.6	1,610

Table 5-3. Mass Balance Totals.

Totals	Concentrations µg/g	RSD (Mean) %
Total from Table 5-1	133,000	2.4
Total from Table 5-2	77,600	14.6
Water %	758,000	0.8
Grand Total	969,000	1.4

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

5.2 COMPARISON OF HISTORICAL WITH ANALYTICAL RESULTS

Two historical sampling events have been recorded for tank 241-B-203. The tank was sampled in 1982 to evaluate the impact of possible leakage on the immediate environment. However, the results from this sampling event were not compared to the 1995 analytical results, because the solids analyzed were actually obtained from liquid samples by centrifuging. The second sampling event was from 1978. No specific information regarding sample type, sample depth, or number of samples was given. A description of the samples as being black in color and having the consistency of soft grease did match the descriptions of the 1995 core samples. Although the tank was interim stabilized in 1984, no changes should have been made to the solid waste, justifying a comparison of the two data sets.

A comparison between the 1978 and the 1995 results is presented in Table 5-4. This comparison is provided for informational purposes only, and, due to the uncertainties surrounding the 1978 sampling event, should be used with caution. The 1978 analyses were performed on samples that had been successively leached with water and then digested with acid, while the 1995 analyses used a single acid digestion for the ICP metals, a water leach for the IC anions, and a fusion for the total alpha activity analysis. Consequently, results from both of the digestion methods for the metals and plutonium from the 1978 analysis were added for comparison with the 1995 data. Because the 1995 analysis for anions used only a water digestion, only the water leach results from 1978 were used for comparison. The comparison of total alpha activity from the 1995 data with the plutonium concentration from the 1978 data made it necessary to assume that the major contributor to both values was ^{239}Pu, because the contributions from specific radionuclides are unknown. The conversion factor of 0.0615 Ci/g was used in converting the 1978 value of 9.01E-06 g/g plutonium to 0.554 μCi/g total alpha.

Agreement between the two data sets was fair. Half of the analytes had RPDs below 50 percent, with the best correlation between the sodium, percent water, and density results.

Table 5-4. Comparison of Data from the 1978 and 1995 Sampling Events. (2 sheets)

Analyte	1978 Analytical Result	1995 Analytical Result	Relative Percent Difference
METALS	µg/g	µg/g	%
Aluminum	340	52.1	147
Bismuth	66,200	41,700	45.4
Chromium	448	3,080	149
Iron	12,000	4,410	92.5

Table 5-4. Comparison of Data from the 1978 and 1995 Sampling Events. (2 sheets)

Analyte	1978 Analytical Result	1995 Analytical Result	Relative Percent Difference
Lanthanum	60	10,400	198
Potassium	4,000	5,120	24.6
Silicon	560	925	49.2
METALS (Cont'd)	**µg/g**	**µg/g**	**%**
Sodium	27,000	29,000	7.14
ANIONS	**µg/g**	**µg/g**	**%**
Chloride	600	861	35.7
Nitrate	40,000	63,900	46.0
Nitrite	300	730	83.5
Phosphate	2,000	3,850	63.2
CARBON	**µg C/g**	**µg C/g**	**%**
Total inorganic carbon	1,200	645	60.2
RADIONUCLIDES	**µCi/g**	**µCi/g**	**%**
Total alpha activity	0.554	0.214	88.5
PHYSICAL PROPERTIES			**%**
Weight percent water	74.3 %	75.8 %	2.00
Density	1.09 g/mL	1.19 g/mL	8.77

Notes:

[1]Jo (1996b)
[2]Horton (1978)

5.3 TANK WASTE PROFILE

Based on the estimates of Hanlon (1996), the tank contents were expected to contain a sludge layer approximately 6.5 m (258 in.) thick covered by a layer of supernate approximately 13 cm (5 in.) thick. The visual descriptions of the samples substantiated this. A small amount of supernate was extruded from the top of both cores. The underlying sludge from both cores and all segments was the same (black, damp, soft sludge), indicating possible vertical and horizontal uniformity within this waste layer (Jo 1996a). Information on the vertical disposition of the tank contents was also available from the TLM, which predicted a small amount of supernate overlying a single type of solid waste (see Section 2). Thus, Hanlon (1996), the waste sample descriptions, and the TLM all indicate that a thin supernate layer overrides a thick sludge layer.

Because vertical profiles of the tank waste were obtained from two widely spaced risers, a standard statistical technique known as the ANOVA was conducted on the 1995 core samples in order to determine whether there were horizontal and/or vertical variations in the analyte concentrations. These calculations were performed only for analytes in which 50 percent or more of the individual sample and duplicate measurements were above the detection limit. The ANOVA generates a p-value that is compared with a standard significance level ($\alpha = 0.05$). If a p-value is below 0.05, there is sufficient evidence to conclude that the sample means are significantly different from each other. However, if a p-value is above 0.05, there is not sufficient evidence to conclude that the samples are significantly different from each other.

The results of the ANOVA indicated that for the sludge layer, only 5 of the 31 analytes tested showed significant concentration differences between the two cores. These 5 analytes were boron (p-value < 0.001), potassium (p-value $= 0.001$), silicon (p-value $= 0.022$), sodium (p-value $= 0.009$), and sulfur (p-value $= 0.004$). Within the drainable liquid layer, only two of 16 analytes tested showed significant concentration differences between the two cores. These two analytes were sulfate (p-value $= 0.028$) and specific gravity (p-value $= 0.041$). The segment level results for the sludge layer indicated that 21 of the 31 analytes tested showed significant concentration differences between the various segments. Given the shallow depth of the drainable liquid layer and the small number of samples taken, a statistical analysis at the segment level was not considered to be meaningful.

The sludge segment level data were inspected to determine the reason for the significant differences in the analyte concentrations between segments and to ascertain if data trends existed. No trends were discernable for most analytes. A trend was discovered for several of the metals. A layer at the tank bottom was found to be substantially enriched in lead and zinc, and slightly higher in manganese and nickel. Table 5-5 displays a comparison of the tank averages and data from the subsegments showing much higher concentrations for these four metals. The reason for the increased concentration of these metals in the lower layer is most likely caused by different settling rates due to density.

Table 5-5. Comparison of Overall Means and Subsegment Sludge Data for Selected Metals.

	Core 120, Segment 14		Core 122, Segment 14	
	Upper half	Lower half	Lower half	Overall Mean
Metal	µg/g	µg/g	µg/g	µg/g
Lead	7,440	3,680	6,050	< 473
Manganese	21,500	19,000	24,000	14,200
Nickel	343.0	357.5	292.0	183
Zinc	678.0	402.0	645.5	60.4

In summary, the tank contents appear to be fairly uniform in the horizontal direction within both the sludge and drainable liquid layers. Vertically, besides the two distinct waste phases, the statistical analysis showed differences between many of the segments within the sludge layer. Examining the raw data found in the Appendix A tables does not reveal any definite trends of increasing or decreasing analyte concentration as a function of depth, with the few exceptions as mentioned before. Thus, it is likely that the sludge portion of the tank is generally uniform in both directions with random variations between segments.

5.4 COMPARISON OF TRANSFER HISTORY WITH ANALYTICAL RESULTS

The HTCE predictions for the contents of tank 241-B-203 are shown in Table 5-6 along with the sludge analytical results from the 1995 core sampling event. Because the HTCE has not been validated, the comparison is for information only. These results should be used with caution.

The HTCE and the 1995 analytical values agreed fairly closely with regard to only three analytes: chloride, nitrate, and density. All other constituents analyzed exhibited poor agreement between the two data sets.

Table 5-6. Comparison of HTCE Predictions with the 1995 Analytical Results.[1,2]
(2 sheets)

Analyte	HTCE Estimate	1995 Analytical Result	Relative Percent Difference
METALS	kg	kg	%
Bismuth	2,390	9,370	119
Calcium	1,850	50.0	189
Iron	3,810	993	117
Chromium	33.9	694	181
Lanthanum	6,220	2,350	90.3
Manganese	40.1	3,180	195
Nickel	14.9	41.1	93.6
Potassium	1,680	1,170	35.8
Sodium	19,700	6,660	98.9
Strontium	26,000	111	198
ANIONS	kg	kg	%
Chloride	167	197	16.5
Fluoride	7,320	1,770	122
Nitrate	15,600	14,600	6.62

Table 5-6. Comparison of HTCE Predictions with the 1995 Analytical Results.[1,2] (2 sheets)

Analyte	HTCE Estimate	1995 Analytical Result	Relative Percent Difference
ANIONS (Cont'd)	kg	kg	%
Oxalate	10,700	455	184
Phosphate	1,730	874	65.7
Sulfate	24.4	160	147
RADIONUCLIDES	Ci	Ci	%
Total alpha	2.61 (from plutonium)	48.2	179
TOTAL CARBON	kg C	kg C	%
Total inorganic carbon	554 (derived from carbonate value)	154	113
Total organic carbon	11,000	17.8	199
PHYSICAL PROPERTIES			%
Weight percent water	56.4	75.8[3]	29[3]
Density	1.37	1.19[3]	14.1

Notes:

[1]Agnew et al. (1996a)

[2]Jo (1996b)

[3]Only the sludge weight percent water and density values were used, for an overall mean based on both sludge and supernate was not calculated.

An investigation to determine the causes for the poor agreement between the two data sets was made. To perform this investigation, the original process flowsheets from the lanthanum fluoride process were consulted (Schneider 1951), along with an investigation of the source terms for the HDW definition of lanthanum fluoride waste. Results of the investigation did provide plausible explanations for the large discrepancies in the two data set for some of the analytes.

The HTCE underestimated the bismuth, chromium, and manganese concentrations. After inspecting the lanthanum fluoride process flowsheets, it was determined that the HDW source terms for these metals were biased low. Sodium bismuthate ($NaBiO_3$) was used as the primary oxidant during efforts to oxidize plutonium for separation from the fission products (GE 1944). Sodium dichromate ($Na_2Cr_2O_7$) was used as a holding oxidant to stabilize the oxidized plutonium. According to GE (1944), potassium permanganate ($KMnO_4$) was determined through laboratory tests to be an acceptable substitute for sodium dichromate. However, the use of potassium permanganate is not specifically documented in the process flowsheets. The elevated levels of manganese seen in the 1995 waste samples strongly

suggest that potassium permanganate was used. It is possible that the source terms for bismuth, chromium, and manganese did not take into account the metals' use in the aforementioned oxidizing compounds.

The HTCE overestimated iron and strontium concentrations as well. In both cases, it appears that the HDW source term is probably biased high. From the process flowsheets, iron was not expected to be present in the quantities predicted by the HTCE. The discrepancy is likely due to an overestimation of iron, a corrosion product, by the HTCE. Strontium was obviously overestimated, as there was no evidence that it existed in lanthanum fluoride waste in the quantities predicted by the HTCE.

It appeared that the HTCE also overestimated the sodium concentration. Sodium and nitrate are the soluble chemical species present in the greatest quantities, and their charges can be expected to more or less balance each other. This prediction was borne out with the 1995 analytical results, as evidenced by the charge balance (performed on the sludge data) presented in Section 5.1.3.2. Of the 1,390 μeq/g of positive charge, 1,260 μeq/g are attributed to sodium. Nitrate contributed 1,030 μeq/g to the anion total of 1,610 μeq/g. A comparison of the sodium and nitrate values gives a ratio of 1.22. The HTCE values should be similarly distributed. However, a ratio of the HTCE sodium and nitrate predictions on a μeq/g basis yields a value of 3.40. Consequently, it appears that there is a high bias in the HTCE sodium prediction.

The reason for the poor agreement for the fluoride comparison is a deficiency in the analytical results. Because fluoride is measured by IC after a water digestion, only the soluble fluoride is detected. This provides an inadequate comparison with the HTCE fluoride value, which is total fluoride (both soluble and insoluble fluoride).

The reason for the large HTCE prediction for oxalate is unknown. Organic material is not expected to be present in lanthanum fluoride in the high quantities estimated by the HTCE. In addition, the radiation produced by the waste is not high enough to produce oxalate as an organic degradation product.

Finally, the HTCE prediction for weight percent water is too low. It is known from other samples of lanthanum fluoride waste (from tanks 241-B-201, -B-202, -B-204, and -T-111) that the percent water in this waste type consistently ranges between 70 and 85 percent water.

In summary, the problems in estimating the composition of the lanthanum fluoride waste likely stem from the fact that the present level of documentation for the waste type does not provide a good description of the waste as it exists now. A better picture of the lanthanum fluoride waste could probably be derived by inspecting the analytical results from all of the tanks that contain this waste type, and possibly averaging the analytical results to compute a baseline value for each analyte. In this way, it may be possible to back calculate source terms for the lanthanum fluoride waste.

5.5 EVALUATION OF PROGRAM REQUIREMENTS

The two core samples retrieved from tank 241-B-203 in November and December 1995 were taken to meet the requirements of the safety screening DQO (Dukelow et al. 1995) and to determine whether this tank has been appropriately categorized concerning safety issues. A discussion of the specific requirements of this DQO and a comparison of the analytical data to defined concentration limits is presented in this section.

5.5.1 Safety Evaluation

Data criteria identified in the safety screening DQO are used to assess the safety of the waste in tank 241-B-203. For a proper safety assessment, the DQO requires at least two vertical profiles of the tank waste; after reviewing the data from these two profiles, more profiles may be required. An assessment was made of the results from the 1995 sampling event, and it was decided that further sampling was not needed. Of the five primary analyses required by the DQO, three have decision criteria thresholds which, if exceeded, could warrant further investigation to ensure the tank safety. These three analyses include DSC (to evaluate the fuel content), a determination of the total alpha activity (to evaluate the criticality potential), and a measurement of the flammability of the tank headspace gases. Table 5-7 lists the applicable safety issues, decision variables and thresholds, and relevant analytical results from the 1995 sampling event.

The safety screening DQO has established a notification limit of -480 J/g (dry weight basis) for the DSC analyses; for comparison to this limit, all analytical results discussed below were first converted to a dry weight basis. Forty-five of the 48 sample/duplicate pairs showed no exothermic reactions. Two of the three pairs with observable exothermic reactions had a single result that exceeded the action limit of -480 J/g (Jo 1996c). The first of these was the drainable liquid primary result from segment one of core 120, which had an exothermic reaction of -1,621 J/g. The duplicate for this sample did not display an exothermic reaction, while the triplicate contained an exothermic reaction below the -480 J/g limit (-311.2 J/g). All three samples were rerun, and no exothermic reactions were observed during these analyses. The upper limit of the one-sided 95 percent confidence interval for all six DSC results on the drainable liquid sample was -855.4 J/g (see Table 4-3). If the -1,621 J/g result is considered an outlier and deleted from the 95 percent confidence interval computation, the upper limit becomes -194.9 J/g. The second sample/duplicate pair with an exothermic reaction above the safety screening limit was the primary sludge result from the lower half of segment 10, core 122 (-699.2 J/g). The duplicate result also displayed an exothermic reaction, but it was below the safety screening limit (-368.0 J/g). Both of these sample/duplicate pairs were rerun, and none of the results exhibited any exothermic reactions (Jo 1996a). The upper limit of the one-sided 95 percent confidence interval for all four DSC runs on this sample was -662.6 J/g. Treating the -699.2 J/g value as an outlier and deleting it from the 95 percent confidence interval calculation reduces the upper limit to -480.9 J/g. Rerun results together with low TOC and cyanide concentrations suggest that the initial exothermic reactions observed are suspect and do not represent energetics concerns.

To substantiate the DSC results, TOC evaluations were conducted on the two sample pairs that exceeded the action limit, and cyanide was evaluated on the sludge sample. The analytical results and action limits for both analytes are reported on a dry weight basis. The TOC analytical results were 314 μg C/g for the sludge sample and 886 μg C/mL for the drainable liquid sample (Table 5-7). Both results were well below the SAP action limits of 30,000 μg C/g and 30,000 μg C/mL for sludge and drainable liquid samples, respectively. The cyanide result was $<$ 23.9, also far below the limit of 39,000 μg /g. The results for both analytes indicate that the fuel content of these samples is low. Both TOC and cyanide results strongly support the conclusion that the high exothermic reactions measured are anomalous.

The potential for criticality can be assessed from the total alpha activity data. The safety screening notification limit is 1 g/L, which converts to 51.7 μCi/g for the sludge using the sludge density of 1.19 g/mL, or 61.5 μCi/mL for the supernate. The calculated overall mean for the sludge portion of the tank was 0.214 μCi/g, while the overall mean for the drainable liquid portion was 1.08E-04 μCi/mL. The one-sided 95 percent upper confidence interval limit was calculated for all results above the detection limit. The highest upper confidence interval limit for the sludge results was 0.637 μCi/g, while the highest drainable liquid result was 2.12E-04 μCi/mL. All of the above results were well below the notification limit.

The flammability of the gas in the tank headspace is an additional safety screening DQO consideration. The notification limit for flammable gas concentration is 25 percent of the LFL. The analytical result was 0 percent of the LFL (see Section 4.1.3), satisfying the DQO limit.

Another factor in assessing tank safety is the heat generation and temperature of the waste. Heat is generated in the tanks from radioactive decay. An estimate of the tank heat load based on the 1995 sampling event was not possible due to the lack of data. However, the analytical results of the 1978 historical sampling event included several radionuclides (see Appendix C). The heat load estimate based on these results was 13.9 W (47.4 Btu/hr). The actual value would be less than this, because the analytical results were not corrected for decay, and the primary contributor to the heat load (^{90}Sr) has a half-life of 28.1 years. The HTCE estimate of heat load was 0 W (0 Btu/hr), and an estimate based on the tank headspace temperature was 42.8 W (146 Btu/hr) (Kummerer 1994). All three of these estimates were fairly similar, and are well below the limit of 11,700 W (40,000 Btu/hr) which separates high- and low-heat-load tanks (Bergmann 1991).

Table 5-7. Safety Screening Data Quality Objective Decision Variables and Criteria. (2 sheets)

Safety Issue	Primary Decision Variable	Decision Criteria Threshold	Analytical Result	Analytical Result
Primary Analyses			**Sludge**	**Drainable Liquid**
Ferrocyanide/ Organics	Total fuel content	-480 J/g[1]	-699.2 J/g[1,2]	-1,621 J/g[1,3]
Criticality	Total alpha activity	51.7 μCi/g or 61.5 μCi/mL	0.214 μCi/g[4]	1.08E-04 μCi/mL[4]
Flammable gas	Flammable gas	25 % of the LFL	0 % of the LFL	
Secondary Analyses			**Sludge**	**Drainable Liquids**
TOC	Fuel content	30,000 μg C/g[1] (30,000 μg C/mL)	314 μg C/g[1,5]	889 μg C/mL[1,6]
Cyanide	Fuel content	39,000 μg/g[1]	< 23.9 μg/g[1,5]	---

Notes:

[1]Value is reported on a dry weight basis.

[2]The only exothermic reaction observed in the sludge layer with a value over the -480 J/g limit. The result is considered suspect, because it was not reproducible and TOC and cyanide results demonstrated that the fuel content is low.

[3]The only exothermic reaction observed in the drainable liquid samples with a value over the -480 J/g limit. The result is considered suspect, because it was not reproducible and TOC results demonstrated that the fuel content is low.

[4]Based on overall mean total alpha results.

[5]Based on the results of one sample/duplicate pair taken from the lower half solids of segment 10 of core 122.

[6]Based on the results of one sample/duplicate pair taken from the drainable liquid from segment 1 of core 120.

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6.0 CONCLUSIONS AND RECOMMENDATIONS

The waste in tank 241-B-203 has been sampled and analyzed for the purposes of safety screening according to the requirements listed in the *Tank Safety Screening Data Quality Objective* (Dukelow et al. 1995). The tank was core sampled using the push mode method in November and December of 1995. To assess tank safety, the safety screening DQO required analyses for energetics, weight percent water, density, total alpha activity, and flammable gas concentration in the tank headspace. In addition, the SAP required the laboratory to perform ICP and IC analyses to determine the concentrations of lithium and bromide to check for contamination by the wash water. Results for additional metals and anions were obtained during the ICP and IC analyses. All analyses were performed at the Westinghouse Hanford Company 222-S Laboratory.

The safety screening threshold of -480 J/g for energetics was exceeded on two samples. The initial DSC run on the drainable liquid sample from segment 1 of core 120 exhibited an exothermic reaction with a ΔH of -1,621 J/g (dry weight). Five more DSC runs were performed on this sample; an exothermic reaction was observed in only one other run, and it was below the safety screening limit (-311.2 J/g). The upper limit to the 95 percent confidence interval for all six runs was -855.4 J/g. The second sample that contained an exothermic reaction greater than the -480 J/g limit was from the lower half solids of segment 10, core 122. The initial DSC run exhibited an exothermic reaction with a ΔH of -699.2 J/g (dry weight). Three more runs were performed on this sample. Two did not display exothermic reactions, and a third had a dry weight exothermic reaction with a ΔH of -368.0 J/g. The 95 percent confidence interval upper limit for all four runs was -662.6 J/g. Based on DSC reruns and TOC and cyanide results, the initial large exotherms are considered suspect and do not pose energetics concerns. The water content of the two samples with high DSC results was 89.17 weight percent for the drainable liquid sample and 75.30 weight percent for the sludge sample. Even if the large exothermic reactions were real, the high moisture content would prevent them from being a safety concern.

Total organic carbon analyses were run on the two samples with DSC results above the safety screening limit. Results from both TOC analyses were far below the notification limit of 30,000 μg C/g. A cyanide analysis was performed on the lower half solids sample from segment 10 of core 122, because the TOC concentration for the sample was less than 3 weight percent. The dry weight cyanide value was $<$ 23.9 μg/g, well below the 39,000 μg/g threshold. All remaining requirements of the safety screening DQO were satisfied. Total alpha activity overall means for the sludge and liquid were 0.214 μCi/g and 1.08E-04 μCi/mL, respectively; accompanying 95 percent confidence interval upper limits were 0.637 μCi/g and 2.12E-04 μCi/mL, well below the DQO notification limit. Finally, the concentration of flammable gas in the tank headspace was 0 percent of the lower flammability limit.

Because the primary heat-producing radionuclides were not analyzed during the 1995 sampling event, a heat load estimation was derived from radionuclide data from a 1978 sampling event. The calculated estimate was 13.9 W (58.2 Btu/hr). Other estimates were

available from the HTCE (0 W [0 Btu/hr]) and Kummerer (1994) (42.8 W [146 Btu/hr]). Because the tank exhibits an upper temperature limit, it may be concluded that any heat generated from radioactive sources throughout the year is dissipated.

The waste currently in tank 241-B-203 may continue to be safely stored in the tank without special action. In addition, no additional characterization efforts are needed at this time. Finally, there were no unexpected findings that would affect the ability to retrieve and dispose of the waste safely.

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APPENDIX A

ANALYTICAL RESULTS FROM 1995 CORE SAMPLING OF SINGLE-SHELL TANK 241-B-203

ANALYTICAL RESULTS FROM 1995 CORE SAMPLING

A.1 INTRODUCTION

Appendix A reports the chemical, radiochemical, and physical characteristics of tank 241-B-203 in table form and in terms of the specific concentrations of metals, ions, radionuclides, and physical properties.

Each data table lists the following: laboratory sample identification, sample location (core/segment), segment portion, an original and duplicate result for each sample, a sample mean, a mean for the tank in which all cores, segments, and subsegments are weighted equally, a relative standard deviation of the mean (RSD [mean]), and a projected tank inventory for the particular analyte using the weighted mean, the tank waste volume, and the appropriate conversion factors. The projected tank inventory column is not applicable for the percent water or bulk density data. The data are listed in standard notation for values greater than 0.001 and less than 100,000. Values outside these limits are listed in scientific notation.

The tables are numbered A-1 through A-50. A description of the units and symbols used in the analyte tables and the sources used in compiling the analytical data (Jo 1996b) are found in the List of Terms and Section 7.0, respectively. For information on sampling rationale, locations, and descriptions of sampling events, see Section 3.0.

A.2 ANALYTE TABLE DESCRIPTION

The "Sample Number" column lists the laboratory sample for which the analyte was measured.

Column two specifies the core and segment from which each sample was derived. The first number listed is the core number. It is followed by a colon and the segment number.

Column three contains the name of the segment portion (subsegment) from which the sample was taken. This can be the entire segment (whole), the drainable liquid portion (DL), or the upper or lower half segment portions.

The Result and Duplicate columns are self-explanatory. The "Sample Mean" column is the average of the result and duplicate values. All values, including those below the detection level (indicated by the less-than symbol, <), were averaged in calculating the sample means. If the result and duplicate values were both nondetected, the sample mean is expressed as a nondetected value. On the other hand, if one of the two values is nondetected and one is detected, or if both are detected, then the sample mean is reported as a detected value. The result and duplicate values, as well as the result/duplicate means, are reported in the tables exactly as found in the original laboratory data package. The means may appear to have been rounded up in some cases and rounded down in others. This is because the analytical

results given in the tables may have fewer significant figures than originally reported, not because the means were incorrectly calculated.

The overall (or analyte concentration) means for the waste in tank 241-B-203 were calculated as follows:

The drainable liquid means were calculated by first averaging the segment means within a core, and then the two core means were averaged to obtain an overall mean.

To obtain the estimated overall sludge mean based on the segment level data, the sample/ duplicate results within a subsegment were first averaged. The subsegment means within a given segment were then averaged to obtain a segment mean, the segment means within a given core were then averaged to obtain a core mean, and finally the two core means were averaged to obtain the overall mean.

The RSD (Mean) is 100 times the standard deviation of the mean divided by the overall tank mean. The standard deviation of the mean was estimated using standard ANOVA statistical techniques. Relative standard deviations of the mean were not computed for analytes that had greater than 50 percent nondetected values. For those analytes with 50 percent or more detected results, all data available for a given analyte were used in the calculation.

The projected inventory is the product of the overall analyte concentration mean, the volume of tank waste (189 kL for the sludge and 4 kL for the drainable liquid), the bulk density of the waste (1.19 g/mL for the sludge and 1.053 g/mL for the drainable liquid), and the appropriate conversion factors.

The four QC parameters assessed on the tank 241-B-203 samples were standard recoveries, spike recoveries, duplicate analyses (RPDs), and blanks. These results were summarized in Section 5.1.2., and more specific information is provided in the following appendix tables. Sample and duplicate pairs in which any of the QC parameters were outside their specified limits are footnoted in column 6 with a QC:1, QC:2, QC:3, QC:4, QC:5, or QC:6 as follows:

QC:1 -- indicates that the standard recovery was below the QC range.

QC:2 -- indicates that the standard recovery was above the QC range.

QC:3 -- indicates that the spike recovery was below the QC range.

QC:4 -- indicates that the spike recovery was above the QC range.

QC:5 -- indicates that the RPD was greater than the QC limit range.

QC:6 -- indicates that there was blank contamination.

