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2009 Auto-TCR for Tank 241-SY-101

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Abstract: The purpose of this report is to publish the AUTO-Tank Characterization Report (AutoTCR) that was automatically generated by the TWINS database. The archiving and retrieval of tank information will be performed using a tank-by-tank full document issuance system in the future. This is necessary because the software that generates the AutoTCR is no longer compatible with modern hardware operating system(s), and/or interfacing software packages. The purpose of issuing the AutoTCR document is to provide a snapshot of the inventories and to preserve a historical record of tank data. The text description for the TCR has not been updated since 2005, with the exception of the Best Basis Inventory. The text contains tank historical data, procedures used in sample analysis, waste transfer history, and physical and chemical data. The information here was that available in the AutoTCR as of August 2009.

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2009 Auto-TCR for Tank 241-SY-101

Some of the reports herein may contain data that has not been reviewed or edited. The data will have been reviewed or edited as of the date that a Tank Interpretive Report (TIR) is prepared and approved. The TIR for this tank was approved on June 7, 2000.

Tank: 241-SY-101
Sampling Events:

- 1SY-00-1
- 1SY-00-10
- 1SY-00-2
- 1SY-00-3
- 1SY-00-4
- 1SY-00-5
- 1SY-00-6
- 1SY-00-7
- 1SY-00-8
- 1SY-00-9
- 1SY-02-01
- 1SY-02-01TB
- 1SY-02-02A
- 1SY-02-02B
- 1SY-02-03A
- 1SY-02-03B
- 1SY-02-04A
- 1SY-02-04B
- 1SY-02-FB1
- 1SY-02-FB2
- 1SY-03-01
- 1SY-03-02
- 1SY-03-02DUP
- 1SY-03-03
- 1SY-03-04
- 1SY-03-05
- 1SY-03-06
- 1SY-03-06DUP
- 1SY-03-07
- 1SY-06-01
- 1SY-06-01FB
- 1SY-06-02
- 1SY-06-02DUP
- 1SY-06-03
- 1SY-06-04
- 22
- 23
- 255
- 256
- 257

- 28
- 327
- 90-FIC-R8421
- 90-MT-R8423
- 90-SW-R8422
- 91-AUG-R9217
- 91-AUG-R9221
- 91-AUG-R9255
- 91-AUG-R9257
- 91-SW-R9218
- 91-SW-R9226
- 91-SW-R9256
- 91-SW-R9258
- SYNTH

Reports:

- Analytical Methods and Procedures
- Best Basis Inventory Without Details
- Best Basis Inventory Without Details Supplementals
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- Riser Configuration for Tank
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- Standard Acronym Definitions
- Tank Interpretive Report
- Tank Subsampling Scheme and Sample Description
- Tank Surface Level
- Tank Temperature Profile

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- Inorganics
- Metals/Nonmetals
- Organics
- PCBs
- Physical Properties
- Radionuclides

Table of Contents

Data Dictionary to Reports in this Document

Report	Field	Description
Tank Interpretive Report		Interprets information about the tank answering a series of standard questions covering areas such as information drivers, tank history, tank comparisons, disposal implications, data quality and quantity, and unique aspects of the tank.
Description of Tank		Provides an executive summary of information about the tank including tank description, tank status, sampling dates, and service status.
	Tank Description	Section provides basic physical information for the tank.
	Type	Single or Double Shell Tank
	Constructed	Year(s) the tank was constructed
	In-Service	Month/Year the tank was put into service
	Diameter	Distance across the tank (in meters and feet)
	Operating Depth	Depth of allowable operation (referenced to the tank bottom) (in centimeters and feet)
	Design Capacity	Tank waste volume if filled to its operating capacity (in kiloliters and kilogallons)
	Bottom Shape	Shape of the tank bottom (flat or dish)
	Ventilation	Type of ventilation system on the tank (active or passive)
	Tank Status (as of date)	Section provides current status information for the tank. Date reported is the effective date of the most recent BBI effective date
	Volumes: Total Waste Volume Supernatant Volume Retained Gas Volume Ret Gas Sludge Volume Ret Gas Saltcake Volume Saltcake Liquid Volume Saltcake Solid Volume Sludge Volume	Tank vols from the most recent Best Basis Inventory (BBI) update. All BBI waste phases are listed, but the vol is left as NA if the BBI does not have an estimate for that phase. For example, tank AN-103 does not contain sludge, so the Sludge vol is reported as NA. In most DSTs, the saltcake liquid and saltcake solids are combined into a single total saltcake phase. These are reported under the saltcake solids category and the liquid vol is left blank, though liquid does exist in the tank. Retained gas vols are only reported if retained gas measurements were taken. It may be reported as associated with a particular phase (saltcake or sludge), or simply as the retained gas vol. All vols are listed in kL and kgal.

Data Dictionary to Reports in this Document

Report	Field	Description
	Surface Level (date)	Surface level provided in PCSACS that corresponds to the BBI volume effective date (effective date shown). Provided in centimeters and inches.
	PCSACS Surface Level (date)	Most recent surface level provided in the PCSACS database (effective date shown). Provided in centimeters and inches.
	Temperature (date range)	Minimum and maximum temperature of tank over the one year range preceding BBI volume effective date (range shown). Data is from the PCSACS database. Data is provided in degrees Celsius and Fahrenheit.
	Temperature (date)	Minimum and maximum temperature of tank (all thermocouples) of the most recent readings (date specified). Data is from PCSACS database. Data is provided in degrees Celsius and Fahrenheit.
	Integrity	Sound, assumed leaker, or known leaker. Based on Waste Tank Summary Report (HNF-EP-0182, latest Rev)
	Flammable Gas Facility Group	Waste group category as defined in RPP-10006. May be category A, B, or C.
	Sampling Dates: Core Samples Grab Samples Vapor Samples Auger Samples	The dates when sampling was performed on this tank as provided in the TWINS Tank Characterization Database, and Tank Vapor Database. If none are listed, no sampling has occurred in the tank since approximately 1992.
	Service Status	Section provides dates of common points of interest in the tank's history. Date is left blank or NA if the subject is not applicable.
	Declared Inactive	Date the tank was declared inactive.
	Interim Stabilization	Date interim stabilization was completed.
	Intrusion Prevention	Date intrusion prevention was completed.
Riser Configuration for Tank		Shows riser numbers, diameters, and a description of the risers.
Best Basis Inventory Without Details		Contains best basis inventory without details for the contents of the Hanford waste tanks.
	Analyte	The name of the constituent used for reporting purposes.

Data Dictionary to Reports in this Document

Report	Field	Description
	Waste Phase	Waste Phase is the phase of waste to which the concentration data is applicable (e.g., supernatant, saltcake, sludge, liquid, solid, etc.).
	Waste Type	Waste Type is the waste type as defined in HDW Rev. 4 or as defined by "templates" (e.g., SMMA1, SMMT1, etc.).
	Volume	Volume of the waste phase
	Concentration	Concentration reported in uCi/g, ug/g, uCi/mL, or ug/mL
	Inventory	Best Basis Inventory estimate, reported in kg or Ci
	Basis	The basis for the inventory value.
	Comment	Further information to clarify the information in the table.
Best Basis Inventory Without Details Supplementals		Contains best basis inventory without details for the contents of the Hanford waste tanks for the supplemental analytes not part of the BBI.
	Analyte	The name of the constituent used for reporting purposes.
	Waste Phase	Waste Phase is the phase of waste to which the concentration data is applicable (e.g., supernatant, saltcake, sludge, liquid, solid, etc.).
	Waste Type	Waste Type is the waste type as defined in HDW Rev. 4 or as defined by "templates" (e.g., SMMA1, SMMT1, etc.).
	Volume	Volume of the waste phase
	Concentration	Concentration reported in uCi/g, ug/g, uCi/mL, or ug/mL
	Inventory	Best Basis Inventory estimate, reported in kg or Ci
	Basis	The basis for the inventory value.
	Comment	Further information to clarify the information in the table.
Analytical Methods and Procedures		Lists procedure numbers and applicable analyses. Optionally displays appropriate analytes for each analyses.
	Analyte	The name of the constituent used for reporting purposes.

Data Dictionary to Reports in this Document

Report	Field	Description
	Method	Name assigned to the general group of laboratory analytical methods to which the current method belongs.
	Procedure	Laboratory procedure identifier.
Tank Subsampling Scheme and Sample Description		Contains information on samples taken in a sampling event including sample identification, sample weight, percent of sample recovery and sample physical appearance.
	Sample Location	Riser and surface level
	Sample Event	Identification number of a sampling event collected from a waste site. For cores, a core number, for supernate samples, a supernate sample number, and for surface samples, a surface sample number is provided.
	Amount	Mass of the sample in grams and/or volume of the sample in milliliters
	Aggregation Level	Description of the portion of the original tank sample represented by the current sample.
	Sample Characteristics	Description of the physical appearance of the sample.
Sample Breakdown Diagrams		Sample Breakdown Diagrams show the pedigree for each of the sample vials drawn from a tank waste material source, such as core sample, auger sample, or grab sample.
Rheology Report		Contains narrative, tables, and graphical displays of rheological data for this tank.
Analytical Results: Rheology		Contains results (primary/ duplicate/ triplicate/ average) of laboratory measurement of rheological properties of waste site samples. Grouped by analyte and procedure.
	Sample Number	Internal lab identifier assigned by the lab that analyzed the sample.
	Sample Location	Location from which sample was taken. Could be core and segment or riser identification depending on the sampling type.
	Sample Portion	Description of the portion of the original tank sample represented by the current sample.
	Result	Primary result of the analysis of the sample.
	Duplicate	Duplicate result of the analysis of the sample.
	Triplicate	Triplicate result of the analysis of the sample.

Data Dictionary to Reports in this Document

Report	Field	Description
	Average	Average of the primary, duplicate, and triplicate results.
Sample Attributes		Contains list of sample attributes for altered samples included in the report.
	Sample Number	Internal lab identifier assigned by the lab that analyzed the sample.
	Attribute Name	Name of the sample attribute.
	Attribute	Value and units or textual description of the sample attribute.
Rheology Measurements		Contains graphical displays of rheology data for this tank.
	Sample Number	Internal lab identifier assigned by the lab that analyzed the sample.
	Sample Location	Location from which sample was taken. Could be core and segment or riser identification depending on the sampling type.
	Sample Portion	Description of the portion of the original tank sample represented by the current sample.
	Result Type	Association of displayed data with a result (primary), duplicate, or triplicate measurement.
	Project Type	Internal identifier assigned in order to specify that the reported measurement was made on an unaltered tank sample (Unaltered), an altered tank sample (Altered), or a baseline sample in a project requiring sample alteration (Semi-Altered).
Means and Confidence Intervals		Contains statistical analysis data for tank content including means and variances.
	Analyte	The name of the constituent used for reporting purposes.
	Method	Name assigned to the general group of laboratory analytical methods to which the current method belongs.
	Mean	Average of the primary, duplicate, and triplicate results.
	df	Degrees of freedom
	LL	Lower 95% limit
	UL	Upper 95% limit
	Units	Measurement units

Data Dictionary to Reports in this Document

Report	Field	Description
Major Transfers		Waste Transfers summarizes the waste transfer history of the tank after January 1, 1994.
	Transfer Source	The description of the source of the waste that was transferred.
	Transfer Destination	The description of the destination of the waste that wast transferred.
	Waste Type	The description of the type of waste that was transferred.
	Time Period	The time over which the waste transfer occurred.
	Estimated Waste Volume (kL)	The estimated volume of waste transferred in kL.
	Estimated Waste Volume (kgal)	The estimated volume of waste transferred in kgal.
HTCE Surface Level		Surface level information as reported in the 1996 Historical Tank Contents Estimate (HTCE) report.
Tank Surface Level		Contains history of current tank waste surface level plot by year and month.
Tank Temperature Profile		Contains history of and current tank maximum temperature by year and month. Please note that tank temperature is not necessarily the same as waste temperature.
Core Profiles		Core Profiles are graphical depictions of physical properties of each segment of a core of tank waste.
Data Source Reference Index		Lists the documents found in the Data Source Access (DSA) database which are appropriate for this tank. Provides hyperlinks to both the DSA metadata and to the electronic documents themselves.
Data Source Reference List		Lists the documents found in the Data Source Access (DSA) database which are appropriate for this tank. Provides hyperlinks to both the DSA metadata and to the electronic documents themselves.

Data Dictionary to Reports in this Document

Report	Field	Description
Dilution and Mixing Studies		Lists the Dilution and Mixing Studies documents found in the Data Source Access (DSA) database which are appropriate for this tank. Provides hyperlinks to both the DSA metadata and to the electronic documents themselves.
Dilution and Mixing Studies Index		Lists the Dilution and Mixing Studies documents found in the Data Source Access (DSA) database which are appropriate for this tank. Provides hyperlinks to both the DSA metadata and to the electronic documents themselves.
Standard Acronym Definitions		Contains acronyms and abbreviations with definitions
	Acronym	Acronym or abbreviation
	Definition	Definition of an acronym or abbreviation

Tank Interpretive Report For 241-SY-101

Tank Information Drivers

Question 1: What are the information drivers applicable to this tank? What type of information does each driver require from this tank? (Examples of drivers are Data Quality Objectives, Mid-Level Disposal Logic, RPP Operation and Utilization Plan, test plans and Letters of Instruction.) To what extent have the information and data required in the driving document been satisfied to date by the analytical and interpretive work done on this tank?

The information drivers for tank 241-SY-101 are the Flammable Gas Data Quality Objective (DQO), Tank Safety Screening DQO, Organic Solvent Safety Issue DQO, Low-Activity Waste (LAW) Feed DQO, Confirm Tank T is an Appropriate Feed Source for LAW Feed (Waste Feed Delivery) DQO, Interface Control Document-23 (ICD-23) issue, SY-101 Level Rise issue, Air Emissions DQO, and Dangerous Waste DQO. As of the date this report was prepared, March 27, 2000, the sampling events associated with this tank did not address the issues of the Air Emissions or Dangerous Waste DQOs. The issues of these two DQOs are currently being evaluated and will be applied as specified in the interface control documents with the Office of River Protection. The remaining issues are discussed below. In addition, because the Compatibility DQO was used to assess the 1998/1999 data for compatibility purposes in preparation for the December 1999 – March 2000 transfers, this DQO is also addressed.

Flammable Gas DQO: Does a possibility exist for releasing flammable gases into the headspace of the tank or releasing chemical or radioactive materials into the environment?

The requirements to support the flammable gas issue are documented in the *Data Quality Objective to Support Resolution of the Flammable Gas Safety Issue* (Bauer and Jackson 1998). The Flammable Gas DQO has been extended to apply to all tanks. Analyses and evaluations will change according to program needs until this issue is resolved. Final resolution of the Flammable Gas issue is expected to be completed by September 30, 2001 (Johnson 1997).

Retained gas samples (RGSs) from the 1998/1999 core sampling event (core 255: segments 1, 2, 3, 4, 8, 13, and 21; core 256: segments 3, 4, 10, 17, and 23; core 257: segment 5) were analyzed to address flammable gas issues. The results of RGS testing are reported in Mahoney et al. (1999), and a summary is provided below in Table 1-1.

Table 1-1. Summary of RGS Results.[1,2]

Parameter	Units	Core 255[3]	Core 256[4]
CRUST			
Average gas fraction	---	0.40 ± 0.20	0.52 ± 0.26
Gas volume in situ (wet)	m^3	245 ± 122	424 ± 212
N_2	mol%	27 ± 4.5	27 ± 4.5
H_2	mol%	34 ± 4.4	32 ± 3.9
N_2O	mol%	19 ± 2.5	19 ± 2.4
NH_3	mol%	19 ± 4.7	21 ± 5.1
CH_4	mol%	0.6 ± 0.08	0.6 ± 0.1
Other	mol%	0.6 ± 0.2	0.4 ± 0.1
MIXED SLURRY[5]			
Average gas fraction	---	0.029 ± 0.014	0.031 ± 0.015
Gas volume in situ (wet)	m^3	108 ± 54	116 ± 58
N_2	mol%	40 ± 14	32 ± 11
H_2	mol%	26 ± 8.1	31 ± 8.5
N_2O	mol%	24 ± 7.4	26 ± 7.5
NH_3	mol%	7.1 ± 2.2	7.8 ± 2.3
CH_4	mol%	1.3 ± 0.5	1.3 ± 0.4
Other	mol%	1.4 ± 0.7	1.2 ± 0.6

Notes:

[1]Mahoney et al. (1999)
[2]The values in Table 1-1 correspond to the lower-bound solubility basis.
[3]The core 255 average gas fractions were used for best-basis purposes in Question 7.
[4]Data from the lone RGS segment from core 257 were included with the core 256 results.
[5]Includes RGS samples from the convective and settled solids layers.

Tank 241-SY-101 has been fitted with a standard hydrogen monitoring system (SHMS), a gas monitoring system-1 (GMS-1), and a gas monitoring system-2 (GMS-2) to continuously monitor the tank and collect vapor-phase data to support resolution of flammable gas issues (McCain 1999). Further detail regarding these instruments is provided in McCain (1999). A summary of the vapor-phase data is provided below.

Prior to installation of the mixer pump in July 1993, tank 241-SY-101 experienced large episodic gas release events (GREs). A GRE is an abrupt increase in the flammable gas concentration within the dome space of a tank, followed by a dissipation of that concentration proportional to the tank vent flow rate. Between 1990 and 1993, 11 GREs were recorded, 9 of which had hydrogen concentrations above 25 percent of the lower flammability limit (LFL) for hydrogen. Since operation of the mixer pump, the GREs have ceased, and levels of hydrogen detected in the tank headspace have stayed well below 25 percent of the LFL (which is conservatively set at 7,500 ppm for tank 241-SY-101 by LANL [2000]).

Reports covering tank 241-SY-101 waste levels, temperatures, gas releases, and mixer pump performance are generated quarterly. For the October to December 1999 quarter, hydrogen gas concentrations in the dome peaked at 590 ppm following the December 26 mixer pump run (Conner and Koreski 2000). Inspection of the weekly volume plots in Conner and Koreski (2000) reveals that the ammonia and nitrous oxide concentrations gradually decreased from 1993 until the recent transfer and back dilution activities, which caused the concentrations of these gases to trend upwards. Over the entire 3-month (12/18/99-3/15/00) transfer/back dilution campaign, the highest hydrogen, ammonia, and nitrous oxide concentrations measured were approximately 3,100 ppm, 750 ppm, and 1,450 ppm, respectively.

Following the final back dilution on March 15, 2000, most of the crust had been put back into solution, effectively removing the primary barrier to gas release. The largest measured hydrogen concentration following crust dissolution occurred immediately after the last back dilution, and measured approximately 762 ppm. The peak hydrogen concentrations during mixer pump runs after the final back dilution were below 762 ppm, and showed a steady decline. Since cessation of the mixer pump runs in early April, the hydrogen concentration has ranged between 0 and 30 ppm, the ammonia concentration has hovered around 150 ppm, and the nitrous oxide concentration has remained below 25 ppm.

Chemical, radiochemical, and physical analyses were performed on the tank waste as required by Bauer and Jackson (1998) in order to evaluate the long-term steady state and GRE conditions. The list of required analyses is available in *Tank 241-SY-101 Push Mode Core Sampling and Analysis Plan* (Conner 1999a). All required analyses were performed. No decision limits for comparison were established by Bauer and Jackson (1998).

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

Tank Safety Screening Data Quality Objective (Dukelow et al. 1995) identifies the data needed to screen the waste in tank 241-SY-101 for potential safety problems. 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. The safety screening DQO was applied to cores 255, 256, and 257. Data considered suspect in Conner (2000c) were not used in the safety screening assessment.

The safety screening DQO has established a decision threshold of a change in enthalpy of 480 J/g (dry weight basis) for exothermic reactions detected during the differential scanning calorimetry (DSC) analysis. Two samples exhibited exothermic reactions greater than the decision limit. The maximum value was 582 J/g (dry weight) for the primary result on sample S99T000003 (Steen 1999). As required by the DQO, the upper limits to one-sided 95 percent confidence intervals were calculated on the sample means and compared to the 480-J/g threshold. Six more samples, in addition to the two already mentioned, had 95 percent confidence interval upper limits above the DQO threshold. The highest of these was 1,110 J/g (dry weight) for segment 6 of core 255 (S98T003283). These high results were expected based on the knowledge of the presence of a high concentration of total organic carbon (TOC) in this tank (the tank is listed by Hanlon [2000] as a concentrated complexant tank).

The safety screening DQO requires TOC analyses on samples that exceed the DSC threshold. Total organic carbon analyses were run on five out of the eight samples; none of the TOC results for these samples exceeded the 45,000-⊠g C/g notification limit. The highest sample mean on a dry weight basis was 19,700 ⊠g C/g for segment 10 of core 255 (S98T003285). The highest upper limit on a 95 percent confidence interval on the mean for the TOC analysis was 23,300 ⊠g C/g (dry weight basis) for segment 6 of core 255 (S98T003283). Because the moisture content in the segments that contained the high DSC results were higher than the criterion of 17 weight percent (between 33 and 43 weight percent water), an exothermic reaction is not expected.

The three samples with DSC results above the threshold that were not analyzed for TOC do not appear to be of concern. Two of the samples were composites, and the secondary TOC analyses were not run as they are not required for composites (Conner 1999a). Regardless, the composites had moisture contents of 41.7 and 42.7 weight percent water, well above the 17 weight percent criterion. The other sample was from segment 4 of core 257. The dry weight results were 283 J/g and 172 J/g for the primary and duplicate samples, respectively, which yielded a mean of 227 J/g. However, because of the large difference in the sample results, the upper limit to the 95-percent confidence interval on the mean (578 J/g) was above the 480-J/g limit. The variability in the sample results was attributed to sample inhomogeneity (Steen 1999). The weight percent water in this sample was approximately 36 percent. Because of the adequate moisture content and the fact that the high upper limit to a 95 percent confidence interval on the DSC mean was a function of sample inhomogeneity rather than the presence of large exotherms, exothermic reactions are not considered a concern for this sample.

The safety screening DQO limit for criticality is 33.4 μCi/g (converted from 61.5 ⊠Ci/mL using the maximum sample density of 1.84 g/mL). The total alpha activity in all of the 1998/1999 samples was well below this limit, with the maximum value being 1.12 μCi/g for core 256, segment 7. Additionally, as required by the DQO, upper limits to a one-sided 95 percent confidence interval on the mean were calculated. All upper limits were well below the criticality decision limits, with a maximum value of 1.38 μCi/g (core 256, segment 6). The data show that criticality is not a concern for this tank.

The DQO notification limit for flammable gas concentration is 25 percent of the LFL. For tank 241-SY-101, recent combustible gas meter readings taken twenty feet into the dome space were not available. Instead, the SHMS data at steady state conditions were used to derive flammable gas concentrations. Results from two periods were included for comparison. The first period was prior to the December 1999 – March 2000 transfers and back dilutions. Average hydrogen concentrations obtained by two different instruments over the month of October 1999 were both 0.19 percent of the LFL (note that steady state conditions included mixer pump runs during this time). Beginning in early April 2000, the mixer pump runs were suspended for 90 days to evaluate flammable gas behavior. Hydrogen concentration data from the SHMS during a week of this inactive period (specifically 4/11/00 through 4/17/00) for two different instruments yielded results of 0.014 and 0.019 percent of the LFL. These results can be found with other earlier headspace vapor measurements in the *IH Sniff Data* Standard Report. The SHMS data show that a rise in the flammable gas concentration occurs when waste intrusive activities take place. However, as described in the Flammable Gas DQO section, the concentrations stay well below 25 percent of the LFL.

A formal review of the sampling and analytical data for tank 241-SY-101 was performed to determine if the safety screening DQO requirements were met. This review is documented in *Evaluation of Tank Data for Safety Screening* (Reynolds et al. 1999). Reynolds et al. (1999) concluded that "the sampling and analysis performed in this tank were consistent with the requirements of the Safety Screening DQO." Therefore, tank 241-SY-101 requires no additional sampling or analysis under the safety screening DQO.

Organic Solvent Safety Issue DQO: Does an organic solvent pool exist that may cause a fire or ignition of organic solvents in entrained waste solids?

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

Tank 241-SY-101 SHMS vapor samples have not been analyzed for TNMOC to estimate the organic pool size. However, the organic program has determined that even if an organic solvent pool does exist, the consequence of a fire or ignition of organic solvents is below risk evaluation guidelines for all tanks (Brown et al. 1998). The organic solvent issue is expected to be closed for all tanks in fiscal year 2000.

LAW Feed DQO: Do the samples taken from tank 241-SY-101 and the subsequent laboratory analysis meet the needs of the *Low-Activity Waste Feed Data Quality Objectives* (LAW Feed DQO) (Wiemers and Miller 1997)?

During the planning of the 1998/1999 core sampling of tank 241-SY-101, the LAW Feed DQO was one of the drivers for characterization. However, prior to analysis, the analytical requirements of the LAW Feed DQO became a lower priority for tank 241-SY-101 because of revisions to the waste retrieval schedule and because waste from the tank was to be mixed with other wastes in a series of transfers scheduled in 1999 and 2000. Consequently, the sampling and analysis plan (SAP) (Conner 1999a) for the core sampling event was modified by *Supplemental ECN-655020 against HNF-3375, Rev. 0-A, "Tank 241-SY-101 Push Mode Core Sampling and Analysis Plan"* (Conner 1999b) to delete the LAW Feed DQO analyses. The tank is tentatively scheduled for sampling in fiscal year 2002 to support the Waste Processing and Disposal program.

Waste Feed Delivery DQO: Does the waste feed meet specifications as a feed source for tank waste vitrification?

The SAP for the 1998/1999 core sampling event included the provision to make a whole tank composite for process testing to meet the requirements of *Data Quality Objectives for TWRS*

Privatization Phase I: Confirm Tank T is an Appropriate Feed Source for Low-Activity Waste Feed Batch X (Waste Feed Delivery DQO) (Certa 1998). However, because of changes in strategy and priorities, this composite was not made.

Many of the physical and rheological measurements required by the Waste Feed Delivery DQO were performed as these analyses were required by other DQOs or the information was needed to support the transfer of waste to tank 241-SY-102. However, because these analyses were not specifically performed according to the Waste Feed Delivery DQO requirements, they were not run on the waste matrix required by the DQO. A summary of the physical and rheological data is discussed in the text for Question 4.

Tank 241-SY-101 is tentatively scheduled for sampling in fiscal year 2002 to support the Waste Feed Delivery program.

ICD-23 issue: Have the required samples been provided to the Waste Treatment Plant Contractor?

Brown et al. (1998) and Adams et al. (1999) identified the ICD-23 issue as being applicable to tank 241-SY-101. However, the current revision of ICD-23 (Johnson 2000) does not include tank 241-SY-101. To date, no material from the tank has been sent to the waste treatment plant contractor, and no shipments of the currently archived material are expected to occur.

SY-101 Level Rise

Beginning in approximately mid-1996, the surface-level in tank 241-SY-101 began to increase as a result of gas retention in the crust layer. A mitigation strategy was developed that involved a sequence of waste transfers to tank 241-SY-102 and back dilutions of water into tank 241-SY-101 (Raymond et al. 1999). Various analytical studies were required to support the waste transfers, including dilution studies, viscosity testing, boildown studies, and mixing studies (Estey 1999). The core samples taken in 1998/1999 provided the material needed for these analyses. Results from these studies are presented in Person (1999) and Steen (1999). The mitigation strategy was successfully implemented in December 1999 through March 2000 through three transfers of waste to tank 241-SY-102 and subsequent back dilutions. The back dilutions added to the top of the waste greatly reduced the crust volume, stopping the crust rise and enabling a continuous release of generated gas. As of April 3, 2000, operation of the mixer pump has been suspended for 90 days to evaluate whether the tank waste will retain gas without periodic mixing. If the data indicate (as anticipated) that the waste no longer retains gas above an acceptable volume, an amendment to the authorization basis will be prepared that will, among other things, close the SY-101 Level Rise issue.

Compatibility DQO: Will safety problems be created as a result of mixing waste in interim storage? Do operations issues exist which should be addressed before waste is transferred?

Two documents are used to address compatibility concerns. Mulkey et al. (1999) includes the safety considerations and decision rules for criticality, corrosion, emissions, energetics, and flammable gas accumulation. The operational issues of heat generation of commingled waste, segregation of complexant waste, and high phosphate waste are addressed in Fowler (1995).

Three transfers of waste were made from tank 241-SY-101 to tank 241-SY-102 between December 1999 and March 2000. Before each transfer was allowed to occur, an assessment was made of the compatibility of waste in the two tanks. These assessments are documented in Fowler (1999b, 1999c, 2000a, and 2000b). All requirements for transfer were met. A summary of the findings is provided below.

For the first transfer, the flammable gas criteria (based on specific gravity) were met, as the combined tank 241-SY-101/tank 241-SY-102 waste would have a specific gravity less than 1.41. One sample in tank 241-SY-101 exceeded the energetics criterion (exotherm to endotherm ratio less than 1.0). However, when dilution water was considered, all ratios were below 1.0 (Fowler 1999c). The tank 241-SY-101 waste had the potential to be outside of corrosion prevention limits; however, tank 241-SY-102 would remain within corrosion specifications after the transfer. The heat generation rate was within specifications. Although tank 241-SY-101 waste was considered high phosphate and high salt waste, tank 241-SY-102 waste was neither high phosphate nor high salt. Therefore, mixing of the two tank wastes would be in compliance.

Tank 241-SY-101 contains concentrated complexant (CC) waste. Normally, this waste is segregated from non-CC wastes in order to minimize adverse impacts to waste volume reduction. Tank 241-SY-102 contained dilute non-complexed waste before the transfer. Mixing of these two waste types had not occurred historically. For this transfer, mixing of CC with dilute non-complexed waste was approved by the Waste Inventory Control Group to assure potential adverse effects on waste volume reduction, retrieval, or other River Protection Project (RPP) projects were evaluated. Approval for commencing the transfer operation was granted by the Office of River Protection (Sidpara 1999).

For the second and third transfers, little changed in the compatibility assessments. The estimated specific gravity for tank 241-SY-102 after the second transfer was 1.41, equal to the compatibility limit for density. This value decreased to 1.38 after the third transfer. For the combined waste after the last transfer, the projected bounding concentrations indicated that the corrosion limit for nitrate could be exceeded. The addition of water to tank 241-SY-102 would ensure that nitrate stayed within specifications. The transfers from tank 241-SY-101 caused the waste in tank 241-SY-102 to become high phosphate waste. However, previous experience indicates that the liquid portion of the waste will remain pumpable (Fowler 2000b).

Bounding Concentration Limits

Sample results from the 1998/1999 core sampling were screened against current bounding concentrations used to develop the authorization source term. These bounding concentrations are listed in Tables 4-1 and 4-2 of Section 18 of *River Protection Project Process Engineering Desk Instruction and Guidance Manual* (Adams 2000). Comparisons were made against the double-shell tank (DST) solids bounding concentrations because all of the tank 241-SY-101 waste was in solid form when extruded at the 222-S Laboratory. Results from eight ammonia, two selenium, and two sodium samples exceeded the bounding concentration limits. The ammonia results for the solids are considered suspect because the liquid sample ammonia results do not support the extremely high results for the solids, and the tremendous variability between samples is not expected based on waste chemistry and tank status (well mixed). Therefore, these data were marked as suspect in the Tank Characterization Database (Conner 2000c). Because the selenium and sodium data represent tank waste and the data appear to have no quality assurance problems, notifications to the managers of Nuclear Safety and Licensing and Process Engineering were made (Conner 2000d) in accordance with Adams (2000).

Heat Load Estimate

A factor in assessing tank safety is the heat generation and temperature of the waste. Heat is generated in the tanks from radioactive decay. The heat load estimate for tank 241-SY-101 based on the process history was 11,800 W (40,400 Btu/hr) (Agnew et al. 1997a). The heat load estimate derived from the tank radionuclide content circa 1993 was 11,700 W (40,000 Btu/hr) (Kummerer 1995). Both of these estimates do not account for the recent transfers, which would have removed some of the radionuclide inventory (especially for ^{137}Cs). The heat load estimated from the best-basis inventory is 8,270 W (28,200 Btu/hr), as shown in Table 1-2. All of these estimates are below the 14,600 W (50,000 Btu/hr) operating specification limit for the SY Tank Farm tanks (Fowler 1999a).

Table 1-2. Heat Load Estimate Based on the Best-Basis Inventory.

Radionuclide	Waste Inventory[1] (Ci)	Specific Activity (W/Ci)	Heat Load (W)
^{90}Sr	92,400	0.00669[2]	618
^{137}Cs	1.62E+06	0.00472[3]	7,650
Total			8,270

Notes:

[1]See *Best-Basis Inventory (Radionuclides)* Standard Report.
[2]Includes term for ^{90}Y.
[3]Includes term for ^{137m}Ba.

Tank History

Question 2: What is known about the history of this tank as it relates to waste behavior?

The SY Tank Farm was built between 1974 and 1976 in the 200 West area. The tank farm consists of three 4,391 kL (1,160 kgal) tanks, and is the only double-shell tank farm in the 200 West area. The SY Tank Farm does not use a cascade system between tanks. Tank 241-SY-101 was originally designed for use as a concentrated waste holding tank. It consists of a reinforced concrete shell with two (inner and outer) carbon steel liners on the bottom and sides. Twenty-four risers provide access to the tank, while 34 risers provide access to the annulus between the two tank liners. Additional tank descriptive material is contained in the *Tank Plan View, Tank Profile View,* and *Riser Configuration Table* Standard Reports. The only risers discussed in these three reports are the 24 primary tank access risers. The following process history information was taken from Agnew et al. (1997b), Alleman et al. (1993), Babad et al. (1991), and Mahoney et al. (1999).

Tank 241-SY-101 entered service in 1977. In April 1977, the tank received double-shell slurry (DSS) from the 242-S Evaporator. Double-shell slurry is highly viscous as it has been concentrated past the sodium aluminate saturation boundary. In the fourth quarter of 1977, the tank received CC waste from tank 241-SY-102. Concentrated complexant waste is generated when dilute waste containing organic complexants is concentrated in an evaporator; however, it has not been concentrated beyond the aluminate precipitation boundary. During 1978, tank 241-SY-101 received supernatant from tanks 241-A-106, 241-SX-106, and 241-U-111. From 1977 through 1980, the tank also received supernatant from tank 241-SY-102. These additions of CC and DSS wastes nearly filled tank 241-SY-101 by 1980. The last waste transfer into the tank occurred in October 1980. Since that time, only water has been added to the tank, while pumping campaigns in late 1999 and early 2000 removed waste.

Shortly after the first waste transfer into tank 241-SY-101, the waste began to exhibit slurry growth. This phenomenon involved the generation and retention of gases within the slurry (at that time, this was the nonconvective layer in the lower portion of the tank), causing an increase in the overall waste volume. Slurry growth continued to be observed in the tank after the last waste receipts in 1980. The waste then followed a pattern of steady volume increase from the slurry growth with episodic volume decreases as large volumes of gas were released (in GREs). Release of the gas caused “roll-overs” of the tank contents, carrying liquid, gas, and solids from the nonconvective layer into the liquid layer and then into or through the crust, disrupting the crust surface. An explanation of the mechanisms of gas accumulation and release in tank 241-SY-101 can be found in Alleman et al. (1993) and Babad et al. (1991 and 1992).

From 1986 to 1989, air or water was injected into the tank waste at various times in an attempt to liberate the accumulating gas. This lancing process was discontinued in 1989 because it did not stop the cycle of slurry growth and episodic gas release.

In July 1993, a mixer pump was installed to mitigate the GREs by dispersing the nonconvective layer. While mixer pump operations prevented GREs, the absence of the periodic crust breakups provided by the GREs allowed the crust to grow. This growth was first detected in 1996 and was recognized as a potential safety issue in late 1997.

A mitigation strategy was developed that included transfers from the convective slurry and back dilutions of water. These transfers and back dilutions were done in three campaigns, which took place on 12/18/99-12/19/99, 1/25/00-1/27/00, and 2/29/00-3/2/00. Following each of the transfers, back dilutions were made to the top and bottom (at the location of the pump suction) of the waste. A total of 2,332 kL (616 kgal) were transferred, of which 1,987 kL (525 kgal) were "original" tank 241-SY-101 waste (Conner 2000a).

As of March 27, 2000, tank 241-SY-101 contains a total of 3,721 kL (983 kgal), which is categorized as CC by Hanlon (2000) and Supernatant Mixing Model waste from the 242-S evaporator (SMMS2) by Agnew et al. (1997a). This waste volume was based on the Auto ENRAF surface-level data from March 27 (CHG 2000). Based on recent temperature profiles (from 3/27/00), the tank is estimated to contain 23 kL (6 kgal) of crust, 3,176 kL (839 kgal) of convective slurry, and 522 kL (138 kgal) of settled solids. Note that these values are different than those presented in the Best-Basis Inventory (BBI) section (Question #7) because the BBI at this point only captures volume changes through 2/1/00 (this is necessary in order to maintain the global tank farm inventory). The BBI will be updated in the next quarter to reflect the current volumes.

Tank 241-SY-101 is listed as sound and is actively ventilated. It is on the Flammable Gas Watch List (Hanlon 2000). It is also scheduled as a source tank for low-activity waste for Phase I of the vitrification effort.

Tank Comparisons

Question 3: What other tanks have similar waste types and waste behaviors, and how does knowledge of the similar tanks contribute to the understanding of this tank?

Historically, the waste in tank 241-SY-101 produced and retained flammable gas. Consequently, it is on the Flammable Gas Watch List. Other double-shell tanks on the watch list include tanks 241-AN-103, 241-AN-104, 241-AN-105, 241-AW-101, and 241-SY-103. These tanks also have a history of GREs, as tank 241-SY-101 did before installation of the mixer pump.

Tank 241-SY-101 is one of seven double-shell tanks that are categorized as containing CC waste (Hanlon 2000). The other tanks that contain CC waste are tanks 241-AN-102, 241-AN-106, 241-AN-107, 241-AP-103, 241-AP-104, and 241-SY-103. Analytical data from tank 241-SY-103 were used for comparison with the tank 241-SY-101 analytical concentrations. Comparisons were made both on the nonconvective (lower solids) layer and the convective slurry layer. The data for the nonconvective layers agreed reasonably well, with approximately 50 percent of the data being similar. Most of the similarities were seen in the metals data. The convective slurry layers did not agree well, especially in the anions. The data differences between the two tanks attest to the wide variability possible in the CC waste type, and do not indicate data problems.

The entire contents of tank 241-SY-101 are categorized as SMMS2 waste from 242-S evaporator campaigns by Agnew et al. (1997a). Several single-shell tanks contain SMMS2, including tanks 241-S-101, 241-S-102, 241-S-103, and 241-SX-106, and seven tanks in the U Tank Farm. However, the tank most similar to tank 241-SY-101 is tank 241-SY-103. Characterization information from the single-shell tanks and especially tank 241-SY-103 contribute to an understanding of the waste in tank 241-SY-101. As demonstrated from the above comparison, only general information or trends can be applied to tank 241-SY-101, because substantial variability exists in the SMMS2 waste type.

Disposal Implications

Question 4: Given what is known about the waste properties and waste behaviors in this tank, what are the implications of the waste properties and behaviors to the waste retrieval/processing methodologies and equipment selection?

Tank 241-SY-101 has been selected as a Phase I source tank for vitrification. According to *Tank Farm Contractor Operation and Utilization Plan* (Kirkbride et al. 2000), the tank will provide low-activity waste feed for Envelope A.

Given what is known about the waste types and behaviors in tank 241-SY-101, and drawing from the success of the recent transfers, there should be little difficulty in retrieving the waste in the tank. However, several items should be considered in regard to waste retrieval. Tank 241-SY-101 is on the Flammable Gas Watch List and has been known to contain high levels of hydrogen and ammonia. In addition, the bulk temperature of the waste is approximately 35 °C (95 °F).

Waste disturbing activities, such as those performed during retrieval, have the potential to release gas retained in the waste matrix. Tank 241-SY-101 is currently being evaluated to determine if the waste still retains appreciable amounts of gas. Data gathered during the recent transfer campaigns indicated that as long as a barrier to gas release (e.g., a crust, or a slurry with a high specific gravity) is not present in tank 241-SY-101, waste disturbing activities during retrieval would not be expected to release levels of hydrogen greater than 25 percent of the LFL. The largest hydrogen concentration measured over the three-month transfer period was 3,100 ppm, which is just over 10 percent of the LFL.

Hydrogen concentrations in the tank that will receive tank 241-SY-101 waste during retrieval are also a potential concern. However, data gathered during the recent transfers into tank 241-SY-102 prove that hydrogen concentrations in the receiver tank should stay below 25 percent of the LFL. The hydrogen concentrations in tank 241-SY-102 did rise during the transfers, but they remained below 200 ppm (less than 1 percent of the LFL).

Ammonia may also be of concern from an industrial health standpoint, especially in the receiver tank. Ammonia concentrations during the transfers peaked at 450 ppm in tank 241-SY-101. However, in tank 241-SY-102, the ammonia concentration peaked at 6,600 ppm. During the transfer to tank 241-SY-102, a siphon break was used, which likely entrained air into the waste stream as it entered tank 241-SY-102. As the entrained air bubbled to the surface of the tank 241-SY-102 waste, it brought along ammonia that had been retained in the waste. In both cases, the ammonia concentration exceeded the National Institute for Occupational Safety and Health (NIOSH) immediately dangerous to life or health concentration of 300 ppm (NIOSH 2000). Note that these were measurements of the concentrations in the tank dome space, and do not directly correlate to the concentrations that would be in a worker's breathing zone. Monitoring in the worker's breathing zone during the transfers yielded a maximum ammonia result of 3 ppm, well below the NIOSH recommended exposure limit of 25 ppm (NIOSH 2000).

The pumpability of the waste should be evaluated before retrieval commences. Before the recent transfers and back dilutions, the potential for solids to precipitate out in the transfer lines during pumping was a concern. At that time, temperatures in the nonconvective and convective slurry layers generally ranged between 51.7 and 46.1 °C (125 and 115 °F). Cooling of this waste produced precipitates, as evidenced by laboratory observations of the 1998/1999 core samples. Upon extrusion at the laboratory, all of the segments were solid, including those from the convective slurry layer.

Prior to the transfers, a dilution study was performed to measure the effects of temperature and dilution on the tank 241-SY-101 waste. The dilution study was performed on a composite of segments 5 through 22 of core 255, which made it representative of the convective slurry and settled solids layers. The tests showed that both the centrifuged solids and the true (dry) solids decrease with dilution and with increasing temperature (Person 1999). The viscosity was observed to decrease with increasing temperature and with increasing dilution. For the centrifuged liquid from the undiluted tank 241-SY-101 waste, the average viscosity was 25.5 cP at 26 °C and 10.5 cP at 47 °C. The viscosity for the centrifuged liquid after 100 percent dilution was 4.7 cP at 27 °C and 3.2 cP at 47 °C (Person 1999). Note that the dilution study results are preliminary; no final report was issued as a result of funding issues. However, the preliminary results provided the critical information required for the transfers.

Since the transfers and back dilutions, pumpability concerns have decreased. The waste in tank 241-SY-101 has been nearly diluted to a 1:1 ratio between original tank waste and water. In addition, tank temperatures have dropped to approximately 35 °C (95 °F). The lower waste temperatures mean that less cooling will occur during pumping, and therefore the chance that precipitates will form during pumping is decreased.

Additional physical property data were gathered during the last sampling and analytical event. Shear strength, viscosity, and particle size distribution tests were to be run on segments 2 and 7 of core 257. (These segments were selected in order to obtain data from the crust [segment 2] and the convective slurry [segment 7]). However, because of different analytical problems, only the particle size distribution was performed on both segments; shear strength was only performed on segment 2, while viscosity was only performed on segment 7. The particle size distribution data are available in the *Analytical Results* Standard Reports, while the shear strength results are presented in the *241-SY-101 Rheology Report* Standard Report. Viscosity data are reported in Steen (1999).

A mixer pump has been utilized in tank 241-SY-101 since 1993. In the future, other tanks may be required to operate mixer pumps to support the vitrification effort. The operating experience and lessons learned during the use of the tank 241-SY-101 mixer pump may be applied to the design of these other mixer pumps and their implementation.

Scientists Assessment of Data Quality and Quantity

Question 5: What additional information about the waste, if any, is needed to satisfy tank waste issues described in question #1 of this Tank Interpretive Report? How should the information be obtained (new samples, archive analysis, mathematical models, other)? What is the quality of the samples and analytical results obtained for this tank? Are clarifications or explanations needed for standard report tables and figures?

