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2	1	Cog. Mgr. J.G. Kristofzski	John Kristofzski	7/22/96							
		QA									
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Tank Characterization Report for Single-Shell Tank 241-B-204

Leela M. Sasaki
Westinghouse Hanford Company, Richland, WA 99352
U.S. Department of Energy Contract DE-AC06-87RL10930

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Abstract: This document summarizes the information on the historical uses, present status, and the sampling and analysis results of waste stored in Tank 241-B-204. This report supports the requirements of Tri-Party Agreement Milestone M-44-09.

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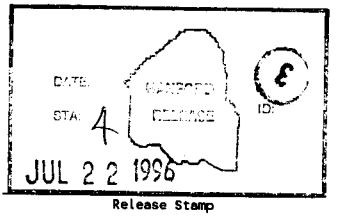

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Tank Characterization Report for Single-Shell Tank 241-B-204

L. M. Sasaki
J. G. Douglas
Westinghouse Hanford Company

R. H. Stephens
L. C. Amato
T. T. Tran
Los Alamos Technical Associates

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

Westinghouse Hanford Company
P.O Box 1970
Richland, Washington

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EXECUTIVE SUMMARY

This characterization report summarizes the available information on the historical uses, current status, and sampling and analysis results of waste stored in single-shell tank 241-B-204. This report supports the requirements of the *Hanford Federal Facility Agreement and Consent Order*, Milestone M-44-09 (Ecology et al. 1996).

Tank 241-B-204 is one of 16 tanks located in the Hanford 200 East Area B Tank Farm. The tank went into service in the second quarter of 1952 and received lanthanum fluoride waste (224) from the B Plant lanthanum fluoride process. The transfers continued for one more quarter. In the fourth quarter of 1952 and the first quarter of 1953, the tank received B Plant flush waste. These were the last waste transfers into the tank. Other than removing 23 kL (6 kgal) of supernatant in 1974, no other transfer activity is recorded (Agnew et al. 1996). Tank 241-B-204 was removed from service in 1978, and it was declared an assumed leaker in 1984. Interim stabilization and intrusion prevention were completed in June 1984 and June 1985, respectively.

Table ES-1 describes tank 241-B-204, and Figure ES-1 shows a diagram of the tank. The tank has an operating capacity of 208 kL (55 kgal), and it currently contains an estimated 189 kL (50 kgal) of waste. The waste is estimated to be comprised of 185 kL (49 kgal) sludge, 4 kL (1 kgal) supernatant, and no saltcake or pumpable liquid. The sludge contains approximately 19 kL (5 kgal) of drainable interstitial liquid (Hanlon 1996).

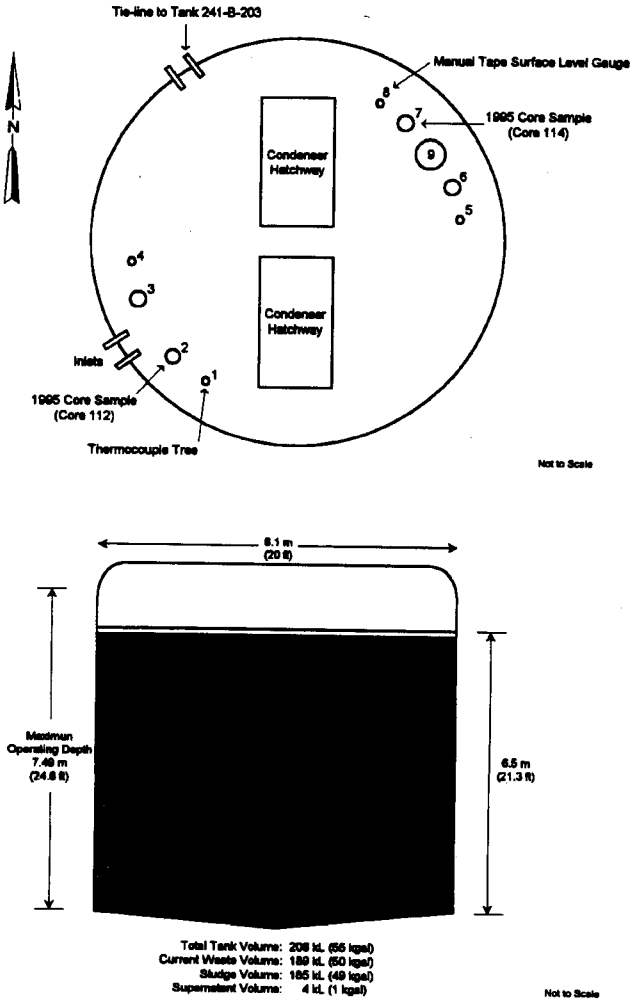
Table ES-1. Description and Status of Tank 241-B-204.

TANK DESCRIPTION	
Type	Single-shell
Constructed	1943 to 1944
In-service	1952
Diameter	6.1 m (20 ft)
Operating depth	7.50 m (24.6 ft)
Capacity	208 kL (55 kgal)
Bottom shape	Dish
Ventilation	Passive
TANK STATUS	
Waste classification	Noncomplexed
Total waste volume	189 kL (50 kgal)
Sludge volume	185 kL (49 kgal)
Drainable interstitial liquid volume	19 kL (5 kgal)
Supernatant volume	4 kL (1 kgal)
Waste surface level (1991 to 1996)	6.50 m (256 in.) to 6.51 m (256.25 in.)
Temperature (May 1975 to January 1996)	7.2 °C (45 °F) to 43 °C (110 °F)[1]
Integrity	Assumed leaker 1984
Watch List	None
SAMPLING DATES	
Push-mode core samples and tank headspace flammability	October 1995
SERVICE STATUS	
Declared inactive	1978
Interim stabilization	June 1984
Intrusion prevention	June 1985

Note:

[1]The high temperature of 43 °C is suspect.

Figure ES-1. Profile of Tank 241-B-204.



This report summarizes the analysis of the core samples taken in October 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-204 Push-Mode Sampling and Analysis Plan* (Sasaki 1995). The sampling effort involved taking two push-mode core samples of the tank waste from widely-spaced risers. Core 112 was taken from riser 2, and core 114 was taken from riser 7.

The safety screening data quality objective (DQO) requires analyses for fuel content 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, vapor samples were taken prior to core sampling, and the flammability was measured as a percent of the lower flammability limit using a combustible gas meter. The sampling and analysis plan (SAP) also required analyses for lithium and bromide to check for contamination of the samples by the hydrostatic head fluid (HHF) used during sampling operations. Additional results for other metals and anions were obtained as a result of these analyses.

No exothermic reactions were observed during the DSC analysis. The mean values for weight-percent water, determined by TGA, were 77.1 for sludge and 89.1 for drainable liquid. All total alpha activity results were well below the safety screening DQO notification limit of 41 μCi/g. Sludge bulk density results were 1.19 g/mL, while that of the drainable

liquids was 1.05 g/mL. The flammability of tank 241-B-204 headspace was measured at zero percent of the lower flammability limit. The analytical results were well within the parameters listed in the safety screening DQO. Table ES-2 shows the average values for major analytes and analytes of interest.

The concentrations of individual radionuclides were measured in only one sample. Assuming that the sludge is homogeneous, a tank heat load of < 0.8 W (< 3 Btu/hr) was estimated. The historical tank content estimate (HTCE) heat load value was zero (Brevick et al. 1994a), and the heat load based on headspace temperature was 47.2 W (161 Btu/hr) (Kummerer 1994). Both estimates were well below the 11,700 W (40,000 Btu/hr) threshold differentiating high-heat from low-heat tanks (Bergmann 1991). The available temperature data for the tank support either heat load estimate.

Table ES-2. Major Analytes and Analytes of Concern.

Analyte	Mean Sludge Concentration	Sludge RSD (Mean)	Mean Supernate Concentration	Supernate RSD (Mean)	Total Inventory[1]
METALS	**μg/g**	**%**	**μg/mL**	**%**	**kg**
Bismuth	48,400	5.8	< 15.1	n/a	10,700
Chromium	3,240	5.7	154	2.7	715
Iron	3,810	12.1	< 7.53	n/a	839
Lanthanum	10,400	2.6	< 7.53	n/a	2,290
Manganese	14,800	2.7	< 1.51	n/a	3,270
Potassium	5,780	1.8	6,110	4.6	1,290
Sodium	26,200	2.3	28,000	2.2	5,880
ANIONS	**μg/g**	**%**	**μg/mL**	**%**	**kg**
Fluoride	7,080	9.5	6,240	6.0	1,580
Nitrate	52,900	7.4	45,900	3.8	11,800
Phosphate	3,620	8.8	2,060	12.4	805
RADIONUCLIDES	**μCi/g**	**%**	**μCi/mL**	**%**	**Ci**
Total alpha	0.264	7.2	9.98E-05	8.2	58.1
PHYSICAL PROPERTIES	**Sludge Mean**	**%**	**Supernate Mean**	**%**	
Weight percent water	77.1%	0.9	89.1%	0.2	173,000
Density	1.19 g/mL	2.0	1.05 g/mL	0.5	n/a

Notes:

RSD (Mean) (%) = 100 x standard deviation of the mean ÷ mean value

n/a = not applicable

[1]Total inventory = total sludge mass (220,000 kg) plus total supernate mass (3,970 kg).

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LIST OF TERMS

224	lanthanum fluoride waste
ANOVA	analysis of variance
Btu/hr	British thermal units per hour
Ci	curies
Ci/g	curies per gram
DQO	data quality objective
DSC	differential scanning calorimetry
DL	drainable liquid
ft	feet
gal	gallons
g	grams
g/L	grams per liter
g/mL	grams per milliliter
GEA	gamma energy analysis
HDW	Hanford Defined Wastes
HHF	hydrostatic head fluid
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
L	liters
LL	liner liquid
m	meters
mg	milligrams
mL	milliliters
mol/L	moles per liter
ppm	parts per million
RPD	relative percent difference
RSD	relative standard deviation
SAP	sampling and analysis plan
TLM	Tank Layer Model
TGA	thermogravimetric analysis
W	watts
WHC	Westinghouse Hanford Company
wt%	weight percent
°C	degrees Celsius
°F	degrees Fahrenheit
μCi/g	microcuries per gram

LIST OF TERMS (Continued)

μCi/mL	microcuries per milliliter
μeq/g	microequivalents per gram
μg/g	micrograms per gram
μg/mL	micrograms per milliliter

1.0 INTRODUCTION

This tank characterization report presents an overview of single-shell tank 241-B-204 and its waste contents. It provides estimated concentrations and inventories for waste components based on the latest sampling and analysis activities in combination with background tank information. The characterization of tank 241-B-204 is based on the results of a core sampling event in October 1995. For information purposes, results from a 1978 sampling event are also included. Other 241-B-200 series tanks contain waste similar to that in tank 241-B-204. For additional information, refer to Heasler et al. (1994) for tank 241-B-201 and Dougherty and Tran (1995) for tank 241-B-202.

Tank 241-B-204 was removed from service in 1978. Interim stabilization was completed in June 1984, and intrusion prevention was completed in June 1985; 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 about the use and contents of tank 241-B-204. When possible, this information will be used to assess issues associated with safety, operations, environmental, and process development activities. This report also serves as a reference point for more detailed information about tank 241-B-204.

1.2 SCOPE

The October 1995 core sampling event for tank 241-B-204 supported the evaluation of tank waste according to the *Tank Safety Screening Data Quality Objective* (Dukelow et al. 1995). Safety screening analyses were performed on the two core samples as directed in the *Tank 241-B-204 Push Mode Core Sampling and Analysis Plan* (Sasaki 1995). These 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. The flammability of the tank headspace gases was also measured as required by the safety screening DQO. The SAP also required analyses for lithium by inductively coupled plasma spectroscopy (ICP) and bromide by ion chromatography (IC) to account for any hydrostatic head fluid (HHF) contamination during the core sampling operation. Results for additional analytes were obtained during the ICP and IC analyses and are included in this report. Gamma energy analyses (GEA) and ^{90}Sr analysis were performed on one segment to gather information for the disposal of laboratory waste (Sasaki 1996b).

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2.0 HISTORICAL TANK INFORMATION

This section describes tank 241-B-204 based on historical information. The first part details the current condition of the tank. It includes discussions of tank design, transfer history, process sources contributing to the tank waste, and an estimate of the current contents based on the process history. It also includes events that may be related to tank safety issues, such as potentially hazardous tank contents or off-normal operating temperatures. 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 January 31, 1996, tank 241-B-204 contained an estimated 189 kL (50 kgal) of waste classified as noncomplexed (Hanlon 1996). Liquid volume was determined photographically. Solids volume was determined using a manual tape surface level gauge. The estimated amounts of the waste phases in the tank are shown in Table 2-1.

Table 2-1. Estimated Tank Contents.[1]

Waste Form	Estimated Volume	
	kL	kgal
Total waste	189	50
Supernatant liquid	4	1
Sludge	185	49
Saltcake	0	0
Drainable interstitial liquid	19	5
Drainable liquid remaining	23	6
Pumpable liquid remaining	0	0

Note:
[1]Hanlon (1996)

Tank 241-B-204 was declared an assumed a leaker in 1984 with a leak volume of approximately 1,500 L (400 gal). Interim stabilization was completed in June 1984, and intrusion prevention was completed in June 1985. Tank 241-B-204 is a low heat load tank that is passively ventilated. It is not on any Watch Lists. All monitoring systems were in compliance with documented standards as of January 31, 1996 (Hanlon 1996).

2.2 TANK DESIGN AND BACKGROUND

The 241-B Tank Farm is a first generation tank farm. Built between 1943 and 1944, it consists of 12 2,006 kL (530 kgal) and four 208 kL (55 kgal) single-shell tanks (Leach and Stahl 1993). The tanks were designed for nonboiling waste with a maximum fluid temperature of 104 °C (220 °F). As with all first generation tank farms, equipment to monitor the waste is sparse. A typical B Farm 208-kL (55-kgal) tank contains risers that provide surface level access to the underground tank. The risers range from 10 cm (4 in.) to 30 cm (12 in.).

Tank 241-B-204 is constructed of 0.3-m (1-ft) thick reinforced concrete with a .64-cm (0.25-in.)-thick mild carbon-steel liner on the bottom and sides and a 30-cm (12-in.) thick flat concrete top (Brevick 1994a). Tank 241-B-204 is equipped with nine risers through the top of the tank. The risers range in diameter from 10 cm (4 in.) to 1.1 m (3.5 ft). The carbon-steel liner has a 7.49 m (24.6 ft) operating depth, is 6.1 m (20 ft) in diameter, and has a 15-cm (6-in.) deep-dished bottom with a 0.9 m (3 ft) radius knuckle. The tank is set on a reinforced concrete foundation. At the time of construction, the tank was waterproofed on the sides and top with tar and gunite. The tank is covered with approximately 3.5 m (11.5 ft) of overburden.

The four 200-series tanks on the B tank farm are at the same elevation. Tank 241-B-204 is connected to tank 241-B-203 by a 7.6-cm (3-in.) diameter line that enables waste transfers from one tank to the other.

Figure 2-1 shows the riser configuration. Table 2-2 lists tank 241-B-204 risers, their diameter, and a description of each. Figure 2-2 shows a cross section of the tank with the approximate waste level and a schematic of the tank equipment. Tank 241-B-204 has a construction manhole and eight grade-level risers (Alstad 1993). A thermocouple tree in riser 1 monitors the tank waste temperature, and a manual tape through riser 8 measures the surface level. Risers 2, 3, 6 and 7 (30 cm [12 in.] in diameter) and risers 4 and 5 (10 cm [4 in.] in diameter) access the two sides of the tank (Lipnicki 1995).

Figure 2-1. Riser Configuration for Tank 241-B-204.

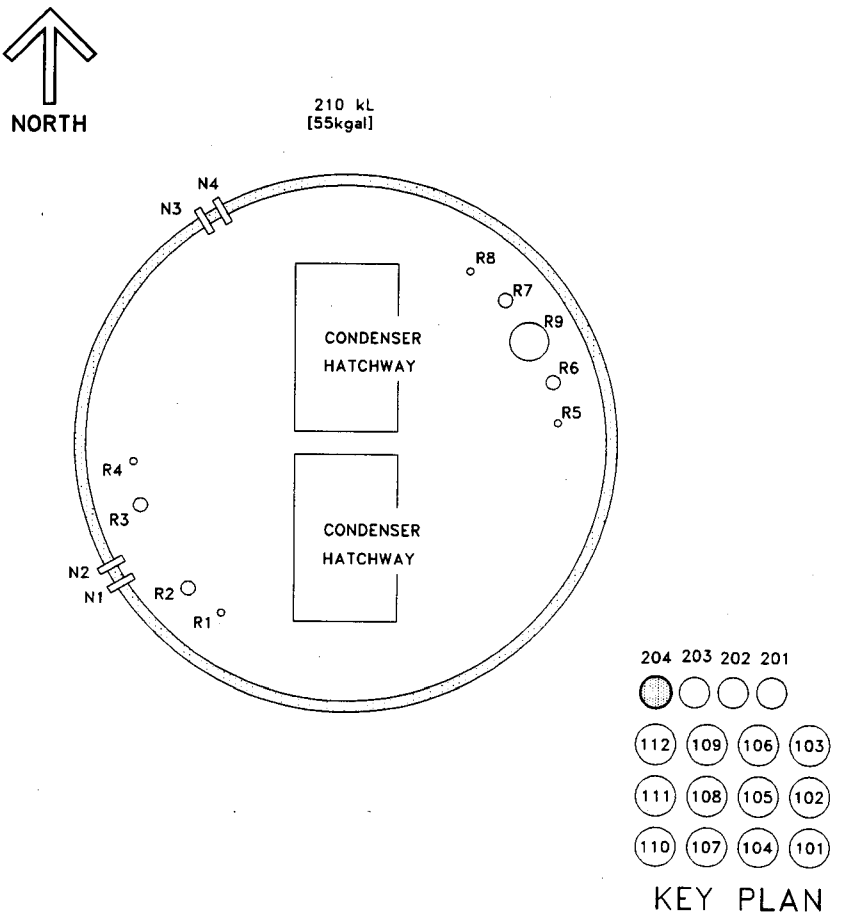


Table 2-2. Tank 241-B-204 Risers.[1,2]

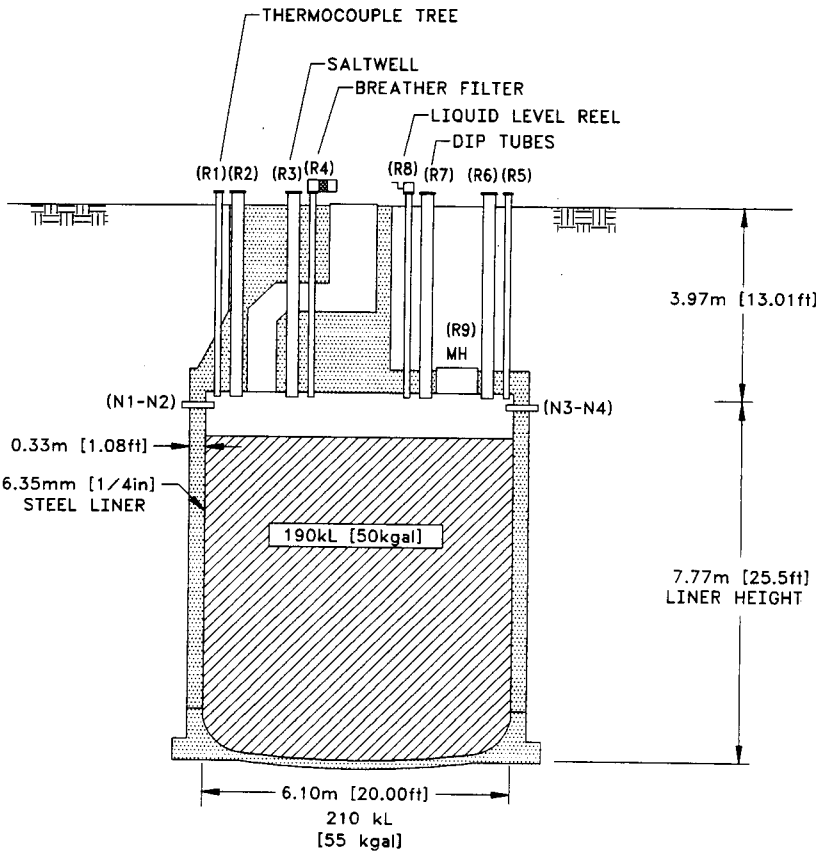
Riser Number	Diameter (inches)	Description and Comments
R1	4	Thermocouple tree
R2	12	Flange/observation port
R3	12	Saltwell
R4	4	Breather filter, G1 housing
R5	4	Flange
R6	12	Flange
R7	12	Flange, dip tubes
R8	4	Liquid level reel (manual tape)
R9	42	Manhole, below grade
Nozzle Number	**Diameter (inches)**	**Description and Comments**
N1	3	Line V-296
N2	3	Line V-297
N3	3	Spare
N4	3	Line to tank B-203

Notes:

[1]Alstad (1993)

[2]Vitro Engineering Corporation (1986)

Figure 2-2. Tank 241-B-204 Cross Section.



2.3 PROCESS KNOWLEDGE

The following sections describe the transfer history of waste in tank 241-B-204, the process wastes that were transferred, and an estimate of current tank contents based on transfer history.

2.3.1 Waste Transfer History

Table 2-3 shows the waste transfer history for tank 241-B-204. B Plant 224 waste from the lanthanum fluoride process was transferred to tank 241-B-204 during the second and third quarters of 1952. In the fourth quarter of 1952 and the first quarter of 1953, tank 241-B-204 received B Plant flush waste. From the second quarter of 1952 to the first quarter of 1953, the overflow from tank 241-B-204 was cascaded to a crib (Brevick et al. 1994b). Approximately 185 kL (49 kgal) of waste was left in the tank after the final transfer in 1974. Tank 241-B-204 was removed from service in 1978.

Table 2-3. Summary of Tank 241-B-204 Waste Transfer History.[1]

Transfer	Waste Type Received	Time Period	Estimated Waste Volume[2]	
			kL	kgal
224-U (B Plant)	224	1952	943	249
B Plant	B Plant Flush	1952 - 1953	466	123

Notes:

[1]Agnew (1995)

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

2.3.2 Historical Estimation of Tank Contents

An estimate of the current contents of tank 241-B-204 based on historical transfer data is available from the *Historical Tank Content Estimate for the Northeast Quadrant of the Hanford 200 East Area* (Brevick et al. 1994a). The HTCE predictions have not been validated and should not be used as a basis for decisions affecting the waste in tank 241-B-204. Historical data used for the estimate include the *Waste Status and Transaction Record Summary (WSTRS) for the Northeast Quadrant* (Agnew et al. 1996), the *Hanford Defined Waste: Chemical and Radionuclide Compositions* (Agnew 1995), the *Tank Layer Model (TLM) for the Northeast, Southwest, and Northwest Quadrants* (Agnew et al. 1995), and the *Hanford Tank Chemical and Radionuclide Inventories: HDW Model Rev. 3* (Agnew 1996). The Waste Status and Transaction Record Summary is a compilation of available waste transfer and volume status data. The Hanford Defined Waste

(HDW) document provides the assumed typical compositions for Hanford waste types. In most cases, the available data are incomplete thereby reducing the reliability of the transfer data and the modeling results derived from it. The TLM takes the Waste Status and Transaction Record Summary data, models the waste deposition processes and, using additional data from the HDW document (which may introduce more error), generates an estimate of the tank contents. Therefore, these model predictions can only be considered an estimate that requires further evaluation using analytical data.

The TLM states that tank 241-B-204 contains 185 kL (49 kgal) of 224 waste from the LaF_3 process (waste generated in the B-224 building) and 4 kL (1 kgal) of supernate (see Figure 2-3). The 224 sludge waste layer should contain the following: (1) very large quantities of iron, lanthanum, sodium, strontium, bismuth, fluoride, and nitrate, (2) a large quantity of carbonates, and (3) a trace amount of plutonium. The plutonium quantity may be enough to give this waste a slight activity. Table 2-4 shows the waste constituents and their concentrations.

Figure 2-3. Tank Layer Model for Tank 241-B-204.

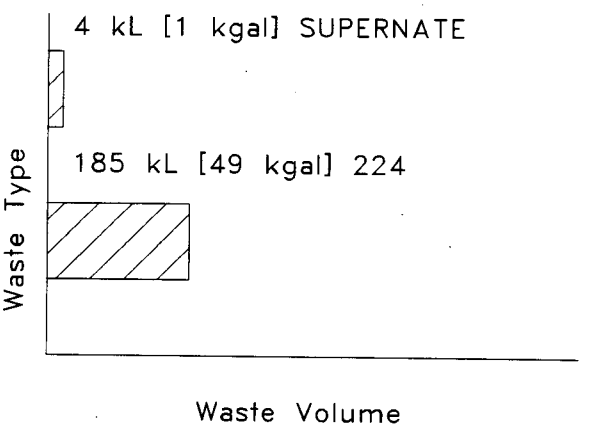


Table 2-4. Tank 241-B-204 Historical Inventory Estimate.[1,2] (2 sheets)

Solids Composite Inventory Estimate			
Physical Properties			
Total solid waste	2.55E+05 kg (49 kgal)		
Heat load	0 W (0 Btu/hr)		
Bulk density	1.38 g/mL		
Void fraction	0.834		
Water wt%	55.5		
Total organic carbon (wt% carbon wet)	1.12		
Chemical Constituents	**mol/L**	**ppm**	**kg[3]**
Na^+	4.52	75,500	19,300
Al^{3+}	0	0	0
Fe^{3+} (total Fe)	0.361	14,600	3,740
Cr^{3+}	0.00344	130	33.2
Bi^{3+}	0.0604	9,170	2,340
La^{3+}	0.237	23,900	6,100
Ce^{3+}	0	0	0
Zr (as $ZrO(OH)_2$)	0	0	0
Pb^{2+}	0	0	0
Ni^{2+}	0.00134	57.3	14.6
Sr^{2+}	1.57	99,700	25,400
Mn^{4+}	0.00386	154	39.3
Ca^{2+}	0.244	7,100	1,810
K^+	0.228	6,460	1,650
OH^-	4.92	60,700	15,500
NO_3^-	1.33	59,800	15,300
NO_2^-	0	0	0
CO_3^{2-}	0.244	10,600	2,710
PO_4^{3-}	0.0965	6,660	1,700
SO_4^{2-}	0.00134	93.7	23.9

Table 2-4. Tank 241-B-204 Historical Inventory Estimate.[1,2] (2 sheets)

Solids Composite Inventory Estimate			
Chemical Constituents	**mol/L**	**ppm**	**kg[3]**
Si (as SiO_3^{2-})	0	0	0
F^-	2.03	28,100	7,170
Cl^-	0.0249	642	164
citrate	0	0	0
$EDTA^{4-}$	0	0	0
$HEDTA^{3-}$	0	0	0
NTA^{3-}	0	0	0
glycolate	0	0	0
acetate	0	0	0
oxalate	0.643	41,100	10,500
DBP	0	0	0
NPH	0	0	0
CCl_4	0	0	0
hexone	0	0	0
$(FeCN)_6^{4-}$	0	0	0
Radiological Constituents	**mol/L**	**μCi/g**	**kg[3]**
Pu	n/a	0.0100	0.0427
U	0	0	0
Cs	0	0	0
Sr	0	0	0

Notes:

n/a = not applicable

[1]Agnew (1996)

[2]The HTCE predictions have not been validated and should not be used as the basis for decisions affecting the waste in tank 241-B-204.

[3]Small differences appear to exist among the inventory values in this column and the inventories calculated from the two sets of concentrations. The differences are being evaluated.

2.4 SURVEILLANCE DATA

Tank 241-B-204 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 measurements may indicate the presence of a major tank leak. Solid surface level measurements indicate physical changes and consistency of the solid layers. Tank 241-B-204 does not have 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 6.515 m (21.37 ft) baseline established for tank 241-B-204 are a 5.0 cm (2 in.) increase and a 5.0 cm (2 in.) decrease. Between 1991 and 1996, the surface level readings have ranged between 6.50 m (21.33 ft) and 6.51 m (21.36 ft). Figure 2-4 shows the tank volume history. The surface level on March 14, 1996, was 6.5 m (21.33 ft).

2.4.2 Internal Tank Temperatures

Tank 241-B-204 has a single thermocouple tree with 12 thermocouples for monitoring temperatures. Documentation describing the thermocouple tree design and the elevations of the thermocouples was not available. No temperature data are available prior to 1975, and there is a data gap between April 1982 and July 1989. Tank 241-B-204 temperatures currently are monitored semiannually. For plots of individual thermocouple readings, refer to Brevick et al. (1994b).

Between May 1975 and January 1996, the mean temperature was 17 °C (62.7 °F) with a minimum of 7.2 °C (45 °F) and a maximum of 43 °C (110 °F). On January 9, 1996, the high temperature was 17 °C (62.6 °F) recorded by thermocouple 9, and the low temperature was 14 °C (57.2 °F) recorded by thermocouple 12. Figure 2-5 shows a graph of high temperatures recorded between 1975 and 1996. Brevick et al. (1994b) classify the maximum temperature of 43 °C, recorded July 5, 1989, as an outlier. All tank 241-B-204 thermocouples and most thermocouples for other 241-B 200-series tanks show a similar high reading on that same date. Considering the temperature history of the tank and the nature of the tank waste, it seems unlikely that tank waste temperatures were actually as high as 43 °C. It is more likely that all the readings were subject to the same systematic error when they were collected.

Figure 2-4. Tank 241-B-204 Level History.

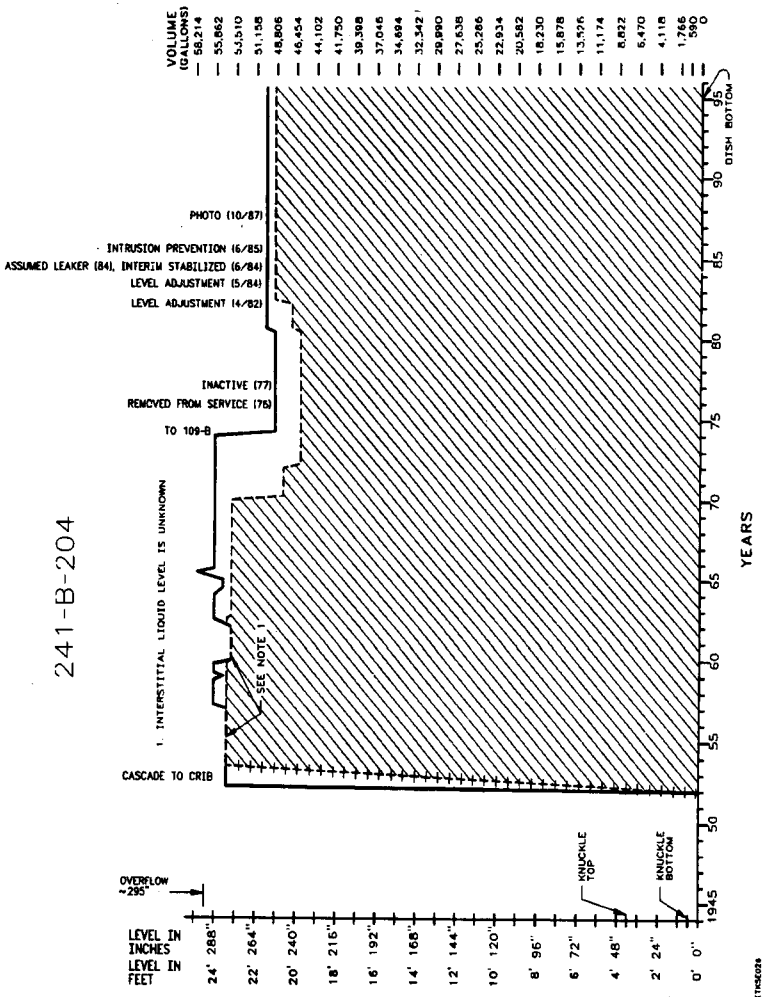
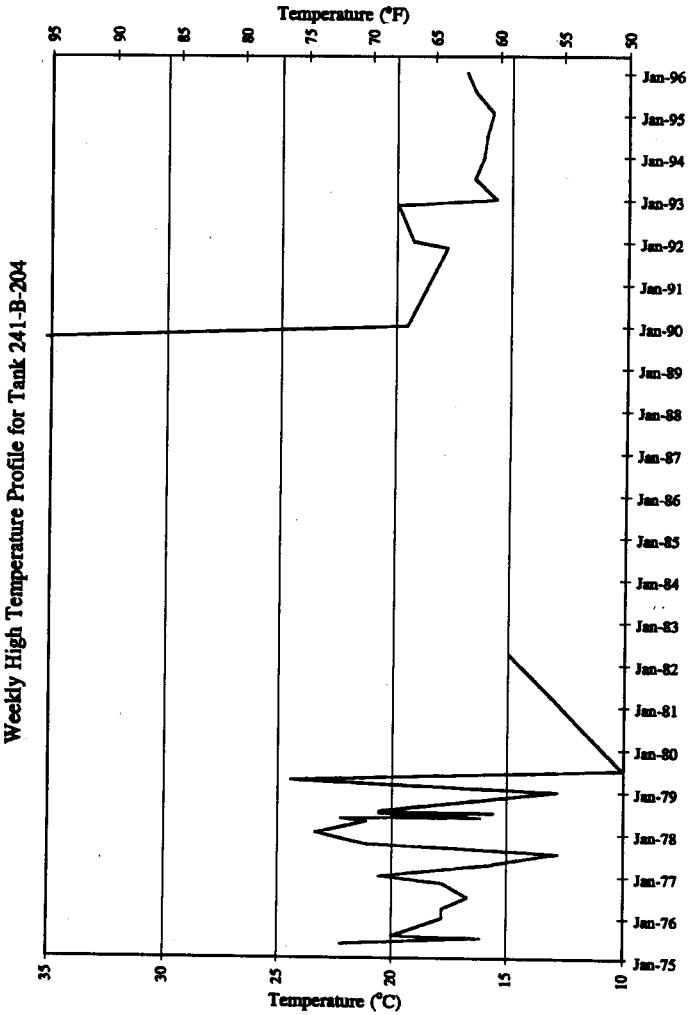


Figure 2-5. Tank 241-B-204 Weekly High Temperature Plot.



Note: The 1989 high temperature reading is classified as an outlier (Brevick et al. 1994b).

2.4.3 Tank 241-B-204 Photograph

Figure 2-6 is a montage of 1987 photographs of the tank 241-B-204 interior showing a thin supernate layer over a dark orange sludge. The in-tank photographs should correspond to the current tank contents since no transfers have taken place since the photographs were taken. The photographs show approximately 189 kL (50 kgal) of waste which equals a waste depth of about 6.4 m (21 ft). Picture quality is poor and the tank details are hazy; the inlet nozzle and temperature probe were overexposed because they were too close to the flash.

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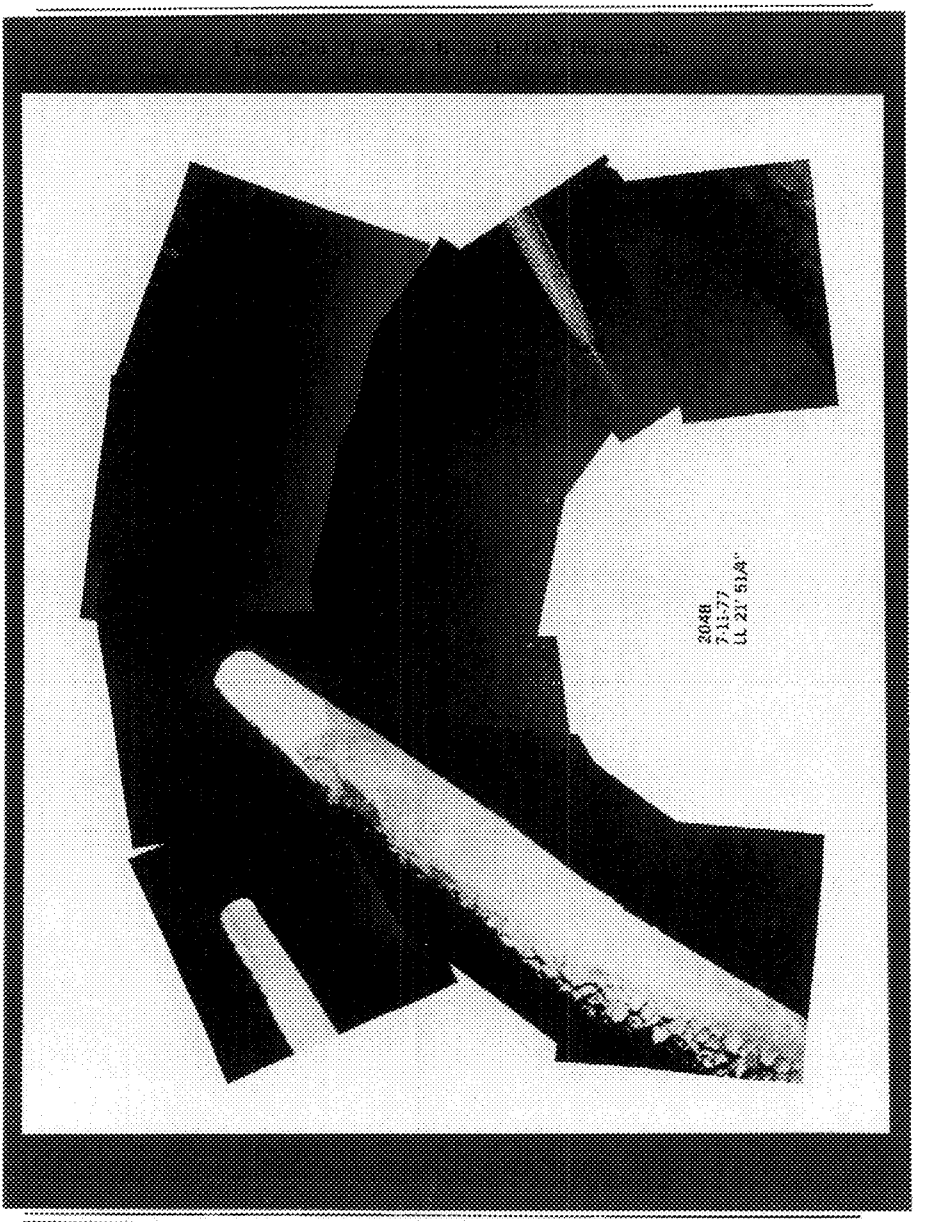
2048
7-11-77
LL 21' 51.4"

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3.0 TANK SAMPLING OVERVIEW

This section describes the October 1995 sampling and analysis event for tank 241-B-204. Push-mode core samples were taken to satisfy the requirements of the safety screening DQO (Dukelow et al. 1995), and sampling and analysis were performed in accordance with the sampling and analysis plan (SAP) (Sasaki 1995). For further discussions of the sampling and analysis procedures, refer to the *Tank Characterization Reference Guide* (DeLorenzo et al. 1994).

3.1 DESCRIPTION OF SAMPLING EVENT

Two 14-segment push-mode core samples were collected from tank 241-B-204 between October 11 and October 19, 1995. Cores 112 and 114 were taken from risers 2 and 7, respectively. Water was used as the HHF during sampling operations. A tracer (lithium bromide) was added to the HHF to gauge contamination of the segments by the HHF. A field blank and a sample of the HHF were also taken. Prior to core sampling, the tank headspace was sampled to determine the flammable gas concentration as outlined in the safety screening DQO. This sampling was done through riser 2 at approximately 1 m (3.3 ft) above the waste surface (or 4 m [13 ft] below the top of the riser) (Sasaki 1996a).

All analyses were performed by the Westinghouse Hanford Company 222-S Laboratory in accordance with the SAP (Sasaki 1995). Table 3-1 summarizes the sampling and analysis requirements of the safety screening DQO (Dukelow et al. 1995). Table A-2 summarizes each core segment's riser number, sample depth, sample numbering, and drill string dose rate information.

Table 3-1. Integrated Data Quality Objective Requirements for Tank 241-B-204.

Sampling Event	Applicable DQOs	Sampling Requirements	Analytical Requirements
Push-mode core sampling	Safety screening (Dukelow et al. 1995)	Core samples from a minimum of two risers separated radially to the maximum extent possible	Energetics Moisture content Total alpha activity Density Flammable gas concentration

3.2 SAMPLE HANDLING

Cores 112 and 114 were received by the 222-S Laboratory between October 12 and October 20, 1995, and were extruded between October 16 and October 26, 1995. The top two segments of core 112 and the top segment of core 114 contained drainable liquid. Small amounts of liner liquid were also recovered for most samples. All remaining segments of the two cores were full of smooth, soft, black sludge. No separable organic layer was observed in any segments. One field blank and one HHF sample were delivered to the 222-S Laboratory with core 114. Both cores were subsampled at the half-segment level for analysis. Table A-3 tabulates the subsampling scheme, the subsegment masses, and visual characteristics of the segments.

3.3 SAMPLE ANALYSIS

The safety screening DQO required 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 prior to core sampling.