Table A-1. Tank 241-B-203 Analytical Results: Aluminum. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T004078	120: 4	Lower ½	75.80	81.20	78.50	52.1	7.5	11.7
S95T004087		Upper ½	167	162.0	164.5			
S95T004079	120: 5	Lower ½	14.40	46.80	30.60[QC:5]			
S95T004105		Upper ½	49.00	49.50	49.25			
S95T004080	120: 6	Lower ½	32.90	32.00	32.45			
S95T004106		Upper ½	40.20	41.20	40.70			
S95T004081	120: 7	Lower ½	38.20	42.30	40.25			
S95T004107		Upper ½	42.10	37.80	39.95			
S95T004082	120: 8	Lower ½	42.30	41.90	42.10			
S95T004108		Upper ½	35.50	41.10	38.30			
S95T004083	120: 9	Lower ½	38.60	41.80	40.20			
S95T004109		Upper ½	44.50	45.70	45.10			
S95T004084	120:10	Lower ½	34.60	39.00	36.80			
S95T004110		Upper ½	42.50	36.20	39.35			
S95T004085	120:13	Lower ½	39.20	40.00	39.60			
S95T004111		Upper ½	36.00	37.80	36.90			
S95T004086	120:14	Lower ½	43.20	51.00	47.10			
S95T004112		Upper ½	52.30	52.10	52.20			
S95T004023	122: 2	Whole	87.40	71.60	79.50			
S95T004024	122: 3	Lower ½	50.80	48.70	49.75			
S95T004032		Upper ½	54.90	53.20	54.05			

Table A-1. Tank 241-B-203 Analytical Results: Aluminum. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T004030	122: 4	Lower ½	60.10	56.60	58.35			
S95T004037		Upper ½	69.40	74.20	71.80			
S95T004031	122: 5	Lower ½	48.40	53.20	50.80			
S95T004038		Upper ½	49.90	52.40	51.15			
S95T004239	122: 6	Lower ½	45.20	53.10	49.15			
S95T004245		Upper ½	58.50	59.20	58.85			
S95T004240	122: 7	Lower ½	51.60	52.50	52.05			
S95T004246		Upper ½	58.30	56.90	57.60			
S95T004241	122: 8	Lower ½	48.00	51.70	49.85			
S95T004247		Upper ½	49.70	47.80	48.75			
S96T000062	122: 9	Lower ½	51.50	51.40	51.45			
S96T000080		Upper ½	57.90	58.90	58.40			
S96T000063	122:10	Lower ½	54.30	51.90	53.10			
S96T000081		Upper ½	54.30	70.10	62.20[QC:5]			
S96T000064	122:11	Lower ½	57.80	63.00	60.40			
S96T000082		Upper ½	52.70	55.00	53.85			
S96T000065	122:12	Lower ½	42.80	41.30	42.05			
S96T000083		Upper ½	42.90	45.10	44.00			
S96T000066	122:13	Lower ½	42.10	38.40	40.25			
S96T000084		Upper ½	41.10	39.20	40.15			

Table A-1. Tank 241-B-203 Analytical Results: Aluminum. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S96T000067	122:14	Lower ½	64.50	59.70	62.10			
S96T000085		Upper ½	40.60	40.00	40.30			
Drainable liquids			µg/mL	µg/mL	µg/mL	µg/mL	%	kg
S95T003958	120: 1	DL	< 10.00	< 10.0	< 10.0	< 10.0	N/A	< 0.0400
S95T004003	122: 1	DL	< 10.00	< 10.0	< 10.0			
S95T004004	122: 3	DL	< 10.00	< 10.0	< 10.0			

Table A-2. Tank 241-B-203 Analytical Results: Antimony. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T004078	120: 4	Lower ½	< 13.10	< 13.6	< 13.4	< 18.9	N/A	< 4.24
S95T004087		Upper ½	< 11.80	< 11.5	< 11.7			
S95T004079	120: 5	Lower ½	< 13.70	< 13.7	< 13.7			
S95T004105		Upper ½	< 12.20	< 12.2	< 12.2			
S95T004080	120: 6	Lower ½	< 20.80	< 21.6	< 21.2			
S95T004106		Upper ½	< 11.60	< 12.0	< 11.8			
S95T004081	120: 7	Lower ½	< 11.60	< 11.5	< 11.6			
S95T004107		Upper ½	< 14.30	< 14.4	< 14.4			
S95T004082	120: 8	Lower ½	< 14.70	< 14.7	< 14.7			
S95T004108		Upper ½	< 11.80	< 12.3	< 12.1			
S95T004083	120: 9	Lower ½	< 24.10	< 24.1	< 24.1			
S95T004109		Upper ½	< 14.00	< 14.0	< 14.0			
S95T004084	120:10	Lower ½	< 22.30	< 22.4	< 22.4			
S95T004110		Upper ½	< 27.20	< 27.9	< 27.6			
S95T004085	120:13	Lower ½	< 26.60	< 26.2	< 26.4			
S95T004111		Upper ½	< 25.70	< 27.2	< 26.5			
S95T004086	120:14	Lower ½	< 27.80	< 27.8	< 27.8			
S95T004112		Upper ½	< 25.00	< 25.0	< 25.0			
S95T004023	122: 2	Whole	< 23.30	< 23.6	< 23.5			
S95T004024	122: 3	Lower ½	< 24.00	< 24.7	< 24.4			
S95T004032		Upper ½	< 21.20	< 22.2	< 21.7			

Table A-2. Tank 241-B-203 Analytical Results: Antimony. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T004030	122: 4	Lower ½	< 25.70	< 25.6	< 25.7			
S95T004037		Upper ½	< 23.60	< 24.0	< 23.8			
S95T004031	122: 5	Lower ½	< 22.90	< 23.3	< 23.1			
S95T004038		Upper ½	< 22.60	< 23.1	< 22.9			
S95T004239	122: 6	Lower ½	< 22.70	< 23.5	< 23.1			
S95T004245		Upper ½	< 22.80	< 22.3	< 22.6			
S95T004240	122: 7	Lower ½	< 25.20	< 25.0	< 25.1			
S95T004246		Upper ½	< 23.70	< 22.9	< 23.3			
S95T004241	122: 8	Lower ½	< 23.90	< 23.4	< 23.7			
S95T004247		Upper ½	< 24.10	< 24.2	< 24.2			
S96T000062	122: 9	Lower ½	< 14.60	< 15.2	< 14.9			
S96T000080		Upper ½	< 14.40	< 15.3	< 14.9			
S96T000063	122:10	Lower ½	< 14.20	< 14.4	< 14.3			
S96T000081		Upper ½	< 14.90	< 15.1	< 15.0			
S96T000064	122:11	Lower ½	< 15.70	< 15.7	< 15.7			
S96T000082		Upper ½	< 14.90	< 11.9	< 13.4[QC:5]			
S96T000065	122:12	Lower ½	< 12.50	< 11.9	< 12.2			
S96T000083		Upper ½	< 15.00	< 14.8	< 14.9			
S96T000066	122:13	Lower ½	< 16.10	< 14.3	< 15.2			
S96T000084		Upper ½	< 14.80	< 13.1	< 14.0			

Table A-2. Tank 241-B-203 Analytical Results: Antimony. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S96T000067	122:14	Lower ½	< 14.50	< 12.9	< 13.7			
S96T000085		Upper ½	< 15.50	< 13.9	< 14.7			
Drainable liquids			µg/mL	µg/mL	µg/mL	µg/mL	%	kg
S95T003958	120: 1	DL	< 12.10	< 12.1	< 12.1	< 12.1	N/A	< 0.0484
S95T004003	122: 1	DL	< 12.10	< 12.1	< 12.1			
S95T004004	122: 3	DL	< 12.10	< 12.1	< 12.1			

Table A-3. Tank 241-B-203 Analytical Results: Arsenic. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T004078	120: 4	Lower ½	< 21.90	< 22.4	< 22.2	< 53.0	N/A	< 11.9
S95T004087		Upper ½	< 19.70	< 19.2	< 19.5			
S95T004079	120: 5	Lower ½	< 22.80	< 22.8	< 22.8			
S95T004105		Upper ½	< 21.60	< 20.3	< 21.0			
S95T004080	120: 6	Lower ½	< 34.70	< 36.0	< 35.4			
S95T004106		Upper ½	< 19.30	< 20.0	< 19.7			
S95T004081	120: 7	Lower ½	< 19.30	< 19.2	< 19.3			
S95T004107		Upper ½	< 23.80	< 24.0	< 23.9			
S95T004082	120: 8	Lower ½	< 24.50	< 24.6	< 24.6			
S95T004108		Upper ½	< 19.70	< 20.4	< 20.1			
S95T004083	120: 9	Lower ½	< 40.20	< 40.1	< 40.2			
S95T004109		Upper ½	< 23.50	< 23.3	< 23.4			
S95T004084	120:10	Lower ½	< 37.20	< 37.4	< 37.3			
S95T004110		Upper ½	< 45.40	< 46.5	< 46.0			
S95T004085	120:13	Lower ½	< 44.30	< 43.6	< 44.0			
S95T004111		Upper ½	< 42.90	< 45.4	< 44.2			
S95T004086	120:14	Lower ½	< 46.30	< 46.3	< 46.3			
S95T004112		Upper ½	< 41.60	< 41.7	< 41.7			
S95T004023	122: 2	Whole	< 38.90	< 39.3	< 39.1			
S95T004024	122: 3	Lower ½	< 40.10	< 41.2	< 40.7			
S95T004032		Upper ½	< 35.30	< 37.0	< 36.2			

Table A-3. Tank 241-B-203 Analytical Results: Arsenic. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T004030	122: 4	Lower ½	< 42.80	< 42.7	< 42.8			
S95T004037		Upper ½	< 39.30	< 40.0	< 39.7			
S95T004031	122: 5	Lower ½	< 38.20	< 38.8	< 38.5			
S95T004038		Upper ½	< 37.70	< 38.6	< 38.2			
S95T004239	122: 6	Lower ½	< 37.80	< 39.2	< 38.5			
S95T004245		Upper ½	< 38.00	< 37.2	< 37.6			
S95T004240	122: 7	Lower ½	< 42.00	< 41.6	< 41.8			
S95T004246		Upper ½	< 39.50	< 38.20	< 38.9			
S95T004241	122: 8	Lower ½	< 39.90	< 39.0	< 39.5			
S95T004247		Upper ½	< 40.20	< 40.1	< 40.2			
S96T000062	122: 9	Lower ½	194	191.0	192.5			
S96T000080		Upper ½	238	243.0	240.5			
S96T000063	122:10	Lower ½	203	229.0	216.0			
S96T000081		Upper ½	219	236.0	227.5			
S96T000064	122:11	Lower ½	215	219.0	217.0			
S96T000082		Upper ½	182	165.0	173.5			
S96T000065	122:12	Lower ½	< 20.80	< 19.8	< 20.3			
S96T000083		Upper ½	< 25.10	< 24.6	< 24.9			
S96T000066	122:13	Lower ½	< 26.90	< 23.9	< 25.4			
S96T000084		Upper ½	< 24.70	< 21.8	< 23.3			

Table A-3. Tank 241-B-203 Analytical Results: Arsenic. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S96T000067	122:14	Lower ½	< 24.20	< 21.6	< 22.9			
S96T000085		Upper ½	< 25.80	< 23.1	< 24.5			
Drainable liquids			µg/mL	µg/mL	µg/mL	µg/mL	%	kg
S95T003958	120: 1	DL	< 20.10	< 20.1	< 20.1	< 20.1	N/A	< 0.0804
S95T004003	122: 1	DL	< 20.10	< 20.1	< 20.1			
S95T004004	122: 3	DL	< 20.10	< 20.1	< 20.1			

Table A-4. Tank 241-B-203 Analytical Results: Barium. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T004078	120: 4	Lower ½	126	109.0	117.5	122	50.8	27.3
S95T004087		Upper ½	598	572.0	585.0			
S95T004079	120: 5	Lower ½	23.30	21.40	22.35			
S95T004105		Upper ½	374	421.0	397.5			
S95T004080	120: 6	Lower ½	< 17.30	< 18.0	< 17.7			
S95T004106		Upper ½	15.90	15.90	15.90			
S95T004081	120: 7	Lower ½	12.10	12.10	12.10			
S95T004107		Upper ½	14.90	15.20	15.05			
S95T004082	120: 8	Lower ½	17.30	16.40	16.85			
S95T004108		Upper ½	15.60	16.50	16.05			
S95T004083	120: 9	Lower ½	< 20.10	< 20.1	< 20.1			
S95T004109		Upper ½	16.30	16.60	16.45			
S95T004084	120:10	Lower ½	< 18.60	< 18.7	< 18.7			
S95T004110		Upper ½	< 22.70	< 23.2	< 23.0			
S95T004085	120:13	Lower ½	32.20	34.30	33.25			
S95T004111		Upper ½	< 21.40	< 22.7	< 22.1			
S95T004086	120:14	Lower ½	< 23.10	< 23.1	< 23.1			
S95T004112		Upper ½	< 20.80	< 20.9	< 20.9			
S95T004023	122: 2	Whole	1,350	1,600	1,480			
S95T004024	122: 3	Lower ½	57.20	74.20	65.70[QC:5]			
S95T004032		Upper ½	837	855.0	846.0			

Table A-4. Tank 241-B-203 Analytical Results: Barium. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T004030	122: 4	Lower ½	46.70	43.70	45.20			
S95T004037		Upper ½	57.50	42.40	49.95[QC:5]			
S95T004031	122: 5	Lower ½	< 19.10	< 19.4	< 19.3			
S95T004038		Upper ½	< 18.80	< 19.3	< 19.1			
S95T004239	122: 6	Lower ½	< 18.90	< 19.6	< 19.3			
S95T004245		Upper ½	< 19.00	< 18.6	< 18.8			
S95T004240	122: 7	Lower ½	< 21.00	20.90	21.0			
S95T004246		Upper ½	< 19.80	< 19.1	< 19.5			
S95T004241	122: 8	Lower ½	< 19.10	< 19.5	< 19.3			
S95T004247		Upper ½	< 20.10	< 20.0	< 20.1			
S96T000062	122: 9	Lower ½	< 12.20	< 12.7	< 12.5			
S96T000080		Upper ½	< 12.00	12.8	< 12.4			
S96T000063	122:10	Lower ½	< 11.80	< 12.0	< 11.9			
S96T000081		Upper ½	< 12.40	< 12.6	< 12.5			
S96T000064	122:11	Lower ½	< 13.00	< 13.1	< 13.1			
S96T000082		Upper ½	< 12.40	< 9.9	< 11.1[QC:5]			
S96T000065	122:12	Lower ½	12.30	12.00	12.15			
S96T000083		Upper ½	< 12.50	< 12.3	< 12.4			
S96T000066	122:13	Lower ½	26.20	26.50	26.35			
S96T000084		Upper ½	15.30	15.40	15.35			

Table A-4. Tank 241-B-203 Analytical Results: Barium. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S96T000067	122:14	Lower ½	14.40	14.20	14.30			
S96T000085		Upper ½	32.20	31.90	32.00			
Drainable liquids			µg/mL	µg/mL	µg/mL	µg/mL	%	kg
S95T003958	120: 1	DL	< 10.00	< 10.0	< 10.0	< 10.0	N/A	< 0.040
S95T004003	122: 1	DL	< 10.00	< 10.0	< 10.0			
S95T004004	122: 3	DL	< 10.00	< 10.0	< 10.0			

Table A-5. Tank 241-B-203 Analytical Results: Beryllium. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T004078	120: 4	Lower ½	< 1.090	< 1.12	< 1.11	< 1.56	N/A	< 0.349
S95T004087		Upper ½	< 0.983	< 0.963	< 0.973			
S95T004079	120: 5	Lower ½	< 1.140	< 1.14	< 1.14			
S95T004105		Upper ½	< 1.080	< 1.02	< 1.05			
S95T004080	120: 6	Lower ½	< 1.730	< 1.80	< 1.77			
S95T004106		Upper ½	< 0.966	< 0.999	< 0.983			
S95T004081	120: 7	Lower ½	< 0.964	< 0.960	< 0.962			
S95T004107		Upper ½	< 1.190	< 1.20	< 1.20			
S95T004082	120: 8	Lower ½	< 1.220	< 1.23	< 1.23			
S95T004108		Upper ½	< 0.985	< 1.02	< 1.00			
S95T004083	120: 9	Lower ½	< 2.010	< 2.01	< 2.01			
S95T004109		Upper ½	< 1.170	< 1.18	< 1.18			
S95T004084	120:10	Lower ½	< 1.860	< 1.87	< 1.87			
S95T004110		Upper ½	< 2.270	< 2.32	< 2.30			
S95T004085	120:13	Lower ½	< 2.220	< 2.18	< 2.20			
S95T004111		Upper ½	< 2.140	< 2.27	< 2.21			
S95T004086	120:14	Lower ½	< 2.310	< 2.31	< 2.31			
S95T004112		Upper ½	< 2.080	< 2.09	< 2.09			
S95T004023	122: 2	Whole	< 1.940	< 1.96	< 1.95			
S95T004024	122: 3	Lower ½	< 2.000	< 2.06	< 2.03			
S95T004032		Upper ½	< 1.770	< 1.85	< 1.81			

Table A-5. Tank 241-B-203 Analytical Results: Beryllium. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T004030	122: 4	Lower ½	< 2.140	< 2.13	< 2.14			
S95T004037		Upper ½	< 1.960	< 2.00	< 1.98			
S95T004031	122: 5	Lower ½	< 1.910	< 1.94	< 1.93			
S95T004038		Upper ½	< 1.880	< 1.93	< 1.91			
S95T004239	122: 6	Lower ½	< 1.890	< 1.96	< 1.93			
S95T004245		Upper ½	< 1.900	< 1.86	< 0.88			
S95T004240	122: 7	Lower ½	< 2.100	< 2.08	< 2.09			
S95T004246		Upper ½	< 1.980	< 1.91	< 1.95			
S95T004241	122: 8	Lower ½	< 1.910	< 1.95	< 1.93			
S95T004247		Upper ½	< 2.010	< 2.00	< 2.01			
S96T000062	122: 9	Lower ½	< 1.220	< 1.27	< 1.25			
S96T000080		Upper ½	< 1.200	< 1.28	< 1.24			
S96T000063	122:10	Lower ½	< 1.180	< 1.20	< 1.19			
S96T000081		Upper ½	< 1.240	< 1.26	< 1.25			
S96T000064	122:11	Lower ½	< 1.300	< 1.31	< 1.31			
S96T000082		Upper ½	< 1.240	< 0.988	< 1.11[QC:5]			
S96T000065	122:12	Lower ½	< 1.040	< 0.992	< 1.02			
S96T000083		Upper ½	< 1.250	< 1.23	< 1.24			

Table A-5. Tank 241-B-203 Analytical Results: Beryllium. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S96T000066	122:13	Lower ½	< 1.350	< 1.19	< 1.27			
S96T000084		Upper ½	< 1.230	< 1.09	< 1.16			
S96T000067	122:14	Lower ½	< 1.210	< 1.07	< 1.14			
S96T000085		Upper ½	< 1.290	< 1.16	< 1.23			
Drainable liquids			µg/mL	µg/mL	µg/mL	µg/mL	%	kg
S95T003958	120: 1	DL	< 1.000	< 1.00	< 1.00	< 1.00	N/A	< 0.004
S95T004003	122: 1	DL	< 1.000	< 1.00	< 1.00			
S95T004004	122: 3	DL	< 1.000	< 1.00	< 1.00			

Table A-6. Tank 241-B-203 Analytical Results: Bismuth. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T004078	120: 4	Lower ½	31,500	31,600	31,600	41,700	5.5	9,370
S95T004087		Upper ½	30,400	30,300	30,400			
S95T004079	120: 5	Lower ½	44,400	43,400	43,900			
S95T004105		Upper ½	32,700	33,100	32,900			
S95T004080	120: 6	Lower ½	48,300	49,100	48,700			
S95T004106		Upper ½	47,200	46,800	47,000			
S95T004081	120: 7	Lower ½	34,000	34,400	34,200[QC:4]			
S95T004107		Upper ½	38,300	39,100	38,700			
S95T004082	120: 8	Lower ½	49,500	47,100	48,300			
S95T004108		Upper ½	45,400	48,400	46,900			
S95T004083	120: 9	Lower ½	54,500	55,100	54,800			
S95T004109		Upper ½	55,600	56,700	56,200			
S95T004084	120:10	Lower ½	45,000	44,700	44,800			
S95T004110		Upper ½	45,400	45,600	45,500			
S95T004085	120:13	Lower ½	50,400	51,600	51,000			
S95T004111		Upper ½	52,500	54,700	53,600			
S95T004086	120:14	Lower ½	40,200	40,600	40,400			
S95T004112		Upper ½	43,600	43,300	43,400			
S95T004023	122: 2	Whole	32,400	38,600	35,500[QC:4]			
S95T004024	122: 3	Lower ½	15,500	17,300	16,400			
S95T004032		Upper ½	24,500	24,700	24,600			

Table A-6. Tank 241-B-203 Analytical Results: Bismuth. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T004030	122: 4	Lower ½	29,200	30,500	29,800			
S95T004037		Upper ½	34,500	38,800	36,600			
S95T004031	122: 5	Lower ½	52,700	52,400	52,600			
S95T004038		Upper ½	41,300	12,700	27,000[QC:5]			
S95T004239	122: 6	Lower ½	821	1,140	980.5[QC:5]			
S95T004245		Upper ½	53,800	10,700	32,200[QC:5]			
S95T004240	122: 7	Lower ½	48,700	20,400	34,600[QC:5]			
S95T004246		Upper ½	41,000	40,900	41,000			
S95T004241	122: 8	Lower ½	54,300	55,600	55,000			
S95T004247		Upper ½	25,100	3,420	14,300[QC:5]			
S96T000062	122: 9	Lower ½	46,100	43,800	45,000			
S96T000080		Upper ½	52,700	54,100	53,400			
S96T000063	122:10	Lower ½	45,400	48,900	47,200			
S96T000081		Upper ½	48,600	52,000	50,300			
S96T000064	122:11	Lower ½	50,100	52,500	51,300			
S96T000082		Upper ½	45,600	41,500	43,600			
S96T000065	122:12	Lower ½	51,900	50,600	51,200			
S96T000083		Upper ½	51,800	50,700	51,200			
S96T000066	122:13	Lower ½	56,800	57,600	57,200			
S96T000084		Upper ½	55,600	55,500	55,600			

Table A-6. Tank 241-B-203 Analytical Results: Bismuth. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S96T000067	122:14	Lower ½	39,200	40,200	39,700			
S96T000085		Upper ½	41,500	39,400	40,400			
Drainable liquids			µg/mL	µg/mL	µg/mL	µg/mL	%	kg
S95T003958	120: 1	DL	< 20.10	< 20.1	< 20.1	< 20.1	N/A	< 0.0804
S95T004003	122: 1	DL	< 20.10	< 20.1	< 20.1			
S95T004004	122: 3	DL	< 20.10	< 20.1	< 20.1			

Table A-7. Tank 241-B-203 Analytical Results: Boron. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T004078	120: 4	Lower ½	110	144.0	127.0[QC:5]	132	10.7	29.7
S95T004087		Upper ½	98.90	102.0	100.5			
S95T004079	120: 5	Lower ½	< 11.40	167.0	89.20[QC:5]			
S95T004105		Upper ½	120	152.0	136.0[QC:5]			
S95T004080	120: 6	Lower ½	59.60	43.90	51.75[QC:5]			
S95T004106		Upper ½	127	119.0	123.0			
S95T004081	120: 7	Lower ½	115	129.0	122.0			
S95T004107		Upper ½	135	128.0	131.5			
S95T004082	120: 8	Lower ½	126	126.0	126.0			
S95T004108		Upper ½	111	121.0	116.0			
S95T004083	120: 9	Lower ½	120	128.0	124.0			
S95T004109		Upper ½	123	126.0	124.5			
S95T004084	120:10	Lower ½	109	105.0	107.0			
S95T004110		Upper ½	128	123.0	125.5			
S95T004085	120:13	Lower ½	124	129.0	126.5			
S95T004111		Upper ½	111	128.0	119.5			
S95T004086	120:14	Lower ½	138	140.0	139.0			
S95T004112		Upper ½	143	137.0	140.0			
S95T004023	122: 2	Whole	123	146.0	134.5			
S95T004024	122: 3	Lower ½	143	143.0	143.0			
S95T004032		Upper ½	133	148.0	140.5			

Table A-7. Tank 241-B-203 Analytical Results: Boron. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T004030	122: 4	Lower ½	160	152.0	156.0			
S95T004037		Upper ½	133	148.0	140.5			
S95T004031	122: 5	Lower ½	146	140.0	143.0			
S95T004038		Upper ½	146	146.0	146.0			
S95T004239	122: 6	Lower ½	126	151.0	138.5			
S95T004245		Upper ½	153	153.0	153.0			
S95T004240	122: 7	Lower ½	137	165.0	151.0			
S95T004246		Upper ½	159	155.0	157.0			
S95T004241	122: 8	Lower ½	155	160.0	157.5			
S95T004247		Upper ½	149	124.0	136.5			
S96T000062	122: 9	Lower ½	132	142.0	137.0			
S96T000080		Upper ½	149	143.0	146.0			
S96T000063	122:10	Lower ½	152	141.0	146.5			
S96T000081		Upper ½	150	177.0	163.5			
S96T000064	122:11	Lower ½	177	193.0	185.0			
S96T000082		Upper ½	148	162.0	155.0			
S96T000065	122:12	Lower ½	134	123.0	128.5			
S96T000083		Upper ½	126	121.0	123.5			
S96T000066	122:13	Lower ½	136	112.0	124.0			
S96T000084		Upper ½	158	121.0	139.5[QC:5]			

Table A-7. Tank 241-B-203 Analytical Results: Boron. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S96T000067	122:14	Lower ½	160	172.0	166.0			
S96T000085		Upper ½	138	149.0	143.5			
Drainable liquids			µg/mL	µg/mL	µg/mL	µg/mL	%	kg
S95T003958	120: 1	DL	< 10.00	< 10.0	< 10.0	< 10.0	N/A	< 0.0400
S95T004003	122: 1	DL	< 10.00	< 10.0	< 10.0			
S95T004004	122: 3	DL	< 10.00	< 10.0	< 10.0			

Table A-8. Tank 241-B-203 Analytical Results: Cadmium. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T004078	120: 4	Lower ½	< 1.090	< 1.12	< 1.11	< 1.57	N/A	< 0.353
S95T004087		Upper ½	< 0.983	< 0.963	< 0.973			
S95T004079	120: 5	Lower ½	< 1.140	< 1.14	< 1.14			
S95T004105		Upper ½	< 1.080	< 1.02	< 1.05			
S95T004080	120: 6	Lower ½	< 1.730	< 1.80	< 1.77			
S95T004106		Upper ½	< 0.966	< 0.999	< 0.983			
S95T004081	120: 7	Lower ½	< 0.964	< 0.960	< 0.962			
S95T004107		Upper ½	< 1.190	< 1.20	< 1.20			
S95T004082	120: 8	Lower ½	< 1.220	< 1.23	< 1.23			
S95T004108		Upper ½	< 0.985	< 1.02	< 1.00			
S95T004083	120: 9	Lower ½	< 2.010	< 2.01	< 2.01			
S95T004109		Upper ½	< 1.170	< 1.18	< 1.18			
S95T004084	120:10	Lower ½	< 1.860	< 1.87	< 1.87			
S95T004110		Upper ½	< 2.270	< 2.32	< 2.30			
S95T004085	120:13	Lower ½	< 2.220	< 2.18	< 2.20			
S95T004111		Upper ½	< 2.140	< 2.27	< 2.21			
S95T004086	120:14	Lower ½	< 2.310	< 2.31	< 2.31			
S95T004112		Upper ½	< 2.080	< 2.09	< 2.09			
S95T004023	122: 2	Whole	< 1.940	< 1.96	< 1.95			
S95T004024	122: 3	Lower ½	< 2.000	< 2.06	< 2.03			
S95T004032		Upper ½	< 1.770	< 1.85	< 1.81			