Sampling and Analysis

The following DQOs and waste issues have been addressed for this tank and accepted by the RPP: Flammable Gas, Safety Screening, Organic Solvent Safety Issue, Compatibility, and the tank 241-SY-101 Level Rise Issue. No additional sampling or analyses are necessary to satisfy current safety issue requirements for this tank. Further action may be identified to address the LAW Feed DQO (the one in effect at the time of the 1998/1999 core sampling has been superseded by the LAW/HLW Feed DQO (Patello et al. 1999), Waste Feed Delivery DQO (Nguyen 1999 has superseded Certa 1998), ICD-23 issue, Air Emissions DQO, and Dangerous Waste DQO.

The current long-range plans call for tank 241-SY-101 to stage Envelope A waste. As of March 2000, the short-term plans for the tank are undetermined. Different options are being investigated, including eventually returning the tank to active service.

From a field sampling perspective, the quality of data obtained during the 1998/1999 sampling event was excellent. At least a 90 percent recovery was obtained for the vast majority of segments. Very few problems were encountered during the sampling. Segment 7 of core 255 was expected to be an RGS sample; however, it was empty and therefore abandoned. Also, the SAP (Conner 1999a) requirement that segments be transported to the laboratory within three calendar days of removal from the tank was not met (Steen 1999). However, this should not impact the quality or usability of the data.

Data Quality

Samples obtained in the 1998/1999 core sampling event were collected and analyzed with approved and recognized sampling and laboratory procedures and in accordance with Conner (1999a). The laboratory procedures for the core sample analysis can be found in the *Analytical Methods and Procedures* Standard Report. Quality control (QC) parameters assessed in conjunction with the core samples included standard recoveries, spike recoveries, duplicate analyses, and blanks. Appropriate QC footnotes were applied to data outside the QC parameter limits as shown in the *Analytical Results* Standard Report. Analytical results and data quality are discussed in the analytical data package (Steen 1999).

The vast majority of QC results were within the boundaries specified in the SAP (Conner 1999a). Small discrepancies noted in the data package (Steen 1999) and footnoted in the *Analytical Results* Standard Report should not impact the data validity or use. A brief discussion of these small discrepancies is presented below.

For ammonia, nine subsamples had standard recoveries outside of the 90-110% required range. Although these standard recoveries were outside the required range listed in the SAP, they were within the laboratory control limits of 78-130%, so no reanalysis was requested. A small percentage of samples analyzed for potassium, sodium, and zinc had standard recoveries outside of the 80-120% SAP range. In addition, standard failures were noted for approximately 50% of the samples analyzed for silicon. These standard failures occurred on the acid digestion portion of the subsamples. The standard failures for sodium and silicon may have been because of leaching from the glassware during the digestion process or contamination from sample handling. No reanalysis was performed, because it is difficult to avoid contamination from these processes.

Spike recoveries outside of the required range (75-125%) were reported for two ammonia subsamples. Although these spike recoveries were outside of the required range listed in the SAP, they were within the laboratory control limits and no reanalysis was requested. A small percentage of samples analyzed for formate had spike recoveries outside of the required 75-125% range. The spike failures were attributed to matrix interferences from metals. No reanalyses were requested.

Two TOC subsamples had spike recoveries outside of the 75-125% SAP range. These spike failures were a result of sample inhomogeneity and the high concentration of the analyte with respect to the amount of spike standard added. No reanalysis was performed.

Matrix spike recoveries outside of the 75-125% SAP limits were reported for a small percentage of samples analyzed for chromium, potassium, nickel, and silicon. In addition, spike failures were noted for approximately 50% of the samples analyzed for aluminum and sodium. The spike failures were attributed to the high concentration of these analytes in the samples with respect to the amount of spike standard added. A post-digestion spike analysis was performed as an additional instrument performance check. The post-digestion spike recoveries were within the required limits.

Typically, with high concentrations of analytes, it is difficult to add sufficient spike to perform a meaningful analysis. Therefore, an assessment of the accuracy of the measurements for these analytes was also made by performing a serial dilution of the sample and comparing these results with the sample results. The serial dilution was performed by preparing and analyzing an additional five-fold dilution of the sample. The result obtained from this analysis should be within ± 10% of the undiluted sample result. The results of the comparison revealed the accuracy of the analysis was acceptable for all but six samples. The undiluted results for these samples were already near the detection limit and an additional five-fold dilution decreased the precision of the analysis even further.

Nine of the 47 subsamples analyzed by DSC had relative percent differences (RPDs) between duplicate samples greater than the required 30-% limit. The chemist noted the high RPDs were a result of sample inhomogeneity and no reanalyses were performed. However, two samples had triplicate analyses performed. High RPDs (greater than 10%) were reported for two hydroxide subsamples. The results for these subsamples were near the detection limit, which decreased the precision of the analysis and made it difficult to obtain the precision requirement. The hydroxide concentrations were consistent with the other solids samples, so no reanalysis was requested. One of the 29 ammonia subsamples had an RPD outside of the 10% limit. However, because the results were near the detection limit, no reanalysis was requested.

High RPDs (greater than 20%) were reported for a small percentage of samples analyzed for chloride, fluoride, formate, nitrite, nitrate, oxalate, phosphate, and sulfate by ion chromatography (IC). Selected samples were reanalyzed with some improvement in the RPDs. The high RPDs were attributed to sample inhomogeneity and no further reanalyses were requested. The raw data from the initial analyses were not used.

A small percentage of samples analyzed by inductively coupled plasma spectroscopy (ICP) reported RPDs greater than the 20% SAP limit. Most of the failures occurred on the acid digested subsamples. In certain matrices, some metals may not have been completely or uniformly dissolved by the acid digestion process. However, the concentration of many of the ICP analytes was less than ten times the detection limit, so the precision of the analysis was decreased. No repreparation or reanalysis was requested. RPDs greater than 20% were reported for approximately half of the samples analyzed for boron, nickel, and silicon. These analytes in particular had high RPDs due to non-uniform leaching from the digestion vessels used for the sample and duplicate aliquots. Since this leaching could not be avoided, no reanalyses were requested.

One ICP/mass spectroscopy (MS) sample and one TOC sample exceeded the 20% RPD threshold. These high RPDs were attributed to sample inhomogeneity. A triplicate analysis was performed on the TOC sample. Improvement in the RPD was obtained, as the results from the triplicate analysis supported the duplicate result and were similar to the TOC results from other samples. Twelve of 47 total alpha subsamples exceeded the 20% RPD limit. The results were near the detection limit, which decreased the precision of the analysis. Because of the low total alpha activity, no reanalyses were requested. One ^{241}Am subsample slightly exceeded the 20% RPD threshold. The sample was reanalyzed with no improvement in the RPD. Because the sample results were near the detection limit, the precision was decreased; no further analysis was requested.

A small amount of contamination was found in the gamma energy analysis preparation blank. However, the levels of contamination are insignificant when compared to the sample results, and do not affect the usability of the data.

Using internal QC standards, a computer algorithm flagged data that were potentially suspect. The flagged data were reviewed to determine if the data were compromised, and if so, the anomalous values were removed from the *Analytical Results* Standard Report. Of the analytes flagged, only eight total alpha results, nineteen silicon fusion results, and thirty nickel fusion results were removed from the *Analytical Results* Standard Report. The total alpha results were considered suspect because they were not supported by the ^{241}Am and $^{239/240}$Pu results (the prime contributors to the total alpha activity), and because large concentration differences should not be present due to thorough mixing from the mixer pump. The silicon fusion data displayed wide variability, which was not supported by the silicon acid digestion results or the well-mixed waste conditions. The nickel fusion results were biased high as a nickel crucible was used during the fusion preparation. The remaining flagged results were considered usable (Conner 2000c).

As discussed in Question #1, eight solids ammonia results were marked as suspect in the Tank Characterization Database. These extremely high results were not supported by the liquid ammonia data and were not expected based on waste chemistry and the well-mixed nature of the tank. Consequently, these results were considered suspect (Conner 2000c).

Clarification and Explanation of Data Tables and Figures

Description of Tank Standard Report: The volumes reported in this table do not match those used in the best-basis inventory (Question #7). This is because the best-basis inventory volumes are only updated through February 1, 2000, in order to maintain the global inventory (i.e., all tanks with transfers were updated to a common date so that the overall tank farm inventory remains internally consistent). The volumes in the *Description of Tank* Standard Report are the volumes as of the date of preparation of this Tank Interpretive Report (TIR) (March 27, 2000).

The volumes in the current Hanlon report (February 2000) as of the preparation date of this TIR do not match the volumes in the *Description of Tank* Standard Report. This is a result of the recent transfers. The February 2000 Hanlon report does not include the transfers and back dilutions in March 2000, while the volumes in the *Description of Tank* Standard Report have been adjusted for them.

In addition, the volumes in the *Description of Tank* Standard Report do not match the surface level shown in the "Surface Level as of Status Date" row in the Standard Report. All volumes displayed in the Standard Report are based on the AutoENRAF surface level reading from March 27, 2000, as indicated by the status date. However, the surface level presented in the "Surface Level as of Status Date" row is presently programmed to be an average of surface level data over the month most recently covered in the Hanlon Report. The correct surface level on March 27, 2000, based on the AutoENRAF, was 907.8 cm (357.4 in.).

Subsampling Scheme and Sample Description Standard Report: Between the 1991 and 1998/1999 sampling events, the tank 241-SY-101 riser numbers changed (see the *Riser Configuration* Standard Report). In order to maintain consistency with the data packages, the riser number used at the time of sampling was retained in the tank characterization database and, therefore, the *Subsampling Scheme and Sample Description* Standard Report. Consequently, a combination of new and old riser numbers appear in this report.

IH Sniff Data Standard Report: The standard IH sniff data displayed in this standard report are the pre-check measurements made 20 feet into the tank dome space. In the case of tank 241-SY-101, no recent measurements at this level in the tank are available. Instead, the SHMS data are used for IH purposes when determining the dome space flammable gas concentration. Therefore, these data appear in the *IH Sniff Data* Standard Report. The IH data table with a survey date of 10/31/99 contains averages of the SHMS data over the month of October 1999. The table with a survey date of 4/11/00 contains average SHMS data over the week from 4/11/00 to 4/17/00.

241-SY-101 HTCE Surface Levels and *241-SY-101 Average Monthly Tank Surface Level* Standard Reports: The surface levels depicted in these two figures clearly show the slurry growth and gas release events that led to transfers of waste from the tank in order to mitigate these phenomena. The *241-SY-101 HTCE Surface Levels* figure shows a sawtooth pattern in the waste surface level that disappears after July 1993 when the mixer pump was installed in the tank. The *241-SY-101 Average Monthly Tank Surface Level* figure shows a rising surface level indicative of crust growth in the tank beginning about mid 1996. As waste was pumped from the tank in the last quarter of 1999, the surface level dropped. In the *241-SY-101 Average Monthly Tank Surface Level* figure, the difference between the ENRAF level and the neutron level was caused by the thick crust that existed on the surface of the waste. As back-dilution water was added to the waste and the crust began to dissolve, the ENRAF and neutron levels became nearly identical.

Unique Aspects of the Tank

Question 6: What are unique chemical, physical, historical, operational or other characteristics of this tank or its contents?

Tank 241-SY-101 is likely the most unique tank on the Hanford Site. For the past ten years, the tank has been one of the most scrutinized because of the large GREs in the early 1990's and the dramatic rise in surface level in the late 1990's. The gas generation and retention phenomena within the tank waste has been studied extensively. Various resources that address this matter include *Assessment of Gas Accumulation and Retention – Tank 241-SY-101* (Alleman et al. 1993), *Understanding of Cyclic Venting Phenomena in Hanford Site High-Level Waste Tanks: The Evaluation of Tank 241-SY-101* (Babad et al. 1992), *Evaluation of the Generation and Release of Flammable Gases in Tank 241-SY-101* (Babad et al. 1991), and *A Discussion of SY-101 Crust Gas Retention and Release Mechanisms* (Rassat et al. 1999).

Tank 241-SY-101 is the only tank that ran its mixer pump on a regular basis. In the future, tanks that stage vitrification feed may need mixer pumps in order to ensure adequate mixing has occurred before transfer to the waste treatment plant contractor. Although the design of these mixer pumps may be different than the one in tank 241-SY-101, the operating experience and lessons learned from tank 241-SY-101 can be applied to them.

Means and Confidence Intervals

Question 7: What statistical model was used to generate the means and confidence intervals? What data was included in the calculations?

A nested analysis of variance (ANOVA) model was fit to the laboratory sample data. Mean analyte concentrations, and 95% confidence intervals on the mean, were estimated using results from the ANOVA. Two variance components were estimated and used in the computations. The variance components represent concentration differences between laboratory samples and between analytical replicates.

The model is:

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

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

where

Y_{ij}	=	concentration from the j^{th} analytical result from the i^{th} riser
μ	=	the mean
L_i	=	the effect of the i^{th} laboratory sample
A_{ij}	=	the analytical error
a	=	the number of laboratory samples
n_i	=	the number of analytical results from the i^{th} laboratory sample.

The variable L_i is a random effect. This variable and A_{ij} are assumed to be uncorrelated and normally distributed with means zero and variances $\sigma^2(L)$, and $\sigma^2(A)$, respectively.

The restricted maximum likelihood method (REML) was used to estimate the mean concentration and standard deviation of the mean for all analytes that had 50% or more of their reported values greater than the detection limit. The mean concentrations and standard deviations of the mean were used to calculate the 95% confidence intervals. The following table gives the estimate of the mean, degrees of freedom, and confidence interval on the mean.

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

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

$$LL(95\%):\ \hat{\mu}\ -\ t_{(df,\ 0.025)} \times \hat{\sigma}(\hat{\mu})$$

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

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

Best-Basis Inventory Derivation

Question 8: What is the source data used to derive this tank's Best-Basis inventories by mass (kg) and activity (Ci) for the standard list of 24 chemicals and 46 radionuclides? (For the latest Best-Basis Inventory derivation, see the link to the Recent Best Basis Derivation Text below. Due to periodic updates, the Recent Best Basis Derivation Text may not be consistent with other questions in the Tank Interpretive Report.)

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BBI Inventory Derivation Text

The **Best-Basis Inventory (BBI)** effort involves developing and maintaining waste tank inventories comprising 25 chemical and 46 radionuclide components in the 177 Hanford Site underground storage tanks. These best-basis inventories provide waste composition data necessary as part of the River Protection Project (RPP) process flowsheet modeling work, safety analyses, risk assessments, and system design for waste retrieval, treatment, and disposal operations.

Development and maintenance of the best-basis inventory is an on-going effort. Supernatant waste was received from the 219-S facility since the last BBI update. An evaluation of the best-basis inventory for tank 241-SY-101 as of January 1, 2009 was performed and is documented in the following text. The following information was used in this evaluation:

- Mean analytical results (see *Means and Confidence Intervals* Standard Report) from analysis of core sample data from June 2007 (RPP-RPT-34606, *Final Report for Tank 241-SY-101, Core 327, in Support of Corrosion Mitigation, Compatibility and Criticality Safety Programs*).

- Mean analytical results (see *Means and Confidence Intervals* Standard Report) from analysis of grab sample data from April 2000 (HNF-1702, *Tank 241-SY-101 Grab Samples, 1SY-00-1, 1SY-00-2, 1SY-00-3, 1SY-00-4 and 1SY-00-5 Analytical Results for the Final Report*) and June 2000 (HNF-6050, *Tank 241-SY-101 Grab Samples, 1SY-00-6, 1SY-00-7, 1SY-00-8, 1SY-00-9 and 1SY-00-10 Analytical Results for the Final Report*) following waste dilution and transfer activities.

- BBI templates for waste from the 242-S Evaporator (S2 salt slurry) (RPP-8847, *Best-Basis Inventory Template Compositions of Common Tank Waste Layers*).

- Iodine-129 and Neptunium-237 liquid and Carbon-14, Selenium-79, Niobium-93m, and Zirconium-93 liquids and solids inventory estimates based on 1991 core composite samples (WHC-SD-WM-DTR-026, *Laboratory Characterization of Samples Taken in December 1991 (Window E) from Hanford Waste Tank 241-SY-101*), dilution, and transfer history.

- Sample-based and process knowledge estimates for total polychlorinated biphenyls (PCBs) per RPP-7625, *Best Basis Inventory Process Requirements*. An archived aliquot from the June 2000 sample was analyzed for PCBs (HNF-7445, *Polychlorinated Biphenyl Baseline Project 2001 Analytical Results for the Final Report*).

- Process knowledge of waste transferred to and from tank 241-SY-101 (through January 1, 2009), including the following recent sample data:
  - Mean analytical results for supernatant grab samples taken in January 2006 (External letter 06-ATL-018 Reissue, "Reissued Final Letter Report for Tank 241-SY-101 Grab Samples in Support of Cross Site Transfer").
  - Mean analytical results for grab samples taken in March 2006 (External letter 06-ATL-057 Reissue 1, "Reissue: Final Report for Tank 102 Grab Samples Collected in March 2006 in Support of 219-S Transfer").
  - Mean analytical results for TK-102 grab samples taken in April 2007 (RPP-RPT-33822, *Final Report for Tank TK-102 Grab Samples Collected in April 2007 in Support of 219-S Transfer*) and July 2008 (RPP-RPT-38804, 2008, *Final Report for Tank 102 Grab Samples Collected in July 2008 in Support of 219-S Transfer*).

Table 8-1 is a summary of how the best-basis inventories for tank 241-SY-101 were derived. Table 8-2 summarizes the Component Density and Component Wt% Water for each waste type.

Table 8-1. Tank 241-SY-101 Best-Basis Inventory Source Data.

Waste Phase	Waste Type	Applicable Concentration Data[1]	Associated Density (g/mL)	Multiplier	Associated Volume[3]
Supernatant	NA (Liquid)	SY101 Supernatant as of 1-1-2009 (P/SY101/020)	1.13	1.000	3,231 kL (854 kgal)
Saltcake (Liquid & Solid)[2]	S2-SltSlr (Solid)	June 2007 Reconstituted Core 327 (P/SY101/019)	1.66	1.000	878 kL (232 kgal)
		April/June 2000 centrifuged grab solids (S/SY101/012)	1.52	1.000	
		^{14}C, ^{79}Se, ^{93m}Nb, and ^{93}Zr 1991 Solid Core (P/SY101/005)	1.52	1.000	
		SY-101 Saltcake PCBs (S/SY101/015)	1.52	1.000	
		S2-SltSlr Solid Template (TS/U204/024)	1.63	0.915	
Retained Gas – Saltcake	NA	N/A	N/A	1.000	86 kL (23 kgal)
Total tank volume[3]					4,195 kL (1,108 kgal)

Table 8-1. Tank 241-SY-101 Best-Basis Inventory Source Data.

Waste Phase	Waste Type	Applicable Concentration Data[1]	Associated Density (g/mL)	Multiplier	Associated Volume[3]

Notes:

[1]Vector handles, shown in parentheses, are unique serial identifiers for the vectors used in the BBIM database.
[2]The drainable interstitial liquid volume included with the saltcake is calculated to be 231 kL (61 kgal) assuming a porosity of 0.24.
[3]The summation of the waste layers in kgal may not exactly match the total waste volume due to rounding.

Table 8-2. Tank 241-SY-101 Best-Basis Inventory Component Density and Wt% Water.

Waste Phase	Waste Type	Component Density (g/mL)	Component Wt% Water	Source
Supernatant	NA (Liquid)	1.13	81.9%	January 1, 2009 supernatant process knowledge estimate.
Saltcake (liquid and solid)	S2-SltSlr (Solid)	1.66	41.5%	June 2007 Reconstituted Core 327

History: As of the January 1, 2001 BBI baseline, only a supernatant layer and a saltcake layer existed in tank 241-SY-101. The former crust layer had been put into solution through back dilutions of water. Three dilution and waste transfer operations between December 1999 and March 2000 removed more than 520,000 gallons of waste from the tank and added 434,000 gallons of dilution water (internal memorandum 74B50-00-030, "Tank 241-SY-101 Final Calculated Transfer and Dilution Volumes for Level Growth Remediation"). The inventory that was in the crust layer is now included in the supernatant and saltcake inventory. Since the January 1, 2001 BBI baseline the supernatant has been removed and replaced five times. The recent transfer history includes supernatant transfers from tank 241-SY-102 in February and March 2007 and supernatant transfers out to tank 241-AP-101 in February 2007 and to tank 241-AY-101 in March 2007. A transfer of 3 kgal of dilute waste from 219-S was received in July 2007. The waste type listed in Table 8-1 for the saltcake was taken from process knowledge and revision 4 of the HDW model (LA-UR-96-3860, *Hanford Tank Chemical and Radionuclide Inventories: HDW Model Rev. 4*). No waste type was assigned to the supernatant because of the diverse sources of the transfers to tank 241-SY-101.

Tank Volumes: The BBI overall tank waste volume as of January 1, 2009 of 4,195kL (1,108 kgal) was derived from the riser 1A AutoENRAF^{TM} surface-level reading of 403.01 inches [Tank Waste Information Network (TWINS), Queried 02/18/09]. Solids level data consists of two zip cord measurements were taken in August 2005 and May 2007, two gamma scans taken in February 2006 and two ENRAF displacer measurements taken in October 2007. These measurements bound the supernatant-saltcake transition zone where the gamma scans measure the top of the zone and the sludge weights and ENRAF displacers measure the bottom of the zone. The average saltcake height indicated by these measurements was 92.6 in. This saltcake height is equivalent to 964 kL (255 kgal). During the 1998/1999 sampling event, retained gas data were taken with a Retained Gas Sampler (RGS). This information is no longer representative of the waste, and a later estimate for retained gas in the saltcake layer is 8.9% by volume (RPP-10006, *Methodology and Calculations for the Assignment of Waste for the Large Underground Waste Storage Tanks at Hanford Site*). Note that the volume of the retained gas (and to a lesser extent the saltcake volume itself) is highly dependent on hydrostatic pressure and consequently will change as the volume and/or density of the supernatant changes as the result of waste transfers. For simplicity, the BBI will assume that the saltcake and associated gas volumes are unchanged unless measurements or analytical data clearly indicate significant saltcake precipitation or dissolution. Therefore, of the 964 kL (255 kgal) of total saltcake, 86 kL (23 kgal) is estimated to be retained gas. No inventory was attributed to the retained gas. By subtraction, the settled solids portion of the saltcake layer is 878 kL (232 kgal). The volume of the supernatant layer was calculated by subtracting the saltcake and retained gas volumes from the total volume, yielding a volume of 3,231 kL (854 kgal).

The concentrations and volumes provided for the saltcake represent both solids and interstitial liquids. Assuming an average in-tank saltcake drainable porosity of 0.24 (HNF-2978, *Updated Pumpable Liquid Volume Estimates and Jet Pump Durations for Interim Stabilization of Remaining Single-Shell Tanks*) the volume of drainable interstitial liquid present in the saltcake is estimated to be 231 kL (61 kgal), (964 kL × 0.24 = 231 kL).

Saltcake: The saltcake layer was most recently sampled in June 2007 by core sampling. Segments 18 and 21 from core 327 were analyzed in support of the corrosion mitigation and waste compatibility programs. Aliquots from both segments were centrifuged and interstitial liquid and centrifuged solids fractions were assayed separately. The chemical and radionuclide composition of the liquid and solid fractions from the two segments were very similar. Thus, although only about 50% of the saltcake layer was sampled, the analytical results from the reconstituted sample are considered to be representative of the entire saltcake layer. The centrifuged solids and centrifuged liquid concentrations were recombined using an average wt% centrifuged solids of 77.1 wt% calculated from the measured mass of the centrifuged solid and liquid sample phases. The derivation of the June 2007 Reconstituted Core 327 vector is found in SVF-1383, *SY-101 FY07 Q1 June 2007 Reconstituted Saltcake PK vector.xls*.

Because the grab samples were taken in April of 2000 shortly after the tank contents were mixed by a number of mixer pump runs, significant quantities of solids were found in the samples. All solid and liquid grab samples were centrifuged and analyzed to account for the solid and liquid inventories discretely. Therefore, the samples that were analyzed were assumed to be representative of both solids and supernatant. A rule-of-thumb for settling solids is to assume that the centrifuged solids properties are a more reasonable approximation of the final in-tank conditions than are the laboratory settled solids properties. Experimental results for the settling of simulated nuclear waste slurries in a 30-foot column (HNF-5177, *The Settling and Compaction of Nuclear Waste Slurries*) tend to validate this assumption. Therefore, no correction factor was applied to the centrifuged solids results.

With the exception of data for a few radionuclides, none of the data from core sampling events prior to April 2000 were used in this BBI because all of the BBI-relevant analytes measured in those events predate recent dilution and transfer history. Estimated radionuclide concentrations for ^{14}C, ^{79}Se, ^{93m}Nb and ^{93}Zr based on December 1991 core sample analytical data, have been included for use in the waste process modeling effort because more recent data are unavailable. Data from previous core sampling events were assessed to ensure proper component ratios resulting from the April 2000 grab samples. Additional discussion of these radionuclides is provided at the end of the text. All measurements were made on bulk samples except the analyses for some of the radionuclide species, e.g., ^{99}Tc, in the convective slurry, which were done on centrifuged fractions. Centrifuged fraction data for such analytes were combined according to weighting factors based on the liquid and solid weight percents in the bulk sample.

Where possible, data from the June 2007 Reconstituted Core 327 were used to characterize the saltcake followed by the April 2000 and June 2000 grab sample results. The June 2000 grab samples were analyzed for physical properties only. Estimates for ^{14}C, ^{79}Se, ^{93m}Nb, and ^{93}Zr were derived from the 1991 core sample data. For analytes with no sampling data or analytes that had large less-than values from analysis, values from the S2 salt slurry (S2-SltSlr) template were used. Templates are based on sampling data from tanks that contain the same waste type as tank 241-SY-101, supplemented with *Hanford Defined Waste Model – Revision 5* (RPP-19822) data. A multiplier was used to scale the template vectors to the sample data using sample weight percent water results and densities. The multiplier for the S2-SltSlr solids template was 0.915, as determined from the June 2007 Reconstituted Core 327 calculated weight percent water 41.5 percent and density of 1.66 g/mL. A more detailed description of template data is found in RPP-8847.

Supernatant: The process knowledge supernatant vector (SY101 Supernatant as of 1-1-2009) is derived in SVF-1692, *SY101 FY09 Q2 Supernatant PK Vector Rev 0.xls*). The starting point for the SY-101 FY07 Q3 supernatant process knowledge calculation was the October 1, 2005 BBI calculation detail report. The concentration of each constituent in the process knowledge vector as of April 1, 2007 was determined by converting the concentrations of each waste stream to total constituent mass, then adding the constituent masses from each waste stream together. The concentration was then calculated by dividing this total constituent mass by the current supernatant volume. Flush and dilution water were assumed to be pure water. The mass of each waste type was determined from incoming volumes and estimated specific gravities. Flush water was assigned a specific gravity of 1 g/mL. This estimate was re-baselined to the January 2006 mean grab sample analytical results and the 2007 core sample results for the SY-101 supernatant (external letter 06-ATL-018 and RPP-RPT-34606 respectively). The material balance incorporates:

- The May 2006 supernatant transfers to tank 241-AP-107 and from tank 241-SY-102
- The August-September 2006 and July 2007 supernatant waste transfers from the 219-S tank system (external letter 06-ATL-057 and RPP-RPT-33922 respectively),
- The February-March 2007 supernatant transfers from SY-102, the February 2007 supernatant transfer to 241-AP-101, and the March 2007 supernatant transfer to tanks AY-101, and November 2008 Supernatant Transfers to SY-101.

The sample-based inventories in this BBI were developed in accordance with the BBI rules in RPP-7625 except as noted below. All inventory calculations were performed using the BBIM Tool. The updated inventory values for tank 241-SY-101 are shown in the *Best-Basis Inventory Without Details* Standard Report. Radionuclides in the *Best-Basis Inventory Without Details* Standard Report are decay-corrected to January 1, 2008. Unique data treatments are discussed below by analyte.

Alpha-emitting isotopes: Data from analysis June 2007 core sample for UTOTAL, uranium isotopes, $^{239/240}$Pu, and ^{241}Am were used in conjunction with the template isotope distribution to derive inventories for the saltcake. For the supernatant, the uranium and alpha-emitting isotopes were calculated from the June 2007 supernatant sample results using the isotopic distribution of the process knowledge vector. The process knowledge vector is based on the starting 242-SY-101 inventory and the composition of waste transferred into and out of the tanks.

Radionuclides: The ^{129}I and ^{237}Np liquid and ^{14}C, ^{79}Se, and ^{93m}Nb liquids and solids concentration estimates have been derived for tank 241-SY-101 by using the analytical data from the December 1991 liquid and solids samples and adjusting for dilution and transfer of the waste.

For ^{14}C, ^{79}Se, and ^{93m}Nb, the total inventory was adjusted for the dilutions and transfers, and then the inventory was divided into the liquid and solids phases. The ^{14}C concentrations were derived by proportioning the diluted/transfer-adjusted value to the total inorganic carbon values measured in the liquid and solid phases during the April/June 2000 grab sample event. Selenium-79 and ^{93m}Nb were proportioned between phases based on the mean weight percent water results from the April/June 2000 grab sample event following the dilution and transfer adjustment. Zirconium-93 was estimated from the ^{93m}Nb daughter radionuclide. The ^{129}I and ^{237}Np analytical results for the solids were below detection limits and were not used because the detection limits were too high to provide reasonable inventory estimates. The ^{129}I and ^{237}Np analytical results for the liquids were used to provide estimates for the liquid phase. The ^{129}I liquid analysis results are all less than values that represent a conservative upper limit.

PCBs: Total PCB inventory is estimated per guidelines established in RPP-7625. The PCB concentration of the supernatant is based on the June 2007 supernatant core sample results (< 0.0026 µg/mL). A total PCB concentration of < 0.136 µg/g (wet weight) was calculated for the saltcake from an assay of an archived April/June 2000 sample. The analytical result was adjusted for water content, [< 0.27374 µg/g (dry basis) × (100 wt% – 50.4 wt%) / 100 wt%] (HNF-7445). Sample densities from the April/June 2000 centrifuged grab solids were applied to the saltcake PCB vector.

Summary of Changes Since Previous BBI Update: This update incorporates the addition of dilute lab waste added to the tank November 11, 2008. This changed the volume by 0.2% (after accounting for some evaporation) and did not change the inventory of the analytes appreciably. .

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Description of Tank 241-SY-101

TANK DESCRIPTION	
Type	Double Shell
Constructed	1974-1976
In-service	4/1977
Diameter	22.9 m (75 ft)
Operating Depth	1056.6 cm (416 in)
Design Capacity	4391 kL (1160 kgal)
Bottom shape	flat
Ventilation	Operating Exhauster
TANK STATUS (as of 7/1/2005)	
Total Waste Volume	4272 kL (1129 kgal)
Supernatant Volume	3231 kL (854 kgal)
Retained Gas Volume	NA
Retained Gas - Sludge Volume	NA
Retained Gas - Salt Cake Volume	93 kL (25 kgal)
Salt Cake Liquid Volume	NA
Salt Cake Solid Volume	948 kL (250 kgal)
Sludge Volume	NA
Surface Level (7/1/2005)	1,041.9 cm (410.2 inches)
PCSACS Surface Level (11/13/2005)	1,044.4 cm (411.2 inches)
Temperature (7/1/2004 - 6/30/2005)	13.3°C - 25.6°C (56.0°F - 78.0°F)
Temperature (10/2/2005)	20.9°C - 21.6°C (69.6°F - 70.9°F)
Integrity	Sound
Waste Group Designation	C
SAMPLING DATES (See Note Below)	
Core Samples	5/22/1991 - 5/26/1991
	6/4/1991 - 6/4/1991
	12/14/1991 - 12/16/1991
	11/9/1998 - 12/18/1998
	1/5/1999 - 1/19/1999
	3/8/1999 - 4/2/1999
Auger Samples	11/18/1990 - 11/18/1990
	5/20/1991 - 5/21/1991
	5/21/1991 - 5/21/1991
	5/24/1991 - 5/30/1991
Grab Samples	4/3/2000 - 4/6/2000
	6/20/2000 - 6/22/2000
	11/18/2002 - 11/18/2002
	11/21/2002 - 11/21/2002
	9/19/2003 - 9/19/2003
	10/14/2003 - 10/14/2003
SERVICE STATUS	
Declared Inactive	Active

Interim Stabilization	
Intrusion Prevention	N/A

Note: the date(s) shown here are taken from the sample chain of custody documents. The date(s) may be different than the dates indicated on the Core Profile standard report.

Riser Configuration for Tank 241-SY-101 Risers [1,2]

New Number	Old Number	Diameter (Inches)	Description and Comments
001	1C	4	Level Local Indicating Transmitter (ENRAF)
002	1A	4	Level Local Indicating Transmitter (ENRAF)
003	1B	4	Velocity Density Temperature Tree (VDTT)
004	2A	4	Non-Functional (bent)
005	3A	12	Spare
006	4A	4	Spare
007	5B	42	Prefabricated Pump Pit
008	5A	42	Multiport Riser / Camera and Instruments
009*	7B*	12	Tank Vent Air Inlet Filter
010	7A	12	Tank Vent Exhaust
011	11B	4	Spare
012*	11A*	4	Spare
013	12A	42	Mixer Pump
014*	13A*	12	Radar Level Gauge
015	14A	4	Velocity Density Temperature Tree (VDTT)
016	15A	4	Central Pump Pit Supernatant Return Dropleg Nozzle
017	16A	4	Gas Monitor Probe
018*	17B*	4	Multi-Functional Instrument Tree (MIT)
019	17C	4	Multi-Functional Instrument Tree (MIT)
020	17A	4	Tank Level Indicator – Manual Tape
021*	22A*	4	Spare
022*	23A*	4	Spare
024	25B	20	Nonfunctional (Heat Treat Vent, below grade)
025	25A	20	Nonfunctional (Heat Treat Vent, below grade)

Notes:

[1] Salazar (1994)
[2] H-14-010531, Sheet 1 Rev. 5

* Denotes risers tentatively available for sampling (Lipnicki 1997).

Tank 241-SY-101 Best Basis Inventory Without Details
Decayed To: January 1, 2008
Effective Date: January 1, 2009
Published On: April 6, 2009
Best Basis Derivation

Analyte	Waste Phase	Waste Type	Volume	Concentration	Inventory	Basis	Comment
Al	Saltcake (Liquid & Solid)	S2-SltSlr (Solid)	878 kL	3.63E+ 04 µg/g	5.29E+ 04 kg	E	
Al	Supernatant	NA (Liquid)	3231 kL	3.34E+ 03 µg/g	1.22E+ 04 kg	E	
Al	**Total**		**4109 kL**		**6.51E+ 04 kg**		
Bi	Saltcake (Liquid & Solid)	S2-SltSlr (Solid)	878 kL	2.27E+ 01 µg/g	3.25E+ 01 kg	E	
Bi	Supernatant	NA (Liquid)	3231 kL	1.19E+ 01 µg/g	4.33E+ 01 kg	E	
Bi	**Total**		**4109 kL**		**7.58E+ 01 kg**		Upper bounding estimate
Ca	Saltcake (Liquid & Solid)	S2-SltSlr (Solid)	878 kL	4.01E+ 02 µg/g	5.85E+ 02 kg	E	
Ca	Supernatant	NA (Liquid)	3231 kL	1.82E+ 01 µg/g	6.65E+ 01 kg	E	
Ca	**Total**		**4109 kL**		**6.52E+ 02 kg**		
Cl	Saltcake (Liquid & Solid)	S2-SltSlr (Solid)	878 kL	4.82E+ 03 µg/g	7.02E+ 03 kg	E	
Cl	Supernatant	NA (Liquid)	3231 kL	7.14E+ 02 µg/g	2.61E+ 03 kg	E	
Cl	**Total**		**4109 kL**		**9.63E+ 03 kg**		
TIC as CO3	Saltcake (Liquid & Solid)	S2-SltSlr (Solid)	878 kL	1.95E+ 04 µg/g	2.84E+ 04 kg	E	

Analyte	Waste Phase	Waste Type	Volume	Concentration	Inventory	Basis	Comment
TIC as CO3	Supernatant	NA (Liquid)	3231 kL	7.02E+ 03 μg/g	2.56E+ 04 kg	E	
TIC as CO3	**Total**		**4109 kL**		**5.40E+ 04 kg**		
Cr	Saltcake (Liquid & Solid)	S2-SltSlr (Solid)	878 kL	1.73E+ 04 μg/g	2.53E+ 04 kg	E	
Cr	Supernatant	NA (Liquid)	3231 kL	9.39E+ 01 μg/g	3.43E+ 02 kg	E	
Cr	**Total**		**4109 kL**		**2.56E+ 04 kg**		
F	Saltcake (Liquid & Solid)	S2-SltSlr (Solid)	878 kL	2.74E+ 01 μg/g	3.99E+ 01 kg	E	
F	Supernatant	NA (Liquid)	3231 kL	4.63E+ 02 μg/g	1.69E+ 03 kg	E	
F	**Total**		**4109 kL**		**1.73E+ 03 kg**		.
Fe	Saltcake (Liquid & Solid)	S2-SltSlr (Solid)	878 kL	1.11E+ 03 μg/g	1.62E+ 03 kg	E	
Fe	Supernatant	NA (Liquid)	3231 kL	1.57E+ 00 μg/g	5.74E+ 00 kg	E	
Fe	**Total**		**4109 kL**		**1.62E+ 03 kg**		
Hg	Saltcake (Liquid & Solid)	S2-SltSlr (Solid)	878 kL	4.00E-1 μg/g	5.34E-1 kg	S	
Hg	Supernatant	NA (Liquid)	3231 kL	1.85E-3 μg/g	6.75E-3 kg	E	
Hg	**Total**		**4109 kL**		**5.41E-1 kg**		.
K	Saltcake (Liquid & Solid)	S2-SltSlr (Solid)	878 kL	1.50E+ 03 μg/g	2.18E+ 03 kg	E	
K	Supernatant	NA (Liquid)	3231 kL	2.38E+ 02 μg/g	8.68E+ 02 kg	E	
K	**Total**		**4109 kL**		**3.05E+ 03 kg**		
La	Saltcake (Liquid & Solid)	S2-SltSlr (Solid)	878 kL	1.89E+ 01 μg/g	2.75E+ 01 kg	E	

Analyte	Waste Phase	Waste Type	Volume	Concentration	Inventory	Basis	Comment
La	Supernatant	NA (Liquid)	3231 kL	1.94E+ 00 µg/g	7.09E+ 00 kg	E	
La	**Total**		**4109 kL**		**3.46E+ 01 kg**		Upper bounding estimate
Mn	Saltcake (Liquid & Solid)	S2-SltSlr (Solid)	878 kL	3.32E+ 02 µg/g	4.84E+ 02 kg	E	
Mn	Supernatant	NA (Liquid)	3231 kL	1.02E+ 00 µg/g	3.72E+ 00 kg	E	
Mn	**Total**		**4109 kL**		**4.88E+ 02 kg**		
Na	Saltcake (Liquid & Solid)	S2-SltSlr (Solid)	878 kL	1.39E+ 05 µg/g	2.02E+ 05 kg	E	
Na	Supernatant	NA (Liquid)	3231 kL	4.97E+ 04 µg/g	1.82E+ 05 kg	E	
Na	**Total**		**4109 kL**		**3.83E+ 05 kg**		
Ni	Saltcake (Liquid & Solid)	S2-SltSlr (Solid)	878 kL	2.84E+ 02 µg/g	4.14E+ 02 kg	E	
Ni	Supernatant	NA (Liquid)	3231 kL	3.91E+ 00 µg/g	1.43E+ 01 kg	E	
Ni	**Total**		**4109 kL**		**4.29E+ 02 kg**		Upper bounding estimate
NO2	Saltcake (Liquid & Solid)	S2-SltSlr (Solid)	878 kL	5.38E+ 04 µg/g	7.84E+ 04 kg	E	
NO2	Supernatant	NA (Liquid)	3231 kL	8.22E+ 03 µg/g	3.00E+ 04 kg	E	
NO2	**Total**		**4109 kL**		**1.08E+ 05 kg**		
NO3	Saltcake (Liquid & Solid)	S2-SltSlr (Solid)	878 kL	8.01E+ 04 µg/g	1.17E+ 05 kg	E	
NO3	Supernatant	NA (Liquid)	3231 kL	5.09E+ 04 µg/g	1.86E+ 05 kg	E	
NO3	**Total**		**4109 kL**		**3.03E+ 05 kg**		
Oxalate	Saltcake (Liquid & Solid)	S2-SltSlr (Solid)	878 kL	8.99E+ 04 µg/g	1.31E+ 05 kg	E	

Analyte	Waste Phase	Waste Type	Volume	Concentration	Inventory	Basis	Comment
Oxalate	Supernatant	NA (Liquid)	3231 kL	1.89E+ 03 µg/g	6.90E+ 03 kg	E	
Oxalate	**Total**		**4109 kL**		**1.38E+ 05 kg**		Supernatant calculated from ratio with TOC
Pb	Saltcake (Liquid & Solid)	S2-SltSlr (Solid)	878 kL	2.76E+ 02 µg/g	4.02E+ 02 kg	E	
Pb	Supernatant	NA (Liquid)	3231 kL	1.01E+ 01 µg/g	3.70E+ 01 kg	E	
Pb	**Total**		**4109 kL**		**4.39E+ 02 kg**		Upper bounding estimate
PO4	Saltcake (Liquid & Solid)	S2-SltSlr (Solid)	878 kL	4.42E+ 03 µg/g	6.44E+ 03 kg	E	
PO4	Supernatant	NA (Liquid)	3231 kL	9.29E+ 03 µg/g	3.39E+ 04 kg	E	
PO4	**Total**		**4109 kL**		**4.03E+ 04 kg**		.
Si	Saltcake (Liquid & Solid)	S2-SltSlr (Solid)	878 kL	2.52E+ 02 µg/g	3.68E+ 02 kg	E	
Si	Supernatant	NA (Liquid)	3231 kL	8.22E+ 01 µg/g	3.00E+ 02 kg	E	
Si	**Total**		**4109 kL**		**6.68E+ 02 kg**		
SO4	Saltcake (Liquid & Solid)	S2-SltSlr (Solid)	878 kL	2.60E+ 03 µg/g	3.79E+ 03 kg	E	
SO4	Supernatant	NA (Liquid)	3231 kL	1.96E+ 03 µg/g	7.16E+ 03 kg	E	
SO4	**Total**		**4109 kL**		**1.09E+ 04 kg**		.
Sr	Saltcake (Liquid & Solid)	S2-SltSlr (Solid)	878 kL	1.25E+ 00 µg/g	1.83E+ 00 kg	C	
Sr	Supernatant	NA (Liquid)	3231 kL	9.77E-1 µg/g	3.57E+ 00 kg	E	
Sr	**Total**		**4109 kL**		**5.39E+ 00 kg**		Upper bounding estimate

Analyte	Waste Phase	Waste Type	Volume	Concentration	Inventory	Basis	Comment
TOC	Saltcake (Liquid & Solid)	S2-SltSlr (Solid)	878 kL	3.00E+ 04 µg/g	4.37E+ 04 kg	E	
TOC	Supernatant	NA (Liquid)	3231 kL	8.78E+ 02 µg/g	3.20E+ 03 kg	E	
TOC	**Total**		**4109 kL**		**4.69E+ 04 kg**		.
UTOTAL	Saltcake (Liquid & Solid)	S2-SltSlr (Solid)	878 kL	3.39E+ 02 µg/g	4.94E+ 02 kg	E	
UTOTAL	Supernatant	NA (Liquid)	3231 kL	1.94E+ 01 µg/g	7.09E+ 01 kg	E	
UTOTAL	**Total**		**4109 kL**		**5.65E+ 02 kg**		Upper bounding estimate
Zr	Saltcake (Liquid & Solid)	S2-SltSlr (Solid)	878 kL	2.75E+ 01 µg/g	4.01E+ 01 kg	E	
Zr	Supernatant	NA (Liquid)	3231 kL	9.77E-1 µg/g	3.57E+ 00 kg	E	
Zr	**Total**		**4109 kL**		**4.37E+ 01 kg**		Upper bounding estimate
3H	Saltcake (Liquid & Solid)	S2-SltSlr (Solid)	878 kL	9.57E-3 µCi/g	1.37E+ 01 Ci	E	
3H	Supernatant	NA (Liquid)	3231 kL	2.94E-3 µCi/g	1.07E+ 01 Ci	E	
3H	**Total**		**4109 kL**		**2.44E+ 01 Ci**		
14C	Saltcake (Liquid & Solid)	S2-SltSlr (Solid)	878 kL	4.53E-4 µCi/g	6.05E-1 Ci	E	
14C	Supernatant	NA (Liquid)	3231 kL	2.07E-3 µCi/g	7.57E+ 00 Ci	E	
14C	**Total**		**4109 kL**		**8.17E+ 00 Ci**		
59Ni	Saltcake (Liquid & Solid)	S2-SltSlr (Solid)	878 kL	8.37E-4 µCi/g	1.20E+ 00 Ci	E	
59Ni	Supernatant	NA (Liquid)	3231 kL	8.86E-4 µCi/g	3.23E+ 00 Ci	E	
59Ni	**Total**		**4109 kL**		**4.43E+ 00 Ci**		