Bromide analysis by IC and lithium analysis by ICP were required by the SAP to determine the amount of HHF contamination in the samples. During these measurements, results for other metals and anions were obtained and reported as requested by the SAP.

A GEA and ^{90}Sr analysis were performed on one solid subsample to provide radionuclide content information for the disposal of laboratory waste. The sample analyzed was from the lower half solids of segment 14, core 112, because this sample had the highest measured total alpha result.

All reported analyses were performed in accordance with approved laboratory procedures. Table A-4 lists the sample numbers and applicable analyses. Table A-5 displays analytical procedures by title and number. No deviations or modifications were noted by the laboratory. The appropriate quality control checks were run in conjunction with all chemical and physical analyses. Section 5.1.2 assesses the quality control results.

3.4 DESCRIPTION OF HISTORICAL SAMPLING EVENT

There was one historical sampling event reported for tank 241-B-204. The sample was analyzed in 1978 and referenced as sample number 1974 (Horton 1978). Because the sample was collected and analyzed prior to May 1989, the data do not meet current quality assurance requirements. Therefore, no decisions regarding the waste in tank 241-B-204 should be based upon these historical data.

The specifics for this event such as the procedure, riser used, and depth at which the sample was taken are not available from historical records. The sample was received by the Chemical Analysis Laboratories at the 222-S Laboratory and was reported as black in color with a consistency of soft grease. Test results were reported on December 4, 1978. Both a water leach and an unspecified acid digestion method were performed on the sample. The results of the analyses revealed that the primary constituents by volume (percent) were sodium, nitrate, potassium, and carbonate. Appendix D shows the analytical results for this historical sample, and Section 5.2 compares the 1978 and 1995 analytical results.

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4.0 ANALYTICAL RESULTS

This section summarizes the analytical results of the October 1995 sampling of tank 241-B-204. The sampling and analysis were performed as directed in the SAP (Sasaki 1995). This plan integrated all documents related to sampling and analytical requirements including applicable DQOs. Analysis of the two cores were performed at the Westinghouse Hanford Company 222-S Laboratory.

Table 4-1 shows the locations of the analytical results.

Table 4-1. Analytical Data Presentation Tables.

Analysis	Location
Chemical data summary	Table 4-2
Thermogravimetric analysis results	Appendix B, Table B-50
Differential scanning calorimetry	Appendix B, Table B-51
1995 comprehensive analytical data	Appendix B
HHF contamination check data	Appendix C

4.1 DATA PRESENTATION

This section summarizes the analytical results from the 1995 sampling of tank 241-B-204. The subsections below provide information about the chemical, physical, vapor, and HHF contamination check data. Data from the analysis of cores 112 and 114 were reported in *45-Day Safety Screening Results for Tank 241-B-204, Push Mode Cores 112 and 114* (Sasaki 1996a) and *Final Report for Tank 241-B-204, Push Mode Cores 112 and 114* (Sasaki 1996b).

4.1.1 Chemical Data Summary

Table 4-2 shows the mean concentration estimates and inventories for the sludge and drainable liquid results separately and as a total tank inventory. Data from the two cores were combined to derive the overall concentration means for all analytes, with the exception of the radionuclides analyzed by GEA. The overall means reported are weighted means and were calculated by taking a simple mean of all subsegment values for a particular segment, averaging the segment means for an individual core to derive a core mean, and averaging the two core means to obtain an overall mean. When 50 percent or more of the individual

Table 4-2. Chemical Data Summary for Tank 241-B-204. (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	65.3	36.5	14.4	< 7.53	n/a	< 0.0301	14.4
Antimony	< 26.9	n/a	< 5.92	< 9.08	n/a	< 0.0363	< 5.96
Arsenic	< 44.8	n/a	< 9.86	< 15.1	n/a	< 0.0604	< 9.92
Barium	< 199	n/a	< 43.8	< 7.53	n/a	< 0.0301	< 43.8
Beryllium	< 2.24	n/a	< 0.493	< 0.753	n/a	< 0.00300	< 0.496
Bismuth	48,400	5.8	10,700	< 15.1	n/a	< 0.0604	10,700
Boron	103	14.3	22.6	< 7.53	n/a	< 0.0301	22.6
Cadmium	< 2.26	n/a	< 0.497	< 0.753	n/a	< 0.00301	< 0.500
Calcium	305	38.1	67.1	< 15.1	n/a	< 0.0604	67.2
Cerium	55.4	13.3	12.2	< 15.1	n/a	< 0.0604	12.3
Chromium	3,240	5.7	714	154	2.7	0.615	715
Cobalt	< 8.97	n/a	< 1.98	< 3.02	n/a	< 0.0121	< 1.99
Copper	22.1	80.4	4.87	< 1.51	n/a	< 0.00604	4.88
Iron	3,810	12.1	839	< 7.53	n/a	< 0.0301	839
Lanthanum	10,400	2.6	2,290	< 7.53	n/a	< 0.0301	2,290
Lead	< 1,070	n/a	< 236	< 15.1	n/a	< 0.0604	< 236
Magnesium	82.8	20.2	18.2	< 15.1	n/a	< 0.0604	18.3
Manganese	14,800	2.7	3,270	< 1.51	n/a	< 0.00604	3,270
Molybdenum	< 22.4	n/a	< 4.93	< 7.53	n/a	< 0.0301	< 4.96
Neodymium	< 44.8	n/a	< 9.86	< 15.1	n/a	< 0.0604	< 9.92

Table 4-2. Chemical Data Summary for Tank 241-B-204. (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**
Nickel	234	10.6	51.5	< 3.02	n/a	< 0.0121	51.5
Phosphorous	2,320	2.8	511	680	1.0	2.72	514
Potassium	5,780	1.8	1,270	6,110	4.6	24.4	1,290
Samarium	< 44.8	n/a	< 9.86	< 15.1	n/a	< 0.0604	< 9.92
Selenium	< 44.9	n/a	< 9.88	< 15.1	n/a	< 0.0604	< 9.94
Silicon	1,070	22.8	236	60.9	10.0	0.244	236
Silver	< 5.56	n/a	< 1.22	< 1.51	n/a	< 0.00604	< 1.23
Sodium	26,200	2.3	5,770	28,000	2.2	112	5,880
Strontium	391	6.8	86.1	< 1.51	n/a	< 0.00604	86.1
Sulfur	95.0	8.4	20.9	134	3.7	0.536	21.4
Thallium	< 89.6	n/a	< 19.7	< 30.2	n/a	< 0.121	< 19.8
Titanium	< 6.98	n/a	< 1.54	< 1.51	n/a	< 0.00604	< 1.55
Uranium	< 240	n/a	< 52.8	164	7.9	0.656	< 53.5
Vanadium	< 22.4	n/a	< 4.93	< 7.53	n/a	< 0.0301	< 4.96
Zinc	53.7	39.7	11.8	2.62	41.2	0.0105	11.8
Zirconium	< 4.52	n/a	< 0.995	< 1.51	n/a	< 0.00604	< 1.00
ANIONS	**µg/g**	**%**	**kg**	**µg/mL**	**%**	**kg**	**kg**
Chloride	693	7.3	153	592	8.8	2.37	155
Fluoride (soluble)	7,080	9.5	1,560	6,240	6.0	25.0	1,580
Nitrate	52,900	7.4	11,600	45,900	3.8	184	11,800
Nitrite	694	18.5	153	1,730	14.2	6.92	160

Table 4-2. Chemical Data Summary for Tank 241-B-204. (3 sheets)

Analyte	Mean Sludge Concentration	Sludge RSD (Mean)	Sludge Inventory	Mean Supernate Concentration	Supernate RSD (Mean)	Supernate Inventory	Total Inventory
ANIONS (Cont'd)	**µg/g**	**%**	**kg**	**µg/mL**	**%**	**kg**	**kg**
Oxalate	1,710	5.5	376	< 356	n/a	< 1.42	376
Phosphate (soluble)	3,620	8.8	797	2,060	12.4	8.24	805
Sulfate	648	12.0	143	785	34.2	3.14	146
RADIONUCLIDES	**µCi/g**	**%**	**Ci**	**µCi/mL**	**%**	**Ci**	**Ci**
^{241}Am[1]	< 0.0833	n/a	< 18.3	n/a	n/a	n/a	< 18.3
^{60}Co[1]	< 0.0131	n/a	< 2.88	n/a	n/a	n/a	< 2.88
^{137}Cs[1]	< 0.0314	n/a	< 6.91	n/a	n/a	n/a	< 6.91
^{154}Eu[1]	< 0.0357	n/a	< 7.86	n/a	n/a	n/a	< 7.86
^{155}Eu[1]	< 0.0380	n/a	< 8.37	n/a	n/a	n/a	< 8.37
^{90}Sr[1]	5.00E-03	24.0[2]	1.10	n/a	n/a	n/a	1.10
Total alpha	0.264	7.2	58.1	9.98E-05	8.2	3.99E-04	58.1
PHYSICAL PROPERTIES	**Overall Sludge Mean**	**Sludge RSD (Mean)**	**kg**	**Overall Supernate Mean**	**Supernate RSD (Mean)**	**kg**	**kg**
Weight-percent water[3]	77.1 %	0.9	170,000	89.1 %	0.2	3,540	173,000
Density	1.19 g/mL	2.0		1.05 g/mL	0.5		

Notes:

n/a = not applicable

[1]Radionuclide means are based on the results from one sample/duplicate pair taken from the lower half solids of segment 14, core 112.
[2]Relative standard deviation of the data is shown because only one sample/duplicate pair was analyzed.
[3]Weight-percent water overall means are based on results corrected for HHF contamination.

sample/duplicate measurements had detected results, the overall mean was reported as a detected value. Conversely, when results for more than 50 percent of the individual sample/duplicate results were nondetected, the overall mean was reported as a less than (<) value.

The GEA and ^{90}Sr were performed only on the lower half solids of segment 14, core 112. Consequently, the overall means for ^{241}Am, ^{60}Co, ^{137}Cs, ^{154}Eu, ^{155}Eu, and ^{90}Sr are based on the results from one sample/duplicate pair and may not represent the entire tank contents.

Table 4-2 shows the overall means in columns 2 and 5 for the sludge and supernate portions of the waste, respectively. Appendix B lists the original subsegment analytical data.

Relative standard deviations of the mean (RSD [Mean]), defined as 100 times the standard deviation of the mean divided by the tank mean. The standard deviation was computed using a nested analysis of variance model and restricted maximum likelihood methods. They are reported in columns 3 and 6 and were calculated only for analytes which had 50 percent or more of their individual sample/duplicate results above the detection limit.

The sludge inventory in column 4 was calculated by multiplying the overall mean by the sludge density (1.19 g/mL) and the sludge waste volume (185,000 L [49,000 gal]), then dividing by a unit conversion factor of 1E+06. The supernate inventory in column 7 was calculated by multiplying the overall mean by the supernate waste volume (4,000 L [1,000 gal]) and dividing by a unit conversion factor of 1E+06. Total inventory results in column 8 are the sum of the sludge and supernate inventories. Using the respective estimates for the sludge and supernate volumes and densities, the total sludge mass is estimated to be 220,000 kg, and the total supernate mass is estimated to be 3,970 kg.

4.1.2 Physical Data Summary

Thermal analyses were performed on tank 241-B-204 core samples to satisfy the requirements of the safety screening DQO (Dukelow et al. 1995) which dictated that TGA and DSC be performed on both solid and liquid phases of the waste samples. Density determinations were also performed.

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. A gas, such as nitrogen or air, is passed over the sample during the heating to remove any released gases. A decrease in the weight of a sample represents a loss of gaseous matter from the sample through evaporation or through a reaction that forms gas phase products.

Weight-percent water by TGA was performed by the 222-S Laboratory under a nitrogen purge using procedures LA-560-112, Rev. B-1 (Mettler[1]) and LA-514-114, Rev. C-1 (Perkin-Elmer[2]).

Table B-50 shows the TGA percent water data for tank 241-B-204. The HHF-corrected mean weight-percent water result for drainable liquid samples was 89.1 percent with an RSD of 0.2 percent. The HHF-corrected mean result for the sludge samples was 77.1 percent with an RSD of 0.9 percent. All weight-percent water sample means were calculated by equal weighting of the two cores, the segments, and the subsegments using values corrected for HHF contamination based on the bromide results. Sample S95T003260 was rerun because of an instrument error, and a triplicate was analyzed on sample S95T003278 because of the large discrepancy between the original and duplicate results. The laboratory did not encounter other problems.

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. As the substance is being heated, a gas such as nitrogen is passed over the waste material to remove any gases being released. The onset temperature for an endothermic event (characterized by or causing the absorption of heat) or an exothermic event (characterized by or causing the release of heat) is determined graphically.

The DSC analyses were performed by the 222-S Laboratory under a nitrogen atmosphere using procedures LA-514-113, Rev. C-1 (Mettler™) or LA-514-114, Rev. C-1 (Perkin-Elmer™).

No exothermic reactions were observed, and the only endothermic transition exhibited was that associated with the evaporation of free and interstitial water. Because there were no exothermic reactions, the calculation of a 95 percent confidence interval as specified by the safety screening DQO (Dukelow et al. 1995) was not necessary. Table B-51 shows the DSC results and includes, for each sample, the temperature range and enthalpy for the single endothermic transition.

4.1.2.3 Density. Bulk density measurements were performed on 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, and that of the drainable liquid was 1.05 g/mL. Table B-52 shows the analytical data.

[1]Mettler is a registered trademark of Mettler Electronics, Anaheim, CA.

[2]Perkin-Elmer is a registered trademark of Perkins Research and Manufacturing Company, Inc., Canoga, Park CA.

4.1.3 Tank Headspace Flammability

The sampling of tank 241-B-204 headspace was performed prior to core sampling. The tank vapors were field tested using a combustible gas meter; the flammable vapor content was determined to be 0 percent of the lower flammability limit, indicating no flammability concerns. In addition, the concentrations of oxygen (20.7 percent), total organic vapors (1.4 ppm), and ammonia (2 ppm) were measured.

4.1.4 Hydrostatic Head Fluid Contamination Check

Hydrostatic head fluid was used in conjunction with the 1995 core samplings, and lithium bromide was used as a tracer in the HHF to estimate the degree of sample contamination. This check, through chemical analyses for lithium and bromide, was prescribed by the SAP (Sasaki 1995). The analytical results indicated that both elements were present in detectable quantities in all sludge subsegments and most drainable liquid samples (see Appendix C). Based on the bromide results, the HHF contamination was less than 2 percent for all samples. The HHF correction factors were applied to the weight-percent water analytical data for all subsegments; the HHF correction factors were not applied to any other analyte. The bromide values were chosen for the HHF correction factors because bromide is less likely than lithium to form insoluble compounds with tank waste. When lithium and bromide results were compared, the equivalents of lithium recovered were less than those for bromide in general. An overall mean and tank inventory were not calculated for these two analytes because they are not constituents of the tank waste.

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5.0 INTERPRETATION OF CHARACTERIZATION RESULTS

This section discusses the overall quality and consistency of the current sampling results for tank 241-B-204 and assesses and compares these results to historical information and program requirements.

5.1 ASSESSMENT OF SAMPLING AND ANALYTICAL RESULTS

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

5.1.1 Field Observations

The safety screening DQO (Dukelow et al. 1995) requirement to sample from at least two widely-spaced risers was fulfilled. Therefore, a horizontal and vertical comparison of the analytical results was possible and gave an estimate of waste constituent distribution. No sampling problems were noted. All samples achieved 100 percent recovery.

5.1.2 Quality Control Assessment

The usual quality control assessment includes evaluating the appropriate standard recoveries, spike recoveries, duplicate analyses, and blanks that are performed in conjunction with the chemical analyses. All pertinent quality control tests were conducted on the 1995 core samples, enabling a full assessment of data accuracy and precision. The SAP (Sasaki 1995) established the specific criteria for the primary analytes (TGA, DSC, bulk density, total alpha activity, lithium, and bromide), and the remainder of the analytes were governed by the laboratory criteria (DOE 1995). Sample and duplicate pairs that had one or more quality control results outside the specified criteria are identified by footnoting the data in Appendices B and C.

The standard and spike recovery results provide an estimate of analysis accuracy. If a standard or spike recovery is above or below the given criterion, the analytical results may be biased high or low, respectively. The precision is estimated by the relative percent difference (RPD), which is defined as the absolute value of the difference between the primary and duplicate samples, divided by their mean, times one hundred. The lithium analyses had two low spike recoveries, a result of the lithium concentration in the sample being two orders of magnitude greater than the spike. When the sample concentration is more than four times larger than the spike, the error introduced in calculating the spike recovery becomes large and results in a poor recovery. The lithium analyses also had three high RPDs. Several spike recoveries and RPDs were outside the target level for total alpha

activity. This was caused by low sample activities and high dissolved solids in the samples and by possible self-shielding. Several standard recoveries, conducted with total alpha activity, were outside the SAP criterion; TGA had three RPDs, and bulk density had one RPD outside the limits. Finally, no sample exceeded the criterion for preparation blanks; therefore, contamination was not a problem.

In summary, almost all quality control results for the primary analytes listed above were within the boundaries specified in the SAP. The few discrepancies noted should not impact data validity or use. None of the remaining data in this report had quality control violations (ICP, IC, and GEA analytes).

5.1.3 Data Consistency Checks

Comparing different analytical methods can help to assess data consistency and quality. The quantity of data available enabled calculations of mass and charge balances and comparisons of the ICP phosphorus and sulfur results with the IC phosphate and sulfate results, respectively.

5.1.3.1 Comparison of Results from Different Analytical Methods. The following data consistency check compares phosphate and sulfate results from two analytical methods. A close correlation between the two methods strengthens the credibility of both results, whereas a poor correlation may bring the data reliability into question. Table 4-2 shows the analytical mean results.

For supernate, the ICP mean total phosphorous result was 680 μg/mL (equivalent to 2,090 μg/mL phosphate). The IC mean phosphate result was 2,060 μg/mL. The ICP and IC results agree with an RPD of only 1.4 percent.

For sludge, the analytical phosphorous mean result as determined by ICP was 2,320 μg/g (equivalent to 7,110 μg/g phosphate). The IC phosphate mean result was 3,620 μg/g, which yielded an RPD between the two phosphate results of 65 percent. The low IC phosphate value is caused by the inability of the water-leach sample-preparation procedure to solubilize the water-insoluble phosphate compounds prior to IC analysis. The acid-digestion procedure, which is used to dissolve the sludge prior to ICP analysis, is much more likely to yield soluble phosphate that is detected as total phosphorous. Comparing IC and ICP results for phosphate suggests that only 51 percent of the phosphate in the sludge is water soluble.

The mean total sulfur value for the supernate, as determined by ICP, was 134 μg/mL (equivalent to 401 μg/mL sulfate). The mean sulfate value, as determined by IC, was 785 μg/mL; the RPD for the two values is 64.8 percent. The poor agreement between the two sulfate values may be caused in part by the IC supernate samples being diluted to very near the method's detection limit for sulfate. Therefore, the poor agreement between the ICP and IC supernate sulfate values may be caused by inaccuracies associated with quantifying sulfate near the IC detection limit. In contrast, the ICP sulfur values tended to

fall between five and 10 times the ICP detection limit for sulfur. Therefore, the sulfate value calculated from the ICP sulfur results may be a better estimate of the sulfate concentration in the supernate than the IC sulfate value.

The mean ICP sulfur value for the sludge of 95.0 μg/g converts to 284 μg/g of sulfate. The IC sulfate mean result was 648 μg/g, which yielded an RPD of 78 percent between the two sulfate results. Again, the IC sulfate values for the diluted, water-digested samples were near the detection limit of sulfate and the ICP sulfur values tended to be between five and 10 times the ICP detection limit for sulfur. Furthermore, the water leach of the sludge may not have removed all sulfate from the sludge. Therefore, the sulfate value calculated from the ICP sulfur results may be a better estimate of the sulfate concentration in the sludge than the IC sulfate value.

5.1.3.2 Mass and Charge Balances. The principle objective in performing mass and charge balances is to determine whether the measurements are self-consistent. When calculating the balances, only the analytes detected at a concentration of 3,000 μg/g or greater were considered (see Table 4-2). Only the sludge portion of the waste was considered because it comprises 98 percent of the tank contents.

Except for sodium and potassium, all cations were assumed present in their most common hydroxide or oxide form, and the concentrations of the assumed species were calculated stoichiometrically (see Table 5-1). Because precipitates are neutral species, all positive charge was attributed to the sodium and potassium cations. The anionic analytes were assumed present as sodium/potassium salts and were expected to balance the positive charge exhibited by the cations (see Table 5-2). Phosphorus is assumed present as the soluble phosphate ion and the insoluble compound bismuth phosphate. The concentration of the insoluble phosphate was found by subtracting soluble phosphate, as determined by IC, from the total amount of phosphate calculated from total phosphorous by ICP. The concentrations of the cationic species, the anionic species, and the percent water were used to calculate the mass balance. The uncertainty estimates (RSDs) associated with each analyte are also given in the tables. Uncertainty estimates for the cation and anion totals and the overall uncertainty (see 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.

$$\begin{aligned}\text{Mass balance} &= \%\ \text{Water} + 0.0001 \times \{\text{Total Analyte Concentration}\} \\ &= \%\ \text{Water} + 0.0001 \times \{BiPO_4 + Bi_2O_3 + Cr(OH)_3 + FeO(OH) + La(OH)_3 \\ &\quad + MnO(OH) + Na^+ + K^+ + F^- + NO_3^- + PO_4^{-3}\}\end{aligned}$$

The total analyte concentrations calculated from the above equation is 203,000 μg/g. The sludge mean weight percent water obtained from TGA (see Table 4-2) is 77.1 percent or 771,000 μg/g. The mass balance resulting from adding the percent water to the total analyte concentration is 97.4 percent (see Table 5-3).

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	7,680	$BiPO_4$	11,200	5.8	0
Bismuth	40,700	Bi_2O_3	45,400	5.8	0
Chromium	3,240	$Cr(OH)_3$	6,420	5.7	0
Iron	3,810	FeO(OH)	6,060	12.1	0
Lanthanum	10,400	$La(OH)_3$	14,200	2.6	0
Manganese	14,800	MnO(OH)	23,700	2.7	0
Potassium	5,780	K^+	5,780	1.8	148
Sodium	26,200	Na^+	26,200	2.3	1,140
Total			139,000	2.1	1,290

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	7,080	F^-	7,080	9.5	373
Nitrate	52,900	NO_3^-	52,900	7.4	853
Phosphate	3,620	PO_4^{3-}	3,620	8.8	114
Total			63,600	6.3	1,340

Table 5-3. Mass Balance Totals.

Totals	Concentrations µg/g	RSD (Mean) %
Total from Table 5-1	139,000	2.1
Total from Table 5-2	63,600	6.3
Water %	771,000	0.9
Grand Total	974,000	0.9

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

Total cations (μeq/g) = $[Na^+]/23.0 + [K^+]/39.1 = 1{,}290$ μeq/g

Total anions (μeq/g) = $[F^-]/19.0 + [NO_3^-]/62.0 + [PO_4^{3-}]/31.7 = 1{,}340$ μeq/g

The charge balance obtained by dividing the sum of the positive charge by the sum of the negative charge was 0.96.

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

5.2 COMPARISON OF HISTORICAL WITH ANALYTICAL RESULTS

Based on the tank waste transfer history, tank contents have not changed since 1974. Therefore, it is possible to compare historical sludge sampling from 1978 and the sludge results from the 1995 core sampling event. The 1995 sampling was well documented and should be representative of the tank contents. No specific information was available about sample location, depth, or number of samples in the 1978 data so it is not known how representative these samples were. These data are not validated and are for comparison only. No decisions regarding the waste in tank 241-B-204 should be based on the 1978 data.

Table 5-4 compares the two data sets. The 1978 results were derived by summing the water soluble and acid (fusion) results for each analyte (see Appendix D). Only one plutonium value was available from the 1978 results. It is unknown whether this represents a sum of all plutonium isotopes or just one of them. When comparing to the 1995 total alpha activity result, it was assumed that plutonium was the only alpha emitter present, and that all plutonium was present as ^{239}Pu. The conversion factor of 0.0615 Ci/g was used to convert the 1978 plutonium result of 9.74E-06 g/g to 0.599 μCi/g total alpha.

As seen from the large RPDs, most analytes do not compare well. The percent water and density results compare very well indicating the liquid content of the tank has remained unchanged. Although the waste-water content might have been expected to decrease between the two sampling events because of 17 years evaporation, very little evaporation may have occurred because the thermal driver for evaporation is very small, and the tank is passively ventilated. The large differences between the results of the two sampling events may be caused by different sampling depths and locations and the possibility that 1978 results do not represent the tank waste and may not be valid.

Table 5-4. Comparisons of Sludge Data from the 1978 and 1995 Sampling Events for Tank 241-B-204.

Analyte	1978 Analytical Result[1,3]	1995 Mean Sludge Concentration[2]	Relative Percent Difference
METALS	**µg/g**	**µg/g**	**%**
Aluminum	88	65.3	29.6
Bismuth	62,000	48,400	24.6
Chromium	400	3,240	156
Iron	29,000	3,810	154
Lanthanum	20,100	10,400	63.6
Manganese	1	14,800	200
Nickel	300	234	24.7
Potassium	4,000	5,780	36.4
Silicon	1,420	1,070	28.1
Sodium	14,000	26,200	60.7
ANIONS	**µg/g**	**µg/g**	**%**
Chloride	700	693	1.0
Fluoride	2,000	7,080	112
Nitrate	28,700	52,900	59.3
Nitrite	3,000	694	125
Phosphate	13,000	3,620	113
RADIONUCLIDES	**µCi/g**	**µCi/g**	**%**
Total alpha	0.599[4]	0.264	77.6
PHYSICAL PROPERTIES			**%**
Bulk density	1.14 g/mL	1.19 g/mL	4.3
Percent water	76.0 %	77.1 %	1.4

Notes:

[1]Brevick et al. (1994a)

[2]These data are not validated and are for comparison only.

[3]Sasaki (1996b)

[4]Calculated from total plutonium.

Table 5-5 compares the calculated mean concentrations for tank 241-B-204 sludge samples with those of tanks 241-B-201, 241-B-202, and 241-B-203. The HTCE estimates (Agnew 1996) identical sludge compositions for these four tanks.

Tank 241-B-201 was the first of the four tanks to receive waste. It received 224 waste in the first quarter of 1952; no other waste transfers were made into the tank. Tank 241-B-204 received 224 waste from the second quarter of 1952 to the third quarter of 1952 and B Plant flush water from the fourth quarter of 1952 to the first quarter of 1953. These wastes cascaded from tank 241-B-204 to tank 241-B-203, then to tank 241-B-202, then to a crib.

Because tanks 241-B-204 and 241-B-203 are adjacent tanks in a cascade, they are expected to be similar in composition. Table 5-5 shows the waste compositions of the tanks are similar. Almost all analytes are within ± 30 percent of each other. The limited number of analytes for tank 241-B-202 also compare well with tank 241-B-204. There is less similarity between tanks 241-B-201 and 241-B-204. Because tank 241-B-201 was the first to receive 224 waste, the composition of the 224 waste stream at startup might vary from later waste. Also, higher concentrations of aluminum, cesium, and strontium suggest that some first cycle decontamination waste and cladding waste may have been mixed in with the 224 waste that went to tank 241-B-201.

5.3 TANK WASTE PROFILE

The visual description of the sludge samples from both risers was soft, damp, and black thereby indicating possible homogeneity within the sludge layer. The color of the drainable liquid samples varied. Information on the vertical disposition of the tank contents was available from the TLM (see Figure 2-3), indicating that the waste consists of several inches of supernatant covering approximately 250 inches of sludge (composed of a single waste type). Thus, the waste sample description and the TLM indicate that a thin supernate layer overlies the sludge layer and that the sludge layer may be vertically homogeneous.

Because vertical profiles of the tank waste were taken from two widely-spaced risers, an analysis of variance (ANOVA) was conducted on the 1995 samples to determine whether there were horizontal and/or vertical variations in the analyte concentrations. These calculations were performed only for analytes that had half or more of their individual measurements 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 and that the difference is not due to chance. 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.

Table 5-5. Comparison of B-200 Series Tank Compositions. (2 sheets)

Analyte	Tank 241-B-201[1]	Tank 201-B-202[2]	Tank 241-B-203[3]	Tank 241-B-204
Chloride	1,650	nr	861	693
Cyanide	3.49	nr	<5.91	na
Fluoride	5,830	nr	7,790	7,080
Nitrate	49,300	nr	63,900	52,900
Nitrite	881	nr	730	694
Oxalate	na	nr	2,020	1,710
Phosphate	1,210	nr	3,850	3,620
Sulfate	348	nr	702	648
Aluminum	3,440	nr	52.1	65.3
Antimony	<37.1	nr	<18.9	<26.9
Arsenic	59.5	nr	<53	<44.8
Barium	86.4	nr	122	<199
Beryllium	<3.71	nr	<1.56	<2.24
Bismuth	94,500	nr	41,700	48,400
Boron	70.5	nr	132	103
Cadmium	4.81	nr	<1.57	<2.26
Calcium	12,200	nr	222	305
Cerium	69.6	nr	50.2	55.4
Chromium	3,340	nr	3,080	3,240
Cobalt	9.6	nr	<6.29	<8.97
Copper	48.2	nr	6.99	22.1
Iron	13,400	nr	4,410	3,810
Lanthanum	15,100	nr	10,400	10,400
Lead	1,360	nr	<473	<1,070
Magnesium	1,510	nr	52.6	82.8
Manganese	19,200	nr	14,200	14,800
Molybdenum	19.1	nr	<15.7	<22.4
Neodymium	<22.3	nr	<31.5	<44.8
Nickel	479	nr	183	234
Phosphorus	5,450	nr	2,180	2,320

Table 5-5. Comparison of B-200 Series Tank Compositions. (2 sheets)

Analyte	Tank 241-B-201[1]	Tank 201-B-202[2]	Tank 241-B-203[3]	Tank 241-B-204
Potassium	5,810	nr	5,120	5,780
Samarium	na	nr	<31.4	<44.8
Selenium	66.8	nr	<31.6	<44.9
Silicon	20,200	nr	925	1,070
Silver	12.3	nr	4.25	<5.56
Sodium	38,200	nr	29,000	26,200
Strontium	923	nr	493	391
Sulfur	na	nr	87.6	95
Thallium	<371	nr	<62.9	<89.6
Titanium	285	nr	<3.74	<6.98
Uranium	156	nr	<192	<240
Vanadium	15.9	nr	<15.7	<22.4
Zinc	217	nr	60.4	53.7
Zirconium	10.7	nr	<3.15	<4.52
TIC	2,090	nr	645	na
TOC	518	nr	77.5	na
wt% water	60.7	61	75.8	77.1
^{241}Am	0.031	nr	na	<0.0833
^{137}Cs	0.8	nr	na	<0.0314
^{60}Co	0.00196	nr	na	<0.0131
^{154}Eu	0.00438	nr	na	<0.0357
^{155}Eu	0.00328	nr	na	<0.0380
Total alpha	1.31	0.406	0.214	0.264
^{90}Sr	2.09	nr	na	0.005
Density	1.5	approx 1.2	1.19	1.19

Notes:

na = not analyzed
nr = not reported

[1]Heasler et al. (1994)
[2]Dougherty and Tran (1995)
[3]Jo et al. (1996)

For drainable liquid samples, the results of the ANOVA indicated that none of the 17 analytes tested showed concentration differences between the two cores. The sludge results indicated that only three of 29 analytes tested had concentration differences between the two cores: bismuth, silicon, and density (with p-values of 0.0026, 0.0034, and 0.0006, respectively). The test for vertical differences between the main segments was conducted only on the sludge samples because of the very limited vertical data from the drainable liquid results. Fourteen of the 29 analytes tested on the segment level, all metals, showed significant vertical concentration differences (p-values are given in parentheses): aluminum (< 0.001), calcium (< 0.001), cerium (0.033), chromium (< 0.001), lanthanum (0.006), manganese (< 0.001), nickel (< 0.001), phosphorus (< 0.001), potassium (< 0.001), silicon (< 0.001), sodium (0.003), strontium (< 0.001), sulfur (0.002), and zinc (< 0.001). For these analytes showing vertical differences, no obvious general trend of increasing or decreasing analyte concentration as a function of depth was apparent. Of these 14 analytes, only seven have mean concentrations above 0.1 weight percent and only lanthanum, manganese, and sodium have mean concentrations above 1 weight percent. Subsegment concentrations ranged from 0.67 to 1.44 weight percent for lanthanum, 0.88 to 1.92 weight percent for manganese, and 2.24 to 2.90 weight percent for sodium.

In summary, horizontal concentration differences in the tank waste do not appear to exist. Vertically, the results of the statistical tests for the sludge layer indicate about half the analytes showed some differences among the segments, but no obvious trends appeared in analyte concentration as a function of the sample point in the tank.

5.4 COMPARISON OF TRANSFER HISTORY WITH ANALYTICAL RESULTS

Table 5-6 shows the HTCE predictions for the contents of tank 241-B-204 and Table 4-2 shows the mean sludge concentrations from the 1995 core sampling event. This comparison is for information purposes only, because the HTCE values have not been validated and should not be used for decisions affecting the waste in tank 241-B-204.

The HTCE and analytical values generally did not agree well. Eighteen analytes were compared. Only five analytes (potassium, chloride, nitrate, density, and percent water) exhibited RPDs less than 50 percent; of these, only one (chloride) exhibited an RPD less than 10 percent. Six analytes (calcium, chromium, manganese, nitrite, oxalate, and total alpha) exhibited RPDs greater than 150 percent. The RPDs for the remaining analytes were between these two extremes.

Table 5-6 shows the anion mean sludge concentrations as determined using a water-leach sample preparation and IC; therefore, the results for the anions forming insoluble compounds, fluoride and phosphate, will be biased low. If the phosphate and sulfate values, as calculated from ICP results, are compared with the HTCE predictions, the agreement for those two species is somewhat better. The phosphate and sulfate values, as determined by ICP, are in parentheses.

Table 5-6. Comparison of HTCE Predictions with the 1995 Analytical Results for Tank 241-B-204. (2 sheets)

Analyte	HTCE Estimate[1,2]	1995 Mean Sludge Concentration[3]	Relative Percent Difference
METALS	**µg/g**	**µg/g**	**%**
Bismuth	9,170	48,400	136
Calcium	7,100	305	184
Chromium	130	3,240	185
Iron	14,600	3,810	117
Lanthanum	23,900	10,400	78.7
Manganese	154	14,800	196
Nickel	57.3	234	121
Potassium	6,460	5,780	11.1
Sodium	75,500	26,200	97.0
ANIONS	**µg/g**	**µg/g**	**%**
Chloride	642	693	7.6
Fluoride	28,100	7,080	120
Nitrate	59,800	52,900	12.2
Nitrite	0	694	200
Oxalate	41,100	1,710	184
Phosphate[4]	6,660	3,620 (7110)	59.1 (6.5)
Sulfate[4]	93.7	648 (284)	150 (101)
RADIONUCLIDES	**µCi/g**	**µCi/g**	**%**
Total alpha	0.0100[5]	0.264	185
PHYSICAL PROPERTIES			**%**
Bulk Density	1.38 g/mL	1.19 g/mL	14.8
Percent Water	55.5	77.1	32.6

Notes:

[1]Agnew (1996)

[2]These data are not validated and are for comparison only.

[3]Sasaki (1996b)

[4]Results in parentheses are calculated from ICP results.

[5]Calculated from total plutonium.

The original process flowsheets from the lanthanum fluoride process were reviewed (Schneider 1951), and the source terms for the HDW definition of 224 (lanthanum fluoride) waste were examined. Results of this investigation provided plausible explanations for the large discrepancies observed for some analytes between the two data sets.

The HTCE underestimates the concentrations of bismuth, chromium, and manganese. Sodium bismuthate ($NaBiO_3$) was used as the primary oxidant during efforts to oxidize plutonium for separation from fission products. Sodium dichromate ($Na_2Cr_2O_7$) was used as a holding oxidant to stabilize oxidized plutonium. It is possible that the HDW did not take into account the metals used in these oxidizing compounds. According to Schneider (1951), potassium permanganate ($KMnO_4$) was determined to be an acceptable substitute for sodium dischromate in laboratory tests. However, the use of potassium permanganate is not specifically documented in the process flowsheets. The elevated levels of manganese in the waste samples strongly suggest that potassium permangante was used.

The HTCE overestimated the concentration of iron. It appears the HDW source term is biased high. From the process flowsheets, iron was not expected to be present in the quantities predicted by the HTCE. The discrepancy is probably caused by overestimating iron from corrosion.

It appeared that the HTCE also overestimated the concentration of sodium. Sodium and nitrate are the soluble chemical species present in the greatest quantities, and their charges can be expected to balance each other more or less. This prediction was born out in the analytical results evidenced by the change balance (see Section 5.1.3.2). Of the 1,290 μeq/g of positive charge, 1,140μeq/g are attributed to sodium. Nitrate contributed 853 μeq/g to the anion total of 1,340 μeq/g. A comparison of the sodium and nitrate values gives a ratio of 1.34. 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 3.4. Consequently, it appears that a high bias in the HTCE sodium prediction does exist.

The reason for the poor agreement in fluoride concentrations is a deficiency in the analytical results. Because fluoride is measured by IC after a water digestion, only the soluble fluoride is measured. This does not compare with the HTCE fluoride value, which includes both soluble and insoluble fluoride.

The reason for the large HTCE prediction of 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 low radionuclide content of the waste is unlikely to produce large amounts of oxalate as an organic degradation product.

Finally, the HTCE prediction for weight percent water is too low. It is known from other samples of 224 waste (tanks 241-B-201, 241-B-202, 241-B-203, and 241-T-111) that the percent water in this waste type is 60 to 85 weight percent.

In summary, the problems that occur when estimating the composition of the 224 waste are probably caused by documentation which does not describe the waste as it currently exists. A more accurate estimate of the 224 waste probably could be derived by examining the analytical results from all tanks containing 224 waste.

5.5 EVALUATION OF PROGRAM REQUIREMENTS

The two tank 241-B-204 core samples analyzed at the 222-S Laboratory were taken to meet the requirements of the safety screening DQO (Dukelow et al. 1995). This section discusses the requirements of the DQO and compares the analytical data to defined concentration limits.

5.5.1 Safety Evaluation

Data criteria, identified in the safety screening DQO, are used to assess the waste safety and to check for unidentified safety issues. The DQO requires a vertical profile of the tank waste from two widely-spaced risers. This requirement was met. Of the five primary analyses required by the DQO, three have decision criteria thresholds which, if exceeded, could warrant further investigation to ensure tank safety. These three analyses include DSC to measure 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 vapors.

The safety screening DQO has established a notification limit of -480 J/g (dry weight basis) for exothermic reactions detected during the DSC analysis. No exothermic reactions were observed in any tank 241-B-204 samples.

The safety screening DQO decision threshold for criticality screening is 1 g/L plutonium, or 41 μCi/g as specified in the SAP. All results were well below the limit, with 0.496 μCi/g being the largest single result. The highest 95 percent upper confidence level limit for these results was 1.00 μCi/g, far below the DQO limit.

The DQO notification limit for flammable gas concentration in the tank headspace is 25 percent of the lower flammability limit. Combustible gas meter readings taken at the time of sampling revealed the concentration of flammable gases to be 0 percent of the lower flammability limit.

In summary, the October 1995 core sampling event met all the requirements of the safety screening DQO. Table 5-7 lists the safety issues, the properties of concern and their notification limits, and the corresponding analytical results.

Table 5-7. Safety Screening Data Quality Objective Decision Variables and Criteria.

Issue	Primary Decision Variable	Decision Criteria Threshold	Mean Analytical Result
Ferrocyanide/Organics	Total fuel content	-480 J/g	No exothermic reactions
Criticality	Total alpha activity	41 μCi/g	0.264 μCi/g
Flammable gas	Flammable gas	25 percent of the lower flammability limit	0 percent of the lower flammability limit

Another factor in assessing tank waste safety is the heat generation and the temperature of the waste. Heat is generated in the tanks from radioactive decay. Radionuclides were only analyzed on one subsegment from one core. If the sludge is assumed to be homogeneous, a tank heat load of < 0.8 W (< 3 Btu/hr) is estimated from the analytical data. The HTCE prediction was zero (Brevick et al. 1994a), and the heat load, based on headspace temperature, was 47.2 W (161 Btu/hr) (Kummerer 1994). These estimates are well below the 11,700 W (40,000 Btu/hr) threshold differentiating high-heat from low-heat tanks (Bergmann 1991). Because an upper temperature limit has been exhibited (see Section 2.4.3), it may be concluded that any heat generated from radioactive sources throughout the year is dissipated.

Another safety related issue relates to the drying of wastes after they have been saltwell pumped. Tank 241-B-204 was not saltwell pumped, but it was interim stabilized in June 1984. The tank is not actively ventilated; therefore, the water loss from the waste is expected to be low. The sludge in tank 241-B-204 has a uniformly high water content (75 to 80 weight percent) which is similar to that measured in a sludge sample taken in 1978 prior to stabilization. There is a small amount of supernate (1 kgal) in the tank. Liquid level readings indicate a decrease in the liquid level of approximately 1.3 cm (0.5 in.) or approximately 370 L (100 gal) since the tank was stabilized.