Table A-8. Tank 241-B-203 Analytical Results: Cadmium. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T004030	122: 4	Lower ½	< 2.140	< 2.13	< 2.14			
S95T004037		Upper ½	< 1.960	< 2.00	< 1.98			
S95T004031	122: 5	Lower ½	< 1.910	< 1.94	< 1.93			
S95T004038		Upper ½	< 1.880	< 1.93	< 1.91			
S95T004239	122: 6	Lower ½	< 1.890	< 1.96	< 1.93			
S95T004245		Upper ½	< 1.900	< 1.86	< 1.88			
S95T004240	122: 7	Lower ½	< 2.100	< 2.08	< 2.09			
S95T004246		Upper ½	< 1.980	< 1.91	< 1.95			
S95T004241	122: 8	Lower ½	< 1.910	< 1.95	< 1.93			
S95T004247		Upper ½	< 2.010	< 2.00	< 2.01			
S96T000062	122: 9	Lower ½	1.260	< 1.27	1.27			
S96T000080		Upper ½	< 1.200	< 1.28	< 1.24			
S96T000063	122:10	Lower ½	< 1.180	< 1.20	< 1.19			
S96T000081		Upper ½	< 1.240	< 1.26	< 1.25			
S96T000064	122:11	Lower ½	< 1.300	< 1.31	< 1.31			
S96T000082		Upper ½	< 1.240	< 0.988	< 1.11[QC:5]			
S96T000065	122:12	Lower ½	< 1.040	< 0.992	< 1.02			
S96T000083		Upper ½	< 1.250	< 1.23	< 1.24			
S96T000066	122:13	Lower ½	< 1.350	< 1.19	< 1.27			
S96T000084		Upper ½	< 1.230	< 1.09	< 1.16			

Table A-8. Tank 241-B-203 Analytical Results: Cadmium. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S96T000067	122:14	Lower ½	< 1.210	< 1.07	< 1.14			
S96T000085		Upper ½	< 1.290	< 1.16	< 1.23			
Drainable liquids			µg/mL	µg/mL	µg/mL	µg/mL	%	kg
S95T003958	120: 1	DL	< 1.000	< 1.00	< 1.00	< 1.00	N/A	< 0.004
S95T004003	122: 1	DL	< 1.000	< 1.00	< 1.00			
S95T004004	122: 3	DL	< 1.000	< 1.00	< 1.00			

Table A-9. Tank 241-B-203 Analytical Results: Calcium. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T004078	120: 4	Lower ½	313	286.0	299.5	222	8.9	49.9
S95T004087		Upper ½	653	691.0	672.0			
S95T004079	120: 5	Lower ½	144	140.0	142.0			
S95T004105		Upper ½	186	191.0	188.5			
S95T004080	120: 6	Lower ½	130	128.0	129.0			
S95T004106		Upper ½	158	146.0	152.0			
S95T004081	120: 7	Lower ½	152	156.0	154.0			
S95T004107		Upper ½	118	122.0	120.0			
S95T004082	120: 8	Lower ½	143	152.0	147.5			
S95T004108		Upper ½	153	163.0	158.0			
S95T004083	120: 9	Lower ½	164	176.0	170.0			
S95T004109		Upper ½	163	167.0	165.0			
S95T004084	120:10	Lower ½	163	168.0	165.5			
S95T004110		Upper ½	179	177.0	178.0			
S95T004085	120:13	Lower ½	131	133.0	132.0			
S95T004111		Upper ½	136	163.0	149.5			
S95T004086	120:14	Lower ½	225	247.0	236.0			
S95T004112		Upper ½	238	240.0	239.0			
S95T004023	122: 2	Whole	392	400.0	396.0			
S95T004024	122: 3	Lower ½	139	143.0	141.0			
S95T004032		Upper ½	158	151.0	154.5			

Table A-9. Tank 241-B-203 Analytical Results: Calcium. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T004030	122: 4	Lower ½	148	183.0	165.5[QC:5]			
S95T004037		Upper ½	464	347.0	405.5[QC:5]			
S95T004031	122: 5	Lower ½	167	196.0	181.5			
S95T004038		Upper ½	199	221.0	210.0			
S95T004239	122: 6	Lower ½	138	149.0	143.5			
S95T004245		Upper ½	193	173.0	183.0			
S95T004240	122: 7	Lower ½	254	272.0	263.0			
S95T004246		Upper ½	293	246.0	269.5			
S95T004241	122: 8	Lower ½	192	180.0	186.0			
S95T004247		Upper ½	253	237.0	245.0			
S96T000062	122: 9	Lower ½	214	209.0	211.5			
S96T000080		Upper ½	225	315.0	270.0[QC:5]			
S96T000063	122:10	Lower ½	227	244.0	235.5			
S96T000081		Upper ½	242	245.0	243.5			
S96T000064	122:11	Lower ½	287	351.0	319.0			
S96T000082		Upper ½	243	227.0	235.0			
S96T000065	122:12	Lower ½	222	212.0	217.0			
S96T000083		Upper ½	409	379.0	394.0			
S96T000066	122:13	Lower ½	200	174.0	187.0			
S96T000084		Upper ½	216	195.0	205.5			

Table A-9. Tank 241-B-203 Analytical Results: Calcium. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S96T000067	122:14	Lower ½	294	274.0	284.0			
S96T000085		Upper ½	204	191.0	197.5			
Drainable liquids			µg/mL	µg/mL	µg/mL	µg/mL	%	kg
S95T003958	120: 1	DL	< 20.10	< 20.1	< 20.1	< 20.1	N/A	< 0.0804
S95T004003	122: 1	DL	< 20.10	< 20.1	< 20.1			
S95T004004	122: 3	DL	< 20.10	< 20.1	< 20.1			

Table A-10. Tank 241-B-203 Analytical Results: Cerium. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T004078	120: 4	Lower ½	50.70	52.00	51.35	50.2	3.3	11.3
S95T004087		Upper ½	36.70	36.20	36.45			
S95T004079	120: 5	Lower ½	45.80	45.90	45.85			
S95T004105		Upper ½	60.20	58.30	59.25			
S95T004080	120: 6	Lower ½	52.20	55.60	53.90			
S95T004106		Upper ½	55.30	53.60	54.45			
S95T004081	120: 7	Lower ½	48.90	48.70	48.80			
S95T004107		Upper ½	55.90	57.40	56.65			
S95T004082	120: 8	Lower ½	48.00	49.50	48.75			
S95T004108		Upper ½	48.00	52.80	50.40			
S95T004083	120: 9	Lower ½	50.20	48.70	49.45			
S95T004109		Upper ½	48.80	49.90	49.35			
S95T004084	120:10	Lower ½	52.00	51.40	51.70			
S95T004110		Upper ½	53.30	53.10	53.20			
S95T004085	120:13	Lower ½	45.90	44.90	45.40			
S95T004111		Upper ½	< 42.90	< 45.4	< 44.2			
S95T004086	120:14	Lower ½	50.40	53.90	52.15			
S95T004112		Upper ½	61.90	67.30	64.60			
S95T004023	122: 2	Whole	< 38.90	< 39.3	< 39.1			
S95T004024	122: 3	Lower ½	< 40.10	< 41.2	< 40.7			
S95T004032		Upper ½	43.00	43.40	43.20			

Table A-10. Tank 241-B-203 Analytical Results: Cerium. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T004030	122: 4	Lower ½	56.50	53.70	55.10			
S95T004037		Upper ½	47.50	45.50	46.50			
S95T004031	122: 5	Lower ½	43.80	45.00	44.40			
S95T004038		Upper ½	42.70	42.80	42.75			
S95T004239	122: 6	Lower ½	42.20	53.10	47.65[QC:5]			
S95T004245		Upper ½	65.30	65.30	65.30			
S95T004240	122: 7	Lower ½	49.60	50.70	50.15			
S95T004246		Upper ½	56.20	54.30	55.25			
S95T004241	122: 8	Lower ½	44.80	44.20	44.50			
S95T004247		Upper ½	< 40.20	46.00	43.10			
S96T000062	122: 9	Lower ½	57.00	57.50	57.25			
S96T000080		Upper ½	61.50	71.40	66.45			
S96T000063	122:10	Lower ½	63.00	66.50	64.75			
S96T000081		Upper ½	69.70	71.80	70.75			
S96T000064	122:11	Lower ½	57.90	62.90	60.40			
S96T000082		Upper ½	48.60	54.40	51.50			
S96T000065	122:12	Lower ½	47.70	46.30	47.00			
S96T000083		Upper ½	50.60	51.00	50.80			
S96T000066	122:13	Lower ½	31.70	29.00	30.35			
S96T000084		Upper ½	32.60	32.50	32.55			

Table A-10. Tank 241-B-203 Analytical Results: Cerium. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S96T000067	122:14	Lower ½	57.70	58.60	58.15			
S96T000085		Upper ½	42.30	43.20	42.75			
Drainable liquids			µg/mL	µg/mL	µg/mL	µg/mL	%	kg
S95T003958	120: 1	DL	< 20.10	< 20.1	< 20.1	< 20.1	N/A	< 0.0804
S95T004003	122: 1	DL	< 20.10	< 20.1	< 20.1			
S95T004004	122: 3	DL	< 20.10	< 20.1	< 20.1			

Table A-11. Tank 241-B-203 Analytical Results: Chromium. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T004078	120: 4	Lower ½	2,390	2,390	2,390	3,080	4.8	693
S95T004087		Upper ½	2,090	2,070	2,080			
S95T004079	120: 5	Lower ½	2,340	2,400	2,370			
S95T004105		Upper ½	2,510	2,690	2,600			
S95T004080	120: 6	Lower ½	3,160	3,240	3,200			
S95T004106		Upper ½	3,380	3,330	3,360			
S95T004081	120: 7	Lower ½	3,250	3,300	3,280			
S95T004107		Upper ½	3,640	3,640	3,640			
S95T004082	120: 8	Lower ½	2,450	2,440	2,440			
S95T004108		Upper ½	3,370	3,690	3,530			
S95T004083	120: 9	Lower ½	3,910	3,880	3,900			
S95T004109		Upper ½	3,810	3,990	3,900			
S95T004084	120:10	Lower ½	3,260	3,230	3,240			
S95T004110		Upper ½	3,360	3,380	3,370			
S95T004085	120:13	Lower ½	3,870	4,030	3,950			
S95T004111		Upper ½	3,000	3,150	3,080			
S95T004086	120:14	Lower ½	2,910	2,970	2,940			
S95T004112		Upper ½	3,360	3,270	3,320			
S95T004023	122: 2	Whole	1,910	2,220	2,060			
S95T004024	122: 3	Lower ½	1,080	1,190	1,140			
S95T004032		Upper ½	1,460	1,480	1,470			

Table A-11. Tank 241-B-203 Analytical Results: Chromium. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T004030	122: 4	Lower ½	1,940	2,010	1,980			
S95T004037		Upper ½	2,450	2,840	2,640			
S95T004031	122: 5	Lower ½	3,340	3,170	3,260			
S95T004038		Upper ½	2,450	2,380	2,420[QC:3]			
S95T004239	122: 6	Lower ½	3,220	3,870	3,540			
S95T004245		Upper ½	3,970	4,110	4,040			
S95T004240	122: 7	Lower ½	4,530	4,590	4,560			
S95T004246		Upper ½	3,940	3,940	3,940			
S95T004241	122: 8	Lower ½	3,520	3,640	3,580			
S95T004247		Upper ½	3,950	3,920	3,940			
S96T000062	122: 9	Lower ½	3,050	2,890	2,970[QC:3]			
S96T000080		Upper ½	3,800	3,920	3,860			
S96T000063	122:10	Lower ½	2,690	2,900	2,800			
S96T000081		Upper ½	2,730	2,840	2,780			
S96T000064	122:11	Lower ½	2,670	2,780	2,720			
S96T000082		Upper ½	2,890	2,690	2,790			
S96T000065	122:12	Lower ½	3,200	3,090	3,140			
S96T000083		Upper ½	3,240	3,280	3,260			
S96T000066	122:13	Lower ½	4,170	4,300	4,240			
S96T000084		Upper ½	3,120	3,080	3,100			

Table A-11. Tank 241-B-203 Analytical Results: Chromium. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S96T000067	122:14	Lower ½	2,900	2,910	2,900			
S96T000085		Upper ½	3,450	3,270	3,360			
Drainable liquids			µg/mL	µg/mL	µg/mL	µg/mL	%	kg
S95T003958	120: 1	DL	148	154.0	151.0	159	6.6	0.636
S95T004003	122: 1	DL	152	150.0	151.0			
S95T004004	122: 3	DL	183	183.0	183.0			

Table A-12. Tank 241-B-203 Analytical Results: Cobalt. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T004078	120: 4	Lower ½	< 4.380	< 4.48	< 4.43	< 6.29	N/A	< 1.41
S95T004087		Upper ½	< 3.930	< 3.85	< 3.89			
S95T004079	120: 5	Lower ½	< 4.560	< 4.56	< 4.56			
S95T004105		Upper ½	< 4.320	< 4.07	< 4.20			
S95T004080	120: 6	Lower ½	< 6.940	< 7.21	< 7.08			
S95T004106		Upper ½	< 3.860	< 4.00	< 3.93			
S95T004081	120: 7	Lower ½	< 3.860	< 3.84	< 3.85			
S95T004107		Upper ½	< 4.750	< 4.80	< 4.78			
S95T004082	120: 8	Lower ½	< 4.900	< 4.92	< 4.91			
S95T004108		Upper ½	< 3.940	< 4.09	< 4.02			
S95T004083	120: 9	Lower ½	< 8.050	< 8.02	< 8.04			
S95T004109		Upper ½	< 4.670	< 4.66	< 4.67			
S95T004084	120:10	Lower ½	< 7.450	< 7.48	< 7.47			
S95T004110		Upper ½	< 9.080	< 9.30	< 9.19			
S95T004085	120:13	Lower ½	< 8.880	< 8.72	< 8.80			
S95T004111		Upper ½	< 8.570	< 9.08	< 8.83			
S95T004086	120:14	Lower ½	< 9.260	< 9.25	< 9.26			
S95T004112		Upper ½	< 8.330	< 8.34	< 8.34			
S95T004023	122: 2	Whole	< 7.770	< 7.86	< 7.82			
S95T004024	122: 3	Lower ½	< 8.010	< 8.24	< 8.13			
S95T004032		Upper ½	< 7.070	< 7.40	< 7.24			

Table A-12. Tank 241-B-203 Analytical Results: Cobalt. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T004030	122: 4	Lower ½	< 8.570	< 8.54	< 8.56			
S95T004037		Upper ½	< 7.850	< 8.00	< 7.93			
S95T004031	122: 5	Lower ½	< 7.660	< 7.77	< 7.72			
S95T004038		Upper ½	< 7.540	< 7.71	< 7.63			
S95T004239	122: 6	Lower ½	< 7.560	< 7.83	< 7.70			
S95T004245		Upper ½	< 7.600	< 7.44	< 7.52			
S95T004240	122: 7	Lower ½	< 8.400	< 8.33	< 8.37			
S95T004246		Upper ½	< 7.920	< 7.63	< 7.78			
S95T004241	122: 8	Lower ½	< 7.980	< 7.79	< 7.89			
S95T004247		Upper ½	< 8.040	< 8.02	< 8.03			
S96T000062	122: 9	Lower ½	< 4.870	< 5.08	< 4.98			
S96T000080		Upper ½	< 4.790	< 5.10	< 4.95			
S96T000063	122:10	Lower ½	< 4.720	< 4.80	< 4.76			
S96T000081		Upper ½	< 4.950	< 5.05	< 5.00			
S96T000064	122:11	Lower ½	< 5.220	< 5.23	< 5.23			
S96T000082		Upper ½	< 4.980	< 3.95	< 4.47[QC:5]			
S96T000065	122:12	Lower ½	< 4.150	< 3.97	< 4.06			
S96T000083		Upper ½	< 5.030	< 4.93	< 4.98			
S96T000066	122:13	Lower ½	< 5.380	< 4.77	< 5.08			
S96T000084		Upper ½	< 4.950	< 4.36	< 4.66			

Table A-12. Tank 241-B-203 Analytical Results: Cobalt. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S96T000067	122:14	Lower ½	< 4.850	< 4.29	< 4.57			
S96T000085		Upper ½	< 5.160	< 4.63	< 4.90			
Drainable liquids			µg/mL	µg/mL	µg/mL	µg/mL	%	kg
S95T003958	120: 1	DL	< 4.020	< 4.02	< 4.02	< 4.02	N/A	< 0.0161
S95T004003	122: 1	DL	< 4.020	< 4.02	< 4.02			
S95T004004	122: 3	DL	< 4.020	< 4.02	< 4.02			

Table A-13. Tank 241-B-203 Analytical Results: Copper. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T004078	120: 4	Lower ½	7.470	7.510	7.490	6.99	13	1.57
S95T004087		Upper ½	9.260	6.480	7.870[QC:5]			
S95T004079	120: 5	Lower ½	8.690	7.880	8.285			
S95T004105		Upper ½	13.00	12.90	12.95			
S95T004080	120: 6	Lower ½	14.60	14.70	14.65			
S95T004106		Upper ½	29.00	31.00	30.00			
S95T004081	120: 7	Lower ½	2.040	2.010	2.025			
S95T004107		Upper ½	2.670	2.870	2.770			
S95T004082	120: 8	Lower ½	5.380	3.900	4.640[QC:5]			
S95T004108		Upper ½	3.130	4.150	3.640[QC:5]			
S95T004083	120: 9	Lower ½	< 4.020	4.700	4.36			
S95T004109		Upper ½	4.800	3.250	4.025[QC:5]			
S95T004084	120:10	Lower ½	< 3.720	5.550	4.64[QC:5]			
S95T004110		Upper ½	4.660	5.110	4.885			
S95T004085	120:13	Lower ½	5.320	7.200	6.260[QC:5]			
S95T004111		Upper ½	5.860	6.100	5.980			
S95T004086	120:14	Lower ½	7.600	6.190	6.895			
S95T004112		Upper ½	5.650	6.270	5.960			
S95T004023	122: 2	Whole	5.550	< 3.93	4.74[QC:5]			
S95T004024	122: 3	Lower ½	< 4.010	< 4.12	< 4.07			
S95T004032		Upper ½	< 3.530	4.220	3.88			

Table A-13. Tank 241-B-203 Analytical Results: Copper. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T004030	122: 4	Lower ½	8.660	8.010	8.335			
S95T004037		Upper ½	5.390	5.590	5.490			
S95T004031	122: 5	Lower ½	11.40	11.20	11.30			
S95T004038		Upper ½	8.470	9.060	8.765			
S95T004239	122: 6	Lower ½	< 3.780	< 3.92	< 3.85			
S95T004245		Upper ½	23.30	16.60	19.95[QC:5]			
S95T004240	122: 7	Lower ½	4.820	< 4.16	4.49			
S95T004246		Upper ½	5.490	< 3.82	4.66[QC:5]			
S95T004241	122: 8	Lower ½	< 3.990	< 3.90	< 3.95			
S95T004247		Upper ½	< 4.020	< 4.01	< 4.02			
S96T000062	122: 9	Lower ½	6.440	5.490	5.965			
S96T000080		Upper ½	5.950	6.170	6.060			
S96T000063	122:10	Lower ½	6.890	7.200	7.045			
S96T000081		Upper ½	5.820	7.960	6.890[QC:5]			
S96T000064	122:11	Lower ½	7.250	8.320	7.785			
S96T000082		Upper ½	7.360	8.190	7.775			
S96T000065	122:12	Lower ½	4.310	4.030	4.170			
S96T000083		Upper ½	6.510	6.150	6.330			
S96T000066	122:13	Lower ½	5.820	4.400	5.110[QC:5]			
S96T000084		Upper ½	4.670	4.080	4.375			

Table A-13. Tank 241-B-203 Analytical Results: Copper. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S96T000067	122:14	Lower ½	7.170	6.470	6.820			
S96T000085		Upper ½	4.530	4.330	4.430			
Drainable liquids			µg/mL	µg/mL	µg/mL	µg/mL	%	kg
S95T003958	120: 1	DL	< 20.10	< 20.1	< 20.1	< 20.1	N/A	< 0.00804
S95T004003	122: 1	DL	< 20.10	< 20.1	< 20.1			
S95T004004	122: 3	DL	< 20.10	< 20.1	< 20.1			

Table A-14. Tank 241-B-203 Analytical Results: Iron. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T004078	120: 4	Lower ½	2,720	2,690	2,700	4,410	24.1	993
S95T004087		Upper ½	9,300	7,440	8,370[QC:5]			
S95T004079	120: 5	Lower ½	3,090	3,020	3,060			
S95T004105		Upper ½	2,620	2,690	2,660			
S95T004080	120: 6	Lower ½	3,110	3,170	3,140			
S95T004106		Upper ½	2,640	2,600	2,620			
S95T004081	120: 7	Lower ½	2,290	2,290	2,290			
S95T004107		Upper ½	2,700	2,750	2,720			
S95T004082	120: 8	Lower ½	3,160	3,050	3,100			
S95T004108		Upper ½	2,690	2,840	2,760			
S95T004083	120: 9	Lower ½	3,140	3,110	3,120			
S95T004109		Upper ½	3,150	3,200	3,180			
S95T004084	120:10	Lower ½	3,080	3,100	3,090			
S95T004110		Upper ½	3,250	3,270	3,260			
S95T004085	120:13	Lower ½	3,080	3,190	3,140			
S95T004111		Upper ½	3,070	3,200	3,140			
S95T004086	120:14	Lower ½	4,220	10,200	7,210[QC:5]			
S95T004112		Upper ½	4,460	5,770	5,120[QC:5]			
S95T004023	122: 2	Whole	58,600	4,070	31,300[QC:5]			
S95T004024	122: 3	Lower ½	1,150	1,220	1,180			
S95T004032		Upper ½	1,860	2,030	1,940			

Table A-14. Tank 241-B-203 Analytical Results: Iron. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T004030	122: 4	Lower ½	2,390	2,430	2,410			
S95T004037		Upper ½	5,710	7,390	6,550[QC:5]			
S95T004031	122: 5	Lower ½	3,260	3,270	3,260			
S95T004038		Upper ½	2,870	2,920	2,900			
S95T004239	122: 6	Lower ½	2,460	2,970	2,720			
S95T004245		Upper ½	3,250	3,160	3,200			
S95T004240	122: 7	Lower ½	2,930	3,310	3,120			
S95T004246		Upper ½	2,790	2,780	2,780			
S95T004241	122: 8	Lower ½	3,180	3,240	3,210			
S95T004247		Upper ½	2,770	2,780	2,780			
S96T000062	122: 9	Lower ½	2,720	2,520	2,620[QC:3]			
S96T000080		Upper ½	2,970	3,090	3,030			
S96T000063	122:10	Lower ½	2,840	3,020	2,930			
S96T000081		Upper ½	2,910	3,110	3,010			
S96T000064	122:11	Lower ½	3,010	3,120	3,060			
S96T000082		Upper ½	2,700	2,460	2,580			
S96T000065	122:12	Lower ½	3,210	3,110	3,160			
S96T000083		Upper ½	3,230	3,230	3,230			
S96T000066	122:13	Lower ½	3,280	3,360	3,320			
S96T000084		Upper ½	3,280	3,260	3,270			

Table A-14. Tank 241-B-203 Analytical Results: Iron. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S96T000067	122:14	Lower ½	4,010	4,030	4,020			
S96T000085		Upper ½	3,190	3,080	3,140			
Drainable liquids			µg/mL	µg/mL	µg/mL	µg/mL	%	kg
S95T003958	120: 1	DL	< 10.00	< 10.0	< 10.0	< 10.0	N/A	< 0.0400
S95T004003	122: 1	DL	< 10.00	< 10.0	< 10.0			
S95T004004	122: 3	DL	< 10.00	< 10.0	< 10.0			

Table A-15. Tank 241-B-203 Analytical Results: Lanthanum. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T004078	120: 4	Lower ½	9,280	9,260	9,270[QC:3]	10,400	3.4	2,350
S95T004087		Upper ½	8,650	8,650	8,650			
S95T004079	120: 5	Lower ½	10,100	9,780	9,940			
S95T004105		Upper ½	10,700	10,300	10,500			
S95T004080	120: 6	Lower ½	10,800	11,000	10,900			
S95T004106		Upper ½	9,590	9,560	9,580			
S95T004081	120: 7	Lower ½	8,560	8,540	8,550			
S95T004107		Upper ½	10,200	10,400	10,300			
S95T004082	120: 8	Lower ½	11,900	11,200	11,600			
S95T004108		Upper ½	10,800	11,300	11,000			
S95T004083	120: 9	Lower ½	11,500	11,800	11,600			
S95T004109		Upper ½	12,000	12,300	12,200			
S95T004084	120:10	Lower ½	11,400	11,400	11,400[QC:3]			
S95T004110		Upper ½	11,600	11,600	11,600			
S95T004085	120:13	Lower ½	10,200	10,900	10,600			
S95T004111		Upper ½	7,560	7,850	7,700			
S95T004086	120:14	Lower ½	13,400	13,800	13,600			
S95T004112		Upper ½	15,100	15,100	15,100			
S95T004023	122: 2	Whole	10,200	12,000	11,100[QC:4]			
S95T004024	122: 3	Lower ½	4,950	5,570	5,260			
S95T004032		Upper ½	8,010	8,030	8,020			

Table A-15. Tank 241-B-203 Analytical Results: Lanthanum. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T004030	122: 4	Lower ½	8,670	8,970	8,820			
S95T004037		Upper ½	10,900	11,500	11,200			
S95T004031	122: 5	Lower ½	10,200	10,200	10,200			
S95T004038		Upper ½	9,740	9,820	9,780[QC:3]			
S95T004239	122: 6	Lower ½	7,980	9,550	8,760			
S95T004245		Upper ½	12,900	13,300	13,100			
S95T004240	122: 7	Lower ½	10,500	10,500	10,500			
S95T004246		Upper ½	9,870	9,940	9,900			
S95T004241	122: 8	Lower ½	11,100	11,400	11,200			
S95T004247		Upper ½	10,400	10,200	10,300			
S96T000062	122: 9	Lower ½	9,640	9,350	9,500[QC:3]			
S96T000080		Upper ½	11,800	12,100	12,000			
S96T000063	122:10	Lower ½	10,200	11,000	10,600			
S96T000081		Upper ½	10,800	11,500	11,200			
S96T000064	122:11	Lower ½	10,400	10,300	10,400			
S96T000082		Upper ½	9,500	8,660	9,080			
S96T000065	122:12	Lower ½	10,300	10,200	10,200[QC:3]			
S96T000083		Upper ½	11,000	11,100	11,000			
S96T000066	122:13	Lower ½	7,810	7,860	7,840			
S96T000084		Upper ½	7,750	7,850	7,800			

Table A-15. Tank 241-B-203 Analytical Results: Lanthanum. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S96T000067	122:14	Lower ½	13,700	13,800	13,800			
S96T000085		Upper ½	9,830	9,580	9,700			
Drainable liquids			µg/mL	µg/mL	µg/mL	µg/mL	%	kg
S95T003958	120: 1	DL	< 10.00	< 10.0	< 10.0	< 10.0	N/A	< 0.0400
S95T004003	122: 1	DL	< 10.00	< 10.0	< 10.0			
S95T004004	122: 3	DL	< 10.00	< 10.0	< 10.0			

