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ENGINEERING DATA TRANSMITTAL

1. EDT 617654

2. To: (Receiving Organization) Distribution	3. From: (Originating Organization) Data Assessment and Interpretation	4. Related EDT No.: N/A
5. Proj./Prog./Dept./Div.: Tank 241-AN-105/Waste Management/DAI/Process Engineering	6. Design Authority/ Design Agent/Cog. Engr.: Jaiduk Jo	7. Purchase Order No.: N/A
8. Originator Remarks: This document is being released into the supporting document system for retrievability purposes.		9. Equip./Component No.: N/A
		10. System/Bldg./Facility: 241-AN-105
11. Receiver Remarks: For release.	11A. Design Baseline Document? [] Yes [X] No	12. Major Assm. Dwg. No.: N/A
		13. Permit/Permit Application No.: N/A
		14. Required Response Date: 04/30/97

MAY 1997 RECEIVED EDMC

15. DATA TRANSMITTED

(A) Item No.	(B) Document/Drawing No.	(C) Sheet No.	(D) Rev. No.	(E) Title or Description of Data Transmitted	(F) Approval Designator	(G) Reason for Transmittal	(H) Originator Disposition	(I) Receiver Disposition
1	HNF-SD-WM-ER-678	N/A	0	Tank Characterization Report for Double-Shell Tank 241-AN-105	N/A	2	1	1

16. KEY

Approval Designator (F)	Reason for Transmittal (G)		Disposition (H) & (I)	
E, S, Q, D or N/A (see WHC-CM-3-5, Sec.12.7)	1. Approval 2. Release 3. Information	4. Review 5. Post-Review 6. Dist. (Receipt Acknow. Required)	1. Approved 2. Approved w/comment 3. Disapproved w/comment	4. Reviewed no/comment 5. Reviewed w/comment 6. Receipt acknowledged

17. SIGNATURE/DISTRIBUTION
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18.	19.	20.	21. DOE APPROVAL (if required)
A.E. Young Signature of EDT Originator — Date 4-30-97	N/A Authorized Representative for Receiving Organization — Date	K.M. Hall Design Authority/ Cognizant Manager — Date 5/1/97	Ctrl. No. [] Approved [] Approved w/comments [] Disapproved w/comments

BD-7400-172-2 (05/96) GEF097

Tank Characterization Report for Double-Shell Tank 241-AN-105

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

EDT/ECN: EDT-617654 UC: 2070
Org Code: 74620 Charge Code: N4G4C
B&R Code: EW 3120074 Total Pages: 335

Key Words: Waste Characterization, Double-Shell Tank, DST, Tank 241-AN-105, Tank AN-105, AN-105, AN Farm, Tank Characterization Report, TCR, Waste Inventory, TPA Milestone M-44

Abstract: This document summarizes the information on the historical uses, present status, and the sampling and analysis results of waste stored in Tank 241-AN-105. This report supports the requirements of the Tri-Party Agreement Milestone M-44-10.

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Release Approval 5/2/97 Date

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Release Stamp

Approved for Public Release

Tank Characterization Report for Double-Shell Tank 241-AN-105

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Date Published
May 1997

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

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

Approved for public release; distribution is unlimited

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LIST OF TERMS

1C	first cycle decontamination waste
AEA	alpha energy analysis
ANOVA	analysis of variance
AT	alpha total
BD	below detection limit
Btu/hr	British thermal units per hour
Ci	curies
Ci/L	curies per liter
CI	confidence interval
cm	centimeter
cP	centipoise
df	degrees of freedom
DL	drainable liquid
DOE	U.S. Department of Energy
DQO	data quality objectives
DSC	differential scanning calorimetry
DSSF	double-shell slurry feed
DSS	double-shell slurry
DST	double-shell tank
EB	evaporator bottoms
Ecology	Washington State Department of Ecology
FIC	Food Instrument Corporation
ft	feet
FTIR	Fourier transform infrared spectrometer
GC	gas chromatographs
GCS	gas characterization system
GEA	gravimetric energy analysis
g	gram
g/cc	grams per cubic centimeter
g/L	grams per liter
g/mL	grams per milliliter
HDW	Hanford defined waste
HTCE	historical tank content estimate
IC	ion chromatography
ICP	inductively coupled plasma spectroscopy
in.	inch
J/g	joules per gram
kg	kilogram
kgal	kilogallon
kL	kiloliter
kW	kilowatt

LIST OF TERMS (Continued)

LANL	Los Alamos National Laboratory
LEL	lower explosive limit
LFL	lower flammability limit
LH	lower half
LL	lower limit
m	meter
M	moles per liter
MDA	minimum detectable activity
mL	milliliter
mg	milligram
mm	millimeter
NA	not available
n/a	not applicable
NCPLX	non-complexed
NR	not reported
ppm	parts per million
QC	quality control
REML	restricted maximum likelihood estimation methods
RGS	retained gas sampler
RPD	relative percent difference
SACS	Surveillance Analysis Computer System
SAP	sampling and analysis plan
SHMS	standard hydrogen monitoring systems
SMM	supernatant mixing model
STP	standard temperature and pressure
T1SltCk	242-T Evaporator saltcake waste, 1951-55
TB	total beta
TBP	tributyl phosphate
TCP	tank characterization plan
TCR	tank characterization report
TGA	thermogravimetric analysis
TIC	total inorganic carbon
TLM	tank layer model
TOC	total organic carbon
TSAP	Tank Sampling and Analysis Plan
TWRS	Tank Waste Remediation System
UH	upper half
UL	upper limit
VFI	void fraction instrument
VSS	vapor sampling system
W	watts
W/Ci	watts per curies

LIST OF TERMS (Continued)

WSTRS	waste status and transaction record summary
wt%	weight percent
°C	degrees Centigrade
°F	degrees Fahrenheit
μCi/g	microcuries per gram
μCi/L	microcuries per liter
μCi/mL	microcuries per milliliter
μeq/g	microequivalents per gram
μg	microgram
μg/mL	micrograms per milliliter
μgC/g	micrograms of carbon per gram
μg/g	micrograms per gram

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1.0 INTRODUCTION

A major function of the Tank Waste Remediation System (TWRS) is to characterize wastes in support of waste management and disposal activities at the Hanford Site. Analytical data from sampling and analysis, along with other available information about a tank, are compiled and maintained in a tank characterization report (TCR). This report and its appendixes serve as the TCR for double-shell tank 241-AN-105.

The objectives of this report are: 1) to use characterization data in response to technical issues associated with tank 241-AN-105 waste; and 2) to provide a standard characterization of this waste in terms of a best-basis inventory estimate. The response to technical issues is summarized in Section 2.0, and the best-basis inventory estimate is presented in Section 3.0. Recommendations regarding safety status and additional sampling needs are provided in Section 4.0. Supporting data and information are contained in the appendices. This report also supports the requirements of the *Hanford Federal Facility Agreement and Consent Order* (Ecology et al. 1996) milestone M-44-10.

1.1 SCOPE

Characterization information presented in this report originated from sample analyses and known historical sources. While only the results of recent sample events will be used to fulfill the requirements of the data quality objectives (DQOs), other information can be used to support (or question) conclusions derived from these results. Historical information for tank 241-AN-105, provided in Appendix A, includes surveillance information, records pertaining to waste transfers and tank operations, and expected tank contents derived from a process knowledge model.

The recent sampling events listed in Table 1-1, as well as sample data obtained before 1989, are summarized in Appendix B along with the sampling results. The results of the 1996 sampling events, also reported in the laboratory data package (Steen 1997), satisfied the data requirements specified in the tank characterization plan (TCP) for this tank (Winkleman 1996). The statistical analysis and numerical manipulation of data used in issue resolution are reported in Appendixes B and C. Appendix D contains the evaluation to establish the best basis for the inventory estimate and the statistical analysis performed for this evaluation. A bibliography that resulted from an in-depth literature search of all known information sources applicable to tank 241-AN-105 and its respective waste types is contained in Appendix E. The reports listed in Appendix E may be found in the Tank Characterization Resource Center.

Table 1-1. Summary of Recent Sampling.

Sample/date	Phase	Location	Segmentation	% Recovery
Cores 152, 153 (6/10/96-6/28/96)	Solid and Liquid	Risers 12A and 7B	half segment	> 90 percent
Vapor sample (6/25/96-6/28/96)	Gas	Tank headspace, Risers 12A and 7B, 6 m (20 ft) below top of risers	n/a	n/a

Notes:

n/a = not applicable

Dates are provided in the mm/dd/yy format.

1.2 TANK BACKGROUND

Tank 241-AN-105 is located in the 200 East Area AN Tank Farm on the Hanford Site. The tank went into service in 1982, receiving water. The tank received double-shell slurry feed waste from tank 241-AW-102 from December 1982 until the first quarter of 1983. The tank received non-complexed waste from tank 241-AN-104 in the first quarter of 1984. A small amount of unknown waste was received in the third quarter of 1984. Most of the waste was removed during the first quarter of 1985 for an evaporator campaign. From the first quarter to the second quarter of 1985, the tank received double-shell slurry feed waste from tank 241-AW-102 via the evaporator (Agnew et al. 1997a). The last transfer for this tank consist of small flush water in 1995 and 1996.

A description of tank 241-AN-105 is summarized in Table 1-2. The tank has an operating capacity of 4,390 kL (1,160 kgal), and presently contains an estimated 4,270 kL (1,129 kgal) of double-shell slurry feed waste (Hanlon 1996). The tank is on the Hydrogen Watch List (Public Law 101-510).

Table 1-2. Description of Tank 241-AN-105.

TANK DESCRIPTION	
Type	Double-Shell
Constructed	1980-1981
In-service	1982
Diameter	22.9 m (75.0 ft)
Operating depth	10.7m (35 ft)
Capacity	4,390 kL (1,160 kgal)
Bottom Shape	Flat
Ventilation	Active
TANK STATUS	
Waste classification	Double-shell slurry feed
Total waste volume[1]	4,270 kL (1,129 kgal)
Supernatant volume[2]	4,270 kL (1,129 kgal)
Saltcake volume[2]	0 kL (0 kgal)
Sludge volume	0 kL (0 kgal)
Drainable interstitial liquid volume	0 kL (0 kgal)
Waste surface level (June 30, 1996)	10.4 m (34.2 ft)
Temperature (Jan. 1990 to Feb. 1997)	19.2 °C (66.6 °F) to 46.2 °C (116 °F)
Integrity	Sound
Watch List	Flammable Gas
SAMPLING DATE	
Core samples and tank headspace flammability	June 1996
SERVICE STATUS	
Active	1982 to present

Notes:

[1]Waste volume is estimated from surface level measurements (May 1996).

[2]Although Hanlon (1996) reports that the tank contains all supernate waste, it is evident from the core samples (Steen 1997) that the bottom 40% of the waste is probably salt slurry.

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2.0 RESPONSE TO TECHNICAL ISSUES

Two technical issues have been identified for tank 241-AN-105 (Brown et al. 1996). They are:

- Safety Screening: Does the waste pose or contribute to any recognized potential safety problems?

- Flammable Gas: Data from the core samples are needed to provide an understanding of the tank contents so that: (1) insight may be obtained on the mechanisms for gas generation, retention, and release, (2) models of the waste behavior can be developed to support safety analysis and development of mitigation methods, (3) stimulants for waste studies can be developed, and (4) modeling of the release of gases, and subsequent potential for ignition in the dome space, can be done to support hazard analyses.

The Tank Safety and Analysis Plan (SAP) (Eggers 1996) provides the types of sampling and analysis used to address the above issues. Data from the recent analysis of two core samples and tank vapor space flammability measurements, as well as available historical information, provided the means to respond to these two issues. This response is detailed in the following sections. See Appendix B for sample and analysis data for tank 241-AN-105.

2.1 SAFETY SCREENING

The data needed to screen the waste in tank 241-AN-105 for potential safety problems is documented in *Tank Safety Screening Data Quality Objective* (Dukelow et al. 1995). These potential safety problems are exothermic conditions in the waste; flammable gases in the waste and/or tank headspace; and criticality conditions in the waste. Each of these conditions is addressed separately below.

2.1.1 Exothermic Conditions (Energetics)

The first requirement outlined in the safety screening DQO (Dukelow et al. 1995) is to ensure that there are not sufficient exothermic constituents in tank 241-AN-105 to cause a safety hazard. Because of this requirement, energetics in the tank 241-AN-105 waste were evaluated. The safety screening DQO required that solid samples be tested for energetics every 24 cm (9.5 in.) to determine if the energetics exceed the safety threshold limit. Note that the first 14 segments were mostly composed of drainable liquid and therefore, were not subdivided into upper and lower samples.

Results obtained using differential scanning calorimetry (DSC) indicated that exotherms were well below notification limits of 480 J/g on a dry weight basis with the maximum value of 174 J/g (Steen 1996). Furthermore, the upper limits of the one-sided 95 percent confidence

interval for the DSC results were below notification limit with the maximum value of 355 J/g. These results suggest that there is no energetic concern in this tank.

Historically, there is evidence of the waste showing exothermic behavior. Waste transfer records indicate the major waste type expected to be found in the tank is double-shell slurry (Agnew et al. 1997a). These waste types are expected to have organic constituents (Sasaki 1984). Analysis of a sample taken in 1984 also showed evidence of exotherms (Mauss 1984).

2.1.2 Flammable Gas

Vapor phase measurements, taken in the tank headspace prior to the core samples in June 1996, indicated that no flammable gas was detected (0.3 percent of the lower flammability limit [LFL]). Data from these vapor phase measurements are presented in Appendix B. Prior to this sampling event there have been two gas release events that resulted in concentrations greater than 25 percent of the LFL (Wilkins et al. 1997).

2.1.3 Criticality

The safety threshold limit is 1 g ^{239}Pu per liter of waste. Assuming all alpha is from ^{239}Pu, with maximum density of 1.66 g/mL for salt slurry the safety threshold limit is equivalent to 37 μCi/g (conversion used the maximum density of 1.66 g/mL observed for the sludge subsamples) of salt slurry and 61.5 μCi/g of liquid of alpha activity. The core samples were analyzed in accordance with the safety screening DQO (Dukelow et al. 1995).

Waste samples were tested for total alpha activity for each core sample. Concentrations in all samples were well below this limit with the maximum value of 0.133 μCi/g. Additionally, as required by the DQO, the upper limit of the one-sided 95 percent confidence interval for these results was less than 37 μCi/g with the maximum value of 0.18 μCi/g. The method used to calculate confidence limits is contained in Appendix C. The data show that there is no criticality concern with this tank.

2.2 FLAMMABLE GAS TANK SAFETY EVALUATION

The purpose of the flammable gas tank safety evaluation is to obtain data to develop mitigation methods, to support tank behavior models needed for making safety analyses, and to support evaluations, of chemical mechanisms for gas production and release. These data needs are met by the sampling event and retained gas sampler (RGS) in June 1996, and by void fraction instrument (VFI) deployed in December 1995.

Tank 241-AN-105 was the second double-shell tank sampled for retained gases. The RGS was used in two risers within this tank to obtain eight segments. The current waste level is

about 1040 cm (410 in.) and consists of a nonconvective layer 400 to 460 cm (160 to 180 in.) in depth, 580 to 640 cm (230 to 250 in.) of convective liquid, and a noncontinuous floating crust layer that may be up to 30 cm (12 in.) thick. The head space volume in tank 241-AN-105 is about 1,047 m^3 (37,000 ft^3).

Retained gas measurements and estimated solubilities show three major constituents in the gas/vapor phase (free gas) of the nonconvective and convective layers: 27 mol% nitrogen, 60 mol% hydrogen, and 11 mol% nitrous oxide. The remainder is ammonia, methane, and other hydrocarbons. The measured local ammonia concentrations in tank 241-AN-105 ranged from 890 to 2100 μmole/liter of waste, more than 99.9 percent of the ammonia is dissolved in the liquid. Integrating the local concentrations leads to a total amount, if it were vapor (which is improbable), of approximately 99 m^3 (3,500 ft^3) of ammonia at standard temperature and pressure (STP) (Shekarriz et al. 1997).

The extraction results show that the insoluble gases were primarily retained in the lower, nonconvective layer. Based on the estimated solubilities and RGS measurements of gas concentrations, about 4.5 percent by volume (in-situ) of the nonconvective layer was filled with free gas, while 0.3 percent by volume (in-situ) of the convective (upper) layer was filled with free gas. Local calculated void fractions based on RGS data were in close agreement with the VFI results for the segments above 200 cm (80 in.) elevation. While the lower two segments did not have VFI measurements to compare, the trends pointed to reasonable estimates of the void fraction. The maximum void fraction measured with RGS was approximately 11.1 percent in this tank. Although the void fractions appear to be consistent for both risers, some variations in the gas composition were observed between the two, indicating some lateral variation. The calculated hydrogen inventory in both phases of the nonconvective and convective layers of tank 241-AN-105 is 103 m^3 (3,600 ft^3), based on integrated RGS measurements (Shekarriz et al. 1997).

The x-ray results are significantly different from those of the previous two tanks in several ways: 1) large gas pockets were observed in tank 241-AN-105 that account for a large portion of the measured void fraction. This contrasts with the observations made for tank 241-AW-101 waste, where the major portion of the gas was observed to be smaller than the detection threshold of the x-ray imaging system (< 0.5 mm); 2) no fractures or irregularly shaped bubbles were observed in this tank, unlike what was observed in tank 241-A-101 waste. Densities measured in this tank, based on x-ray images, ranged from 1.65 to 1.83 g/cc (Shekarriz et al. 1997).

The ball rheometer and VFI were run in tank 241-AN-105 in riser 1B on December 15 and 18, 1995, and in 16B on December 20 and 22, 1995, respectively. Two traverses were accomplished with the VFI in riser 1B and three in 16B. The ball sank to within about 110 cm (43 in.) of the tank bottom in riser 1B and to within about 20 cm (7.9 in.) of the bottom in 16B. No significant gas releases were observed on the waste surface or on the gas monitoring equipment during VFI operation.

No measurements could be taken below about 150 cm (59 in.) because of interference by a plastic sleeve required for contamination control. The sleeve used in tank 241-AN-105 was made of thicker material than those encountered in previous tests. To estimate the average void fraction and total gas volume, the assumption was made that void fraction in the unsampled lower 150 cm (59 in.) of the waste was represented by the available measurements below 215 cm (85 in.), which is consistent with trends observed in tank 241-AW-101 and 241-SY-103 (Stewart et al. 1996).

The nonconvective layer was split into three sublayers with boundaries of 0 to 215 cm (85 in.) and 215 cm (85 in.) to 330 cm (130 in.) and 330 cm (130 in.) to 450 cm (177 in.), by a visual interpretation of the void profile. The overall average void is 3.8 $\pm$0.6 percent. The unsampled lower 150 cm (59 cm) is assumed to be represented by the void measurements below 215 cm (85 in.). If the void below 150 cm (59 in.) is actually higher by 25 percent (6.5 percent void instead of 5.2 percent), the total standard gas volume in the nonconvective layer increases by 18 m^3 (635 ft^3), well within the standard deviation of 44 m^3 (1550 ft^3).

The viscosity of the convective layer was calculated to be 36 cP, bounded above by 55 cP and below by 15 cP, from the ball drag force data at speeds of 30 and 50 cm/s in risers 1B and 16B. The apparent viscosity at strain rates are 0.01, 0.1 and 1.0 sec^{-1} on the first and last passes. After the ball has traversed through the layer four times, the apparent viscosity decreases considerably (Stewart et al. 1996).

2.3 OTHER TECHNICAL ISSUES

A factor in assessing tank safety is the heat generation and temperature of the waste. Heat is generated in the tanks from radioactive decay. An estimate of the tank heat load can be calculated based on the results from the 1996 sample event. The heat load value calculated from the 1996 sample events was 2.4 kW (8,100 Btu/hr), as shown in Table 2-1. The heat load estimate based on the tank process history was 11.4 kW (39,000 Btu/hr) (Agnew et al. 1997b). The heat load estimate based on the tank headspace temperature was 7.42 kW (25,000 Btu/hr) (Kummerer 1994). These estimates are well below the limit of the maximum heat load, 20.5 kW (70,000 Btu/hr), allowed for double-shell tanks (Haubach 1996).

Table 2-1. Heat Load for Tank 241-AN-105 Based on Radionuclide Content.

Radionuclide[1]	Specific Activity	Projected Inventory	Decay Heat Rate	Heat Load from Radioactive Decay[2]
	μCi/mL	Ci	W/Ci	W
^{241}Am	1.01	4310	0.0328	140
^{137}Cs	470	2,000,000	0.00101	2,020
$^{89/90}Sr$	7.42	31,680	0.00669	210
Total				2,370

Notes:

[1]Include daughter radionuclides.

[2]Only analytes contributing to the heat generation rate above 100 W are included.

2.4 SUMMARY

The results from all analyses performed to address potential safety issues showed that no primary analyte exceeded safety decision threshold limits. The analyses for the flammable gas was completed to obtain data to develop mitigation methods, to support tank behavior models needed for making safety analyses, and to support evaluations of chemical mechanisms for gas production and release. The analyses results are summarized in Table 2-2.

Table 2-2. Summary of Safety Screening and Historical Flammable Gas. (2 sheets)

Issue	Sub-issue	Result
Safety screening	Energetics	All exothermic reactions below 480 J/g. Highest 95 percent confidence interval upper limit = 384 J/g.
	Flammable gas	Vapor measurement reported 0.3 percent of lower flammability limit. (Combustible gas meter).
	Criticality	All analyses well below 37 μCi/g total alpha (within 95 percent confidence limit on each sample).

Table 2-2. Summary of Safety Screening and Historical Flammable Gas. (2 sheets)

Issue	Sub-issue	Result
Flammable gas	Mechanism of gas generation, retention, and released	N/R
	Waste behavior model	N/R
	Simulent development	N/R
	Model to support hazard analysis	N/R

Note:

N/R = not reviewed

3.0 BEST-BASIS STANDARD INVENTORY ESTIMATE

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

Chemical inventory information generally is derived using two approaches: 1) component inventories are estimated using the results of sample analyses; and 2) component inventories are predicted using a model based on process knowledge and historical information. The most recent model was developed by Los Alamos National Laboratory (LANL) (Agnew et al. 1997b). Information derived from these two different approaches is often inconsistent.

An effort is underway to provide waste inventory estimates that will serve as standard characterization information for the various waste management activities (Hodgson and LeClair 1996). As part of this effort, an evaluation of available chemical information for tank 241-AN-105 was performed that included:

- Steen (1997) and Appendix B of this report, which provides characterization results from the June 1996 core sampling event.
- A feed projection document that supported grout treatment facility studies provides estimates of the waste in tank 241-AN-105 based on 242-A Evaporator slurry product data (Hendrickson 1994).
- The Hanford defined waste (HDW) model document (Agnew et al. 1997b) provides tank content estimates, in terms of component concentrations and inventories.

Results from this evaluation, detailed in Appendix D, support using the sampling data as the basis for the best estimate inventory for tank 241-AN-105 for the following reasons:

1. The June 1996 sampling event provides the most recent data for the waste.

2. Estimates based on 242-A Evaporator product sample data agrees with the June 1996 data.

3. The HDW model estimate overestimates slurry and supernatant inventories due to solubility assumptions that are biased high.

Best-basis inventory estimates for tank 241-AN-105 are presented in Tables 3-1 through 3-6. Radionuclide values are decayed to January 1, 1994.

Table 3-1. Best-Basis Inventory Estimates for Nonradioactive Components in Tank 241-AN-105 Supernatant as of May 31, 1996. (2 sheets)

Analyte	Supernatant Inventory (kg)	Basis (S, M, or E)[1]	Comments
Al	99,200	S	
Bi	< 134	S	
Ca	< 154	S	
Cl	26,100	S	
TIC as CO_3	26,200	S	Core composite data
Cr	573	S	
F	445	S	RPD > 20% Composite = < 138
Fe	120	S	Segment-based < 77.1
K	16,700	S	
La	< 77.1	S	
Mn	< 15.2	S	
Na	644,000	S	
Ni	< 30.7	S	
NO_2	323,000	S	
NO_3	420,500	S	
OH	150,000	S	Core composite data
Pb	146	S	Composite < 154
PO_4	2,850	S	
Si	492	S	
SO_4	4,840	S	
Sr	< 13.4	S	
TOC	15,600	S	Core composite data

Table 3-1. Best-Basis Inventory Estimates for Nonradioactive Components in Tank 241-AN-105 Supernatant as of May 31, 1996. (2 sheets)

Analyte	Supernatant Inventory (kg)	Basis (S, M, or E)[1]	Comments
U_{TOTAL}	9.13	S	Core composite data
Zr	< 15.5	S	
% Water	51.9	S	
Density, g/mL	1.42	S	

Notes:

[1]S = sample-based, M = Hanford defined waste model-based, E = engineering assessment-based
NR = not reported
RPD = relative percent difference.

Table 3-2. Best-Basis Inventory Estimates for Radioactive Components in Tank 241-AN-105 Supernatant as of May 31, 1996. (Decayed to January 1, 1994)

Analyte	Supernatant Inventory (Ci)	Basis (S, M, or E)[1]
^{60}Co	< 0.050	S
^{90}Sr	112	S
^{90}Y	112	S
^{99}Tc	701	S
^{129}I	0.685	S
^{137}Cs	1,290	S
^{137m}Ba	1,230	S
^{154}Eu	< 250	S
^{155}Eu	< 835	S
^{237}Np	< 0.0566	S
$^{239/240}Pu$	0.0953	S
^{241}Am	0.100	S
$^{243/244}Cm$	0.110	S

Notes:

[1]S = sample-based, M = Hanford defined waste model-based, E = engineering assessment-based.

Table 3-3. Best-Basis Inventory Estimates for Nonradioactive Components in Tank 241-AN-105 Salt Slurry as of May 31, 1996.

Analyte	Salt Slurry Inventory (kg)	Basis (S, M, or E)[1]	Comment
Al	56,500	S	
Bi	147	S	
Ca	942	S	
Cl	14,620	S	
TIC as CO_3	169,000	S	Core composite data
Cr	4,470	S	
F	3,400	S	
Fe	167	S	
K	8,670	S	
La	< 504	S	
Mn	44.2	S	
Na	456,000	S	
Ni	97.8	S	
NO_2	181,000	S	
NO_3	308,000	S	
OH	64,000	S	Core composite data
Pb	119	S	
PO_4	17,300	S	
Si	458	S	
SO_4	18,000	S	
Sr	< 18.7	S	Core composite data
TOC	14,300	S	Core composite data
U_{TOTAL}	233	S	Core composite data
% Water	44.7	S	
Density, g/mL	1.59	S	
Zr	20.0	S	

Notes:

[1]S = sample-based, M = Hanford Defined Waste model-based, E = engineering assessment-based.

Table 3-4. Best-Basis Inventory Estimates for Radioactive Components in Tank 241-AN-105 Salt Slurry as of May 31, 1996. (Decayed to January 1, 1994)

Analyte	Salt Slurry Inventory (Ci)	Basis (S, M, or E)[1]
^{60}Co	6.41	S
^{90}Sr	33,500	S
^{90}Y	33,500	S
^{99}Tc	473	S
^{129}I	10.3	S
^{137}Cs	83,500	S
^{137m}Ba	79,300	S
^{154}Eu	< 315	S
^{155}Eu	< 1,420	S
^{237}Np	< 25.7	S
$^{239/240}Pu$	6.33	S
^{241}Am	9.97	S
$^{243/244}Cm$	< 4.16	S

Notes:

[1]S = sample-based, M = Hanford defined waste model-based, E = engineering assessment-based.

Table 3-5. Best-Basis Total Inventory Estimates for Nonradioactive Components in Tank 241-AN-105 as of May 31, 1996.

Analyte	Total Inventory (kg)	Basis (S, M, or E)[1]
Al	156,000	S
Bi	214	S
Ca	2,140	S
Cl	40,800	S
TIC as CO_3	197,000	S
Cr	5,040	S
F	3,850	S
Fe	287	S
K	25,400	S
La	< 581	S
Mn	< 59.4	S
Na	1.10E+06	S
Ni	< 129	S
NO_2	504,000	S
NO_3	728,000	S
OH	214,000	S
Pb	265	S
PO_4	20,200	S
Si	950	S
SO_4	22,900	S
Sr	< 32.1	S
TOC	29,900	S
U_{TOTAL}	242	S
Zr	< 43.5	S
% Water	46.6	S
Density, g/mL	1.56	S

Notes:

[1]S = sample-based, M = Hanford Defined Waste model-based, E = engineering assessment-based.

Table 3-6. Best-Basis Total Inventory Estimates for Radioactive Components in Tank 241-AN-105 as of May 31, 1996. (Decayed to January 1, 1994)

Analyte	Total Inventory (Ci)	Basis (S, M, or E)[1]
^{60}Co	< 6.46	S
^{90}Sr	33,600	S
^{90}Y	33,600	S
^{99}Tc	1,170	S
^{129}I	11.0	S
^{137}Cs	84,800	S
^{137m}Ba	80,600	S
^{154}Eu	< 565	S
^{155}Eu	< 2,260	S
^{237}Np	25.8	S
$^{239/240}Pu$	6.43	S
^{241}Am	10.1	S
$^{243/244}Cm$	< 4.27	S

Notes:

[1]S = sample-based, M = Hanford defined waste model-based, E = engineering assessment-based.

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4.0 RECOMMENDATIONS

All analytical results for the safety screening DQO were well within the safety notification limits. The sampling and analysis activities performed for tank 241-AN-105 have met all requirements for all of the applicable DQO documents. Furthermore, a characterization best-basis inventory was developed for the tank contents.

Table 4-1 summarizes the status of the Project Hanford Management Contractor (PHMC) TWRS Program review and acceptance of the sampling and analysis results reported in this tank characterization report. All DQO issues required to be addressed by sampling and analysis are listed in column one of Table 4-1. The second column indicates whether the requirements of the DQO were met by the sampling and analysis activities performed and is answered with a "yes" or a "no." The third column indicates concurrence and acceptance by the program in TWRS that is responsible for the DQO that the sampling and analysis activities performed adequately meet the needs of the DQO. A "yes" or "no" in column three indicates acceptance or disapproval of the sampling and analysis information presented in the TCR. If the results/information have not yet been reviewed, "N/R" is shown in the column.

Table 4-1. Acceptance of Tank 241-AN-105 Sampling and Analysis.

Issue	Sampling and Analysis Performed	TWRS Program Acceptance
Safety Screening DQO	Yes	Yes
Flammable Gas Tank Safety Program	Yes	Yes
Vapor Screening	Yes	Yes

Table 4-2 summarizes the status of the PHMC TWRS Program review and acceptance of the evaluations and other characterization information contained in this report. The evaluations specifically outlined in this report are the best-basis inventory evaluation and the evaluation to determine whether the tank is safe, conditionally safe, or unsafe. Column one lists the different evaluations performed in this report. Columns two and three are in the same format as Table 4-1. The manner in which concurrence and acceptance are summarized is also the same as that in Table 4-1.

Table 4-2. Acceptance of Evaluation of Characterization Data and Information for Tank 241-AN-105.

Issue	Evaluation Performed	TWRS Program Acceptance
Safety categorization (tank is safe)	Yes	Yes
Flammable Gas Tank Safety Program	N/R	N/R

The waste currently in tank 241-AN-105 should be monitored continuously because of gas release events. In addition, no additional liquid and solid characterization efforts are needed at this time. Finally, there were no unexpected findings that would affect the ability to retrieve and dispose of the waste safely.

One final comment regarding the safety screening DQO needs to be made. The one-sided confidence intervals that were used to determine whether or not ^{239}Pu and DSC are below the DQO stated threshold limits were performed on each individual sample as required by the DQO.

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APPENDIX A

HISTORICAL TANK INFORMATION

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APPENDIX A

HISTORICAL TANK INFORMATION

Appendix A describes tank 241-AN-105 based on historical information. For this report, historical information includes any information about the fill history, waste types, surveillance, or modeling data about the tank. This information is necessary for providing a balanced assessment of the sampling and analytical results.

This appendix contains the following information:

- **Section A1**: Current status of the tank, including the current waste levels as well as the stabilization and isolation status of the tank.
- **Section A2**: Information about the design of the tank.
- **Section A3**: Process knowledge of the tank; that is, the waste transfer history and the estimated contents of the tank based on modeling data.
- **Section A4**: Surveillance data for tank 241-AN-105, including surface-level readings, temperatures, and a description of the waste surface based on photographs.
- **Section A5**: References for Appendix A.

Historical sampling results (results from samples obtained prior to 1989) are included in Appendix B.

A1.0 CURRENT TANK STATUS

As of May 31, 1996, tank 241-AN-105 contained an estimated 4,270 kL (1,129 kgal) of double-shell slurry feed waste (Hanlon 1996). The waste volumes were estimated using a ENRAF[1] surface-level gauge. The volumes of the waste phases found in the tank are shown in Table A1-1. The tank has an operating capacity of 4,390 kL (1,160 kgal).

Tank 241-AN-105 is on the Hydrogen Watch List (Public Law 101-510), and, therefore, is prohibited from receiving waste. The tank is actively ventilated and categorized as sound.

[1]ENRAF is a trademark of the ENRAF Corporation, Houston, Texas.

Table A1-1. Tank Contents Status Summary[1].

Waste Type	kL (kgal)
Total waste	4,270 (1,129)
Supernatant[2]	4,270 (1,129)
Sludge[2]	0 (0)
Saltcake[2]	0 (0)
Drainable interstitial liquid	0 (0)
Drainable liquid remaining	4,270 (1,129)
Pumpable liquid remaining	4,270 (1,129)

Notes:

[1]Hanlon 1996

[2]Although the Waste Tank Summary Report (Hanlon 1996) reports that the tank contents are all supernatant waste, it is evident from the appearance of the core samples that approximately 40 percent of the bottom of the waste is salt slurry.

A2.0 TANK DESIGN AND BACKGROUND

The AN Tank Farm is a double-shell tank farm built between 1980 and 1981. This tank farm consists of seven, type 100 series, 4,390 kL (1,160 kgal) tanks. These tanks were designed for boiling waste with a maximum fluid temperature of 177 °C (350 °F). The 241-AN Tank Farm does not use a cascade system between tanks.

Tank 241-AN-105 was constructed of 460 mm (1.5 ft) thick concrete walls and a 380 mm (1.25 ft) thick concrete dome. The mild carbon steel liner on the bottom is 13 mm (1/2 in.) thick while the lower portion of the sides are 19 mm (3/4 in.). The upper portion of the sides are 13 mm (1/2 in.) thick and the dome liner is 9.5 mm (3/8 in.) thick steel. The inner liner has been heat-treated and stress-relieved. The secondary liner is made of 9.5 mm (3/8 in.) mild carbon steel. The outer liner has not been heat-treated. The tank has a flat bottom and a maximum operating depth of 10.7 m (35 ft). The tank is set on an insulated, reinforced concrete foundation. This foundation has a grid of drain slots designed to collect any tank leakage and divert it to a leak detection well. The grid also served as an escape route for free water released from the concrete grout during initial heating of the tank. Various coatings and sealants were used to ensure that no leaks and intrusions occurred.

Tank 241-AN-105 has 22 risers, ranging in diameter from 102 mm (4 in.) to 1.07 m (42 in.), that provide access to the tank and 37 risers that provide access to the annulus. Table A2-1 shows numbers, diameters, and descriptions of the risers (annular risers not included). Figure A2-1 shows the riser configuration.

Table A2-1. Tank 241-AN-105 Risers.[1,2,3]

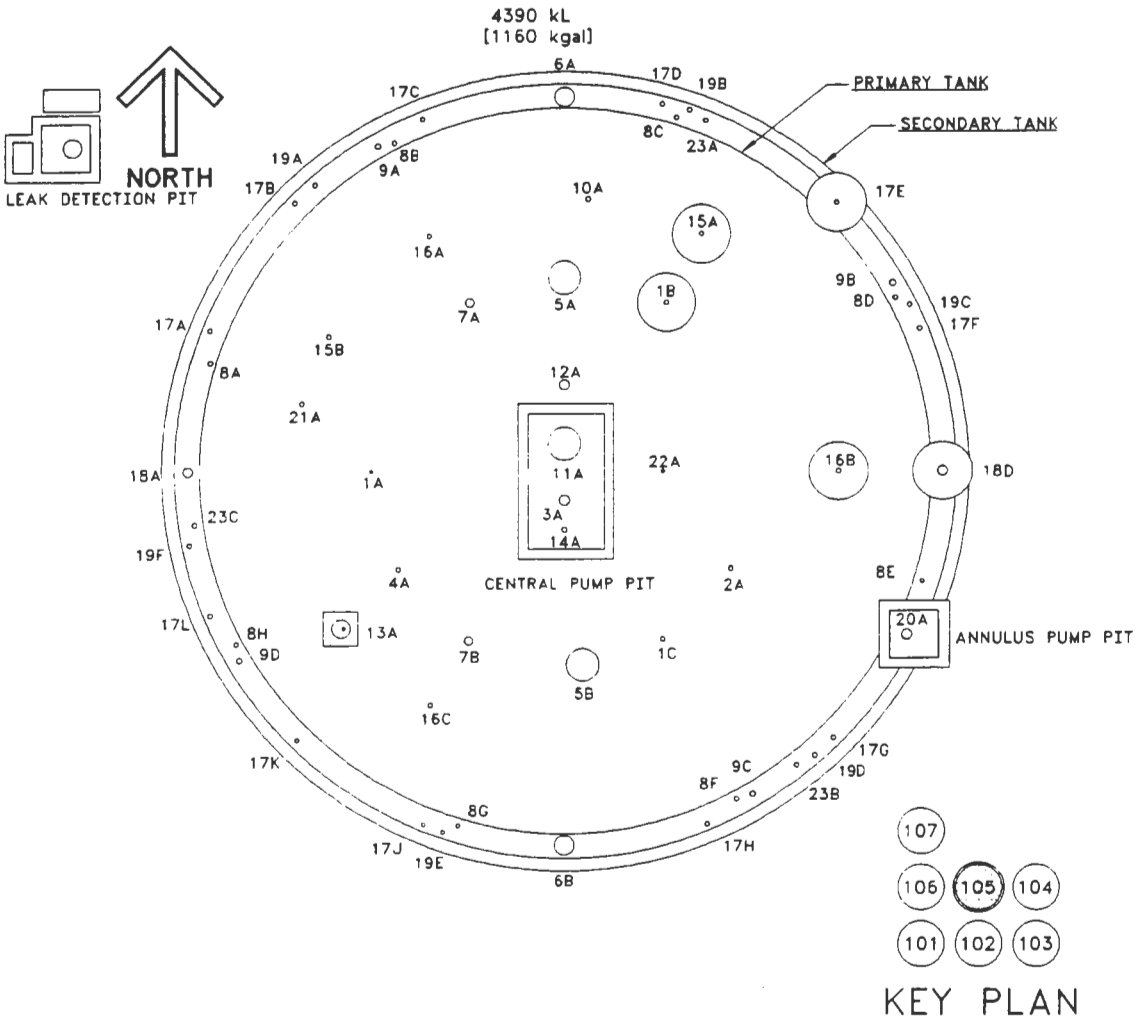
New Riser	Old Riser	Diameter (Inches)	Description and Comments[3]
102	1A	4	Sludge measurement port
103	1B[4]	4	Sludge measurement port, (12 in. cover)
101	1C	4	Sludge measurement port
104	2A	4	ENRAF® level gauge
105	3A	12	Supernatant pump, Central pump pit
106	4A	4	Thermocouple tree
108	5A	42	Manhole, below grade
107	5B	42	Manhole, below grade
112	7A	12	Tank ventilation
111	7B[4]	12	Spare
125	10A[4]	4	Tank pressure
126	11A	42	Slurry distributor, Central pump pit
127	12A[4]	12	Observation port, spare
128	13A	4	Tank pressure
129	14A	4	Supernatant return, Central pump pit
131	15A[4]	4	Spare, (12 in. cover)
130	15B	4	High liquid level sensor
134	16A	4	Sludge measurement port, (12 in. cover)
132	16B[4]	4	Sludge measurement port
133	16C	4	Sludge measurement port
155	21A	4	Spare
156	22A[4]	4	Sludge measurement port

Notes:

[1]Salazar (1994)
[2]Hanford Drawings: H-14-01050, H-2-71995
[3]Tank risers only, annulus risers excluded.
[4]Denotes risers tentatively available for sampling (Lipnicki 1996).

Risers 1B, 10A, 15A, 16B, and 22A (each 102 mm [4 in.] in diameter) and risers 7B and 12A (305 mm [12-in.] in diameter) are available for sampling (Lipnicki 1996). A tank cross-section showing the approximate waste level along with a schematic of the tank equipment is in Figure A2-2.

Figure A2-1. Riser Configuration for Tank AN-105.



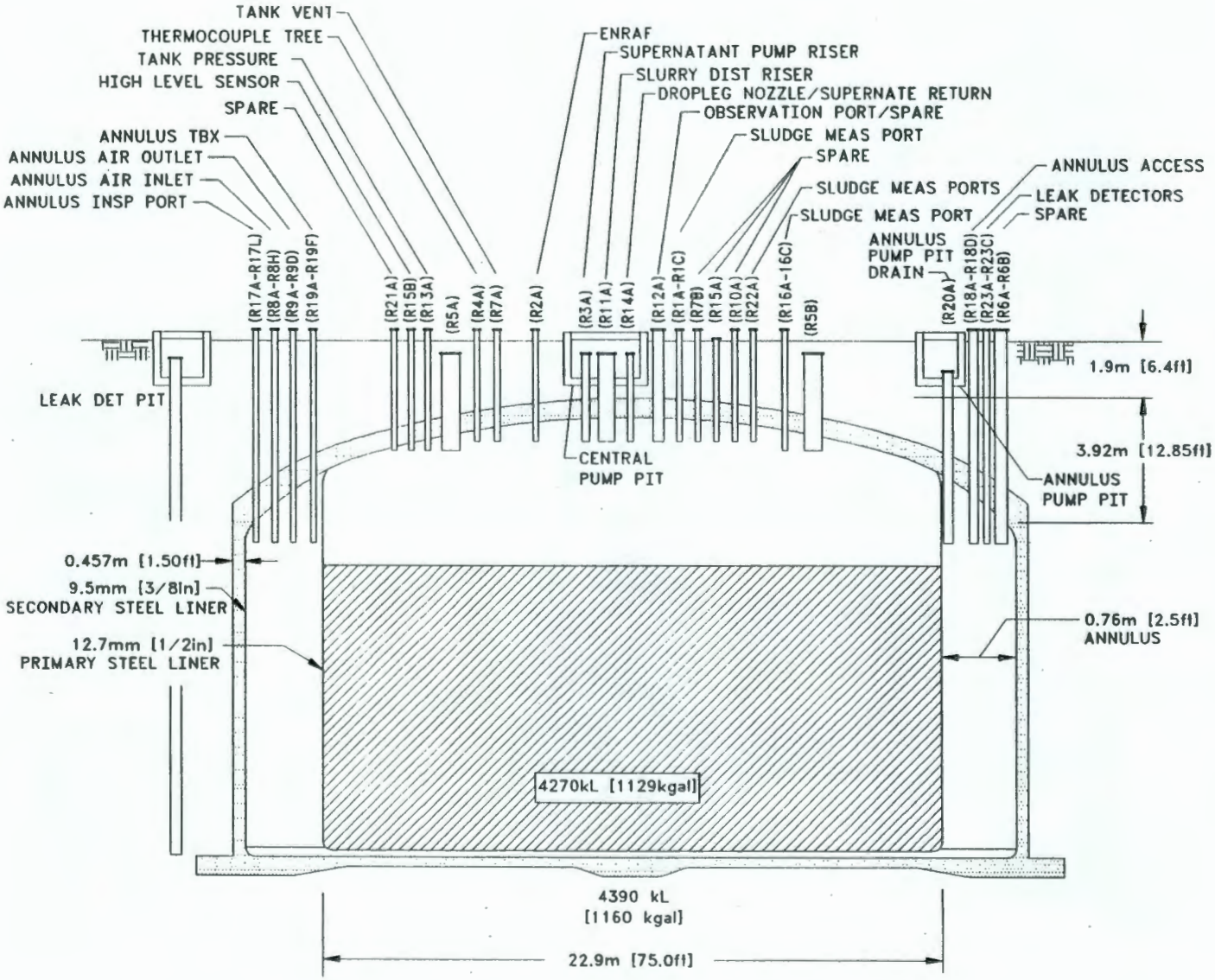


Figure A2-2. Tank 241-AN-105 Cross Section and Schematic.

A3.0 PROCESS KNOWLEDGE

The sections below: 1) provide information about the transfer history of tank 241-AN-105; 2) describe the process wastes that made up the transfers; and 3) give an estimate of the current tank contents based on transfer history.

A3.1 WASTE TRANSFER HISTORY

Table A3-1 summarizes the waste transfer history of tank 241-AN-105 using (Agnew et al. 1997a) and the Hanford Site tank transfer database. Water was initially added to tank 241-AN-105 in the second quarter of 1982. During the fourth quarter of 1982 through the first quarter of 1983, the tank received double-shell slurry feed waste from tank 241-AW-102. A small amount of waste from an unknown source was added in the third quarter of 1984. The tank received non-complexed waste from tank 241-AN-104 in the first quarter of 1984. Most of the waste was removed to tank 241-AW-102 during the first quarter of 1985 for the evaporator campaign, leaving approximately 583 kL (154 kgal) waste in tank 241-AN-105. During the first quarter of 1985 to the second quarter of 1985, the tank received double-shell slurry feed waste from tank 241-AW-102 via the evaporator, then waste reception ceased. The only transfer since that time has been an addition of flush water from miscellaneous sources from the fourth quarter of 1995 to the first quarter of 1996.

Table A3-1. Tank 241-AN-105 Major Transfers.[1,2]

Transfer Source	Transfer Destination	Waste Type	Time Period	Estimated Waste Volume	
				kL	kgal
Miscellaneous source		Flush water	1982	42	11
241-AW-102		DSSF	1982-1983	2377	628
241-AN-104		NCPLX	1984	1890	499
Unknown		Unknown	1984	26	7
	241-AW-102	DSSF/NCPLX	1985	-3610	-954
241-AW-102		DSSF	1985	3676	971
Miscellaneous source		Flush water	1995-1996	11	3

Notes:

DSSF = Double-Shell Slurry Feed - Waste concentrated just before reaching the sodium aluminate saturation boundary in the evaporator without exceeding receiver tank composition limits. This form is not as concentrated as double shell slurry (DSS).

NCPLX = Non-complexed - General waste term applied to all Hanford Site liquors not identified as complexed.

[1]Agnew et al. 1997a

[2]Because only major transfers are listed, the sum of these transfers will not equal the current tank waste volume.

A3.2 HISTORICAL ESTIMATION OF TANK CONTENTS

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

- Waste Status and Transaction Record Summary for the Southwest Quadrant of the Hanford 200 East Area (WSTRS) (Agnew et al. 1997a). WSTRS is a tank-by-tank quarterly summary spreadsheet of waste transactions.

- Hanford Tank Chemical and Radionuclide Inventories: HDW Model Rev. 4 (Agnew et al. 1997b). This document contains the Hanford Defined Waste (HDW) list, the Supernatant Mixing Model (SMM), and the Tank Layer Model (TLM), and the historical tank inventory estimate.

- The HDW list is a list of approximately 50 waste types with nominal analyte composition for both sludge and supernatant layer. The TLM defines the

sludge and saltcake layers in each tank using waste composition and waste transfer information. Supernatant Mixing Model (SMM) is a subroutine within the HDW model that calculates the volume and composition of certain supernatant blends and concentrates.

Using these records, the TLM defines the sludge and saltcake layers in each tank. The HDW list provides typical composition expected for approximately 50 waste types. The SMM uses information from WSTRS, the HDW list, and the TLM to describe the supernatants and concentrates in each tank. Together the WSTRS, HDW list, TLM, and SMM determine each tank's inventory estimate. These model predictions are considered estimates that require further evaluation using analytical data.

Based on Agnew et al. (1997b), tank 241-AN-105 contains only a layer of 4,270 kL (1,129 kgal) of DSSF waste. Figure A3-1 shows a graphical representation of the estimated waste type and volume for the tank layer. The historical tank content estimate model predicts tank 241-AN-105 to contain very large (greater than one weight percent) amounts of sodium, aluminum, nitrite, nitrate, and hydroxide. Table A3-2 shows the historical estimate of the expected waste constituents and their concentrations.

Figure A3-1. Tank Layer Model.

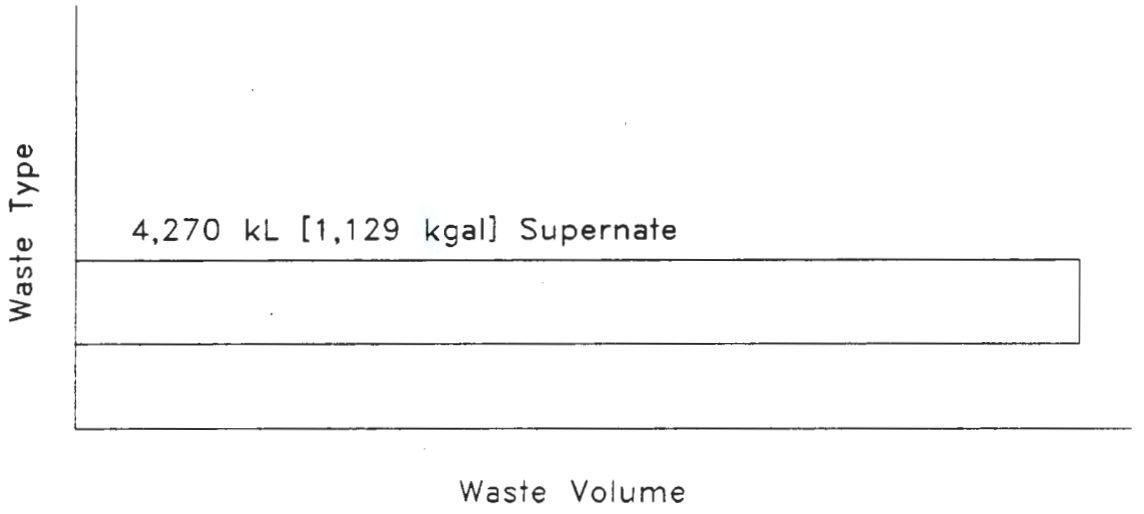


Table A3-2. Historical Tank Inventory Estimate.[1,2] (2 sheets)

Total Inventory Estimate			
Physical Properties			
Total Waste	8.04E+06 kg (1.13E+03 kgal)		
Heat Load	11.4 kW (3.90E+04 BTU/hr)		
Bulk Density	1.88 (g/mL)		
Water weight percent	17.2		
Total Organic Carbon weight percent Carbon (wet)	1.36		
Chemical Constituents	**mole/L**	**μg/g**	**kg[3]**
Na^+	20.5	2.51E+05	2.02E+06
Al^{3+}	2.35	3.38E+04	2.71E+05
Fe^{3+} (total Fe)	1.56E-02	464	3.73E+03
Cr^{3+}	0.160	4.42E+03	3.56E+04
Bi^{3+}	1.87E-03	208	1.67E+03
La^{3+}	1.99E-05	1.47	11.8
Hg^{2+}	1.38E-05	1.47	11.8
Zr (as $ZrO(OH)_2$)	3.82E-04	18.5	149
Pb^{2+}	1.74E-03	191	1.54E+03
Ni^{2+}	1.06E-02	331	2.66E+03
Sr^{2+}	0	0	0
Mn^{4+}	9.35E-03	273	2.20E+03
Ca^{2+}	5.57E-02	1.19E+03	9.56E+03
K^+	0.106	2.22E+03	1.78E+04
OH^-	13.7	1.24E+05	9.97E+05
NO_3^-	7.08	2.34E+05	1.88E+06
NO_2^-	3.10	7.58E+04	6.09E+05
CO_3^{2-}	0.910	2.91E+04	2.34E+05
PO_4^{3-}	0.184	9.29E+03	7.47E+04
SO_4^{2-}	0.386	1.97E+04	1.59E+05
Si (as SiO_3^{2-})	0.113	1.69E+03	1.36E+04

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

Total Inventory Estimate			
Chemical Constituents (Cont'd)	***M***	**μg/g**	**kg[3]**
F^-	0.107	1.09E+03	8.72E+03
Cl^-	0.361	6.81E+03	5.48E+04
$C4H507^{3-}$	4.80E-02	4.83E+03	3.88E+04
$EDTA^{4-}$	3.14E-02	4.82E+03	3.88E+04
$HEDTA^{3-}$	5.48E-02	7.99E+03	6.42E+04
glycolate	0.261	1.04E+04	8.38E+04
acetate	2.59E-02	815	6.55E+03
oxalate	2.06	1.22	9.8
DBP	3.40E-02	3.80E+03	2.06E+04
butanol	3.40E-02	1.34E+03	1.08E+04
NH_3	0.114	1.03E+03	8.27E+03
$Fe(CN)_6^{4-}$	0	0	0
Radiological Constituents			
Pu	9.21E-04 (g/L)		3.94 (kg)
U	1.35E-02 (*M*)	1.71E+03 (μg/g)	1.38E+04 (kg)
Cs	0.346 (Ci/L)	184 (μCi/g)	1.48E+06 (Ci)
Sr-90	0.155	82.7 (μCi/g)	6.65E+05(Ci)

Notes:

[1]Agnew et al. (1997b)

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

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

A4.0 SURVEILLANCE DATA

Tank 241-AN-105 surveillance data consists of surface-level measurements (liquid and solid), temperature monitoring inside the tank (waste and headspace). The annulus is ventilated and continually monitored by radiation and leak detectors for evidence of primary tank leakage. These data provide the basis for determining tank integrity.

A4.1 SURFACE LEVEL READINGS

A Food Instrument Corporation (FIC) gauge was used to monitor the waste surface level in tank 241-AN-105 through riser 2A in the automatic mode until July 15, 1995, and in the manual mode until July 31, 1995. Currently, surface levels are currently taken via a manual and automatic ENRAF® gauge. This tank is on the Hydrogen/Flammable Gas Watch List and is prohibited from receiving waste. A graphical representation of the volume measurements is presented as a level history graph in Figure A4-1.

A4.2 INTERNAL TANK TEMPERATURES

Tank 241-AN-105 has a single thermocouple tree with 18 thermocouples to monitor the waste temperature through riser 4A. Elevations are available for all thermocouples. Plots of the individual thermocouple readings can be found in the AN Tank Farm supporting document for the HTCE (Brevick et al. 1995).

Temperature data, obtained from the Surveillance Analysis Computer System (SACS) (LMHC 1997), were recorded from January 1990 to February 1997. Data were available for all 18 thermocouples. The mean temperature of the SACS data is 39.1 °C (102.3 °F) with a minimum of 19.2 °C (66.6 °F) and a maximum of 46.7 °C (116 °F). The mean temperature of the SACS data over the last year (February 1996 through February 1997) is 38.7 °C (100.5 °F) with a minimum of 19.2 °C (66.6 °F) and a maximum of 45.2 °C (113.4 °F). On February 3, 1997, the lowest temperature recorded was 20 °C (68 °F) on thermocouple 17 (located near the surface of the waste). The highest temperature recorded was 41.9 °C (107.4 °F) on thermocouple 5 (located in the waste). A graph of the weekly high temperature can be found in Figure A4-2.

A4.3 TANK 241-AN-105 PHOTOGRAPHS

The January 1988 photographic montage of the tank 241-AN-105 interior shows a typical saltcake waste surface that is produced by the Hanford Site evaporators. The colors are off-white with patches of yellow. The tank walls and dome show signs of rust. Equipment visible in the photographs are a level probe, a thermocouple tree, a saltwell screen, an FIC probe, and a slurry distributor. Since the photographs were taken, the level of the waste has

only changed slightly because of slurry growth from gas generation. Tank 241-AN-105 has a video camera that has been operational since 1995. The photographic montage should be a fairly accurate representation of the current tank waste appearance (Brevick et al 1995).

A4.4 STANDARD HYDROGEN MONITORING SYSTEMS (SHMS)

An standard hydrogen monitoring systems (SHMS) was installed in this tank in October 1994 that monitors hydrogen with two Whittaker cells. A gas characterization system (GCS) was installed in April 1996. A GCS comprises three instruments: two gas chromatographs (GC) and a Fourier transform infrared spectrometer (FTIR). One GC measures hydrogen, the other measures nitrous oxide and methane.

The FTIR measures ammonia concentrations. The maximum hydrogen concentration measured since the SHMS was installed was 1.6 percent on August 21, 1995. Concentration reached 1.5 percent on May 30, 1996. Background hydrogen concentration in tank 241-AN-105 is typically below 100 ppm nitrous oxide, about 20 ppm, ammonia at about 10 ppm and methane registers 0 ppm (Stewart et al. 1996).

Figure A4-1. Tank 241-AN-105 Level History.

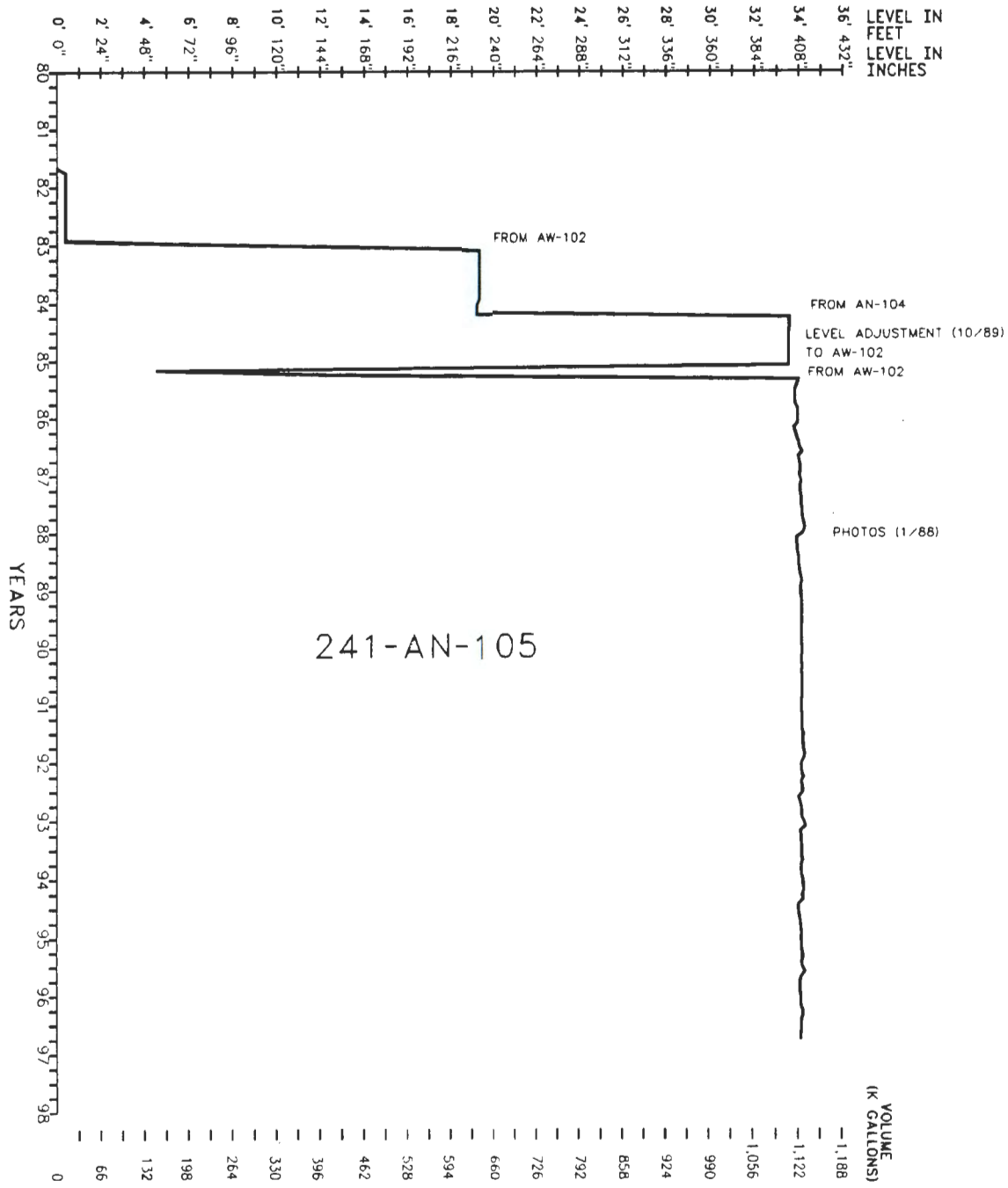
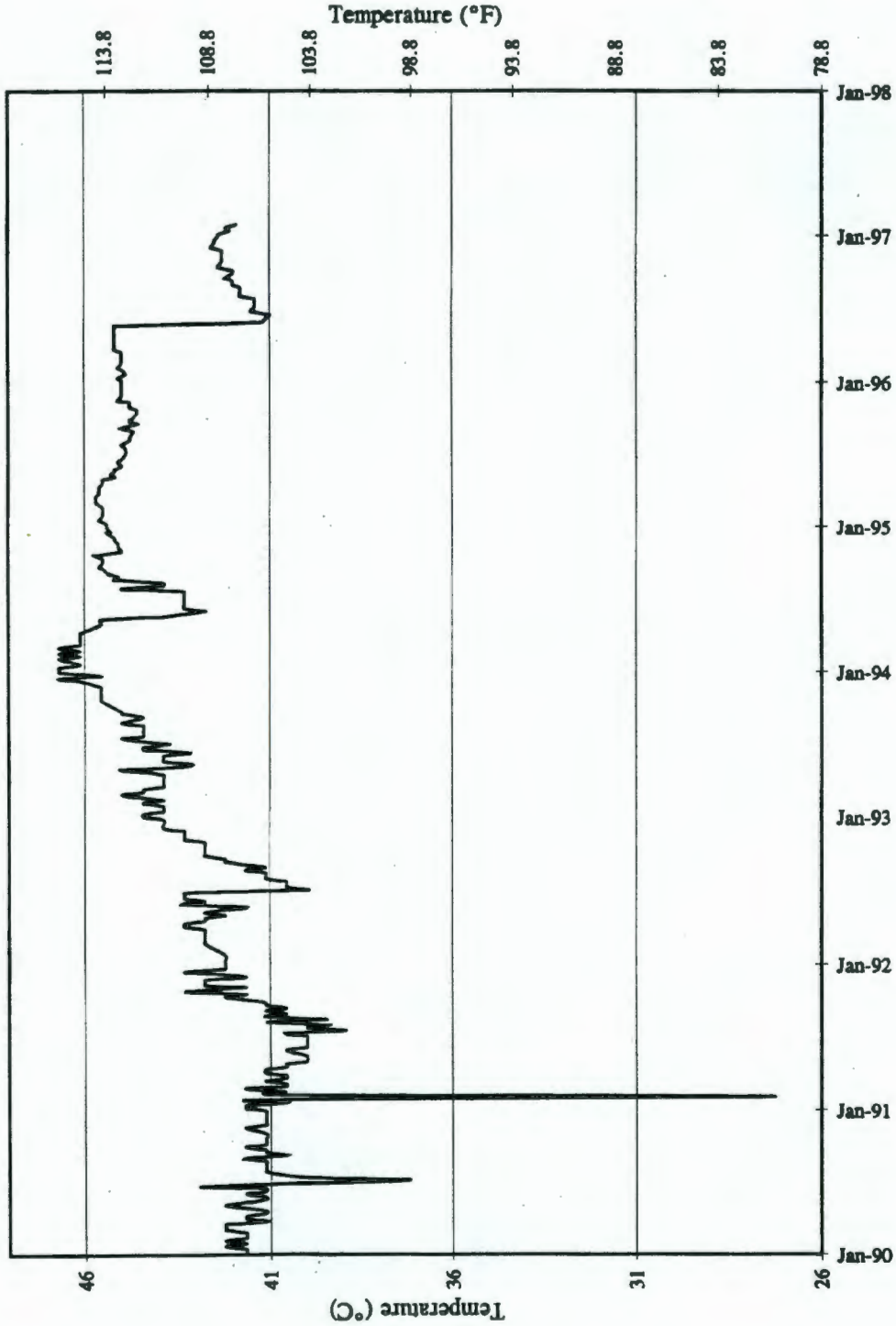


Figure A4-2. Tank 241-AN-105 Weekly High Temperature Plot.



A5.0 APPENDIX A REFERENCES

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APPENDIX B

SAMPLING OF TANK 241-AN-105

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APPENDIX B

SAMPLING OF TANK 241-AN-105

Appendix B provides sampling and analysis information for each known sampling event for tank 241-AN-105 and provides an assessment of the core sample results.

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

Future sampling of tank 241-AN-105 will be appended to the above list.

B1.0 TANK SAMPLING OVERVIEW

This section describes the June 1996 sampling and analysis events for tank 241-AN-105. Core samples were taken to satisfy the requirements of the *Tank Safety Screening Data Quality Objective* (Dukelow et al. 1995), and the *Flammable Gas Safety Program: Data Requirements for Core Sample Analysis Developed through the Data Quality Objectives (DQO) Process* (McDuffie and Johnson 1995). The sampling and analyses were performed in accordance with the *Tank 241-AN-105 Push Mode Core Sampling and Analysis Plan* (Eggers 1996). The sampling and analysis plan (SAP) also instructed that 4.0 liters of supernatant from the tank were to be obtained as part of the scheduled push mode core sampling event. The sample will be used to support the Privatization initiative. Two supernatant samples were also taken from this tank in 1984 (Jansky 1984) to support evaporator Campaign Run 84-5. One supernatant sample was taken from this tank in August 1984 to support evaporator Campaign Run 85-3. These sample events are discussed in Section B1.4.

B1.1 DESCRIPTION OF SAMPLING EVENT

Twenty-two push mode core segments were removed from tank 241-AN-105 riser 12A (Core 152) between June 10, 1996, and June 18, 1996. Segments were received by the 222-S Laboratory between June 11, 1996, and June 24, 1996. Selected segments (15, 17, 19 and 21) were sampled using the Retained Gas Sampler (RGS) and extruded by the Process Chemistry and Statistical Analysis Group.

The second twenty-two push mode core segments were removed from tank 241-AN-105 riser 7B (Core 153) between June 25, 1996, and June 28, 1996. Segments were received by the 222-S Laboratory between June 28, 1996, and August 9, 1996. Selected segments (4, 16, 18 and 20) were sampled using the Retained Gas Sampler and extruded by the Process Chemistry and Statistical Analysis Group.

A field blank was provided to the 222-S Laboratory with core 153. It underwent the same analysis as the drainable liquid as instructed by the TSAP (Eggers 1996).

Lithium bromide solution used as hydrostatic head fluid during sampling, was provided to the 222-S Laboratory with core 153. It underwent Inductively Coupled Plasma Spectroscopy (ICP) and Ion Chromatography (IC) analyses as instructed by the TSAP (Eggers 1996).

A vertical profile is used to satisfy the safety screening data quality objective (DQO). Safety screening analyses include: total alpha to determine criticality, differential scanning calorimetry (DSC) to ascertain the fuel energy value, and thermogravimetric analysis (TGA) to obtain the total moisture content. In addition, combustible gas meter readings in the tank headspace were performed to measure flammability. The current revision of the safety screening DQO (Dukelow et al. 1995) also requires bulk density measurements.

Tank 241-AN-105 also was evaluated for the Flammable Gas Tank Safety Program. The specified analyses include: DSC, TGA, bulk density, viscosity, void fraction, total inorganic carbon (TIC) total organic carbon (TOC), formate, oxalate, ICP, IC, and radiochemistry.

Sampling and analytical requirements from the safety screening and Flammable Gas DQOs are summarized in Table B1-1.

Table B1-1. Integrated Data Quality Objective Requirements for Tank 241-AN-105.[1]

Sampling Event	Applicable DQOs	Sampling Requirements	Analytical Requirements
Core sampling	Safety screening	Core samples from a minimum of two risers separated radially to the maximum extent possible.	▸Energetics ▸Moisture content ▸Total alpha
	Flammable gas	At least one complete core	▸Energetics ▸Moisture content ▸Bulk density ▸Viscosity ▸Void fraction ▸TIC/TOC ▸Formate ▸Oxalate ▸OH ▸ICP ▸IC ▸Radiochemistry
Combustible gas meter reading	Safety screening	Measurement in a minimum of one location within tank vapor space.	▸Flammable gas concentration
Vapor	Organic solvent screening[2]	Steel canisters	▸Organic vapor

Notes:

[1]Eggers 1996

[2]Sampling for organic solvent screening has not been performed.

B1.2 SAMPLE HANDLING

The core samples were shipped to the 222-S Laboratory for subsampling and analysis. Samples were assigned LABCORE numbers and were subjected to visual inspection for color, clarity, and solids content. The radiation dose rate on contact was also measured. The salt slurry samples were divided into upper and lower half-segments. The material was homogenized and subsampled for laboratory analyses and archiving. Subsamples of each half-segment were then recombined and subsampled for core composite analyses. Tables B1-2a and B1-2b gives the subsampling scheme and sample description for core 152 and 153, respectively.

Table B1-2a. Sample Receipt and Extrusion Information for 241-AN-105, Core 152. (7 sheets)

Customer Id	Seg.	Date Sampled[1]	Date Received	Date Extruded	Inches Extruded[2]	Liquid Recovered (g)	Solids Recovered (g)	Sample Description
96-253	1	6/10/96	6/11/96	6/17/96	2.5	256.8-Drainable	37.6-upper half	The solids were light gray in color and resembled a salt slurry. The liquid was green in color and opaque. Collected 190 mL of liquid. No organic layer was observed.
96-254	2	6/10/96	6/11/96	6/17/96	0.0	426.3-Drainable	0.0	Extruded light gray solids and resembled a wet salt. The liquid was green in color and opaque. Collected 305 mL of liquid. No organic layer was observed.
96-255	3	6/11/96	6/11/96	6/18/96	0.0	406.2-Drainable	0.0	Extruded an unmeasurable amount of light gray solids and resembled a wet salt. The liquid was green in color and opaque. Collected 280 mL of liquid. No organic layer was observed.