6.0 CONCLUSIONS AND RECOMMENDATIONS

The waste in tank 241-B-204 has been sampled and analyzed 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 October 1995. To assess tank safety, the safety screening DQO required analyses for energetics, weight percent water, density, total alpha activity, and the 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, indicators of contamination by the hydrostatic head fluid. The laboratory was also required to report all results generated by ICP and IC not just lithium and bromide (Sasaki 1996b). Finally, one subsegment was subjected to GEA and ^{90}Sr analysis to obtain information for the disposal of laboratory waste. All samples were analyzed at the Westinghouse Hanford Company 222-S Laboratory.

All analyses met the requirements of the safety screening DQO. No exothermic reactions were observed in the DSC analysis. Weight percent water was measured by TGA for the correction of the DSC results to a dry-weight basis; the overall mean (corrected for HHF contamination) was 77.1 wt% for the sludge and 89.1 wt% for the supernate. (Dry-weight corrections of the DSC results were not performed because no exotherms were observed.) The total alpha activity overall mean was 0.264 μCi/g, well below the DQO notification limit of 41 μCi/g. Finally, the concentration of flammable gas in the tank headspace was zero percent of the lower flammability limit. No quality assurance issues were identified that affected the interpretation of the analytical results. Based upon the decision criteria of the safety screening DQO, this tank may be categorized as "safe."

The heat load estimate based on analytical results was < 0.8 W (< 3 Btu/hr), the HTCE prediction was zero, and the heat load based on headspace temperature was 47.2 W (161 Btu/hr). Because the tank temperature is not continuously increasing, it may be concluded that any heat generated from radioactive sources throughout the year is dissipated.

Hydrostatic head fluid marked with a lithium bromide tracer was used during core sampling operations, and some contamination was detected in all samples; the maximum calculated HHF contamination was two weight-percent water. Corrections for the HHF contamination were applied to the weight-percent water measurements.

The results from the 1995 core samples show that the major cation constituents of the sludge are bismuth, chromium, iron, lanthanum, manganese, potassium, and sodium. Major anion constituents are fluoride, nitrate, and phosphate. Charge and mass balance calculations based on the 1995 sludge sample results indicate that the results appear to be reasonably self-consistent. The charge balance yielded a value of 0.96 (ideal = 1), and the mass balance was 97.4 percent (ideal = 100 percent). Analysis of variance of the analytical data revealed only minor horizontal heterogeneity and statistically significant vertical heterogeneity in the sludge layer.

Comparing the analytical results of the sludge from the 1995 core samples to 1978 historical results yielded mixed results. The sludge density and percent water values compare closely for the two data sets. However, many of the values for the chemical constituents, especially the major components, compare poorly. Because the details of the 1978 sampling event (such as riser number, sample depth, etc.) are unknown, and the 1995 results are an overall estimate for the entire tank, the two sets of samples may not be entirely comparable.

Between the HTCE estimate and the 1995 samples, only five analytes (potassium, chloride, nitrate, density, and percent water) compare favorably, and other major analytes (bismuth, sodium, fluoride, and phosphate) compare poorly. The poor fluoride and phosphate correlations may be due in part to the limitations of the water-leach sample preparation method used prior to the IC analysis of the 1995 samples. The water-leach sample preparation allows only a fraction of the insoluble fluoride and phosphate solids to be determined. The poor correlation of the other analytes between the HTCE and the 1995 core samples may indicate poor source term estimates for, or poor modeling of, those analytes in the HTCE.

7.0 REFERENCES

Agnew, S. F., 1995, *Hanford Defined Wastes: Chemical and Radionuclide Compositions*, LA-UR-94-2657, Rev. 2, Los Alamos National Laboratory, Los Alamos, New Mexico.

Agnew, S. F., 1996, *Hanford Tank Chemical and Radionuclide Inventories: HDW Model Rev. 3*, LA-UR-96-858, Los Alamos National Laboratory, Los Alamos, New Mexico.

Agnew, S. F., P. Baca, R. Corbin, K. Jurgensen, and B. Young, 1995, *Tank Layer Model (TLM) for the Northeast, Southwest, and Northwest Quadrants*, LA-UR-94-4269, Rev. 1, Los Alamos National Laboratory, Los Alamos, New Mexico.

Agnew, S. F., P. Baca, R. Corbin, T. Duran, and K. Jurgensen, 1996, *Waste Status and Transaction Record Summary for the Northeast Quadrant*, WHC-SD-WM-TI-615, Rev. 1, Westinghouse Hanford Company, Richland, Washington.

Alstad, A. T., 1993, *Riser Configuration Document for Single-Shell Waste Tanks*, WHC-SD-RE-TI-053, Rev. 9, Westinghouse Hanford Company, Richland, Washington.

Bergmann, L. M., 1991, *Single-Shell Tank Isolation Safety Analysis Report*, WHC-SD-WM-SAR-006, Rev. 2, Westinghouse Hanford Company, Richland, Washington.

Brevick, C. H., L. A. Gaddis, W. W. Pickett, 1994a, *Historical Tank Content Estimate for the Northeast Quadrant of the Hanford 200 East Area*, WHC-SD-WM-ER-349, Rev. 0A, Westinghouse Hanford Company, Richland, Washington.

Brevick, C. H., L. A. Gaddis, E. Johnson, 1994b, *Supporting Document for the Historical Tank Content Estimate for B Tank Farm*, WHC-SD-WM-ER-310, Rev. 0, Westinghouse Hanford Company, Richland, Washington.

DeLorenzo, D. S., A. T. DiCenso, D. B. Hiller, K. W. Johnson, J. H. Rutherford, D.J. Smith, and B. C. Simpson, 1994, *Tank Characterization Reference Guide*, WHC-SD-WM-TI-648, Rev. 0, Westinghouse Hanford Company, Richland, Washington.

DOE, 1995, *Hanford Analytical Services Quality Assurance Plan*, DOE/RL-94-55, Rev. 2, U.S. Department of Energy, Richland, Washington.

Dougherty, L. F. and T. T. Tran, 1995, *Tank Characterization Report for Single-Shell Tank 241-B-202*, WHC-SD-WM-ER-371, Rev. 0, Westinghouse Hanford Company, Richland, Washington.

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

Ecology, EPA, and DOE, 1996, *Hanford Federal Facility Agreement and Consent Order*, as amended, Washington State Department of Ecology, U.S. Environmental Protection Agency, and U.S. Department of Energy, Olympia, Washington.

Hanlon, B. M., 1996, *Waste Tank Summary Report for Month Ending January 31, 1996*, WHC-EP-0182-94, Westinghouse Hanford Company, Richland, Washington.

Heasler, P. G., K. M. Remund, J. M. Tingey, D. B. Baird, and F. M. Ryan, 1994, *Tank Characterization Report for Single-Shell Tank B-201*, PNL-10100, Rev. 0, Pacific Northwest Laboratory, Richland, Washington.

Horton, J. E., 1978, "Characterization of 200 Series Tanks", Letter 60120-78-131 (to J. E. Mirabella, December 4), Atlantic Richfield Hanford Company, Richland, Washington.

Jo, J., L. C. Amato, and T. T. Tran, 1996, *Tank Characterization Report for Single-Shell Tank 241-B-203*, WHC-SD-WM-ER-587, Rev. 0, Westinghouse Hanford Company, Richland, Washington.

Kummerer, M., 1994, *Topical Report on Heat Removal Characteristics of Waste Storage Tanks*, WHC-SD-WM-SARR-010, Rev. 0, Westinghouse Hanford Company, Richland, Washington.

Leach, C. E. and S. M. Stahl, 1993, *Hanford Site Tank Farm Facilities Interim Safety Basis*, WHC-SD-WM-ISB-001, Rev. 0, Westinghouse Hanford Company, Richland, Washington.

Lipnicki, J., 1995, *Waste Tank Risers Available for Sampling*, WHC-SD-WM-TI-710, Rev. 2, Westinghouse Hanford Company, Richland, Washington.

Nuclear Regulatory Commission, 1988, *Statistical Methods for Nuclear Materials Management*, NUREG-CR-4604, PNL-5849, (C. A. Bennett and W. M. Bowen eds.), U.S. Government Printing Office, Washington, D.C.

Sasaki, L. M., 1995, *Tank 241-B-204 Push Mode Core Sampling and Analysis Plan*, WHC-SD-WM-TSAP-005, Rev. 1, Westinghouse Hanford Company, Richland, Washington.

Sasaki, L. M., 1996a, *45-Day Safety Screening Results for Tank 241-B-204, Push Mode Cores 112 and 114*, WHC-SD-WM-DP-160, Rev. 0, Westinghouse Hanford Company, Richland, Washington.

Sasaki, L. M., 1996b, *Final Report for Tank 241-B-204, Push Mode Cores 112 and 114*, WHC-SD-WM-DP-160, Rev. 1, Westinghouse Hanford Company, Richland, Washington.

Schneider, K. J., 1951, *Flow Sheets and Flow Diagrams of Precipitation Separations Process*, HW-23043, General Electric Company, Richland, Washington.

Vitro Engineering Corporation, 1986, "Piping Waste Tank Isolation 241-B-204", Drawing No. H-2-73291, Rev. 2, ICF Kaiser Hanford, Richland, Washington.

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APPENDIX A

SAMPLE INFORMATION FOR 1995 CORE SAMPLING

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APPENDIX A

SAMPLE INFORMATION FOR 1995 CORE SAMPLING

A.1 INTRODUCTION

Appendix A contains the sample information for tank 241-B-204 push-mode cores 112 and 114 collected in October 1995. Table A-1 shows the location of specific sample information in Tables A-2 through A-5. All data, except the core segment depths, are from Sasaki (1996b); core segment depths were obtained in a telephone conference from the core sampling cognizant engineer.

Table A-1. Sample Information Tables

Sample Information	Table
Core and segment number Customer sample number Sample depth Drill string dose rate	Table A-2
Core and segment number Subsegment breakdown Subsegment recovery (grams)	Table A-3
Core and segment number Laboratory sample number Analyses performed	Table A-4
Type of analysis Analytical instrument Sample preparation procedure number Analytical procedure number	Table A-5

Table A-2. Push-Mode Cores 112 and 114 Sample Information. (2 sheets)

Segment	Sample Number[1]	Sample Length[2] (cm [in.])		Sample Elevation[2] (m [in.])		Drill String Dose Rate (mR/hr)
Core 112 - Riser 2						
1	95-225	17.8	(7.0)	6.39	(251.8)	< 2
2	95-226	48.3	(19.0)	6.22	(244.8)	< 2
3	95-227	48.3	(19.0)	5.73	(225.8)	< 0.5
4	95-228	48.3	(19.0)	5.25	(206.8)	< 0.5
5	95-229	48.3	(19.0)	4.77	(187.8)	< 0.5
6	95-230	48.3	(19.0)	4.29	(168.8)	< 0.5
7	95-231	48.3	(19.0)	3.80	(149.8)	< 0.5
8	95-232	48.3	(19.0)	3.32	(130.8)	< 0.5
9	95-233	48.3	(19.0)	2.84	(111.8)	< 0.5
10	95-234	48.3	(19.0)	2.36	(92.8)	< 2
11	95-235	48.3	(19.0)	1.87	(73.8)	< 2
12	95-236	48.3	(19.0)	1.39	(54.8)	n/a
13	95-237	48.3	(19.0)	0.91	(35.8)	< 0.5
14	95-238	27.3	(10.8)	0.43	(16.8)	< 0.5

Table A-2. Push-Mode Cores 112 and 114 Sample Information. (2 sheets)

Segment	Sample Number[1]	Sample Length[2] (cm [in.])		Sample Elevation[3] (m [in.])		Drill String Dose Rate (mR/hr)
Core 114 - Riser 7						
1	95-246	17.8	(7.0)	6.40	(252.0)	< 0.5
2	95-247	48.3	(19.0)	6.22	(245.0)	< 0.5
3	95-248	48.3	(19.0)	5.74	(226.0)	< 0.5
4	95-249	48.3	(19.0)	5.26	(207.0)	< 0.5
5	95-250	48.3	(19.0)	4.78	(188.0)	< 0.5
6	95-251	48.3	(19.0)	4.29	(169.0)	< 0.5
7	95-252	48.3	(19.0)	3.81	(150.0)	< 0.5
8	95-253	48.3	(19.0)	3.33	(131.0)	< 0.5
9	95-254	48.3	(19.0)	2.84	(112.0)	< 0.5
10	95-255	48.3	(19.0)	2.36	(93.0)	< 0.5
11	95-256	48.3	(19.0)	1.88	(74.0)	< 0.5
12	95-257	48.3	(19.0)	1.40	(55.0)	< 0.5
13	95-258	48.3	(19.0)	0.91	(36.0)	< 0.5
14	95-259	27.9	(11.0)	0.43	(17.0)	< 0.5
Field blank		n/a		n/a		n/a
Hydrostatic head fluid blank		n/a		n/a		n/a

Notes:

n/a = not available or not applicable

[1]Customer sample number

[2]"Sample length" is the distance the drill string was advanced for that core segment and is *not* necessarily the same as the length of the recovered core.

[3]Sample elevation is measured from the bottom centerline of the tank to the top of the segment; these values are approximate, and the uncertainty on these values is unknown.

Table A-3. Subsampling Scheme, Recovery, and Sample Description. (3 sheets)

Segment	Subsegment	Recovery	Description
Core 112 - Riser 2			
1	DL	150.1 g	DL was clear and yellow. No solids present. Estimated sample volume was 150 mL.
	LL	< 5 mL	
2	Whole	40.2 g	DL was opaque and dark gray/black. Three to four in. of solids extruded. Solids were wet and black and did not retain their shape. No facies present.
	DL	125.6 g	
	LL	122.5 g	
3	Upper ½	167.2 g	19 in. of solids were extruded. Solids were a black, damp, and soft sludge that retained its shape. The top in. of upper ½ contained a slurry. No facies or DL.
	Lower ½	179.9 g	
	LL	< 5 mL	
4	Upper ½	183.3 g	19 in. of solids were extruded. Solids were a black, damp, and soft sludge that retained its shape. No facies or DL.
	Lower ½	186.1 g	
	LL	< 5 mL	
5	Upper ½	176.5 g	19 in. of solids were extruded. Solids were a black, damp, and soft sludge that retained its shape. No facies, DL, or LL.
	Lower ½	185.4 g	
6	Upper ½	188.3 g	19 in. of solids were extruded. Solids were a black, damp, and soft sludge that retained its shape. No facies, DL, or LL.
	Lower ½	175.0 g	
7	Upper ½	179.6 g	19 in. of solids were extruded. Solids were a black, damp, and soft sludge that retained its shape. No facies, DL, or LL.
	Lower ½	177.4 g	
8	Upper ½	182.8 g	19 in. of solids were extruded. Solids were a black, damp, and soft sludge that retained its shape. No facies or DL.
	Lower ½	184.0 g	
	LL	7.4 g	
9	Upper ½	190.2 g	19 in. of solids were extruded. Solids were a black, damp, and soft sludge that retained its shape. No facies or DL.
	Lower ½	176.9 g	
	LL	< 5 mL	
10	Upper ½	206.4 g	19 in. of solids were extruded. Solids were a black, damp, and soft sludge that retained its shape. No facies or DL.
	Lower ½	161.8 g	
	LL	< 5 mL	
11	Upper ½	194.5 g	19 in. of solids were extruded. Solids were a black, damp, and soft sludge that retained its shape. No facies or DL.
	Lower ½	183.6 g	
	LL	< 5 mL	

Table A-3. Subsampling Scheme, Recovery, and Sample Description. (3 sheets)

Segment	Subsegment	Recovery	Description
Core 112 - Riser 2 (continued)			
12	Upper ½	192.0 g	19 in. of solids were extruded. Solids were a black, damp, and soft sludge that retained its shape. No facies or DL.
	Lower ½	180.7 g	
	LL	< 5 mL	
13	Upper ½	184.0 g	19 in. of solids were extruded. Solids were a black, damp, and soft sludge that retained its shape. No facies or DL.
	Lower ½	191.7 g	
	LL	< 5 mL	
14	Upper ½	197.4 g	19 in. of solids were extruded. Solids were a black, damp, and soft sludge that retained its shape. No facies or DL.
	Lower ½	169.1 g	
	LL	< 5 mL	
Core 114 - Riser 7			
1	DL	125.5 g	DL was opaque and brownish gray. No solids were present. Estimated sample volume was 130 mL.
	LL	< 20 mL	
2	Upper ½	143.8 g	19 in. of solids were extruded. Solids were a black, damp, and soft sludge. Bottom 15 in. retained its shape but slumped slightly. Top 4 in. did not keep its shape. No facies or DL.
	Lower ½	178.7 g	
	LL	< 5 mL	
3	Upper ½	163.3 g	19 in. of solids were extruded. Solids were a black, damp, and soft sludge that retained its shape. No facies or DL.
	Lower ½	162.0 g	
	LL	< 10 mL	
4	Upper ½	171.9 g	19 in. of solids were extruded. Solids were a black, damp, and soft sludge that retained its shape. No facies or DL.
	Lower ½	172.8 g	
5	Upper ½	178.5 g	19 in. of solids were extruded. Solids were a black, damp, and soft sludge that retained its shape. No facies or DL.
	Lower ½	165.3 g	
	LL	< 10 mL	
6	Upper ½	163.5 g	19 in. of solids were extruded. Solids were a black, damp, and soft sludge that retained its shape for most segments. Top 2-3 in. were softer and did not retain their shape. No facies or DL.
	Lower ½	176.0 g	
	LL	< 10 mL	
7	Upper ½	189.3 g	19 in. of solids were extruded. Solids were a black, damp, and soft sludge that retained its shape. No facies or DL.
	Lower ½	167.0 g	
	LL	< 20 mL	

Table A-3. Subsampling Scheme, Recovery, and Sample Description. (3 sheets)

Segment	Subsegment	Recovery	Description
Core 114 - Riser 7 (continued)			
8	Upper ½	175.5 g	19 in. of solids were extruded. Solids were a black, damp, and soft sludge that retained its shape. No facies or DL.
	Lower ½	183.5 g	
	LL	< 20 mL	
9	Upper ½	172.0 g	19 in. of solids were extruded. Solids were a black, damp, and soft sludge that retained its shape. No facies or DL.
	Lower ½	191.1 g	
	LL	< 20 mL	
10	Upper ½	179.1 g	19 in. of solids were extruded. Solids were a black, damp, and soft sludge that retained its shape. No facies or DL.
	Lower ½	186.5 g	
	LL	< 20 mL	
11	Upper ½	188.9 g	19 in. of solids were extruded. Solids were a black, damp, and soft sludge that retained its shape. No facies or DL.
	Lower ½	176.0 g	
	LL	< 20 mL	
12	Upper ½	165.6 g	19 in. of solids were extruded. Solids were a black, damp, and soft sludge that retained its shape. No facies or DL.
	Lower ½	198.6 g	
	LL	< 20 mL	
13	Upper ½	171.3 g	19 in. of solids were extruded. Solids were a black, damp, and soft sludge that retained its shape. No facies or DL.
	Lower ½	198.2 g	
	LL	< 5 mL	
14	Upper ½	195.5 g	19 in. of solids were extruded. Solids were a black, damp, and soft sludge that retained its shape. No facies or DL.
	Lower ½	176.3 g	
	LL	< 5 mL	
Field blank		213.6 g	Clear liquid. No solids. No liner liquid.
Hydrostatic head fluid blank		n/a	n/a

Note:

DL = drainable liquid
LL = liner liquid
n/a = not applicable

Table A-4. Summary of Samples and Analyses. (8 sheets)

Segment	Segment Portion	Labcore Number[a]	Analyses
Core 112 - Riser 2			
1	DL	2976	TGA, Specific gravity, DSC, ICP, IC, Alpha
2	Whole	2977 2979 2980 2981 2987	Bulk density TGA, DSC ICP IC Alpha
	DL	2984	TGA, Specific gravity, DSC, ICP, IC, Alpha
	LL	2986	TGA, Specific gravity, DSC, ICP, IC, Alpha
3	Upper ½	2988 3037 3061 3085	Bulk density TGA, DSC ICP IC
	Lower ½	2989 3038 3062 3086 3109	Bulk density TGA, DSC ICP IC Alpha
4	Upper ½	2991 3039 3063 3087	Bulk density TGA, DSC ICP IC
	Lower ½	2992 3040 3064 3088 3110	Bulk density TGA, DSC ICP IC Alpha

Table A-4. Summary of Samples and Analyses. (8 sheets)

Segment	Segment Portion	Labcore Number[1]	Analyses
Core 112 - Riser 2 (Continued)			
5	Upper ½	2993 3041 3065 3066 3089	Bulk density TGA, DSC ICP ICP IC
	Lower ½	2994 3042 3090 3111	Bulk density TGA, DSC IC Alpha
6	Upper ½	2995 3043 3067 3091	Bulk density TGA, DSC ICP IC
	Lower ½	2996 3044 3068 3092 3112	Bulk density TGA, DSC ICP IC Alpha
7	Upper ½	2997 3045 3069 3093	Bulk density TGA, DSC ICP IC
	Lower ½	2998 3046 3070 3094 3113	Bulk density TGA, DSC ICP IC Alpha
8	Upper ½	2999 3047 3071 3095	Bulk density TGA, DSC ICP IC
	Lower ½	3000 3048 3072 3096 3114	Bulk density TGA, DSC ICP IC Alpha

Table A-4. Summary of Samples and Analyses. (8 sheets)

Segment	Segment Portion	Labcore Number[1]	Analyses
Core 112 - Riser 2 (Continued)			
9	Upper ½	3001 3049 3073 3097	Bulk density TGA, DSC ICP IC
	Lower ½	3002 3050 3074 3098 3115	Bulk density TGA, DSC ICP IC Alpha
10	Upper ½	3003 3051 3075 3099	Bulk density TGA, DSC ICP IC
	Lower ½	3004 3052 3076 3100 3116	Bulk density TGA, DSC ICP IC Alpha
11	Upper ½	3005 3053 3077 3101	Bulk density TGA, DSC ICP IC
	Lower ½	3006 3054 3078 3102 3117	Bulk density TGA, DSC ICP IC Alpha
12	Upper ½	3007 3055 3079 3103	Bulk density TGA, DSC ICP IC
	Lower ½	3008 3056 3080 3104 3118	Bulk density TGA, DSC ICP IC Alpha

Table A-4. Summary of Samples and Analyses. (8 sheets)

Segment	Segment Portion	Labcore Number[1]	Analyses
Core 112 - Riser 2 (Continued)			
13	Upper ½	3009 3057 3081 3105	Bulk density TGA, DSC ICP IC
	Lower ½	3010 3058 3082 3106 3119	Bulk density TGA, DSC ICP IC Alpha
14	Upper ½	3011 3059 3083 3107	Bulk density TGA, DSC ICP IC
	Lower ½	3012 3060 3084 3108 3120	Bulk density TGA, DSC ICP IC Alpha, Americium, Cobalt, Cesium, Europium, Strontium
Core 114 - Riser 7			
1	DL	3255	TGA, DSC, ICP, IC, Alpha
2	Upper ½	3202 3256 3282 3308	Bulk density TGA, DSC ICP IC
	Lower ½	3203 3257 3283 3309 3334	Bulk density TGA, DSC ICP IC Alpha

Table A-4. Summary of Samples and Analyses. (8 sheets)

Segment	Segment Portion	Labcore Number[1]	Analyses
Core 114 - Riser 7 (Continued)			
3	Upper ½	3204 3258 3284 3310	Bulk density TGA, DSC ICP IC
	Lower ½	3205 3259 3285 3311 3335	Bulk density TGA, DSC ICP IC Alpha
4	Upper ½	3206 3260 3286 3312	Bulk density TGA, DSC ICP IC
	Lower ½	3207 3261 3287 3313 3336	Bulk density TGA, DSC ICP IC Alpha
5	Upper ½	3208 3262 3288 3314	Bulk density TGA, DSC ICP IC
	Lower ½	3209 3263 3289 3315 3337	Bulk density TGA, DSC ICP IC Alpha

Table A-4. Summary of Samples and Analyses. (8 sheets)

Segment	Segment Portion	Labcore Number[1]	Analyses
Core 114 - Riser 7 (Continued)			
6	Upper ½	3210 3264 3290 3316	Bulk density TGA, DSC ICP IC
	Lower ½	3211 3265 3291 3317 3338	Bulk density TGA, DSC ICP IC Alpha
7	Upper ½	3212 3266 3292 3318	Bulk density TGA, DSC ICP IC
	Lower ½	3213 3267 3293 3319 3339	Bulk density TGA, DSC ICP IC Alpha
8	Upper ½	3214 3268 3294 3320	Bulk density TGA, DSC ICP IC
	Lower ½	3215 3269 3295 3321 3340	Bulk density TGA, DSC ICP IC Alpha
9	Upper ½	3216 3270 3296 3322	Bulk density TGA, DSC ICP IC
	Lower ½	3217 3271 3297 3323 3341	Bulk density TGA, DSC ICP IC Alpha

Table A-4. Summary of Samples and Analyses. (8 sheets)

Segment	Segment Portion	Labcore Number[1]	Analyses
Core 114 - Riser 7 (Continued)			
10	Upper ½	3218 3272 3298 3324	Bulk density TGA, DSC ICP IC
	Lower ½	3219 3273 3299 3325 3342	Bulk density TGA, DSC ICP IC Alpha
11	Upper ½	3220 3274 3300 3326	Bulk density TGA, DSC ICP IC
	Lower ½	3221 3275 3301 3327 3343	Bulk density TGA, DSC ICP IC Alpha
12	Upper ½	3222 3276 3302 3328	Bulk density TGA, DSC ICP IC
	Lower ½	3223 3277 3303 3329 3344	Bulk density TGA, DSC ICP IC Alpha
13	Upper ½	3224 3278 3304 3330	Bulk density TGA, DSC ICP IC
	Lower ½	3225 3279 3305 3331 3345	Bulk density TGA, DSC ICP IC Alpha

Table A-4. Summary of Samples and Analyses. (8 sheets)

Segment	Segment Portion	Labcore Number[1]	Analyses
Core 114 - Riser 7 (Continued)			
14	Upper ½	3226 3280 3306 3332	Bulk density TGA, DSC ICP IC
	Lower ½	3227 3281 3307 3333 3346	Bulk density TGA, DSC ICP IC Alpha
n/a	n/a	3349 3770	TGA, Specific gravity, DSC, IC, Alpha ICP
n/a	n/a	2952	ICP, IC

Notes:

n/a = not applicable

[1]All laboratory sample numbers begin with S95T00.

Table A-5. Analytical Procedures.

Analysis	Instrument	Preparation Procedure	Analytical Procedure
Energetics by DSC	Mettler™ Perkin-Elmer™	n/a	LA-514-113, Rev. C-1 LA-514-114, Rev. C-1
Percent water by TGA	Mettler™ Perkin-Elmer™	n/a	LA-560-112, Rev. B-1 LA-514-114, Rev. C-1
Total alpha activity	Alpha proportional counter	LA-549-141, Rev. D-0	LA-508-101, Rev. D-2
Solid bulk density	n/a	n/a	LO-160-103, Rev. A-7
Liquid specific gravity	n/a	n/a	LA-510-112, Rev. C-3
Lithium and other metals by ICP	Inductively coupled plasma spectrometer	LA-505-159, Rev. C-0	LA-505-151, Rev. D-3 LA-505-161, Rev. B-0
Bromide and other anions by IC	Ion chromatograph	LA-504-101, Rev. D-0	LA-533-105, Rev. D-1
Radionuclides by GEA	Gamma detector spectrometer	LA-549-141, Rev. D-0	LA-548-121, Rev. D-1
^{90}Sr by separation and beta counting	Beta proportional counter	LA-549-141, Rev. D-0	LA-220-101, Rev. D-1

Notes:

n/a = not applicable
Rev. = revision

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APPENDIX B

ANALYTICAL RESULTS FROM 1995 CORE SAMPLING

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APPENDIX B

ANALYTICAL RESULTS FROM 1995 CORE SAMPLING

B.1 INTRODUCTION

Appendix B reports the chemical, radiochemical, and physical characteristics of tank 241-B-204 in table form and in terms of the specific concentrations of metals, ions, radionuclides, and physical properties.

Tables B-1 through B-53 list the following information: laboratory sample identification; sample origin (core/segment/subsegment); 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 and the appropriate conversion factors. The projected tank inventory column is not applicable to the percent water, DSC, TGA, 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.

A description of the units and symbols used in the analyte tables and the sources used in compiling the analytical data (Sasaki 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 and Appendix A.

B.2 ANALYTE TABLE DESCRIPTION

Tables B-1 through B-50 describe the organization of the chemical species and radionuclide tables. Tables B-51 through B-53 contain the TGA, DSC, and density results; the organization of these tables is similar to the chemical species tables with only slight variations.

Column 1 lists the laboratory sample for which the analyte was measured.

Column 2 lists the core and segment from which each sample was derived. The first number is the core number; it is followed by a colon and the segment number.

Column 3 lists 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.

Columns 4 and 5 (Result and Duplicate) are self-explanatory. The "Mean" 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 mean is expressed as a nondetected value. 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 and 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.

Column 7 is the overall (or analyte concentration) means for the waste in tank 241-B-204; they were calculated as follows:

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

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

Column 8 (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 analytes with 50 percent or more detected results, all data for a given analyte were used in the calculation.

Column 9 (projected inventory) is the product of the overall analyte concentration mean, the volume of tank waste (185 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 1.05 g/mL for the drainable liquid), and the appropriate conversion factors.

The four quality control parameters assessed on the tank 241-B-204 samples were standard recoveries, spike recoveries, duplicate analyses (RPDs), and blanks. These were summarized in Section 5.1.2. Sample and duplicate pairs, in which any quality control parameters were outside their specified limits, are footnoted in column 6 of the following tables. Limits for quality control parameters were specified only for total alpha, TGA, DSC, specific gravity, bulk density, lithium, and bromide analyses because these were the analyses required by the applicable DQO.

Table B-1. Tank 241-B-204 Analytical Results: Aluminum. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T002980	112:2	Whole	448.0	397.0	422.5	65.3	36.5	14.4
S95T003061	112:3	Upper ½	64.10	79.5	71.8			
S95T003062		Lower ½	55.90	53.20	54.55			
S95T003063	112:4	Upper ½	59.00	74.70	66.85			
S95T003064		Lower ½	48.80	49.40	49.10			
S95T003065	112:5	Upper ½	57.70	45.00	51.35			
S95T003066		Lower ½	66.20	60.70	63.45			
S95T003067	112:6	Upper ½	63.00	71.60	67.30			
S95T003068		Lower ½	56.50	51.40	53.95			
S95T003069	112:7	Upper ½	65.60	69.90	67.75			
S95T003070		Lower ½	64.40	49.50	56.95			
S95T003071	112:8	Upper ½	44.70	43.10	43.90			
S95T003072		Lower ½	45.70	53.60	49.65			
S95T003073	112:9	Upper ½	51.90	54.60	53.25			
S95T003074		Lower ½	324.0	72.60	198.3			
S95T003075	112:10	Upper ½	47.90	59.10	53.50			
S95T003076		Lower ½	50.30	46.00	48.15			
S95T003077	112:11	Upper ½	47.50	46.10	46.80			
S95T003078		Lower ½	< 47.4	< 57.4	< 52.4			
6S95T003079	112:12	Upper ½	< 53.5	< 48.3	< 50.9			
S95T003080		Lower ½	52.90	< 50.4	51.7			

Table B-1. Tank 241-B-204 Analytical Results: Aluminum. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T003081	112:13	Upper ½	< 43.6	44.70	44.15			
S95T003082		Lower ½	< 48.6	< 42.4	< 45.5			
S95T003083	112:14	Upper ½	46.30	< 52.9	49.6			
S95T003084		Lower ½	< 99.6	< 90.5	< 95.1			
S95T003282	114:2	Upper ½	63.90	60.30	62.10			
S95T003283		Lower ½	19.30	16.50	17.90			
S95T003284	114:3	Upper ½	26.40	19.80	23.10			
S95T003285		Lower ½	93.40	< 96.6	95			
S95T003286	114:4	Upper ½	26.50	25.60	26.05			
S95T003287		Lower ½	48.10	35.10	41.60			
S95T003288	114:5	Upper ½	30.90	34.40	32.65			
S95T003289		Lower ½	42.30	33.30	37.80			
S95T003290	114:6	Upper ½	35.70	43.70	39.70			
S95T003291		Lower ½	28.20	33.10	30.65			
S95T003292	114:7	Upper ½	23.20	32.90	28.05			
S95T003293		Lower ½	48.00	28.70	38.35			
S95T003294	114:8	Upper ½	62.10	49.20	55.65			
S95T003295		Lower ½	21.30	35.50	28.40			
S95T003296	114:9	Upper ½	41.10	44.80	42.95			
S95T003297		Lower ½	41.30	37.80	39.55			

Table B-1. Tank 241-B-204 Analytical Results: Aluminum. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T003298	114:10	Upper ½	37.50	28.00	32.75			
S95T003299		Lower ½	40.00	59.90	49.95			
S95T003300	114:11	Upper ½	46.30	43.20	44.75			
S95T003301		Lower ½	37.20	37.40	37.30			
S95T003302	114:12	Upper ½	35.10	42.50	38.80			
S95T003303		Lower ½	37.10	39.30	38.20			
S95T003304	114:13	Upper ½	44.80	39.50	42.15			
S95T003305		Lower ½	44.50	43.00	43.75			
S95T003306	114:14	Upper ½	46.40	48.80	47.60			
S95T003307		Lower ½	43.60	53.10	48.35			
Drainable liquids			µg/mL	µg/mL	µg/mL	µg/mL	%	kg
S95T002976	112:1	DL	< 10.0	< 10.0	< 10.0	< 7.53	n/a	< 0.0301
S95T002984	112:2	DL	< 10.0	< 10.0	< 10.0			
S95T003255	114:1	DL	< 5.05	< 5.05	< 5.05			

Table B-2. Tank 241-B-204 Analytical Results: Antimony. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T002980	112:2	Whole	< 16.6	< 22.3	< 19.5	< 26.9	n/a	< 5.92
S95T003061	112:3	Upper ½	< 14.6	< 11.3	< 13.0			
S95T003062		Lower ½	< 13.5	< 12.8	< 13.2			
S95T003063	112:4	Upper ½	< 10.5	< 14.0	< 12.3			
S95T003064		Lower ½	< 14.6	< 13.3	< 14.0			
S95T003065	112:5	Upper ½	< 26.2	< 24.9	< 25.6			
S95T003066		Lower ½	< 13.8	< 11.7	< 12.8			
S95T003067	112:6	Upper ½	< 27.9	< 20.7	< 24.3			
S95T003068		Lower ½	< 13.4	< 11.6	< 12.5			
S95T003069	112:7	Upper ½	< 22.0	< 22.8	< 22.4			
S95T003070		Lower ½	< 21.1	< 20.6	< 20.9			
S95T003071	112:8	Upper ½	< 12.6	< 13.8	< 13.2			
S95T003072		Lower ½	< 23.4	< 22.9	< 23.2			
S95T003073	112:9	Upper ½	< 24.8	< 22.8	< 23.8			
S95T003074		Lower ½	< 20.7	< 22.9	< 21.8			
S95T003075	112:10	Upper ½	< 22.3	< 21.8	< 22.1			
S95T003076		Lower ½	< 27.4	< 24.6	< 26.0			
S95T003077	112:11	Upper ½	< 24.4	< 20.9	< 22.7			
S95T003078		Lower ½	< 56.9	< 68.8	< 62.9			
S95T003079	112:12	Upper ½	< 64.3	< 57.9	< 61.1			
S95T003080		Lower ½	< 58.7	< 60.5	< 59.6			

Table B-2. Tank 241-B-204 Analytical Results: Antimony. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T003081	112:13	Upper ½	< 52.3	< 52.4	< 52.4			
S95T003082		Lower ½	< 58.3	< 50.8	< 54.6			
S95T003083	112:14	Upper ½	< 55.5	< 63.5	< 59.5			
S95T003084		Lower ½	< 119	< 109	< 114			
S95T003282	114:2	Upper ½	< 12.6	< 13.2	< 12.9			
S95T003283		Lower ½	< 11.7	< 10.9	< 11.3			
S95T003284	114:3	Upper ½	< 11.9	< 11.3	< 11.6			
S95T003285		Lower ½	< 101	< 116	< 109			
S95T003286	114:4	Upper ½	< 13.5	< 11.8	< 12.7			
S95T003287		Lower ½	< 21.1	< 26.6	< 23.9			
S95T003288	114:5	Upper ½	< 13.3	< 11.6	< 12.5			
S95T003289		Lower ½	< 13.5	< 14.0	< 13.8			
S95T003290	114:6	Upper ½	< 13.6	< 11.9	< 12.8			
S95T003291		Lower ½	< 20.6	< 25.5	< 23.1			
S95T003292	114:7	Upper ½	< 14.1	< 13.0	< 13.6			
S95T003293		Lower ½	< 12.9	< 11.6	< 12.3			
S95T003294	114:8	Upper ½	< 13.0	< 21.5	< 17.3			
S95T003295		Lower ½	< 12.3	< 12.0	< 12.2			
S95T003296	114:9	Upper ½	< 24.7	< 27.9	< 26.3			
S95T003297		Lower ½	< 22.7	< 27.0	< 24.9			

Table B-2. Tank 241-B-204 Analytical Results: Antimony. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T003298	114:10	Upper ½	< 22.2	< 21.5	< 21.9			
S95T003299		Lower ½	< 20.3	< 23.1	< 21.7			
S95T003300	114:11	Upper ½	< 28.2	< 29.0	< 28.6			
S95T003301		Lower ½	< 20.4	< 20.4	< 20.4			
S95T003302	114:12	Upper ½	< 14.4	< 13.4	< 13.9			
S95T003303		Lower ½	< 13.4	< 22.2	< 17.8			
S95T003304	114:13	Upper ½	< 27.5	< 24.5	< 26.0			
S95T003305		Lower ½	< 21.6	< 21.9	< 21.8			
S95T003306	114:14	Upper ½	< 25.9	< 25.6	< 25.8			
S95T003307		Lower ½	< 23.2	< 25.3	< 24.3			
Drainable liquids			µg/mL	%	%	%	%	kg
S95T002976	112:1	DL	< 12.1	< 12.1	< 12.1	< 9.08	n/a	< 0.0363
S95T002984	112:2	DL	< 12.1	< 12.1	< 12.1			
S95T003255	114:1	DL	< 6.06	< 6.06	< 6.06			

Table B-3. Tank 241-B-204 Analytical Results: Arsenic. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T002980	112:2	Whole	< 27.6	< 37.1	< 32.35	< 44.8	n/a	< 9.86
S95T003061	112:3	Upper ½	< 24.1	< 18.8	< 21.5			
S95T003062		Lower ½	< 22.5	< 21.3	< 21.9			
S95T003063	112:4	Upper ½	< 17.6	< 23.3	< 20.5			
S95T003064		Lower ½	< 24.3	< 22.2	< 23.3			
S95T003065	112:5	Upper ½	< 43.7	< 41.6	< 42.7			
S95T003066		Lower ½	< 23.1	< 19.5	< 21.3			
S95T003067	112:6	Upper ½	< 46.6	< 34.6	< 40.6			
S95T003068		Lower ½	< 22.3	< 19.4	< 20.9			
S95T003069	112:7	Upper ½	< 36.4	< 38.1	< 37.3			
S95T003070		Lower ½	< 35.1	< 34.3	< 34.7			
S95T003071	112:8	Upper ½	< 21.0	< 23.0	< 22.0			
S95T003072		Lower ½	< 39.1	< 38.1	< 38.6			
S95T003073	112:9	Upper ½	< 41.4	< 38.0	< 39.7			
S95T003074		Lower ½	< 34.3	< 38.1	< 36.2			
S95T003075	112:10	Upper ½	< 37.2	< 36.4	< 36.8			
S95T003076		Lower ½	< 45.6	< 41.1	< 43.4			
S95T003077	112:11	Upper ½	< 40.7	< 34.8	< 37.8			
S95T003078		Lower ½	< 94.9	< 115	< 105			
S95T003079	112:12	Upper ½	< 107	< 96.6	< 102			
S95T003080		Lower ½	< 97.8	< 101	< 99.4			