Table A-16. Tank 241-B-203 Analytical Results: Lead. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T004078	120: 4	Lower ½	< 21.90	< 22.4	< 22.2	< 473	N/A	< 106
S95T004087		Upper ½	28.00	20.80	24.40[QC:5]			
S95T004079	120: 5	Lower ½	< 22.80	< 22.8	< 22.8			
S95T004105		Upper ½	< 21.60	< 20.3	< 21.0			
S95T004080	120: 6	Lower ½	< 34.70	< 36.0	< 35.4			
S95T004106		Upper ½	< 19.30	< 20.0	< 19.7			
S95T004081	120: 7	Lower ½	< 19.30	< 19.2	< 19.3			
S95T004107		Upper ½	< 23.80	< 24.0	< 23.9			
S95T004082	120: 8	Lower ½	< 24.50	< 24.6	< 24.6			
S95T004108		Upper ½	< 19.70	< 20.4	< 20.1			
S95T004083	120: 9	Lower ½	< 40.20	< 40.1	< 40.2			
S95T004109		Upper ½	< 23.50	< 23.3	< 23.4			
S95T004084	120:10	Lower ½	< 37.20	< 37.4	< 37.3			
S95T004110		Upper ½	< 45.40	< 46.5	< 46.0			
S95T004085	120:13	Lower ½	< 44.30	< 43.6	< 44.0			
S95T004111		Upper ½	< 42.90	< 45.4	< 44.2			
S95T004086	120:14	Lower ½	3,550	3,800	3,680			
S95T004112		Upper ½	7,670	7,200	7,440			
S95T004023	122: 2	Whole	596	< 39.3	318[QC:3]			
S95T004024	122: 3	Lower ½	< 40.10	< 41.2	< 40.7			
S95T004032		Upper ½	< 35.30	< 37.0	< 36.2			

Table A-16. Tank 241-B-203 Analytical Results: Lead. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T004030	122: 4	Lower ½	< 42.80	< 42.7	< 42.8			
S95T004037		Upper ½	< 39.30	< 40.0	< 39.7			
S95T004031	122: 5	Lower ½	< 38.20	< 38.8	< 38.5			
S95T004038		Upper ½	< 37.70	< 38.6	< 38.2			
S95T004239	122: 6	Lower ½	< 37.80	< 39.2	< 38.5			
S95T004245		Upper ½	< 38.00	< 37.2	< 37.6			
S95T004240	122: 7	Lower ½	< 42.00	< 41.6	< 41.8			
S95T004246		Upper ½	< 39.50	< 38.2	< 38.9			
S95T004241	122: 8	Lower ½	< 39.90	< 39.0	< 39.5			
S95T004247		Upper ½	< 40.20	< 40.1	< 40.2			
S96T000062	122: 9	Lower ½	32.40	48.70	40.55[QC:5]			
S96T000080		Upper ½	50.40	46.40	48.40			
S96T000063	122:10	Lower ½	49.80	43.20	46.50			
S96T000081		Upper ½	58.70	57.80	58.25			
S96T000064	122:11	Lower ½	39.50	43.80	41.65			
S96T000082		Upper ½	33.50	37.40	35.45			
S96T000065	122:12	Lower ½	< 20.80	< 19.8	< 20.3			
S96T000083		Upper ½	< 25.10	< 24.6	< 24.9			
S96T000066	122:13	Lower ½	< 26.90	< 23.9	< 25.4			
S96T000084		Upper ½	< 24.70	< 21.8	< 23.3			

Table A-16. Tank 241-B-203 Analytical Results: Lead. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S96T000067	122:14	Lower ½	6,110	5,990	6,050			
S96T000085		Upper ½	365	337.0	351.0			
Drainable liquids			µg/mL	µg/mL	µg/mL	µg/mL	%	kg
S95T003958	120: 1	DL	< 20.10	< 20.1	< 20.1	< 20.1	N/A	< 0.0804
S95T004003	122: 1	DL	< 20.10	< 20.1	< 20.1			
S95T004004	122: 3	DL	< 20.10	< 20.1	< 20.1			

Table A-17. Tank 241-B-203 Analytical Results: Magnesium. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T004078	120: 4	Lower ½	111	111.0	111.0	52.6	7.5	11.8
S95T004087		Upper ½	124	124.0	124.0			
S95T004079	120: 5	Lower ½	34.80	34.30	34.55			
S95T004105		Upper ½	61.10	71.00	66.05			
S95T004080	120: 6	Lower ½	47.60	47.10	47.35			
S95T004106		Upper ½	50.10	44.50	47.30			
S95T004081	120: 7	Lower ½	37.60	36.80	37.20			
S95T004107		Upper ½	30.20	31.20	30.70			
S95T004082	120: 8	Lower ½	45.90	46.80	46.35			
S95T004108		Upper ½	44.90	48.50	46.70			
S95T004083	120: 9	Lower ½	54.40	52.60	53.50			
S95T004109		Upper ½	49.90	54.20	52.05			
S95T004084	120:10	Lower ½	38.20	45.20	41.70			
S95T004110		Upper ½	< 45.40	< 46.5	< 46.0			
S95T004085	120:13	Lower ½	< 44.30	< 43.6	< 44.0			
S95T004111		Upper ½	< 42.90	< 45.4	< 44.2			
S95T004086	120:14	Lower ½	< 46.30	46.80	46.6			
S95T004112		Upper ½	51.50	49.60	50.55			
S95T004023	122: 2	Whole	80.80	56.80	68.80[QC:5]			
S95T004024	122: 3	Lower ½	< 40.10	< 41.2	< 40.7			
S95T004032		Upper ½	< 35.30	< 37.0	< 36.2			

Table A-17. Tank 241-B-203 Analytical Results: Magnesium. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T004030	122: 4	Lower ½	47.80	43.70	45.75			
S95T004037		Upper ½	116	122.0	119.0			
S95T004031	122: 5	Lower ½	< 38.20	< 38.8	< 38.5			
S95T004038		Upper ½	< 37.70	< 38.6	< 38.2			
S95T004239	122: 6	Lower ½	< 37.80	< 39.2	< 38.5			
S95T004245		Upper ½	52.20	46.90	49.55			
S95T004240	122: 7	Lower ½	43.10	46.20	44.65			
S95T004246		Upper ½	< 39.50	38.60	39.1			
S95T004241	122: 8	Lower ½	40.70	44.10	42.40			
S95T004247		Upper ½	< 40.20	< 40.1	< 40.2			
S96T000062	122: 9	Lower ½	51.50	52.80	52.15			
S96T000080		Upper ½	40.10	45.40	42.75			
S96T000063	122:10	Lower ½	39.80	42.70	41.25			
S96T000081		Upper ½	56.30	57.90	57.10			
S96T000064	122:11	Lower ½	56.90	57.10	57.00			
S96T000082		Upper ½	35.90	34.70	35.30			
S96T000065	122:12	Lower ½	53.90	58.20	56.05			
S96T000083		Upper ½	78.10	78.50	78.30			
S96T000066	122:13	Lower ½	41.60	46.50	44.05			
S96T000084		Upper ½	47.00	52.10	49.55			

Table A-17. Tank 241-B-203 Analytical Results: Magnesium. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S96T000067	122:14	Lower ½	73.80	70.50	72.15			
S96T000085		Upper ½	43.90	37.20	40.55			
Drainable liquids			µg/mL	µg/mL	µg/mL	µg/mL	%	kg
S95T003958	120: 1	DL	< 20.10	< 20.1	< 20.1	< 20.1	N/A	< 0.0804
S95T004003	122: 1	DL	< 20.10	< 20.1	< 20.1			
S95T004004	122: 3	DL	< 20.10	< 20.1	< 20.1			

Table A-18. Tank 241-B-203 Analytical Results: Manganese. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T004078	120: 4	Lower ½	11,100	11,200	11,200	14,200	4.9	3,180
S95T004087		Upper ½	10,400	10,400	10,400			
S95T004079	120: 5	Lower ½	13,700	13,500	13,600			
S95T004105		Upper ½	13,400	13,900	13,600			
S95T004080	120: 6	Lower ½	15,100	15,300	15,200			
S95T004106		Upper ½	14,500	14,100	14,300			
S95T004081	120: 7	Lower ½	11,300	11,600	11,400[QC:4]			
S95T004107		Upper ½	13,600	13,900	13,800			
S95T004082	120: 8	Lower ½	16,300	15,600	16,000			
S95T004108		Upper ½	14,900	15,800	15,400			
S95T004083	120: 9	Lower ½	15,000	15,400	15,200			
S95T004109		Upper ½	16,100	16,400	16,200			
S95T004084	120:10	Lower ½	14,700	14,800	14,800			
S95T004110		Upper ½	14,800	15,000	14,900			
S95T004085	120:13	Lower ½	14,300	15,100	14,700			
S95T004111		Upper ½	14,900	15,500	15,200			
S95T004086	120:14	Lower ½	18,800	19,100	19,000			
S95T004112		Upper ½	21,600	21,400	21,500			
S95T004023	122: 2	Whole	10,000	12,000	11,000[QC:4]			
S95T004024	122: 3	Lower ½	5,080	5,750	5,420			
S95T004032		Upper ½	7,280	7,350	7,320			

Table A-18. Tank 241-B-203 Analytical Results: Manganese. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T004030	122: 4	Lower ½	9,820	9,920	9,870			
S95T004037		Upper ½	11,500	12,200	11,800			
S95T004031	122: 5	Lower ½	14,300	14,000	14,200			
S95T004038		Upper ½	12,200	12,400	12,300[QC:3]			
S95T004239	122: 6	Lower ½	11,000	13,500	12,200			
S95T004245		Upper ½	15,500	15,300	15,400			
S95T004240	122: 7	Lower ½	13,900	14,100	14,000			
S95T004246		Upper ½	12,400	12,400	12,400			
S95T004241	122: 8	Lower ½	14,900	15,400	15,200			
S95T004247		Upper ½	13,000	13,100	13,000			
S96T000062	122: 9	Lower ½	12,100	11,500	11,800[QC:3]			
S96T000080		Upper ½	12,700	13,100	12,900			
S96T000063	122:10	Lower ½	12,100	13,200	12,600			
S96T000081		Upper ½	12,500	13,100	12,800			
S96T000064	122:11	Lower ½	12,100	13,200	12,600			
S96T000082		Upper ½	11,700	10,600	11,200			
S96T000065	122:12	Lower ½	19,000	18,600	18,800			
S96T000083		Upper ½	18,100	18,100	18,100			
S96T000066	122:13	Lower ½	16,400	17,400	16,900			
S96T000084		Upper ½	18,100	19,000	18,600			

Table A-18. Tank 241-B-203 Analytical Results: Manganese. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S96T000067	122:14	Lower ½	23,900	24,100	24,000			
S96T000085		Upper ½	16,000	15,500	15,800			
Drainable liquids			µg/mL	µg/mL	µg/mL	µg/mL	%	kg
S95T003958	120: 1	DL	< 20.10	< 20.1	< 20.1	< 20.1	N/A	< 0.0804
S95T004003	122: 1	DL	< 20.10	< 20.1	< 20.1			
S95T004004	122: 3	DL	< 20.10	< 20.1	< 20.1			

Table A-19. Tank 241-B-203 Analytical Results: Molybdenum. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T004078	120: 4	Lower ½	< 10.90	< 11.2	< 11.1	< 15.7	N/A	< 3.53
S95T004087		Upper ½	< 9.830	< 9.63	< 9.73			
S95T004079	120: 5	Lower ½	< 11.40	< 11.4	< 11.4			
S95T004105		Upper ½	< 10.80	< 10.2	< 10.5			
S95T004080	120: 6	Lower ½	< 17.30	< 18.0	< 17.7			
S95T004106		Upper ½	< 9.660	< 9.99	< 9.83			
S95T004081	120: 7	Lower ½	< 9.640	< 9.60	< 9.62			
S95T004107		Upper ½	< 11.90	< 12.0	< 12.0			
S95T004082	120: 8	Lower ½	< 12.20	< 12.3	< 12.3			
S95T004108		Upper ½	< 9.850	< 10.2	< 10.0			
S95T004083	120: 9	Lower ½	<20.10	< 20.1	< 20.1			
S95T004109		Upper ½	<11.70	< 11.8	< 11.8			
S95T004084	120:10	Lower ½	< 18.60	< 18.7	< 18.7			
S95T004110		Upper ½	< 22.70	< 23.2	< 23.0			
S95T004085	120:13	Lower ½	< 22.20	< 21.8	< 22.0			
S95T004111		Upper ½	< 21.40	< 22.7	< 22.1			
S95T004086	120:14	Lower ½	< 23.10	< 23.1	< 23.1			
S95T004112		Upper ½	< 20.80	< 20.9	< 20.9			
S95T004023	122: 2	Whole	< 19.40	< 19.6	< 19.5			
S95T004024	122: 3	Lower ½	< 20.00	< 20.6	< 20.3			
S95T004032		Upper ½	< 17.70	< 18.5	< 18.1			

Table A-19. Tank 241-B-203 Analytical Results: Molybdenum. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T004030	122: 4	Lower ½	< 21.40	< 21.3	< 21.4			
S95T004037		Upper ½	< 19.60	< 20.0	< 19.8			
S95T004031	122: 5	Lower ½	< 19.10	< 19.4	< 19.3			
S95T004038		Upper ½	< 18.80	< 19.3	< 19.1			
S95T004239	122: 6	Lower ½	< 18.90	< 19.6	< 19.3			
S95T004245		Upper ½	< 19.00	< 18.6	< 18.8			
S95T004240	122: 7	Lower ½	< 21.00	< 20.8	< 20.9			
S95T004246		Upper ½	< 19.80	< 19.1	< 19.5			
S95T004241	122: 8	Lower ½	< 19.10	< 19.5	< 19.3			
S95T004247		Upper ½	< 20.10	< 20.0	< 20.1			
S96T000062	122: 9	Lower ½	< 12.20	< 12.7	< 12.5			
S96T000080		Upper ½	< 12.00	< 12.8	< 12.4			
S96T000063	122:10	Lower ½	< 11.80	< 12.0	< 11.9			
S96T000081		Upper ½	< 12.40	< 12.6	< 12.5			
S96T000064	122:11	Lower ½	< 13.00	< 13.1	< 13.1			
S96T000082		Upper ½	< 12.40	< 9.88	< 11.1[QC:5]			
S96T000065	122:12	Lower ½	< 10.40	< 9.92	< 10.2			
S96T000083		Upper ½	< 12.50	< 12.3	< 12.4			
S96T000066	122:13	Lower ½	< 13.50	< 11.9	< 12.7			
S96T000084		Upper ½	< 12.30	< 10.9	< 11.6			

Table A-19. Tank 241-B-203 Analytical Results: Molybdenum. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S96T000067	122:14	Lower ½	< 12.10	< 10.7	< 11.4			
S96T000085		Upper ½	< 12.90	< 11.6	< 12.3			
Drainable liquids			µg/mL	µg/mL	µg/mL	µg/mL	%	kg
S95T003958	120: 1	DL	< 10.00	< 10.0	< 10.0	< 10.0	N/A	< 0.0400
S95T004003	122: 1	DL	< 10.00	< 10.0	< 10.0			
S95T004004	122: 3	DL	< 10.00	< 10.0	< 10.0			

Table A-20. Tank 241-B-203 Analytical Results: Neodymium. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T004078	120: 4	Lower ½	< 21.90	< 22.4	< 22.2	< 31.5	N/A	< 7.08
S95T004087		Upper ½	< 19.70	< 19.2	< 19.5			
S95T004079	120: 5	Lower ½	< 22.80	< 22.8	< 22.8			
S95T004105		Upper ½	< 21.60	< 20.3	< 21.0			
S95T004080	120: 6	Lower ½	< 34.70	< 36.0	< 35.4			
S95T004106		Upper ½	< 19.30	< 20.0	< 19.7			
S95T004081	120: 7	Lower ½	< 19.30	< 19.2	< 19.3			
S95T004107		Upper ½	< 23.80	< 24.0	< 23.9			
S95T004082	120: 8	Lower ½	< 24.50	< 24.6	< 24.6			
S95T004108		Upper ½	< 19.70	< 20.4	< 20.1			
S95T004083	120: 9	Lower ½	< 40.20	< 40.1	< 40.2			
S95T004109		Upper ½	< 23.50	< 23.3	< 23.4			
S95T004084	120:10	Lower ½	< 37.20	< 37.4	< 37.3			
S95T004110		Upper ½	< 45.40	< 46.5	< 46.0			
S95T004085	120:13	Lower ½	< 44.30	< 43.6	< 44.0			
S95T004111		Upper ½	< 42.90	< 45.4	< 44.2			
S95T004086	120:14	Lower ½	< 46.30	< 46.3	< 46.3			
S95T004112		Upper ½	< 41.60	< 41.7	< 41.7			
S95T004023	122: 2	Whole	< 38.90	< 39.3	< 39.1			
S95T004024	122: 3	Lower ½	< 40.10	< 41.2	< 40.7			
S95T004032		Upper ½	< 35.30	< 37.0	< 36.2			

Table A-20. Tank 241-B-203 Analytical Results: Neodymium. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T004030	122: 4	Lower ½	< 42.80	< 42.7	< 42.8			
S95T004037		Upper ½	< 39.30	< 40.0	< 39.7			
S95T004031	122: 5	Lower ½	< 38.20	< 38.8	< 38.5			
S95T004038		Upper ½	< 37.70	< 38.6	< 38.2			
S95T004239	122: 6	Lower ½	< 37.80	< 39.2	< 38.5			
S95T004245		Upper ½	< 38.00	< 37.2	< 37.6			
S95T004240	122: 7	Lower ½	< 42.00	< 41.6	< 41.8			
S95T004246		Upper ½	< 39.50	< 38.2	< 38.9			
S95T004241	122: 8	Lower ½	< 39.90	< 39.0	< 39.5			
S95T004247		Upper ½	< 40.20	< 40.1	< 40.2			
S96T000062	122: 9	Lower ½	< 24.40	< 25.4	< 24.9			
S96T000080		Upper ½	< 23.90	< 25.5	< 24.7			
S96T000063	122:10	Lower ½	< 23.60	< 24.0	< 23.8			
S96T000081		Upper ½	< 24.80	< 25.2	< 25.0			
S96T000064	122:11	Lower ½	< 26.10	< 26.2	< 26.2			
S96T000082		Upper ½	< 24.90	< 19.8	< 22.4[QC:5]			
S96T000065	122:12	Lower ½	< 20.80	< 19.8	< 20.3			
S96T000083		Upper ½	< 25.10	< 24.6	< 24.9			
S96T000066	122:13	Lower ½	< 26.90	< 23.9	< 25.4			
S96T000084		Upper ½	< 24.70	< 21.8	< 23.3			

Table A-20. Tank 241-B-203 Analytical Results: Neodymium. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S96T000067	122:14	Lower ½	< 24.20	< 21.6	< 22.9			
S96T000085		Upper ½	< 25.80	< 23.1	< 24.5			
Drainable liquids			µg/mL	µg/mL	µg/mL	µg/mL	%	kg
S95T003958	120: 1	DL	< 20.10	< 20.1	< 20.1	< 20.1	N/A	< 0.0804
S95T004003	122: 1	DL	< 20.10	< 20.1	< 20.1			
S95T004004	122: 3	DL	< 20.10	< 20.1	< 20.1			

Table A-21. Tank 241-B-203 Analytical Results: Nickel. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T004078	120: 4	Lower ½	168	172.0	170.0	183	6.1	41.1
S95T004087		Upper ½	150	151.0	150.5			
S95T004079	120: 5	Lower ½	181	177.0	179.0			
S95T004105		Upper ½	207	216.0	211.5			
S95T004080	120: 6	Lower ½	216	219.0	217.5			
S95T004106		Upper ½	201	205.0	203.0			
S95T004081	120: 7	Lower ½	141	144.0	142.5			
S95T004107		Upper ½	183	190.0	186.5			
S95T004082	120: 8	Lower ½	157	151.0	154.0			
S95T004108		Upper ½	141	149.0	145.0			
S95T004083	120: 9	Lower ½	154	155.0	154.5			
S95T004109		Upper ½	155	153.0	154.0			
S95T004084	120:10	Lower ½	165	164.0	164.5			
S95T004110		Upper ½	169	172.0	170.5			
S95T004085	120:13	Lower ½	176	189.0	182.5			
S95T004111		Upper ½	182	192.0	187.0			
S95T004086	120:14	Lower ½	346	369.0	357.5			
S95T004112		Upper ½	345	341.0	343.0			
S95T004023	122: 2	Whole	102	116.0	109.0			
S95T004024	122: 3	Lower ½	69.10	79.00	74.05			
S95T004032		Upper ½	81.40	81.40	81.40			

Table A-21. Tank 241-B-203 Analytical Results: Nickel. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T004030	122: 4	Lower ½	174	171.0	172.5			
S95T004037		Upper ½	201	239.0	220.0			
S95T004031	122: 5	Lower ½	195	192.0	193.5			
S95T004038		Upper ½	182	169.0	175.5			
S95T004239	122: 6	Lower ½	167	192.0	179.5			
S95T004245		Upper ½	242	227.0	234.5			
S95T004240	122: 7	Lower ½	168	163.0	165.5			
S95T004246		Upper ½	165	160.0	162.5			
S95T004241	122: 8	Lower ½	152	157.0	154.5			
S95T004247		Upper ½	133	137.0	135.0			
S96T000062	122: 9	Lower ½	170	148.0	159.0			
S96T000080		Upper ½	165	174.0	169.5			
S96T000063	122:10	Lower ½	166	179.0	172.5			
S96T000081		Upper ½	168	180.0	174.0			
S96T000064	122:11	Lower ½	191	196.0	193.5			
S96T000082		Upper ½	170	152.0	161.0			
S96T000065	122:12	Lower ½	212	205.0	208.5			
S96T000083		Upper ½	199	198.0	198.5			
S96T000066	122:13	Lower ½	191	198.0	194.5			
S96T000084		Upper ½	192	188.0	190.0			

Table A-21. Tank 241-B-203 Analytical Results: Nickel. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S96T000067	122:14	Lower ½	292	292.0	292.0			
S96T000085		Upper ½	215	203.0	209.0			
Drainable liquids			µg/mL	µg/mL	µg/mL	µg/mL	%	kg
S95T003958	120: 1	DL	< 4.020	< 4.02	< 4.02	< 4.02	N/A	< 0.0161
S95T004003	122: 1	DL	< 4.020	< 4.02	< 4.02			
S95T004004	122: 3	DL	< 4.020	< 4.02	< 4.02			

Table A-22. Tank 241-B-203 Analytical Results: Phosphorus. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T004078	120: 4	Lower ½	1,870	1,820	1,840	2,180	2.0	491
S95T004087		Upper ½	2,180	2,180	2,180			
S95T004079	120: 5	Lower ½	2,150	2,130	2,140			
S95T004105		Upper ½	1,940	2,000	1,970			
S95T004080	120: 6	Lower ½	2,170	2,110	2,140			
S95T004106		Upper ½	2,260	2,220	2,240			
S95T004081	120: 7	Lower ½	1,900	1,940	1,920			
S95T004107		Upper ½	2,080	2,100	2,090			
S95T004082	120: 8	Lower ½	2,210	2,220	2,220			
S95T004108		Upper ½	2,310	2,440	2,380			
S95T004083	120: 9	Lower ½	2,320	2,260	2,290			
S95T004109		Upper ½	2,320	2,350	2,340			
S95T004084	120:10	Lower ½	2,440	2,420	2,430			
S95T004110		Upper ½	2,370	2,480	2,420			
S95T004085	120:13	Lower ½	2,030	2,090	2,060			
S95T004111		Upper ½	2,090	2,180	2,140			
S95T004086	120:14	Lower ½	2,290	2,300	2,300			
S95T004112		Upper ½	2,450	2,420	2,440			
S95T004023	122: 2	Whole	2,410	2,760	2,580			
S95T004024	122: 3	Lower ½	1,380	1,500	1,440			
S95T004032		Upper ½	1,810	1,810	1,810			

Table A-22. Tank 241-B-203 Analytical Results: Phosphorus. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T004030	122: 4	Lower ½	1,740	1,800	1,770			
S95T004037		Upper ½	2,190	2,440	2,320			
S95T004031	122: 5	Lower ½	2,530	2,540	2,540			
S95T004038		Upper ½	2,190	2,150	2,170			
S95T004239	122: 6	Lower ½	1,850	2,200	2,020			
S95T004245		Upper ½	2,520	2,530	2,520			
S95T004240	122: 7	Lower ½	2,370	2,420	2,400			
S95T004246		Upper ½	2,260	2,250	2,260			
S95T004241	122: 8	Lower ½	2,450	2,480	2,460			
S95T004247		Upper ½	2,520	2,540	2,530			
S96T000062	122: 9	Lower ½	1,980	1,940	1,960			
S96T000080		Upper ½	2,230	2,250	2,240			
S96T000063	122:10	Lower ½	2,040	2,190	2,120			
S96T000081		Upper ½	2,050	2,140	2,100			
S96T000064	122:11	Lower ½	2,200	2,220	2,210			
S96T000082		Upper ½	2,100	1,960	2,030			
S96T000065	122:12	Lower ½	2,020	2,010	2,020			
S96T000083		Upper ½	2,010	2,090	2,050			
S96T000066	122:13	Lower ½	1,970	2,060	2,020			
S96T000084		Upper ½	2,080	2,100	2,090			

Table A-22. Tank 241-B-203 Analytical Results: Phosphorus. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S96T000067	122:14	Lower ½	2,350	2,350	2,350			
S96T000085		Upper ½	1,860	1,750	1,800			
Drainable liquids			µg/mL	µg/mL	µg/mL	µg/mL	%	kg
S95T003958	120: 1	DL	490	514.0	502.0	511	1.7	2.04
S95T004003	122: 1	DL	542	519.0	530.5			
S95T004004	122: 3	DL	504	511.0	507.5			

Table A-23. Tank 241-B-203 Analytical Results: Potassium. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T004078	120: 4	Lower ½	4,880	4,840	4,860[QC:3]	5,120	4.3	1,150
S95T004087		Upper ½	4,860	4,870	4,860			
S95T004079	120: 5	Lower ½	5,040	5,110	5,080			
S95T004105		Upper ½	4,930	5,060	5,000			
S95T004080	120: 6	Lower ½	5,250	5,250	5,250			
S95T004106		Upper ½	5,130	5,130	5,130			
S95T004081	120: 7	Lower ½	5,480	5,550	5,520			
S95T004107		Upper ½	5,390	5,440	5,420			
S95T004082	120: 8	Lower ½	5,550	5,390	5,470			
S95T004108		Upper ½	5,280	5,520	5,400			
S95T004083	120: 9	Lower ½	5,350	5,430	5,390			
S95T004109		Upper ½	5,210	5,300	5,260			
S95T004084	120:10	Lower ½	5,580	5,540	5,560			
S95T004110		Upper ½	5,510	5,820	5,660			
S95T004085	120:13	Lower ½	5,430	5,560	5,500			
S95T004111		Upper ½	5,410	5,710	5,560			
S95T004086	120:14	Lower ½	5,610	5,670	5,640			
S95T004112		Upper ½	5,500	5,580	5,540			
S95T004023	122: 2	Whole	4,190	4,840	4,520			
S95T004024	122: 3	Lower ½	4,910	5,010	4,960			
S95T004032		Upper ½	4,580	4,670	4,620			