Table B1-2a. Sample Receipt and Extrusion Information for 241-AN-105, Core 152. (7 sheets)

Customer Id	Seg.	Date Sampled[1]	Date Received	Date Extruded	Inches Extruded[2]	Liquid Recovered (g)	Solids Recovered (g)	Sample Description
96-256	4	6/11/96	6/12/96	6/18/96	0.0	429.3-Drainable	0.0	Extruded an unmeasurable amount of light gray solids and resembled a wet salt. The liquid was green in color and opaque. Collected 300 mL of liquid. No organic layer was observed.
96-257	5	6/11/96	6/12/96	6/18/96	0.0	435.8-Drainable	0.0	Extruded an unmeasurable amount of light gray solids and resembled a wet salt. The liquid was green in color and opaque. Collected 310 mL of liquid. No organic layer was observed.
96-258	6	6/11/96	6/12/96	6/19/96	0.0	429.5-Drainable	0.0	Extruded an unmeasurable amount of light gray solids and resembled a wet salt. The liquid was green in color and opaque. Collected 290 mL of liquid. No organic layer was observed.

Table B1-2a. Sample Receipt and Extrusion Information for 241-AN-105, Core 152. (7 sheets)

Customer Id	Seg.	Date Sampled[1]	Date Received	Date Extruded	Inches Extruded[2]	Liquid Recovered (g)	Solids Recovered (g)	Sample Description
96-259	7	6/11/96	6/12/96	6/27/96	0.0	433.4-Drainable	0.0	Extruded an unmeasurable amount of light gray solids and resembled a wet salt. The liquid was green in color and opaque. Collected 290 mL of liquid. No organic layer was observed.
96-260	8	6/12/96	6/12/96	6/27/96	0.0	429.3-Drainable	0.0	Extruded an unmeasurable amount of light gray solids and resembled a wet salt. The liquid was green in color and opaque. Collected 300 mLs of liquid.
96-261	9	6/12/96	6/12/96	6/27/96	0.0	378.7-Drainable	0.0	Extruded an unmeasurable amount of light gray solids and resembled a wet salt. The liquid was green in color and opaque. Collected 250 mL of liquid. No organic layer was observed.

Table B1-2a. Sample Receipt and Extrusion Information for 241-AN-105, Core 152. (7 sheets)

Customer Id	Seg.	Date Sampled[1]	Date Received	Date Extruded	Inches Extruded[2]	Liquid Recovered (g)	Solids Recovered (g)	Sample Description
96-262	10	6/12/96	6/13/96	6/27/96	0.0	392.2-Drainable	0.0	Extruded an unmeasurable amount of light gray solids and resembled a wet salt. The liquid was green in color and opaque. Collected 250 mL of liquid. No organic layer was observed.
96-263	11	6/12/96	6/13/96	6/27/96	0.0	431.4-Drainable	0.0	Extruded an unmeasurable amount of light gray solids and resembled a wet salt. The liquid was green in color and opaque. Collected 300 mL of liquid. No organic layer was observed.
96-264	12	6/12/96	6/24/96	6/27/96	0.0	380.0-Drainable	0.0	Extruded an unmeasurable amount of light gray solids and resembled a wet salt. The liquid was green in color and opaque. Collected 250 mL of liquid. No organic layer was observed.

Table B1-2a. Sample Receipt and Extrusion Information for 241-AN-105, Core 152. (7 sheets)

Customer Id	Seg.	Date Sampled[1]	Date Received	Date Extruded	Inches Extruded[2]	Liquid Recovered (g)	Solids Recovered (g)	Sample Description
96-265	13	6/13/96	6/24/96	6/27/96	0.0	383.8-Drainable	0.0	Extruded an unmeasurable amount of light gray solids and resembled a wet salt. The liquid was green in color and opaque. Collected 250 mL of liquid. No organic layer was observed.
96-266	14	6/13/96	6/18/96	7/01/96	n/a	132.9-Drainable	188.7-Upper half 46.7-Lower half	Extruded an unmeasurable amount of light gray solids and resembled a salt slurry. The liquid was green in color and opaque. Collected 90 mL of liquid. No organic layer was observed.
96-267	15	6/13/96	6/13/96	n/a	n/a	n/a	n/a	This segment was sampled using the Retained Gas Sampler and extruded by the Process Chemistry and Statistical Analysis Group.
96-268	16	6/13/96	6/18/96	7/01/96	18.0	0.0	166.5-Upper half 210.3-Lower half	The solids were gray in color and resembled a salt slurry.

Table B1-2a. Sample Receipt and Extrusion Information for 241-AN-105, Core 152. (7 sheets)

Customer Id	Seg.	Date Sampled[1]	Date Received	Date Extruded	Inches Extruded[2]	Liquid Recovered (g)	Solids Recovered (g)	Sample Description
96-269	17	6/14/96	6/18/96	n/a	n/a	n/a	n/a	This segment was sampled using the Retained Gas Sampler and extruded by the Process Chemistry and Statistical Analysis Group.
96-270	18	6/14/96	6/18/96	7/08/96	19.0	0.0	188.0-Upper half 195.5-Lower half	The solids were gray in color and resembled a wet salt.
96-271	19	6/14/96	6/18/96	n/a	n/a	n/a	n/a	This segment was sampled using the Retained Gas Sampler and extruded by the Process Chemistry and Statistical Analysis Group.
96-272	20	6/14/96	6/18/96	7/08/96	17.0	0.0	198.9-Upper half 198.0-Lower half	The solids were light to dark gray in color and resembled a wet salt and a salt slurry.

Table B1-2a. Sample Receipt and Extrusion Information for 241-AN-105, Core 152. (7 sheets)

Customer Id	Seg.	Date Sampled[1]	Date Received	Date Extruded	Inches Extruded[2]	Liquid Recovered (g)	Solids Recovered (g)	Sample Description
96-273	21	6/17/96	6/18/96	n/a	n/a	n/a	n/a	This segment was sampled using the Retained Gas Sampler and extruded by the Process Chemistry and Statistical Analysis Group.
96-274	22	6/18/96	6/24/96	7/01/96	13.0	0.0	195.7-Upper half 51.1-Lower half	The solids were light to dark gray in color and resembled a salt slurry.

Notes:

n/a = not applicable
Seg. = segment

[1]Dates are provided in the mm/dd/yy format.
[2]Approximate inches extruded.

Table B1-2b. Sample Receipt and Extrusion Information for 241-AN-105, Core 153. (7 sheets)

Customer Id	Seg.	Date Sampled[1]	Date Received	Date Extruded	Inches Extruded[2]	Liquid Recovered (g)	Solids Recovered (g)	Sample Description
96-275	1	6/25/96	8/09/96	8/14/96	0.0	256.8-Drainable	0.0	Extruded an unmeasurable amount of light gray solids that resembled a salt slurry. The liquid was green in color and opaque. Collected 165 mL of liquid. No organic layer was observed.
96-276	2	6/25/96	7/30/96	8/05/96	0.0	422.8-Drainable	0.0	Extruded an unmeasurable amount of light gray solids that resembled a salt slurry. The liquid was green in color and opaque. Collected 320 mL of liquid. No organic layer was observed.
96-277	3	6/26/96	8/09/96	8/14/96	0.0	367.0-Drainable	0.0	Extruded an unmeasurable amount of light gray solids that resembled a wet salt. The liquid was green in color and opaque. Collected 250 mL of liquid. No organic layer was observed.

Table B1-2b. Sample Receipt and Extrusion Information for 241-AN-105, Core 153. (7 sheets)

Customer Id	Seg.	Date Sampled[1]	Date Received	Date Extruded	Inches Extruded[2]	Liquid Recovered (g)	Solids Recovered (g)	Sample Description
96-278	4	6/26/96	6/28/96	n/a	n/a	n/a	n/a	This segment was sampled using the Retained Gas Sampler and extruded by the Process Chemistry and Statistical Analysis Group.
96-279	5	6/26/96	8/07/96	8/12/96	0.0	406.1-Drainable	0.0	Extruded an unmeasurable amount of light gray solids that resembled a wet salt. The liquid was green in color and opaque. Collected 310 mL of liquid. No organic layer was observed.
96-280	6	6/26/96	8/07/96	8/12/96	0.0	410.7-Drainable	0.0	Extruded an unmeasurable amount of light gray solids that resembled a wet salt. The liquid was green in color and opaque. Collected 300 mL of liquid. No organic layer was observed.

Table B1-2b. Sample Receipt and Extrusion Information for 241-AN-105, Core 153. (7 sheets)

Customer Id	Seg.	Date Sampled[1]	Date Received	Date Extruded	Inches Extruded[2]	Liquid Recovered (g)	Solids Recovered (g)	Sample Description
96-281	7	6/26/96	8/06/96	8/12/96	0.0	402.6-Drainable	0.0	Extruded an unmeasurable amount of light gray solids that resembled a wet salt. The liquid was green in color and opaque. Collected 295 mL of liquid. No organic layer was observed.
96-282	8	6/26/96	7/03/96	7/09/96	0.0	426.7-Drainable	0.0	Extruded an unmeasurable amount of light gray solids that resembled a wet salt. The liquid was green in color and opaque. Collected 290 mL of liquid. No organic layer was observed.
96-283	9	6/26/96	7/02/96	7/08/96	0.0	428.9-Drainable	0.0	Extruded an unmeasurable amount of light gray solids that resembled a wet salt. The liquid was green in color and opaque. Collected 300 mL of liquid. No organic layer was observed.

Table B1-2b. Sample Receipt and Extrusion Information for 241-AN-105, Core 153. (7 sheets)

Customer Id	Seg.	Date Sampled[1]	Date Received	Date Extruded	Inches Extruded[2]	Liquid Recovered (g)	Solids Recovered (g)	Sample Description
96-284	10	6/27/96	7/30/96	8/05/96	0.0	386.3-Drainable	0.0	Extruded an unmeasurable amount of light gray solids that resembled a wet salt. The liquid was green in color and opaque. Collected 290 mL of liquid. No organic layer was observed.
96-285	11	6/27/96	7/02/96	7/08/96	0.0	420.0-Drainable	0.0	Extruded an unmeasurable amount of light gray solids that resembled a wet salt. The liquid was green in color and opaque. Collected 290 mL of liquid. No organic layer was observed.
96-286	12	6/27/96	7/02/96	7/08/96	0.0	407.2-Drainable	0.0	Extruded an unmeasurable amount of light gray solids that resembled a wet salt. The liquid was green in color and opaque. Collected 290 mL of liquid. No organic layer was observed.

Table B1-2b. Sample Receipt and Extrusion Information for 241-AN-105, Core 153. (7 sheets)

Customer Id	Seg.	Date Sampled[1]	Date Received	Date Extruded	Inches Extruded[2]	Liquid Recovered (g)	Solids Recovered (g)	Sample Description
96-287	13	6/27/96	7/03/96	7/09/96	0.0	431.4-Drainable	0.0	Extruded an unmeasurable amount of light gray solids that resembled a wet salt. The liquid was green in color and opaque. Collected 300 mL of liquid.
96-288	14	6/27/96	6/28/96	8/07/96	13.0	130.1-Drainable	248.6-Lower half	The solids were medium to dark gray in color and resembled a salt slurry. The liquid was green in color and opaque. Collected 100 mL of liquid. No organic layer was observed.
96-289	15	6/27/96	7/30/96	8/05/96	17.0	0.0	180.3-Upper half 199.1-Lower half	The solids were gray in color and resembled a salt slurry.
96-290	16	6/27/96	6/28/96	n/a	n/a	n/a	n/a	This segment was sampled using the Retained Gas Sampler and extruded by the Process Chemistry and Statistical Analysis Group.

Table B1-2b. Sample Receipt and Extrusion Information for 241-AN-105, Core 153. (7 sheets)

Customer Id	Seg.	Date Sampled[1]	Date Received	Date Extruded	Inches Extruded[2]	Liquid Recovered (g)	Solids Recovered (g)	Sample Description
96-291	17	6/28/96	8/09/96	8/14/96	19.0	0.0	204.2-Upper half 216.9-Lower half	The solids were blue-gray in color and resembled a wet salt.
96-292	18	6/28/96	6/28/96	n/a	n/a	n/a	n/a	This segment was sampled using the Retained Gas Sampler and extruded by the Process Chemistry and Statistical Analysis Group.
96-293	19	6/28/96	8/07/96	8/14/96	8.5	0.0	244.1-Lower half	The solids were dark gray in color and resembled a wet salt.
96-294	20	6/28/96	7/02/96	n/a	n/a	n/a	n/a	This segment was sampled using the Retained Gas Sampler and extruded by the Process Chemistry and Statistical Analysis Group.
96-295	21	6/28/96	7/03/96	7/09/96	10.0	173.0-Drainable	202.5-Lower half	The solids were gray in color and resembled a salt slurry . The liquid was brown-gray in color and opaque. Collected 120 mL of liquid. No organic layer was observed.

Table B1-2b. Sample Receipt and Extrusion Information for 241-AN-105, Core 153. (7 sheets)

Customer Id	Seg.	Date Sampled[1]	Date Received	Date Extruded	Inches Extruded[2]	Liquid Recovered (g)	Solids Recovered (g)	Sample Description
96-296	22	6/28/96	7/02/96	7/09/96	14.0	0.0	182.5-Upper half 74.8-Lower half	The upper ten inches of solids were gray color and resembled a salt slurry. The lower four inches of solids were black in color and resembled a sludge slurry.
Field Blank	FB	6/28/96	7/3/96	7/09/96	0.0	277.7-Drainable	0.0	The liquid was colorless and clear. Collected 290 mL of liquid.

Notes:

n/a = not applicable
Seg. = segment

[1]Dates are provided in the mm/dd/yy format.
[2]Approximate inches extruded.

B1.3 SAMPLE ANALYSIS

The analyses performed on the core samples were limited to those required by the safety screening DQO and the flammable gas DQO. The analyses required by the safety screening DQO included analyses for thermal properties by DSC, moisture content by TGA, and content of fissile material by total alpha activity analysis. The flammable gas DQO required a full set of analytes to be analyzed by IC and ICP as well as TOC, TIC and various radionuclides.

Differential scanning calorimetry and TGA were performed on 8.665-mg to 45.550-mg samples. Quality control tests included performing the analyses in duplicate, and the use of standards. Moisture content was also measured by a gravimetric method.

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

Ion chromatography was performed on samples that had been prepared by water digestion. Quality control tests included standards, spikes, blanks, and duplicate analyses. The SAP required that the full suite of IC analytes be measured.

Inductively coupled plasma spectrometry was performed on samples that had been prepared by a fusion procedure, followed by dissolution in acid. Quality control tests included standards, blanks, spikes, and duplicate analyses. The SAP required that the full suite of ICP elements be analyzed.

All reported analyses were performed in accordance with approved laboratory procedures. A list of the sample numbers and applicable analyses is presented in Table B1-3. The sample preparation procedure numbers and analysis procedure numbers are presented in Table B1-4.

B1.4 DESCRIPTION OF HISTORICAL SAMPLING EVENT

Sampling data for tank 241-AN-105 have been obtained to support evaporator Campaign Runs 84-5 and 85-3 in 1984 and reported on May 10, 1984 (Jansky 1984) and November 9, 1984 (Mauss 1984), respectively. The data are presented in Section B2.8. Pre-1989 analytical data have not been validated and should be used with caution.

No information was available regarding sample handling for this tank. The reason for the sampling was given as "242-A Evaporator Campaign."

Table B1-3. Tank 241-AN-105 Sample Analysis Summary. (7 Sheets)

Riser	Sample Identification	Sample Portion	Sample Number	Analyses
12A	Core 152	Core composite	S96T004039	Alpha rad, TGA, DSC, IC
			S96T004049	Furnace oxidation (TOC), Pu239/240, alpha rad, TIC/TOC, Np237, Am241, I129, GEA, Tc, Sr
			S96T004144	ICP
			S96T004207	Bulk density
			S96T004208	Bulk density
			S96T004254	TIC/TOC, TGA, DSC
			S96T004256	Pu239/240, Np237, alpha, GEA, AEA, Tc, Sr, U
			S96T004257	ICP
			S96T004258	Liq. Scin., I129, Cr+6, OH, IC
			S96T004259	TIC/TOC, TGA, DSC
			S96T004261	Pu239/240, Np237, alpha, GEA, AEA, Tc, Sr, U
			S96T004262	ICP
			S96T004263	Liq. Scin., I129, Cr+6, OH, IC
			S96T004831	Scintillation, OH Direct, Cr+6, ICP, IC
			S96T005546	Uranium gross (kinetic phos.),
		Whole	S96T003732	Alpha rad, TGA, SpG, ICP, DSC, IC
			S96T003739	Alpha rad, TGA, SpG, ICP, DSC, IC
			S96T003740	Alpha rad, TGA, SpG, ICP, DSC, IC

Table B1-3. Tank 241-AN-105 Sample Analysis Summary. (7 Sheets)

Riser	Sample Identification	Sample Portion	Sample Number	Analyses
12A	Core 152	Whole	S96T003741	Alpha rad, TGA, SpG, ICP, DSC, IC
			S96T003742	Alpha rad, TGA, SpG, ICP, DSC, IC
			S96T003743	Alpha rad, TGA, SpG, ICP, DSC, IC
			S96T003744	Alpha rad, TGA, SpG, ICP, DSC, IC
			S96T003745	Alpha rad, TGA, SpG, ICP, DSC, IC
			S96T003746	Alpha rad, TGA, SpG, ICP, DSC, IC
			S96T003747	Alpha rad, TGA, SpG, ICP, DSC, IC
			S96T003748	Alpha rad, TGA, SpG, ICP, DSC, IC
			S96T003749	Alpha rad, DSC/TGA, TGA, SpG, ICP, IC
			S96T003750	Alpha rad, TGA, SpG, ICP, DSC, IC
			S96T003751	Alpha rad, TGA, SpG, ICP, DSC, IC
		Upper sample	S96T003704	Bulk density
			S96T003706	Bulk density
			S96T003707	Bulk density
			S96T003710	Bulk density
			S96T003712	Bulk density
			S96T003714	Bulk density
			S96T003731	TGA, DSC
			S96T003792	TGA, DSC

Table B1-3. Tank 241-AN-105 Sample Analysis Summary. (7 Sheets)

Riser	Sample Identification	Sample Portion	Sample Number	Analyses
12A	Core 152	Upper sample	S96T003794	TGA, DSC
			S96T003796	TGA, DSC
			S96T003798	TGA, DSC
			S96T003816	TGA, DSC
			S96T003892	Alpha, ICP
			S96T003893	Alpha, ICP
			S96T003894	ICP
			S96T003895	ICP
			S96T003896	ICP
			S96T003897	ICP
			S96T003898	ICP
			S96T003899	ICP
			S96T003901	ICP
			S96T003903	ICP
			S96T003905	ICP
			S96T003906	ICP
			S96T003907	IC
			S96T003908	IC
			S96T003910	IC
			S96T003912	IC
			S96T003914	IC
			S96T003915	IC
		Lower sample	S96T003705	Bulk density
			S96T003708	Bulk density
			S96T003711	Bulk density
			S96T003793	TGA, DSC

Table B1-3. Tank 241-AN-105 Sample Analysis Summary. (7 Sheets)

Riser	Sample Identification	Sample Portion	Sample Number	Analyses
12A	Core 152	Lower sample	S96T003795	TGA, DSC
			S96T003797	TGA, DSC
			S96T003817	TGA, DSC
			S96T003827	Alpha, ICP
			S96T003828	ICP
			S96T003829	IC
			S96T003889	Alpha, ICP
			S96T003890	Alpha, ICP
			S96T003891	Alpha, ICP
			S96T003900	ICP
			S96T003902	ICP
			S96T003904	ICP
			S96T003909	IC
			S96T003911	IC
			S96T003913	IC
7B	Core 153	Whole	S96T003631	ICP, IC
			S96T003974	OH direct, alpha rad, TGA, SpG, ICP, DSC, IC
			S96T003975	Alpha rad, TGA, SpG, ICP, DSC, IC
			S96T003976	Alpha rad, TGA, SpG, ICP, DSC, IC
			S96T003977	Alpha rad, TGA, SpG, ICP, DSC, IC
			S96T003978	Alpha rad, DSC/TGA, SpG, ICP, IC
			S96T003979	Alpha rad, DSC/TGA, SpG, ICP, IC

Table B1-3. Tank 241-AN-105 Sample Analysis Summary. (7 Sheets)

Riser	Sample Identification	Sample Portion	Sample Number	Analyses
7B	Core 153	Whole	S96T003980	Alpha rad, DSC/TGA, SpG, ICP, IC
			S96T004003	Uranium gross (kinetic phos.), H_3, PU239/240, Np237, Am241, I129, Cr+6, GEA, Tc, Sr
			S96T004308	Alpha rad, TGA, SpG, ICP, DSC, IC
			S96T004309	Alpha rad, DSC/TGA, SpG, ICP, IC
			S96T004333	Alpha rad, DSC/TGA, SpG, ICP, IC
			S96T004419	Alpha rad, TGA, SpG, ICP, DSC, IC
			S96T004420	Alpha rad, TGA, SpG, ICP, DSC, IC
			S96T004421	Alpha rad, DSC/TGA, SpG, ICP, IC
			S96T004433	Alpha rad, DSC/TGA, SpG, ICP, IC
			S96T004434	Alpha rad, TGA, SpG, ICP, DSC, IC
		Upper sample	S96T003973	Bulk density
			S96T003983	TGA, DSC
			S96T003986	ICP
			S96T003989	ICP
			S96T003992	IC
			S96T004302	Bulk density
			S96T004310	TGA, DSC
			S96T004314	ICP

Table B1-3. Tank 241-AN-105 Sample Analysis Summary. (7 Sheets)

Riser	Sample Identification	Sample Portion	Sample Number	Analyses
7B	Core 153	Upper sample	S96T004315	ICP
			S96T004316	IC
			S96T004428	Bulk density
			S96T004435	TGA, DSC
			S96T004441	ICP
			S96T004444	ICP
			S96T004447	IC
		Lower sample	S96T003971	Bulk density
			S96T003972	Bulk density
			S96T003981	TGA, DSC
			S96T003982	TGA, DSC
			S96T003984	Alpha, ICP
			S96T003985	Alpha, ICP
			S96T003987	ICP
			S96T003988	ICP
			S96T003990	IC
			S96T003991	IC
			S96T004303	Bulk density
			S96T004311	TGA, DSC
			S96T004317	Alpha, ICP
			S96T004318	ICP
			S96T004319	IC
			S96T004334	Bulk density
			S96T004335	TGA, DSC
			S96T004337	Alpha, ICP
			S96T004338	ICP

Table B1-3. Tank 241-AN-105 Sample Analysis Summary. (7 Sheets)

Riser	Sample Identification	Sample Portion	Sample Number	Analyses
7B	Core 153	Lower sample	S96T004339	IC
			S96T004427	Bulk density
			S96T004429	Bulk density
			S96T004436	TGA, DSC
			S96T004437	TGA, DSC
			S96T004442	Alpha, ICP
			S96T004443	Alpha, ICP
			S96T004445	ICP
			S96T004446	ICP
			S96T004448	IC
			S96T004449	IC
			S96T005325	IC
			S96T005326	IC

Table B1-4. Analytical Procedures. (2 sheets)

Analysis	Sample Portion	Preparation Procedure	Analysis Procedure
DSC	Solid/liquid	n/a	LA-514-114 Rev. C-1 LA-514-113 Rev. C-1
TGA	Solid/liquid	n/a	LA-514-114 Rev. C-1 LA-560-112 Rev. B-1
Bulk Density	Solid	n/a	LO-160-103 Rev. B-0
Sp.G.	Liquid	n/a	LA-510-112 Rev. C-3
U	Solid Liquid	LA-549-141 Rev. F-0 n/a	LA-925-009 Rev. A-1
IC	Solid Liquid	LA-504-101 Rev. E-0 n/a	LA-533-105 Rev. D-1
ICP	Solid Liquid	LA-505-159 Rev. D-0 LA-549-141 Rev. F-0 n/a	LA-505-151 Rev. D-3 LA-505-161 Rev. B-1
OH-	Solid Liquid	LA-504-101 Rev. E-0 n/a	LA-211-102 Rev. C-0
TIC/TOC	Solid/liquid	n/a	LA-342-100 Rev. D-0
Cr(VI)	Solid Liquid	LA-504-101 Rev. E-0 n/a	LA-265-101 Rev. B-0
TOC	Liquid	n/a	LA-344-105 Rev. D-1
^{3}H	Solid Liquid	LA-504-101 Rev. E-0 n/a	LA-218-114 Rev. B-0
^{129}I	Solid Liquid	LA-504-101 Rev. E-0 n/a	LA-378-103 Rev. C-0
^{99}Tc	Solid Liquid	LA-549-141 Rev. F-0 n/a	LA-438-101 Rev. D-2
^{237}Np	Solid Liquid	LA-549-141 Rev. F-0 n/a	LA-933-141 Rev. H-1
AT/TB	Solid Liquid	LA-549-101 Rev. F-0 n/a	LA-508-101 Rev. D-2
GEA	Solid Liquid	LA-549-101 Rev. F-0 n/a	LA-548-121 Rev. E-0

Table B1-4. Analytical Procedures. (2 sheets)

Analysis	Sample Portion	Preparation Procedure	Analysis Procedure
$^{241}Am/^{244}Cm$	Solid Liquid	LA-549-101 Rev. F-0 n/a	LA-953-103 Rev. B-0
^{90}Sr	Solid Liquid	LA-549-141 Rev. F-0 n/a	LA-220-101 Rev. D-1
^{239}Pu	Solid Liquid	LA-549-101 Rev. F-0 n/a	LA-943-128 Rev. B-0

Note:

n/a = not applicable (these are direct samples).

B2.0 ANALYTICAL RESULTS

B2.1 OVERVIEW

This section summarizes the sampling and analytical results associated with the June 1996 sampling and analysis of tank 241-AN-105. The total alpha activity, percent water, energetics, IC, and ICP analytical results associated with this tank are presented in Table B2-1. These results are documented in Steen (1997).

Table B2-1. Analytical Presentation Tables.

Analysis	Table number
Radionuclides	B2-4 through B2-22
Thermodynamic analyses	B2-23 and B2-24
Density and specific gravity	B2-25 and B2-26
Inorganic analysis	B2-27 through B2-63
TIC/TOC	B2-64 through B2-66
Vapor sampling results	B2-67

B2.2 RADIONUCLIDE ANALYSIS

B2.2.1 Total Alpha Activity

Total alpha activity analyses were performed on direct liquid core composite subsamples and the field blank. The solid core composite subsamples were prepared for analysis by performing a fusion digest in duplicate. The highest result returned was 0.133 μCi/g. The sample results for total alpha are given in Tables B2-4 and B2-5. High relative percent differences (RPDs) (>20 percent) were reported for the solid core composite subsamples and can be attributed to sample inhomogeneity. No reruns were requested because of the low alpha activity in the samples. The standard recoveries and spike recoveries for this analysis were within the required limits (Steen 1997).

B2.2.2 Total Beta

Total beta (TB) activity analyses were performed on direct liquid core composite subsamples and the field blank. The solid core composite subsamples were prepared for analysis by performing a fusion digest in duplicate. Low levels of beta activity were noted in some preparation blanks, however, the levels of contamination are inconsequential when compared to the result of the sample and do not impact sample data quality. The standard recoveries, spike recoveries and RPDs for this analysis were within the required limits. The sample results for total beta are given in Table B2-6.

B2.2.3 Strontium 90

Strontium 90 analyses were performed on direct liquid core composite subsamples and the field blank. The solid core composite subsamples were prepared for analysis by performing a fusion digest in duplicate. The standard recoveries and RPDs for this analysis were within the required limits. Strontium 90 analytical results are given in Table B2-21.

B2.2.4 Gamma Energy Analysis

Gamma energy analysis (GEA), procedure number LA-548-121, was used to measure the activity of ^{134}Cs, ^{137}Cs, ^{94}Nb, ^{106}Rh/Ru, ^{125}Sb, ^{144}Ce, and ^{60}Co. GEA analyses were performed on direct liquid core composite subsamples and the field blank. The solid core composite subsamples were prepared for analysis by performing a fusion digest in duplicate. Gamma energy analytical results are listed in Tables B2-12 through B2-16.

Actual detection limits for GEA analytes are not currently available. The latest GEA software does not currently report a minimum detectable activity (MDA). If an analyte is reported as "less than," the value reported is the detection limit.

Low levels of cesium activity were noted in some preparation blanks, however, the levels of contamination are inconsequential when compared to the result of the sample and do not impact sample data quality. The standard recoveries and RPDs for this analysis were within the required limits.

B2.2.5 Total Uranium

Uranium (U) analyses were performed on direct liquid core composite subsamples and the field blank. The solid core composite subsamples were prepared for analysis by performing a fusion digest in duplicate. The standard recoveries, spike recoveries and RPDs for this analysis were within the required limits. Total Uranium analytical results are listed in Table B2-7.

B2.2.6 Iodine 129

^{129}I analyses were performed on direct liquid core composite subsamples and the field blank. The solid core composite subsamples were prepared for analysis by performing a water digest. The standard recoveries and RPDs for this analysis were within the required limits. Iodine analytical results are listed in Table B2-17.

B2.2.7 Technecium 99

^{99}Tc analyses were performed on direct liquid core composite subsamples and the field blank. The solid core composite subsamples were prepared for analysis by performing a fusion digest in duplicate. The standard recoveries and RPDs for this analysis were within the required limits. Technecium analytical results are listed in Table B2-22.

B2.2.8 Alpha Energy Analyses

B2.2.8.1 Americium (^{241}Am). ^{241}Am analyses were performed on direct liquid core composite subsamples and the field blank. The solid core composite subsamples were prepared for analysis by performing a fusion digest in duplicate. High RPDs were reported for the solid core composite samples. This can be attributed to the heterogenous nature of the samples. No rerun was requested due to the low americium activity in the samples. The standard recoveries for this analysis were within the required limits. Americium analytical results are listed in Tables B2-8, B2-10, and B2-12.

B2.2.8.2 Curium ($^{243/244}$Cm). $^{243/244}$Cm analyses were performed on direct liquid core composite subsamples and the field blank. The solid core composite subsamples were

prepared for analysis by performing a fusion digest in duplicate. The RPDs for this analysis were within the required limits. Curium analytical results are listed in Tables B2-9 and B2-11.

B2.2.8.3 Plutonium ($^{239/240}$Pu). $^{239/240}$Pu analyses were performed on direct liquid core composite subsamples and the field blank. The solid core composite subsamples were prepared for analysis by performing a fusion digest in duplicate. The standard recoveries and RPDs for this analysis were within the required limits. Plutonium analytical results are listed in Table B2-20.

B2.3 THERMODYNAMIC ANALYSES

As required by the safety screening and flammable gas DQOs, TGA and DSC were performed on the solids and liquids.

B2.3.1 Thermogravimetric Analysis

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

Tank 241-AN-105 samples were analyzed by TGA using either procedure LA-514-114, Rev. C-0 on a Perkin-Elmer[1] TGA 7 instrument, or procedure LA-560-112, Rev. B-0 on a Mettler[2] TG 50 instrument. The TGA results for tank 241-AN-105 are presented in Table B2-25. All samples exhibited a large weight loss between the ambient temperature and 200 °C (392 °F). The weight percent water values for the tank supernatant and salt slurry were between 36.14 and 54.2. The standard recoveries and RPDs for this analysis were within the required limits. TGA results are presented in Table B2-24.

[1]Perkin-Elmer is a trademark of Perkins Research & Manufacturing Company, Incorporated, Canoga Park, California.

[2]Mettler is a trademark of Mettler Instrument Corporation, Anaheim, California.

B2.3.2 Differential Scanning Calorimetry

In a DSC analysis, heat absorbed or emitted by a substance is measured while the temperature of the sample is heated at a constant rate. Nitrogen is passed over the sample material to remove any gases being released. The onset temperature for an endothermic or exothermic event is determined graphically. The DSC analyses for tank 241-AN-105 were performed using either procedure LA-514-113, Rev. C-0 on a Mettler™ DSC 20 instrument or procedure LA-514-114, Rev. C-0 on a Perkin-Elmer™ DSC 7 instrument. No sample exceeded the safety screening DQO decision criteria threshold of 480 J/g. The highest individual sample and duplicate exothermic results for liquid were 36.4 and 414 J/g, respectively. Because of the high RPD, a rerun was requested. The DSC results were 0.0 and 29.3 J/g for the sample and duplicate, respectively. The highest individual sample for solid was 174 J/g. The upper limit of a 95 percent confidence interval on the mean for each sample was calculated.

Transitions 1 and 2 represent endothermic events, both of which are caused by water evaporation. High RPDs (>20 percent) were reported for the solid core composite subsamples. The RPDs can be attributed to the heterogenous nature of the samples and no reruns were requested. The standard recoveries for this analysis were within the required limits. DSC results are presented in Table B2-23.

B2.4 DENSITY AND SPECIFIC GRAVITY

Density/specific gravity measurements were performed on all subsegments. The subsegment-level results for salt slurry densities ranged from 1.52 to 1.66 g/mL. The specific gravity measurements for the liquid samples ranged from 1.35 to 1.44. The bulk density and specific gravity are presented in Tables B2-25 and B2-26.

B2.5 INORGANIC ANALYSES

The ICP and IC analyses were performed for the anions and cations respectively. In the sections below, a table is provided for each analyte.

In each table, the "Mean" column is the average of the result and duplicate values. All values, including those below the detection level (denoted by the less-than symbol, "<"), were averaged. If both sample and duplicate values were non-detected, the mean is expressed as a non-detected value. If one value were detected while the other were not, the mean is expressed as a detected value. If both values were detected, the mean is expressed as a detected value.

B2.5.1 Inductively Coupled Plasma

The ICP analyses were performed per procedures LA-505-161, Rev. B-1, or LA-505-151, Rev. D-3, depending on the ICP instrument used. A full suite of analytes were reported. Phosphorus was analyzed as a cross-check for the phosphate results reported from IC analyses. The liquid subsamples were prepared for analysis by an acid adjustment of the direct subsample. Solid subsamples were prepared for analysis by performing both an acid digest and a fusion.

Only the quality control (QC) for requested analytes (Li, Na, Al, Cr, Ca, Fe, K, U, Zn, Zr, Ba, Si, B, Bi, Mn, Ni) were reviewed for this report. Other "opportunistic" analyte results are included in this appendix. These analytes do not have customer defined QC parameters and are not discussed. High RPDs (>20 percent) were reported for several analytes (Li, Al, Cr, Ca, Fe, Zn, Zr, Si, B, Mn, Ni) and were the result of sample inhomogeneity. Reruns were not requested. Spike recoveries outside of the required range were reported for Al, Ca, Cr, Fe, Li, K, Si, Na and Zr. Spike recoveries for major analytes are not valid because the spike is too small compared to the sample concentration. Serial dilutions are performed by diluting a sample by five-fold. The results from the serial dilution may be found in the raw data and are signified by an "_L" at the end of the sample number. For acceptable performance the percent difference between the serial dilution and the undiluted results must be ≤ 10 percent, one sample had a serial dilution greater than ten percent. This inaccuracy can be attributed to the low concentration of the analyte with respect to the detection limit. There did not appear to be any analytical anomalies or difficulties during the analyses of Ba or U.

The concentrations of metals in the samples are shown in Tables B2-27 through B2-50. The results from two preparation methods, fusion and acid, are presented for the metals.

B2.5.2 Ion Chromatography

The IC analyses were performed on direct subsamples of liquid samples. The solid subsamples were prepared for analysis by performing a water digest. Samples for ion chromatography were performed in duplicate per procedure LA-533-105, Rev. D-1. All analytes reported by the IC instrument were requested.

High RPDs (> 20 percent) were reported for several analytes and can be attributed to sample inhomogeneity. Spike recoveries outside of the required range (75 percent to 125 percent) were reported for acetate, Cl^-, F^-, NO_2^- and NO_3^- ions. The chemist noted that the spike failures were due to matrix interferences from organic acids. Bromide was detected in 34 of the 52 subsamples submitted for analysis and was an indication of hydrostatic head fluid intrusion into the samples. The standard recoveries for IC analysis were within the required limits. IC analyses results are given in Tables B2-51 through B2-60.

B2.5.3 OH

The OH analyses were performed on direct liquid core composite subsamples and the field blank. The solid core composite subsamples were prepared for analysis by performing a water digest. The standard recoveries and RPDs for this analysis were within the required limits. OH results are presented in Tables B2-61 and B2-62.

B2.5.4 Chromium VI (CrVI)

The Cr(VI) analyses were performed on direct liquid core composite subsamples and the field blank. The solid core composite subsamples were prepared for analysis by performing a water digest. The standard recoveries, spike recoveries and RPDs for this analysis were within the required limits. Cr(VI) results are presented in Table B2-63.

B2.6 TOTAL INORGANIC CARBON/TOTAL ORGANIC CARBON (TIC/TOC)

TIC/TOC by persulfate/coulometry analyses were performed on the core composite samples. None of the results exceeded the TOC notification limit of 30,000 μgC/g. Low concentrations of TIC and TOC were noted in some preparation blanks, however, the levels of contamination are inconsequential when compared to the result of the sample and do not impact sample data quality. The standard recoveries, spike recoveries and RPDs for these analyses were within the required limits. TIC/TOC results are presented in Tables B2-64 through B2-66.

B2.7 VAPOR PHASE MEASUREMENT

During June 1996, tank dome space gas samples were taken from tank 241-AN-105. These measurements supported the safety screening DQO (Dukelow et al. 1995). The vapor phase screening was taken for flammability issues. The vapor phase measurements were taken 20 ft below risers 7B and 12A in the dome space of the tank and results were obtained in the field (that is, no gas sample was sent to the laboratory for analysis). The average results of the vapor phase measurements are provided in Table B2-67.

B2.8 HISTORICAL SAMPLE RESULTS

The results of the first sampling event in 1984 results are shown in Table B2-2 (Jansky 1984). The results of second sampling event performed in 1984 are shown in Table B2-3 (Mauss 1984). This tank was used as a receiver tank for the 242-A Evaporator. Because evaporated waste has been added to the tank since these sampling events, the sample probably does not represent present tank contents. The sample was analyzed for specific

constituents and the results showed high concentrations of sodium, hydroxide, TOC, nitrate, and nitrite. These data have not been validated and should be used with caution.

Table B2-2. Supernatant Sample of May 1984.[1,2]

Waste Tank 241-AN-105			
Component	R9839	R9840	Lab Unit
Physical Data			
Specific gravity	1.39	NA	
pH	13.30	NA	
Chemical Analysis			
OH^-	2.43	2.33	*M*
Al	1.10	1.08	*M*
Na	8.71	7.08	*M*
NO_2^-	1.85	1.83	*M*
NO_3^-	1.99	2.86	*M*
CO_3^{2-}	0.445	0.434	*M*
SO_4^{2-}	0.0413	BD	*M*
PO_4^{3-}	0.0152	0.0147	*M*
TOC	4.05	3.94	g/L
Cl^-	0.252	0.215	*M*
K	0.105	0.0789	*M*
Radiological Analysis			
^{137}Cs	3.82E+05	3.61E+05	μCi/L

Notes:

NA = not available
BD = below detection limit

[1]Pre-1989 analytical data have not been validated and should be used with caution.
[2]Jansky (1984).

Table B2-3. Supernatant Sample of November 1984.[1, 2]

Waste Tank 241-AN-105 Analysis of Tank Farm Sample August 1984		
Sample Number: None		
Component	**Lab Value**	**Lab Unit**
Physical Data		
Specific gravity	1.434	
Water	54.7	percent
Chemical Analysis		
OH^-	2.225	*M*
Al	0.938	*M*
Na	7.85	*M*
NO_2^-	1.362	*M*
NO_3^-	2.173	*M*
CO_3^{2-}	0.453	*M*
SO_4^{2-}	BD	*M*
PO_4^{2-}	0.015	*M*
F^-	BD	*M*
TOC	3.36	*M*
Cl^-	0.018	*M*
HEDTA	0.002	*M*
EDTA	0.003	*M*
K	0.093	*M*
NH_3	0.010	*M*
DTA	Exotherm	NA
Radiological Analysis		
^{90}Sr	2.24E+03	μCi/L
^{134}Cs	BD	μCi/L
^{137}Cs	3.60E+05	μCi/L

Notes:

BD = below detection limit
NA = not available

[1]Pre-1989 analytical data have not been validated and should be used with caution.
[2]Mauss (1984).

B2.9 ANALYTICAL DATA TABLES

For most analytes (except for some physical and rheological measurements), the data tables consist of six columns. The first column lists the sample number. Note that for each primary/duplicate pair, the sample number is for the primary result. The second column lists the core from which the samples were derived. The third column lists the sample portion from which the aliquots were taken. The final three columns display the primary and duplicate analytical values and a mean for each sample/duplicate pair.

The four QC parameters assessed in conjunction with the tank 241-AN-105 samples were standard recoveries, spike recoveries, duplicate analyses (RPDs), and blanks. The QC criteria specified in the SAP (Eggers 1996) for safety screening DQO were 90 to 110 percent recovery for standards and spikes and $\leq$ 10 percent for RPDs. The only QC parameter for which limits are not specified in the SAP is blank contamination. The limits for blanks are set forth in guidelines followed by the laboratory, and all data results presented in this report have met those guidelines. Sample and duplicate pairs in which any of the QC parameters were outside of these limits are footnoted in the sample mean column of the following data summary tables with an a, b, c, d, e, or f as follows:

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

Table B2-4. Tank 241-AN-105 Analytical Results: Total Alpha (Alpha Rad).

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids			µCi/mL	µCi/mL	µCi/mL
S96T003732	152: 1	Drainable Liquid	< 0.02	0.02	< 0.02[QC:b]
S96T003739	152: 2	Drainable Liquid	< 0.02	< 0.02	< 0.02[QC:b]
S96T003740	152: 3	Drainable Liquid	< 0.01	0.04	< 0.02[QC:b]
S96T003741	152: 4	Drainable Liquid	< 0.02	< 0.027	< 0.02[QC:b]
S96T003742	152: 5	Drainable Liquid	< 0.01	< 0.02	< 0.019[QC:b]
S96T003743	152: 6	Drainable Liquid	< 0.02	< 0.04	< 0.03
S96T003744	152: 7	Drainable Liquid	0.01	< 0.02	< 0.01
S96T003745	152: 8	Drainable Liquid	< 0.02	< 0.02	< 0.02
S96T003746	152: 9	Drainable Liquid	< 0.02	< 0.02	< 0.02
S96T003747	152:10	Drainable Liquid	< 0.03	< 0.01	< 0.02
S96T003748	152:11	Drainable Liquid	< 0.05	< 0.08	< 0.06
S96T003749	152:12	Drainable Liquid	< 0.05	< 0.05	< 0.05
S96T003750	152:13	Drainable Liquid	< 0.03	< 0.04	< 0.04
S96T003751	152:14	Drainable Liquid	< 0.07	< 0.06	< 0.07
S96T004433	153: 1	Drainable Liquid	< 0.02	< 0.02	< 0.02
S96T004308	153: 2	Drainable Liquid	< 0.01	< 0.00	< 0.01[QC:f]
S96T004434	153: 3	Drainable Liquid	< 0.01	< 0.01	< 0.01
S96T004419	153: 5	Drainable Liquid	< 0.01	< 0.01	< 0.01
S96T004420	153: 6	Drainable Liquid	< 0.01	< 0.01	< 0.01
S96T004421	153: 7	Drainable Liquid	< 0.01	< 0.01	< 0.01[QC:a]
S96T003975	153: 8	Drainable Liquid	< 0.02	< 0.14	< 0.08
S96T003976	153: 9	Drainable Liquid	0.04	< 0.02	< 0.03
S96T004309	153:10	Drainable Liquid	< 0.0071	< 0.0071	< 0.0071[QC:f]
S96T003979	153:11	Drainable Liquid	< 0.02	< 0.03	< 0.02
S96T003977	153:12	Drainable Liquid	< 0.02	< 0.03	< 0.02
S96T003978	153:13	Drainable Liquid	< 0.02	< 0.01	< 0.02
S96T004333	153:14	Drainable Liquid	< 0.00	0.01	< 0.01[QC:f]
S96T003980	153:21	Drainable Liquid	< 0.01	< 0.02	< 0.02
S96T004039	Core 152	Liquid Composite	< 0.01	< 0.01	< 0.01

Table B2-5. Tank 241-AN-105 Analytical Results: Total Alpha (Alpha).

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: fusion			µCi/g	µCi/g	µCi/g
S96T003893	152: 1	Upper half	< 0.01	< 0.02	< 0.01[QC:a]
S96T003827	152:14	Lower half	< 0.02	< 0.01	< 0.02[QC:a]
S96T003889	152:16	Lower half	< 0.03	< 0.02	< 0.02
S96T003890	152:18	Lower half	< 0.01	< 0.01	< 0.01
S96T003891	152:20	Lower half	0.00	0.00	0.00[QC:b]
S96T003892	152:22	Upper half	0.01	0.01	0.01[QC:b,e]
S96T004337	153:14	Lower half	< 0.00	0.00	< 0.00
S96T004317	153:15	Lower half	< 0.00	0.00	< 0.00
S96T004442	153:17	Lower half	0.00	0.00	0.00
S96T004443	153:19	Lower half	0.01	0.01	0.01[QC:e]
S96T003984	153:21	Lower half	0.00	0.00	0.00[QC:e]
S96T003985	153:22	Lower half	0.13	0.11	0.12[QC:e]
S96T004256	Core 152	Solid Composite	0.01	0.01	0.01[QC:b,e,f]
S96T004261		Solid Composite	0.06	0.05	0.05[QC:b,e,f]

Table B2-6. Tank 241-AN-105 Analytical Results: Total Beta.

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids			µCi/mL	µCi/mL	µCi/mL
S96T004049	Core 152	Liquid Composite	542	534	538
Solids: fusion			µCi/g	µCi/g	µCi/g
S96T004256	Core 152	Solid Composite	328	325	326.5
S96T004261		Solid Composite	268	281	274.5

Table B2-7. Tank 241-AN-105 Analytical Results: Total Uranium (Uranium Gross Kinetic Phos.)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids			µg/g	µg/g	µg/g
S96T005546	Core 152	Liquid Composite	2.64789	2.37324	2.51056[QC:f]

Table B2-8. Tank 241-AN-105 Analytical Results: Americium-241 (AEA).

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: fusion			µCi/g	µCi/g	µCi/g
S96T004256	Core 152	Solid Composite	0.005	0.003	0.41[QC:e]
S96T004261		Solid Composite	0.04	0.03	0.03[QC:e]

Table B2-9. Tank 241-AN-105 Analytical Results: Cm-243/244 (AEA).

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: fusion			µCi/g	µCi/g	µCi/g
S96T004256	Core 152	Solid Composite	< 9.670E-04	< 8.240E-04	< 8.955E-04
S96T004261		Solid Composite	< 0.006	< 0.005	< 0.05

Table B2-10. Tank 241-AN-105 Analytical Results: Americium-241 (Am-241).

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids			µCi/mL	µCi/mL	µCi/mL
S96T004049	Core 152	Liquid Composite	< 3.910E-05	< 3.520E-05	< 3.715E-05

Table B2-11. Tank 241-AN-105 Analytical Results: Cm-243/244 (Am-241).

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids			µCi/mL	µCi/mL	µCi/mL
S96T004049	Core 152	Liquid Composite	< 3.910E-05	< 3.520E-05	< 3.715E-05

Table B2-12. Tank 241-AN-105 Analytical Results: Americium-241 (GEA).

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids			µCi/mL	µCi/mL	µCi/mL
S96T004049	Core 152	Liquid Composite	< 0.85	< 0.85	< 0.85
Solids: fusion			µCi/g	µCi/g	µCi/g
S96T004256	Core 152	Solid Composite	< 0.82	< 0.82	< 0.82
S96T004261		Solid Composite	< 0.47	< 0.49	< 0.48

Table B2-13. Tank 241-AN-105 Analytical Results: Cesium-137 (GEA).

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids			µCi/mL	µCi/mL	µCi/mL
S96T004049	Core 152	Liquid Composite	473	476	474.5
Solids: fusion			µCi/g	µCi/g	µCi/g
S96T004256	Core 152	Solid Composite	305.2	303	304.1
S96T004261		Solid Composite	205	207	206

Table B2-14. Tank 241-AN-105 Analytical Results: Cobalt-60 (GEA).

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids			µCi/mL	µCi/mL	µCi/mL
S96T004049	Core 152	Liquid Composite	< 0.01	< 0.01	< 0.01
Solids: fusion			µCi/g	µCi/g	µCi/g
S96T004256	Core 152	Solid Composite	< 0.03	< 0.02	< 0.034
S96T004261		Solid Composite	< 0.01	< 0.01	< 0.01

Table B2-15. Tank 241-AN-105 Analytical Results: Europium-154 (GEA).

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids			µCi/mL	µCi/mL	µCi/mL
S96T004049	Core 152	Liquid Composite	< 0.09	< 0.09	< 0.09
Solids: fusion			µCi/g	µCi/g	µCi/g
S96T004256	Core 152	Solid Composite	< 0.08	< 0.09	< 0.09
S96T004261		Solid Composite	< 0.06	< 0.07	< 0.07

Table B2-16. Tank 241-AN-105 Analytical Results: Europium-155 (GEA).

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids			µCi/mL	µCi/mL	µCi/mL
S96T004049	Core 152	Liquid Composite	< 0.32	< 0.32	< 0.32
Solids: fusion			µCi/g	µCi/g	µCi/g
S96T004256	Core 152	Solid Composite	< 0.38	< 0.38	< 0.38
S96T004261		Solid Composite	< 0.22	< 0.23	< 0.22

Table B2-17. Tank 241-AN-105 Analytical Results: Iodine-129 (I129).

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids			µCi/mL	µCi/mL	µCi/mL
S96T004049	Core 152	Liquid Composite	2.460E-04	2.890E-04	2.675E-04
Solids: water digest			µCi/g	µCi/g	µCi/g
S96T004258	Core 152	Solid Composite	< 0.0033	< 0.0039	< 0.0036
S96T004263		Solid Composite	< 0.0030	< 0.0031	< 0.0030

Table B2-18. Tank 241-AN-105 Analytical Results: H-3 (Liq. Scin.).

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids			µCi/mL	µCi/mL	µCi/mL
S96T004831	Core 152	Liquid Composite	< 3.960E-05	< 3.900E-05	< 3.930E-05[QC:f]
Solids: water digest			µCi/g	µCi/g	µCi/g
S96T004258	Core 152	Solid Composite	0.0024	0.0019	0.0022[QC:f]
S96T004263		Solid Composite	< 6.330E-04	< 6.280E-04	< 6.305E-04

Table B2-19. Tank 241-AN-105 Analytical Results: Neptunium-237 (Np-237).

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids			µCi/mL	µCi/mL	µCi/mL
S96T004049	Core 152	Liquid Composite	< 2.060E-05	< 2.210E-05	< 2.135E-05[QC:a]
Solids: fusion			µCi/g	µCi/g	µCi/g
S96T004256	Core 152	Solid Composite	0.0103	0.0109	0.0106[QC:a]
S96T004261		Solid Composite	< 0.0153	< 0.0162	< 0.0157[QC:a]

Table B2-20. Tank 241-AN-105 Analytical Results: Plutonium-239/40 (Pu-239/240).

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids			µCi/mL	µCi/mL	µCi/mL
S96T004049	Core 152	Liquid Composite	< 3.470E-05	< 3.720E-05	< 3.595E-05
Solids			µCi/g	µCi/g	µCi/g
S96T004256	Core 152	Solid Composite	< 0.0018	< 0.0017	< 0.0017
S96T004261		Solid Composite	0.0075	0.0075	0.0075

Table B2-21. Tank 241-AN-105 Analytical Results: Strontium-89/90 (Sr).

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids			µCi/mL	µCi/mL	µCi/mL
S96T004049	Core 152	Liquid Composite	0.042	0.0408	0.0414
Solids: fusion			µCi/g	µCi/g	µCi/g
S96T004256	Core 152	Solid Composite	9.41	8.91	9.16
S96T004261		Solid Composite	35.8	37.3	36.55

Table B2-22. Tank 241-AN-105 Analytical Results: Technetium-99 (Tc).

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids			µCi/mL	µCi/mL	µCi/mL
S96T004049	Core 152	Liquid Composite	0.27	0.26	0.27
Solids: fusion			µCi/g	µCi/g	µCi/g
S96T004256	Core 152	Solid Composite	0.18	0.18	0.18
S96T004261		Solid Composite	0.14	0.12	0.13

Table B2-23. Tank 241-AN-105 Analytical Results: Exotherm - (DSC). (2 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids			J/g	J/g	J/g
S96T004434	153: 3	Drainable liquid	16.8	19.9	18.35
S96T004419	153: 5	Drainable liquid	18	205.2	111.6[QC:e]
S96T003976	153: 9	Drainable liquid	2.2	0	1.1[QC:e]
S96T003977	153:12	Drainable liquid	0	52.4	26.2[QC:e]
S96T003749	152:12	Drainable liquid	42.6	64.9	53.75[QC:e]
S96T004433	153: 1	Drainable liquid	12.7	15.9	14.3[QC:e]
S96T004419	153: 5	Drainable liquid		14.53	14.53
S96T004421	153: 7	Drainable liquid		34.54	34.54
S96T004309	153:10	Drainable liquid	13.55	19.54	16.54[QC:e]
S96T004333	153:14	Drainable liquid	34.8	57.7	46.25[QC:e]
Solids			J/g	J/g	J/g
S96T003731	152: 1	Upper half	5	7.3	6.15[QC:e]
S96T003816	152:14	Upper half	28.4	24.2	26.3
S96T003817		Lower half	16.1	7.6	11.85[QC:e]
S96T003792	152:16	Upper half	24.3	37.7	31[QC:e]
S96T003793		Lower half	27.2	28	27.6
S96T003794	152:18	Upper half	26.5	24.3	25.4
S96T003795		Lower half	30.7	32.7	31.7
S96T003796	152:20	Upper half	38.5	39.7	39.1
S96T003798	152:22	Upper half	59	73	66[QC:e]
S96T004335	153:14	Lower half	31	39	35[QC:e]
S96T004310	153:15	Upper half	40.4	23.9	32.15[QC:e]
S96T004311		Lower half	34.7	57.1	45.9[QC:e]

Table B2-23. Tank 241-AN-105 Analytical Results: Exotherm - (DSC). (2 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids			J/g	J/g	J/g
S96T004435	153:17	Upper half	48.7	94.1	71.4[QC:e]
S96T004436		Lower half	15.8	19.6	17.7[QC:e]
S96T004437	153:19	Lower half	22.9	44.4	33.65[QC:e]
S96T003981	153:21	Lower half	21	18.2	19.6
S96T003983	153:22	Upper half	39.1	48.6	43.85[QC:e]
S96T003982		Lower half	57.5	94.8	76.15[QC:e]
S96T004254	Core 152	Solid composite	43.7	31.7	37.7[QC:e]
S96T004259		Solid composite	60.4	54.1	57.25

Table B2-24. Tank 241-AN-105 Analytical Results: Percent Water (TGA). (2 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids			%	%	%
S96T003732	152: 1	Drainable liquid	49.57	51.74	50.65
S96T003739	152: 2	Drainable liquid	50.2	50.57	50.38
S96T003742	152: 5	Drainable liquid	50.5	50.85	50.67
S96T003743	152: 6	Drainable liquid	50.07	50.4	50.23
S96T003744	152: 7	Drainable liquid	50.91	50.37	50.64
S96T003745	152: 8	Drainable liquid	50.42	52.16	51.29
S96T003748	152:11	Drainable liquid	50.51	50.66	50.58
S96T003748		Drainable liquid	49.75	30.12	39.93[QC:e]
S96T003749	152:12	Drainable liquid	50.07	50.46	50.26
S96T004308	153: 2	Drainable liquid	50.38	50.23	50.30
S96T004434	153: 3	Drainable liquid	51.07	51.41	51.24
S96T004419	153: 5	Drainable liquid	50.41	50.54	50.47
S96T004420	153: 6	Drainable liquid	50.1	51	50.55
S96T003975	153: 8	Drainable liquid	49.99	50.16	50.07
S96T003976	153: 9	Drainable liquid	50.51	50.33	50.42
S96T003977	153:12	Drainable liquid	49.68	50.25	49.96
S96T004039	Core 152	Liquid composite	53.57	46.67	50.12
Solids			%	%	%
S96T003731	152: 1	Upper half	46.68	40.81	43.74
S96T003816	152:14	Upper half	47.82	46.02	46.92
S96T003817		Lower half	44.82	43.89	44.35
S96T003792	152:16	Upper half	44.31	43.63	43.97
S96T003793		Lower half	42.04	44.58	43.31
S96T003794	152:18	Upper half	42.46	44.41	43.43
S96T003795		Lower half	43.23	45.83	44.53
S96T003796	152:20	Upper half	45.15	46.04	45.59
S96T003797		Lower half	36.14	39.33	37.73
S96T003798	152:22	Upper half	38.88	40.86	39.87
S96T004335	153:14	Lower half	46.87	45.88	46.37

Table B2-24. Tank 241-AN-105 Analytical Results: Percent Water (TGA). (2 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids (Cont'd)			%	%	%
S96T004310	153:15	Upper half	47.55	48.04	47.79
S96T004311		Lower half	52.82	50.12	51.47
S96T004435	153:17	Upper half	44.7	38.2	41.45
S96T004436		Lower half	44.54	42.57	43.55
S96T004437	153:19	Lower half	46.16	44.59	45.37
S96T003981	153:21	Lower half	44.99	45.6	45.29
S96T003983	153:22	Upper half	44.17	43.15	43.66
S96T003982		Lower half	45.87	45.21	45.54
S96T004254	Core 152	Solid composite	46.19	45.29	45.74
S96T004259		Solid composite	42.61	42.87	42.74
S96T003740	152: 3	Drainable liquid	50.43	49.69	50.06
S96T003741	152: 4	Drainable liquid	50.12	50.83	50.47
S96T003746	152: 9	Drainable liquid	50.8	50.03	50.41
S96T003747	152:10	Drainable liquid	50.12	49.66	49.89
S96T003750	152:13	Drainable liquid	48.76	50.22	49.49
S96T003751	152:14	Drainable liquid	51.31	50.95	51.13
S96T004433	153: 1	Drainable liquid	49.71	49.3	49.50

Table B2-25. Tank 241-AN-105 Analytical Results: Bulk Density (bulk density).

Sample Number	Sample Location	Sample Portion	Result	Mean
Solids			g/mL	g/mL
S96T003714	152: 1	Upper half	1.52	1.52
S96T003704	152:14	Upper half	1.53	1.53
S96T003706	152:16	Upper half	1.59	1.59
S96T003705		Lower half	1.58	1.58
S96T003707	152:18	Upper half	1.66	1.66
S96T003708		Lower half	1.64	1.64
S96T003710	152:20	Upper half	1.58	1.58
S96T003711		Lower half	1.6	1.6
S96T003712	152:22	Upper half	1.64	1.64
S96T004334	153:14	Lower half	1.56	1.56
S96T004302	153:15	Upper half	1.52	1.52
S96T004303		Lower half	1.56	1.56
S96T004428	153:17	Upper half	1.52	1.52
S96T004427		Lower half	1.53	1.53
S96T004429	153:19	Lower half	1.56	1.56
S96T003971	153:21	Lower half	1.57	1.57
S96T003973	153:22	Upper half	1.58	1.58
S96T003972		Lower half	1.6	1.6
S96T004207	Core 152	Solid composite	1.56	1.56
S96T004208		Solid composite	1.67	1.67

Table B2-26. Tank 241-AN-105 Analytical Results: Specific Gravity (SpG).