Table B-3. Tank 241-B-204 Analytical Results: Arsenic. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T003081	112:13	Upper ½	< 87.2	< 87.3	< 87.3			
S95T003082		Lower ½	< 97.2	< 84.7	< 91.0			
S95T003083	112:14	Upper ½	< 92.6	< 106	< 99.3			
S95T003084		Lower ½	< 199	< 181	< 190			
S95T003282	114:2	Upper ½	< 21.0	< 22.0	< 21.5			
S95T003283		Lower ½	< 19.5	< 18.2	< 18.9			
S95T003284	114:3	Upper ½	< 19.8	< 18.9	< 19.4			
S95T003285		Lower ½	< 169	< 193	< 181			
S95T003286	114:4	Upper ½	< 22.3	< 19.7	< 21.0			
S95T003287		Lower ½	< 35.1	< 44.3	< 39.7			
S95T003288	114:5	Upper ½	< 22.2	< 19.3	< 20.8			
S95T003289		Lower ½	< 22.6	< 23.4	< 23.0			
S95T003290	114:6	Upper ½	< 22.6	< 19.8	< 21.2			
S95T003291		Lower ½	< 34.4	< 42.5	< 38.5			
S95T003292	114:7	Upper ½	< 23.4	< 21.7	< 22.6			
S95T003293		Lower ½	< 21.6	< 19.4	< 20.5			
S95T003294	114:8	Upper ½	< 21.7	< 35.8	< 28.8			
S95T003295		Lower ½	< 20.5	< 20.0	< 20.3			
S95T003296	114:9	Upper ½	< 41.1	< 46.4	< 43.8			
S95T003297		Lower ½	< 37.9	< 45.0	< 41.5			

Table B-3. Tank 241-B-204 Analytical Results: Arsenic. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T003298	114:10	Upper ½	< 37.0	< 35.9	< 36.5			
S95T003299		Lower ½	< 33.9	< 38.5	< 36.2			
S95T003300	114:11	Upper ½	< 47.0	< 48.3	< 47.7			
S95T003301		Lower ½	< 34.0	< 34.0	< 34.0			
S95T003302	114:12	Upper ½	< 24.0	< 22.1	< 23.1			
S95T003303		Lower ½	< 22.3	< 37.0	< 29.7			
S95T003304	114:13	Upper ½	< 45.8	< 40.9	< 43.4			
S95T003305		Lower ½	< 36.0	< 36.6	< 36.3			
S95T003306	114:14	Upper ½	< 42.9	< 42.7	< 42.8			
S95T003307		Lower ½	< 38.6	< 42.2	< 40.4			
Drainable liquids			µg/mL	µg/mL	µg/mL	µg/mL	%	kg
S95T002976	112:1	DL	< 20.1	< 20.1	< 20.1	< 15.1	n/a	< 0.0604
S95T002984	112:2	DL	< 20.1	< 20.1	< 20.1			
S95T003255	114:1	DL	< 10.1	< 10.1	< 10.1			

Table B-4. Tank 241-B-204 Analytical Results: Barium. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T002980	112:2	Whole	2,270	1,970	2,120	< 199	n/a	< 43.8
S95T003061	112:3	Upper ½	1,440	1,470	1,460			
S95T003062		Lower ½	176.0	161.0	168.5			
S95T003063	112:4	Upper ½	384.0	502.0	443.0			
S95T003064		Lower ½	12.70	12.80	12.75			
S95T003065	112:5	Upper ½	< 21.8	< 20.8	< 21.3			
S95T003066		Lower ½	19.20	18.30	18.75			
S95T003067	112:6	Upper ½	43.30	44.60	43.95			
S95T003068		Lower ½	48.30	42.60	45.45			
S95T003069	112:7	Upper ½	42.00	45.40	43.70			
S95T003070		Lower ½	39.80	39.00	39.40			
S95T003071	112:8	Upper ½	16.50	20.80	18.65			
S95T003072		Lower ½	< 19.5	< 19.1	< 19.3			
S95T003073	112:9	Upper ½	< 20.7	< 19.0	< 19.9			
S95T003074		Lower ½	< 17.1	< 19.1	< 18.1			
S95T003075	112:10	Upper ½	< 18.6	< 18.2	<18.4			
S95T003076		Lower ½	< 22.8	< 20.5	< 21.7			
S95T003077	112:11	Upper ½	< 20.3	< 17.4	< 18.9			
S95T003078		Lower ½	< 47.4	< 57.4	< 52.4			
S95T003079	112:12	Upper ½	< 53.5	< 48.3	< 50.9			
S95T003080		Lower ½	< 48.9	< 50.4	< 49.7			

Table B-4. Tank 241-B-204 Analytical Results: Barium. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T003081	112:13	Upper ½	< 43.6	< 43.6	< 43.6			
S95T003082		Lower ½	< 48.6	< 42.4	< 45.5			
S95T003083	112:14	Upper ½	< 46.3	< 52.9	< 49.6			
S95T003084		Lower ½	< 99.6	< 90.5	< 95.1			
S95T003282	114:2	Upper ½	2,020	1,990	2,005			
S95T003283		Lower ½	253.0	261.0	257.0			
S95T003284	114:3	Upper ½	59.90	58.50	59.20			
S95T003285		Lower ½	< 84.5	< 96.6	< 90.1			
S95T003286	114:4	Upper ½	73.00	45.60	59.30			
S95T003287		Lower ½	< 17.7	< 22.1	< 19.9			
S95T003288	114:5	Upper ½	21.60	21.30	21.45			
S95T003289		Lower ½	42.50	42.70	42.60			
S95T003290	114:6	Upper ½	82.60	74.60	78.60			
S95T003291		Lower ½	43.40	42.50	42.95			
S95T003292	114:7	Upper ½	44.50	48.60	46.55			
S95T003293		Lower ½	28.50	26.70	27.60			
S95T003294	114:8	Upper ½	440.0	189.0	314.5			
S95T003295		Lower ½	< 10.4	< 10.0	< 10.2			
S95T003296	114:9	Upper ½	< 20.7	< 23.2	< 22.0			
S95T003297		Lower ½	< 18.9	< 22.5	< 20.7			

Table B-4. Tank 241-B-204 Analytical Results: Barium. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T003298	114:10	Upper ½	< 18.5	< 17.9	< 18.2			
S95T003299		Lower ½	< 16.9	< 19.3	< 18.1			
S95T003300	114:11	Upper ½	< 23.5	< 24.1	< 23.8			
S95T003301		Lower ½	< 17.0	< 17.0	< 17.0			
S95T003302	114:12	Upper ½	< 12.0	< 11.0	< 11.5			
S95T003303		Lower ½	< 11.2	< 18.5	< 14.9			
S95T003304	114:13	Upper ½	< 22.9	< 20.4	< 21.7			
S95T003305		Lower ½	< 18.0	< 18.3	< 18.2			
S95T003306	114:14	Upper ½	< 21.6	< 21.4	< 21.5			
S95T003307		Lower ½	< 19.3	< 21.1	< 20.2			
Drainable liquids			µg/mL	µg/mL	µg/mL	µg/mL	%	kg
S95T002976	112:1	DL	< 10.0	< 10.0	< 10.0	< 7.53	n/a	< 0.0301
S95T002984	112:2	DL	< 10.0	< 10.0	< 10.0			
S95T003255	114:1	DL	< 5.05	< 5.05	< 5.05			

Table B-5. Tank 241-B-204 Analytical Results: Beryllium. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T002980	112:2	Whole	< 1.38	< 1.86	< 1.62	< 2.24	n/a	< 0.493
S95T003061	112:3	Upper ½	< 1.20	< 0.942	< 1.07			
S95T003062		Lower ½	< 1.12	< 1.06	< 1.09			
S95T003063	112:4	Upper ½	< 0.878	< 1.16	< 1.02			
S95T003064		Lower ½	< 1.21	< 1.11	< 1.16			
S95T003065	112:5	Upper ½	< 2.18	< 2.08	< 2.13			
S95T003066		Lower ½	< 1.15	< 0.977	< 1.06			
S95T003067	112:6	Upper ½	< 2.33	< 1.72	< 2.03			
S95T003068		Lower ½	< 1.11	< 0.969	< 1.04			
S95T003069	112:7	Upper ½	< 1.82	< 1.90	< 1.86			
S95T003070		Lower ½	< 1.76	< 1.71	< 1.74			
S95T003071	112:8	Upper ½	< 1.05	< 1.15	< 1.10			
S95T003072		Lower ½	< 1.95	< 1.91	< 1.93			
S95T003073	112:9	Upper ½	< 2.07	< 1.90	< 1.99			
S95T003074		Lower ½	< 1.71	< 1.91	< 1.81			
S95T003075	112:10	Upper ½	< 1.86	< 1.82	< 1.84			
S95T003076		Lower ½	< 2.28	< 2.05	< 2.17			
S95T003077	112:11	Upper ½	< 2.03	< 1.74	< 1.89			
S95T003078		Lower ½	< 4.74	< 5.74	< 5.24			
S95T003079	112:12	Upper ½	< 5.35	< 4.83	< 5.09			
S95T003080		Lower ½	< 4.89	< 5.04	< 4.97			

Table B-5. Tank 241-B-204 Analytical Results: Beryllium. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T003081	112:13	Upper ½	< 4.36	< 4.36	< 4.36			
S95T003082		Lower ½	< 4.86	< 4.24	< 4.55			
S95T003083	112:14	Upper ½	< 4.63	< 5.29	< 4.96			
S95T003084		Lower ½	< 9.96	< 9.05	< 9.51			
S95T003282	114:2	Upper ½	< 1.05	< 1.10	< 1.08			
S95T003283		Lower ½	< 0.974	< 0.910	< 0.942			
S95T003284	114:3	Upper ½	< 0.990	< 0.944	< 0.967			
S95T003285		Lower ½	< 8.45	< 9.66	< 9.06			
S95T003286	114:4	Upper ½	< 1.11	< 0.984	< 1.05			
S95T003287		Lower ½	< 1.77	< 2.21	< 1.99			
S95T003288	114:5	Upper ½	< 1.11	< 0.966	< 1.04			
S95T003289		Lower ½	< 1.13	< 1.17	< 1.15			
S95T003290	114:6	Upper ½	< 1.13	< 0.990	< 1.06			
S95T003291		Lower ½	< 1.72	< 2.13	< 1.93			
S95T003292	114:7	Upper ½	< 1.17	< 1.09	< 1.13			
S95T003293		Lower ½	< 1.08	< 0.969	< 1.02			
S95T003294	114:8	Upper ½	< 1.10	< 1.79	< 1.45			
S95T003295		Lower ½	< 1.04	< 1.00	< 1.02			
S95T003296	114:9	Upper ½	< 2.07	< 2.32	< 2.20			
S95T003297		Lower ½	< 1.89	< 2.25	< 2.07			

Table B-5. Tank 241-B-204 Analytical Results: Beryllium. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T003298	114:10	Upper ½	< 1.85	< 1.79	< 1.82			
S95T003299		Lower ½	< 1.69	< 1.93	< 1.81			
S95T003300	114:11	Upper ½	< 2.35	< 2.41	< 2.38			
S95T003301		Lower ½	< 1.70	< 1.70	< 1.70			
S95T003302	114:12	Upper ½	< 1.20	< 1.10	< 1.15			
S95T003303		Lower ½	< 1.12	< 1.85	< 1.49			
S95T003304	114:13	Upper ½	< 2.29	< 2.04	< 2.17			
S95T003305		Lower ½	< 1.80	< 1.83	< 1.82			
S95T003306	114:14	Upper ½	< 2.16	< 2.14	< 2.15			
S95T003307		Lower ½	< 1.93	< 2.11	< 2.02			
Drainable liquids			µg/mL	µg/mL	µg/mL	µg/mL	%	kg
S95T002976	112:1	DL	< 1.00	< 1.00	< 1.00	< 0.753	n/a	< 0.003
S95T002984	112:2	DL	< 1.00	< 1.00	< 1.00			
S95T003255	114:1	DL	< 0.50	< 0.50	< 0.50			

Table B-6. Tank 241-B-204 Analytical Results: Bismuth. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T002980	112:2	Whole	42,700	38,900	40,800	48,400	5.8	10,700
S95T003061	112:3	Upper ½	48,600	50,700	49,700			
S95T003062		Lower ½	50,000	48,800	49,400			
S95T003063	112:4	Upper ½	43,900	58,100	51,000			
S95T003064		Lower ½	61,000	61,700	61,400			
S95T003065	112:5	Upper ½	63,100	52,200	57,600			
S95T003066		Lower ½	43,600	42,000	42,800			
S95T003067	112:6	Upper ½	47,400	49,400	48,400			
S95T003068		Lower ½	55,400	48,800	52,100			
S95T003069	112:7	Upper ½	50,500	56,500	53,500			
S95T003070		Lower ½	59,500	58,900	59,200			
S95T003071	112:8	Upper ½	40,000	42,600	41,300			
S95T003072		Lower ½	49,800	48,900	49,400			
S95T003073	112:9	Upper ½	55,700	55,100	55,400			
S95T003074		Lower ½	47,500	49,800	48,600			
S95T003075	112:10	Upper ½	51,200	51,200	51,200			
S95T003076		Lower ½	48,900	50,700	49,800			
S95T003077	112:11	Upper ½	47,500	50,000	48,800			
S95T003078		Lower ½	51,100	49,300	50,200			

Table B-6. Tank 241-B-204 Analytical Results: Bismuth. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T003079	112:12	Upper ½	45,700	47,600	46,600			
S95T003080		Lower ½	61,600	53,700	57,600			
S95T003081	112:13	Upper ½	42,800	43,600	43,200			
S95T003082		Lower ½	54,400	53,000	53,700			
S95T003083	112:14	Upper ½	69,700	55,500	62,600			
S95T003084		Lower ½	64,300	61,900	63,100			
S95T003282	114:2	Upper ½	39,300	38,100	38,700			
S95T003283		Lower ½	35,600	37,300	36,400			
S95T003284	114:3	Upper ½	38,400	39,500	39,000			
S95T003285		Lower ½	49,800	49,300	49,600			
S95T003286	114:4	Upper ½	45,300	46,000	45,600			
S95T003287		Lower ½	50,500	52,400	51,400			
S95T003288	114:5	Upper ½	47,100	44,600	45,800			
S95T003289		Lower ½	41,500	41,700	41,600			
S95T003290	114:6	Upper ½	44,600	40,100	42,400			
S95T003291		Lower ½	47,500	46,400	47,000			
S95T003292	114:7	Upper ½	43,500	47,500	45,500			
S95T003293		Lower ½	38,400	36,200	37,300			
S95T003294	114:8	Upper ½	49,300	52,500	50,900			
S95T003295		Lower ½	47,500	45,000	46,200			

Table B-6. Tank 241-B-204 Analytical Results: Bismuth. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T003296	114:9	Upper ½	45,300	43,200	44,200			
S95T003297		Lower ½	54,900	53,300	54,100			
S95T003298	114:10	Upper ½	48,200	45,500	46,800			
S95T003299		Lower ½	45,000	45,600	45,300			
S95T003300	114:11	Upper ½	48,000	46,700	47,400			
S95T003301		Lower ½	48,900	47,500	48,200			
S95T003302	114:12	Upper ½	39,100	42,500	40,800			
S95T003303		Lower ½	46,900	47,700	47,300			
S95T003304	114:13	Upper ½	50,300	51,500	50,900			
S95T003305		Lower ½	47,300	47,600	47,400			
S95T003306	114:14	Upper ½	48,000	47,300	47,600			
S95T003307		Lower ½	50,300	53,300	51,800			
Drainable liquids			µg/mL	µg/mL	µg/mL	µg/mL	%	kg
S95T002976	112:1	DL	< 20.1	< 20.1	< 20.1	< 15.1	n/a	< 0.0604
S95T002984	112:2	DL	< 20.1	< 20.1	< 20.1			
S95T003255	114:1	DL	< 10.1	< 10.1	< 10.1			

Table B-7. Tank 241-B-204 Analytical Results: Boron. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T002980	112:2	Whole	141.0	182.0	161.5	103	14.3	22.6
S95T003061	112:3	Upper ½	81.30	103.0	92.2			
S95T003062		Lower ½	105.0	107.0	106.0			
S95T003063	112:4	Upper ½	89.10	119.0	104.0			
S95T003064		Lower ½	106.0	113.0	109.5			
S95T003065	112:5	Upper ½	122.0	113.0	117.5			
S95T003066		Lower ½	215.0	204.0	209.5			
S95T003067	112:6	Upper ½	163.0	246.0	204.5			
S95T003068		Lower ½	146.0	128.0	137.0			
S95T003069	112:7	Upper ½	131.0	168.0	149.5			
S95T003070		Lower ½	131.0	88.0	109.5			
S95T003071	112:8	Upper ½	105.0	115.0	110.0			
S95T003072		Lower ½	61.0	137.0	99.0			
S95T003073	112:9	Upper ½	98.70	136.0	117.3			
S95T003074		Lower ½	102.0	124.0	113.0			
S95T003075	112:10	Upper ½	120.0	138.0	129.0			
S95T003076		Lower ½	99.00	85.50	92.25			
S95T003077	112:11	Upper ½	141.0	148.0	144.5			
S95T003078		Lower ½	55.60	< 57.4	56.5			
S95T003079	112:12	Upper ½	76.10	57.80	66.95			
S95T003080		Lower ½	84.40	< 50.4	67.4			

Table B-7. Tank 241-B-204 Analytical Results: Boron. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T003081	112:13	Upper ½	< 43.6	205.0	124.3			
S95T003082		Lower ½	55.50	53.90	54.70			
S95T003083	112:14	Upper ½	78.30	< 52.90	65.6			
S95T003084		Lower ½	167.0	158.0	162.5			
S95T003282	114:2	Upper ½	136.0	143.0	139.5			
S95T003283		Lower ½	27.50	16.30	21.90			
S95T003284	114:3	Upper ½	28.10	17.90	23.00			
S95T003285		Lower ½	< 84.50	< 96.6	< 90.6			
S95T003286	114:4	Upper ½	22.10	38.70	30.40			
S95T003287		Lower ½	40.50	34.40	37.45			
S95T003288	114:5	Upper ½	24.20	52.20	38.20			
S95T003289		Lower ½	79.40	50.10	64.75			
S95T003290	114:6	Upper ½	52.50	105.0	78.75			
S95T003291		Lower ½	49.40	59.30	54.35			
S95T003292	114:7	Upper ½	28.50	64.70	46.60			
S95T003293		Lower ½	137.0	41.30	89.15			
S95T003294	114:8	Upper ½	39.90	99.20	69.55			
S95T003295		Lower ½	26.70	59.40	43.05			
S95T003296	114:9	Upper ½	75.00	75.20	75.10			
S95T003297		Lower ½	67.20	34.80	51.00			

Table B-7. Tank 241-B-204 Analytical Results: Boron. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T003298	114:10	Upper ½	54.10	37.60	45.85			
S95T003299		Lower ½	123.0	129.0	126.0			
S95T003300	114:11	Upper ½	150.0	150.0	150.0			
S95T003301		Lower ½	131.0	119.0	125.0			
S95T003302	114:12	Upper ½	135.0	142.0	138.5			
S95T003303		Lower ½	132.0	138.0	135.0			
S95T003304	114:13	Upper ½	162.0	139.0	150.5			
S95T003305		Lower ½	165.0	137.0	151.0			
S95T003306	114:14	Upper ½	143.0	163.0	153.0			
S95T003307		Lower ½	125.0	170.0	147.5			
Drainable liquids			µg/mL	µg/mL	µg/mL	µg/mL	%	kg
S95T002976	112:1	DL	< 10.0	< 10.0	< 10.0	< 7.53	n/a	< 0.0301
S95T002984	112:2	DL	< 10.0	< 10.0	< 10.0			
S95T003255	114:1	DL	< 5.05	< 5.05	< 5.05			

Table B-8. Tank 241-B-204 Analytical Results: Cadmium. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T002980	112:2	Whole	1.660	< 1.86	1.76	< 2.26	n/a	< 0.497
S95T003061	112:3	Upper ½	< 1.20	0.998	1.10			
S95T003062		Lower ½	1.16	< 1.06	1.11			
S95T003063	112:4	Upper ½	0.919	1.260	1.090			
S95T003064		Lower ½	< 1.21	< 1.11	< 1.16			
S95T003065	112:5	Upper ½	< 2.18	< 2.08	< 2.13			
S95T003066		Lower ½	< 1.15	< 0.977	< 1.06			
S95T003067	112:6	Upper ½	< 2.33	< 1.72	< 2.03			
S95T003068		Lower ½	< 1.11	< 0.969	< 1.04			
S95T003069	112:7	Upper ½	< 1.82	< 1.90	< 1.86			
S95T003070		Lower ½	< 1.76	< 1.71	< 1.74			
S95T003071	112:8	Upper ½	< 1.05	< 1.15	< 1.10			
S95T003072		Lower ½	< 1.95	< 1.91	< 1.93			
S95T003073	112:9	Upper ½	< 2.07	< 2.21	< 2.14			
S95T003074		Lower ½	< 1.71	< 1.91	< 1.81			
S95T003075	112:10	Upper ½	< 1.86	< 1.82	< 1.84			
S95T003076		Lower ½	< 2.28	< 2.05	< 2.17			
S95T003077	112:11	Upper ½	< 2.03	< 1.74	< 1.89			
S95T003078		Lower ½	< 4.74	< 5.74	< 5.24			
S95T003079	112:12	Upper ½	< 5.35	< 4.83	< 5.09			
S95T003080		Lower ½	< 4.89	< 5.04	< 4.97			

Table B-8. Tank 241-B-204 Analytical Results: Cadmium. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T003081	112:13	Upper ½	< 4.36	< 4.36	< 4.36			
S95T003082		Lower ½	< 4.86	< 4.24	< 4.55			
S95T003083	112:14	Upper ½	< 4.63	< 5.29	< 4.96			
S95T003084		Lower ½	< 9.96	< 9.05	< 9.51			
S95T003282	114:2	Upper ½	< 1.05	< 1.10	< 1.08			
S95T003283		Lower ½	< 0.974	< 0.910	< 0.942			
S95T003284	114:3	Upper ½	< 0.990	< 0.944	< 0.967			
S95T003285		Lower ½	< 8.45	< 9.66	< 9.06			
S95T003286	114:4	Upper ½	< 1.11	< 0.984	< 1.05			
S95T003287		Lower ½	< 1.77	< 2.21	< 1.99			
S95T003288	114:5	Upper ½	< 1.11	< 0.966	< 1.04			
S95T003289		Lower ½	< 1.13	< 1.17	< 1.15			
S95T003290	114:6	Upper ½	1.280	1.390	1.335			
S95T003291		Lower ½	< 1.72	< 2.13	< 1.93			
S95T003292	114:7	Upper ½	< 1.17	< 1.09	< 1.13			
S95T003293		Lower ½	< 1.08	< 0.969	< 1.02			
S95T003294	114:8	Upper ½	< 1.10	< 1.79	< 1.45			
S95T003295		Lower ½	1.180	< 1.00	< 1.09			
S95T003296	114:9	Upper ½	< 2.07	< 2.32	< 2.20			
S95T003297		Lower ½	2.000	< 2.25	< 2.13			

Table B-8. Tank 241-B-204 Analytical Results: Cadmium. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T003298	114:10	Upper ½	< 1.85	< 1.79	< 1.82			
S95T003299		Lower ½	< 1.69	< 1.93	< 1.81			
S95T003300	114:11	Upper ½	< 2.35	< 2.41	< 2.38			
S95T003301		Lower ½	< 1.70	< 1.70	< 1.70			
S95T003302	114:12	Upper ½	< 1.20	< 1.10	< 1.15			
S95T003303		Lower ½	< 1.12	< 1.85	< 1.49			
S95T003304	114:13	Upper ½	< 2.29	< 2.04	< 2.17			
S95T003305		Lower ½	< 1.80	< 1.83	< 1.82			
S95T003306	114:14	Upper ½	< 2.16	< 2.14	< 2.15			
S95T003307		Lower ½	< 1.93	< 2.11	< 2.02			
Drainable liquids			µg/mL	µg/mL	µg/mL	µg/mL	%	kg
S95T002976	112:1	DL	< 1.00	< 1.00	< 1.00	< 0.753	n/a	< 0.00301
S95T002984	112:2	DL	< 1.00	< 1.00	< 1.00			
S95T003255	114:1	DL	< 0.505	< 0.505	< 0.505			

Table B-9. Tank 241-B-204 Analytical Results: Calcium. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T002980	112:2	Whole	2,240	2,100	2,170	305	38.1	67.1
S95T003061	112:3	Upper ½	456.0	351.0	403.5			
S95T003062		Lower ½	358.0	324.0	341.0			
S95T003063	112:4	Upper ½	318.0	422.0	370.0			
S95T003064		Lower ½	366.0	360.0	363.0			
S95T003065	112:5	Upper ½	389.0	288.0	338.5			
S95T003066		Lower ½	248.0	235.0	241.5			
S95T003067	112:6	Upper ½	287.0	319.0	303.0			
S95T003068		Lower ½	278.0	246.0	262.0			
S95T003069	112:7	Upper ½	276.0	406.0	341.0			
S95T003070		Lower ½	248.0	242.0	245.0			
S95T003071	112:8	Upper ½	258.0	317.0	287.5			
S95T003072		Lower ½	236.0	248.0	242.0			
S95T003073	112:9	Upper ½	299.0	298.0	298.5			
S95T003074		Lower ½	301.0	306.0	303.5			
S95T003075	112:10	Upper ½	248.0	261.0	254.5			
S95T003076		Lower ½	349.0	268.0	308.5			
S95T003077	112:11	Upper ½	347.0	375.0	361.0			
S95T003078		Lower ½	216.0	198.0	207.0			
S95T003079	112:12	Upper ½	194.0	174.0	184.0			
S95T003080		Lower ½	243.0	204.0	223.5			

Table B-9. Tank 241-B-204 Analytical Results: Calcium. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T003079	112:13	Upper ½	164.0	168.0	166.0			
S95T003082		Lower ½	208.0	178.0	193.0			
S95T003083	112:14	Upper ½	225.0	161.0	193.0			
S95T003084		Lower ½	< 199	188.0	194			
S95T003282	114:2	Upper ½	314.0	327.0	320.5			
S95T003283		Lower ½	126.0	144.0	135.0			
S95T003284	114:3	Upper ½	137.0	134.0	135.5			
S95T003285		Lower ½	170.0	< 193	182			
S95T003286	114:4	Upper ½	181.0	182.0	181.5			
S95T003287		Lower ½	294.0	247.0	270.5			
S95T003288	114:5	Upper ½	126.0	113.0	119.5			
S95T003289		Lower ½	175.0	218.0	196.5			
S95T003290	114:6	Upper ½	135.0	131.0	133.0			
S95T003291		Lower ½	97.80	96.10	96.95			
S95T003292	114:7	Upper ½	113.0	120.0	116.5			
S95T003293		Lower ½	134.0	114.0	124.0			
S95T003294	114:8	Upper ½	190.0	209.0	199.5			
S95T003295		Lower ½	114.0	117.0	115.5			
S95T003296	114:9	Upper ½	141.0	127.0	134.0			
S95T003297		Lower ½	167.0	164.0	165.5			

Table B-9. Tank 241-B-204 Analytical Results: Calcium. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T003298	114:10	Upper ½	150.0	148.0	149.0			
S95T003299		Lower ½	212.0	175.0	193.5			
S95T003300	114:11	Upper ½	170.0	169.0	169.5			
S95T003301		Lower ½	174.0	221.0	197.5			
S95T003302	114:12	Upper ½	170.0	145.0	157.5			
S95T003303		Lower ½	155.0	151.0	153.0			
S95T003304	114:13	Upper ½	225.0	237.0	231.0			
S95T003305		Lower ½	280.0	228.0	254.0			
S95T003306	114:14	Upper ½	298.0	369.0	333.5			
S95T003307		Lower ½	521.0	347.0	434.0			
Drainable liquids			µg/mL	µg/mL	µg/mL	µg/mL	%	kg
S95T002976	112:1	DL	< 20.1	< 20.1	< 20.1	< 15.1	n/a	< 0.0604
S95T002984	112:2	DL	< 20.1	< 20.1	< 20.1			
S95T003255	114:1	DL	< 10.1	< 10.1	< 10.1			

Table B-10. Tank 241-B-204 Analytical Results: Cerium. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T002980	112:2	Whole	< 27.6	< 37.1	< 32.4	55.4	13.3	12.2
S95T003061	112:3	Upper ½	44.50	47.60	46.05			
S95T003062		Lower ½	59.20	57.10	58.15			
S95T003063	112:4	Upper ½	47.70	62.30	55.00			
S95T003064		Lower ½	64.20	68.80	66.50			
S95T003065	112:5	Upper ½	62.20	48.50	55.35			
S95T003066		Lower ½	47.50	43.00	45.25			
S95T003067	112:6	Upper ½	49.50	52.40	50.95			
S95T003068		Lower ½	45.30	39.60	42.45			
S95T003069	112:7	Upper ½	47.90	52.50	50.20			
S95T003070		Lower ½	52.90	50.10	51.50			
S95T003071	112:8	Upper ½	25.90	30.30	28.10			
S95T003072		Lower ½	< 39.1	< 38.1	< 38.6			
S95T003073	112:9	Upper ½	42.20	41.20	41.70			
S95T003074		Lower ½	< 34.3	< 38.1	< 36.2			
S95T003075	112:10	Upper ½	< 37.2	< 36.4	< 36.8			
S95T003076		Lower ½	< 45.6	< 41.1	< 43.4			
S95T003077	112:11	Upper ½	< 40.7	< 34.8	< 37.8			
S95T003078		Lower ½	< 94.9	< 115	< 105			
S95T003079	112:12	Upper ½	< 107	< 96.6	< 102			
S95T003080		Lower ½	< 97.8	< 101	< 99.4			

Table B-10. Tank 241-B-204 Analytical Results: Cerium. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T003081	112:13	Upper ½	< 87.2	< 87.3	< 87.3			
S95T003082		Lower ½	< 97.2	< 84.7	< 91.0			
S95T003083	112:14	Upper ½	< 92.6	< 106	< 99.3			
S95T003084		Lower ½	< 199	< 181	< 190			
S95T003282	114:2	Upper ½	48.30	46.40	47.35			
S95T003283		Lower ½	45.30	48.50	46.90			
S95T003284	114:3	Upper ½	43.6	42.0	42.80			
S95T003285		Lower ½	< 169	< 193	< 181			
S95T003286	114:4	Upper ½	49.30	48.70	49.00			
S95T003287		Lower ½	47.10	44.30	45.70			
S95T003288	114:5	Upper ½	31.00	28.20	29.60			
S95T003289		Lower ½	43.00	41.50	42.25			
S95T003290	114:6	Upper ½	42.90	39.50	41.20			
S95T003291		Lower ½	< 34.4	< 42.5	38.5			
S95T003292	114:7	Upper ½	46.3	49.20	47.75			
S95T003293		Lower ½	44.10	36.80	40.45			
S95T003294	114:8	Upper ½	32.00	< 35.8	33.9			
S95T003295		Lower ½	32.50	34.50	33.50			
S95T003296	114:9	Upper ½	49.70	< 46.4	48.1			
S95T003297		Lower ½	44.20	< 45.0	44.6			

Table B-10. Tank 241-B-204 Analytical Results: Cerium. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T003298	114:10	Upper ½	< 37.0	< 35.9	< 36.5			
S95T003299		Lower ½	< 33.9	< 38.5	< 36.2			
S95T003300	114:11	Upper ½	< 47.0	< 48.3	< 47.7			
S95T003301		Lower ½	< 34.0	< 34.0	< 34.0			
S95T003302	114:12	Upper ½	30.20	31.00	30.60			
S95T003303		Lower ½	37.30	37.30	37.30			
S95T003304	114:13	Upper ½	56.20	62.60	59.40			
S95T003305		Lower ½	50.30	50.30	50.30			
S95T003306	114:14	Upper ½	49.00	50.10	49.55			
S95T003307		Lower ½	61.40	65.30	63.35			
Drainable liquids			µg/mL	µg/mL	µg/mL	µg/mL	%	kg
S95T002976	112:1	DL	< 20.1	< 20.1	< 20.1	< 15.1	n/a	< 0.0604
S95T002984	112:2	DL	< 20.1	< 20.1	< 20.1			
S95T003255	114:1	DL	< 10.1	< 10.1	< 10.1			

Table B-11. Tank 241-B-204 Analytical Results: Chromium. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T002980	112:2	Whole	1,190	1,110	1,150	3,240	5.7	714
S95T003061	112:3	Upper ½	1,790	1,880	1,840			
S95T003062		Lower ½	2,280	2,220	2,250			
S95T003063	112:4	Upper ½	1,990	2,630	2,310			
S95T003064		Lower ½	2,360	2,390	2,380			
S95T003065	112:5	Upper ½	2,950	2,550	2,750			
S95T003066		Lower ½	2,580	2,530	2,560			
S95T003067	112:6	Upper ½	3,040	3,150	3,100			
S95T003068		Lower ½	4,100	3,630	3,860			
S95T003069	112:7	Upper ½	3,970	4,260	4,120			
S95T003070		Lower ½	4,010	3,930	3,970			
S95T003071	112:8	Upper ½	3,360	3,440	3,400			
S95T003072		Lower ½	4,420	4,490	4,460			
S95T003073	112:9	Upper ½	4,700	4,650	4,680			
S95T003074		Lower ½	3,530	3,690	3,610			
S95T003075	112:10	Upper ½	3,680	3,710	3,700			
S95T003076		Lower ½	4,170	4,260	4,220			
S95T003077	112:11	Upper ½	4,250	4,320	4,280			
S95T003078		Lower ½	4,400	4,430	4,420			
S95T003079	112:12	Upper ½	3,710	3,780	3,740			
S95T003080		Lower ½	4,210	4,190	4,200			

Table B-11. Tank 241-B-204 Analytical Results: Chromium. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T003081	112:13	Upper ½	3,960	3,960	3,960			
S95T003082		Lower ½	4,390	4,230	4,310			
S95T003083	112:14	Upper ½	3,250	3,370	3,310			
S95T003084		Lower ½	1,940	1,860	1,900			
S95T003282	114:2	Upper ½	1,370	1,300	1,340			
S95T003283		Lower ½	1,840	1,940	1,890			
S95T003284	114:3	Upper ½	1,800	1,870	1,840			
S95T003285		Lower ½	2,720	2,670	2,700			
S95T003286	114:4	Upper ½	1,970	1,920	1,940			
S95T003287		Lower ½	2,460	2,510	2,480			
S95T003288	114:5	Upper ½	2,470	2,320	2,400			
S95T003289		Lower ½	2,920	2,910	2,920			
S95T003290	114:6	Upper ½	3,100	2,820	2,960			
S95T003291		Lower ½	3,250	3,220	3,240			
S95T003292	114:7	Upper ½	4,130	4,320	4,220			
S95T003293		Lower ½	3,590	3,250	3,420			
S95T003294	114:8	Upper ½	4,480	4,750	4,620			
S95T003295		Lower ½	3,940	3,660	3,800			
S95T003296	114:9	Upper ½	4,100	3,910	4,000			
S95T003297		Lower ½	4,470	4,360	4,420			

Table B-11. Tank 241-B-204 Analytical Results: Chromium. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T003298	114:10	Upper ½	3,550	3,300	3,420			
S95T003299		Lower ½	3,980	4,020	4,000			
S95T003300	114:11	Upper ½	4,390	4,120	4,260			
S95T003301		Lower ½	4,150	4,050	4,100			
S95T003302	114:12	Upper ½	3,220	3,390	3,300			
S95T003303		Lower ½	3,890	3,930	3,910			
S95T003304	114:13	Upper ½	4,310	4,360	4,340			
S95T003305		Lower ½	3,480	3,520	3,500			
S95T003306	114:14	Upper ½	2,250	2,230	2,240			
S95T003307		Lower ½	1,680	1,780	1,730			
Drainable liquids			µg/mL	µg/mL	µg/mL	µg/mL	%	kg
S95T002976	112:1	DL	154.1	152.0	153.0	154	2.7	0.615
S95T002984	112:2	DL	146.0	146.0	146.0			
S95T003255	114:1	DL	161.0	155.0	158.0			

Table B-12. Tank 241-B-204 Analytical Results: Cobalt. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T002980	112:2	Whole	< 5.53	< 7.43	< 6.48	< 8.97	n/a	< 1.98
S95T003061	112:3	Upper ½	< 4.82	< 3.77	< 4.30			
S95T003062		Lower ½	< 4.50	< 4.26	< 4.38			
S95T003063	112:4	Upper ½	< 3.51	< 4.66	< 4.09			
S95T003064		Lower ½	< 4.85	< 4.44	< 4.65			
S95T003065	112:5	Upper ½	< 8.74	< 8.32	< 8.53			
S95T003066		Lower ½	< 4.61	< 3.91	< 4.26			
S95T003067	112:6	Upper ½	< 9.33	< 6.89	< 8.11			
S95T003068		Lower ½	< 4.45	< 3.87	< 4.16			
S95T003069	112:7	Upper ½	< 7.30	< 7.62	< 7.46			
S95T003070		Lower ½	< 7.03	< 6.85	< 6.94			
S95T003071	112:8	Upper ½	< 4.19	< 4.60	< 4.40			
S95T003072		Lower ½	< 7.81	< 7.62	< 7.72			
S95T003073	112:9	Upper ½	< 8.28	< 7.59	< 7.94			
S95T003074		Lower ½	< 6.85	< 7.62	< 7.24			
S95T003075	112:10	Upper ½	< 7.43	< 7.27	< 7.35			
S95T003076		Lower ½	< 9.12	< 8.21	< 8.67			
S95T003077	112:11	Upper ½	8.380	8.080	8.230			
S95T003078		Lower ½	< 19.0	< 22.9	< 21.0			
S95T003079	112:12	Upper ½	< 21.4	< 19.3	< 20.4			
S95T003080		Lower ½	< 19.6	< 20.2	< 19.9			

Table B-12. Tank 241-B-204 Analytical Results: Cobalt. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T003081	112:13	Upper ½	< 17.4	< 17.6	< 17.5			
S95T003082		Lower ½	< 19.4	< 16.9	< 18.2			
S95T003083	112:14	Upper ½	< 18.5	< 21.2	< 19.9			
S95T003084		Lower ½	< 39.8	< 36.2	< 38.0			
S95T003282	114:2	Upper ½	< 4.19	< 4.40	< 4.30			
S95T003283		Lower ½	< 3.81	< 3.64	< 3.73			
S95T003284	114:3	Upper ½	< 3.96	< 3.78	< 3.87			
S95T003285		Lower ½	< 33.8	< 38.6	< 36.2			
S95T003286	114:4	Upper ½	< 4.45	< 3.94	< 4.20			
S95T003287		Lower ½	< 7.02	< 8.85	< 7.94			
S95T003288	114:5	Upper ½	< 4.44	< 3.87	< 4.16			
S95T003289		Lower ½	< 4.51	< 4.68	< 4.60			
S95T003290	114:6	Upper ½	< 4.52	< 3.96	< 4.24			
S95T003291		Lower ½	< 6.87	< 8.50	< 7.69			
S95T003292	114:7	Upper ½	< 4.68	< 4.35	< 4.52			
S95T003293		Lower ½	< 4.31	< 3.88	< 4.10			
S95T003294	114:8	Upper ½	< 4.34	< 7.16	< 5.75			
S95T003295		Lower ½	< 4.10	< 4.00	< 4.05			
S95T003296	114:9	Upper ½	< 8.22	< 9.29	< 8.76			
S95T003297		Lower ½	< 7.55	< 9.01	< 8.28			

Table B-12. Tank 241-B-204 Analytical Results: Cobalt. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T003298	114:10	Upper ½	< 7.40	< 7.17	< 7.29			
S95T003299		Lower ½	< 6.77	< 7.71	< 7.24			
S95T003300	114:11	Upper ½	< 9.40	< 9.66	< 9.53			
S95T003301		Lower ½	< 6.80	< 6.82	< 6.81			
S95T003302	114:12	Upper ½	< 4.80	< 4.42	< 4.61			
S95T003303		Lower ½	< 4.47	< 7.41	< 5.94			
S95T003304	114:13	Upper ½	< 9.16	< 8.18	< 8.67			
S95T003305		Lower ½	< 7.21	< 7.31	< 7.26			
S95T003306	114:14	Upper ½	< 8.58	< 8.55	< 8.57			
S95T003307		Lower ½	< 7.73	< 8.46	< 8.10			
Drainable liquids			µg/mL	µg/mL	µg/mL	µg/mL	%	kg
S95T002976	112:1	DL	< 4.02	< 4.02	< 4.02	< 3.02	n/a	< 0.0121
S95T002984	112:2	DL	< 4.02	< 4.02	< 4.02			
S95T003255	114:1	DL	< 2.02	< 2.02	< 2.02			

Table B-13. Tank 241-B-204 Analytical Results: Copper. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T002980	112:2	Whole	39.20	11.30	25.25	22.1	80.4	4.87
S95T003061	112:3	Upper ½	3.190	< 1.88	2.54			
S95T003062		Lower ½	12.20	9.760	10.98			
S95T003063	112:4	Upper ½	2.740	3.580	3.160			
S95T003064		Lower ½	92.60	90.30	91.45			
S95T003065	112:5	Upper ½	20.50	15.30	17.90			
S95T003066		Lower ½	4.880	2.720	3.800			
S95T003067	112:6	Upper ½	4.970	< 3.46	4.22			
S95T003068		Lower ½	2.290	< 1.94	2.12			
S95T003069	112:7	Upper ½	< 3.64	< 3.81	< 3.73			
S95T003070		Lower ½	< 3.51	< 3.43	< 3.47			
S95T003071	112:8	Upper ½	< 2.10	< 2.30	< 2.20			
S95T003072		Lower ½	4.460	< 3.81	4.14			
S95T003073	112:9	Upper ½	5.170	4.300	4.735			
S95T003074		Lower ½	< 3.43	< 3.81	< 3.62			
S95T003075	112:10	Upper ½	3.720	7.810	5.767			
S95T003076		Lower ½	7.220	5.940	6.580			
S95T003077	112:11	Upper ½	9.410	8.690	9.050			
S95T003078		Lower ½	< 9.49	< 11.5	< 10.5			
S95T003079	112:12	Upper ½	< 10.7	< 9.66	< 10.2			
S95T003080		Lower ½	19.70	1,450	734.9			