Table A-23. Tank 241-B-203 Analytical Results: Potassium. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T004030	122: 4	Lower ½	4,670	4,570	4,620			
S95T004037		Upper ½	4,810	4,840	4,820			
S95T004031	122: 5	Lower ½	5,050	5,000	5,020			
S95T004038		Upper ½	5,080	5,100	5,090[QC:3]			
S95T004239	122: 6	Lower ½	4,560	5,400	4,980			
S95T004245		Upper ½	5,180	5,010	5,100			
S95T004240	122: 7	Lower ½	5,400	5,450	5,420			
S95T004246		Upper ½	5,510	5,650	5,580			
S95T004241	122: 8	Lower ½	5,140	5,420	5,280			
S95T004247		Upper ½	5,460	5,420	5,440			
S96T000062	122: 9	Lower ½	4,760	4,720	4,740[QC:3]			
S96T000080		Upper ½	4,660	4,610	4,640			
S96T000063	122:10	Lower ½	4,720	4,920	4,820			
S96T000081		Upper ½	4,630	4,990	4,810			
S96T000064	122:11	Lower ½	4,650	4,760	4,700			
S96T000082		Upper ½	5,150	4,690	4,920			
S96T000065	122:12	Lower ½	4,780	4,610	4,700[QC:3]			
S96T000083		Upper ½	4,700	4,690	4,700			
S96T000066	122:13	Lower ½	4,720	4,780	4,750			
S96T000084		Upper ½	4,790	4,760	4,780			

Table A-23. Tank 241-B-203 Analytical Results: Potassium. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S96T000067	122:14	Lower ½	4,930	4,930	4,930			
S96T000085		Upper ½	4,850	4,610	4,730			
Drainable liquids			µg/mL	µg/mL	µg/mL	µg/mL	%	kg
S95T003958	120: 1	DL	5,330	5,570	5,450	5,440	0.7	21.8
S95T004003	122: 1	DL	5,490	5,340	5,420			
S95T004004	122: 3	DL	5,440	5,440	5,440			

Table A-24. Tank 241-B-203 Analytical Results: Samarium. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T004078	120: 4	Lower ½	< 21.90	< 22.4	< 22.2	< 31.4	N/A	< 7.07
S95T004087		Upper ½	< 19.70	< 19.2	< 19.5			
S95T004079	120: 5	Lower ½	< 22.80	< 22.8	< 22.8			
S95T004105		Upper ½	< 21.60	< 20.3	< 21.0			
S95T004080	120: 6	Lower ½	< 34.70	< 36.0	< 35.4			
S95T004106		Upper ½	< 19.30	< 20.0	< 19.7			
S95T004081	120: 7	Lower ½	< 19.30	< 19.2	< 19.3			
S95T004107		Upper ½	< 23.80	< 24.0	< 23.9			
S95T004082	120: 8	Lower ½	< 24.50	< 24.6	< 24.6			
S95T004108		Upper ½	< 19.70	< 20.4	< 20.1			
S95T004083	120: 9	Lower ½	< 40.20	< 40.1	< 40.2			
S95T004109		Upper ½	< 23.50	< 23.3	< 23.4			
S95T004084	120:10	Lower ½	< 37.20	< 37.4	< 37.3			
S95T004110		Upper ½	< 45.40	< 46.5	< 46.0			
S95T004085	120:13	Lower ½	< 44.30	< 43.6	< 44.0			
S95T004111		Upper ½	< 42.90	< 45.4	< 44.2			
S95T004086	120:14	Lower ½	< 46.30	< 46.3	< 46.3			
S95T004112		Upper ½	< 41.60	< 41.7	< 41.7			
S95T004023	122: 2	Whole	< 38.90	< 39.3	< 39.1			
S95T004024	122: 3	Lower ½	< 40.10	< 41.2	< 40.7			
S95T004032		Upper ½	< 35.30	< 37.0	< 36.2			

Table A-24. Tank 241-B-203 Analytical Results: Samarium. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T004030	122: 4	Lower ½	< 42.80	< 42.7	< 42.8			
S95T004037		Upper ½	< 39.30	< 40.0	< 39.7			
S95T004031	122: 5	Lower ½	< 38.20	< 38.8	< 38.5			
S95T004038		Upper ½	< 37.70	< 38.6	< 38.2			
S95T004239	122: 6	Lower ½	< 37.80	< 39.2	< 38.5			
S95T004245		Upper ½	< 38.00	< 37.2	< 37.6			
S95T004240	122: 7	Lower ½	< 42.00	< 41.6	< 41.8			
S95T004246		Upper ½	< 39.50	< 38.2	< 38.9			
S95T004241	122: 8	Lower ½	< 39.90	< 39.0	< 39.5			
S95T004247		Upper ½	< 40.20	< 40.1	< 40.2			
S96T000062	122: 9	Lower ½	< 24.40	< 25.4	< 24.9			
S96T000080		Upper ½	< 23.90	< 25.5	< 24.7			
S96T000063	122:10	Lower ½	< 23.60	< 24.0	< 23.8			
S96T000081		Upper ½	< 24.80	< 25.2	< 25.0			
S96T000064	122:11	Lower ½	< 26.10	< 26.2	< 26.2			
S96T000082		Upper ½	< 24.90	< 19.8	< 22.4[QC:5]			
S96T000065	122:12	Lower ½	< 20.80	< 19.8	< 20.3			
S96T000083		Upper ½	< 25.10	< 24.6	< 24.9			
S96T000066	122:13	Lower ½	< 26.90	< 23.9	< 25.4			
S96T000084		Upper ½	< 24.70	< 21.8	< 23.3			

Table A-24. Tank 241-B-203 Analytical Results: Samarium. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S96T000067	122:14	Lower ½	< 24.20	< 21.6	< 22.9			
S96T000085		Upper ½	< 25.80	< 23.1	< 24.5			
Drainable liquids			µg/mL	µg/mL	µg/mL	µg/mL	%	kg
S95T003958	120: 1	DL	< 20.10	< 20.1	< 20.1	< 20.1	N/A	< 0.0804
S95T004003	122: 1	DL	< 20.10	< 20.1	< 20.1			
S95T004004	122: 3	DL	< 20.10	< 20.1	< 20.1			

Table A-25. Tank 241-B-203 Analytical Results: Selenium. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T004078	120: 4	Lower ½	< 21.90	< 22.4	< 22.2	< 31.6	N/A	< 7.11
S95T004087		Upper ½	< 19.70	< 19.2	< 19.5			
S95T004079	120: 5	Lower ½	< 22.80	< 22.8	< 22.8			
S95T004105		Upper ½	< 21.60	< 20.3	< 21.0			
S95T004080	120: 6	Lower ½	< 34.70	< 36.0	< 35.4			
S95T004106		Upper ½	< 19.30	< 20.0	< 19.7			
S95T004081	120: 7	Lower ½	< 19.30	< 19.2	< 19.3			
S95T004107		Upper ½	< 23.80	< 24.0	< 23.9			
S95T004082	120: 8	Lower ½	< 24.50	< 24.6	< 24.6			
S95T004108		Upper ½	< 19.70	< 20.4	< 20.1			
S95T004083	120: 9	Lower ½	< 40.20	< 40.1	< 40.2			
S95T004109		Upper ½	< 23.50	< 23.3	< 23.4			
S95T004084	120:10	Lower ½	< 37.20	< 37.4	< 37.3			
S95T004110		Upper ½	< 45.40	< 46.5	< 46.0			
S95T004085	120:13	Lower ½	< 44.30	< 43.6	< 44.0			
S95T004111		Upper ½	< 42.90	< 45.4	< 44.2			
S95T004086	120:14	Lower ½	< 46.30	< 46.3	< 46.3			
S95T004112		Upper ½	< 41.60	< 41.7	< 41.7			
S95T004023	122: 2	Whole	< 38.90	< 39.3	< 39.1			
S95T004024	122: 3	Lower ½	< 40.10	< 41.2	< 40.7			
S95T004032		Upper ½	< 35.30	< 37.0	< 36.2			

Table A-25. Tank 241-B-203 Analytical Results: Selenium. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T004030	122: 4	Lower ½	< 42.80	< 42.7	< 42.8			
S95T004037		Upper ½	< 39.30	< 40.0	< 39.7			
S95T004031	122: 5	Lower ½	< 38.20	< 38.8	< 38.5			
S95T004038		Upper ½	< 37.70	< 38.6	< 38.2			
S95T004239	122: 6	Lower ½	< 37.80	< 39.2	< 38.5			
S95T004245		Upper ½	< 38.00	< 37.2	< 37.6			
S95T004240	122: 7	Lower ½	< 42.00	< 41.6	< 41.8			
S95T004246		Upper ½	< 39.50	< 38.2	< 38.9			
S95T004241	122: 8	Lower ½	< 39.90	< 39.0	< 39.5			
S95T004247		Upper ½	< 40.20	< 40.1	< 40.2			
S96T000062	122: 9	Lower ½	< 24.40	< 25.4	< 24.9			
S96T000080		Upper ½	< 23.90	< 25.5	< 24.7			
S96T000063	122:10	Lower ½	< 23.60	< 24.0	< 23.8			
S96T000081		Upper ½	< 24.80	< 25.2	< 25.0			
S96T000064	122:11	Lower ½	< 26.10	< 26.2	< 26.2			
S96T000082		Upper ½	36.20	26.60	31.40[QC:5]			
S96T000065	122:12	Lower ½	< 20.80	< 19.8	< 20.3			
S96T000083		Upper ½	< 25.10	< 24.6	< 24.9			
S96T000066	122:13	Lower ½	< 26.90	< 23.9	< 25.4			
S96T000084		Upper ½	< 24.70	< 21.8	< 23.3			

Table A-25. Tank 241-B-203 Analytical Results: Selenium. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S96T000067	122:14	Lower ½	< 24.20	< 21.6	< 22.9			
S96T000085		Upper ½	< 25.80	< 23.1	< 24.5			
Drainable liquids			µg/mL	µg/mL	µg/mL	µg/mL	%	kg
S95T003958	120: 1	DL	< 20.1	< 20.1	< 20.1	< 20.4	N/A	< 0.0814
S95T004003	122: 1	DL	22.20	< 20.10	21.2			
S95T004004	122: 3	DL	< 20.1	< 20.10	< 20.1			

Table A-26. Tank 241-B-203 Analytical Results: Silicon. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T004078	120: 4	Lower ½	1,090	1,080	1,080[QC:2]	925	12.8	208
S95T004087		Upper ½	1,200	1,170	1,180[QC:2]			
S95T004079	120: 5	Lower ½	689	1,150	919.5[QC:2,5]			
S95T004105		Upper ½	837	911.0	874.0[QC:2]			
S95T004080	120: 6	Lower ½	1,190	1,010	1,100[QC:2]			
S95T004106		Upper ½	979	1,050	1,010[QC:2]			
S95T004081	120: 7	Lower ½	1,000	975.0	987.5[QC:2,4]			
S95T004107		Upper ½	1,060	1,020	1,040[QC:2]			
S95T004082	120: 8	Lower ½	1,160	1,520	1,340[QC:2,5]			
S95T004108		Upper ½	980	1,030	1,000[QC:2]			
S95T004083	120: 9	Lower ½	1,080	1,180	1,130[QC:2]			
S95T004109		Upper ½	1,040	1,090	1,060[QC:2]			
S95T004084	120:10	Lower ½	1,120	880.0	1,000[QC:2,4]			
S95T004110		Upper ½	989	1,170	1,080[QC:2]			
S95T004085	120:13	Lower ½	978	1,030	1,000[QC:2]			
S95T004111		Upper ½	913	908.0	910.5[QC:2]			
S95T004086	120:14	Lower ½	1,040	1,070	1,060[QC:2]			
S95T004112		Upper ½	1,100	872.0	986.0[QC:2,5]			
S95T004023	122: 2	Whole	938	803.0	870.5[QC:2,4]			
S95T004024	122: 3	Lower ½	527	739.0	633.0[QC:2,5]			
S95T004032		Upper ½	659	617.0	638.0[QC:2]			

Table A-26. Tank 241-B-203 Analytical Results: Silicon. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T004030	122: 4	Lower ½	869	592.0	730.5[QC:2,5]			
S95T004037		Upper ½	719	869.0	794.0[QC:2]			
S95T004031	122: 5	Lower ½	484	638.0	561.0[QC:2,5]			
S95T004038		Upper ½	824	190.0	507.0[QC:2,5]			
S95T004239	122: 6	Lower ½	131	160.0	145.5[QC:2]			
S95T004245		Upper ½	529	89.90	309.4[QC:2,5]			
S95T004240	122: 7	Lower ½	720	505.0	612.5[QC:2,5]			
S95T004246		Upper ½	650	549.0	599.5[QC:2]			
S95T004241	122: 8	Lower ½	985	833.0	909.0[QC:2]			
S95T004247		Upper ½	468	288.0	378.0[QC:2,5]			
S96T000062	122: 9	Lower ½	552	912.0	732.0[QC:2,4]			
S96T000080		Upper ½	1,170	936.0	1,050[QC:2,5]			
S96T000063	122:10	Lower ½	1,150	947.0	1,050[QC:2]			
S96T000081		Upper ½	588	1,460	1,020[QC:2,5]			
S96T000064	122:11	Lower ½	1,370	1,450	1,410[QC:2]			
S96T000082		Upper ½	1,150	1,110	1,130[QC:2]			
S96T000065	122:12	Lower ½	1,200	1,130	1,160[QC:2,4]			
S96T000083		Upper ½	950	896.0	923.0[QC:2]			
S96T000066	122:13	Lower ½	1,100	893.0	996.5[QC:2]			
S96T000084		Upper ½	976	1,090	1,030[QC:2]			

Table A-26. Tank 241-B-203 Analytical Results: Silicon. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S96T000067	122:14	Lower ½	1,260	1,110	1,180[QC:2]			
S96T000085		Upper ½	876	606.0	741.0[QC:2,5]			
Drainable liquids			µg/mL	µg/mL	µg/mL	µg/mL	%	kg
S95T003958	120: 1	DL	85.10	91.30	88.20	76.4	15.5	0.306
S95T004003	122: 1	DL	62.40	63.00	62.70			
S95T004004	122: 3	DL	66.80	66.10	66.45			

Table A-27. Tank 241-B-203 Analytical Results: Silver. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T004078	120: 4	Lower ½	3.970	4.010	3.990	4.25	5.8	0.956
S95T004087		Upper ½	3.530	3.770	3.650			
S95T004079	120: 5	Lower ½	4.190	3.940	4.065			
S95T004105		Upper ½	4.370	3.860	4.115			
S95T004080	120: 6	Lower ½	4.140	4.490	4.315			
S95T004106		Upper ½	4.090	4.050	4.070			
S95T004081	120: 7	Lower ½	3.760	3.780	3.770			
S95T004107		Upper ½	4.060	4.220	4.140			
S95T004082	120: 8	Lower ½	5.140	4.540	4.840			
S95T004108		Upper ½	4.380	4.290	4.335			
S95T004083	120: 9	Lower ½	4.730	4.290	4.510			
S95T004109		Upper ½	4.550	4.270	4.410			
S95T004084	120:10	Lower ½	4.580	4.610	4.595			
S95T004110		Upper ½	< 4.540	4.930	4.74			
S95T004085	120:13	Lower ½	5.970	5.080	5.525			
S95T004111		Upper ½	5.350	5.240	5.295			
S95T004086	120:14	Lower ½	5.230	< 4.63	4.93			
S95T004112		Upper ½	5.190	5.930	5.560			
S95T004023	122: 2	Whole	< 3.890	4.280	4.09			
S95T004024	122: 3	Lower ½	< 4.010	< 4.12	< 4.07			
S95T004032		Upper ½	3.880	< 3.70	3.79			

Table A-27. Tank 241-B-203 Analytical Results: Silver. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T004030	122: 4	Lower ½	< 4.280	< 4.270	< 4.28			
S95T004037		Upper ½	4.120	< 4.00	4.06			
S95T004031	122: 5	Lower ½	3.870	4.240	4.055			
S95T004038		Upper ½	4.610	< 3.86	4.24			
S95T004239	122: 6	Lower ½	< 3.780	4.080	3.93			
S95T004245		Upper ½	4.430	4.040	4.235			
S95T004240	122: 7	Lower ½	4.600	< 4.16	4.38			
S95T004246		Upper ½	4.810	4.520	4.665			
S95T004241	122: 8	Lower ½	4.520	4.720	4.620			
S95T004247		Upper ½	4.250	4.350	4.300			
S96T000062	122: 9	Lower ½	2.670	3.220	2.945			
S96T000080		Upper ½	2.910	3.320	3.115			
S96T000063	122:10	Lower ½	3.840	3.060	3.450[QC:5]			
S96T000081		Upper ½	3.370	4.650	4.010[QC:5]			
S96T000064	122:11	Lower ½	< 2.610	3.030	2.82			
S96T000082		Upper ½	2.530	2.870	2.700			
S96T000065	122:12	Lower ½	3.990	3.960	3.975			
S96T000083		Upper ½	4.040	3.990	4.015			
S96T000066	122:13	Lower ½	6.860	3.740	5.300[QC:5]			
S96T000084		Upper ½	4.850	4.180	4.515			

Table A-27. Tank 241-B-203 Analytical Results: Silver. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S96T000067	122:14	Lower ½	4.650	4.740	4.695			
S96T000085		Upper ½	3.820	3.730	3.775			
Drainable liquids			µg/mL	µg/mL	µg/mL	µg/mL	%	kg
S95T003958	120: 1	DL	< 2.010	< 2.01	< 2.01	< 2.01	N/A	< 0.00800
S95T004003	122: 1	DL	< 2.010	< 2.01	< 2.01			
S95T004004	122: 3	DL	< 2.010	< 2.01	< 2.01			

Table A-28. Tank 241-B-203 Analytical Results: Sodium. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T004078	120: 4	Lower ½	28,200	28,000	28,100	29,000	3.3	6,530
S95T004087		Upper ½	27,600	27,600	27,600			
S95T004079	120: 5	Lower ½	29,400	30,000	29,700			
S95T004105		Upper ½	29,200	29,800	29,500			
S95T004080	120: 6	Lower ½	30,700	31,000	30,800			
S95T004106		Upper ½	30,000	30,300	30,200			
S95T004081	120: 7	Lower ½	30,900	31,400	31,200[QC:4]			
S95T004107		Upper ½	30,500	31,000	30,800			
S95T004082	120: 8	Lower ½	31,000	29,900	30,400			
S95T004108		Upper ½	29,800	31,000	30,400			
S95T004083	120: 9	Lower ½	30,400	30,700	30,600			
S95T004109		Upper ½	29,300	29,800	29,600			
S95T004084	120:10	Lower ½	31,000	30,600	30,800[QC:3]			
S95T004110		Upper ½	30,700	31,400	31,000			
S95T004085	120:13	Lower ½	29,400	29,800	29,600			
S95T004111		Upper ½	29,300	30,400	29,800			
S95T004086	120:14	Lower ½	30,100	30,500	30,300			
S95T004112		Upper ½	29,900	29,500	29,700			
S95T004023	122: 2	Whole	24,700	28,200	26,400[QC:4]			
S95T004024	122: 3	Lower ½	28,300	29,200	28,800			
S95T004032		Upper ½	26,400	26,700	26,600			

Table A-28. Tank 241-B-203 Analytical Results: Sodium. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T004030	122: 4	Lower ½	27,600	27,200	27,400			
S95T004037		Upper ½	27,500	28,400	28,000			
S95T004031	122: 5	Lower ½	29,700	29,300	29,500			
S95T004038		Upper ½	29,700	29,300	29,500			
S95T004239	122: 6	Lower ½	26,500	31,600	29,000			
S95T004245		Upper ½	30,200	29,600	29,900			
S95T004240	122: 7	Lower ½	30,800	31,500	31,200			
S95T004246		Upper ½	32,000	33,000	32,500			
S95T004241	122: 8	Lower ½	29,800	31,200	30,500			
S95T004247		Upper ½	31,500	31,200	31,400			
S96T000062	122: 9	Lower ½	27,600	27,300	27,400			
S96T000080		Upper ½	27,000	26,800	26,900			
S96T000063	122:10	Lower ½	26,700	27,600	27,200			
S96T000081		Upper ½	26,800	28,300	27,600			
S96T000064	122:11	Lower ½	25,900	26,400	26,200			
S96T000082		Upper ½	29,300	26,700	28,000			
S96T000065	122:12	Lower ½	26,900	25,800	26,400[QC:3]			
S96T000083		Upper ½	26,200	26,600	26,400			
S96T000066	122:13	Lower ½	26,200	26,700	26,400			
S96T000084		Upper ½	26,700	26,600	26,600			

Table A-28. Tank 241-B-203 Analytical Results: Sodium. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S96T000067	122:14	Lower ½	27,200	27,700	27,400			
S96T000085		Upper ½	26,600	25,500	26,000			
Drainable liquids			µg/mL	µg/mL	µg/mL	µg/mL	%	kg
S95T003958	120: 1	DL	30,400	31,800	31,100	31,100	0.7	125
S95T004003	122: 1	DL	31,500	30,700	31,100			
S95T004004	122: 3	DL	31,300	31,200	31,200			

Table A-29. Tank 241-B-203 Analytical Results: Strontium. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T004078	120: 4	Lower ½	248	247.0	247.5	493	6.4	111
S95T004087		Upper ½	325	314.0	319.5			
S95T004079	120: 5	Lower ½	465	449.0	457.0			
S95T004105		Upper ½	373	378.0	375.5			
S95T004080	120: 6	Lower ½	479	473.0	476.0			
S95T004106		Upper ½	471	463.0	467.0			
S95T004081	120: 7	Lower ½	428	426.0	427.0			
S95T004107		Upper ½	368	371.0	369.5			
S95T004082	120: 8	Lower ½	671	642.0	656.5			
S95T004108		Upper ½	482	501.0	491.5			
S95T004083	120: 9	Lower ½	540	539.0	539.5			
S95T004109		Upper ½	718	723.0	720.5			
S95T004084	120:10	Lower ½	633	633.0	633.0			
S95T004110		Upper ½	635	644.0	639.5			
S95T004085	120:13	Lower ½	523	531.0	527.0			
S95T004111		Upper ½	812	843.0	827.5			
S95T004086	120:14	Lower ½	313	327.0	320.0			
S95T004112		Upper ½	383	370.0	376.5			
S95T004023	122: 2	Whole	352	415.0	383.5			
S95T004024	122: 3	Lower ½	247	277.0	262.0			
S95T004032		Upper ½	306	306.0	306.0			

Table A-29. Tank 241-B-203 Analytical Results: Strontium. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T004030	122: 4	Lower ½	258	256.0	257.0			
S95T004037		Upper ½	247	299.0	273.0			
S95T004031	122: 5	Lower ½	476	465.0	470.5			
S95T004038		Upper ½	442	431.0	436.5			
S95T004239	122: 6	Lower ½	292	350.0	321.0			
S95T004245		Upper ½	466	461.0	463.5			
S95T004240	122: 7	Lower ½	423	437.0	430.0			
S95T004246		Upper ½	481	479.0	480.0			
S95T004241	122: 8	Lower ½	716	743.0	729.5			
S95T004247		Upper ½	545	538.0	541.5			
S96T000062	122: 9	Lower ½	479	458.0	468.5			
S96T000080		Upper ½	554	559.0	556.5			
S96T000063	122:10	Lower ½	570	592.0	581.0			
S96T000081		Upper ½	544	571.0	557.5			
S96T000064	122:11	Lower ½	637	665.0	651.0			
S96T000082		Upper ½	617	560.0	588.5			
S96T000065	122:12	Lower ½	730	709.0	719.5			
S96T000083		Upper ½	679	709.0	694.0			
S96T000066	122:13	Lower ½	625	651.0	638.0			
S96T000084		Upper ½	872	881.0	876.5			

Table A-29. Tank 241-B-203 Analytical Results: Strontium. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S96T000067	122:14	Lower ½	319	321.0	320.0			
S96T000085		Upper ½	419	404.0	411.5			
Drainable liquids			µg/mL	µg/mL	µg/mL	µg/mL	%	kg
S95T003958	120: 1	DL	< 2.010	< 2.01	< 2.01	< 2.01	N/A	< 0.00804
S95T004003	122: 1	DL	< 2.010	< 2.01	< 2.01			
S95T004004	122: 3	DL	< 2.010	< 2.01	< 2.01			

Table A-30. Tank 241-B-203 Analytical Result: Sulfur. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T004078	120: 4	Lower ½	85.90	80.70	83.30	87.6	14.7	19.7
S95T004087		Upper ½	89.90	82.90	86.40			
S95T004079	120: 5	Lower ½	75.70	75.80	75.75			
S95T004105		Upper ½	68.00	75.20	71.60			
S95T004080	120: 6	Lower ½	66.50	76.80	71.65			
S95T004106		Upper ½	68.20	67.80	68.00			
S95T004081	120: 7	Lower ½	73.80	71.50	72.65			
S95T004107		Upper ½	73.40	71.40	72.40			
S95T004082	120: 8	Lower ½	72.10	86.00	79.05			
S95T004108		Upper ½	70.10	64.30	67.20			
S95T004083	120: 9	Lower ½	81.30	75.60	78.45			
S95T004109		Upper ½	75.00	69.50	72.25			
S95T004084	120:10	Lower ½	75.20	94.90	85.05[QC:5]			
S95T004110		Upper ½	78.30	83.20	80.75			
S95T004085	120:13	Lower ½	68.20	69.10	68.65			
S95T004111		Upper ½	67.30	63.50	65.40			
S95T004086	120:14	Lower ½	73.30	81.80	77.55			
S95T004112		Upper ½	71.20	62.70	66.95			
S95T004023	122: 2	Whole	145	107.0	126.0[QC:5]			
S95T004024	122: 3	Lower ½	105	115.0	110.0			
S95T004032		Upper ½	86.10	92.60	89.35			

Table A-30. Tank 241-B-203 Analytical Result: Sulfur. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T004030	122: 4	Lower ½	91.20	85.50	88.35			
S95T004037		Upper ½	90.60	103.0	96.80			
S95T004031	122: 5	Lower ½	82.80	89.20	86.00			
S95T004038		Upper ½	98.90	103.0	101.0			
S95T004239	122: 6	Lower ½	79.60	94.50	87.05			
S95T004245		Upper ½	97.00	90.80	93.90			
S95T004240	122: 7	Lower ½	89.30	91.40	90.35			
S95T004246		Upper ½	93.00	91.60	92.30			
S95T004241	122: 8	Lower ½	90.70	90.70	90.70			
S95T004247		Upper ½	92.20	85.60	88.90			
S96T000062	122: 9	Lower ½	133	134.0	133.5			
S96T000080		Upper ½	126	131.0	128.5			
S96T000063	122:10	Lower ½	132	143.0	137.5			
S96T000081		Upper ½	122	141.0	131.5			
S96T000064	122:11	Lower ½	145	144.0	144.5			
S96T000082		Upper ½	128	116.0	122.0			
S96T000065	122:12	Lower ½	73.40	70.80	72.10			
S96T000083		Upper ½	76.60	73.10	74.85			
S96T000066	122:13	Lower ½	81.70	73.60	77.65			
S96T000084		Upper ½	72.50	72.60	72.55			