Analyte	Waste Phase	Waste Type	Volume	Concentration	Inventory	Basis	Comment
60Co	Saltcake (Liquid & Solid)	S2-SltSlr (Solid)	878 kL	6.82E-3 µCi/g	9.76E+ 00 Ci	E	
60Co	Supernatant	NA (Liquid)	3231 kL	2.07E-4 µCi/g	7.55E-1 Ci	E	
60Co	**Total**		**4109 kL**		**1.05E+ 01 Ci**		Upper bounding estimate
63Ni	Saltcake (Liquid & Solid)	S2-SltSlr (Solid)	878 kL	7.62E-2 µCi/g	1.09E+ 02 Ci	E	
63Ni	Supernatant	NA (Liquid)	3231 kL	7.95E-2 µCi/g	2.90E+ 02 Ci	E	
63Ni	**Total**		**4109 kL**		**3.99E+ 02 Ci**		
79Se	Saltcake (Liquid & Solid)	S2-SltSlr (Solid)	878 kL	1.32E-4 µCi/g	1.76E-1 Ci	E	
79Se	Supernatant	NA (Liquid)	3231 kL	1.70E-4 µCi/g	6.19E-1 Ci	E	
79Se	**Total**		**4109 kL**		**7.95E-1 Ci**		
90Sr	Saltcake (Liquid & Solid)	S2-SltSlr (Solid)	878 kL	5.13E+ 01 µCi/g	7.48E+ 04 Ci	E	
90Sr	Supernatant	NA (Liquid)	3231 kL	2.05E-2 µCi/g	7.48E+ 01 Ci	E	
90Sr	**Total**		**4109 kL**		**7.49E+ 04 Ci**		
90Y	Saltcake (Liquid & Solid)	S2-SltSlr (Solid)	878 kL	5.13E+ 01 µCi/g	7.48E+ 04 Ci	C	
90Y	Supernatant	NA (Liquid)	3231 kL	2.05E-2 µCi/g	7.48E+ 01 Ci	C	
90Y	**Total**		**4109 kL**		**7.49E+ 04 Ci**		Based on 90Sr
93Zr	Saltcake (Liquid & Solid)	S2-SltSlr (Solid)	878 kL	4.05E-3 µCi/g	5.40E+ 00 Ci	E	
93Zr	Supernatant	NA (Liquid)	3231 kL	5.86E-3 µCi/g	2.14E+ 01 Ci	E	
93Zr	**Total**		**4109 kL**		**2.68E+ 01 Ci**		

Analyte	Waste Phase	Waste Type	Volume	Concentration	Inventory	Basis	Comment
93mNb	Saltcake (Liquid & Solid)	S2-SltSlr (Solid)	878 kL	3.50E-3 µCi/g	4.67E+ 00 Ci	E	
93mNb	Supernatant	NA (Liquid)	3231 kL	5.69E-3 µCi/g	1.84E+ 01 Ci	E	
93mNb	**Total**		**4109 kL**		**2.31E+ 01 Ci**		
99Tc	Saltcake (Liquid & Solid)	S2-SltSlr (Solid)	878 kL	1.93E-1 µCi/g	2.58E+ 02 Ci	S	
99Tc	Supernatant	NA (Liquid)	3231 kL	1.11E-2 µCi/g	4.05E+ 01 Ci	E	
99Tc	**Total**		**4109 kL**		**2.98E+ 02 Ci**		
106Ru	Saltcake (Liquid & Solid)	S2-SltSlr (Solid)	878 kL	3.65E-10 µCi/g	5.23E-7 Ci	E	
106Ru	Supernatant	NA (Liquid)	3231 kL	1.39E-10 µCi/g	5.07E-7 Ci	E	
106Ru	**Total**		**4109 kL**		**1.03E-6 Ci**		
113mCd	Saltcake (Liquid & Solid)	S2-SltSlr (Solid)	878 kL	1.39E-2 µCi/g	2.00E+ 01 Ci	E	
113mCd	Supernatant	NA (Liquid)	3231 kL	6.81E-3 µCi/g	2.49E+ 01 Ci	E	
113mCd	**Total**		**4109 kL**		**4.48E+ 01 Ci**		
125Sb	Saltcake (Liquid & Solid)	S2-SltSlr (Solid)	878 kL	4.27E-4 µCi/g	6.11E-1 Ci	E	
125Sb	Supernatant	NA (Liquid)	3231 kL	6.80E-4 µCi/g	2.48E+ 00 Ci	E	
125Sb	**Total**		**4109 kL**		**3.09E+ 00 Ci**		
126Sn	Saltcake (Liquid & Solid)	S2-SltSlr (Solid)	878 kL	1.42E-3 µCi/g	2.04E+ 00 Ci	E	
126Sn	Supernatant	NA (Liquid)	3231 kL	5.11E-4 µCi/g	1.87E+ 00 Ci	E	
126Sn	**Total**		**4109 kL**		**3.90E+ 00 Ci**		
129I	Saltcake (Liquid & Solid)	S2-SltSlr (Solid)	878 kL	1.02E-4 µCi/g	1.47E-1 Ci	E	

Analyte	Waste Phase	Waste Type	Volume	Concentration	Inventory	Basis	Comment
129I	Supernatant	NA (Liquid)	3231 kL	4.21E-5 µCi/g	1.54E-1 Ci	E	
129I	**Total**		**4109 kL**		**3.00E-1 Ci**		.
134Cs	Saltcake (Liquid & Solid)	S2-SltSlr (Solid)	878 kL	1.53E-5 µCi/g	2.19E-2 Ci	E	
134Cs	Supernatant	NA (Liquid)	3231 kL	3.67E-6 µCi/g	1.34E-2 Ci	E	
134Cs	**Total**		**4109 kL**		**3.53E-2 Ci**		
137Cs	Saltcake (Liquid & Solid)	S2-SltSlr (Solid)	878 kL	1.33E+ 02 µCi/g	1.94E+ 05 Ci	E	
137Cs	Supernatant	NA (Liquid)	3231 kL	2.06E+ 01 µCi/g	7.54E+ 04 Ci	E	
137Cs	**Total**		**4109 kL**		**2.70E+ 05 Ci**		
137mBa	Saltcake (Liquid & Solid)	S2-SltSlr (Solid)	878 kL	1.26E+ 02 µCi/g	1.83E+ 05 Ci	C	
137mBa	Supernatant	NA (Liquid)	3231 kL	1.95E+ 01 µCi/g	7.11E+ 04 Ci	C	
137mBa	**Total**		**4109 kL**		**2.55E+ 05 Ci**		Based on 137Cs
151Sm	Saltcake (Liquid & Solid)	S2-SltSlr (Solid)	878 kL	2.31E+ 00 µCi/g	3.31E+ 03 Ci	E	
151Sm	Supernatant	NA (Liquid)	3231 kL	2.53E+ 00 µCi/g	9.23E+ 03 Ci	E	
151Sm	**Total**		**4109 kL**		**1.25E+ 04 Ci**		
152Eu	Saltcake (Liquid & Solid)	S2-SltSlr (Solid)	878 kL	2.22E-3 µCi/g	3.18E+ 00 Ci	E	
152Eu	Supernatant	NA (Liquid)	3231 kL	5.61E-4 µCi/g	2.05E+ 00 Ci	E	
152Eu	**Total**		**4109 kL**		**5.22E+ 00 Ci**		
154Eu	Saltcake (Liquid & Solid)	S2-SltSlr (Solid)	878 kL	2.78E-1 µCi/g	4.06E+ 02 Ci	E	
154Eu	Supernatant	NA (Liquid)	3231 kL	6.78E-4 µCi/g	2.47E+ 00 Ci	E	
154Eu	**Total**		**4109 kL**		**4.08E+ 02 Ci**		.

Analyte	Waste Phase	Waste Type	Volume	Concentration	Inventory	Basis	Comment
155Eu	Saltcake (Liquid & Solid)	S2-SltSlr (Solid)	878 kL	3.82E-2 µCi/g	5.47E+ 01 Ci	E	
155Eu	Supernatant	NA (Liquid)	3231 kL	7.19E-3 µCi/g	2.63E+ 01 Ci	E	
155Eu	**Total**		**4109 kL**		**8.10E+ 01 Ci**		Upper bounding estimate
226Ra	Saltcake (Liquid & Solid)	S2-SltSlr (Solid)	878 kL	2.87E-8 µCi/g	4.11E-5 Ci	E	
226Ra	Supernatant	NA (Liquid)	3231 kL	1.89E-8 µCi/g	6.91E-5 Ci	E	
226Ra	**Total**		**4109 kL**		**1.10E-4 Ci**		
227Ac	Saltcake (Liquid & Solid)	S2-SltSlr (Solid)	878 kL	1.97E-6 µCi/g	2.82E-3 Ci	E	
227Ac	Supernatant	NA (Liquid)	3231 kL	7.02E-7 µCi/g	2.27E-3 Ci	E	
227Ac	**Total**		**4109 kL**		**5.08E-3 Ci**		
228Ra	Saltcake (Liquid & Solid)	S2-SltSlr (Solid)	878 kL	3.02E-8 µCi/g	4.32E-5 Ci	C	
228Ra	Supernatant	NA (Liquid)	3231 kL	6.89E-8 µCi/g	2.52E-4 Ci	C	
228Ra	**Total**		**4109 kL**		**2.95E-4 Ci**		Based on 232Th
229Th	Saltcake (Liquid & Solid)	S2-SltSlr (Solid)	878 kL	8.66E-9 µCi/g	1.24E-5 Ci	E	
229Th	Supernatant	NA (Liquid)	3231 kL	1.00E-7 µCi/g	3.67E-4 Ci	E	
229Th	**Total**		**4109 kL**		**3.79E-4 Ci**		
231Pa	Saltcake (Liquid & Solid)	S2-SltSlr (Solid)	878 kL	9.15E-6 µCi/g	1.31E-2 Ci	E	
231Pa	Supernatant	NA (Liquid)	3231 kL	2.42E-6 µCi/g	8.85E-3 Ci	E	
231Pa	**Total**		**4109 kL**		**2.19E-2 Ci**		

Analyte	Waste Phase	Waste Type	Volume	Concentration	Inventory	Basis	Comment
232Th	Saltcake (Liquid & Solid)	S2-SltSlr (Solid)	878 kL	3.02E-8 µCi/g	4.32E-5 Ci	E	
232Th	Supernatant	NA (Liquid)	3231 kL	6.89E-8 µCi/g	2.52E-4 Ci	E	
232Th	**Total**		**4109 kL**		**2.95E-4 Ci**		Upper bounding estimate
232U	Saltcake (Liquid & Solid)	S2-SltSlr (Solid)	878 kL	3.73E-6 µCi/g	5.44E-3 Ci	C	
232U	Supernatant	NA (Liquid)	3231 kL	3.18E-7 µCi/g	1.16E-3 Ci	E	
232U	**Total**		**4109 kL**		**6.60E-3 Ci**		Upper bounding estimate
233U	Saltcake (Liquid & Solid)	S2-SltSlr (Solid)	878 kL	5.59E-4 µCi/g	8.15E-1 Ci	E	
233U	Supernatant	NA (Liquid)	3231 kL	1.23E-5 µCi/g	4.50E-2 Ci	E	
233U	**Total**		**4109 kL**		**8.60E-1 Ci**		Saltcake based on UTOTAL and template isotopic distribution
234U	Saltcake (Liquid & Solid)	S2-SltSlr (Solid)	878 kL	1.28E-4 µCi/g	1.87E-1 Ci	E	
234U	Supernatant	NA (Liquid)	3231 kL	6.91E-6 µCi/g	2.52E-2 Ci	E	
234U	**Total**		**4109 kL**		**2.12E-1 Ci**		Upper bounding estimate
235U	Saltcake (Liquid & Solid)	S2-SltSlr (Solid)	878 kL	4.86E-6 µCi/g	7.09E-3 Ci	E	
235U	Supernatant	NA (Liquid)	3231 kL	2.89E-7 µCi/g	1.06E-3 Ci	E	
235U	**Total**		**4109 kL**		**8.14E-3 Ci**		Upper bounding estimate

Analyte	Waste Phase	Waste Type	Volume	Concentration	Inventory	Basis	Comment
236U	Saltcake (Liquid & Solid)	S2-SltSlr (Solid)	878 kL	2.75E-6 µCi/g	4.00E-3 Ci	E	
236U	Supernatant	NA (Liquid)	3231 kL	1.70E-7 µCi/g	6.22E-4 Ci	E	
236U	**Total**		**4109 kL**		**4.62E-3 Ci**		Upper bounding estimate
237Np	Saltcake (Liquid & Solid)	S2-SltSlr (Solid)	878 kL	3.98E-4 µCi/g	5.70E-1 Ci	E	
237Np	Supernatant	NA (Liquid)	3231 kL	1.98E-4 µCi/g	7.21E-1 Ci	E	
237Np	**Total**		**4109 kL**		**1.29E+ 00 Ci**		.
238Pu	Saltcake (Liquid & Solid)	S2-SltSlr (Solid)	878 kL	8.98E-3 µCi/g	1.31E+ 01 Ci	E	
238Pu	Supernatant	NA (Liquid)	3231 kL	2.63E-6 µCi/g	9.61E-3 Ci	E	
238Pu	**Total**		**4109 kL**		**1.31E+ 01 Ci**		Saltcake based on 239Pu and template isotopic distribution
238U	Saltcake (Liquid & Solid)	S2-SltSlr (Solid)	878 kL	1.13E-4 µCi/g	1.65E-1 Ci	E	
238U	Supernatant	NA (Liquid)	3231 kL	6.48E-6 µCi/g	2.37E-2 Ci	E	
238U	**Total**		**4109 kL**		**1.89E-1 Ci**		Upper bounding estimate
239Pu	Saltcake (Liquid & Solid)	S2-SltSlr (Solid)	878 kL	4.31E-2 µCi/g	6.28E+ 01 Ci	C	
239Pu	Supernatant	NA (Liquid)	3231 kL	3.32E-5 µCi/g	1.21E-1 Ci	E	
239Pu	**Total**		**4109 kL**		**6.29E+ 01 Ci**		Saltcake based on 239/240Pu and template isotopic distribution

Analyte	Waste Phase	Waste Type	Volume	Concentration	Inventory	Basis	Comment
240Pu	Saltcake (Liquid & Solid)	S2-SltSlr (Solid)	878 kL	9.24E-3 μCi/g	1.35E+ 01 Ci	C	
240Pu	Supernatant	NA (Liquid)	3231 kL	7.31E-6 μCi/g	2.67E-2 Ci	E	
240Pu	**Total**		**4109 kL**		**1.35E+ 01 Ci**		Saltcake based on 239/240Pu and template isotopic distribution
241Am	Saltcake (Liquid & Solid)	S2-SltSlr (Solid)	878 kL	4.90E-1 μCi/g	7.14E+ 02 Ci	E	
241Am	Supernatant	NA (Liquid)	3231 kL	4.59E-5 μCi/g	1.68E-1 Ci	E	
241Am	**Total**		**4109 kL**		**7.14E+ 02 Ci**		Based on 241Am Sample
241Pu	Saltcake (Liquid & Solid)	S2-SltSlr (Solid)	878 kL	5.02E-2 μCi/g	7.32E+ 01 Ci	C	
241Pu	Supernatant	NA (Liquid)	3231 kL	2.58E-5 μCi/g	9.41E-2 Ci	E	
241Pu	**Total**		**4109 kL**		**7.33E+ 01 Ci**		Saltcake based on 239Pu and template isotopic distribution
242Cm	Saltcake (Liquid & Solid)	S2-SltSlr (Solid)	878 kL	1.25E-3 μCi/g	1.82E+ 00 Ci	C	
242Cm	Supernatant	NA (Liquid)	3231 kL	5.34E-8 μCi/g	1.95E-4 Ci	E	
242Cm	**Total**		**4109 kL**		**1.82E+ 00 Ci**		Saltcake based on 241Am and template isotopic distribution
242Pu	Saltcake (Liquid & Solid)	S2-SltSlr (Solid)	878 kL	5.78E-7 μCi/g	8.42E-4 Ci	C	
242Pu	Supernatant	NA (Liquid)	3231 kL	2.97E-10 μCi/g	1.08E-6 Ci	E	

Analyte	Waste Phase	Waste Type	Volume	Concentration	Inventory	Basis	Comment
242Pu	**Total**		**4109 kL**		**8.43E-4 Ci**		Saltcake based on 239Pu and template isotopic distribution
243Am	Saltcake (Liquid & Solid)	S2-SltSlr (Solid)	878 kL	2.86E-4 µCi/g	4.16E-1 Ci	C	
243Am	Supernatant	NA (Liquid)	3231 kL	1.40E-8 µCi/g	5.12E-5 Ci	E	
243Am	**Total**		**4109 kL**		**4.17E-1 Ci**		Saltcake based on 241Am and template isotopic distribution
243Cm	Saltcake (Liquid & Solid)	S2-SltSlr (Solid)	878 kL	3.93E-5 µCi/g	5.72E-2 Ci	C	
243Cm	Supernatant	NA (Liquid)	3231 kL	1.74E-9 µCi/g	6.36E-6 Ci	E	
243Cm	**Total**		**4109 kL**		**5.72E-2 Ci**		Saltcake based on 241Am and template isotopic distribution
244Cm	Saltcake (Liquid & Solid)	S2-SltSlr (Solid)	878 kL	8.66E-4 µCi/g	1.26E+ 00 Ci	C	
244Cm	Supernatant	NA (Liquid)	3231 kL	3.84E-8 µCi/g	1.40E-4 Ci	E	
244Cm	**Total**		**4109 kL**		**1.40E-4 Ci**		Saltcake based on 241Am and template isotopic distribution

Tank 241-SY-101 Best Basis Inventory Without Details -- Supplementals
Decayed To: January 1, 2008
Effective Date: January 1, 2009
Published On: April 6, 2009
Best Basis Derivation
The water concentration is applicable to the time of sampling and may change with time; no water inventory is calculated.

Analyte	Waste Phase	Waste Type	Volume	Concentration	Inventory	Basis	Comment
Ag	Saltcake (Liquid & Solid)	S2-SltSlr (Solid)	878 kL	3.62E+ 00 µg/g	5.27E+ 00 kg	E	
Ag	Supernatant	NA (Liquid)	3231 kL	9.80E-1 µg/g	3.58E+ 00 kg	E	
Ag	**Total**		**4109 kL**		**8.85E+ 00 kg**		Upper bounding estimate
As	Saltcake (Liquid & Solid)	S2-SltSlr (Solid)	878 kL	4.34E+ 01 µg/g	6.32E+ 01 kg	E	
As	Supernatant	NA (Liquid)	3231 kL	1.16E+ 01 µg/g	4.25E+ 01 kg	E	
As	**Total**		**4109 kL**		**1.06E+ 02 kg**		Upper bounding estimate
B	Saltcake (Liquid & Solid)	S2-SltSlr (Solid)	878 kL	4.24E+ 01 µg/g	6.18E+ 01 kg	E	
B	Supernatant	NA (Liquid)	3231 kL	8.00E+ 00 µg/g	2.92E+ 01 kg	E	
B	**Total**		**4109 kL**		**9.10E+ 01 kg**		
Ba	Saltcake (Liquid & Solid)	S2-SltSlr (Solid)	878 kL	1.35E+ 01 µg/g	1.97E+ 01 kg	E	
Ba	Supernatant	NA (Liquid)	3231 kL	9.98E-1 µg/g	3.64E+ 00 kg	E	
Ba	**Total**		**4109 kL**		**2.33E+ 01 kg**		Upper bounding estimate

Analyte	Waste Phase	Waste Type	Volume	Concentration	Inventory	Basis	Comment
Be	Saltcake (Liquid & Solid)	S2-SltSlr (Solid)	878 kL	7.32E-1 µg/g	1.07E+ 00 kg	E	
Be	Supernatant	NA (Liquid)	3231 kL	1.94E-1 µg/g	7.09E-1 kg	E	
Be	**Total**		**4109 kL**		**1.78E+ 00 kg**		Upper bounding estimate
Cd	Saltcake (Liquid & Solid)	S2-SltSlr (Solid)	878 kL	5.75E+ 01 µg/g	8.38E+ 01 kg	E	
Cd	Supernatant	NA (Liquid)	3231 kL	9.70E-1 µg/g	3.54E+ 00 kg	E	
Cd	**Total**		**4109 kL**		**8.74E+ 01 kg**		
Ce	Saltcake (Liquid & Solid)	S2-SltSlr (Solid)	878 kL	3.62E+ 01 µg/g	5.27E+ 01 kg	E	
Ce	Supernatant	NA (Liquid)	3231 kL	9.69E+ 00 µg/g	3.54E+ 01 kg	E	
Ce	**Total**		**4109 kL**		**8.81E+ 01 kg**		Upper bounding estimate
Co	Saltcake (Liquid & Solid)	S2-SltSlr (Solid)	878 kL	7.23E+ 00 µg/g	1.05E+ 01 kg	E	
Co	Supernatant	NA (Liquid)	3231 kL	1.94E+ 00 µg/g	7.08E+ 00 kg	E	
Co	**Total**		**4109 kL**		**1.76E+ 01 kg**		Upper bounding estimate
Cu	Saltcake (Liquid & Solid)	S2-SltSlr (Solid)	878 kL	1.19E+ 01 µg/g	1.73E+ 01 kg	E	
Cu	Supernatant	NA (Liquid)	3231 kL	9.86E-1 µg/g	3.60E+ 00 kg	E	
Cu	**Total**		**4109 kL**		**2.09E+ 01 kg**		Upper bounding estimate
Li	Saltcake (Liquid & Solid)	S2-SltSlr (Solid)	878 kL	8.53E+ 00 µg/g	1.24E+ 01 kg	E	
Li	Supernatant	NA (Liquid)	3231 kL	1.94E+ 00 µg/g	7.08E+ 00 kg	E	

Analyte	Waste Phase	Waste Type	Volume	Concentration	Inventory	Basis	Comment
Li	**Total**		**4109 kL**		**1.95E+ 01 kg**		Upper bounding estimate
Mg	Saltcake (Liquid & Solid)	S2-SltSlr (Solid)	878 kL	3.62E+ 01 μg/g	5.27E+ 01 kg	E	
Mg	Supernatant	NA (Liquid)	3231 kL	9.72E+ 00 μg/g	3.55E+ 01 kg	E	
Mg	**Total**		**4109 kL**		**8.82E+ 01 kg**		Upper bounding estimate
Mo	Saltcake (Liquid & Solid)	S2-SltSlr (Solid)	878 kL	5.22E+ 01 μg/g	7.60E+ 01 kg	E	
Mo	Supernatant	NA (Liquid)	3231 kL	9.69E+ 00 μg/g	3.54E+ 01 kg	E	
Mo	**Total**		**4109 kL**		**1.11E+ 02 kg**		Upper bounding estimate
Nd	Saltcake (Liquid & Solid)	S2-SltSlr (Solid)	878 kL	7.49E+ 01 μg/g	1.09E+ 02 kg	E	
Nd	Supernatant	NA (Liquid)	3231 kL	3.88E+ 00 μg/g	1.42E+ 01 kg	E	
Nd	**Total**		**4109 kL**		**1.23E+ 02 kg**		Upper bounding estimate
Free OH	Saltcake (Liquid & Solid)	S2-SltSlr (Solid)	878 kL	1.96E+ 04 μg/g	2.86E+ 04 kg	E	
Free OH	Supernatant	NA (Liquid)	3231 kL	9.83E+ 03 μg/g	3.59E+ 04 kg	E	
Free OH	**Total**		**4109 kL**		**6.44E+ 04 kg**		
Aroclors (Total PCB)	Saltcake (Liquid & Solid)	S2-SltSlr (Solid)	878 kL	1.36E-1 μg/g	1.81E-1 kg	S	
Aroclors (Total PCB)	Supernatant	NA (Liquid)	3231 kL	2.31E-3 μg/g	8.42E-3 kg	E	

Analyte	Waste Phase	Waste Type	Volume	Concentration	Inventory	Basis	Comment
Aroclors (Total PCB)	**Total**		**4109 kL**		**1.90E-1 kg**		Upper bounding estimate
Pd	Saltcake (Liquid & Solid)	S2-SltSlr (Solid)	878 kL	7.23E+ 01 μg/g	1.05E+ 02 kg	E	
Pd	Supernatant	NA (Liquid)	3231 kL	1.94E+ 01 μg/g	7.08E+ 01 kg	E	
Pd	**Total**		**4109 kL**		**1.76E+ 02 kg**		Upper bounding estimate
Pr	Saltcake (Liquid & Solid)	S2-SltSlr (Solid)	878 kL	3.62E+ 01 μg/g	5.27E+ 01 kg	E	
Pr	Supernatant	NA (Liquid)	3231 kL	9.69E+ 00 μg/g	3.54E+ 01 kg	E	
Pr	**Total**		**4109 kL**		**8.81E+ 01 kg**		Upper bounding estimate
Ru	Saltcake (Liquid & Solid)	S2-SltSlr (Solid)	878 kL	7.23E+ 01 μg/g	1.05E+ 02 kg	E	
Ru	Supernatant	NA (Liquid)	3231 kL	1.94E+ 01 μg/g	7.08E+ 01 kg	E	
Ru	**Total**		**4109 kL**		**1.76E+ 02 kg**		Upper bounding estimate
Sb	Saltcake (Liquid & Solid)	S2-SltSlr (Solid)	878 kL	6.67E+ 01 μg/g	8.90E+ 01 kg	S	
Sb	Supernatant	NA (Liquid)	3231 kL	1.94E+ 01 μg/g	7.08E+ 01 kg	E	
Sb	**Total**		**4109 kL**		**1.60E+ 02 kg**		Upper bounding estimate
Se	Saltcake (Liquid & Solid)	S2-SltSlr (Solid)	878 kL	5.04E+ 01 μg/g	6.73E+ 01 kg	S	
Se	Supernatant	NA (Liquid)	3231 kL	1.94E+ 01 μg/g	7.08E+ 01 kg	E	

Analyte	Waste Phase	Waste Type	Volume	Concentration	Inventory	Basis	Comment
Se	**Total**		**4109 kL**		**1.38E+ 02 kg**		Upper bounding estimate
Ta	Saltcake (Liquid & Solid)	S2-SltSlr (Solid)	878 kL	3.62E+ 01 µg/g	5.27E+ 01 kg	E	
Ta	Supernatant	NA (Liquid)	3231 kL	9.69E+ 00 µg/g	3.54E+ 01 kg	E	
Ta	**Total**		**4109 kL**		**8.81E+ 01 kg**		Upper bounding estimate
Te	Saltcake (Liquid & Solid)	S2-SltSlr (Solid)	878 kL	7.23E+ 01 µg/g	1.05E+ 02 kg	E	
Te	Supernatant	NA (Liquid)	3231 kL	1.94E+ 01 µg/g	7.08E+ 01 kg	E	
Te	**Total**		**4109 kL**		**1.76E+ 02 kg**		Upper bounding estimate
Th	Saltcake (Liquid & Solid)	S2-SltSlr (Solid)	878 kL	2.75E-1 µg/g	3.93E-1 kg	E	
Th	Supernatant	NA (Liquid)	3231 kL	6.23E-1 µg/g	2.28E+ 00 kg	E	
Th	**Total**		**4109 kL**		**2.67E+ 00 kg**		Upper bounding estimate
Ti	Saltcake (Liquid & Solid)	S2-SltSlr (Solid)	878 kL	4.98E+ 00 µg/g	7.26E+ 00 kg	E	
Ti	Supernatant	NA (Liquid)	3231 kL	9.69E-1 µg/g	3.54E+ 00 kg	E	
Ti	**Total**		**4109 kL**		**1.08E+ 01 kg**		Upper bounding estimate
Tl	Saltcake (Liquid & Solid)	S2-SltSlr (Solid)	878 kL	7.23E+ 01 µg/g	1.05E+ 02 kg	E	
Tl	Supernatant	NA (Liquid)	3231 kL	1.94E+ 01 µg/g	7.08E+ 01 kg	E	
Tl	**Total**		**4109 kL**		**1.76E+ 02 kg**		Upper bounding estimate

Analyte	Waste Phase	Waste Type	Volume	Concentration	Inventory	Basis	Comment
V	Saltcake (Liquid & Solid)	S2-SltSlr (Solid)	878 kL	8.99E+ 00 μg/g	1.31E+ 01 kg	E	
V	Supernatant	NA (Liquid)	3231 kL	2.09E+ 00 μg/g	7.63E+ 00 kg	E	
V	**Total**		**4109 kL**		**2.07E+ 01 kg**		
W	Saltcake (Liquid & Solid)	S2-SltSlr (Solid)	878 kL	1.60E+ 02 μg/g	2.34E+ 02 kg	E	
W	Supernatant	NA (Liquid)	3231 kL	1.94E+ 01 μg/g	7.08E+ 01 kg	E	
W	**Total**		**4109 kL**		**3.04E+ 02 kg**		Upper bounding estimate
Y	Saltcake (Liquid & Solid)	S2-SltSlr (Solid)	878 kL	9.34E+ 00 μg/g	1.36E+ 01 kg	E	
Y	Supernatant	NA (Liquid)	3231 kL	9.69E-1 μg/g	3.54E+ 00 kg	E	
Y	**Total**		**4109 kL**		**1.72E+ 01 kg**		Upper bounding estimate
Zn	Saltcake (Liquid & Solid)	S2-SltSlr (Solid)	878 kL	4.65E+ 01 μg/g	6.78E+ 01 kg	E	
Zn	Supernatant	NA (Liquid)	3231 kL	4.02E+ 00 μg/g	1.47E+ 01 kg	E	
Zn	**Total**		**4109 kL**		**8.25E+ 01 kg**		
Eu	Saltcake (Liquid & Solid)	S2-SltSlr (Solid)	878 kL	7.23E+ 00 μg/g	1.05E+ 01 kg	E	
Eu	Supernatant	NA (Liquid)	3231 kL	1.94E+ 00 μg/g	7.08E+ 00 kg	E	
Eu	**Total**		**4109 kL**		**1.76E+ 01 kg**		Upper bounding estimate
Nb	Saltcake (Liquid & Solid)	S2-SltSlr (Solid)	878 kL	3.62E+ 01 μg/g	5.27E+ 01 kg	E	
Nb	Supernatant	NA (Liquid)	3231 kL	9.69E+ 00 μg/g	3.54E+ 01 kg	E	

Analyte	Waste Phase	Waste Type	Volume	Concentration	Inventory	Basis	Comment
Nb	**Total**		**4109 kL**		**8.81E+ 01 kg**		Upper bounding estimate
Sm	Saltcake (Liquid & Solid)	S2-SltSlr (Solid)	878 kL	3.62E+ 01 μg/g	5.27E+ 01 kg	E	
Sm	Supernatant	NA (Liquid)	3231 kL	9.69E+ 00 μg/g	3.54E+ 01 kg	E	
Sm	**Total**		**4109 kL**		**8.81E+ 01 kg**		Upper bounding estimate
Sn	Saltcake (Liquid & Solid)	S2-SltSlr (Solid)	878 kL	3.62E+ 01 μg/g	5.27E+ 01 kg	E	
Sn	Supernatant	NA (Liquid)	3231 kL	9.70E+ 00 μg/g	3.54E+ 01 kg	E	
Sn	**Total**		**4109 kL**		**8.81E+ 01 kg**		Upper bounding estimate
239/240Pu	Saltcake (Liquid & Solid)	S2-SltSlr (Solid)	878 kL	5.24E-2 μCi/g	7.63E+ 01 Ci	E	
239/240Pu	**Total**		**878 kL**		**7.63E+ 01 Ci**		Supplemental analyte used to calculate Pu isotopes. Not available for all waste phases.

The water concentration is applicable to the time of sampling and may change with time; no water inventory is calculated.

Tank 241-SY-101 Analytical Methods and Procedures

Analyte	Method	Procedure
Acetate	Ion Chromatography of Anions	LA-533-115
Acetate	Ion Chromatography of Cations/Anions	LA-533-115
Acetate	Ion Chromatography Water Digestion	LA-533-105
Aluminum	ICP Acid Digestion	LA-505-151/161
Aluminum	ICP Acid Digestion	LA-505-161
Aluminum	ICP Direct Acid Dilution	LA-505-161
Aluminum	ICP Fusion	LA-505-151/161
Americium-241	Gamma Energy Analysis	LA-548-121
Americium-241	Gamma Energy Analysis Fusion	LA-548-121
Americium-241	Resin Extraction/AEA	LA-953-104
Americium-241	Resin Extraction/AEA Fusion	LA-953-104
Antimony	ICP Acid Digestion	LA-505-151/161
Antimony	ICP Acid Digestion	LA-505-161
Antimony	ICP Direct Acid Dilution	LA-505-161
Antimony	ICP Fusion	LA-505-151/161
Antimony-125	Gamma Energy Analysis	LA-548-121
Antimony-125	Gamma Energy Analysis Fusion	LA-548-121
Aroclor 1016	PCBs by SW846 Method 8082 using GC/ECD	LA-523-140
Aroclor 1221	PCBs by SW846 Method 8082 using GC/ECD	LA-523-140
Aroclor 1232	PCBs by SW846 Method 8082 using GC/ECD	LA-523-140
Aroclor 1242	PCBs by SW846 Method 8082 using GC/ECD	LA-523-140
Aroclor 1248	PCBs by SW846 Method 8082 using GC/ECD	LA-523-140
Aroclor 1254	PCBs by SW846 Method 8082 using GC/ECD	LA-523-140
Aroclor 1260	PCBs by SW846 Method 8082 using GC/ECD	LA-523-140
Arsenic	ICP Acid Digestion	LA-505-151/161
Arsenic	ICP Acid Digestion	LA-505-161

Tank 241-SY-101 Analytical Methods and Procedures

Analyte	Method	Procedure
Arsenic	ICP Direct Acid Dilution	LA-505-161
Arsenic	ICP Fusion	LA-505-151/161
Barium	ICP Acid Digestion	LA-505-151/161
Barium	ICP Acid Digestion	LA-505-161
Barium	ICP Direct Acid Dilution	LA-505-161
Barium	ICP Fusion	LA-505-151/161
Beryllium	ICP Acid Digestion	LA-505-151/161
Beryllium	ICP Acid Digestion	LA-505-161
Beryllium	ICP Direct Acid Dilution	LA-505-161
Beryllium	ICP Fusion	LA-505-151/161
Bismuth	ICP Acid Digestion	LA-505-151/161
Bismuth	ICP Acid Digestion	LA-505-161
Bismuth	ICP Direct Acid Dilution	LA-505-161
Bismuth	ICP Fusion	LA-505-151/161
Boron	ICP Acid Digestion	LA-505-151/161
Boron	ICP Acid Digestion	LA-505-161
Boron	ICP Direct Acid Dilution	LA-505-161
Boron	ICP Fusion	LA-505-151/161
Bromide	Ion Chromatography of Anions	LA-533-115
Bromide	Ion Chromatography of Cations/Anions	LA-533-115
Bromide	Ion Chromatography Water Digestion	LA-533-105
Bulk Density	Bulk Density by Centrifuge	LA-519-132
Bulk Density	Physical Properties	LO-160-103
Bulk Density	Volume Percent Solids	LA-519-132
Cadmium	ICP Acid Digestion	LA-505-151/161
Cadmium	ICP Acid Digestion	LA-505-161
Cadmium	ICP Direct Acid Dilution	LA-505-161
Cadmium	ICP Fusion	LA-505-151/161
Calcium	ICP Acid Digestion	LA-505-151/161
Calcium	ICP Acid Digestion	LA-505-161
Calcium	ICP Direct Acid Dilution	LA-505-161
Calcium	ICP Fusion	LA-505-151/161
Cerium	ICP Acid Digestion	LA-505-151/161

Tank 241-SY-101 Analytical Methods and Procedures

Analyte	Method	Procedure
Cerium	ICP Acid Digestion	LA-505-161
Cerium	ICP Direct Acid Dilution	LA-505-161
Cerium	ICP Fusion	LA-505-151/161
Cerium-144	Gamma Energy Analysis	LA-548-121
Cerium-144	Gamma Energy Analysis Fusion	LA-548-121
Cesium-134	Gamma Energy Analysis	LA-548-121
Cesium-134	Gamma Energy Analysis Fusion	LA-548-121
Cesium-137	Gamma Energy Analysis	LA-548-121
Cesium-137	Gamma Energy Analysis Fusion	LA-548-121
Chloride	Ion Chromatography of Anions	LA-533-115
Chloride	Ion Chromatography of Cations/Anions	LA-533-115
Chloride	Ion Chromatography Water Digestion	LA-533-105
Chromium	ICP Acid Digestion	LA-505-151/161
Chromium	ICP Acid Digestion	LA-505-161
Chromium	ICP Direct Acid Dilution	LA-505-161
Chromium	ICP Fusion	LA-505-151/161
Cobalt	ICP Acid Digestion	LA-505-151/161
Cobalt	ICP Acid Digestion	LA-505-161
Cobalt	ICP Direct Acid Dilution	LA-505-161
Cobalt	ICP Fusion	LA-505-151/161
Cobalt-60	Gamma Energy Analysis	LA-548-121
Cobalt-60	Gamma Energy Analysis Fusion	LA-548-121
Copper	ICP Acid Digestion	LA-505-151/161
Copper	ICP Acid Digestion	LA-505-161
Copper	ICP Direct Acid Dilution	LA-505-161
Copper	ICP Fusion	LA-505-151/161
Curium-242	Resin Extraction/AEA	LA-953-104
Curium-242	Resin Extraction/AEA Fusion	LA-953-104
Curium-243/244	Resin Extraction/AEA	LA-953-104
Curium-243/244	Resin Extraction/AEA Fusion	LA-953-104
Drainable Liquid Volume	Extrusion Process by Push Mode Extruder	LO-160-104
Drainable Liquid Weight	Extrusion Process by Push Mode Extruder	LO-160-104

Tank 241-SY-101 Analytical Methods and Procedures

Analyte	Method	Procedure
Europium	ICP Acid Digestion	LA-505-161
Europium	ICP Direct Acid Dilution	LA-505-161
Europium-152	Gamma Energy Analysis	LA-548-121
Europium-152	Gamma Energy Analysis Fusion	LA-548-121
Europium-154	Gamma Energy Analysis	LA-548-121
Europium-154	Gamma Energy Analysis Fusion	LA-548-121
Europium-155	Gamma Energy Analysis	LA-548-121
Europium-155	Gamma Energy Analysis Fusion	LA-548-121
Exotherm - transition 1	TGA/DSC on Perkin Elmer	LA-514-114
Exotherms - calculated dry weight	TGA/DSC on Perkin Elmer	LA-514-114
Fluoride	Ion Chromatography of Anions	LA-533-115
Fluoride	Ion Chromatography of Cations/Anions	LA-533-115
Fluoride	Ion Chromatography Water Digestion	LA-533-105
Formate	Ion Chromatography of Anions	LA-533-115
Formate	Ion Chromatography of Cations/Anions	LA-533-115
Formate	Ion Chromatography Water Digestion	LA-533-105
Glycolate	Ion Chromatography of Anions	LA-533-115
Glycolate	Ion Chromatography of Cations/Anions	LA-533-115
Glycolate	Ion Chromatography Water Digestion	LA-533-105
Gross alpha	Alpha Radiochemistry Fusion	LA-508-101
Hexavalent Chromium	Hexavalent Chrome by Spectrometer Water Digestion	LA-265-101
Hydroxide	Hydroxide Direct	LA-211-102
Hydroxide	Hydroxide Water Digestion	LA-211-102
Iron	ICP Acid Digestion	LA-505-151/161
Iron	ICP Acid Digestion	LA-505-161
Iron	ICP Direct Acid Dilution	LA-505-161
Iron	ICP Fusion	LA-505-151/161
Lanthanum	ICP Acid Digestion	LA-505-151/161
Lanthanum	ICP Acid Digestion	LA-505-161

Tank 241-SY-101 Analytical Methods and Procedures

Analyte	Method	Procedure
Lanthanum	ICP Direct Acid Dilution	LA-505-161
Lanthanum	ICP Fusion	LA-505-151/161
Lead	ICP Acid Digestion	LA-505-151/161
Lead	ICP Acid Digestion	LA-505-161
Lead	ICP Direct Acid Dilution	LA-505-161
Lead	ICP Fusion	LA-505-151/161
Lithium	ICP Acid Digestion	LA-505-151/161
Lithium	ICP Acid Digestion	LA-505-161
Lithium	ICP Direct Acid Dilution	LA-505-161
Lithium	ICP Fusion	LA-505-151/161
Magnesium	ICP Acid Digestion	LA-505-151/161
Magnesium	ICP Acid Digestion	LA-505-161
Magnesium	ICP Direct Acid Dilution	LA-505-161
Magnesium	ICP Fusion	LA-505-151/161
Manganese	ICP Acid Digestion	LA-505-151/161
Manganese	ICP Acid Digestion	LA-505-161
Manganese	ICP Direct Acid Dilution	LA-505-161
Manganese	ICP Fusion	LA-505-151/161
Mercury	Cold Vapor AA for Mercury	LA-325-106
Molybdenum	ICP Acid Digestion	LA-505-151/161
Molybdenum	ICP Acid Digestion	LA-505-161
Molybdenum	ICP Direct Acid Dilution	LA-505-161
Molybdenum	ICP Fusion	LA-505-151/161
Neodymium	ICP Acid Digestion	LA-505-151/161
Neodymium	ICP Acid Digestion	LA-505-161
Neodymium	ICP Direct Acid Dilution	LA-505-161
Neodymium	ICP Fusion	LA-505-151/161
Nickel	ICP Acid Digestion	LA-505-151/161
Nickel	ICP Acid Digestion	LA-505-161
Nickel	ICP Direct Acid Dilution	LA-505-161
Nickel	ICP Fusion	LA-505-151/161
Niobium	ICP Acid Digestion	LA-505-161
Niobium	ICP Direct Acid Dilution	LA-505-161
Niobium-94	Gamma Energy Analysis	LA-548-121
Niobium-94	Gamma Energy Analysis Fusion	LA-548-121

Tank 241-SY-101 Analytical Methods and Procedures

Analyte	Method	Procedure
Nitrate	Ion Chromatography of Anions	LA-533-115
Nitrate	Ion Chromatography of Cations/Anions	LA-533-115
Nitrate	Ion Chromatography Water Digestion	LA-533-105
Nitrite	Ion Chromatography of Anions	LA-533-115
Nitrite	Ion Chromatography of Cations/Anions	LA-533-115
Nitrite	Ion Chromatography Water Digestion	LA-533-105
Organic Volume Present	Extrusion Process by Push Mode Extruder	LO-160-104
Oxalate	Ion Chromatography of Anions	LA-533-115
Oxalate	Ion Chromatography of Cations/Anions	LA-533-115
Oxalate	Ion Chromatography Water Digestion	LA-533-105
Palladium	ICP Acid Digestion	LA-505-161
Palladium	ICP Direct Acid Dilution	LA-505-161
Percent Water	DSC/TGA	LA-514-115
Percent Water	TGA/DSC on Perkin Elmer	LA-514-114
PH Measurement	pH analysis Direct	LA-212-106
Phosphate	Ion Chromatography of Anions	LA-533-115
Phosphate	Ion Chromatography of Cations/Anions	LA-533-115
Phosphate	Ion Chromatography Water Digestion	LA-533-105
Phosphorus	ICP Acid Digestion	LA-505-151/161
Phosphorus	ICP Acid Digestion	LA-505-161
Phosphorus	ICP Direct Acid Dilution	LA-505-161
Phosphorus	ICP Fusion	LA-505-151/161
Plutonium-238	Resin Extraction/AEA	LA-953-104
Plutonium-238	Resin Extraction/AEA Fusion	LA-953-104
Plutonium-239/240	Resin Extraction/AEA	LA-953-104
Plutonium-239/240	Resin Extraction/AEA Fusion	LA-953-104
Potassium	ICP Acid Digestion	LA-505-151/161
Potassium	ICP Acid Digestion	LA-505-161