Table B-13. Tank 241-B-204 Analytical Results: Copper. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T003081	112:13	Upper ½	< 8.72	< 8.73	< 8.73			
S95T003082		Lower ½	< 9.72	< 8.47	< 9.10			
S95T003083	112:14	Upper ½	< 9.26	< 10.6	< 9.93			
S95T003084		Lower ½	< 19.9	< 18.1	< 19.0			
S95T003282	114:2	Upper ½	< 2.10	< 2.20	< 2.15			
S95T003283		Lower ½	< 1.95	< 1.82	< 1.89			
S95T003284	114:3	Upper ½	9.350	8.270	8.810			
S95T003285		Lower ½	< 16.9	< 19.3	< 18.1			
S95T003286	114:4	Upper ½	4.070	3.500	3.785			
S95T003287		Lower ½	< 3.51	< 4.43	< 3.97			
S95T003288	114:5	Upper ½	4.170	2.130	3.150			
S95T003289		Lower ½	3.010	4.590	3.800			
S95T003290	114:6	Upper ½	4.020	< 1.98	3.00			
S95T003291		Lower ½	< 3.44	< 4.25	< 3.85			
S95T003292	114:7	Upper ½	2.590	< 2.17	2.38			
S95T003293		Lower ½	< 2.16	2.790	2.48			
S95T003294	114:8	Upper ½	< 2.17	< 3.58	< 2.88			
S95T003295		Lower ½	< 2.05	2.800	2.43			
S95T003296	114:9	Upper ½	< 4.11	< 4.64	< 4.38			
S95T003297		Lower ½	< 3.79	5.010	4.40			

Table B-13. Tank 241-B-204 Analytical Results: Copper. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T003298	114:10	Upper ½	< 3.70	3.700	3.70			
S95T003299		Lower ½	5.050	7.570	6.310			
S95T003300	114:11	Upper ½	7.230	9.090	8.160			
S95T003301		Lower ½	4.560	5.930	5.245			
S95T003302	114:12	Upper ½	2.850	4.530	3.690			
S95T003303		Lower ½	3.210	< 3.70	3.46			
S95T003304	114:13	Upper ½	< 4.58	< 4.09	< 4.34			
S95T003305		Lower ½	< 3.60	< 3.66	< 3.63			
S95T003306	114:14	Upper ½	5.150	< 4.27	4.71			
S95T003307		Lower ½	< 3.86	4.510	4.19			
Drainable liquids			µg/mL	µg/mL	µg/mL	µg/mL	%	kg
S95T002976	112:1	DL	< 2.01	< 2.01	< 2.01	< 1.51	n/a	< 0.00604
S95T002984	112:2	DL	< 2.01	< 2.01	< 2.01			
S95T003255	114:1	DL	< 1.01	< 1.01	< 1.01			

Table B-14. Tank 241-B-204 Analytical Results: Iron. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T002980	112:2	Whole	8,960	8,180	8,570	3,810	12.1	839
S95T003061	112:3	Upper ½	2,340	2,470	2,400			
S95T003062		Lower ½	2,730	2,650	2,690			
S95T003063	112:4	Upper ½	9,230	12,200	10,700			
S95T003064		Lower ½	3,070	3,100	3,080			
S95T003065	112:5	Upper ½	3,620	3,030	3,320			
S95T003066		Lower ½	2,620	2,520	2,570			
S95T003067	112:6	Upper ½	3,010	3,140	3,080			
S95T003068		Lower ½	3,650	3,230	3,440			
S95T003069	112:7	Upper ½	3,340	3,800	3,570			
S95T003070		Lower ½	3,970	3,830	3,900			
S95T003071	112:8	Upper ½	2,760	2,900	2,830			
S95T003072		Lower ½	3,270	3,290	3,280			
S95T003073	112:9	Upper ½	3,940	3,900	3,920			
S95T003074		Lower ½	3,330	3,520	3,420			
S95T003075	112:10	Upper ½	3,350	3,450	3,400			
S95T003076		Lower ½	4,250	4,220	4,240			
S95T003077	112:11	Upper ½	5,490	5,730	5,610			
S95T003078		Lower ½	4,870	4,810	4,840			
S95T003079	112:12	Upper ½	4,020	4,050	4,040			
S95T003080		Lower ½	4,770	4,540	4,660			

Table B-14. Tank 241-B-204 Analytical Results: Iron. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T003081	112:13	Upper ½	3,570	3,660	3,620			
S95T003082		Lower ½	4,060	3,970	4,020			
S95T003083	112:14	Upper ½	4,950	4,420	4,680			
S95T003084		Lower ½	4,310	4,140	4,220			
S95T003282	114:2	Upper ½	3,330	2,420	2,880			
S95T003283		Lower ½	2,080	2,160	2,120			
S95T003284	114:3	Upper ½	2,430	2,400	2,420			
S95T003285		Lower ½	2,640	2,610	2,620			
S95T003286	114:4	Upper ½	2,680	2,710	2,700			
S95T003287		Lower ½	2,890	3,040	2,960			
S95T003288	114:5	Upper ½	2,710	2,560	2,640			
S95T003289		Lower ½	2,710	2,710	2,710			
S95T003290	114:6	Upper ½	3,180	2,870	3,020			
S95T003291		Lower ½	2,990	2,920	2,960			
S95T003292	114:7	Upper ½	2,900	3,160	3,030			
S95T003293		Lower ½	2,750	2,560	2,660			
S95T003294	114:8	Upper ½	3,850	3,650	3,750			
S95T003295		Lower ½	3,110	2,980	3,040			
S95T003296	114:9	Upper ½	3,620	3,280	3,450			
S95T003297		Lower ½	3,980	3,880	3,930			

Table B-14. Tank 241-B-204 Analytical Results: Iron. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T003298	114:10	Upper ½	3,730	3,500	3,620			
S95T003299		Lower ½	3,810	3,830	3,820			
S95T003300	114:11	Upper ½	5,590	5,350	5,470			
S95T003301		Lower ½	4,150	4,080	4,120			
S95T003302	114:12	Upper ½	3,150	3,350	3,250			
S95T003303		Lower ½	3,780	3,820	3,800			
S95T003304	114:13	Upper ½	3,850	3,850	3,850			
S95T003305		Lower ½	3,380	3,430	3,400			
S95T003306	114:14	Upper ½	3,640	3,610	3,620			
S95T003307		Lower ½	3,590	3,870	3,730			
Drainable liquids			µg/mL	µg/mL	µg/mL	µg/mL	%	kg
S95T002976	112:1	DL	< 10.0	< 10.0	< 10.0	< 7.53	n/a	< 0.0301
S95T002984	112:2	DL	< 10.0	< 10.0	< 10.0			
S95T003255	114:1	DL	< 5.05	< 5.05	< 5.05			

Table B-15. Tank 241-B-204 Analytical Results: Lanthanum. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T002980	112:2	Whole	8,170	7,560	7,860	10,400	2.6	2,290
S95T003061	112:3	Upper ½	8,890	9,380	9,140			
S95T003062		Lower ½	10,500	10,300	10,400			
S95T003063	112:4	Upper ½	8,910	11,700	10,300			
S95T003064		Lower ½	11,400	11,400	11,400			
S95T003065	112:5	Upper ½	10,900	9,040	9,970			
S95T003066		Lower ½	9,130	8,710	8,920			
S95T003067	112:6	Upper ½	11,000	11,800	11,400			
S95T003068		Lower ½	10,200	8,950	9,580			
S95T003069	112:7	Upper ½	10,300	11,200	10,800			
S95T003070		Lower ½	12,700	12,000	12,400			
S95T003071	112:8	Upper ½	7,730	8,370	8,050			
S95T003072		Lower ½	8,430	8,330	8,380			
S95T003073	112:9	Upper ½	10,100	9,940	10,000			
S95T003074		Lower ½	9,870	9,930	9,900			
S95T003075	112:10	Upper ½	9,280	9,810	9,540			
S95T003076		Lower ½	9,300	10,400	9,850			
S95T003077	112:11	Upper ½	8,430	9,370	8,900			
S95T003078		Lower ½	10,900	9,950	10,400			
S95T003079	112:12	Upper ½	11,500	10,600	11,000			
S95T003080		Lower ½	14,700	11,700	13,200			

Table B-15. Tank 241-B-204 Analytical Results: Lanthanum. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T003081	112:13	Upper ½	10,900	12,100	11,500			
S95T003082		Lower ½	13,100	12,600	12,800			
S95T003083	112:14	Upper ½	16,200	11,100	13,600			
S95T003084		Lower ½	14,600	14,300	14,400			
S95T003282	114:2	Upper ½	11,500	11,300	11,400			
S95T003283		Lower ½	9,090	9,370	9,230			
S95T003284	114:3	Upper ½	8,240	8,490	8,360			
S95T003285		Lower ½	9,820	9,850	9,840			
S95T003286	114:4	Upper ½	10,700	10,800	10,800			
S95T003287		Lower ½	9,700	10,200	9,950			
S95T003288	114:5	Upper ½	6,920	6,530	6,720			
S95T003289		Lower ½	11,000	11,100	11,000			
S95T003290	114:6	Upper ½	10,200	9,060	9,630			
S95T003291		Lower ½	7,700	7,440	7,570			
S95T003292	114:7	Upper ½	9,800	10,400	10,100			
S95T003293		Lower ½	9,900	8,510	9,200			
S95T003294	114:8	Upper ½	9,430	9,620	9,520			
S95T003295		Lower ½	10,700	10,400	10,600			
S95T003296	114:9	Upper ½	12,000	11,400	11,700			
S95T003297		Lower ½	12,600	12,500	12,600			

Table B-15. Tank 241-B-204 Analytical Results: Lanthanum. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T003298	114:10	Upper ½	10,600	10,100	10,400			
S95T003299		Lower ½	9,600	9,830	9,720			
S95T003300	114:11	Upper ½	10,900	10,100	10,500			
S95T003301		Lower ½	10,600	10,300	10,400			
S95T003302	114:12	Upper ½	8,850	9,700	9,280			
S95T003303		Lower ½	11,400	11,500	11,400			
S95T003304	114:13	Upper ½	13,200	14,000	13,600			
S95T003305		Lower ½	10,600	10,100	10,400			
S95T003306	114:14	Upper ½	11,500	11,600	11,600			
S95T003307		Lower ½	12,000	12,800	12,400			
Drainable liquids			µg/mL	µg/mL	µg/mL	µg/mL	%	kg
S95T002976	112:1	DL	< 10.0	< 10.0	< 10.0	< 7.53	n/a	< 0.0301
S95T002984	112:2	DL	< 10.0	< 10.0	< 10.0			
S95T003255	114:1	DL	< 5.05	< 5.05	< 5.05			

Table B-16. Tank 241-B-204 Analytical Results: Lead. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T002980	112:2	Whole	610.0	568.0	589.0	< 1,070	n/a	< 236
S95T003061	112:3	Upper ½	< 24.1	< 18.8	< 21.5			
S95T003062		Lower ½	< 22.5	< 21.3	< 21.9			
S95T003063	112:4	Upper ½	< 17.6	< 23.3	< 20.5			
S95T003064		Lower ½	38.60	44.30	41.45			
S95T003065	112:5	Upper ½	< 43.7	< 41.6	< 42.7			
S95T003066		Lower ½	< 23.1	19.60	21.4			
S95T003067	112:6	Upper ½	< 46.6	< 34.6	< 40.6			
S95T003068		Lower ½	30.30	27.40	28.85			
S95T003069	112:7	Upper ½	47.10	40.90	44.0			
S95T003070		Lower ½	< 35.1	< 34.3	< 34.7			
S95T003071	112:8	Upper ½	< 21.0	< 23.0	< 22.0			
S95T003072		Lower ½	357.0	366.0	361.5			
S95T003073	112:9	Upper ½	557.0	557.0	557.0			
S95T003074		Lower ½	485.0	580.0	532.5			
S95T003075	112:10	Upper ½	39,400	40,300	39,800			
S95T003076		Lower ½	103.0	94.40	98.70			
S95T003077	112:11	Upper ½	< 40.7	< 34.8	< 37.8			
S95T003078		Lower ½	< 94.9	< 115	< 105			
S95T003079	112:12	Upper ½	< 107	< 96.6	< 102			
S95T003080		Lower ½	< 97.8	< 101	< 99.4			

Table B-16. Tank 241-B-204 Analytical Results: Lead. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T003081	112:13	Upper ½	< 87.2	< 87.3	< 87.3			
S95T003082		Lower ½	< 97.2	< 84.7	< 91.0			
S95T003083	112:14	Upper ½	1,310	825.0	1070			
S95T003084		Lower ½	3,780	3,710	3,740			
S95T003282	114:2	Upper ½	< 21.0	< 22.0	< 21.5			
S95T003283		Lower ½	< 19.5	< 18.2	< 18.9			
S95T003284	114:3	Upper ½	< 19.8	< 18.9	< 19.35			
S95T003285		Lower ½	< 169	< 193	< 181			
S95T003286	114:4	Upper ½	< 22.3	< 19.7	< 21.0			
S95T003287		Lower ½	< 35.1	< 44.3	< 39.7			
S95T003288	114:5	Upper ½	< 22.2	< 19.3	< 20.8			
S95T003289		Lower ½	< 22.6	< 23.4	< 23.0			
S95T003290	114:6	Upper ½	< 22.6	< 19.8	< 21.2			
S95T003291		Lower ½	< 34.4	< 42.5	< 38.5			
S95T003292	114:7	Upper ½	< 23.4	< 21.7	< 22.6			
S95T003293		Lower ½	< 21.6	< 19.4	< 20.5			
S95T003294	114:8	Upper ½	< 21.7	< 35.8	< 28.8			
S95T003295		Lower ½	< 20.5	< 20.0	< 20.3			
S95T003296	114:9	Upper ½	< 41.1	< 46.4	< 43.7			
S95T003297		Lower ½	< 37.9	< 45.0	< 41.5			

Table B-16. Tank 241-B-204 Analytical Results: Lead. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T003298	114:10	Upper ½	< 37.0	< 35.9	< 36.5			
S95T003299		Lower ½	< 33.9	< 38.5	< 36.2			
S95T003300	114:11	Upper ½	< 47.0	< 48.3	< 47.7			
S95T003301		Lower ½	< 34.0	< 34.0	< 34.0			
S95T003302	114:12	Upper ½	< 24.0	< 22.1	< 23.1			
S95T003303		Lower ½	< 22.3	< 37.0	< 29.7			
S95T003304	114:13	Upper ½	< 45.8	< 40.9	< 43.4			
S95T003305		Lower ½	40.40	50.50	45.45			
S95T003306	114:14	Upper ½	1,470	1,460	1,460			
S95T003307		Lower ½	5,140	5,460	5,300			
Drainable liquids			µg/mL	µg/mL	µg/mL	µg/mL	%	kg
S95T002976	112:1	DL	< 20.1	< 20.1	< 20.1	< 15.1	n/a	< 0.0604
S95T002984	112:2	DL	< 20.1	< 20.1	< 20.1			
S95T003255	114:1	DL	< 10.1	< 10.1	< 10.1			

Table B-17. Tank 241-B-204 Analytical Results: Magnesium. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T002980	112:2	Whole	356.0	322.0	339.0	82.8	20.2	18.2
S95T003061	112:3	Upper ½	62.10	69.60	65.85			
S95T003062		Lower ½	88.20	83.10	85.65			
S95T003063	112:4	Upper ½	61.60	80.60	71.10			
S95T003064		Lower ½	72.10	76.20	74.15			
S95T003065	112:5	Upper ½	71.70	54.30	63.00			
S95T003066		Lower ½	50.70	50.30	50.50			
S95T003067	112:6	Upper ½	55.50	43.10	49.30			
S95T003068		Lower ½	59.20	53.00	56.10			
S95T003069	112:7	Upper ½	< 36.4	50.60	43.5			
S95T003070		Lower ½	45.20	48.20	46.70			
S95T003071	112:8	Upper ½	41.60	43.80	42.70			
S95T003072		Lower ½	39.50	40.30	39.90			
S95T003073	112:9	Upper ½	45.60	51.50	48.55			
S95T003074		Lower ½	41.60	47.20	44.40			
S95T003075	112:10	Upper ½	40.50	42.90	41.70			
S95T003076		Lower ½	< 45.6	48.10	46.9			
S95T003077	112:11	Upper ½	44.50	52.70	48.60			
S95T003078		Lower ½	< 94.9	< 115	< 105			
S95T003079	112:12	Upper ½	< 107	< 96.6	< 102			
S95T003080		Lower ½	< 97.8	< 101	< 99.4			

Table B-17. Tank 241-B-204 Analytical Results: Magnesium. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T003081	112:13	Upper ½	< 87.2	< 87.3	< 87.2			
S95T003082		Lower ½	< 97.2	< 84.7	< 91.0			
S95T003083	112:14	Upper ½	< 92.6	< 106	< 99.3			
S95T003084		Lower ½	< 199	< 181	< 195			
S95T003282	114:2	Upper ½	63.40	59.60	61.50			
S95T003283		Lower ½	30.40	33.70	32.05			
S95T003284	114:3	Upper ½	47.30	47.90	47.60			
S95T003285		Lower ½	< 169	< 193	< 181			
S95T003286	114:4	Upper ½	54.80	48.10	51.45			
S95T003287		Lower ½	82.90	45.70	64.30			
S95T003288	114:5	Upper ½	34.70	31.30	33.00			
S95T003289		Lower ½	27.20	29.70	28.45			
S95T003290	114:6	Upper ½	43.40	35.30	39.35			
S95T003291		Lower ½	< 34.4	< 42.5	< 38.5			
S95T003292	114:7	Upper ½	29.20	32.30	30.75			
S95T003293		Lower ½	34.30	32.00	33.15			
S95T003294	114:8	Upper ½	1,240	312.0	776.0			
S95T003295		Lower ½	31.30	30.70	31.00			
S95T003296	114:9	Upper ½	< 41.1	< 46.4	< 43.8			
S95T003297		Lower ½	< 37.9	< 45.0	< 41.5			

Table B-17. Tank 241-B-204 Analytical Results: Magnesium. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T003298	114:10	Upper ½	< 37.0	< 35.9	< 36.5			
S95T003299		Lower ½	36.20	< 38.5	37.4			
S95T003300	114:11	Upper ½	< 47.0	< 48.3	< 47.7			
S95T003301		Lower ½	< 34.0	< 34.0	< 34.0			
S95T003302	114:12	Upper ½	28.60	30.90	29.75			
S95T003303		Lower ½	38.30	< 37.0	37.7			
S95T003304	114:13	Upper ½	< 45.8	41.90	43.9			
S95T003305		Lower ½	44.0	< 36.6	40.3			
S95T003306	114:14	Upper ½	< 42.9	< 42.7	42.8			
S95T003307		Lower ½	< 38.6	54.20	46.4			
Drainable liquids			µg/mL	µg/mL	µg/mL	µg/mL	%	kg
S95T002976	112:1	DL	< 20.1	< 20.1	< 20.1	< 15.1	n/a	< 0.0604
S95T002984	112:2	DL	< 20.1	< 20.1	< 20.1			
S95T003255	114:1	DL	< 10.1	< 10.1	< 10.1			

Table B-18. Tank 241-B-204 Analytical Results: Manganese. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T002980	112:2	Whole	9,290	8,280	8,780	14,800	2.7	3,270
S95T003061	112:3	Upper ½	8,660	9,620	9,140			
S95T003062		Lower ½	13,500	13,300	13,400			
S95T003063	112:4	Upper ½	11,900	15,800	13,800			
S95T003064		Lower ½	17,700	18,600	18,200			
S95T003065	112:5	Upper ½	18,600	15,200	16,900			
S95T003066		Lower ½	15,500	15,500	15,500			
S95T003067	112:6	Upper ½	13,800	15,200	14,500			
S95T003068		Lower ½	16,200	14,500	15,400			
S95T003069	112:7	Upper ½	14,500	16,800	15,600			
S95T003070		Lower ½	17,700	17,600	17,600			
S95T003071	112:8	Upper ½	12,500	13,100	12,800			
S95T003072		Lower ½	14,900	15,100	15,000			
S95T003073	112:9	Upper ½	16,000	16,000	16,000			
S95T003074		Lower ½	14,500	15,100	14,800			
S95T003075	112:10	Upper ½	14,200	14,800	14,500			
S95T003076		Lower ½	13,900	15,500	14,700			
S95T003077	112:11	Upper ½	15,800	16,500	16,200			
S95T003078		Lower ½	15,400	14,900	15,200			
S95T003079	112:12	Upper ½	15,900	15,800	15,800			
S95T003080		Lower ½	18,600	16,800	17,700			

Table B-18. Tank 241-B-204 Analytical Results: Manganese. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T003081	112:13	Upper ½	14,800	15,600	15,200			
S95T003082		Lower ½	17,400	17,000	17,200			
S95T003083	112:14	Upper ½	20,900	17,400	19,200			
S95T003084		Lower ½	17,500	16,900	17,200			
S95T003282	114:2	Upper ½	11,400	10,900	11,200			
S95T003283		Lower ½	10,800	11,700	11,200			
S95T003284	114:3	Upper ½	11,200	11,900	11,600			
S95T003285		Lower ½	11,700	11,600	11,600			
S95T003286	114:4	Upper ½	14,100	14,900	14,500			
S95T003287		Lower ½	14,500	14,900	14,700			
S95T003288	114:5	Upper ½	13,800	13,400	13,600			
S95T003289		Lower ½	14,100	14,200	14,200			
S95T003290	114:6	Upper ½	15,000	13,800	14,400			
S95T003291		Lower ½	12,700	12,200	12,400			
S95T003292	114:7	Upper ½	14,900	16,800	15,800			
S95T003293		Lower ½	15,300	13,100	14,200			
S95T003294	114:8	Upper ½	15,500	15,100	15,300			
S95T003295		Lower ½	16,800	16,100	16,400			
S95T003296	114:9	Upper ½	15,900	14,800	15,400			
S95T003297		Lower ½	16,600	16,000	16,300			

Table B-18. Tank 241-B-204 Analytical Results: Manganese. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T003298	114:10	Upper ½	16,000	14,900	15,400			
S95T003299		Lower ½	14,900	15,000	15,000			
S95T003300	114:11	Upper ½	16,600	15,800	16,200			
S95T003301		Lower ½	16,500	16,100	16,300			
S95T003302	114:12	Upper ½	13,900	15,500	14,700			
S95T003303		Lower ½	17,400	16,200	16,800			
S95T003304	114:13	Upper ½	17,700	18,600	18,200			
S95T003305		Lower ½	15,800	16,000	15,900			
S95T003306	114:14	Upper ½	15,700	15,400	15,600			
S95T003307		Lower ½	15,400	16,400	15,900			
Drainable liquids			µg/mL	µg/mL	µg/mL	µg/mL	%	kg
S95T002976	112:1	DL	< 2.01	< 2.01	< 2.01	< 1.51	n/a	< 0.00604
S95T002984	112:2	DL	< 2.01	< 2.01	< 2.01			
S95T003255	114:1	DL	< 1.01	< 1.01	< 1.01			

Table B-19. Tank 241-B-204 Analytical Results: Molybdenum. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T002980	112:2	Whole	< 13.8	< 18.6	< 16.2	< 22.4	n/a	< 4.93
S95T003061	112:3	Upper ½	< 12.0	< 9.42	< 10.7			
S95T003062		Lower ½	< 11.2	< 10.6	< 10.9			
S95T003063	112:4	Upper ½	< 8.78	< 11.6	< 10.2			
S95T003064		Lower ½	< 12.1	< 11.1	< 11.6			
S95T003065	112:5	Upper ½	< 21.8	< 20.8	< 21.3			
S95T003066		Lower ½	< 11.5	< 9.77	< 10.6			
S95T003067	112:6	Upper ½	< 23.3	< 17.2	< 20.3			
S95T003068		Lower ½	< 11.1	< 9.69	< 10.4			
S95T003069	112:7	Upper ½	< 18.2	< 19.0	< 18.6			
S95T003070		Lower ½	< 17.6	< 17.1	< 17.4			
S95T003071	112:8	Upper ½	< 10.5	< 11.5	< 11.0			
S95T003072		Lower ½	< 19.5	< 19.1	< 19.3			
S95T003073	112:9	Upper ½	< 20.7	< 19.0	< 19.8			
S95T003074		Lower ½	< 17.1	< 19.1	< 18.1			
S95T003075	112:10	Upper ½	< 18.6	< 18.2	< 18.4			
S95T003076		Lower ½	< 22.8	< 20.5	< 21.7			
S95T003077	112:11	Upper ½	< 20.3	< 17.4	< 18.9			
S95T003078		Lower ½	< 47.4	< 57.4	< 52.4			
S95T003079	112:12	Upper ½	< 53.5	< 48.3	< 50.9			
S95T003080		Lower ½	< 48.9	< 50.4	< 49.7			

Table B-19. Tank 241-B-204 Analytical Results: Molybdenum. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T003081	112:13	Upper ½	< 43.6	< 43.6	< 43.6			
S95T003082		Lower ½	< 48.6	< 42.4	< 45.5			
S95T003083	112:14	Upper ½	< 46.3	< 52.9	< 49.6			
S95T003084		Lower ½	< 99.6	< 90.5	< 95.0			
S95T003282	114:2	Upper ½	< 10.5	< 11.0	< 10.8			
S95T003283		Lower ½	< 9.74	< 9.10	< 9.42			
S95T003284	114:3	Upper ½	< 9.90	< 9.44	< 9.67			
S95T003285		Lower ½	< 84.5	< 96.6	< 90.6			
S95T003286	114:4	Upper ½	< 11.1	< 9.84	< 10.5			
S95T003287		Lower ½	< 17.7	< 22.1	< 19.9			
S95T003288	114:5	Upper ½	< 11.1	< 9.66	< 10.4			
S95T003289		Lower ½	< 11.3	< 11.7	< 11.5			
S95T003290	114:6	Upper ½	< 11.3	< 9.90	< 10.6			
S95T003291		Lower ½	< 17.2	< 21.3	< 19.3			
S95T003292	114:7	Upper ½	< 11.7	< 10.9	< 11.3			
S95T003293		Lower ½	< 10.8	< 9.69	< 10.3			
S95T003294	114:8	Upper ½	< 11.0	< 17.9	< 14.5			
S95T003295		Lower ½	< 10.4	< 10.0	< 10.2			
S95T003296	114:9	Upper ½	< 20.7	< 23.2	< 22.0			
S95T003297		Lower ½	< 18.9	< 22.5	< 20.7			

Table B-19. Tank 241-B-204 Analytical Results: Molybdenum. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T003298	114:10	Upper ½	< 18.5	< 17.9	< 18.2			
S95T003299		Lower ½	< 16.9	< 19.3	< 18.1			
S95T003300	114:11	Upper ½	< 23.5	< 24.1	< 23.8			
S95T003301		Lower ½	< 17.0	< 17.0	< 17.0			
S95T003302	114:12	Upper ½	< 12.0	< 11.0	< 11.5			
S95T003303		Lower ½	< 11.2	< 18.5	< 14.9			
S95T003304	114:13	Upper ½	< 22.9	< 20.4	< 21.7			
S95T003305		Lower ½	< 18.0	< 18.3	< 18.2			
S95T003306	114:14	Upper ½	< 21.6	< 21.4	< 21.5			
S95T003307		Lower ½	< 19.3	< 21.1	< 20.2			
Drainable liquids			µg/mL	µg/mL	µg/mL	µg/mL	%	kg
S95T002976	112:1	DL	< 10.0	< 10.0	< 10.0	< 7.53	n/a	< 0.0301
S95T002984	112:2	DL	< 10.0	< 10.0	< 10.0			
S95T003255	114:1	DL	< 5.05	< 5.05	< 5.05			

Table B-20. Tank 241-B-204 Analytical Results: Neodymium. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T002980	112:2	Whole	< 27.6	< 37.1	< 32.4	< 44.8	n/a	< 9.86
S95T003061	112:3	Upper ½	< 24.1	< 18.8	< 21.5			
S95T003062		Lower ½	< 22.5	< 21.3	< 21.9			
S95T003063	112:4	Upper ½	< 17.6	< 23.3	< 20.5			
S95T003064		Lower ½	< 24.3	< 22.2	< 23.3			
S95T003065	112:5	Upper ½	< 43.7	< 41.6	< 42.7			
S95T003066		Lower ½	< 23.1	< 19.5	< 21.3			
S95T003067	112:6	Upper ½	< 46.6	< 34.6	< 40.6			
S95T003068		Lower ½	< 22.3	< 19.4	< 20.9			
S95T003069	112:7	Upper ½	< 36.4	< 38.1	< 37.3			
S95T003070		Lower ½	< 35.1	< 34.3	< 34.7			
S95T003071	112:8	Upper ½	< 21.0	< 23.0	< 22.0			
S95T003072		Lower ½	< 39.1	< 38.1	< 38.6			
S95T003073	112:9	Upper ½	< 41.4	< 38.0	< 39.7			
S95T003074		Lower ½	< 34.3	< 38.1	< 36.2			
S95T003075	112:10	Upper ½	< 37.2	< 36.4	< 36.8			
S95T003076		Lower ½	< 45.6	< 41.1	< 43.4			
S95T003077	112:11	Upper ½	< 40.7	< 34.8	< 37.8			
S95T003078		Lower ½	< 94.9	< 115	< 105.0			
S95T003079	112:12	Upper ½	< 107	< 96.6	< 101.8			
S95T003080		Lower ½	< 97.8	< 101	< 99.4			

Table B-20. Tank 241-B-204 Analytical Results: Neodymium. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T003081	112:13	Upper ½	< 87.2	< 87.3	< 87.3			
S95T003082		Lower ½	< 97.2	< 84.7	< 91.0			
S95T003083	112:14	Upper ½	< 92.6	< 106	< 99.3			
S95T003084		Lower ½	< 199	< 181	< 190.0			
S95T003282	114:2	Upper ½	< 21.0	< 22.0	< 21.5			
S95T003283		Lower ½	< 19.5	< 18.2	< 18.9			
S95T003284	114:3	Upper ½	< 19.8	< 18.9	< 19.4			
S95T003285		Lower ½	< 169	< 193	< 181.0			
S95T003286	114:4	Upper ½	< 22.3	< 19.7	< 21.0			
S95T003287		Lower ½	< 35.1	< 44.3	< 39.7			
S95T003288	114:5	Upper ½	< 22.2	< 19.3	< 20.8			
S95T003289		Lower ½	< 22.6	< 23.4	< 23.0			
S95T003290	114:6	Upper ½	< 22.6	< 19.8	< 21.2			
S95T003291		Lower ½	< 34.4	< 42.5	< 38.5			
S95T003292	114:7	Upper ½	< 23.4	< 21.7	< 22.6			
S95T003293		Lower ½	< 21.6	< 19.4	< 20.5			
S95T003294	114:8	Upper ½	< 21.7	< 35.8	< 28.8			
S95T003295		Lower ½	< 20.5	< 20.0	< 20.3			
S95T003296	114:9	Upper ½	< 41.1	< 46.4	< 43.8			
S95T003297		Lower ½	< 37.9	< 45.0	< 41.5			

Table B-20. Tank 241-B-204 Analytical Results: Neodymium. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T003298	114:10	Upper ½	< 37.0	< 35.9	< 36.5			
S95T003299		Lower ½	< 33.9	< 38.5	< 36.2			
S95T003300	114:11	Upper ½	< 47.0	< 48.3	< 47.7			
S95T003301		Lower ½	< 34.0	< 34.0	< 34.0			
S95T003302	114:12	Upper ½	< 24.0	< 22.1	< 23.1			
S95T003303		Lower ½	< 22.3	< 37.0	< 29.7			
S95T003304	114:13	Upper ½	< 45.8	< 40.9	< 43.4			
S95T003305		Lower ½	< 36.0	< 36.6	< 36.3			
S95T003306	114:14	Upper ½	< 42.9	< 42.7	< 42.8			
S95T003307		Lower ½	< 38.6	< 42.2	< 40.4			
Drainable liquids			µg/mL	µg/mL	µg/mL	µg/mL	%	kg
S95T002976	112:1	DL	< 20.1	< 20.1	< 20.1	< 15.1	n/a	< 0.0604
S95T002984	112:2	DL	< 20.1	< 20.1	< 20.1			
S95T003255	114:1	DL	< 10.1	< 10.1	< 10.1			

Table B-21. Tank 241-B-204 Analytical Results: Nickel. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T002980	112:2	Whole	189.0	177.0	183.0	234	10.6	51.5
S95T003061	112:3	Upper ½	102.0	104.0	103.0			
S95T003062		Lower ½	169.0	165.0	167.0			
S95T003063	112:4	Upper ½	112.0	150.0	131.0			
S95T003064		Lower ½	140.0	142.0	141.0			
S95T003065	112:5	Upper ½	208.0	172	190			
S95T003066		Lower ½	149.0	145.0	147.0			
S95T003067	112:6	Upper ½	174.0	184.0	179.0			
S95T003068		Lower ½	181.0	161.0	171.0			
S95T003069	112:7	Upper ½	166.0	197.0	181.5			
S95T003070		Lower ½	216.0	210.0	213.0			
S95T003071	112:8	Upper ½	135.0	144.0	139.5			
S95T003072		Lower ½	178.0	182.0	180.0			
S95T003073	112:9	Upper ½	201.0	207.0	204.0			
S95T003074		Lower ½	187.0	200.0	193.5			
S95T003075	112:10	Upper ½	229.0	237.0	233.0			
S95T003076		Lower ½	462.0	476.0	469.0			
S95T003077	112:11	Upper ½	735.0	786.0	760.5			
S95T003078		Lower ½	509.0	516.0	512.5			
S95T003079	112:12	Upper ½	297.0	303.0	300.0			
S95T003080		Lower ½	334.0	334.0	334.0			

Table B-21. Tank 241-B-204 Analytical Results: Nickel. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T003081	112:13	Upper ½	227.0	225.0	226.0			
S95T003082		Lower ½	272.0	255.0	263.5			
S95T003083	112:14	Upper ½	344.0	306.0	325.0			
S95T003084		Lower ½	318.0	314.0	316.0			
S95T003282	114:2	Upper ½	97.80	95.00	96.40			
S95T003283		Lower ½	135.0	143.0	139.0			
S95T003284	114:3	Upper ½	157.0	163.0	160.0			
S95T003285		Lower ½	127.0	126.0	126.5			
S95T003286	114:4	Upper ½	126.0	127.0	126.5			
S95T003287		Lower ½	171.0	173.0	172.0			
S95T003288	114:5	Upper ½	147.0	137.0	142.0			
S95T003289		Lower ½	144.0	145.0	144.5			
S95T003290	114:6	Upper ½	171.0	157.0	164.0			
S95T003291		Lower ½	155.0	152.0	153.5			
S95T003292	114:7	Upper ½	170.0	186.0	178.0			
S95T003293		Lower ½	148.0	136.0	142.0			
S95T003294	114:8	Upper ½	168.0	177.0	172.5			
S95T003295		Lower ½	154.0	147.0	150.5			
S95T003296	114:9	Upper ½	193.0	173.0	183.0			
S95T003297		Lower ½	222.0	216.0	219.0			

Table B-21. Tank 241-B-204 Analytical Results: Nickel. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T003298	114:10	Upper ½	228.0	209.0	218.5			
S95T003299		Lower ½	376.0	378.0	377.0			
S95T003300	114:11	Upper ½	776.0	754.0	765.0			
S95T003301		Lower ½	374.0	364.0	369.0			
S95T003302	114:12	Upper ½	262.0	277.0	269.5			
S95T003303		Lower ½	269.0	273.0	271.0			
S95T003304	114:13	Upper ½	252.0	257.0	254.5			
S95T003305		Lower ½	211.0	216.0	213.5			
S95T003306	114:14	Upper ½	251.0	250.0	250.5			
S95T003307		Lower ½	261.0	274.0	267.5			
Drainable liquids			µg/mL	µg/mL	µg/mL	µg/mL	%	kg
S95T002976	112:1	DL	< 4.02	< 4.02	< 4.02	< 3.02	n/a	< 0.0121
S95T002984	112:2	DL	< 4.02	< 4.02	< 4.02			
S95T003255	114:1	DL	< 2.02	< 2.02	< 2.02			

Table B-22. Tank 241-B-204 Analytical Results: Phosphorus. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T002980	112:2	Whole	3,470	3,270	3,370	2,320	2.8	511
S95T003061	112:3	Upper ½	2,620	2,740	2,680			
S95T003062		Lower ½	2,500	2,420	2,460			
S95T003063	112:4	Upper ½	2,260	3,000	2,630			
S95T003064		Lower ½	2,550	2,550	2,550			
S95T003065	112:5	Upper ½	2,650	2,290	2,470			
S95T003066		Lower ½	2,180	2,140	2,160			
S95T003067	112:6	Upper ½	2,240	2,290	2,260			
S95T003068		Lower ½	2,570	2,270	2,420			
S95T003069	112:7	Upper ½	2,320	2,550	2,440			
S95T003070		Lower ½	2,690	2,720	2,700			
S95T003071	112:8	Upper ½	1,870	1,950	1,910			
S95T003072		Lower ½	1,980	1,940	1,960			
S95T003073	112:9	Upper ½	2,190	2,110	2,150			
S95T003074		Lower ½	1,890	1,950	1,920			
S95T003075	112:10	Upper ½	2,050	2,100	2,080			
S95T003076		Lower ½	1,960	2,160	2,060			
S95T003077	112:11	Upper ½	1,860	1,940	1,900			
S95T003078		Lower ½	2,100	2,060	2,080			
S95T003079	112:12	Upper ½	2,050	2,120	2,080			
S95T003080		Lower ½	2,670	2,140	2,400			

Table B-22. Tank 241-B-204 Analytical Results: Phosphorus. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T003081	112:13	Upper ½	1,990	2,110	2,050			
S95T003082		Lower ½	2,430	2,300	2,360			
S95T003083	112:14	Upper ½	2,750	2,030	2,390			
S95T003084		Lower ½	2,270	2,060	2,160			
S95T003282	114:2	Upper ½	3,380	3,230	3,300			
S95T003283		Lower ½	2,690	2,820	2,760			
S95T003284	114:3	Upper ½	2,230	2,220	2,220			
S95T003285		Lower ½	2,670	2,680	2,680			
S95T003286	114:4	Upper ½	2,420	2,450	2,440			
S95T003287		Lower ½	2,390	2,470	2,430			
S95T003288	114:5	Upper ½	2,390	2,260	2,320			
S95T003289		Lower ½	2,570	2,520	2,540			
S95T003290	114:6	Upper ½	2,670	2,380	2,520			
S95T003291		Lower ½	2,300	2,300	2,300			
S95T003292	114:7	Upper ½	2,560	2,720	2,640			
S95T003293		Lower ½	2,430	2,170	2,300			
S95T003294	114:8	Upper ½	2,520	2,610	2,560			
S95T003295		Lower ½	2,380	2,260	2,320			
S95T003296	114:9	Upper ½	2,310	2,250	2,280			
S95T003297		Lower ½	2,370	2,370	2,370			

Table B-22. Tank 241-B-204 Analytical Results: Phosphorus. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T003298	114:10	Upper ½	2,210	2,180	2,200			
S95T003299		Lower ½	1,990	2,010	2,000			
S95T003300	114:11	Upper ½	2,120	2,000	2,060			
S95T003301		Lower ½	2,110	1,960	2,040			
S95T003302	114:12	Upper ½	1,770	1,870	1,820			
S95T003303		Lower ½	1,950	2,000	1,980			
S95T003304	114:13	Upper ½	2,090	2,300	2,200			
S95T003305		Lower ½	1,970	2,020	2,000			
S95T003306	114:14	Upper ½	1,790	1,780	1,780			
S95T003307		Lower ½	1,770	1,880	1,820			
Drainable liquids			µg/mL	µg/mL	µg/mL	µg/mL	%	kg
S95T002976	112:1	DL	688.0	690.0	689.0	680	1.0	2.72
S95T002984	112:2	DL	678.0	653.0	665.5			
S95T003255	114:1	DL	697.0	667.0	682.0			