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids			unitless	unitless	unitless
S96T003732	152: 1	Drainable liquid	1.41	1.40	1.41
S96T003739	152: 2	Drainable liquid	1.40	1.41	1.40
S96T003740	152: 3	Drainable liquid	1.40	1.41	1.40
S96T003741	152: 4	Drainable liquid	1.39	1.40	1.39
S96T003742	152: 5	Drainable liquid	1.41	1.40	1.41
S96T003743	152: 6	Drainable liquid	1.39	1.40	1.40
S96T003744	152: 7	Drainable liquid	1.43	1.43	1.43
S96T003745	152: 8	Drainable liquid	1.34	1.35	1.35
S96T003746	152: 9	Drainable liquid	1.40	1.4	1.40
S96T003747	152:10	Drainable liquid	1.37	1.37	1.37
S96T003748	152:11	Drainable liquid	1.38	1.38	1.38
S96T003749	152:12	Drainable liquid	1.39	1.38	1.38
S96T003750	152:13	Drainable liquid	1.37	1.38	1.38
S96T003751	152:14	Drainable liquid	1.45	1.39	1.39
S96T004433	153: 1	Drainable liquid	1.43	1.44	1.44
S96T004308	153: 2	Drainable liquid	1.53	1.45	1.49
S96T004434	153: 3	Drainable liquid	1.46	1.46	1.46
S96T004419	153: 5	Drainable liquid	1.44	1.43	1.43
S96T004420	153: 6	Drainable liquid	1.38	1.34	1.36
S96T004421	153: 7	Drainable liquid	1.51	1.50	1.50
S96T003975	153: 8	Drainable liquid	1.43	1.42	1.43
S96T003976	153: 9	Drainable liquid	1.47	1.44	1.46
S96T004309	153:10	Drainable liquid	1.36	1.46	1.41
S96T003979	153:11	Drainable liquid	1.46	1.44	1.45
S96T003977	153:12	Drainable liquid	1.46	1.42	1.44
S96T003978	153:13	Drainable liquid	1.47	1.47	1.47
S96T004333	153:14	Drainable liquid	1.45	1.44	1.44
S96T003980	153:21	Drainable liquid	1.41	1.41	1.41
S96T005546	Core 152	Liquid composite	1.42	1.41	1.42

Table B2-27. Tank 241-AN-105 Analytical Results: Aluminum (ICP). (3 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids			µg/g	µg/g	µg/g
S96T003732	152: 1	Drainable liquid	30,845.1	30,140.8	30,493[QC:c]
S96T003739	152: 2	Drainable liquid	28,802.8	27,535.2	28,169[QC:c]
S96T003740	152: 3	Drainable liquid	28,802.8	26,619.7	27,711.3[QC:c]
S96T003741	152: 4	Drainable liquid	28,802.8	27,746.5	28,274.6[QC:d]
S96T003742	152: 5	Drainable liquid	29,859.2	27,957.7	28,908.5[QC:c]
S96T003743	152: 6	Drainable liquid	32,042.3	33,732.4	32,887.3[QC:c]
S96T003744	152: 7	Drainable liquid	25,352.1	28,028.2	26,690.1[QC:d]
S96T003745	152: 8	Drainable liquid	26,408.5	32,887.3	29,647.9[QC:d,e]
S96T003746	152: 9	Drainable liquid	29,084.5	29,929.6	29,507[QC:d]
S96T003747	152:10	Drainable liquid	29,295.8	29,859.2	29,577.5[QC:c]
S96T003748	152:11	Drainable liquid	29,225.4	29,577.5	29,401.4
S96T003749	152:12	Drainable liquid	29,154.9	28,380.3	28,767.6[QC:c]
S96T003750	152:13	Drainable liquid	28,239.4	28,028.2	28,133.8[QC:d]
S96T003751	152:14	Drainable liquid	27,253.5	27,535.2	27,394.4[QC:c]
S96T004433	153: 1	Drainable liquid	32,887.3	30,563.4	31,725.4
S96T004308	153: 2	Drainable liquid	30,915.5	29,929.6	30,422.5
S96T004434	153: 3	Drainable liquid	27,746.5	29,718.3	28,732.4[QC:d]
S96T004419	153: 5	Drainable liquid	31,126.8	30,774.6	30,950.7[QC:d]
S96T004420	153: 6	Drainable liquid	29,084.5	31,408.5	30,246.5[QC:d]
S96T004421	153: 7	Drainable liquid	29,929.6	32,323.9	31,126.8[QC:d]
S96T003975	153: 8	Drainable liquid	25,140.8	24,225.4	24,683.1[QC:d]
S96T003976	153: 9	Drainable liquid	26,267.6	31,267.6	28,767.6[QC:d]
S96T004309	153:10	Drainable liquid	30,422.5	31,690.1	31,056.3[QC:c]
S96T003979	153:11	Drainable liquid	30,211.3	30,070.4	30,140.8[QC:c]
S96T003977	153:12	Drainable liquid	29,788.7	30,563.4	30,176.1[QC:d]
S96T003978	153:13	Drainable liquid	28,239.4	26,056.3	27,147.9
S96T004333	153:14	Drainable liquid	31,197.2	31,267.6	31,232.4[QC:d]
S96T003980	153:21	Drainable liquid	19,295.8	19,014.1	19,154.9[QC:c]
S96T004831	Core 152	Liquid composite	30,563.4	30,845.1	30,704.2[d]

Table B2-27. Tank 241-AN-105 Analytical Results: Aluminum (ICP). (3 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids: acid digest			µg/g	µg/g	µg/g
S96T004144	Core 152	Liquid Composite	25,070.4	25,211.3	25,140.8
Solids: acid digest			µg/g	µg/g	µg/g
S96T003906	152: 1	Upper half	25,100	24,800	24,950[QC:c]
S96T003898	152:14	Upper half	25,100	25,900	25,500
S96T003828		Lower half	25,500	25,800	25,650
S96T003899	152:16	Upper half	23,300	23,900	23,600
S96T003900		Lower half	24,100	24,700	24,400
S96T003901	152:18	Upper half	23,100	21,900	22,500
S96T003902		Lower half	23,100	24,100	23,600
S96T003903	152:20	Upper half	24,800	24,400	24,600
S96T003904		Lower half	20,700	21,000	20,850
S96T003905	152:22	Upper half	19,400	19,600	19,500
S96T004338	153:14	Lower half	23,700	23,900	23,800
S96T004315	153:15	Upper half	23,100	22,300	22,700
S96T004318		Lower half	23,300	23,200	23,250
S96T004444	153:17	Upper half	22,400	22,900	22,650
S96T004445		Lower half	21,600	21,400	21,500
S96T004446	153:19	Lower half	20,900	21,200	21,050
S96T003988	153:21	Lower half	19,200	19,000	19,100
S96T003989	153:22	Upper half	19,300	20,800	20,050
S96T003987		Lower half	15,200	16,500	15,850[QC:c]
S96T004257	Core 152	Solid composite	20,200	20,700	20,450
S96T004262		Solid composite	15,200	13,700	14,450

Table B2-27. Tank 241-AN-105 Analytical Results: Aluminum (ICP). (3 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: fusion			µg/g	µg/g	µg/g
S96T003893	152: 1	Upper half	25,600	24,400	25,000
S96T003894	152:14	Upper half	25,900	25,300	25,600
S96T003827		Lower half	25,400	26,300	25,850
S96T003895	152:16	Upper half	24,300	24,000	24,150
S96T003889		Lower half	24,800	24,200	24,500
S96T003896	152:18	Upper half	22,100	22,700	22,400
S96T003890		Lower half	23,800	24,000	23,900
S96T003897	152:20	Upper half	23,600	23,200	23,400
S96T003891		Lower half	19,100	18,400	18,750
S96T003892	152:22	Upper half	21,800	21,900	21,850
S96T004337	153:14	Lower half	27,100	26,000	26,550
S96T004314	153:15	Upper half	24,900	24,500	24,700
S96T004317		Lower half	25,100	22,700	23,900
S96T004441	153:17	Upper half	24,200	24,500	24,350
S96T004442		Lower half	24,600	24,300	24,450
S96T004443	153:19	Lower half	23,600	24,700	24,150
S96T003984	153:21	Lower half	22,200	22,900	22,550
S96T003986	153:22	Upper half	19,000	20,300	19,650
S96T003985		Lower half	13,800	14,300	14,050

Table B2-28. Tank 241-AN-105 Analytical Results: Bismuth (ICP). (3 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids			µg/g	µg/g	µg/g
S96T003732	152: 1	Drainable liquid	< 28.24	< 28.24	< 28.24
S96T003739	152: 2	Drainable liquid	< 28.24	< 28.24	< 28.24
S96T003740	152: 3	Drainable liquid	< 28.24	< 28.24	< 28.24
S96T003741	152: 4	Drainable liquid	< 28.24	< 28.24	< 28.24
S96T003742	152: 5	Drainable liquid	< 28.24	< 28.24	< 28.24
S96T003743	152: 6	Drainable liquid	< 28.24	< 28.24	< 28.24
S96T003744	152: 7	Drainable liquid	< 28.24	< 28.24	< 28.24
S96T003745	152: 8	Drainable liquid	< 28.24	< 28.24	< 28.24
S96T003746	152: 9	Drainable liquid	< 28.24	< 28.24	< 28.24
S96T003747	152:10	Drainable liquid	< 42.32	< 42.32	< 42.32
S96T003748	152:11	Drainable liquid	< 42.32	< 42.32	< 42.32
S96T003749	152:12	Drainable liquid	< 42.32	< 42.32	< 42.32
S96T003750	152:13	Drainable liquid	< 42.32	< 42.32	< 42.32
S96T003751	152:14	Drainable liquid	< 28.24	< 28.24	< 28.24
S96T004433	153: 1	Drainable liquid	< 28.24	< 28.24	< 28.24
S96T004308	153: 2	Drainable liquid	< 42.32	< 42.32	< 42.32
S96T004434	153: 3	Drainable liquid	< 28.24	< 28.24	< 28.24
S96T004419	153: 5	Drainable liquid	< 42.32	< 42.32	< 42.32
S96T004420	153: 6	Drainable liquid	< 42.32	< 42.32	< 42.32
S96T004421	153: 7	Drainable liquid	< 28.24	< 28.24	< 28.24
S96T003975	153: 8	Drainable liquid	< 28.24	< 28.24	< 28.24
S96T003976	153: 9	Drainable liquid	< 28.24	< 28.24	< 28.24
S96T004309	153:10	Drainable liquid	< 42.32	< 42.32	< 42.32
S96T003979	153:11	Drainable liquid	< 42.32	< 42.32	< 42.32
S96T003977	153:12	Drainable liquid	< 42.32	< 42.32	< 42.32
S96T003978	153:13	Drainable liquid	< 42.32	< 42.32	< 42.32
S96T004333	153:14	Drainable liquid	< 42.32	< 42.32	< 42.32
S96T003980	153:21	Drainable liquid	< 42.32	< 42.32	< 42.32
S96T004831	Core 152	Liquid composite	< 42.32	< 42.32	< 42.32

Table B2-28. Tank 241-AN-105 Analytical Results: Bismuth (ICP). (3 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids: acid digest			µg/g	µg/g	µg/g
S96T004144	Core 152	Liquid composite	< 36.90	< 35.21	< 36.05
Solids: acid digest			µg/g	µg/g	µg/g
S96T003906	152: 1	Upper half	< 38.6	< 40.3	< 39.45
S96T003898	152:14	Upper half	< 39.3	< 38.8	< 39.05
S96T003828		Lower half	< 40.4	< 39.3	< 39.85
S96T003899	152:16	Upper half	< 39.6	< 39.8	< 39.7
S96T003900		Lower half	< 39.3	< 39.3	< 39.3
S96T003901	152:18	Upper half	< 38.9	< 39.6	< 39.25
S96T003902		Lower half	< 40	< 40.4	< 40.2
S96T003903	152:20	Upper half	< 38.3	< 37.6	< 37.95
S96T003904		Lower half	< 37.5	< 37.1	< 37.3
S96T003905	152:22	Upper half	< 39.6	< 41.4	< 40.5
S96T004338	153:14	Lower half	< 46.7	< 47.8	< 47.25
S96T004315	153:15	Upper half	< 47.6	< 47.8	< 47.7
S96T004318		Lower half	< 47.9	< 45.1	< 46.5
S96T004444	153:17	Upper half	< 48.3	< 47.5	< 47.9
S96T004445		Lower half	< 37.1	< 36.6	< 36.85
S96T004446	153:19	Lower half	< 38.2	< 38.2	< 38.2
S96T003988	153:21	Lower half	< 35.6	< 35.6	< 35.6
S96T003989	153:22	Upper half	< 46.5	< 46.2	< 46.35
S96T003987		Lower half	62.6	71.8	67.2
S96T004257	Core 152	Solid composite	< 38.3	< 40.3	< 39.3[QC:a]
S96T004262		Solid composite	< 38.9	< 37	< 37.95

Table B2-28. Tank 241-AN-105 Analytical Results: Bismuth (ICP). (3 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: fusion			µg/g	µg/g	µg/g
S96T003893	152: 1	Upper half	< 1,980	< 2,010	< 1,995
S96T003894	152:14	Upper half	< 2,040	< 2,000	< 2,020
S96T003827		Lower half	< 2,010	< 2,060	< 2,035
S96T003895	152:16	Upper half	< 2,040	< 2,010	< 2,025
S96T003889		Lower half	< 2,030	< 2,000	< 2,015
S96T003896	152:18	Upper half	< 2,070	< 2,010	< 2,040
S96T003890		Lower half	< 2,060	< 2,070	< 2,065
S96T003897	152:20	Upper half	< 2,120	< 2,070	< 2,095
S96T003891		Lower half	< 2,040	< 2,060	< 2,050
S96T003892	152:22	Upper half	< 2,090	< 2,120	< 2,105
S96T004337	153:14	Lower half	< 2,030	< 2,030	< 2,030
S96T004314	153:15	Upper half	< 1,910	< 1,920	< 1,915
S96T004317		Lower half	< 2,000	< 2,030	< 2,015
S96T004441	153:17	Upper half	< 1,960	< 1,960	< 1,960
S96T004442		Lower half	< 2,010	< 2,000	< 2,005
S96T004443	153:19	Lower half	< 2,020	< 2,000	< 2,010
S96T003984	153:21	Lower half	< 2,010	< 2,010	< 2,010
S96T003986	153:22	Upper half	< 2,000	< 2,030	< 2,015
S96T003985		Lower half	< 2,010	< 2,010	< 2,010

Table B2-29. Tank 241-AN-105 Analytical Results: Boron (ICP). (3 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids			µg/g	µg/g	µg/g
S96T003732	152: 1	Drainable liquid	50.98	49.57	50.28
S96T003739	152: 2	Drainable liquid	52.04	51.12	51.58
S96T003740	152: 3	Drainable liquid	55.21	52.60	53.90
S96T003741	152: 4	Drainable liquid	54.22	50.14	52.18
S96T003742	152: 5	Drainable liquid	51.47	47.95	49.71
S96T003743	152: 6	Drainable liquid	54.64	59.01	56.83
S96T003744	152: 7	Drainable liquid	44.78	50.42	47.60
S96T003745	152: 8	Drainable liquid	52.67	65.07	58.87[QC:e]
S96T003746	152: 9	Drainable liquid	53.38	53.38	53.38
S96T003747	152:10	Drainable liquid	54.29	56.40	55.35
S96T003748	152:11	Drainable liquid	53.66	55.56	54.61
S96T003749	152:12	Drainable liquid	54.29	52.81	53.55
S96T003750	152:13	Drainable liquid	48.45	50.49	49.47
S96T003751	152:14	Drainable liquid	53.23	52.81	53.02
S96T004433	153: 1	Drainable liquid	53.16	51.90	52.53
S96T004308	153: 2	Drainable liquid	52.81	52.39	52.60
S96T004434	153: 3	Drainable liquid	46.05	53.80	49.92
S96T004419	153: 5	Drainable liquid	54.36	51.90	53.13
S96T004420	153: 6	Drainable liquid	48.66	53.94	51.30
S96T004421	153: 7	Drainable liquid	51.33	56.19	53.76
S96T003975	153: 8	Drainable liquid	47.46	46.61	47.04
S96T003976	153: 9	Drainable liquid	46.54	56.83	51.69
S96T004309	153:10	Drainable liquid	51.54	54.71	53.13
S96T003979	153:11	Drainable liquid	52.46	54.71	53.59
S96T003977	153:12	Drainable liquid	53.23	53.66	53.45
S96T003978	153:13	Drainable liquid	50.14	45.35	47.74
S96T004333	153:14	Drainable liquid	54.78	52.53	53.66
S96T003980	153:21	Drainable liquid	44.08	42.18	43.13
S96T004831	Core 152	Liquid composite	52.25	50.21	51.23

Table B2-29. Tank 241-AN-105 Analytical Results: Boron (ICP). (3 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids: acid digest			µg/g	µg/g	µg/g
S96T004144	Core 152	Liquid composite	109.85	128.87	119.36[QC:f]
Solids: acid digest			µg/g	µg/g	µg/g
S96T003906	152: 1	Upper half	97.4	111	104.2
S96T003898	152:14	Upper half	84.6	92.7	88.65
S96T003828		Lower half	88.7	90	89.35
S96T003899	152:16	Upper half	59.3	67.7	63.5
S96T003900		Lower half	58.6	76.7	67.65[QC:e]
S96T003901	152:18	Upper half	72.5	83.8	78.15
S96T003902		Lower half	108	69.6	88.8[QC:b,e]
S96T003903	152:20	Upper half	89.6	77.3	83.45[QC:b]
S96T003904		Lower half	66.1	66	66.05[QC:b]
S96T003905	152:22	Upper half	60.7	63	61.85[QC:b]
S96T004338	153:14	Lower half	115	77.2	96.1[QC:e]
S96T004315	153:15	Upper half	103	84.5	93.75
S96T004318		Lower half	104	91.2	97.6
S96T004444	153:17	Upper half	103	147	125[QC:e]
S96T004445		Lower half	75.7	115	95.35[QC:e]
S96T004446	153:19	Lower half	119	108	113.5
S96T003988	153:21	Lower half	81.9	102	91.95[QC:e]
S96T003989	153:22	Upper half	82.3	97.5	89.9
S96T003987		Lower half	144	109	126.5[QC:e]
S96T004257	Core 152	Solid composite	105	128	116.5
S96T004262		Solid composite	136	91.2	113.6[QC:e]

Table B2-29. Tank 241-AN-105 Analytical Results: Boron (ICP). (3 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: fusion			µg/g	µg/g	µg/g
S96T003893	152: 1	Upper half	< 988	< 1,010	< 999
S96T003894	152:14	Upper half	< 1,020	< 998	< 1,009
S96T003827		Lower half	< 1,010	< 1,030	< 1,020
S96T003895	152:16	Upper half	< 1,020	< 1,000	< 1,010
S96T003889		Lower half	< 1,010	< 1,000	< 1,005
S96T003896	152:18	Upper half	< 1,030	< 1,000	< 1,015
S96T003890		Lower half	< 1,030	< 1,040	< 1,035
S96T003897	152:20	Upper half	< 1,060	< 1,040	< 1,050
S96T003891		Lower half	< 1,020	< 1,030	< 1,025
S96T003892	152:22	Upper half	< 1,040	< 1,060	< 1,050
S96T004337	153:14	Lower half	< 1,020	< 1,010	< 1,015
S96T004314	153:15	Upper half	< 953	< 958	< 955.5
S96T004317		Lower half	< 998	< 1,020	< 1,009
S96T004441	153:17	Upper half	< 980	< 982	< 981
S96T004442		Lower half	< 1,010	< 1,000	< 1,005
S96T004443	153:19	Lower half	< 1,010	< 1,000	< 1,005
S96T003984	153:21	Lower half	< 1,010	< 1,000	< 1,005
S96T003986	153:22	Upper half	< 999	< 1,020	< 1,009.5
S96T003985		Lower half	< 1,010	< 1,010	< 1,010

Table B2-30. Tank 241-AN-105 Analytical Results: Cadmium (ICP). (3 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids			µg/g	µg/g	µg/g
S96T003732	152: 1	Drainable liquid	< 1.41	< 1.41	< 1.40
S96T003739	152: 2	Drainable liquid	< 1.41	< 1.41	< 1.40
S96T003740	152: 3	Drainable liquid	< 1.41	< 1.41	< 1.40
S96T003741	152: 4	Drainable liquid	< 1.41	< 1.41	< 1.40
S96T003742	152: 5	Drainable liquid	< 1.41	< 1.41	< 1.40
S96T003743	152: 6	Drainable liquid	< 1.41	< 1.41	< 1.40
S96T003744	152: 7	Drainable liquid	< 1.41	< 1.41	< 1.40
S96T003745	152: 8	Drainable liquid	< 1.41	< 1.41	< 1.40
S96T003746	152: 9	Drainable liquid	< 1.41	< 1.41	< 1.40
S96T003747	152:10	Drainable liquid	< 2.11	< 2.11	< 2.11
S96T003748	152:11	Drainable liquid	< 2.11	< 2.11	< 2.11
S96T003749	152:12	Drainable liquid	< 2.11	< 2.11	< 2.11
S96T003750	152:13	Drainable liquid	< 2.11	< 2.11	< 2.11
S96T003751	152:14	Drainable liquid	< 1.40	< 1.40	< 1.40
S96T004433	153: 1	Drainable liquid	< 1.40	< 1.40	< 1.40
S96T004308	153: 2	Drainable liquid	< 2.11	< 2.11	< 2.11
S96T004434	153: 3	Drainable liquid	< 1.40	< 1.40	< 1.40
S96T004419	153: 5	Drainable liquid	< 2.11	< 2.11	< 2.11
S96T004420	153: 6	Drainable liquid	< 2.11	< 2.11	< 2.11
S96T004421	153: 7	Drainable liquid	< 1.40	< 1.40	< 1.40
S96T003975	153: 8	Drainable liquid	< 1.40	< 1.40	< 1.40
S96T003976	153: 9	Drainable liquid	< 1.40	< 1.40	< 1.40
S96T004309	153:10	Drainable liquid	< 2.11	< 2.11	< 2.11
S96T003979	153:11	Drainable liquid	< 2.11	< 2.11	< 2.11
S96T003977	153:12	Drainable liquid	< 2.11	< 2.11	< 2.11
S96T003978	153:13	Drainable liquid	< 2.11	< 2.11	< 2.11
S96T004333	153:14	Drainable liquid	< 2.11	< 2.11	< 2.11
S96T003980	153:21	Drainable liquid	< 2.11	< 2.11	< 2.11

Table B2-30. Tank 241-AN-105 Analytical Results: Cadmium (ICP). (3 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
S96T004831	Core 152	Liquid composite	< 2.11	< 2.11	< 2.11
Liquids: Acid digest			**µg/g**	**µg/g**	**µg/g**
S96t004144	Core 152	Liquid Composite	< 1.84507	< 1.76056	<1.80282
Solids: acid digest			**µg/g**	**µg/g**	**µg/g**
S96T003906	152: 1	Upper half	3.31	3.76	3.53
S96T003898	152:14	Upper half	5.73	5.39	5.56
S96T003828		Lower half	4.82	5.9	5.36[QC:e]
S96T003899	152:16	Upper half	9.5	9.61	9.55
S96T003900		Lower half	10.8	11.6	11.2
S96T003901	152:18	Upper half	20.9	19.4	20.15
S96T003902		Lower half	12.9	13	12.95
S96T003903	152:20	Upper half	13.6	13.2	13.4
S96T003904		Lower half	7	7.01	7.00
S96T003905	152:22	Upper half	8.52	8.41	8.46
S96T004338	153:14	Lower half	7.57	8.81	8.19
S96T004315	153:15	Upper half	5.49	5.24	5.36
S96T004318		Lower half	5.04	5.06	5.05
S96T004444	153:17	Upper half	10.8	12.5	11.65
S96T004445		Lower half	18.4	21.6	20
S96T004446	153:19	Lower half	13.3	13.7	13.5
S96T003988	153:21	Lower half	4.44	4.64	4.54
S96T003989	153:22	Upper half	11.4	9.85	10.62
S96T003987		Lower half	36.9	40.1	38.5
S96T004257	Core 152	Solid composite	8.13	6.46	7.29
S96T004262		Solid composite	14.4	13.3	13.85

Table B2-30. Tank 241-AN-105 Analytical Results: Cadmium (ICP). (3 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: fusion			µg/g	µg/g	µg/g
S96T003893	152: 1	Upper half	< 98.8	< 101	< 99.9
S96T003894	152:14	Upper half	< 102	< 99.8	< 100.9
S96T003827		Lower half	< 101	< 103	< 102
S96T003895	152:16	Upper half	< 102	< 100	< 101
S96T003889		Lower half	< 101	< 100	< 100.5
S96T003896	152:18	Upper half	< 103	< 100	< 101.5
S96T003890		Lower half	< 103	< 104	< 103.5
S96T003897	152:20	Upper half	< 106	< 104	< 105
S96T003891		Lower half	< 102	< 103	< 102.5
S96T003892	152:22	Upper half	< 104	< 106	< 105
S96T004337	153:14	Lower half	< 102	< 101	< 101.5
S96T004314	153:15	Upper half	< 95.3	< 95.8	< 95.55
S96T004317		Lower half	< 99.8	< 102	< 100.9
S96T004441	153:17	Upper half	< 98	< 98.2	< 98.1
S96T004442		Lower half	< 101	< 100	< 100.5
S96T004443	153:19	Lower half	< 101	< 100	< 100.5
S96T003984	153:21	Lower half	< 101	< 100	< 100.5
S96T003986	153:22	Upper half	< 99.9	< 102	< 100.95
S96T003985		Lower half	< 101	< 101	< 101

Table B2-31. Tank 241-AN-105 Analytical Results: Calcium (ICP). (3 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids			µg/g	µg/g	µg/g
S96T003732	152: 1	Drainable liquid	< 28.23	< 28.23	< 28.23
S96T003739	152: 2	Drainable liquid	< 28.23	< 28.23	< 28.23
S96T003740	152: 3	Drainable liquid	< 28.23	< 28.23	< 28.23
S96T003741	152: 4	Drainable liquid	< 28.23	< 28.23	< 28.23
S96T003742	152: 5	Drainable liquid	< 28.23	< 28.23	< 28.23
S96T003743	152: 6	Drainable liquid	< 28.23	< 28.23	< 28.23
S96T003744	152: 7	Drainable liquid	< 28.23	< 28.23	< 28.23
S96T003745	152: 8	Drainable liquid	< 28.23	< 28.23	< 28.23
S96T003746	152: 9	Drainable liquid	< 28.23	< 28.23	< 28.23
S96T003747	152:10	Drainable liquid	< 42.32	< 42.32	< 42.32
S96T003748	152:11	Drainable liquid	< 42.32	< 42.32	< 42.32
S96T003749	152:12	Drainable liquid	< 42.32	< 42.32	< 42.32
S96T003750	152:13	Drainable liquid	< 42.32	< 42.32	< 42.32
S96T003751	152:14	Drainable liquid	< 28.23	< 28.23	< 28.23
S96T004433	153: 1	Drainable liquid	< 28.23	< 28.23	< 28.23
S96T004308	153: 2	Drainable liquid	< 42.32	< 42.32	< 42.32
S96T004434	153: 3	Drainable liquid	< 28.23	< 28.23	< 28.23
S96T004419	153: 5	Drainable liquid	< 42.32	< 42.32	< 42.32
S96T004420	153: 6	Drainable liquid	< 42.32	< 42.32	< 42.32
S96T004421	153: 7	Drainable liquid	< 28.23	< 28.23	< 28.23
S96T003975	153: 8	Drainable liquid	< 28.23	< 28.23	< 28.23
S96T003976	153: 9	Drainable liquid	< 28.23	< 28.23	< 28.23
S96T004309	153:10	Drainable liquid	< 42.32	< 42.32	< 42.32
S96T003979	153:11	Drainable liquid	< 42.32	< 42.32	< 42.32
S96T003977	153:12	Drainable liquid	< 42.32	< 42.32	< 42.32
S96T003978	153:13	Drainable liquid	< 42.32	< 42.32	< 42.32
S96T004333	153:14	Drainable liquid	< 42.32	< 42.32	< 42.32
S96T003980	153:21	Drainable liquid	< 42.32	< 42.32	< 42.32
S96T004831	Core 152	Liquid composite	< 42.32	< 42.32	< 42.32

Table B2-31. Tank 241-AN-105 Analytical Results: Calcium (ICP). (3 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids: acid digest			**µg/g**	**µg/g**	**µg/g**
S96T004144	Core 152	Liquid composite	635.91	600.70	618.31[QC:b,f]
Solids: acid digest			**µg/g**	**µg/g**	**µg/g**
S96T003906	152: 1	Upper half	108	182	145[QC:e]
S96T003898	152:14	Upper half	214	158	186[QC:e]
S96T003828		Lower half	130	161	145.5[QC:e]
S96T003899	152:16	Upper half	323	280	301.5
S96T003900		Lower half	279	536	407.5[QC:e]
S96T003901	152:18	Upper half	420	328	374[QC:e]
S96T003902		Lower half	240	237	238.5
S96T003903	152:20	Upper half	253	258	255.5
S96T003904		Lower half	408	400	404
S96T003905	152:22	Upper half	310	532	421[QC:e]
S96T004338	153:14	Lower half	1,050	788	919[QC:b,e]
S96T004315	153:15	Upper half	708	856	782[QC:b]
S96T004318		Lower half	589	540	564.5[QC:b]
S96T004444	153:17	Upper half	624	624	624[QC:b]
S96T004445		Lower half	820	611	715.5[QC:b,e]
S96T004446	153:19	Lower half	1,470	1,120	1,295[QC:b,e]
S96T003988	153:21	Lower half	632	641	636.5[QC:b]
S96T003989	153:22	Upper half	1,000	1,200	1,100[QC:b]
S96T003987		Lower half	2,010	2,270	2,140[QC:b]
S96T004257	Core 152	Solid composite	209	222	215.5[QC:c]
S96T004262		Solid composite	355	302	328.5

Table B2-31. Tank 241-AN-105 Analytical Results: Calcium (ICP). (3 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: fusion			µg/g	µg/g	µg/g
S96T003893	152: 1	Upper half	< 1,980	< 2,010	< 1,995
S96T003894	152:14	Upper half	< 2,040	< 2,000	< 2,020
S96T003827		Lower half	< 2,010	< 2,060	< 2,035
S96T003895	152:16	Upper half	< 2,040	< 2,010	< 2,025
S96T003889		Lower half	< 2,030	< 2,000	< 2,015
S96T003896	152:18	Upper half	< 2,070	< 2,010	< 2,040
S96T003890		Lower half	< 2,060	< 2,070	< 2,065
S96T003897	152:20	Upper half	< 2,120	< 2,070	< 2,095
S96T003891		Lower half	< 2,040	< 2,060	< 2,050
S96T003892	152:22	Upper half	< 2,090	< 2,120	< 2,105
S96T004337	153:14	Lower half	< 2,030	< 2,030	< 2,030
S96T004314	153:15	Upper half	< 1,910	< 1,920	< 1,915
S96T004317		Lower half	< 2,000	< 2,030	< 2,015
S96T004441	153:17	Upper half	< 1,960	< 1,960	< 1,960
S96T004442		Lower half	< 2,010	< 2,000	< 2,005
S96T004443	153:19	Lower half	< 2,020	< 2,000	< 2,010
S96T003984	153:21	Lower half	< 2,010	< 2,010	< 2,010
S96T003986	153:22	Upper half	< 2,000	< 2,030	< 2,015
S96T003985		Lower half	< 2,010	< 2,010	< 2,010

Table B2-32. Tank 241-AN-105 Analytical Results: Chromium (ICP). (3 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids			µg/g	µg/g	µg/g
S96T003732	152: 1	Drainable liquid	164.78	158.45	161.62
S96T003739	152: 2	Drainable liquid	141.54	139.43	140.49
S96T003740	152: 3	Drainable liquid	142.25	137.32	139.78
S96T003741	152: 4	Drainable liquid	150.70	143.66	147.18
S96T003742	152: 5	Drainable liquid	148.59	142.25	145.42
S96T003743	152: 6	Drainable liquid	166.19	178.87	172.53
S96T003744	152: 7	Drainable liquid	127.46	140.14	133.80
S96T003745	152: 8	Drainable liquid	137.32	167.60	152.46
S96T003746	152: 9	Drainable liquid	149.29	154.22	151.76
S96T003747	152:10	Drainable liquid	150	153.52	151.76
S96T003748	152:11	Drainable liquid	149.29	150.70	150
S96T003749	152:12	Drainable liquid	150.70	146.47	148.59
S96T003750	152:13	Drainable liquid	145.07	142.25	143.66
S96T003751	152:14	Drainable liquid	138.02	137.32	137.67
S96T004433	153: 1	Drainable liquid	278.16	261.97	270.07
S96T004308	153: 2	Drainable liquid	156.33	151.40	153.87
S96T004434	153: 3	Drainable liquid	195.77	194.36	195.07
S96T004419	153: 5	Drainable liquid	157.74	154.22	155.98
S96T004420	153: 6	Drainable liquid	147.18	158.45	152.81
S96T004421	153: 7	Drainable liquid	271.83	183.09	227.46[QC:e]
S96T003975	153: 8	Drainable liquid	145.77	143.66	144.71
S96T003976	153: 9	Drainable liquid	133.80	158.45	146.12
S96T004309	153:10	Drainable liquid	152.81	161.26	157.04
S96T003979	153:11	Drainable liquid	151.40	148.59	150
S96T003977	153:12	Drainable liquid	147.88	153.52	150.70
S96T003978	153:13	Drainable liquid	140.14	128.87	134.50
S96T004333	153:14	Drainable liquid	152.11	154.93	153.52
S96T003980	153:21	Drainable liquid	110.56	109.15	109.85
S96T004831	Core 152	Liquid composite	155.63	157.74	156.69

Table B2-32. Tank 241-AN-105 Analytical Results: Chromium (ICP). (3 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids: acid digest			µg/g	µg/g	µg/g
S96T004144	Core 152	Liquid composite	131.69	131.69	131.69
Solids: acid digest			µg/g	µg/g	µg/g
S96T003906	152: 1	Upper half	758	733	745.5
S96T003898	152:14	Upper half	1,230	1,270	1,250
S96T003828		Lower half	1,210	1,220	1,215
S96T003899	152:16	Upper half	2,020	2,070	2,045
S96T003900		Lower half	1,710	1,750	1,730
S96T003901	152:18	Upper half	2,510	2,380	2,445
S96T003902		Lower half	2,250	2,310	2,280
S96T003903	152:20	Upper half	3,470	3,380	3,425
S96T003904		Lower half	1,560	1,590	1,575
S96T003905	152:22	Upper half	1,990	2,080	2,035
S96T004338	153:14	Lower half	1,840	2,010	1,925
S96T004315	153:15	Upper half	1,350	1,400	1,375
S96T004318		Lower half	1,210	1,330	1,270
S96T004444	153:17	Upper half	2,690	2,650	2,670
S96T004445		Lower half	4,240	4,370	4,305
S96T004446	153:19	Lower half	2,980	3,160	3,070
S96T003988	153:21	Lower half	1,170	1,120	1,145
S96T003989	153:22	Upper half	2,360	2,030	2,195
S96T003987		Lower half	6,100	6,510	6,305
S96T004257	Core 152	Solid composite	1,600	1,370	1,485[QC:c,e]
S96T004262		Solid composite	2,900	2,580	2,740

Table B2-32. Tank 241-AN-105 Analytical Results: Chromium (ICP). (3 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: fusion			µg/g	µg/g	µg/g
S96T003893	152: 1	Upper half	721	712	716.5
S96T003894	152:14	Upper half	1,230	1,230	1,230
S96T003827		Lower half	1,150	1,220	1,185
S96T003895	152:16	Upper half	2,050	2,130	2,090
S96T003889		Lower half	1,700	1,750	1,725
S96T003896	152:18	Upper half	2,420	2,440	2,430
S96T003890		Lower half	2,260	2,320	2,290
S96T003897	152:20	Upper half	3,950	3,810	3,880
S96T003891		Lower half	1,980	1,910	1,945
S96T003892	152:22	Upper half	1,580	1,620	1,600
S96T004337	153:14	Lower half	1,930	1,980	1,955
S96T004314	153:15	Upper half	1,330	1,520	1,425
S96T004317		Lower half	1,510	1,790	1,650
S96T004441	153:17	Upper half	3,710	3,410	3,560
S96T004442		Lower half	4,800	5,090	4,945
S96T004443	153:19	Lower half	3,890	3,330	3,610
S96T003984	153:21	Lower half	1,480	1,430	1,455
S96T003986	153:22	Upper half	2,730	2,600	2,665
S96T003985		Lower half	5,680	5,490	5,585

Table B2-33. Tank 241-AN-105 Analytical Results: Copper (ICP). (3 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids			µg/g	µg/g	µg/g
S96T003732	152: 1	Drainable liquid	< 2.82	< 2.82	< 2.82
S96T003739	152: 2	Drainable liquid	< 2.82	< 2.82	< 2.82
S96T003740	152: 3	Drainable liquid	< 2.82	< 2.82	< 2.82
S96T003741	152: 4	Drainable liquid	< 2.82	< 2.82	< 2.82
S96T003742	152: 5	Drainable liquid	< 2.82	< 2.82	< 2.82
S96T003743	152: 6	Drainable liquid	3.55	3.67	3.61
S96T003744	152: 7	Drainable liquid	< 2.82	< 2.82	< 2.82
S96T003745	152: 8	Drainable liquid	3.30	< 2.82	< 3.06
S96T003746	152: 9	Drainable liquid	< 2.82	< 2.82	< 2.82
S96T003747	152:10	Drainable liquid	< 4.23	< 4.23	< 4.23
S96T003748	152:11	Drainable liquid	< 4.23	< 4.23	< 4.23
S96T003749	152:12	Drainable liquid	< 4.23	< 4.23	< 4.23
S96T003750	152:13	Drainable liquid	< 4.23	< 4.23	< 4.23
S96T003751	152:14	Drainable liquid	< 2.82	< 2.82	< 2.82
S96T004433	153: 1	Drainable liquid	5.97	4.99	5.48
S96T004308	153: 2	Drainable liquid	< 4.23	< 4.23	< 4.23
S96T004434	153: 3	Drainable liquid	7.18	4.74	5.96[QC:e]
S96T004419	153: 5	Drainable liquid	< 4.23	< 4.23	< 4.23
S96T004420	153: 6	Drainable liquid	< 4.23	< 4.23	< 4.23
S96T004421	153: 7	Drainable liquid	< 2.82	< 2.82	< 2.82
S96T003975	153: 8	Drainable liquid	< 2.82	< 2.82	< 2.82
S96T003976	153: 9	Drainable liquid	< 2.82	< 2.82	< 2.82
S96T004309	153:10	Drainable liquid	< 4.23	< 4.23	< 4.23
S96T003979	153:11	Drainable liquid	< 4.23	< 4.23	< 4.23
S96T003977	153:12	Drainable liquid	< 4.23	< 4.23	< 4.23
S96T003978	153:13	Drainable liquid	< 4.23	< 4.23	< 4.23
S96T004333	153:14	Drainable liquid	< 4.23	< 4.23	< 4.23
S96T003980	153:21	Drainable liquid	< 4.23	< 4.23	< 4.23
S96T004831	Core 152	Liquid composite	< 4.23	< 4.23	< 4.23

Table B2-33. Tank 241-AN-105 Analytical Results: Copper (ICP). (3 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids: acid digest			µg/g	µg/g	µg/g
S96T004144	Core 152	Liquid composite	< 3.69	4.42	< 4.05
Solids: acid digest			µg/g	µg/g	µg/g
S96T003906	152: 1	Upper half	4.71	4.32	4.515
S96T003898	152:14	Upper half	7.29	5.88	6.58[QC:e]
S96T003828		Lower half	7.15	6.24	6.69
S96T003899	152:16	Upper half	6.28	6.48	6.38
S96T003900		Lower half	5.35	6.03	5.69
S96T003901	152:18	Upper half	6	6.17	6.08
S96T003902		Lower half	5.29	10.5	7.89[QC:e]
S96T003903	152:20	Upper half	6.9	5.91	6.40
S96T003904		Lower half	7.81	9.05	8.43
S96T003905	152:22	Upper half	3.98	< 4.14	< 4.06
S96T004338	153:14	Lower half	5.7	6.91	6.30
S96T004315	153:15	Upper half	8.1	5.85	6.97[QC:e]
S96T004318		Lower half	5.71	6.05	5.88
S96T004444	153:17	Upper half	7.37	11.4	9.38[QC:e]
S96T004445		Lower half	8.15	13.7	10.92[QC:e]
S96T004446	153:19	Lower half	7.11	6.87	6.99
S96T003988	153:21	Lower half	4.34	4.43	4.38
S96T003989	153:22	Upper half	6.28	4.79	5.53[QC:e]
S96T003987		Lower half	6.82	18.1	12.46[QC:e]
S96T004257	Core 152	Solid composite	4.88	5.34	5.11[QC:e]
S96T004262		Solid composite	7.04	5.02	6.03[QC:e]

Table B2-33. Tank 241-AN-105 Analytical Results: Copper (ICP). (3 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: fusion			µg/g	µg/g	µg/g
S96T003893	152: 1	Upper half	< 198	< 201	< 199.5
S96T003894	152:14	Upper half	< 204	< 200	< 202
S96T003827		Lower half	< 201	< 206	< 203.5
S96T003895	152:16	Upper half	< 204	< 201	< 202.5
S96T003889		Lower half	< 203	< 200	< 201.5
S96T003896	152:18	Upper half	< 207	< 201	< 204
S96T003890		Lower half	< 206	< 207	< 206.5
S96T003897	152:20	Upper half	< 212	< 207	< 209.5
S96T003891		Lower half	< 204	< 206	< 205
S96T003892	152:22	Upper half	< 209	< 212	< 210.5
S96T004337	153:14	Lower half	< 203	< 203	< 203
S96T004314	153:15	Upper half	< 191	< 192	< 191.5
S96T004317		Lower half	< 200	< 203	< 201.5
S96T004441	153:17	Upper half	< 196	< 196	< 196
S96T004442		Lower half	< 201	< 200	< 200.5
S96T004443	153:19	Lower half	< 202	< 200	< 201
S96T003984	153:21	Lower half	< 201	< 201	< 201
S96T003986	153:22	Upper half	< 200	< 203	< 201.5
S96T003985		Lower half	< 201	< 201	< 201

Table B2-34. Tank 241-AN-105 Analytical Results: Iron (ICP). (3 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids			µg/g	µg/g	µg/g
S96T003732	152: 1	Drainable liquid	< 14.15	< 14.15	< 14.15
S96T003739	152: 2	Drainable liquid	< 14.15	< 14.15	< 14.15
S96T003740	152: 3	Drainable liquid	< 14.15	< 14.15	< 14.15
S96T003741	152: 4	Drainable liquid	< 14.15	< 14.15	< 14.15
S96T003742	152: 5	Drainable liquid	< 14.15	< 14.15	< 14.15
S96T003743	152: 6	Drainable liquid	< 14.15	< 14.15	< 14.15
S96T003744	152: 7	Drainable liquid	< 14.15	< 14.15	< 14.15
S96T003745	152: 8	Drainable liquid	< 14.15	< 14.15	< 14.15
S96T003746	152: 9	Drainable liquid	< 14.15	< 14.15	< 14.15
S96T003747	152:10	Drainable liquid	< 21.19	< 21.19	< 21.19
S96T003748	152:11	Drainable liquid	< 21.19	< 21.19	< 21.19
S96T003749	152:12	Drainable liquid	< 21.19	< 21.19	< 21.19
S96T003750	152:13	Drainable liquid	< 21.19	< 21.19	< 21.19
S96T003751	152:14	Drainable liquid	< 14.15	< 14.15	< 14.15
S96T004433	153: 1	Drainable liquid	< 14.15	< 14.15	< 14.15
S96T004308	153: 2	Drainable liquid	< 21.19	< 21.19	< 21.19
S96T004434	153: 3	Drainable liquid	< 14.15	< 14.15	< 14.15
S96T004419	153: 5	Drainable liquid	< 21.19	< 21.19	< 21.19
S96T004420	153: 6	Drainable liquid	< 21.19	< 21.19	< 21.19
S96T004421	153: 7	Drainable liquid	< 14.15	< 14.15	< 14.15
S96T003975	153: 8	Drainable liquid	< 14.15	< 14.15	< 14.15
S96T003976	153: 9	Drainable liquid	< 14.15	< 14.15	< 14.15
S96T004309	153:10	Drainable liquid	< 21.19	< 21.19	< 21.19
S96T003979	153:11	Drainable liquid	< 21.19	< 21.19	< 21.19
S96T003977	153:12	Drainable liquid	< 21.19	< 21.19	< 21.19
S96T003978	153:13	Drainable liquid	< 21.19	< 21.19	< 21.19
S96T004333	153:14	Drainable liquid	< 21.19	< 21.19	< 21.19
S96T003980	153:21	Drainable liquid	< 21.19	< 21.19	< 21.19
S96T004831	Core 152	Liquid composite	< 21.19	< 21.19	< 21.19

Table B2-34. Tank 241-AN-105 Analytical Results: Iron (ICP). (3 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids: acid digest			µg/g	µg/g	µg/g
S96T004144	Core 152	Liquid composite	51.05	38.80	44.92[QC:e]
Solids: acid digest			µg/g	µg/g	µg/g
S96T003906	152: 1	Upper half	44.8	32.8	38.8[QC:e]
S96T003898	152:14	Upper half	68.8	64.9	66.85
S96T003828		Lower half	46.1	47.1	46.6
S96T003899	152:16	Upper half	72.6	327	199.8[QC:e]
S96T003900		Lower half	90.4	80	85.2
S96T003901	152:18	Upper half	179	171	175
S96T003902		Lower half	78.7	74.8	76.75
S96T003903	152:20	Upper half	82.1	90.7	86.4
S96T003904		Lower half	61.2	59	60.1
S96T003905	152:22	Upper half	157	123	140[QC:e]
S96T004338	153:14	Lower half	54.6	61.4	58
S96T004315	153:15	Upper half	83.6	62.5	73.05[QC:e]
S96T004318		Lower half	35.8	36.6	36.2
S96T004444	153:17	Upper half	60.2	62.3	61.25
S96T004445		Lower half	91.6	86.9	89.25
S96T004446	153:19	Lower half	101	70.9	85.95[QC:e]
S96T003988	153:21	Lower half	183	175	179
S96T003989	153:22	Upper half	142	124	133
S96T003987		Lower half	538	451	494.5
S96T004257	Core 152	Solid composite	71.7	50.6	61.15[QC:e,c]
S96T004262		Solid composite	154	139	146.5

Table B2-34. Tank 241-AN-105 Analytical Results: Iron (ICP). (3 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: fusion			µg/g	µg/g	µg/g
S96T003893	152: 1	Upper half	< 988	< 1,010	< 999
S96T003894	152:14	Upper half	< 1,020	< 998	< 1,009
S96T003827		Lower half	< 1,010	< 1,030	< 1,020
S96T003895	152:16	Upper half	< 1,020	< 1,000	< 1,010
S96T003889		Lower half	< 1,010	< 1,000	< 1,005
S96T003896	152:18	Upper half	< 1,030	< 1,000	< 1,015
S96T003890		Lower half	< 1,030	< 1,040	< 1,035
S96T003897	152:20	Upper half	< 1,060	< 1,040	< 1,050
S96T003891		Lower half	< 1,020	< 1,030	< 1,025
S96T003892	152:22	Upper half	< 1,040	< 1,060	< 1,050
S96T004337	153:14	Lower half	< 1,020	< 1,010	< 1,015
S96T004314	153:15	Upper half	< 953	< 958	< 955.5
S96T004317		Lower half	< 998	< 1,020	< 1,009
S96T004441	153:17	Upper half	< 980	< 982	< 981
S96T004442		Lower half	< 1,010	< 1,000	< 1,005
S96T004443	153:19	Lower half	< 1,010	< 1,000	< 1,005
S96T003984	153:21	Lower half	< 1,010	< 1,000	< 1,005
S96T003986	153:22	Upper half	< 999	< 1,020	< 1,009.5
S96T003985		Lower half	< 1,010	< 1,010	< 1,010

Table B2-35. Tank 241-AN-105 Analytical Results: Lead (ICP). (3 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids			µg/g	µg/g	µg/g
S96T003732	152: 1	Drainable liquid	36.26	38.02	37.14
S96T003739	152: 2	Drainable liquid	30.98	34.22	32.60
S96T003740	152: 3	Drainable liquid	33.80	30.84	32.32
S96T003741	152: 4	Drainable liquid	36.47	33.02	34.75
S96T003742	152: 5	Drainable liquid	36.33	34.71	35.52
S96T003743	152: 6	Drainable liquid	37.46	42.95	40.21
S96T003744	152: 7	Drainable liquid	30.42	31.76	31.09
S96T003745	152: 8	Drainable liquid	33.16	35	34.08
S96T003746	152: 9	Drainable liquid	36.90	34.85	35.88
S96T003747	152:10	Drainable liquid	< 42.32	42.95	< 42.64
S96T003748	152:11	Drainable liquid	< 42.32	< 42.32	< 42.32
S96T003749	152:12	Drainable liquid	< 42.32	< 42.32	< 42.32
S96T003750	152:13	Drainable liquid	43.02	< 42.32	< 42.67
S96T003751	152:14	Drainable liquid	35.84	30.70	33.27
S96T004433	153: 1	Drainable liquid	35.63	32.67	34.15
S96T004308	153: 2	Drainable liquid	< 42.32	< 42.32	< 42.32
S96T004434	153: 3	Drainable liquid	31.54	35.77	33.66
S96T004419	153: 5	Drainable liquid	< 42.32	< 42.32	< 42.32
S96T004420	153: 6	Drainable liquid	< 42.32	< 42.32	< 42.32
S96T004421	153: 7	Drainable liquid	30.70	34.01	32.35
S96T003975	153: 8	Drainable Liquid	34.2254	30.7746	32.5
S96T003976	153: 9	Drainable liquid	34.43	35.21	34.82
S96T004309	153:10	Drainable liquid	< 42.32	< 42.32	< 42.32
S96T003979	153:11	Drainable liquid	< 42.32	< 42.32	< 42.32
S96T003977	153:12	Drainable liquid	< 42.32	< 42.32	< 42.32
S96T003978	153:13	Drainable liquid	< 42.32	< 42.32	< 42.32
S96T004333	153:14	Drainable liquid	< 42.32	< 42.32	< 42.32
S96T003980	153:21	Drainable liquid	< 42.32	< 42.32	< 42.32

Table B2-35. Tank 241-AN-105 Analytical Results: Lead (ICP). (3 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids: acid digest			**µg/g**	**µg/g**	**µg/g**
S96T004144	Core 152	Liquid composite	< 36.90	< 35.21	< 36.05
S96T004831	Core 152	Liquid composite	< 42.32	< 42.32	< 42.32
Solids: acid digest			**µg/g**	**µg/g**	**µg/g**
S96T003906	152: 1	Upper half	< 38.6	41.4	< 40
S96T003898	152:14	Upper half	< 39.3	< 38.8	< 39.05
S96T003828		Lower half	< 40.4	< 39.3	< 39.85
S96T003899	152:16	Upper half	41	< 39.8	< 40.4
S96T003900		Lower half	42.8	41.9	42.35
S96T003901	152:18	Upper half	47.3	< 39.6	< 43.45
S96T003902		Lower half	44.3	< 40.4	< 42.35
S96T003903	152:20	Upper half	43.2	42.9	43.05
S96T003904		Lower half	< 37.5	38.5	< 38
S96T003905	152:22	Upper half	45.5	41.7	43.6
S96T004338	153:14	Lower half	< 46.7	< 47.8	< 47.25
S96T004315	153:15	Upper half	< 47.6	< 47.8	< 47.7
S96T004318		Lower half	< 47.9	< 45.1	< 46.5
S96T004444	153:17	Upper half	< 48.3	< 47.5	< 47.9
S96T004445		Lower half	45.4	56.1	50.75[QC:e]
S96T004446	153:19	Lower half	43.2	41.7	42.45
S96T003989	153:22	Upper half	47.9	51.9	49.9
S96T003987		Lower half	115	118	116.5
S96T004257	Core 152	Solid composite	< 38.3	< 40.3	< 39.3
S96T004262		Solid composite	51.8	47.6	49.7

Table B2-35. Tank 241-AN-105 Analytical Results: Lead (ICP). (3 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: fusion			µg/g	µg/g	µg/g
S96T003893	152: 1	Upper half	< 1,980	< 2,010	< 1,995
S96T003894	152:14	Upper half	< 2,040	< 2,000	< 2,020
S96T003827		Lower half	< 2,010	< 2,060	< 2,035
S96T003895	152:16	Upper half	< 2,040	< 2,010	< 2,025
S96T003889		Lower half	< 2,030	< 2,000	< 2,015
S96T003896	152:18	Upper half	< 2,070	< 2,010	< 2,040
S96T003890		Lower half	< 2,060	< 2,070	< 2,065
S96T003897	152:20	Upper half	< 2,120	< 2,070	< 2,095
S96T003891		Lower half	< 2,040	< 2,060	< 2,050
S96T003892	152:22	Upper half	< 2,090	< 2,120	< 2,105
S96T004337	153:14	Lower half	< 2,030	< 2,030	< 2,030
S96T004314	153:15	Upper half	< 1,910	< 1,920	< 1,915
S96T004317		Lower half	< 2,000	< 2,030	< 2,015
S96T004441	153:17	Upper half	< 1,960	< 1,960	< 1,960
S96T004442		Lower half	< 2,010	< 2,000	< 2,005
S96T004443	153:19	Lower half	< 2,020	< 2,000	< 2,010
S96T003984	153:21	Lower half	< 2,010	< 2,010	< 2,010
S96T003986	153:22	Upper half	< 2,000	< 2,030	< 2,015
S96T003985		Lower half	< 2,010	< 2,010	< 2,010

Table B2-36. Tank 241-AN-105 Analytical Results: Lithium (ICP)[1]. (3 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids			µg/g	µg/g	µg/g
S96T003732	152: 1	Drainable liquid	< 2.82	< 2.82	< 2.82
S96T003739	152: 2	Drainable liquid	3.61	3.64	3.63
S96T003740	152: 3	Drainable liquid	< 2.82	< 2.82	< 2.82
S96T003741	152: 4	Drainable liquid	3.68	3.68	3.68
S96T003742	152: 5	Drainable liquid	3.23	< 2.82	< 3.02
S96T003743	152: 6	Drainable liquid	3.78	4.61	4.20
S96T003744	152: 7	Drainable liquid	7.74	< 2.82	< 5.28[QC:e]
S96T003745	152: 8	Drainable liquid	19.22	4.07	11.64[QC:e]
S96T003746	152: 9	Drainable liquid	4.18	4.25	4.21
S96T003747	152:10	Drainable liquid	< 4.23	< 4.23	< 4.23
S96T003748	152:11	Drainable liquid	< 4.23	< 4.23	< 4.23
S96T003749	152:12	Drainable liquid	4.71	4.66	4.69
S96T003750	152:13	Drainable liquid	< 4.23	< 4.23	< 4.23
S96T003751	152:14	Drainable liquid	5.32	< 2.82	< 4.07[QC:e]
S96T004433	153: 1	Drainable liquid	< 2.82	< 2.82	< 2.82
S96T004308	153: 2	Drainable liquid	< 4.23	< 4.23	< 4.23
S96T004434	153: 3	Drainable liquid	9.71	7.74	8.73[QC:e]
S96T004419	153: 5	Drainable liquid	< 4.23	< 4.23	< 4.23
S96T004420	153: 6	Drainable liquid	< 4.23	< 4.23	< 4.23
S96T004421	153: 7	Drainable liquid	14.78	4.94	9.86[QC:e]
S96T003975	153: 8	Drainable liquid	5.56	8.80	7.18[QC:e]
S96T003976	153: 9	Drainable liquid	< 2.82	2.92	< 2.87
S96T004309	153:10	Drainable liquid	< 4.23	< 4.23	< 4.23
S96T003979	153:11	Drainable liquid	< 4.23	< 4.23	< 4.23
S96T003977	153:12	Drainable liquid	< 4.23	< 4.23	< 4.23
S96T003978	153:13	Drainable liquid	< 4.23	< 4.23	< 4.23
S96T004333	153:14	Drainable liquid	< 4.23	< 4.23	< 4.23
S96T003980	153:21	Drainable liquid	< 4.23	< 4.23	< 4.23
S96T004831	Core 152	Liquid composite	< 4.23	< 4.23	< 4.23

Table B2-36. Tank 241-AN-105 Analytical Results: Lithium (ICP)[1]. (3 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids: acid digest			µg/g	µg/g	µg/g
S96T004144	Core 152	Liquid Composite	4.09859	4.30282	4.2007
Solids: acid digest			µg/g	µg/g	µg/g
S96T003906	152: 1	Upper half	< 3.86	< 4.03	< 3.94
S96T003898	152:14	Upper half	30.1	30.3	30.2
S96T003828		Lower half	12.8	13.5	13.15
S96T003899	152:16	Upper half	8.94	7.13	8.03[QC:e]
S96T003900		Lower half	< 3.93	< 3.93	< 3.93
S96T003901	152:18	Upper half	7.25	4.05	5.65[QC:e]
S96T003902		Lower half	12	12.8	12.4
S96T003903	152:20	Upper half	12.2	12	12.1
S96T003904		Lower half	< 3.75	< 3.71	< 3.73
S96T003905	152:22	Upper half	82.5	6.75	44.62[QC:e]
S96T004338	153:14	Lower half	7.91	8.34	8.12
S96T004315	153:15	Upper half	29	30.2	29.6
S96T004318		Lower half	8.11	8.81	8.46
S96T004444	153:17	Upper half	9.25	11.3	10.27
S96T004445		Lower half	9.55	13.2	11.37[QC:e]
S96T004446	153:19	Lower half	14.6	15.4	15
S96T003988	153:21	Lower half	64.3	62.8	63.55
S96T003989	153:22	Upper half	8.85	12.2	10.52[QC:e]
S96T003987		Lower half	26.7	28.3	27.5
S96T004257	Core 152	Solid composite	8.6	8.8	8.7
S96T004262		Solid composite	7.32	22.1	14.71[QC:e]

Table B2-36. Tank 241-AN-105 Analytical Results: Lithium (ICP)[1]. (3 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: fusion			µg/g	µg/g	µg/g
S96T003893	152: 1	Upper half	< 198	< 201	< 199.5
S96T003894	152:14	Upper half	< 204	< 200	< 202
S96T003827		Lower half	< 201	< 206	< 203.5
S96T003895	152:16	Upper half	< 204	< 201	< 202.5
S96T003889		Lower half	< 203	< 200	< 201.5
S96T003896	152:18	Upper half	< 207	< 201	< 204
S96T003890		Lower half	< 206	< 207	< 206.5
S96T003897	152:20	Upper half	< 212	< 207	< 209.5
S96T003891		Lower half	< 204	< 206	< 205
S96T003892	152:22	Upper half	< 209	< 212	< 210.5
S96T004337	153:14	Lower half	< 203	< 203	< 203
S96T004314	153:15	Upper half	< 191	< 192	< 191.5
S96T004317		Lower half	< 200	< 203	< 201.5
S96T004441	153:17	Upper half	< 196	< 196	< 196
S96T004442		Lower half	< 201	< 200	< 200.5
S96T004443	153:19	Lower half	< 202	< 200	< 201
S96T003984	153:21	Lower half	< 201	< 201	< 201
S96T003986	153:22	Upper half	< 200	< 203	< 201.5
S96T003985		Lower half	< 201	< 201	< 201

Note:
[1]Lithium is from hydrostatic head fluid.

Table B2-37. Tank 241-AN-105 Analytical Results: Magnesium (ICP). (3 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids			µg/g	µg/g	µg/g
S96T003732	152: 1	Drainable liquid	< 28.23	< 28.23	< 28.23
S96T003739	152: 2	Drainable liquid	< 28.23	< 28.23	< 28.23
S96T003740	152: 3	Drainable liquid	< 28.23	< 28.23	< 28.23
S96T003741	152: 4	Drainable liquid	< 28.23	< 28.23	< 28.23
S96T003742	152: 5	Drainable liquid	< 28.23	< 28.23	< 28.23
S96T003743	152: 6	Drainable liquid	< 28.23	< 28.23	< 28.23
S96T003744	152: 7	Drainable liquid	< 28.23	< 28.23	< 28.23
S96T003745	152: 8	Drainable liquid	< 28.23	< 28.23	< 28.23
S96T003746	152: 9	Drainable liquid	< 28.23	< 28.23	< 28.23
S96T003747	152:10	Drainable liquid	< 42.32	< 42.32	< 42.32
S96T003748	152:11	Drainable liquid	< 42.32	< 42.32	< 42.32
S96T003749	152:12	Drainable liquid	< 42.32	< 42.32	< 42.32
S96T003750	152:13	Drainable liquid	< 42.32	< 42.32	< 42.32
S96T003751	152:14	Drainable liquid	< 28.23	< 28.23	< 28.23
S96T004433	153: 1	Drainable liquid	< 28.23	< 28.23	< 28.23
S96T004308	153: 2	Drainable liquid	< 42.32	< 42.32	< 42.32
S96T004434	153: 3	Drainable liquid	< 28.23	< 28.23	< 28.23
S96T004419	153: 5	Drainable liquid	< 42.32	< 42.32	< 42.32
S96T004420	153: 6	Drainable liquid	< 42.32	< 42.32	< 42.32
S96T004421	153: 7	Drainable liquid	< 28.23	< 28.23	< 28.23
S96T003975	153: 8	Drainable liquid	< 28.23	< 28.23	< 28.23
S96T003976	153: 9	Drainable liquid	< 28.23	< 28.23	< 28.23
S96T004309	153:10	Drainable liquid	< 42.32	< 42.32	< 42.32
S96T003979	153:11	Drainable liquid	< 42.32	< 42.32	< 42.32
S96T003977	153:12	Drainable liquid	< 42.32	< 42.32	< 42.32
S96T003978	153:13	Drainable liquid	< 42.32	< 42.32	< 42.32
S96T004333	153:14	Drainable liquid	< 42.32	< 42.32	< 42.32
S96T003980	153:21	Drainable liquid	< 42.32	< 42.32	< 42.32
S96T004831	Core 152	Liquid composite	< 42.32	< 42.32	< 42.32

Table B2-37. Tank 241-AN-105 Analytical Results: Magnesium (ICP). (3 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids: acid digest			µg/g	µg/g	µg/g
S96T004144	Core 152	Liquid composite	< 36.90	< 35.21	< 36.05
Solids: acid digest			µg/g	µg/g	µg/g
S96T003906	152: 1	Upper half	< 38.6	< 40.3	< 39.45
S96T003898	152:14	Upper half	< 39.3	< 38.8	< 39.05
S96T003828		Lower half	< 40.4	< 39.3	< 39.85
S96T003899	152:16	Upper half	< 39.6	< 39.8	< 39.7
S96T003900		Lower half	< 39.3	< 39.3	< 39.3
S96T003901	152:18	Upper half	< 38.9	< 39.6	< 39.25
S96T003902		Lower half	< 40	< 40.4	< 40.2
S96T003903	152:20	Upper half	< 38.3	< 37.6	< 37.95
S96T003904		Lower half	< 37.5	< 37.1	< 37.3
S96T003905	152:22	Upper half	< 39.6	< 41.4	< 40.5
S96T004338	153:14	Lower half	< 46.7	< 47.8	< 47.25
S96T004315	153:15	Upper half	< 47.6	< 47.8	< 47.7
S96T004318		Lower half	< 47.9	< 45.1	< 46.5
S96T004444	153:17	Upper half	< 48.3	< 47.5	< 47.9
S96T004445		Lower half	< 37.1	< 36.6	< 36.85
S96T004446	153:19	Lower half	< 38.2	< 38.2	< 38.2
S96T003988	153:21	Lower half	< 35.6	< 35.6	< 35.6
S96T003989	153:22	Upper half	< 46.5	< 46.2	< 46.35
S96T003987		Lower half	58.3	60.9	59.6
S96T004257	Core 152	Solid composite	< 38.3	< 40.3	< 39.3
S96T004262		Solid composite	< 38.9	< 37	< 37.95

Table B2-37. Tank 241-AN-105 Analytical Results: Magnesium (ICP). (3 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: fusion			µg/g	µg/g	µg/g
S96T003893	152: 1	Upper half	< 1,980	< 2,010	< 1,995
S96T003894	152:14	Upper half	< 2,040	< 2,000	< 2,020
S96T003827		Lower half	< 2,010	< 2,060	< 2,035
S96T003895	152:16	Upper half	< 2,040	< 2,010	< 2,025
S96T003889		Lower half	< 2,030	< 2,000	< 2,015
S96T003896	152:18	Upper half	< 2,070	< 2,010	< 2,040
S96T003890		Lower half	< 2,060	< 2,070	< 2,065
S96T003897	152:20	Upper half	< 2,120	< 2,070	< 2,095
S96T003891		Lower half	< 2,040	< 2,060	< 2,050
S96T003892	152:22	Upper half	< 2,090	< 2,120	< 2,105
S96T004337	153:14	Lower half	< 2,030	< 2,030	< 2,030
S96T004314	153:15	Upper half	< 1,910	< 1,920	< 1,915
S96T004317		Lower half	< 2,000	< 2,030	< 2,015
S96T004441	153:17	Upper half	< 1,960	< 1,960	< 1,960
S96T004442		Lower half	< 2,010	< 2,000	< 2,005
S96T004443	153:19	Lower half	< 2,020	< 2,000	< 2,010
S96T003984	153:21	Lower half	< 2,010	< 2,010	< 2,010
S96T003986	153:22	Upper half	< 2,000	< 2,030	< 2,015
S96T003985		Lower half	< 2,010	< 2,010	< 2,010

Table B2-38. Tank 241-AN-105 Analytical Results: Manganese (ICP). (3 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids			µg/g	µg/g	µg/g
S96T003732	152: 1	Drainable liquid	< 2.82	< 2.82	< 2.82
S96T003739	152: 2	Drainable liquid	< 2.82	< 2.82	< 2.82
S96T003740	152: 3	Drainable liquid	< 2.82	< 2.82	< 2.82
S96T003741	152: 4	Drainable liquid	< 2.82	< 2.82	< 2.82
S96T003742	152: 5	Drainable liquid	< 2.82	< 2.82	< 2.82
S96T003743	152: 6	Drainable liquid	< 2.82	< 2.82	< 2.82
S96T003744	152: 7	Drainable liquid	< 2.82	< 2.82	< 2.82
S96T003745	152: 8	Drainable liquid	< 2.82	< 2.82	< 2.82
S96T003746	152: 9	Drainable liquid	< 2.82	< 2.82	< 2.82
S96T003747	152:10	Drainable liquid	< 4.23	< 4.23	< 4.23
S96T003748	152:11	Drainable liquid	< 4.23	< 4.23	< 4.23
S96T003749	152:12	Drainable liquid	< 4.23	< 4.23	< 4.23
S96T003750	152:13	Drainable liquid	< 4.23	< 4.23	< 4.23
S96T003751	152:14	Drainable liquid	< 2.82	< 2.82	< 2.82
S96T004433	153: 1	Drainable liquid	< 2.82	< 2.82	< 2.82
S96T004308	153: 2	Drainable liquid	< 4.23	< 4.23	< 4.23
S96T004434	153: 3	Drainable liquid	< 2.82	< 2.82	< 2.82
S96T004419	153: 5	Drainable liquid	< 4.23	< 4.23	< 4.23
S96T004420	153: 6	Drainable liquid	< 4.23	< 4.23	< 4.23
S96T004421	153: 7	Drainable liquid	< 2.82	< 2.82	< 2.82
S96T003975	153: 8	Drainable liquid	< 2.82	< 2.82	< 2.82
S96T003976	153: 9	Drainable liquid	< 2.82	< 2.82	< 2.82
S96T004309	153:10	Drainable liquid	< 4.23	< 4.23	< 4.23
S96T003979	153:11	Drainable liquid	< 4.23	< 4.23	< 4.23
S96T003977	153:12	Drainable liquid	< 4.23	< 4.23	< 4.23
S96T003978	153:13	Drainable liquid	< 4.23	< 4.23	< 4.23
S96T004333	153:14	Drainable liquid	< 4.23	< 4.23	< 4.23
S96T003980	153:21	Drainable liquid	< 4.23	< 4.23	< 4.23
S96T004831	Core 152	Liquid composite	< 4.23	< 4.23	< 4.23

Table B2-38. Tank 241-AN-105 Analytical Results: Manganese (ICP). (3 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids: acid digest			µg/g	µg/g	µg/g
S96T004144	Core 152	Liquid composite	< 3.69	< 3.52	< 3.60
Solids: acid digest			µg/g	µg/g	µg/g
S96T003906	152: 1	Upper half	< 3.86	< 4.03	< 3.945
S96T003898	152:14	Upper half	4.06	4.14	4.1
S96T003828		Lower half	< 4.04	< 3.93	< 3.985
S96T003899	152:16	Upper half	8.4	10.3	9.35[QC:e]
S96T003900		Lower half	12.8	13.1	12.95
S96T003901	152:18	Upper half	30	28.6	29.3
S96T003902		Lower half	11.1	11.1	11.1
S96T003903	152:20	Upper half	9.47	9.45	9.46
S96T003904		Lower half	10.1	10.3	10.2
S96T003905	152:22	Upper half	33.2	34.3	33.75
S96T004338	153:14	Lower half	5.3	5.77	5.53
S96T004315	153:15	Upper half	5.15	4.86	5.00
S96T004318		Lower half	< 4.79	5.03	< 4.91
S96T004444	153:17	Upper half	7.52	8.62	8.07
S96T004445		Lower half	10.3	13.2	11.75
S96T004446	153:19	Lower half	10.5	10.4	10.45
S96T003988	153:21	Lower half	9.4	8.89	9.14
S96T003989	153:22	Upper half	48.8	42.3	45.55
S96T003987		Lower half	151	165	158
S96T004257	Core 152	Solid composite	8.46	7.18	7.82[QC:a,c,e]
S96T004262		Solid composite	52.2	46.6	49.4

Table B2-38. Tank 241-AN-105 Analytical Results: Manganese (ICP). (3 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: fusion			µg/g	µg/g	µg/g
S96T003893	152: 1	Upper half	< 198	< 201	< 199.5
S96T003894	152:14	Upper half	< 204	< 200	< 202
S96T003827		Lower half	< 201	< 206	< 203.5
S96T003895	152:16	Upper half	< 204	< 201	< 202.5
S96T003889		Lower half	< 203	< 200	< 201.5
S96T003896	152:18	Upper half	< 207	< 201	< 204
S96T003890		Lower half	< 206	< 207	< 206.5
S96T003897	152:20	Upper half	< 212	< 207	< 209.5
S96T003891		Lower half	< 204	< 206	< 205
S96T003892	152:22	Upper half	< 209	< 212	< 210.5
S96T004337	153:14	Lower half	< 203	< 203	< 203
S96T004314	153:15	Upper half	< 191	< 192	< 191.5
S96T004317		Lower half	< 200	< 203	< 201.5
S96T004441	153:17	Upper half	< 196	< 196	< 196
S96T004442		Lower half	< 201	< 200	< 200.5
S96T004443	153:19	Lower half	< 202	< 200	< 201
S96T003984	153:21	Lower half	< 201	< 201	< 201
S96T003986	153:22	Upper half	< 200	< 203	< 201.5
S96T003985		Lower half	< 201	< 201	< 201

Table B2-39. Tank 241-AN-105 Analytical Results: Molybdenum (ICP). (3 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids			µg/g	µg/g	µg/g
S96T003732	152: 1	Drainable liquid	71.12	68.66	69.89
S96T003739	152: 2	Drainable liquid	66.69	66.90	66.79
S96T003740	152: 3	Drainable liquid	67.25	65.35	66.30
S96T003741	152: 4	Drainable liquid	69.43	65.98	67.71
S96T003742	152: 5	Drainable liquid	70.42	68.02	69.22
S96T003743	152: 6	Drainable liquid	72.53	76.76	74.64
S96T003744	152: 7	Drainable liquid	58.09	64.78	61.44
S96T003745	152: 8	Drainable liquid	60.07	76.05	68.06
S96T003746	152: 9	Drainable liquid	66.54	68.23	67.39
S96T003747	152:10	Drainable liquid	69.57	69.15	69.36
S96T003748	152:11	Drainable liquid	66.83	69.29	68.06
S96T003749	152:12	Drainable liquid	69.08	66.54	67.81
S96T003750	152:13	Drainable liquid	65.77	64.15	64.96
S96T003751	152:14	Drainable liquid	61.69	62.32	62.00
S96T004433	153: 1	Drainable liquid	73.94	70.42	72.18
S96T004308	153: 2	Drainable liquid	71.12	68.45	69.78
S96T004434	153: 3	Drainable liquid	65	72.53	68.76
S96T004419	153: 5	Drainable liquid	71.83	72.53	72.18
S96T004420	153: 6	Drainable liquid	68.09	73.94	71.02
S96T004421	153: 7	Drainable liquid	69.08	72.53	70.80
S96T003975	153: 8	Drainable liquid	64.08	59.92	62.00
S96T003976	153: 9	Drainable liquid	58.45	70.07	64.26
S96T004309	153:10	Drainable liquid	71.12	73.94	72.53
S96T003979	153:11	Drainable liquid	68.02	67.46	67.74
S96T003977	153:12	Drainable liquid	67.60	71.12	69.36
S96T003978	153:13	Drainable liquid	63.80	58.59	61.19
S96T004333	153:14	Drainable liquid	72.53	72.53	72.53
S96T003980	153:21	Drainable liquid	51.26	50	50.63
6S96T004831	Core 152	Liquid composite	70.42	71.83	71.12

Table B2-39. Tank 241-AN-105 Analytical Results: Molybdenum (ICP). (3 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids: acid digest			µg/g	µg/g	µg/g
S96T004144	Core 152	Liquid composite	57.95	58.30	58.13
Solids: acid digest			µg/g	µg/g	µg/g
S96T003906	152: 1	Upper half	57.8	56.6	57.2
S96T003898	152:14	Upper half	58.9	60	59.45
S96T003828		Lower half	59.5	59.4	59.45
S96T003899	152:16	Upper half	55.8	55.4	55.6
S96T003900		Lower half	56.8	57.6	57.2
S96T003901	152:18	Upper half	54.3	50.6	52.45
S96T003902		Lower half	53.4	54.5	53.95
S96T003903	152:20	Upper half	55.6	57.4	56.5
S96T003904		Lower half	48.8	49.2	49
S96T003905	152:22	Upper half	48.4	49.8	49.1
S96T004338	153:14	Lower half	53.5	51.8	52.65
S96T004315	153:15	Upper half	53.3	49.3	51.3
S96T004318		Lower half	50.2	51.4	50.8
S96T004444	153:17	Upper half	50.9	51.9	51.4
S96T004445		Lower half	50.9	52.1	51.5
S96T004446	153:19	Lower half	49.1	47.4	48.25
S96T003988	153:21	Lower half	43.8	43.7	43.75
S96T003989	153:22	Upper half	46.8	51.9	49.35
S96T003987		Lower half	36.7	37.5	37.1
S96T004257	Core 152	Solid composite	45.8	45.9	45.85
S96T004262		Solid composite	37.4	33.4	35.4

Table B2-39. Tank 241-AN-105 Analytical Results: Molybdenum (ICP). (3 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: fusion			µg/g	µg/g	µg/g
S96T003893	152: 1	Upper half	< 988	< 1,010	< 999
S96T003894	152:14	Upper half	< 1,020	< 998	< 1,009
S96T003827		Lower half	< 1,010	< 1,030	< 1,020
S96T003895	152:16	Upper half	< 1,020	< 1,000	< 1,010
S96T003889		Lower half	< 1,010	< 1,000	< 1,005
S96T003896	152:18	Upper half	< 1,030	< 1,000	< 1,015
S96T003890		Lower half	< 1,030	< 1,040	< 1,035
S96T003897	152:20	Upper half	< 1,060	< 1,040	< 1,050
S96T003891		Lower half	< 1,020	< 1,030	< 1,025
S96T003892	152:22	Upper half	< 1,040	< 1,060	< 1,050
S96T004337	153:14	Lower half	< 1,020	< 1,010	< 1,015
S96T004314	153:15	Upper half	< 953	< 958	< 955.5
S96T004317		Lower half	< 998	< 1,020	< 1,009
S96T004441	153:17	Upper half	< 980	< 982	< 981
S96T004442		Lower half	< 1,010	< 1,000	< 1,005
S96T004443	153:19	Lower half	< 1,010	< 1,000	< 1,005
S96T003984	153:21	Lower half	< 1,010	< 1,000	< 1,005
S96T003986	153:22	Upper half	< 999	< 1,020	< 1,009.5
S96T003985		Lower half	< 1,010	< 1,010	< 1,010

Table B2-40. Tank 241-AN-105 Analytical Results: Nickel (ICP). (2 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids			µg/g	µg/g	µg/g
S96T003732	152: 1	Drainable liquid	< 5.64	< 5.64	< 5.64
S96T003739	152: 2	Drainable liquid	< 5.64	< 5.64	< 5.64
S96T003740	152: 3	Drainable liquid	< 5.64	< 5.64	< 5.64
S96T003741	152: 4	Drainable liquid	< 5.64	< 5.64	< 5.64
S96T003742	152: 5	Drainable liquid	< 5.64	< 5.64	< 5.64
S96T003743	152: 6	Drainable liquid	7.46	7.25	7.35
S96T003744	152: 7	Drainable liquid	< 5.64	< 5.64	< 5.64
S96T003745	152: 8	Drainable liquid	< 5.64	< 5.64	< 5.64
S96T003746	152: 9	Drainable liquid	< 5.64	< 5.64	< 5.64
S96T003747	152:10	Drainable liquid	< 8.45	< 8.45	< 8.45
S96T003748	152:11	Drainable liquid	< 8.45	< 8.45	< 8.45
S96T003749	152:12	Drainable liquid	< 8.45	< 8.45	< 8.45
S96T003750	152:13	Drainable liquid	< 8.45	< 8.45	< 8.45
S96T003751	152:14	Drainable liquid	< 5.64	< 5.64	< 5.64
S96T004433	153: 1	Drainable liquid	< 5.64	< 5.64	< 5.64
S96T004308	153: 2	Drainable liquid	< 8.45	< 8.45	< 8.45
S96T004434	153: 3	Drainable liquid	< 5.64	< 5.64	< 5.64
S96T004419	153: 5	Drainable liquid	< 8.45	< 8.45	< 8.45
S96T004420	153: 6	Drainable liquid	< 8.45	< 8.45	< 8.45
S96T004421	153: 7	Drainable liquid	< 5.64	< 5.64	< 5.64
S96T003975	153: 8	Drainable liquid	< 5.64	< 5.64	< 5.64
S96T003976	153: 9	Drainable liquid	< 5.64	< 5.64	< 5.64
S96T004309	153:10	Drainable liquid	< 8.45	< 8.45	< 8.45
S96T003979	153:11	Drainable liquid	< 8.45	< 8.45	< 8.45
S96T003977	153:12	Drainable liquid	< 8.45	< 8.45	< 8.45
S96T003978	153:13	Drainable liquid	< 8.45	< 8.45	< 8.45
S96T004333	153:14	Drainable liquid	< 8.45	< 8.45	< 8.45
S96T003980	153:21	Drainable liquid	< 8.45	< 8.45	< 8.45
S96T004831	Core 152	Liquid composite	< 8.45	< 8.45	< 8.45