Table A-30. Tank 241-B-203 Analytical Result: Sulfur. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S96T000067	122:14	Lower ½	79.30	80.10	79.70			
S96T000085		Upper ½	72.80	76.80	74.80			
Drainable liquids			µg/mL	µg/mL	µg/mL	µg/mL	%	kg
S95T003958	120: 1	DL	99.70	102.0	100.8	97.8	3.4	0.390
S95T004003	122: 1	DL	98.00	94.40	96.20			
S95T004004	122: 3	DL	91.30	93.50	92.40			

Table A-31. Tank 241-B-203 Analytical Results: Thallium. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T004078	120: 4	Lower ½	< 43.80	< 44.8	< 44.3	< 62.9	N/A	< 14.1
S95T004087		Upper ½	< 39.30	< 38.5	< 38.9			
S95T004079	120: 5	Lower ½	< 45.60	< 45.6	< 45.6			
S95T004105		Upper ½	< 43.20	< 40.7	< 42.0			
S95T004080	120: 6	Lower ½	< 69.40	< 72.1	< 70.8			
S95T004106		Upper ½	< 38.60	< 40.0	< 39.3			
S95T004081	120: 7	Lower ½	< 38.60	< 38.4	< 38.5			
S95T004107		Upper ½	< 47.50	< 48.0	< 47.8			
S95T004082	120: 8	Lower ½	< 49.00	< 49.2	< 49.1			
S95T004108		Upper ½	< 39.40	< 40.9	< 40.2			
S95T004083	120: 9	Lower ½	< 80.50	< 80.2	< 80.4			
S95T004109		Upper ½	< 46.70	< 46.6	< 46.7			
S95T004084	120:10	Lower ½	< 74.50	< 74.8	< 74.7			
S95T004110		Upper ½	< 90.80	< 93.0	< 91.9			
S95T004085	120:13	Lower ½	< 88.80	< 87.2	< 88.0			
S95T004111		Upper ½	< 85.70	< 90.8	< 88.3			
S95T004086	120:14	Lower ½	< 92.60	< 92.5	< 92.6			
S95T004112		Upper ½	< 83.30	< 83.4	< 83.4			
S95T004023	122: 2	Whole	< 77.70	< 78.6	< 78.2			
S95T004024	122: 3	Lower ½	< 80.10	< 82.4	< 81.3			
S95T004032		Upper ½	< 70.70	< 74.0	< 72.4			

Table A-31. Tank 241-B-203 Analytical Results: Thallium. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T004030	122: 4	Lower ½	< 85.70	< 85.4	< 85.6			
S95T004037		Upper ½	< 78.50	< 80.0	< 79.3			
S95T004031	122: 5	Lower ½	< 76.60	< 77.7	< 77.2			
S95T004038		Upper ½	< 75.40	< 77.1	< 76.3			
S95T004239	122: 6	Lower ½	< 75.60	< 78.3	< 77.0			
S95T004245		Upper ½	< 76.00	< 74.4	< 75.2			
S95T004240	122: 7	Lower ½	< 84.00	< 83.3	< 83.7			
S95T004246		Upper ½	< 79.20	< 76.3	< 77.8			
S95T004241	122: 8	Lower ½	< 79.80	< 77.9	< 78.9			
S95T004247		Upper ½	< 80.40	< 80.2	< 80.3			
S96T000062	122: 9	Lower ½	< 48.70	< 50.8	< 49.8			
S96T000080		Upper ½	< 47.90	< 51.0	< 49.5			
S96T000063	122:10	Lower ½	< 47.20	< 48.0	< 47.6			
S96T000081		Upper ½	< 49.50	< 50.5	< 50.0			
S96T000064	122:11	Lower ½	< 52.20	< 52.3	< 52.3			
S96T000082		Upper ½	< 49.80	< 39.5	44.7[QC:5]			
S96T000065	122:12	Lower ½	< 41.50	< 39.7	< 40.6			
S96T000083		Upper ½	< 50.30	< 49.3	< 49.8			
S96T000066	122:13	Lower ½	< 53.80	< 47.7	< 50.8			
S96T000084		Upper ½	< 49.50	< 43.6	< 46.6			

Table A-31. Tank 241-B-203 Analytical Results: Thallium. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S96T000067	122:14	Lower ½	< 48.50	< 42.9	< 45.7			
S96T000085		Upper ½	< 51.60	< 46.3	< 49.0			
Drainable liquids			µg/mL	µg/mL	µg/mL	µg/mL	%	kg
S95T003958	120: 1	DL	< 40.20	< 40.2	< 40.2	< 40.2	N/A	< 0.161
S95T004003	122: 1	DL	< 40.20	< 40.2	< 40.2			
S95T004004	122: 3	DL	< 40.20	< 40.2	< 40.2			

Table A-32. Tank 241-B-203 Analytical Results: Titanium. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T004078	120: 4	Lower ½	4.480	4.640	4.560	< 3.74	N/A	< 0.841
S95T004087		Upper ½	12.00	11.60	11.80			
S95T004079	120: 5	Lower ½	2.650	< 2.28	2.47			
S95T004105		Upper ½	2.730	3.010	2.870			
S95T004080	120: 6	Lower ½	< 3.470	< 3.60	< 3.54			
S95T004106		Upper ½	2.340	2.370	2.355			
S95T004081	120: 7	Lower ½	1.940	1.930	1.935			
S95T004107		Upper ½	< 2.380	< 2.40	< 2.39			
S95T004082	120: 8	Lower ½	< 2.450	< 2.460	< 2.46			
S95T004108		Upper ½	2.180	2.160	2.170			
S95T004083	120: 9	Lower ½	< 4.020	< 4.010	< 4.02			
S95T004109		Upper ½	3.040	2.980	3.010			
S95T004084	120:10	Lower ½	< 3.720	< 3.740	< 3.73			
S95T004110		Upper ½	< 4.540	< 4.650	< 4.60			
S95T004085	120:13	Lower ½	4.470	4.820	4.645			
S95T004111		Upper ½	< 4.290	< 4.540	< 4.42			
S95T004086	120:14	Lower ½	< 4.630	< 4.630	< 4.63			
S95T004112		Upper ½	< 4.160	4.300	4.230			
S95T004023	122: 2	Whole	5.450	< 3.930	4.69[QC:5]			
S95T004024	122: 3	Lower ½	< 4.010	< 4.120	< 4.07			
S95T004032		Upper ½	< 3.530	< 3.700	< 3.62			

Table A-32. Tank 241-B-203 Analytical Results: Titanium. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T004030	122: 4	Lower ½	< 4.280	< 4.270	< 4.28			
S95T004037		Upper ½	< 3.930	< 4.000	< 3.97			
S95T004031	122: 5	Lower ½	< 3.820	< 3.880	< 3.85			
S95T004038		Upper ½	< 3.770	< 3.860	< 3.82			
S95T004239	122: 6	Lower ½	< 3.780	< 3.920	< 3.85			
S95T004245		Upper ½	< 3.800	< 3.720	< 3.76			
S95T004240	122: 7	Lower ½	< 4.200	< 4.160	< 4.18			
S95T004246		Upper ½	< 3.950	< 3.820	< 3.89			
S95T004241	122: 8	Lower ½	< 3.990	< 3.900	< 3.95			
S95T004247		Upper ½	< 4.020	< 4.010	< 4.02			
S96T000062	122: 9	Lower ½	< 2.440	< 2.540	< 2.49			
S96T000080		Upper ½	< 2.390	< 2.55	< 2.47			
S96T000063	122:10	Lower ½	< 2.360	< 2.40	< 2.38			
S96T000081		Upper ½	< 2.480	< 2.52	< 2.50			
S96T000064	122:11	Lower ½	< 2.610	< 2.62	< 2.62			
S96T000082		Upper ½	< 2.490	< 1.98	< 2.24[QC:5]			
S96T000065	122:12	Lower ½	3.590	3.570	3.580			
S96T000083		Upper ½	2.750	2.700	2.725			
S96T000066	122:13	Lower ½	4.660	4.520	4.590			
S96T000084		Upper ½	3.870	3.730	3.800			

Table A-32. Tank 241-B-203 Analytical Results: Titanium. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S96T000067	122:14	Lower ½	3.800	3.800	3.800			
S96T000085		Upper ½	3.620	3.680	3.650			
Drainable liquids			µg/mL	µg/mL	µg/mL	µg/mL	%	kg
S95T003958	120: 1	DL	< 2.010	< 2.01	< 2.01	< 2.01	N/A	< 0.00804
S95T004003	122: 1	DL	< 2.010	< 2.01	< 2.01			
S95T004004	122: 3	DL	< 2.010	< 2.01	< 2.01			

Table A-33. Tank 241-B-203 Analytical Results: Uranium. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T004078	120: 4	Lower ½	< 109	< 112	< 110	< 192	N/A	< 43.2
S95T004087		Upper ½	147	148.0	147.5			
S95T004079	120: 5	Lower ½	< 114	< 114	< 114			
S95T004105		Upper ½	< 108	< 102	< 105			
S95T004080	120: 6	Lower ½	< 173	< 180	< 177			
S95T004106		Upper ½	< 96.60	< 99.9	< 98.3			
S95T004081	120: 7	Lower ½	< 96.40	< 96.0	< 96.2			
S95T004107		Upper ½	< 119	< 120	< 120			
S95T004082	120: 8	Lower ½	< 122	< 123	< 123			
S95T004108		Upper ½	< 98.50	< 102	< 100			
S95T004083	120: 9	Lower ½	< 201	< 201	< 201			
S95T004109		Upper ½	< 117	< 118	< 118			
S95T004084	120:10	Lower ½	< 186	< 187	< 187			
S95T004110		Upper ½	< 227	< 232	< 230			
S95T004085	120:13	Lower ½	< 222	< 218	< 220			
S95T004111		Upper ½	< 214	< 227	< 221			
S95T004086	120:14	Lower ½	< 231	< 231	< 231			
S95T004112		Upper ½	< 208	< 209	< 209			
S95T004023	122: 2	Whole	1,030	1,100	1,070			
S95T004024	122: 3	Lower ½	< 200	< 206	< 203			
S95T004032		Upper ½	< 177	< 185	< 181			

Table A-33. Tank 241-B-203 Analytical Results: Uranium. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T004030	122: 4	Lower ½	< 214	< 213	< 214			
S95T004037		Upper ½	< 196	< 200	< 198			
S95T004031	122: 5	Lower ½	< 191	< 194	< 193			
S95T004038		Upper ½	< 188	< 193	< 191			
S95T004239	122: 6	Lower ½	< 189	< 196	< 193			
S95T004245		Upper ½	< 190	< 186	< 188			
S95T004240	122: 7	Lower ½	< 210	< 208	< 209			
S95T004246		Upper ½	< 198	< 191	< 195			
S95T004241	122: 8	Lower ½	< 191	< 195	< 193			
S95T004247		Upper ½	< 201	< 200	< 201			
S96T000062	122: 9	Lower ½	< 122	< 127	< 125[QC:3]			
S96T000080		Upper ½	< 120	< 128	< 124			
S96T000063	122:10	Lower ½	< 118	< 120	< 119			
S96T000081		Upper ½	< 124	< 126	< 125			
S96T000064	122:11	Lower ½	< 130	< 131	< 131			
S96T000082		Upper ½	< 124	< 98.8	< 111[QC:5]			
S96T000065	122:12	Lower ½	< 104	< 99.2	< 102			
S96T000083		Upper ½	< 125	< 123	< 124			
S96T000066	122:13	Lower ½	< 135	< 119	< 127			
S96T000084		Upper ½	< 123	< 109	< 116			

Table A-33. Tank 241-B-203 Analytical Results: Uranium. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S96T000067	122:14	Lower ½	< 121	< 107	< 114			
S96T000085		Upper ½	< 129	< 116	< 123			
Drainable liquids			µg/mL	µg/mL	µg/mL	µg/mL	%	kg
S95T003958	120: 1	DL	170.0	193.0	181.5	174	4.5	0.695
S95T004003	122: 1	DL	167.0	171.0	169.0			
S95T004004	122: 3	DL	167.0	158.0	162.5			

Table A-34. Tank 241-B-203 Analytical Results: Vanadium. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T004078	120: 4	Lower ½	< 10.90	< 11.2	< 11.1	< 15.7	N/A	< 3.54
S95T004087		Upper ½	< 9.830	< 9.63	< 9.73			
S95T004079	120: 5	Lower ½	< 11.40	< 11.4	< 11.4			
S95T004105		Upper ½	< 10.80	< 10.2	< 10.5			
S95T004080	120: 6	Lower ½	< 17.30	< 18.0	< 17.7			
S95T004106		Upper ½	< 9.660	< 9.99	< 9.83			
S95T004081	120: 7	Lower ½	< 9.640	< 9.60	< 9.62			
S95T004107		Upper ½	< 11.90	< 12.0	< 12.0			
S95T004082	120: 8	Lower ½	< 12.20	< 12.3	< 12.3			
S95T004108		Upper ½	< 9.850	< 10.2	< 10.0			
S95T004083	120: 9	Lower ½	< 20.10	< 20.1	< 20.1			
S95T004109		Upper ½	< 11.70	< 11.8	< 11.8			
S95T004084	120:10	Lower ½	< 18.60	< 18.7	< 18.7			
S95T004110		Upper ½	< 22.70	< 23.2	< 23.0			
S95T004085	120:13	Lower ½	< 22.20	< 21.8	< 22.0			
S95T004111		Upper ½	< 21.40	< 22.7	< 22.1			
S95T004086	120:14	Lower ½	< 23.10	< 23.1	< 23.1			
S95T004112		Upper ½	< 20.80	< 20.9	< 20.9			
S95T004023	122: 2	Whole	< 19.40	< 19.6	< 19.5			
S95T004024	122: 3	Lower ½	< 20.00	< 20.6	< 20.3			
S95T004032		Upper ½	< 17.70	< 18.5	< 18.1			

Table A-34. Tank 241-B-203 Analytical Results: Vanadium. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T004030	122: 4	Lower ½	< 21.40	< 21.3	< 21.4			
S95T004037		Upper ½	< 19.60	< 20.0	< 19.8			
S95T004031	122: 5	Lower ½	< 19.10	< 19.4	< 19.3			
S95T004038		Upper ½	< 18.80	< 19.3	< 19.1			
S95T004239	122: 6	Lower ½	< 18.90	< 19.6	< 19.3			
S95T004245		Upper ½	< 19.00	< 18.6	< 18.8			
S95T004240	122: 7	Lower ½	< 21.00	< 20.8	< 20.9			
S95T004246		Upper ½	< 19.80	< 19.1	< 19.5			
S95T004241	122: 8	Lower ½	< 19.10	< 19.5	< 19.3			
S95T004247		Upper ½	< 20.10	< 20.0	< 20.1			
S96T000062	122: 9	Lower ½	< 12.20	< 12.7	< 12.5			
S96T000080		Upper ½	< 12.00	< 12.8	< 12.4			
S96T000063	122:10	Lower ½	< 11.80	< 12.0	< 11.9			
S96T000081		Upper ½	< 12.40	< 12.6	< 12.5			
S96T000064	122:11	Lower ½	< 13.00	< 13.1	< 13.1			
S96T000082		Upper ½	< 12.40	< 9.88	< 11.1[QC:5]			
S96T000065	122:12	Lower ½	< 10.40	< 9.92	< 10.2			
S96T000083		Upper ½	< 12.50	< 12.3	< 12.4			
S96T000066	122:13	Lower ½	< 13.50	< 11.9	< 12.7			
S96T000084		Upper ½	< 12.30	< 10.9	< 11.6			

Table A-34. Tank 241-B-203 Analytical Results: Vanadium. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S96T000067	122:14	Lower ½	< 12.10	< 10.7	< 11.4			
S96T000085		Upper ½	< 12.90	< 11.6	< 12.3			
Drainable liquids			µg/mL	µg/mL	µg/mL	µg/mL	%	kg
S95T003958	120: 1	DL	< 10.00	< 10.0	< 10.0	< 10.0	N/A	< 0.0400
S95T004003	122: 1	DL	< 10.00	< 10.0	< 10.0			
S95T004004	122: 3	DL	< 10.00	< 10.0	< 10.0			

Table A-35. Tank 241-B-203 Analytical Results: Zinc. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T004078	120: 4	Lower ½	22.70	22.20	22.45	60.4	49.9	13.6
S95T004087		Upper ½	98.60	92.80	95.70			
S95T004079	120: 5	Lower ½	13.30	12.00	12.65			
S95T004105		Upper ½	13.10	13.50	13.30			
S95T004080	120: 6	Lower ½	7.740	7.590	7.665			
S95T004106		Upper ½	7.010	7.550	7.280			
S95T004081	120: 7	Lower ½	12.10	12.00	12.05			
S95T004107		Upper ½	9.630	9.970	9.800			
S95T004082	120: 8	Lower ½	7.070	5.730	6.400			
S95T004108		Upper ½	5.710	6.220	5.965			
S95T004083	120: 9	Lower ½	5.940	7.980	6.960[QC:5]			
S95T004109		Upper ½	10.80	7.810	9.305[QC:5]			
S95T004084	120:10	Lower ½	6.340	11.20	8.770[QC:5]			
S95T004110		Upper ½	11.90	10.20	11.05			
S95T004085	120:13	Lower ½	9.920	12.30	11.11[QC:5]			
S95T004111		Upper ½	9.200	11.00	10.10			
S95T004086	120:14	Lower ½	396	408.0	402.0			
S95T004112		Upper ½	708	648.0	678.0			
S95T004023	122: 2	Whole	235	30.70	132.8[QC:5]			
S95T004024	122: 3	Lower ½	16.60	24.50	20.55[QC:5]			
S95T004032		Upper ½	7.630	9.030	8.330			

Table A-35. Tank 241-B-203 Analytical Results: Zinc. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T004030	122: 4	Lower ½	7.320	6.380	6.850			
S95T004037		Upper ½	19.40	25.10	22.25[QC:5]			
S95T004031	122: 5	Lower ½	8.210	9.440	8.825			
S95T004038		Upper ½	10.40	11.80	11.10			
S95T004239	122: 6	Lower ½	6.560	8.120	7.340[QC:5]			
S95T004245		Upper ½	10.00	9.430	9.715			
S95T004240	122: 7	Lower ½	10.80	14.60	12.70[QC:5]			
S95T004246		Upper ½	13.60	10.80	12.20[QC:5]			
S95T004241	122: 8	Lower ½	9.060	12.40	10.73[QC:5]			
S95T004247		Upper ½	17.70	8.200	12.95[QC:5]			
S96T000062	122: 9	Lower ½	12.40	7.530	9.965[QC:5]			
S96T000080		Upper ½	7.890	9.340	8.615			
S96T000063	122:10	Lower ½	6.390	7.200	6.795			
S96T000081		Upper ½	6.390	7.850	7.120			
S96T000064	122:11	Lower ½	7.420	9.730	8.575[QC:5]			
S96T000082		Upper ½	8.820	7.850	8.335			
S96T000065	122:12	Lower ½	7.320	6.340	6.830			
S96T000083		Upper ½	8.440	8.360	8.400			
S96T000066	122:13	Lower ½	12.20	9.890	11.04			
S96T000084		Upper ½	10.70	7.390	9.045[QC:5]			

Table A-35. Tank 241-B-203 Analytical Results: Zinc. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S96T000067	122:14	Lower ½	663	628.0	645.5			
S96T000085		Upper ½	83.20	80.20	81.70			
Drainable liquids			µg/mL	µg/mL	µg/mL	µg/mL	%	kg
S95T003958	120: 1	DL	< 2.010	< 2.01	< 2.01	< 2.01	N/A	< 0.00804
S95T004003	122: 1	DL	< 2.010	< 2.01	< 2.01			
S95T004004	122: 3	DL	< 2.010	< 2.01	< 2.01			

Table A-36. Tank 241-B-203 Analytical Results: Zirconium. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T004078	120: 4	Lower ½	< 2.190	< 2.24	< 2.22	< 3.15	N/A	< 0.708
S95T004087		Upper ½	< 1.970	< 1.92	< 1.95			
S95T004079	120: 5	Lower ½	< 2.280	< 2.28	< 2.28			
S95T004105		Upper ½	< 2.160	< 2.03	< 2.10			
S95T004080	120: 6	Lower ½	< 3.470	< 3.60	< 3.54			
S95T004106		Upper ½	< 1.930	< 2.00	< 1.97			
S95T004081	120: 7	Lower ½	< 1.930	< 1.92	< 1.93			
S95T004107		Upper ½	< 2.380	< 2.40	< 2.39			
S95T004082	120: 8	Lower ½	< 2.450	< 2.46	< 2.46			
S95T004108		Upper ½	< 1.970	< 2.04	< 2.01			
S95T004083	120: 9	Lower ½	< 4.020	< 4.01	< 4.02			
S95T004109		Upper ½	< 2.350	< 2.33	< 2.34			
S95T004084	120:10	Lower ½	< 3.720	< 3.74	< 3.73			
S95T004110		Upper ½	< 4.540	< 4.65	< 4.60			
S95T004085	120:13	Lower ½	< 4.430	< 4.36	< 4.40			
S95T004111		Upper ½	< 4.290	< 4.54	< 4.42			
S95T004086	120:14	Lower ½	< 4.630	< 4.63	< 4.63			
S95T004112		Upper ½	< 4.160	< 4.17	< 4.17			
S95T004023	122: 2	Whole	< 3.890	< 3.93	< 3.91			
S95T004024	122: 3	Lower ½	< 4.010	< 4.12	< 4.07			
S95T004032		Upper ½	< 3.530	< 3.70	< 3.62			

Table A-36. Tank 241-B-203 Analytical Results: Zirconium. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T004030	122: 4	Lower ½	< 4.280	< 4.27	< 4.28			
S95T004037		Upper ½	< 3.930	< 4.00	< 3.97			
S95T004031	122: 5	Lower ½	< 3.820	< 3.88	< 3.85			
S95T004038		Upper ½	< 3.770	< 3.86	< 3.82			
S95T004239	122: 6	Lower ½	< 3.780	< 3.92	< 3.85			
S95T004245		Upper ½	< 3.800	< 3.72	< 3.76			
S95T004240	122: 7	Lower ½	< 4.200	< 4.16	< 4.18			
S95T004246		Upper ½	< 3.950	< 3.82	< 3.89			
S95T004241	122: 8	Lower ½	< 3.990	< 3.90	< 3.95			
S95T004247		Upper ½	< 4.020	< 4.01	< 4.02			
S96T000062	122: 9	Lower ½	< 2.440	< 2.540	< 2.49			
S96T000080		Upper ½	< 2.390	< 2.55	< 2.47			
S96T000063	122:10	Lower ½	< 2.360	< 2.40	< 2.38			
S96T000081		Upper ½	< 2.480	< 2.52	< 2.50			
S96T000064	122:11	Lower ½	< 2.610	< 2.62	< 2.62			
S96T000082		Upper ½	< 2.490	< 1.98	< 2.24[QC:5]			
S96T000065	122:12	Lower ½	< 2.080	< 1.98	< 2.03			
S96T000083		Upper ½	< 2.510	< 2.46	< 2.49			
S96T000066	122:13	Lower ½	< 2.690	< 2.39	< 2.54			
S96T000084		Upper ½	< 2.470	< 2.18	< 2.33			

Table A-36. Tank 241-B-203 Analytical Results: Zirconium. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S96T000067	122:14	Lower ½	< 2.420	< 2.16	< 2.29			
S96T000085		Upper ½	< 2.580	< 2.31	< 2.45			
Drainable liquids			µg/mL	µg/mL	µg/mL	µg/mL	%	kg
S95T003958	120: 1	DL	< 2.010	< 2.01	< 2.01	< 2.01	N/A	< 0.00804
S95T004003	122: 1	DL	< 2.010	< 2.01	< 2.01			
S95T004004	122: 3	DL	< 2.010	< 2.01	< 2.01			

Table A-37. Tank 241-B-203 Analytical Results: Chloride. (3 sheets).

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T004068	120: 4	Lower ½	573	603.0	588.0	861	16.8	194
S95T004077		Upper ½	564	588.0	576.0			
S95T004069	120: 5	Lower ½	585	625.0	605.0			
S95T004097		Upper ½	626	635.0	630.7			
S95T004070	120: 6	Lower ½	650	619.0	634.7			
S95T004098		Upper ½	571	653.0	611.8			
S95T004071	120: 7	Lower ½	635	949.0	792.1[QC:5]			
S95T004099		Upper ½	555	629.0	591.9			
S95T004072	120: 8	Lower ½	605	1,440	1,020[QC:5]			
S95T004100		Upper ½	617	623.0	620.1			
S95T004073	120: 9	Lower ½	1,240	1,250	1,240			
S95T004101		Upper ½	827	797.0	812.0			
S95T004074	120:10	Lower ½	5,670	6,530	6,100			
S95T004102		Upper ½	684	682.0	683.1			
S95T004075	120:13	Lower ½	730	616.0	673.0			
S95T004103		Upper ½	705	652.0	678.3			
S95T004076	120:14	Lower ½	594	620.0	607.1			
S95T004104		Upper ½	597	653.0	625.0			
S95T004021	122: 2	Whole	674	713.0	693.4			
S95T004022	122: 3	Lower ½	849	774.0	811.6			
S95T004029		Upper ½	611	571.0	591.1			

Table A-37. Tank 241-B-203 Analytical Results: Chloride. (3 sheets).

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T004027	122: 4	Lower ½	635	611.0	622.9			
S95T004035		Upper ½	632	537.0	584.8			
S95T004028	122: 5	Lower ½	693	747.0	719.9			
S95T004036		Upper ½	652	658.0	654.9			
S95T004221	122: 6	Lower ½	699	< 37.7	368[QC:5]			
S95T004242		Upper ½	623	632.0	627.5			
S95T004222	122: 7	Lower ½	1,210	667.0	940.5[QC:5]			
S95T004243		Upper ½	638	633.0	635			
S95T004223	122: 8	Lower ½	3,010	919.0	1,960[QC:5]			
S95T004244		Upper ½	1,030	872.0	951.5			
S96T000056	122: 9	Lower ½	700	795.0	747.5			
S96T000074		Upper ½	723	748.0	735.4			
S96T000057	122:10	Lower ½	572	629.0	600.7			
S96T000075		Upper ½	692	714.0	703.2			
S96T000058	122:11	Lower ½	655	654.0	654.7			
S96T000076		Upper ½	656	658.0	656.8			
S96T000059	122:12	Lower ½	644	652.0	647.9			
S96T000077		Upper ½	612	611.0	611.3			
S96T000060	122:13	Lower ½	685	632.0	658.4			
S96T000078		Upper ½	655	636.0	645.3			

Table A-37. Tank 241-B-203 Analytical Results: Chloride. (3 sheets).

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S96T000061	122:14	Lower ½	489	591.0	539.9			
S96T000079		Upper ½	604	610.0	606.8			
Drainable liquids			µg/mL	µg/mL	µg/mL	µg/mL	%	kg
S95T003958	120: 1	DL	660	691.0	675.4	676	0.9	2.71
S95T004003	122: 1	DL	669	690.0	679.3			
S95T004004	122: 3	DL	665	689.0	677.1			

Table A-38. Tank 241-B-203 Analytical Results: Fluoride. (3 sheets).