Table B-23. Tank 241-B-204 Analytical Results: Potassium. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T002980	112:2	Whole	5,660	5,870	5,760	5,780	1.8	1,270
S95T003061	112:3	Upper ½	4,880	4,760	4,820			
S95T003062		Lower ½	5,030	4,970	5,000			
S95T003063	112:4	Upper ½	4,390	5,790	5,090			
S95T003064		Lower ½	5,380	5,310	5,340			
S95T003065	112:5	Upper ½	5,310	4,740	5,020			
S95T003066		Lower ½	4,910	4,880	4,900			
S95T003067	112:6	Upper ½	5,130	5,330	5,230			
S95T003068		Lower ½	5,500	4,810	5,160			
S95T003069	112:7	Upper ½	4,920	5,450	5,180			
S95T003070		Lower ½	6,200	5,950	6,080			
S95T003071	112:8	Upper ½	5,170	5,120	5,140			
S95T003072		Lower ½	6,120	6,190	6,160			
S95T003073	112:9	Upper ½	6,060	5,820	5,940			
S95T003074		Lower ½	5,870	6,020	5,940			
S95T003075	112:10	Upper ½	5,230	5,410	5,320			
S95T003076		Lower ½	5,880	5,940	5,910			
S95T003077	112:11	Upper ½	5,750	5,910	5,830			
S95T003078		Lower ½	6,130	6,130	6,130			
S95T003079	112:12	Upper ½	6,100	6,450	6,280			
S95T003080		Lower ½	6,050	5,740	5,900			

Table B-23. Tank 241-B-204 Analytical Results: Potassium. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T003081	112:13	Upper ½	5,960	5,860	5,910			
S95T003082		Lower ½	6,620	6,470	6,540			
S95T003083	112:14	Upper ½	6,590	6,330	6,460			
S95T003084		Lower ½	7,060	6,820	6,940			
S95T003282	114:2	Upper ½	5,320	5,140	5,230			
S95T003283		Lower ½	5,040	5,180	5,110			
S95T003284	114:3	Upper ½	5,140	5,190	5,160			
S95T003285		Lower ½	5,540	5,860	5,700			
S95T003286	114:4	Upper ½	4,920	4,870	4,900			
S95T003287		Lower ½	5,620	5,620	5,620			
S95T003288	114:5	Upper ½	5,660	5,420	5,540			
S95T003289		Lower ½	5,830	5,850	5,840			
S95T003290	114:6	Upper ½	6,110	5,850	5,980			
S95T003291		Lower ½	5,750	5,700	5,720			
S95T003292	114:7	Upper ½	5,410	5,720	5,560			
S95T003293		Lower ½	6,160	5,630	5,900			
S95T003294	114:8	Upper ½	5,520	5,980	5,750			
S95T003295		Lower ½	5,520	5,330	5,420			
S95T003296	114:9	Upper ½	6,180	5,960	6,070			
S95T003297		Lower ½	6,180	6,020	6,100			

Table B-23. Tank 241-B-204 Analytical Results: Potassium. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			**µg/g**	**µg/g**	**µg/g**	**µg/g**	**%**	**kg**
S95T003298	114:10	Upper ½	6,360	6,060	6,210			
S95T003299		Lower ½	6,370	6,360	6,360			
S95T003300	114:11	Upper ½	6,540	6,560	6,550			
S95T003301		Lower ½	6,840	6,540	6,690			
S95T003302	114:12	Upper ½	6,290	6,470	6,380			
S95T003303		Lower ½	6,590	6,700	6,640			
S95T003304	114:13	Upper ½	7,160	7,030	7,100			
S95T003305		Lower ½	6,000	6,040	6,020			
S95T003306	114:14	Upper ½	5,760	5,960	5,860			
S95T003307		Lower ½	5,470	5,750	5,610			
Drainable liquids			**µg/mL**	**µg/mL**	**µg/mL**	**µg/mL**	**%**	**kg**
S95T002976	112:1	DL	6,080	6,010	6,040	6,110	4.6	24.4
S95T002984	112:2	DL	5,600	5,600	5,600			
S95T003255	114:1	DL	6,480	6,300	6,390			

Table B-24. Tank 241-B-204 Analytical Results: Samarium. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T002980	112:1	Whole	< 27.6	< 37.1	< 32.4	< 44.8	n/a	< 9.86
S95T003061	112:3	Upper ½	< 24.1	< 18.8	< 21.5			
S95T003062		Lower ½	< 22.5	< 21.3	< 21.9			
S95T003063	112:4	Upper ½	< 17.6	< 23.3	< 20.5			
S95T003064		Lower ½	< 24.3	< 22.2	< 23.3			
S95T003065	112:5	Upper ½	< 43.7	< 41.6	< 42.7			
S95T003066		Lower ½	< 23.1	< 19.5	< 21.3			
S95T003067	112:6	Upper ½	< 46.6	< 34.6	< 40.6			
S95T003068		Lower ½	< 22.3	< 19.4	< 20.9			
S95T003069	112:7	Upper ½	< 36.4	< 38.1	< 37.3			
S95T003070		Lower ½	< 35.1	< 34.3	< 34.7			
S95T003071	112:8	Upper ½	< 21.0	< 23.0	< 22.0			
S95T003072		Lower ½	< 39.1	< 38.1	< 38.6			
S95T003073	112:9	Upper ½	< 41.4	< 38.0	< 39.7			
S95T003074		Lower ½	< 34.3	< 38.1	<36.2			
S95T003075	112:10	Upper ½	< 37.2	< 36.4	< 36.8			
S95T003076		Lower ½	< 45.6	< 41.1	< 43.4			
S95T003077	112:11	Upper ½	< 40.7	< 34.8	< 37.8			
S95T003078		Lower ½	< 94.9	< 115	< 105			
S95T003079	112:12	Upper ½	< 107	< 96.6	< 102			
S95T003080		Lower ½	< 97.8	< 101	< 99			

Table B-24. Tank 241-B-204 Analytical Results: Samarium. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T003081	112:13	Upper ½	< 87.2	< 87.3	< 87.3			
S95T003082		Lower ½	< 97.2	< 84.7	< 91.0			
S95T003083	112:14	Upper ½	< 92.6	< 106	< 99			
S95T003084		Lower ½	< 199	< 181	< 190			
S95T003282	114:2	Upper ½	< 21.0	< 22.0	< 21.5			
S95T003283		Lower ½	< 19.5	< 18.2	< 18.9			
S95T003284	114:3	Upper ½	< 19.8	< 18.9	< 19.4			
S95T003285		Lower ½	< 169	< 193	< 181			
S95T003286	114:4	Upper ½	< 22.3	< 19.7	< 21.0			
S95T003287		Lower ½	< 35.1	< 44.3	< 39.7			
S95T003288	114:5	Upper ½	< 22.2	< 19.3	< 20.8			
S95T003289		Lower ½	< 22.6	< 23.4	< 23.0			
S95T003290	114:6	Upper ½	< 22.6	< 19.8	< 21.2			
S95T003291		Lower ½	< 34.4	< 42.5	< 38.5			
S95T003292	114:7	Upper ½	< 23.4	< 21.7	< 22.6			
S95T003293		Lower ½	< 21.6	< 19.4	< 20.5			
S95T003294	114:8	Upper ½	< 21.7	< 35.8	< 28.8			
S95T003295		Lower ½	< 20.5	< 20.0	< 20.3			
S95T003296	114:9	Upper ½	< 41.1	< 46.4	< 43.8			
S95T003297		Lower ½	< 37.9	< 45.0	< 41.5			

Table B-24. Tank 241-B-204 Analytical Results: Samarium. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T003298	114:10	Upper ½	< 37.0	< 35.9	< 36.5			
S95T003299		Lower ½	< 33.9	< 38.5	< 36.7			
S95T003300	114:11	Upper ½	< 47.0	< 48.3	< 47.7			
S95T003301		Lower ½	< 34.0	< 34.0	< 34.0			
S95T003302	114:12	Upper ½	< 24.0	< 22.1	< 23.1			
S95T003303		Lower ½	< 22.3	< 37.0	< 29.7			
S95T003304	114:13	Upper ½	< 45.8	< 40.9	< 43.4			
S95T003305		Lower ½	< 36.0	< 36.6	< 36.3			
S95T003306	114:14	Upper ½	< 42.9	< 42.7	< 42.8			
S95T003307		Lower ½	< 38.6	< 42.2	< 40.4			
Drainable liquids			µg/mL	µg/mL	µg/mL	µg/mL	%	kg
S95T002976	112:1	DL	< 20.1	< 20.1	< 20.1	< 15.1	n/a	< 0.0604
S95T002984	112:2	DL	< 20.1	< 20.1	< 20.1			
S95T003255	114:1	DL	< 10.1	< 10.1	< 10.1			

Table B-25. Tank 241-B-204 Analytical Results: Selenium. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T002980	112:2	Whole	< 27.6	< 37.1	< 32.4	< 44.9	n/a	< 9.88
S95T003061	112:3	Upper ½	< 24.1	< 18.8	< 21.5			
S95T003062		Lower ½	< 22.5	< 21.3	< 21.9			
S95T003063	112:4	Upper ½	< 17.6	< 23.7	< 20.7			
S95T003064		Lower ½	< 24.3	22.4	23.4			
S95T003065	112:5	Upper ½	< 43.7	< 41.6	< 42.7			
S95T003066		Lower ½	< 23.1	< 19.5	< 21.3			
S95T003067	112:6	Upper ½	< 46.6	< 34.6	< 40.6			
S95T003068		Lower ½	< 22.3	19.9	21.1			
S95T003069	112:7	Upper ½	< 36.4	< 38.1	< 37.3			
S95T003070		Lower ½	< 35.1	< 34.3	< 34.7			
S95T003071	112:8	Upper ½	< 21.0	26.3	23.7			
S95T003072		Lower ½	< 39.1	< 38.1	< 38.6			
S95T003073	112:9	Upper ½	< 41.4	< 38.0	< 39.6			
S95T003074		Lower ½	< 34.3	< 38.1	< 36.2			
S95T003075	112:10	Upper ½	< 37.2	< 36.4	< 36.8			
S95T003076		Lower ½	< 45.6	< 41.1	< 43.4			
S95T003077	112:11	Upper ½	< 40.7	< 34.8	< 37.7			
S95T003078		Lower ½	< 94.9	< 115	< 105			
S95T003079	112:12	Upper ½	< 107	< 96.6	< 102			
S95T003080		Lower ½	< 97.8	< 101	< 99			

Table B-25. Tank 241-B-204 Analytical Results: Selenium. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T003081	112:13	Upper ½	< 87.2	< 87.3	< 87.3			
S95T003082		Lower ½	< 97.2	< 84.7	< 91.0			
S95T003083	112:14	Upper ½	< 92.6	< 106	< 99.3			
S95T003084		Lower ½	< 199	< 181	< 190			
S95T003282	114:2	Upper ½	< 21.0	< 22.0	< 21.5			
S95T003283		Lower ½	< 19.5	< 18.2	< 18.9			
S95T003284	114:3	Upper ½	< 19.8	< 18.9	< 19.4			
S95T003285		Lower ½	< 169	< 193	< 181			
S95T003286	114:4	Upper ½	< 22.3	< 19.7	< 21.0			
S95T003287		Lower ½	< 35.1	< 44.3	< 39.7			
S95T003288	114:5	Upper ½	< 22.2	< 19.3	< 20.8			
S95T003289		Lower ½	< 22.6	< 23.4	< 23.0			
S95T003290	114:6	Upper ½	< 22.6	< 19.8	< 21.2			
S95T003291		Lower ½	< 34.4	< 42.5	< 38.5			
S95T003292	114:7	Upper ½	< 23.4	< 21.7	< 22.6			
S95T003293		Lower ½	< 21.6	20.90	21.3			
S95T003294	114:8	Upper ½	< 21.7	< 35.8	< 28.8			
S95T003295		Lower ½	21.10	21.50	21.30			
S95T003296	114:9	Upper ½	< 41.1	< 46.4	< 43.8			
S95T003297		Lower ½	39.60	< 45.0	42.3			

Table B-25. Tank 241-B-204 Analytical Results: Selenium. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T003298	114:10	Upper ½	40.70	36.10	38.4			
S95T003299		Lower ½	< 33.9	< 38.5	< 36.2			
S95T003300	114:11	Upper ½	< 47.0	< 48.3	< 47.7			
S95T003301		Lower ½	< 34.0	< 34.0	< 34.0			
S95T003302	114:12	Upper ½	< 24.0	< 22.1	< 23.1			
S95T003303		Lower ½	< 22.3	< 37.0	< 29.7			
S95T003304	114:13	Upper ½	< 45.8	< 40.9	< 43.4			
S95T003305		Lower ½	< 36.0	< 36.6	< 36.3			
S95T003306	114:14	Upper ½	< 42.9	< 42.7	< 42.8			
S95T003307		Lower ½	< 38.6	< 42.2	< 40.4			
Drainable liquids			µg/mL	µg/mL	µg/mL	µg/mL	%	kg
S95T002976	112:1	DL	< 20.1	< 20.1	< 20.1	< 15.1	n/a	< 0.0604
S95T002984	112:2	DL	< 20.1	< 20.1	< 20.1			
S95T003255	114:1	DL	< 10.1	< 10.1	< 10.1			

Table B-26. Tank 241-B-204 Analytical Results: Silicon. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T002980	112:2	Whole	2,170	2,090	2,130	1,070	22.8	236
S95T003061	112:3	Upper ½	1,120	1,400	1,260			
S95T003062		Lower ½	1,420	1,470	1,440			
S95T003063	112:4	Upper ½	1,330	1,810	1,570			
S95T003064		Lower ½	1,550	1,670	1,610			
S95T003065	112:5	Upper ½	1,800	1,520	1,660			
S95T003066		Lower ½	1,830	1,830	1,830			
S95T003067	112:6	Upper ½	1,770	1,970	1,870			
S95T003068		Lower ½	1,770	1,570	1,670			
S95T003069	112:7	Upper ½	1,650	1,960	1,800			
S95T003070		Lower ½	1,790	1,680	1,740			
S95T003071	112:8	Upper ½	1,200	1,220	1,210			
S95T003072		Lower ½	1,400	1,500	1,450			
S95T003073	112:9	Upper ½	1,290	1,490	1,390			
S95T003074		Lower ½	1,370	1,440	1,400			
S95T003075	112:10	Upper ½	1,290	1,570	1,430			
S95T003076		Lower ½	1,190	1,130	1,160			
S95T003077	112:11	Upper ½	929.0	767.0	848.0			
S95T003078		Lower ½	598.0	504.0	551.0			
S95T003079	112:12	Upper ½	674.0	614.0	644.0			
S95T003080		Lower ½	788.0	511.0	649.5			

Table B-26. Tank 241-B-204 Analytical Results: Silicon. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T003081	112:13	Upper ½	455.0	343.0	399.0			
S95T003082		Lower ½	655.0	565.0	610.0			
S95T003083	112:14	Upper ½	589.0	582.0	585.5			
S95T003084		Lower ½	1,200	959.0	1,080			
S95T003282	114:2	Upper ½	998.0	1,010	1,000			
S95T003283		Lower ½	395.0	400.0	397.5			
S95T003284	114:3	Upper ½	444.0	368.0	406.0			
S95T003285		Lower ½	468.0	490.0	479.0			
S95T003286	114:4	Upper ½	642.0	1,150	896.0			
S95T003287		Lower ½	1,220	905.0	1,060			
S95T003288	114:5	Upper ½	589.0	484.0	536.5			
S95T003289		Lower ½	897.0	953.0	925.0			
S95T003290	114:6	Upper ½	865.0	992.0	928.5			
S95T003291		Lower ½	573.0	764.0	668.5			
S95T003292	114:7	Upper ½	521.0	1,070	795.5			
S95T003293		Lower ½	810.0	566.0	688.0			
S95T003294	114:8	Upper ½	1,500	1,170	1,340			
S95T003295		Lower ½	390.0	781.0	585.5			
S95T003296	114:9	Upper ½	364.0	897.0	630.5			
S95T003297		Lower ½	833.0	898.0	865.5			

Table B-26. Tank 241-B-204 Analytical Results: Silicon. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T003298	114:10	Upper ½	600.0	640.0	620.0			
S95T003299		Lower ½	856.0	897.0	876.5			
S95T003300	114:11	Upper ½	994.0	1,080	1,040			
S95T003301		Lower ½	1,120	1,140	1,130			
S95T003302	114:12	Upper ½	827.0	1,090	958.5			
S95T003303		Lower ½	1,030	976.0	1,000			
S95T003304	114:13	Upper ½	939.0	960.0	945.9			
S95T003305		Lower ½	860.0	904.0	882.0			
S95T003306	114:14	Upper ½	819.0	892.0	855.5			
S95T003307		Lower ½	818.0	812.0	815.0			
Drainable liquids			µg/mL	µg/mL	µg/mL	µg/mL	%	kg
S95T002976	112:1	DL	49.70	50.40	50.05	60.9	10.0	0.244
S95T002984	112:2	DL	60.00	59.30	59.65			
S95T003255	114:1	DL	67.90	66.00	66.95			

Table B-27. Tank 241-B-204 Analytical Results: Silver. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T002980	112:2	Whole	8.070	7.600	7.835	< 5.56	n/a	< 1.22
S95T003061	112:3	Upper ½	3.070	2.940	3.005			
S95T003062		Lower ½	3.460	3.270	3.365			
S95T003063	112:4	Upper ½	2.120	2.800	2.460			
S95T003064		Lower ½	3.970	3.750	3.860			
S95T003065	112:5	Upper ½	< 4.37	< 4.16	< 4.27			
S95T003066		Lower ½	4.170	3.740	3.955			
S95T003067	112:6	Upper ½	< 4.66	3.660	4.16			
S95T003068		Lower ½	3.980	3.140	3.560			
S95T003069	112:7	Upper ½	< 3.640	3.850	3.75			
S95T003070		Lower ½	4.170	4.010	4.090			
S95T003071	112:8	Upper ½	4.010	3.680	3.845			
S95T003072		Lower ½	4.450	4.670	4.560			
S95T003073	112:9	Upper ½	4.990	4.460	4.725			
S95T003074		Lower ½	3.870	4.190	4.030			
S95T003075	112:10	Upper ½	3.730	< 3.64	3.69			
S95T003076		Lower ½	4.730	4.480	4.605			
S95T003077	112:11	Upper ½	< 4.07	< 3.48	< 3.78			
S95T003078		Lower ½	< 9.49	< 11.5	< 10.5			
S95T003079	112:12	Upper ½	< 10.7	< 9.66	< 10.2			
S95T003080		Lower ½	< 9.78	< 10.1	< 9.94			

Table B-27. Tank 241-B-204 Analytical Results: Silver. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T003081	112:13	Upper ½	< 8.72	< 8.73	< 8.73			
S95T003082		Lower ½	< 9.72	< 8.47	< 9.10			
S95T003083	112:14	Upper ½	< 9.26	< 10.6	< 9.93			
S95T003084		Lower ½	< 19.9	< 18.1	< 19.0			
S95T003282	114:2	Upper ½	< 2.10	< 2.20	< 2.15			
S95T003283		Lower ½	< 1.95	< 1.82	< 18.9			
S95T003284	114:3	Upper ½	< 1.98	< 1.89	< 1.94			
S95T003285		Lower ½	< 16.9	< 19.3	< 18.1			
S95T003286	114:4	Upper ½	2.240	< 1.97	2.11			
S95T003287		Lower ½	< 3.51	< 4.43	< 3.97			
S95T003288	114:5	Upper ½	< 2.22	< 1.93	< 2.08			
S95T003289		Lower ½	< 2.26	< 2.34	< 2.30			
S95T003290	114:6	Upper ½	< 2.26	< 1.98	< 2.12			
S95T003291		Lower ½	< 3.44	< 4.25	< 3.85			
S95T003292	114:7	Upper ½	< 2.34	< 2.17	< 2.26			
S95T003293		Lower ½	< 2.16	< 1.94	< 2.05			
S95T003294	114:8	Upper ½	< 2.17	< 3.58	< 2.88			
S95T003295		Lower ½	18.70	3.850	11.28			
S95T003296	114:9	Upper ½	< 4.11	< 4.64	< 4.38			
S95T003297		Lower ½	< 3.79	< 4.50	< 4.15			

Table B-27. Tank 241-B-204 Analytical Results: Silver. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T003298	114:10	Upper ½	< 3.70	< 3.59	< 3.65			
S95T003299		Lower ½	5.450	5.020	5.235			
S95T003300	114:11	Upper ½	5.080	< 4.83	4.96			
S95T003301		Lower ½	4.280	4.320	4.300			
S95T003302	114:12	Upper ½	3.960	4.130	4.045			
S95T003303		Lower ½	4.460	4.630	4.545			
S95T003304	114:13	Upper ½	5.810	5.780	5.795			
S95T003305		Lower ½	4.530	4.760	4.645			
S95T003306	114:14	Upper ½	4.760	4.410	4.585			
S95T003307		Lower ½	4.300	4.340	4.320			
Drainable liquids			µg/mL	µg/mL	µg/mL	µg/mL	%	kg
S95T002976	112:1	DL	< 2.01	< 2.01	<2.01	< 1.51	n/a	< 0.00604
S95T002984	112:2	DL	< 2.01	< 2.01	< 2.01			
S95T003255	114:1	DL	< 1.01	< 1.01	< 1.01			

Table B-28. Tank 241-B-204 Analytical Results: Sodium. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T002980	112:2	Whole	21,900	23,200	22,600	26,200	2.3	5,770
S95T003061	112:3	Upper ½	22,700	22,100	22,400			
S95T003062		Lower ½	23,200	23,300	23,200			
S95T003063	112:4	Upper ½	20,500	27,000	23,800			
S95T003064		Lower ½	24,900	24,800	24,800			
S95T003065	112:5	Upper ½	26,000	22,600	24,300			
S95T003066		Lower ½	23,800	23,300	23,600			
S95T003067	112:6	Upper ½	24,700	25,000	24,800			
S95T003068		Lower ½	26,600	23,300	25,000			
S95T003069	112:7	Upper ½	23,500	25,800	24,600			
S95T003070		Lower ½	28,900	27,800	28,400			
S95T003071	112:8	Upper ½	24,000	24,000	24,000			
S95T003072		Lower ½	27,100	27,300	27,200			
S95T003073	112:9	Upper ½	26,800	25,900	26,400			
S95T003074		Lower ½	28,100	26,600	27,400			
S95T003075	112:10	Upper ½	23,100	24,000	23,600			
S95T003076		Lower ½	25,700	26,100	25,900			
S95T003077	112:11	Upper ½	25,300	25,900	25,600			
S95T003078		Lower ½	27,800	27,800	27,800			
S95T003079	112:12	Upper ½	27,100	28,800	28,000			
S95T003080		Lower ½	27,000	25,600	26,300			

Table B-28. Tank 241-B-204 Analytical Results: Sodium. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T003081	112:13	Upper ½	26,400	26,700	26,600			
S95T003082		Lower ½	29,400	28,400	28,900			
S95T003083	112:14	Upper ½	29,900	27,700	28,800			
S95T003084		Lower ½	30,000	28,100	29,000			
S95T003282	114:2	Upper ½	25,000	24,500	24,800			
S95T003283		Lower ½	24,200	24,600	24,400			
S95T003284	114:3	Upper ½	24,400	24,900	24,600			
S95T003285		Lower ½	25,100	25,700	25,400			
S95T003286	114:4	Upper ½	23,800	23,800	23,800			
S95T003287		Lower ½	26,800	26,800	26,800			
S95T003288	114:5	Upper ½	27,200	25,800	26,500			
S95T003289		Lower ½	28,300	27,100	27,700			
S95T003290	114:6	Upper ½	29,300	27,900	28,600			
S95T003291		Lower ½	27,100	27,300	27,200			
S95T003292	114:7	Upper ½	25,500	27,000	26,200			
S95T003293		Lower ½	30,400	27,500	29,000			
S95T003294	114:8	Upper ½	27,100	28,400	27,800			
S95T003295		Lower ½	26,700	25,800	26,200			
S95T003296	114:9	Upper ½	29,300	28,100	28,700			
S95T003297		Lower ½	28,800	28,100	28,400			

Table B-28. Tank 241-B-204 Analytical Results: Sodium. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T003298	114:10	Upper ½	29,600	28,300	29,000			
S95T003299		Lower ½	27,200	27,400	27,300			
S95T003300	114:11	Upper ½	28,000	27,500	27,800			
S95T003301		Lower ½	29,400	27,900	28,600			
S95T003302	114:12	Upper ½	26,500	27,200	26,800			
S95T003303		Lower ½	27,400	27,900	27,600			
S95T003304	114:13	Upper ½	29,100	28,600	28,800			
S95T003305		Lower ½	25,600	25,900	25,800			
S95T003306	114:14	Upper ½	25,100	25,600	25,400			
S95T003307		Lower ½	23,500	25,000	24,200			
Drainable liquids			µg/mL	µg/mL	µg/mL	µg/mL	%	kg
S95T002976	112:1	DL	28,400	28,300	28,400	28,000	2.2	112
S95T002984	112:2	DL	26,800	26,400	26,600			
S95T003255	114:1	DL	28,900	28,100	28,500			

Table B-29. Tank 241-B-204 Analytical Results: Strontium. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T002980	112:2	Whole	692.0	637.0	664.5	391	6.8	86.1
S95T003061	112:3	Upper ½	366.0	395.0	380.5			
S95T003062		Lower ½	374.0	351.0	362.5			
S95T003063	112:4	Upper ½	428.0	561.0	494.5			
S95T003064		Lower ½	617.0	616.0	616.5			
S95T003065	112:5	Upper ½	840.0	701.0	770.5			
S95T003066		Lower ½	551.0	535.0	543.0			
S95T003067	112:6	Upper ½	512.0	526.0	519.0			
S95T003068		Lower ½	577.0	509.0	543.0			
S95T003069	112:7	Upper ½	536.0	567.0	551.0			
S95T003070		Lower ½	511.0	529.0	520.0			
S95T003071	112:8	Upper ½	249.0	289.0	269.0			
S95T003072		Lower ½	121.0	123.0	122.0			
S95T003073	112:9	Upper ½	224.0	223.0	223.5			
S95T003074		Lower ½	250.0	245.0	247.5			
S95T003075	112:10	Upper ½	309.0	324.0	316.5			
S95T003076		Lower ½	339.0	375.0	357.0			
S95T003077	112:11	Upper ½	285.0	265.0	275.0			
S95T003078		Lower ½	315.0	298.0	306.5			
S95T003079	112:12	Upper ½	298.0	325.0	311.5			
S95T003080		Lower ½	358.0	311.0	334.5			

Table B-29. Tank 241-B-204 Analytical Results: Strontium. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T003081	112:13	Upper ½	205.0	219.0	212.0			
S95T003082		Lower ½	411.0	397.0	404.0			
S95T003083	112:14	Upper ½	470.0	336.0	403.0			
S95T003084		Lower ½	327.0	271.0	299.0			
S95T003282	114:2	Upper ½	417.0	407.0	412.0			
S95T003283		Lower ½	375.0	384.0	379.5			
S95T003284	114:3	Upper ½	313.0	324.0	318.5			
S95T003285		Lower ½	455.0	454.0	454.5			
S95T003286	114:4	Upper ½	509.0	511.0	510.0			
S95T003287		Lower ½	621.0	648.0	634.5			
S95T003288	114:5	Upper ½	646.0	607.0	626.5			
S95T003289		Lower ½	472.0	477.0	474.5			
S95T003290	114:6	Upper ½	542.0	490.0	516.0			
S95T003291		Lower ½	552.0	545.0	548.5			
S95T003292	114:7	Upper ½	503.0	542.0	522.5			
S95T003293		Lower ½	321.0	291.0	306.0			
S95T003294	114:8	Upper ½	357.0	378.0	367.5			
S95T003295		Lower ½	113.0	105.0	109.0			
S95T003296	114:9	Upper ½	260.0	225.0	242.5			
S95T003297		Lower ½	279.0	292.0	285.5			

Table B-29. Tank 241-B-204 Analytical Results: Strontium. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T003298	114:10	Upper ½	217.0	210.0	213.5			
S95T003299		Lower ½	406.0	411.0	408.5			
S95T003300	114:11	Upper ½	275.0	253.0	264.0			
S95T003301		Lower ½	337.0	328.0	332.5			
S95T003302	114:12	Upper ½	239.0	250.0	244.5			
S95T003303		Lower ½	227.0	230.0	228.5			
S95T003304	114:13	Upper ½	263.0	298.0	280.5			
S95T003305		Lower ½	327.0	334.0	330.5			
S95T003306	114:14	Upper ½	326.0	329.0	327.5			
S95T003307		Lower ½	273.0	330.0	301.5			
Drainable liquids			µg/mL	µg/mL	µg/mL	µg/mL	%	kg
S95T002976	112:1	DL	< 2.01	< 2.01	< 2.01	< 1.51	n/a	< 0.00604
S95T002984	112:2	DL	< 2.01	< 2.01	< 2.01			
S95T003255	114:1	DL	< 1.01	< 1.01	< 1.01			

Table B-30. Tank 241-B-204 Analytical Results: Sulfur. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T002980	112:2	Whole	159.0	168.0	163.5	95.0	8.4	20.9
S95T003061	112:3	Upper ½	132.0	115.0	123.5			
S95T003062		Lower ½	114.0	115.0	114.5			
S95T003063	112:4	Upper ½	101.0	141.0	121.0			
S95T003064		Lower ½	132.0	124.0	128.0			
S95T003065	112:5	Upper ½	112.0	96.00	104.0			
S95T003066		Lower ½	85.70	81.90	83.80			
S95T003067	112:6	Upper ½	110.0	97.90	104.0			
S95T003068		Lower ½	89.00	97.00	93.00			
S95T003069	112:7	Upper ½	84.50	93.80	89.15			
S95T003070		Lower ½	93.5	95.30	94.40			
S95T003071	112:8	Upper ½	66.30	75.80	71.05			
S95T003072		Lower ½	68.10	65.20	66.65			
S95T003073	112:9	Upper ½	76.40	65.90	71.15			
S95T003074		Lower ½	129.0	73.10	101.0			
S95T003075	112:10	Upper ½	66.70	69.50	68.10			
S95T003076		Lower ½	73.30	76.50	74.90			
S95T003077	112:11	Upper ½	79.70	80.80	80.25			
S95T003078		Lower ½	97.40	< 115	106			
S95T003079	112:12	Upper ½	< 107	< 96.6	< 101.8			
S95T003080		Lower ½	< 97.8	< 101	< 99.4			

Table B-30. Tank 241-B-204 Analytical Results: Sulfur. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T003081	112:13	Upper ½	< 87.2	< 87.3	< 87.25			
S95T003082		Lower ½	< 97.2	< 84.7	< 90.95			
S95T003083	112:14	Upper ½	< 92.6	< 106	< 99.3			
S95T003084		Lower ½	< 199	< 181	< 190			
S95T003282	114:2	Upper ½	120.0	120.0	120.0			
S95T003283		Lower ½	115.0	116.0	115.5			
S95T003284	114:3	Upper ½	117.0	114.0	115.5			
S95T003285		Lower ½	< 169	< 193	< 181			
S95T003286	114:4	Upper ½	121.0	114.0	117.5			
S95T003287		Lower ½	112.0	133.0	122.5			
S95T003288	114:5	Upper ½	107.0	95.30	101.2			
S95T003289		Lower ½	98.7	109.0	103.8			
S95T003290	114:6	Upper ½	115.0	87.40	101.2			
S95T003291		Lower ½	76.40	85.40	80.90			
S95T003292	114:7	Upper ½	77.10	76.20	76.65			
S95T003293		Lower ½	67.50	56.30	61.90			
S95T003294	114:8	Upper ½	150.0	130.0	140.0			
S95T003295		Lower ½	59.20	66.10	62.65			
S95T003296	114:9	Upper ½	56.20	60.00	58.10			
S95T003297		Lower ½	74.90	71.30	73.10			

Table B-30. Tank 241-B-204 Analytical Results: Sulfur. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T003298	114:10	Upper ½	54.10	57.00	55.55			
S95T003299		Lower ½	58.60	54.40	56.50			
S95T003300	114:11	Upper ½	82.00	61.40	71.70			
S95T003301		Lower ½	64.90	53.60	59.25			
S95T003302	114:12	Upper ½	64.40	66.10	65.25			
S95T003303		Lower ½	59.00	64.50	61.75			
S95T003304	114:13	Upper ½	79.50	60.50	70.00			
S95T003305		Lower ½	55.50	62.90	59.20			
S95T003306	114:14	Upper ½	50.80	63.00	56.90			
S95T003307		Lower ½	58.30	62.00	60.15			
Drainable liquids			µg/mL	µg/mL	µg/mL	µg/mL	%	kg
S95T002976	112:1	DL	135.0	132.0	133.5	134	3.7	0.536
S95T002984	112:2	DL	125	122.0	123.5			
S95T003255	114:1	DL	142.0	135.0	138.5			

Table B-31. Tank 241-B-204 Analytical Results: Thallium. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T002980	112:2	Whole	< 55.3	< 74.3	< 64.8	< 89.6	n/a	< 19.7
S95T003061	112:3	Upper ½	< 48.2	< 37.7	< 43.0			
S95T003062		Lower ½	< 45.0	< 42.6	< 43.8			
S95T003063	112:4	Upper ½	< 35.1	< 46.6	< 40.9			
S95T003064		Lower ½	< 48.5	< 44.4	< 46.5			
S95T003065	112:5	Upper ½	< 87.4	< 83.2	< 85.3			
S95T003066		Lower ½	< 46.1	< 39.1	< 42.6			
S95T003067	112:6	Upper ½	< 93.3	< 68.9	< 81.1			
S95T003068		Lower ½	< 44.5	< 38.7	< 41.6			
S95T003069	112:7	Upper ½	< 73.0	< 76.2	< 74.6			
S95T003070		Lower ½	< 70.3	< 68.5	< 69.4			
S95T003071	112:8	Upper ½	< 41.9	< 46.0	< 44.0			
S95T003072		Lower ½	< 78.1	< 76.2	< 77.2			
S95T003073	112:9	Upper ½	< 82.8	< 75.9	< 79.4			
S95T003074		Lower ½	< 68.5	< 76.2	< 72.4			
S95T003075	112:10	Upper ½	< 74.3	< 72.7	< 73.5			
S95T003076		Lower ½	< 91.2	< 82.1	< 86.7			
S95T003077	112:11	Upper ½	< 81.4	< 69.7	< 75.6			
S95T003078		Lower ½	< 190	< 229	< 209.5			
S95T003079	112:12	Upper ½	< 214	< 193	< 203.5			
S95T003080		Lower ½	< 196	< 202	< 199.0			

Table B-31. Tank 241-B-204 Analytical Results: Thallium. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T003081	112:13	Upper ½	< 174	< 176	< 175.0			
S95T003082		Lower ½	< 194	< 169	< 181.5			
S95T003083	112:14	Upper ½	< 185	< 212	< 198.5			
S95T003084		Lower ½	< 398	< 362	< 380.0			
S95T003282	114:2	Upper ½	< 41.9	< 44.0	< 43.0			
S95T003283		Lower ½	< 38.1	< 36.4	< 37.3			
S95T003284	114:3	Upper ½	< 39.6	< 37.8	< 38.7			
S95T003285		Lower ½	< 338	< 386	< 362			
S95T003286	114:4	Upper ½	< 44.5	< 39.4	< 42.0			
S95T003287		Lower ½	< 70.2	< 88.5	< 79.4			
S95T003288	114:5	Upper ½	< 44.4	< 38.7	< 41.6			
S95T003289		Lower ½	< 45.1	< 46.8	< 46.0			
S95T003290	114:6	Upper ½	< 45.2	< 39.6	< 42.4			
S95T003291		Lower ½	< 68.7	< 85.0	< 76.9			
S95T003292	114:7	Upper ½	< 46.8	< 43.5	< 45.2			
S95T003293		Lower ½	< 43.1	< 38.8	< 41.0			
S95T003294	114:8	Upper ½	< 43.4	< 71.6	< 57.5			
S95T003295		Lower ½	< 41.0	< 40.0	< 40.5			
S95T003296	114:9	Upper ½	< 82.2	< 92.9	< 87.6			
S95T003297		Lower ½	< 75.5	< 90.1	< 82.8			

Table B-31. Tank 241-B-204 Analytical Results: Thallium. (3 sheets)

Sample Number	Core Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T003298	114:10	Upper ½	< 74.0	< 71.7	< 72.9			
S95T003299		Lower ½	< 67.7	< 77.1	< 72.4			
S95T003300	114:11	Upper ½	< 94.0	< 96.6	< 95.3			
S95T003301		Lower ½	< 68.0	< 68.2	< 68.1			
S95T003302	114:12	Upper ½	< 48.0	< 44.2	< 46.1			
S95T003303		Lower ½	< 44.7	< 74.1	< 59.4			
S95T003304	114:13	Upper ½	< 91.6	< 81.8	< 86.7			
S95T003305		Lower ½	< 72.1	< 73.1	< 72.6			
S95T003306	114:14	Upper ½	< 85.8	< 85.5	< 85.7			
S95T003307		Lower ½	< 77.3	< 84.6	< 81.0			
Drainable liquids			µg/mL	µg/mL	µg/mL	µg/mL	%	kg
S95T002976	112:1	DL	< 40.2	< 40.2	< 40.2	< 30.2	n/a	< 0.121
S95T002984	112:2	DL	< 40.2	< 40.2	< 40.2			
S95T003255	114:1	DL	< 20.2	< 20.2	< 20.2			

Table B-32. Tank 241-B-204 Analytical Results: Titanium. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T002980	112:2	Whole	37.10	28.50	32.80	< 6.98	n/a	< 1.54
S95T003061	112:3	Upper ½	3.570	4.140	3.855			
S95T003062		Lower ½	2.450	2.430	2.44			
S95T003063	112:4	Upper ½	2.200	2.860	2.530			
S95T003064		Lower ½	2.460	2.530	2.495			
S95T003065	112:5	Upper ½	< 4.37	< 4.16	< 4.27			
S95T003066		Lower ½	3.900	3.620	3.760			
S95T003067	112:6	Upper ½	< 4.66	4.350	4.505			
S95T003068		Lower ½	4.580	3.930	4.255			
S95T003069	112:7	Upper ½	4.060	4.710	4.385			
S95T003070		Lower ½	4.180	3.990	4.085			
S95T003071	112:8	Upper ½	3.060	3.290	3.175			
S95T003072		Lower ½	< 3.91	4.710	4.31			
S95T003073	112:9	Upper ½	4.300	5.710	5.005			
S95T003074		Lower ½	< 3.43	< 3.81	< 3.62			
S95T003075	112:10	Upper ½	< 3.72	< 3.64	< 3.68			
S95T003076		Lower ½	< 4.56	< 4.11	< 4.34			
S95T003077	112:11	Upper ½	< 4.07	< 3.48	< 3.78			
S95T003078		Lower ½	< 9.49	< 11.5	< 10.5			
S95T003079	112:12	Upper ½	< 10.7	< 9.66	< 10.2			
S95T003080		Lower ½	< 9.78	< 10.1	< 9.94			

Table B-32. Tank 241-B-204 Analytical Results: Titanium. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T003081	112:13	Upper ½	< 8.72	< 8.73	< 8.725			
S95T003082		Lower ½	< 9.72	< 8.47	< 9.095			
S95T003083	112:14	Upper ½	< 9.26	< 10.6	< 57.63			
S95T003084		Lower ½	< 19.9	< 18.1	< 19.0			
S95T003282	114:2	Upper ½	3.280	3.250	3.265			
S95T003283		Lower ½	< 1.95	< 1.82	< 1.885			
S95T003284	114:3	Upper ½	2.010	1.930	1.970			
S95T003285		Lower ½	< 16.9	< 19.3	< 18.10			
S95T003286	114:4	Upper ½	< 2.23	< 2.040	< 2.135			
S95T003287		Lower ½	< 3.51	< 4.43	< 3.970			
S95T003288	114:5	Upper ½	3.260	2.980	3.120			
S95T003289		Lower ½	4.050	3.780	3.915			
S95T003290	114:6	Upper ½	3.930	3.790	3.860			
S95T003291		Lower ½	3.760	< 4.25	4.005			
S95T003292	114:7	Upper ½	3.860	3.960	3.910			
S95T003293		Lower ½	3.290	3.110	3.200			
S95T003294	114:8	Upper ½	4.680	4.130	4.405			
S95T003295		Lower ½	3.080	3.000	3.040			
S95T003296	114:9	Upper ½	< 4.11	< 4.64	< 4.375			
S95T003297		Lower ½	< 3.79	< 4.50	< 4.145			

Table B-32. Tank 241-B-204 Analytical Results: Titanium. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T003298	114:10	Upper ½	< 3.70	< 3.59	< 3.645			
S95T003299		Lower ½	< 3.39	< 3.85	< 3.620			
S95T003300	114:11	Upper ½	< 4.70	< 4.83	< 4.765			
S95T003301		Lower ½	3.610	3.460	3.535			
S95T003302	114:12	Upper ½	2.840	2.890	2.865			
S95T003303		Lower ½	3.360	< 3.70	3.53			
S95T003304	114:13	Upper ½	< 4.58	4.140	4.36			
S95T003305		Lower ½	< 3.60	< 3.66	< 3.630			
S95T003306	114:14	Upper ½	< 4.29	< 4.27	< 4.280			
S95T003307		Lower ½	< 3.86	< 4.22	< 4.040			
Drainable liquids			µg/mL	µg/mL	µg/mL	µg/mL	%	kg
S95T002976	112:1	DL	< 2.01	< 2.01	< 2.01	< 1.51	n/a	< 0.00604
S95T002984	112:2	DL	< 2.01	< 2.01	< 2.01			
S95T003255	114:1	DL	< 1.01	< 1.01	< 1.01			