Table B2-40. Tank 241-AN-105 Analytical Results: Nickel (ICP). (2 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids: acid digest			µg/g	µg/g	µg/g
S96T004144	Core 152	Liquid composite	< 7.39	< 7.03	< 7.21
Solids: acid digest			µg/g	µg/g	µg/g
S96T003906	152: 1	Upper half	12.6	16.3	14.45[QC:e]
S96T003898	152:14	Upper half	20.5	20.3	20.4
S96T003828		Lower half	20.5	19.9	20.2
S96T003899	152:16	Upper half	34.3	37.9	36.1
S96T003900		Lower half	36.5	43.7	40.1
S96T003901	152:18	Upper half	72.5	71.1	71.8
S96T003902		Lower half	55.7	52	53.85
S96T003903	152:20	Upper half	59.1	54.3	56.7
S96T003904		Lower half	28.2	25.8	27
S96T003905	152:22	Upper half	29.8	27.8	28.8
S96T004338	153:14	Lower half	28.7	34	31.35
S96T004315	153:15	Upper half	23.7	24.3	24
S96T004318		Lower half	21.6	19.5	20.55
S96T004444	153:17	Upper half	46.6	46.6	46.6
S96T004445		Lower half	78.4	83	80.7
S96T004446	153:19	Lower half	58.7	60.7	59.7
S96T003988	153:21	Lower half	24.6	22.5	23.55
S96T003989	153:22	Upper half	35.5	28.6	32.05[QC:e]
S96T003987		Lower half	65.2	67.2	66.2
S96T004257	Core 152	Solid composite	34.9	28.6	31.75[QC:e]
S96T004262		Solid composite	36.5	30.8	33.65

Table B2-41. Tank 241-AN-105 Analytical Results: Phosphorus (ICP). (3 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids			µg/g	µg/g	µg/g
S96T003732	152: 1	Drainable liquid	287.32	248.59	267.95
S96T003739	152: 2	Drainable liquid	243.66	237.32	240.49
S96T003740	152: 3	Drainable liquid	240.84	235.21	238.02
S96T003741	152: 4	Drainable liquid	242.25	228.16	235.21
S96T003742	152: 5	Drainable liquid	253.52	232.39	242.95
S96T003743	152: 6	Drainable liquid	285.91	329.57	307.74
S96T003744	152: 7	Drainable liquid	269.71	261.26	265.49
S96T003745	152: 8	Drainable liquid	873.23	291.54	582.39[QC:c,e]
S96T003746	152: 9	Drainable liquid	293.66	290.84	292.25
S96T003747	152:10	Drainable liquid	230.28	233.09	231.69
S96T003748	152:11	Drainable liquid	231.69	219.01	225.35
S96T003749	152:12	Drainable liquid	230.98	227.46	229.22
S96T003750	152:13	Drainable liquid	226.05	222.53	224.29
S96T003751	152:14	Drainable liquid	371.83	270.42	321.12[QC:c,e]
S96T004433	153: 1	Drainable liquid	461.97	461.26	461.62
S96T004308	153: 2	Drainable liquid	277.46	259.15	268.31
S96T004434	153: 3	Drainable liquid	302.81	306.33	304.57
S96T004419	153: 5	Drainable liquid	271.83	252.81	262.32
S96T004420	153: 6	Drainable liquid	256.33	260.56	258.45
S96T004421	153: 7	Drainable liquid	347.88	310.56	329.22
S96T003975	153: 8	Drainable liquid	249.29	247.18	248.23
S96T003976	153: 9	Drainable liquid	264.08	306.33	285.21[QC:d]
S96T004309	153:10	Drainable liquid	257.74	327.46	292.60[QC:e]
S96T003979	153:11	Drainable liquid	245.77	241.54	243.66
S96T003977	153:12	Drainable liquid	253.52	252.81	253.16
S96T003978	153:13	Drainable liquid	249.29	213.38	231.33
S96T004333	153:14	Drainable liquid	263.38	261.26	262.32
S96T003980	153:21	Drainable liquid	272.53	266.90	269.71
S96T004831	Core 152	Liquid composite	274.64	278.16	276.40

Table B2-41. Tank 241-AN-105 Analytical Results: Phosphorus (ICP). (3 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids: acid digest			µg/g	µg/g	µg/g
S96T004144	Core 152	Liquid composite	236.62	241.54	239.08
Solids: acid digest			µg/g	µg/g	µg/g
S96T003906	152: 1	Upper half	1,330	939	1,134.5[QC:e]
S96T003898	152:14	Upper half	358	297	327.5
S96T003828		Lower half	389	382	385.5
S96T003899	152:16	Upper half	653	510	581.5[QC:e]
S96T003900		Lower half	642	684	663
S96T003901	152:18	Upper half	789	762	775.5
S96T003902		Lower half	849	925	887
S96T003903	152:20	Upper half	694	578	636
S96T003904		Lower half	1,670	581	1,125.5[QC:e]
S96T003905	152:22	Upper half	2,520	2,580	2,550
S96T004338	153:14	Lower half	492	485	488.5
S96T004315	153:15	Upper half	360	380	370
S96T004318		Lower half	399	372	385.5
S96T004444	153:17	Upper half	577	518	547.5
S96T004445		Lower half	799	785	792
S96T004446	153:19	Lower half	731	2,020	1,375.5[QC:e]
S96T003988	153:21	Lower half	455	455	455
S96T003989	153:22	Upper half	5,300	3,850	4,575[QC:e]
S96T003987		Lower half	29,700	27,000	28,350
S96T004257	Core 152	Solid composite	418	386	402
S96T004262		Solid composite	15,000	13,200	14,100[QC:e]

Table B2-41. Tank 241-AN-105 Analytical Results: Phosphorus (ICP). (3 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: fusion			µg/g	µg/g	µg/g
S96T003893	152: 1	Upper half	< 3,950	< 4,020	< 3,985
S96T003894	152:14	Upper half	< 4,070	< 3,990	< 4,030
S96T003827		Lower half	< 4,030	< 4,120	< 4,075
S96T003895	152:16	Upper half	< 4,090	< 4,020	< 4,055
S96T003889		Lower half	< 4,060	< 4,010	< 4,035
S96T003896	152:18	Upper half	< 4,130	< 4,020	< 4,075
S96T003890		Lower half	< 4,120	< 4,140	< 4,130
S96T003897	152:20	Upper half	< 4,240	< 4,140	< 4,190
S96T003891		Lower half	< 4,080	< 4,110	< 4,095
S96T003892	152:22	Upper half	< 4,180	< 4,250	< 4,215
S96T004337	153:14	Lower half	< 4,060	< 4,060	< 4,060
S96T004314	153:15	Upper half	< 3,810	< 3,830	< 3,820
S96T004317		Lower half	< 3,990	< 4,060	< 4,025
S96T004441	153:17	Upper half	< 3,920	< 3,930	< 3,925
S96T004442		Lower half	< 4,030	< 4,000	< 4,015
S96T004443	153:19	Lower half	< 4,040	< 4,000	< 4,020
S96T003984	153:21	Lower half	< 4,030	< 4,010	< 4,020
S96T003986	153:22	Upper half	5,140	4,570	4,855
S96T003985		Lower half	35,700	33,100	34,400

Table B2-42. Tank 241-AN-105 Analytical Results: Potassium (ICP). (2 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids			µg/g	µg/g	µg/g
S96T003732	152: 1	Drainable liquid	4,852.11	4,690.14	4,771.13
S96T003739	152: 2	Drainable liquid	4,521.13	4,577.46	4,549.3
S96T003740	152: 3	Drainable liquid	4,521.13	4,507.04	4,514.08
S96T003741	152: 4	Drainable liquid	4,753.52	4,514.08	4,633.8
S96T003742	152: 5	Drainable liquid	4,704.23	4,612.68	4,658.45[QC:c]
S96T003743	152: 6	Drainable liquid	5,000	5,295.77	5,147.89[QC:c]
S96T003744	152: 7	Drainable liquid	3,880.28	4,260.56	4,070.42[QC:d]
S96T003745	152: 8	Drainable liquid	4,267.61	4,809.86	4,538.73[QC:d]
S96T003746	152: 9	Drainable liquid	4,359.15	4,570.42	4,464.79[QC:d]
S96T003747	152:10	Drainable liquid	4,570.42	4,697.18	4,633.8
S96T003748	152:11	Drainable liquid	4,570.42	4,669.01	4,619.72[QC:d]
S96T003749	152:12	Drainable liquid	4,647.89	4,521.13	4,584.51
S96T003750	152:13	Drainable liquid	4,514.08	4,443.66	4,478.87[QC:d]
S96T003751	152:14	Drainable liquid	4,274.65	4,359.15	4,316.9[QC:c]
S96T004433	153: 1	Drainable liquid	4,873.24	4,507.04	4,690.14
S96T004308	153: 2	Drainable liquid	4,739.44	4,626.76	4,683.1
S96T004434	153: 3	Drainable liquid	4,274.65	4,647.89	4,461.27[QC:d]
S96T004419	153: 5	Drainable liquid	4,901.41	4,950.7	4,926.06
S96T004420	153: 6	Drainable liquid	4,676.06	5,000	4,838.03[QC:d]
S96T004421	153: 7	Drainable liquid	4,528.17	4,922.54	4,725.35[QC:d]
S96T003975	153: 8	Drainable liquid	4,457.75	4,154.93	4,306.34
S96T003976	153: 9	Drainable liquid	4,091.55	4,859.15	4,475.35[QC:d]
S96T004309	153:10	Drainable liquid	4,676.06	4,880.28	4,778.17[QC:c]
S96T003979	153:11	Drainable liquid	4,873.24	4,697.18	4,785.21[QC:c]
S96T003977	153:12	Drainable liquid	4,704.23	4,873.24	4,788.73[QC:d]
S96T003978	153:13	Drainable liquid	4,429.58	4,112.68	4,271.13[QC:d]
S96T004333	153:14	Drainable liquid	5,028.17	4,964.79	4,996.48
S96T003980	153:21	Drainable liquid	3,577.46	3,500	3,538.73
S96T004831	Core 152	Liquid composite	4,570.42	4,612.68	4,591.55[QC:d]

Table B2-42. Tank 241-AN-105 Analytical Results: Potassium (ICP). (2 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids: acid digest			µg/g	µg/g	µg/g
S96T004144	Core 152	Liquid composite	3,760.56	3,711.27	3,735.92
Solids: acid digest			µg/g	µg/g	µg/g
S96T003906	152: 1	Upper half	3,960	3,790	3,875
S96T003898	152:14	Upper half	3,900	3,980	3,940
S96T003828		Lower half	3,950	4,020	3,985
S96T003899	152:16	Upper half	3,610	3,760	3,685
S96T003900		Lower half	3,770	3,770	3,770
S96T003901	152:18	Upper half	3,610	3,420	3,515
S96T003902		Lower half	3,700	3,720	3,710
S96T003903	152:20	Upper half	3,890	3,730	3,810
S96T003904		Lower half	3,260	3,290	3,275
S96T003905	152:22	Upper half	2,910	3,080	2,995
S96T004338	153:14	Lower half	3,780	3,850	3,815
S96T004315	153:15	Upper half	3,560	3,500	3,530
S96T004318		Lower half	3,720	3,760	3,740
S96T004444	153:17	Upper half	3,650	3,630	3,640
S96T004445		Lower half	3,390	3,320	3,355
S96T004446	153:19	Lower half	3,200	3,270	3,235
S96T003988	153:21	Lower half	2,940	2,900	2,920
S96T003989	153:22	Upper half	3,030	3,350	3,190
S96T003987		Lower half	2,190	2,500	2,345
S96T004257	Core 152	Solid composite	3,070	3,110	3,090[QC:a]
S96T004262		Solid composite	2,240	2,050	2,145

Table B2-43. Tank 241-AN-105 Analytical Results: Silicon (ICP). (3 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids			µg/g	µg/g	µg/g
S96T003732	152: 1	Drainable liquid	157.74	154.93	156.33
S96T003739	152: 2	Drainable liquid	133.09	130.28	131.69
S96T003740	152: 3	Drainable liquid	153.52	144.36	148.94
S96T003741	152: 4	Drainable liquid	145.07	139.43	142.25
S96T003742	152: 5	Drainable liquid	191.54	160.56	176.05
S96T003743	152: 6	Drainable liquid	178.16	190.84	184.50
S96T003744	152: 7	Drainable liquid	137.32	151.40	144.36
S96T003745	152: 8	Drainable liquid	186.62	205.63	196.12
S96T003746	152: 9	Drainable liquid	142.25	145.77	144.01
S96T003747	152:10	Drainable liquid	135.91	138.73	137.32
S96T003748	152:11	Drainable liquid	161.97	162.67	162.32
S96T003749	152:12	Drainable liquid	145.77	141.54	143.66
S96T003750	152:13	Drainable liquid	143.66	144.36	144.01
S96T003751	152:14	Drainable liquid	170.42	162.67	166.54
S96T004433	153: 1	Drainable liquid	214.78	196.47	205.63
S96T004308	153: 2	Drainable liquid	131.69	127.46	129.57
S96T004434	153: 3	Drainable liquid	126.76	138.02	132.39
S96T004419	153: 5	Drainable liquid	163.38	161.26	162.32
S96T004420	153: 6	Drainable liquid	135.21	145.07	140.14
S96T004421	153: 7	Drainable liquid	158.45	153.52	155.98
S96T003975	153: 8	Drainable liquid	145.77	142.25	144.01
S96T003976	153: 9	Drainable liquid	141.54	171.83	156.69
S96T004309	153:10	Drainable liquid	137.32	147.18	142.25
S96T003979	153:11	Drainable liquid	166.90	164.08	165.49
S96T003977	153:12	Drainable liquid	162.67	174.64	168.66
S96T003978	153:13	Drainable liquid	160.56	147.88	154.22
S96T004333	153:14	Drainable liquid	116.19	112.67	114.43
S96T003980	153:21	Drainable liquid	138.02	134.50	136.26
S96T004831	Core 152	Liquid composite	116.90	116.90	116.90

Table B2-43. Tank 241-AN-105 Analytical Results: Silicon (ICP). (3 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids: acid digest			**µg/g**	**µg/g**	**µg/g**
S96T004144	Core 152	Liquid composite	146.47	162.67	154.57[QC:b,f]
Solids: acid digest			**µg/g**	**µg/g**	**µg/g**
S96T003906	152: 1	Upper half	219	201	210[QC:b]
S96T003898	152:14	Upper half	138	145	141.5[QC:b]
S96T003828		Lower half	165	181	173[QC:b]
S96T003899	152:16	Upper half	134	142	138[QC:b]
S96T003900		Lower half	91.2	116	103.6[QC:b,e]
S96T003901	152:18	Upper half	103	145	124[QC:b,e]
S96T003902		Lower half	141	86.6	113.8[QC:b,e]
S96T003903	152:20	Upper half	149	147	148[QC:b]
S96T003904		Lower half	117	110	113.5[QC:b]
S96T003905	152:22	Upper half	115	102	108.5[QC:b]
S96T004338	153:14	Lower half	142	< 23.9	< 82.95
S96T004315	153:15	Upper half	175	180	177.5
S96T004318		Lower half	61.7	170	115.85[QC:e]
S96T004444	153:17	Upper half	159	153	156
S96T004445		Lower half	190	176	183
S96T004446	153:19	Lower half	126	164	145[QC:e]
S96T003988	153:21	Lower half	136	135	135.5
S96T003989	153:22	Upper half	167	136	151.5[QC:b,d,e]
S96T003987		Lower half	113	109	111[QC:b]
S96T004257	Core 152	Solid composite	139	218	178.5[QC:b,d,e]
S96T004262		Solid composite	621	328	474.5[QC:b,e]

Table B2-43. Tank 241-AN-105 Analytical Results: Silicon (ICP). (3 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: fusion			µg/g	µg/g	µg/g
S96T003893	152: 1	Upper half	< 988	< 1,010	< 999
S96T003894	152:14	Upper half	< 1,020	< 998	< 1,009
S96T003827		Lower half	< 1,010	< 1,030	< 1,020
S96T003895	152:16	Upper half	< 1,020	< 1,000	< 1,010
S96T003889		Lower half	< 1,010	< 1,000	< 1,005
S96T003896	152:18	Upper half	< 1,030	< 1,000	< 1,015
S96T003890		Lower half	< 1,030	< 1,040	< 1,035
S96T003897	152:20	Upper half	< 1,060	< 1,040	< 1,050
S96T003891		Lower half	< 1,020	< 1,030	< 1,025
S96T003892	152:22	Upper half	< 1,040	< 1,060	< 1,050
S96T004337	153:14	Lower half	< 1,020	2,450	< 1,735
S96T004314	153:15	Upper half	< 953	< 958	< 955.5
S96T004317		Lower half	< 998	< 1,020	< 1,009
S96T004441	153:17	Upper half	< 980	< 982	< 981
S96T004442		Lower half	1,830	< 1,000	< 1,415
S96T004443	153:19	Lower half	< 1,010	< 1,000	< 1,005
S96T003984	153:21	Lower half	< 1,010	< 1,000	< 1,005
S96T003986	153:22	Upper half	< 999	< 1,020	< 1,009.5
S96T003985		Lower half	< 1,010	< 1,010	< 1,010

Table B2-44. Tank 241-AN-105 Analytical Results: Silver (ICP). (3 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids			µg/g	µg/g	µg/g
S96T003732	152: 1	Drainable liquid	12.67	12.11	12.39
S96T003739	152: 2	Drainable liquid	11.90	11.97	11.93
S96T003740	152: 3	Drainable liquid	11.90	11.69	11.79
S96T003741	152: 4	Drainable liquid	12.60	11.76	12.18
S96T003742	152: 5	Drainable liquid	12.74	12.25	12.5
S96T003743	152: 6	Drainable liquid	13.87	14.01	13.94
S96T003744	152: 7	Drainable liquid	10.91	11.97	11.44
S96T003745	152: 8	Drainable liquid	12.25	14.01	13.13
S96T003746	152: 9	Drainable liquid	12.67	12.67	12.67
S96T003747	152:10	Drainable liquid	12.11	11.90	12.00
S96T003748	152:11	Drainable liquid	12.11	12.46	12.28
S96T003749	152:12	Drainable liquid	12.60	11.83	12.21
S96T003750	152:13	Drainable liquid	11.76	11.83	11.79
S96T003751	152:14	Drainable liquid	12.04	11.61	11.83
S96T004433	153: 1	Drainable liquid	14.08	12.95	13.52
S96T004308	153: 2	Drainable liquid	12.81	11.97	12.39
S96T004434	153: 3	Drainable liquid	12.53	13.16	12.85
S96T004419	153: 5	Drainable liquid	13.38	13.30	13.34
S96T004420	153: 6	Drainable liquid	12.60	14.15	13.38
S96T004421	153: 7	Drainable liquid	12.81	13.80	13.30
S96T003975	153: 8	Drainable liquid	12.18	11.12	11.65
S96T003976	153: 9	Drainable liquid	11.33	13.09	12.21
S96T004309	153:10	Drainable liquid	12.04	13.23	12.64
S96T003979	153:11	Drainable liquid	13.38	12.81	13.09
S96T003977	153:12	Drainable liquid	12.25	13.09	12.67
S96T003978	153:13	Drainable liquid	11.90	11.12	11.51
S96T004333	153:14	Drainable liquid	13.52	13.66	13.59
S96T003980	153:21	Drainable liquid	11.05	10.91	10.98
S96T004831	Core 152	Liquid composite	13.02	12.32	12.67

Table B2-44. Tank 241-AN-105 Analytical Results: Silver (ICP). (3 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids: acid digest			µg/g	µg/g	µg/g
S96T004144	Core 152	Liquid composite	10.84	10.49	10.66
Solids: acid digest			µg/g	µg/g	µg/g
S96T003906	152: 1	Upper half	13.7	13.4	13.55[QC:a,c]
S96T003898	152:14	Upper half	13.8	13.6	13.7[QC:a]
S96T003828		Lower half	13.5	14.2	13.85[QC:a]
S96T003899	152:16	Upper half	14.8	15.1	14.95[QC:a]
S96T003900		Lower half	14.7	14.7	14.7[QC:a]
S96T003901	152:18	Upper half	16.1	15.6	15.85[QC:a]
S96T003902		Lower half	16	15.8	15.9[QC:a]
S96T003903	152:20	Upper half	15.1	14.9	15[QC:a]
S96T003904		Lower half	16.2	16	16.1[QC:a]
S96T003905	152:22	Upper half	17.2	17.7	17.45[QC:a]
S96T004338	153:14	Lower half	13.8	13.4	13.6[QC:a]
S96T004315	153:15	Upper half	12.2	12.1	12.15[QC:a]
S96T004318		Lower half	12.5	12.7	12.6[QC:a]
S96T004444	153:17	Upper half	12.6	13.2	12.9[QC:a]
S96T004445		Lower half	13.6	14.5	14.05[QC:a]
S96T004446	153:19	Lower half	13.3	14	13.65[QC:a]
S96T003988	153:21	Lower half	13.7	13.4	13.55[QC:a]
S96T003989	153:22	Upper half	19.1	16.2	17.65
S96T003987		Lower half	98.7	107	102.85
S96T004257	Core 152	Solid composite	12.3	11.5	11.9
S96T004262		Solid composite	44.8	40.1	42.45

Table B2-44. Tank 241-AN-105 Analytical Results: Silver (ICP). (3 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: fusion			µg/g	µg/g	µg/g
S96T003893	152: 1	Upper half	< 198	< 201	< 199.5
S96T003894	152:14	Upper half	< 204	< 200	< 202
S96T003827		Lower half	< 201	< 206	< 203.5
S96T003895	152:16	Upper half	< 204	< 201	< 202.5
S96T003889		Lower half	< 203	< 200	< 201.5
S96T003896	152:18	Upper half	< 207	< 201	< 204
S96T003890		Lower half	< 206	< 207	< 206.5
S96T003897	152:20	Upper half	< 212	< 207	< 209.5
S96T003891		Lower half	< 204	< 206	< 205
S96T003892	152:22	Upper half	< 209	< 212	< 210.5
S96T004337	153:14	Lower half	< 203	< 203	< 203
S96T004314	153:15	Upper half	< 191	< 192	< 191.5
S96T004317		Lower half	< 200	< 203	< 201.5
S96T004441	153:17	Upper half	< 196	< 196	< 196
S96T004442		Lower half	< 201	< 200	< 200.5
S96T004443	153:19	Lower half	< 202	< 200	< 201
S96T003984	153:21	Lower half	< 201	< 201	< 201
S96T003986	153:22	Upper half	< 200	< 203	< 201.5
S96T003985		Lower half	< 201	< 201	< 201

Table B2-45. Tank 241-AN-105 Analytical Results: Sodium (ICP). (3 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids			µg/g	µg/g	µg/g
S96T003732	152: 1	Drainable liquid	1.782E+05	1.732E+05	1.757E+05[QC:c]
S96T003739	152: 2	Drainable liquid	1.683E+05	1.690E+05	1.687E+05[QC:c]
S96T003740	152: 3	Drainable liquid	1.683E+05	1.648E+05	1.666E+05[QC:c]
S96T003741	152: 4	Drainable liquid	1.768E+05	1.648E+05	1.708E+05[QC:c]
S96T003742	152: 5	Drainable liquid	1.768E+05	1.683E+05	1.725E+05[QC:c]
S96T003743	152: 6	Drainable liquid	1.873E+05	1.951E+05	1.912E+05[QC:c]
S96T003744	152: 7	Drainable liquid	1.507E+05	1.655E+05	1.581E+05[QC:d]
S96T003745	152: 8	Drainable liquid	1.662E+05	1.909E+05	1.785E+05[QC:d]
S96T003746	152: 9	Drainable liquid	1.690E+05	1.732E+05	1.711E+05[QC:d]
S96T003747	152:10	Drainable liquid	1.718E+05	1.747E+05	1.732E+05[QC:c]
S96T003748	152:11	Drainable liquid	1.704E+05	1.718E+05	1.711E+05[QC:d]
S96T003749	152:12	Drainable liquid	1.690E+05	1.648E+05	1.669E+05[QC:c]
S96T003750	152:13	Drainable liquid	1.676E+05	1.662E+05	1.669E+05[QC:d]
S96T003751	152:14	Drainable liquid	1.648E+05	1.655E+05	1.651E+05[QC:c]
S96T004433	153: 1	Drainable liquid	1.894E+05	1.768E+05	1.831E+05[QC:d]
S96T004308	153: 2	Drainable liquid	1.817E+05	1.747E+05	1.782E+05[QC:c]
S96T004434	153: 3	Drainable liquid	1.641E+05	1.803E+05	1.722E+05[QC:d]
S96T004419	153: 5	Drainable liquid	1.845E+05	1.817E+05	1.831E+05[QC:d]
S96T004420	153: 6	Drainable liquid	1.732E+05	1.866E+05	1.799E+05[QC:d]
S96T004421	153: 7	Drainable liquid	1.796E+05	1.930E+05	1.863E+05[QC:d]
S96T003975	153: 8	Drainable liquid	1.683E+05	1.570E+05	1.627E+05[QC:c]
S96T003976	153: 9	Drainable liquid	1.535E+05	1.817E+05	1.676E+05[QC:d]
S96T004309	153:10	Drainable liquid	1.789E+05	1.873E+05	1.831E+05[QC:c]
S96T003979	153:11	Drainable liquid	1.775E+05	1.761E+05	1.768E+05[QC:c]
S96T003977	153:12	Drainable liquid	1.775E+05	1.817E+05	1.796E+05[QC:d]
S96T003978	153:13	Drainable liquid	1.669E+05	1.535E+05	1.602E+05[QC:c]
S96T004333	153:14	Drainable liquid	1.873E+05	1.852E+05	1.863E+05[QC:c]
S96T003980	153:21	Drainable liquid	1.570E+05	1.542E+05	1.556E+05[QC:c]
S96T004831	Core 152	Liquid composite	1.789E+05	1.810E+05	1.799E+05[QC:d]

Table B2-45. Tank 241-AN-105 Analytical Results: Sodium (ICP). (3 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids: acid digest			µg/g	µg/g	µg/g
S96T004144	Core 152	Liquid composite	1.486E+05	1.486E+05	1.486E+05
Solids: acid digest			µg/g	µg/g	µg/g
S96T003906	152: 1	Upper half	1.870E+05	1.780E+05	1.825E+05[QC:b,c]
S96T003898	152:14	Upper half	1.790E+05	1.810E+05	1.800E+05[QC:b]
S96T003828		Lower half	1.830E+05	1.850E+05	1.840E+05[QC:b]
S96T003899	152:16	Upper half	1.870E+05	1.920E+05	1.895E+05[QC:b]
S96T003900		Lower half	1.880E+05	1.920E+05	1.900E+05[QC:b]
S96T003901	152:18	Upper half	1.980E+05	1.950E+05	1.965E+05[QC:b]
S96T003902		Lower half	1.970E+05	1.950E+05	1.960E+05[QC:b,c]
S96T003903	152:20	Upper half	1.910E+05	1.860E+05	1.885E+05[QC:b]
S96T003904		Lower half	2.030E+05	1.990E+05	2.010E+05[QC:b]
S96T003905	152:22	Upper half	1.930E+05	1.970E+05	1.950E+05[QC:b]
S96T004338	153:14	Lower half	1.720E+05	1.740E+05	1.730E+05[QC:b,c]
S96T004315	153:15	Upper half	1.690E+05	1.680E+05	1.685E+05[QC:b]
S96T004318		Lower half	1.690E+05	1.700E+05	1.695E+05[QC:b,d]
S96T004444	153:17	Upper half	1.730E+05	1.730E+05	1.730E+05[QC:b]
S96T004445		Lower half	1.670E+05	1.660E+05	1.665E+05
S96T004446	153:19	Lower half	1.710E+05	1.790E+05	1.750E+05
S96T003988	153:21	Lower half	1.800E+05	1.710E+05	1.755E+05[QC:c]
S96T003989	153:22	Upper half	1.880E+05	1.780E+05	1.830E+05[QC:b]
S96T003987		Lower half	1.800E+05	1.810E+05	1.805E+05[QC:b,c]
S96T004257	Core 152	Solid composite	1.570E+05	1.530E+05	1.550E+05[QC:b]
S96T004262		Solid composite	1.750E+05	1.540E+05	1.645E+05

Table B2-45. Tank 241-AN-105 Analytical Results: Sodium (ICP). (3 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: fusion			µg/g	µg/g	µg/g
S96T003893	152: 1	Upper half	2.380E+05	2.540E+05	2.460E+05[QC:c]
S96T003894	152:14	Upper half	2.380E+05	2.160E+05	2.270E+05
S96T003827		Lower half	2.350E+05	2.220E+05	2.285E+05[QC:d]
S96T003895	152:16	Upper half	2.500E+05	2.220E+05	2.360E+05
S96T003889		Lower half	2.250E+05	2.350E+05	2.300E+05
S96T003896	152:18	Upper half	2.410E+05	2.380E+05	2.395E+05[QC:d]
S96T003890		Lower half	2.580E+05	2.450E+05	2.515E+05
S96T003897	152:20	Upper half	2.280E+05	2.270E+05	2.275E+05
S96T003891		Lower half	2.320E+05	2.250E+05	2.285E+05
S96T003892	152:22	Upper half	2.390E+05	2.320E+05	2.355E+05
S96T004337	153:14	Lower half	2.220E+05	2.150E+05	2.185E+05[QC:c]
S96T004314	153:15	Upper half	2.150E+05	2.170E+05	2.160E+05[QC:c]
S96T004317		Lower half	2.230E+05	2.300E+05	2.265E+05[QC:c]
S96T004441	153:17	Upper half	2.230E+05	2.250E+05	2.240E+05[QC:c]
S96T004442		Lower half	2.150E+05	2.200E+05	2.175E+05
S96T004443	153:19	Lower half	2.190E+05	2.210E+05	2.200E+05
S96T003984	153:21	Lower half	2.280E+05	2.240E+05	2.260E+05[QC:c]
S96T003986	153:22	Upper half	2.380E+05	2.350E+05	2.365E+05
S96T003985		Lower half	2.130E+05	2.140E+05	2.135E+05

Table B2-46. Tank 241-AN-105 Analytical Results: Strontium (ICP). (3 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids			µg/g	µg/g	µg/g
S96T003732	152: 1	Drainable liquid	< 2.82	< 2.82	< 2.82
S96T003739	152: 2	Drainable liquid	< 2.82	< 2.82	< 2.82
S96T003740	152: 3	Drainable liquid	< 2.82	< 2.82	< 2.82
S96T003741	152: 4	Drainable liquid	< 2.82	< 2.82	< 2.82
S96T003742	152: 5	Drainable liquid	< 2.82	< 2.82	< 2.82
S96T003743	152: 6	Drainable liquid	< 2.82	< 2.82	< 2.82
S96T003744	152: 7	Drainable liquid	< 2.82	< 2.82	< 2.82
S96T003745	152: 8	Drainable liquid	< 2.82	< 2.82	< 2.82
S96T003746	152: 9	Drainable liquid	< 2.82	< 2.82	< 2.82
S96T003747	152:10	Drainable liquid	< 4.23	< 4.23	< 4.23
S96T003748	152:11	Drainable liquid	< 4.23	< 4.23	< 4.23
S96T003749	152:12	Drainable liquid	< 4.23	< 4.23	< 4.23
S96T003750	152:13	Drainable liquid	< 4.23	< 4.23	< 4.23
S96T003751	152:14	Drainable liquid	< 2.82	< 2.82	< 2.82
S96T004433	153: 1	Drainable liquid	< 2.82	< 2.82	< 2.82
S96T004308	153: 2	Drainable liquid	< 4.23	< 4.23	< 4.23
S96T004434	153: 3	Drainable liquid	< 2.82	< 2.82	< 2.82
S96T004419	153: 5	Drainable liquid	< 4.23	< 4.23	< 4.23
S96T004420	153: 6	Drainable liquid	< 4.23	< 4.23	< 4.23
S96T004421	153: 7	Drainable liquid	< 2.82	< 2.82	< 2.82
S96T003975	153: 8	Drainable liquid	< 2.82	< 2.82	< 2.82
S96T003976	153: 9	Drainable liquid	< 2.82	< 2.82	< 2.82
S96T004309	153:10	Drainable liquid	< 4.23	< 4.23	< 4.23
S96T003979	153:11	Drainable liquid	< 4.23	< 4.23	< 4.23
S96T003977	153:12	Drainable liquid	< 4.23	< 4.23	< 4.23
S96T003978	153:13	Drainable liquid	< 4.23	< 4.23	< 4.23
S96T004333	153:14	Drainable liquid	< 4.23	< 4.23	< 4.23
S96T003980	153:21	Drainable liquid	< 4.23	< 4.23	< 4.23
S96T004831	Core 152	Liquid composite	< 4.23	< 4.23	< 4.23

Table B2-46. Tank 241-AN-105 Analytical Results: Strontium (ICP). (3 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids: acid digest			µg/g	µg/g	µg/g
S96T004144	Core 152	Liquid composite	< 3.69	< 3.52	< 3.60
Solids: acid digest			µg/g	µg/g	µg/g
S96T003906	152: 1	Upper half	< 3.86	< 4.03	< 3.94
S96T003898	152:14	Upper half	< 3.93	< 3.88	< 3.90
S96T003828		Lower half	< 4.04	< 3.93	< 3.98
S96T003899	152:16	Upper half	< 3.96	< 3.98	< 3.97
S96T003900		Lower half	< 3.93	< 3.93	< 3.93
S96T003901	152:18	Upper half	< 3.89	< 3.96	< 3.92
S96T003902		Lower half	< 4	< 4.04	< 4.02
S96T003903	152:20	Upper half	< 3.83	< 3.76	< 3.79
S96T003904		Lower half	< 3.75	< 3.71	< 3.73
S96T003905	152:22	Upper half	< 3.96	< 4.14	< 4.05
S96T004338	153:14	Lower half	< 4.67	< 4.78	< 4.72
S96T004315	153:15	Upper half	< 4.76	< 4.78	< 4.77
S96T004318		Lower half	< 4.79	< 4.51	< 4.65
S96T004444	153:17	Upper half	< 4.83	< 4.75	< 4.79
S96T004445		Lower half	< 3.71	3.75	< 3.73
S96T004446	153:19	Lower half	< 3.82	< 3.82	< 3.82
S96T003988	153:21	Lower half	< 3.56	< 3.56	< 3.56
S96T003989	153:22	Upper half	< 4.65	< 4.62	< 4.63
S96T003987		Lower half	9.06	9.73	9.39
S96T004257	Core 152	Solid composite	< 3.83	< 4.03	< 3.93
S96T004262		Solid composite	< 3.89	< 3.7	< 3.79

Table B2-46. Tank 241-AN-105 Analytical Results: Strontium (ICP). (3 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: fusion			µg/g	µg/g	µg/g
S96T003893	152: 1	Upper half	< 198	< 201	< 199.5
S96T003894	152:14	Upper half	< 204	< 200	< 202
S96T003827		Lower half	< 201	< 206	< 203.5
S96T003895	152:16	Upper half	< 204	< 201	< 202.5
S96T003889		Lower half	< 203	< 200	< 201.5
S96T003896	152:18	Upper half	< 207	< 201	< 204
S96T003890		Lower half	< 206	< 207	< 206.5
S96T003897	152:20	Upper half	< 212	< 207	< 209.5
S96T003891		Lower half	< 204	< 206	< 205
S96T003892	152:22	Upper half	< 209	< 212	< 210.5
S96T004337	153:14	Lower half	< 203	< 203	< 203
S96T004314	153:15	Upper half	< 191	< 192	< 191.5
S96T004317		Lower half	< 200	< 203	< 201.5
S96T004441	153:17	Upper half	< 196	< 196	< 196
S96T004442		Lower half	< 201	< 200	< 200.5
S96T004443	153:19	Lower half	< 202	< 200	< 201
S96T003984	153:21	Lower half	< 201	< 201	< 201
S96T003986	153:22	Upper half	< 200	< 203	< 201.5
S96T003985		Lower half	< 201	< 201	< 201

Table B2-47. Tank 241-AN-105 Analytical Results: Sulfur (ICP). (3 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids			µg/g	µg/g	µg/g
S96T003732	152: 1	Drainable liquid	711.26	690.14	700.70
S96T003739	152: 2	Drainable liquid	654.93	500.70	577.81[QC:e,e]
S96T003740	152: 3	Drainable liquid	669.71	490.84	580.28[QC:e]
S96T003741	152: 4	Drainable liquid	570.42	533.80	552.11[QC:d]
S96T003742	152: 5	Drainable liquid	640.84	541.54	591.19[QC:e]
S96T003743	152: 6	Drainable liquid	732.39	795.77	764.08
S96T003744	152: 7	Drainable liquid	598.59	667.60	633.09[QC:d]
S96T003745	152: 8	Drainable liquid	574.64	682.39	628.52[QC:d]
S96T003746	152: 9	Drainable liquid	686.62	694.36	690.49
S96T003747	152:10	Drainable liquid	668.31	685.21	676.76
S96T003748	152:11	Drainable liquid	677.46	686.62	682.04
S96T003749	152:12	Drainable liquid	672.53	650	661.26
S96T003750	152:13	Drainable liquid	657.04	653.52	655.28
S96T003751	152:14	Drainable liquid	678.87	688.02	683.45
S96T004433	153: 1	Drainable liquid	781.69	732.39	757.04
S96T004308	153: 2	Drainable liquid	725.35	718.31	721.83
S96T004434	153: 3	Drainable liquid	550.70	583.80	567.25[QC:d]
S96T004419	153: 5	Drainable liquid	718.31	718.31	718.31
S96T004420	153: 6	Drainable liquid	661.26	718.31	689.78
S96T004421	153: 7	Drainable liquid	676.76	753.52	715.14
S96T003975	153: 8	Drainable liquid	462.67	434.50	448.59
S96T003976	153: 9	Drainable liquid	615.49	732.39	673.94
S96T004309	153:10	Drainable liquid	718.31	739.43	728.87
S96T003979	153:11	Drainable liquid	697.18	683.80	690.49
S96T003977	153:12	Drainable liquid	688.73	704.22	696.47
S96T003978	153:13	Drainable liquid	645.77	600	622.88
S96T004333	153:14	Drainable liquid	688.02	718.31	703.16
S96T003980	153:21	Drainable liquid	936.62	922.53	929.57
S96T004831	Core 152	Liquid composite	725.35	699.29	712.32

Table B2-47. Tank 241-AN-105 Analytical Results: Sulfur (ICP). (3 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids: acid digest			µg/g	µg/g	µg/g
S96T004144	Core 152	Liquid composite	615.49	619.71	617.60
Solids: acid digest			µg/g	µg/g	µg/g
S96T003906	152: 1	Upper half	1,580	1,500	1,540
S96T003898	152:14	Upper half	2,030	2,080	2,055
S96T003828		Lower half	2,180	2,230	2,205
S96T003899	152:16	Upper half	2,940	2,990	2,965
S96T003900		Lower half	3,100	3,150	3,125
S96T003901	152:18	Upper half	3,300	3,230	3,265
S96T003902		Lower half	3,170	3,260	3,215
S96T003903	152:20	Upper half	2,740	2,720	2,730
S96T003904		Lower half	3,390	3,430	3,410
S96T003905	152:22	Upper half	2,610	2,700	2,655
S96T004338	153:14	Lower half	2,050	2,210	2,130
S96T004315	153:15	Upper half	2,190	2,270	2,230
S96T004318		Lower half	2,000	2,150	2,075
S96T004444	153:17	Upper half	2,230	2,220	2,225
S96T004445		Lower half	2,310	2,360	2,335
S96T004446	153:19	Lower half	2,470	2,570	2,520
S96T003988	153:21	Lower half	2,820	2,710	2,765
S96T003989	153:22	Upper half	2,370	2,190	2,280
S96T003987		Lower half	711	754	732.5
S96T004257	Core 152	Solid composite	2,320	2,030	2,175
S96T004262		Solid composite	1,530	1,360	1,445

Table B2-47. Tank 241-AN-105 Analytical Results: Sulfur (ICP). (3 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: fusion			µg/g	µg/g	µg/g
S96T003893	152: 1	Upper half	< 1,980	< 2,010	< 1,995
S96T003894	152:14	Upper half	< 2,040	< 2,000	< 2,020
S96T003827		Lower half	< 2,010	2,080	< 2,045
S96T003895	152:16	Upper half	2,890	2,880	2,885
S96T003889		Lower half	3,000	3,140	3,070
S96T003896	152:18	Upper half	3,250	3,350	3,300
S96T003890		Lower half	3,270	3,290	3,280
S96T003897	152:20	Upper half	3,100	3,030	3,065
S96T003891		Lower half	2,480	2,490	2,485
S96T003892	152:22	Upper half	3,420	3,690	3,555
S96T004337	153:14	Lower half	2,050	2,120	2,085
S96T004314	153:15	Upper half	2,060	2,550	2,305[QC:e]
S96T004317		Lower half	2,390	2,640	2,515
S96T004441	153:17	Upper half	3,040	2,640	2,840
S96T004442		Lower half	2,650	2,660	2,655
S96T004443	153:19	Lower half	3,210	2,720	2,965
S96T003984	153:21	Lower half	3,500	3,490	3,495
S96T003986	153:22	Upper half	2,520	2,530	2,525
S96T003985		Lower half	< 2,010	< 2,010	< 2,010

Table B2-48. Tank 241-AN-105 Analytical Results: Zinc (ICP). (3 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids			µg/g	µg/g	µg/g
S96T003732	152: 1	Drainable liquid	16.54	16.54	16.54
S96T003739	152: 2	Drainable liquid	13.09	15.49	14.29
S96T003740	152: 3	Drainable liquid	15.63	17.60	16.61
S96T003741	152: 4	Drainable liquid	13.09	11.69	12.39
S96T003742	152: 5	Drainable liquid	18.23	14.15	16.19[QC:e]
S96T003743	152: 6	Drainable liquid	20.63	21.33	20.98
S96T003744	152: 7	Drainable liquid	22.88	25.77	24.33
S96T003745	152: 8	Drainable liquid	18.73	24.64	21.69[QC:e]
S96T003746	152: 9	Drainable liquid	23.38	21.40	22.39
S96T003747	152:10	Drainable liquid	11.69	12.46	12.07
S96T003748	152:11	Drainable liquid	11.33	11.40	11.37
S96T003749	152:12	Drainable liquid	11.47	11.26	11.37
S96T003750	152:13	Drainable liquid	10.35	10.35	10.35
S96T003751	152:14	Drainable liquid	31.97	28.80	30.38
S96T004433	153: 1	Drainable liquid	57.11	38.09	47.60[QC:e]
S96T004308	153: 2	Drainable liquid	16.54	14.85	15.70
S96T004434	153: 3	Drainable liquid	39.01	33.73	36.37
S96T004419	153: 5	Drainable liquid	29.43	29.36	29.40
S96T004420	153: 6	Drainable liquid	25.84	27.60	26.72
S96T004421	153: 7	Drainable liquid	46.33	42.25	44.29
S96T003975	153: 8	Drainable liquid	40.49	28.94	34.71[QC:e]
S96T003976	153: 9	Drainable liquid	38.30	34.08	36.19
S96T004309	153:10	Drainable liquid	17.18	17.32	17.25
S96T003979	153:11	Drainable liquid	10.21	9.78	10
S96T003977	153:12	Drainable liquid	11.12	11.47	11.30
S96T003978	153:13	Drainable liquid	9.43	8.80	9.11
S96T004333	153:14	Drainable liquid	30.56	29.71	30.14
S96T003980	153:21	Drainable liquid	27.67	26.97	27.32
S96T004831	Core 152	Liquid composite	12.04	12.74	12.39

Table B2-48. Tank 241-AN-105 Analytical Results: Zinc (ICP). (3 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids: acid digest			µg/g	µg/g	µg/g
S96T004144	Core 152	Liquid composite	54.71	52.46	53.59[QC:f]
Solids: acid digest			µg/g	µg/g	µg/g
S96T003906	152: 1	Upper half	32.2	31.2	31.7
S96T003898	152:14	Upper half	36.1	35.7	35.9
S96T003828		Lower half	35.9	37.4	36.65
S96T003899	152:16	Upper half	35.9	35.4	35.65
S96T003900		Lower half	37.2	41.9	39.55
S96T003901	152:18	Upper half	40	38.9	39.45
S96T003902		Lower half	34.8	38	36.4
S96T003903	152:20	Upper half	37	38.3	37.65
S96T003904		Lower half	38.2	35.6	36.9
S96T003905	152:22	Upper half	36.5	37.9	37.2
S96T004338	153:14	Lower half	57.9	54	55.95
S96T004315	153:15	Upper half	57.2	42.1	49.65[QC:e]
S96T004318		Lower half	43.2	40.1	41.65
S96T004444	153:17	Upper half	42.3	41.8	42.05
S96T004445		Lower half	30.5	42.1	36.3[QC:e]
S96T004446	153:19	Lower half	66.8	43.9	55.35[QC:e]
S96T003988	153:21	Lower half	38	47.4	42.7[QC:e]
S96T003989	153:22	Upper half	49.5	51.5	50.5
S96T003987		Lower half	63.2	75.3	69.25
S96T004257	Core 152	Solid composite	7.78	8.58	8.18[QC:a,c]
S96T004262		Solid composite	13.4	9.7	11.55[QC:e]

Table B2-48. Tank 241-AN-105 Analytical Results: Zinc (ICP). (3 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: fusion			µg/g	µg/g	µg/g
S96T003893	152: 1	Upper half	704	586	645
S96T003894	152:14	Upper half	397	616	506.5[QC:e]
S96T003827		Lower half	432	810	621[QC:e]
S96T003895	152:16	Upper half	780	350	565[QC:e]
S96T003889		Lower half	< 203	< 200	< 201.5
S96T003896	152:18	Upper half	< 207	< 201	< 204
S96T003890		Lower half	< 206	< 207	< 206.5
S96T003897	152:20	Upper half	< 212	< 207	< 209.5
S96T003891		Lower half	375	375	375
S96T003892	152:22	Upper half	657	770	713.5
S96T004337	153:14	Lower half	< 203	< 203	< 203
S96T004314	153:15	Upper half	< 191	< 192	< 191.5
S96T004317		Lower half	< 200	< 203	< 201.5
S96T004441	153:17	Upper half	< 196	< 196	< 196
S96T004442		Lower half	< 201	< 200	< 200.5
S96T004443	153:19	Lower half	< 202	< 200	< 201
S96T003984	153:21	Lower half	< 201	< 201	< 201
S96T003986	153:22	Upper half	< 200	< 203	< 201.5
S96T003985		Lower half	< 201	< 201	< 201

Table B2-49. Tank 241-AN-105 Analytical Results: Zirconium (ICP). (3 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids			µg/g	µg/g	µg/g
S96T003732	152: 1	Drainable liquid	3.31	3.35	3.33
S96T003739	152: 2	Drainable liquid	3	< 2.82	< 2.91
S96T003740	152: 3	Drainable liquid	3.19	2.95	3.07
S96T003741	152: 4	Drainable liquid	3.21	3.18	3.19
S96T003742	152: 5	Drainable liquid	3.59	3.46	3.52
S96T003743	152: 6	Drainable liquid	2.86	3.61	3.23[QC:e]
S96T003744	152: 7	Drainable liquid	< 2.82	< 2.82	< 2.82
S96T003745	152: 8	Drainable liquid	< 2.82	2.82	< 2.82
S96T003746	152: 9	Drainable liquid	2.85	< 2.82	< 2.83
S96T003747	152:10	Drainable liquid	< 4.23	< 4.23	< 4.23
S96T003748	152:11	Drainable liquid	4.28	< 4.23	< 4.26
S96T003749	152:12	Drainable liquid	< 4.23	< 4.23	< 4.23
S96T003750	152:13	Drainable liquid	< 4.23	< 4.23	< 4.23
S96T003751	152:14	Drainable liquid	< 2.82	< 2.82	< 2.82
S96T004433	153: 1	Drainable liquid	2.86	< 2.82	< 2.84
S96T004308	153: 2	Drainable liquid	< 4.23	< 4.23	< 4.23
S96T004434	153: 3	Drainable liquid	< 2.82	2.92	< 2.87
S96T004419	153: 5	Drainable liquid	< 4.23	< 4.23	< 4.23
S96T004420	153: 6	Drainable liquid	< 4.23	< 4.23	< 4.23
S96T004421	153: 7	Drainable liquid	< 2.82	< 2.82	< 2.82
S96T003975	153: 8	Drainable liquid	3.05	< 2.82	< 2.94
S96T003976	153: 9	Drainable liquid	< 2.82	2.95	< 2.89
S96T004309	153:10	Drainable liquid	< 4.23	< 4.23	< 4.23
S96T003979	153:11	Drainable liquid	< 4.23	< 4.23	< 4.23
S96T003977	153:12	Drainable liquid	< 4.23	< 4.23	< 4.23
S96T003978	153:13	Drainable liquid	< 4.23	< 4.23	< 4.23
S96T004333	153:14	Drainable liquid	< 4.23	< 4.23	< 4.23
S96T003980	153:21	Drainable liquid	< 4.23	< 4.23	< 4.23
S96T004831	Core 152	Liquid composite	< 4.23	< 4.23	< 4.23

Table B2-49. Tank 241-AN-105 Analytical Results: Zirconium (ICP). (3 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids: acid digest			µg/g	µg/g	µg/g
S96T004144	Core 152	Liquid composite	< 3.69014	3.52113	< 3.60563
Solids: acid digest			µg/g	µg/g	µg/g
S96T003906	152: 1	Upper half	< 3.86	< 4.03	< 3.94
S96T003898	152:14	Upper half	4.44	4.7	4.57
S96T003828		Lower half	4.44	4.15	4.29
S96T003899	152:16	Upper half	6.23	6.37	6.3
S96T003900		Lower half	6.64	7.5	7.07
S96T003901	152:18	Upper half	8.92	8.77	8.84
S96T003902		Lower half	7.8	7.43	7.61
S96T003903	152:20	Upper half	7.5	7.56	7.53
S96T003904		Lower half	7.45	7.72	7.58
S96T003905	152:22	Upper half	25.2	25.3	25.25
S96T004338	153:14	Lower half	4.92	4.85	4.88
S96T004315	153:15	Upper half	5.32	5.66	5.49
S96T004318		Lower half	< 4.79	< 4.51	< 4.65
S96T004444	153:17	Upper half	5.58	6.53	6.05
S96T004445		Lower half	8.09	12.1	10.09[QC:e]
S96T004446	153:19	Lower half	6.61	7.08	6.84
S96T003988	153:21	Lower half	5.93	5.55	5.74
S96T003989	153:22	Upper half	6.95	< 4.62	< 5.78
S96T003987		Lower half	33.1	118	75.55[QC:e]
S96T004257	Core 152	Solid composite	4.51	< 4.03	< 4.27
S96T004262		Solid composite	52.7	59	55.85

Table B2-49. Tank 241-AN-105 Analytical Results: Zirconium (ICP). (3 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: fusion			µg/g	µg/g	µg/g
S96T003893	152: 1	Upper half	< 198	< 201	< 199.5
S96T003894	152:14	Upper half	< 204	< 200	< 202
S96T003827		Lower half	< 201	< 206	< 203.5
S96T003895	152:16	Upper half	< 204	< 201	< 202.5
S96T003889		Lower half	< 203	< 200	< 201.5
S96T003896	152:18	Upper half	< 207	< 201	< 204
S96T003890		Lower half	< 206	< 207	< 206.5
S96T003897	152:20	Upper half	< 212	< 207	< 209.5
S96T003891		Lower half	< 204	< 206	< 205
S96T003892	152:22	Upper half	< 209	< 212	< 210.5
S96T004337	153:14	Lower half	< 203	< 203	< 203
S96T004314	153:15	Upper half	< 191	< 192	< 191.5
S96T004317		Lower half	< 200	< 203	< 201.5
S96T004441	153:17	Upper half	< 196	< 196	< 196
S96T004442		Lower half	< 201	< 200	< 200.5
S96T004443	153:19	Lower half	< 202	< 200	< 201
S96T003984	153:21	Lower half	< 201	< 201	< 201
S96T003986	153:22	Upper half	< 200	< 203	< 201.5
25-1643985		Lower half	373	480	426.5[QC:e]

Table B2-50. Tank 241-AN-105 ICP Results with Less Than Value.

Analytes	Maximum "Less Than" Value (μg\g)
Antimony	< 1270
Arsenic	< 2120
Barium	< 1060
Beryllium	< 106
Cerium	< 2120
Cobalt	< 424
Lanthanum	< 1060
Neodymium	< 2120
Samarium	< 2120
Selenium	< 2120
Thallium	< 4250
Titanium	< 2120
Total Uranium	< 10,600
Vanadium	< 30

Table B2-51. Tank 241-AN-105 Analytical Results: Acetate (IC). (2 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids			µg/g	µg/g	µg/g
S96T003732	152: 1	Drainable liquid	541.12	478.87	510
S96T003739	152: 2	Drainable liquid	526.40	511.97	519.19
S96T003740	152: 3	Drainable liquid	483.80	504.22	494.01
S96T003741	152: 4	Drainable liquid	511.54	< 298.59	< 405.07
S96T003742	152: 5	Drainable liquid	343.94	< 298.59	< 321.26
S96T003743	152: 6	Drainable liquid	< 298.59	< 298.59	< 298.59
S96T003744	152: 7	Drainable liquid	472.95	401.40	437.18
S96T003745	152: 8	Drainable liquid	314.50	323.23	318.87
S96T003746	152: 9	Drainable liquid	23.35	22.95	23.15
S96T003747	152:10	Drainable liquid	374.50	378.87	376.69
S96T003748	152:11	Drainable liquid	309.78	286.62	298.20
S96T003749	152:12	Drainable liquid	291.12	319.01	305.07
S96T003750	152:13	Drainable liquid	424.01	421.83	422.92
S96T003751	152:14	Drainable liquid	493.23	533.09	513.16
S96T004433	153: 1	Drainable liquid	1,068.31	488.73	778.52[QC:e]
S96T004308	153: 2	Drainable liquid	408.45	457.74	433.09
S96T004434	153: 3	Drainable liquid	318.52	321.12	319.82
S96T004419	153: 5	Drainable liquid	424.29	375.35	399.82
S96T004420	153: 6	Drainable liquid	567.46	669.71	618.59
S96T004421	153: 7	Drainable liquid	302.81	535.91	419.36[QC:e]
S96T003975	153: 8	Drainable liquid	166.69	173.23	169.96
S96T003976	153: 9	Drainable liquid	474.50	490.14	482.32
S96T004309	153:10	Drainable liquid	572.11	604.22	588.16
S96T003979	153:11	Drainable liquid	471.05	461.26	466.16
S96T003977	153:12	Drainable liquid	435.49	486.62	461.05
S96T003978	153:13	Drainable liquid	419.64	456.33	437.99
S96T004333	153:14	Drainable liquid	543.80	556.33	550.07
S96T003980	153:21	Drainable liquid	923.94	866.19	895.07
S96T004831	Core 152	Liquid composite	451.33	452.11	451.72

Table B2-51. Tank 241-AN-105 Analytical Results: Acetate (IC). (2 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: water digest			µg/g	µg/g	µg/g
S96T003915	152: 1	Upper half	757.2	< 159	< 458.1
S96T003907	152:14	Upper half	855.9	782	818.95
S96T003829		Lower half	655.4	764	709.7
S96T003908	152:16	Upper half	< 166.5	736	< 451.25
S96T003909		Lower half	667.7	571	619.35
S96T003910	152:18	Upper half	622.6	599	610.8
S96T003911		Lower half	784.6	437	610.8[QC:e]
S96T003912	152:20	Upper half	798.5	450	624.25[QC:e]
S96T003913		Lower half	860.8	756	808.4
S96T003914	152:22	Upper half	655	645	650
S96T004339	153:14	Lower half	827.1	808	817.55
S96T004316	153:15	Upper half	557.3	560	558.65
S96T004319		Lower half	< 82.06	< 83.4	< 82.73
S96T004447	153:17	Upper half	389.3	394	391.65
S96T004448		Lower half	765.6	805	785.3
S96T005325		Lower half	536.9	501	518.95
S96T004449	153:19	Lower half	914.4	897	905.7
S96T005326		Lower half	536.4	533	534.7
S96T003990	153:21	Lower half	823.4	729	776.2
S96T003992	153:22	Upper half	719.6	591	655.3
S96T003991		Lower half	< 82.5	< 83	< 82.75
S96T004258	Core 152	Solid composite	470.1	474	472.05[QC:a]
S96T004263		Solid composite	< 79.01	< 78.3	< 78.65

Table B2-52. Tank 241-AN-105 Analytical Results: Bromide (IC)[1]. (2 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids			µg/g	µg/g	µg/g
S96T003732	152: 1	Drainable liquid	< 367.46	461.97	< 414.71
S96T003739	152: 2	Drainable liquid	724.64	746.47	735.56
S96T003740	152: 3	Drainable liquid	864.08	816.90	840.49
S96T003741	152: 4	Drainable liquid	601.26	< 457.04	< 529.15
S96T003742	152: 5	Drainable liquid	< 904.93	< 908.45	< 906.69
S96T003743	152: 6	Drainable liquid	1,173.24	1,169.01	1,171.13
S96T003744	152: 7	Drainable liquid	745.77	760.56	753.16
S96T003745	152: 8	Drainable liquid	544.36	564.08	554.22
S96T003746	152: 9	Drainable liquid	505.35	523.94	514.64
S96T003747	152:10	Drainable liquid	760.56	732.39	746.47
S96T003748	152:11	Drainable liquid	450.28	460.56	455.42
S96T003749	152:12	Drainable liquid	716.19	732.39	724.29
S96T003750	152:13	Drainable liquid	811.97	802.81	807.39
S96T003751	152:14	Drainable liquid	1,168.31	1,169.01	1,168.66
S96T004433	153: 1	Drainable liquid	< 364.50	< 364.78	< 364.64
S96T004308	153: 2	Drainable liquid	594.64	603.52	599.08
S96T004434	153: 3	Drainable liquid	670.56	670.42	670.49
S96T004419	153: 5	Drainable liquid	734.50	760.56	747.53
S96T004420	153: 6	Drainable liquid	816.90	774.64	795.77
S96T004421	153: 7	Drainable liquid	723.23	711.26	717.25
S96T003975	153: 8	Drainable liquid	821.83	823.94	822.88
S96T003976	153: 9	Drainable liquid	459.15	473.94	466.54
S96T004309	153:10	Drainable liquid	699.43	672.53	685.98
S96T003979	153:11	Drainable liquid	471.76	477.46	474.61
S96T003977	153:12	Drainable liquid	558.59	588.73	573.66
S96T003978	153:13	Drainable liquid	540.84	552.81	546.83
S96T004333	153:14	Drainable liquid	583.80	583.80	583.80
S96T003980	153:21	Drainable liquid	4,152.82	4,190.14	4,171.48
S96T004039	Core 152	Liquid composite	< 367.46	< 367.60	< 367.53

Table B2-52. Tank 241-AN-105 Analytical Results: Bromide (IC)[1]. (2 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: water digest			µg/g	µg/g	µg/g
S96T003915	152: 1	Upper half	< 514.4	< 512	< 513.2
S96T003907	152:14	Upper half	657.8	724	690.9
S96T003829		Lower half	< 274.8	340	< 307.4
S96T003908	152:16	Upper half	< 281.4	< 270	< 275.7
S96T003909		Lower half	< 1,030	< 1,030	< 1,030
S96T003910	152:18	Upper half	< 1,052	< 1,020	< 1,036
S96T003911		Lower half	< 1,020	< 1,000	< 1,010
S96T003912	152:20	Upper half	< 1,045	< 1,070	< 1,057.5
S96T003913		Lower half	< 527	< 572	< 549.5
S96T003914	152:22	Upper half	< 578.5	< 539	< 558.75
S96T004339	153:14	Lower half	506.2	< 503	< 504.6
S96T004316	153:15	Upper half	758.2	730	744.1
S96T004319		Lower half	560.8	576	568.4
S96T004447	153:17	Upper half	515.7	537	526.35
S96T005325		Lower half	< 484	< 478	< 481
S96T005326	153:19	Lower half	< 485.6	< 491	< 488.3
S96T003990	153:21	Lower half	575.4	625	600.2
S96T003992	153:22	Upper half	< 616	< 630	< 623
S96T003991		Lower half	835	793	814
S96T004258	Core 152	Solid composite	< 558.2	< 538	< 548.1
S96T004263		Solid composite	< 493.8	< 489	< 491.4

Note:

[1] Bromide is in hydrostatic head fluid.