Tank 241-SY-101 Analytical Methods and Procedures

Analyte	Method	Procedure
Potassium	ICP Direct Acid Dilution	LA-505-161
Praseodymium	ICP Acid Digestion	LA-505-161
Praseodymium	ICP Direct Acid Dilution	LA-505-161
Radium-226	Gamma Energy Analysis	LA-548-121
Radium-226	Gamma Energy Analysis Fusion	LA-548-121
Recovered Grab Liquid Volume	Extrusion Process by Push Mode Extruder	LO-160-104
Recovered Grab Liquid Weight	Extrusion Process by Push Mode Extruder	LO-160-104
Rhodium	ICP Acid Digestion	LA-505-161
Rhodium	ICP Direct Acid Dilution	LA-505-161
Rubidium	ICP Acid Digestion	LA-505-161
Rubidium	ICP Direct Acid Dilution	LA-505-161
Ruthenium	ICP Acid Digestion	LA-505-161
Ruthenium	ICP Direct Acid Dilution	LA-505-161
Ruthenium/Rhodium-106	Gamma Energy Analysis	LA-548-121
Ruthenium/Rhodium-106	Gamma Energy Analysis Fusion	LA-548-121
Samarium	ICP Acid Digestion	LA-505-151/161
Samarium	ICP Acid Digestion	LA-505-161
Samarium	ICP Direct Acid Dilution	LA-505-161
Samarium	ICP Fusion	LA-505-151/161
Selenium	ICP Acid Digestion	LA-505-151/161
Selenium	ICP Acid Digestion	LA-505-161
Selenium	ICP Direct Acid Dilution	LA-505-161
Selenium	ICP Fusion	LA-505-151/161
Silicon	ICP Acid Digestion	LA-505-151/161
Silicon	ICP Acid Digestion	LA-505-161
Silicon	ICP Direct Acid Dilution	LA-505-161
Silicon	ICP Fusion	LA-505-151/161
Silver	ICP Acid Digestion	LA-505-151/161
Silver	ICP Acid Digestion	LA-505-161
Silver	ICP Direct Acid Dilution	LA-505-161
Silver	ICP Fusion	LA-505-151/161
Sodium	ICP Acid Digestion	LA-505-151/161
Sodium	ICP Acid Digestion	LA-505-161

Tank 241-SY-101 Analytical Methods and Procedures

Analyte	Method	Procedure
Sodium	ICP Direct Acid Dilution	LA-505-161
Sodium	ICP Fusion	LA-505-151/161
Solid Volume	Extrusion Process by Push Mode Extruder	LO-160-104
Solid Weight	Extrusion Process by Push Mode Extruder	LO-160-104
Solid Weight	Physical Properties	LO-160-103
Specific Gravity	Specific Gravity	LA-510-112
Strontium	ICP Acid Digestion	LA-505-151/161
Strontium	ICP Acid Digestion	LA-505-161
Strontium	ICP Direct Acid Dilution	LA-505-161
Strontium	ICP Fusion	LA-505-151/161
Strontium-89/90	Strontium 89/90 by Beta Counting	LA-220-101
Strontium-89/90	Strontium 89/90 by Beta Counting Fusion	LA-220-101
Sulfate	Ion Chromatography of Anions	LA-533-115
Sulfate	Ion Chromatography of Cations/Anions	LA-533-115
Sulfate	Ion Chromatography Water Digestion	LA-533-105
Sulfur	ICP Acid Digestion	LA-505-151/161
Sulfur	ICP Acid Digestion	LA-505-161
Sulfur	ICP Direct Acid Dilution	LA-505-161
Sulfur	ICP Fusion	LA-505-151/161
Tantalum	ICP Acid Digestion	LA-505-161
Tantalum	ICP Direct Acid Dilution	LA-505-161
Tellurium	ICP Acid Digestion	LA-505-161
Tellurium	ICP Direct Acid Dilution	LA-505-161
Thallium	ICP Acid Digestion	LA-505-151/161
Thallium	ICP Acid Digestion	LA-505-161
Thallium	ICP Direct Acid Dilution	LA-505-161
Thallium	ICP Fusion	LA-505-151/161
Thorium	ICP Acid Digestion	LA-505-161
Thorium	ICP Direct Acid Dilution	LA-505-161
Tin	ICP Acid Digestion	LA-505-161
Tin	ICP Direct Acid Dilution	LA-505-161

Tank 241-SY-101 Analytical Methods and Procedures

Analyte	Method	Procedure
Titanium	ICP Acid Digestion	LA-505-151/161
Titanium	ICP Acid Digestion	LA-505-161
Titanium	ICP Direct Acid Dilution	LA-505-161
Titanium	ICP Fusion	LA-505-151/161
Total inorganic carbon	TIC and TOC	LA-342-100
Total organic carbon	TIC and TOC	LA-342-100
Tungsten	ICP Acid Digestion	LA-505-161
Tungsten	ICP Direct Acid Dilution	LA-505-161
Uranium	ICP Acid Digestion	LA-505-151/161
Uranium	ICP Acid Digestion	LA-505-161
Uranium	ICP Direct Acid Dilution	LA-505-161
Uranium	ICP Fusion	LA-505-151/161
Uranium-233	ICP/MS Acid Digestion	LA-506-101
Uranium-233	ICP/MS Acid Digestion	LA-506-102
Uranium-234	ICP/MS Acid Digestion	LA-506-101
Uranium-234	ICP/MS Acid Digestion	LA-506-102
Uranium-235	ICP/MS Acid Digestion	LA-506-101
Uranium-235	ICP/MS Acid Digestion	LA-506-102
Uranium-236	ICP/MS Acid Digestion	LA-506-101
Uranium-236	ICP/MS Acid Digestion	LA-506-102
Uranium-238	ICP/MS Acid Digestion	LA-506-101
Uranium-238	ICP/MS Acid Digestion	LA-506-102
Vanadium	ICP Acid Digestion	LA-505-151/161
Vanadium	ICP Acid Digestion	LA-505-161
Vanadium	ICP Direct Acid Dilution	LA-505-161
Vanadium	ICP Fusion	LA-505-151/161
Volume percent centrifuged solids	Volume Percent Solids	LA-519-132
Volume percent settled solids	Appearance Test	LA-519-151
Volume percent settled solids	Volume Percent Solids	LA-519-132
Yttrium	ICP Acid Digestion	LA-505-161
Yttrium	ICP Direct Acid Dilution	LA-505-161
Zinc	ICP Acid Digestion	LA-505-151/161
Zinc	ICP Acid Digestion	LA-505-161
Zinc	ICP Direct Acid Dilution	LA-505-161
Zinc	ICP Fusion	LA-505-151/161

Tank 241-SY-101 Analytical Methods and Procedures

Analyte	Method	Procedure
Zirconium	ICP Acid Digestion	LA-505-151/161
Zirconium	ICP Acid Digestion	LA-505-161
Zirconium	ICP Direct Acid Dilution	LA-505-161
Zirconium	ICP Fusion	LA-505-151/161

Tank 241-SY-101 Subsampling Scheme and Sample Description

Sample Identification		Amount	Aggregation Level	Sample Characteristics
Sample Location	Sample Event			
Riser 6	1SY-00-10		Grab Sample	Received full jar. The liquid was yellow and clear. gray/brown solids and white flocculent solids. No organics present.
	1SY-00-9		Grab Sample	
	Core 257:18	455.7 g	Segment	Collected 10 mL of an opaque gray drainable liquid. Extruded 19 inches of gray solids with a texture resembling a wet salt. Liquid was retained with the solids.
	Core 257:19	446.7 g	Segment	Collected 10 mL of an opaque gray drainable liquid. Extruded 18 inches of gray solids with a texture resembling a wet salt. Liquid was retained with the solids.
	Core 257:20	451.8 g	Segment	No drainable liquid. Extruded 19 inches of gray solids with a texture resembling a wet salt.
	Core 257:21	464.5 g	Segment	Collected 10 mL of an opaque gray drainable liquid. Extruded 19 inches of gray solids with a texture resembling a wet salt. Liquid was retained with the solids.
	Core 257:22	454.3 g	Segment	Collected 20 mL of an opaque gray drainable liquid. Extruded 18 inches of gray solids with a texture resembling a wet salt. Liquid was retained with the solids.
Riser 21	Core 256:19	477.3 g	Segment	No drainable liquid. Extruded 18.5 inches of gray solids with a texture resembling a wet salt.
	Core 256:20	480.7 g	Segment	No drainable liquid. Extruded 18.5 inches of gray solids with the texture of a wet salt.
	Core 256:21	466.6 g	Segment	Collected < 5 mL of an opaque gray drainable liquid. Extruded 18.5 inches of gray solids with a texture resembling a wet salt. Liquid was retained with the solids.
	Core 256:22	463.3 g	Segment	Collected 15 mL of an opaque gray drainable liquid. Extruded 18 inches of gray solids with a texture resembling a wet salt. Liquid was retained with the solids.
	Core 327: 1	300 mL 316.5 g	Drainable Liquid	
			Segment	

Tank 241-SY-101 Subsampling Scheme and Sample Description

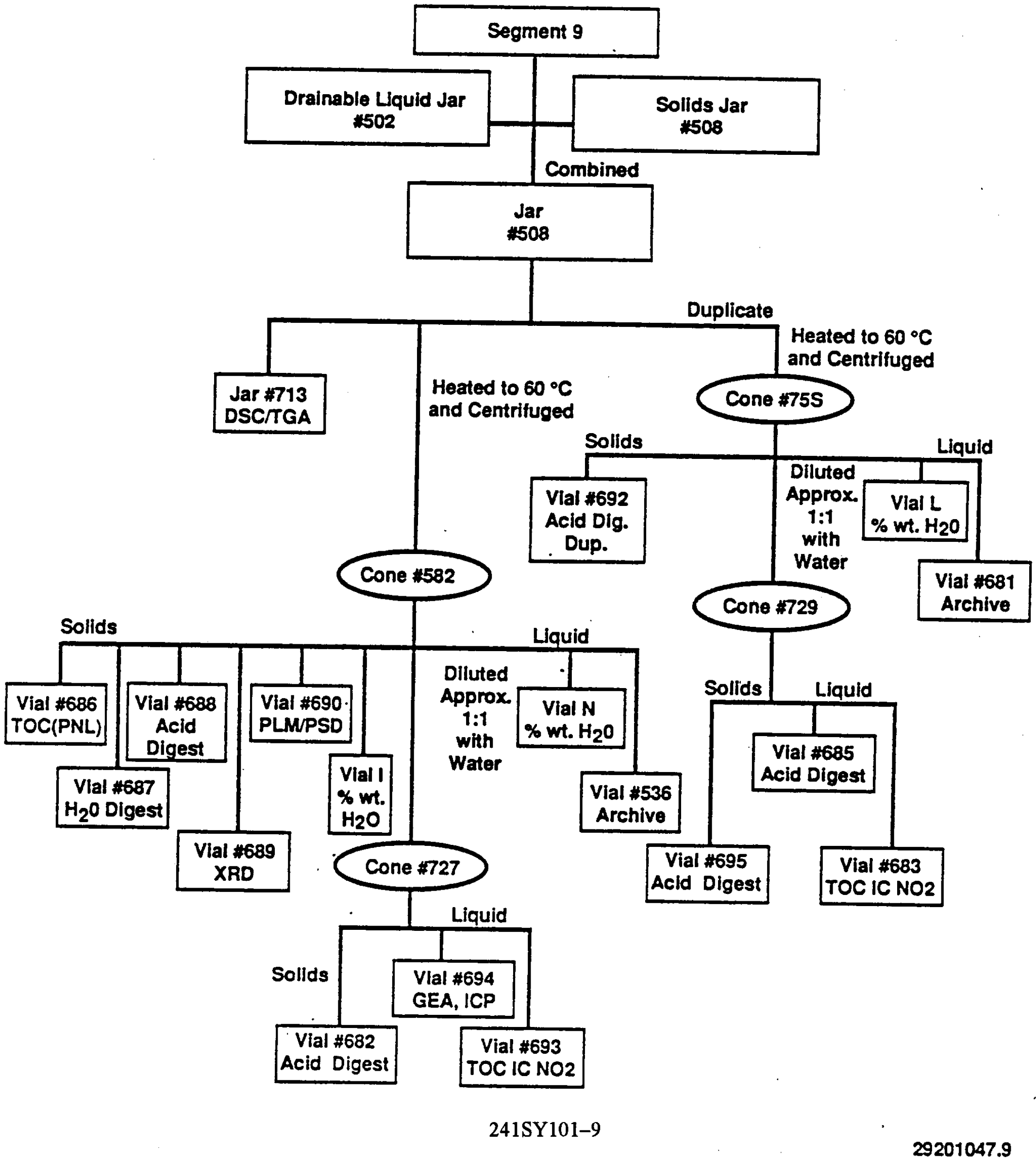
Sample Identification		Amount	Aggregation Level	Sample Characteristics
Sample Location	Sample Event			
		< 0.1 g	Segment Solids	
	Core 327:18	0 mL 0 g	Drainable Liquid	
			Segment	
		147.5 mL 290 mL 261.8 g 382.8 g 379.1 g	Segment Solids	
		2.5 g	Segment Subpart A	
		2 g	Segment Subpart B	
	Core 327:21	0 mL 0 g	Drainable Liquid	
			Segment	
		165.5 mL 290 mL 408.4 g 290.3 g 404.4 g	Segment Solids	
		4.5 g	Segment Subpart A	
		4.8 g	Segment Subpart B	
Riser 22	Core 255:16	458.6 g	Segment	Collected an opaque gray drainable liquid. Extruded 18.5 inches of gray solids with a texture resembling a wet salt. Liquid was retained with the solids.
	Core 255:17	452.9 g	Segment	Collected 15 mL of an opaque gray drainable liquid. Extruded 18 inches of gray solids with a texture resembling a wet salt. Liquid was retained with the solids.
	Core 255:18	444.7 g	Segment	Collected 20 mL of an opaque gray drainable liquid. Extruded 18.5 inches of gray solids with a texture resembling a wet salt. Liquid was retained with the solids.
	Core 255:19	455 g	Segment	Collected 10 mL of an opaque gray drainable liquid. Extruded 18.5 inches of gray solids with a texture resembling a wet salt. Liquid was retained with the solids.

Tank 241-SY-101 Subsampling Scheme and Sample Description

Sample Identification		Amount	Aggregation Level	Sample Characteristics
Sample Location	Sample Event			
	Core 255:20	470.6 g	Segment	Collected 10 mL of an opaque gray drainable liquid. Extruded 19 inches of gray solids with a texture resembling a wet salt. Liquid was retained with the solids.
	Core 255:22	439.8 g	Segment	Collected 10 mL of an opaque gray drainable liquid. Extruded 17 inches of gray solids with a texture resembling a wet salt. Liquid was retained with the solids.

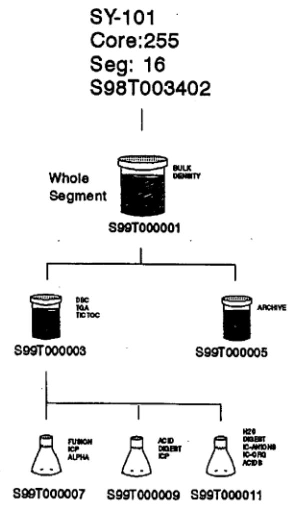
241-SY-101 Sample Breakdown Diagrams

WHC-SD-WM-DTR-024 REV 0



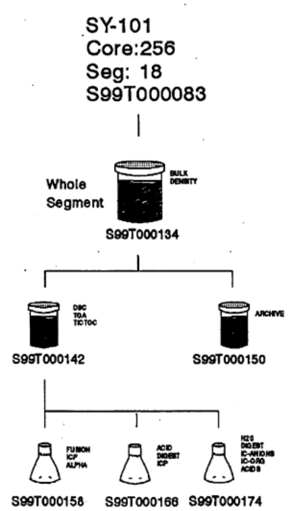
E-12

Attachment 1



HNF-1666 REV. 0

Attachment 1



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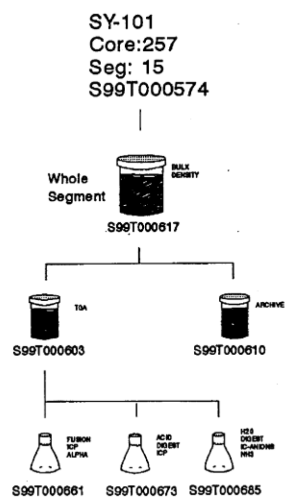
HNF-1666 REV.0

Attachment 1



75.1

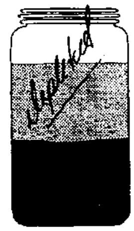
HNF-1666 REV.0

HCBRKDWN/VOL% SETTLED SOLIDS

Date: 6/26/00
Analyst: ______

DoseRate: 90 mR
Seal Num: 13831
Etch Num: 1SY-00-10
APPEAR01: brown
SampAmt: 207.4 g
Bottle full? yes
Organic Vol. 0 mL
Color:
Liquid none
Solid brown

Photography: complete ☑



Ht. Of Sample: 92 mm
Ht. Of Solids: 92 mm
Vol% StlSlds: 100 %

Gross Wt.: 330.14 g
Tare Wt.: 122.7 g
Net Wt.: 207.4 g

Check weights:
20 g = 19.995 g
500 g = 499.894 g

Paradox Data Entry: complete ☐

HNF-6050 REV.0

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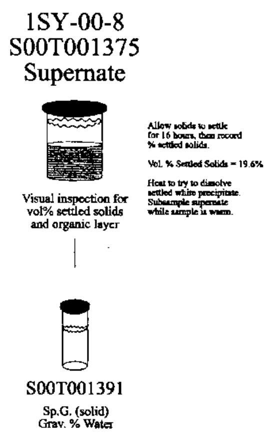
SY-101 Grab Samples



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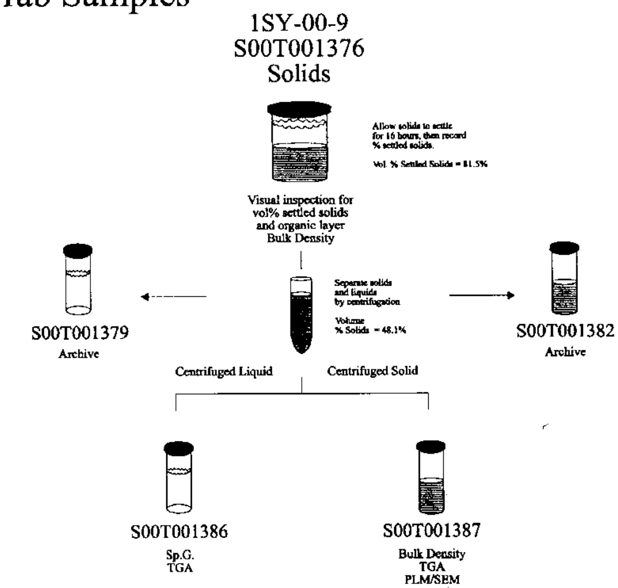
HNF-6050 REV.0

SY-101 Grab Samples



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HNF-6050 REV.0

241-SY-101 Rheology Report

This Rheology Report contains current results of measurements of the rheological properties of wastes originating from this tank. The Rheology Report is composed of three sub-reports: *Analytical Results: Rheology*, *Sample Attributes*, and *Rheology Measurements*.

Analytical Results: Rheology -- Presents consolidated reports of the results of rheological measurements and calculations for unaltered tank wastes. Reporting of analytical results for altered samples is not currently supported in AutoTCR. Results of rheological measurements on altered samples may be found in the TWINS *Tank Results (Altered w/Attributes)* view.

Sample Attributes -- Presents sets of parameters associated with samples which have been altered prior to rheological measurements. These parameter sets or "Attributes" provide a concise description of the altered sample and the alteration processes. Specific physical properties defined as sample attributes, *e.g.* Temperature, do not necessarily describe conditions which are conserved during subsequent measurements of rheological properties.

Rheology Measurements -- Presents graphical displays of data generated during rheological analysis of altered and unaltered tank samples. The measurement data upon which these displays are based is located in the TWINS *Viscosity Curves and Attributes* view. The *Rheology Measurements* sub-report for each sample consists of four sections.

Sample Identification. The first set of five header rows for each sample contains sample identification information. The information presented is identical to that reported in the *Sample Attributes* and *Analytical Results: Rheology* sub-reports.

Analysis Result Comments. The second set of five header rows presents key experimental parameters associated with the measurement of the displayed data. The result comments are:

DATA TYPE

Displayed data may be either "Raw Data" generated during analytical measurements or "Model Fit" data which results from the fit of raw data to a rheological model.

The model to which some Hanford measurement data has been fit is a yield-psuedoplastic model, a power law fit of the type:

$\tau = \tau_0 +$ [Consistency Factor] [γ Exp(Flow Behavior Index)]

where τ = Shear Stress,
τ_0 = Yield Stress, and
γ = Shear Rate.

The power law fit factors Yield Stress, Consistency Factor, and Flow Behavior Index are reported in the *Analytical Results: Rheology* sub-report for unaltered samples. For altered samples, these factors are reported in the TWINS

	Tank Results (Altered w/Attributes) view. The Yield Stress and Consistency Factor values must be reported in matched sets of consistent units, *i.e.* $dynes/cm^2$ and poise or pascals and pascal-sec.
MEASUREMENT TEMP	The actual temperature at which the specific data set was collected. If this temperature is not known, this field will be blank.
LO SHEAR RATE LIMIT	The laboratory reported value for shear rate below which measurement results are considered to be highly questionable. Display of the rheology measurement data begins at the greater of this or the first, non-zero, shear rate value. Raw measurement data with shear rates below the low shear rate limit is captured in the TWINS *Viscosity Curves and Attributes* view.
HI SHEAR RATE LIMIT	The upper limit of the shear rate range over which viscosity measurements were made.
CHANGE RATE	The rate at which the shear rate was changed during the course of viscosity measurements. The change rate is reported as the time taken to ramp up or down between 0 sec^{-1} and the maximum experimental shear rate.

Shear Stress *vs.* Shear Rate Plot. The shear stress *vs.* shear rate plot or "rheogram" is the basic display of viscosity measurement data. For an ideal or "Newtonian" fluid, this plot begins at the origin and is linear over the shear rate measurement range. The slope of the plotted line is the viscosity of the sample.

Shear stress values observed as the shear rate was initially ramped up to the high shear rate limit are labeled as 'Increasing' while those observed as the shear rate was subsequently ramped back down to 0 sec^{-1} are labeled as 'Decreasing'. Model Fit data sets are, by default, labeled as 'Increasing' unless separate model fits were reported for the increasing and decreasing shear rate segments of the viscosity measurement. Raw data sets are displayed as discrete, unconnected data points. Model fit data sets are displayed as smooth lines without discrete data points.

Viscosity *vs.* Shear Rate Plot. This plot displays the shear dependent viscosities of the sample. Shear dependent viscosity is a coefficient equal to shear stress/shear rate at a given value of shear rate. Viscosity in these plots is displayed in centipoise (cP) engineering units.

The identification numbers of reference documents for the data reported in the TWINS *Viscosity Curves and Attributes* view and displayed in the *Rheology Measurements* sub-report are given below. The data plotted in the graphical displays is frequently acquired by internal communication from laboratory personnel and may not be reported in any formally released documents.

Sources for data displayed in the *Rheology Measurements* sub-report are: Internal Memo #82800-99-017; and Internal Memo #82800-99-020.

Tank 241-SY-101 Analytical Results: Rheology

This Rheology Report includes only analytical results of measurements on altered samples. No analytical results of rheology measurements on unaltered samples are included.

241-SY-101 Sample Attributes

Sample Number	Attribute Name	Attribute
Jar16416:26C	Contact Time	1 day(s)
	Diluent	Distilled Water
	Diluent Amount	0 mL
	Liquid Separation	Centrifugation and decantation
	Settling Time	2 week(s)
	Solid Separation	Sequential precipitation, centrifugation, and decantation
	Source Material	241-SY-101 Non-Crust Composite
	Temperature	27.5 C to 25.8 C
Jar16416:47C	Contact Time	1 day(s)
	Diluent	Distilled Water
	Diluent Amount	0 mL
	Liquid Separation	Centrifugation and decantation
	Settling Time	2 week(s)
	Solid Separation	Sequential precipitation, centrifugation, and decantation
	Source Material	241-SY-101 Non-Crust Composite
	Temperature	27.5 C to 25.8 C
Jar16417:26C	Contact Time	1 day(s)
	Diluent	Distilled Water
	Diluent Amount	0 mL
	Liquid Separation	Centrifugation and decantation
	Settling Time	2 week(s)
	Solid Separation	Sequential precipitation, centrifugation, and decantation
	Source Material	241-SY-101 Non-Crust Composite
	Temperature	27.5 C to 25.8 C
Jar16417:47C	Contact Time	1 day(s)
	Diluent	Distilled Water
	Diluent Amount	0 mL
	Liquid Separation	Centrifugation and decantation
	Settling Time	2 week(s)
	Solid Separation	Sequential precipitation, centrifugation, and decantation
	Source Material	241-SY-101 Non-Crust Composite
	Temperature	27.5 C to 25.8 C
Jar16418:26C	Contact Time	1 day(s)

241-SY-101 Sample Attributes

Sample Number	Attribute Name	Attribute
	Diluent	Distilled Water
	Diluent Amount	Nominally 100 vol% dilution
	Liquid Separation	Centrifugation and decantation
	Settling Time	2 week(s)
	Solid Separation	Sequential precipitation, centrifugation, and decantation
	Source Material	241-SY-101 Non-Crust Composite
	Temperature	28.0 C to 25.8 C
Jar16418:47C	Contact Time	1 day(s)
	Diluent	Distilled Water
	Diluent Amount	Nominally 100 vol% dilution
	Liquid Separation	Centrifugation and decantation
	Settling Time	2 week(s)
	Solid Separation	Sequential precipitation, centrifugation, and decantation
	Source Material	241-SY-101 Non-Crust Composite
	Temperature	28.0 C to 25.8 C
Jar16419:26C	Contact Time	1 day(s)
	Diluent	Distilled Water
	Diluent Amount	Nominally 100 vol% dilution
	Liquid Separation	Centrifugation and decantation
	Settling Time	2 week(s)
	Solid Separation	Sequential precipitation, centrifugation, and decantation
	Source Material	241-SY-101 Non-Crust Composite
	Temperature	28.0 C to 25.8 C
Jar16419:47C	Contact Time	1 day(s)
	Diluent	Distilled Water
	Diluent Amount	Nominally 100 vol% dilution
	Liquid Separation	Centrifugation and decantation
	Settling Time	2 week(s)
	Solid Separation	Sequential precipitation, centrifugation, and decantation
	Source Material	241-SY-101 Non-Crust Composite
	Temperature	28.0 C to 25.8 C
Run1-4/26/99	Mixing Method	Stirring during sample transfer
	Settling Time	0 week(s)

241-SY-101 Sample Attributes

Sample Number	Attribute Name	Attribute
	Source Material	Jar 16107: April 26, 1999 aliquot
	Temperature	Ambient
Run1-4/27/99	Mixing Method	None
	Settling Time	0 week(s)
	Source Material	Jar 16107: April 27, 1999 aliquot
	Temperature	Ambient
Run2-4/26/99	Mixing Method	Stirring during sample transfer and one preceding viscosity run
	Settling Time	0 week(s)
	Source Material	Jar 16107: April 26, 1999 aliquot
	Temperature	Ambient
Run2-4/27/99	Mixing Method	One preceding viscosity run
	Settling Time	0 week(s)
	Source Material	Jar 16107: April 27, 1999 aliquot
	Temperature	Ambient
Run3-4/26/99	Mixing Method	Stirring during sample transfer and two preceding viscosity runs
	Settling Time	0 week(s)
	Source Material	Jar 16107: April 26, 1999 aliquot
	Temperature	Ambient
Run3-4/27/99	Mixing Method	Two preceding viscosity runs
	Settling Time	0 week(s)
	Source Material	Jar 16107: April 27, 1999 aliquot
	Temperature	Ambient
Run4-4/26/99	Mixing Method	Stirring during sample transfer and three preceding viscosity runs
	Settling Time	0 week(s)
	Source Material	Jar 16107: April 26, 1999 aliquot
	Temperature	Ambient
Run4-4/27/99	Mixing Method	Three preceding viscosity runs
	Settling Time	0 week(s)
	Source Material	Jar 16107: April 27, 1999 aliquot
	Temperature	Ambient
Run5-5/17/99	Mixing Method	One set of four viscosity runs followed by settling time
	Settling Time	3 week(s)
	Source Material	Jar 16107: April 27, 1999 aliquot

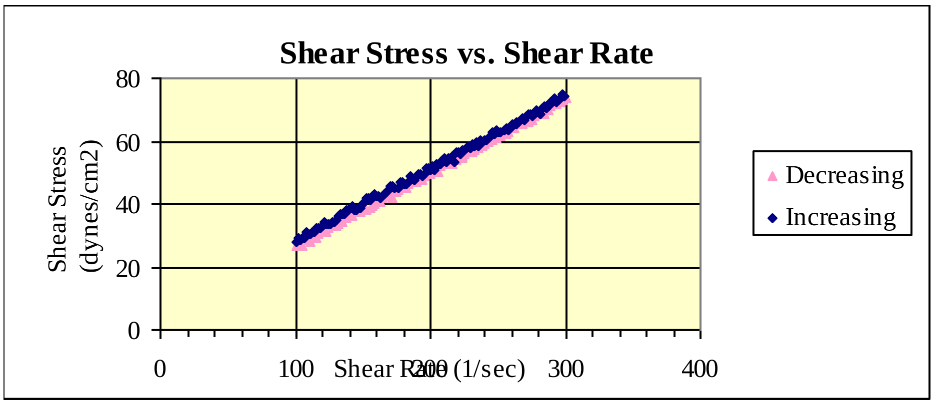
241-SY-101 Sample Attributes

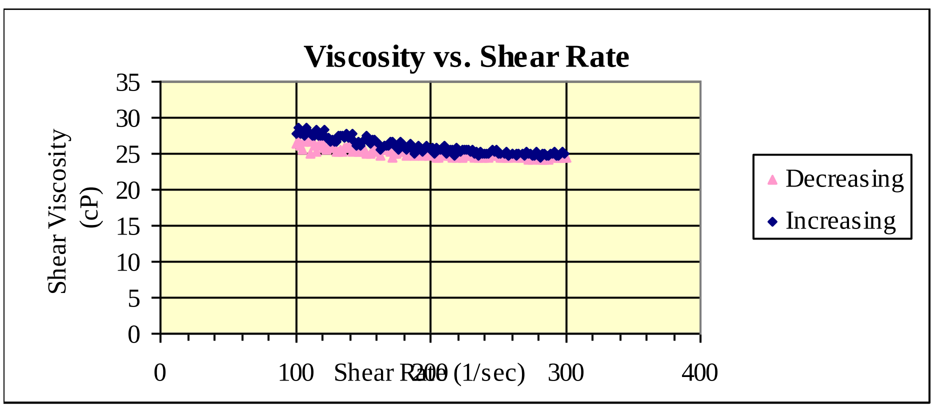
Sample Number	Attribute Name	Attribute
	Temperature	Ambient
Run6-5/17/99	Mixing Method	One set of four viscosity runs followed by settling time and one preceding viscosity run
	Settling Time	3 week(s)
	Source Material	Jar 16107: April 27, 1999 aliquot
	Temperature	Ambient
Run7-5/17/99	Mixing Method	One set of four viscosity runs followed by settling time and two preceding viscosity runs
	Settling Time	3 week(s)
	Source Material	Jar 16107: April 27, 1999 aliquot
	Temperature	Ambient
Run8-5/17/99	Mixing Method	One set of four viscosity runs followed by settling time and three preceding viscosity runs
	Settling Time	3 week(s)
	Source Material	Jar 16107: April 27, 1999 aliquot
	Temperature	Ambient

241-SY-101 Rheology Measurements

SAMPLE NUMBER: Jar16416:26C
SAMPLE LOCATION: SY101 Non-Crust Comp; Riser 22
RESULT TYPE: Result
SAMPLE PORTION: Core Composite; Total
PROJECT TYPE: Altered

DATA TYPE = Raw Data
MEASURE TEMP = 26.0 C
LO SHEAR RATE LIMIT = 100/sec
HI SHEAR RATE LIMIT = 300/sec
CHANGE RATE = 300/sec in 180 sec





SAMPLE NUMBER: Jar16416:47C
SAMPLE LOCATION: SY101 Non-Crust Comp; Riser 22
RESULT TYPE: Result
SAMPLE PORTION: Core Composite; Total
PROJECT TYPE: Altered

DATA TYPE = Raw Data
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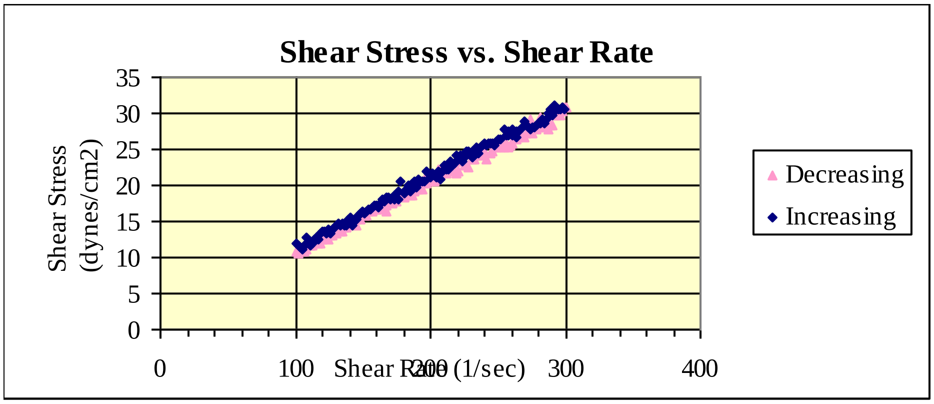
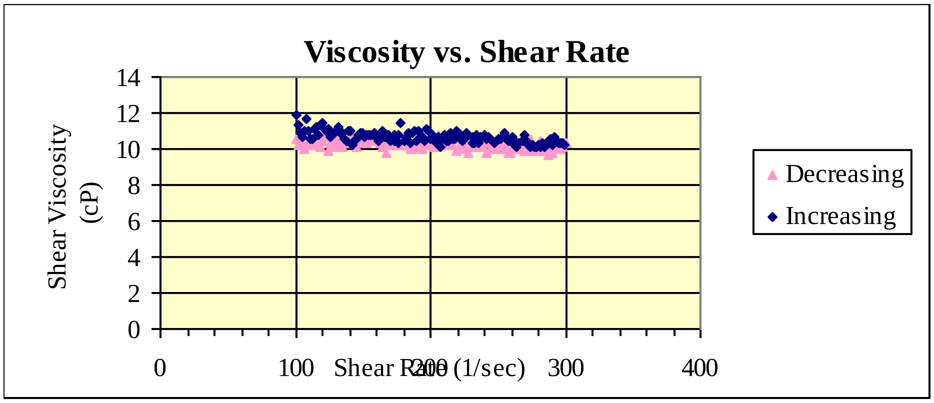
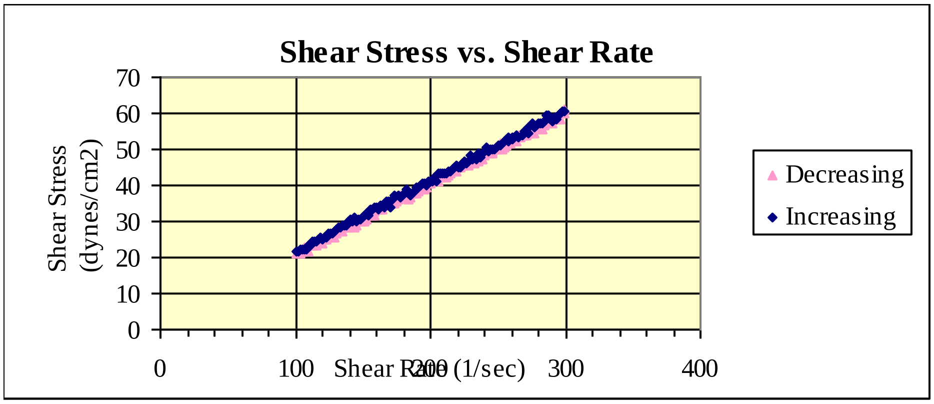
LO SHEAR RATE LIMIT = 100/sec
HI SHEAR RATE LIMIT = 300/sec
CHANGE RATE = 300/sec in 180 sec

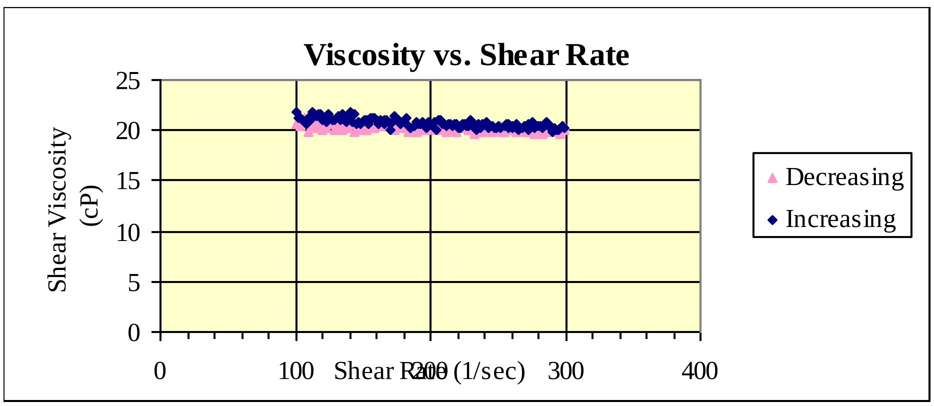




SAMPLE NUMBER: Jar16417:26C
SAMPLE LOCATION: SY101 Non-Crust Comp; Riser 22
RESULT TYPE: Result
SAMPLE PORTION: Core Composite; Total
PROJECT TYPE: Altered

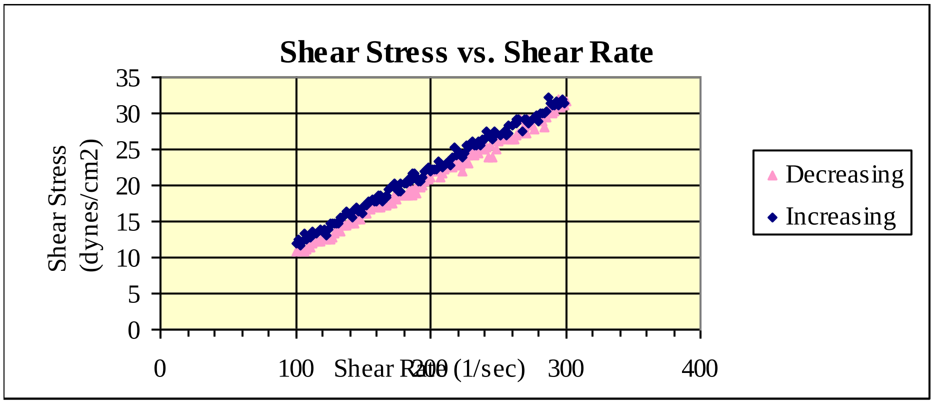
DATA TYPE = Raw Data
MEASURE TEMP = 30 C
LO SHEAR RATE LIMIT = 100/sec
HI SHEAR RATE LIMIT = 300/sec
CHANGE RATE = 300/sec in 180 sec

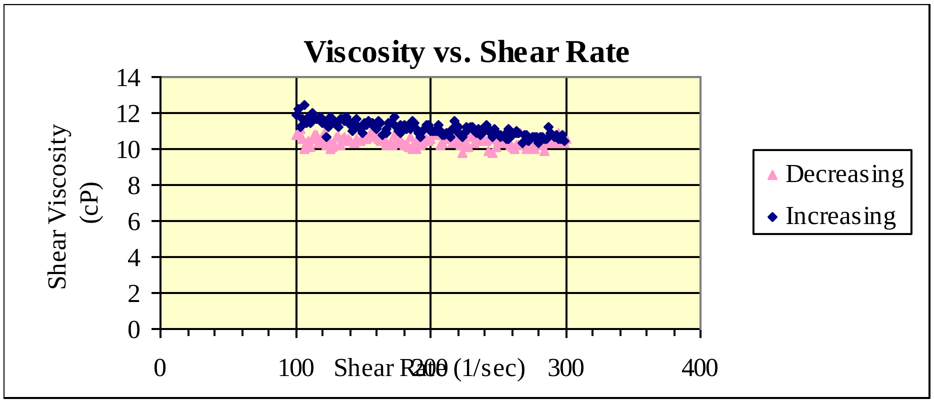




SAMPLE NUMBER: Jar16417:47C
SAMPLE LOCATION: SY101 Non-Crust Comp; Riser 22
RESULT TYPE: Result
SAMPLE PORTION: Core Composite; Total
PROJECT TYPE: Altered

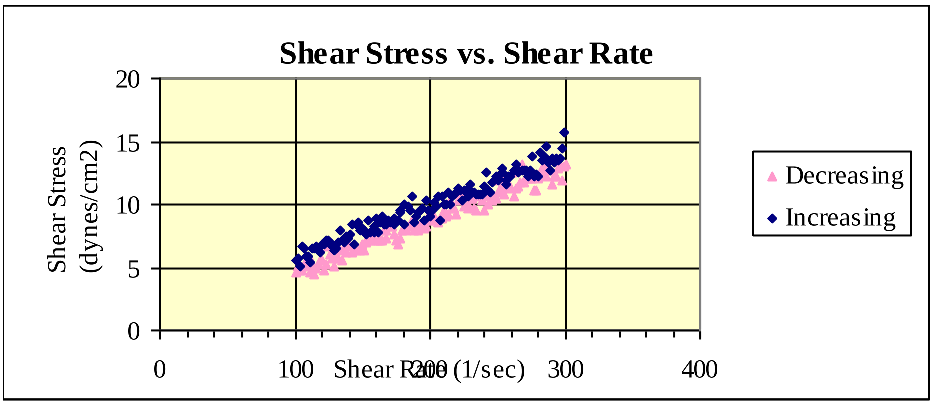
DATA TYPE = Raw Data
MEASURE TEMP = 46.8 C
LO SHEAR RATE LIMIT = 100/sec
HI SHEAR RATE LIMIT = 300/sec
CHANGE RATE = 300/sec in 180 sec

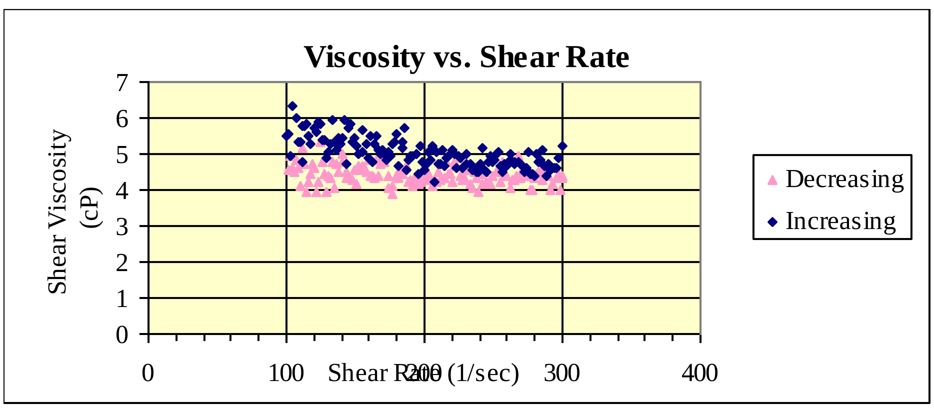




SAMPLE NUMBER: Jar16418:26C
SAMPLE LOCATION: SY101 Non-Crust Comp; Riser 22
RESULT TYPE: Result
SAMPLE PORTION: Core Composite; Total
PROJECT TYPE: Altered