Table B-33. Tank 241-B-204 Analytical Results: Uranium. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T002980	112:2	Whole	373.0	351.0	362.0	< 240	n/a	< 52.8
S95T003061	112:3	Upper ½	< 120	< 94.2	< 107			
S95T003062		Lower ½	< 112	< 106	< 109			
S95T003063	112:4	Upper ½	< 87.8	< 116	< 101.9			
S95T003064		Lower ½	< 121	< 111	< 116			
S95T003065	112:5	Upper ½	< 218	< 208	< 213			
S95T003066		Lower ½	< 115	< 97.7	< 106.4			
S95T003067	112:6	Upper ½	< 233	< 172	< 202.5			
S95T003068		Lower ½	< 111	< 96.9	< 104.0			
S95T003069	112:7	Upper ½	< 182	< 190	< 186			
S95T003070		Lower ½	< 176	< 171	< 173.5			
S95T003071	112:8	Upper ½	< 105	< 115	< 110			
S95T003072		Lower ½	< 195	< 191	< 193			
S95T003073	112:9	Upper ½	< 207	< 190	< 198.5			
S95T003074		Lower ½	< 171	< 191	< 181			
S95T003075	112:10	Upper ½	< 186	< 182	< 184			
S95T003076		Lower ½	< 228	< 205	< 216.5			
S95T003077	112:11	Upper ½	< 203	< 174	< 188.5			
S95T003078		Lower ½	< 474	< 574	< 524			
S95T003079	112:12	Upper ½	< 535	< 483	< 509			
S95T003080		Lower ½	< 489	< 504	< 496.5			

Table B-33. Tank 241-B-204 Analytical Results: Uranium. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T003081	112:13	Upper ½	< 436	< 436	< 436			
S95T003082		Lower ½	< 486	< 424	< 455			
S95T003083	112:14	Upper ½	< 463	< 529	< 496			
S95T003084		Lower ½	< 996	< 905	< 950.5			
S95T003282	114:2	Upper ½	306.0	298.0	302.0			
S95T003283		Lower ½	300.0	322.0	311.0			
S95T003284	114:3	Upper ½	< 99.0	< 94.4	< 96.7			
S95T003285		Lower ½	< 845	< 966	< 905.5			
S95T003286	114:4	Upper ½	< 111	< 98.4	< 104.7			
S95T003287		Lower ½	< 177	< 221	< 199			
S95T003288	114:5	Upper ½	< 111	< 96.6	< 103.8			
S95T003289		Lower ½	< 113	< 117	< 115			
S95T003290	114:6	Upper ½	< 113	< 99.0	< 106			
S95T003291		Lower ½	< 172	< 213	< 192.5			
S95T003292	114:7	Upper ½	< 117	< 109	< 113			
S95T003293		Lower ½	< 108	< 96.9	< 102.5			
S95T003294	114:8	Upper ½	< 110	< 179	< 144.5			
S95T003295		Lower ½	< 104	< 100	< 102			
S95T003296	114:9	Upper ½	< 207	< 232	< 219.5			
S95T003297		Lower ½	< 189	< 225	< 207			

Table B-33. Tank 241-B-204 Analytical Results: Uranium. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T003298	114:10	Upper ½	< 185	< 179	< 182			
S95T003299		Lower ½	< 169	< 193	< 177.5			
S95T003300	114:11	Upper ½	< 235	< 241	< 238			
S95T003301		Lower ½	< 170	< 170	< 170			
S95T003302	114:12	Upper ½	< 120	< 110	< 115			
S95T003303		Lower ½	< 112	< 185	< 148.5			
S95T003304	114:13	Upper ½	< 229	< 204	< 216.5			
S95T003305		Lower ½	< 180	< 183	< 181.5			
S95T003306	114:14	Upper ½	< 216	< 214	< 215			
S95T003307		Lower ½	< 193	< 211	< 202			
Drainable liquids			µg/mL	µg/mL	µg/mL	µg/mL	%	kg
S95T002976	112:1	DL	179.0	195.0	187.0	164	7.9	0.656
S95T002984	112:2	DL	173.0	163.0	168.0			
S95T003255	114:1	DL	150.0	152.0	151.0			

Table B-34. Tank 241-B-204 Analytical Results: Vanadium. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T002980	112:2	Whole	< 13.8	< 18.6	< 16.2	< 22.4	n/a	< 4.93
S95T003061	112:3	Upper ½	< 12.0	< 9.42	< 10.7			
S95T003062		Lower ½	< 11.2	< 10.6	< 10.9			
S95T003063	112:4	Upper ½	< 8.78	< 11.6	< 10.2			
S95T003064		Lower ½	< 12.1	< 11.1	< 11.6			
S95T003065	112:5	Upper ½	< 21.8	< 20.8	< 21.3			
S95T003066		Lower ½	< 11.5	< 9.77	< 10.6			
S95T003067	112:6	Upper ½	< 23.3	< 17.2	< 20.3			
S95T003068		Lower ½	< 11.1	< 9.69	< 10.4			
S95T003069	112:7	Upper ½	< 18.2	< 19.0	< 18.6			
S95T003070		Lower ½	< 17.6	< 17.1	< 17.4			
S95T003071	112:8	Upper ½	< 10.5	< 11.5	< 11.0			
S95T003072		Lower ½	< 19.5	< 19.1	< 19.3			
S95T003073	112:9	Upper ½	< 20.7	< 19.0	< 19.9			
S95T003074		Lower ½	< 17.1	< 19.1	< 18.1			
S95T003075	112:10	Upper ½	< 18.6	< 18.2	< 18.4			
S95T003076		Lower ½	< 22.8	< 20.5	< 21.7			
S95T003077	112:11	Upper ½	< 20.3	< 17.4	< 18.9			
S95T003078		Lower ½	< 47.4	< 57.4	< 52.4			
S95T003079	112:12	Upper ½	< 53.5	< 48.3	< 50.9			
S95T003080		Lower ½	< 48.9	< 50.4	< 49.7			

Table B-34. Tank 241-B-204 Analytical Results: Vanadium. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T003081	112:13	Upper ½	< 43.6	< 43.6	< 43.6			
S95T003082		Lower ½	< 48.6	< 42.4	< 45.5			
S95T003083	112:14	Upper ½	< 46.3	< 52.9	< 49.6			
S95T003084		Lower ½	< 99.6	< 90.5	< 95.1			
S95T003282	114:2	Upper ½	< 10.5	< 11.0	< 10.75			
S95T003283		Lower ½	< 9.74	< 9.10	< 9.42			
S95T003284	114:3	Upper ½	< 9.90	< 9.44	< 9.67			
S95T003285		Lower ½	< 84.5	< 96.6	< 90.55			
S95T003286	114:4	Upper ½	< 11.1	< 9.84	< 10.47			
S95T003287		Lower ½	< 17.7	< 22.1	< 19.9			
S95T003288	114:5	Upper ½	< 11.1	< 9.66	< 10.38			
S95T003289		Lower ½	< 11.3	< 11.7	< 11.5			
S95T003290	114:6	Upper ½	< 11.3	< 9.90	< 10.6			
S95T003291		Lower ½	< 17.2	< 21.3	< 19.2			
S95T003292	114:7	Upper ½	< 11.7	< 10.9	< 11.3			
S95T003293		Lower ½	< 10.8	< 9.69	< 10.25			
S95T003294	114:8	Upper ½	< 11.0	< 17.9	< 14.45			
S95T003295		Lower ½	< 10.4	< 10.0	< 10.20			
S95T003296	114:9	Upper ½	< 20.7	< 23.2	< 21.95			
S95T003297		Lower ½	< 18.9	< 22.5	< 20.70			

Table B-34. Tank 241-B-204 Analytical Results: Vanadium. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T003298	114:10	Upper ½	< 18.5	< 17.9	< 18.2			
S95T003299		Lower ½	< 16.9	< 19.3	< 18.1			
S95T003300	114:11	Upper ½	< 23.5	< 24.1	< 23.8			
S95T003301		Lower ½	< 17.0	< 17.0	< 17.0			
S95T003302	114:12	Upper ½	< 12.0	< 11.0	< 11.5			
S95T003303		Lower ½	< 11.2	< 18.5	< 14.85			
S95T003304	114:13	Upper ½	< 22.9	< 20.4	< 21.65			
S95T003305		Lower ½	< 18.0	< 18.3	< 18.65			
S95T003306	114:14	Upper ½	< 21.6	< 21.4	< 21.5			
S95T003307		Lower ½	< 19.3	< 21.1	< 20.2			
Drainable liquids			µg/mL	µg/mL	µg/mL	µg/mL	%	kg
S95T002976	112:1	DL	< 10.0	< 10.0	< 10.0	< 7.53	n/a	< 0.0301
S95T002984	112:2	DL	< 10.0	< 10.0	< 10.0			
S95T003255	114:1	DL	< 5.05	< 5.05	< 5.05			

Table B-35. Tank 241-B-204 Analytical Results: Zinc. (4 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T002980	112:2	Whole	178.0	149.0	163.5	53.7	39.7	11.8
S95T003061	112:3	Upper ½	19.80	16.90	18.35			
S95T003062		Lower ½	11.50	11.20	11.35			
S95T003063	112:4	Upper ½	20.90	27.80	24.35			
S95T003064		Lower ½	20.50	12.40	16.45			
S95T003065	112:5	Upper ½	15.30	10.20	12.75			
S95T003066		Lower ½	14.40	8.78	11.59			
S95T003067	112:6	Upper ½	12.10	22.40	17.25			
S95T003068		Lower ½	14.70	13.10	13.90			
S95T003069	112:7	Upper ½	11.20	15.30	13.25			
S95T003070		Lower ½	7.96	7.92	7.94			
S95T003071	112:8	Upper ½	6.48	9.72	8.10			
S95T003072		Lower ½	20.40	12.10	16.25			
S95T003073	112:9	Upper ½	15.90	19.30	17.6			
S95T003074		Lower ½	14.90	11.10	13.00			
S95T003075	112:10	Upper ½	17.70	19.60	18.65			
S95T003076		Lower ½	17.40	27.70	22.55			
S95T003077	112:11	Upper ½	31.30	29.30	30.30			
S95T003078		Lower ½	17.10	18.20	17.65			
S95T003079	112:12	Upper ½	12.30	18.40	15.35			
S95T003080		Lower ½	12.20	< 10.1	11.15			

Table B-35. Tank 241-B-204 Analytical Results: Zinc. (4 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T003081	112:13	Upper ½	22.80	25.40	24.10			
S95T003082		Lower ½	94.20	88.20	91.20			
S95T003083	112:14	Upper ½	338.0	274.0	306.0			
S95T003084		Lower ½	410.0	373.0	391.5			
S95T003282	114:2	Upper ½	11.40	11.80	11.60			
S95T003283		Lower ½	7.430	8.820	8.125			
S95T003284	114:3	Upper ½	6.410	6.290	6.350			
S95T003285		Lower ½	< 16.9	< 19.3	< 18.1			
S95T003286	114:4	Upper ½	7.190	8.740	7.965			
S95T003287		Lower ½	8.560	8.670	8.615			
S95T003288	114:5	Upper ½	18.50	8.690	13.59			
S95T003289		Lower ½	6.740	22.30	14.52			
S95T003290	114:6	Upper ½	12.40	11.60	12.00			
S95T003291		Lower ½	11.20	8.810	10.00			
S95T003292	114:7	Upper ½	7.060	7.310	7.185			
S95T003293		Lower ½	13.50	9.850	11.68			
S95T003294	114:8	Upper ½	96.50	59.00	77.75			
S95T003295		Lower ½	7.860	11.50	9.680			
S95T003296	114:9	Upper ½	14.40	12.10	13.25			
S95T003297		Lower ½	19.40	15.70	17.55			

Table B-35. Tank 241-B-204 Analytical Results: Zinc. (4 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T003298	114:10	Upper ½	23.00	17.80	20.40			
S95T003299		Lower ½	14.60	12.00	13.30			
S95T003300	114:11	Upper ½	50.80	11.50	31.15			
S95T003301		Lower ½	13.00	10.60	11.80			
S95T003302	114:12	Upper ½	10.00	16.80	13.40			
S95T003303		Lower ½	11.40	8.100	9.750			
S95T003304	114:13	Upper ½	15.20	15.20	15.20			
S95T003305		Lower ½	65.40	65.40	65.40			
S95T003306	114:14	Upper ½	262.0	260.0	261.0			
S95T003307		Lower ½	626.0	662.0	644.0			
Drainable liquids			µg/mL	µg/mL	µg/mL	µg/mL	%	kg
S95T002976	112:1	DL	8.84	< 2.01	5.42	2.62	41.2	0.0105
S95T002984	112:2	DL	< 2.01	< 2.01	< 2.01			
S95T003255	114:1	DL	1.560	1.470	1.515			

Table B-36. Tank 241-B-204 Analytical Results: Zirconium. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T002980	112:2	Whole	4.040	4.090	4.065	< 4.52	n/a	< 0.995
S95T003061	112:3	Upper ½	< 2.41	< 1.88	< 2.15			
S95T003062		Lower ½	< 2.25	< 2.13	< 2.19			
S95T003063	112:4	Upper ½	< 1.76	< 2.33	< 2.05			
S95T003064		Lower ½	< 2.43	< 2.22	< 2.33			
S95T003065	112:5	Upper ½	< 4.37	< 4.16	< 4.27			
S95T003066		Lower ½	< 2.31	< 2.22	< 2.27			
S95T003067	112:6	Upper ½	< 4.66	< 3.46	< 4.06			
S95T003068		Lower ½	< 2.23	< 1.94	< 2.09			
S95T003069	112:7	Upper ½	< 3.64	< 3.81	< 7.45			
S95T003070		Lower ½	< 3.51	< 3.43	< 3.47			
S95T003071	112:8	Upper ½	< 2.10	< 2.30	< 2.20			
S95T003072		Lower ½	< 3.91	< 3.81	< 3.86			
S95T003073	112:9	Upper ½	< 4.14	< 3.80	<3.97			
S95T003074		Lower ½	< 3.43	< 3.81	< 3.62			
S95T003075	112:10	Upper ½	< 3.72	< 3.64	< 3.68			
S95T003076		Lower ½	< 4.56	< 4.11	< 4.34			
S95T003077	112:11	Upper ½	< 4.07	< 3.48	< 3.78			
S95T003078		Lower ½	< 9.49	< 11.5	< 10.50			
S95T003079	112:12	Upper ½	< 10.7	< 9.66	< 10.18			
S95T003080		Lower ½	< 9.78	< 10.1	< 9.94			

Table B-36. Tank 241-B-204 Analytical Results: Zirconium. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T003081	112:13	Upper ½	< 8.72	< 8.73	< 8.73			
S95T003082		Lower ½	< 9.72	< 8.47	< 9.10			
S95T003083	112:14	Upper ½	< 9.26	< 10.6	< 9.93			
S95T003084		Lower ½	< 19.9	< 18.1	< 19.0			
S95T003282	114:2	Upper ½	< 2.10	< 2.20	< 2.15			
S95T003283		Lower ½	< 1.95	< 1.82	< 1.89			
S95T003284	114:3	Upper ½	< 1.98	< 1.89	< 1.94			
S95T003285		Lower ½	< 16.9	< 19.3	< 18.1			
S95T003286	114:4	Upper ½	< 2.23	<1.97	< 2.10			
S95T003287		Lower ½	< 3.51	< 4.43	< 3.97			
S95T003288	114:5	Upper ½	< 2.22	< 1.93	< 2.08			
S95T003289		Lower ½	4.10	< 2.34	3.22			
S95T003290	114:6	Upper ½	< 2.26	< 1.98	< 2.12			
S95T003291		Lower ½	< 3.44	< 4.25	< 3.85			
S95T003292	114:7	Upper ½	< 2.34	< 2.17	< 2.23			
S95T003293		Lower ½	< 2.16	< 1.94	< 2.05			
S95T003294	114:8	Upper ½	< 2.17	< 3.58	< 2.88			
S95T003295		Lower ½	< 2.05	< 2.00	< 2.03			
S95T003296	114:9	Upper ½	< 4.11	< 4.64	< 4.38			
S95T003297		Lower ½	< 3.79	< 4.50	< 4.15			

Table B-36. Tank 241-B-204 Analytical Results: Zirconium. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T003298	114:10	Upper ½	< 3.70	< 3.59	< 3.65			
S95T003299		Lower ½	< 3.39	< 3.85	< 3.62			
S95T003300	114:11	Upper ½	< 4.70	< 4.83	< 4.76			
S95T003301		Lower ½	< 3.40	< 3.40	< 3.40			
S95T003302	114:12	Upper ½	< 2.40	< 2.21	< 2.31			
S95T003303		Lower ½	< 2.23	< 3.70	< 2.97			
S95T003304	114:13	Upper ½	< 4.58	< 4.09	< 4.34			
S95T003305		Lower ½	< 3.60	< 3.66	< 3.36			
S95T003306	114:14	Upper ½	< 4.29	< 4.27	< 4.28			
S95T003307		Lower ½	< 3.86	< 4.22	< 4.04			
Drainable liquids			µg/mL	µg/mL	µg/mL	µg/mL	%	kg
S95T002976	112:1	DL	< 2.01	< 2.01	< 2.01	< 1.51	n/a	< 0.00604
S95T002984	112:2	DL	< 2.01	< 2.01	< 2.01			
S95T003255	114:1	DL	< 1.01	< 1.01	< 1.01			

Table B-37. Tank 241-B-204 Analytical Results: Chloride. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T002981	112:2	Whole	541.2	643.0	592.1	693	7.3	153
S95T003085	112:3	Upper ½	2,930	3,050	2,990			
S95T003086		Lower ½	554.0	602.0	578.0			
S95T003087	112:4	Upper ½	522.4	574.0	548.2			
S95T003088		Lower ½	556.7	550.0	553.4			
S95T003089	112:5	Upper ½	537.5	550.0	543.8			
S95T003090		Lower ½	638.3	618.0	628.1			
S95T003091	112:6	Upper ½	676.1	590.0	633.0			
S95T003092		Lower ½	572.8	628.0	600.4			
S95T003093	112:7	Upper ½	546.4	567.0	556.7			
S95T003094		Lower ½	637.2	623	630.1			
S95T003095	112:8	Upper ½	581.5	602.0	591.8			
S95T003096		Lower ½	1,530	624.0	1,080			
S95T003097	112:9	Upper ½	578.5	559.0	568.8			
S95T003098		Lower ½	595.2	596.0	595.6			
S95T003099	112:10	Upper ½	failed QC	failed QC	n/a			
S95T003100		Lower ½	failed QC	failed QC	n/a			
S95T003101	112:11	Upper ½	637.3	756.0	696.6			
S95T003102		Lower ½	621.1	712.0	666.5			
S95T003103	112:12	Upper ½	1,250	573.0	910.5			
S95T003104		Lower ½	571.4	592.0	581.7			

Table B-37. Tank 241-B-204 Analytical Results: Chloride. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µE/g	µE/g	µE/g	µE/g	%	kg
S95T003105	112:13	Upper ½	598.4	622.0	610.2			
S95T003106		Lower ½	662.4	593.0	627.7			
S95T003107	112:14	Upper ½	591.7	648.0	619.9			
S95T003108		Lower ½	581.9	598.0	590.0			
S95T003308	114:2	Upper ½	573.3	745.0	659.1			
S95T003309		Lower ½	564.4	518.0	541.2			
S95T003310	114:3	Upper ½	583.8	590.0	586.9			
S95T003311		Lower ½	573.7	573.0	573.4			
S95T003312	114:4	Upper ½	532.7	551.0	541.9			
S95T003313		Lower ½	537.5	551.0	544.2			
S95T003314	114:5	Upper ½	580.4	591.0	585.7			
S95T003315		Lower ½	660.8	605.0	632.9			
S95T003316	114:6	Upper ½	587.9	572.0	580.0			
S95T003317		Lower ½	728.4	606.0	667.2			
S95T003318	114:7	Upper ½	863.8	651.0	757.4			
S95T003319		Lower ½	673.3	1,020	846.6			
S95T003320	114:8	Upper ½	615.9	604.0	610.0			
S95T003321		Lower ½	678.4	620.0	649.2			
S95T003322	114:9	Upper ½	616.8	654.0	635.4			
S95T003323		Lower ½	586.2	613.0	599.6			

Table B-37. Tank 241-B-204 Analytical Results: Chloride. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T003324	114:10	Upper ½	658.9	625.0	642.0			
S95T003325		Lower ½	614.8	639.0	626.9			
S95T003326	114:11	Upper ½	642.0	773.0	707.5			
S95T003327		Lower ½	630.7	1,180	905.4			
S95T003328	114:12	Upper ½	675.7	657.0	666.4			
S95T003329		Lower ½	647.6	647.0	647.3			
S95T003330	114:13	Upper ½	460.3	1,370	915.1			
S95T003331		Lower ½	611.2	606.0	608.6			
S95T003332	114:14	Upper ½	602.3	613.0	607.6			
S95T003333		Lower ½	672.1	622.0	647.0			
Drainable liquids			µg/mL	µg/mL	µg/mL	µg/mL	%	kg
S95T002976	112:1	DL	691.2	670.0	680.6	592	8.8	2.37
S95T002984	112:2	DL	596.9	620.0	608.5			
S95T003255	114:1	DL	556.1	522.0	539.0			

Table B-38. Tank 241-B-204 Analytical Results: Fluoride. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T002981	112:2	Whole	6,470	7,490	6,980	7,080	9.5	1,560
S95T003085	112:3	Upper ½	35,300	35,000	35,200			
S95T003086		Lower ½	6,390	7,090	6,740			
S95T003087	112:4	Upper ½	4,930	dup error	4,930			
S95T003088		Lower ½	6,550	6,280	6,420			
S95T003089	112:5	Upper ½	6,130	6,300	6,220			
S95T003090		Lower ½	failed QC	failed QC	n/a			
S95T003091	112:6	Upper ½	failed QC	failed QC	n/a			
S95T003092		Lower ½	6,250	6,470	6,360			
S95T003093	112:7	Upper ½	6,020	6,370	6,190			
S95T003094		Lower ½	6,940	6,910	6,930			
S95T003095	112:8	Upper ½	6,480	6,770	6,620			
S95T003096		Lower ½	failed QC	failed QC	n/a			
S95T003097	112:9	Upper ½	failed QC	failed QC	n/a			
S95T003098		Lower ½	6,660	6,420	6,540			
S95T003099	112:10	Upper ½	failed QC	failed QC	n/a			
S95T003100		Lower ½	failed QC	failed QC	n/a			
S95T003101	112:11	Upper ½	6,110	6,140	6,120			
S95T003102		Lower ½	5,920	6,150	6,030			
S95T003103	112:12	Upper ½	6,120	6,160	6,140			
S95T003104		Lower ½	6,010	6,120	6,060			

Table B-38. Tank 241-B-204 Analytical Results: Fluoride. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T003105	112:13	Upper ½	6,060	6,540	6,570			
S95T003106		Lower ½	6,830	6,480	6,660			
S95T003107	112:14	Upper ½	6,390	6,750	6,570			
S95T003108		Lower ½	6,460	6,540	6,500			
S95T003308	114:2	Upper ½	6,000	6,800	6,400			
S95T003309		Lower ½	6,260	5,490	5,880			
S95T003310	114:3	Upper ½	failed QC	failed QC	n/a			
S95T003311		Lower ½	failed QC	failed QC	n/a			
S95T003312	114:4	Upper ½	6,270	6,190	6,230			
S95T003313		Lower ½	6,390	6,410	6,400			
S95T003314	114:5	Upper ½	5,550	5,480	5,520			
S95T003315		Lower ½	5,830	5,860	5,840			
S95T003316	114:6	Upper ½	6,370	6,080	6,230			
S95T003317		Lower ½	6,560	6,570	6,570			
S95T003318	114:7	Upper ½	5,720	6,680	6,200			
S95T003319		Lower ½	6,960	6,980	6,970			
S95T003320	114:8	Upper ½	7,010	6,890	6,950			
S95T003321		Lower ½	6,580	6,810	6,700			
S95T003322	114:9	Upper ½	6,670	6,840	6,760			
S95T003323		Lower ½	6,680	6,490	6,590			

Table B-38. Tank 241-B-204 Analytical Results: Fluoride. (3 sheets)

Sample Number	Core; Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T003324	114:10	Upper ½	6,980	6,870	6,930			
S95T003325		Lower ½	6,710	6,790	6,750			
S95T003326	114:11	Upper ½	6,830	7,520	7,180			
S95T003327		Lower ½	6,740	7,030	6,890			
S95T003328	114:12	Upper ½	6,860	7,040	6,950			
S95T003329		Lower ½	7,090	6,990	7,040			
S95T003330	114:13	Upper ½	6,520	6,730	6,630			
S95T003331		Lower ½	6,800	6,740	6,770			
S95T003332	114:14	Upper ½	6,390	6,380	6,390			
S95T003333		Lower ½	6,330	6,590	6,460			
Drainable liquids			µg/mL	µg/mL	µg/mL	µg/mL	%	kg
S95T002976	112:1	DL	6,840	6,700	6,770	6,240	6.0	25.0
S95T002984	112:2	DL	6,460	6,480	6,470			
S95T003255	114:1	DL	6,100	5,630	5,860			

Table B-39. Tank 241-B-204 Analytical Results: Nitrate. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T002981	112:2	Whole	40,600	49,200	44,900	52,900	7.4	11,600
S95T003085	112:3	Upper ½	246,000	244,000	245,000			
S95T003086		Lower ½	46,800	51,700	49,200			
S95T003087	112:4	Upper ½	35,600	dup error	35,600			
S95T003088		Lower ½	49,400	47,900	48,600			
S95T003089	112:5	Upper ½	47,300	48,200	47,800			
S95T003090		Lower ½	53,600	51,300	52,400			
S95T003091	112:6	Upper ½	58,800	51,500	55,100			
S95T003092		Lower ½	49,900	50,500	50,200			
S95T003093	112:7	Upper ½	47,300	49,400	48,300			
S95T003094		Lower ½	54,500	53,900	54,200			
S95T003095	112:8	Upper ½	51,100	53,100	52,100			
S95T003096		Lower ½	51,900	53,600	52,800			
S95T003097	112:9	Upper ½	51,100	49,300	50,200			
S95T003098		Lower ½	51,900	50,200	51,000			
S95T003099	112:10	Upper ½	46,200	47,500	46,800			
S95T003100		Lower ½	51,400	51,500	51,500			
S95T003101	112:11	Upper ½	47,700	45,300	46,500			
S95T003102		Lower ½	43,200	45,200	44,200			
S95T003103	112:12	Upper ½	49,000	48,000	48,500			
S95T003104		Lower ½	46,700	48,000	47,300			

Table B-39. Tank 241-B-204 Analytical Results: Nitrate. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T003105	112:13	Upper ½	50,700	50,900	50,800			
S95T003106		Lower ½	53,200	49,100	51,100			
S95T003107	112:14	Upper ½	49,700	51,200	50,500			
S95T003108		Lower ½	48,600	49,400	49,000			
S95T003308	114:2	Upper ½	40,300	44,700	42,500			
S95T003309		Lower ½	44,200	40,000	42,100			
S95T003310	114:3	Upper ½	47,000	48,000	47,500			
S95T003311		Lower ½	44,600	46,700	45,600			
S95T003312	114:4	Upper ½	48,400	47,800	48,100			
S95T003313		Lower ½	46,500	47,700	47,100			
S95T003314	114:5	Upper ½	40,400	40,100	40,200			
S95T003315		Lower ½	42,500	43,000	42,700			
S95T003316	114:6	Upper ½	47,000	45,500	46,300			
S95T003317		Lower ½	48,500	47,700	48,100			
S95T003318	114:7	Upper ½	44,700	52,400	48,500			
S95T003319		Lower ½	52,400	53,500	53,000			
S95T003320	114:8	Upper ½	53,500	53,500	53,500			
S95T003321		Lower ½	52,200	52,300	52,300			
S95T003322	114:9	Upper ½	51,900	53,900	52,900			
S95T003323		Lower ½	52,300	50,900	51,600			

Table B-39. Tank 241-B-204 Analytical Results: Nitrate. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T003324	114:10	Upper ½	54,500	53,800	54,200			
S95T003325		Lower ½	51,900	52,500	52,200			
S95T003326	114:11	Upper ½	54,300	58,300	56,300			
S95T003327		Lower ½	53,200	54,900	54,100			
S95T003328	114:12	Upper ½	53,800	55,400	54,600			
S95T003329		Lower ½	54,800	54,300	54,600			
S95T003330	114:13	Upper ½	50,300	52,400	51,400			
S95T003331		Lower ½	51,900	51,600	51,800			
S95T003332	114:14	Upper ½	45,200	45,400	45,300			
S95T003333		Lower ½	45,400	47,500	46,400			
Drainable Liquid			µg/mL	µg/mL	µg/mL	µg/mL	%	kg
S95T002976	112:1	DL	49,000	49,200	49,100	45,900	3.8	184
S95T002984	112:2	DL	43,300	42,700	43,000			
S95T003255	114:1	DL	47,300	44,200	45,800			

Table B-40. Tank 241-B-204 Analytical Results: Nitrite. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T002981	112:2	Whole	1,350	1,540	1,440	694	18.5	153
S95T003085	112:3	Upper ½	5,840	5,960	5,900			
S95T003086		Lower ½	802.2	855.0	828.6			
S95T003087	112:4	Upper ½	580.6	657.0	618.8			
S95T003088		Lower ½	525.1	449.0	487.1			
S95T003089	112:5	Upper ½	430.0	441.0	435.5			
S95T003090		Lower ½	550.0	513.0	531.5			
S95T003091	112:6	Upper ½	527.2	497.0	512.1			
S95T003092		Lower ½	419.8	425.0	422.4			
S95T003093	112:7	Upper ½	414.3	425.0	419.6			
S95T003094		Lower ½	462.1	450.0	456.1			
S95T003095	112:8	Upper ½	358.8	369.0	363.9			
S95T003096		Lower ½	346.6	360.0	353.3			
S95T003097	112:9	Upper ½	335.4	324.0	329.7			
S95T003098		Lower ½	435.4	402.0	418.7			
S95T003099	112:10	Upper ½	285.6	279.0	282.3			
S95T003100		Lower ½	288.2	275.0	281.6			
S95T003101	112:11	Upper ½	876.0	855.0	865.5			
S95T003102		Lower ½	913.8	937.0	925.4			
S95T003103	112:12	Upper ½	317.2	334.0	325.6			
S95T003104		Lower ½	347.7	359.0	353.4			

Table B-40. Tank 241-B-204 Analytical Results: Nitrite. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T003105	112:13	Upper ½	397.7	396.0	396.9			
S95T003106		Lower ½	445.7	418.0	431.9			
S95T003107	112:14	Upper ½	389.2	386.0	387.6			
S95T003108		Lower ½	406.2	403.0	404.6			
S95T003308	114:2	Upper ½	1,440	1,550	1,500			
S95T003309		Lower ½	1,390	1,330	1,360			
S95T003310	114:3	Upper ½	1,080	1,080	1,080			
S95T003311		Lower ½	897.8	901.0	899.4			
S95T003312	114:4	Upper ½	641.0	644.0	642.5			
S95T003313		Lower ½	825.7	845.0	835.4			
S95T003314	114:5	Upper ½	1,150	1,150	1,150			
S95T003315		Lower ½	1,080	1,070	1,070			
S95T003316	114:6	Upper ½	1,080	1,070	1,080			
S95T003317		Lower ½	1,160	1,030	1,100			
S95T003318	114:7	Upper ½	359.2	397.0	378.1			
S95T003319		Lower ½	478.3	466.0	472.1			
S95T003320	114:8	Upper ½	292.5	290.0	291.2			
S95T003321		Lower ½	345.0	350.0	347.5			
S95T003322	114:9	Upper ½	351.8	368.0	359.9			
S95T003323		Lower ½	391.3	382.0	386.6			

Table B-40. Tank 241-B-204 Analytical Results: Nitrite. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T003324	114:10	Upper ½	333.6	340.0	336.8			
S95T003325		Lower ½	343.9	332.0	337.9			
S95T003326	114:11	Upper ½	347.3	351.0	349.1			
S95T003327		Lower ½	343.0	342.0	342.5			
S95T003328	114:12	Upper ½	219.1	226.0	222.6			
S95T003329		Lower ½	225.7	228.0	226.8			
S95T003330	114:13	Upper ½	932.9	328.0	630.5			
S95T003331		Lower ½	335.0	340.0	337.5			
S95T003332	114:14	Upper ½	373.2	398.0	385.6			
S95T003333		Lower ½	381.3	390.0	385.6			
Drainable liquid			µg/mL	µg/mL	µg/mL	µg/mL	%	kg
S95T002976	112:1	DL	2,170	2,230	2,200	1,730	14.2	6.92
S95T002984	112:2	DL	1,360	1,350	1,350			
S95T003255	114:1	DL	1,720	1,630	1,680			

Table B-41. Tank 241-B-204 Analytical Results: Oxalate. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T002981	112:2	Whole	< 247	< 237	< 242	1,710	5.5	376
S95T003085	112:3	Upper ½	4,680	4,840	4,760			
S95T003086		Lower ½	1,220	1,340	1,280			
S95T003087	112:4	Upper ½	1,330	1,560	1,450			
S95T003088		Lower ½	1,660	1,580	1,620			
S95T003089	112:5	Upper ½	1,660	1,680	1,670			
S95T003090		Lower ½	1,940	1,840	1,890			
S95T003091	112:6	Upper ½	2,150	1,880	2,010			
S95T003092		Lower ½	1,750	1,860	1,810			
S95T003093	112:7	Upper ½	1,700	1,800	1,750			
S95T003094		Lower ½	2,040	1,940	1,990			
S95T003095	112:8	Upper ½	1,810	1,920	1,870			
S95T003096		Lower ½	1,780	1,810	1,790			
S95T003097	112:9	Upper ½	1,700	1,660	1,680			
S95T003098		Lower ½	1,800	1,760	1,780			
S95T003099	112:10	Upper ½	1,620	1,610	1,620			
S95T003100		Lower ½	1,720	1,750	1,740			
S95T003101	112:11	Upper ½	2,120	2,110	2,120			
S95T003102		Lower ½	2,120	2,070	2,100			
S95T003103	112:12	Upper ½	1,590	1,590	1,590			
S95T003104		Lower ½	1,490	1,580	1,530			

Table B-41. Tank 241-B-204 Analytical Results: Oxalate. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T003105	112:13	Upper ½	1,730	1,720	1,730			
S95T003106		Lower ½	1,810	1,640	1,720			
S95T003107	112:14	Upper ½	1,640	1,730	1,690			
S95T003108		Lower ½	1,600	1,690	1,650			
S95T003308	114:2	Upper ½	< 403	< 420	< 412			
S95T003309		Lower ½	517.7	455.0	486.4			
S95T003310	114:3	Upper ½	851.4	835.0	843.2			
S95T003311		Lower ½	1,090	1,120	1,100			
S95T003312	114:4	Upper ½	1,290	1,250	1,270			
S95T003313		Lower ½	1,560	1,540	1,550			
S95T003314	114:5	Upper ½	2,140	1,930	2,030			
S95T003315		Lower ½	2,170	2,040	2,110			
S95T003316	114:6	Upper ½	2,450	2,180	2,310			
S95T003317		Lower ½	2,450	2,360	2,400			
S95T003318	114:7	Upper ½	1,530	1,840	1,690			
S95T003319		Lower ½	1,970	1,940	1,950			
S95T003320	114:8	Upper ½	1,880	1,870	1,870			
S95T003321		Lower ½	1,860	1,850	1,850			
S95T003322	114:9	Upper ½	1,880	1,890	1,880			
S95T003323		Lower ½	1,790	1,760	1,780			

Table B-41. Tank 241-B-204 Analytical Results: Oxalate. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T003324	114:10	Upper ½	1,880	1,870	1,880			
S95T003325		Lower ½	1,750	1,770	1,760			
S95T003326	114:11	Upper ½	1,860	1,970	1,920			
S95T003327		Lower ½	1,780	1,860	1,820			
S95T003328	114:12	Upper ½	1,830	1,880	1,860			
S95T003329		Lower ½	1,820	1,770	1,800			
S95T003330	114:13	Upper ½	1,700	1,730	1,710			
S95T003331		Lower ½	1,720	1,730	1,730			
S95T003332	114:14	Upper ½	1,800	1,680	1,740			
S95T003333		Lower ½	1,740	1,900	1,820			
Drainable liquid			µg/mL	µg/mL	µg/mL	µg/mL	%	kg
S95T002976	112:1	DL	failed QC	753.0	753.0	< 356	n/a	< 1.42
S95T002984	112:2	DL	< 223	< 223	< 223			
S95T003255	114:1	DL	< 223	< 223	< 223			

Table B-42. Tank 241-B-204 Analytical Results: Phosphate. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T002981	112:2	Whole	2,840	3,050	2,950	3,620	8.8	797
S95T003085	112:3	Upper ½	18,700	18,200	18,500			
S95T003086		Lower ½	3,230	3,580	3,400			
S95T003087	112:4	Upper ½	3,360	3,750	3,560			
S95T003088		Lower ½	3,910	3,840	3,880			
S95T003089	112:5	Upper ½	4,130	3,930	4,030			
S95T003090		Lower ½	4,720	4,490	4,610			
S95T003091	112:6	Upper ½	5,120	3,990	4,560			
S95T003092		Lower ½	3,670	3,800	3,730			
S95T003093	112:7	Upper ½	3,370	3,690	3,530			
S95T003094		Lower ½	3,970	3,920	3,940			
S95T003095	112:8	Upper ½	3,350	3,540	3,450			
S95T003096		Lower ½	3,160	3,250	3,200			
S95T003097	112:9	Upper ½	3,040	2,900	2,970			
S95T003098		Lower ½	3,070	2,770	2,920			
S95T003099	112:10	Upper ½	2,770	2,750	2,760			
S95T003100		Lower ½	2,790	2,870	2,830			
S95T003101	112:11	Upper ½	3,090	3,890	3,490			
S95T003102		Lower ½	2,960	2,970	2,960			
S95T003103	112:12	Upper ½	2,340	2,220	2,280			
S95T003104		Lower ½	2,050	2,010	2,030			

Table B-42. Tank 241-B-204 Analytical Results: Phosphate. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T003105	112:13	Upper ½	2,450	2,560	2,500			
S95T003106		Lower ½	3,200	2,330	2,770			
S95T003107	112:14	Upper ½	2,160	2,420	2,290			
S95T003108		Lower ½	2,810	2,290	2,550			
S95T003308	114:2	Upper ½	3,150	3,490	3,320			
S95T003309		Lower ½	2,610	2,440	2,530			
S95T003310	114:3	Upper ½	2,640	2,570	2,610			
S95T003311		Lower ½	2,810	2,830	2,820			
S95T003312	114:4	Upper ½	3,330	3,310	3,320			
S95T003313		Lower ½	3,850	4,130	3,990			
S95T003314	114:5	Upper ½	4,090	3,950	4,020			
S95T003315		Lower ½	4,210	4,360	4,290			
S95T003316	114:6	Upper ½	4,500	4,590	4,550			
S95T003317		Lower ½	4,750	4,550	4,650			
S95T003318	114:7	Upper ½	2,940	4,000	3,470			
S95T003319		Lower ½	4,130	4,090	4,110			
S95T003320	114:8	Upper ½	3,920	3,820	3,870			
S95T003321		Lower ½	3,720	3,800	3,760			
S95T003322	114:9	Upper ½	3,470	3,640	3,560			
S95T003323		Lower ½	3,160	3,710	3,440			

Table B-42. Tank 241-B-204 Analytical Results: Phosphate. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T003324	114:10	Upper ½	3,450	3,440	3,440			
S95T003325		Lower ½	3,300	3,450	3,380			
S95T003326	114:11	Upper ½	3,330	3,590	3,460			
S95T003327		Lower ½	3,200	3,460	3,330			
S95T003328	114:12	Upper ½	3,120	3,340	3,230			
S95T003329		Lower ½	2,950	2,890	2,920			
S95T003330	114:13	Upper ½	2,730	3,950	3,340			
S95T003331		Lower ½	2,730	2,750	2,740			
S95T003332	114:14	Upper ½	2,700	2,530	2,620			
S95T003333		Lower ½	2,680	2,850	2,760			
Drainable liquid			µg/mL	µg/mL	µg/mL	µg/mL	%	kg
S95T002976	112:1	DL	2,540	2,720	2,630	2,060	12.4	8.24
S95T002984	112:2	DL	1,770	1,830	1,800			
S95T003255	114:1	DL	1,910	1,890	1,900			

Table B-43. Tank 241-B-204 Analytical Results: Sulfate. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T002981	112:2	Whole	658.9	715.0	687.0	648	12.0	143
S95T003085	112:3	Upper ½	3,760	3,970	3,860			
S95T003086		Lower ½	474.7	542.0	508.4			
S95T003087	112:4	Upper ½	419.6	451.0	435.3			
S95T003088		Lower ½	444.2	421.0	432.6			
S95T003089	112:5	Upper ½	415.6	424.0	419.8			
S95T003090		Lower ½	574.2	614.0	594.1			
S95T003091	112:6	Upper ½	626.0	536.0	581.0			
S95T003092		Lower ½	463.0	992.0	727.5			
S95T003093	112:7	Upper ½	482.0	414.0	448.0			
S95T003094		Lower ½	474.6	487.0	480.8			
S95T003095	112:8	Upper ½	347.0	427.0	387.0			
S95T003096		Lower ½	532.8	411.0	471.9			
S95T003097	112:9	Upper ½	378.6	333.0	355.8			
S95T003098		Lower ½	478.5	406.0	442.2			
S95T003099	112:10	Upper ½	281.3	283.0	282.1			
S95T003100		Lower ½	265.1	810.0	537.5			
S95T003101	112:11	Upper ½	986.8	936.0	961.4			
S95T003102		Lower ½	961.7	1,360	1,160			
S95T003103	112:12	Upper ½	357.4	377.0	367.2			
S95T003104		Lower ½	500.6	418.0	459.3			

Table B-43. Tank 241-B-204 Analytical Results: Sulfate. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T003105	112:13	Upper ½	479.5	439.0	459.2			
S95T003106		Lower ½	540.5	463.0	501.8			
S95T003107	112:14	Upper ½	454.0	446.0	450.0			
S95T003108		Lower ½	513.6	500.0	506.8			
S95T003308	114:2	Upper ½	813.5	875.0	844.2			
S95T003309		Lower ½	1,020	1,080	1,050			
S95T003310	114:3	Upper ½	613.4	681.0	647.2			
S95T003311		Lower ½	568.5	584.0	576.2			
S95T003312	114:4	Upper ½	436.0	431.0	433.5			
S95T003313		Lower ½	735.2	791.0	763.1			
S95T003314	114:5	Upper ½	1,110	1,220	1,160			
S95T003315		Lower ½	1,140	1,040	1,090			
S95T003316	114:6	Upper ½	1,200	1,160	1,180			
S95T003317		Lower ½	1,120	1,100	1,110			
S95T003318	114:7	Upper ½	511.6	484.0	497.8			
S95T003319		Lower ½	599.8	714.0	656.9			
S95T003320	114:8	Upper ½	533.4	469.0	501.2			
S95T003321		Lower ½	423.4	987.0	705.2			
S95T003322	114:9	Upper ½	449.6	464.0	456.8			
S95T003323		Lower ½	468.3	481.0	474.6			

Table B-43. Tank 241-B-204 Analytical Results: Sulfate. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µg/g	µg/g	µg/g	µg/g	%	kg
S95T003324	114:10	Upper ½	422.3	420.0	421.0			
S95T003325		Lower ½	452.9	355.0	403.9			
S95T003326	114:11	Upper ½	433.2	420.0	426.6			
S95T003327		Lower ½	990.2	465.0	727.6			
S95T003328	114:12	Upper ½	318.4	301.0	309.7			
S95T003329		Lower ½	279.0	296.0	287.5			
S95T003330	114:13	Upper ½	413.2	542.0	477.6			
S95T003331		Lower ½	401.1	413.0	407.1			
S95T003332	114:14	Upper ½	419.7	480.0	449.9			
S95T003333		Lower ½	432.2	474.0	453.1			
Drainable liquid			µg/mL	µg/mL	µg/mL	µg/mL	%	kg
S95T002976	112:1	DL	1,340	1,470	1,410	785	34.2	3.14
S95T002984	112:2	DL	483	492.0	487.4			
S95T003255	114:1	DL	635	609.0	622.0			

Table B-44. Tank 241-B-204 Analytical Results: Americium-241.