Table B2-53. Tank 241-AN-105 Analytical Results: Chloride (IC). (2 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids			µg/g	µg/g	µg/g
S96T003732	152: 1	Drainable liquid	6,946.48	6,605.63	6,776.06
S96T003739	152: 2	Drainable liquid	6,510.56	6,542.25	6,526.41
S96T003740	152: 3	Drainable liquid	7,042.25	7,183.1	7,112.68
S96T003741	152: 4	Drainable liquid	6,986.62	7,183.1	7,084.86
S96T003742	152: 5	Drainable liquid	2,021.83	2,042.25	2,032.04
S96T003743	152: 6	Drainable liquid	17,852.1	18,169	18,010.6[QC:d]
S96T003744	152: 7	Drainable liquid	7,098.59	7,042.25	7,070.42
S96T003745	152: 8	Drainable liquid	6,850.7	6,845.07	6,847.89
S96T003746	152: 9	Drainable liquid	6,764.79	6,626.76	6,695.77
S96T003747	152:10	Drainable liquid	6,801.41	6,697.18	6,749.3
S96T003748	152:11	Drainable liquid	7,084.51	7,112.68	7,098.59
S96T003749	152:12	Drainable liquid	6,921.13	6,964.79	6,942.96
S96T003750	152:13	Drainable liquid	7,084.51	6,950.7	7,017.61
S96T003751	152:14	Drainable liquid	7,471.83	7,394.37	7,433.1[QC:c]
S96T004433	153: 1	Drainable liquid	7,492.96	7,323.94	7,408.45
S96T004308	153: 2	Drainable liquid	7,154.93	7,042.25	7,098.59
S96T004434	153: 3	Drainable liquid	7,147.89	6,964.79	7,056.34
S96T004419	153: 5	Drainable liquid	7,246.48	7,042.25	7,144.37
S96T004420	153: 6	Drainable liquid	7,232.39	7,394.37	7,313.38
S96T004421	153: 7	Drainable liquid	7,647.89	7,746.48	7,697.18
S96T003975	153: 8	Drainable liquid	6,748.59	6,711.27	6,729.93
S96T003976	153: 9	Drainable liquid	6,652.82	6,774.65	6,713.73
S96T004309	153:10	Drainable liquid	6,561.27	6,309.86	6,435.56
S96T003979	153:11	Drainable liquid	6,786.62	6,746.48	6,766.55
S96T003977	153:12	Drainable liquid	6,952.11	7,183.1	7,067.61
S96T003978	153:13	Drainable liquid	6,658.45	6,669.01	6,663.73
S96T004333	153:14	Drainable liquid	7,176.06	7,112.68	7,144.37[QC:d]
S96T003980	153:21	Drainable liquid	6,559.15	6,436.62	6,497.89
S96T004039	Core 152	Liquid composite	7,147.89	7,183.1	7,165.49

Table B2-53. Tank 241-AN-105 Analytical Results: Chloride (IC). (2 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: water digest			µg/g	µg/g	µg/g
S96T003915	152: 1	Upper half	5,620	5,350	5,485
S96T003907	152:14	Upper half	5,550	5,710	5,630
S96T003829		Lower half	3,764	4,050	3,907
S96T003908	152:16	Upper half	4,155	4,080	4,117.5
S96T003909		Lower half	5,891	5,800	5,845.5
S96T003910	152:18	Upper half	5,317	5,130	5,223.5
S96T003911		Lower half	5,181	4,980	5,080.5
S96T003912	152:20	Upper half	5,236	5,180	5,208
S96T003913		Lower half	5,280	4,630	4,955[QC:c]
S96T003914	152:22	Upper half	4,439	4,430	4,434.5
S96T004339	153:14	Lower half	7,253	6,050	6,651.5[QC:c]
S96T004316	153:15	Upper half	5,846	5,530	5,688
S96T004319		Lower half	4,538	5,490	5,014[QC:d]
S96T004447	153:17	Upper half	4,924	6,090	5,507[QC:e]
S96T005325		Lower half	6,715	6,260	6,487.5
S96T005326	153:19	Lower half	6,529	6,170	6,349.5
S96T003990	153:21	Lower half	3,943	5,280	4,611.5[QC:d,e]
S96T003992	153:22	Upper half	4,904	4,780	4,842
S96T003991		Lower half	3,753	3,480	3,616.5
S96T004258	Core 152	Solid composite	5,851	5,910	5,880.5
S96T004263		Solid composite	4,345	3,800	4,072.5

Table B2-54. Tank 241-AN-105 Analytical Results: Fluoride (IC). (2 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids			µg/g	µg/g	µg/g
S96T003732	152: 1	Drainable liquid	< 37.90	< 37.88	< 37.89
S96T003739	152: 2	Drainable liquid	348.45	328.16	338.31
S96T003740	152: 3	Drainable liquid	356.90	354.22	355.56[QC:c]
S96T003741	152: 4	Drainable liquid	358.09	335.91	347.00
S96T003742	152: 5	Drainable liquid	< 93.38	< 93.66	< 93.52
S96T003743	152: 6	Drainable liquid	< 93.38	< 93.66	< 93.52[QC:d]
S96T003744	152: 7	Drainable liquid	308.16	302.11	305.14[QC:c]
S96T003745	152: 8	Drainable liquid	< 37.90	< 37.88	< 37.89[QC:d]
S96T003746	152: 9	Drainable liquid	< 37.90	< 37.88	< 37.89
S96T003747	152:10	Drainable liquid	699.71	< 37.88	< 368.80
S96T003748	152:11	Drainable liquid	314.78	329.57	322.18
S96T003749	152:12	Drainable liquid	329.64	325.35	327.5
S96T003750	152:13	Drainable liquid	< 37.90	< 37.88	< 37.89
S96T003751	152:14	Drainable liquid	< 37.90	< 37.88	< 37.89[QC:c]
S96T004433	153: 1	Drainable liquid	324.577	321.12	322.85[QC:c]
S96T004308	153: 2	Drainable liquid	316.549	303.52	310.03
S96T004434	153: 3	Drainable liquid	291.901	304.93	298.41
S96T004419	153: 5	Drainable liquid	308.944	314.78	311.86
S96T004420	153: 6	Drainable liquid	279.718	292.25	285.98[QC:c]
S96T004421	153: 7	Drainable liquid	294.93	286.62	290.77
S96T003975	153: 8	Drainable liquid	310.07	290.84	300.45
S96T003976	153: 9	Drainable liquid	323.87	302.11	312.99
S96T004309	153:10	Drainable liquid	304.93	287.32	296.12
S96T003979	153:11	Drainable liquid	< 37.90	< 37.88	< 37.89[QC:d]
S96T003977	153:12	Drainable liquid	< 37.90	< 37.88	< 37.89[QC:d]
S96T003978	153:13	Drainable liquid	< 37.90	< 37.88	< 37.89
S96T004333	153:14	Drainable liquid	318.66	309.15	313.90[QC:c]
S96T003980	153:21	Drainable liquid	< 37.90	< 37.88	< 37.89
S96T004039	Core 152	Liquid composite	< 37.90	< 37.88	< 37.89[QC:d]

Table B2-54. Tank 241-AN-105 Analytical Results: Fluoride (IC). (2 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: water digest			µg/g	µg/g	µg/g
S96T003915	152: 1	Upper half	269.1	527	398.05[QC:e]
S96T003907	152:14	Upper half	777.2	239	508.1[QC:e]
S96T003829		Lower half	411.8	455	433.4
S96T003908	152:16	Upper half	708.3	728	718.15
S96T003909		Lower half	1,778	1,430	1,604[QC:e]
S96T003910	152:18	Upper half	1,841	1,840	1,840.5
S96T003911		Lower half	2,654	2,640	2,647
S96T003912	152:20	Upper half	2,800	2,510	2,655
S96T003913		Lower half	1,712	1,890	1,801[QC:e]
S96T003914	152:22	Upper half	1,214	1,120	1,167
S96T004339	153:14	Lower half	1,411	1,150	1,280.5[QC:e]
S96T004316	153:15	Upper half	1,126	1,170	1,148
S96T004319		Lower half	1,093	1,090	1,091.5
S96T004447	153:17	Upper half	1,206	1,360	1,283
S96T005325		Lower half	1,221	1,260	1,240.5[QC:d]
S96T005326	153:19	Lower half	1,093	1,320	1,206.5
S96T003990	153:21	Lower half	1,150	1,380	1,265[QC:e]
S96T003992	153:22	Upper half	2,680	2,500	2,590
S96T003991		Lower half	10,140	8,650	9,395
S96T004258	Core 152	Solid composite	1,353	929	1,141[QC:e,e]
S96T004263		Solid composite	5,180	4,870	5,025

Table B2-55. Tank 241-AN-105 Analytical Results: Formate (IC). (2 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids			µg/g	µg/g	µg/g
S96T003732	152: 1	Drainable liquid	1,226.76	1,169.01	1,197.89
S96T003739	152: 2	Drainable liquid	1,164.79	1,204.23	1,184.51
S96T003740	152: 3	Drainable liquid	1,085.21	1,077.46	1,081.34
S96T003741	152: 4	Drainable liquid	1,080.99	1,084.51	1,082.75
S96T003742	152: 5	Drainable liquid	1,084.51	1,112.68	1,098.59
S96T003743	152: 6	Drainable liquid	1,220.42	1,176.06	1,198.24
S96T003744	152: 7	Drainable liquid	1,129.58	1,021.13	1,075.35
S96T003745	152: 8	Drainable liquid	1,044.37	1,042.25	1,043.31
S96T003746	152: 9	Drainable liquid	36.831	36.338	36.5845
S96T003747	152:10	Drainable liquid	961.268	964.789	963.028
S96T003748	152:11	Drainable liquid	1,054.93	1,077.46	1,066.2
S96T003749	152:12	Drainable liquid	1,200	1,232.39	1,216.2
S96T003750	152:13	Drainable liquid	1,133.8	1,133.8	1,133.8
S96T003751	152:14	Drainable liquid	1,198.59	1,232.39	1,215.49
S96T004433	153: 1	Drainable liquid	1,296.48	1,309.86	1,303.17
S96T004308	153: 2	Drainable liquid	1,191.55	1,274.65	1,233.1
S96T004434	153: 3	Drainable liquid	735.211	718.31	726.761
S96T004419	153: 5	Drainable liquid	1,147.89	1,098.59	1,123.24
S96T004420	153: 6	Drainable liquid	1,207.04	1,436.62	1,321.83
S96T004421	153: 7	Drainable liquid	1,332.39	1,267.61	1,300
S96T003975	153: 8	Drainable liquid	417.817	379.577	398.697
S96T003976	153: 9	Drainable liquid	1,239.44	1,218.31	1,228.87
S96T004309	153:10	Drainable liquid	1,436.62	1,394.37	1,415.49
S96T003979	153:11	Drainable liquid	1,193.66	1,246.48	1,220.07
S96T003977	153:12	Drainable liquid	1,307.04	1,246.48	1,276.76
S96T003978	153:13	Drainable liquid	1,116.9	1,183.1	1,150
S96T004333	153:14	Drainable liquid	1,367.61	1,359.15	1,363.38
S96T003980	153:21	Drainable liquid	1,051.41	964.789	1,008.1
S96T004831	Core 152	Liquid composite	1,140.85	1,140.85	1,140.85

Table B2-55. Tank 241-AN-105 Analytical Results: Formate (IC). (2 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: water digest			µg/g	µg/g	µg/g
S96T003915	152: 1	Upper half	1,355	1,240	1,297.5
S96T003907	152:14	Upper half	1,356	1,250	1,303
S96T003829		Lower half	1,021	1,170	1,095.5
S96T003908	152:16	Upper half	1,290	1,250	1,270
S96T003909		Lower half	1,213	1,110	1,161.5
S96T003910	152:18	Upper half	1,179	1,120	1,149.5
S96T003911		Lower half	772.8	888	830.4
S96T003912	152:20	Upper half	889.3	968	928.65
S96T003913		Lower half	1,016	988	1,002
S96T003914	152:22	Upper half	1,099	1,020	1,059.5
S96T004339	153:14	Lower half	1,172	1,180	1,176
S96T004316	153:15	Upper half	1,194	1,140	1,167
S96T004319		Lower half	664.5	715	689.75[QC:c]
S96T004447	153:17	Upper half	801.5	826	813.75
S96T004448		Lower half	1,018	1,130	1,074
S96T005325		Lower half	1,186	1,060	1,123
S96T004449	153:19	Lower half	1,114	1,090	1,102
S96T005326		Lower half	1,136	1,140	1,138
S96T003990	153:21	Lower half	1,265	1,170	1,217.5
S96T003992	153:22	Upper half	1,071	1,030	1,050.5
S96T003991		Lower half	985.1	894	939.55
S96T004258	Core 152	Solid composite	1,217	1,230	1,223.5
S96T004263		Solid composite	1,122	1,110	1,116

Table B2-56. Tank 241-AN-105 Analytical Results: Nitrate (IC). (2 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids			µg/g	µg/g	µg/g
S96T003732	152: 1	Drainable liquid	1.120E+05	1.113E+05	1.116E+05
S96T003739	152: 2	Drainable liquid	1.128E+05	1.134E+05	1.131E+05
S96T003740	152: 3	Drainable liquid	1.211E+05	1.225E+05	1.218E+05
S96T003741	152: 4	Drainable liquid	1.151E+05	1.162E+05	1.157E+05
S96T003742	152: 5	Drainable liquid	26,845.1	26,126.8	26,485.9
S96T003743	152: 6	Drainable liquid	2.952E+05	2.951E+05	2.951E+05[QC:d]
S96T003744	152: 7	Drainable liquid	1.189E+05	1.190E+05	1.189E+05
S96T003745	152: 8	Drainable liquid	1.146E+05	1.134E+05	1.140E+05
S96T003746	152: 9	Drainable liquid	92,112.7	91,549.3	91,831
S96T003747	152:10	Drainable liquid	1.111E+05	1.099E+05	1.105E+05
S96T003748	152:11	Drainable liquid	1.154E+05	1.155E+05	1.155E+05
S96T003749	152:12	Drainable liquid	1.072E+05	1.092E+05	1.082E+05
S96T003750	152:13	Drainable liquid	1.168E+05	1.169E+05	1.168E+05
S96T003751	152:14	Drainable liquid	1.123E+05	1.120E+05	1.121E+05
S96T004433	153: 1	Drainable liquid	1.166E+05	1.155E+05	1.160E+05
S96T004308	153: 2	Drainable liquid	1.142E+05	1.141E+05	1.141E+05
S96T004434	153: 3	Drainable liquid	1.131E+05	1.134E+05	1.132E+05
S96T004419	153: 5	Drainable liquid	1.194E+05	1.197E+05	1.195E+05
S96T004420	153: 6	Drainable liquid	1.116E+05	1.113E+05	1.114E+05
S96T004421	153: 7	Drainable liquid	1.172E+05	1.183E+05	1.178E+05
S96T003975	153: 8	Drainable liquid	1.125E+05	1.120E+05	1.122E+05
S96T003976	153: 9	Drainable liquid	1.092E+05	1.078E+05	1.085E+05
S96T004309	153:10	Drainable liquid	1.088E+05	1.049E+05	1.069E+05
S96T003979	153:11	Drainable liquid	1.080E+05	1.078E+05	1.079E+05
S96T003977	153:12	Drainable liquid	1.186E+05	1.211E+05	1.199E+05
S96T003978	153:13	Drainable liquid	1.125E+05	1.127E+05	1.126E+05
S96T004333	153:14	Drainable liquid	1.217E+05	1.218E+05	1.218E+05
S96T003980	153:21	Drainable liquid	1.227E+05	1.218E+05	1.223E+05
S96T004039	Core 152	Liquid composite	1.182E+05	1.176E+05	1.179E+05

Table B2-56. Tank 241-AN-105 Analytical Results: Nitrate (IC). (2 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: water digest			µg/g	µg/g	µg/g
S96T003915	152: 1	Upper half	1.489E+05	1.580E+05	1.535E+05
S96T003907	152:14	Upper half	1.059E+05	1.060E+05	1.060E+05
S96T003829		Lower half	60,510	65,600	63,055
S96T003908	152:16	Upper half	69,420	80,700	75,060
S96T003909		Lower half	95,370	96,900	96,135
S96T003910	152:18	Upper half	1.121E+05	1.120E+05	1.121E+05
S96T003911		Lower half	1.181E+05	1.140E+05	1.161E+05
S96T003912	152:20	Upper half	90,680	99,200	94,940
S96T003913		Lower half	1.553E+05	1.560E+05	1.557E+05[QC:c]
S96T003914	152:22	Upper half	1.651E+05	1.690E+05	1.671E+05
S96T004339	153:14	Lower half	1.177E+05	1.020E+05	1.099E+05[QC:c]
S96T004316	153:15	Upper half	1.022E+05	1.030E+05	1.026E+05
S96T004319		Lower half	94,440	99,300	96,870[QC:d]
S96T004447	153:17	Upper half	77,020		88,510[QC:d,e]
S96T005325		Lower half	1.048E+05	97,700	1.013E+05
S96T005326	153:19	Lower half	1.140E+05	1.270E+05	1.205E+05
S96T003990	153:21	Lower half	1.162E+05	1.860E+05	1.511E+05[QC:d,e]
S96T003992	153:22	Upper half	1.585E+05	1.690E+05	1.638E+05
S96T003991		Lower half	88,760	75,600	82,180
S96T004258	Core 152	Solid composite	1.169E+05	1.090E+05	1.130E+05
S96T004263		Solid composite	1.749E+05	1.470E+05	1.610E+05

Table B2-57. Tank 241-AN-105 Analytical Results: Nitrite (IC). (2 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids			µg/g	µg/g	µg/g
S96T003732	152: 1	Drainable liquid	90,422.5	88,028.2	89,225.4
S96T003739	152: 2	Drainable liquid	84,507	85,211.3	84,859.2
S96T003740	152: 3	Drainable liquid	91,126.8	90,140.8	90,633.8
S96T003741	152: 4	Drainable liquid	88,450.7	89,436.6	88,943.7
S96T003742	152: 5	Drainable liquid	22,647.9	21,760.6	22,204.2
S96T003743	152: 6	Drainable liquid	2.317E+05	2.317E+05	2.317E+05[QC:d]
S96T003744	152: 7	Drainable liquid	84,929.6	85,915.5	85,422.5
S96T003745	152: 8	Drainable liquid	89,084.5	88,028.2	88,556.3
S96T003746	152: 9	Drainable liquid	72,676.1	72,535.2	72,605.6
S96T003747	152:10	Drainable liquid	86,901.4	86,619.7	86,760.6
S96T003748	152:11	Drainable liquid	88,662	88,028.2	88,345.1
S96T003749	152:12	Drainable liquid	85,493	88,028.2	86,760.6
S96T003750	152:13	Drainable liquid	88,943.7	88,732.4	88,838
S96T003751	152:14	Drainable liquid	84,014.1	84,507	84,260.6
S96T004433	153: 1	Drainable liquid	90,563.4	89,436.6	90,000
S96T004308	153: 2	Drainable liquid	87,957.7	86,619.7	87,288.7
S96T004434	153: 3	Drainable liquid	86,549.3	85,915.5	86,232.4
S96T004419	153: 5	Drainable liquid	87,464.8	87,323.9	87,394.4
S96T004420	153: 6	Drainable liquid	81,760.6	81,690.1	81,725.4
S96T004421	153: 7	Drainable liquid	84,154.9	85,211.3	84,683.1
S96T003975	153: 8	Drainable liquid	85,140.8	85,211.3	85,176.1
S96T003976	153: 9	Drainable liquid	82,676.1	83,098.6	82,887.3
S96T004309	153:10	Drainable liquid	80,985.9	78,169	79,577.5
S96T003979	153:11	Drainable liquid	85,915.5	87,323.9	86,619.7
S96T003977	153:12	Drainable liquid	88,732.4	92,253.5	90,493
S96T003978	153:13	Drainable liquid	86,056.3	85,915.5	85,985.9
S96T004333	153:14	Drainable liquid	89,154.9	88,732.4	88,943.7
S96T003980	153:21	Drainable liquid	66,725.4	66,126.8	66,426.1
S96T004039	Core 152	Liquid composite	92,042.3	91,549.3	91,795.8

Table B2-57. Tank 241-AN-105 Analytical Results: Nitrite (IC). (2 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: water digest			µg/g	µg/g	µg/g
S96T003915	152: 1	Upper half	74,500	71,300	72,900
S96T003907	152:14	Upper half	74,600	77,100	75,850
S96T003829		Lower half	47,360	52,300	49,830
S96T003908	152:16	Upper half	52,530	52,900	52,715
S96T003909		Lower half	72,380	72,900	72,640
S96T003910	152:18	Upper half	66,210	65,600	65,905
S96T003911		Lower half	65,210	63,700	64,455
S96T003912	152:20	Upper half	64,900	64,400	64,650
S96T003913		Lower half	66,290	57,600	61,945[QC:c]
S96T003914	152:22	Upper half	53,110	52,800	52,955
S96T004339	153:14	Lower half	87,220	77,500	82,360[QC:c]
S96T004316	153:15	Upper half	72,840	70,000	71,420
S96T004319		Lower half	56,450	68,200	62,325[QC:d]
S96T004447	153:17	Upper half	58,930	72,700	65,815[QC:e]
S96T005325		Lower half	78,630	73,800	76,215
S96T005326	153:19	Lower half	75,230	72,600	73,915
S96T003990	153:21	Lower half	48,110	65,300	56,705[QC:d,e]
S96T003992	153:22	Upper half	60,530	57,000	58,765
S96T003991		Lower half	43,370	39,300	41,335
S96T004258	Core 152	Solid composite	72,900	73,200	73,050
S96T004263		Solid composite	51,100	44,300	47,700

Table B2-58. Tank 241-AN-105 Analytical Results: Oxalate (IC). (2 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids			µg/g	µg/g	µg/g
S96T003732	152: 1	Drainable liquid	< 306.19	< 306.33	< 306.26
S96T003739	152: 2	Drainable liquid	< 380.91	< 380.98	< 380.95
S96T003740	152: 3	Drainable liquid	< 380.91	< 380.98	< 380.95
S96T003741	152: 4	Drainable liquid	< 380.91	< 380.98	< 380.95
S96T003742	152: 5	Drainable liquid	< 754.22	< 753.52	< 753.87
S96T003743	152: 6	Drainable liquid	< 754.22	< 753.52	< 753.87
S96T003744	152: 7	Drainable liquid	< 306.19	347.88	< 327.04
S96T003745	152: 8	Drainable liquid	< 306.19	< 306.33	< 306.26
S96T003746	152: 9	Drainable liquid	< 306.19	< 306.33	< 306.26
S96T003747	152:10	Drainable liquid	11,331	< 306.33	< 5,818.66
S96T003748	152:11	Drainable liquid	181.26	190.14	185.70
S96T003749	152:12	Drainable liquid	< 380.91	< 380.98	< 380.95
S96T003750	152:13	Drainable liquid	< 306.19	< 306.33	< 306.26
S96T003751	152:14	Drainable liquid	< 306.19	< 306.33	< 306.26
S96T004433	153: 1	Drainable liquid	< 306.19	333.80	< 320
S96T004308	153: 2	Drainable liquid	< 306.19	< 306.33	< 306.26
S96T004434	153: 3	Drainable liquid	< 306.19	< 306.33	< 306.26
S96T004419	153: 5	Drainable liquid	< 306.19	< 306.33	< 306.26
S96T004420	153: 6	Drainable liquid	196.69	209.85	203.27
S96T004421	153: 7	Drainable liquid	< 194.15	220.42	< 207.28
S96T003975	153: 8	Drainable liquid	< 380.91	409.85	< 395.38
S96T003976	153: 9	Drainable liquid	189.93	192.95	191.44
S96T004309	153:10	Drainable liquid	< 306.19	< 306.33	< 306.26
S96T003979	153:11	Drainable liquid	< 306.19	< 306.33	< 306.26
S96T003977	153:12	Drainable liquid	< 306.19	< 306.33	< 306.26
S96T003978	153:13	Drainable liquid	< 306.19	< 306.33	< 306.26
S96T004333	153:14	Drainable liquid	400.28	480.28	440.28
S96T003980	153:21	Drainable liquid	< 306.19	< 306.33	< 306.26
S96T004039	Core 152	Liquid composite	< 306.19	< 306.33	< 306.26

Table B2-58. Tank 241-AN-105 Analytical Results: Oxalate (IC). (2 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: water digest			µg/g	µg/g	µg/g
S96T003915	152: 1	Upper half	4,558	4,390	4,474
S96T003907	152:14	Upper half	8,005	7,920	7,962.5
S96T003829		Lower half	4,784	5,400	5,092
S96T003908	152:16	Upper half	5,474	5,660	5,567
S96T003909		Lower half	4,641	4,860	4,750.5
S96T003910	152:18	Upper half	5,005	5,010	5,007.5
S96T003911		Lower half	5,208	5,900	5,554
S96T003912	152:20	Upper half	10,090	10,100	10,095
S96T003913		Lower half	4,950	4,490	4,720
S96T003914	152:22	Upper half	4,422	4,350	4,386
S96T004339	153:14	Lower half	11,670	8,580	10,125[QC:e]
S96T004316	153:15	Upper half	8,707	8,480	8,593.5
S96T004319		Lower half	7,645	8,020	7,832.5
S96T004447	153:17	Upper half	9,762	10,000	9,881
S96T005325		Lower half	11,820	12,200	12,010
S96T005326	153:19	Lower half	5,632	6,640	6,136
S96T003990	153:21	Lower half	2,886	3,900	3,393[QC:e]
S96T003992	153:22	Upper half	6,058	5,580	5,819
S96T003991		Lower half	9,900	8,730	9,315
S96T004258	Core 152	Solid composite	6,294	6,690	6,492
S96T004263		Solid composite	6,302	5,460	5,881

Table B2-59. Tank 241-AN-105 Analytical Results: Phosphate (IC). (2 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids			µg/g	µg/g	µg/g
S96T003732	152: 1	Drainable liquid	871.12	347.88	609.50[QC:e]
S96T003739	152: 2	Drainable liquid	< 431.33	711.26	< 571.30
S96T003740	152: 3	Drainable liquid	< 431.33	774.64	< 602.99
S96T003741	152: 4	Drainable liquid	854.22	< 430.98	< 642.60
S96T003742	152: 5	Drainable liquid	< 854.22	< 852.11	< 853.16
S96T003743	152: 6	Drainable liquid	1,375.35	1,274.65	1,325
S96T003744	152: 7	Drainable liquid	526.47	470.42	498.45
S96T003745	152: 8	Drainable liquid	452.11	463.38	457.74
S96T003746	152: 9	Drainable liquid	< 346.76	< 346.47	< 346.62
S96T003747	152:10	Drainable liquid	12,176.1	< 346.47	< 6,261.27
S96T003748	152:11	Drainable liquid	499.22	433.09	466.16
S96T003749	152:12	Drainable liquid	483.66	< 430.98	< 457.32
S96T003750	152:13	Drainable liquid	< 346.76	< 346.47	< 346.62
S96T003751	152:14	Drainable liquid	934.50	< 346.47	< 640.49
S96T004433	153: 1	Drainable liquid	461.47	509.85	485.66
S96T004308	153: 2	Drainable liquid	446.47	426.76	436.62
S96T004434	153: 3	Drainable liquid	423.31	524.64	473.97[QC:e]
S96T004419	153: 5	Drainable liquid	551.12	447.88	499.50[QC:e]
S96T004420	153: 6	Drainable liquid	476.47	469.01	472.74
S96T004421	153: 7	Drainable liquid	479.71	451.40	465.56
S96T003975	153: 8	Drainable liquid	< 431.33	< 430.98	< 431.16
S96T003976	153: 9	Drainable liquid	529.08	551.40	540.24
S96T004309	153:10	Drainable liquid	462.74	397.88	430.31
S96T003979	153:11	Drainable liquid	572.04	435.91	503.97[QC:e]
S96T003977	153:12	Drainable liquid	372.25	544.36	458.31[QC:e]
S96T003978	153:13	Drainable liquid	589.85	424.64	507.25[QC:e]
S96T004333	153:14	Drainable liquid	464.78	428.87	446.83
S96T003980	153:21	Drainable liquid	524.64	374.64	449.64[QC:e]
S96T004039	Core 152	Liquid composite	447.04	421.12	434.08

Table B2-59. Tank 241-AN-105 Analytical Results: Phosphate (IC). (2 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: water digest			µg/g	µg/g	µg/g
S96T003915	152: 1	Upper half	3,618	3,550	3,584
S96T003907	152:14	Upper half	1,424	1,550	1,487
S96T003829		Lower half	< 259.3	524	< 391.65
S96T003908	152:16	Upper half	1,041	1,680	1,360.5[QC:e]
S96T003909		Lower half	1,913	1,760	1,836.5
S96T003910	152:18	Upper half	2,260	2,690	2,475
S96T003911		Lower half	1,697	1,420	1,558.5
S96T003912	152:20	Upper half	2,607	1,910	2,258.5[QC:e]
S96T003913		Lower half	1,360	3,860	2,610[QC:e]
S96T003914	152:22	Upper half	6,698	5,850	6,274
S96T004339	153:14	Lower half	1,204	1,340	1,272
S96T004316	153:15	Upper half	675.3	1,050	862.65[QC:e]
S96T004319		Lower half	739.2	573	656.1[QC:e]
S96T004447	153:17	Upper half	986.8	1,510	1,248.4[QC:e]
S96T005325		Lower half	2,001	2,680	2,340.5[QC:e]
S96T005326	153:19	Lower half	3,315	5,500	4,407.5[QC:e]
S96T003990	153:21	Lower half	1,634	996	1,315[QC:e]
S96T003992	153:22	Upper half	12,090	10,400	11,245
S96T003991		Lower half	1.041E+05	1.020E+05	1.031E+05
S96T004258	Core 152	Solid composite	1,281	1,130	1,205.5
S96T004263		Solid composite	47,950	43,400	45,675

Table B2-60. Tank 241-AN-105 Analytical Results: Sulfate (IC). (2 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids			µg/g	µg/g	µg/g
S96T003732	152: 1	Drainable liquid	733.09	830.98	782.04
S96T003739	152: 2	Drainable liquid	688.87	929.57	809.22[QC:e]
S96T003740	152: 3	Drainable liquid	895.07	704.22	799.64[QC:e]
S96T003741	152: 4	Drainable liquid	759.85	795.77	777.81
S96T003742	152: 5	Drainable liquid	< 976.05	< 978.87	< 977.46
S96T003743	152: 6	Drainable liquid	2,041.55	2,647.89	2,344.72[QC:e]
S96T003744	152: 7	Drainable liquid	766.19	816.90	791.54
S96T003745	152: 8	Drainable liquid	669.50	659.85	664.68
S96T003746	152: 9	Drainable liquid	816.19	677.46	746.83
S96T003747	152:10	Drainable liquid	802.81	781.69	792.25
S96T003748	152:11	Drainable liquid	603.02	664.78	633.90
S96T003749	152:12	Drainable liquid	750.70	802.81	776.76
S96T003750	152:13	Drainable liquid	804.22	760.56	782.39
S96T003751	152:14	Drainable liquid	971.12	992.95	982.04
S96T004433	153: 1	Drainable liquid	778.16	753.52	765.84
S96T004308	153: 2	Drainable liquid	740.84	823.94	782.39
S96T004434	153: 3	Drainable liquid	773.94	760.56	767.25
S96T004419	153: 5	Drainable liquid	757.04	823.94	790.49
S96T004420	153: 6	Drainable liquid	698.02	638.02	668.02
S96T004421	153: 7	Drainable liquid	694.01	670.42	682.21
S96T003975	153: 8	Drainable liquid	800	894.36	847.18
S96T003976	153: 9	Drainable liquid	592.74	584.50	588.62
S96T004309	153:10	Drainable liquid	766.90	732.39	749.64
S96T003979	153:11	Drainable liquid	741.54	725.35	733.45
S96T003977	153:12	Drainable liquid	704.93	795.77	750.35
S96T003978	153:13	Drainable liquid	834.50	760.56	797.53
S96T004333	153:14	Drainable liquid	854.93	964.78	909.85
S96T003980	153:21	Drainable liquid	1,996.48	2,014.08	2,005.28
S96T004039	Core 152	Liquid composite	709.85	654.22	682.04

Table B2-60. Tank 241-AN-105 Analytical Results: Sulfate (IC). (2 sheets)

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: water digest			µg/g	µg/g	µg/g
S96T003915	152: 1	Upper half	3,453	3,430	3,441.5
S96T003907	152:14	Upper half	4,510	4,680	4,595
S96T003829		Lower half	3,329	3,510	3,419.5
S96T003908	152:16	Upper half	5,725	5,820	5,772.5
S96T003909		Lower half	8,548	8,740	8,644
S96T003910	152:18	Upper half	8,990	8,720	8,855
S96T003911		Lower half	7,789	8,030	7,909.5
S96T003912	152:20	Upper half	8,341	7,350	7,845.5
S96T003913		Lower half	9,465	9,060	9,262.5
S96T003914	152:22	Upper half	6,435	6,110	6,272.5
S96T004339	153:14	Lower half	6,943	5,360	6,151.5[QC:e]
S96T004316	153:15	Upper half	5,887	5,750	5,818.5
S96T004319		Lower half	5,130	5,280	5,205
S96T004447	153:17	Upper half	5,922	6,460	6,191
S96T005325		Lower half	6,637	6,390	6,513.5
S96T005326	153:19	Lower half	5,459	5,910	5,684.5
S96T003990	153:21	Lower half	6,037	8,560	7,298.5[QC:e]
S96T003992	153:22	Upper half	5,974	5,690	5,832
S96T003991		Lower half	1,339	1,260	1,299.5
S96T004258	Core 152	Solid composite	7,215	7,730	7,472.5
S96T004263		Solid composite	4,397	3,960	4,178.5

Table B2-61. Tank 241-AN-105 Analytical Results: Hydroxide (OH Direct).

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids			µg/g	µg/g	µg/g
S96T004831	Core 152	Liquid composite	39,859.2	42,605.6	41,232.4[QC:f]

Table B2-62. Tank 241-AN-105 Analytical Results: Hydroxide (OH).

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Solids: water digest			µg/g	µg/g	µg/g
S96T004258	Core 152	Solid composite	23,600	24,500	24,050
S96T004263		Solid composite	22,400	21,600	22,000

Table B2-63. Tank 241-AN-105 Analytical Results: Hexavalent Chromium-VI (Cr+6).

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids			µg/g	µg/g	µg/g
S96T004831	Core 152	Liquid composite	108.45	107.74	108.09
Solids: water digest			µg/g	µg/g	µg/g
S96T004258	Core 152	Solid composite	118	120	119
S96T004263		Solid composite	107	101	104

Table B2-64. Tank 241-AN-105 Analytical Results: Total Organic Carbon by Coulometry.

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids			µg/g	µg/g	µg/g
S96T004049	Core 152	Liquid composite	4,316.9	4,274.65	4,295.77[QC:f]

Table B2-65. Tank 241-AN-105 Analytical Results: Total Organic Carbon by Persulfate Coulometry.

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids			µg/g	µg/g	µg/g
S96T004049	Core 152	Liquid composite	1,929.58	1,718.31	1,823.94[QC:f]
Solids			µg/g	µg/g	µg/g
S96T004254	Core 152	Solid composite	4,900	5,950	5,425[QC:e]
S96T004259		Solid composite	4,330	4,630	4,480

Table B2-66. Tank 241-AN-105 Analytical Results: Total Inorganic Carbon (TIC).

Sample Number	Sample Location	Sample Portion	Result	Duplicate	Mean
Liquids			µg/g	µg/g	µg/g
S96T004049	Core 152	Liquid composite	1,563.38	1,528.17	1,545.77[QC:f]
Solids			µg/g	µg/g	µg/g
S96T004254	Core 152	Solid composite	12,500	13,600	13,050[QC:c]
S96T004259		Solid composite	8,510	7,990	8,250

Table B2-67. Tank 241-AN-105 Vapor Sampling Results.

Measurement	Sample
Total Organic Carbon (TOC)	4.6 parts per million (ppm)
Lower Explosive Limit (LEL)	0.3 percent of LEL
Oxygen	20.9 percent
Ammonia	11 ppm

B3.0 ASSESSMENT OF CHARACTERIZATION RESULTS

The purpose of this chapter is to discuss the overall quality and consistency of the current sampling results for tank 241-AN-105, and to present the results of the calculation of an analytical-based inventory.

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

B3.1 FIELD OBSERVATIONS

The safety screening DQO (Dukelow et al. 1995) requires all vertical waste profiles be from two widely spaced risers. The flammable gas DQO (McDuffie 1995) requires at least one complete core will be taken. These requirements were fulfilled. Contamination by hydrostatic head fluid resulted in adjusting the weight percent water results for one subsegment. The waste recovered in segments with less than full recovery was assumed to be representative of the whole segment.

B3.2 QUALITY CONTROL ASSESSMENT

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

The standard and spike recovery results provide an estimate of the accuracy of the analysis. 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.

A high RPD was reported for two of the forty subsamples submitted for total alpha activity. This may have been caused by subsequent self-shielding. Reruns were deemed unnecessary as the sample results were far below the action limit.

Some of the high RPDs for the IC analytes may be attributable to sample homogeneity problems. The high RPD and poor spike recovery for fluoride can be attributed to the fact that the fluoride peak is very near the baseline and suffers interference from the slightly larger chloride peak.

Many of the ICP analytes also had one or more QC parameters outside the specified limits. The poor spike recoveries for sodium may be due to the high concentration of sodium in the samples (samples cannot be spiked to levels much greater than already present). The high concentrations of sodium required high dilutions for all ICP samples. These high dilutions in turn can cause poor or meaningless spike recoveries and RPDs for those ICP elements that had either very high concentrations or were close to the detection limit. Finally, none of the samples exceeded the criterion for preparation blanks; thus, contamination was not a problem.

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

B3.3 DATA CONSISTENCY CHECKS

Comparisons of different analytical methods can help to assess the consistency and quality of the data. Several comparisons were possible with the data set provided by the two core samples, including a comparison of phosphorous as analyzed by ICP with phosphate as analyzed by IC, and a comparison of weight percent water by TGA with the weight percent water by gravimetry. In addition, mass and charge balances were calculated to help assess the overall data consistency.

B3.3.1 Comparison of Results from Different Analytical Methods

The following data consistency checks compare the results from two different analytical methods. A close comparison between the two methods strengthens the credibility of both results, whereas a poor comparison brings the reliability of the data into question. All analytical mean results were calculated from tables in Section B2.0.

The analytical phosphorous mean result as determined by ICP was 1,219 μg/g, which converts to 3,734 μg/g of phosphate. This compared well with the IC phosphate mean result of 3,870/g (Table B3-1). The RPD between these two phosphate results was 4.8 percent.

Table B3-1. Phosphate vs Phosphorous.

Analytes	Supernate		Salt Slurry	Weighted Mean[1]	Calculated Mean
	µg/mL	µg/g	µg/g	µg/g	µg/g
P	400	282	2,460	1,219	3,734
PO_4	1,060	746	8,010	3,870	3,870

Note:
[1]Weighted Mean was calculated using the following formula: 0.57*[supernatant]+0.43* [salt slurry]

The ICP sulfur value of 1,567 µg/g, which represents total sulfur, is equivalent to 4,701 µg/g of sulfate. The IC result for sulfate was 3,179 µg/g (Table B3-2), with an RPD between the two values of 39 percent. These results are expected. Because ICP measures total sulfur and its result is usually larger than or equal to the IC sulfate value, which is a measurement of the soluble sulfur.

Table B3-2. Sulfate vs Sulfur.

Analytes	Supernate		Salt Slurry	Weighted Mean[1]	Calculated Mean
	µg/mL	µg/g	µg/g	µg/g	µg/g
S	937	660	2,770	1,567	4,701
SO_4	1,180	831	6,270	3,170	3,179

Note:
[1]Weighted Mean was calculated using the following formula: 0.57*[supernatant]+0.43* [salt slurry].

B3.3.2 Mass and Charge Balance

The principle objective in performing mass and charge balances is to determine if the measurements are self-consistent. In calculating the balances, only analytes listed in Section B2.0 detected at a concentration of 1,000 µg/g or greater were considered. Separate mass and charge balances were calculated for the supernatant and salt slurry layers because these waste phases were analyzed separately. The results of these comparisons are presented in the following sections.

B3.3.2.1 Mass and Charge Balances for the Supernatant. All analytical results used in calculating the supernatant mass and charge balances were first converted from μg/mL to μg/g (using the supernatant specific gravity mean of 1.42 g/mL) before use in the tables. The anions listed in Table B3-4 were assumed to be present as sodium salts and were expected to balance the positive charge exhibited by the cations. Phosphate, as determined by IC, is assumed to be completely water soluble and appears only in the anion mass and charge calculations. The concentrations of cationic species in Table B3-3, the anionic species in Table B3-4, and the percent water were ultimately used to calculate the mass balance.

Table B3-3. Supernatant Cation Mass and Charge Data.

Analyte	Concentration (μg/g)	Assumed Species	Concentration of Assumed Species (μg/g)	Charge (μeq/g)
Potassium	4,620	K^+	4,620	88.00
Sodium	174,000	Na^+	174,000	7,956.00
Total			178,600	8,040

Table B3-4. Supernatant Anion Mass and Charge Data.

Analyte	Concentration (μg/g)	Assumed Species	Concentration of Assumed Species (μg/g)	Charge (μeq/g)
Aluminum	29,400	$Al(OH)_4^-$	103,400	1088
Chloride	7,200	Cl^-	7,200	203
Formate	1,100	COO^-	1,080	25
Hydroxide	41,300	OH^-	41,300	2,430
Nitrate	117,000	NO_3^-	117,000	1,890
Nitrite	89,000	NO_2^-	89,000	1,935
Phosphate	750	PO_4^{3-}	750	24
Total			359,700	7,600

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

Mass balance = % Water + 0.0001 x {Total Analyte Concentration}

$$= \% \text{ Water} + 0.0001 \times \{Na^+ + K^+ + Al(OH)_4^- + Cl^- + COO^- + OH^- + NO_2^- + NO_3^- + PO_4^{-3}\}$$

The total analyte concentration calculated from the above equation is 538,000 μg/g. The mean weight percent water is 49.9 percent, or 499,000 μg/g. The mass balance resulting from adding the percent water to the total analyte concentration is 104 percent (Table B3-5).

Table B3-5. Mass Balance Totals.

Totals	Concentrations (μg/g)	Charge (μeq/g)
Total from Table B3-3	178,600	8,040
Total from Table B3-4	359,700	7,600
Water percent	499,000	0
Grand Total	1,037,000	440

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

<u>Total cations</u> (μeq/g) = $[K^+]/39 + [Na^+]/23.0 = 8{,}040\ \mu eq/g$

<u>Total anions</u> (μeq/g) = $[Al(OH)_4^-/95] + [Cl^-]/35.5 + [COO^-]/44.0 + [OH^-]/17.0 + [NO_2^-]/46.0 + [NO_3^-]/62.0 + [PO_4^{-3}]/31.7 = 7{,}598\ \mu eq/g$

The charge balance obtained by dividing the sum of the positive charge by the sum of the negative charge was 1.06.

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 for the supernatant are generally self-consistent.

B3.3.3.1 Mass and Charge Balances for the Salt Slurry. The positive charges attributed to sodium and potassium were expected to balance the negative charges exhibited by the anions. Sulfur was assumed to be present as sulfate. Phosphate, as determined by IC, is assumed to be completely water soluble and appears only in the anion mass and charge calculations. The concentrations of cationic species in Table B3-6, the anionic species in

Table B3-7, and the weight percent water were ultimately used to calculate the mass balance.

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

$$\text{Mass balance} = \%\ \text{Water} + 0.0001 \times \{\text{Total Analyte Concentration}\}$$

$$= \%\ \text{Water} + 0.0001 \times \{Al(OH)_3 + Cr(OH)_3 + Na^+ + K^+ + Cl^- + COO^- + (COO)_2^{2-} + F^- + NO_2^- + NO_3^- + OH^- + PO_4^{-3} + SO_4^{-2}\}$$

Table B3-6. Salt Slurry Cation Mass and Charge Data.

Analyte	Concentration ($\mu g/g$)	Assumed Species	Concentration of Assumed Species ($\mu g/g$)	Charge ($\mu eq/g$)
Chromium	2,480	$Cr(OH)_3$	4,900	0.00
Potassium	3,450	K^+	3,450	88.00
Sodium	183,000	Na^+	183,000	7,956.00
Total			191,300	8,040

Table B3-7. Salt Slurry Anion Mass and Charge Data.

Analyte	Concentration ($\mu g/g$)	Assumed Species	Concentration of Assumed Species ($\mu g/g$)	Charge ($\mu eq/g$)
Aluminum	23,100	$A1(OH)_4^-$	81,300	856
Chloride	5,180	Cl^-	5,180	146
Fluoride	1,850	F^-	1,850	97
Formate	1,060	COO^-	1,060	23
Hydroxide	24,100	OH^-	24,100	1,420
Nitrate	111,000	NO_3^-	111,000	1,790
Nitrite	63,900	NO_2^-	63,900	1,389
Oxalate	6,970	$(COO)_2^{2-}$	6,970	158
Phosphate	8,010	PO_4^{3-}	8,010	252
Sulfate	62,700	SO_4^{2-}	62,700	1,306
Total			366,100	7,440

The total analyte concentrations calculated from the above equation is 557,400 μg/g. The mean weight percent water in salt slurry is 44.4 percent, or 444,000 μg/g. The mass balance resulting from adding the percent water to the total analyte concentration is 100 percent (Table B3-8).

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

Total cations (μeq/g) = $[K^+]/39 + [Na^+]/23.0 = 8{,}040\ \mu eq/g$

Total anions (μeq/g) = $[Al(OH)_4^-/95] + [F^-]/19.0 + [Cl^-]/35.5 + [COO^-]/44.0 + [(COO)_2^{2-}]/44.0 + [NO_2^-]/46.0 + [NO_3^-]/62.0 + [OH^-]/17.0 + [PO_4^{-3}]/31.7 + [SO_4^{-2}]/48 = 7{,}440\ \mu eq/g$

The charge balance obtained by dividing the sum of the positive charge by the sum of the negative charge was 1.08.

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 are consistent.

Table B3-8. Mass Balance Totals.

Totals	Concentrations (μg/g)	Charge (μeq/g)
Total from Table B3-6	191,300	8040
Total from Table B3-7	366,100	7440
Water percent	444,000	0
Total	1,001,400	600

B3.4 MEAN CONCENTRATIONS AND CONFIDENCE INTERVALS

The following statistical evaluation was performed using the analytical data generated from tank 241-AN-105 core samples. The core samples were obtained June 1996 from two risers (core 152 and core 153) the full length of the waste in the tank (22 segments). The crust was a portion of segment 1. The remainder of segment 1 through segment 13 and a portion of segment 14 were supernatant samples. The remainder of segment 14 through segment 22 were salt slurry (sludge) samples. The three sets of data (crust, supernatant, and sludge) were analyzed separately.

For each data set, a mean concentration and the associated variability were calculated for each analyte. A two-sided 95 percent confidence interval for the mean concentration was also calculated for each analyte. The confidence interval takes into account the sampling and analytical uncertainties. The upper and lower limits (UL and LL) of a two-sided 95 percent confidence interval for the mean are:

$$\hat{\mu} \pm t_{(df,0.025)} \times \hat{\sigma}_{\hat{\mu}}.$$

In these equations, $\hat{\mu}$ is the estimate of the mean concentration, $\hat{\sigma}_{\hat{\mu}}$ is the estimate of the standard deviation of the mean concentration, and $t_{(df,0.025)}$ is the quantile from Student's t distribution with *df* degrees of freedom for a two-sided 95 percent confidence interval. The mean, $\hat{\mu}$, and the standard deviation of the mean, $\hat{\sigma}_{\hat{\mu}}$, were estimated using restricted maximum likelihood estimation (REML) methods.

B3.4.1 Mean Concentrations

B3.4.1.1 Supernatant Data. The statistics in this section were based on analytical data from the 1996 sampling event of tank 241-AN-105. The 1996 data were statistically evaluated using two different models. The first model used a nested analysis of variance (ANOVA): the data are identified by segment within riser. The second model used one-way ANOVA: the data are identified by one variable (the segment). Analysis of variance techniques were used to estimate the mean and its associated variability for all analytes that had at least 50 percent of the reported data as quantitative values.

For those analytes that had a mixture of both quantitative values and "less than" values, the ANOVA was computed using two different methodologies.

> The upper value of the "less than" (for example, 3.5 for < 3.5) was used to represent all "less than" analytical values in the first computation. This produces a bias of unknown magnitude in both the mean analyte concentration and the variance associated with the mean; the mean analyte concentration is biased high. The extension ".w" was added to the analyte name in the tables to distinguish which analyte was statistically analyzed using "less than" values.
>
> The "less than" values were deleted in the second computation. Deleting data produces unbalanced data sets which complicates the statistical analysis. Deleting data decreases the number of degrees of freedom. Deleting data also produces a bias of unknown magnitude in both the mean analyte concentration and the variance associated with the mean. The extension ".wo" was added to the analyte name in the tables to distinguish which analyte was statistically analyzed with the "less than" values deleted. The extension ".adl" represents acid dilution.

No ANOVA estimates were computed for analytes that had less than 50 percent of the reported data as quantitative values. The data for some of the analytes consisted of "outliers." The statistical analysis was performed with the outliers in the data set and with the outliers deleted from the data set. The extension ".ed" was used in the tables to indicate which analytes had outliers deleted in the statistical analysis.

The mean concentration estimates for the supernatant layer, along with the two-sided 95 percent confidence interval for the mean concentration, are given in Table B3-9 (nested ANOVA) and Table B3-10 (one-way ANOVA) for those analytes with at least 50 percent of the reported data as quantitative values. For some of the analytes, the lower limit of the 95 percent confidence interval was a negative value due to the magnitude of the variability. Because the actual concentration of a tank sample cannot be less than zero, the lower limit is reported as zero. The analytes in Table B3-9 where $\hat{\sigma}_{riser}$ is significantly different from zero are marked with a "*". The riser variable is an indicator of spatial variability.

For those analytes where $\hat{\sigma}_{riser}$ is not significantly different from zero, the mean concentrations and the variances of the mean concentrations calculated using the two statistical models (one-way ANOVA and nested ANOVA) are not significantly different. In these cases, the one-way ANOVA model is more appropriate.

The analytes (supernatant layer) which had less than 50 percent of the reported data as quantitative values are listed in Table B3-11. Table B3-11 cites the largest value observed from the analytical results.

Table B3-9. Summary Statistics - Supernatant (Nested ANOVA). (2 sheets)

Analyte	Units	$\hat{\mu}$	$\hat{\sigma}_{\hat{\mu}}$	df	LL	UL
%water.tga	wt%	4.99E+01	3.70E-01	1	4.52E+01	5.46E+01
%water.tga.ed	wt%	5.02E+01	1.75E-01	1	4.80E+01	5.25E+01
Acetate.ic.w	μg/mL	6.00E+02	6.86E+01	1	0.00E+00	1.47E+03
Acetate.ic.wo	μg/mL	6.11E+02	5.82E+01	1	0.00E+00	1.35E+03
Ag.icp.adl	μg/mL	1.78E+01	3.47E-01	1	1.34E+01	2.22E+01
Al.icp.adl	μg/mL	4.17E+04	5.36E+02	1	3.48E+04	4.85E+04
B.icp.adl	μg/mL	7.44E+01	7.59E-01	1	6.47E+01	8.40E+01
$^{1}Br^{-}$.ic.w	μg/mL	9.64E+02	8.39E+01	1	0.00E+00	2.03E+03
$^{1}Br^{-}$.ic.wo	μg/mL	9.77E+02	6.63E+01	1	1.35E+02	1.82E+03
Cl^{-}.ic	μg/mL	1.02E+04	6.50E+02	1	1.98E+03	1.85E+04
Cl^{-}.ic.ed	μg/mL	9.92E+03	8.50E+01	1	8.84E+03	1.10E+04
Cr.icp.adl	μg/mL	2.25E+02	1.44E+01	1	4.20E+01	4.08E+02
DSC.dry	J/g dry	2.21E+01	1.44E+01	1	0.00E+00	2.05E+02
DSC.wet	J/g wet	1.10E+01	7.18E+00	1	0.00E+00	1.02E+02

Table B3-9. Summary Statistics - Supernatant (Nested ANOVA). (2 sheets)

Analyte	Units	$\hat{\mu}$	$\hat{\sigma}_{\mu}$	df	LL	UL
F^-.ic.w	μg/mL	3.10E+02	3.67E+01	1	0.00E+00	7.77E+02
F^-.ic.w.ed	μg/mL	2.94E+02	5.02E+01	1	0.00E+00	9.31E+02
F^-.ic.wo *	μg/mL	4.86E+02	5.71E+01	1	0.00E+00	1.21E+03
F^-.ic.wo.ed *	μg/mL	4.52E+02	2.01E+01	1	1.97E+02	7.07E+02
Formate.ic	μg/mL	1.56E+03	8.28E+01	1	5.08E+02	2.61E+03
K.icp.adl	μg/mL	6.56E+03	7.17E+01	1	5.65E+03	7.47E+03
Mo.icp.adl	μg/mL	9.67E+01	9.88E-01	1	8.41E+01	1.09E+02
NO_2^-.ic	μg/mL	1.27E+05	8.54E+03	1	1.80E+04	2.35E+05
NO_2^-.ic.ed	μg/mL	1.22E+05	1.11E+03	1	1.08E+05	1.36E+05
NO_3^-.ic	μg/mL	1.66E+05	1.09E+04	1	2.77E+04	3.04E+05
NO_3^-.ic.ed	μg/mL	1.61E+05	1.75E+03	1	1.39E+05	1.83E+05
Na.icp.adl	μg/mL	2.47E+05	4.02E+03	1	1.96E+05	2.98E+05
P.icp.adl	μg/mL	4.00E+02	2.11E+01	1	1.32E+02	6.68E+02
P.icp.adl.ed	μg/mL	3.85E+02	1.90E+01	1	1.43E+02	6.27E+02
PO_4^{3-}.ic.w	μg/mL	1.06E+03	3.78E+02	1	0.00E+00	5.86E+03
PO_4^{3-}.ic.w.ed	μg/mL	7.54E+02	8.09E+01	1	0.00E+00	1.78E+03
PO_4^{3-}.ic.wo	μg/mL	1.56E+03	9.06E+02	1	0.00E+00	1.31E+04
PO_4^{3-}.ic.wo.ed *	μg/mL	8.39E+02	1.64E+02	1	0.00E+00	2.93E+03
Pb.icp.adl.w	μg/mL	5.38E+01	1.43E+00	1	3.57E+01	7.20E+01
Pb.icp.adl.wo	μg/mL	4.95E+01	1.60E+00	1	2.92E+01	6.98E+01
S.icp.adl	μg/mL	9.37E+02	1.93E+01	1	6.91E+02	1.18E+03
SO_4^{2-}.ic.w	μg/mL	1.18E+03	1.05E+02	1	0.00E+00	2.52E+03
SO_4^{2-}.ic.w.ed	μg/mL	1.10E+03	2.68E+01	1	7.61E+02	1.44E+03
SO_4^{2-}.ic.wo	μg/mL	1.18E+03	1.01E+02	1	0.00E+00	2.46E+03
SO_4^{2-}.ic.wo.ed	μg/mL	1.09E+03	2.31E+01	1	7.96E+02	1.38E+03
Si.icp.adl	μg/mL	2.18E+02	5.60E+00	1	1.47E+02	2.89E+02
SpG *	---	1.42E+00	2.59E-02	1	1.09E+00	1.75E+00
Zn.icp.adl *	μg/mL	3.12E+01	6.83E+00	1	0.00E+00	1.18E+02

Notes:

* = $\hat{\sigma}_{riser}$ is significantly different from zero (evidence of horizontal heterogeneity).

[1]Br is one of the tracers for hydrostatic head fluid.

Table B3-10. Summary Statistics - Supernatant (One-way ANOVA). (2 sheets)

Analyte	Units	$\hat{\mu}$	$\hat{\sigma}_{\hat{\mu}}$	df	LL	UL
%water.tga	wt%	4.99E+01	3.70E-01	26	4.91E+01	5.07E+01
%water.tga.ed	wt%	5.03E+01	1.04E-01	26	5.00E+01	5.05E+01
Acetate.ic.w	μg/mL	5.98E+02	3.97E+01	26	5.16E+02	6.80E+02
Acetate.ic.wo	μg/mL	6.12E+02	4.12E+01	25	5.27E+02	6.96E+02
Ag.icp.adl	μg/mL	1.78E+01	1.90E-01	26	1.74E+01	1.82E+01
Al.icp.adl	μg/mL	4.17E+04	4.81E+02	26	4.07E+04	4.26E+04
B.icp.adl	μg/mL	7.44E+01	7.37E-01	26	7.28E+01	7.59E+01
$^{1}Br^{-}$.ic.w	μg/mL	9.66E+02	5.49E+01	26	8.54E+02	1.08E+03
$^{1}Br^{-}$.ic.wo	μg/mL	9.78E+02	5.37E+01	24	8.68E+02	1.09E+03
Cl^{-}.ic	μg/mL	1.02E+04	6.50E+02	26	8.91E+03	1.16E+04
Cl^{-}.ic.ed	μg/mL	9.92E+03	8.50E+01	24	9.75E+03	1.01E+04
Cr.icp.adl	μg/mL	2.25E+02	8.02E+00	26	2.08E+02	2.41E+02
DSC.dry	J/g dry	2.17E+01	8.53E+00	26	4.19E+00	3.92E+01
DSC.wet	J/g wet	1.08E+01	4.23E+00	26	2.11E+00	1.95E+01
F^{-}.ic.w	μg/mL	3.10E+02	3.67E+01	26	2.35E+02	3.86E+02
F^{-}.ic.w.ed	μg/mL	2.93E+02	3.70E+01	26	2.17E+02	3.69E+02
Formate.ic	μg/mL	1.56E+03	7.99E+01	26	1.39E+03	1.72E+03
K.icp.adl	μg/mL	6.56E+03	6.38E+01	26	6.43E+03	6.69E+03
Mo.icp.adl	μg/mL	9.67E+01	9.87E-01	26	9.46E+01	9.87E+01
NO_2^{-}.ic	μg/mL	1.27E+05	8.54E+03	26	1.09E+05	1.44E+05
NO_2^{-}.ic.ed	μg/mL	1.22E+05	1.11E+03	24	1.20E+05	1.25E+05
NO_3^{-}.ic	μg/mL	1.66E+05	1.09E+04	26	1.44E+05	1.88E+05
NO_3^{-}.ic.ed	μg/mL	1.61E+05	1.75E+03	24	1.57E+05	1.64E+05
Na.icp.adl	μg/mL	2.47E+05	2.32E+03	26	2.42E+05	2.52E+05
P.icp.adl	μg/mL	4.00E+02	2.11E+01	26	3.57E+02	4.43E+02
P.icp.adl.ed	μg/mL	3.85E+02	1.33E+01	26	3.57E+02	4.12E+02
PO_4^{3-}.ic.w	μg/mL	1.06E+03	3.09E+02	26	4.29E+02	1.70E+03
PO_4^{3-}.ic.w.ed	μg/mL	7.55E+02	5.21E+01	26	6.48E+02	8.62E+02
PO_4^{3-}.ic.wo	μg/mL	1.54E+03	7.18E+02	22	5.42E+01	3.03E+03
Pb.icp.adl.w	μg/mL	5.38E+01	1.21E+00	26	5.13E+01	5.63E+01
Pb.icp.adl.wo	μg/mL	4.99E+01	1.11E+00	16	4.75E+01	5.22E+01

Table B3-10. Summary Statistics - Supernatant (One-way ANOVA). (2 sheets)

Analyte	Units	$\hat{\mu}$	$\hat{\sigma}_{\hat{\mu}}$	df	LL	UL
S.icp.adl	μg/mL	9.37E+02	1.93E+01	26	8.97E+02	9.76E+02
SO_4^{2-}.ic.w	μg/mL	1.18E+03	8.60E+01	26	1.01E+03	1.36E+03
SO_4^{2-}.ic.w.ed	μg/mL	1.10E+03	2.50E+01	25	1.05E+03	1.15E+03
SO_4^{2-}.ic.wo	μg/mL	1.18E+03	8.90E+01	25	9.92E+02	1.36E+03
SO_4^{2-}.ic.wo.ed	μg/mL	1.09E+03	2.31E+01	24	1.04E+03	1.14E+03
Si.icp.adlb	μg/mLbm	2.18E+02	5.60E+00	26	2.07E+02	2.30E+02

Note:

[1]Br is one of the tracers for hydrostatic head fluid.

Table B3-11. Analytes (Supernatant) with >50 Percent "Less Than" Values.

Analyte	Unit	Maximum Result
As.icp.adl	μg/mL	< 60.1
Ba.icp.adl	μg/mL	< 30.1
Be.icp.adl	μg/mL	< 3
Bi.icp.adl	μg/mL	< 60.1
Ca.icp.adl	μg/mL	< 60.1
Cd.icp.adl	μg/mL	< 3
Ce.icp.adl	μg/mL	< 60.1
Co.icp.adl	μg/mL	< 12
Cu.icp.adl	μg/mL	10.2
Fe.icp.adl	μg/mL	< 30.1
La.icp.adl	μg/mL	< 30.1
[1]Li.icp.adl	μg/mL	27.3
Mg.icp.adl	μg/mL	< 60.1
Mn.icp.adl	μg/mL	< 6.01
Nd.icp.adl	μg/mL	< 60.1
Ni.icp.adl	μg/mL	< 12
Oxalate.ic	μg/mL	16100
Sb.icp.adl	μg/mL	< 36.1
Se.icp.adl	μg/mL	< 60.1
Sm.icp.adl	μg/mL	< 60.1
Sr.icp.adl	μg/mL	< 6.01
Ti.icp.adl	μg/mL	< 6.01
Tl.icp.adl	μg/mL	< 120
Total Alpha	μCi/mL	< 0.145
U.icp.adl	μg/mL	< 300
V.icp.adl	μg/mL	< 30.1
Zr.icp.adl	μg/mL	6.09

Note:

[1]Li is one of the tracers for hydrostatic head fluid.

A supernatant composite sample was formed from supernatant subsamples from Core 152 segments 1-14. The arithmetic mean, the associated variability, and a two-sided 95 percent confidence interval for the mean concentration were calculated for each analyte with at least 50 percent of the reported data as quantitative values. The confidence interval takes into account only the analytical uncertainty. The summary statistics are listed in Table B3-12 and Table B3-13 contains the analytes which had less than 50 percent of the reported data as quantative values.

Table B3-12. Summary Statistics - Supernatant Composite (Core 152, Segments 1-14). (2 sheets)

Analyte	Units	$\hat{\mu}$	$\hat{\sigma}_{\hat{\mu}}$	df	LL	UL
%water.tga	wt%	5.01E+01	3.45E+00	1	6.28E+00	9.40E+01
Acetate.ic	μg/mL	6.42E+02	5.00E-01	1	6.35E+02	6.48E+02
Ag.icp.a	μg/mL	1.52E+01	2.50E-01	1	1.20E+01	1.83E+01
Ag.icp.adl	μg/mL	1.80E+01	5.00E-01	1	1.16E+01	2.44E+01
Al.icp.a	μg/mL	3.57E+04	1.00E+02	1	3.44E+04	3.70E+04
Al.icp.adl	μg/mL	4.36E+04	2.00E+02	1	4.11E+04	4.61E+04
B.icp.a	μg/mL	1.70E+02	1.35E+01	1	0.00E+00	3.41E+02
B.icp.adl	μg/mL	7.28E+01	1.45E+00	1	5.43E+01	9.12E+01
Ca.icp.a	μg/mL	8.78E+02	2.50E+01	1	5.60E+02	1.20E+03
Cl^-.ic	μg/mL	1.02E+04	0.00E+00	1	1.02E+04	1.02E+04
Cr.icp.a	μg/mL	1.87E+02	0.00E+00	1	1.87E+02	1.87E+02
Cr.icp.adl	μg/mL	2.23E+02	1.50E+00	1	2.03E+02	2.42E+02
Cr(VI).spec	μg/mL	1.54E+02	5.00E-01	1	1.47E+02	1.60E+02
^{137}Cs.gea	μCi/mL	4.75E+02	1.50E+00	1	4.55E+02	4.94E+02
DSC.dry	J/g dry	0.00E+00	0.00E+00	1	0.00E+00	0.00E+00
DSC.wet	J/g wet	0.00E+00	0.00E+00	1	0.00E+00	0.00E+00
Fe.icp.a	μg/mL	6.38E+01	8.70E+00	1	0.00E+00	1.74E+02
Formate.ic	μg/mL	1.62E+03	0.00E+00	1	1.62E+03	1.62E+03
^{129}I	μCi/mL	2.68E-04	2.15E-05	1	0.00E+00	5.41E-04
K.icp.a	μg/mL	5.31E+03	3.50E+01	1	4.86E+03	5.75E+03
K.icp.adl	μg/mL	6.52E+03	3.00E+01	1	6.14E+03	6.90E+03
^{1}Li.icp.a	μg/mL	5.97E+00	1.45E-01	1	4.12E+00	7.81E+00
Mo.icp.a	μg/mL	8.26E+01	2.50E-01	1	7.94E+01	8.57E+01

Table B3-12. Summary Statistics - Supernatant Composite (Core 152, Segments 1-14). (2 sheets)

Analyte	Units	$\hat{\mu}$	$\hat{\sigma}_a$	df	LL	UL
Mo.icp.adl	μg/mL	1.01E+02	1.00E+00	1	8.83E+01	1.14E+02
NO_2^-.ic	μg/mL	1.31E+05	5.00E+02	1	1.24E+05	1.37E+05
NO_3^-.ic	μg/mL	1.68E+05	5.00E+02	1	1.61E+05	1.74E+05
Na.icp.a	μg/mL	2.11E+05	0.00E+00	1	2.11E+05	2.11E+05
Na.icp.adl	μg/mL	2.56E+05	1.50E+03	1	2.36E+05	2.75E+05
OH^-	μg/mL	5.86E+04	1.95E+03	1	3.38E+04	8.33E+04
P.icp.a	μg/mL	3.40E+02	3.50E+00	1	2.95E+02	3.84E+02
P.icp.adl	μg/mL	3.93E+02	2.50E+00	1	3.61E+02	4.24E+02
PO_4^{3-}.ic	μg/mL	6.17E+02	1.85E+01	1	3.81E+02	8.52E+02
S.icp.a	μg/mL	8.77E+02	3.00E+00	1	8.39E+02	9.15E+02
S.icp.adl	μg/mL	1.01E+03	1.85E+01	1	7.76E+02	1.25E+03
SO_4^{2-}.ic	μg/mL	9.70E+02	4.05E+01	1	4.55E+02	1.48E+03
Si.icp.a	μg/mL	2.20E+02	1.15E+01	1	7.34E+01	3.66E+02
Si.icp.adl	μg/mL	1.66E+02	0.00E+00	1	1.66E+02	1.66E+02
$^{89/90}Sr$	μCi/mL	4.14E-02	6.00E-04	1	3.38E-02	4.90E-02
TIC	μg/mL	2.20E+03	2.50E+01	1	1.88E+03	2.51E+03
TOC.coul	μg/mL	6.10E+03	3.00E+01	1	5.72E+03	6.48E+03
TOC.pers	μg/mL	2.59E+03	1.50E+02	1	6.84E+02	4.50E+03
^{99}Tc	μCi/mL	2.74E-01	5.50E-03	1	2.04E-01	3.43E-01
Total Beta	μCi/mL	5.38E+02	4.00E+00	1	4.87E+02	5.89E+02
Zn.icp.a	μg/mL	7.61E+01	1.60E+00	1	5.58E+01	9.64E+01
Zn.icp.adl	μg/mL	1.76E+01	5.00E-01	1	1.12E+01	2.40E+01
SpG	---	1.42E+00	7.00E-03	1	1.33E+00	1.50E+00
U.phos	μg/mL	3.57E+00	1.95E-01	1	1.09E+00	6.04E+00

Note:

[1]Li is one of the tracers for hydrostatic head fluid.

Table B3-13. Supernatant Composite (Core 152, Segments 1-14) Analytes with >50 Percent "Less Than" Values. (3 sheets)

Analyte	Unit	Maximum Result
^{241}Am.aea	µCi/mL	< 3.91E-05
^{241}Am.gea	µCi/mL	< 8.57E-01
As.icp.a	µg/mL	< 5.24E+01
As.icp.adl	µg/mL	< 6.01E+01
Ba.icp.a	µg/mL	< 2.62E+01
Ba.icp.adl	µg/mL	< 3.01E+01
Be.icp.a	µg/mL	< 2.62E+00
Be.icp.adl	µg/mL	< 3.00E+00
Bi.icp.a	µg/mL	< 5.24E+01
Bi.icp.adl	µg/mL	< 6.01E+01
$^{1}Br^{-}$.ic	µg/mL	< 5.22E+02
Ca.icp.adl	µg/mL	< 6.01E+01
Cd.icp.a	µg/mL	< 2.62E+00
Cd.icp.adl	µg/mL	< 3.00E+00
Ce.icp.a	µg/mL	< 5.24E+01
Ce.icp.adl	µg/mL	< 6.01E+01
$^{243/244}$Cm	µCi/mL	< 3.91E-05
Co.icp.a	µg/mL	< 1.05E+01
Co.icp.adl	µg/mL	< 1.20E+01
^{60}Co.gea	µCi/mL	< 1.30E-02
Cu.icp.a	µg/mL	< 6.29E+00
Cu.icp.adl	µg/mL	< 6.01E+00
^{154}Eu.gea	µCi/mL	< 9.74E-02
^{155}Eu.gea	µCi/mL	< 3.26E-01
F^{-}.ic	µg/mL	< 5.38E+01
Fe.icp.adl	µg/mL	< 3.01E+01
Hg.cvaa	µg/mL	< 7.00E-02
La.icp.a	µg/mL	< 2.62E+01
La.icp.adl	µg/mL	< 3.01E+01
^{1}Li.icp.adl	µg/mL	< 6.01E+00

Table B3-13. Supernatant Composite (Core 152, Segments 1-14) Analytes with >50 Percent "Less Than" Values. (3 sheets)

Analyte	Unit	Maximum Result
Mg.icp.a	µg/mL	< 5.24E+01
Mg.icp.adl	µg/mL	< 6.01E+01
Mn.icp.a	µg/mL	< 5.24E+00
Mn.icp.adl	µg/mL	< 6.01E+00
Nd.icp.a	µg/mL	< 5.24E+01
Nd.icp.adl	µg/mL	< 6.01E+01
Ni.icp.a	µg/mL	< 1.05E+01
Ni.icp.adl	µg/mL	< 1.20E+01
^{237}Np	µCi/mL	< 2.21E-05
Oxalate.ic	µg/mL	< 4.35E+02
Pb.icp.a	µg/mL	< 5.24E+01
Pb.icp.adl	µg/mL	< 6.01E+01
$^{239/240}$Pu	µCi/mL	< 3.72E-05
Sb.icp.a	µg/mL	< 3.14E+01
Sb.icp.adl	µg/mL	< 3.61E+01
Se.icp.a	µg/mL	< 5.24E+01
Se.icp.adl	µg/mL	< 6.01E+01
Sm.icp.a	µg/mL	< 5.24E+01
Sm.icp.adl	µg/mL	< 6.01E+01
Sr.icp.a	µg/mL	< 5.24E+00
Sr.icp.adl	µg/mL	< 6.01E+00
Ti.icp.a	µg/mL	< 5.24E+00
Ti.icp.adl	µg/mL	< 6.01E+00
Tl.icp.a	µg/mL	< 1.05E+02
Tl.icp.adl	µg/mL	< 1.20E+02
Total alpha	µCi/mL	< 1.54E-02
Tritium	µCi/mL	< 3.96E-05
U.icp.a	µg/mL	< 2.62E+02
U.icp.adl	µg/mL	< 3.00E+02
V.icp.a	µg/mL	< 2.62E+01

Table B3-13. Supernatant Composite (Core 152, Segments 1-14) Analytes with >50 Percent "Less Than" Values. (3 sheets)

Analyte	Unit	Maximum Result
V.icp.adl	μg/mL	< 3.01E+01
Zr.icp.a	μg/mL	< 5.24E+00
Zr.icp.adl	μg/mL	< 6.01E+00

Note:

[1]Li and [1]Br are used for tracers in hydrostatic head fluid.

B3.4.1.2 Salt Slurry (Sludge). The mean concentration estimates for the sludge layer, along with the two-sided 95 percent confidence interval for the mean concentration, are given in Table B3-14 (nested ANOVA with the riser term) and Table B3-15 (nested ANOVA without the riser term) for those analytes with at least 50 percent of the reported data as quantitative values. For some of the analytes, the lower limit of the 95 percent confidence interval was a negative value due to the magnitude of the variability. Because the actual concentration of a tank sample cannot be less than zero, the lower limit is reported as zero. The analytes in Table B3-14 where $\hat{\sigma}_{riser}$ is significantly different from zero are marked with a "*". The riser variable is an indicator of horizontal homogeneity.

For those analytes where $\hat{\sigma}_{riser}$ is not significantly different from zero, the mean concentrations and the variances of the mean concentrations calculated using the two statistical models (nested ANOVA with the riser term and nested ANOVA without the riser term) are not significantly different. In these cases, the nested ANOVA model without the riser term is more appropriate. The analytes (sludge layer), which had less than 50 percent of the reported data as quantitative values, are listed in Table B3-16. Table B3-16 cites the largest value observed from the analytical results.

Table B3-14. Summary Statistics (per g basis) - Sludge (Nested ANOVA with Riser Term). (2 sheets)

Analyte	Units	$\hat{\mu}$	$\hat{\sigma}_{\mu}$	df	LL	UL
%water.tga	wt%	4.44E+01	1.21E+00	1	2.91E+01	5.98E+01
Acetate.ic.w	μg/g	5.93E+02	6.22E+01	1	0.00E+00	1.38E+03
Acetate.ic.wo	μg/g	6.74E+02	2.71E+01	1	3.29E+02	1.02E+03
Ag.icp.a	μg/g	1.94E+01	5.00E+00	1	0.00E+00	8.30E+01
Al.icp.a	μg/g	2.21E+04	9.96E+02	1	9.46E+03	3.48E+04
Al.icp.f	μg/g	2.31E+04	8.27E+02	1	1.26E+04	3.36E+04
B.icp.a *	μg/g	8.98E+01	1.35E+01	1	0.00E+00	2.61E+02
Ca.icp.a *	μg/g	6.42E+02	3.32E+02	1	0.00E+00	4.86E+03
Cd.icp.a	μg/g	1.16E+01	2.02E+00	1	0.00E+00	3.73E+01
Cl^-.ic	μg/g	5.18E+03	2.42E+02	1	2.10E+03	8.25E+03
Cr.icp.a	μg/g	2.34E+03	3.32E+02	1	0.00E+00	6.56E+03
Cr.icp.f	μg/g	2.48E+03	4.43E+02	1	0.00E+00	8.11E+03
Cu.icp.a.w	μg/g	7.05E+00	5.85E-01	1	0.00E+00	1.45E+01
Cu.icp.a.wo	μg/g	7.12E+00	5.24E-01	1	4.63E-01	1.38E+01
DSC.dry	J/g dry	6.38E+01	1.29E+01	1	0.00E+00	2.27E+02
DSC.wet	J/g wet	3.52E+01	6.47E+00	1	0.00E+00	1.17E+02
F^-.ic	μg/g	1.85E+03	5.09E+02	1	0.00E+00	8.32E+03
Fe.icp.a	μg/g	1.19E+02	2.62E+01	1	0.00E+00	4.52E+02
Formate.ic	μg/g	1.06E+03	3.88E+01	1	5.67E+02	1.55E+03
K.icp.a	μg/g	3.45E+03	1.44E+02	1	1.62E+03	5.28E+03
^{1}Li.icp.a.w	μg/g	1.97E+01	5.02E+00	1	0.00E+00	8.35E+01
^{1}Li.icp.a.wo	μg/g	2.05E+01	4.84E+00	1	0.00E+00	8.20E+01
Mn.icp.a.w	μg/g	2.08E+01	9.48E+00	1	0.00E+00	1.41E+02
Mn.icp.a.wo	μg/g	2.14E+01	9.77E+00	1	0.00E+00	1.46E+02
Mo.icp.a *	μg/g	5.15E+01	3.07E+00	1	1.25E+01	9.04E+01
NO_2^-.ic	μg/g	6.39E+04	2.50E+03	1	3.21E+04	9.56E+04
NO_3^-.ic	μg/g	1.11E+05	7.09E+03	1	2.11E+04	2.01E+05
Na.icp.a *	μg/g	1.83E+05	8.73E+03	1	7.17E+04	2.94E+05
Na.icp.f *	μg/g	2.28E+05	5.88E+03	1	1.53E+05	3.03E+05
Ni.icp.a	μg/g	4.07E+01	5.14E+00	1	0.00E+00	1.06E+02

Table B3-14. Summary Statistics (per g basis) - Sludge (Nested ANOVA with Riser Term). (2 sheets)

Analyte	Units	$\hat{\mu}$	$\hat{\sigma}_{\hat{\mu}}$	df	LL	UL
Ni.icp.f.w *	μg/g	1.36E+03	4.89E+02	1	0.00E+00	7.57E+03
Ni.icp.f.wo	μg/g	1.74E+03	3.64E+02	1	0.00E+00	6.37E+03
Oxalate.ic	μg/g	6.97E+03	1.08E+03	1	0.00E+00	2.07E+04
P.icp.a	μg/g	2.46E+03	1.66E+03	1	0.00E+00	2.35E+04
PO_4^{3-}.ic.w	μg/g	8.01E+03	5.89E+03	1	0.00E+00	8.29E+04
PO_4^{3-}.ic.wo	μg/g	8.01E+03	5.89E+03	1	0.00E+00	8.29E+04
Pb.icp.a.w	μg/g	4.75E+01	6.14E+00	1	0.00E+00	1.26E+02
Pb.icp.a.wo	μg/g	5.03E+01	8.16E+00	1	0.00E+00	1.54E+02
S.icp.a *	μg/g	2.51E+03	3.32E+02	1	0.00E+00	6.73E+03
S.icp.f.w	μg/g	2.77E+03	1.59E+02	1	7.51E+02	4.80E+03
S.icp.f.wo	μg/g	2.81E+03	1.49E+02	1	9.22E+02	4.71E+03
SO_4^{2-}.ic	μg/g	6.27E+03	6.34E+02	1	0.00E+00	1.43E+04
Si.icp.a.w	μg/g	1.34E+02	6.65E+00	1	4.99E+01	2.19E+02
Si.icp.a.wo	μg/g	1.38E+02	8.61E+00	1	2.84E+01	2.47E+02
Zn.icp.a *	μg/g	4.34E+01	6.12E+00	1	0.00E+00	1.21E+02
Zr.icp.a.w	μg/g	1.13E+01	3.93E+00	1	0.00E+00	6.13E+01
Zr.icp.a.wo	μg/g	1.19E+01	4.21E+00	1	0.00E+00	6.54E+01
Total Alpha.w	μCi/g	2.28E-02	1.04E-02	1	0.00E+00	1.55E-01
Total Alpha.wo	μCi/g	2.30E-02	1.46E-02	1	0.00E+00	2.08E-01

Notes:

* = $\hat{\sigma}_{riser}$ is significantly different from zero (evidence of horizontal heterogeneity).