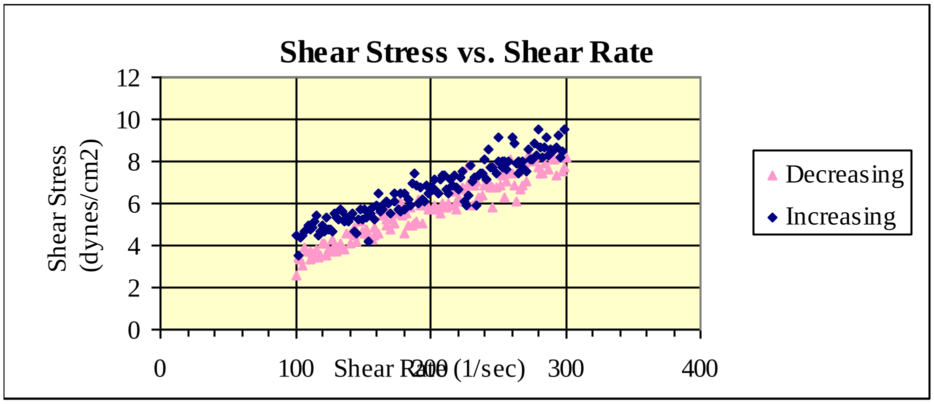
DATA TYPE = Raw Data
MEASURE TEMP = 27.2 C
LO SHEAR RATE LIMIT = 100/sec
HI SHEAR RATE LIMIT = 300/sec
CHANGE RATE = 300/sec in 180 sec

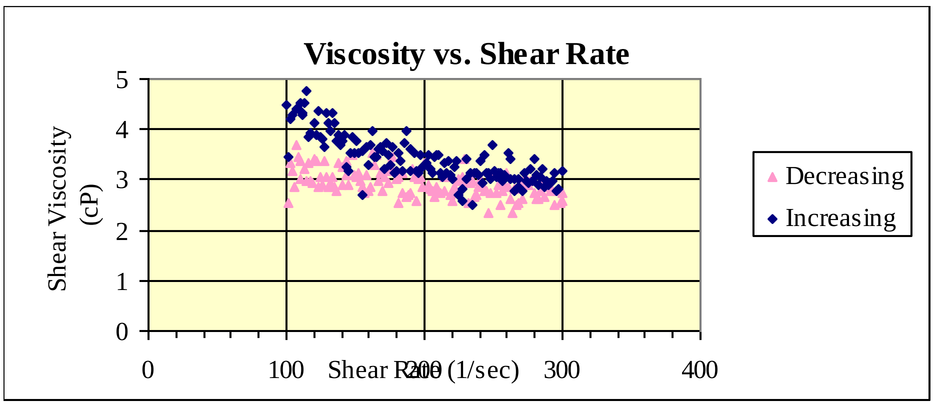




SAMPLE NUMBER: Jar16418:47C
SAMPLE LOCATION: SY101 Non-Crust Comp; Riser 22
RESULT TYPE: Result
SAMPLE PORTION: Core Composite; Total
PROJECT TYPE: Altered

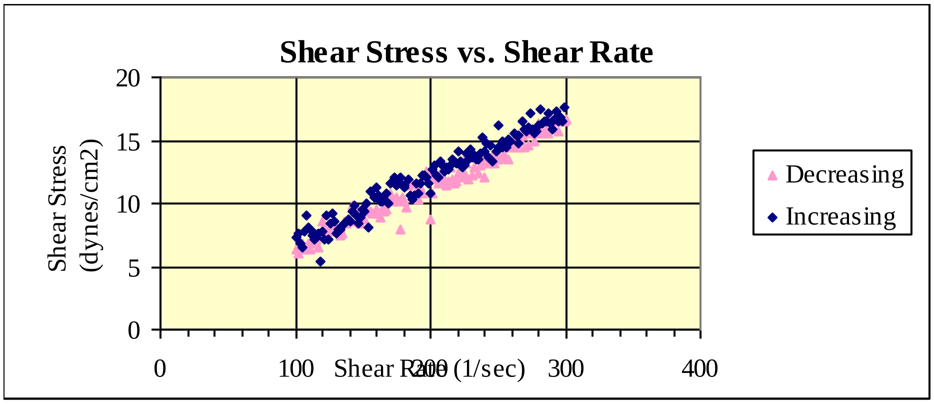
DATA TYPE = Raw Data
MEASURE TEMP = 46.6 C
LO SHEAR RATE LIMIT = 100/sec
HI SHEAR RATE LIMIT = 300/sec
CHANGE RATE = 300/sec in 180 sec

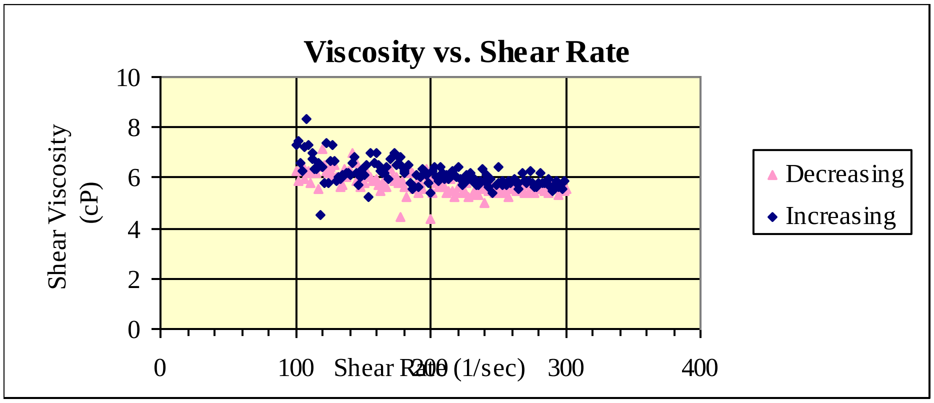




SAMPLE NUMBER: Jar16419:26C
SAMPLE LOCATION: SY101 Non-Crust Comp; Riser 22
RESULT TYPE: Result
SAMPLE PORTION: Core Composite; Total
PROJECT TYPE: Altered

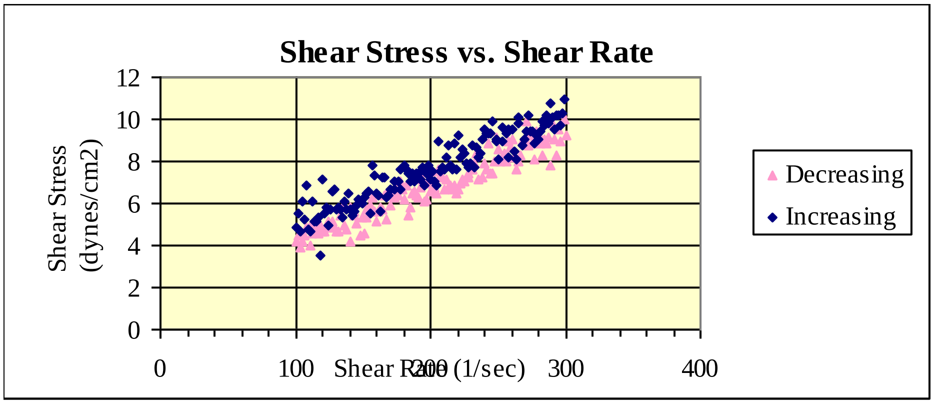
DATA TYPE = Raw Data
MEASURE TEMP = 24.3 C
LO SHEAR RATE LIMIT = 100/sec
HI SHEAR RATE LIMIT = 300/sec
CHANGE RATE = 300/sec in 180 sec

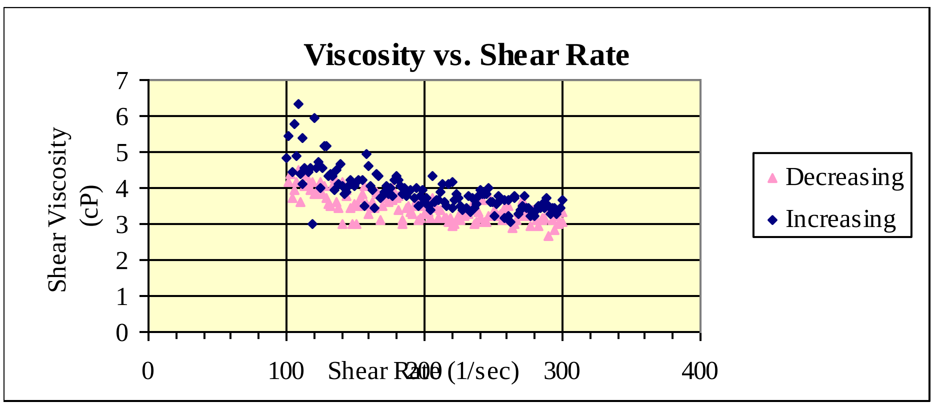




SAMPLE NUMBER: Jar16419:47C
SAMPLE LOCATION: SY101 Non-Crust Comp; Riser 6
RESULT TYPE: Result
SAMPLE PORTION: Core Composite; Total
PROJECT TYPE: Altered

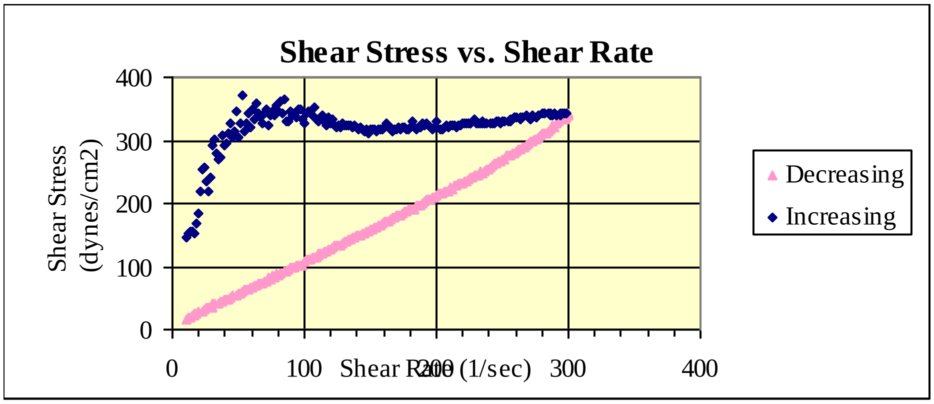
DATA TYPE = Raw Data
MEASURE TEMP = 46.8 C
LO SHEAR RATE LIMIT = 100/sec
HI SHEAR RATE LIMIT = 300/sec
CHANGE RATE = 300/sec in 180 sec

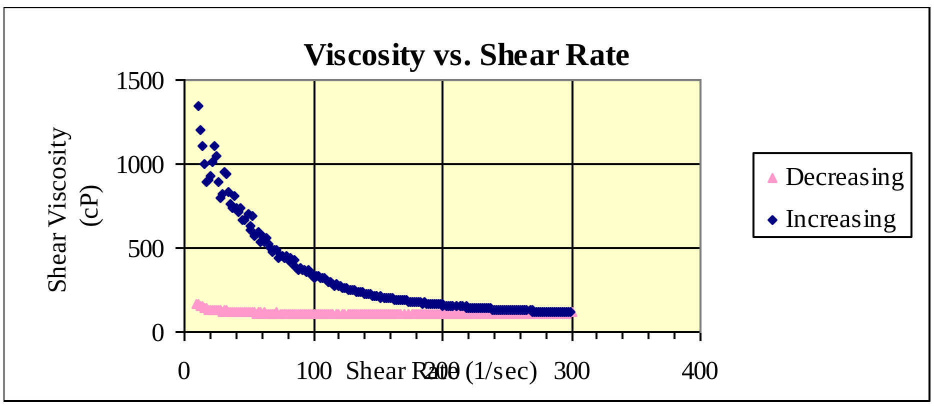




SAMPLE NUMBER: Run1-4/26/99
SAMPLE LOCATION: Core 257: 7 ; Riser 6
RESULT TYPE: Result
SAMPLE PORTION: Segment Subpart A; Total
PROJECT TYPE: Altered

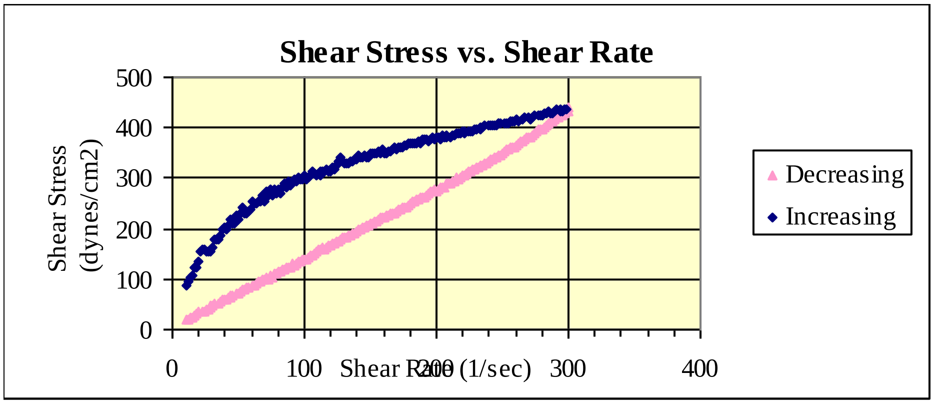
DATA TYPE = Raw Data
MEASURE TEMP = 24.2 C
LO SHEAR RATE LIMIT = 10/sec
HI SHEAR RATE LIMIT = 300/sec
CHANGE RATE = 300/sec in 180 sec

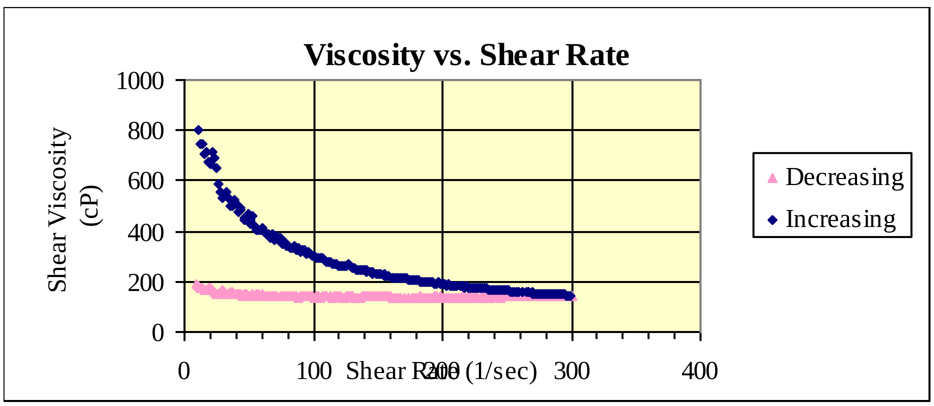




SAMPLE NUMBER: Run1-4/27/99
SAMPLE LOCATION: Core 257: 7 ; Riser 6
RESULT TYPE: Result
SAMPLE PORTION: Segment Subpart A; Total
PROJECT TYPE: Altered

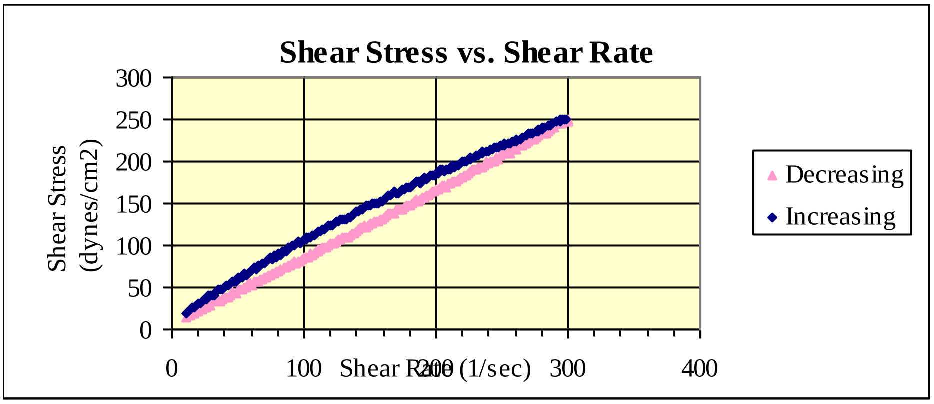
DATA TYPE = Raw Data
MEASURE TEMP = 26.0 C
LO SHEAR RATE LIMIT = 10/sec
HI SHEAR RATE LIMIT = 300/sec
CHANGE RATE = 300/sec in 180 sec

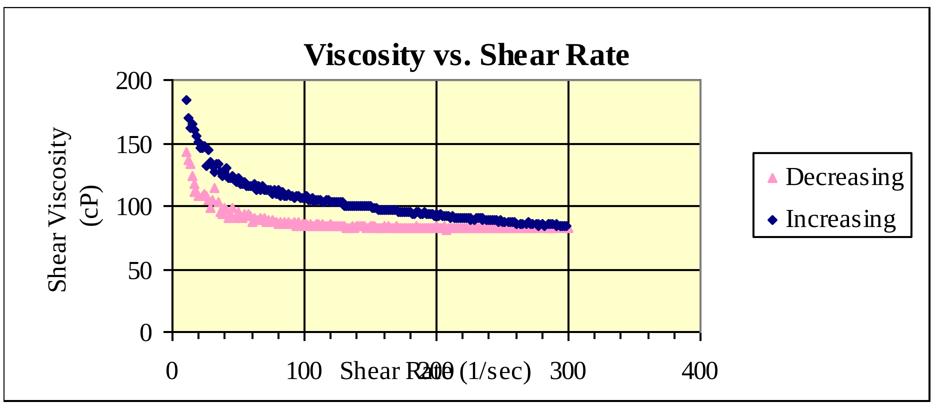




SAMPLE NUMBER: Run2-4/26/99
SAMPLE LOCATION: Core 257: 7 ; Riser 6
RESULT TYPE: Result
SAMPLE PORTION: Segment Subpart A; Total
PROJECT TYPE: Altered

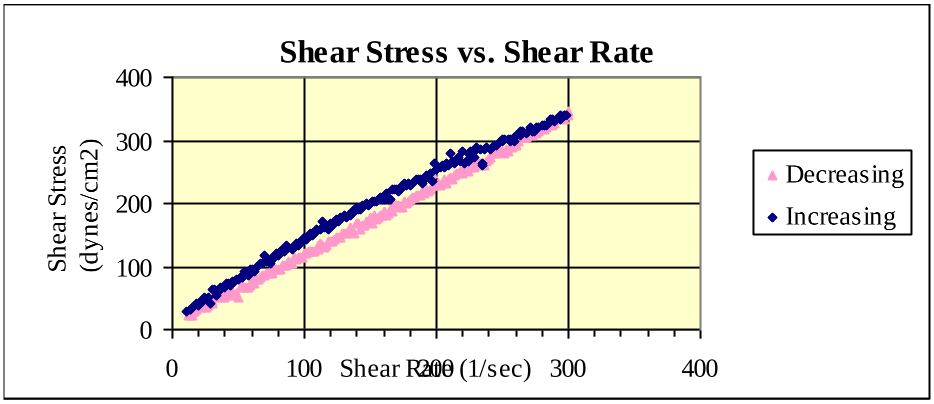
DATA TYPE = Raw Data
MEASURE TEMP = 25.0 C
LO SHEAR RATE LIMIT = 10/sec
HI SHEAR RATE LIMIT = 300/sec
CHANGE RATE = 300/sec in 180 sec

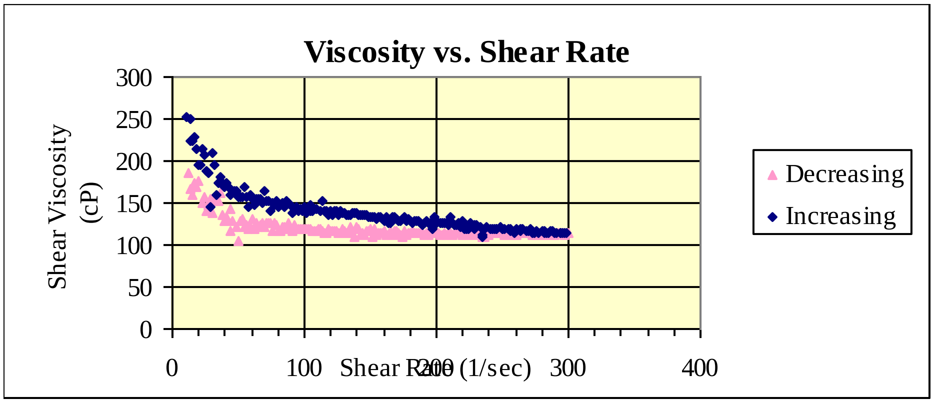




SAMPLE NUMBER: Run2-4/27/99
SAMPLE LOCATION: Core 257: 7 ; Riser 6
RESULT TYPE: Result
SAMPLE PORTION: Segment Subpart A; Total
PROJECT TYPE: Altered

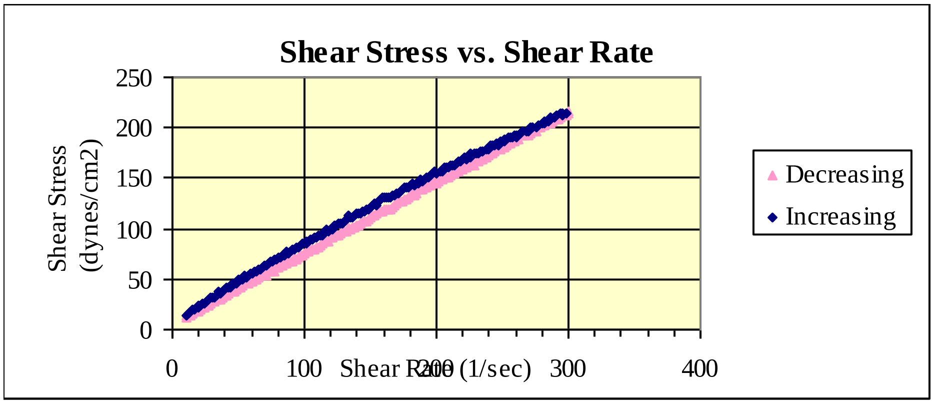
DATA TYPE = Raw Data
MEASURE TEMP = 27.0 C
LO SHEAR RATE LIMIT = 10/sec
HI SHEAR RATE LIMIT = 300/sec
CHANGE RATE = 300/sec in 180 sec

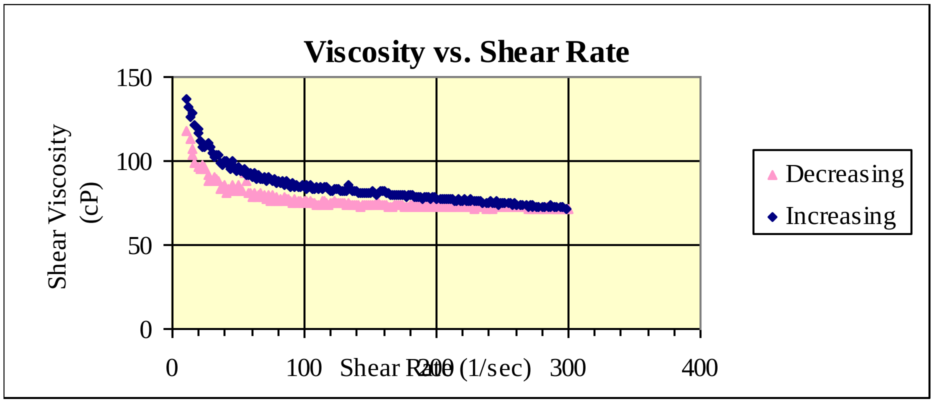




SAMPLE NUMBER: Run3-4/26/99
SAMPLE LOCATION: Core 257: 7 ; Riser 6
RESULT TYPE: Result
SAMPLE PORTION: Segment Subpart A; Total
PROJECT TYPE: Altered

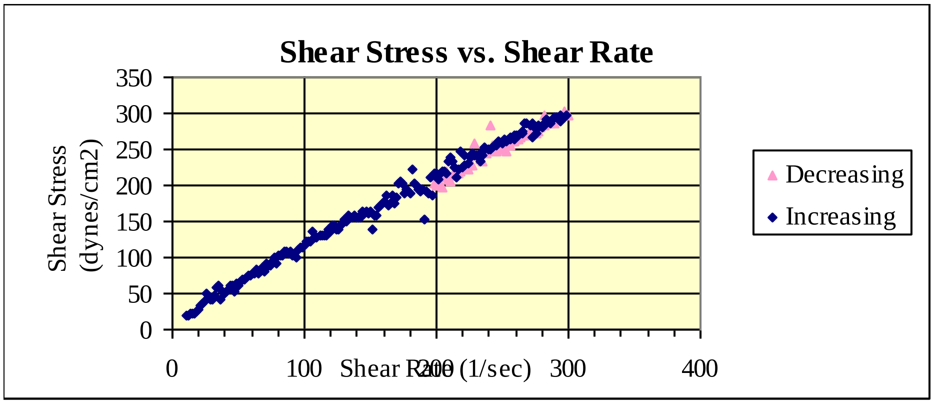
DATA TYPE = Raw Data
MEASURE TEMP = 25.0 C
LO SHEAR RATE LIMIT = 10/sec
HI SHEAR RATE LIMIT = 300/sec
CHANGE RATE = 300/sec in 180 sec

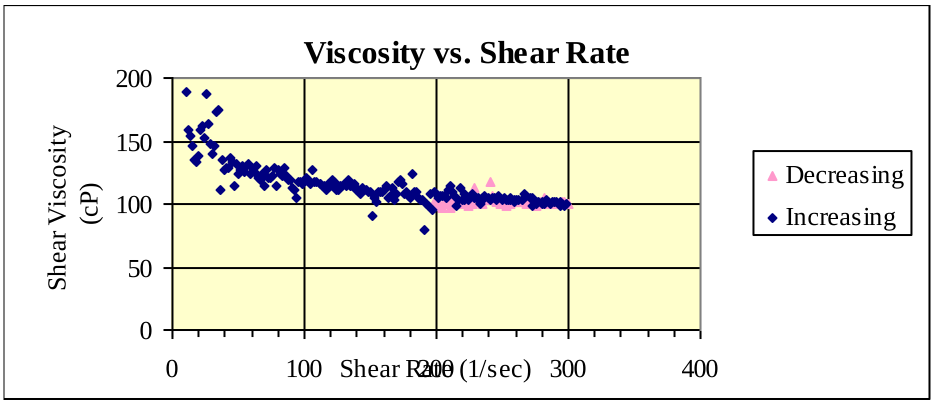




SAMPLE NUMBER: Run3-4/27/99
SAMPLE LOCATION: Core 257: 7 ; Riser 6
RESULT TYPE: Result
SAMPLE PORTION: Segment Subpart A; Total
PROJECT TYPE: Altered

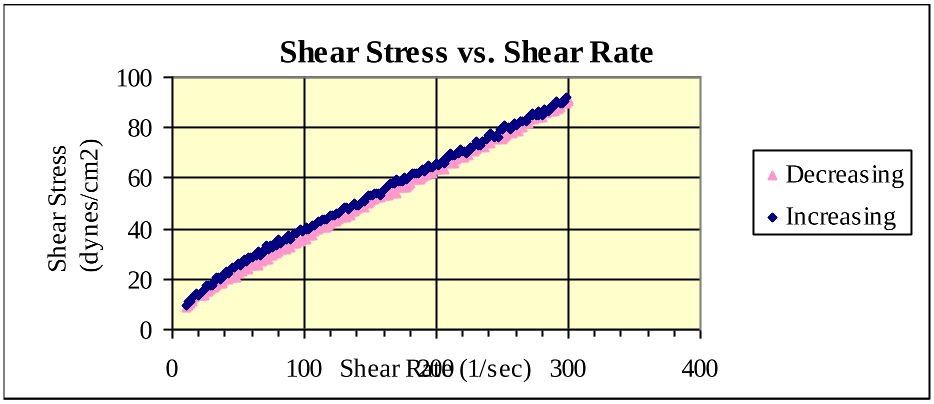
DATA TYPE = Raw Data
MEASURE TEMP = 27.0 C
LO SHEAR RATE LIMIT = 10/sec
HI SHEAR RATE LIMIT = 300/sec
CHANGE RATE = 300/sec in 180 sec

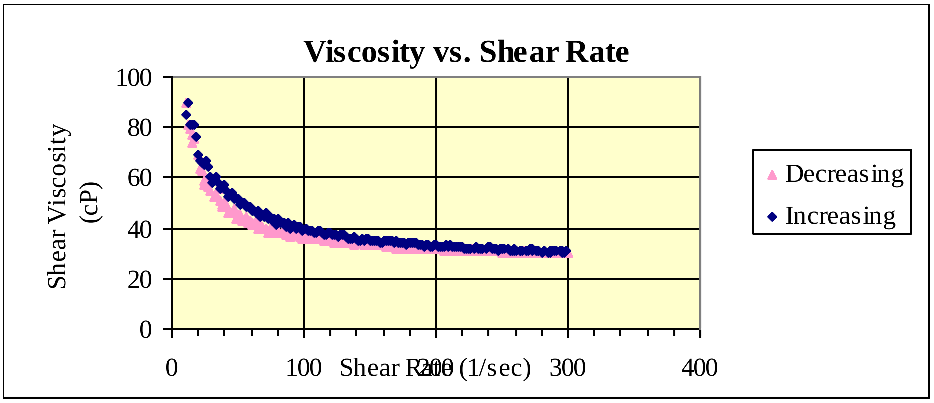




SAMPLE NUMBER: Run4-4/26/99
SAMPLE LOCATION: Core 257: 7 ; Riser 6
RESULT TYPE: Result
SAMPLE PORTION: Segment Subpart A; Total
PROJECT TYPE: Altered

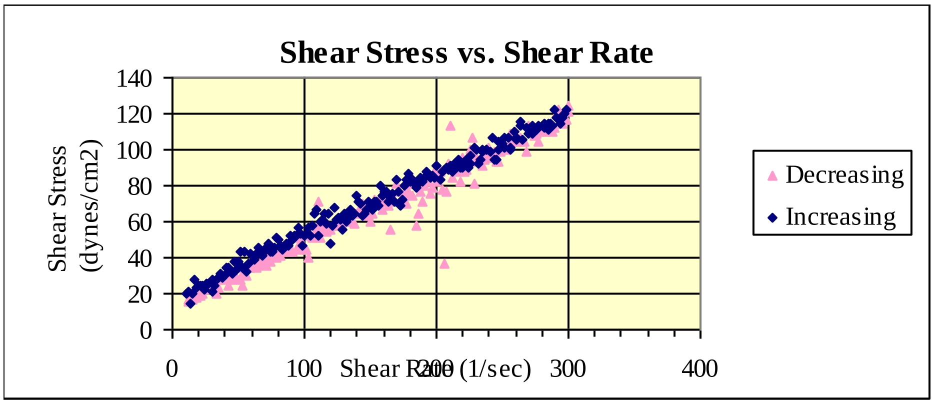
DATA TYPE = Raw Data
MEASURE TEMP = 47.0 C
LO SHEAR RATE LIMIT = 10/sec
HI SHEAR RATE LIMIT = 300/sec
CHANGE RATE = 300/sec in 180 sec

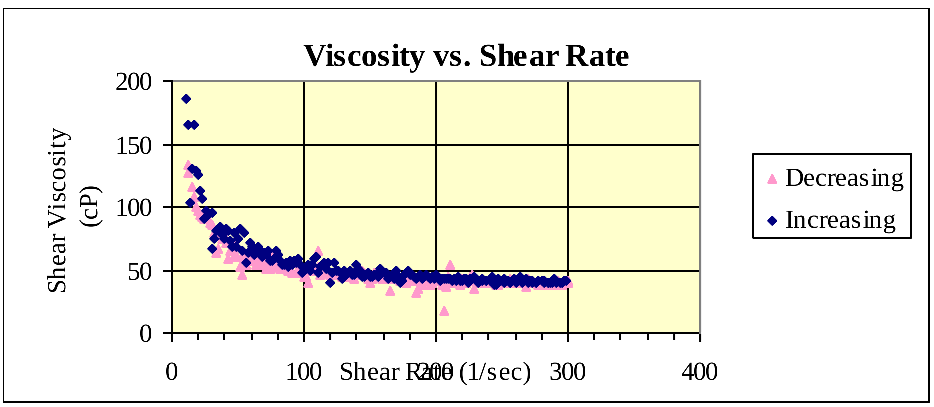




SAMPLE NUMBER: Run4-4/27/99
SAMPLE LOCATION: Core 257: 7 ; Riser 6
RESULT TYPE: Result
SAMPLE PORTION: Segment Subpart A; Total
PROJECT TYPE: Altered

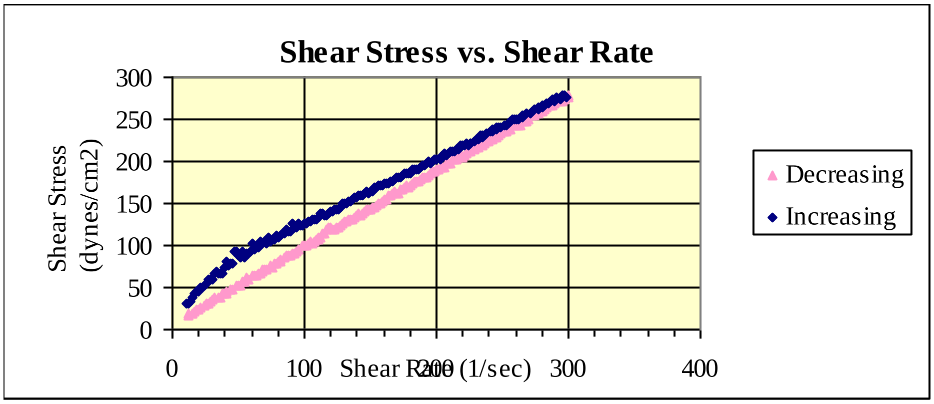
DATA TYPE = Raw Data
MEASURE TEMP = 47.0 C
LO SHEAR RATE LIMIT = 10/sec
HI SHEAR RATE LIMIT = 300/sec
CHANGE RATE = 300/sec in 180 sec

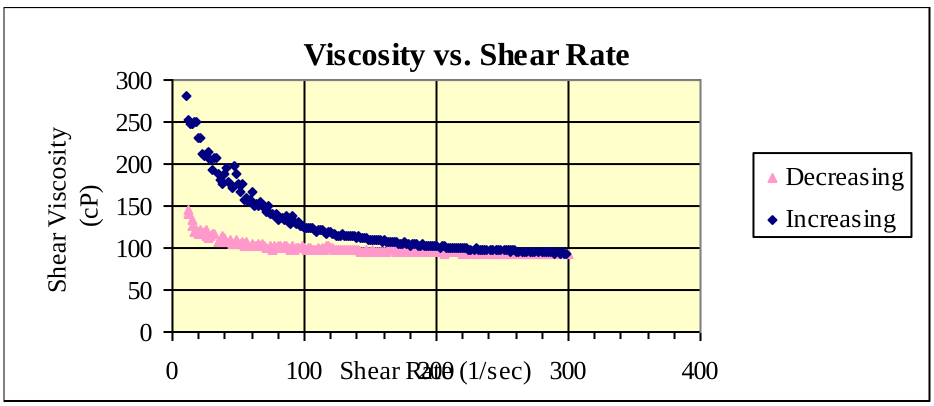




SAMPLE NUMBER: Run5-5/17/99
SAMPLE LOCATION: Core 257: 7 ; Riser 6
RESULT TYPE: Result
SAMPLE PORTION: Segment Subpart A; Total
PROJECT TYPE: Altered

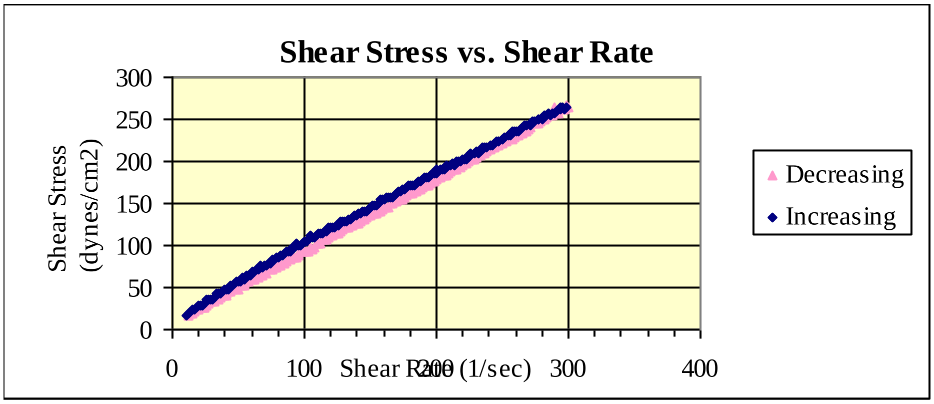
DATA TYPE = Raw Data
MEASURE TEMP = 23.0 C
LO SHEAR RATE LIMIT = 10/sec
HI SHEAR RATE LIMIT = 300/sec
CHANGE RATE = 300/sec in 180 sec

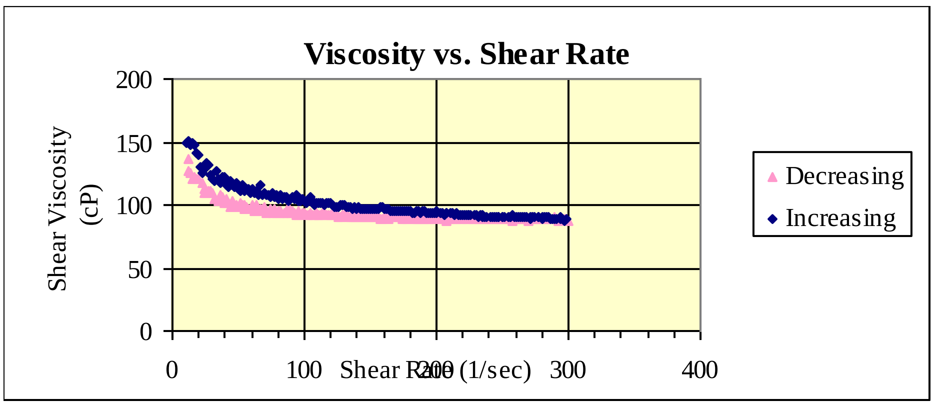




SAMPLE NUMBER: Run6-5/17/99
SAMPLE LOCATION: Core 257: 7 ; Riser 6
RESULT TYPE: Result
SAMPLE PORTION: Segment Subpart A; Total
PROJECT TYPE: Altered

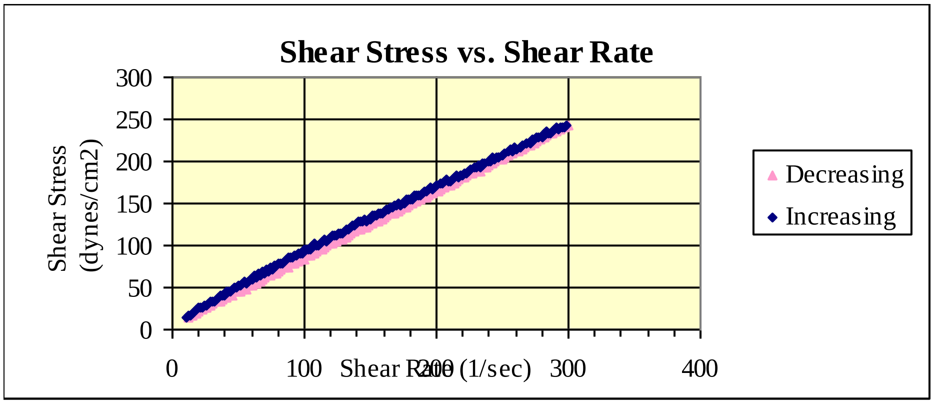
DATA TYPE = Raw Data
MEASURE TEMP = 24.0 C
LO SHEAR RATE LIMIT = 10/sec
HI SHEAR RATE LIMIT = 300/sec
CHANGE RATE = 300/sec in 180 sec

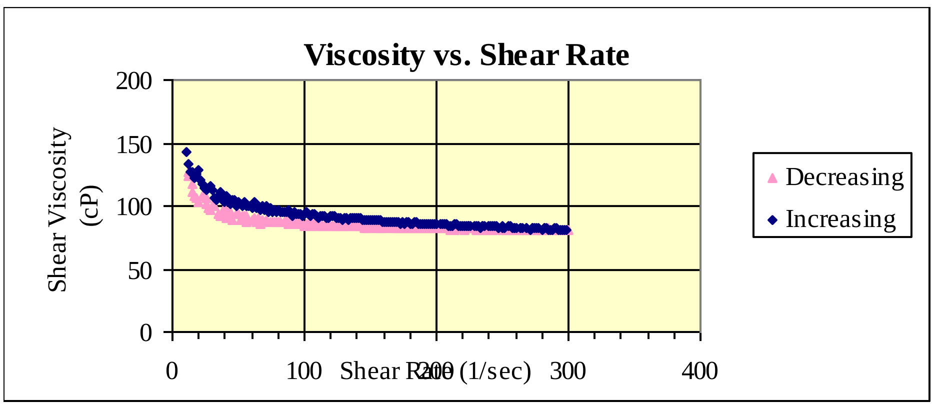




SAMPLE NUMBER: Run7-5/17/99
SAMPLE LOCATION: Core 257: 7 ; Riser 6
RESULT TYPE: Result
SAMPLE PORTION: Segment Subpart A; Total
PROJECT TYPE: Altered

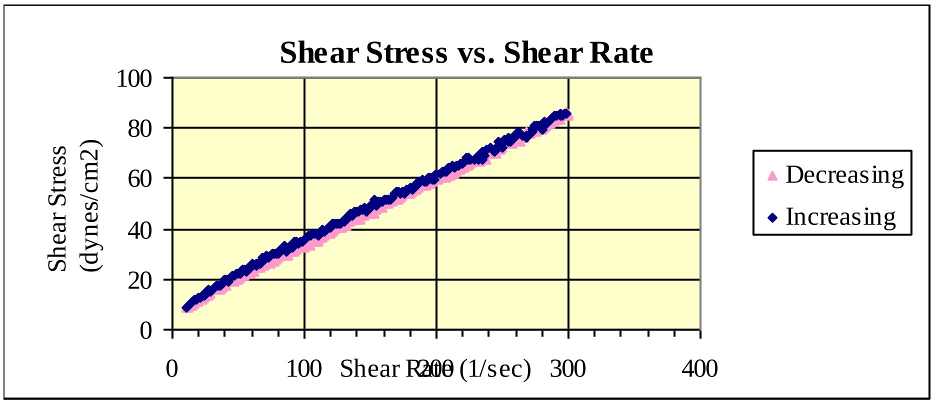
DATA TYPE = Raw Data
MEASURE TEMP = 25.0 C
LO SHEAR RATE LIMIT = 10/sec
HI SHEAR RATE LIMIT = 300/sec
CHANGE RATE = 300/sec in 180 sec

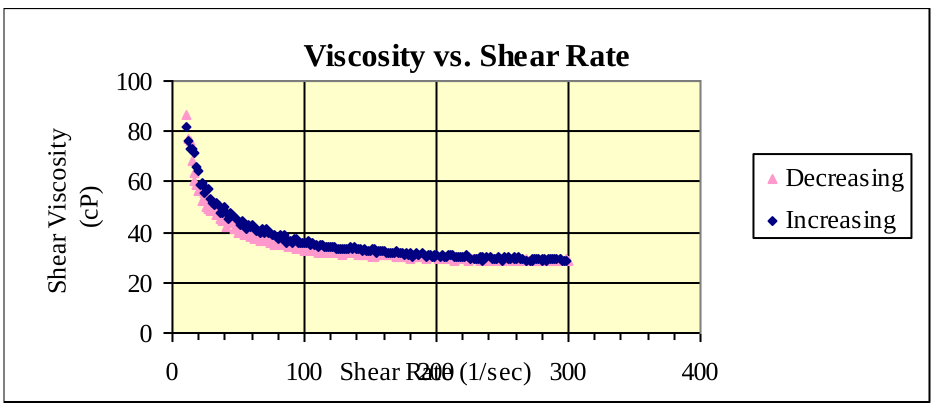




SAMPLE NUMBER: Run8-5/17/99
SAMPLE LOCATION: Core 257: 7 ; Riser 6
RESULT TYPE: Result
SAMPLE PORTION: Segment Subpart A; Total
PROJECT TYPE: Altered

DATA TYPE = Raw Data
MEASURE TEMP = 47.0 C
LO SHEAR RATE LIMIT = 10/sec
HI SHEAR RATE LIMIT = 300/sec
CHANGE RATE = 300/sec in 180 sec





241-SY-101 Means and Confidence Intervals

Solid Data

Tank 241-SY-101 95 Percent Two-Sided Confidence Interval for the Mean Concentration for Solid Crust Composite (Sampling Dates -- January 5, 1999 - January 19, 1999, March 8, 1999 - April 2, 1999)