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T004068	120: 4	Lower ½	5,830	6,120	5,970	7,790	17.0	1,750
S95T004077		Upper ½	6,020	6,060	6,040			
S95T004069	120: 5	Lower ½	5,940	6,480	6,210[QC:4]			
S95T004097		Upper ½	6,240	6,260	6,250			
S95T004070	120: 6	Lower ½	6,380	6,240	6,310			
S95T004098		Upper ½	5,740	6,730	6,240			
S95T004071	120: 7	Lower ½	6,380	6,620	6,500			
S95T004099		Upper ½	5,210	6,290	5,750			
S95T004072	120: 8	Lower ½	6,350	6,760	6,550			
S95T004100		Upper ½	6,650	6,620	6,640			
S95T004073	120: 9	Lower ½	6,210	1,290	3,750[QC:5]			
S95T004101		Upper ½	1,330	5,870	3,600[QC:5]			
S95T004074	120:10	Lower ½	60,000	62,300	61,200			
S95T004102		Upper ½	6,620	6,810	6,720			
S95T004075	120:13	Lower ½	6,470	6,100	6,290			
S95T004103		Upper ½	6,640	6,630	6,640			
S95T004076	120:14	Lower ½	6,130	6,330	6,230			
S95T004104		Upper ½	6,280	6,380	6,330			
S95T004021	122: 2	Whole	6,010	6,170	6,090			
S95T004022	122: 3	Lower ½	7,000	7,090	7,040			
S95T004029		Upper ½	6,040	5,870	5,960			

Table A-38. Tank 241-B-203 Analytical Results: Fluoride. (3 sheets).

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T004027	122: 4	Lower ½	6,700	6,230	6,470[QC:3]			
S95T004035		Upper ½	5,640	4,920	5,280			
S95T004028	122: 5	Lower ½	6,180	6,820	6,500			
S95T004036		Upper ½	6,720	6,790	6,760			
S95T004221	122: 6	Lower ½	7,150	7,470	7,310			
S95T004242		Upper ½	6,730	6,680	6,710			
S95T004222	122: 7	Lower ½	7,030	7,120	7,070			
S95T004243		Upper ½	7,030	6,900	6,970			
S95T004223	122: 8	Lower ½	6,380	6,650	6,520			
S95T004244		Upper ½	6,460	6,500	6,480			
S96T000056	122: 9	Lower ½	6,850	7,380	7,110			
S96T000074		Upper ½	6,660	6,850	6,760			
S96T000057	122:10	Lower ½	5,550	6,680	6,120			
S96T000075		Upper ½	6,660	7,250	6,950			
S96T000058	122:11	Lower ½	6,700	6,490	6,590			
S96T000076		Upper ½	6,700	6,640	6,670			
S96T000059	122:12	Lower ½	6,520	6,520	6,520			
S96T000077		Upper ½	6,400	6,320	6,360			
S96T000060	122:13	Lower ½	6,610	6,200	6,400			
S96T000078		Upper ½	6,280	6,200	6,240			

Table A-38. Tank 241-B-203 Analytical Results: Fluoride. (3 sheets).

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S96T000061	122:14	Lower ½	5,340	6,310	5,830			
S96T000079		Upper ½	6,360	6,420	6,390			
Drainable liquids			µg/mL	µg/mL	µg/mL	µg/mL	%	kg
S95T003958	120: 1	DL	5,930	5,910	5,920	6,010	1.5	24.0
S95T004003	122: 1	DL	6,110	6,060	6,080			
S95T004004	122: 3	DL	6,110	6,120	6,110			

Table A-39. Tank 241-B-203 Analytical Results: Nitrate. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T004068	120: 4	Lower ½	49,800	52,200	51,000	63,900	17.6	14,400
S95T004077		Upper ½	48,800	50,100	49,400			
S95T004069	120: 5	Lower ½	50,400	55,400	52,900[QC:4]			
S95T004097		Upper ½	54,400	54,500	54,400			
S95T004070	120: 6	Lower ½	55,300	53,400	54,300			
S95T004098		Upper ½	49,900	56,900	53,400			
S95T004071	120: 7	Lower ½	56,100	57,600	56,900			
S95T004099		Upper ½	46,500	56,000	51,200			
S95T004072	120: 8	Lower ½	52,900	55,200	54,000			
S95T004100		Upper ½	54,300	55,000	54,600			
S95T004073	120: 9	Lower ½	51,200	11,400	31,300[QC:5]			
S95T004101		Upper ½	11,400	48,700	30,100[QC:5]			
S95T004074	120:10	Lower ½	497,000	504,000	500,000			
S95T004102		Upper ½	53,400	54,900	54,200			
S95T004075	120:13	Lower ½	52,500	49,400	50,900			
S95T004103		Upper ½	52,800	52,600	52,700			
S95T004076	120:14	Lower ½	49,300	50,300	49,800			
S95T004104		Upper ½	49,300	51,600	50,500			
S95T004021	122: 2	Whole	46,400	47,100	46,700			
S95T004022	122: 3	Lower ½	55,300	56,300	55,800			
S95T004029		Upper ½	51,900	47,900	49,900			

Table A-39. Tank 241-B-203 Analytical Results: Nitrate. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T004027	122: 4	Lower ½	55,500	52,300	53,900			
S95T004035		Upper ½	50,400	43,600	47,000			
S95T004028	122: 5	Lower ½	56,400	61,100	58,800			
S95T004036		Upper ½	51,800	54,400	53,100			
S95T004221	122: 6	Lower ½	55,700	58,300	57,000			
S95T004242		Upper ½	50,400	51,000	50,700			
S95T004222	122: 7	Lower ½	52,600	53,600	53,100			
S95T004243		Upper ½	58,800	58,700	58,700			
S95T004223	122: 8	Lower ½	52,000	53,800	52,900			
S95T004244		Upper ½	54,200	54,400	54,300			
S96T000056	122: 9	Lower ½	56,100	58,900	57,500			
S96T000074		Upper ½	53,900	54,600	54,200			
S96T000057	122:10	Lower ½	44,400	54,800	49,600[QC:5]			
S96T000075		Upper ½	54,900	59,600	57,300			
S96T000058	122:11	Lower ½	52,700	53,100	52,900			
S96T000076		Upper ½	54,600	54,400	54,500			
S96T000059	122:12	Lower ½	51,200	52,200	51,700			
S96T000077		Upper ½	51,900	51,400	51,600			
S96T000060	122:13	Lower ½	53,000	50,000	51,500			
S96T000078		Upper ½	50,500	51,200	50,900			

Table A-39. Tank 241-B-203 Analytical Results: Nitrate. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S96T000061	122:14	Lower ½	43,400	51,000	47,200			
S96T000079		Upper ½	52,700	52,100	52,400			
Drainable liquids			µg/mL	µg/mL	µg/mL	µg/mL	%	kg
S95T003958	120: 1	DL	56,300	55,500	55,900	56,500	1.1	226
S95T004003	122: 1	DL	56,600	56,900	56,700			
S95T004004	122: 3	DL	57,700	57,400	57,600			

Table A-40. Tank 241-B-203 Analytical Results: Nitrite. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T004068	120: 4	Lower ½	808	809.0	808.5	730	13.5	164
S95T004077		Upper ½	917	959.0	938.1			
S95T004069	120: 5	Lower ½	533	556.0	544.6			
S95T004097		Upper ½	611	612.0	611.5			
S95T004070	120: 6	Lower ½	462	439.0	450.6			
S95T004098		Upper ½	482	501.0	491.4			
S95T004071	120: 7	Lower ½	444	443.0	443.6			
S95T004099		Upper ½	413	413.0	413.1			
S95T004072	120: 8	Lower ½	401	456.0	428.4			
S95T004100		Upper ½	399	398.0	398.4			
S95T004073	120: 9	Lower ½	1,190	< 752	971[QC:5]			
S95T004101		Upper ½	1,260	1,330	1,290			
S95T004074	120:10	Lower ½	3,790	3,830	3,810			
S95T004102		Upper ½	402	415.0	408.2			
S95T004075	120:13	Lower ½	410	405.0	407.2			
S95T004103		Upper ½	403	403.0	402.9			
S95T004076	120:14	Lower ½	385	380.0	382.4			
S95T004104		Upper ½	392	391.0	391.5			
S95T004021	122: 2	Whole	1,510	1,550	1,530			
S95T004022	122: 3	Lower ½	1,290	1,350	1,320			
S95T004029		Upper ½	1,080	1,050	1,060			

Table A-40. Tank 241-B-203 Analytical Results: Nitrite. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T004027	122: 4	Lower ½	705	1,110	907.5[QC:5]			
S95T004035		Upper ½	1,030	967.0	999.0			
S95T004028	122: 5	Lower ½	870	852.0	861.2			
S95T004036		Upper ½	570	577.0	573.7			
S95T004221	122: 6	Lower ½	463	442.0	452.4			
S95T004242		Upper ½	906	919.0	912.7			
S95T004222	122: 7	Lower ½	896	916.0	906.0			
S95T004243		Upper ½	384	383.0	383.8			
S95T004223	122: 8	Lower ½	1,240	1,220	1,230			
S95T004244		Upper ½	1,190	1,210	1,200			
S96T000056	122: 9	Lower ½	432	446.0	439.0			
S96T000074		Upper ½	460	463.0	461.4			
S96T000057	122:10	Lower ½	397	454.0	425.5			
S96T000075		Upper ½	400	399.0	399.5			
S96T000058	122:11	Lower ½	420	374.0	397.1			
S96T000076		Upper ½	387	404.0	395.7			
S96T000059	122:12	Lower ½	416	390.0	403.1			
S96T000077		Upper ½	365	399.0	381.9			
S96T000060	122:13	Lower ½	218	207.0	212.4			
S96T000078		Upper ½	197	193.0	195.0			

Table A-40. Tank 241-B-203 Analytical Results: Nitrite. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S96T000061	122:14	Lower ½	360	361.0	360.4			
S96T000079		Upper ½	400	388.0	393.8			
Drainable liquids			µg/mL	µg/mL	µg/mL	µg/mL	%	kg
S95T003958	120: 1	DL	1,740	1,750	1,750	1,620	8.3	6.46
S95T004003	122: 1	DL	1,560	1,590	1,570			
S95T004004	122: 3	DL	1,380	1,400	1,390			

Table A-41. Tank 241-B-203 Analytical Results: Oxalate. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T004068	120: 4	Lower ½	1,170	1,180	1,180	2,020	20.0	454
S95T004077		Upper ½	966	976.0	971.1			
S95T004069	120: 5	Lower ½	1,560	1,760	1,660			
S95T004097		Upper ½	1,610	1,730	1,670			
S95T004070	120: 6	Lower ½	1,740	1,670	1,710			
S95T004098		Upper ½	1,630	1,730	1,680			
S95T004071	120: 7	Lower ½	1,800	1,890	1,850			
S95T004099		Upper ½	1,510	1,800	1,650			
S95T004072	120: 8	Lower ½	1,700	1,720	1,710			
S95T004100		Upper ½	1,810	1,700	1,750			
S95T004073	120: 9	Lower ½	1,960	< 738	1,350[QC:5]			
S95T004101		Upper ½	< 839.4	1,700	1,270			
S95T004074	120:10	Lower ½	16,300	16,900	16,600			
S95T004102		Upper ½	1,770	1,820	1,800			
S95T004075	120:13	Lower ½	1,760	1,700	1,730			
S95T004103		Upper ½	1,750	1,760	1,750			
S95T004076	120:14	Lower ½	1,630	1,880	1,760			
S95T004104		Upper ½	1,840	1,730	1,780			
S95T004021	122: 2	Whole	< 244	< 238	< 241			
S95T004022	122: 3	Lower ½	1,140	985.0	1,060			
S95T004029		Upper ½	834.0	788.0	810.8			

Table A-41. Tank 241-B-203 Analytical Results: Oxalate. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T004027	122: 4	Lower ½	1,610	839.0	1,230[QC:5]			
S95T004035		Upper ½	1,350	1,340	1,340			
S95T004028	122: 5	Lower ½	1,850	1,980	1,920			
S95T004036		Upper ½	1,660	1,720	1,690			
S95T004221	122: 6	Lower ½	1,810	1,950	1,880			
S95T004242		Upper ½	1,580	1,690	1,630			
S95T004222	122: 7	Lower ½	1,740	1,800	1,770			
S95T004243		Upper ½	1,850	1,910	1,880			
S95T004223	122: 8	Lower ½	1,810	2,040	1,920			
S95T004244		Upper ½	2,190	2,000	2,100			
S96T000056	122: 9	Lower ½	1,850	1,960	1,910			
S96T000074		Upper ½	2,230	1,810	2,020			
S96T000057	122:10	Lower ½	1,520	1,870	1,700			
S96T000075		Upper ½	1,810	1,980	1,890			
S96T000058	122:11	Lower ½	1,770	1,820	1,790			
S96T000076		Upper ½	2,270	2,310	2,290			
S96T000059	122:12	Lower ½	1,720	1,750	1,730			
S96T000077		Upper ½	1,710	1,700	1,710			
S96T000060	122:13	Lower ½	1,820	1,690	1,760			
S96T000078		Upper ½	1,690	1,700	1,690			

Table A-41. Tank 241-B-203 Analytical Results: Oxalate. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S96T000061	122:14	Lower ½	1,490	1,720	1,610			
S96T000079		Upper ½	1,740	1,760	1,750			
Drainable liquids			µg/mL	µg/mL	µg/mL	µg/mL	%	kg
S95T003958	120: 1	DL	< 117	< 117	< 117	< 209	N/A	< 0.836
S95T004003	122: 1	DL	< 117	< 117	< 117			
S95T004004	122: 3	DL	480	493.0	486.2			

Table A-42. Tank 241-B-203 Analytical Results: Phosphate. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T004068	120: 4	Lower ½	2,310	2,530	2,420	3,850	17.2	866
S95T004077		Upper ½	2,340	2,810	2,580			
S95T004069	120: 5	Lower ½	2,670	3,010	2,840			
S95T004097		Upper ½	3,550	2,880	3,220			
S95T004070	120: 6	Lower ½	2,980	2,550	2,760			
S95T004098		Upper ½	2,210	2,860	2,540[QC:5]			
S95T004071	120: 7	Lower ½	3,360	3,400	3,380			
S95T004099		Upper ½	2,650	3,030	2,840			
S95T004072	120: 8	Lower ½	3,100	3,170	3,140			
S95T004100		Upper ½	2,740	3,880	3,310[QC:5]			
S95T004073	120: 9	Lower ½	3,570	1,690	2,630[QC:5]			
S95T004101		Upper ½	1,440	3,380	2,410[QC:5]			
S95T004074	120:10	Lower ½	31,200	29,900	30,600			
S95T004102		Upper ½	3,130	3,520	3,320			
S95T004075	120:13	Lower ½	3,290	3,000	3,140			
S95T004103		Upper ½	3,340	3,260	3,300			
S95T004076	120:14	Lower ½	3,200	3,290	3,240			
S95T004104		Upper ½	3,240	3,440	3,340			
S95T004021	122: 2	Whole	2,640	2,660	2,650			
S95T004022	122: 3	Lower ½	2,300	2,200	2,250			
S95T004029		Upper ½	2,370	2,210	2,290			

Table A-42. Tank 241-B-203 Analytical Results: Phosphate. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T004027	122: 4	Lower ½	2,990	2,480	2,740			
S95T004035		Upper ½	2,780	2,580	2,680			
S95T004028	122: 5	Lower ½	3,480	3,780	3,630			
S95T004036		Upper ½	3,160	3,240	3,200			
S95T004221	122: 6	Lower ½	3,250	3,560	3,410			
S95T004242		Upper ½	3,030	3,520	3,270			
S95T004222	122: 7	Lower ½	3,280	3,390	3,330			
S95T004243		Upper ½	3,160	3,420	3,290			
S95T004223	122: 8	Lower ½	4,100	3,720	3,910			
S95T004244		Upper ½	3,630	3,860	3,750			
S96T000056	122: 9	Lower ½	3,190	3,420	3,300			
S96T000074		Upper ½	3,040	4,220	3,630[QC:5]			
S96T000057	122:10	Lower ½	2,940	3,620	3,280			
S96T000075		Upper ½	3,340	3,660	3,500			
S96T000058	122:11	Lower ½	3,190	3,200	3,190			
S96T000076		Upper ½	3,250	3,260	3,250			
S96T000059	122:12	Lower ½	3,350	3,480	3,410			
S96T000077		Upper ½	3,220	3,210	3,220			
S96T000060	122:13	Lower ½	3,320	3,140	3,230			
S96T000078		Upper ½	3,430	3,510	3,470			

Table A-42. Tank 241-B-203 Analytical Results: Phosphate. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S96T000061	122:14	Lower ½	2,830	3,460	3,140			
S96T000079		Upper ½	3,290	3,890	3,590			
Drainable liquids			µg/mL	µg/mL	µg/mL	µg/mL	%	kg
S95T003958	120: 1	DL	1,850	1,840	1,840	1,890	3.0	7.56
S95T004003	122: 1	DL	1,830	2,070	1,950			
S95T004004	122: 3	DL	1,740	2,070	1,910			

Table A-43. Tank 241-B-203 Analytical Results: Sulfate. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T004068	120: 4	Lower ½	603	606.0	604.6	702	20.0	158
S95T004077		Upper ½	595	630.0	612.5			
S95T004069	120: 5	Lower ½	641	611.0	625.9			
S95T004097		Upper ½	602	614.0	608.2			
S95T004070	120: 6	Lower ½	575	525.0	550.0			
S95T004098		Upper ½	569	595.0	582.1			
S95T004071	120: 7	Lower ½	575	627.0	601.0			
S95T004099		Upper ½	519	536.0	527.5			
S95T004072	120: 8	Lower ½	550	666.0	608.0			
S95T004100		Upper ½	533	593.0	563.1			
S95T004073	120: 9	Lower ½	1,580	1,980	1,780[QC:5]			
S95T004101		Upper ½	1,510	1,710	1,610			
S95T004074	120:10	Lower ½	3,720	4,120	3,920			
S95T004102		Upper ½	415	394.0	404.7			
S95T004075	120:13	Lower ½	388	397.0	392.6			
S95T004103		Upper ½	383	368.0	375.6			
S95T004076	120:14	Lower ½	390	380.0	384.8			
S95T004104		Upper ½	385	414.0	399.5			
S95T004021	122: 2	Whole	487	577.0	532.0			
S95T004022	122: 3	Lower ½	500	543.0	521.5			
S95T004029		Upper ½	451	424.0	437.7			

Table A-43. Tank 241-B-203 Analytical Results: Sulfate. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T004027	122: 4	Lower ½	455	467.0	460.9			
S95T004035		Upper ½	960	861.0	910.6			
S95T004028	122: 5	Lower ½	987	1,080	1,030			
S95T004036		Upper ½	485	471.0	477.9			
S95T004221	122: 6	Lower ½	470	515.0	492.4			
S95T004242		Upper ½	463	431.0	446.9			
S95T004222	122: 7	Lower ½	494	437.0	465.6			
S95T004243		Upper ½	500	489.0	494.4			
S95T004223	122: 8	Lower ½	2,010	1,530	1,770[QC:5]			
S95T004244		Upper ½	< 947	1,600	1,270[QC:5]			
S96T000056	122: 9	Lower ½	419	438.0	428.4			
S96T000074		Upper ½	478	464.0	471.1			
S96T000057	122:10	Lower ½	368	420.0	394.1			
S96T000075		Upper ½	443	429.0	436.1			
S96T000058	122:11	Lower ½	430	405.0	417.6			
S96T000076		Upper ½	396	427.0	411.8			
S96T000059	122:12	Lower ½	404	366.0	385.0			
S96T000077		Upper ½	508	565.0	536.8			
S96T000060	122:13	Lower ½	287	264.0	275.6			
S96T000078		Upper ½	262	255.0	258.6			

Table A-43. Tank 241-B-203 Analytical Results: Sulfate. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S96T000061	122:14	Lower ½	352	390.0	370.8			
S96T000079		Upper ½	409	409.0	408.9			
Drainable liquids			µg/mL	µg/mL	µg/mL	µg/mL	%	kg
S95T003958	120: 1	DL	667	649.0	657.8	586	12.3	2.34
S95T004003	122: 1	DL	523	511.0	517.0			
S95T004004	122: 3	DL	508	511.0	509.8			

Table A-44. Tank 241-B-203 Analytical Results: Total Alpha. (2 sheets).

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µCi/g	µCi/g	µCi/g	µCi/g	%	Ci
S95T004088	120: 4	Lower ½	0.215	0.2520	0.2330[QC:1,3]	0.214	4.0	48.2
S95T004089	120: 5	Lower ½	0.254	0.2210	0.2370[QC:1,5]			
S95T004090	120: 6	Lower ½	0.196	0.2370	0.2160[QC:1,5]			
S95T004091	120: 7	Lower ½	0.199	0.1810	0.1900[QC:1]			
S95T004092	120: 8	Lower ½	0.241	0.2440	0.2420			
S95T004093	120: 9	Lower ½	0.219	0.2410	0.2300			
S95T004094	120:10	Lower ½	0.221	0.2060	0.2130			
S95T004095	120:13	Lower ½	0.170	0.1710	0.1710			
S95T004096	120:14	Lower ½	0.194	0.1800	0.1870			
S95T004025	122: 2	Whole	0.179	0.2260	0.2030[QC:1,3]			
S95T004026	122: 3	Lower ½	0.0990	0.0982	0.09860[QC:1]			
S95T004033	122: 4	Lower ½	0.216	0.2170	0.2160			
S95T004034	122: 5	Lower ½	0.268	0.2620	0.2650			
S95T004236	122: 6	Lower ½	0.201	0.1880	0.1950			
S95T004237	122: 7	Lower ½	0.162	0.1430	0.1520[QC:5]			
S95T004238	122: 8	Lower ½	0.223	0.1890	0.2060[QC:5]			
S96T000068	122: 9	Lower ½	0.285	0.2770	0.2810			
S96T000069	122:10	Lower ½	0.206	0.2130	0.2090			
S96T000070	122:11	Lower ½	0.295	0.1660	0.2300[QC:5]			
S96T000071	122:12	Lower ½	0.272	0.2780	0.2750			
S96T000072	122:13	Lower ½	0.236	0.2350	0.2350			

Table A-44. Tank 241-B-203 Analytical Results: Total Alpha. (2 sheets).

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µCi/g	µCi/g	µCi/g	µCi/g	%	Ci
S96T000073	122:14	Lower ½	0.230	0.2270	0.2290			
Drainable liquids			µCi/mL	µCi/mL	µCi/mL	µCi/mL	%	Ci
S95T003958	120: 1	DL	1.23E-04	1.33E-04	1.28E-04	1.08E-04	18.8	4.32E-04
S95T004003	122: 1	DL	7.49E-05	8.280E-05	7.880E-05[QC:3]			
S95T004004	122: 3	DL	7.85E-05	1.550E-04	9.670E-05[QC:3]			

Table A-45. Tank 241-B-203 Analytical Results: Weight Percent Water by Thermogravimetric Analysis. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Temp. Range[1]	Result	Duplicate	Sample Mean	RSD (Mean)	Overall Mean
Solids				wt. %	wt. %	wt. %	%	wt. %
S95T004048[2]	120:4	Upper ½	15-110 (15-115)	81.33	81.12	81.22	0.8	75.8
S95T004039[2]		Lower ½	20-190 (15-160)	81.18	80.88	81.03		
S95T004049[2]	120:5	Upper ½	15-170 (15-135)	78.16	76.38	77.27		
S95T004040[2]		Lower ½	15-125 (15-145)	77.91	79.02	78.47		
S95T004050[2]	120:6	Upper ½	15-140 (15-165)	74.60	75.87	75.23		
S95T004041[2]		Lower ½	15-145 (15-130)	77.84	76.91	77.38		
S95T004051[2]	120:7	Upper ½	15-140 (15-125)	73.40	69.29	71.34		
S95T004042[2]		Lower ½	15-160 (15-130)	79.88	80.03	79.95		
S95T004052[2]	120:8	Upper ½	15-165 (15-155)	75.28	76.29	75.78		
S95T004043[3]		Lower ½	23-500 (23-122)	72.89	72.24	72.56		
S95T004053[2]	120:9	Upper ½	15-130 (15-165)	72.99	75.25	74.12		
S95T004044[3]		Lower ½	25-130 (25-154)	70.39	72.84	71.62		
S95T004054[2]	120:10	Upper ½	15-140 (15-175)	76.49	76.75	76.62		
S95T004045[2]		Lower ½	15-130 (15-130)	76.98	75.52	76.25		
S95T004055[2]	120:13	Upper ½	15-175 (15-155)	74.63	76.38	75.55		
S95T004046[2]		Lower ½	15-135 (15-160)	77.15	77.85	77.50		
S95T004056[2]	120:14	Upper ½	15-170 (15-135)	75.04	73.13	74.09		
S95T004047[2]		Lower ½	15-135 (15-140)	78.00	77.98	77.99		
S95T004007[2]	122:2	Whole	15-150 (15-135)	78.40	77.57	77.98		
S95T004009[3]	122:3	Upper ½	22-132 (26-138)	81.03	80.81	80.92		
S95T004008[2]		Lower ½	15-130 (15-135)	78.67	78.31	78.49		

Table A-45. Tank 241-B-203 Analytical Results: Weight Percent Water by Thermogravimetric Analysis. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Temp. Range[1]	Result	Duplicate	Sample Mean	RSD (Mean)	Overall Mean
Solids				wt. %	wt. %	wt. %	%	wt. %
S95T004014[3]	122:4	Upper ½	15-165 (15-185)	80.91	80.39	80.65		
S95T004012[3]		Lower ½	26-168 (27-180)	80.93	79.96	80.44		
S95T004015[3]	122:5	Upper ½	15-160 (15-130)	77.57	79.00	78.28		
S95T004013[3]		Lower ½	24-140 (25-137)	72.31	70.29	71.30		
S95T004227[3]	122:6	Upper ½	15-150 (15-155)	76.27	75.55	75.91		
S95T004233[2]		Lower ½	15-135 (15-120)	77.22	77.12	77.17		
S95T004228[3]	122:7	Upper ½	30-136 (19-158)	77.93	76.87	77.40		
S95T004234[2]		Lower ½	15-115 (15-165)	76.35	78.18	77.27		
S95T004229[3]	122:8	Upper ½	30-205 (22-165)	48.49	77.90	63.20		
S95T004235[3]		Lower ½	36-148 (27-176)	73.56	74.95	74.25		
S96T000038[2]	122:9	Upper ½	15-140 (15-145)	76.11	75.34	75.72		
S96T000032[2]		Lower ½	15-175 (15-145)	75.95	75.31	75.63		
S96T000039[3]	122:10	Upper ½	15-155 (15-155)	75.17	73.21	74.19		
S96T000033[2]		Lower ½	15-150 (15-145)	75.47	75.12	75.30		
S96T000040[3]	122:11	Upper ½	15-160 (15-155)	77.33	77.18	77.25		
S96T000034[2]		Lower ½	15-165 (15-155)	73.87	67.87	70.87		
S96T000041[3]	122:12	Upper ½	15-165 (15-150)	75.84	74.86	75.35		
S96T000035[2]		Lower ½	15-145 (15-135)	75.07	74.73	74.90		
S96T000042[2]	122:13	Upper ½	15-135 (15-170)	74.83	73.98	74.44		
S96T000036[2]		Lower ½	15-155 (15-155)	74.54	73.92	74.23		

Table A-45. Tank 241-B-203 Analytical Results: Weight Percent Water by Thermogravimetric Analysis. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Temp. Range[1]	Result	Duplicate	Sample Mean	RSD (Mean)	Overall Mean
Solids				wt. %	wt. %	wt. %	%	wt. %
S96T000043[3]	122:14	Upper ½	93-188 (24-170)	66.6	75.57	71.08		
S96T000037[2]		Lower ½	15-135 (15-145)	73.22	68.98	71.11		
Drainable liquids				wt. %	wt. %	wt. %	%	wt. %
S95T003958[2]	120:1	DL	15-100 (15-125)	88.71	89.63	89.17	0.7	89.4
S95T004003[2]	122:1	DL	15-135 (15-135)	89.67	89.87	89.77		
S95T004004[2]	122:3	DL	15-135 (15-120)	89.38	89.28	89.33		

Notes:

Temp. = temperature

[1]Range in parentheses is for the duplicate.
[2]Percent water by thermogravimetric analysis using a Mettler™ instrument.
[3]Percent water by thermogravimetric analysis using a Perkin-Elmer™ instrument.