[1]Li is one of the tracers for hydrostatic head fluid.

Table B3-15. Summary Statistics (per g basis) - Sludge (Nested ANOVA without Riser). (2 sheets)

Analyte	Units	$\hat{\mu}$	$\hat{\sigma}_{\hat{\mu}}$	df	LL	UL
%water.tga	wt%	4.44E+01	7.87E-01	10	4.27E+01	4.62E+01
Acetate.ic.w	μg/g	5.94E+02	5.18E+01	10	4.79E+02	7.10E+02
Acetate.ic.wo	μg/g	6.74E+02	2.71E+01	10	6.14E+02	7.35E+02
Ag.icp.a	μg/g	1.94E+01	5.00E+00	10	8.28E+00	3.06E+01
Al.icp.a	μg/g	2.21E+04	7.10E+02	10	2.05E+04	2.36E+04
Al.icp.f	μg/g	2.31E+04	8.27E+02	10	2.13E+04	2.50E+04
Cd.icp.a	μg/g	1.16E+01	2.02E+00	10	7.14E+00	1.61E+01
Cl^-.ic	μg/g	5.18E+03	2.02E+02	10	4.73E+03	5.63E+03
Cr.icp.a	μg/g	2.34E+03	3.24E+02	10	1.62E+03	3.06E+03
Cr.icp.f	μg/g	2.48E+03	3.47E+02	10	1.71E+03	3.26E+03
Cu.icp.a.w	μg/g	7.03E+00	5.15E-01	10	5.89E+00	8.18E+00
Cu.icp.a.wo	μg/g	7.11E+00	5.02E-01	10	5.99E+00	8.23E+00
DSC.dry	J/g dry	6.38E+01	8.31E+00	10	4.53E+01	8.23E+01
DSC.wet	J/g wet	3.52E+01	4.70E+00	10	2.48E+01	4.57E+01
F^-.ic	μg/g	1.85E+03	5.09E+02	10	7.11E+02	2.98E+03
Fe.icp.a	μg/g	1.19E+02	2.62E+01	10	6.08E+01	1.77E+02
Formate.ic	μg/g	1.06E+03	3.88E+01	10	9.73E+02	1.15E+03
K.icp.a	μg/g	3.45E+03	1.18E+02	10	3.18E+03	3.71E+03
^{1}Li.icp.a.w	μg/g	1.97E+01	5.02E+00	10	8.54E+00	3.09E+01
^{1}Li.icp.a.wo	μg/g	2.05E+01	4.84E+00	10	9.75E+00	3.13E+01
Mn.icp.a.w	μg/g	2.08E+01	9.48E+00	10	0.00E+00	4.19E+01
Mn.icp.a.wo	μg/g	2.14E+01	9.77E+00	10	0.00E+00	4.32E+01
NO_2^-.ic	μg/g	6.39E+04	2.50E+03	10	5.83E+04	6.94E+04
NO_3^-.ic	μg/g	1.11E+05	7.09E+03	10	9.54E+04	1.27E+05
Ni.icp.a	μg/g	4.07E+01	5.14E+00	10	2.93E+01	5.21E+01
Ni.icp.f.wo	μg/g	1.74E+03	3.64E+02	9	9.19E+02	2.57E+03
Oxalate.ic	μg/g	6.94E+03	6.68E+02	10	5.45E+03	8.43E+03
P.icp.a	μg/g	2.46E+03	1.66E+03	10	0.00E+00	6.14E+03
PO_4^{3-}.ic.w	μg/g	8.01E+03	5.89E+03	10	0.00E+00	2.11E+04
PO_4^{3-}.ic.wo	μg/g	8.01E+03	5.89E+03	10	0.00E+00	2.11E+04

Table B3-15. Summary Statistics (per g basis) - Sludge (Nested ANOVA without Riser). (2 sheets)

Analyte	Units	$\hat{\mu}$	$\hat{\sigma}_{\hat{\mu}}$	df	LL	UL
Pb.icp.a.w	μg/g	4.74E+01	4.40E+00	10	3.77E+01	5.72E+01
Pb.icp.a.wo	μg/g	4.95E+01	6.43E+00	7	3.43E+01	6.47E+01
S.icp.f.w	μg/g	2.77E+03	1.59E+02	10	2.42E+03	3.13E+03
S.icp.f.wo	μg/g	2.81E+03	1.49E+02	10	2.48E+03	3.15E+03
SO_4^{2-}.ic	μg/g	6.26E+03	5.24E+02	10	5.10E+03	7.43E+03
Si.icp.a.w	μg/g	1.34E+02	6.65E+00	10	1.20E+02	1.49E+02
Si.icp.a.wo	μg/g	1.38E+02	5.88E+00	10	1.25E+02	1.51E+02
Zr.icp.a.w	μg/g	1.13E+01	3.93E+00	10	2.58E+00	2.01E+01
Zr.icp.a.wo	μg/g	1.19E+01	4.21E+00	10	2.50E+00	2.13E+01
Total Alpha.w	μCi/g	2.28E-02	1.04E-02	10	0.00E+00	4.60E-02
Total Alpha.wo	μCi/g	2.30E-02	1.46E-02	7	0.00E+00	5.75E-02

Note:

[1]Li is one of the tracers for hydrostatic head fluid.

Table B3-16. Analytes (Sludge - per g basis) with >50 Percent "Less Than" Values. (2 sheets)

Analyte	Unit	Maximum Result
Ag.icp.f	µg/g	< 212
As.icp.a	µg/g	< 48.9
As.icp.f	µg/g	< 2120
B.icp.f	µg/g	< 1060
Ba.icp.a	µg/g	< 24.4
Ba.icp.f	µg/g	< 1060
Be.icp.a	µg/g	3.11
Be.icp.f	µg/g	< 106
Bi.icp.a	µg/g	71.8
Bi.icp.f	µg/g	< 2120
Br⁻.ic	µg/g	< 1070
Ca.icp.f	µg/g	< 2120
Cd.icp.f	µg/g	< 106
Ce.icp.a	µg/g	< 48.9
Ce.icp.f	µg/g	< 2120
Co.icp.a	µg/g	< 9.78
Co.icp.f	µg/g	< 425
Cu.icp.f	µg/g	< 212
Fe.icp.f	µg/g	< 1060
La.icp.a	µg/g	< 24.4
La.icp.f	µg/g	< 1060
[1]Li.icp.f	µg/g	< 212
Mg.icp.a	µg/g	60.9
Mg.icp.f	µg/g	< 2120
Mn.icp.f	µg/g	< 212
Mo.icp.f	µg/g	< 1060
Nd.icp.a	µg/g	< 48.9
Nd.icp.f	µg/g	< 2120
P.icp.f	µg/g	35700
Pb.icp.f	µg/g	< 2120

Table B3-16. Analytes (Sludge - per g basis) with >50 Percent "Less Than" Values. (2 sheets)

Analyte	Unit	Maximum Result
Sb.icp.a	μg/g	< 29.3
Sb.icp.f	μg/g	< 1270
Se.icp.a	μg/g	< 48.9
Se.icp.f	μg/g	< 2120
Si.icp.f	μg/g	2450
Sm.icp.a	μg/g	< 48.9
Sm.icp.f	μg/g	< 2120
Sr.icp.a	μg/g	9.73
Sr.icp.f	μg/g	< 212
Ti.icp.a	μg/g	< 4.89
Ti.icp.f	μg/g	< 212
Tl.icp.a	μg/g	< 97.8
Tl.icp.f	μg/g	< 4250
U.icp.a	μg/g	< 244
U.icp.f	μg/g	< 10600
V.icp.a	μg/g	< 24.4
V.icp.f	μg/g	< 1060
Zn.icp.f	μg/g	810
Zr.icp.f	μg/g	480

Note:

[1]Li is one of the tracers for hydrostatic head fluid.

Two sludge composite samples were formed from Core 152 segments. The first sludge composite consisted of material from segments 14 through 20. The second composite consisted of material from segment 22. The arithmetic mean, the associated variability, and a two-sided 95 percent confidence interval for the mean concentration were calculated for each analyte with at least 50 percent of the reported data as quantitative values. The confidence interval takes into account only the analytical uncertainty. The summary statistics are listed in Tables B3-17 for the first sludge composite and Tables B3-19 for the second sludge composite. Tables B-18 and B-20 contain the analytes which had less than 50 percent of the reported data as quantative values.

Table B3-17. Summary Statistics - Sludge Composite (Core 152, Segments 14-20). (2 sheets)

Analyte	Units	$\hat{\mu}$	$\hat{\sigma}_{\mu}$	df	LL	UL
%water.tga	wt%	4.57E+01	4.50E-01	1	4.00E+01	5.15E+01
Acetate.ic	μg/g	4.72E+02	2.00E+00	1	4.47E+02	4.97E+02
Ag.icp.a	μg/g	1.19E+01	4.00E-01	1	6.82E+00	1.70E+01
Al.icp.a	μg/g	2.05E+04	2.50E+02	1	1.73E+04	2.36E+04
^{241}Am.aea	μCi/g	4.10E-03	8.55E-04	1	0.00E+00	1.50E-02
B.icp.a	μg/g	1.17E+02	1.15E+01	1	0.00E+00	2.63E+02
Ca.icp.a	μg/g	2.16E+02	6.50E+00	1	1.33E+02	2.98E+02
Cd.icp.a	μg/g	7.30E+00	8.35E-01	1	0.00E+00	1.79E+01
Cl^-.ic	μg/g	5.88E+03	3.00E+01	1	5.50E+03	6.26E+03
Cr.icp.a	μg/g	1.49E+03	1.15E+02	1	2.38E+01	2.95E+03
Cr(VI).spec	μg/g	1.19E+02	1.00E+00	1	1.06E+02	1.32E+02
^{137}Cs.gea	μCi/g	3.04E+02	1.00E+00	1	2.91E+02	3.17E+02
Cu.icp.a	μg/g	5.11E+00	2.30E-01	1	2.19E+00	8.03E+00
DSC.dry	Joules/g dry	6.95E+01	1.11E+01	1	0.00E+00	2.10E+02
DSC.wet	Joules/g wet	3.77E+01	6.00E+00	1	0.00E+00	1.14E+02
F^-.ic	μg/g	1.14E+03	2.11E+02	1	0.00E+00	3.81E+03
Fe.icp.a	μg/g	6.12E+01	1.06E+01	1	0.00E+00	1.95E+02
Formate.ic	μg/g	1.23E+03	5.00E+00	1	1.16E+03	1.29E+03
K.icp.a	μg/g	3.09E+03	2.00E+01	1	2.84E+03	3.34E+03
^{1}Li.icp.a	μg/g	8.70E+00	1.00E-01	1	7.43E+00	9.97E+00
Mn.icp.a	μg/g	7.82E+00	6.40E-01	1	0.00E+00	1.60E+01
Mo.icp.a	μg/g	4.59E+01	5.00E-02	1	4.52E+01	4.65E+01

Table B3-17. Summary Statistics - Sludge Composite (Core 152, Segments 14-20). (2 sheets)

Analyte	Units	$\hat{\mu}$	$\hat{\sigma}_{\hat{\mu}}$	df	LL	UL
NO_2^-.ic	μg/g	7.31E+04	1.50E+02	1	7.11E+04	7.50E+04
NO_3^-.ic	μg/g	1.13E+05	4.00E+03	1	6.22E+04	1.64E+05
Na.icp.a	μg/g	1.55E+05	2.00E+03	1	1.30E+05	1.80E+05
Ni.icp.a	μg/g	3.18E+01	3.15E+00	1	0.00E+00	7.18E+01
^{237}Np	μCi/g	1.06E-02	3.00E-04	1	6.79E-03	1.44E-02
OH^-	μg/g	2.41E+04	4.50E+02	1	1.83E+04	2.98E+04
Oxalate.ic	μg/g	6.49E+03	2.00E+02	1	3.95E+03	9.03E+03
P.icp.a	μg/g	4.02E+02	1.60E+01	1	1.99E+02	6.05E+02
PO_4^{3-}.ic	μg/g	1.21E+03	7.50E+01	1	2.52E+02	2.16E+03
S.icp.a	μg/g	2.18E+03	1.45E+02	1	3.33E+02	4.02E+03
SO_4^{2-}.ic	μg/g	7.48E+03	2.55E+02	1	4.23E+03	1.07E+04
Si.icp.a	μg/g	1.79E+02	3.95E+01	1	0.00E+00	6.80E+02
$^{89/90}$Sr	μCi/g	9.16E+00	2.50E-01	1	5.98E+00	1.23E+01
TIC	μg/g	1.31E+04	5.50E+02	1	6.06E+03	2.00E+04
TOC.pers	μg/g	5.43E+03	5.25E+02	1	0.00E+00	1.21E+04
^{99}Tc	μCi/g	1.81E-01	5.00E-04	1	1.74E-01	1.87E-01
Total Alpha	μCi/g	1.36E-02	1.60E-03	1	0.00E+00	3.39E-02
Total Beta	μCi/g	3.27E+02	1.50E+00	1	3.07E+02	3.46E+02
Tritium	μCi/g	2.20E-03	2.10E-04	1	0.00E+00	4.87E-03
U.phos	μg/g	8.74E+01	1.20E+00	1	7.22E+01	1.03E+02
Zn.icp.a	μg/g	8.18E+00	4.00E-01	1	3.10E+00	1.33E+01

Note:

[1]Li is one of the tracers for hydrostatic head fluid.

Table B3-18. Sludge Composite (Core 152, Segments 14-20) Analytes with >50 Percent "Less Than" Values.

Analyte	Unit	Maximum Result
^{241}Am.gea	µCi/g	< 8.25E-01
As.icp.a	µCi/g	< 4.03E+01
Ba.icp.a	µg/g	< 2.02E+01
Be.icp.a	µg/g	< 2.02E+00
Bi.icp.a	µg/g	< 4.03E+01
[1]Br$^-$.ic	µg/g	< 5.58E+02
Ce.icp.a	µg/g	< 4.03E+01
$^{243/244}$Cm	µCi/g	< 9.67E-04
Co.icp.a	µg/g	< 8.06E+00
^{60}Co.gea	µCi/g	< 3.75E-02
^{154}Eu.gea	µCi/g	< 9.92E-02
^{155}Eu.gea	µCi/g	< 3.87E-01
^{129}I	µCi/g	< 3.92E-03
La.icp.a	µg/g	< 2.02E+01
Mg.icp.a	µg/g	< 4.03E+01
Nd.icp.a	µg/g	< 4.03E+01
Pb.icp.a	µg/g	< 4.03E+01
$^{239/240}$Pu	µCi/g	< 1.81E-03
Sb.icp.a	µg/g	< 2.42E+01
Se.icp.a	µg/g	< 4.03E+01
Sm.icp.a	µg/g	< 4.03E+01
Sr.icp.a	µg/g	< 4.03E+00
Ti.icp.a	µg/g	< 4.03E+00
Tl.icp.a	µg/g	< 8.06E+01
U.icp.a	µg/g	< 2.02E+02
V.icp.a	µg/g	< 2.02E+01
Zr.icp.a	µg/g	< 4.51E+00

Note:

[1]Br is one of the tracers for hydrostatic head fluid.

Table B3-19. Summary Statistics - Sludge Composite (Core 152, Segment 22). (2 sheets)

Analyte	Units	$\hat{\mu}$	$\hat{\sigma}_{\hat{\mu}}$	df	LL	UL
%water.tga	wt%	4.27E+01	1.30E-01	1	4.11E+01	4.44E+01
Ag.icp.a	μg/g	4.25E+01	2.35E+00	1	1.26E+01	7.23E+01
Al.icp.a	μg/g	1.45E+04	7.50E+02	1	4.92E+03	2.40E+04
^{241}Am.aea	μCi/g	3.89E-02	4.40E-03	1	0.00E+00	9.48E-02
B.icp.a	μg/g	1.14E+02	2.24E+01	1	0.00E+00	3.98E+02
Ca.icp.a	μg/g	3.29E+02	2.65E+01	1	0.00E+00	6.65E+02
Cd.icp.a	μg/g	1.39E+01	5.50E-01	1	6.86E+00	2.08E+01
Cl^-.ic	μg/g	4.07E+03	2.70E+02	1	6.39E+02	7.50E+03
Cr.icp.a	μg/g	2.74E+03	1.60E+02	1	7.07E+02	4.77E+03
Cr(VI).spec	μg/g	1.04E+02	3.00E+00	1	6.59E+01	1.42E+02
^{137}Cs.gea	μCi/g	2.06E+02	1.00E+00	1	1.93E+02	2.19E+02
Cu.icp.a	μg/g	6.03E+00	1.01E+00	1	0.00E+00	1.89E+01
DSC.dry	J/g dry	1.00E+02	5.75E+00	1	2.72E+01	1.73E+02
DSC.wet	J/g wet	5.73E+01	3.15E+00	1	1.72E+01	9.73E+01
F^-.ic	μg/g	5.03E+03	1.55E+02	1	3.06E+03	6.99E+03
Fe.icp.a	μg/g	1.47E+02	7.50E+00	1	5.12E+01	2.42E+02
Formate.ic	μg/g	1.12E+03	5.00E+00	1	1.05E+03	1.18E+03
K.icp.a	μg/g	2.15E+03	9.50E+01	1	9.38E+02	3.35E+03
^{1}Li.icp.a	μg/g	1.47E+01	7.39E+00	1	0.00E+00	1.09E+02
Mn.icp.a	μg/g	4.94E+01	2.80E+00	1	1.38E+01	8.50E+01
Mo.icp.a	μg/g	3.54E+01	2.00E+00	1	9.99E+00	6.08E+01
NO_2^-.ic	μg/g	4.77E+04	3.40E+03	1	4.50E+03	9.09E+04
NO_3^-.ic	μg/g	1.61E+05	1.40E+04	1	0.00E+00	3.39E+05
Na.icp.a	μg/g	1.65E+05	1.05E+04	1	3.11E+04	2.98E+05
Ni.icp.a	μg/g	3.37E+01	2.85E+00	1	0.00E+00	6.99E+01
OH^-	μg/g	2.20E+04	4.00E+02	1	1.69E+04	2.71E+04
Oxalate.ic	μg/g	5.88E+03	4.20E+02	1	5.43E+02	1.12E+04
P.icp.a	μg/g	1.41E+04	9.00E+02	1	2.66E+03	2.55E+04
PO_4^{3-}.ic	μg/g	4.57E+04	2.30E+03	1	1.65E+04	7.49E+04
Pb.icp.a	μg/g	4.97E+01	2.10E+00	1	2.30E+01	7.64E+01
$^{239/240}$Pu	μCi/g	7.55E-03	2.50E-05	1	7.23E-03	7.86E-03

Table B3-19. Summary Statistics - Sludge Composite (Core 152, Segment 22). (2 sheets)

Analyte	Units	$\hat{\mu}$	$\hat{\sigma}_{\hat{\mu}}$	df	LL	UL
S.icp.a	μg/g	1.45E+03	8.50E+01	1	3.65E+02	2.53E+03
SO_4^{2-}.ic	μg/g	4.18E+03	2.20E+02	1	1.38E+03	6.98E+03
Si.icp.a	μg/g	4.75E+02	1.47E+02	1	0.00E+00	2.34E+03
$^{89/90}Sr$	μCi/g	3.66E+01	7.50E-01	1	2.70E+01	4.61E+01
TIC	μg/g	8.25E+03	2.60E+02	1	4.95E+03	1.16E+04
TOC.pers	μg/g	4.48E+03	1.50E+02	1	2.57E+03	6.39E+03
^{99}Tc	μCi/g	1.34E-01	8.00E-03	1	3.24E-02	2.36E-01
Total Alpha	μCi/g	5.80E-02	7.95E-03	1	0.00E+00	1.59E-01
Total Beta	μCi/g	2.75E+02	6.50E+00	1	1.92E+02	3.57E+02
U.phos	μg/g	8.25E+01	1.85E+00	1	5.89E+01	1.06E+02
Zn.icp.a	μg/g	1.16E+01	1.85E+00	1	0.00E+00	3.51E+01
Zr.icp.a	μg/g	5.59E+01	3.15E+00	1	1.58E+01	9.59E+01

Note:

[1]Li is one of the tracers for hydrostatic head fluid.

Table B3-20. Sludge Composite (Core 152, Segment 22) Analytes with >50 Percent "Less Than" Values.

Analyte	Unit	Maximum Result
Acetate.ic	μg/g	< 7.90E+01
^{241}Am.gea	μCi/g	< 4.95E-01
As.icp.a	μCi/g	< 3.89E+01
Ba.icp.a	μg/g	< 1.95E+01
Be.icp.a	μg/g	< 1.95E+00
Bi.icp.a	μg/g	< 3.89E+01
^{1}Br^{-}.ic	μg/g	< 4.94E+02
Ce.icp.a	μg/g	< 3.89E+01
$^{243/244}$Cm	μCi/g	< 5.63E-03
Co.icp.a	μg/g	< 7.79E+00
^{60}Co.gea	μCi/g	< 1.80E-02
^{154}Eu.gea	μCi/g	< 7.58E-02
^{155}Eu.gea	μCi/g	< 2.30E-01
^{129}I	μCi/g	< 3.11E-03
La.icp.a	μg/g	< 1.95E+01
Mg.icp.a	μg/g	< 3.89E+01
Nd.icp.a	μg/g	< 3.89E+01
^{237}Np	μCi/g	< 1.62E-02
Sb.icp.a	μg/g	< 2.34E+01
Se.icp.a	μg/g	< 3.89E+01
Sm.icp.a	μg/g	< 3.89E+01
Sr.icp.a	μg/g	< 3.89E+00
Ti.icp.a	μg/g	< 3.89E+00
Tl.icp.a	μg/g	< 7.79E+01
Tritium	μCi/g	< 6.33E-04
U.icp.a	μg/g	< 1.95E+02
V.icp.a	μg/g	< 1.95E+01

Note:

[1]Br is one of the tracers for hydrostatic head fluid.

In order to determine the tank sludge inventory, the sludge data were converted from $\mu g/g$ to $\mu g/mL$ using the following equation, where i represents the segment portion. The radionuclide sludge data were converted using the same equation substituting Ci for g.

$$\frac{\mu g}{mL_i} = \frac{\mu g}{g_i} \times \frac{g}{mL_i}$$

The densities are listed in Table B3-21. The converted sludge data were then analyzed using the ANOVA techniques explained above. The mean concentration estimates, along with the two-sided 95 percent confidence interval for the mean concentration, are given in Table B3-22 (nested ANOVA with the riser term), Table B3-23 (nested ANOVA without the riser term), and Table B3-24 ("less than" results).

Table B3-21. Tank 241-AN-105 Sludge Bulk Density Values.

Riser	Segment	Portion	Density g/mL	Riser	Segment	Portion	Density g/mL
152	14	Lower half	1.53[1]	153	14	Lower half	1.56
152	14	Upper half	1.53	153	15	Lower half	1.56
152	16	Lower half	1.58	153	15	Upper half	1.52
152	16	Upper half	1.59	153	17	Lower half	1.53
152	18	Lower half	1.64	153	17	Upper half	1.52
152	18	Upper half	1.66	153	19	Lower half	1.56
152	20	Lower half	1.60	153	21	Lower half	1.57
152	20	Upper half	1.58	153	22	Lower half	1.60
152	22	Upper half	1.64	153	22	Upper half	1.58

Note:

[1]No bulk density measurement; used the value from the upper half subsample.

Table B3-22. Summary Statistics (per mL basis) - Sludge
(Nested ANOVA with Riser Term). (2 sheets)

Analyte	Units	$\hat{\mu}$	$\hat{\sigma}_{\hat{\mu}}$	df	LL	UL
Water.tga	g/mL	7.00E-01	1.13E-02	1	5.57E-01	8.43E-01
Acetate.ic.w	μg/mL	9.34E+02	1.09E+02	1	0.00E+00	2.32E+03
Acetate.ic.wo	μg/mL	1.06E+03	4.29E+01	1	5.15E+02	1.61E+03
Ag.icp.a	μg/mL	3.08E+01	8.03E+00	1	0.00E+00	1.33E+02
Al.icp.a	μg/mL	3.49E+04	2.04E+03	1	8.94E+03	6.08E+04
Al.icp.f	μg/mL	3.64E+04	1.21E+03	1	2.10E+04	5.18E+04
B.icp.a *	μg/mL	1.41E+02	1.95E+01	1	0.00E+00	3.89E+02
Ca.icp.a *	μg/mL	1.01E+03	5.13E+02	1	0.00E+00	7.52E+03
Cd.icp.a	μg/mL	1.84E+01	3.25E+00	1	0.00E+00	5.98E+01
Cl^-.ic	μg/mL	8.14E+03	3.03E+02	1	4.29E+03	1.20E+04
Cr.icp.a	μg/mL	3.69E+03	5.13E+02	1	0.00E+00	1.02E+04
Cr.icp.f	μg/mL	3.91E+03	6.47E+02	1	0.00E+00	1.21E+04
Cu.icp.a.w	μg/mL	1.11E+01	7.94E-01	1	1.01E+00	2.12E+01
Cu.icp.a.wo	μg/mL	1.12E+01	7.72E-01	1	1.40E+00	2.10E+01
DSC.dry	Joules/g dry	6.38E+01	1.29E+01	1	0.00E+00	2.27E+02
DSC.wet	Joules/g wet	3.52E+01	6.47E+00	1	0.00E+00	1.17E+02
F^-.ic	μg/mL	2.93E+03	8.18E+02	1	0.00E+00	1.33E+04
Fe.icp.a	μg/mL	1.89E+02	4.22E+01	1	0.00E+00	7.25E+02
Formate.ic	μg/mL	1.67E+03	6.46E+01	1	8.47E+02	2.49E+03
K.icp.a	μg/mL	5.44E+03	3.01E+02	1	1.62E+03	9.26E+03
^{1}Li.icp.a.w	μg/mL	3.12E+01	8.02E+00	1	0.00E+00	1.33E+02
^{1}Li.icp.a.wo	μg/mL	3.25E+01	7.80E+00	1	0.00E+00	1.32E+02
Mn.icp.a.w	μg/mL	3.32E+01	1.52E+01	1	0.00E+00	2.26E+02
Mn.icp.a.wo	μg/mL	3.42E+01	1.57E+01	1	0.00E+00	2.33E+02
Mo.icp.a *	μg/mL	8.12E+01	5.92E+00	1	5.96E+00	1.56E+02
NO_2^-.ic	μg/mL	1.00E+05	3.74E+03	1	5.29E+04	1.48E+05
NO_3^-.ic	μg/mL	1.76E+05	1.17E+04	1	2.65E+04	3.25E+05
Na.icp.a *	μg/mL	2.89E+05	1.77E+04	1	6.42E+04	5.13E+05
Na.icp.f *	μg/mL	3.60E+05	1.41E+04	1	1.81E+05	5.38E+05
Ni.icp.a	μg/mL	6.43E+01	8.24E+00	1	0.00E+00	1.69E+02

Table B3-22. Summary Statistics (per mL basis) - Sludge
(Nested ANOVA with Riser Term). (2 sheets)

Analyte	Units	$\hat{\mu}$	$\hat{\sigma}_{\hat{\mu}}$	df	LL	UL
Ni.icp.f.w *	μg/mL	2.15E+03	7.82E+02	1	0.00E+00	1.21E+04
Ni.icp.f.wo	μg/mL	2.76E+03	5.71E+02	1	0.00E+00	1.00E+04
Oxalate.ic	μg/mL	1.10E+04	1.60E+03	1	0.00E+00	3.13E+04
P.icp.a	μg/mL	3.92E+03	2.65E+03	1	0.00E+00	3.75E+04
PO_4^{3-}.ic.w	μg/mL	1.28E+04	9.41E+03	1	0.00E+00	1.32E+05
PO_4^{3-}.ic.wo	μg/mL	1.28E+04	9.41E+03	1	0.00E+00	1.32E+05
Pb.icp.a.w	μg/mL	7.49E+01	8.77E+00	1	0.00E+00	1.86E+02
Pb.icp.a.wo	μg/mL	7.96E+01	1.17E+01	1	0.00E+00	2.28E+02
S.icp.a *	μg/mL	3.96E+03	5.80E+02	1	0.00E+00	1.13E+04
S.icp.f.w	μg/mL	4.39E+03	2.76E+02	1	8.83E+02	7.89E+03
S.icp.f.wo	μg/mL	4.45E+03	2.63E+02	1	1.10E+03	7.79E+03
SO_4^{2-}.ic	μg/mL	9.92E+03	1.16E+03	1	0.00E+00	2.46E+04
Si.icp.a.w	μg/mL	2.11E+02	9.39E+00	1	9.20E+01	3.31E+02
Si.icp.a.wo	μg/mL	2.16E+02	1.11E+01	1	7.57E+01	3.57E+02
Zn.icp.a *	μg/mL	6.84E+01	8.84E+00	1	0.00E+00	1.81E+02
Zr.icp.a.w	μg/mL	1.81E+01	6.33E+00	1	0.00E+00	9.84E+01
Zr.icp.a.wo	μg/mL	1.89E+01	6.77E+00	1	0.00E+00	1.05E+02
Total Alpha.w	μCi/mL	3.63E-02	1.67E-02	1	0.00E+00	2.49E-01
Total Alpha.wo	μCi/mL	3.67E-02	2.34E-02	1	0.00E+00	3.34E-01

Notes:

*$\hat{\sigma}_{riser}$ is significantly different from zero (evidence of horizontal heterogeneity).

[1]Li is used as tracer in hydrostatic head fluid.

Table B3-23. Summary Statistics (per mL basis) - Sludge (Nested ANOVA without Riser). (2 sheets)

Analyte	Units	$\hat{\mu}$	$\hat{\sigma}_{\mu}$	df	LL	UL
Water.tga	g/mL	7.00E-01	1.13E-02	10	6.75E-01	7.25E-01
Acetate.ic.w	μg/mL	9.37E+02	8.20E+01	10	7.54E+02	1.12E+03
Acetate.ic.wo	μg/mL	1.06E+03	4.29E+01	10	9.65E+02	1.16E+03
Ag.icp.a	μg/mL	3.08E+01	8.03E+00	10	1.29E+01	4.86E+01
Al.icp.a	μg/mL	3.47E+04	1.07E+03	10	3.23E+04	3.71E+04
Al.icp.f	μg/mL	3.64E+04	1.21E+03	10	3.37E+04	3.91E+04
Cd.icp.a	μg/mL	1.84E+01	3.25E+00	10	1.12E+01	2.57E+01
Cl^-.ic	μg/mL	8.14E+03	3.03E+02	10	7.47E+03	8.82E+03
Cr.icp.a	μg/mL	3.69E+03	5.13E+02	10	2.55E+03	4.83E+03
Cr.icp.f	μg/mL	3.91E+03	5.41E+02	10	2.70E+03	5.12E+03
Cu.icp.a.w	μg/mL	1.11E+01	7.86E-01	10	9.35E+00	1.28E+01
Cu.icp.a.wo	μg/mL	1.12E+01	7.72E-01	10	9.49E+00	1.29E+01
DSC.dry	J/g dry	6.38E+01	8.31E+00	10	4.53E+01	8.23E+01
DSC.wet	J/g wet	3.52E+01	4.70E+00	10	2.48E+01	4.57E+01
F^-.ic	μg/mL	2.93E+03	8.18E+02	10	1.11E+03	4.75E+03
Fe.icp.a	μg/mL	1.89E+02	4.22E+01	10	9.53E+01	2.83E+02
Formate.ic	μg/mL	1.67E+03	6.02E+01	10	1.53E+03	1.80E+03
K.icp.a	μg/mL	5.42E+03	1.77E+02	10	5.03E+03	5.82E+03
^{1}Li.icp.a.w	μg/mL	3.12E+01	8.02E+00	10	1.33E+01	4.91E+01
^{1}Li.icp.a.wo	μg/mL	3.25E+01	7.80E+00	10	1.51E+01	4.99E+01
Mn.icp.a.w	μg/mL	3.32E+01	1.52E+01	10	0.00E+00	6.70E+01
Mn.icp.a.wo	μg/mL	3.42E+01	1.57E+01	10	0.00E+00	6.91E+01
NO_2^-.ic	μg/mL	1.00E+05	3.74E+03	10	9.21E+04	1.09E+05
NO_3^-.ic	μg/mL	1.76E+05	1.17E+04	10	1.50E+05	2.02E+05
Ni.icp.a	μg/mL	6.43E+01	8.24E+00	10	4.59E+01	8.26E+01
Ni.icp.f.wo	μg/mL	2.76E+03	5.71E+02	9	1.47E+03	4.05E+03
Oxalate.ic	μg/mL	1.09E+04	9.89E+02	10	8.71E+03	1.31E+04
P.icp.a	μg/mL	3.92E+03	2.65E+03	10	0.00E+00	9.82E+03
PO_4^{3-}.ic.w	μg/mL	1.28E+04	9.41E+03	10	0.00E+00	3.37E+04
PO_4^{3-}.ic.wo	μg/mL	1.28E+04	9.41E+03	10	0.00E+00	3.37E+04

Table B3-23. Summary Statistics (per mL basis) - Sludge (Nested ANOVA without Riser). (2 sheets)

Analyte	Units	$\hat{\mu}$	$\hat{\sigma}_{\mu}$	df	LL	UL
Pb.icp.a.w	μg/mL	7.48E+01	7.08E+00	10	5.90E+01	9.06E+01
Pb.icp.a.wo	μg/mL	7.90E+01	1.03E+01	7	5.46E+01	1.03E+02
S.icp.f.w	μg/mL	4.39E+03	2.76E+02	10	3.77E+03	5.00E+03
S.icp.f.wo	μg/mL	4.45E+03	2.62E+02	10	3.86E+03	5.03E+03
SO_4^{2-}.ic	μg/mL	9.90E+03	8.69E+02	10	7.96E+03	1.18E+04
Si.icp.a.w	μg/mL	2.11E+02	9.39E+00	10	1.90E+02	2.32E+02
Si.icp.a.wo	μg/mL	2.16E+02	8.24E+00	10	1.98E+02	2.35E+02
Zr.icp.a.w	μg/mL	1.81E+01	6.33E+00	10	3.97E+00	3.22E+01
Zr.icp.a.wo	μg/mL	1.89E+01	6.77E+00	10	3.85E+00	3.40E+01
Total Alpha.w	μCi/mL	3.63E-02	1.67E-02	10	0.00E+00	7.35E-02
Total Alpha.wo	μCi/mL	3.66E-02	2.34E-02	7	0.00E+00	9.19E-02

Note:

[1]Li is used as tracer in hydrostatic head fluid.

Table B3-24. Sludge (per L basis) - Analytes with >50 Percent "Less Than" Values. (2 sheets)

Analyte	Unit	Maximum Result
Ag.icp.f	g/L	< 3.48E-01
As.icp.a	g/L	< 7.82E-02
As.icp.f	g/L	< 3.48E+00
B.icp.f	g/L	< 1.74E+00
Ba.icp.a	g/L	< 3.90E-02
Ba.icp.f	g/L	< 1.74E+00
Be.icp.a	g/L	< 4.76E-03
Be.icp.f	g/L	< 1.74E-01
Bi.icp.a	g/L	< 1.15E-01
Bi.icp.f	g/L	< 3.48E+00
[1]Br⁻.ic	g/L	< 1.74E+00
Ca.icp.f	g/L	< 3.48E+00
Cd.icp.f	g/L	< 1.74E-01
Ce.icp.a	g/L	< 7.82E-02
Ce.icp.f	g/L	< 3.48E+00
Co.icp.a	g/L	< 1.56E-02
Co.icp.f	g/L	< 6.97E-01
Cu.icp.f	g/L	< 3.48E-01
Fe.icp.f	g/L	< 1.74E+00
La.icp.a	g/L	< 3.90E-02
La.icp.f	g/L	< 1.74E+00
[1]Li.icp.f	g/L	< 3.48E-01
Mg.icp.a	g/L	< 9.74E-02
Mg.icp.f	g/L	< 3.48E+00
Mn.icp.f	g/L	< 3.48E-01
Mo.icp.f	g/L	< 1.74E+00
Nd.icp.a	g/L	< 7.82E-02
Nd.icp.f	g/L	< 3.48E+00
P.icp.f	g/L	< 5.71E+01
Pb.icp.f	g/L	< 3.48E+00

Table B3-24. Sludge (per L basis) - Analytes with >50 Percent "Less Than" Values. (2 sheets)

Analyte	Unit	Maximum Result
Sb.icp.a	g/L	< 4.69E-02
Sb.icp.f	g/L	< 2.08E+00
Se.icp.a	g/L	< 7.82E-02
Se.icp.f	g/L	< 3.48E+00
Si.icp.f	g/L	< 3.82E+00
Sm.icp.a	g/L	< 7.82E-02
Sm.icp.f	g/L	< 3.48E+00
Sr.icp.a	g/L	< 1.56E-02
Sr.icp.f	g/L	< 3.48E-01
Ti.icp.a	g/L	< 7.82E-03
Ti.icp.f	g/L	< 3.48E-01
Tl.icp.a	g/L	< 1.56E-01
Tl.icp.f	g/L	< 6.97E+00
U.icp.a	g/L	< 3.90E-01
U.icp.f	g/L	< 1.74E+01
V.icp.a	g/L	< 3.90E-02
V.icp.f	g/L	< 1.74E+00
Zn.icp.f	g/L	< 1.26E+00
Zr.icp.f	g/L	< 7.68E-01

Note:

[1]Li and [1]Br are the tracers for hydrostatic head fluid.

B3.4.1.3 Crust. The mean concentration estimates for the crust (the mean of two analytical results for the one segment), along with the two-sided 95 percent confidence interval for the mean concentration, are given in Table B3-25 for those analytes with at least 50 percent of the reported data as quantitative values. The confidence interval takes into account only the analytical variability. For some of the analytes, the lower limit of the 95 percent confidence interval was a negative value due to the magnitude of the variability. Because the actual concentration of a tank sample cannot be less than zero, the lower limit is reported as zero. The analytes (crust), which had less than 50 percent of the reported data as quantitative values, are listed in Table B3-26. Table B3-26 cites the largest value observed from the analytical results.

Table B3-25. Summary Statistics (per g basis) - Crust. (2 sheets)

Analyte	Units	$\hat{\mu}$	$\hat{\sigma}_{\mu}$	df	LL	UL
%water.tga	wt%	4.37E+01	2.94E+00	1	6.45E+00	8.10E+01
Ag.icp.a	μg/g	1.36E+01	1.50E-01	1	1.16E+01	1.55E+01
Al.icp.a	μg/g	2.50E+04	1.50E+02	1	2.30E+04	2.69E+04
Al.icp.f	μg/g	2.50E+04	6.00E+02	1	1.74E+04	3.26E+04
B.icp.a	μg/g	1.04E+02	6.80E+00	1	1.78E+01	1.91E+02
Ca.icp.a	μg/g	1.45E+02	3.70E+01	1	0.00E+00	6.15E+02
Cd.icp.a	μg/g	3.54E+00	2.25E-01	1	6.76E-01	6.39E+00
Cl^-.ic	μg/g	5.49E+03	1.35E+02	1	3.77E+03	7.20E+03
Cr.icp.a	μg/g	7.46E+02	1.25E+01	1	5.87E+02	9.04E+02
Cr.icp.f	μg/g	7.17E+02	4.50E+00	1	6.59E+02	7.74E+02
Cu.icp.a	μg/g	4.52E+00	1.95E-01	1	2.04E+00	6.99E+00
DSC.dry	Joules/g dry	1.09E+01	2.06E+00	1	0.00E+00	3.71E+01
DSC.wet	Joules/g wet	6.15E+00	1.15E+00	1	0.00E+00	2.08E+01
F^-.ic	μg/g	3.98E+02	1.29E+02	1	0.00E+00	2.04E+03
Fe.icp.a	μg/g	3.88E+01	6.00E+00	1	0.00E+00	1.15E+02
Formate.ic	μg/g	1.30E+03	6.00E+01	1	5.38E+02	2.06E+03
K.icp.a	μg/g	3.88E+03	8.50E+01	1	2.79E+03	4.96E+03
Mo.icp.a	μg/g	5.72E+01	6.00E-01	1	4.96E+01	6.48E+01
NO_2^-.ic	μg/g	7.29E+04	1.60E+03	1	5.26E+04	9.32E+04
NO_3^-.ic	μg/g	1.54E+05	4.50E+03	1	9.63E+04	2.11E+05
Na.icp.a	μg/g	1.83E+05	4.50E+03	1	1.25E+05	2.40E+05
Na.icp.f	μg/g	2.46E+05	8.00E+03	1	1.44E+05	3.48E+05

Table B3-25. Summary Statistics (per g basis) - Crust. (2 sheets)

Analyte	Units	$\hat{\mu}$	$\hat{\sigma}_{\hat{\mu}}$	df	LL	UL
Ni.icp.a	μg/g	1.45E+01	1.85E+00	1	0.00E+00	3.80E+01
Ni.icp.f	μg/g	1.85E+03	1.07E+03	1	0.00E+00	1.54E+04
Oxalate.ic	μg/g	4.48E+03	8.50E+01	1	3.39E+03	5.56E+03
P.icp.a	μg/g	1.13E+03	1.96E+02	1	0.00E+00	3.62E+03
PO_4^{3-}.ic	μg/g	3.59E+03	3.50E+01	1	3.14E+03	4.03E+03
S.icp.a	μg/g	1.54E+03	4.00E+01	1	1.03E+03	2.05E+03
SO_4^{2-}.ic	μg/g	3.44E+03	1.00E+01	1	3.31E+03	3.57E+03
Si.icp.a	μg/g	2.10E+02	9.00E+00	1	9.56E+01	3.24E+02
Zn.icp.a	μg/g	3.17E+01	5.00E-01	1	2.53E+01	3.81E+01
Zn.icp.f	μg/g	6.45E+02	5.90E+01	1	0.00E+00	1.39E+03

Table B3-26. Analytes (Crust - per g basis) with >50 Percent "Less Than" Values. (2 sheets)

Analyte	Unit	Maximum Result
Acetate.ic	µg/g	< 7.57E+02
Ag.icp.f	µg/g	< 2.01E+02
As.icp.a	µg/g	< 4.03E+01
As.icp.f	µg/g	< 2.01E+03
B.icp.f	µg/g	< 1.01E+03
Ba.icp.a	µg/g	< 2.01E+01
Ba.icp.f	µg/g	< 1.01E+03
Be.icp.a	µg/g	< 2.01E+00
Be.icp.f	µg/g	< 1.01E+02
Bi.icp.a	µg/g	< 4.03E+01
Bi.icp.f	µg/g	< 2.01E+03
[1]Br^-.ic	µg/g	< 5.14E+02
Ca.icp.f	µg/g	< 2.01E+03
Cd.icp.f	µg/g	< 1.01E+02
Ce.icp.a	µg/g	< 4.03E+01
Ce.icp.f	µg/g	< 2.01E+03
Co.icp.a	µg/g	< 8.06E+00
Co.icp.f	µg/g	< 4.02E+02
Cu.icp.f	µg/g	< 2.01E+02
Fe.icp.f	µg/g	< 1.01E+03
La.icp.a	µg/g	< 2.01E+01
La.icp.f	µg/g	< 1.01E+03
[1]Li.icp.a	µg/g	< 4.03E+00
[1]Li.icp.f	µg/g	< 2.01E+02
Mg.icp.a	µg/g	< 4.03E+01
Mg.icp.f	µg/g	< 2.01E+03
Mn.icp.a	µg/g	< 4.03E+00
Mn.icp.f	µg/g	< 2.01E+02
Mo.icp.f	µg/g	< 1.01E+03
Nd.icp.a	µg/g	< 4.03E+01

Table B3-26. Analytes (Crust - per g basis) with >50 Percent "Less Than" Values. (2 sheets)

Analyte	Unit	Maximum Result
Nd.icp.f	μg/g	< 2.01E+03
P.icp.f	μg/g	< 4.02E+03
Pb.icp.a	μg/g	< 4.14E+01
Pb.icp.f	μg/g	< 2.01E+03
S.icp.f	μg/g	< 2.01E+03
Sb.icp.a	μg/g	< 2.42E+01
Sb.icp.f	μg/g	< 1.21E+03
Se.icp.a	μg/g	< 4.03E+01
Se.icp.f	μg/g	< 2.01E+03
Si.icp.f	μg/g	< 1.01E+03
Sm.icp.a	μg/g	< 4.03E+01
Sm.icp.f	μg/g	< 2.01E+03
Sr.icp.a	μg/g	< 4.03E+00
Sr.icp.f	μg/g	< 2.01E+02
Ti.icp.a	μg/g	< 4.03E+00
Ti.icp.f	μg/g	< 2.01E+02
Tl.icp.a	μg/g	< 8.06E+01
Tl.icp.f	μg/g	< 4.02E+03
Total Alpha	μCi/g	< 2.28E-02
U.icp.a	μg/g	< 2.01E+02
U.icp.f	μg/g	< 1.01E+04
V.icp.a	μg/g	< 2.01E+01
V.icp.f	μg/g	< 1.01E+03
Zr.icp.a	μg/g	< 4.03E+00
Zr.icp.f	μg/g	< 2.01E+02

Note:

[1]Li and [1]Br are the tracers for hydrostatic head fluid.

B3.4.2 Analysis of Variance Model

A statistical model is needed to account for the spatial and measurement variability in $\hat{\sigma}_{\hat{\mu}}$. This cannot be done using an ordinary standard deviation of the data (Snedecor 1980).

B3.4.2.1 Supernatant. The data were statistically evaluated using two different models. The first model used a nested analysis of variance. The nested analysis of variance statistical model used to describe the structure of the data is

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

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

where

Y_{ijk}	=	concentration from the kth analytical result from the jth segment from the ith riser
μ	=	the grand mean
R_i	=	the effect of the ith riser
S_{ij}	=	the effect of the jth segment from the ith riser
A_{ijk}	=	the effect of the kth analytical result from the jth segment from the ith riser
a	=	the number of risers
b_i	=	the number of segments from the ith riser
n_{ij}	=	the number of analytical results from the jth segment from the ith riser.

The variables R_i and S_{ij} are assumed to be a random effects. These variables, as well as A_{ijk}, are assumed to be uncorrelated and normally distributed with means zero and variances $\sigma^2(R)$, $\sigma^2(S)$, and $\sigma^2(A)$, respectively. Estimates of $\sigma^2(R)$, $\sigma^2(S)$, and $\sigma^2(A)$ were obtained using Restricted Maximum Likelihood Estimation (REML) method. This method applied to variance component estimation is described in Harville, 1977. The results using the REML techniques were obtained using the statistical analysis package S-PLUS[1] (Statistical Sciences, 1993). The *df* associated with the standard deviation of the mean (a function of $\sigma^2(R)$, $\sigma^2(S)$, and $\sigma^2(A)$) is the number of risers minus one.

[1]S-PLUS is a trademark of Statistical Sciences, Incorporated, Seattle, Washington.

The second model used one-way analysis of variance. The one-way analysis of variance statistical model used to describe the structure of the data is

$$Y_{ij} = \mu + S_i + A_{ij},$$

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

where

Y_{ij}	=	concentration from the jth analytical result from the ith segment
μ	=	the grand mean
S_i	=	the effect of the ith segment
A_{ij}	=	the effect of the jth analytical result from the ith segment
a	=	the number of segments
n_i	=	the number of analytical results from the ith segment.

The variable S_i is assumed to be a random effect. This variable, as well as A_{ij}, are assumed to be uncorrelated and normally distributed with means zero and variances $\sigma^2(S)$ and $\sigma^2(A)$, respectively. Estimates of $\sigma^2(S)$ and $\sigma^2(A)$ were obtained using REML techniques. The results using the REML techniques were obtained using the statistical analysis package S-PLUS™ (Statistical Sciences, 1993). The *df* associated with the standard deviation of the mean (a function of $\sigma^2(S)$ and $\sigma^2(A)$) is the number of segments minus one.

B3.4.2.2 Salt Slurry (Sludge). The data were statistically evaluated using two different models. The first model used a nested analysis of variance with a riser term. The nested analysis of variance statistical model used to describe the structure of the data is

$$Y_{ijkl} = \mu + R_i + S_{ij} + L_{ijk} + A_{ijkl},$$

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

where

Y_{ijkl}	=	concentration from the lth analytical result from the kth location from the jth segment from the ith riser
μ	=	the grand mean
R_i	=	the effect of the ith riser
S_{ij}	=	the effect of the jth segment from the ith riser

L_{ijk}	=	the effect of the kth location from the jth segment from the ith riser
A_{ijkl}	=	the effect of the lth analytical result from the kth location from the jth segment from the ith riser
a	=	the number of risers
b_i	=	the number of segments from the ith riser
c_{ij}	=	the number of locations from the jth segment from the ith riser
n_{ijk}	=	the number of analytical results from the kth location from the jth segment from the ith riser.

The variables R_i, S_{ij}, and L_{ijk} are assumed to be random effects. These variables, as well as A_{ijkl}, are assumed to be uncorrelated and normally distributed with means zero and variances $\sigma^2(R)$, $\sigma^2(S)$, $\sigma^2(L)$, and $\sigma^2(A)$, respectively. Estimates of $\sigma^2(R)$, $\sigma^2(S)$, $\sigma^2(L)$, and $\sigma^2(A)$ were obtained using REML techniques. This method applied to variance component estimation is described in Harville, 1977. The results using the REML techniques were obtained using the statistical analysis package S-PLUS™ (Statistical Sciences, 1993). The *df* associated with the standard deviation of the mean (a function of $\sigma^2(R)$, $\sigma^2(S)$, $\sigma^2(L)$, and $\sigma^2(A)$) is the number of risers minus one.

The second model used nested analysis of variance without the riser term. This nested ANOVA model is

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

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

where

Y_{ijk}	=	concentration from the kth analytical result from the jth location from the ith segment
μ	=	the grand mean
S_i	=	the effect of the ith segment
L_{ij}	=	the effect of the jth location from the ith segment
A_{ijk}	=	the effect of the kth analytical result from the jth location from the ith segment
a	=	the number of segments

b_i	=	the number of locations from the ith segment
n_{ij}	=	the number of analytical results from the jth location from the ith segment.

The variables S_i and L_{ij} are assumed to be a random effects. These variables, as well as A_{ijk}, are assumed to be uncorrelated and normally distributed with means zero and variances $\sigma^2(S)$, $\sigma^2(L)$, and $\sigma^2(A)$, respectively. Estimates of $\sigma^2(S)$, $\sigma^2(L)$, and $\sigma^2(A)$ were obtained using REML techniques. This method applied to variance component estimation is described in Harville, 1977. The results using the REML techniques were obtained using the statistical analysis package S-PLUS™ (Statistical Sciences, 1993). The *df* associated with the standard deviation of the mean (a function of $\sigma^2(S)$, $\sigma^2(L)$, and $\sigma^2(A)$) is the number of segments minus one.

B3.4.3 Sampling Based Tank Inventory

The sampling based tank inventory for each analyte is calculated by multiplying the tank volume (4,270 kL) by the mean concentration. The supernatant tank volume is estimated to be 60 percent of the tank volume or 2,562 kL. The salt slurry tank volume is estimated to be 40 percent of the tank volume or 1,708 kL. The lower and upper limits were calculated by multiplying the tank volume by the lower and upper limits from the two-sided 95 percent confidence interval for the mean concentration. The tank inventory for the supernatant for each analyte, along with the upper and lower limits, are presented in Table B3-27 (nested ANOVA), Table B3-28 (one-way ANOVA), Table B3-29 ("less than" results), and Table B3-30 (supernatant composite - Core 152, segments 1-14). The tank inventory for the sludge for each analyte, along with the upper and lower limits, are presented in Table B3-31 (nested ANOVA with the riser term), Table B3-32 (nested ANOVA without the riser term), and Table B3-33 ("less than" results). For those analytes with less than 50 percent of the data reported as quantitative values, the tank inventory was calculated by multiplying the tank volume by the maximum concentration listed in previous tables. Values for the lower limit and the upper limit are not possible.

The salt slurry tank inventory determined from the composite sample prepared from sludge segments 14-20 is presented in Table B3-34. The volume for sludge segments (14-21) was estimated to be 91 percent (142"/156") of the total sludge inventory (1,708 kL), which is equal to 1,554 kL. The salt slurry tank inventory determined from the composite sample prepared from sludge segment 22 is presented in Table B3-35. The volume for sludge segment 22 was estimated to be 9 percent (14"/156") of the total sludge inventory (1,708 kL), which is equal to 154 kL.

The tank inventory based on the segment data is presented in Table B3-36. The tank inventory was determined by summing the supernatant inventory (Tables B3-27 and B3-29) and the salt slurry inventory values (Tables B3-31 and B3-33). The tank inventory based on the composite data is presented in Table B3-37. The tank inventory was determined by

summing the supernatant inventory (Table B3-30) and the salt slurry inventory values (Tables B3-34 and B3-35). Since the analyte means were calculated using different data sets (.w, .wo, .ed, .adl and so forth), Tables B3-36 and B3-37 also list the analyte name for the supernatant mean (first column) and the analyte name for the salt slurry mean (second column).

Table B3-27. Analytical-Based Supernate Inventory for Tank 241-AN-105 - (Nested ANOVA - Segment Data). (2 sheets)

Analyte	Tank Inventory	LL (kg or Ci)	UL (kg or Ci)
Water.tga	1.28E+06 kg	1.16E+06	1.40E+06
Water.tga.ed	1.29E+06 kg	1.23E+06	1.34E+06
Acetate.ic.w	1.54E+03 kg	0.00E+00	3.77E+03
Acetate.ic.wo	1.57E+03 kg	0.00E+00	3.46E+03
Ag.icp.adl	4.56E+01 kg	3.43E+01	5.69E+01
Al.icp.adl	1.07E+05 kg	8.93E+04	1.24E+05
B.icp.adl	1.91E+02 kg	1.66E+02	2.15E+02
$^{1}Br^{-}$.ic.w	2.47E+03 kg	0.00E+00	5.20E+03
$^{1}Br^{-}$.ic.wo	2.50E+03 kg	3.46E+02	4.66E+03
Cl^{-}.ic	2.62E+04 kg	5.07E+03	4.74E+04
Cl^{-}.ic.ed	2.54E+04 kg	2.27E+04	2.82E+04
Cr.icp.adl	5.76E+02 kg	1.08E+02	1.04E+03
F^{-}.ic.w	7.95E+02 kg	0.00E+00	1.99E+03
F^{-}.ic.w.ed	7.52E+02 kg	0.00E+00	2.39E+03
F^{-}.ic.wo	1.25E+03 kg	0.00E+00	3.10E+03
F^{-}.ic.wo.ed	1.16E+03 kg	5.04E+02	1.81E+03
Formate.ic	4.00E+03 kg	1.30E+03	6.69E+03
K.icp.adl	1.68E+04 kg	1.45E+04	1.91E+04
Mo.icp.adl	2.48E+02 kg	2.15E+02	2.80E+02
NO_2^{-}.ic	3.24E+05 kg	4.61E+04	6.02E+05
NO_2^{-}.ic.ed	3.13E+05 kg	2.77E+05	3.49E+05
NO_3^{-}.ic	4.25E+05 kg	7.10E+04	7.79E+05
NO_3^{-}.ic.ed	4.12E+05 kg	3.55E+05	4.69E+05
Na.icp.adl	6.33E+05 kg	5.02E+05	7.64E+05
P.icp.adl	1.02E+03 kg	3.38E+02	1.71E+03

Table B3-27. Analytical-Based Supernate Inventory for Tank 241-AN-105 - (Nested ANOVA - Segment Data). (2 sheets)

Analyte	Tank Inventory	LL (kg or Ci)	UL (kg or Ci)
P.icp.adl.ed	9.86E+02 kg	3.66E+02	1.61E+03
PO_4^{3-}.ic.w	2.71E+03 kg	0.00E+00	1.50E+04
PO_4^{3-}.ic.w.ed	1.93E+03 kg	0.00E+00	4.57E+03
PO_4^{3-}.ic.wo	4.00E+03 kg	0.00E+00	3.35E+04
PO_4^{3-}.ic.wo.ed	2.15E+03 kg	0.00E+00	7.50E+03
Pb.icp.adl.w	1.38E+02 kg	9.14E+01	1.84E+02
Pb.icp.adl.wo	1.27E+02 kg	7.49E+01	1.79E+02
S.icp.adl	2.40E+03 kg	1.77E+03	3.03E+03
SO_4^{2-}.ic.w	3.03E+03 kg	0.00E+00	6.46E+03
SO_4^{2-}.ic.w.ed	2.82E+03 kg	1.95E+03	3.69E+03
SO_4^{2-}.ic.wo	3.01E+03 kg	0.00E+00	6.31E+03
SO_4^{2-}.ic.wo.ed	2.79E+03 kg	2.04E+03	3.54E+03
Si.icp.adl	5.59E+02 kg	3.77E+02	7.41E+02
Zn.icp.adl	8.00E+01 kg	0.00E+00	3.02E+02

Note:

[1]Br is one of the tracers for hydrostatic head fluid.

Table B3-28. Analytical-Based Supernate Inventory for Tank 241-AN-105 - (One-way ANOVA - Segment Data). (2 sheets)

Analyte	Tank Inventory	LL (kg or Ci)	UL (kg or Ci)
Water.tga	1.28E+06 kg	1.26E+06	1.30E+06
Water.tga.ed	1.29E+06 kg	1.28E+06	1.29E+06
Acetate.ic.w	1.53E+03 kg	1.32E+03	1.74E+03
Acetate.ic.wo	1.57E+03 kg	1.35E+03	1.78E+03
Ag.icp.adl	4.56E+01 kg	4.46E+01	4.66E+01
Al.icp.adl	1.07E+05 kg	1.04E+05	1.09E+05
B.icp.adl	1.91E+02 kg	1.87E+02	1.94E+02
$^{1}Br^{-}$.ic.w	2.48E+03 kg	2.19E+03	2.76E+03
$^{1}Br^{-}$.ic.wo	2.51E+03 kg	2.22E+03	2.79E+03
Cl^{-}.ic	2.62E+04 kg	2.28E+04	2.97E+04
Cl^{-}.ic.ed	2.54E+04 kg	2.50E+04	2.59E+04
Cr.icp.adl	5.75E+02 kg	5.33E+02	6.17E+02
F^{-}.ic.w	7.95E+02 kg	6.01E+02	9.88E+02
F^{-}.ic.w.ed	7.50E+02 kg	5.56E+02	9.45E+02
Formate.ic	3.99E+03 kg	3.57E+03	4.42E+03
K.icp.adl	1.68E+04 kg	1.65E+04	1.71E+04
Mo.icp.adl	2.48E+02 kg	2.42E+02	2.53E+02
NO_2^{-}.ic	3.24E+05 kg	2.79E+05	3.69E+05
NO_2^{-}.ic.ed	3.13E+05 kg	3.07E+05	3.19E+05
NO_3^{-}.ic	4.25E+05 kg	3.68E+05	4.82E+05
NO_3^{-}.ic.ed	4.12E+05 kg	4.03E+05	4.21E+05
Na.icp.adl	6.33E+05 kg	6.20E+05	6.45E+05
P.icp.adl	1.02E+03 kg	9.14E+02	1.14E+03
P.icp.adl.ed	9.85E+02 kg	9.15E+02	1.06E+03
PO_4^{3-}.ic.w	2.73E+03 kg	1.10E+03	4.35E+03
PO_4^{3-}.ic.w.ed	1.93E+03 kg	1.66E+03	2.21E+03
PO_4^{3-}.ic.wo	3.96E+03 kg	1.39E+02	7.77E+03
Pb.icp.adl.w	1.38E+02 kg	1.31E+02	1.44E+02
Pb.icp.adl.wo	1.28E+02 kg	1.22E+02	1.34E+02
S.icp.adl	2.40E+03 kg	2.30E+03	2.50E+03

Table B3-28. Analytical-Based Supernate Inventory for Tank 241-AN-105 - (One-way ANOVA - Segment Data). (2 sheets)

Analyte	Tank Inventory	LL (kg or Ci)	UL (kg or Ci)
SO_4^{2-}.ic.w	3.03E+03 kg	2.58E+03	3.48E+03
SO_4^{2-}.ic.w.ed	2.82E+03 kg	2.69E+03	2.95E+03
SO_4^{2-}.ic.wo	3.01E+03 kg	2.54E+03	3.48E+03
SO_4^{2-}.ic.wo.ed	2.79E+03 kg	2.67E+03	2.91E+03
Si.icp.adl	5.59E+02 kg	5.30E+02	5.89E+02

Note:

[1]Br is one of the tracers for hydrostatic head fluid.

Table B3-29. Analytical-Based Supernatant Inventory for Tank 241-AN-105 - ("Less Thans" - Segment Data). (2 sheets)

Analyte	Tank Inventory	LL (kg or Ci)	UL (kg or Ci)
As.icp.adl	< 1.54E+02 kg	NA	NA
Ba.icp.adl	< 7.71E+01 kg	NA	NA
Be.icp.adl	< 7.69E+00 kg	NA	NA
Bi.icp.adl	< 1.54E+02 kg	NA	NA
Ca.icp.adl	< 1.54E+02 kg	NA	NA
Cd.icp.adl	< 7.69E+00 kg	NA	NA
Ce.icp.adl	< 1.54E+02 kg	NA	NA
Co.icp.adl	< 3.07E+01 kg	NA	NA
Cu.icp.adl	< 2.61E+01 kg	NA	NA
Fe.icp.adl	< 7.71E+01 kg	NA	NA
La.icp.adl	< 7.71E+01 kg	NA	NA
[1]Li.icp.adl	< 6.99E+01 kg	NA	NA
Mg.icp.adl	< 1.54E+02 kg	NA	NA
Mn.icp.adl	< 1.54E+01 kg	NA	NA
Nd.icp.adl	< 1.54E+02 kg	NA	NA
Ni.icp.adl	< 3.07E+01 kg	NA	NA
Oxalate.ic	4.12E+04 kg	NA	NA
Sb.icp.adl	< 9.25E+01 kg	NA	NA

Table B3-29. Analytical-Based Supernatant Inventory for Tank 241-AN-105 - ("Less Thans" - Segment Data). (2 sheets)

Analyte	Tank Inventory	LL (kg or Ci)	UL (kg or Ci)
Se.icp.adl	< 1.54E+02 kg	NA	NA
Sm.icp.adl	< 1.54E+02 kg	NA	NA
Sr.icp.adl	< 1.54E+01 kg	NA	NA
Ti.icp.adl	< 1.54E+01 kg	NA	NA
Tl.icp.adl	< 3.07E+02 kg	NA	NA
Total Alpha	< 3.71E+02 Ci	NA	NA
U.icp.adl	< 7.69E+02 kg	NA	NA
V.icp.adl	< 7.71E+01 kg	NA	NA
Zr.icp.adl	< 1.56E+01 kg	NA	NA

Note:

[1]Li is one of the tracers for hydrostatic head fluid.

Table B3-30. Analytical-Based Supernatant Inventory for Tank 241-AN-105 - (Supernatant Composite Sample - Core 152, Segments 1-14). (4 sheets)

Analyte	Tank Inventory	LL (kg or Ci)	UL (kg or Ci)
Water.tga	1.82E+06 kg	2.29E+05	3.42E+06
Acetate.ic	1.64E+03 kg	1.63E+03	1.66E+03
Ag.icp.a	3.88E+01 kg	3.07E+01	4.70E+01
Ag.icp.adl	4.61E+01 kg	2.98E+01	6.24E+01
Al.icp.a	9.15E+04 kg	8.82E+04	9.47E+04
Al.icp.adl	1.12E+05 kg	1.05E+05	1.18E+05
B.icp.a	4.34E+02 kg	0.00E+00	8.74E+02
B.icp.adl	1.86E+02 kg	1.39E+02	2.34E+02
Ca.icp.a	2.25E+03 kg	1.44E+03	3.06E+03
Cl^-.ic	2.61E+04 kg	2.61E+04	2.61E+04
Cr.icp.a	4.79E+02 kg	4.79E+02	4.79E+02
Cr.icp.adl	5.70E+02 kg	5.21E+02	6.19E+02
Cr(VI).spec	3.93E+02 kg	3.77E+02	4.10E+02
^{137}Cs.gea	1.22E+03 Ci	1.17E+03	1.26E+03
Fe.icp.a	1.63E+02 kg	0.00E+00	4.47E+02
Formate.ic	4.15E+03 kg	4.15E+03	4.15E+03
^{129}I	6.85E-01 Ci	0.00E+00	1.39E+00
K.icp.a	1.36E+04 kg	1.25E+04	1.47E+04
K.icp.adl	1.67E+04 kg	1.57E+04	1.77E+04
^{1}Li.icp.a	1.53E+01 kg	1.06E+01	2.00E+01
Mo.icp.a	2.11E+02 kg	2.03E+02	2.20E+02
Mo.icp.adl	2.59E+02 kg	2.26E+02	2.91E+02
NO_2^-.ic	3.34E+05 kg	3.18E+05	3.51E+05
NO_3^-.ic	4.29E+05 kg	4.13E+05	4.45E+05
Na.icp.a	5.41E+05 kg	5.41E+05	5.41E+05
Na.icp.adl	6.55E+05 kg	6.06E+05	7.03E+05
OH^-	1.50E+05 kg	8.65E+04	2.13E+05
P.icp.a	8.70E+02 kg	7.56E+02	9.84E+02
P.icp.adl	1.01E+03 kg	9.24E+02	1.09E+03
PO_4^{3-}.ic	1.58E+03 kg	9.77E+02	2.18E+03

Table B3-30. Analytical-Based Supernatant Inventory for Tank 241-AN-105 - (Supernatant Composite Sample - Core 152, Segments 1-14). (4 sheets)

Analyte	Tank Inventory	LL (kg or Ci)	UL (kg or Ci)
S.icp.a	2.25E+03 kg	2.15E+03	2.34E+03
S.icp.adl	2.59E+03 kg	1.99E+03	3.19E+03
SO_4^{2-}.ic	2.48E+03 kg	1.17E+03	3.80E+03
Si.icp.a	5.62E+02 kg	1.88E+02	9.37E+02
Si.icp.adl	4.25E+02 kg	4.25E+02	4.25E+02
$^{89/90}Sr$	1.06E+02 Ci	8.65E+01	1.26E+02
TIC	5.62E+03 kg	4.81E+03	6.44E+03
TOC.coul	1.56E+04 kg	1.47E+04	1.66E+04
TOC.pers	6.64E+03 kg	1.75E+03	1.15E+04
^{99}Tc	7.01E+02 Ci	5.22E+02	8.80E+02
Total Beta	1.38E+06 Ci	1.25E+06	1.51E+06
Zn.icp.a	1.95E+02 kg	1.43E+02	2.47E+02
Zn.icp.adl	4.51E+01 kg	2.88E+01	6.14E+01
U.phos	9.13E+00 kg	2.79E+00	1.55E+01
^{241}Am.aea	< 1.00E-01 Ci	NA	NA
^{241}Am.gea	< 2.20E+03 Ci	NA	NA
As.icp.a	< 1.34E+02 kg	NA	NA
As.icp.adl	< 1.54E+02 kg	NA	NA
Ba.icp.a	< 6.71E+01 kg	NA	NA
Ba.icp.adl	< 7.71E+01 kg	NA	NA
Be.icp.a	< 6.71E+00 kg	NA	NA
Be.icp.adl	< 7.69E+00 kg	NA	NA
Bi.icp.a	< 1.34E+02 kg	NA	NA
Bi.icp.adl	< 1.54E+02 kg	NA	NA
$^{1}Br^{-}$.ic	< 1.34E+03 kg	NA	NA
Ca.icp.adl	< 1.54E+02 kg	NA	NA
Cd.icp.a	< 6.71E+00 kg	NA	NA
Cd.icp.adl	< 7.69E+00 kg	NA	NA
Ce.icp.a	< 1.34E+02 kg	NA	NA
Ce.icp.adl	< 1.54E+02 kg	NA	NA

Table B3-30. Analytical-Based Supernatant Inventory for Tank 241-AN-105 - (Supernatant Composite Sample - Core 152, Segments 1-14). (4 sheets)

Analyte	Tank Inventory	LL (kg or Ci)	UL (kg or Ci)
$^{243/244}$Cm	< 1.00E-01 Ci	NA	NA
Co.icp.a	< 2.69E+01 kg	NA	NA
Co.icp.adl	< 3.07E+01 kg	NA	NA
^{60}Co.gea	< 3.33E-02 Ci	NA	NA
Cu.icp.a	< 1.61E+01 kg	NA	NA
Cu.icp.adl	< 1.54E+01 kg	NA	NA
^{154}Eu.gea	< 2.50E+02 Ci	NA	NA
^{155}Eu.gea	< 8.35E+02 Ci	NA	NA
F^-.ic	< 1.38E+02 kg	NA	NA
Fe.icp.adl	< 7.71E+01 kg	NA	NA
Hg.cvaa	< 1.79E-01 kg	NA	NA
La.icp.a	< 6.71E+01 kg	NA	NA
La.icp.adl	< 7.71E+01 kg	NA	NA
^{1}Li.icp.adl	< 1.54E+01 kg	NA	NA
Mg.icp.a	< 1.34E+02 kg	NA	NA
Mg.icp.adl	< 1.54E+02 kg	NA	NA
Mn.icp.a	< 1.34E+01 kg	NA	NA
Mn.icp.adl	< 1.54E+01 kg	NA	NA
Nd.icp.a	< 1.34E+02 kg	NA	NA
Nd.icp.adl	< 1.54E+02 kg	NA	NA
Ni.icp.a	< 2.69E+01 kg	NA	NA
Ni.icp.adl	< 3.07E+01 kg	NA	NA
^{237}Np	< 5.66E-02 Ci	NA	NA
Oxalate.ic	< 1.11E+03 kg	NA	NA
Pb.icp.a	< 1.34E+02 kg	NA	NA
Pb.icp.adl	< 1.54E+02 kg	NA	NA
$^{239/240}$Pu	< 9.53E-02 Ci	NA	NA
Sb.icp.a	< 8.04E+01 kg	NA	NA
Sb.icp.adl	< 9.25E+01 kg	NA	NA
Se.icp.a	< 1.34E+02 kg	NA	NA

Table B3-30. Analytical-Based Supernatant Inventory for Tank 241-AN-105 - (Supernatant Composite Sample - Core 152, Segments 1-14). (4 sheets)

Analyte	Tank Inventory	LL (kg or Ci)	UL (kg or Ci)
Se.icp.adl	< 1.54E+02 kg	NA	NA
Sm.icp.a	< 1.34E+02 kg	NA	NA
Sm.icp.adl	< 1.54E+02 kg	NA	NA
Sr.icp.a	< 1.34E+01 kg	NA	NA
Sr.icp.adl	< 1.54E+01 kg	NA	NA
Ti.icp.a	< 1.34E+01 kg	NA	NA
Ti.icp.adl	< 1.54E+01 kg	NA	NA
Tl.icp.a	< 2.69E+02 kg	NA	NA
Tl.icp.adl	< 3.07E+02 kg	NA	NA
Total Alpha	< 3.95E+01 Ci	NA	NA
Tritium	< 1.01E-04 Ci	NA	NA
U.icp.a	< 6.71E+02 kg	NA	NA
U.icp.adl	< 7.69E+02 kg	NA	NA
V.icp.a	< 6.71E+01 kg	NA	NA
V.icp.adl	< 7.71E+01 kg	NA	NA
Zr.icp.a	< 1.34E+01 kg	NA	NA
Zr.icp.adl	< 1.54E+01 kg	NA	NA

Note:

^{1}Li and ^{1}Br are the tracers for hydrostatic head fluid.