Analyte	Method	Mean	df	LL	UL	Units
Acetate	IC:W	1.64E+ 03	1	0.00E+ 00	4.45E+ 03	µg/g
Aluminum	ICP:A	3.61E+ 04	1	1.42E+ 04	5.80E+ 04	µg/g
Aluminum	ICP:F	2.86E+ 04	1	0.00E+ 00	6.07E+ 04	µg/g
Americium-241	AEA:F	1.08E-1	1	0.00E+ 00	2.29E-1	µCi/g
Antimony*	ICP:A	< 3.53E+ 01	n/a	n/a	n/a	µg/g
Antimony*	ICP:F	< 1.12E+ 03	n/a	n/a	n/a	µg/g
Arsenic*	ICP:A	< 5.87E+ 01	n/a	n/a	n/a	µg/g
Arsenic*	ICP:F	< 1.87E+ 03	n/a	n/a	n/a	µg/g
Barium*	ICP:A	< 2.94E+ 01	n/a	n/a	n/a	µg/g
Barium*	ICP:F	< 9.35E+ 02	n/a	n/a	n/a	µg/g
Beryllium*	ICP:A	< 2.94E+ 00	n/a	n/a	n/a	µg/g
Beryllium*	ICP:F	< 9.35E+ 01	n/a	n/a	n/a	µg/g
Bismuth*	ICP:A	< 5.87E+ 01	n/a	n/a	n/a	µg/g
Bismuth*	ICP:F	< 1.87E+ 03	n/a	n/a	n/a	µg/g
Boron	ICP:A	1.74E+ 02	1	9.12E+ 01	2.56E+ 02	µg/g
Boron*	ICP:F	< 9.35E+ 02	n/a	n/a	n/a	µg/g
Bromide*	IC:W	< 7.71E+ 02	n/a	n/a	n/a	µg/g
Bulk Density	Physical Properties	1.68E+ 00	1	9.76E-1	2.37E+ 00	g/mL
Cadmium	ICP:A	1.35E+ 01	1	0.00E+ 00	3.51E+ 01	µg/g
Cadmium*	ICP:F	< 9.35E+ 01	n/a	n/a	n/a	µg/g
Calcium	ICP:A	2.14E+ 02	1	0.00E+ 00	4.36E+ 02	µg/g
Calcium*	ICP:F	< 1.87E+ 03	n/a	n/a	n/a	µg/g
Cerium*	ICP:A	< 5.87E+ 01	n/a	n/a	n/a	µg/g
Cerium*	ICP:F	< 1.87E+ 03	n/a	n/a	n/a	µg/g
Cesium-137	GEA:F	2.46E+ 02	1	1.85E+ 02	3.08E+ 02	µCi/g
Chloride	IC:W	9.43E+ 03	1	0.00E+ 00	1.99E+ 04	µg/g
Chromium	ICP:A	4.41E+ 03	1	0.00E+ 00	1.38E+ 04	µg/g
Chromium	ICP:F	4.49E+ 03	1	3.14E+ 03	5.83E+ 03	µg/g
Cobalt*	ICP:A	< 1.18E+ 01	n/a	n/a	n/a	µg/g
Cobalt*	ICP:F	< 3.73E+ 02	n/a	n/a	n/a	µg/g
Cobalt-60*	GEA:F	< 7.59E-2	n/a	n/a	n/a	µCi/g
Copper*	ICP:A	< 6.20E+ 00	n/a	n/a	n/a	µg/g
Copper*	ICP:F	< 1.87E+ 02	n/a	n/a	n/a	µg/g
Exotherm - transition 1	DSC/TGA	4.39E+ 01	1	0.00E+ 00	3.73E+ 02	J/g

Tank 241-SY-101 95 Percent Two-Sided Confidence Interval for the Mean Concentration for Solid Crust Composite (Sampling Dates -- January 5, 1999 - January 19, 1999, March 8, 1999 - April 2, 1999)

Analyte	Method	Mean	df	LL	UL	Units
Fluoride*	IC:W	3.18E+ 02	1	0.00E+ 00	1.30E+ 03	µg/g
Formate	IC:W	6.65E+ 03	1	0.00E+ 00	2.06E+ 04	µg/g
Glycolate	IC:W	1.29E+ 03	1	0.00E+ 00	5.89E+ 03	µg/g
Gross alpha	Proportion al Counting: F	1.14E-1	1	5.60E-2	1.72E-1	µCi/g
Hexavalent Chromium*	Spectroph otometer - 540 nm:W	2.46E+ 02	1	0.00E+ 00	2.72E+ 03	µg/g
Hydroxide	OH:W	2.52E+ 04	1	0.00E+ 00	1.52E+ 05	µg/g
Iron	ICP:A	3.18E+ 02	1	0.00E+ 00	7.75E+ 02	µg/g
Iron*	ICP:F	< 9.35E+ 02	n/a	n/a	n/a	µg/g
Lanthanum*	ICP:A	< 2.94E+ 01	n/a	n/a	n/a	µg/g
Lanthanum*	ICP:F	< 9.35E+ 02	n/a	n/a	n/a	µg/g
Lead	ICP:A	1.21E+ 02	1	0.00E+ 00	5.93E+ 02	µg/g
Lead*	ICP:F	< 1.87E+ 03	n/a	n/a	n/a	µg/g
Lithium*	ICP:A	1.51E+ 01	1	0.00E+ 00	1.32E+ 02	µg/g
Lithium*	ICP:F	< 1.87E+ 02	n/a	n/a	n/a	µg/g
Magnesium*	ICP:A	< 5.87E+ 01	n/a	n/a	n/a	µg/g
Magnesium*	ICP:F	< 1.87E+ 03	n/a	n/a	n/a	µg/g
Manganese	ICP:A	6.66E+ 01	1	0.00E+ 00	1.51E+ 02	µg/g
Manganese*	ICP:F	< 1.87E+ 02	n/a	n/a	n/a	µg/g
Molybdenum	ICP:A	9.50E+ 01	1	0.00E+ 00	2.79E+ 02	µg/g
Molybdenum*	ICP:F	< 9.35E+ 02	n/a	n/a	n/a	µg/g
Neodymium*	ICP:A	< 5.87E+ 01	n/a	n/a	n/a	µg/g
Neodymium*	ICP:F	< 1.87E+ 03	n/a	n/a	n/a	µg/g
Nickel	ICP:A	1.50E+ 02	1	1.61E+ 01	2.83E+ 02	µg/g
Nickel	ICP:F	1.27E+ 03	1	0.00E+ 00	4.74E+ 03	µg/g
Nitrate	IC:W	1.32E+ 05	1	0.00E+ 00	3.95E+ 05	µg/g
Nitrite	IC:W	1.10E+ 05	1	8.65E+ 04	1.33E+ 05	µg/g
Oxalate	IC:W	1.54E+ 04	1	0.00E+ 00	4.00E+ 04	µg/g
Percent Water	DSC/TGA	2.82E+ 01	1	0.00E+ 00	7.17E+ 01	%
Phosphate	IC:W	9.49E+ 03	1	0.00E+ 00	4.93E+ 04	µg/g
Phosphorus	ICP:A	3.87E+ 03	1	0.00E+ 00	1.80E+ 04	µg/g
Phosphorus*	ICP:F	4.08E+ 03	1	3.23E+ 03	4.93E+ 03	µg/g
Plutonium-239/240	Pu239/240 :F	1.20E-2	1	0.00E+ 00	2.47E-2	µCi/g
Potassium	ICP:A	3.40E+ 03	1	3.85E+ 02	6.42E+ 03	µg/g
Samarium*	ICP:A	< 5.87E+ 01	n/a	n/a	n/a	µg/g

Tank 241-SY-101 95 Percent Two-Sided Confidence Interval for the Mean Concentration for Solid Crust Composite (Sampling Dates -- January 5, 1999 - January 19, 1999, March 8, 1999 - April 2, 1999)

Analyte	Method	Mean	df	LL	UL	Units
Samarium*	ICP:F	< 1.87E+ 03	n/a	n/a	n/a	µg/g
Selenium*	ICP:A	< 5.87E+ 01	n/a	n/a	n/a	µg/g
Selenium*	ICP:F	< 1.87E+ 03	n/a	n/a	n/a	µg/g
Silicon	ICP:A	8.33E+ 02	1	0.00E+ 00	9.63E+ 03	µg/g
Silicon	ICP:F	1.91E+ 03	1	1.90E+ 02	3.62E+ 03	µg/g
Silver*	ICP:A	2.61E+ 01	1	0.00E+ 00	1.62E+ 02	µg/g
Silver*	ICP:F	< 6.50E+ 02	n/a	n/a	n/a	µg/g
Sodium	ICP:A	2.27E+ 05	1	1.68E+ 04	4.36E+ 05	µg/g
Sodium	ICP:F	2.23E+ 05	1	1.72E+ 05	2.74E+ 05	µg/g
Strontium*	ICP:A	< 5.87E+ 00	n/a	n/a	n/a	µg/g
Strontium*	ICP:F	< 1.87E+ 02	n/a	n/a	n/a	µg/g
Strontium-89/90	Sr89/90:F	2.18E+ 01	1	1.17E+ 01	3.18E+ 01	µCi/g
Sulfate	IC:W	4.97E+ 03	1	0.00E+ 00	3.04E+ 04	µg/g
Sulfur	ICP:A	2.17E+ 03	1	0.00E+ 00	1.07E+ 04	µg/g
Sulfur*	ICP:F	1.96E+ 03	1	0.00E+ 00	3.92E+ 03	µg/g
Thallium*	ICP:A	< 1.18E+ 02	n/a	n/a	n/a	µg/g
Thallium*	ICP:F	< 3.73E+ 03	n/a	n/a	n/a	µg/g
Titanium*	ICP:A	< 5.87E+ 00	n/a	n/a	n/a	µg/g
Titanium*	ICP:F	< 1.87E+ 02	n/a	n/a	n/a	µg/g
Total inorganic carbon	TIC/TOC	9.49E+ 03	1	6.34E+ 03	1.26E+ 04	µg/g
Total organic carbon	TIC/TOC	1.33E+ 04	1	0.00E+ 00	3.49E+ 04	µg/g
Uranium*	ICP:A	< 2.94E+ 02	n/a	n/a	n/a	µg/g
Uranium*	ICP:F	< 9.35E+ 03	n/a	n/a	n/a	µg/g
Uranium-233*	ICP/MS:A	< 4.72E-1	n/a	n/a	n/a	µg/g
Uranium-234*	ICP/MS:A	< 4.72E-1	n/a	n/a	n/a	µg/g
Uranium-235*	ICP/MS:A	< 5.19E-1	n/a	n/a	n/a	µg/g
Uranium-236*	ICP/MS:A	< 6.30E-1	n/a	n/a	n/a	µg/g
Uranium-238	ICP/MS:A	6.69E+ 01	1	0.00E+ 00	2.30E+ 02	µg/g
Vanadium*	ICP:A	< 2.94E+ 01	n/a	n/a	n/a	µg/g
Vanadium*	ICP:F	< 9.35E+ 02	n/a	n/a	n/a	µg/g
Zinc*	ICP:A	6.32E+ 00	1	1.97E+ 00	1.07E+ 01	µg/g
Zinc*	ICP:F	< 1.87E+ 02	n/a	n/a	n/a	µg/g
Zirconium*	ICP:A	2.02E+ 01	1	0.00E+ 00	1.83E+ 02	µg/g
Zirconium*	ICP:F	< 1.87E+ 02	n/a	n/a	n/a	µg/g

* a "less than" value was used in the calculation

Tank 241-SY-101 95 Percent Two-Sided Confidence Interval for the Mean Concentration for Solid Crust Segments (Sampling Dates -- January 5, 1999 - January 19, 1999, March 8, 1999 - April 2, 1999)

Analyte	Method	Mean	df	LL	UL	Units
Acetate	IC:W	1.46E+ 03	6	1.06E+ 03	1.86E+ 03	µg/g
Aluminum	ICP:A	3.01E+ 04	6	2.16E+ 04	3.85E+ 04	µg/g
Aluminum	ICP:F	2.99E+ 04	6	2.22E+ 04	3.76E+ 04	µg/g
Antimony*	ICP:A	< 3.93E+ 01	n/a	n/a	n/a	µg/g
Antimony*	ICP:F	< 1.22E+ 03	n/a	n/a	n/a	µg/g
Arsenic*	ICP:A	< 6.55E+ 01	n/a	n/a	n/a	µg/g
Arsenic*	ICP:F	< 2.04E+ 03	n/a	n/a	n/a	µg/g
Barium*	ICP:A	< 3.28E+ 01	n/a	n/a	n/a	µg/g
Barium*	ICP:F	< 1.02E+ 03	n/a	n/a	n/a	µg/g
Beryllium*	ICP:A	< 3.27E+ 00	n/a	n/a	n/a	µg/g
Beryllium*	ICP:F	< 1.02E+ 02	n/a	n/a	n/a	µg/g
Bismuth*	ICP:A	< 6.55E+ 01	n/a	n/a	n/a	µg/g
Bismuth*	ICP:F	< 2.04E+ 03	n/a	n/a	n/a	µg/g
Boron	ICP:A	1.38E+ 02	6	9.79E+ 01	1.78E+ 02	µg/g
Boron*	ICP:F	< 1.02E+ 03	n/a	n/a	n/a	µg/g
Bromide*	IC:W	< 1.02E+ 03	n/a	n/a	n/a	µg/g
Bulk Density	Physical Properties	1.71E+ 00	5	1.59E+ 00	1.83E+ 00	g/mL
Cadmium	ICP:A	1.59E+ 01	6	8.54E+ 00	2.33E+ 01	µg/g
Cadmium*	ICP:F	< 1.02E+ 02	n/a	n/a	n/a	µg/g
Calcium	ICP:A	2.01E+ 02	6	1.35E+ 02	2.67E+ 02	µg/g
Calcium*	ICP:F	< 2.04E+ 03	n/a	n/a	n/a	µg/g
Cerium*	ICP:A	< 6.55E+ 01	n/a	n/a	n/a	µg/g
Cerium*	ICP:F	< 2.04E+ 03	n/a	n/a	n/a	µg/g
Chloride	IC:W	7.46E+ 03	6	5.71E+ 03	9.22E+ 03	µg/g
Chromium	ICP:A	4.56E+ 03	6	2.77E+ 03	6.35E+ 03	µg/g
Chromium	ICP:F	4.52E+ 03	6	2.90E+ 03	6.14E+ 03	µg/g
Cobalt*	ICP:A	< 1.31E+ 01	n/a	n/a	n/a	µg/g
Cobalt*	ICP:F	< 4.08E+ 02	n/a	n/a	n/a	µg/g
Copper*	ICP:A	< 6.89E+ 00	n/a	n/a	n/a	µg/g
Copper*	ICP:F	< 2.04E+ 02	n/a	n/a	n/a	µg/g
Exotherm - transition 1	DSC/TGA	9.47E+ 01	6	6.48E+ 01	1.25E+ 02	J/g
Fluoride*	IC:W	5.59E+ 02	6	2.06E+ 02	9.12E+ 02	µg/g
Formate	IC:W	5.81E+ 03	6	4.37E+ 03	7.25E+ 03	µg/g
Glycolate	IC:W	1.24E+ 03	6	7.99E+ 02	1.67E+ 03	µg/g
Gross alpha*	Proportional Counting: F	2.20E-1	6	1.50E-1	2.89E-1	µCi/g

Tank 241-SY-101 95 Percent Two-Sided Confidence Interval for the Mean Concentration for Solid Crust Segments (Sampling Dates -- January 5, 1999 - January 19, 1999, March 8, 1999 - April 2, 1999)

Analyte	Method	Mean	df	LL	UL	Units
Iron	ICP:A	4.03E+ 02	6	3.15E+ 02	4.92E+ 02	µg/g
Iron*	ICP:F	< 1.02E+ 03	n/a	n/a	n/a	µg/g
Lanthanum*	ICP:A	< 3.28E+ 01	n/a	n/a	n/a	µg/g
Lanthanum*	ICP:F	< 1.02E+ 03	n/a	n/a	n/a	µg/g
Lead*	ICP:A	8.23E+ 01	6	6.64E+ 01	9.82E+ 01	µg/g
Lead*	ICP:F	< 2.04E+ 03	n/a	n/a	n/a	µg/g
Lithium*	ICP:A	2.44E+ 01	6	4.82E+ 00	4.40E+ 01	µg/g
Lithium*	ICP:F	< 2.04E+ 02	n/a	n/a	n/a	µg/g
Magnesium*	ICP:A	< 6.55E+ 01	n/a	n/a	n/a	µg/g
Magnesium*	ICP:F	< 2.04E+ 03	n/a	n/a	n/a	µg/g
Manganese	ICP:A	7.35E+ 01	6	4.21E+ 01	1.05E+ 02	µg/g
Manganese*	ICP:F	< 2.04E+ 02	n/a	n/a	n/a	µg/g
Molybdenum	ICP:A	7.94E+ 01	6	5.96E+ 01	9.91E+ 01	µg/g
Molybdenum*	ICP:F	< 1.02E+ 03	n/a	n/a	n/a	µg/g
Neodymium*	ICP:A	< 6.55E+ 01	n/a	n/a	n/a	µg/g
Neodymium*	ICP:F	< 2.04E+ 03	n/a	n/a	n/a	µg/g
Nickel	ICP:A	1.84E+ 02	6	9.09E+ 01	2.78E+ 02	µg/g
Nickel	ICP:F	1.23E+ 03	5	7.76E+ 02	1.68E+ 03	µg/g
Nitrate	IC:W	1.80E+ 05	6	4.86E+ 04	3.11E+ 05	µg/g
Nitrite	IC:W	1.03E+ 05	6	6.64E+ 04	1.40E+ 05	µg/g
Oxalate	IC:W	2.41E+ 04	6	1.20E+ 04	3.61E+ 04	µg/g
Percent Water	DSC/TGA	2.79E+ 01	6	2.00E+ 01	3.58E+ 01	%
Phosphate	IC:W	1.22E+ 04	6	7.10E+ 03	1.73E+ 04	µg/g
Phosphorus	ICP:A	3.95E+ 03	6	2.28E+ 03	5.62E+ 03	µg/g
Phosphorus*	ICP:F	4.77E+ 03	6	4.00E+ 03	5.54E+ 03	µg/g
Potassium*	ICP:A	2.71E+ 03	6	2.36E+ 03	3.05E+ 03	µg/g
Samarium*	ICP:A	< 6.55E+ 01	n/a	n/a	n/a	µg/g
Samarium*	ICP:F	< 2.04E+ 03	n/a	n/a	n/a	µg/g
Selenium*	ICP:A	< 2.53E+ 02	n/a	n/a	n/a	µg/g
Selenium*	ICP:F	< 2.04E+ 03	n/a	n/a	n/a	µg/g
Silicon	ICP:A	6.88E+ 02	6	1.56E+ 02	1.22E+ 03	µg/g
Silicon*	ICP:F	1.26E+ 03	5	9.49E+ 02	1.56E+ 03	µg/g
Silver*	ICP:A	1.49E+ 01	6	1.29E+ 01	1.70E+ 01	µg/g
Silver*	ICP:F	< 2.04E+ 02	n/a	n/a	n/a	µg/g
Sodium	ICP:A	2.14E+ 05	6	1.97E+ 05	2.30E+ 05	µg/g
Sodium	ICP:F	2.23E+ 05	6	2.09E+ 05	2.38E+ 05	µg/g
Solid Weight	Physical Properties	2.89E+ 02	5	2.30E+ 02	3.48E+ 02	g
Strontium*	ICP:A	< 6.55E+ 00	n/a	n/a	n/a	µg/g
Strontium*	ICP:F	< 2.04E+ 02	n/a	n/a	n/a	µg/g

Tank 241-SY-101 95 Percent Two-Sided Confidence Interval for the Mean Concentration for Solid Crust Segments (Sampling Dates -- January 5, 1999 - January 19, 1999, March 8, 1999 - April 2, 1999)

Analyte	Method	Mean	df	LL	UL	Units
Sulfate*	IC:W	5.97E+ 03	6	3.76E+ 03	8.19E+ 03	µg/g
Sulfur	ICP:A	2.05E+ 03	6	1.40E+ 03	2.69E+ 03	µg/g
Sulfur*	ICP:F	2.34E+ 03	6	1.90E+ 03	2.78E+ 03	µg/g
Thallium*	ICP:A	< 1.31E+ 02	n/a	n/a	n/a	µg/g
Thallium*	ICP:F	< 4.08E+ 03	n/a	n/a	n/a	µg/g
Titanium*	ICP:A	< 6.55E+ 00	n/a	n/a	n/a	µg/g
Titanium*	ICP:F	< 2.04E+ 02	n/a	n/a	n/a	µg/g
Uranium*	ICP:A	< 3.28E+ 02	n/a	n/a	n/a	µg/g
Uranium*	ICP:F	< 1.02E+ 04	n/a	n/a	n/a	µg/g
Vanadium*	ICP:A	< 3.28E+ 01	n/a	n/a	n/a	µg/g
Vanadium*	ICP:F	< 1.02E+ 03	n/a	n/a	n/a	µg/g
Zinc*	ICP:A	8.81E+ 00	6	6.06E+ 00	1.16E+ 01	µg/g
Zinc*	ICP:F	< 2.04E+ 02	n/a	n/a	n/a	µg/g
Zirconium*	ICP:A	9.07E+ 00	6	6.84E+ 00	1.13E+ 01	µg/g
Zirconium*	ICP:F	< 2.04E+ 02	n/a	n/a	n/a	µg/g

* a "less than" value was used in the calculation

Tank 241-SY-101 95 Percent Two-Sided Confidence Interval for the Mean Concentration for Solid Grab (Sampling Dates -- April 3, 2000 - April 6, 2000, June 20, 2000 - June 22, 2000)

Analyte	Method	Mean	df	LL	UL	Units
Aluminum	ICP:A	5.35E+ 04	4	4.05E+ 04	6.64E+ 04	µg/g
Americium-241	AEA:F	3.06E-1	4	2.32E-1	3.80E-1	µCi/g
Americium-241*	GEA:F	< 6.38E-1	n/a	n/a	n/a	µCi/g
Ammonia*	Ion Sel. Electrode: W (NH3)	2.35E+ 02	2	1.63E+ 02	3.06E+ 02	µg/g
Antimony	ICP:A	6.67E+ 01	4	5.57E+ 01	7.77E+ 01	µg/g
Antimony-125*	GEA:F	< 4.72E-1	n/a	n/a	n/a	µCi/g
Arsenic*	ICP:A	< 4.75E+ 01	n/a	n/a	n/a	µg/g
Barium*	ICP:A	< 2.38E+ 01	n/a	n/a	n/a	µg/g
Beryllium*	ICP:A	< 2.38E+ 00	n/a	n/a	n/a	µg/g
Bismuth*	ICP:A	< 4.75E+ 01	n/a	n/a	n/a	µg/g
Boron	ICP:A	1.20E+ 02	4	8.33E+ 01	1.57E+ 02	µg/g
Bromide*	IC:W	< 1.28E+ 03	n/a	n/a	n/a	µg/g
Bulk Density	Bulk Density by Centrifuge	1.52E+ 00	7	1.42E+ 00	1.61E+ 00	g/mL
Cadmium	ICP:A	3.74E+ 01	4	3.19E+ 01	4.29E+ 01	µg/g
Calcium	ICP:A	2.89E+ 02	4	2.63E+ 02	3.16E+ 02	µg/g

Tank 241-SY-101 95 Percent Two-Sided Confidence Interval for the Mean Concentration for Solid Grab (Sampling Dates -- April 3, 2000 - April 6, 2000, June 20, 2000 - June 22, 2000)

Analyte	Method	Mean	df	LL	UL	Units
Cerium*	ICP:A	< 4.75E+ 01	n/a	n/a	n/a	μg/g
Cesium-137	GEA:F	1.44E+ 02	4	1.35E+ 02	1.52E+ 02	μCi/g
Chloride	IC:W	3.95E+ 03	4	3.68E+ 03	4.22E+ 03	μg/g
Chromium	ICP:A	1.19E+ 04	4	9.84E+ 03	1.40E+ 04	μg/g
Cobalt*	ICP:A	< 9.49E+ 00	n/a	n/a	n/a	μg/g
Cobalt-60*	GEA:F	< 3.56E-2	n/a	n/a	n/a	μCi/g
Copper*	ICP:A	< 4.75E+ 00	n/a	n/a	n/a	μg/g
Curium-243/244*	AEA:F	< 3.15E-2	n/a	n/a	n/a	μCi/g
Europium-154	GEA:F	3.34E-1	4	2.65E-1	4.03E-1	μCi/g
Europium-155*	GEA:F	< 2.83E-1	n/a	n/a	n/a	μCi/g
Exotherm - transition 1	DSC	9.69E+ 01	4	7.40E+ 01	1.20E+ 02	J/g
Fluoride*	IC:W	4.14E+ 02	4	2.22E+ 02	6.05E+ 02	μg/g
Iron	ICP:A	8.43E+ 02	4	6.23E+ 02	1.06E+ 03	μg/g
Lanthanum*	ICP:A	< 2.38E+ 01	n/a	n/a	n/a	μg/g
Lead	ICP:A	1.83E+ 02	4	1.58E+ 02	2.08E+ 02	μg/g
Lithium*	ICP:A	< 5.88E+ 00	n/a	n/a	n/a	μg/g
Magnesium*	ICP:A	< 4.75E+ 01	n/a	n/a	n/a	μg/g
Manganese	ICP:A	2.00E+ 02	4	1.67E+ 02	2.32E+ 02	μg/g
Mercury	CVAA (Hg)	4.00E-1	4	3.16E-1	4.85E-1	μg/g
Molybdenum	ICP:A	4.71E+ 01	4	4.51E+ 01	4.90E+ 01	μg/g
Neodymium*	ICP:A	< 5.39E+ 01	n/a	n/a	n/a	μg/g
Nickel	ICP:A	2.07E+ 02	4	1.78E+ 02	2.36E+ 02	μg/g
Nitrate	IC:W	7.19E+ 04	4	6.61E+ 04	7.77E+ 04	μg/g
Nitrite	IC:W	4.96E+ 04	4	4.58E+ 04	5.34E+ 04	μg/g
Oxalate	IC:W	6.67E+ 04	4	4.48E+ 04	8.86E+ 04	μg/g
Percent Water	DSC	5.04E+ 01	7	4.65E+ 01	5.43E+ 01	%
Phosphate	IC:W	1.41E+ 04	4	8.03E+ 03	2.03E+ 04	μg/g
Phosphorus	ICP:A	4.39E+ 03	4	2.22E+ 03	6.55E+ 03	μg/g
Plutonium-238*	AEA:F	1.00E-2	4	2.39E-3	1.77E-2	μCi/g
Plutonium-239/240	AEA:F	3.23E-2	4	2.47E-2	3.99E-2	μCi/g
Potassium	ICP:A	1.65E+ 03	4	1.53E+ 03	1.78E+ 03	μg/g
Samarium*	ICP:A	< 4.75E+ 01	n/a	n/a	n/a	μg/g
Selenium*	ICP:A	5.04E+ 01	4	3.99E+ 01	6.09E+ 01	μg/g
Silicon	ICP:A	1.82E+ 02	4	1.68E+ 02	1.97E+ 02	μg/g
Silver	ICP:A	1.19E+ 01	4	1.09E+ 01	1.29E+ 01	μg/g
Sodium	ICP:A	1.45E+ 05	4	1.26E+ 05	1.64E+ 05	μg/g
Strontium*	ICP:A	< 4.75E+ 00	n/a	n/a	n/a	μg/g
Strontium-89/90	Sr89/90:F	4.19E+ 01	4	3.56E+ 01	4.81E+ 01	μCi/g

Tank 241-SY-101 95 Percent Two-Sided Confidence Interval for the Mean Concentration for Solid Grab (Sampling Dates -- April 3, 2000 - April 6, 2000, June 20, 2000 - June 22, 2000)

Analyte	Method	Mean	df	LL	UL	Units
Sulfate*	IC:W	2.77E+ 03	4	2.01E+ 03	3.52E+ 03	μg/g
Sulfur	ICP:A	8.64E+ 02	4	8.07E+ 02	9.20E+ 02	μg/g
Technetium-99	Tc99:F	1.93E-1	4	1.83E-1	2.03E-1	μCi/g
Thallium*	ICP:A	< 9.49E+ 01	n/a	n/a	n/a	μg/g
Titanium*	ICP:A	< 5.13E+ 00	n/a	n/a	n/a	μg/g
Total inorganic carbon	Persulfate Oxidation	3.94E+ 03	4	3.26E+ 03	4.62E+ 03	μg/g
Total organic carbon	Persulfate Oxidation	1.84E+ 04	4	1.19E+ 04	2.49E+ 04	μg/g
Uranium*	ICP:A	< 2.49E+ 02	n/a	n/a	n/a	μg/g
Uranium	Kinetic Phosphore scence:F	2.05E+ 02	4	1.65E+ 02	2.45E+ 02	μg/g
Vanadium*	ICP:A	< 2.38E+ 01	n/a	n/a	n/a	μg/g
Zinc	ICP:A	2.59E+ 01	4	1.88E+ 01	3.30E+ 01	μg/g
Zirconium	ICP:A	2.33E+ 01	4	2.03E+ 01	2.62E+ 01	μg/g

* a "less than" value was used in the calculation

Tank 241-SY-101 95 Percent Two-Sided Confidence Interval for the Mean Concentration for Solid Settled Solids Comp (Sampling Dates -- November 9, 1998 - December 18, 1998, January 5, 1999 - January 19, 1999, March 8, 1999 - April 2, 1999)

Analyte	Method	Mean	df	LL	UL	Units
Acetate	IC:W	2.00E+ 03	2	1.63E+ 03	2.37E+ 03	μg/g
Aluminum	ICP:A	3.77E+ 04	2	3.35E+ 04	4.20E+ 04	μg/g
Aluminum	ICP:F	3.59E+ 04	2	3.07E+ 04	4.11E+ 04	μg/g
Americium-241	AEA:F	8.38E-2	2	3.69E-2	1.31E-1	μCi/g
Antimony*	ICP:A	< 3.61E+ 01	n/a	n/a	n/a	μg/g
Antimony*	ICP:F	< 1.20E+ 03	n/a	n/a	n/a	μg/g
Arsenic*	ICP:A	< 6.02E+ 01	n/a	n/a	n/a	μg/g
Arsenic*	ICP:F	< 2.00E+ 03	n/a	n/a	n/a	μg/g
Barium*	ICP:A	< 3.01E+ 01	n/a	n/a	n/a	μg/g
Barium*	ICP:F	< 1.00E+ 03	n/a	n/a	n/a	μg/g
Beryllium*	ICP:A	< 3.01E+ 00	n/a	n/a	n/a	μg/g
Beryllium*	ICP:F	< 1.00E+ 02	n/a	n/a	n/a	μg/g
Bismuth*	ICP:A	< 6.02E+ 01	n/a	n/a	n/a	μg/g
Bismuth*	ICP:F	< 2.00E+ 03	n/a	n/a	n/a	μg/g
Boron	ICP:A	1.90E+ 02	2	1.31E+ 02	2.49E+ 02	μg/g
Boron*	ICP:F	< 1.00E+ 03	n/a	n/a	n/a	μg/g
Bromide*	IC:W	< 8.52E+ 02	n/a	n/a	n/a	μg/g
Bulk Density	Physical	1.58E+ 00	2	1.53E+ 00	1.64E+ 00	g/mL

Tank 241-SY-101 95 Percent Two-Sided Confidence Interval for the Mean Concentration for Solid Settled Solids Comp (Sampling Dates -- November 9, 1998 - December 18, 1998, January 5, 1999 - January 19, 1999, March 8, 1999 - April 2, 1999)

Analyte	Method	Mean	df	LL	UL	Units
	Properties					
Cadmium	ICP:A	1.17E+01	2	8.14E+00	1.52E+01	µg/g
Cadmium*	ICP:F	< 1.00E+02	n/a	n/a	n/a	µg/g
Calcium	ICP:A	1.48E+02	2	1.33E+02	1.63E+02	µg/g
Calcium*	ICP:F	< 2.00E+03	n/a	n/a	n/a	µg/g
Cerium*	ICP:A	< 6.02E+01	n/a	n/a	n/a	µg/g
Cerium*	ICP:F	< 2.00E+03	n/a	n/a	n/a	µg/g
Cesium-137	GEA:F	3.57E+02	2	3.17E+02	3.96E+02	µCi/g
Chloride	IC:W	9.28E+03	2	7.14E+03	1.14E+04	µg/g
Chromium	ICP:A	3.58E+03	2	2.28E+03	4.87E+03	µg/g
Chromium	ICP:F	3.72E+03	2	3.04E+03	4.40E+03	µg/g
Cobalt*	ICP:A	< 1.20E+01	n/a	n/a	n/a	µg/g
Cobalt*	ICP:F	< 4.01E+02	n/a	n/a	n/a	µg/g
Cobalt-60*	GEA:F	< 6.36E-2	n/a	n/a	n/a	µCi/g
Copper*	ICP:A	7.08E+00	2	4.68E+00	9.48E+00	µg/g
Copper*	ICP:F	< 2.00E+02	n/a	n/a	n/a	µg/g
Exotherm - transition 1	DSC/TGA	1.16E+02	2	0.00E+00	4.23E+02	J/g
Fluoride*	IC:W	< 2.05E+02	n/a	n/a	n/a	µg/g
Formate	IC:W	7.89E+03	2	6.99E+03	8.80E+03	µg/g
Glycolate	IC:W	1.80E+03	2	1.12E+03	2.49E+03	µg/g
Gross alpha	Proportional Counting: F	1.40E-1	2	4.74E-2	2.32E-1	µCi/g
Hexavalent Chromium*	Spectrophotometer - 540 nm:W	< 5.06E+01	n/a	n/a	n/a	µg/g
Hydroxide*	OH:W	3.02E+04	2	1.24E+04	4.80E+04	µg/g
Iron	ICP:A	2.48E+02	2	1.84E+02	3.11E+02	µg/g
Iron*	ICP:F	< 1.00E+03	n/a	n/a	n/a	µg/g
Lanthanum*	ICP:A	< 3.01E+01	n/a	n/a	n/a	µg/g
Lanthanum*	ICP:F	< 1.00E+03	n/a	n/a	n/a	µg/g
Lead	ICP:A	8.83E+01	2	7.24E+01	1.04E+02	µg/g
Lead*	ICP:F	< 2.00E+03	n/a	n/a	n/a	µg/g
Lithium	ICP:A	3.10E+01	2	0.00E+00	6.84E+01	µg/g
Lithium*	ICP:F	< 2.00E+02	n/a	n/a	n/a	µg/g
Magnesium*	ICP:A	< 6.02E+01	n/a	n/a	n/a	µg/g
Magnesium*	ICP:F	< 2.00E+03	n/a	n/a	n/a	µg/g
Manganese	ICP:A	5.81E+01	2	3.42E+01	8.21E+01	µg/g

Tank 241-SY-101 95 Percent Two-Sided Confidence Interval for the Mean Concentration for Solid Settled Solids Comp (Sampling Dates -- November 9, 1998 - December 18, 1998, January 5, 1999 - January 19, 1999, March 8, 1999 - April 2, 1999)

Analyte	Method	Mean	df	LL	UL	Units
Manganese*	ICP:F	< 2.00E+ 02	n/a	n/a	n/a	µg/g
Molybdenum	ICP:A	1.12E+ 02	2	1.00E+ 02	1.23E+ 02	µg/g
Molybdenum*	ICP:F	< 1.00E+ 03	n/a	n/a	n/a	µg/g
Neodymium*	ICP:A	< 6.02E+ 01	n/a	n/a	n/a	µg/g
Neodymium*	ICP:F	< 2.00E+ 03	n/a	n/a	n/a	µg/g
Nickel	ICP:A	1.40E+ 02	2	1.04E+ 02	1.76E+ 02	µg/g
Nickel	ICP:F	2.00E+ 03	1	0.00E+ 00	6.32E+ 03	µg/g
Nitrate	IC:W	1.04E+ 05	2	9.92E+ 04	1.09E+ 05	µg/g
Nitrite	IC:W	1.06E+ 05	2	1.01E+ 05	1.12E+ 05	µg/g
Oxalate	IC:W	1.30E+ 04	2	9.43E+ 03	1.65E+ 04	µg/g
Percent Water	DSC/TGA	4.03E+ 01	2	3.52E+ 01	4.54E+ 01	%
Phosphate	IC:W	6.25E+ 03	2	4.02E+ 03	8.49E+ 03	µg/g
Phosphorus	ICP:A	2.09E+ 03	2	1.84E+ 03	2.33E+ 03	µg/g
Phosphorus*	ICP:F	< 4.01E+ 03	n/a	n/a	n/a	µg/g
Plutonium-239/240	Pu239/240 :F	1.01E-2	2	7.06E-3	1.32E-2	µCi/g
Potassium	ICP:A	3.77E+ 03	2	3.23E+ 03	4.31E+ 03	µg/g
Samarium*	ICP:A	< 6.02E+ 01	n/a	n/a	n/a	µg/g
Samarium*	ICP:F	< 2.00E+ 03	n/a	n/a	n/a	µg/g
Selenium*	ICP:A	< 6.02E+ 01	n/a	n/a	n/a	µg/g
Selenium*	ICP:F	< 2.00E+ 03	n/a	n/a	n/a	µg/g
Silicon	ICP:A	2.45E+ 02	2	0.00E+ 00	5.01E+ 02	µg/g
Silicon*	ICP:F	< 9.96E+ 02	n/a	n/a	n/a	µg/g
Silver	ICP:A	1.46E+ 01	2	1.27E+ 01	1.66E+ 01	µg/g
Silver*	ICP:F	< 5.03E+ 02	n/a	n/a	n/a	µg/g
Sodium	ICP:A	2.00E+ 05	2	1.74E+ 05	2.26E+ 05	µg/g
Sodium	ICP:F	2.00E+ 05	2	1.76E+ 05	2.23E+ 05	µg/g
Strontium*	ICP:A	< 6.02E+ 00	n/a	n/a	n/a	µg/g
Strontium*	ICP:F	< 2.00E+ 02	n/a	n/a	n/a	µg/g
Strontium-89/90	Sr89/90:F	1.66E+ 01	2	1.24E+ 01	2.07E+ 01	µCi/g
Sulfate	IC:W	3.45E+ 03	2	2.82E+ 03	4.08E+ 03	µg/g
Sulfur	ICP:A	1.46E+ 03	2	1.16E+ 03	1.77E+ 03	µg/g
Sulfur*	ICP:F	< 2.00E+ 03	n/a	n/a	n/a	µg/g
Thallium*	ICP:A	< 1.20E+ 02	n/a	n/a	n/a	µg/g
Thallium*	ICP:F	< 4.01E+ 03	n/a	n/a	n/a	µg/g
Titanium*	ICP:A	< 6.02E+ 00	n/a	n/a	n/a	µg/g
Titanium*	ICP:F	< 2.00E+ 02	n/a	n/a	n/a	µg/g
Total inorganic carbon*	TIC/TOC	4.41E+ 03	2	1.03E+ 02	8.72E+ 03	µg/g
Total organic	TIC/TOC	1.02E+ 04	2	4.77E+ 03	1.57E+ 04	µg/g

Tank 241-SY-101 95 Percent Two-Sided Confidence Interval for the Mean Concentration for Solid Settled Solids Comp (Sampling Dates -- November 9, 1998 - December 18, 1998, January 5, 1999 - January 19, 1999, March 8, 1999 - April 2, 1999)

Analyte	Method	Mean	df	LL	UL	Units
carbon						
Uranium*	ICP:A	< 3.01E+ 02	n/a	n/a	n/a	µg/g
Uranium*	ICP:F	< 1.00E+ 04	n/a	n/a	n/a	µg/g
Uranium-233*	ICP/MS:A	< 4.85E-1	n/a	n/a	n/a	µg/g
Uranium-234*	ICP/MS:A	< 4.85E-1	n/a	n/a	n/a	µg/g
Uranium-235*	ICP/MS:A	< 5.14E-1	n/a	n/a	n/a	µg/g
Uranium-236*	ICP/MS:A	< 6.46E-1	n/a	n/a	n/a	µg/g
Uranium-238	ICP/MS:A	6.01E+ 01	2	2.55E+ 01	9.46E+ 01	µg/g
Vanadium*	ICP:A	< 3.01E+ 01	n/a	n/a	n/a	µg/g
Vanadium*	ICP:F	< 1.00E+ 03	n/a	n/a	n/a	µg/g
Zinc*	ICP:A	< 6.66E+ 00	n/a	n/a	n/a	µg/g
Zinc*	ICP:F	< 2.00E+ 02	n/a	n/a	n/a	µg/g
Zirconium*	ICP:A	7.31E+ 00	2	4.86E+ 00	9.76E+ 00	µg/g
Zirconium*	ICP:F	< 2.00E+ 02	n/a	n/a	n/a	µg/g

* a "less than" value was used in the calculation

Tank 241-SY-101 95 Percent Two-Sided Confidence Interval for the Mean Concentration for Solid Settled Solids Seg (Sampling Dates -- November 9, 1998 - December 18, 1998, January 5, 1999 - January 19, 1999, March 8, 1999 - April 2, 1999)

Analyte	Method	Mean	df	LL	UL	Units
Acetate	IC:W	1.84E+ 03	3	1.60E+ 03	2.08E+ 03	µg/g
Aluminum	ICP:A	3.48E+ 04	6	3.41E+ 04	3.56E+ 04	µg/g
Aluminum	ICP:F	3.44E+ 04	6	3.35E+ 04	3.52E+ 04	µg/g
Antimony*	ICP:A	< 3.40E+ 01	n/a	n/a	n/a	µg/g
Antimony*	ICP:F	< 1.22E+ 03	n/a	n/a	n/a	µg/g
Arsenic*	ICP:A	< 5.67E+ 01	n/a	n/a	n/a	µg/g
Arsenic*	ICP:F	< 2.03E+ 03	n/a	n/a	n/a	µg/g
Barium*	ICP:A	< 2.80E+ 01	n/a	n/a	n/a	µg/g
Barium*	ICP:F	< 1.01E+ 03	n/a	n/a	n/a	µg/g
Beryllium*	ICP:A	< 2.83E+ 00	n/a	n/a	n/a	µg/g
Beryllium*	ICP:F	< 1.01E+ 02	n/a	n/a	n/a	µg/g
Bismuth*	ICP:A	< 5.67E+ 01	n/a	n/a	n/a	µg/g
Bismuth*	ICP:F	< 2.03E+ 03	n/a	n/a	n/a	µg/g
Boron	ICP:A	1.63E+ 02	6	1.37E+ 02	1.89E+ 02	µg/g
Boron*	ICP:F	< 1.01E+ 03	n/a	n/a	n/a	µg/g
Bromide*	IC:W	< 1.07E+ 03	n/a	n/a	n/a	µg/g
Bulk Density	Physical Properties	1.62E+ 00	6	1.60E+ 00	1.64E+ 00	g/mL
Cadmium	ICP:A	1.23E+ 01	6	1.05E+ 01	1.40E+ 01	µg/g
Cadmium*	ICP:F	< 1.01E+ 02	n/a	n/a	n/a	µg/g

Tank 241-SY-101 95 Percent Two-Sided Confidence Interval for the Mean Concentration for Solid Settled Solids Seg (Sampling Dates -- November 9, 1998 - December 18, 1998, January 5, 1999 - January 19, 1999, March 8, 1999 - April 2, 1999)