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
			µCi/g	µCi/g	µCi/g	µCi/g	%	Ci
S95T003120	112:14	Lower ½	< 0.0815	< 0.0851	< 0.0833	< 0.0833	n/a	< 18.3

Table B-45. Tank 241-B-204 Analytical Results: Cobalt-60.

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
			µCi/g	µCi/g	µCi/g	µCi/g	%	Ci
S95T003120	112:14	Lower ½	< 0.0149	< 0.0112	< 0.0131	< 0.0131	n/a	< 2.88

Table B-46. Tank 241-B-204 Analytical Results: Cesium-137.

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
			µCi/g	µCi/g	µCi/g	µCi/g	%	Ci
S95T003120	112:14	Lower ½	< 0.0315	< 0.0313	< 0.0314	< 0.0314	n/a	< 6.91

Table B-47. Tank 241-B-204 Analytical Results: Europium-154.

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
			µCi/g	µCi/g	µCi/g	µCi/g	%	Ci
S95T003120	112:14	Lower ½	< .0380	< 0.0334	< 0.0357	< 0.0357	n/a	< 7.86

Table B-48. Tank 241-B-204 Analytical Results: Europium-155.

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
			µCi/g	µCi/g	µCi/g	µCi/g	%	Ci
S95T003120	112:14	Lower ½	< 0.0388	< 0.0371	< 0.0380	< 0.0380	n/a	< 8.37

Table B-49. Tank 241-B-204 Analytical Results: Strontium-90.

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (data)	Projected Inventory
			µCi/g	µCi/g	µCi/g	µCi/g	%	Ci
S95T003120	112:14	Lower ½	4.15E-03	5.85E-03	5.00E-03	5.00E-030	24.0	1.10

Table B-50. Tank 241-B-204 Analytical Results: Total Alpha. (2 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µCi/g	µCi/g	µCi/g	µCi/g	%	Ci
S95T002987	112:2	Whole	0.246	0.239	0.242[1,2]	0.264	7.2	58.1
S95T003109	112:3	Lower ½	0.299	0.322	0.310[1,2]			
S95T003110	112:4	Lower ½	0.253	0.285	0.269[1,3]			
S95T003111	112:5	Lower ½	0.230	0.239	0.234[1]			
S95T003112	112:6	Lower ½	0.178	0.220	0.199[1,3]			
S95T003113	112:7	Lower ½	0.287	0.214	0.251[1,3]			
S95T003114	112:8	Lower ½	0.214	0.432	0.323[3]			
S95T003115	112:9	Lower ½	0.359	0.324	0.342[3]			
S95T003116	112:10	Lower ½	0.261	0.279	0.270			
S95T003117	112:11	Lower ½	0.284	0.271	0.277			
S95T003118	112:12	Lower ½	0.258	0.268	0.263[1]			
S95T003119	112:13	Lower ½	0.251	0.245	0.248			
S95T003120	112:14	Lower ½	0.496	0.419	0.458[1,3]			
S95T003334	114:2	Lower ½	0.372	0.323	0.348[3]			
S95T003335	114:3	Lower ½	0.269	0.280	0.275			
S95T003336	114:4	Lower ½	0.261	0.282	0.271			
S95T003337	114:5	Lower ½	0.194	0.182	0.188			
S95T003338	114:6	Lower ½	0.222	0.182	0.202[1,3]			
S95T003339	114:7	Lower ½	0.164	0.174	0.169[1]			
S95T003340	114:8	Lower ½	0.204	0.242	0.223[3]			
S95T003341	114:9	Lower ½	0.217	0.236	0.226[1]			

Table B-50. Tank 241-B-204 Analytical Results: Total Alpha. (2 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean	Overall Mean	RSD (mean)	Projected Inventory
Solids			µCi/g	µCi/g	µCi/g	µCi/g	%	Ci
S95T003342	114:10	Lower ½	0.262	0.298	0.280[3]			
S95T003343	114:11	Lower ½	0.215	0.247	0.231[1,3]			
S95T003344	114:12	Lower ½	0.182	0.243	0.212[1,3,4]			
S95T003345	114:13	Lower ½	0.219	0.245	0.232[1,3]			
S95T003346	114:14	Lower ½	0.336	0.329	0.333[1]			
Drainable liquid			µCi/mL	µCi/mL	µCi/mL	µCi/mL	%	Ci
S95T002976	112:1	DL	1.36E-04	1.04E-04	1.19E-04[1,2,3]	9.98E-05	8.2	3.99E-04
S95T002984	112:2	DL	9.75E-05	9.87E-05	9.81E-05[1,2]			
S95T003255	114:1	DL	9.05E-05	9.15E-05	9.10E-05[2]			

Notes:

[1]Spike recovery was below the quality control limit of 90 to 110 percent recovery.

[2]Standard recovery was below the quality control limit of 90 to 110 percent recovery.

[3]RPD was outside the quality control limit of ≤ 10 percent.

[4]Standard recovery was above the quality control limit of 90 to 110 percent recovery.

Table B-51. Tank 241-B-204 Analytical Results: Thermogravimetric Analysis (TGA). (4 sheets)

Sample Number	Core: Segment	Sub-Segment	Temp. Range[1] °C	Result wt %	Dup. wt %	Mean wt %	Corrected Mean[2] wt %
Solids: Overall Corrected Mean[3] = 77.1 wt % RSD (mean)[3] = 0.9%							
S95T002979[4]	112:2	Whole	35-159 (35-165)	79.15	79.05	79.10	77.92
S95T003037[4]	112:3	Upper ½	35-159 (35-159)	79.54	81.37	80.46	78.43
S95T003038[4]		Lower ½	35-127 (35-121)	77.62	78.23	77.93	77.66
S95T003039[4]	112:4	Upper ½	35-135 (35-155)	78.72	78.41	78.56	78.35
S95T003040[4]		Lower ½	35-171 (35-107)	76.62	76.78	76.70	76.35
S95T003041[4]	112:5	Upper ½	35-110 (35-159)	71.32	76.70	74.01	73.33
S95T003042[4]		Lower ½	35-143 (35-129)	79.35	79.80	79.57	78.94
S95T003043[4]	112:6	Upper ½	35-127 (35-153)	72.54	77.90	75.22	74.71
S95T003044[4]		Lower ½	35-151 (35-145)	78.42	78.24	78.33	77.84
S95T003045[4]	112:7	Upper ½	35-147 (35-170)	79.13	78.25	78.69	78.20
S95T003046[5]		Lower ½	24-160 (23-170)	75.26	75.45	75.36	74.63
S95T003047[5]	112:8	Upper ½	22-180 (24-182)	77.48	78.95	78.22	77.60
S95T003048[5]		Lower ½	23-148 (29-155)	67.37	78.38	72.88[6]	72.09
S95T003049[5]	112:9	Upper ½	29-165 (21-114)	76.86	74.70	75.78	75.21
S95T003050[5]		Lower ½	21-176 (27-174)	78.64	77.93	78.28	77.70
S95T003051[4]	112:10	Upper ½	35-133 (35-131)	76.06	77.66	76.86	76.73
S95T003052[4]		Lower ½	35-161 (35-155)	79.02	76.85	77.94	77.38
S95T003053[5]	112:11	Upper ½	29-181 (27-170)	78.22	76.60	77.41	76.53
S95T003054[5]		Lower ½	28-178 (27-169)	78.56	76.57	77.56	76.36

Table B-51. Tank 241-B-204 Analytical Results: Thermogravimetric Analysis (TGA). (4 sheets)

Sample Number	Core: Segment	Sub-Segment	Temp. Range[1] °C	Result wt %	Dup. wt %	Mean wt %	Corrected Mean[2] wt %
Solids (continued)							
S95T003055[5]	112:12	Upper ½	27-180 (26-180)	78.59	76.96	77.78	76.91
S95T003056[5]		Lower ½	24-171 (23-165)	76.53	75.85	76.19	75.33
S95T003057[5]	112:13	Upper ½	26-167 (27-182)	78.39	78.31	78.35	77.67
S95T003058[5]		Lower ½	23-171 (27-182)	78.17	78.78	78.47	77.82
S95T003059[5]	112:14	Upper ½	25-168 (27-170)	71.02	76.12	73.57	73.02
S95T003060[5]		Lower ½	28-151 (28-168)	76.17	77.86	77.02	76.34
S95T003256[5]	114:2	Upper ½	27-145 (31-146)	78.00	80.86	79.43	79.05
S95T003257[5]		Lower ½	29-149 (29-134)	80.93	81.14	81.03	80.54
S95T003258[4]	114:3	Upper ½	35-173 (35-165)	80.99	81.59	81.29	81.04
S95T003259[4]		Lower ½	35-177 (35-150)	81.36	80.30	80.83	80.57
S95T003260[5]	114:4	Upper ½	27-134 (30-170)	76.22	54.36[6]	71.54	70.73
			27-149 (27-139)	78.64	76.94		
S95T003261[5]		Lower ½	35-135 (35-135)	80.24	79.88	80.06	79.57
S95T003262[4]	114:5	Upper ½	35-141 (35-130)	81.55	81.50	81.53	80.30
S95T003263[4]		Lower ½	35-141 (35-171)	72.88	81.70	77.29[6]	76.00
S95T003264[4]	114:6	Upper ½	35-139 (35-157)	78.08	74.93	76.50	74.69
S95T003265[4]		Lower ½	35-163 (35-135)	82.78	81.74	82.26	81.32
S95T003266[4]	114:7	Upper ½	35-137 (35-143)	79.93	76.45	78.19	77.97
S95T003267[4]		Lower ½	35-159 (35-145)	81.30	81.18	81.24	80.89

Table B-51. Tank 241-B-204 Analytical Results: Thermogravimetric Analysis (TGA). (4 sheets)

Sample Number	Core: Segment	Sub-Segment	Temp. Range[2] °C	Result wt. %	Dup. wt. %	Mean wt. %	Corrected Mean[3] wt. %
Solids (continued)							
S95T003268[4]	114:8	Upper ½	35-157 (35-120)	80.15	79.76	79.96	79.71
S95T003269[4]		Lower ½	35-160 (35-137)	79.78	79.12	79.45	79.05
S95T003270[4]	114:9	Upper ½	35-165 (35-140)	80.08	78.54	79.31	78.86
S95T003271[4]		Lower ½	35-155 (35-119)	78.59	78.93	78.76	78.35
S95T003272[4]	114:10	Upper ½	35-159 (35-135)	79.70	80.46	80.08	79.55
S95T003273[3]		Lower ½	27-183 (27-136)	78.97	79.13	79.05	78.42
S95T003274[4]	114:11	Upper ½	35-127 (35-161)	75.76	77.96	76.86	76.33
S95T003275[4]		Lower ½	35-181 (35-141)	79.30	79.11	79.20	78.67
S95T003276[4]	114:12	Upper ½	35-153 (35-170)	79.60	79.46	79.53	79.33
S95T003277[4]		Lower ½	35-167 (35-163)	77.87	78.56	78.22	77.75
S95T003278[4]	114:13	Upper ½	35-90 (35-110) [35-110]	50.78	40.95 74.58	55.44	54.65
S95T003279[4]		Lower ½	35-137 (35-143)	77.56	78.29	77.93	77.59
S95T003280[4]	114:14	Upper ½	35-147 (35-183)	77.00	78.05	77.53	77.10
S95T003281[4]		Lower ½	35-181 (35-113)	77.15	76.67	76.91	77.94

Table B-51. Tank 241-B-204 Analytical Results: Thermogravimetric Analysis (TGA). (4 sheets)

Sample Number	Core/ Segment	Sub-Segment	Temp. Range[1] °C	Result wt %	Dup. wt %	Mean wt %	Corrected Mean[2] wt %
Drainable liquid: Overall Corrected Mean[3] = 89.1 wt% RSD (mean)[3] = 0.2%							
S95T002976[5]	112:1	DL	26-146 (32-146)	89.33	89.12	89.22	89.90
S95T002984[5]	112:2	DL	29-144 (31-144)	89.24	89.33	89.28	88.77
S95T003255[4]	114:1	DL	35-121 (35-123)	89.2	88.56	88.88	88.88

Notes:

Temp. = temperature

[1]The range in parentheses is for the duplicate; the range in brackets is for the triplicate.

[2]The mean is corrected for hydrostatic head fluid contamination based on bromide results.

[3]The overall corrected mean is calculated based on "Corrected Mean" results.

[4]The percent water by thermogravimetric analysis was determined using a Mettler™ instrument.

[5]The percent water by thermogravimetric analysis was determined using a Perkin-Elmer™ instrument.

[6]The RPD was outside the quality control limit of ≤ 10 percent.

Table B-52. Differential Scanning Calorimetry Results for Tank 241-B-204. (6 sheets)

Sample Number	Core: Segment	Subsegment	Run[1]	Sample Weight (mg)	Transition 1	
					Peak Temp. (°C)	ΔH (J/g)
Solids						
S95T002979[2]	112:2	Whole	1	43.122	97.3	817.7
			2	18.125	101.3	1,218.0
S95T003037[2]	112:3	Upper ½	1	10.231	103.3	1,708.6
			2	35.095	101.3	1,066.1
S95T003038[2]		Lower ½	1	9.347	100.0	1,478.3
			2	20.201	99.3	1,368.5
S95T003039[2]	112:4	Upper ½	1	19.526	103.3	1,032.2
			2	20.134	103.3	1,292.4
S95T003040[2]		Lower ½	1	26.001	95.3	1,396.6
			2	21.224	105.3	1,176.1
S95T003041[2]	112:5	Upper ½	1	19.254	103.3	1,344.7
			2	35.345	105.3	893.9
S95T003042[2]		Lower ½	1	27.475	101.3	1,375.7
			2	21.120	101.3	1,136.3
S95T003043[2]	112:6	Upper ½	1	31.261	101.3	1,107.1
			2	30.785	101.3	1,088.6
S95T003044[2]		Lower ½	1	30.841	97.3	1,172.1
			2	48.951	97.3	1,049.7
S95T003045[2]	112:7	Upper ½	1	17.802	103.3	1,310.7
			2	29.120	99.3	1,049.0

Table B-52. Differential Scanning Calorimetry Results for Tank 241-B-204. (6 sheets)

Sample Number	Core: Segment	Subsegment	Run[1]	Sample Weight (mg)	Transition 1	
					Peak Temp. (°C)	ΔH (J/g)
Solids (continued)						
S95T003046[2]		Lower ½	1	28.790	99.3	905.2
			2	35.459	97.3	893.2
S95T003047[2]	112:8	Upper ½	1	55.866	147.4	573.0
			2	37.320	105.3	782.0
S95T003048[2]		Lower ½	1	13.610	115.5	1,756.8
			2	18.380	116.5	1,714.0
S95T003049[2]	112:9	Upper ½	1	19.850	117.4	1,711.2
			2	14.010	116.0	1,694.6
S95T003050[2]		Lower ½	1	18.530	132.2	1,619.2
			2	16.770	114.8	1,689.6
S95T003051[2]	112:10	Upper ½	1	13.949	103.3	1,514.7
			2	23.268	103.3	1,082.5
S95T003052[2]		Lower ½	1	23.447	99.3	1,119.9
			2	22.355	103.3	1,356.7
S95T003053[3]	112:11	Upper ½	1	30.220	128.1	1,636.4
			2	35.360	130.0	1,737.8
S95T003054[3]		Lower ½	1	37.160	124.6	1,715.1
			2	27.750	112.8	1,763.6

Table B-52. Differential Scanning Calorimetry Results for Tank 241-B-204. (6 sheets)

Sample Number	Core: Segment	Subsegment	Run[1]	Sample Weight (mg)	Transition 1	
					Peak Temp. (°C)	ΔH (J/g)
Solids (continued)						
S95T003055[3]	112:12	Upper ½	1	22.570	118.0	1,531.5
			2	38.650	119.2	1,694.3
S95T003056[3]		Lower ½	1	24.690	132.4	1,350.8
			2	22.870	116.2	1,452.3
S95T003057[3]	112:13	Upper ½	1	23.150	119.9	1,493.4
			2	27.870	122.0	1,813.7
S95T003058[3]		Lower ½	1	29.390	124.4	1,758.7
			2	20.580	118.2	1,825.7
S95T003059[3]	112:14	Upper ½	1	22.350	121.6	1,685.1
			2	27.780	125.9	1,534.9
S95T003060[3]		Lower ½	1	26.910	125.9	1,710.2
			2	26.430	120.1	1,647.8
S95T003256[2]	114:2	Upper ½	1	18.675	106.5	1,580.6
			2	24.379	123.0	1,502.7
S95T003257[2]		Lower ½	1	12.172	108.3	1,616.4
			2	10.403	105.8	1,719.4
S95T003258[2]	114:3	Upper ½	1	8.530	91.8	1,895.7
			2	10.453	103.3	1,593.6
S95T003259[2]		Lower ½	1	9.050	103.3	1,830.5
			2	10.200	101.3	1,687.0

Table B-52. Differential Scanning Calorimetry Results for Tank 241-B-204. (6 sheets)

Sample Number	Core: Segment	Subsegment	Run[1]	Sample Weight (mg)	Transition 1	
					Peak Temp. (°C)	ΔH (J/g)
Solids (continued)						
S95T003260[2]	114:4	Upper ½	1	28.915	99.3	1,172.1
			2	18.400	103.3	1,380.7
S95T003261[2]		Lower ½	1	11.745	103.6	1,477.0
			2	16.001	103.3	1,429.8
S95T003262[2]	114:5	Upper ½	1	15.978	105.3	1,325.5
			2	13.140	105.3	1,377.6
S95T003263[2]		Lower ½	1	8.649	82.2	1,465.9
			2	11.978	105.3	1,762.9
S95T003264[2]	114:6	Upper ½	1	12.452	101.4	1,649.1
			2	24.747	101.3	1,368.8
S95T003265[2]		Lower ½	1	12.352	98.0	1,634.5
			2	17.987	107.3	1,502.9
S95T003266[2]	114:7	Upper ½	1	23.510	103.3	985.4
			2	40.714	99.3	904.5
S95T003267[2]		Lower ½	1	16.510	103.3	1,302.3
			2	19.900	101.3	1,349.4
S95T003268[2]	114:8	Upper ½	1	21.825	101.3	1,275.0
			2	21.080	105.3	1,266.9
S95T003269[2]		Lower ½	1	47.955	101.3	693.5
			2	24.471	99.3	1,110.9

Table B-52. Differential Scanning Calorimetry Results for Tank 241-B-204. (6 sheets)

Sample Number	Core: Segment	Subsegment	Run[1]	Sample Weight (mg)	Transition 1	
					Peak Temp. (°C)	ΔH (J/g)
Solids (continued)						
S95T003270[2]	114:9	Upper ½	1	13.934	103.3	1,579.4
			2	11.900	103.3	1,515.0
S95T003271[2]		Lower ½	1	24.020	103.3	1,209.5
			2	25.181	101.3	1,354.8
S95T003272[2]	114:10	Upper ½	1	17.950	105.3	1,154.3
			2	27.924	101.3	1,106.9
S95T003273[2]		Lower ½	1	26.310	103.3	998.0
			2	26.680	103.3	1,219.1
S95T003274[2]	114:11	Upper ½	1	15.835	105.3	1,554.4
			2	17.922	103.3	1,265.7
S95T003275[2]		Lower ½	1	40.264	99.3	915.6
			2	18.840	103.3	1,139.6
S95T003276[2]	114:12	Upper ½	1	34.795	103.3	965.3
			2	8.670	107.3	1,675.5
S95T003277[2]		Lower ½	1	22.140	105.3	1,434.4
			2	20.812	107.3	1,536.1
S95T003278[2]	114:13	Upper ½	1	21.180	111.3	1,464.2
			2	7.690	107.6	1,642.2
S95T003279[2]		Lower ½	1	27.250	103.3	1,054.0
			2	25.140	103.3	1,166.9

Table B-52. Differential Scanning Calorimetry Results for Tank 241-B-204. (6 sheets)

Sample Number	Core: Segment	Subsegment	Run[1]	Sample Weight (mg)	Transition 1	
					Peak Temp. (°C)	ΔH (J/g)
Solids (continued)						
S95T003280[2]	114:14	Upper ½	1	29.080	99.3	1,138.6
			2	10.880	101.9	1,616.9
S95T003281[2]		Lower ½	1	22.900	99.3	1,384.7
			2	11.765	110.8	1,293.4
Drainable liquid						
S95T002976[3]	112:1	DL	1	10.560	111.9	2,051.5
			2	17.880	117.6	2,095.2
S95T002984[3]	112:2	DL	1	10.390	102.7	1,985.9
			2	16.620	115.2	2,057.0
S95T003255[2]	114:1	DL	1	40.570	101.3	695.3
			2	37.650	101.3	840.4

Notes:

ΔH = change in enthalpy.

[1]Run 1 equals the result; run 2 equals the duplicate.

[2]The analysis was performed on Mettler™ equipment.

[3]The analysis was performed on Perkin-Elmer™ equipment.

Table B-53. Tank 241-B-204 Analytical Results: Density. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Dup.	Mean	Overall Mean	RSD (mean)
Solids			g/mL	g/mL	g/mL	g/mL	%
S95T002977	112:2	Whole	1.170	1.160	1.165	1.19	2.0
S95T002988	112:3	Upper ½	1.190	1.210	1.200		
S95T002989		Lower ½	1.220	1.200	1.210		
S95T002991	112:4	Upper ½	1.200	1.200	1.200		
S95T002992		Lower ½	1.150	1.160	1.155		
S95T002993	112:5	Upper ½	1.180	1.160	1.170		
S95T002994		Lower ½	1.140	1.170	1.155		
S95T002995	112:6	Upper ½	1.240	1.220	1.230		
S95T002996		Lower ½	1.220	1.190	1.205		
S95T002997	112:7	Upper ½	1.220	1.250	1.235		
S95T002998		Lower ½	1.200	1.200	1.200		
S95T002999	112:8	Upper ½	1.230	1.250	1.240		
S95T003000		Lower ½	1.160	1.200	1.180		
S95T003001	112:9	Upper ½	1.190	1.190	1.190		
S95T003002		Lower ½	1.200	1.200	1.200		
S95T003003	112:10	Upper ½	1.270	1.280	1.275		
S95T003004		Lower ½	1.210	1.210	1.210		
S95T003005	112:11	Upper ½	1.250	1.200	1.225		
S95T003006		Lower ½	1.140	1.140	1.140		
S95T003007	112:12	Upper ½	1.360	1.320	1.340		
S95T003008		Lower ½	1.230	1.250	1.240		

Table B-53. Tank 241-B-204 Analytical Results: Density. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Dup.	Mean	Overall Mean	RSD (mean)
Solids			g/mL	g/mL	g/mL	g/mL	%
S95T003009	112:13	Upper ½	1.270	1.260	1.265		
S95T003010		Lower ½	1.260	1.280	1.270		
S95T003011	112:14	Upper ½	1.190	1.180	1.185		
S95T003012		Lower ½	1.380	1.380	1.380		
S95T003202	114:2	Upper ½	1.200	1.170	1.185		
S95T003203		Lower ½	1.150	1.170	1.160		
S95T003204	114:3	Upper ½	1.150	1.190	1.170		
S95T003205		Lower ½	1.160	1.160	1.160		
S95T003206	114:4	Upper ½	1.150	1.150	1.150		
S95T003207		Lower ½	1.150	1.190	1.170		
S95T003208	114:5	Upper ½	1.200	1.120	1.160		
S95T003209		Lower ½	1.200	1.160	1.180		
S95T003210	114:6	Upper ½	1.190	1.100	1.145		
S95T003211		Lower ½	1.120	1.240	1.180[1]		
S95T003212	114:7	Upper ½	1.170	1.160	1.165		
S95T003213		Lower ½	1.180	1.150	1.165		
S95T003214	114:8	Upper ½	1.190	1.160	1.175		
S95T003215		Lower ½	1.180	1.170	1.175		
S95T003216	114:9	Upper ½	1.180	1.160	1.170		
S95T003217		Lower ½	1.180	1.150	1.165		

Table B-53. Tank 241-B-204 Analytical Results: Density. (3 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Dup.	Mean	Overall Mean	RSD (mean)
Solids			g/mL	g/mL	g/mL	g/mL	%
S95T003218	114:10	Upper ½	1.150	1.160	1.155		
S95T003219		Lower ½	1.180	1.160	1.170		
S95T003220	114:11	Upper ½	1.140	1.180	1.160		
S95T003221		Lower ½	1.170	1.170	1.170		
S95T003222	114:12	Upper ½	1.190	1.190	1.190		
S95T003223		Lower ½	1.160	1.150	1.155		
S95T003224	114:13	Upper ½	1.190	1.130	1.160		
S95T003225		Lower ½	1.190	1.240	1.215		
S95T003226	114:14	Upper ½	1.190	1.200	1.195		
S95T003227		Lower ½	1.180	1.220	1.200		
Drainable liquid			g/mL	g/mL	g/mL	g/mL	%
S95T002976	112:1	DL	1.060	1.050	1.055	1.05	0.5
S95T002984	112:2	DL	1.050	1.060	1.055		
S95T003255	114:1	DL	1.030	1.060	1.045		

Note:

[1]RPD was outside the QC limit of ≤ 10 percent.

APPENDIX C

RESULTS OF HYDROSTATIC HEAD FLUID CONTAMINATION CHECK FOR SINGLE-SHELL TANK 241-B-204

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APPENDIX C

RESULTS OF HYDROSTATIC HEAD FLUID CONTAMINATION CHECK FOR SINGLE-SHELL TANK 241-B-204

C.1 INTRODUCTION AND ANALYTE TABLE DESCRIPTION

Appendix C reports the results of the HHF contamination check for the 1995 core sampling and analysis event. Lithium and bromide were measured to detect contamination of the waste samples by the HHF. Lithium was determined by ICP; bromide by ion chromatography. Because lithium may form insoluble compounds with the tank waste matrix, the HHF corrections to the percent water values were based on the bromide results.

Column 1 lists the laboratory sample identification number for each analyte. For sampling rationale, locations, and a description of the sampling event, see Section 3.0 and Appendix A.

Column 2 lists the core and segment from which each sample was derived. The first number is the core number; it is followed by a colon and the segment number.

Column 3 lists 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.

Columns 4 and 5 (Result and Duplicate) are self-explanatory.

Column 6 (Mean) 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 mean is expressed as a nondetected value. 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 and 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 quality control parameters assessed on the tank 241-B-204 samples were standard recoveries, spike recoveries, duplicate analyses (RPDs), and blanks. These were summarized in Section 5.1.2. Sample and duplicate pairs, in which any of the quality control parameters were outside their specified limits, are footnoted in column 6 of the following tables.

Table C-1. Tank 241-B-204 Hydrostatic Head Fluid Contamination Check: Lithium. (2 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean
Solids			µg/g	µg/g	µg/g
S95T002980	112:2	Whole	102.0	105.0	103.5[1]
S95T003061	112:3	Upper ½	21.10	21.60	21.35
S95T003062		Lower ½	13.50	14.30	13.90
S95T003063	112:4	Upper ½	15.90	21.20	18.55[2]
S95T003064		Lower ½	17.20	17.20	17.20
S95T003065	112:5	Upper ½	52.70	52.20	52.45
S95T003066		Lower ½	38.80	34.50	36.65[1]
S95T003067	112:6	Upper ½	31.00	32.10	31.55
S95T003068		Lower ½	30.00	26.10	28.05
S95T003069	112:7	Upper ½	27.90	37.20	32.55[2]
S95T003070		Lower ½	49.10	48.50	48.80
S95T003071	112:8	Upper ½	37.20	38.20	37.70
S95T003072		Lower ½	54.20	54.30	54.25
S95T003073	112:9	Upper ½	37.10	36.40	36.75
S95T003074		Lower ½	34.80	34.40	34.60
S95T003075	112:10	Upper ½	33.10	35.0	34.05
S95T003076		Lower ½	40.60	41.50	41.05
S95T003077	112:11	Upper ½	26.50	27.00	27.50
S95T003078		Lower ½	43.00	40.70	41.85
S95T003079	112:12	Upper ½	80.30	80.80	80.55
S95T003080		Lower ½	67.30	60.50	63.90
S95T003081	112:13	Upper ½	55.00	57.90	56.45
S95T003082		Lower ½	48.70	46.70	47.70
S95T003083	112:14	Upper ½	40.90	31.80	36.35
S95T003084		Lower ½	42.50	39.40	40.95
S95T003282	114:2	Upper ½	20.60	20.10	20.35
S95T003283		Lower ½	34.40	35.20	34.80
S95T003284	114:3	Upper ½	16.00	15.50	15.75
S95T003285		Lower ½	20.60	22.90	21.75

Table C-1. Tank 241-B-204 Hydrostatic Head Fluid Contamination Check: Lithium. (2 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean
Solids			µg/g	µg/g	µg/g
S95T003286	114:4	Upper ½	56.00	60.40	58.20
S95T003287		Lower ½	29.10	30.20	29.65
S95T003288	114:5	Upper ½	108.0	102.0	105.0
S95T003289		Lower ½	61.30	61.80	61.55
S95T003290	114:6	Upper ½	107.0	103.0	105.0
S95T003291		Lower ½	38.40	37.60	38.00
S95T003292	114:7	Upper ½	15.70	18.00	16.85
S95T003293		Lower ½	17.20	16.20	16.70
S95T003294	114:8	Upper ½	23.20	24.00	23.60
S95T003295		Lower ½	24.00	27.00	25.50
S95T003296	114:9	Upper ½	40.20	37.40	38.80
S95T003297		Lower ½	22.80	22.10	22.45
S95T003298	114:10	Upper ½	56.60	50.70	53.65
S95T003299		Lower ½	48.10	48.60	48.35
S95T003300	114:11	Upper ½	36.20	37.40	36.80
S95T003301		Lower ½	39.40	38.30	38.85
S95T003302	114:12	Upper ½	12.80	16.00	14.40[2]
S95T003303		Lower ½	41.10	42.60	41.85
S95T003304	114:13	Upper ½	23.30	21.20	22.25
S95T003305		Lower ½	12.10	12.90	12.50
S95T003306	114:14	Upper ½	24.00	22.80	23.40
S95T003307		Lower ½	17.50	17.90	17.70
Drainable liquid			µg/mL	µg/mL	µg/mL
S95T002976	112:1	DL	< 2.01	< 2.01	< 2.01
S95T002984	112:2	DL	126.0	124.0	125.0
S95T003255	114:1	DL	4.160	4.020	4.090

Notes:

[1]The spike recovery was below the quality control limit of 85 to 115 percent recovery.

[2]The RPD was outside the quality control limit of ≤ 15 percent.

Table C-2. Tank 241-B-204 Hydrostatic Head
Fluid Contamination Check: Bromide. (2 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean
Solids			µg/g	µg/g	µg/g
S95T002981	112:2	Whole	1,510	1,730	1,620
S95T003085	112:3	Upper ½	2,780	2,900	2,840
S95T003086		Lower ½	359.9	377.0	368.4
S95T003087	112:4	Upper ½	275.9	316.0	295.9
S95T003088		Lower ½	443.0	442.0	442.5
S95T003089	112:5	Upper ½	751.3	764.0	757.6
S95T003090		Lower ½	983.7	850.0	916.9
S95T003091	112:6	Upper ½	619.0	578.0	598.6
S95T003092		Lower ½	664.1	678.0	671.0
S95T003093	112:7	Upper ½	653.0	721.0	687.0
S95T003094		Lower ½	862.5	856.0	859.2
S95T003095	112:8	Upper ½	817.2	842.0	829.6
S95T003096		Lower ½	795.4	860.0	827.7
S95T003097	112:9	Upper ½	696.2	679.0	687.6
S95T003098		Lower ½	803.9	777.0	790.5
S95T003099	112:10	Upper ½	173.7	174.0	173.8
S95T003100		Lower ½	751.1	743.0	747.0
S95T003101	112:11	Upper ½	1,100	1,130	1,120
S95T003102		Lower ½	1,510	1,530	1,520
S95T003103	112:12	Upper ½	1,130	1,130	1,130
S95T003104		Lower ½	1,020	1,060	1,040
S95T003105	112:13	Upper ½	929.2	914.0	921.6
S95T003106		Lower ½	920.2	863.0	891.6
S95T003107	112:14	Upper ½	599.8	593.0	596.4
S95T003108		Lower ½	861.7	862.0	861.9
S95T003308	114:2	Upper ½	521.9	569.0	545.5
S95T003309		Lower ½	813.7	734.0	773.9
S95T003310	114:3	Upper ½	404.9	406.0	405.4
S95T003311		Lower ½	409.5	420.0	414.8

Table C-2. Tank 241-B-204 Hydrostatic Head
Fluid Contamination Check: Bromide. (2 sheets)

Sample Number	Core: Segment	Sub-Segment	Result	Duplicate	Mean
Solids			µg/g	µg/g	µg/g
S95T003312	114:4	Upper ½	815.7	812.0	813.9
S95T003313		Lower ½	742.9	736.0	739.5
S95T003314	114:5	Upper ½	1,950	1,890	1,920
S95T003315		Lower ½	1,630	1,580	1,610
S95T003316	114:6	Upper ½	2,080	2,150	2,120
S95T003317		Lower ½	1,580	1,510	1,550
S95T003318	114:7	Upper ½	294.0	315.0	304.5
S95T003319		Lower ½	567.7	564.0	565.9
S95T003320	114:8	Upper ½	377.6	379.0	378.3
S95T003321		Lower ½	588.7	585.0	586.9
S95T003322	114:9	Upper ½	651.1	659.0	655.0
S95T003323		Lower ½	580.7	568.0	574.4
S95T003324	114:10	Upper ½	786.5	802.0	794.2
S95T003325		Lower ½	881.8	884.0	882.9
S95T003326	114:11	Upper ½	644.7	698.0	671.4
S95T003327		Lower ½	741.5	770.0	755.8
S95T003328	114:12	Upper ½	297.7	300.0	298.9
S95T003329		Lower ½	647.6	627.0	637.3
S95T003330	114:13	Upper ½	497.8	490.0	493.9
S95T003331		Lower ½	459.9	460.0	459.9
S95T003332	114:14	Upper ½	552.4	589.0	507.7
S95T003333		Lower ½	580.4	622.0	601.2
Drainable liquid			µg/mL	µg/mL	µg/mL
S95T002976	112:1	DL	< 267	1060	664
S95T002984	112:2	DL	1,680	1,710	1,690
S95T003255	114:1	DL	< 267	< 267	< 226

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APPENDIX D

HISTORICAL SAMPLING RESULTS

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APPENDIX D

HISTORICAL SAMPLING RESULTS

D.1 INTRODUCTION

Table D-1 lists the analytical results from a historical sampling event performed in 1978. The sample, reference number 1974, was reported as black in color with a consistency of soft grease. No additional specifics were available from historical records. These historical data are not validated and are included for comparison only; decisions affecting the waste in tank 241-B-204 should not be based on these data.

Table D-1. Historical Sampling Results for Tank 241-B-204.[1]

Physical Data			
VIS-OTR: Black in color, with a consistency of soft grease			
Property	**Lab Value**		**Lab Units**
Water Solubility	26		%
Bulk Density	1.14		g/mL
H_2O	76		%
TOC	0.096		mol/L
Chemical Analysis			
Components	**Water Soluble**	**Acid (Fusion)**	**Lab Units**
Al*	0.0008	0.008	%
Bi^{3+}	< 0.0006	6.2	%
CO_3^{2-}	0.3	n/a	%
CrO^{4-}	0.08	n/a	%
Cl^-	0.07	n/a	%
F^-	n/r	0.2	%
Fe*	0.0008	2.9	%
Hg*	0.001	n/a	%
K^+	0.4	n/a	%
La^{3+}	0.01	2	%
Mn*	0.0001	n/a	%
Ni^{2+}	n/a	0.03	%
NO_2^-	0.3	n/a	%

Chemical Analysis (continued)			
Components	Water Soluble	Acid (Fusion)	Lab Units
NO_3^-	2.8	< 0.07	%
Na^+	1.4	n/a	%
OH^-	0.1	n/a	%
PO_4^{3-}	0.1	1.2	%
SO_4^{2-}	< 0.05	< 0.1	%
SiO_2^{2-}	0.004	0.3	%
Radiological Analysis			
Components	Water Soluble	Acid (Fusion)	Lab Units
U*	4.63E-08	9.71E-06	g/g
Pu*	1.16E-09	9.74E-06	g/g
Am*	n/r	n/a	n/a
$^{89/90}Sr$	0.004	4	μCi/g
^{137}Cs	0.005	0.007	μCi/g
^{155}Eu*	n/r	n/a	n/a

Notes:

* = All oxidation states

n/a = not applicable or not available

n/r = Analysis not requested

[1]Horton (1978)

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D. Powers		X			
Nuclear Consulting Services Inc. P. O. Box 29151 Columbus, OH 43229-01051					
J. L. Kovach		X			
Chemical Reaction Sub-TAP P.O. Box 271 Lindsborg, KS 67456					
B. C. Hudson		X			
Tank Characterization Panel Senior Technical Consultant Contech 7309 Indian School Road Albuquerque, NM 87110					
J. Arvisu		X			
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M. McAfee		X			
Tank Advisory Panel 102 Windham Road Oak Ridge, TN 37830					
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