Table B3-31. Analytical-Based Salt Slurry Inventory for Tank 241-AN-105 - (nested ANOVA with the Riser Term - Segment Data). (3 sheets)

Analyte	Tank Inventory	LL (kg or Ci)	UL (kg or Ci)
Water.tga	1.20E+06 kg	9.51E+05	1.44E+06
Acetate.ic.w	1.60E+03 kg	0.00E+00	3.97E+03
Acetate.ic.wo	1.81E+03 kg	8.80E+02	2.74E+03
Ag.icp.a	5.25E+01 kg	0.00E+00	2.27E+02
Al.icp.a	5.96E+04 kg	1.53E+04	1.04E+05

Table B3-31. Analytical-Based Salt Slurry Inventory for Tank 241-AN-105 - (nested ANOVA with the Riser Term - Segment Data). (3 sheets)

Analyte	Tank Inventory	LL (kg or Ci)	UL (kg or Ci)
Al.icp.f	6.22E+04 kg	3.59E+04	8.85E+04
B.icp.a	2.41E+02 kg	0.00E+00	6.64E+02
Ca.icp.a	1.73E+03 kg	0.00E+00	1.28E+04
Cd.icp.a	3.15E+01 kg	0.00E+00	1.02E+02
Cl^-.ic	1.39E+04 kg	7.32E+03	2.05E+04
Cr.icp.a	6.30E+03 kg	0.00E+00	1.74E+04
Cr.icp.f	6.67E+03 kg	0.00E+00	2.07E+04
Cu.icp.a.w	1.90E+01 kg	1.72E+00	3.62E+01
Cu.icp.a.wo	1.91E+01 kg	2.39E+00	3.59E+01
F^-.ic	5.01E+03 kg	0.00E+00	2.28E+04
Fe.icp.a	3.23E+02 kg	0.00E+00	1.24E+03
Formate.ic	2.85E+03 kg	1.45E+03	4.25E+03
K.icp.a	9.30E+03 kg	2.77E+03	1.58E+04
^{1}Li.icp.a.w	5.33E+01 kg	0.00E+00	2.27E+02
^{1}Li.icp.a.wo	5.55E+01 kg	0.00E+00	2.25E+02
Mn.icp.a.w	5.67E+01 kg	0.00E+00	3.86E+02
Mn.icp.a.wo	5.85E+01 kg	0.00E+00	3.98E+02
Mo.icp.a	1.39E+02 kg	1.02E+01	2.67E+02
NO_2^-.ic	1.72E+05 kg	9.03E+04	2.53E+05
NO_3^-.ic	3.00E+05 kg	4.53E+04	5.55E+05
Na.icp.a	4.93E+05 kg	1.10E+05	8.76E+05
Na.icp.f	6.14E+05 kg	3.09E+05	9.20E+05
Ni.icp.a	1.10E+02 kg	0.00E+00	2.89E+02
Ni.icp.f.w	3.68E+03 kg	0.00E+00	2.07E+04
Ni.icp.f.wo	4.72E+03 kg	0.00E+00	1.71E+04
Oxalate.ic	1.87E+04 kg	0.00E+00	5.34E+04
P.icp.a	6.70E+03 kg	0.00E+00	6.41E+04
PO_4^{3-}.ic.w	2.18E+04 kg	0.00E+00	2.26E+05
PO_4^{3-}.ic.wo	2.18E+04 kg	0.00E+00	2.26E+05
Pb.icp.a.w	1.28E+02 kg	0.00E+00	3.18E+02

Table B3-31. Analytical-Based Salt Slurry Inventory for Tank 241-AN-105 - (nested ANOVA with the Riser Term - Segment Data). (3 sheets)

Analyte	Tank Inventory	LL (kg or Ci)	UL (kg or Ci)
Pb.icp.a.wo	1.36E+02 kg	0.00E+00	3.90E+02
S.icp.a	6.77E+03 kg	0.00E+00	1.94E+04
S.icp.f.w	7.49E+03 kg	1.51E+03	1.35E+04
S.icp.f.wo	7.59E+03 kg	1.88E+03	1.33E+04
SO_4^{2-}.ic	1.69E+04 kg	0.00E+00	4.21E+04
Si.icp.a.w	3.61E+02 kg	1.57E+02	5.65E+02
Si.icp.a.wo	3.70E+02 kg	1.29E+02	6.10E+02
Zn.icp.a	1.17E+02 kg	0.00E+00	3.09E+02
Zr.icp.a.w	3.08E+01 kg	0.00E+00	1.68E+02
Zr.icp.a.wo	3.23E+01 kg	0.00E+00	1.79E+02
Total Alpha.w	6.20E+01 Ci	0.00E+00	4.25E+02
Total Alpha.2o	6.25E+01 Ci	0.00E+00	5.70E+02

Note:

[1]Li is one of the tracers for hydrostatic head fluid.

Table B3-32. Analytical-Based Salt Slurry Inventory for Tank 241-AN-105 - (nested ANOVA without the Riser Term - Segment Data). (2 sheets)

Analyte	Tank Inventory	LL (kg or Ci)	UL (kg or Ci)
Water.tga	1.20E+06 kg	1.15E+06	1.24E+06
Acetate.ic.w	1.60E+03 kg	1.29E+03	1.91E+03
Acetate.ic.wo	1.81E+03 kg	1.65E+03	1.97E+03
Ag.icp.a	5.25E+01 kg	2.20E+01	8.31E+01
Al.icp.a	5.93E+04 kg	5.52E+04	6.34E+04
Al.icp.f	6.22E+04 kg	5.75E+04	6.68E+04
Cd.icp.a	3.15E+01 kg	1.91E+01	4.39E+01
Cl^-.ic	1.39E+04 kg	1.28E+04	1.51E+04
Cr.icp.a	6.30E+03 kg	4.35E+03	8.26E+03
Cr.icp.f	6.68E+03 kg	4.62E+03	8.74E+03
Cu.icp.a.w	1.90E+01 kg	1.60E+01	2.19E+01

Table B3-32. Analytical-Based Salt Slurry Inventory for Tank 241-AN-105 - (nested ANOVA without the Riser Term - Segment Data). (2 sheets)

Analyte	Tank Inventory	LL (kg or Ci)	UL (kg or Ci)
Cu.icp.a.wo	1.91E+01 kg	1.62E+01	2.21E+01
F^-.ic	5.01E+03 kg	1.89E+03	8.12E+03
Fe.icp.a	3.23E+02 kg	1.63E+02	4.84E+02
Formate.ic	2.85E+03 kg	2.62E+03	3.08E+03
K.icp.a	9.26E+03 kg	8.59E+03	9.94E+03
[1]Li.icp.a.w	5.33E+01 kg	2.27E+01	8.38E+01
[1]Li.icp.a.wo	5.55E+01 kg	2.58E+01	8.52E+01
Mn.icp.a.w	5.67E+01 kg	0.00E+00	1.14E+02
Mn.icp.a.wo	5.85E+01 kg	0.00E+00	1.18E+02
NO_2^-.ic	1.72E+05 kg	1.57E+05	1.86E+05
NO_3^-.ic	3.00E+05 kg	2.55E+05	3.45E+05
Ni.icp.a	1.10E+02 kg	7.84E+01	1.41E+02
Ni.icp.f.wo	4.72E+03 kg	2.51E+03	6.93E+03
Oxalate.ic	1.86E+04 kg	1.49E+04	2.24E+04
P.icp.a	6.70E+03 kg	0.00E+00	1.68E+04
PO_4^{3-}.ic.w	2.18E+04 kg	0.00E+00	5.76E+04
PO_4^{3-}.ic.wo	2.18E+04 kg	0.00E+00	5.76E+04
Pb.icp.a.w	1.28E+02 kg	1.01E+02	1.55E+02
Pb.icp.a.wo	1.35E+02 kg	9.33E+01	1.76E+02
S.icp.f.w	7.49E+03 kg	6.44E+03	8.54E+03
S.icp.f.wo	7.59E+03 kg	6.59E+03	8.59E+03
SO_4^{2-}.ic	1.69E+04 kg	1.36E+04	2.02E+04
Si.icp.a.w	3.61E+02 kg	3.25E+02	3.97E+02
Si.icp.a.wo	3.69E+02 kg	3.38E+02	4.01E+02
Zr.icp.a.w	3.08E+01 kg	6.78E+00	5.49E+01
Zr.icp.a.wo	3.23E+01 kg	6.58E+00	5.81E+01
Total Alpha.w	6.20E+01 Ci	0.00E+00	1.26E+02
Total Alpha.wo	6.25E+01 Ci	0.00E+00	1.57E+02

Note:

[1]Li is one of the tracers for hydrostatic head fluid.

Table B3-33. Analytes (Sludge - Segment Data) with >50 Percent "Less Than" Values. (2 sheets)

Analyte	Tank Inventory	LL (kg or Ci)	UL (kg or Ci)
Ag.icp.f	< 5.94E+02 kg	NA	NA
As.icp.a	< 1.34E+02 kg	NA	NA
As.icp.f	< 5.94E+03 kg	NA	NA
B.icp.f	< 2.97E+03 kg	NA	NA
Ba.icp.a	< 6.67E+01 kg	NA	NA
Ba.icp.f	< 2.97E+03 kg	NA	NA
Be.icp.a	< 8.13E+00 kg	NA	NA
Be.icp.f	< 2.97E+02 kg	NA	NA
Bi.icp.a	< 1.96E+02 kg	NA	NA
Bi.icp.f	< 5.94E+03 kg	NA	NA
[1]Br⁻.ic	< 2.97E+03 kg	NA	NA
Ca.icp.f	< 5.94E+03 kg	NA	NA
Cd.icp.f	< 2.97E+02 kg	NA	NA
Ce.icp.a	< 1.34E+02 kg	NA	NA
Ce.icp.f	< 5.94E+03 kg	NA	NA
Co.icp.a	< 2.67E+01 kg	NA	NA
Co.icp.f	< 1.19E+03 kg	NA	NA
Cu.icp.f	< 5.94E+02 kg	NA	NA
Fe.icp.f	< 2.97E+03 kg	NA	NA
La.icp.a	< 6.67E+01 kg	NA	NA
La.icp.f	< 2.97E+03 kg	NA	NA
[1]Li.icp.f	< 5.94E+02 kg	NA	NA
Mg.icp.a	< 1.66E+02 kg	NA	NA
Mg.icp.f	< 5.94E+03 kg	NA	NA
Mn.icp.f	< 5.94E+02 kg	NA	NA
Mo.icp.f	< 2.97E+03 kg	NA	NA
Nd.icp.a	< 1.34E+02 kg	NA	NA
Nd.icp.f	< 5.94E+03 kg	NA	NA
P.icp.f	< 9.76E+04 kg	NA	NA
Pb.icp.f	< 5.94E+03 kg	NA	NA

Table B3-33. Analytes (Sludge - Segment Data) with >50 Percent "Less Than" Values. (2 sheets)

Analyte	Tank Inventory	LL (kg or Ci)	UL (kg or Ci)
Sb.icp.a	< 8.01E+01 kg	NA	NA
Sb.icp.f	< 3.56E+03 kg	NA	NA
Se.icp.a	< 1.34E+02 kg	NA	NA
Se.icp.f	< 5.94E+03 kg	NA	NA
Si.icp.f	< 6.53E+03 kg	NA	NA
Sm.icp.a	< 1.34E+02 kg	NA	NA
Sm.icp.f	< 5.94E+03 kg	NA	NA
Sr.icp.a	< 2.66E+01 kg	NA	NA
Sr.icp.f	< 5.94E+02 kg	NA	NA
Ti.icp.a	< 1.34E+01 kg	NA	NA
Ti.icp.f	< 5.94E+02 kg	NA	NA
Tl.icp.a	< 2.67E+02 kg	NA	NA
Tl.icp.f	< 1.19E+04 kg	NA	NA
U.icp.a	< 6.67E+02 kg	NA	NA
U.icp.f	< 2.97E+04 kg	NA	NA
V.icp.a	< 6.67E+01 kg	NA	NA
V.icp.f	< 2.97E+03 kg	NA	NA
Zn.icp.f	< 2.16E+03 kg	NA	NA
Zr.icp.f	< 1.31E+03 kg	NA	NA

Note:

[1]Li and [1]Br are the tracers for hydrostatic head fluid.

Table B3-34. Analytical-Based Salt Slurry Tank Inventory - Composite (Core 152, Segments 14-20). (3 sheets)

Analyte	Tank Inventory	LL (kg or Ci)	UL (kg or Ci
Water.tga	1.11E+06 kg	9.70E+05	1.25E+06
Acetate.ic	1.14E+03 kg	1.08E+03	1.21E+03
Ag.icp.a	2.88E+01 kg	1.65E+01	4.12E+01
Al.icp.a	4.96E+04 kg	4.19E+04	5.73E+04
^{241}Am.aea	9.93E+00 Ci	0.00E+00	3.63E+01
B.icp.a	2.82E+02 kg	0.00E+00	6.37E+02
Ca.icp.a	5.22E+02 kg	3.22E+02	7.23E+02
Cd.icp.a	1.77E+01 kg	0.00E+00	4.34E+01
Cl^-.ic	1.43E+04 kg	1.33E+04	1.52E+04
Cr.icp.a	3.60E+03 kg	5.77E+01	7.14E+03
Cr(VI).spec	2.88E+02 kg	2.58E+02	3.19E+02
^{137}Cs.gea	7.37E+05 Ci	7.06E+05	7.68E+05
Cu.icp.a	1.24E+01 kg	5.30E+00	1.95E+01
F^-.ic	2.76E+03 kg	0.00E+00	9.25E+03
Fe.icp.a	1.48E+02 kg	0.00E+00	4.73E+02
Formate.ic	2.97E+03 kg	2.82E+03	3.12E+03
K.icp.a	7.49E+03 kg	6.87E+03	8.11E+03
^{1}Li.icp.a	2.11E+01 kg	1.80E+01	2.42E+01
Mn.icp.a	1.90E+01 kg	0.00E+00	3.87E+01
Mo.icp.a	1.11E+02 kg	1.10E+02	1.13E+02
NO_2^-.ic	1.77E+05 kg	1.72E+05	1.82E+05
NO_3^-.ic	2.74E+05 kg	1.51E+05	3.97E+05
Na.icp.a	3.76E+05 kg	3.14E+05	4.37E+05
Ni.icp.a	7.70E+01 kg	0.00E+00	1.74E+02
^{237}Np	2.57E+01 Ci	1.65E+01	3.49E+01
OH^-	5.83E+04 kg	4.44E+04	7.22E+04
Oxalate.ic	1.57E+04 kg	9.57E+03	2.19E+04
P.icp.a	9.75E+02 kg	4.82E+02	1.47E+03
PO_4^{3-}.ic	2.92E+03 kg	6.11E+02	5.23E+03
S.icp.a	5.27E+03 kg	8.06E+02	9.74E+03

Table B3-34. Analytical-Based Salt Slurry Tank Inventory - Composite (Core 152, Segments 14-20). (3 sheets)

Analyte	Tank Inventory	LL (kg or Ci)	UL (kg or Ci
SO_4^{2-}.ic	1.81E+04 kg	1.03E+04	2.60E+04
Si.icp.a	4.33E+02 kg	0.00E+00	1.65E+03
$^{89/90}Sr$	2.22E+04 Ci	1.45E+04	2.99E+04
TIC	3.16E+04 kg	1.47E+04	4.86E+04
TOC.pers	1.32E+04 kg	0.00E+00	2.93E+04
^{99}Tc	4.38E+02 Ci	4.22E+02	4.53E+02
Total Alpha	3.30E+01 Ci	0.00E+00	8.23E+01
Total Beta	7.92E+05 Ci	7.45E+05	8.38E+05
Tritium	5.33E+00 Ci	0.00E+00	1.18E+01
U.phos	2.12E+02 kg	1.75E+02	2.49E+02
Zn.icp.a	1.98E+01 kg	7.51E+00	3.22E+01
^{241}Am.gea	< 2.00E+03 Ci	NA	NA
As.icp.a	< 9.77E+01 kg	NA	NA
Ba.icp.a	< 4.90E+01 kg	NA	NA
Be.icp.a	< 4.90E+00 kg	NA	NA
Bi.icp.a	< 9.77E+01 kg	NA	NA
$^{1}Br^{-}$.ic	< 1.35E+03 kg	NA	NA
Ce.icp.a	< 9.77E+01 kg	NA	NA
$^{243/244}Cm$	< 2.34E+00 Ci	NA	NA
Co.icp.a	< 1.95E+01 kg	NA	NA
^{60}Co.gea	< 9.09E+01 Ci	NA	NA
^{154}Eu.gea	< 2.40E+02 Ci	NA	NA
^{155}Eu.gea	< 9.38E+02 Ci	NA	NA
^{129}I	< 9.50E+00 Ci	NA	NA
La.icp.a	< 4.90E+01 kg	NA	NA
Mg.icp.a	< 9.77E+01 kg	NA	NA
Nd.icp.a	< 9.77E+01 kg	NA	NA
Pb.icp.a	< 9.77E+01 kg	NA	NA
$^{239/240}Pu$	< 4.39E+00 Ci	NA	NA

Table B3-34. Analytical-Based Salt Slurry Tank Inventory - Composite (Core 152, Segments 14-20). (3 sheets)

Analyte	Tank Inventory	LL (kg or Ci)	UL (kg or Ci
Sb.icp.a	< 5.87E+01 kg	NA	NA
Se.icp.a	< 9.77E+01 kg	NA	NA
Sm.icp.a	< 9.77E+01 kg	NA	NA
Sr.icp.a	< 9.77E+00 kg	NA	NA
Ti.icp.a	< 9.77E+00 kg	NA	NA
Tl.icp.a	< 1.95E+02 kg	NA	NA
U.icp.a	< 4.90E+02 kg	NA	NA
V.icp.a	< 4.90E+01 kg	NA	NA
Zr.icp.a	< 1.09E+01 kg	NA	NA

Note:

[1]Li and [1]Br are the tracers for hydrostatic head fluid.

Table B3-35. Analytical-Based Salt Slurry Tank Inventory - Composite (Core 152, Segment 22). (3 sheets)

Analyte	Tank Inventory	LL (kg or Ci)	UL (kg or Ci
Water.tga	1.10E+05 kg	1.06E+05	1.14E+05
Ag.icp.a	1.09E+01 kg	3.24E+00	1.86E+01
Al.icp.a	3.72E+03 kg	1.27E+03	6.17E+03
^{241}Am.aea	1.00E+01 Ci	0.00E+00	2.44E+01
B.icp.a	2.92E+01 kg	0.00E+00	1.02E+02
Ca.icp.a	8.45E+01 kg	0.00E+00	1.71E+02
Cd.icp.a	3.56E+00 kg	1.76E+00	5.36E+00
Cl^-.ic	1.05E+03 kg	1.64E+02	1.93E+03
Cr.icp.a	7.05E+02 kg	1.82E+02	1.23E+03
Cr(VI).spec	2.67E+01 kg	1.69E+01	3.66E+01
^{137}Cs.gea	5.30E+04 Ci	4.97E+04	5.62E+04
Cu.icp.a	1.55E+00 kg	0.00E+00	4.85E+00
F^-.ic	1.29E+03 kg	7.86E+02	1.80E+03
Fe.icp.a	3.77E+01 kg	1.32E+01	6.22E+01
Formate.ic	2.87E+02 kg	2.70E+02	3.03E+02
K.icp.a	5.52E+02 kg	2.41E+02	8.62E+02
^{1}Li.icp.a	3.78E+00 kg	0.00E+00	2.79E+01
Mn.icp.a	1.27E+01 kg	3.55E+00	2.19E+01
Mo.icp.a	9.10E+00 kg	2.57E+00	1.56E+01
NO_2^-.ic	1.23E+04 kg	1.16E+03	2.34E+04
NO_3^-.ic	4.14E+04 kg	0.00E+00	8.72E+04
Na.icp.a	4.23E+04 kg	7.99E+03	7.66E+04
Ni.icp.a	8.65E+00 kg	0.00E+00	1.80E+01
OH^-	5.66E+03 kg	4.35E+03	6.97E+03
Oxalate.ic	1.51E+03 kg	1.40E+02	2.88E+03
P.icp.a	3.63E+03 kg	6.85E+02	6.57E+03
PO_4^{3-}.ic	1.18E+04 kg	4.24E+03	1.93E+04
Pb.icp.a	1.28E+01 kg	5.92E+00	1.96E+01
$^{239/240}$Pu	1.94E+00 Ci	1.86E+00	2.02E+00
S.icp.a	3.72E+02 kg	9.39E+01	6.49E+02

Table B3-35. Analytical-Based Salt Slurry Tank Inventory - Composite (Core 152, Segment 22). (3 sheets)

Analyte	Tank Inventory	LL (kg or Ci)	UL (kg or Ci
SO_4^{2-}.ic	1.08E+03 kg	3.56E+02	1.79E+03
Si.icp.a	1.22E+02 kg	0.00E+00	6.01E+02
$^{89/90}Sr$	9.40E+03 Ci	6.95E+03	1.19E+04
TIC	2.12E+03 kg	1.27E+03	2.97E+03
TOC.pers	1.15E+03 kg	6.62E+02	1.64E+03
^{99}Tc	3.45E+01 Ci	8.32E+00	6.06E+01
Total Alpha	1.49E+01 Ci	0.00E+00	4.09E+01
Total Beta	7.06E+04 Ci	4.94E+04	9.18E+04
U.phos	2.12E+01 kg	1.52E+01	2.72E+01
Zn.icp.a	2.97E+00 kg	0.00E+00	9.02E+00
Zr.icp.a	1.44E+01 kg	4.07E+00	2.47E+01
Acetate.ic	< 2.03E+01 kg	NA	NA
^{241}Am.gea	< 1.27E+02 Ci	NA	NA
As.icp.a	< 1.00E+01 kg	NA	NA
Ba.icp.a	< 5.02E+00 kg	NA	NA
Be.icp.a	< 5.02E-01 kg	NA	NA
Bi.icp.a	< 1.00E+01 kg	NA	NA
$^{1}Br^{-}$.ic	< 1.27E+02 kg	NA	NA
Ce.icp.a	< 1.00E+01 kg	NA	NA
$^{243/244}Cm$	< 1.45E+00 Ci	NA	NA
Co.icp.a	< 2.00E+00 kg	NA	NA
^{60}Co.gea	< 4.63E+00 Ci	NA	NA
^{154}Eu.gea	< 1.95E+01 Ci	NA	NA
^{155}Eu.gea	< 5.92E+01 Ci	NA	NA
^{129}I	< 8.00E-01 Ci	NA	NA
La.icp.a	< 5.02E+00 kg	NA	NA
Mg.icp.a	< 1.00E+01 kg	NA	NA
Nd.icp.a	< 1.00E+01 kg	NA	NA
^{237}Np	< 4.17E+00 Ci	NA	NA

Table B3-35. Analytical-Based Salt Slurry Tank Inventory - Composite (Core 152, Segment 22). (3 sheets)

Analyte	Tank Inventory	LL (kg or Ci)	UL (kg or Ci
Sb.icp.a	< 6.02E+00 kg	NA	NA
Se.icp.a	< 1.00E+01 kg	NA	NA
Sm.icp.a	< 1.00E+01 kg	NA	NA
Sr.icp.a	< 1.00E+00 kg	NA	NA
Ti.icp.a	< 1.00E+00 kg	NA	NA
Tl.icp.a	< 2.00E+01 kg	NA	NA
Tritium	< 1.63E-01 Ci	NA	NA
U.icp.a	< 5.02E+01 kg	NA	NA
V.icp.a	< 5.02E+00 kg	NA	NA

Note:

[1]Li and [1]Br are the tracers for hydrostatic head fluid.

Table B3-36. Tank Inventory - Based on Segment Data. (4 sheets)

Supernatant Analyte	Supernatant Inventory	Salt Slurry Analyte	Salt Slurry Inventory	Tank Inventory
Water.tga	1.28E+06 kg	Water.tga	1.20E+06 kg	2.48E+06 kg
Water.tga.ed	1.29E+06 kg	Water.tga	1.20E+06 kg	2.49E+06 kg
Acetate.ic.w	1.54E+03 kg	Acetate.ic.w	1.60E+03 kg	3.14E+03 kg
Acetate.ic.wo	1.57E+03 kg	Acetate.ic.wo	1.81E+03 kg	3.38E+03 kg
Ag.icp.adl	4.56E+01 kg	Ag.icp.a	5.25E+01 kg	9.81E+01 kg
Ag.icp.adl	4.56E+01 kg	Ag.icp.f	< 5.94E+02 kg	< 6.40E+02 kg
Al.icp.adl	1.07E+05 kg	Al.icp.a	5.96E+04 kg	1.67E+05 kg
Al.icp.adl	1.07E+05 kg	Al.icp.f	6.22E+04 kg	1.69E+05 kg
As.icp.adl	< 1.54E+02 kg	As.icp.a	< 1.34E+02 kg	< 2.88E+02 kg
As.icp.adl	< 1.54E+02 kg	As.icp.f	< 5.94E+03 kg	< 6.09E+03 kg
B.icp.adl	1.91E+02 kg	B.icp.a	2.41E+02 kg	4.32E+02 kg
B.icp.adl	1.91E+02 kg	B.icp.f	< 2.97E+03 kg	< 3.16E+03 kg
Ba.icp.adl	< 7.71E+01 kg	Ba.icp.a	< 6.67E+01 kg	< 1.44E+02 kg
Ba.icp.adl	< 7.71E+01 kg	Ba.icp.f	< 2.97E+03 kg	< 3.05E+03 kg
Be.icp.adl	< 7.69E+00 kg	Be.icp.a	< 8.13E+00 kg	< 1.58E+01 kg
Be.icp.adl	< 7.69E+00 kg	Be.icp.f	< 2.97E+02 kg	< 3.05E+02 kg
Bi.icp.adl	< 1.54E+02 kg	Bi.icp.a	1.96E+02 kg	< 3.50E+02 kg
Bi.icp.adl	< 1.54E+02 kg	Bi.icp.f	< 5.94E+03 kg	< 6.09E+03 kg
$^{1}Br^{-}$.ic.w	2.47E+03 kg	Br^{-}.ic	< 2.97E+03 kg	< 5.44E+03 kg
$^{1}Br^{-}$.ic.wo	2.50E+03 kg	Br^{-}.ic	< 2.97E+03 kg	< 5.47E+03 kg
Ca.icp.adl	< 1.54E+02 kg	Ca.icp.a	1.73E+03 kg	< 1.88E+03 kg
Ca.icp.adl	< 1.54E+02 kg	Ca.icp.f	< 5.94E+03 kg	< 6.09E+03 kg
Cd.icp.adl	< 7.69E+00 kg	Cd.icp.a	3.15E+01 kg	< 3.92E+01 kg
Cd.icp.adl	< 7.69E+00 kg	Cd.icp.f	< 2.97E+02 kg	< 3.05E+02 kg
Ce.icp.adl	< 1.54E+02 kg	Ce.icp.a	< 1.34E+02 kg	< 2.88E+02 kg
Ce.icp.adl	< 1.54E+02 kg	Ce.icp.f	< 5.94E+03 kg	< 6.09E+03 kg
Cl^{-}.ic	2.62E+04 kg	Cl^{-}.ic	1.39E+04 kg	4.01E+04 kg
Cl^{-}.ic.ed	2.54E+04 kg	Cl^{-}.ic	1.39E+04 kg	3.93E+04 kg
Co.icp.adl	< 3.07E+01 kg	Co.icp.a	< 2.67E+01 kg	< 5.74E+01 kg
Co.icp.adl	< 3.07E+01 kg	Co.icp.f	< 1.19E+03 kg	< 1.22E+03 kg
Cr.icp.adl	5.76E+02 kg	Cr.icp.a	6.30E+03 kg	6.88E+03 kg
Cr.icp.adl	5.76E+02 kg	Cr.icp.f	6.67E+03 kg	7.25E+03 kg

Table B3-36. Tank Inventory - Based on Segment Data. (4 sheets)

Supernatant Analyte	Supernatant Inventory	Salt Slurry Analyte	Salt Slurry Inventory	Tank Inventory
Cu.icp.adl	2.61E+01 kg	Cu.icp.a.w	1.90E+01 kg	4.51E+01 kg
Cu.icp.adl	2.61E+01 kg	Cu.icp.a.wo	1.91E+01 kg	4.52E+01 kg
Cu.icp.adl	2.61E+01 kg	Cu.icp.f	< 5.94E+02 kg	< 6.20E+02 kg
F^-.ic.w	7.95E+02 kg	F^-.ic	5.01E+03 kg	5.81E+03 kg
F^-.ic.w.ed	7.52E+02 kg	F^-.ic	5.01E+03 kg	5.76E+03 kg
F^-.ic.wo	1.25E+03 kg	F^-.ic	5.01E+03 kg	6.26E+03 kg
F^-.ic.wo.ed	1.16E+03 kg	F^-.ic	5.01E+03 kg	6.17E+03 kg
Fe.icp.adl	< 7.71E+01 kg	Fe.icp.a	3.23E+02 kg	< 4.00E+02 kg
Fe.icp.adl	< 7.71E+01 kg	Fe.icp.f	< 2.97E+03 kg	< 3.05E+03 kg
Formate.ic	4.00E+03 kg	Formate.ic	2.85E+03 kg	6.85E+03 kg
K.icp.adl	1.68E+04 kg	K.icp.a	9.30E+03 kg	2.61E+04 kg
La.icp.adl	< 7.71E+01 kg	La.icp.a	< 6.67E+01 kg	< 1.44E+02 kg
La.icp.adl	< 7.71E+01 kg	La.icp.f	< 2.97E+03 kg	< 3.05E+03 kg
^{1}Li.icp.adl	6.99E+01 kg	Li.icp.a.w	5.33E+01 kg	1.23E+02 kg
^{1}Li.icp.adl	6.99E+01 kg	Li.icp.a.wo	5.55E+01 kg	1.25E+02 kg
^{1}Li.icp.adl	6.99E+01 kg	Li.icp.f	< 5.94E+02 kg	< 6.64E+02 kg
Mg.icp.adl	< 1.54E+02 kg	Mg.icp.a	< 1.66E+02 kg	< 3.20E+02 kg
Mg.icp.adl	< 1.54E+02 kg	Mg.icp.f	< 5.94E+03 kg	< 6.09E+03 kg
Mn.icp.adl	< 1.54E+01 kg	Mn.icp.a.w	5.67E+01 kg	< 7.21E+01 kg
Mn.icp.adl	< 1.54E+01 kg	Mn.icp.a.wo	5.85E+01 kg	< 7.39E+01 kg
Mn.icp.adl	< 1.54E+01 kg	Mn.icp.f	< 5.94E+02 kg	< 6.09E+02 kg
Mo.icp.adl	2.48E+02 kg	Mo.icp.a	1.39E+02 kg	3.87E+02 kg
Mo.icp.adl	2.48E+02 kg	Mo.icp.f	< 2.97E+03 kg	< 3.22E+03 kg
NO_2^-.ic	3.24E+05 kg	NO_2^-.ic	1.72E+05 kg	4.96E+05 kg
NO_2^-.ic.ed	3.13E+05 kg	NO_2^-.ic	1.72E+05 kg	4.85E+05 kg
NO_3^-.ic	4.25E+05 kg	NO_3^-.ic	3.00E+05 kg	7.25E+05 kg
NO_3^-.ic.ed	4.12E+05 kg	NO_3^-.ic	3.00E+05 kg	7.12E+05 kg
Na.icp.adl	6.33E+05 kg	Na.icp.a	4.93E+05 kg	1.13E+06 kg
Na.icp.adl	6.33E+05 kg	Na.icp.f	6.14E+05 kg	1.25E+06 kg
Nd.icp.adl	< 1.54E+02 kg	Nd.icp.a	< 1.34E+02 kg	< 2.88E+02 kg
Nd.icp.adl	< 1.54E+02 kg	Nd.icp.f	< 5.94E+03 kg	< 6.09E+03 kg
Ni.icp.adl	< 3.07E+01 kg	Ni.icp.a	1.10E+02 kg	< 1.41E+02 kg

Table B3-36. Tank Inventory - Based on Segment Data. (4 sheets)

Supernatant Analyte	Supernatant Inventory	Salt Slurry Analyte	Salt Slurry Inventory	Tank Inventory
Ni.icp.adl	< 3.07E+01 kg	Ni.icp.f.w	3.68E+03 kg	< 3.71E+03 kg
Ni.icp.adl	< 3.07E+01 kg	Ni.icp.f.wo	4.72E+03 kg	< 4.75E+03 kg
Oxalate.ic	4.12E+04 kg	Oxalate.ic	1.87E+04 kg	5.99E+04 kg
P.icp.adl	1.02E+03 kg	P.icp.a	6.70E+03 kg	7.72E+03 kg
P.icp.adl	1.02E+03 kg	P.icp.f	9.76E+04 kg	9.86E+04 kg
P.icp.adl.ed	9.86E+02 kg	P.icp.a	6.70E+03 kg	7.69E+03 kg
P.icp.adl.ed	9.86E+02 kg	P.icp.f	9.76E+04 kg	9.86E+04 kg
PO_4^{3-}.ic.w	2.71E+03 kg	PO_4^{3-}.ic.w	2.18E+04 kg	2.45E+04 kg
PO_4^{3-}.ic.w	2.71E+03 kg	PO_4^{3-}.ic.wo	2.18E+04 kg	2.45E+04 kg
PO_4^{3-}.ic.w.ed	1.93E+03 kg	PO_4^{3-}.ic.w	2.18E+04 kg	2.37E+04 kg
PO_4^{3-}.ic.w.ed	1.93E+03 kg	PO_4^{3-}.ic.wo	2.18E+04 kg	2.37E+04 kg
PO_4^{3-}.ic.wo	4.00E+03 kg	PO_4^{3-}.ic.w	2.18E+04 kg	2.58E+04 kg
PO_4^{3-}.ic.wo	4.00E+03 kg	PO_4^{3-}.ic.wo	2.18E+04 kg	2.58E+04 kg
PO_4^{3-}.ic.wo.ed	2.15E+03 kg	PO_4^{3-}.ic.w	2.18E+04 kg	2.40E+04 kg
PO_4^{3-}.ic.wo.ed	2.15E+03 kg	PO_4^{3-}.ic.wo	2.18E+04 kg	2.40E+04 kg
Pb.icp.adl.w	1.38E+02 kg	Pb.icp.a.w	1.28E+02 kg	2.66E+02 kg
Pb.icp.adl.w	1.38E+02 kg	Pb.icp.a.wo	1.36E+02 kg	2.74E+02 kg
Pb.icp.adl.w	1.38E+02 kg	Pb.icp.f	< 5.94E+03 kg	< 6.08E+03 kg
Pb.icp.adl.wo	1.27E+02 kg	Pb.icp.a.w	1.28E+02 kg	2.55E+02 kg
Pb.icp.adl.wo	1.27E+02 kg	Pb.icp.a.wo	1.36E+02 kg	2.63E+02 kg
Pb.icp.adl.wo	1.27E+02 kg	Pb.icp.f	< 5.94E+03 kg	< 6.07E+03 kg
S.icp.adl	2.40E+03 kg	S.icp.a	6.77E+03 kg	9.17E+03 kg
S.icp.adl	2.40E+03 kg	S.icp.f.w	7.49E+03 kg	9.89E+03 kg
S.icp.adl	2.40E+03 kg	S.icp.f.wo	7.59E+03 kg	9.99E+03 kg
SO_4^{2-}.ic.w	3.03E+03 kg	SO_4^{2-}.ic	1.69E+04 kg	1.99E+04 kg
SO_4^{2-}.ic.w.ed	2.82E+03 kg	SO_4^{2-}.ic	1.69E+04 kg	1.97E+04 kg
SO_4^{2-}.ic.wo	3.01E+03 kg	SO_4^{2-}.ic	1.69E+04 kg	1.99E+04 kg
SO_4^{2-}.ic.wo.ed	2.79E+03 kg	SO_4^{2-}.ic	1.69E+04 kg	1.97E+04 kg
Sb.icp.adl	< 9.25E+01 kg	Sb.icp.a	< 8.01E+01 kg	< 1.73E+02 kg
Sb.icp.adl	< 9.25E+01 kg	Sb.icp.f	< 3.56E+03 kg	< 3.65E+03 kg
Se.icp.adl	< 1.54E+02 kg	Se.icp.a	< 1.34E+02 kg	< 2.88E+02 kg
Se.icp.adl	< 1.54E+02 kg	Se.icp.f	< 5.94E+03 kg	< 6.09E+03 kg

Table B3-36. Tank Inventory - Based on Segment Data. (4 sheets)

Supernatant Analyte	Supernatant Inventory	Salt Slurry Analyte	Salt Slurry Inventory	Tank Inventory
Si.icp.adl	5.59E+02 kg	Si.icp.a.w	3.61E+02 kg	9.20E+02 kg
Si.icp.adl	5.59E+02 kg	Si.icp.a.wo	3.70E+02 kg	9.29E+02 kg
Si.icp.adl	5.59E+02 kg	Si.icp.f	6.53E+03 kg	7.09E+03 kg
Sm.icp.adl	< 1.54E+02 kg	Sm.icp.a	< 1.34E+02 kg	< 2.88E+02 kg
Sm.icp.adl	< 1.54E+02 kg	Sm.icp.f	< 5.94E+03 kg	< 6.09E+03 kg
Sr.icp.adl	< 1.54E+01 kg	Sr.icp.a	2.66E+01 kg	< 4.20E+01 kg
Sr.icp.adl	< 1.54E+01 kg	Sr.icp.f	< 5.94E+02 kg	< 6.09E+02 kg
Ti.icp.adl	< 1.54E+01 kg	Ti.icp.a	< 1.34E+01 kg	< 2.88E+01 kg
Ti.icp.adl	< 1.54E+01 kg	Ti.icp.f	< 5.94E+02 kg	< 6.09E+02 kg
Tl.icp.adl	< 3.07E+02 kg	Tl.icp.a	< 2.67E+02 kg	< 5.74E+02 kg
Tl.icp.adl	< 3.07E+02 kg	Tl.icp.f	< 1.19E+04 kg	< 1.22E+04 kg
AT	< 3.71E+02Ci	AT.w	6.20E+01Ci	< 4.33E+02Ci
AT	< 3.71E+02Ci	AT.wo	6.26E+01Ci	< 4.34E+02Ci
U.icp.adl	< 7.69E+02 kg	U.icp.a	< 6.67E+02 kg	< 1.44E+03 kg
U.icp.adl	< 7.69E+02 kg	U.icp.f	< 2.97E+04 kg	< 3.05E+04 kg
V.icp.adl	< 7.71E+01 kg	V.icp.a	< 6.67E+01 kg	< 1.44E+02 kg
V.icp.adl	< 7.71E+01 kg	V.icp.f	< 2.97E+03 kg	< 3.05E+03 kg
Zn.icp.adl	8.00E+01 kg	Zn.icp.a	1.17E+02 kg	1.97E+02 kg
Zn.icp.adl	8.00E+01 kg	Zn.icp.f	2.16E+03 kg	2.24E+03 kg
Zr.icp.adl	1.56E+01 kg	Zr.icp.a.w	3.08E+01 kg	4.64E+01 kg
Zr.icp.adl	1.56E+01 kg	Zr.icp.a.wo	3.23E+01 kg	4.79E+01 kg
Zr.icp.adl	1.56E+01 kg	Zr.icp.f	1.31E+03 kg	1.33E+03 kg

Note:

^{1}Li and ^{1}Br are the tracers for hydrostatic head fluid.

Table B3-37. Tank Inventory - Based on Composite Data. (6 sheets)

Supernatant Analyte	Supernatant Inventory	Sludge Analyte	Salt Slurry Inventory	Salt Slurry Inventory	Tank Inventory
^{129}I	6.85E-01 Ci	^{129}I	< 9.50E+00 Ci	< 8.00E-01 Ci	< .10E+01 i
^{137}Cs.gea	1.22E+03 Ci	^{137}Cs.gea	7.37E+05 Ci	5.30E+04 Ci	7.91E+05 Ci
^{154}Eu.gea	< 2.50E+02 Ci	^{154}Eu.gea	< 2.40E+02 Ci	< 1.95E+01 Ci	< 5.10E+02 Ci
^{155}Eu.gea	< 8.35E+02 Ci	^{155}Eu.gea	< 9.38E+02 Ci	< 5.92E+01 Ci	< 1.83E+03 Ci
^{237}Np	< 5.66E-02 Ci	^{237}Np	2.57E+01 Ci	< 4.17E+00 Ci	< 2.99E+01 Ci
$^{239/240}$Pu	< 9.53E-02 Ci	$^{239/240}$Pu	< 4.39E+00 Ci	1.94E+00 Ci	< 6.43E+00 Ci
^{241}Am.aea	< 1.00E-01 Ci	^{241}Am.aea	9.93E+00 Ci	1.00E+01 Ci	< 2.00E+01 Ci
^{241}Am.gea	< 2.20E+03 Ci	^{241}Am.gea	< 2.00E+03 Ci	< 1.27E+02 Ci	< 4.33E+03 Ci
$^{243/244}$Cm	< 1.00E-01 Ci	$^{243/244}$Cm	< 2.34E+00 Ci	< 1.45E+00 Ci	< 3.89E+00 Ci
^{60}Co.gea	< 3.33E-02 Ci	^{60}Co.gea	< 9.09E+01 Ci	< 4.63E+00 Ci	< 9.56E+01 Ci
$^{89/90}$Sr	1.06E+02 Ci	$^{89/90}$Sr	2.22E+04 Ci	9.40E+03 Ci	3.17E+04 Ci
^{99}Tc	7.01E+02 Ci	^{99}Tc	4.38E+02 Ci	3.45E+01 Ci	1.17E+03 Ci
Acetate.ic	1.64E+03 kg	Acetate.ic	1.14E+03 kg	< 2.03E+01 kg	< 2.80E+03 kg
Ag.icp.a	3.88E+01 kg	Ag.icp.a	2.88E+01 kg	1.09E+01 kg	7.85E+01 kg
Ag.icp.adl	4.61E+01 kg	Ag.icp.a	2.88E+01 kg	1.09E+01 kg	8.58E+01 kg
Al.icp.a	9.15E+04 kg	Al.icp.a	4.96E+04 kg	3.72E+03 kg	1.45E+05 kg
Al.icp.adl	1.12E+05 kg	Al.icp.a	4.96E+04 kg	3.72E+03 kg	1.65E+05 kg
As.icp.a	< 1.34E+02 kg	As.icp.a	< 9.77E+01 kg	< 1.00E+01 kg	< 2.42E+02 kg
As.icp.adl	< 1.54E+02 kg	As.icp.a	< 9.77E+01 kg	< 1.00E+01 kg	< 2.62E+02 kg
B.icp.a	4.34E+02 kg	B.icp.a	2.82E+02 kg	2.92E+01 kg	7.45E+02 kg

Table B3-37. Tank Inventory - Based on Composite Data. (6 sheets)

Supernatant Analyte	Supernatant Inventory	Sludge Analyte	Salt Slurry Inventory	Salt Slurry Inventory	Tank Inventory
B.icp.adl	1.86E+02 kg	B.icp.a	2.82E+02 kg	2.92E+01 kg	4.97E+02 kg
Ba.icp.a	< 6.71E+01 kg	Ba.icp.a	< 4.90E+01 kg	< 5.02E+00 kg	< 1.21E+02 kg
Ba.icp.adl	< 7.71E+01 kg	Ba.icp.a	< 4.90E+01 kg	< 5.02E+00 kg	< 1.31E+02 kg
Be.icp.a	< 6.71E+00 kg	Be.icp.a	< 4.90E+00 kg	< 5.02E-01 kg	< 1.21E+01 kg
Be.icp.adl	< 7.69E+00 kg	Be.icp.a	< 4.90E+00 kg	< 5.02E-01 kg	< 1.31E+01 kg
Bi.icp.a	< 1.34E+02 kg	Bi.icp.a	< 9.77E+01 kg	< 1.00E+01 kg	< 2.42E+02 kg
Bi.icp.adl	< 1.54E+02 kg	Bi.icp.a	< 9.77E+01 kg	< 1.00E+01 kg	< 2.62E+02 kg
$^{1}Br^{-}$.ic	< 1.34E+03 kg	Br^{-}.ic	< 1.35E+03 kg	< 1.27E+02 kg	< 2.82E+03 kg
Ca.icp.a	2.25E+03 kg	Ca.icp.a	5.22E+02 kg	8.45E+01 kg	2.86E+03 kg
Ca.icp.adl	< 1.54E+02 kg	Ca.icp.a	5.22E+02 kg	8.45E+01 kg	< 7.61E+02 kg
Cd.icp.a	< 6.71E+00 kg	Cd.icp.a	1.77E+01 kg	3.56E+00 kg	< 2.80E+01 kg
Cd.icp.adl	< 7.69E+00 kg	Cd.icp.a	1.77E+01 kg	3.56E+00 kg	< 2.90E+01 kg
Ce.icp.a	< 1.34E+02 kg	Ce.icp.a	< 9.77E+01 kg	< 1.00E+01 kg	< 2.42E+02 kg
Ce.icp.adl	< 1.54E+02 kg	Ce.icp.a	< 9.77E+01 kg	< 1.00E+01 kg	< 2.62E+02 kg
Cl^{-}.ic	2.61E+04 kg	Cl^{-}.ic	1.43E+04 kg	1.05E+03 kg	4.15E+04 kg
Co.icp.a	< 2.69E+01 kg	Co.icp.a	< 1.95E+01 kg	< 2.00E+00 kg	< 4.84E+01 kg
Co.icp.adl	< 3.07E+01 kg	Co.icp.a	< 1.95E+01 kg	< 2.00E+00 kg	< 5.22E+01 kg
Cr(VI).spec	3.93E+02 kg	Cr(VI).spec	2.88E+02 kg	2.67E+01 kg	7.08E+02 kg
Cr.icp.a	4.79E+02 kg	Cr.icp.a	3.60E+03 kg	7.05E+02 kg	4.78E+03 kg
Cr.icp.adl	5.70E+02 kg	Cr.icp.a	3.60E+03 kg	7.05E+02 kg	4.88E+03 kg

Table B3-37. Tank Inventory - Based on Composite Data. (6 sheets)

Supernatant Analyte	Supernatant Inventory	Sludge Analyte	Salt Slurry Inventory	Salt Slurry Inventory	Tank Inventory
Cu.icp.a	< 1.61E+01 kg	Cu.icp.a	1.24E+01 kg	1.55E+00 kg	< 3.01E+01 kg
Cu.icp.adl	< 1.54E+01 kg	Cu.icp.a	1.24E+01 kg	1.55E+00 kg	< 2.94E+01 kg
F^-.ic	< 1.38E+02 kg	F^-.ic	2.76E+03 kg	1.29E+03 kg	< 4.19E+03 kg
Fe.icp.a	1.63E+02 kg	Fe.icp.a	1.48E+02 kg	3.77E+01 kg	3.49E+02 kg
Fe.icp.adl	< 7.71E+01 kg	Fe.icp.a	1.48E+02 kg	3.77E+01 kg	< 2.63E+02 kg
Formate.ic	4.15E+03 kg	Formate.ic	2.97E+03 kg	2.87E+02 kg	7.41E+03 kg
K.icp.a	1.36E+04 kg	K.icp.a	7.49E+03 kg	5.52E+02 kg	2.16E+04 kg
K.icp.adl	1.67E+04 kg	K.icp.a	7.49E+03 kg	5.52E+02 kg	2.47E+04 kg
La.icp.a	< 6.71E+01 kg	La.icp.a	< 4.90E+01 kg	< 5.02E+00 kg	< 1.21E+02 kg
La.icp.adl	< 7.71E+01 kg	La.icp.a	< 4.90E+01 kg	< 5.02E+00 kg	< 1.31E+02 kg
^{1}Li.icp.a	1.53E+01 kg	Li.icp.a	2.11E+01 kg	3.78E+00 kg	4.02E+01 kg
^{1}Li.icp.adl	< 1.54E+01 kg	Li.icp.a	2.11E+01 kg	3.78E+00 kg	< 4.03E+01 kg
Mg.icp.a	< 1.34E+02 kg	Mg.icp.a	< 9.77E+01 kg	< 1.00E+01 kg	< 2.42E+02 kg
Mg.icp.adl	< 1.54E+02 kg	Mg.icp.a	< 9.77E+01 kg	< 1.00E+01 kg	< 2.62E+02 kg
Mn.icp.a	< 1.34E+01 kg	Mn.icp.a	1.90E+01 kg	1.27E+01 kg	< 4.51E+01 kg
Mn.icp.adl	< 1.54E+01 kg	Mn.icp.a	1.90E+01 kg	1.27E+01 kg	< 4.71E+01 kg
Mo.icp.a	2.11E+02 kg	Mo.icp.a	1.11E+02 kg	9.10E+00 kg	3.31E+02 kg
Mo.icp.adl	2.59E+02 kg	Mo.icp.a	1.11E+02 kg	9.10E+00 kg	3.79E+02 kg
NO^{2-}.ic	3.34E+05 kg	NO_2^-.ic	1.77E+05 kg	1.23E+04 kg	5.23E+05 kg
NO_3^-.ic	4.29E+05 kg	NO_3^-.ic	2.74E+05 kg	4.14E+04 kg	7.44E+05 kg

Table B3-37. Tank Inventory - Based on Composite Data. (6 sheets)

Supernatant Analyte	Supernatant Inventory	Sludge Analyte	Salt Slurry Inventory	Salt Slurry Inventory	Tank Inventory
Na.icp.a	5.41E+05 kg	Na.icp.a	3.76E+05 kg	4.23E+04 kg	9.59E+05 kg
Na.icp.adl	6.55E+05 kg	Na.icp.a	3.76E+05 kg	4.23E+04 kg	1.07E+06 kg
Nd.icp.a	< 1.34E+02 kg	Nd.icp.a	< 9.77E+01 kg	< 1.00E+01 kg	< 2.42E+02 kg
Nd.icp.adl	< 1.54E+02 kg	Nd.icp.a	< 9.77E+01 kg	< 1.00E+01 kg	< 2.62E+02 kg
Ni.icp.a	< 2.69E+01 kg	Ni.icp.a	7.70E+01 kg	8.65E+00 kg	< 1.13E+02 kg
Ni.icp.adl	< 3.07E+01 kg	Ni.icp.a	7.70E+01 kg	8.65E+00 kg	< 1.16E+02 kg
OH^-	1.50E+05 kg	OH^-	5.83E+04 kg	5.66E+03 kg	2.14E+05 kg
Oxalate.ic	< 1.11E+03 kg	Oxalate.ic	1.57E+04 kg	1.51E+03 kg	< 1.83E+04 kg
P.icp.a	8.70E+02 kg	P.icp.a	9.75E+02 kg	3.63E+03 kg	5.48E+03 kg
P.icp.adl	1.01E+03 kg	P.icp.a	9.75E+02 kg	3.63E+03 kg	5.62E+03 kg
PO_4^{3-}.ic	1.58E+03 kg	PO_4^{3-}.ic	2.92E+03 kg	1.18E+04 kg	1.63E+04 kg
Pb.icp.a	< 1.34E+02 kg	Pb.icp.a	< 9.77E+01 kg	1.28E+01 kg	< 2.45E+02 kg
Pb.icp.adl	< 1.54E+02 kg	Pb.icp.a	< 9.77E+01 kg	1.28E+01 kg	< 2.65E+02 kg
S.icp.a	2.25E+03 kg	S.icp.a	5.27E+03 kg	3.72E+02 kg	7.89E+03 kg
S.icp.adl	2.59E+03 kg	S.icp.a	5.27E+03 kg	3.72E+02 kg	8.23E+03 kg
SO_4^{2-}.ic	2.48E+03 kg	SO_4^{2-}.ic	1.81E+04 kg	1.08E+03 kg	2.17E+04 kg
Sb.icp.a	< 8.04E+01 kg	Sb.icp.a	< 5.87E+01 kg	< 6.02E+00 kg	< 1.45E+02 kg
Sb.icp.adl	< 9.25E+01 kg	Sb.icp.a	< 5.87E+01 kg	< 6.02E+00 kg	< 1.57E+02 kg
Se.icp.a	< 1.34E+02 kg	Se.icp.a	< 9.77E+01 kg	< 1.00E+01 kg	< 2.42E+02 kg
Se.icp.adl	< 1.54E+02 kg	Se.icp.a	< 9.77E+01 kg	< 1.00E+01 kg	< 2.62E+02 kg

Table B3-37. Tank Inventory - Based on Composite Data. (6 sheets)

Supernatant Analyte	Supernatant Inventory	Sludge Analyte	Salt Slurry Inventory	Salt Slurry Inventory	Tank Inventory
Si.icp.a	5.62E+02 kg	Si.icp.a	4.33E+02 kg	1.22E+02 kg	1.12E+03 kg
Si.icp.adl	4.25E+02 kg	Si.icp.a	4.33E+02 kg	1.22E+02 kg	9.80E+02 kg
Sm.icp.a	< 1.34E+02 kg	Sm.icp.a	< 9.77E+01 kg	< 1.00E+01 kg	< 2.42E+02 kg
Sm.icp.adl	< 1.54E+02 kg	Sm.icp.a	< 9.77E+01 kg	< 1.00E+01 kg	< 2.62E+02 kg
Sr.icp.a	< 1.34E+01 kg	Sr.icp.a	< 9.77E+00 kg	< 1.00E+00 kg	< 2.42E+01 kg
Sr.icp.adl	< 1.54E+01 kg	Sr.icp.a	< 9.77E+00 kg	< 1.00E+00 kg	< 2.62E+01 kg
TIC	5.62E+03 kg	TIC	3.16E+04 kg	2.12E+03 kg	3.93E+04 kg
TOC.coul	1.56E+04 kg	TOC.pers	1.32E+04 kg	1.15E+03 kg	3.00E+04 kg
TOC.pers	6.64E+03 kg	TOC.pers	1.32E+04 kg	1.15E+03 kg	2.10E+04 kg
Ti.icp.a	< 1.34E+01 kg	Ti.icp.a	< 9.77E+00 kg	< 1.00E+00 kg	< 2.42E+01 kg
Ti.icp.adl	< 1.54E+01 kg	Ti.icp.a	< 9.77E+00 kg	< 1.00E+00 kg	< 2.62E+01 kg
Tl.icp.a	< 2.69E+02 kg	Tl.icp.a	< 1.95E+02 kg	< 2.00E+01 kg	< 4.84E+02 kg
Tl.icp.adl	< 3.07E+02 kg	Tl.icp.a	< 1.95E+02 kg	< 2.00E+01 kg	< 5.22E+02 kg
AT	< 3.95E+01 Ci	AT	3.30E+01 Ci	1.49E+01 Ci	< 8.74E+01 Ci
Total Beta	1.38E+06 Ci	Total Beta	7.92E+05 Ci	7.06E+04 Ci	2.24E+06 Ci
Tritium	< 1.01E-04 Ci	Tritium	5.33E+00 Ci	< 1.63E-01 Ci	< 5.49E+00 Ci
U.icp.a	< 6.71E+02 kg	U.icp.a	< 4.90E+02 kg	< 5.02E+01 kg	< 1.21E+03 kg
U.icp.adl	< 7.69E+02 kg	U.icp.a	< 4.90E+02 kg	< 5.02E+01 kg	< 1.31E+03 kg
U.phos	9.13E+00 kg	U.phos	2.12E+02 kg	2.12E+01 kg	2.42E+02 kg
V.icp.a	< 6.71E+01 kg	V.icp.a	< 4.90E+01 kg	< 5.02E+00 kg	< 1.21E+02 kg

Table B3-37. Tank Inventory - Based on Composite Data. (6 sheets)

Supernatant Analyte	Supernatant Inventory	Sludge Analyte	Salt Slurry Inventory	Salt Slurry Inventory	Tank Inventory
V.icp.adl	< 7.71E+01 kg	V.icp.a	< 4.90E+01 kg	< 5.02E+00 kg	< 1.31E+02 kg
Water.tga	1.82E+06 kg	Water.tga	1.11E+06 kg	1.10E+05 kg	3.04E+06 kg
Zn.icp.a	1.95E+02 kg	Zn.icp.a	1.98E+01 kg	2.97E+00 kg	2.18E+02 kg
Zn.icp.adl	4.51E+01 kg	Zn.icp.a	1.98E+01 kg	2.97E+00 kg	6.79E+01 kg
Zr.icp.a	< 1.34E+01 kg	Zr.icp.a	1.09E+01 kg	1.44E+01 kg	< 3.87E+01 kg
Zr.icp.adl	< 1.54E+01 kg	Zr.icp.a	1.09E+01 kg	1.44E+01 kg	< 4.07E+01 kg

Note:

[1]Li and [1]Br are the tracers for hydrostatic head fluid.

An overall mean tank concentration was computed using (1) the segment data (per volume basis), (2) the segment data (per weight basis), (3) the composite data (per volume basis), and (4) the composite data (per weight basis). The equations for the mean tank concentration for each analyte based on the segment data are

$$\hat{\mu}_{tank} = \hat{\mu}_{supernatant} \times 0.60 + \hat{\mu}_{salt\ slurry} \times 0.40 \text{ (per volume basis)}$$

$$\hat{\mu}_{tank} = \hat{\mu}_{supernatant} \times 0.574 + \hat{\mu}_{salt\ slurry} \times 0.426 \text{ (per weight basis)}$$

where $\hat{\mu}_{supernatant}$ is from the nested ANOVA results and $\hat{\mu}_{salt\ slurry}$ is from the nested ANOVA results with the riser term included in the model. For those analytes where $\hat{\sigma}_{riser}$ is not significantly different from zero, the mean concentrations calculated using the two statistical models (with the riser term and without the riser term) are not significantly different. For those analytes where $\hat{\sigma}_{riser}$ is significantly different from zero, the mean concentrations are calculated using the statistical model with the riser term. The mean tank concentrations based on the segment data are listed in Table B3-38 (per volume basis) and Table B3-39 (per weight basis). Because the analyte means were calculated using different data sets (.w, .wo, .ed, and so forth), Tables B3-38 and B3-39 also list the analyte name for the supernatant mean (first column) and the analyte name for the salt slurry mean (second column). The tank mean concentration is marked with a "*" if either the supernatant means or the salt slurry means were actually "less than" values. If the "less than" value was insignificant compared to the quantitative value, the analyte is marked with a "**".

The equations for the mean tank concentration for each analyte based on the composite data are

$$\hat{\mu}_{tankc} = \hat{\mu}_{sup\ comp} \times 0.60 + \hat{\mu}_{SSC1} \times 0.364 + \hat{\mu}_{SSC2} \times 0.036 \text{ (per volume basis)}$$

$$\hat{\mu}_{tankc} = \hat{\mu}_{sup\ comp} \times 0.576 + \hat{\mu}_{SSC1} \times 0.391 + \hat{\mu}_{SSC2} \times 0.039 \text{ (per weight basis)}$$

where $\hat{\mu}_{tankc}$ is the mean tank concentration based on composite data, $\hat{\mu}_{sup\ comp}$ is the mean supernatant concentration based on composite data, $\hat{\mu}_{SSC1}$ is the salt slurry mean concentration based on the composite sample from segments 14-20, and $\hat{\mu}_{SSC2}$ is the salt slurry mean concentration based on the composite sample from segment 22. The mean tank concentrations based on the composite data are listed in Table B3-40 (per volume basis) and Table B3-41 (per weight basis). Because the analyte means were calculated using different data sets (.w, .wo, .ed, and so forth), Tables B3-40 and B3-41 also list the analyte name for the supernatant mean (first column) and the analyte name for the salt slurry means (second column). The tank mean concentration is marked with a "*" if either the supernatant means or the salt slurry means were actually "less than" values. If the "less than" value was insignificant compared to the quantitative value, the analyte is marked with a "**".

Table B3-38. Tank Mean Concentration - Based on Segment Data (Per Volume Basis). (5 sheets)

Supernatant Analyte	Salt Slurry Analyte	$\hat{\mu}_{tank}$	Units
Water.tga	Water.tga	7.05E-01	g/mL
Water.tga.ed	Water.tga	7.08E-01	g/mL
Acetate.ic.w	Acetate.ic.w	7.33E+02	μg/mL
Acetate.ic.wo	Acetate.ic.wo	7.91E+02	μg/mL
Ag.icp.adl	Ag.icp.a	2.30E+01	μg/mL
Ag.icp.adl	Ag.icp.f	1.50E+02*	μg/mL
Al.icp.adl	Al.icp.a	3.89E+04	μg/mL
Al.icp.adl	Al.icp.f	3.96E+04	μg/mL
As.icp.adl	As.icp.a	6.74E+01*	μg/mL
As.icp.adl	As.icp.f	1.43E+03*	μg/mL
B.icp.adl	B.icp.a	1.01E+02	μg/mL
B.icp.adl	B.icp.f	7.40E+02*	μg/mL
Ba.icp.adl	Ba.icp.a	3.37E+01*	μg/mL
Ba.icp.adl	Ba.icp.f	7.13E+02*	μg/mL
Be.icp.adl	Be.icp.a	3.70E+00*	μg/mL

Table B3-38. Tank Mean Concentration - Based on Segment Data (Per Volume Basis). (5 sheets)

Supernatant Analyte	Salt Slurry Analyte	$\hat{\mu}_{tank}$	Units
Be.icp.adl	Be.icp.f	7.13E+01*	μg/mL
Bi.icp.adl	Bi.icp.a	8.20E+01*	μg/mL
Bi.icp.adl	Bi.icp.f	1.43E+03*	μg/mL
[1]Br^-.ic.w	Br^-.ic	1.27E+03*	μg/mL
[1]Br^-.ic.wo	Br^-.ic	1.28E+03*	μg/mL
Ca.icp.adl	Ca.icp.a	4.40E+02**	μg/mL
Ca.icp.adl	Ca.icp.f	1.43E+03*	μg/mL
Cd.icp.adl	Cd.icp.a	9.17E+00*	μg/mL
Cd.icp.adl	Cd.icp.f	7.13E+01*	μg/mL
Ce.icp.adl	Ce.icp.a	6.74E+01*	μg/mL
Ce.icp.adl	Ce.icp.f	1.43E+03*	μg/mL
Cl^-.ic	Cl^-.ic	9.40E+03	μg/mL
Cl^-.ic.ed	Cl^-.ic	9.21E+03	μg/mL
Co.icp.adl	Co.icp.a	1.35E+01*	μg/mL
Co.icp.adl	Co.icp.f	2.86E+02*	μg/mL
Cr.icp.adl	Cr.icp.a	1.61E+03	μg/mL
Cr.icp.adl	Cr.icp.f	1.70E+03	μg/mL
Cu.icp.adl	Cu.icp.a.w	1.06E+01	μg/mL
Cu.icp.adl	Cu.icp.a.wo	1.06E+01	μg/mL
Cu.icp.adl	Cu.icp.f	1.45E+02*	μg/mL
F^-.ic.w	F^-.ic	1.36E+03	μg/mL
F^-.ic.w.ed	F^-.ic	1.35E+03	μg/mL
F^-.ic.wo	F^-.ic	1.46E+03	μg/mL
F^-.ic.wo.ed	F^-.ic	1.44E+03	μg/mL
Fe.icp.adl	Fe.icp.a	9.37E+01*	μg/mL
Fe.icp.adl	Fe.icp.f	7.13E+02*	μg/mL
Formate.ic	Formate.ic	1.60E+03	μg/mL
K.icp.adl	K.icp.a	6.11E+03	μg/mL
La.icp.adl	La.icp.a	3.37E+01*	μg/mL
La.icp.adl	La.icp.f	7.13E+02*	μg/mL

Table B3-38. Tank Mean Concentration - Based on Segment Data (Per Volume Basis). (5 sheets)

Supernatant Analyte	Salt Slurry Analyte	$\hat{\mu}_{tank}$	Units
[1]Li.icp.adl	Li.icp.a.w	2.89E+01	μg/mL
[1]Li.icp.adl	Li.icp.a.woo	2.94E+01	μg/mL
[1]Li.icp.adl	Li.icp.f	1.55E+02*	μg/mL
Mg.icp.adl	Mg.icp.a	7.50E+01*	μg/mL
Mg.icp.adl	Mg.icp.f	1.43E+03*	μg/mL
Mn.icp.adl	Mn.icp.a.w	1.69E+01*	μg/mL
Mn.icp.adl	Mn.icp.a.wo	1.73E+01*	μg/mL
Mn.icp.adl	Mn.icp.f	1.43E+02*	μg/mL
Mo.icp.adl	Mo.icp.a	9.05E+01	μg/mL
Mo.icp.adl	Mo.icp.f	7.53E+02*	μg/mL
NO_2^-.ic	NO_2^-.ic	1.16E+05	μg/mL
NO_2^-.ic.ed	NO_2^-.ic	1.14E+05	μg/mL
NO_3^-.ic	NO_3^-.ic	1.70E+05	μg/mL
NO_3^-.ic.ed	NO_3^-.ic	1.67E+05	μg/mL
Na.icp.adl	Na.icp.a	2.64E+05	μg/mL
Na.icp.adl	Na.icp.f	2.92E+05	μg/mL
Nd.icp.adl	Nd.icp.a	6.74E+01*	μg/mL
Nd.icp.adl	Nd.icp.f	1.43E+03*	μg/mL
Ni.icp.adl	Ni.icp.a	3.29E+01*	μg/mL
Ni.icp.adl	Ni.icp.f.w	8.69E+02**	μg/mL
Ni.icp.adl	Ni.icp.f.wo	1.11E+03**	μg/mL
Oxalate.ic	Oxalate.ic	1.40E+04	μg/mL
P.icp.adl	P.icp.a	1.81E+03	μg/mL
P.icp.adl.ed	P.icp.a	1.80E+03	μg/mL
P.icp.adl	P.icp.f	2.31E+04	μg/mL
P.icp.adl.ed	P.icp.f	2.31E+04	μg/mL
PO_4^{3-}.ic.w	PO_4^{3-}.ic.w	5.74E+03	μg/mL
PO_4^{3-}.ic.w	PO_4^{3-}.ic.wo	5.75E+03	μg/mL
PO_4^{3-}.ic.w.ed	PO_4^{3-}.ic.w	5.56E+03	μg/mL
PO_4^{3-}.ic.w.ed	PO_4^{3-}.ic.wo	5.56E+03	μg/mL

Table B3-38. Tank Mean Concentration - Based on Segment Data (Per Volume Basis). (5 sheets)

Supernatant Analyte	Salt Slurry Analyte	$\hat{\mu}_{tank}$	Units
PO_4^{3-}.ic.wo	PO_4^{3-}.ic.w	6.04E+03	μg/mL
PO_4^{3-}.ic.wo	PO_4^{3-}.ic.wo	6.05E+03	μg/mL
PO_4^{3-}.ic.wo.ed	PO_4^{3-}.ic.w	5.61E+03	μg/mL
PO_4^{3-}.ic.wo.ed	PO_4^{3-}.ic.wo	5.61E+03	μg/mL
Pb.icp.adl.w	Pb.icp.a.w	6.22E+01	μg/mL
Pb.icp.adl.w	Pb.icp.a.wo	6.41E+01	μg/mL
Pb.icp.adl.w	Pb.icp.f	1.42E+03*	μg/mL
Pb.icp.adl.wo	Pb.icp.a.w	5.97E+01	μg/mL
Pb.icp.adl.wo	Pb.icp.a.wo	6.16E+01	μg/mL
Pb.icp.adl.wo	Pb.icp.f	1.42E+03*	μg/mL
S.icp.adl	S.icp.a	2.15E+03	μg/mL
S.icp.adl	S.icp.f.w	2.32E+03	μg/mL
S.icp.adl	S.icp.f.wo	2.34E+03	μg/mL
SO_4^{2-}.ic.w	SO_4^{2-}.ic	4.68E+03	μg/mL
SO_4^{2-}.ic.w.ed	SO_4^{2-}.ic	4.63E+03	μg/mL
SO_4^{2-}.ic.wo	SO_4^{2-}.ic	4.67E+03	μg/mL
SO_4^{2-}.ic.wo.ed	SO_4^{2-}.ic	4.62E+03	μg/mL
Sb.icp.adl	Sb.icp.a	4.04E+01*	μg/mL
Sb.icp.adl	Sb.icp.f	8.55E+02*	μg/mL
Se.icp.adl	Se.icp.a	6.74E+01*	μg/mL
Se.icp.adl	Se.icp.f	1.43E+03*	μg/mL
Si.icp.adl	Si.icp.a.w	2.15E+02	μg/mL
Si.icp.adl	Si.icp.a.wo	2.18E+02	μg/mL
Si.icp.adl	Si.icp.f	1.66E+03	μg/mL
Sm.icp.adl	Sm.icp.a	6.74E+01*	μg/mL
Sm.icp.adl	Sm.icp.f	1.43E+03*	μg/mL
Sr.icp.adl	Sr.icp.a	9.83E+00*	μg/mL
Sr.icp.adl	Sr.icp.f	1.43E+02*	μg/mL
Ti.icp.adl	Ti.icp.a	6.74E+00*	μg/mL
Ti.icp.adl	Ti.icp.f	1.43E+02*	μg/mL

Table B3-38. Tank Mean Concentration - Based on Segment Data (Per Volume Basis). (5 sheets)

Supernatant Analyte	Salt Slurry Analyte	$\hat{\mu}_{tank}$	Units
Tl.icp.adl	Tl.icp.a	1.35E+02*	μg/mL
Tl.icp.adl	Tl.icp.f	2.86E+03*	μg/mL
Total Alpha	Total Alpha.w	1.02E-01*	μCi/mL
Total Alpha	Total Alpha.wo	1.02E-01*	μCi/mL
U.icp.adl	U.icp.a	3.36E+02*	μg/mL
U.icp.adl	U.icp.f	7.13E+03*	μg/mL
V.icp.adl	V.icp.a	3.37E+01*	μg/mL
V.icp.adl	V.icp.f	7.13E+02*	μg/mL
Zn.icp.adl	Zn.icp.a	4.61E+01	μg/mL
Zn.icp.adl	Zn.icp.f	5.24E+02	μg/mL
Zr.icp.adl	Zr.icp.a.w	1.09E+01	μg/mL
Zr.icp.adl	Zr.icp.a.wo	1.12E+01	μg/mL

Note:

[1]Li and [1]Br used for tracer in hydrostatic head fluid.