Analyte	Method	Mean	df	LL	UL	Units
Calcium	ICP:A	1.44E+ 02	6	1.28E+ 02	1.61E+ 02	µg/g
Calcium*	ICP:F	< 2.03E+ 03	n/a	n/a	n/a	µg/g
Cerium*	ICP:A	< 5.67E+ 01	n/a	n/a	n/a	µg/g
Cerium*	ICP:F	< 2.03E+ 03	n/a	n/a	n/a	µg/g
Chloride	IC:W	9.06E+ 03	6	8.35E+ 03	9.77E+ 03	µg/g
Chromium	ICP:A	3.70E+ 03	6	3.23E+ 03	4.17E+ 03	µg/g
Chromium	ICP:F	3.87E+ 03	6	3.53E+ 03	4.21E+ 03	µg/g
Cobalt*	ICP:A	< 1.13E+ 01	n/a	n/a	n/a	µg/g
Cobalt*	ICP:F	< 4.06E+ 02	n/a	n/a	n/a	µg/g
Copper*	ICP:A	< 5.99E+ 00	n/a	n/a	n/a	µg/g
Copper*	ICP:F	< 2.03E+ 02	n/a	n/a	n/a	µg/g
Exotherm - transition 1	DSC/TGA	1.21E+ 02	3	9.92E+ 01	1.43E+ 02	J/g
Fluoride*	IC:W	3.34E+ 02	6	1.65E+ 02	5.04E+ 02	µg/g
Formate	IC:W	7.57E+ 03	3	6.80E+ 03	8.34E+ 03	µg/g
Glycolate	IC:W	1.84E+ 03	3	1.64E+ 03	2.04E+ 03	µg/g
Gross alpha	Proportional Counting: F	1.24E-1	1	1.17E-1	1.30E-1	µCi/g
Iron	ICP:A	2.49E+ 02	6	2.19E+ 02	2.79E+ 02	µg/g
Iron*	ICP:F	< 1.01E+ 03	n/a	n/a	n/a	µg/g
Lanthanum*	ICP:A	< 2.83E+ 01	n/a	n/a	n/a	µg/g
Lanthanum*	ICP:F	< 1.01E+ 03	n/a	n/a	n/a	µg/g
Lead	ICP:A	8.04E+ 01	6	7.31E+ 01	8.76E+ 01	µg/g
Lead*	ICP:F	< 2.03E+ 03	n/a	n/a	n/a	µg/g
Lithium	ICP:A	3.38E+ 01	6	6.15E+ 00	6.15E+ 01	µg/g
Lithium*	ICP:F	< 2.03E+ 02	n/a	n/a	n/a	µg/g
Magnesium*	ICP:A	< 5.67E+ 01	n/a	n/a	n/a	µg/g
Magnesium*	ICP:F	< 2.03E+ 03	n/a	n/a	n/a	µg/g
Manganese	ICP:A	6.03E+ 01	6	5.18E+ 01	6.87E+ 01	µg/g
Manganese*	ICP:F	< 2.03E+ 02	n/a	n/a	n/a	µg/g
Molybdenum	ICP:A	1.04E+ 02	6	1.01E+ 02	1.08E+ 02	µg/g
Molybdenum*	ICP:F	< 1.01E+ 03	n/a	n/a	n/a	µg/g
Neodymium*	ICP:A	< 5.67E+ 01	n/a	n/a	n/a	µg/g
Neodymium*	ICP:F	< 2.03E+ 03	n/a	n/a	n/a	µg/g
Nickel	ICP:A	1.43E+ 02	6	1.30E+ 02	1.55E+ 02	µg/g
Nickel	ICP:F	2.05E+ 03	5	1.54E+ 03	2.56E+ 03	µg/g
Nitrate	IC:W	1.18E+ 05	6	1.05E+ 05	1.32E+ 05	µg/g
Nitrite	IC:W	1.12E+ 05	6	1.06E+ 05	1.19E+ 05	µg/g

Tank 241-SY-101 95 Percent Two-Sided Confidence Interval for the Mean Concentration for Solid Settled Solids Seg (Sampling Dates -- November 9, 1998 - December 18, 1998, January 5, 1999 - January 19, 1999, March 8, 1999 - April 2, 1999)

Analyte	Method	Mean	df	LL	UL	Units
Oxalate	IC:W	1.37E+ 04	6	1.23E+ 04	1.52E+ 04	µg/g
Percent Water	DSC/TGA	3.90E+ 01	6	3.70E+ 01	4.10E+ 01	%
Phosphate	IC:W	5.88E+ 03	6	5.18E+ 03	6.59E+ 03	µg/g
Phosphorus	ICP:A	2.05E+ 03	6	1.84E+ 03	2.25E+ 03	µg/g
Phosphorus*	ICP:F	< 4.06E+ 03	n/a	n/a	n/a	µg/g
Potassium	ICP:A	3.43E+ 03	6	3.20E+ 03	3.65E+ 03	µg/g
Samarium*	ICP:A	< 5.67E+ 01	n/a	n/a	n/a	µg/g
Samarium*	ICP:F	< 2.03E+ 03	n/a	n/a	n/a	µg/g
Selenium*	ICP:A	< 5.67E+ 01	n/a	n/a	n/a	µg/g
Selenium*	ICP:F	< 2.03E+ 03	n/a	n/a	n/a	µg/g
Silicon	ICP:A	2.11E+ 02	6	1.42E+ 02	2.79E+ 02	µg/g
Silicon*	ICP:F	< 1.12E+ 03	n/a	n/a	n/a	µg/g
Silver	ICP:A	1.35E+ 01	6	1.27E+ 01	1.44E+ 01	µg/g
Silver*	ICP:F	< 2.03E+ 02	n/a	n/a	n/a	µg/g
Sodium	ICP:A	1.89E+ 05	6	1.80E+ 05	1.98E+ 05	µg/g
Sodium	ICP:F	1.94E+ 05	6	1.85E+ 05	2.04E+ 05	µg/g
Solid Weight	Physical Properties	4.59E+ 02	6	4.49E+ 02	4.69E+ 02	g
Strontium*	ICP:A	< 5.67E+ 00	n/a	n/a	n/a	µg/g
Strontium*	ICP:F	< 2.03E+ 02	n/a	n/a	n/a	µg/g
Sulfate	IC:W	3.63E+ 03	6	3.53E+ 03	3.73E+ 03	µg/g
Sulfur	ICP:A	1.45E+ 03	6	1.35E+ 03	1.56E+ 03	µg/g
Sulfur*	ICP:F	< 2.03E+ 03	n/a	n/a	n/a	µg/g
Thallium*	ICP:A	< 1.13E+ 02	n/a	n/a	n/a	µg/g
Thallium*	ICP:F	< 4.06E+ 03	n/a	n/a	n/a	µg/g
Titanium*	ICP:A	< 5.67E+ 00	n/a	n/a	n/a	µg/g
Titanium*	ICP:F	< 2.03E+ 02	n/a	n/a	n/a	µg/g
Uranium*	ICP:A	< 2.83E+ 02	n/a	n/a	n/a	µg/g
Uranium*	ICP:F	< 1.01E+ 04	n/a	n/a	n/a	µg/g
Vanadium*	ICP:A	< 2.83E+ 01	n/a	n/a	n/a	µg/g
Vanadium*	ICP:F	< 1.01E+ 03	n/a	n/a	n/a	µg/g
Zinc*	ICP:A	< 5.98E+ 00	n/a	n/a	n/a	µg/g
Zinc*	ICP:F	< 2.03E+ 02	n/a	n/a	n/a	µg/g
Zirconium*	ICP:A	7.05E+ 00	6	6.39E+ 00	7.70E+ 00	µg/g
Zirconium*	ICP:F	< 2.03E+ 02	n/a	n/a	n/a	µg/g

* a "less than" value was used in the calculation

Tank 241-SY-101 95 Percent Two-Sided Confidence Interval for the Mean Concentration for Solid Slurry Composite (Sampling Dates -- November 9, 1998 - December 18, 1998, January 5, 1999 - January 19, 1999, March 8, 1999 - April 2, 1999)

Analyte	Method	Mean	df	LL	UL	Units
Acetate	IC:W	1.88E+ 03	2	1.65E+ 03	2.11E+ 03	µg/g
Aluminum	ICP:A	3.65E+ 04	2	3.18E+ 04	4.12E+ 04	µg/g
Aluminum	ICP:F	3.56E+ 04	2	3.12E+ 04	4.00E+ 04	µg/g
Americium-241	AEA:F	8.03E-2	2	4.53E-2	1.15E-1	µCi/g
Antimony*	ICP:A	< 3.57E+ 01	n/a	n/a	n/a	µg/g
Antimony*	ICP:F	< 1.20E+ 03	n/a	n/a	n/a	µg/g
Arsenic*	ICP:A	< 5.95E+ 01	n/a	n/a	n/a	µg/g
Arsenic*	ICP:F	< 2.00E+ 03	n/a	n/a	n/a	µg/g
Barium*	ICP:A	< 2.98E+ 01	n/a	n/a	n/a	µg/g
Barium*	ICP:F	< 9.97E+ 02	n/a	n/a	n/a	µg/g
Beryllium*	ICP:A	< 2.98E+ 00	n/a	n/a	n/a	µg/g
Beryllium*	ICP:F	< 9.97E+ 01	n/a	n/a	n/a	µg/g
Bismuth*	ICP:A	< 5.95E+ 01	n/a	n/a	n/a	µg/g
Bismuth*	ICP:F	< 2.00E+ 03	n/a	n/a	n/a	µg/g
Boron	ICP:A	1.90E+ 02	2	1.10E+ 02	2.71E+ 02	µg/g
Boron*	ICP:F	< 9.97E+ 02	n/a	n/a	n/a	µg/g
Bromide*	IC:W	< 8.67E+ 02	n/a	n/a	n/a	µg/g
Bulk Density	Physical Properties	1.58E+ 00	2	1.51E+ 00	1.65E+ 00	g/mL
Cadmium	ICP:A	1.10E+ 01	2	9.55E+ 00	1.25E+ 01	µg/g
Cadmium*	ICP:F	< 9.97E+ 01	n/a	n/a	n/a	µg/g
Calcium	ICP:A	1.58E+ 02	2	8.28E+ 01	2.33E+ 02	µg/g
Calcium*	ICP:F	< 2.00E+ 03	n/a	n/a	n/a	µg/g
Cerium*	ICP:A	< 5.95E+ 01	n/a	n/a	n/a	µg/g
Cerium*	ICP:F	< 2.00E+ 03	n/a	n/a	n/a	µg/g
Cesium-137	GEA:F	3.64E+ 02	2	3.28E+ 02	4.00E+ 02	µCi/g
Chloride	IC:W	9.25E+ 03	2	7.63E+ 03	1.09E+ 04	µg/g
Chromium	ICP:A	3.40E+ 03	2	2.49E+ 03	4.32E+ 03	µg/g
Chromium	ICP:F	3.49E+ 03	2	3.11E+ 03	3.86E+ 03	µg/g
Cobalt*	ICP:A	< 1.19E+ 01	n/a	n/a	n/a	µg/g
Cobalt*	ICP:F	< 3.99E+ 02	n/a	n/a	n/a	µg/g
Cobalt-60*	GEA:F	< 6.48E-2	n/a	n/a	n/a	µCi/g
Copper*	ICP:A	< 6.68E+ 00	n/a	n/a	n/a	µg/g
Copper*	ICP:F	< 2.00E+ 02	n/a	n/a	n/a	µg/g
Exotherm - transition 1	DSC/TGA	1.22E+ 02	2	0.00E+ 00	4.46E+ 02	J/g
Fluoride*	IC:W	2.79E+ 02	2	0.00E+ 00	7.67E+ 02	µg/g
Formate	IC:W	7.92E+ 03	2	6.78E+ 03	9.06E+ 03	µg/g
Glycolate	IC:W	1.89E+ 03	2	1.73E+ 03	2.06E+ 03	µg/g
Gross alpha	Proportion	1.15E-1	2	5.44E-2	1.75E-1	µCi/g

Tank 241-SY-101 95 Percent Two-Sided Confidence Interval for the Mean Concentration for Solid Slurry Composite (Sampling Dates -- November 9, 1998 - December 18, 1998, January 5, 1999 - January 19, 1999, March 8, 1999 - April 2, 1999)

Analyte	Method	Mean	df	LL	UL	Units
	al Counting: F					
Hexavalent Chromium*	Spectrophotometer - 540 nm:W	< 5.11E+ 01	n/a	n/a	n/a	µg/g
Hydroxide	OH:W	3.03E+ 04	2	1.98E+ 04	4.08E+ 04	µg/g
Iron	ICP:A	2.30E+ 02	2	1.75E+ 02	2.84E+ 02	µg/g
Iron*	ICP:F	< 9.97E+ 02	n/a	n/a	n/a	µg/g
Lanthanum*	ICP:A	< 2.98E+ 01	n/a	n/a	n/a	µg/g
Lanthanum*	ICP:F	< 9.97E+ 02	n/a	n/a	n/a	µg/g
Lead	ICP:A	1.10E+ 02	2	8.68E-1	2.19E+ 02	µg/g
Lead*	ICP:F	< 2.00E+ 03	n/a	n/a	n/a	µg/g
Lithium	ICP:A	3.84E+ 01	2	1.88E+ 01	5.79E+ 01	µg/g
Lithium*	ICP:F	< 2.00E+ 02	n/a	n/a	n/a	µg/g
Magnesium*	ICP:A	< 5.95E+ 01	n/a	n/a	n/a	µg/g
Magnesium*	ICP:F	< 2.00E+ 03	n/a	n/a	n/a	µg/g
Manganese	ICP:A	5.43E+ 01	2	4.03E+ 01	6.83E+ 01	µg/g
Manganese*	ICP:F	< 2.00E+ 02	n/a	n/a	n/a	µg/g
Molybdenum	ICP:A	1.10E+ 02	2	9.40E+ 01	1.25E+ 02	µg/g
Molybdenum*	ICP:F	< 9.97E+ 02	n/a	n/a	n/a	µg/g
Neodymium*	ICP:A	< 5.95E+ 01	n/a	n/a	n/a	µg/g
Neodymium*	ICP:F	< 2.00E+ 03	n/a	n/a	n/a	µg/g
Nickel	ICP:A	1.33E+ 02	2	1.14E+ 02	1.52E+ 02	µg/g
Nickel	ICP:F	1.41E+ 03	2	5.74E+ 02	2.24E+ 03	µg/g
Nitrate	IC:W	1.04E+ 05	2	9.69E+ 04	1.11E+ 05	µg/g
Nitrite	IC:W	1.05E+ 05	2	9.96E+ 04	1.10E+ 05	µg/g
Oxalate	IC:W	1.25E+ 04	2	9.52E+ 03	1.56E+ 04	µg/g
Percent Water	DSC/TGA	4.00E+ 01	2	3.56E+ 01	4.44E+ 01	%
Phosphate	IC:W	5.97E+ 03	2	3.68E+ 03	8.25E+ 03	µg/g
Phosphorus	ICP:A	2.09E+ 03	2	1.91E+ 03	2.28E+ 03	µg/g
Phosphorus*	ICP:F	< 3.99E+ 03	n/a	n/a	n/a	µg/g
Plutonium-239/240	Pu239/240 :F	9.43E-3	2	8.48E-3	1.04E-2	µCi/g
Potassium	ICP:A	3.56E+ 03	2	3.21E+ 03	3.91E+ 03	µg/g
Samarium*	ICP:A	< 5.95E+ 01	n/a	n/a	n/a	µg/g
Samarium*	ICP:F	< 2.00E+ 03	n/a	n/a	n/a	µg/g
Selenium*	ICP:A	< 5.95E+ 01	n/a	n/a	n/a	µg/g
Selenium*	ICP:F	< 2.00E+ 03	n/a	n/a	n/a	µg/g
Silicon	ICP:A	2.97E+ 02	2	0.00E+ 00	7.57E+ 02	µg/g

Tank 241-SY-101 95 Percent Two-Sided Confidence Interval for the Mean Concentration for Solid Slurry Composite (Sampling Dates -- November 9, 1998 - December 18, 1998, January 5, 1999 - January 19, 1999, March 8, 1999 - April 2, 1999)

Analyte	Method	Mean	df	LL	UL	Units
Silicon*	ICP:F	< 9.88E+ 02	n/a	n/a	n/a	µg/g
Silver	ICP:A	1.32E+ 01	2	1.20E+ 01	1.44E+ 01	µg/g
Silver*	ICP:F	< 5.06E+ 02	n/a	n/a	n/a	µg/g
Sodium	ICP:A	1.93E+ 05	2	1.75E+ 05	2.11E+ 05	µg/g
Sodium	ICP:F	1.93E+ 05	2	1.79E+ 05	2.07E+ 05	µg/g
Strontium*	ICP:A	< 5.96E+ 00	n/a	n/a	n/a	µg/g
Strontium*	ICP:F	< 2.00E+ 02	n/a	n/a	n/a	µg/g
Strontium-89/90	Sr89/90:F	1.58E+ 01	2	1.44E+ 01	1.72E+ 01	µCi/g
Sulfate	IC:W	3.32E+ 03	2	3.02E+ 03	3.61E+ 03	µg/g
Sulfur	ICP:A	1.37E+ 03	2	1.24E+ 03	1.49E+ 03	µg/g
Sulfur*	ICP:F	< 2.00E+ 03	n/a	n/a	n/a	µg/g
Thallium*	ICP:A	< 1.19E+ 02	n/a	n/a	n/a	µg/g
Thallium*	ICP:F	< 3.99E+ 03	n/a	n/a	n/a	µg/g
Titanium*	ICP:A	< 6.13E+ 00	n/a	n/a	n/a	µg/g
Titanium*	ICP:F	< 2.00E+ 02	n/a	n/a	n/a	µg/g
Total inorganic carbon	TIC/TOC	4.47E+ 03	2	2.30E+ 03	6.63E+ 03	µg/g
Total organic carbon	TIC/TOC	1.04E+ 04	2	8.66E+ 03	1.22E+ 04	µg/g
Uranium*	ICP:A	< 2.98E+ 02	n/a	n/a	n/a	µg/g
Uranium*	ICP:F	< 9.97E+ 03	n/a	n/a	n/a	µg/g
Uranium-233*	ICP/MS:A	< 4.78E-1	n/a	n/a	n/a	µg/g
Uranium-234*	ICP/MS:A	< 4.78E-1	n/a	n/a	n/a	µg/g
Uranium-235*	ICP/MS:A	< 4.81E-1	n/a	n/a	n/a	µg/g
Uranium-236*	ICP/MS:A	< 6.38E-1	n/a	n/a	n/a	µg/g
Uranium-238	ICP/MS:A	5.60E+ 01	2	4.03E+ 01	7.18E+ 01	µg/g
Vanadium*	ICP:A	< 2.98E+ 01	n/a	n/a	n/a	µg/g
Vanadium*	ICP:F	< 9.97E+ 02	n/a	n/a	n/a	µg/g
Zinc*	ICP:A	6.79E+ 00	2	4.45E+ 00	9.12E+ 00	µg/g
Zinc*	ICP:F	< 2.00E+ 02	n/a	n/a	n/a	µg/g
Zirconium	ICP:A	8.30E+ 00	2	4.82E+ 00	1.18E+ 01	µg/g
Zirconium*	ICP:F	< 2.00E+ 02	n/a	n/a	n/a	µg/g

* a "less than" value was used in the calculation

Tank 241-SY-101 95 Percent Two-Sided Confidence Interval for the Mean Concentration for Solid Slurry Segments (Sampling Dates -- November 9, 1998 - December 18, 1998, January 5, 1999 - January 19, 1999, March 8, 1999 - April 2, 1999)

Analyte	Method	Mean	df	LL	UL	Units
Acetate*	IC:W	1.73E+ 03	25	1.64E+ 03	1.81E+ 03	µg/g
Aluminum	ICP:A	3.45E+ 04	39	3.39E+ 04	3.51E+ 04	µg/g
Aluminum	ICP:F	3.42E+ 04	39	3.39E+ 04	3.46E+ 04	µg/g
Antimony*	ICP:A	< 3.60E+ 01	n/a	n/a	n/a	µg/g
Antimony*	ICP:F	< 1.21E+ 03	n/a	n/a	n/a	µg/g
Arsenic*	ICP:A	< 6.00E+ 01	n/a	n/a	n/a	µg/g
Arsenic*	ICP:F	< 2.01E+ 03	n/a	n/a	n/a	µg/g
Barium*	ICP:A	< 3.00E+ 01	n/a	n/a	n/a	µg/g
Barium*	ICP:F	< 1.01E+ 03	n/a	n/a	n/a	µg/g
Beryllium*	ICP:A	< 3.00E+ 00	n/a	n/a	n/a	µg/g
Beryllium*	ICP:F	< 1.01E+ 02	n/a	n/a	n/a	µg/g
Bismuth*	ICP:A	< 6.00E+ 01	n/a	n/a	n/a	µg/g
Bismuth*	ICP:F	< 2.01E+ 03	n/a	n/a	n/a	µg/g
Boron	ICP:A	1.63E+ 02	39	1.55E+ 02	1.71E+ 02	µg/g
Boron*	ICP:F	< 1.01E+ 03	n/a	n/a	n/a	µg/g
Bromide*	IC:W	< 9.53E+ 02	n/a	n/a	n/a	µg/g
Bulk Density	Physical Properties	1.59E+ 00	39	1.57E+ 00	1.60E+ 00	g/mL
Cadmium*	ICP:A	1.04E+ 01	39	9.85E+ 00	1.09E+ 01	µg/g
Cadmium*	ICP:F	< 1.01E+ 02	n/a	n/a	n/a	µg/g
Calcium	ICP:A	1.43E+ 02	39	1.37E+ 02	1.50E+ 02	µg/g
Calcium*	ICP:F	< 2.01E+ 03	n/a	n/a	n/a	µg/g
Cerium*	ICP:A	< 6.00E+ 01	n/a	n/a	n/a	µg/g
Cerium*	ICP:F	< 2.01E+ 03	n/a	n/a	n/a	µg/g
Chloride	IC:W	9.13E+ 03	39	8.75E+ 03	9.51E+ 03	µg/g
Chromium	ICP:A	3.29E+ 03	39	3.21E+ 03	3.38E+ 03	µg/g
Chromium	ICP:F	3.46E+ 03	39	3.39E+ 03	3.52E+ 03	µg/g
Cobalt*	ICP:A	< 1.20E+ 01	n/a	n/a	n/a	µg/g
Cobalt*	ICP:F	< 4.02E+ 02	n/a	n/a	n/a	µg/g
Copper*	ICP:A	7.13E+ 00	39	6.41E+ 00	7.85E+ 00	µg/g
Copper*	ICP:F	< 2.01E+ 02	n/a	n/a	n/a	µg/g
Exotherm - transition 1	DSC/TGA	1.27E+ 02	25	1.06E+ 02	1.48E+ 02	J/g
Fluoride*	IC:W	3.11E+ 02	39	2.55E+ 02	3.66E+ 02	µg/g
Formate	IC:W	7.40E+ 03	25	7.16E+ 03	7.64E+ 03	µg/g
Glycolate	IC:W	1.83E+ 03	25	1.79E+ 03	1.87E+ 03	µg/g
Gross alpha	Proportional Counting: F	2.11E-1	24	8.24E-2	3.40E-1	µCi/g

Tank 241-SY-101 95 Percent Two-Sided Confidence Interval for the Mean Concentration for Solid Slurry Segments (Sampling Dates -- November 9, 1998 - December 18, 1998, January 5, 1999 - January 19, 1999, March 8, 1999 - April 2, 1999)

Analyte	Method	Mean	df	LL	UL	Units
Iron	ICP:A	2.24E+ 02	39	2.17E+ 02	2.32E+ 02	µg/g
Iron*	ICP:F	< 1.01E+ 03	n/a	n/a	n/a	µg/g
Lanthanum*	ICP:A	< 3.00E+ 01	n/a	n/a	n/a	µg/g
Lanthanum*	ICP:F	< 1.01E+ 03	n/a	n/a	n/a	µg/g
Lead*	ICP:A	8.26E+ 01	39	7.97E+ 01	8.54E+ 01	µg/g
Lead*	ICP:F	< 2.01E+ 03	n/a	n/a	n/a	µg/g
Lithium*	ICP:A	3.66E+ 01	39	2.76E+ 01	4.57E+ 01	µg/g
Lithium*	ICP:F	< 2.01E+ 02	n/a	n/a	n/a	µg/g
Magnesium*	ICP:A	< 6.00E+ 01	n/a	n/a	n/a	µg/g
Magnesium*	ICP:F	< 2.01E+ 03	n/a	n/a	n/a	µg/g
Manganese	ICP:A	5.37E+ 01	39	5.22E+ 01	5.51E+ 01	µg/g
Manganese*	ICP:F	< 2.01E+ 02	n/a	n/a	n/a	µg/g
Molybdenum	ICP:A	1.05E+ 02	39	1.03E+ 02	1.07E+ 02	µg/g
Molybdenum*	ICP:F	< 1.01E+ 03	n/a	n/a	n/a	µg/g
Neodymium*	ICP:A	< 6.00E+ 01	n/a	n/a	n/a	µg/g
Neodymium*	ICP:F	< 2.01E+ 03	n/a	n/a	n/a	µg/g
Nickel	ICP:A	1.30E+ 02	39	1.27E+ 02	1.33E+ 02	µg/g
Nickel	ICP:F	1.51E+ 03	36	1.29E+ 03	1.73E+ 03	µg/g
Nitrate	IC:W	1.08E+ 05	39	1.03E+ 05	1.12E+ 05	µg/g
Nitrite	IC:W	1.09E+ 05	39	1.05E+ 05	1.14E+ 05	µg/g
Oxalate	IC:W	1.20E+ 04	39	1.14E+ 04	1.26E+ 04	µg/g
Percent Water	DSC/TGA	3.88E+ 01	39	3.77E+ 01	4.00E+ 01	%
Phosphate	IC:W	5.75E+ 03	39	5.42E+ 03	6.08E+ 03	µg/g
Phosphorus	ICP:A	1.97E+ 03	39	1.93E+ 03	2.02E+ 03	µg/g
Phosphorus*	ICP:F	< 4.02E+ 03	n/a	n/a	n/a	µg/g
Potassium	ICP:A	3.45E+ 03	39	3.37E+ 03	3.53E+ 03	µg/g
Samarium*	ICP:A	< 6.00E+ 01	n/a	n/a	n/a	µg/g
Samarium*	ICP:F	< 2.01E+ 03	n/a	n/a	n/a	µg/g
Selenium*	ICP:A	< 1.52E+ 02	n/a	n/a	n/a	µg/g
Selenium*	ICP:F	< 2.01E+ 03	n/a	n/a	n/a	µg/g
Silicon	ICP:A	2.12E+ 02	39	1.71E+ 02	2.54E+ 02	µg/g
Silicon*	ICP:F	< 1.09E+ 03	n/a	n/a	n/a	µg/g
Silver*	ICP:A	1.30E+ 01	39	1.25E+ 01	1.35E+ 01	µg/g
Silver*	ICP:F	< 2.01E+ 02	n/a	n/a	n/a	µg/g
Sodium	ICP:A	1.85E+ 05	39	1.82E+ 05	1.89E+ 05	µg/g
Sodium	ICP:F	1.91E+ 05	39	1.88E+ 05	1.95E+ 05	µg/g
Solid Weight	Physical Properties	4.51E+ 02	39	4.44E+ 02	4.58E+ 02	g
Strontium*	ICP:A	< 6.00E+ 00	n/a	n/a	n/a	µg/g
Strontium*	ICP:F	< 2.01E+ 02	n/a	n/a	n/a	µg/g

Tank 241-SY-101 95 Percent Two-Sided Confidence Interval for the Mean Concentration for Solid Slurry Segments (Sampling Dates -- November 9, 1998 - December 18, 1998, January 5, 1999 - January 19, 1999, March 8, 1999 - April 2, 1999)

Analyte	Method	Mean	df	LL	UL	Units
Sulfate	IC:W	3.31E+ 03	39	3.15E+ 03	3.47E+ 03	µg/g
Sulfur	ICP:A	1.35E+ 03	39	1.33E+ 03	1.37E+ 03	µg/g
Sulfur*	ICP:F	< 2.01E+ 03	n/a	n/a	n/a	µg/g
Thallium*	ICP:A	< 1.20E+ 02	n/a	n/a	n/a	µg/g
Thallium*	ICP:F	< 4.02E+ 03	n/a	n/a	n/a	µg/g
Titanium*	ICP:A	< 6.00E+ 00	n/a	n/a	n/a	µg/g
Titanium*	ICP:F	< 2.01E+ 02	n/a	n/a	n/a	µg/g
Total inorganic carbon	TIC/TOC	4.95E+ 03	3	2.30E+ 03	7.60E+ 03	µg/g
Total organic carbon	TIC/TOC	1.15E+ 04	3	9.39E+ 03	1.36E+ 04	µg/g
Uranium*	ICP:A	< 3.00E+ 02	n/a	n/a	n/a	µg/g
Uranium*	ICP:F	< 1.01E+ 04	n/a	n/a	n/a	µg/g
Vanadium*	ICP:A	< 3.00E+ 01	n/a	n/a	n/a	µg/g
Vanadium*	ICP:F	< 1.01E+ 03	n/a	n/a	n/a	µg/g
Zinc*	ICP:A	< 6.83E+ 00	n/a	n/a	n/a	µg/g
Zinc*	ICP:F	< 2.01E+ 02	n/a	n/a	n/a	µg/g
Zirconium*	ICP:A	7.97E+ 00	39	6.65E+ 00	9.28E+ 00	µg/g
Zirconium*	ICP:F	< 2.01E+ 02	n/a	n/a	n/a	µg/g

* a "less than" value was used in the calculation

Tank 241-SY-101 95 Percent Two-Sided Confidence Interval for the Mean Concentration for Solid June 6, 2007 Core 327 Centrifuged Solids (Sampling Dates -- June 6, 2007 - June 19, 2007)

Analyte	Method	Mean	df	LL	UL	Units
Acetate	IC:W	7.94E+ 02	1	0.00E+ 00	1.59E+ 03	µg/g
Aluminum	ICP:A	4.43E+ 04	4	3.50E+ 04	5.36E+ 04	µg/g
Americium-241	AEA:F	6.39E-1	1	4.63E-1	8.15E-1	µCi/g
Americium-241	GEA:F	6.57E-1	1	4.77E-1	8.36E-1	µCi/g
Antimony*	ICP:A	< 8.31E+ 01				µg/g
Antimony-125*	GEA:F	< 6.13E-1				µCi/g
Arsenic*	ICP:A	< 4.99E+ 01				µg/g
Barium	ICP:A	1.70E+ 01	5	1.60E+ 01	1.80E+ 01	µg/g
Beryllium*	ICP:A	< 8.43E-1				µg/g
Bismuth*	ICP:A	< 1.66E+ 02				µg/g
Boron	ICP:A	3.75E+ 01	5	3.46E+ 01	4.05E+ 01	µg/g
Bromide*	IC:W	< 4.92E+ 03				µg/g
Bulk Density	V%SLD	1.75E+ 00	7	1.72E+ 00	1.78E+ 00	g/mL
Cadmium	ICP:A	7.36E+ 01	5	6.96E+ 01	7.76E+ 01	µg/g
Calcium	ICP:A	4.97E+ 02	5	4.42E+ 02	5.52E+ 02	µg/g

Tank 241-SY-101 95 Percent Two-Sided Confidence Interval for the Mean Concentration for Solid June 6, 2007 Core 327 Centrifuged Solids (Sampling Dates -- June 6, 2007 - June 19, 2007)

Analyte	Method	Mean	df	LL	UL	Units
Cerium*	ICP:A	< 4.16E+01				µg/g
Cerium-144*	GEA:F	< 5.76E-1				µCi/g
Cesium-134*	GEA:F	< 1.08E-1				µCi/g
Cesium-137	GEA:F	1.17E+02	1	0.00E+00	2.36E+02	µCi/g
Chloride	IC:W	4.53E+03	1	0.00E+00	9.42E+03	µg/g
Chromium	ICP:A	2.24E+04	5	2.14E+04	2.34E+04	µg/g
Cobalt*	ICP:A	< 8.31E+00				µg/g
Cobalt-60*	GEA:F	< 5.36E-2				µCi/g
Copper	ICP:A	1.45E+01	5	5.30E+00	2.36E+01	µg/g
Curium-242*	AEA:F	< 7.26E-2				µCi/g
Curium-243/244*	AEA:F	< 7.26E-2				µCi/g
Europium*	ICP:A	< 8.31E+00				µg/g
Europium-152*	GEA:F	< 2.25E-1				µCi/g
Europium-154	GEA:F	3.71E-1	1	3.61E-1	3.81E-1	µCi/g
Europium-155*	GEA:F	< 2.59E-1				µCi/g
Fluoride	IC:W	3.13E+01	1	6.54E+00	5.60E+01	µg/g
Formate	IC:W	3.03E+03	1	1.78E+02	5.89E+03	µg/g
Glycolate	IC:W	5.51E+02	1	0.00E+00	1.52E+03	µg/g
Iron	ICP:A	1.44E+03	5	1.36E+03	1.51E+03	µg/g
Lanthanum	ICP:A	2.34E+01	5	2.23E+01	2.44E+01	µg/g
Lead	ICP:A	3.51E+02	5	3.34E+02	3.67E+02	µg/g
Lithium*	ICP:A	10.00E+00	5	8.27E+00	1.17E+01	µg/g
Magnesium*	ICP:A	< 4.16E+01				µg/g
Manganese	ICP:A	4.30E+02	5	4.06E+02	4.55E+02	µg/g
Molybdenum	ICP:A	4.59E+01	5	4.45E+01	4.74E+01	µg/g
Neodymium	ICP:A	9.50E+01	5	9.06E+01	9.94E+01	µg/g
Nickel	ICP:A	3.57E+02	5	3.28E+02	3.86E+02	µg/g
Niobium*	ICP:A	< 4.16E+01				µg/g
Niobium-94*	GEA:F	< 6.24E-2				µCi/g
Nitrate	IC:W	7.10E+04	1	1.59E+04	1.26E+05	µg/g
Nitrite	IC:W	4.84E+04	1	3.93E+03	9.29E+04	µg/g
Oxalate	IC:W	1.17E+05	1	8.67E+04	1.46E+05	µg/g
Palladium*	ICP:A	< 8.31E+01				µg/g
Percent Water	DSC/TGA	3.75E+01	1	1.38E+01	6.11E+01	%
Phosphate	IC:W	3.36E+03	1	0.00E+00	1.34E+04	µg/g
Phosphorus	ICP:A	1.63E+03	5	5.67E+02	2.69E+03	µg/g
Plutonium-238	AEA:F	1.17E-2	5	1.13E-2	1.20E-2	µCi/g
Plutonium-239/240	AEA:F	6.79E-2	5	6.60E-2	6.97E-2	µCi/g
Potassium	ICP:A	1.34E+03	5	1.26E+03	1.41E+03	µg/g
Praseodymium*	ICP:A	< 4.16E+01				µg/g

Tank 241-SY-101 95 Percent Two-Sided Confidence Interval for the Mean Concentration for Solid June 6, 2007 Core 327 Centrifuged Solids (Sampling Dates -- June 6, 2007 - June 19, 2007)

Analyte	Method	Mean	df	LL	UL	Units
Radium-226*	GEA:F	< 2.81E+ 00				µCi/g
Rhodium*	ICP:A	< 1.66E+ 02				µg/g
Rubidium*	ICP:A	< 1.66E+ 03				µg/g
Ruthenium*	ICP:A	< 8.31E+ 01				µg/g
Ruthenium/Rhodium-106*	GEA:F	< 2.07E+ 00				µCi/g
Samarium*	ICP:A	< 4.16E+ 01				µg/g
Selenium*	ICP:A	< 8.31E+ 01				µg/g
Silicon	ICP:A	2.81E+ 02	5	2.21E+ 02	3.40E+ 02	µg/g
Silver*	ICP:A	< 4.16E+ 00				µg/g
Sodium	ICP:A	1.41E+ 05	5	1.27E+ 05	1.54E+ 05	µg/g
Solid Volume	Push Mode Extrusion	2.23E+ 02	3	1.00E+ 02	3.46E+ 02	mL
Solid Weight	Push Mode Extrusion	2.14E+ 02	9	8.02E+ 01	3.48E+ 02	g
Strontium*	ICP:A	4.81E+ 00	5	4.35E+ 00	5.28E+ 00	µg/g
Strontium-89/90	Sr89/90:F	6.67E+ 01	1	5.53E+ 01	7.81E+ 01	µCi/g
Sulfate*	IC:W	< 1.38E+ 03				µg/g
Sulfur	ICP:A	7.59E+ 02	5	7.17E+ 02	8.02E+ 02	µg/g
Tantalum*	ICP:A	< 4.16E+ 01				µg/g
Tellurium*	ICP:A	< 8.31E+ 01				µg/g
Thallium*	ICP:A	< 8.31E+ 01				µg/g
Thorium*	ICP:A	< 8.31E+ 01				µg/g
Tin*	ICP:A	< 4.16E+ 01				µg/g
Titanium	ICP:A	5.92E+ 00	5	5.49E+ 00	6.36E+ 00	µg/g
Total inorganic carbon	Persulfate Oxidation	3.61E+ 03	1	1.87E+ 03	5.35E+ 03	µg/g
Total organic carbon	Persulfate Oxidation	3.76E+ 04	1	0.00E+ 00	7.80E+ 04	µg/g
Tungsten*	ICP:A	1.43E+ 02	5	7.56E+ 01	2.10E+ 02	µg/g
Uranium	ICP:A	4.20E+ 02	5	3.57E+ 02	4.84E+ 02	µg/g
Uranium-233	ICP/MS:A	7.34E-2	5	4.85E-2	9.83E-2	µg/g
Uranium-234	ICP/MS:A	2.61E-2	5	1.83E-2	3.39E-2	µg/g
Uranium-235	ICP/MS:A	2.85E+ 00	5	2.32E+ 00	3.37E+ 00	µg/g
Uranium-236	ICP/MS:A	5.37E-2	5	4.45E-2	6.29E-2	µg/g
Uranium-238	ICP/MS:A	4.26E+ 02	5	3.47E+ 02	5.06E+ 02	µg/g
Vanadium	ICP:A	1.06E+ 01	5	8.11E+ 00	1.31E+ 01	µg/g
Yttrium	ICP:A	1.16E+ 01	5	1.10E+ 01	1.21E+ 01	µg/g

Tank 241-SY-101 95 Percent Two-Sided Confidence Interval for the Mean Concentration for Solid June 6, 2007 Core 327 Centrifuged Solids (Sampling Dates -- June 6, 2007 - June 19, 2007)

Analyte	Method	Mean	df	LL	UL	Units
Zinc	ICP:A	5.90E+ 01	5	3.97E+ 01	7.83E+ 01	μg/g
Zirconium	ICP:A	3.52E+ 01	5	3.39E+ 01	3.65E+ 01	μg/g

* a "less than" value was used in the calculation

241-SY-101 Means and Confidence Intervals

Liquid Data

Tank 241-SY-101 95 Percent Two-Sided Confidence Interval for the Mean Concentration for Liquid 2006 Liquid Means (Sampling Dates -- January 15, 2006 - January 16, 2006)

Analyte	Method	Mean	df	LL	UL	Units
Acetate*	IC	< 2.56E+ 02	n/a	n/a	n/a	µg/mL
Actinium-228*	GEA	< 6.00E-3	n/a	n/a	n/a	µCi/mL
Aluminum	ICP	6.05E+ 03	4	5.88E+ 03	6.21E+ 03	µg/mL
Americium-241	AEA	2.43E-4	4	2.32E-4	2.54E-4	µCi/mL
Americium-241*	GEA	< 1.91E-2	n/a	n/a	n/a	µCi/mL
Ammonium Ion by IC	IC	8.94E+ 01	4	4.68E+ 01	1.32E+ 02	µg/mL
Antimony*	ICP	< 1.25E+ 01	n/a	n/a	n/a	µg/mL
Antimony-125*	GEA	< 7.75E-2	n/a	n/a	n/a	µCi/mL
Aroclor 1016*	GC/ECD	< 3.80E-2	n/a	n/a	n/a	µg/mL
Aroclor 1221*	GC/ECD	< 7.10E-3	n/a	n/a	n/a	µg/mL
Aroclor 1232*	GC/ECD	< 4.60E-2	n/a	n/a	n/a	µg/mL
Aroclor 1242*	GC/ECD	< 2.60E-2	n/a	n/a	n/a	µg/mL
Aroclor 1248*	GC/ECD	< 1.30E-2	n/a	n/a	n/a	µg/mL
Aroclor 1254*	GC/ECD	< 4.00E-3	n/a	n/a	n/a	µg/mL
Aroclor 1260*	GC/ECD	< 2.90E-2	n/a	n/a	n/a	µg/mL
Arsenic*	ICP	< 2.08E+ 01	n/a	n/a	n/a	µg/mL
Barium*	ICP	< 2.50E+ 00	n/a	n/a	n/a	µg/mL
Beryllium*	ICP	< 2.00E+ 00	n/a	n/a	n/a	µg/mL
Bismuth*	ICP	< 3.00E+ 01	n/a	n/a	n/a	µg/mL
Boron	ICP	1.28E+ 01	4	1.15E+ 01	1.40E+ 01	µg/mL
Bromide*	IC	< 3.22E+ 02	n/a	n/a	n/a	µg/mL
Cadmium*	ICP	< 2.00E+ 00	n/a	n/a	n/a	µg/mL
Calcium*	ICP	< 1.10E+ 01	n/a	n/a	n/a	µg/mL
Cerium*	ICP	< 1.25E+ 01	n/a	n/a	n/a	µg/mL
Cerium/Praseodymium-144*	GEA	< 1.63E-1	n/a	n/a	n/a	µCi/mL
Cesium-134*	GEA	< 1.17E-2	n/a	n/a	n/a	µCi/mL
Cesium-137	GEA	6.08E+ 01	4	5.52E+ 01	6.64E+ 01	µCi/mL
Chloride	IC	1.80E+ 03	4	1.66E+ 03	1.94E+ 03	µg/mL
Chromium	ICP	5.03E+ 02	4	4.96E+ 02	5.11E+ 02	µg/mL
Cobalt*	ICP	< 3.00E+ 00	n/a	n/a	n/a	µg/mL
Cobalt-60*	GEA	< 1.27E-3	n/a	n/a	n/a	µCi/mL
Copper*	ICP	< 1.00E+ 00	n/a	n/a	n/a	µg/mL
Europium*	ICP	< 7.50E+ 00	n/a	n/a	n/a	µg/mL
Europium-152*	GEA	< 4.85E-3	n/a	n/a	n/a	µCi/mL

Tank 241-SY-101 95 Percent Two-Sided Confidence Interval for the Mean Concentration for Liquid 2006 Liquid Means (Sampling Dates -- January 15, 2006 - January 16, 2006)

Analyte	Method	Mean	df	LL	UL	Units
Europium-154*	GEA	< 3.64E-3	n/a	n/a	n/a	µCi/mL
Europium-155*	GEA	< 3.63E-2	n/a	n/a	n/a	µCi/mL
Fluoride	IC	1.29E+ 02	4	1.24E+ 02	1.34E+ 02	µg/mL
Formate	IC	5.83E+ 02	4	4.66E+ 02	6.99E+ 02	µg/mL
Glycolate*	IC	< 2.11E+ 02	n/a	n/a	n/a	µg/mL
Hydroxide	OH	1.68E+ 04	4	1.65E+ 04	1.72E+ 04	µg/mL
Iron*	ICP	1.41E+ 00	4	1.28E+ 00	1.54E+ 00	µg/mL
Lanthanum*	ICP	< 1.75E+ 00	n/a	n/a	n/a	µg/mL
Lead*	ICP	< 1.50E+ 01	n/a	n/a	n/a	µg/mL
Lithium*	ICP	< 2.00E+ 00	n/a	n/a	n/a	µg/mL
Magnesium*	ICP	< 1.25E+ 01	n/a	n/a	n/a	µg/mL
Manganese*	ICP	< 2.50E+ 00	n/a	n/a	n/a	µg/mL
Molybdenum	ICP	1.98E+ 01	4	1.81E+ 01	2.15E+ 01	µg/mL
Neodymium*	ICP	< 5.00E+ 00	n/a	n/a	n/a	µg/mL
Nickel*	ICP	< 1.00E+ 01	n/a	n/a	n/a	µg/mL
Niobium-94*	GEA	< 1.66E-3	n/a	n/a	n/a	µCi/mL
Nitrate	IC	1.68E+ 05	4	1.64E+ 05	1.72E+ 05	µg/mL
Nitrite	IC	2.14E+ 04	4	1.97E+ 04	2.32E+ 04	µg/mL
Oxalate	IC	6.10E+ 02	4	5.86E+ 02	6.35E+ 02	µg/mL
Percent Water	DSC/TGA	6.91E+ 01	4	6.24E+ 01	7.58E+ 01	%
Phosphate	IC	4.47E+ 03	4	4.38E+ 03	4.56E+ 03	µg/mL
Phosphorus	ICP	1.51E+ 03	4	1.50E+ 03	1.53E+ 03	µg/mL
Plutonium-238*	AEA	< 1.81E-5	n/a	n/a	n/a	µCi/mL
Plutonium-239/240	AEA	1.01E-4	4	9.88E-5	1.04E-4	µCi/mL
Potassium	ICP	5.46E+ 02	4	4.43E+ 02	6.50E+ 02	µg/mL
Radium-226*	GEA	< 1.47E+ 00	n/a	n/a	n/a	µCi/mL
Ruthenium/Rhodium-106*	GEA	< 2.31E-1	n/a	n/a	n/a	µCi/mL
Samarium*	ICP	< 7.50E+ 00	n/a	n/a	n/a	µg/mL
Selenium*	ICP	< 2.33E+ 01	n/a	n/a	n/a	µg/mL
Silicon*	ICP	7.78E+ 00	4	7.37E+ 00	8.20E+ 00	µg/mL
Silver*	ICP	< 2.50E+ 00	n/a	n/a	n/a	µg/mL
Sodium	ICP	1.22E+ 05	4	1.20E+ 05	1.25E+ 05	µg/mL
Specific Gravity	SpG	1.28E+ 00	4	1.27E+ 00	1.28E+ 00	unitless
Strontium*	ICP	< 2.00E+ 00	n/a	n/a	n/a	µg/mL
Strontium-89/90	Coprecipitation/Beta Counting	4.42E-1	4	2.54E-1	6.31E-1	µCi/mL
Sulfate	IC	4.80E+ 03	4	4.73E+ 03	4.87E+ 03	µg/mL
Sulfur	ICP	1.74E+ 03	4	1.71E+ 03	1.77E+ 03	µg/mL
Thallium*	ICP	< 5.00E+ 01	n/a	n/a	n/a	µg/mL