Table A-46. 241-B-203 Analytical Results: Energetics by Differential Scanning Calorimetry. (6 sheets)

Sample Number	Sample Location		Run	Sample Weight	Transition 1		Transition 2	
	Core: Segment	Segment Portion		mg	Peak Temp. (°C)	ΔH (J/g)	Peak Temp. (°C)	ΔH (J/g)
Solids								
S95T004048[1]	120:4	Upper ½	1	11.100	108.6	2,044.2	---	---
			2	6.768	96.4	1,559.6	---	---
S95T004039[1]		Lower ½	1	24.375	135.8	1,406.6	---	---
			2	15.462	125.9	1,592.9	---	---
S95T004049[1]	120:5	Upper ½	1	12.776	112.9	1,919.4	---	---
			2	23.143	127.5	989.8	---	---
S95T004040[1]		Lower ½	1	12.549	114.0	1,686.5	---	---
			2	22.610	113.8	1,360.7	---	---
S95T004050[1]	120:6	Upper ½	1	34.211	129.8	1,177.8	---	---
			2	30.695	125.8	1,106.4	---	---
S95T004041[1]		Lower ½	1	20.813	121.8	1,739.1	---	---
			2	19.230	107.8	1,887.7	---	---
S95T004051[1]	120:7	Upper ½	1	9.100	108.8	1,911.7	---	---
			2	17.900	110.8	1,882.0	---	---
S95T004042[1]		Lower ½	1	36.477	139.8	1,514.9	---	---
			2	27.505	129.8	1,299.1	---	---

Table A-46. 241-B-203 Analytical Results: Energetics by Differential Scanning Calorimetry. (6 sheets)

Sample Number	Sample Location		Run	Sample Weight	Transition 1		Transition 2	
	Core: Segment	Segment Portion		mg	Peak Temp. (°C)	ΔH (J/g)	Peak Temp. (°C)	ΔH (J/g)
Solids								
S95T004052[1]	120:8	Upper ½	1	21.600	109.8	1,958.8	---	---
			2	24.900	105.8	1,632.7	---	---
S95T004043[2]		Lower ½	1	25.000	117.7	1,661.2	---	---
			2	30.000	116.4	1,824.5	---	---
S95T004053[1]	120:9	Upper ½	1	21.302	125.8	1,125.0	---	---
			2	12.730	115.7	1,671.1	---	---
S95T004044[2]		Lower ½	1	21.190	112.4	1,747.8	---	---
			2	10.540	104.6	1,558.2	---	---
S95T004054[1]	120:10	Upper ½	1	17.157	127.8	1,602.1	---	---
			2	20.972	109.1	1,636.0	---	---
S95T004045[1]		Lower ½	1	17.400	112.1	1,907.8	---	---
			2	27.290	131.8	1,536.8	---	---
S95T004055[1]	120:13	Upper ½	1	14.300	112.4	2,021.4	---	---
			2	21.500	109.8	1,641.0	---	---
S95T004046[1]		Lower ½	1	19.460	107.8	1,835.7	---	---
			2	13.600	115.7	1,906.9	---	---

Table A-46. 241-B-203 Analytical Results: Energetics by Differential Scanning Calorimetry. (6 sheets)

Sample Number	Sample Location		Run	Sample Weight	Transition 1		Transition 2	
	Core: Segment	Segment Portion		mg	Peak Temp. (°C)	ΔH (J/g)	Peak Temp. (°C)	ΔH (J/g)
Solids								
S95T004056[1]	120:14	Upper ½	1	15.850	109.8	1,858.7	---	---
			2	18.000	109.8	1,671.3	---	---
S95T004047[1]		Lower ½	1	22.580	107.8	1,754.2	---	---
			2	15.628	113.8	1,932.7	---	---
S95T004007[1]	122:2	Whole	1	10.510	115.6	1,698.8	---	---
			2	27.703	105.8	1,639.8	---	---
S95T004009[2]	122:3	Upper ½	1	8.310	106.6	1,843.9	---	---
			2	11.450	111.9	1,905.1	---	---
S95T004008[1]		Lower ½	1	12.850	111.8	1,390.8	---	---
			2	14.298	112.3	1,765.8	---	---
S95T004014[2]	122:4	Upper ½	1	15.060	112.4	1,703.7	---	---
			2	29.270	126.8	1,643.8	---	---
S95T004012[2]		Lower ½	1	18.860	120.4	1,807.7	---	---
			2	9.550	104.5	1,737.5	---	---
S95T004015[2]	122:5	Upper ½	1	41.250	129.4	1,671.6	---	---
			2	37.950	123.8	1,637.2	---	---
S95T004013[2]		Lower ½	1	30.850	124.9	1,583.5	---	---
			2	27.350	124.0	1,521.4	---	---

Table A-46. 241-B-203 Analytical Results: Energetics by Differential Scanning Calorimetry. (6 sheets)

Sample Number	Sample Location		Run	Sample Weight	Transition 1		Transition 2	
	Core: Segment	Segment Portion		mg	Peak Temp. (°C)	ΔH (J/g)	Peak Temp. (°C)	ΔH (J/g)
Solids								
S95T004227[2]	122:6	Upper ½	1	41.900	127.7	1,660.1	---	---
			2	11.500	117.6	1,625.7	---	---
S95T004233[1]		Lower ½	1	27.125	137.9	1,193.9	---	---
			2	20.760	131.9	1,267.9	---	---
S95T004228[2]	122:7	Upper ½	1	15.550	116.3	1,599.9	---	---
			2	32.800	122.8	1,579.0	---	---
S95T004234[1]		Lower ½	1	39.000	143.9	1,083.4	---	---
			2	35.750	139.9	1,109.1	---	---
S95T004229[2]	122:8	Upper ½	1	29.120	126.2	1,611.2	---	---
			2	36.640	122.5	1,781.8	---	---
S95T004235[2]		Lower ½	1	33.800	118.1	1,730.6	---	---
			2	28.710	125.3	1,558.3	---	---
S96T000038[1]	122:9	Upper ½	1	22.390	125.8	1,247.8	---	---
			2	16.411	117.9	1,564.2	---	---
S96T000032[1]		Lower ½	1	22.060	127.8	1,478.6	368.9	312.6
			2	18.580	113.8	1,210.4	431.8	220.7

Table A-46. 241-B-203 Analytical Results: Energetics by Differential Scanning Calorimetry. (6 sheets)

Sample Number	Sample Location		Run	Sample Weight	Transition 1		Transition 2	
	Core: Segment	Segment Portion		mg	Peak Temp. (°C)	ΔH (J/g)	Peak Temp. (°C)	ΔH (J/g)
Solids								
S96T000039[2]	122:10	Upper ½	1	42.890	123.3	1,633.4	---	---
			2	15.370	113.5	1,740.5	---	---
S96T000033[1]		Lower ½	1	19.180	111.8	1,239.0	459.7	-172.7
			2	34.002	137.8	1,045.6	453.3	-90.9
			3	14.335	113.8	1,750.3	---	---
			4	26.555	109.8	1,302.3	---	---
S96T000040[2]	122:11	Upper ½	1	25.280	122.5	1,645.0	---	---
			2	17.740	123.2	1,756.3	---	---
S96T000034[1]		Lower ½	1	23.195	111.8	1,662.7	---	---
			2	27.435	135.9	1,508.3	---	---
S96T000041[2]	122:12	Upper ½	1	41.310	132.4	1,565.5	---	---
			2	24.920	123.7	1,507.6	---	---
S96T000035[1]		Lower ½	1	34.421	125.8	977.1	---	---
			2	32.356	141.8	1,401.3	---	---
S96T000042[2]	122:13	Upper ½	1	23.150	122.2	1,737.7	---	---
			2	38.010	124.4	1,579.0	---	---
S96T000036[1]		Lower ½	1	30.275	101.8	1,667.4	301.1	-71.7
			2	24.761	109.8	1,721.6	296.9	-69.2

Table A-46. 241-B-203 Analytical Results: Energetics by Differential Scanning Calorimetry. (6 sheets)

Sample Number	Sample Location		Run	Sample Weight	Transition 1		Transition 2	
	Core: Segment	Segment Portion		mg	Peak Temp. (°C)	ΔH (J/g)	Peak Temp. (°C)	ΔH (J/g)
Solids								
S96T000043[2]	122:14	Upper ½	1	48.480	132.4	1,689.7	---	---
			2	32.000	123.1	1,578.7	---	---
S96T000037[1]		Lower ½	1	27.900	129.8	940.2	---	---
			2	32.812	141.9	955.5	---	---
Drainable liquid								
S95T003958[1]	120:1	DL	1	21.515	127.9	1,546.5	415.7	-175.6
			2	20.305	129.9	1,268.4	427.4	1,292.2
			3	20.700	125.8	1,455.3	469.7	-33.7
			4	14.100	111.8	1,601.1	---	---
			5	10.440	111.8	1,760.2	---	---
			6	20.443	107.8	1,591.5	---	---
S95T004003[1]	122:1	DL		10.639	109.8	2,287.5	---	---
				10.897	109.8	1,917.9	---	---
S95T004004[1]	122:3	DL		10.790	111.8	1,859.6	---	---
				11.502	111.8	1,807.1	---	---

Notes:

ΔH = change in enthalpy (negative sign denotes exothermic reaction).

[1]Analysis performed on Mettler™ equipment.
[2]Analysis performed on Perkin-Elmer™ equipment.

Table A-47. Tank 241-B-203 Analytical Results: Density. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Mean	Overall Mean	RSD (Data)
S95T003965	120:4	Upper ½	1.210	N/A	N/A	1.19	4.6
S95T003964		Lower ½	1.180				
S95T003966	120:5	Upper ½	1.150				
S95T003974		Lower ½	1.150				
S95T003967	120:6	Upper ½	1.170				
S95T003975		Lower ½	1.180				
S95T003968	120:7	Upper ½	1.170				
S95T003976		Lower ½	1.170				
S95T003969	120:8	Upper ½	1.200				
S95T003977		Lower ½	1.190				
S95T003970	120:9	Upper ½	1.230				
S95T003978		Lower ½	1.210				
S95T003971	120:10	Upper ½	1.190				
S95T003979		Lower ½	1.170				
S95T003972	120:13	Upper ½	1.090				
S95T003980		Lower ½	1.170				
S95T003973	120:14	Upper ½	1.200				
S95T003981		Lower ½	1.190				
S95T004000	122:3	Upper ½	1.180				
S95T003997		Lower ½	1.180				

Table A-47. Tank 241-B-203 Analytical Results: Density. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Mean	Overall Mean	RSD (Data)
Solids			µg/g	µg/g	µg/g	µg/g	%
S95T004001	122:4	Upper ½	1.160				
S95T003998		Lower ½	1.150				
S95T004002	122:5	Upper ½	1.150				
S95T003999		Lower ½	1.160				
S95T004218	122:6	Upper ½	1.180				
S95T004214		Lower ½	1.180				
S95T004219	122:7	Upper ½	1.170				
S95T004215		Lower ½	1.180				
S95T004220	122:8	Upper ½	1.160				
S95T004216		Lower ½	1.180				
S96T000026	122:9	Upper ½	1.220				
S96T000020		Lower ½	1.200				
S96T000027	122:10	Upper ½	1.220				
S96T000021		Lower ½	1.250				
S96T000028	122:11	Upper ½	1.170				
S96T000022		Lower ½	1.190				
S96T000029	122:12	Upper ½	1.210				
S96T000023		Lower ½	1.220				
S96T000030	122:13	Upper ½	1.230				
S96T000024		Lower ½	1.250				

Table A-47. Tank 241-B-203 Analytical Results: Density. (3 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Mean	Overall Mean	RSD (Data)
Solids			µg/g	µg/g	µg/g	µg/g	%
S96T000031	122:14	Upper ½	1.270				
S96T000025		Lower ½	1.240				
Drainable liquids			µg/mL	µg/mL	µg/mL	µg/mL	%
S95T003958	120:1	DL	1.045	1.054	1.050	1.053	0.3
S95T004003	122:1	DL	1.054	1.059	1.056		
S95T004004	122:3	DL	1.064	1.048	1.056		

Table A-48. Tank 241-B-203 Analytical Results: TIC.

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Data)	Projected Inventory
Solids			µg C/g	µg C/g	µg C/g	µg C/g	%	kg
S96T000602	122:10	Lower ½	624	666.0	645.0	645	4.6	145
Drainable liquids			µg C/mL	µg C/mL	µg C/mL	µg C/mL	%	kg
S96T000600	120: 1	DL	2,220	2,120	2,170	2,170	3.3	8.68

Table A-49. Tank 241-B-203 Analytical Results: TOC.

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Data)	Projected Inventory
Solids			µg C/g	µg C/g	µg C/g	µg C/g	%	kg
S96T000602	122:10	Lower ½	115	< 40.00	77.5	77.5	68.4	17.4
Drainable liquids			µg C/mL	µg C/mL	µg C/mL	µg C/mL	%	kg
S96T000600	120: 1	DL	98.20	93.80	96.00	96.00	3.2	0.384

Table A-50. Tank 241-B-203 Analytical Results: Cyanide.

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean	Overall Mean	RSD (Mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S96T000602	122:10	Lower ½	< 5.700	< 6.11	< 5.91	< 5.91	N/A	< 1.33

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APPENDIX B

RESULTS OF WATER WASH CONTAMINATION CHECK FOR SINGLE -SHELL TANK 241-B-203

RESULTS OF WASH WATER CONTAMINATION CHECK FOR SINGLE-SHELL TANK 241-B-203

B.1 INTRODUCTION AND ANALYTE TABLE DESCRIPTION

Appendix B reports the results of the wash water contamination check for the 1995 core sampling and analysis event. Wash water, with a lithium bromide tracer, was used during sampling operation to flush the drill bit when it became plugged. Lithium and bromide were measured to detect any contamination of the waste samples by the wash water.

The data table for each of the two analytes lists the laboratory sample identification number in column one. Sampling rationale, locations, and a description of the sampling event are discussed in Section 3.0.

Column two specifies the core and segment from which each sample was derived. The first number listed is the core number. It is followed by a colon and the segment number.

Column three contains the name of the segment portion (subsegment) from which the sample was taken. This can be the entire segment (whole), the drainable liquid portion (DL), or the upper or lower half segment portions.

The Result and Duplicate columns are self-explanatory. The "Sample Mean" column is the average of the result and duplicate values. All values, including those below the detection level (indicated by the less-than symbol, <), were averaged in calculating the sample means. If the result and duplicate values were both nondetected, the sample mean is expressed as a nondetected value. On the other hand, if one of the two values is nondetected and one is detected, or if both are detected, then the sample mean is reported as a detected value. The result and duplicate values, as well as the result/duplicate means, are reported in the tables exactly as found in the original laboratory data package. The means may appear to have been rounded up in some cases and rounded down in others. This is because the analytical results given in the tables may have fewer significant figures than originally reported, not because the means were incorrectly calculated.

The four QC parameters assessed on the tank 241-B-203 samples were standard recoveries, spike recoveries, duplicate analyses (RPDs), and blanks. These results were summarized in Section 5.1.2., and more specific information is provided in Appendix B. Sample and duplicate pairs in which any of the QC parameters were outside their specified limits are footnoted in column 6 with a QC:1, QC:2, QC:3, QC:4, QC:5, or QC:6 as follows:

QC:1 -- indicates that the standard recovery was below the QC range.

QC:2 -- indicates that the standard recovery was above the QC range.

QC:3 -- indicates that the spike recovery was below the QC range.

QC:4 -- indicates that the spike recovery was above the QC range.

QC:5 -- indicates that the RPD was greater than the QC limit range.

QC:6 -- indicates that there was blank contamination.

Table B-1. Tank 241-B-203 Analytical Results: Bromide. (2 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean
Solids			µg/g	µg/g	µg/g
S95T004068	120: 4	Lower ½	344	< 249	297[QC:5]
S95T004077		Upper ½	< 261	< 268	< 265
S95T004069	120: 5	Lower ½	< 262	< 260	< 261
S95T004097		Upper ½	< 252	< 259	< 256
S95T004070	120: 6	Lower ½	< 246	< 241	< 244
S95T004098		Upper ½	< 258	384.0	321[QC:5]
S95T004071	120: 7	Lower ½	< 268	< 263	< 266
S95T004099		Upper ½	< 245	< 242	< 244
S95T004072	120: 8	Lower ½	< 250	< 253	< 252
S95T004100		Upper ½	< 241	< 243	< 242
S95T004073	120: 9	Lower ½	< 900	< 886	< 893
S95T004101		Upper ½	< 1,010	< 1,020	< 1,020
S95T004074	120:10	Lower ½	< 2,400	< 2,400	< 2,400
S95T004102		Upper ½	< 256	< 260	< 258
S95T004075	120:13	Lower ½	< 267	< 268	< 268
S95T004103		Upper ½	< 261	< 261	< 261
S95T004076	120:14	Lower ½	< 246	< 243	< 245
S95T004104		Upper ½	< 255	< 250	< 253
S95T004021	122: 2	Whole	< 292	< 286	< 289
S95T004022	122: 3	Lower ½	< 256	< 267	< 262
S95T004029		Upper ½	< 253	< 266	< 260
S95T004027	122: 4	Lower ½	< 247	< 264	< 256[QC:3]
S95T004035		Upper ½	< 461	< 457	< 459
S95T004028	122: 5	Lower ½	< 521	< 520	< 521
S95T004036		Upper ½	< 265	< 263	< 264
S95T004221	122: 6	Lower ½	< 280	< 280	< 280
S95T004242		Upper ½	< 247	< 242	< 245
S95T004222	122: 7	Lower ½	< 263	< 268	< 266
S95T004243		Upper ½	< 202	< 192	< 197

Table B-1. Tank 241-B-203 Analytical Results: Bromide. (2 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean
Solids			µg/g	µg/g	µg/g
S95T004223	122: 8	Lower ½	< 942	< 918	< 930
S95T004244		Upper ½	< 878	< 899	< 889
S96T000056	122: 9	Lower ½	< 267	< 278	< 273
S96T000074		Upper ½	< 290	< 289	< 290
S96T000057	122:10	Lower ½	< 256	< 274	< 265
S96T000075		Upper ½	< 250	< 239	< 245
S96T000058	122:11	Lower ½	< 265	< 233	< 249
S96T000076		Upper ½	< 238	< 250	< 244
S96T000059	122:12	Lower ½	< 267	< 250	< 259
S96T000077		Upper ½	< 232	< 267	< 250
S96T000060	122:13	Lower ½	< 106	< 103	< 105
S96T000078		Upper ½	< 96.6	< 91.1	< 93.9
S96T000061	122:14	Lower ½	< 234	< 228	< 231
S96T000079		Upper ½	< 258	< 249	< 254
Drainable liquids			µg/mL	µg/mL	µg/mL
S95T003958	120: 1	DL	390	388.0	388.9
S95T004003	122: 1	DL	523	512.0	517.5
S95T004004	122: 3	DL	473	467.0	470.0

Table B-2. Tank 241-B-203 Analytical Results: Lithium. (2 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean
Solids			µg/g	µg/g	µg/g
S95T004078	120: 4	Lower ½	< 2.190	< 2.24	< 2.22
S95T004087		Upper ½	< 1.970	< 1.92	< 1.95
S95T004079	120: 5	Lower ½	< 2.280	< 2.28	< 2.28
S95T004105		Upper ½	< 2.160	< 2.03	< 2.10
S95T004080	120: 6	Lower ½	< 3.470	< 3.60	< 3.54
S95T004106		Upper ½	< 1.930	< 2.00	< 1.97
S95T004081	120: 7	Lower ½	< 1.930	< 1.92	< 1.93
S95T004107		Upper ½	< 2.380	< 2.40	< 2.39
S95T004082	120: 8	Lower ½	< 2.450	< 2.46	< 2.46
S95T004108		Upper ½	< 1.970	< 2.04	< 2.01
S95T004083	120: 9	Lower ½	< 4.020	< 4.01	< 4.02
S95T004109		Upper ½	< 2.350	< 2.33	< 2.34
S95T004084	120:10	Lower ½	< 3.720	< 3.74	< 3.73
S95T004110		Upper ½	< 4.540	< 4.65	< 4.60
S95T004085	120:13	Lower ½	< 4.430	< 4.36	< 4.40
S95T004111		Upper ½	< 4.290	< 4.54	< 4.42
S95T004086	120:14	Lower ½	< 4.630	< 4.63	< 4.63
S95T004112		Upper ½	< 4.160	< 4.17	< 4.17
S95T004023	122: 2	Whole	< 3.890	< 3.93	< 3.91
S95T004024	122: 3	Lower ½	< 4.010	< 4.12	< 4.07
S95T004032		Upper ½	< 3.530	< 3.70	< 3.62
S95T004030	122: 4	Lower ½	< 4.280	< 4.27	< 4.28
S95T004037		Upper ½	< 3.930	< 4.00	< 3.97
S95T004031	122: 5	Lower ½	< 3.820	< 3.88	< 3.85
S95T004038		Upper ½	< 3.770	< 3.86	< 3.82
S95T004239	122: 6	Lower ½	< 3.780	< 3.92	< 3.85
S95T004245		Upper ½	< 3.800	< 3.72	< 3.76
S95T004240	122: 7	Lower ½	< 4.200	< 4.16	< 4.18
S95T004246		Upper ½	< 3.950	< 3.82	< 3.89

Table B-2. Tank 241-B-203 Analytical Results: Lithium. (2 sheets)

Sample Number	Core: Segment	Segment Portion	Result	Duplicate	Sample Mean
Solids			µg/g	µg/g	µg/g
S95T004241	122: 8	Lower ½	< 3.990	< 3.90	< 3.95
S95T004247		Upper ½	< 4.020	< 4.01	< 4.02
S96T000062	122: 9	Lower ½	< 2.440	< 2.54	< 2.49[QC:3]
S96T000080		Upper ½	< 2.390	< 2.55	< 2.47
S96T000063	122:10	Lower ½	< 2.360	< 2.40	< 2.38
S96T000081		Upper ½	< 2.480	< 2.52	< 2.50
S96T000064	122:11	Lower ½	< 2.610	< 2.62	< 2.62
S96T000082		Upper ½	< 2.490	< 1.98	< 2.24[QC:5]
S96T000065	122:12	Lower ½	< 2.080	< 1.98	< 2.03
S96T000083		Upper ½	< 2.510	< 2.46	< 2.49
S96T000066	122:13	Lower ½	< 2.690	< 2.39	< 2.54
S96T000084		Upper ½	< 2.470	< 2.18	< 2.33
S96T000067	122:14	Lower ½	< 2.420	2.240	2.33
S96T000085		Upper ½	< 2.580	< 2.31	< 2.45
Drainable liquids			µg/mL	µg/mL	µg/mL
S95T003958	120: 1	DL	3.510	3.640	3.575
S95T004003	122: 1	DL	24.30	23.50	23.90
S95T004004	122: 3	DL	20.50	20.30	20.40

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APPENDIX C

HISTORICAL ANALYTICAL RESULTS

Table C-1. 1978 Analytical Results.[1] (2 sheets)

Waste Tank 241-B-203			
Analysis of tank 241-B-203			
December 4, 1978			
Sample #: 2782			
	Lab Value		
Components	Water Soluble Wash	Acid Fusion Wash	Lab Unit
Physical Data			
Visible	Black in color, with a consistency of soft grease		
Water Solubility	0.24	NR	%
Bulk Density	1.09	NR	g/cc
Percent Water	74.3	NR	%
Chemical Analysis			
Al [2]	< 0.004	0.03	%
Bi^{3+}	< 0.02	6.60	%
CO_3^{2-}	0.6	---	%
CrO_4^-	0.1	---	%
Cl^-	0.06	---	%
F^-	NR	---	%
Fe [2]	0.003	1.2	%
Hg [2]	< 0.004	---	%
K^+	0.4	---	%
La^{3+}	0.006	---	%
Mn [2]	< 0.001	---	%
Ni^{2+}	NR	---	%
NO_2^-	0.03	---	%
NO_3^-	4.0	< 0.1	%
Na^+	2.7	---	%
OH^-	0.5	---	%
PO_4^{3-}	0.2	0.7	%
SO_4^{2-}	< 0.2	< 0.2	%
SiO_2^{2-}	0.02	0.1	%

Table C-1. 1978 Analytical Results.[1] (2 sheets)

Radiological Analysis			
U [2]	2.84E-07	1.68E-05	g/g
Pu [2]	1.10E-09	9.01E-06	g/g
Am [2]	NR	8.48E-09	g/g
$^{89/90}Sr$	0.001	6.54	μCi/g
^{137}Cs	0.005	0.004	μCi/g
^{155}Eu [2]	NR	---	μCi/g

Notes:

NR = Analysis not requested
[1]Horton (1978)
[2]All oxidation states

Table C-2. 1982 Analytical Results.[1] (2 sheets)

Waste Tank 241-B-203			
Composition of Solids in Tank 241-B-203			
Sample #3946			
December 30, 1982			
Components	Water-Soluble	Acid-Soluble	Lab Unit
Physical Data			
Visible	Brown in color[2]		
Composition	60-75% water		
Chemical Analysis			
Ba	0.02	2.90	%
Fe	0.43	3.68	%
Mn	0.06	1.03	%
Hg	1.37	1.38	%
Al	0.19	3.29	%
Cr	0.10	0.27	%
Ni	[3]	0.03	%
Zn	4.7E-04	0.03	%
Na	8.8	17.55	%
Ca	0.12	5.80	%
K	2.80	1.32	%
Pb	[3]	0.13	%
Zr	[3]	0.06	%
Cd	[3]	[3]	%
La	0.05	1.16	%
Sn	[3]	2.47	%
P	0.33	0.70	%
Bi	0.20	3.10	%
Mg	0.05	3.91	%
NO_2	0.42	0.25	%
NO_3	14.60	--	%

Table C-2. 1982 Analytical Results.[1] (2 sheets)

Radiological Analysis			
Sr (total)	0.01	0.09	%
^{137}Cs	3.1E-08	[3]	
^{90}Sr	7.56E-06	[3]	%
U	0.01	0.03	%
Pu	1.17E-04	[3]	%

Notes:

[1]Jansky (1983)

[2]The solids that were analyzed were obtained by centrifuging liquid samples. The liquid samples contained approximately ten volume percent brown settled solids.

[3] = Below detection limits.

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