Table B3-39. Tank Mean Concentration - Based on Segment Data (Per Weight Basis). (4 sheets)

Supernatant Analyte	Salt Slurry Analyte	$\hat{\mu}_{tank}$	Units
Water.tga	Water.tga	4.76E-01	g/g
Water.tga.ed	Water.tga	4.78E-01	g/g
Acetate.ic.w	Acetate.ic.w	4.95E+02	μg/g
Acetate.ic.wo	Acetate.ic.wo	5.34E+02	μg/g
Ag.icp.adl	Ag.icp.a	1.55E+01	μg/g
Ag.icp.adl	Ag.icp.f	9.75E+01*	μg/g
Al.icp.adl	Al.icp.a	2.63E+04	μg/g
Al.icp.adl	Al.icp.f	2.67E+04	μg/g
As.icp.adl	As.icp.a	4.51E+01*	μg/g
As.icp.adl	As.icp.f	9.27E+02*	μg/g
B.icp.adl	B.icp.a	6.83E+01	μg/g
B.icp.adl	B.icp.f	4.82E+02*	μg/g
Ba.icp.adl	Ba.icp.a	2.26E+01*	μg/g
Ba.icp.adl	Ba.icp.f	4.64E+02*	μg/g
Be.icp.adl	Be.icp.a	2.54E+00*	μg/g
Be.icp.adl	Be.icp.f	4.64E+01*	μg/g
Bi.icp.adl	Bi.icp.a	5.49E+01*	μg/g
Bi.icp.adl	Bi.icp.f	9.27E+02*	μg/g
[1]Br^-.ic.w	Br^-.ic	8.46E+02*	μg/g
[1]Br^-.ic.wo	Br^-.ic	8.51E+02*	μg/g
Ca.icp.adl	Ca.icp.a	2.98E+02 **	μg/g
Ca.icp.adl	Ca.icp.f	9.27E+02*	μg/g
Cd.icp.adl	Cd.icp.a	6.17E+00*	μg/g
Cd.icp.adl	Cd.icp.f	4.64E+01*	μg/g
Ce.icp.adl	Ce.icp.a	4.51E+01*	μg/g
Ce.icp.adl	Ce.icp.f	9.27E+02*	μg/g
Cl^-.ic	Cl^-.ic	6.35E+03	μg/g
Cl^-.ic.ed	Cl^-.ic	6.22E+03	μg/g
Co.icp.adl	Co.icp.a	9.02E+00*	μg/g
Co.icp.adl	Co.icp.f	1.86E+02*	μg/g

Table B3-39. Tank Mean Concentration - Based on Segment Data (Per Weight Basis). (4 sheets)

Supernatant Analyte	Salt Slurry Analyte	$\hat{\mu}_{tank}$	Units
Cr.icp.adl	Cr.icp.a	1.09E+03	μg/g
Cr.icp.adl	Cr.icp.f	1.15E+03	μg/g
Cu.icp.adl	Cu.icp.a.w	7.12E+00	μg/g
Cu.icp.adl	Cu.icp.a.wo	7.15E+00	μg/g
Cu.icp.adl	Cu.icp.f	1.52E+02*	μg/g
F^-.ic.w	F^-.ic	9.12E+02	μg/g
F^-.ic.w.ed	F^-.ic	9.05E+02	μg/g
F^-.ic.wo	F^-.ic	9.83E+02	μg/g
F^-.ic.wo.ed	F^-.ic	9.69E+02	μg/g
Fe.icp.adl	Fe.icp.a	6.29E+01*	μg/g
Fe.icp.adl	Fe.icp.f	4.64E+02*	μg/g
Formate.ic	Formate.ic	1.08E+03	μg/g
K.icp.adl	K.icp.a	4.12E+03	μg/g
La.icp.adl	La.icp.a	2.26E+01*	μg/g
La.icp.adl	La.icp.f	4.64E+02*	μg/g
^{1}Li.icp.adl	Li.icp.a.w	1.94E+01	μg/g
^{1}Li.icp.adl	Li.icp.a.wo	1.98E+01	μg/g
^{1}Li.icp.adl	Li.icp.f	1.01E+02*	μg/g
Mg.icp.adl	Mg.icp.a	5.02E+01*	μg/g
Mg.icp.adl	Mg.icp.f	9.27E+02*	μg/g
Mn.icp.adl	Mn.icp.a.w	1.13E+01*	μg/g
Mn.icp.adl	Mn.icp.a.wo	1.16E+01*	μg/g
Mn.icp.adl	Mn.icp.f	9.27E+01*	μg/g
Mo.icp.adl	Mo.icp.a	6.10E+01	μg/g
Mo.icp.adl	Mo.icp.f	4.91E+02*	μg/g
NO_2^-.ic	NO_2^-.ic	7.84E+04	μg/g
NO_2^-.ic.ed	NO_2^-.ic	7.76E+04	μg/g
NO_3^-.ic	NO_3^-.ic	1.14E+05	μg/g
NO_3^-.ic.ed	NO_3^-.ic	1.12E+05	μg/g
Na.icp.adl	Na.icp.a	1.78E+05	μg/g

Table B3-39. Tank Mean Concentration - Based on Segment Data (Per Weight Basis). (4 sheets)

Supernatant Analyte	Salt Slurry Analyte	$\hat{\mu}_{tank}$	Units
Na.icp.adl	Na.icp.f	1.97E+05	μg/g
Nd.icp.adl	Nd.icp.a	4.51E+01*	μg/g
Nd.icp.adl	Nd.icp.f	9.27E+02*	μg/g
Ni.icp.adl	Ni.icp.a	2.22E+01*	μg/g
Ni.icp.adl	Ni.icp.f.w	5.84E+02 **	μg/g
Ni.icp.adl	Ni.icp.f.wo	7.47E+02 **	μg/g
Oxalate.ic	Oxalate.ic	9.48E+03	μg/g
P.icp.adl	P.icp.a	1.21E+03	μg/g
P.icp.adl.ed	P.icp.a	1.20E+03	μg/g
P.icp.adl	P.icp.f	1.54E+04	μg/g
P.icp.adl.ed	P.icp.f	1.54E+04	μg/g
PO_4^{3-}.ic.w	PO_4^{3-}.ic.w	3.84E+03	μg/g
PO_4^{3-}.ic.w	PO_4^{3-}.ic.wo	3.84E+03	μg/g
PO_4^{3-}.ic.w.ed	PO_4^{3-}.ic.w	3.72E+03	μg/g
PO_4^{3-}.ic.w.ed	PO_4^{3-}.ic.wo	3.72E+03	μg/g
PO_4^{3-}.ic.wo	PO_4^{3-}.ic.w	4.04E+03	μg/g
PO_4^{3-}.ic.wo	PO_4^{3-}.ic.wo	4.04E+03	μg/g
PO_4^{3-}.ic.wo.ed	PO_4^{3-}.ic.w	3.75E+03	μg/g
PO_4^{3-}.ic.wo.ed	PO_4^{3-}.ic.wo	3.75E+03	μg/g
Pb.icp.adl.w	Pb.icp.a.w	4.20E+01	μg/g
Pb.icp.adl.w	Pb.icp.a.wo	4.32E+01	μg/g
Pb.icp.adl.w	Pb.icp.f	9.25E+02*	μg/g
Pb.icp.adl.wo	Pb.icp.a.w	4.03E+01	μg/g
Pb.icp.adl.wo	Pb.icp.a.wo	4.15E+01	μg/g
Pb.icp.adl.wo	Pb.icp.f	9.23E+02*	μg/g
S.icp.adl	S.icp.a	1.45E+03	μg/g
S.icp.adl	S.icp.f.w	1.56E+03	μg/g
S.icp.adl	S.icp.f.wo	1.58E+03	μg/g
SO_4^{2-}.ic.w	SO_4^{2-}.ic	3.15E+03	μg/g
SO_4^{2-}.ic.w.ed	SO_4^{2-}.ic	3.12E+03	μg/g

Table B3-39. Tank Mean Concentration - Based on Segment Data (Per Weight Basis). (4 sheets)

Supernatant Analyte	Salt Slurry Analyte	$\hat{\mu}_{tank}$	Units
SO_4^{2-}.ic.wo	SO_4^{2-}.ic	3.15E+03	μg/g
SO_4^{2-}.ic.wo.ed	SO_4^{2-}.ic	3.11E+03	μg/g
Sb.icp.adl	Sb.icp.a	2.71E+01*	μg/g
Sb.icp.adl	Sb.icp.f	5.56E+02*	μg/g
Se.icp.adl	Se.icp.a	4.51E+01*	μg/g
Se.icp.adl	Se.icp.f	9.27E+02*	μg/g
Si.icp.adl	Si.icp.a.w	1.45E+02	μg/g
Si.icp.adl	Si.icp.a.wo	1.47E+02	μg/g
Si.icp.adl	Si.icp.f	1.13E+03	μg/g
Sm.icp.adl	Sm.icp.a	4.51E+01*	μg/g
Sm.icp.adl	Sm.icp.f	9.27E+02*	μg/g
Sr.icp.adl	Sr.icp.a	6.57E+00*	μg/g
Sr.icp.adl	Sr.icp.f	9.27E+01*	μg/g
Ti.icp.adl	Ti.icp.a	4.51E+00*	μg/g
Ti.icp.adl	Ti.icp.f	9.27E+01*	μg/g
Tl.icp.adl	Tl.icp.a	9.02E+01*	μg/g
Tl.icp.adl	Tl.icp.f	1.86E+03*	μg/g
Total Alpha	Total Alpha.w	6.83E-02*	μCi/g
Total Alpha	Total Alpha.wo	6.84E-02*	μCi/g
U.icp.adl	U.icp.a	2.25E+02*	μg/g
U.icp.adl	U.icp.f	4.64E+03*	μg/g
V.icp.adl	V.icp.a	2.26E+01*	μg/g
V.icp.adl	V.icp.f	4.64E+02*	μg/g
Zn.icp.adl	Zn.icp.a	3.11E+01	μg/g
Zn.icp.adl	Zn.icp.f	3.58E+02	μg/g
Zr.icp.adl	Zr.icp.a.w	7.29E+00	μg/g
Zr.icp.adl	Zr.icp.a.wo	7.52E+00	μg/g

Note:

[1]Li and [1]Br are the tracers for hydrostatic head fluid.

Table B3-40. Tank Mean Concentration - Based on Composite Sample Data (Per Volume Basis). (4 sheets)

Supernatant Analyte	Salt Slurry Analyte	$\hat{\mu}_{tank}$	Units
Water.tga	Water.tga	7.12E-01	g/mL
Acetate.ic	Acetate.ic	6.58E+02*	μg/mL
Ag.icp.a	Ag.icp.a	1.84E+01	μg/mL
Ag.icp.adl	Ag.icp.a	2.01E+01	μg/mL
Al.icp.a	Al.icp.a	3.39E+04	μg/mL
Al.icp.adl	Al.icp.a	3.86E+04	μg/mL
^{241}Am.aea	Am^{241}.aea	4.69E-03 **	μCi/mL
^{241}Am.gea	^{241}Am.gea	1.01E+00*	μCi/mL
As.icp.a	As.icp.a	5.67E+01*	μg/mL
As.icp.adl	As.icp.a	6.13E+01*	μg/mL
B.icp.a	B.icp.a	1.75E+02	μg/mL
B.icp.adl	B.icp.a	1.17E+02	μg/mL
Ba.icp.a	Ba.icp.a	2.84E+01*	μg/mL
Ba.icp.adl	Ba.icp.a	3.07E+01*	μg/mL
Be.icp.a	Be.icp.a	2.84E+00*	μg/mL
Be.icp.adl	Be.icp.a	3.06E+00*	μg/mL
Bi.icp.a	Bi.icp.a	5.67E+01*	μg/mL
Bi.icp.adl	Bi.icp.a	6.13E+01*	μg/mL
^{1}Br^{-}.ic	Br^{-}.ic	6.60E+02*	μg/mL
Ca.icp.a	Ca.icp.a	6.69E+02*	μg/mL
Ca.icp.adl	Ca.icp.a	1.78E+02	μg/mL
Cd.icp.a	Cd.icp.a	6.55E+00*	μg/mL
Cd.icp.adl	Cd.icp.a	6.78E+00*	μg/mL
Ce.icp.a	Ce.icp.a	5.67E+01*	μg/mL
Ce.icp.adl	Ce.icp.a	6.13E+01*	μg/mL
Cl^{-}.ic	Cl^{-}.ic	9.70E+03	μg/mL
$^{2434/244}$Cm	$^{243/244}$Cm	9.11E-04*	μCi/mL
Co.icp.a	Co.icp.a	1.13E+01*	μg/mL
Co.icp.adl	Co.icp.a	1.22E+01*	μg/mL
^{60}Co.gea	^{60}Co.gea	3.02E-02*	μCi/mL

Table B3-40. Tank Mean Concentration - Based on Composite Sample Data (Per Volume Basis). (4 sheets)

Supernatant Analyte	Salt Slurry Analyte	$\hat{\mu}_{tankc}$	Units
Cr.icp.a	Cr.icp.a	1.12E+03	μg/mL
Cr.icp.adl	Cr.icp.a	1.14E+03	μg/mL
Cr(VI).spec	Cr(VI).spec	1.66E+02	μg/mL
^{137}Cs.gea	^{137}Cs.gea	4.70E+02	μCi/mL
Cu.icp.a	Cu.icp.a	7.04E+00*	μg/mL
Cu.icp.adl	Cu.icp.a	6.87E+00*	μg/mL
^{154}Eu.gea	^{154}Eu.gea	1.19E-01*	μCi/mL
^{155}Eu.gea	^{155}Eu.gea	4.29E-01*	μCi/mL
F^-.ic	F^-.ic	9.81E+02 **	μg/mL
Fe.icp.a	Fe.icp.a	8.18E+01	μg/mL
Fe.icp.adl	Fe.icp.a	6.16E+01*	μg/mL
Formate.ic	Formate.ic	1.73E+03	μg/mL
^{129}I	^{129}I	2.57E-03*	μCi/mL
K.icp.a	K.icp.a	5.07E+03	μg/mL
K.icp.adl	K.icp.a	5.80E+03	μg/mL
La.icp.a	La.icp.a	2.84E+01*	μg/mL
La.icp.adl	La.icp.a	3.07E+01*	μg/mL
^{1}Li.icp.a	Li.icp.a	9.40E+00	μg/mL
^{1}Li.icp.adl	Li.icp.a	9.43E+00*	μg/mL
Mg.icp.a	Mg.icp.a	5.67E+01*	μg/mL
Mg.icp.adl	Mg.icp.a	6.13E+01*	μg/mL
Mn.icp.a	Mn.icp.a	1.06E+01*	μg/mL
Mn.icp.adl	Mn.icp.a	1.10E+01*	μg/mL
Mo.icp.a	Mo.icp.a	7.77E+01	μg/mL
Mo.icp.adl	Mo.icp.a	8.88E+01	μg/mL
NO_2^-.ic	NO_2^-.ic	1.23E+05	μg/mL
NO_3^-.ic	NO_3^-.ic	1.74E+05	μg/mL
Na.icp.a	Na.icp.a	2.25E+05	μg/mL
Na.icp.adl	Na.icp.a	2.51E+05	μg/mL
Nd.icp.a	Nd.icp.a	5.67E+01*	μg/mL

Table B3-40. Tank Mean Concentration - Based on Composite Sample Data (Per Volume Basis). (4 sheets)

Supernatant Analyte	Salt Slurry Analyte	$\hat{\mu}_{tankc}$	Units
Nd.icp.adl	Nd.icp.a	6.13E+01*	μg/mL
Ni.icp.a	Ni.icp.a	2.64E+01*	μg/mL
Ni.icp.adl	Ni.icp.a	2.73E+01*	μg/mL
^{237}Np.tta	^{237}Np.tta	7.01E-03*	μCi/mL
OH^-	OH^-	5.01E+04	μg/mL
Oxalate.ic	Oxalate.ic	4.30E+03 **	μg/mL
P.icp.a	P.icp.a	1.28E+03	μg/mL
P.icp.adl	P.icp.a	1.31E+03	μg/mL
PO_4^{3-}.ic	PO_4^{3-}.ic	3.80E+03	μg/mL
Pb.icp.a	Pb.icp.a	5.73E+01*	μg/mL
Pb.icp.adl	Pb.icp.a	6.19E+01*	μg/mL
$^{239/240}$Pu	$^{239/240}$Pu	1.50E-03*	μCi/mL
S.icp.a	S.icp.a	1.85E+03	μg/mL
S.icp.adl	S.icp.a	1.93E+03	μg/mL
SO_4^{2-}.ic	SO_4^{2-}.ic	5.08E+03	μg/mL
Sb.icp.a	Sb.icp.a	3.40E+01*	μg/mL
Sb.icp.adl	Sb.icp.a	3.68E+01*	μg/mL
Se.icp.a	Se.icp.a	5.67E+01*	μg/mL
Se.icp.adl	Se.icp.a	6.13E+01*	μg/mL
Si.icp.a	Si.icp.a	2.62E+02	μg/mL
Si.icp.adl	Si.icp.a	2.29E+02	μg/mL
Sm.icp.a	Sm.icp.a	5.67E+01*	μg/mL
Sm.icp.adl	Sm.icp.a	6.13E+01*	μg/mL
Sr.icp.a	Sr.icp.a	5.67E+00*	μg/mL
Sr.icp.adl	Sr.icp.a	6.13E+00*	μg/mL
$^{89/90}$Sr	$^{89/90}$Sr	7.42E+00	μCi/mL
TIC	TIC	9.22E+03	μg/mL
TOC.coul	TOC.pers	7.01E+03	μg/mL
TOC.pers	TOC.pers	4.90E+03	μg/mL
^{99}Tc	^{99}Tc	2.75E-01	μCi/mL

Table B3-40. Tank Mean Concentration - Based on Composite Sample Data (Per Volume Basis). (4 sheets)

Supernatant Analyte	Salt Slurry Analyte	$\hat{\mu}_{tank}$	Units
Ti.icp.a	Ti.icp.a	5.67E+00*	μg/mL
Ti.icp.adl	Ti.icp.a	6.13E+00*	μg/mL
Tl.icp.a	Tl.icp.a	1.13E+02*	μg/mL
Tl.icp.adl	Tl.icp.a	1.22E+02*	μg/mL
Total Alpha	Total Alpha	2.04E-02*	μCi/mL
Total Beta	Total Beta	5.25E+02	μCi/mL
Tritium.l	Tritium.l	1.31E-03*	μCi/mL
U.icp.a	U.icp.a	2.84E+02*	μg/mL
U.icp.adl	U.icp.a	3.06E+02*	μg/mL
U.phos	U.phos	5.67E+01	μg/mL
V.icp.a	V.icp.a	2.84E+01*	μg/mL
V.icp.adl	V.icp.a	3.07E+01*	μg/mL
Zn.icp.a	Zn.icp.a	5.10E+01	μg/mL
Zn.icp.adl	Zn.icp.a	1.59E+01	μg/mL
Zr.icp.a	Zr.icp.a	9.06E+00*	μg/mL
Zr.icp.adl	Zr.icp.a	9.52E+00*	μg/mL
SpG	SpG	1.48E+00	"g/mL"

Note:

^{1}Li and ^{1}Br are the tracers for hydrostatic head fluid.

Table B3-41. Tank Mean Concentration - Based on Composite Sample Data (Per Weight Basis). (4 sheets)

Supernatant Analyte	Salt Slurry Analyte	$\hat{\mu}_{tank}$	Units
Water.tga	Water.tga	6.03E-01	g/g
Acetate.ic	Acetate.ic	5.54E+02*	μg/g
Ag.icp.a	Ag.icp.a	1.50E+01	μg/g
Ag.icp.adl	Ag.icp.a	1.66E+01	μg/g
Al.icp.a	Al.icp.a	2.90E+04	μg/g
Al.icp.adl	Al.icp.a	3.35E+04	μg/g
^{241}Am.aea	Am^{241}.aea	3.15E-03 **	μCi/g
^{241}Am.gea	^{241}Am.gea	8.31E-01*	μCi/g
As.icp.a	As.icp.a	4.72E+01*	μg/g
As.icp.adl	As.icp.a	5.16E+01*	μg/g
B.icp.a	B.icp.a	1.47E+02	μg/g
B.icp.adl	B.icp.a	9.12E+01	μg/g
Ba.icp.a	Ba.icp.a	2.36E+01*	μg/g
Ba.icp.adl	Ba.icp.a	2.59E+01*	μg/g
Be.icp.a	Be.icp.a	2.36E+00*	μg/g
Be.icp.adl	Be.icp.a	2.58E+00*	μg/g
Bi.icp.a	Bi.icp.a	4.72E+01*	μg/g
Bi.icp.adl	Bi.icp.a	5.16E+01*	μg/g
^{1}Br^{-}.ic	Br^{-}.ic	5.35E+02*	μg/g
Ca.icp.a	Ca.icp.a	6.02E+02*	μg/g
Ca.icp.adl	Ca.icp.a	1.31E+02	μg/g
Cd.icp.a	Cd.icp.a	4.86E+00*	μg/g
Cd.icp.adl	Cd.icp.a	5.08E+00*	μg/g
Ce.icp.a	Ce.icp.a	4.72E+01*	μg/g
Ce.icp.adl	Ce.icp.a	5.16E+01*	μg/g
Cl^{-}.ic	Cl^{-}.ic	8.30E+03	μg/g
$^{2434/244}$Cm	$^{243/244}$Cm	6.19E-04*	μCi/g
Co.icp.a	Co.icp.a	9.45E+00*	μg/g
Co.icp.adl	Co.icp.a	1.03E+01*	μg/g
^{60}Co.gea	^{60}Co.gea	2.26E-02*	μCi/g

Table B3-41. Tank Mean Concentration - Based on Composite Sample Data (Per Weight Basis). (4 sheets)

Supernatant Analyte	Salt Slurry Analyte	$\hat{\mu}_{tankc}$	Units
Cr.icp.a	Cr.icp.a	7.88E+02	μg/g
Cr.icp.adl	Cr.icp.a	8.08E+02	μg/g
Cr(VI).spec	Cr(VI).spec	1.38E+02	μg/g
^{137}Cs.gea	^{137}Cs.gea	3.98E+02	μCi/g
Cu.icp.a	Cu.icp.a	5.83E+00*	μg/g
Cu.icp.adl	Cu.icp.a	5.67E+00*	μg/g
^{154}Eu.gea	^{154}Eu.gea	9.72E-02*	μCi/g
^{155}Eu.gea	^{155}Eu.gea	3.46E-01*	μCi/g
F^-.ic	F^-.ic	6.70E+02 **	μg/g
Fe.icp.a	Fe.icp.a	6.61E+01	μg/g
Fe.icp.adl	Fe.icp.a	4.67E+01*	μg/g
Formate.ic	Formate.ic	1.45E+03	μg/g
^{129}I	^{129}I	1.78E-03*	μCi/g
K.icp.a	K.icp.a	4.33E+03	μg/g
K.icp.adl	K.icp.a	5.03E+03	μg/g
La.icp.a	La.icp.a	2.36E+01*	μg/g
La.icp.adl	La.icp.a	2.59E+01*	μg/g
^{1}Li.icp.a	Li.icp.a	7.37E+00	μg/g
^{1}Li.icp.adl	Li.icp.a	7.39E+00*	μg/g
Mg.icp.a	Mg.icp.a	4.72E+01*	μg/g
Mg.icp.adl	Mg.icp.a	5.16E+01*	μg/g
Mn.icp.a	Mn.icp.a	8.00E+00*	μg/g
Mn.icp.adl	Mn.icp.a	8.44E+00*	μg/g
Mo.icp.a	Mo.icp.a	6.66E+01	μg/g
Mo.icp.adl	Mo.icp.a	7.72E+01	μg/g
NO_2^-.ic	NO_2^-.ic	1.05E+05	μg/g
NO_3^-.ic	NO_3^-.ic	1.46E+05	μg/g
Na.icp.a	Na.icp.a	1.88E+05	μg/g
Na.icp.adl	Na.icp.a	2.13E+05	μg/g
Nd.icp.a	Nd.icp.a	4.72E+01*	μg/g

Table B3-41. Tank Mean Concentration - Based on Composite Sample Data (Per Weight Basis). (4 sheets)

Supernatant Analyte	Salt Slurry Analyte	$\hat{\mu}_{tank}$	Units
Nd.icp.adl	Nd.icp.a	5.16E+01*	μg/g
Ni.icp.a	Ni.icp.a	1.96E+01*	μg/g
Ni.icp.adl	Ni.icp.a	2.05E+01*	μg/g
^{237}Np.tta	^{237}Np.tta	4.73E-03*	μCi/g
OH^-	OH^-	4.38E+04	μg/g
Oxalate.ic	Oxalate.ic	2.98E+03 **	μg/g
P.icp.a	P.icp.a	9.14E+02	μg/g
P.icp.adl	P.icp.a	9.44E+02	μg/g
PO_4^{3-}.ic	PO_4^{3-}.ic	2.65E+03	μg/g
Pb.icp.a	Pb.icp.a	4.76E+01*	μg/g
Pb.icp.adl	Pb.icp.a	5.21E+01*	μg/g
$^{239/240}$Pu	$^{239/240}$Pu	1.02E-03*	μCi/g
S.icp.a	S.icp.a	1.40E+03	μg/g
S.icp.adl	S.icp.a	1.48E+03	μg/g
SO_4^{2-}.ic	SO_4^{2-}.ic	3.60E+03	μg/g
Sb.icp.a	Sb.icp.a	2.83E+01*	μg/g
Sb.icp.adl	Sb.icp.a	3.10E+01*	μg/g
Se.icp.a	Se.icp.a	4.72E+01*	μg/g
Se.icp.adl	Se.icp.a	5.16E+01*	μg/g
Si.icp.a	Si.icp.a	2.14E+02	μg/g
Si.icp.adl	Si.icp.a	1.83E+02	μg/g
Sm.icp.a	Sm.icp.a	4.72E+01*	μg/g
Sm.icp.adl	Sm.icp.a	5.16E+01*	μg/g
Sr.icp.a	Sr.icp.a	4.72E+00*	μg/g
Sr.icp.adl	Sr.icp.a	5.16E+00*	μg/g
$^{89/90}$Sr	$^{89/90}$Sr	5.00E+00	μCi/g
TIC	TIC	6.61E+03	μg/g
TOC.coul	TOC.pers	5.78E+03	μg/g
TOC.pers	TOC.pers	3.75E+03	μg/g
^{99}Tc	^{99}Tc	2.32E-01	μCi/g

Table B3-41. Tank Mean Concentration - Based on Composite Sample Data (Per Weight Basis). (4 sheets)

Supernatant Analyte	Salt Slurry Analyte	$\hat{\mu}_{tank}$	Units
Ti.icp.a	Ti.icp.a	4.72E+00*	μg/g
Ti.icp.adl	Ti.icp.a	5.16E+00*	μg/g
Tl.icp.a	Tl.icp.a	9.45E+01*	μg/g
Tl.icp.adl	Tl.icp.a	1.03E+02*	μg/g
Total Alpha	Total Alpha	1.64E-02*	μCi/g
Total Beta	Total Beta	4.46E+02	μCi/g
Tritium.l	Tritium.l	8.93E-04*	μCi/g
U.icp.a	U.icp.a	2.36E+02*	μg/g
U.icp.adl	U.icp.a	2.58E+02*	μg/g
U.phos	U.phos	3.89E+01	μg/g
V.icp.a	V.icp.a	2.36E+01*	μg/g
V.icp.adl	V.icp.a	2.59E+01*	μg/g
Zn.icp.a	Zn.icp.a	4.74E+01	μg/g
Zn.icp.adl	Zn.icp.a	1.37E+01	μg/g
Zr.icp.a	Zr.icp.a	6.98E+00*	μg/g
Zr.icp.adl	Zr.icp.a	7.43E+00*	μg/g

Note:

[1]Li and [1]Br are the tracers for hydrostatic head fluid.

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APPENDIX C

STATISTICAL ANALYSIS FOR ISSUE RESOLUTION

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APPENDIX C

STATISTICAL ANALYSIS FOR ISSUE RESOLUTION

In Appendix C, the results of analyses required for the applicable data quality objective (DQO) reports for tank 241-AN-105 are reported. Specifically, statistical and other numerical manipulations required in the DQO reports are documented in this appendix. The analysis required for tank 241-AN-105 are documented in the following sections:

- **Section C1**: Statistical analysis supporting the Safety Screening DQO (Dukelow et al. 1995). Specifically, confidence intervals were needed to support the DSC and plutonium (criticality) threshold limit.

C1.0 STATISTICS FOR SAFETY SCREENING DATA QUALITY OBJECTIVE

The safety screening DQO (Dukelow et al. 1995) defines acceptable decision confidence limits in terms of one-sided 95 percent confidence intervals. In this appendix, one-sided confidence limits supporting the safety screening DQO are calculated for tank 241-AN-105. The data in this section are from the 1996 sampling event for tank 241-AN-105.

Confidence intervals were computed for each sample number from tank 241-AN-105 analytical data (Steen 1997). The upper limit (UL) of a one-sided 95 percent confidence interval for the mean is

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

In this equation, $\hat{\mu}$ is the arithmetic mean of the data, $\hat{\sigma}_{\hat{\mu}}$ is the estimate of the standard deviation of the mean, and $t_{(df,0.05)}$ is the quantile from Student's t distribution with *df* degrees of freedom for a one-sided 95 percent confidence interval. For the tank 241-AN-105 data (per sample number), *df* equals the number of observations minus one.

C1.1 DIFFERENTIAL SCANNING CALORIMETRY

The upper limit of the 95 percent confidence interval was calculated for each subsample which had DSC measurements. The upper limit for each sample number is listed in Table C1-1. Each confidence interval can be used to make the following statement. If the upper limit is less than 480 J/g dry, then one would reject the null hypothesis that DSC is

greater than or equal to 480 J/g dry at the 0.05 level of significance. All of the DSC dry upper limits were less than 480 J/g dry. The hypothesis that the DSC results are greater than 480 J/g dry is rejected for all the subsamples.

C1.2 TOTAL ALPHA

The upper limit of the 95 percent confidence interval was calculated for each subsample which had at least 50 percent of the reported total alpha data as quantitative values. The sample numbers and the upper limit of the 95 percent confidence intervals are listed in Table C1-2. Each confidence interval can be used to make the following statement. If the upper limit is less than 61.5 μCi/mL or 37.0 μCi/g (conversion used the maximum density of 1.66 g/mL observed for the sludge subsamples), then one would reject the null hypothesis that total alpha is greater than or equal to 61.5 μCi/mL (or 37.0 μCi/g) at the 0.05 level of significance. For all the subsamples with at least 50 percent of the reported total alpha data as quantitative values, the upper limits were less than 61.5 μCi/mL or 37.0 μCi/g. For the subsamples where both analytical results were "less than" values, the maximum "less than" value is orders of magnitude smaller than either 61.5 μCi/mL or 37.0 μCi/g. The hypothesis that the Total Alpha results are greater than 61.5 μCi/mL or 37.0 μCi/g is rejected for all subsamples.

Table C1-1. Tank 241-AN-105 Differential Scanning Calorimetry Results (J/g dry). (2 sheets)

Sample Number	Core	Segment	Location	$\hat{\mu}$	$\hat{\sigma}_{\mu}$	UL
S96T003731	152	1	Crust	1.09E+01	2.06E+00	2.39E+01
S96T003732	152	1	DL	0.00E+00	0.00E+00	0.00E+00
S96T003739	152	2	DL	0.00E+00	0.00E+00	0.00E+00
S96T003740	152	3	DL	0.00E+00	0.00E+00	0.00E+00
S96T003741	152	4	DL	0.00E+00	0.00E+00	0.00E+00
S96T003742	152	5	DL	0.00E+00	0.00E+00	0.00E+00
S96T003743	152	6	DL	0.00E+00	0.00E+00	0.00E+00
S96T003744	152	7	DL	0.00E+00	0.00E+00	0.00E+00
S96T003745	152	8	DL	0.00E+00	0.00E+00	0.00E+00
S96T003746	152	9	DL	0.00E+00	0.00E+00	0.00E+00
S96T003747	152	10	DL	0.00E+00	0.00E+00	0.00E+00
S96T003748	152	11	DL	0.00E+00	0.00E+00	0.00E+00
S96T003749 1	152	12	DL	1.08E+02	2.27E+01	2.51E+02
S96T003750	152	13	DL	0.00E+00	0.00E+00	0.00E+00
S96T003751	152	14	DL	0.00E+00	0.00E+00	0.00E+00
S96T004433	153	1	DL	2.84E+01	3.15E+00	4.82E+01
S96T004308	153	2	DL	0.00E+00	0.00E+00	0.00E+00
S96T004434	153	3	DL	3.77E+01	3.15E+00	5.75E+01
S96T004419	153	5	DL	1.20E+02	9.83E+01	3.51E+02
S96T004420	153	6	DL	0.00E+00	0.00E+00	0.00E+00
S96T004421	153	7	DL	3.45E+01	3.45E+01	2.52E+02
S96T003975	153	8	DL	0.00E+00	0.00E+00	0.00E+00
S96T003976	153	9	DL	2.22E+00	2.22E+00	1.62E+01
S96T004309	153	10	DL	3.24E+01	5.85E+00	6.93E+01
S96T003979	153	11	DL	0.00E+00	0.00E+00	0.00E+00
S96T003977	153	12	DL	5.25E+01	5.25E+01	3.84E+02
S96T003978	153	13	DL	0.00E+00	0.00E+00	0.00E+00
S96T004333	153	14	DL	9.21E+01	2.30E+01	2.37E+02
S96T003980	153	21	DL	0.00E+00	0.00E+00	0.00E+00
S96T003817	152	14	LH	2.13E+01	7.60E+00	6.93E+01

Table C1-1. Tank 241-AN-105 Differential Scanning Calorimetry Results (J/g dry). (2 sheets)

Sample Number	Core	Segment	Location	$\hat{\mu}$	$\hat{\sigma}_{\hat{\mu}}$	UL
S96T003816	152	14	UH	4.96E+01	3.95E+00	7.45E+01
S96T003793	152	16	LH	4.87E+01	7.00E-01	5.31E+01
S96T003792	152	16	UH	5.54E+01	1.20E+01	1.31E+02
S96T003795	152	18	LH	5.72E+01	1.80E+00	6.86E+01
S96T003794	152	18	UH	4.50E+01	1.95E+00	5.73E+01
S96T003797	152	20	LH	0.00E+00	0.00E+00	0.00E+00
S96T003796	152	20	UH	7.19E+01	1.10E+00	7.88E+01
S96T003798	152	22	UH	1.10E+02	1.15E+01	1.82E+02
S96T004335	153	14	LH	6.53E+01	7.45E+00	1.12E+02
S96T004311	153	15	LH	9.48E+01	2.33E+01	2.42E+02
S96T004310	153	15	UH	6.16E+01	1.58E+01	1.61E+02
S96T004436	153	17	LH	3.14E+01	3.35E+00	5.25E+01
S96T004435	153	17	UH	1.22E+02	3.89E+01	3.68E+02
S96T004437	153	19	LH	6.16E+01	1.97E+01	1.86E+02
S96T003981	153	21	LH	3.59E+01	2.55E+00	5.20E+01
S96T003982	153	22	LH	1.40E+02	3.40E+01	3.55E+02
S96T003983	153	22	UH	7.79E+01	8.45E+00	1.31E+02
S96T004039	152	1-14	Comp.	0.00E+00	0.00E+00	0.00E+00
S96T004254	152	14-20	Comp.	6.95E+01	1.11E+01	1.39E+02
S96T004259	152	22	Comp.	1.00E+02	5.75E+00	1.37E+02

Notes:

DL = Drainable liquid
LH = Lower half
UH = Upper half
Comp. = Composite

Table C1-2. Tank 241-AN-105 Total Alpha Results. (2 sheets)

Sample Number	Core	Segment	Location	$\hat{\mu}$ or Maximum <	$\hat{\sigma}_{\hat{\mu}}$	UL
Liquid Samples						
S96T003732 *	152	1	DL	2.26E-02	2.50E-04	2.41E-02
S96T003739	152	2	DL	< 2.72E-02	NA	NA
S96T003740 *	152	3	DL	2.99E-02	1.34E-02	1.15E-01
S96T003741	152	4	DL	< 2.47E-02	NA	NA
S96T003742	152	5	DL	< 2.28E-02	NA	NA
S96T003743	152	6	DL	< 4.23E-02	NA	NA
S96T003744 *	152	7	DL	1.96E-02	1.95E-03	3.19E-02
S96T003745	152	8	DL	< 2.74E-02	NA	NA
S96T003746	152	9	DL	< 2.74E-02	NA	NA
S96T003747	152	10	DL	< 3.33E-02	NA	NA
S96T003748	152	11	DL	< 8.27E-02	NA	NA
S96T003749	152	12	DL	< 5.59E-02	NA	NA
S96T003750	152	13	DL	< 4.68E-02	NA	NA
S96T003751	152	14	DL	< 7.97E-02	NA	NA
S96T004433	153	1	DL	< 2.86E-02	NA	NA
S96T004308	153	2	DL	< 1.36E-02	NA	NA
S96T004434	153	3	DL	< 1.87E-02	NA	NA
S96T004419	153	5	DL	< 1.87E-02	NA	NA
S96T004420	153	6	DL	< 1.54E-02	NA	NA
S96T004421	153	7	DL	< 1.42E-02	NA	NA
S96T003975	153	8	DL	< 1.45E-01	NA	NA
S96T003976 *	153	9	DL	3.71E-02	7.70E-03	8.57E-02
S96T004309	153	10	DL	< 7.10E-03	NA	NA
S96T003979	153	11	DL	< 3.29E-02	NA	NA
S96T003977	153	12	DL	< 3.29E-02	NA	NA
S96T003978	153	13	DL	< 2.58E-02	NA	NA
S96T004333 *	153	14	DL	1.06E-02	3.45E-03	3.23E-02
S96T003980	153	21	DL	< 2.22E-02	NA	NA
S96T004039	152	1-14	Comp.	< 1.54E-02	NA	NA

Table C1-2. Tank 241-AN-105 Total Alpha Results. (2 sheets)

Sample Number	Core	Segment	Location	$\hat{\mu}$ or Maximum <	$\hat{\sigma}_{\hat{\mu}}$	UL
Sludge samples (μCi/g)						
S96T003893	152	1	UH	< 2.28E-02	NA	NA
S96T003827	152	14	LH	< 2.67E-02	NA	NA
S96T003889	152	16	LH	< 3.16E-02	NA	NA
S96T003890	152	18	LH	< 1.92E-02	NA	NA
S96T003891	152	20	LH	7.49E-03	2.65E-04	9.16E-03
S96T003892	152	22	UH	1.27E-02	1.30E-03	2.09E-02
S96T004337 *	153	14	LH	3.97E-03	1.25E-04	4.75E-03
S96T004317 *	153	15	LH	4.56E-03	7.90E-04	9.55E-03
S96T004442	153	17	LH	7.04E-03	1.10E-04	7.73E-03
S96T004443	153	19	LH	1.45E-02	3.15E-03	3.43E-02
S96T003984	153	21	LH	7.95E-03	5.30E-04	1.13E-02
S96T003985	153	22	LH	1.25E-01	8.50E-03	1.78E-01
S96T004256	152	14-20	Comp.	1.36E-01	1.60E-03	2.37E-02
S96T004261	152	22	Comp.	5.80E-02	7.95E-03	1.08E-01

Notes:

DL = Drainable liquid
LH = Lower half
UH = Upper half
* = One of the two results was a less than value; it was treated as a real number.
Comp. = Composite

C2.0 APPENDIX C REFERENCES

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

Steen, F. H., 1997, *Final Report for Tank 241-AN-105, Cores 152 and 153*, HNF-SD-WM-DP-199, Rev. 1, Fluor Daniel Hanford, Inc., Richland, Washington.

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APPENDIX D

EVALUATION TO ESTABLISH BEST-BASIS INVENTORY FOR TANK 241-AN-105

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APPENDIX D

EVALUATION TO ESTABLISH BEST-BASIS INVENTORY FOR TANK 241-AN-105

An effort is underway to provide waste inventory estimates that will serve as standard characterization source terms for the various waste management activities (Hodgson and LeClair 1996). As part of this effort, an evaluation of available information for tank 241-AN-105 was performed, and a best-basis inventory was established. This work, detailed in the following sections, follows the methodology that was established by the standard inventory task.

D1.O CHEMICAL INFORMATION SOURCES

Available composition information for the waste in tank 241-AN-105 is as follows:

- Steen (1997) and Appendix B of this report provides characterization results from the June 1996 core sampling event.
- A feed projection document that supported grout treatment facility studies provides estimates of the waste in tank 241-AN-105 based on 242-A Evaporator slurry product data (Hendrickson 1994).
- The HDW model document (Agnew et al. 1997) provides tank content estimates in terms of component concentrations and inventories. A complete list of data sources used in this evaluation is provided at the end of this section.

A complete list of data sources used in this evaluation is provided at the end of this section.

D2.0 COMPARISON OF COMPONENT INVENTORY VALUES

There have been no transfers (with exception of a small amount of flush water) into or out of tank 241-AN-105 since 1985. The HDW model provides composition estimates for the waste in tank 241-AN-105 as of January 1, 1994. Sample-based inventories derived from the June 1996 core samples and inventories generated by the HDW model (Agnew et al. 1997), are compared in Tables D2-1 and D2-2. A tank volume of 4,270 kL (1,129 kgal) was used to

generate the sample-based and HDW inventories. The sample based densities are 1.42 g/mL for the liquid and 1.59 g/mL for the salt slurry. The sample based bulk density is 1.56 g/mL. The HDW model bulk density is 1.88 g/mL. The sample-based inventories were taken from the inventory tables in Section B3.4.3. The liquid comprises 60 percent of the total volume; the salt slurry occupies 40 percent. The inventories that included the less than values (those having a "w" extension) but excluded the outliers ("ed") were used in this assessment.

Table D2-1. Sampling and Hanford Defined Waste Model Inventory Estimates for Nonradioactive Components in Double-Shell Tank 241-AN 105 (2 sheets)

Analyte	June 1996 Inventory based on segment data from both core samples (kg)	June 1996 Inventory based on composite of core 152 (kg)	HDW Model Inventory (kg)	Inventory based on Evaporator post-run data[1] (kg)
Al	168,000	145,000	271,000	201,000
Bi	196	< 232	1,670	NR
Ca	< 1,880	2,860	9,560	NR
Cl^-	40,100	41,500	54,800	36,400
CO_3^{2-}	NR	197,000	234,000	93,000
Cr	4,890	5,200	35,600	2,890
F^-	4,800	2,900	8,720	NR
Fe	< 263	311	3,730	47.1
Hg	NR	NR	11.8	NR
K	26,100	24,700	17,800	26,200
La	< 144	< 131	11.8	NR
Mn	< 71.8	< 47.1	2,200	NR
Na	1.13E+06	1.07E+06	2.02E+06	1.18E+06
Ni	< 141	116.35	2,660	NR
NO_2^-	485,000	523,000	609,000	513,000
NO_3^-	712,000	744,000	1.88E+06	826,000
OH^-	NR	214,000	997,000	264,000

Table D2-1. Sampling and Hanford Defined Waste Model Inventory Estimates for Nonradioactive Components in Double-Shell Tank 241-AN 105 (2 sheets)

Analyte	June 1996 Inventory based on segment data from both core samples (kg)	June 1996 Inventory based on composite of core 152 (kg)	HDW Model Inventory (kg)	Inventory based on Evaporator post-run data[1] (kg)
Pb	266	< 264	1,540	NR
PO_4^{3-}	23,600	16,800	74,700	8,110
Si	920	980	13,600	NR
SO_4^{2-}	24,100	21,700	159,000	28,000
Sr	40	< 24.2	0	NR
TOC	NR	30,000	109,000	14,400
U	NR	242	13,800	NR
Zr	< 46.4	< 40.7	149	NR
% water	46.6	46.6	17.2	NR
density, g/mL	1.56	1.56	1.88	1.50

Notes:

NR = not reported

[1]Hendrickson 1994.

Table D2-2. Sampling and Hanford Defined Waste Model Inventory Estimates for Radioactive Components in Double-Shell Tank 241-AN-105. (Decayed to January 1, 1994)

Analyte	June 1996 inventory based on segment data from both core samples (Ci)	June 1996 inventory based on composite of core 152 (Ci)	HDW model inventory (Ci)	Inventory based on evaporator post-run data[1]
^{60}Co	NR	< 6.46	253	NR
^{90}Sr	NR	33,600	665,000	13,800
^{90}Y	NR	33,600	665,000	NR
^{99}Tc	NR	1,174	1,500	NR
^{129}I	NR	11.0	2.89	NR
^{137}Cs	NR	84,800	1.48E+06	215,000
^{137}mBa	NR	80,500	1.41E+06	NR
^{154}Eu	NR	< 565	4,020	NR
^{155}Eu	NR	< 2,250	1,660	NR
^{237}Np	NR	< 25.8	5.28	NR
$^{239/240}Pu$	NR	6.42	359	44.1
^{241}Am	NR	10.1	429	NR
^{244}Cm	NR	< 4.27	0.92	NR

Note:

[1]Hendrickson 1994.

The HDW model estimates for tank 241-AN-105 were derived by combining the supernatant streams that were believed to have been concentrated in the 242-A evaporator and then sent to tank 241-AN-105. This part of the HDW model is called the supernatant mixing model (SMM). The compositions of the supernatants are derived largely from bulk compositions of process waste streams that left the various processing facilities. To obtain the supernatant fractions, these bulk compositions are multiplied by solubility factors determined from the highest concentrations found among supernatant sample analyses. The higher inventories HDW model inventories for tank 241-AN-105 and other DST supernatants and slurries, when compared to their respective laboratory sample results, appear to be due to overestimation of the solubility of waste constituents in the process waste streams.

The periods in which tank 241-AN-105 received DSSF from the 242-A Evaporator and other waste tanks are accurately known (See Table A3-1, Appendix A). Slurry product concentration data from 242-A Evaporator post run documents can be obtained for each batch of feed processed. This data combined with the fill history of tank 241-AN-105 can be used to estimate the composition of tank 241-AN-105. This can serve as a check against the sample-based and HDW model inventories.

In 1994, an analysis of the DSSF in tanks 241-AN-104 and 241-AN-105 was performed (Hendrickson 1994). The results for tank 241-AN-105 are shown in column 5 of Tables D2-1 and D2-2. This table demonstrates close agreement between 242-A evaporator slurry data and the June 1996 core samples for all major components including Na, OH^-, NO_2^-, and NO_3^-. For K, and SO_4^{2-}, components present in lower concentrations, the June 1996 sample inventories and the inventories calculated from evaporator data are essentially the same. Al, Cl^-, Cr, Fe, PO_4^{3-}, TOC, ^{90}Sr, and $^{239/240}Pu$ inventories determined from the evaporator post-run data are also in closer agreement to the June 1996 data than the HDW model.

D3.0 COMPONENT INVENTORY EVALUATION

The evaluation of the core sample data in Appendix B noted that the relative percent differences (RPD) between the samples and duplicates, and spike recoveries for a number of analytes during individual segment analyses were outside the specified ranges (See Section B2.0). These discrepancies were attributed to the heterogeneity of the waste. Another factor for analytes such as ^{241}Am, Ca, Li, Fe, Zr, Si, Mn, and Ni, whose RPDs were outside the required range is that their segment concentrations were at or near the detection limits. In Table D3-1, inventories for the supernatant and salt slurry portions based on the means of the segment data for both cores and the Core 152 composite are shown. Core 152 was taken from riser 12A near the center of the tank and Core 153 was taken from riser 7B twenty feet southwest of the center.

Table D3-1. Comparison of June 1996 Core Sample-based Inventories.

Analyte	Segment based supernatant inventory (kg)	Segment based salt slurry inventory (kg)	Segment based total inventory (kg)	Core 152 composite supernatant inventory (kg)	Core 152 composite salt slurry inventory (kg)	Core 152 composite total inventory (kg)
Al	107,000	59,600	168,000	91,500	53,300	144,500
Bi	NR	196	196	< 134	< 97.7	< 232
Ca	< 154	1,730	1,880	2,250	606	2,860
Cl	26,200	13,900	40,100	26,100	15,350	41,500
CO_3	NR	NR	NR	28,100	169,000	197,000
Cr	576	4,310	4,890	570	4,620	5,200
F	752	4,050	4,800	< 138	2,760	2,900
Fe	< 77.1	186	263	163	148	311
K	16,800	9,300	26,100	16,700	8,040	24,700
La	< 77.1	< 66.7	< 144	< 77.1	< 54.02	< 131
Mn	< 15.1	56.7	< 71.8	< 15.4	31.7	< 47.1
Na	633,000	493,000	1.13E+06	655,000	418,000	1.07E+06
Ni	< 30.7	110[a]	141	< 30.7	85.6	116
NO_2	313,000	172,000	485,000	334,000	189,000	523,000
NO_3	412,000	300,000	712,000	429,000	315,000	744,000
OH	NR	NR	NR	150,000	64,000	214,000
Pb	138	128	266	< 154	< 110	< 264
PO_4	3,020	20,500	23,600	2,670	14,100	16,800
Si	559	361	920	425	555	980
SO_4	7,190	16,900	24,100	2,480	19,200	21,700
Sr	NR	26.6	40	< 13.4	< 10.1	< 24.2
TOC	NR	NR	NR	15,600	14,400	30,000
U	NR	NR	NR	9.13	233	242
Zr	< 15.6	30.8	46.4	< 15.4	25.3	< 40.7

Note:

[a]Based on acid digest. Ni concentrations from fusion analyses are biased from Ni in the fusion crucible.

For major components (Al, Na, NO_2^-, NO_3^-), the RPDs between the total inventories are less than 15 percent. For analytes with RPDs < 20 percent, an average of the results in columns 4 and 7 are assumed to be appropriate for the best basis inventory. Generally, the mean concentrations from the segment data should be more accurate than the single core composite data because these means are based on concentrations taken from both cores. Reconciliation for analytes with RPDs > 20 percent are provided in the list below.

1. Calcium (Ca)

The RPD for the two total inventories is 41 percent. From Table B2-38, Ca liquid concentrations in all of the segments from both cores are below the detection limit (<42.3 μg/g). The Ca liquid concentration in the Core 152 composite is 618 μg/g. This number may be in error and may be a result of solids being present in the sample and included in the acid digestion. The < 154 kg value from the segment-based inventory is used for the best basis.

The salt slurry inventory for Ca in the segment-based sample is 2.85 times higher than the composite-based inventory. Table B2-31 for the solids acid digest results suggests horizontal heterogeneity between Core 152 and Core 153. An average of the salt slurry inventories in Table D3-1 is used in the best-basis inventory.

2. Fluoride (F)

The RPD for the two total inventories is 49 percent. Concentrations for F from the segment data vary considerably from segment to segment for both cores. An average of the segment-based data and the core 152 composite is used to determine the best-basis inventory.

3. Manganese (Mn)

The RPD for the two total inventories is 42 percent. The calculated inventories are < 71.8 kg and < 47.1 kg. Both cores show wide variation in Mn concentrations in the salt slurry segment concentrations. An average of the segment-based data and the core 152 composite is used to determine the best-basis inventory.

4. Phosphate (PO_4^{3-})

The RPD for PO_4^{3-} for the two total inventories is 34 percent. The segment-based inventories for both the supernatant and the salt slurry are higher than the composite for Core 152. Table B2-59 shows that Core 153 contained higher PO_4 concentrations than Core 152, implying horizontal heterogeneity. An average of the segment-based data and the core 152 composite is used to determine the best-basis inventory.

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

Inventories based on the June 1996 sampling event should serve as the basis for the best estimate inventory to tank 241-AN-105 for the following reasons:

1. The June 1996 sampling event provides the most recent data for the waste.

2. Estimates based on 242-A Evaporator product sample data agrees with the June 1996 data.

3. The HDW model estimate overestimates slurry and supernatant inventories due to solubility assumptions that are biased high.

Best-basis inventory estimates for tank 241-AN-105 are presented in Tables D4-1 and D4-2. Radionuclide values are decayed to January 1, 1994.

Table D4-1. Best-Basis Inventory Estimates for Nonradioactive Components in Tank 241-AN-105 Supernatant as of May 31, 1996. (2 sheets)

Analyte	Supernatant inventory (kg)	Basis (S, M, or E)[1]	Comments
Al	99,200	S	
Bi	< 134	S	
Ca	< 154	S	
Cl	26,100	S	
TIC as CO_3	26,200	S	Core composite data.
Cr	573	S	
F	445	S	RPD > 20 percent
Fe	120	S	Segment-based < 77.1
K	16,700	S	
La	< 77.1	S	
Mn	< 15.2	S	
Na	644,000	S	
Ni	< 30.7	S	
NO_2	323,000	S	
NO_3	420,500	S	
OH	150,000	S	Core composite data.

Table D4-1. Best-Basis Inventory Estimates for Nonradioactive Components in Tank 241-AN-105 Supernatant as of May 31, 1996. (2 sheets)

Analyte	Supernatant inventory (kg)	Basis (S, M, or E)[1]	Comments
Pb	146	S	Composite < 154
PO_4	2,850	S	
Si	492	S	
SO_4	4,840	S	
Sr	< 13.4	S	
TOC	15,600	S	Core composite data.
U_{TOTAL}	9.13	S	Core composite data.
Zr	< 15.5	S	
Percent water	51.9	S	
Density, g/mL	1.42	S	

Notes:
[1]S = Sample-based, M = Hanford defined waste model-based, E = Engineering assessment-based.

Table D4-2. Best-Basis Inventory Estimates for Radioactive Components in Tank 241-AN-105 Supernatant as of May 31, 1996. (Decayed to January 1, 1994) (2 sheets)

Analyte	Supernatant inventory (Ci)	Basis (S, M, or E)[1]
^{60}Co	< 0.050	S
^{90}Sr	112	S
^{90}Y	112	S
^{99}Tc	701	S
^{129}I	0.685	S
^{137}Cs	1,290	S
^{137m}Ba	1,230	S
^{154}Eu	< 250	S
^{155}Eu	< 835	S
^{237}Np	< 0.0566	S
$^{239/240}Pu$	0.0953	S

Table D4-2. Best-Basis Inventory Estimates for Radioactive Components in Tank 241-AN-105 Supernatant as of May 31, 1996. (Decayed to January 1, 1994) (2 sheets)

Analyte	Supernatant inventory (Ci)	Basis (S, M, or E)[1]
^{241}Am	0.100	S
$^{243/244}Cm$	0.110	S

Notes:

[1]S = Sample-based, M = Hanford defined waste model-based, E = Engineering assessment-based

Table D4-3. Best-Basis Inventory Estimates for Nonradioactive Components in Tank 241-AN-105 Salt Slurry as of May 31, 1996.

Analyte	Salt Slurry inventory (kg)	Basis (S, M, or E)[1]	Comment
Al	56,500	S	
Bi	147	S	
Ca	942	S	
Cl	14,620	S	
TIC as CO_3	169,000	S	Core composite data.
Cr	4,470	S	
F	3,400	S	
Fe	167	S	
K	8,670	S	
La	< 504	S	
Mn	44.2	S	
Na	456,000	S	
Ni	97.8	S	
NO_2	181,000	S	
NO_3	308,000	S	
OH	64,000	S	Core composite data.
Pb	119	S	
PO_4	17,300	S	
Si	458	S	
SO_4	18,000	S	
Sr	< 18.7	S	Core composite data.
TOC	14,300	S	Core composite data.
U_{TOTAL}	233	S	Core composite data.
Percent water	44.7	S	
Density, g/mL	1.59	S	
Zr	20.0	S	

Notes:

[1]S = Sample-based, M = Hanford defined waste model-based, E = Engineering assessment-based.

Table D4-4. Best-Basis Inventory Estimates for Radioactive Components in Tank 241-AN-105 Salt Slurry as of May 31, 1996. (Decayed to January 1, 1994)

Analyte	Salt slurry inventory (Ci)	Basis (S, M, or E)[1]
^{60}Co	6.41	S
^{90}Sr	33,500	S
^{90}Y	33,500	S
^{99}Tc	473	S
^{129}I	10.3	S
^{137}Cs	83,500	S
^{137m}Ba	79,300	S
^{154}Eu	< 315	S
^{155}Eu	< 1,420	S
^{237}Np	< 25.7	S
$^{239/240}Pu$	6.33	S
^{241}Am	9.97	S
$^{243/244}Cm$	< 4.16	S

Notes:
[1]S = Sample-based, M = Hanford defined waste model-based, E = Engineering assessment-based.

Table D4-5. Best-Basis Total Inventory Estimates for Nonradioactive Components in Tank 241-AN-105 as of May 31, 1996. (2 sheets)

Analyte	Total inventory (kg)	Basis (S, M, or E)[1]
Al	156,000	S
Bi	214	S
Ca	2,140	S
Cl	40,800	S
TIC as CO_3	197,000	S
Cr	5,040	S
F	3,850	S
Fe	287	S

Table D4-5. Best-Basis Total Inventory Estimates for Nonradioactive Components in Tank 241-AN-105 as of May 31, 1996. (2 sheets)

Analyte	Total inventory (kg)	Basis (S, M, or E)[1]
K	25,400	S
La	< 581	S
Mn	< 59.4	S
Na	1.10E+06	S
Ni	< 129	S
NO_2	504,000	S
NO_3	728,000	S
OH	214,000	S
Pb	265	S
PO_4	20,200	S
Si	950	S
SO_4	22,900	S
Sr	< 32.1	S
TOC	29,900	S
U_{TOTAL}	242	S
Zr	< 43.5	S
Percent water	46.6	S
Density, g/mL	1.56	S

Notes:

[1]S = Sample-based, M = Hanford Defined Waste model-based, E = Engineering assessment-based.

Table D4-6. Best-Basis Total Inventory Estimates for Radioactive Components in Tank 241-AN-105 as of May 31, 1996. (Decayed to January 1, 1994)

Analyte	Total inventory (Ci)	Basis (S, M, or E)[1]
^{60}Co	< 6.46	S
^{90}Sr	33,600	S
^{90}Y	33,600	S
^{99}Tc	1,170	S
^{129}I	11.0	S
^{137}Cs	84,800	S
^{137m}Ba	80,600	S
^{154}Eu	< 565	S
^{155}Eu	< 2,260	S
^{237}Np	25.8	S
$^{239/240}Pu$	6.43	S
^{241}Am	10.1	S
$^{243/244}Cm$	< 4.27	S

Notes:

[1]S = Sample-based, M = Hanford defined waste model-based, E = Engineering assessment-based.

D5.0 APPENDIX D REFERENCES

Agnew, S. F., 1997, *Hanford Tank Chemical and Radionuclide Inventories: HDW Model Rev. 4*, Los Alamos National Laboratory, Los Alamos, New Mexico.

Hendrickson, D. W., 1994, *Grout Treatment Facility Waste Feed Projections*, WHC-SD-SM-TI-528, Westinghouse Hanford Company, Richland, Washington.

Hodgson, K. M., and M. D. LeClair, 1996, *Work Plan for Defining a Standard Inventory Estimate for Wastes Stored in Hanford Site Underground Tanks*, WHC-SD-WM-WP-311, Rev. 1, Lockheed Martin Hanford Corporation, Richland, Washington.

Steen, F. H., 1997, *Final Report for Tank 241-AN-105, Cores 152 and 153*, HNF-SD-WM-DP-199, Rev. 1, Fluor Daniel Hanford, Inc., Richland, Washington.

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APPENDIX E

BIBLIOGRAPHY FOR TANK 241-AN-105

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APPENDIX E

BIBLIOGRAPHY FOR TANK 241-AN-105

Appendix E provides a bibliography of information that supports the characterization of tank 241-AN-105. This bibliography represents an in-depth literature search of all known information sources that provide sampling, analysis, surveillance, and modeling information, as well as processing occurrences associated with tank 241-AN-105 and its respective waste types.

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

I. NON-ANALYTICAL DATA

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

II. ANALYTICAL DATA - SAMPLING OF TANK WASTE AND WASTE TYPES

- IIa. Sampling of tank 241-AN-105
- IIb. Sampling of 242-A Evaporator Streams

III. COMBINED ANALYTICAL/NON-ANALYTICAL DATA

- IIIa. Inventories using both Campaign and Analytical Information (Best Estimate)
- IIIb. Compendium of Existing Physical and Chemical Documented Data Sources

This bibliography is broken down into the appropriate sections of material to use, with an annotation at the end of each reference describing the information source. Where possible, a reference is provided for information sources. A majority of the information listed below may be found in the Westinghouse Hanford Company Tank Characterization Resource Center.

I. NON-ANALYTICAL DATA

Ia. Models/Waste Type Inventories/Campaign Information

Agnew, S. F., J. Boyer, R. A. Corbin, T. B. Duran, J. R. Fitzpatrick, K. A. Jurgensen, T. P. Ortiz, and B. L. Young, 1997, *Hanford Tank Chemical and Radionuclide Inventories: HDW Model Rev. 4*, LA-UR-96-3680, Rev. 0, Los Alamos National Laboratory, Los Alamos, New Mexico.

- Document contains tank layer and supernatant models and the Historical Tank Content Estimate for Hanford Site underground waste storage tanks, as well as a list of Hanford Site waste types.

Ib. Fill History/Waste Transfer Records

Agnew, S. F., R. A. Corbin, T. B. Duran, K. A. Jurgensen, T. P. Ortiz, and B. L. Young, 1994, *Waste Status and Transaction Record Summary, WSTRS Rev. 4*, LA-UR-97-311, Rev. 0, Los Alamos National Laboratory, Los Alamos, New Mexico.

- Document contains spreadsheets depicting all available data on tank additions/transfers.

Koreski, G. M., and J. N. Strode, 1994, *Operational Waste Volume Projections*, WHC-SD-WM-ER-029, Rev. 20, Westinghouse Hanford Company, Richland, Washington.

- Document contains account of waste transfers for double-shell tanks, including waste type and volume, source, and destination.

Ic. Surveillance/Tank Configuration

Lipnizki, J., 1996, *Waste Tank Risers Available for Sampling*, WHC-SD-WM-TI-710, Rev. 3, Westinghouse Hanford Company, Richland, Washington.

- Document describing riser information.

Salazar, B. E. 1994, *Double-Shell Underground Waste Storage Tank Riser Survey*, WHC-SD-RE-TI-093, Rev. 4, Westinghouse Hanford Company, Richland, Washington.

- Document describing double-shell underground waste tank riser survey.

Tran, T. T., 1993, *Thermocouple Status Single Shell and Double Shell Waste Tanks,* WHC-SD-WM-TI-553, Rev. 0, Westinghouse Hanford Company, Richland, Washington.

- Document contains information pertaining to thermocouple trees installed in the Hanford Site underground waste tanks, such as installation date, material condition, riser number, height of individual thermocouples above the bottom of the tank, high temperature reading, frequency of surveillance, and type of thermocouple.

Id. Sample Planning/Tank Prioritization

Baldwin, J. H., 1997, *Push Mode Core Sampling and Analysis Plan for Tank 241-AN-105 in Support of the Privatization Request Tank for Proposal,* WHC-SD-WM-TSAP-111, Rev. 0A, Westinghouse Hanford Company, Richland, Washington.

- Document contains detailed sampling and analysis procedure information for tank 241-AN-105 based on TWRS Privatization's request for proposal.

Bell, K. E., 1993, *Tank Waste Remediation System Tank Waste Characterization Plan,* WHC-SD-WM-PLN-047, Rev. 1, Westinghouse Hanford Company, Richland, Washington.

- Document coordinates the activities of the tank farms and the laboratories by establishing standard sample procurement and analysis procedures, standard quality control procedures and criteria, and prioritizing tank samples.

Brown, T. M., S. J. Eberlein, J. W. Hunt and T. J. Kunthara, 1996, *Tank Waste Characterization Basis,* WHC-SD-WM-TA-164, Rev. 2, Westinghouse Hanford Company, Richland, Washington.

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Eggers, R. F., 1996, *Tank 241-AN-105 Push Mode Core Sampling and Analysis Plan,* WHC-SD-WM-TSAP-027, Rev. 1, Westinghouse Hanford Company, Richland, Washington.

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Grimes, G. W., 1977, *Hanford Long-Term Defense High-Level Waste Management Program Waste Sampling and Characterization Plan*, RHO-CD-137, Rockwell Hanford Operations, Richland, Washington.

- Early characterization planning document.

Phillips, J. R., R. Shekarriz, J. M. Bates, 1996, *Sampling Plan for Tank 241-AN-105 Retained Gas Samples Deployment*, PNNLMIT:030796, Pacific Northwest National Laboratory, Richland, Washington.

- Letter report (and May 30, 1996 Addendum) provide RGS requirements input for the 241-AN-105 TSAP.

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- Document contains Tri-Party Agreement (see Ecology et al. 1994 listing in Section 5.0) requirement-driven TWRS Characterization Program information and a list of tanks addressed in fiscal year 1997.

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Ie. Data Quality Objectives (DQO) and Customers of Characterization Data

Carothers, K. G., 1994, *Data Quality Objectives for the Waste Compatibility Program,* WHC-SD-WM-DQO-001, Rev. 0, Westinghouse Hanford Company, Richland, Washington.

- Document provides requirements for safe and efficient combination of waste from different tanks and tank systems..

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

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II. ANALYTICAL DATA - SAMPLING OF TANK WASTE AND WASTE TYPES

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- Letter reports the results of the slurry growth study of actual waste.

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- Memo reports the results of the slurry growth study of actual waste.

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- Memo to provide information in support of DSS flowsheet and for determination of scale-up effects on slurry growth.

King, A. G., 1996, *TWRS Privatization Private Contractor Samples for Low Activity Waste Envelope B Tank 241-AN-105 Preliminary Analytical Report*, (letter 9655753 to C. G. Mattsson, November 20), Rust Federal Services of Hanford, Inc., Richland, Washington.

- Letter provides analyses of TWRS privatization contract samples, low-activity waste feed envelope B. Tank.

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IIb. Sampling of 242-A Evaporator Streams

Cash, R. J. and J. W. Lentch, 1996, *Flammable Gas Safety Program report on May 30, 1996 Gas Release Event in Tank AN-105, 1996*, (letter 9652960 to J. K. McClusky, July 3), Westinghouse Hanford Company, Richland, Washington.

- Letter written to report assessment and actions in response to gas release event of May 30, 1996.

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- Letter reports the analytical data to support Evaporator Campaign, Run 84-5.

Johnson, G. D. and M. A. Payne, 1994, *Tank AN-105 Gas Release Event of May 1994*, (letter 9455249 to distribution, July 29), Westinghouse Hanford Company, Richland, Washington.

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Von Bergen, B. H., 1987, 242-A Evaporator Run Schedule for Room 88-1 (Internal memorandum 13331-87-975 to G. L. Dunford, December 18), Westinghouse Hanford Company, Richland, Washington.

- Memorandum contains 1988 evaporator run planning information.

III. COMBINED ANALYTICAL/NON-ANALYTICAL DATA

IIIa. Inventories from Campaign and Analytical Information

Agnew, S. F., J. Boyer, R. A. Corbin, T. B. Duran, J. R. Fitzpatrick, K. A. Jurgensen, T. P. Ortiz, and B. L. Young, 1997, *Hanford Tank Chemical and Radionuclide Inventories: HDW Rev. 4*, LA-UR-96-3680, Rev. 0, Los Alamos National Laboratory, Los Alamos, New Mexico.

- Document contains waste type summaries as well as primary chemical compound/analyte and Radionuclide estimates for sludge, supernatant, and solids.

IIIb. Compendium of data from other sources physical and chemical

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- Document gives solubility ranges used for key chemical and radionuclide components based on supernatant sample analyses.

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- Report containing radionuclide chemical inventories for double-shell tanks.

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