Tank 241-SY-101 95 Percent Two-Sided Confidence Interval for the Mean Concentration for Liquid 2006 Liquid Means (Sampling Dates -- January 15, 2006 - January 16, 2006)

Analyte	Method	Mean	df	LL	UL	Units
Thorium*	ICP	< 1.25E+ 01	n/a	n/a	n/a	µg/mL
Titanium*	ICP	< 1.00E+ 00	n/a	n/a	n/a	µg/mL
Total inorganic carbon	Persulfate Oxidation	3.12E+ 03	4	2.27E+ 03	3.96E+ 03	µg/mL
Total organic carbon	Persulfate Oxidation	1.11E+ 03	4	9.91E+ 02	1.24E+ 03	µg/mL
Uranium*	ICP	< 2.75E+ 01	n/a	n/a	n/a	µg/mL
Vanadium*	ICP	< 2.50E+ 00	n/a	n/a	n/a	µg/mL
Volume percent settled solids*	Appearanc e Test	< 2.00E+ 00	n/a	n/a	n/a	%
Yttrium*	ICP	< 2.00E+ 00	n/a	n/a	n/a	µg/mL
Zinc*	ICP	< 2.50E+ 00	n/a	n/a	n/a	µg/mL
Zirconium*	ICP	< 2.50E+ 00	n/a	n/a	n/a	µg/mL

* a "less than" value was used in the calculation

Tank 241-SY-101 95 Percent Two-Sided Confidence Interval for the Mean Concentration for Liquid Grab Sample (Sampling Dates -- April 3, 2000 - April 6, 2000, June 20, 2000 - June 22, 2000)

Analyte	Method	Mean	df	LL	UL	Units
Aluminum	ICP	1.34E+ 04	4	1.28E+ 04	1.41E+ 04	µg/mL
Americium-241	AEA	3.40E-4	4	2.87E-4	3.93E-4	µCi/mL
Americium-241*	GEA	< 2.41E-1	n/a	n/a	n/a	µCi/mL
Ammonia	Ion Selective Electrode (NH3)	9.61E+ 02	4	3.80E+ 02	1.54E+ 03	µg/mL
Antimony*	ICP	< 3.61E+ 01	n/a	n/a	n/a	µg/mL
Antimony-125*	GEA	< 1.85E-1	n/a	n/a	n/a	µCi/mL
Arsenic*	ICP	< 6.01E+ 01	n/a	n/a	n/a	µg/mL
Barium*	ICP	< 3.01E+ 01	n/a	n/a	n/a	µg/mL
Beryllium*	ICP	< 3.01E+ 00	n/a	n/a	n/a	µg/mL
Bismuth*	ICP	< 6.01E+ 01	n/a	n/a	n/a	µg/mL
Boron	ICP	5.50E+ 01	4	5.16E+ 01	5.83E+ 01	µg/mL
Bromide*	IC	< 6.44E+ 02	n/a	n/a	n/a	µg/mL
Bulk Density	Bulk Density by Centrifuge	1.36E+ 00	7	1.34E+ 00	1.38E+ 00	g/mL
Cadmium*	ICP	< 3.01E+ 00	n/a	n/a	n/a	µg/mL
Calcium	ICP	1.02E+ 02	4	7.80E+ 01	1.27E+ 02	µg/mL
Cerium*	ICP	< 6.01E+ 01	n/a	n/a	n/a	µg/mL
Cesium-137	GEA	2.62E+ 02	4	2.38E+ 02	2.86E+ 02	µCi/mL
Chloride	IC	7.13E+ 03	3	6.32E+ 03	7.93E+ 03	µg/mL

Tank 241-SY-101 95 Percent Two-Sided Confidence Interval for the Mean Concentration for Liquid Grab Sample (Sampling Dates -- April 3, 2000 - April 6, 2000, June 20, 2000 - June 22, 2000)

Analyte	Method	Mean	df	LL	UL	Units
Chromium	ICP	1.36E+ 02	4	1.25E+ 02	1.47E+ 02	µg/mL
Cobalt*	ICP	< 1.20E+ 01	n/a	n/a	n/a	µg/mL
Cobalt-60*	GEA	< 1.33E-2	n/a	n/a	n/a	µCi/mL
Copper	ICP	9.74E+ 00	4	9.20E+ 00	1.03E+ 01	µg/mL
Curium-243/244*	AEA	< 1.38E-4	n/a	n/a	n/a	µCi/mL
Europium-154*	GEA	< 3.18E-2	n/a	n/a	n/a	µCi/mL
Europium-155*	GEA	< 1.02E-1	n/a	n/a	n/a	µCi/mL
Exotherm - transition 1	DSC	5.62E+ 01	4	2.21E+ 01	9.03E+ 01	J/g
Fluoride*	IC	< 6.18E+ 01	n/a	n/a	n/a	µg/mL
Hydroxide	OH	2.63E+ 04	4	2.30E+ 04	2.96E+ 04	µg/mL
Iron*	ICP	< 3.01E+ 01	n/a	n/a	n/a	µg/mL
Lanthanum*	ICP	< 3.01E+ 01	n/a	n/a	n/a	µg/mL
Lead*	ICP	< 6.01E+ 01	n/a	n/a	n/a	µg/mL
Lithium*	ICP	< 6.01E+ 00	n/a	n/a	n/a	µg/mL
Magnesium*	ICP	< 6.01E+ 01	n/a	n/a	n/a	µg/mL
Manganese*	ICP	< 6.01E+ 00	n/a	n/a	n/a	µg/mL
Mercury*	CVAA (Hg)	< 2.40E-3	n/a	n/a	n/a	µg/mL
Molybdenum	ICP	8.08E+ 01	4	7.51E+ 01	8.66E+ 01	µg/mL
Neodymium*	ICP	< 6.01E+ 01	n/a	n/a	n/a	µg/mL
Nickel	ICP	9.35E+ 01	4	9.04E+ 01	9.66E+ 01	µg/mL
Nitrate	IC	1.41E+ 05	3	1.17E+ 05	1.65E+ 05	µg/mL
Nitrite	IC	8.78E+ 04	3	7.74E+ 04	9.82E+ 04	µg/mL
Oxalate*	IC	< 6.02E+ 02	n/a	n/a	n/a	µg/mL
Percent Water	DSC	5.99E+ 01	8	5.86E+ 01	6.11E+ 01	%
Percent Water	Gravimetric Analysis	5.85E+ 01	1	5.27E+ 01	6.42E+ 01	%
Phosphate	IC	4.83E+ 03	3	4.07E+ 03	5.58E+ 03	µg/mL
Phosphorus	ICP	1.48E+ 03	4	1.25E+ 03	1.71E+ 03	µg/mL
Plutonium-238*	AEA	< 3.28E-5	n/a	n/a	n/a	µCi/mL
Plutonium-239/240	AEA	6.97E-5	4	4.10E-5	9.83E-5	µCi/mL
Potassium*	ICP	2.68E+ 03	4	2.44E+ 03	2.91E+ 03	µg/mL
Samarium*	ICP	< 6.01E+ 01	n/a	n/a	n/a	µg/mL
Selenium*	ICP	< 6.01E+ 01	n/a	n/a	n/a	µg/mL
Silicon	ICP	8.24E+ 01	4	6.38E+ 01	1.01E+ 02	µg/mL
Silver*	ICP	2.99E+ 01	4	0.00E+ 00	6.41E+ 01	µg/mL
Sodium	ICP	1.63E+ 05	4	1.49E+ 05	1.77E+ 05	µg/mL
Specific Gravity	SpG	1.34E+ 00	7	1.32E+ 00	1.36E+ 00	unitless
Specific Gravity	SPG-02	1.43E+ 00	1	9.80E-1	1.87E+ 00	unitless

Tank 241-SY-101 95 Percent Two-Sided Confidence Interval for the Mean Concentration for Liquid Grab Sample (Sampling Dates -- April 3, 2000 - April 6, 2000, June 20, 2000 - June 22, 2000)

Analyte	Method	Mean	df	LL	UL	Units
Strontium*	ICP	< 6.01E+00	n/a	n/a	n/a	µg/mL
Strontium-89/90	Coprecipitation/Beta Counting	3.73E+00	4	3.42E+00	4.03E+00	µCi/mL
Sulfate	IC	3.89E+03	3	3.67E+03	4.10E+03	µg/mL
Sulfur	ICP	1.48E+03	4	1.42E+03	1.54E+03	µg/mL
Technetium-99	Tc99	2.45E-1	4	2.19E-1	2.70E-1	µCi/mL
Thallium*	ICP	< 1.20E+02	n/a	n/a	n/a	µg/mL
Titanium*	ICP	< 6.01E+00	n/a	n/a	n/a	µg/mL
Total inorganic carbon	Persulfate Oxidation	6.87E+03	4	6.55E+03	7.19E+03	µg/mL
Total organic carbon	Persulfate Oxidation	6.16E+03	4	5.81E+03	6.52E+03	µg/mL
Uranium*	ICP	< 3.01E+02	n/a	n/a	n/a	µg/mL
Uranium	Kinetic Phosphorescence	3.10E+00	4	2.74E+00	3.46E+00	µg/mL
Uranium-233*	ICP/MS	< 4.86E-1	n/a	n/a	n/a	µg/mL
Uranium-234*	ICP/MS	< 4.86E-1	n/a	n/a	n/a	µg/mL
Uranium-235*	ICP/MS	< 4.86E-1	n/a	n/a	n/a	µg/mL
Uranium-236*	ICP/MS	< 6.48E-1	n/a	n/a	n/a	µg/mL
Uranium-238	ICP/MS	2.83E+00	4	2.19E+00	3.46E+00	µg/mL
Vanadium*	ICP	< 3.01E+01	n/a	n/a	n/a	µg/mL
Zinc*	ICP	< 6.24E+00	n/a	n/a	n/a	µg/mL
Zirconium*	ICP	< 6.01E+00	n/a	n/a	n/a	µg/mL

* a "less than" value was used in the calculation

Tank 241-SY-101 95 Percent Two-Sided Confidence Interval for the Mean Concentration for Liquid Nov. 2002 Grab (Sampling Dates -- November 18, 2002, November 21, 2002)

Analyte	Method	Mean	df	LL	UL	Units
Acetate*	IC	1.51E+03	2	7.96E+02	2.21E+03	µg/mL
Aluminum	ICP:A	1.70E+04	2	7.89E+03	2.61E+04	µg/mL
Americium-241	AEA	6.59E-4	2	0.00E+00	2.00E-3	µCi/mL
Ammonium Ion by IC	IC	6.04E+02	2	3.12E+02	8.96E+02	µg/mL
Antimony*	ICP:A	< 1.80E+01	n/a	n/a	n/a	µg/mL
Aroclor 1016*	GC/ECD	< 3.80E-2	n/a	n/a	n/a	µg/mL
Aroclor 1221*	GC/ECD	< 7.10E-3	n/a	n/a	n/a	µg/mL
Aroclor 1232*	GC/ECD	< 4.60E-2	n/a	n/a	n/a	µg/mL
Aroclor 1242*	GC/ECD	< 2.60E-2	n/a	n/a	n/a	µg/mL

Tank 241-SY-101 95 Percent Two-Sided Confidence Interval for the Mean Concentration for Liquid Nov. 2002 Grab (Sampling Dates -- November 18, 2002, November 21, 2002)

Analyte	Method	Mean	df	LL	UL	Units
Aroclor 1248*	GC/ECD	< 1.30E-2	n/a	n/a	n/a	µg/mL
Aroclor 1254*	GC/ECD	< 4.00E-3	n/a	n/a	n/a	µg/mL
Aroclor 1260*	GC/ECD	< 2.90E-2	n/a	n/a	n/a	µg/mL
Arsenic*	ICP:A	< 3.00E+01	n/a	n/a	n/a	µg/mL
Barium*	ICP:A	< 1.50E+01	n/a	n/a	n/a	µg/mL
Beryllium*	ICP:A	< 1.50E+00	n/a	n/a	n/a	µg/mL
Bismuth*	ICP:A	< 3.00E+01	n/a	n/a	n/a	µg/mL
Boron	ICP:A	5.26E+01	2	3.99E+01	6.53E+01	µg/mL
Bromide*	IC	< 1.40E+03	n/a	n/a	n/a	µg/mL
Cadmium	ICP:A	2.19E+00	2	9.23E-1	3.47E+00	µg/mL
Calcium	ICP:A	7.16E+01	2	0.00E+00	1.44E+02	µg/mL
Carbon-14	C14	7.79E-4	2	6.81E-4	8.78E-4	µCi/mL
Cerium*	ICP:A	< 3.00E+01	n/a	n/a	n/a	µg/mL
Cerium/Praseodymium-144*	GEA	< 3.52E-1	n/a	n/a	n/a	µCi/mL
Cesium-134*	GEA	< 2.84E-2	n/a	n/a	n/a	µCi/mL
Cesium-137	GEA	2.30E+02	2	1.26E+02	3.34E+02	µCi/mL
Chloride	IC	7.40E+03	2	4.62E+03	1.02E+04	µg/mL
Chromium	ICP:A	3.57E+02	2	0.00E+00	1.24E+03	µg/mL
Cobalt*	ICP:A	< 6.00E+00	n/a	n/a	n/a	µg/mL
Cobalt-60*	GEA	< 5.67E-3	n/a	n/a	n/a	µCi/mL
Copper*	ICP:A	6.09E+00	2	0.00E+00	1.31E+01	µg/mL
Curium-243/244*	AEA	< 9.80E-5	n/a	n/a	n/a	µCi/mL
Europium*	ICP:A	< 3.00E+01	n/a	n/a	n/a	µg/mL
Europium-154*	GEA	< 2.08E-2	n/a	n/a	n/a	µCi/mL
Europium-155*	GEA	< 8.32E-2	n/a	n/a	n/a	µCi/mL
Exotherm - transition 1	DSC/TGA	5.27E+01	n/a	n/a	n/a	J/g
Fluoride*	IC	< 1.44E+02	n/a	n/a	n/a	µg/mL
Formate	IC	4.39E+03	2	0.00E+00	9.30E+03	µg/mL
Glycolate*	IC	1.31E+03	2	5.98E+02	2.02E+03	µg/mL
Gross alpha*	Proportional Counting	< 8.69E-3	n/a	n/a	n/a	µCi/mL
Gross beta	Proportional Counting	2.55E+02	2	1.94E+02	3.16E+02	µCi/mL
Hydroxide	OH	2.69E+04	2	2.41E+04	2.96E+04	µg/mL
Iodine-129	I129	2.03E-4	2	1.43E-4	2.63E-4	µCi/mL
Iron*	ICP:A	< 1.50E+01	n/a	n/a	n/a	µg/mL
Lanthanum*	ICP:A	< 1.50E+01	n/a	n/a	n/a	µg/mL

Tank 241-SY-101 95 Percent Two-Sided Confidence Interval for the Mean Concentration for Liquid Nov. 2002 Grab (Sampling Dates -- November 18, 2002, November 21, 2002)

Analyte	Method	Mean	df	LL	UL	Units
Lead*	ICP:A	< 3.00E+01	n/a	n/a	n/a	µg/mL
Lithium*	ICP:A	< 3.00E+00	n/a	n/a	n/a	µg/mL
Magnesium*	ICP:A	< 3.00E+01	n/a	n/a	n/a	µg/mL
Manganese*	ICP:A	< 3.00E+00	n/a	n/a	n/a	µg/mL
Molybdenum	ICP:A	7.73E+01	2	4.89E+01	1.06E+02	µg/mL
Neodymium*	ICP:A	< 3.00E+01	n/a	n/a	n/a	µg/mL
Neptunium-237*	TIOA-TTA Extract/Alpha	< 1.90E-5	n/a	n/a	n/a	µCi/mL
Nickel	ICP:A	6.74E+01	2	0.00E+00	1.68E+02	µg/mL
Niobium-94*	GEA	< 1.19E-2	n/a	n/a	n/a	µCi/mL
Nitrate	IC	1.29E+05	2	1.17E+05	1.41E+05	µg/mL
Nitrite	IC	9.14E+04	2	6.44E+04	1.18E+05	µg/mL
Oxalate*	IC	< 1.30E+03	n/a	n/a	n/a	µg/mL
Percent Water	DSC/TGA	6.00E+01	2	5.00E+01	6.99E+01	%
Phosphate	IC	4.31E+03	2	2.17E+03	6.46E+03	µg/mL
Phosphorus	ICP:A	1.33E+03	2	1.26E+03	1.39E+03	µg/mL
Plutonium-238*	AEA	2.02E-5	2	7.06E-6	3.33E-5	µCi/mL
Plutonium-239/240	AEA	6.32E-5	2	5.88E-5	6.75E-5	µCi/mL
Potassium	ICP:A	2.39E+03	2	1.35E+03	3.44E+03	µg/mL
Radium-226*	GEA	< 6.81E-1	n/a	n/a	n/a	µCi/mL
Ruthenium/Rhodium-106*	GEA	< 5.66E-1	n/a	n/a	n/a	µCi/mL
Samarium*	ICP:A	< 3.00E+01	n/a	n/a	n/a	µg/mL
Selenium	ICP:A	1.31E+02	2	10.00E+01	1.61E+02	µg/mL
Selenium-79	Se79	1.02E-3	2	5.88E-4	1.46E-3	µCi/mL
Silicon*	ICP:A	2.38E+01	2	0.00E+00	5.03E+01	µg/mL
Silver*	ICP:A	< 3.00E+00	n/a	n/a	n/a	µg/mL
Sodium	ICP:A	1.55E+05	2	1.29E+05	1.82E+05	µg/mL
Specific Gravity	SpG	1.34E+00	2	1.24E+00	1.43E+00	unitless
Strontium*	ICP:A	< 3.00E+00	n/a	n/a	n/a	µg/mL
Strontium-89/90	Coprecipitation/Beta Counting	2.98E+00	2	0.00E+00	8.09E+00	µCi/mL
Sulfate	IC	3.48E+03	2	1.46E+03	5.51E+03	µg/mL
Sulfur	ICP:A	1.40E+03	2	5.57E+02	2.24E+03	µg/mL
Technetium-99*	ICP/MS:A	< 1.30E+01	n/a	n/a	n/a	µg/mL
Technetium-99	Tc99	2.33E-1	2	1.28E-1	3.38E-1	µCi/mL
Thallium*	ICP:A	< 6.00E+01	n/a	n/a	n/a	µg/mL

Tank 241-SY-101 95 Percent Two-Sided Confidence Interval for the Mean Concentration for Liquid Nov. 2002 Grab (Sampling Dates -- November 18, 2002, November 21, 2002)

Analyte	Method	Mean	df	LL	UL	Units
Thorium*	ICP:A	< 3.00E+01	n/a	n/a	n/a	μg/mL
Titanium*	ICP:A	< 3.00E+00	n/a	n/a	n/a	μg/mL
Total carbon	Furnace Oxidation (TOC)	1.07E+04	2	1.88E+02	2.13E+04	μg/mL
Total inorganic carbon	Persulfate Oxidation	6.07E+03	2	0.00E+00	1.22E+04	μg/mL
Total organic carbon	Furnace Oxidation (TOC)	5.63E+03	2	2.01E+03	9.25E+03	μg/mL
Tritium	Liquid Scintillation	5.29E-4	2	0.00E+00	1.66E-3	μCi/mL
Uranium*	ICP:A	< 7.50E+01	n/a	n/a	n/a	μg/mL
Uranium	Kinetic Phosphorescence	1.93E+00	2	1.60E+00	2.26E+00	μg/mL
Uranium-235	ICP/MS:A	1.59E-2	2	1.45E-2	1.73E-2	μg/mL
Uranium-238	ICP/MS:A	2.34E+00	2	2.13E+00	2.55E+00	μg/mL
Vanadium*	ICP:A	< 1.50E+01	n/a	n/a	n/a	μg/mL
Volume percent settled solids	Appearance Test	0.00E+00	4	0.00E+00	0.00E+00	%
Yttrium*	ICP:A	< 3.00E+00	n/a	n/a	n/a	μg/mL
Zinc*	ICP:A	< 3.00E+00	n/a	n/a	n/a	μg/mL
Zirconium*	ICP:A	< 3.00E+00	n/a	n/a	n/a	μg/mL

* a "less than" value was used in the calculation

Tank 241-SY-101 95 Percent Two-Sided Confidence Interval for the Mean Concentration for Liquid Post S-112 Retrieval (Sampling Dates -- October 14, 2003)

Analyte	Method	Mean	df	LL	UL	Units
Acetate*	IC	< 9.52E+02	n/a	n/a	n/a	μg/mL
Actinium-228*	GEA	< 1.43E-2	n/a	n/a	n/a	μCi/mL
Aluminum	ICP	1.22E+04	4	1.18E+04	1.25E+04	μg/mL
Antimony*	ICP	< 7.12E+00	n/a	n/a	n/a	μg/mL
Antimony-125*	GEA	< 1.22E-1	n/a	n/a	n/a	μCi/mL
Arsenic*	ICP	< 9.36E+00	n/a	n/a	n/a	μg/mL
Barium*	ICP	< 3.68E-1	n/a	n/a	n/a	μg/mL
Beryllium*	ICP	< 3.10E-1	n/a	n/a	n/a	μg/mL
Bismuth*	ICP	< 1.79E+01	n/a	n/a	n/a	μg/mL
Boron	ICP	3.52E+01	4	3.39E+01	3.64E+01	μg/mL
Bromide*	IC	< 1.20E+03	n/a	n/a	n/a	μg/mL
Cadmium*	ICP	1.08E+00	4	9.96E-1	1.16E+00	μg/mL

Tank 241-SY-101 95 Percent Two-Sided Confidence Interval for the Mean Concentration for Liquid Post S-112 Retrieval (Sampling Dates -- October 14, 2003)

Analyte	Method	Mean	df	LL	UL	Units
Calcium	ICP	3.72E+ 01	4	3.51E+ 01	3.94E+ 01	µg/mL
Cerium*	ICP	< 9.03E+ 00	n/a	n/a	n/a	µg/mL
Cerium/Praseodymium-144*	GEA	< 2.32E-1	n/a	n/a	n/a	µCi/mL
Cesium-134*	GEA	< 1.84E-2	n/a	n/a	n/a	µCi/mL
Cesium-137	GEA	1.52E+ 02	4	1.51E+ 02	1.54E+ 02	µCi/mL
Chloride	IC	4.07E+ 03	4	3.95E+ 03	4.18E+ 03	µg/mL
Chromium	ICP	7.79E+ 02	4	7.67E+ 02	7.91E+ 02	µg/mL
Cobalt*	ICP	< 2.06E+ 00	n/a	n/a	n/a	µg/mL
Cobalt-60*	GEA	< 3.60E-3	n/a	n/a	n/a	µCi/mL
Copper	ICP	2.23E+ 00	4	2.04E+ 00	2.42E+ 00	µg/mL
Europium*	ICP	< 5.03E-1	n/a	n/a	n/a	µg/mL
Europium-152*	GEA	< 4.31E-2	n/a	n/a	n/a	µCi/mL
Europium-154*	GEA	< 8.93E-3	n/a	n/a	n/a	µCi/mL
Europium-155*	GEA	< 3.15E-2	n/a	n/a	n/a	µCi/mL
Fluoride*	IC	< 1.24E+ 02	n/a	n/a	n/a	µg/mL
Formate	IC	2.16E+ 03	4	2.08E+ 03	2.23E+ 03	µg/mL
Glycolate*	IC	< 7.92E+ 02	n/a	n/a	n/a	µg/mL
Hydroxide	OH	1.89E+ 04	4	1.85E+ 04	1.93E+ 04	µg/mL
Iron	ICP	3.61E+ 00	4	3.16E+ 00	4.07E+ 00	µg/mL
Lanthanum*	ICP	< 1.07E+ 00	n/a	n/a	n/a	µg/mL
Lead*	ICP	< 1.11E+ 01	n/a	n/a	n/a	µg/mL
Lithium*	ICP	< 5.86E-1	n/a	n/a	n/a	µg/mL
Magnesium*	ICP	< 1.07E+ 01	n/a	n/a	n/a	µg/mL
Manganese	ICP	1.03E+ 00	4	9.75E-1	1.07E+ 00	µg/mL
Molybdenum	ICP	4.82E+ 01	4	4.69E+ 01	4.95E+ 01	µg/mL
Neodymium*	ICP	< 4.16E+ 00	n/a	n/a	n/a	µg/mL
Nickel	ICP	2.96E+ 01	4	2.87E+ 01	3.06E+ 01	µg/mL
Niobium-94*	GEA	< 3.52E-3	n/a	n/a	n/a	µCi/mL
Nitrate	IC	1.33E+ 05	4	1.27E+ 05	1.39E+ 05	µg/mL
Nitrite	IC	5.32E+ 04	4	5.13E+ 04	5.50E+ 04	µg/mL
Oxalate*	IC	< 1.12E+ 03	n/a	n/a	n/a	µg/mL
Phosphate	IC	4.16E+ 03	4	3.96E+ 03	4.35E+ 03	µg/mL
Phosphorus	ICP	1.46E+ 03	4	1.41E+ 03	1.52E+ 03	µg/mL
Potassium	ICP	1.44E+ 03	4	1.41E+ 03	1.47E+ 03	µg/mL
Radium-226*	GEA	< 5.23E-1	n/a	n/a	n/a	µCi/mL
Ruthenium/Rhodium-106*	GEA	< 3.68E-1	n/a	n/a	n/a	µCi/mL
Samarium*	ICP	< 4.49E+ 00	n/a	n/a	n/a	µg/mL
Selenium*	ICP	< 1.38E+ 01	n/a	n/a	n/a	µg/mL
Silicon	ICP	1.17E+ 01	4	1.12E+ 01	1.22E+ 01	µg/mL

Tank 241-SY-101 95 Percent Two-Sided Confidence Interval for the Mean Concentration for Liquid Post S-112 Retrieval (Sampling Dates -- October 14, 2003)

Analyte	Method	Mean	df	LL	UL	Units
Silver*	ICP	< 1.01E+ 00	n/a	n/a	n/a	µg/mL
Sodium	ICP	1.37E+ 05	4	1.34E+ 05	1.40E+ 05	µg/mL
Specific Gravity	SpG	1.32E+ 00	4	1.32E+ 00	1.33E+ 00	unitless
Strontium	ICP	2.56E-1	4	2.49E-1	2.64E-1	µg/mL
Strontium-89/90	Coprecipitation/Beta Counting	2.83E+ 00	4	2.74E+ 00	2.92E+ 00	µCi/mL
Sulfate	IC	8.29E+ 03	4	7.82E+ 03	8.77E+ 03	µg/mL
Sulfur	ICP	3.27E+ 03	4	3.23E+ 03	3.31E+ 03	µg/mL
Thallium*	ICP	< 9.93E+ 00	n/a	n/a	n/a	µg/mL
Thorium*	ICP	< 4.62E+ 00	n/a	n/a	n/a	µg/mL
Titanium*	ICP	< 2.50E-1	n/a	n/a	n/a	µg/mL
Total inorganic carbon	Persulfate Oxidation	6.48E+ 03	4	6.36E+ 03	6.61E+ 03	µg/mL
Total organic carbon	Persulfate Oxidation	2.95E+ 03	4	2.76E+ 03	3.15E+ 03	µg/mL
Uranium*	ICP	< 1.99E+ 01	n/a	n/a	n/a	µg/mL
Vanadium*	ICP	< 1.11E+ 00	n/a	n/a	n/a	µg/mL
Volume percent settled solids*	Appearance Test	4.00E-1	4	0.00E+ 00	1.51E+ 00	%
Yttrium*	ICP	< 1.99E-1	n/a	n/a	n/a	µg/mL
Zinc*	ICP	< 4.88E-1	n/a	n/a	n/a	µg/mL
Zirconium*	ICP	< 6.53E-1	n/a	n/a	n/a	µg/mL

* a "less than" value was used in the calculation

Tank 241-SY-101 95 Percent Two-Sided Confidence Interval for the Mean Concentration for Liquid June 6, 2007 Supernatant Core 327 Segment 1 sample (Sampling Dates -- June 6, 2007 - June 19, 2007)

Analyte	Method	Mean	df	LL	UL	Units
Acetate*	IC	< 2.57E+ 02				µg/mL
Aluminum	ICP	3.80E+ 03	1	3.76E+ 03	3.83E+ 03	µg/mL
Americium-241*	AEA	< 2.80E-5				µCi/mL
Americium-241*	GEA	< 5.37E-3				µCi/mL
Antimony*	ICP	< 2.20E+ 01				µg/mL
Antimony-125*	GEA	< 2.17E-2				µCi/mL
Aroclor 1016*	GC/MS	< 3.78E-2				µg/mL
Aroclor 1221*	GC/MS	< 7.10E-3				µg/mL
Aroclor 1232*	GC/MS	< 6.40E-3				µg/mL
Aroclor 1242*	GC/MS	< 1.26E-2				µg/mL
Aroclor 1248*	GC/MS	< 7.10E-3				µg/mL
Aroclor 1254*	GC/MS	< 2.60E-3				µg/mL

Tank 241-SY-101 95 Percent Two-Sided Confidence Interval for the Mean Concentration for Liquid June 6, 2007 Supernatant Core 327 Segment 1 sample (Sampling Dates -- June 6, 2007 - June 19, 2007)

Analyte	Method	Mean	df	LL	UL	Units
Aroclor 1260*	GC/MS	< 2.86E-2				µg/mL
Arsenic*	ICP	< 1.32E+ 01				µg/mL
Barium*	ICP	< 1.10E+ 00				µg/mL
Beryllium*	ICP	< 2.20E-1				µg/mL
Bismuth*	ICP	< 4.40E+ 01				µg/mL
Boron	ICP	9.08E+ 00	1	5.75E+ 00	1.24E+ 01	µg/mL
Bromide*	IC	< 1.39E+ 02				µg/mL
Cadmium*	ICP	< 1.10E+ 00				µg/mL
Calcium	ICP	2.06E+ 01	1	1.93E+ 01	2.18E+ 01	µg/mL
Cerium*	ICP	< 1.10E+ 01				µg/mL
Cerium-144*	GEA	< 2.30E-2				µCi/mL
Cesium-134*	GEA	< 3.28E-3				µCi/mL
Cesium-137	GEA	2.38E+ 01	1	2.19E+ 01	2.58E+ 01	µCi/mL
Chloride	IC	8.06E+ 02	1	7.10E+ 02	9.03E+ 02	µg/mL
Chromium	ICP	1.07E+ 02	1	9.81E+ 01	1.15E+ 02	µg/mL
Cobalt*	ICP	< 2.20E+ 00				µg/mL
Cobalt-60*	GEA	< 2.55E-4				µCi/mL
Copper*	ICP	< 1.10E+ 00				µg/mL
Curium-242*	AEA	< 2.80E-5				µCi/mL
Curium-243/244*	AEA	< 2.80E-5				µCi/mL
Drainable Liquid Volume	Push Mode Extrusion	3.00E+ 02				mL
Drainable Liquid Weight	Push Mode Extrusion	3.17E+ 02				g
Europium*	ICP	< 2.20E+ 00				µg/mL
Europium-152*	GEA	< 9.61E-4				µCi/mL
Europium-154*	GEA	< 8.07E-4				µCi/mL
Europium-155*	GEA	< 1.02E-2				µCi/mL
Fluoride	IC	5.26E+ 02	1	4.81E+ 02	5.70E+ 02	µg/mL
Formate*	IC	< 2.57E+ 02				µg/mL
Glycolate*	IC	< 2.12E+ 02				µg/mL
Hydroxide	OH	1.12E+ 04	1	9.24E+ 03	1.31E+ 04	µg/mL
Hydroxide	pH	4.79E+ 03	1	4.79E+ 03	4.79E+ 03	µg/mL
Iron	ICP	1.37E+ 00	1	0.00E+ 00	3.50E+ 00	µg/mL
Lanthanum*	ICP	< 2.20E+ 00				µg/mL
Lead*	ICP	< 1.10E+ 01				µg/mL
Lithium*	ICP	< 2.20E+ 00				µg/mL
Magnesium*	ICP	< 1.10E+ 01				µg/mL

Tank 241-SY-101 95 Percent Two-Sided Confidence Interval for the Mean Concentration for Liquid June 6, 2007 Supernatant Core 327 Segment 1 sample (Sampling Dates -- June 6, 2007 - June 19, 2007)

Analyte	Method	Mean	df	LL	UL	Units
Manganese*	ICP	< 1.10E+00				µg/mL
Mercury*	CVAA (Hg)	< 2.00E-3				µg/mL
Molybdenum*	ICP	< 1.10E+01				µg/mL
Neodymium*	ICP	< 4.40E+00				µg/mL
Nickel*	ICP	< 4.40E+00				µg/mL
Niobium*	ICP	< 1.10E+01				µg/mL
Niobium-94*	GEA	< 5.11E-4				µCi/mL
Nitrate	IC	5.78E+04	1	5.29E+04	6.27E+04	µg/mL
Nitrite	IC	9.33E+03	1	8.75E+03	9.90E+03	µg/mL
Organic Volume Present	Push Mode Extrusion	0.00E+00				ml
Oxalate	IC	2.15E+03	1	2.01E+03	2.29E+03	µg/mL
Palladium*	ICP	< 2.20E+01				µg/mL
Percent Water	DSC/TGA	8.18E+01	1	7.81E+01	8.56E+01	%
Phosphate	IC	9.34E+03	1	9.30E+03	9.38E+03	µg/mL
Phosphorus	ICP	3.44E+03	1	3.31E+03	3.58E+03	µg/mL
Plutonium-238*	AEA	< 1.77E-5				µCi/mL
Plutonium-239/240	AEA	3.12E-5	1	2.80E-5	3.43E-5	µCi/mL
Potassium	ICP	2.70E+02	1	1.39E+02	4.00E+02	µg/mL
Praseodymium*	ICP	< 1.10E+01				µg/mL
Radium-226*	GEA	< 1.69E-1				µCi/mL
Rhodium*	ICP	< 4.40E+01				µg/mL
Rubidium*	ICP	< 4.40E+02				µg/mL
Ruthenium*	ICP	< 2.20E+01				µg/mL
Ruthenium/Rhodium-106*	GEA	< 6.46E-2				µCi/mL
Samarium*	ICP	< 1.10E+01				µg/mL
Selenium*	ICP	< 2.20E+01				µg/mL
Silicon	ICP	9.34E+01	1	8.79E+01	9.88E+01	µg/mL
Silver*	ICP	< 1.10E+00				µg/mL
Sodium	ICP	5.65E+04	1	5.27E+04	6.03E+04	µg/mL
Specific Gravity	SpG	1.13E+00	1	1.12E+00	1.15E+00	unitless
Strontium*	ICP	< 1.10E+00				µg/mL
Strontium-89/90	Coprecipitation/Beta Counting	1.92E-2	1	1.22E-2	2.61E-2	µCi/mL
Sulfate	IC	1.89E+03	1	1.87E+03	1.91E+03	µg/mL
Sulfur	ICP	7.38E+02	1	7.06E+02	7.71E+02	µg/mL

Tank 241-SY-101 95 Percent Two-Sided Confidence Interval for the Mean Concentration for Liquid June 6, 2007 Supernatant Core 327 Segment 1 sample (Sampling Dates -- June 6, 2007 - June 19, 2007)

Analyte	Method	Mean	df	LL	UL	Units
Tantalum*	ICP	< 1.10E+ 01				µg/mL
Tellurium*	ICP	< 2.20E+ 01				µg/mL
Thallium*	ICP	< 2.20E+ 01				µg/mL
Thorium*	ICP	< 2.20E+ 01				µg/mL
Tin*	ICP	< 1.10E+ 01				µg/mL
Titanium*	ICP	< 1.10E+ 00				µg/mL
Total inorganic carbon	Persulfate Oxidation	1.60E+ 03	1	1.02E+ 03	2.17E+ 03	µg/mL
Total organic carbon	Persulfate Oxidation	9.96E+ 02	1	6.91E+ 02	1.30E+ 03	µg/mL
Tungsten*	ICP	< 2.20E+ 01				µg/mL
Uranium*	ICP	< 2.20E+ 01				µg/mL
Vanadium*	ICP	2.37E+ 00	1	1.98E-1	4.54E+ 00	µg/mL
Volume percent settled solids*	V%SLD	< 5.00E+ 00				%
Yttrium*	ICP	< 1.10E+ 00				µg/mL
Zinc	ICP	4.52E+ 00	1	1.79E+ 00	7.25E+ 00	µg/mL
Zirconium*	ICP	< 1.10E+ 00				µg/mL

* a "less than" value was used in the calculation

Tank 241-SY-101 95 Percent Two-Sided Confidence Interval for the Mean Concentration for Liquid June 6, 2007 Core 327 Centrifuged Liquid (Sampling Dates -- June 6, 2007 - June 19, 2007)

Analyte	Method	Mean	df	LL	UL	Units
Acetate	IC	1.65E+ 03	1	1.38E+ 03	1.92E+ 03	µg/mL
Aluminum	ICP	1.30E+ 04	1	1.17E+ 04	1.42E+ 04	µg/mL
Americium-241	AEA	4.89E-4	1	0.00E+ 00	1.02E-3	µCi/mL
Americium-241*	GEA	< 7.70E-2				µCi/mL
Antimony*	ICP	< 5.01E+ 01				µg/mL
Antimony-125*	GEA	< 3.67E-1				µCi/mL
Arsenic*	ICP	< 3.01E+ 01				µg/mL
Barium*	ICP	< 2.50E+ 00				µg/mL
Beryllium*	ICP	< 5.01E-1				µg/mL
Bismuth*	ICP	< 1.00E+ 02				µg/mL
Boron	ICP	8.17E+ 01	1	7.93E+ 01	8.41E+ 01	µg/mL
Bromide*	IC	< 1.39E+ 02				µg/mL
Cadmium	ICP	4.72E+ 00	1	0.00E+ 00	1.01E+ 01	µg/mL
Calcium	ICP	1.11E+ 02	1	8.75E+ 01	1.34E+ 02	µg/mL
Cerium*	ICP	< 2.51E+ 01				µg/mL
Cerium-144*	GEA	< 3.32E-1				µCi/mL

Tank 241-SY-101 95 Percent Two-Sided Confidence Interval for the Mean Concentration for Liquid June 6, 2007 Core 327 Centrifuged Liquid (Sampling Dates -- June 6, 2007 - June 19, 2007)

Analyte	Method	Mean	df	LL	UL	Units
Cesium-134*	GEA	< 5.66E-2				µCi/mL
Cesium-137	GEA	2.73E+02	1	1.66E+02	3.79E+02	µCi/mL
Chloride	IC	8.04E+03	1	5.15E+03	1.09E+04	µg/mL
Chromium	ICP	4.31E+02	1	0.00E+00	1.18E+03	µg/mL
Cobalt*	ICP	< 5.01E+00				µg/mL
Cobalt-60*	GEA	6.64E-3	1	0.00E+00	1.82E-2	µCi/mL
Copper*	ICP	4.23E+00	1	0.00E+00	2.62E+01	µg/mL
Curium-242*	AEA	< 3.46E-4				µCi/mL
Curium-243/244*	AEA	< 3.46E-4				µCi/mL
Europium*	ICP	< 5.01E+00				µg/mL
Europium-152*	GEA	< 2.87E-2				µCi/mL
Europium-154*	GEA	< 1.89E-2				µCi/mL
Europium-155*	GEA	< 1.45E-1				µCi/mL
Fluoride	IC	1.99E+01	1	0.00E+00	4.64E+01	µg/mL
Formate	IC	5.92E+03	1	4.84E+03	7.00E+03	µg/mL
Glycolate	IC	1.07E+03	1	8.88E+01	2.05E+03	µg/mL
Hydroxide	OH	3.61E+04	1	1.83E+04	5.39E+04	µg/mL
Hydroxide	pH	2.69E+03	1	0.00E+00	3.68E+04	µg/mL
Iron	ICP	8.87E+00	1	4.49E+00	1.32E+01	µg/mL
Lanthanum*	ICP	< 5.01E+00				µg/mL
Lead	ICP	3.53E+01	1	0.00E+00	1.65E+02	µg/mL
Lithium*	ICP	< 5.01E+00				µg/mL
Magnesium*	ICP	< 2.51E+01				µg/mL
Manganese*	ICP	< 2.50E+00				µg/mL
Molybdenum	ICP	1.02E+02	1	9.63E+01	1.07E+02	µg/mL
Neodymium*	ICP	< 1.00E+01				µg/mL
Nickel	ICP	5.46E+01	1	2.20E+01	8.72E+01	µg/mL
Niobium*	ICP	< 2.51E+01				µg/mL
Niobium-94*	GEA	< 7.95E-3				µCi/mL
Nitrate	IC	1.54E+05	1	1.25E+05	1.84E+05	µg/mL
Nitrite	IC	1.00E+05	1	6.45E+04	1.36E+05	µg/mL
Organic Volume Present	Push Mode Extrusion	0.00E+00	1	0.00E+00	0.00E+00	ml
Oxalate*	IC	< 1.17E+02				µg/mL
Palladium*	ICP	< 5.01E+01				µg/mL
Percent Water	DSC/TGA	5.49E+01	1	4.40E+01	6.58E+01	%
Phosphate	IC	3.10E+03	1	1.19E+03	5.00E+03	µg/mL
Phosphorus	ICP	1.13E+03	1	1.27E+02	2.14E+03	µg/mL
Plutonium-238*	AEA	< 1.72E-4				µCi/mL

Tank 241-SY-101 95 Percent Two-Sided Confidence Interval for the Mean Concentration for Liquid June 6, 2007 Core 327 Centrifuged Liquid (Sampling Dates -- June 6, 2007 - June 19, 2007)

Analyte	Method	Mean	df	LL	UL	Units
Plutonium-239/240*	AEA	< 1.72E-4				µCi/mL
Potassium	ICP	2.85E+03	1	1.61E+03	4.09E+03	µg/mL
Praseodymium*	ICP	< 2.51E+01				µg/mL
Radium-226*	GEA	< 2.33E+00				µCi/mL
Recovered Grab Liquid Volume	Push Mode Extrusion	3.13E+01	3	0.00E+00	8.04E+01	mL
Recovered Grab Liquid Weight	Push Mode Extrusion	4.28E+01	3	0.00E+00	1.15E+02	g
Rhodium*	ICP	< 1.00E+02				µg/mL
Rubidium*	ICP	< 1.00E+03				µg/mL
Ruthenium*	ICP	< 5.01E+01				µg/mL
Ruthenium/Rhodium-106*	GEA	< 1.12E+00				µCi/mL
Samarium*	ICP	< 2.51E+01				µg/mL
Selenium*	ICP	< 5.01E+01				µg/mL
Silicon	ICP	2.18E+02	1	0.00E+00	1.31E+03	µg/mL
Silver*	ICP	< 2.50E+00				µg/mL
Sodium	ICP	1.82E+05	1	1.76E+05	1.89E+05	µg/mL
Specific Gravity	SpG	1.39E+00	1	1.27E+00	1.52E+00	unitless
Strontium*	ICP	< 2.50E+00				µg/mL
Strontium-89/90	Coprecipitation/Beta Counting	3.09E+00	1	0.00E+00	6.65E+00	µCi/mL
Sulfate	IC	3.89E+03	1	1.66E+03	6.11E+03	µg/mL
Sulfur	ICP	1.71E+03	1	4.80E+02	2.93E+03	µg/mL
Tantalum*	ICP	< 2.51E+01				µg/mL
Tellurium*	ICP	< 5.01E+01				µg/mL
Thallium*	ICP	< 5.01E+01				µg/mL
Thorium*	ICP	< 5.01E+01				µg/mL
Tin*	ICP	< 2.51E+01				µg/mL
Titanium*	ICP	< 2.50E+00				µg/mL
Total inorganic carbon	Persulfate Oxidation	6.76E+03	1	1.74E+03	1.18E+04	µg/mL
Total organic carbon	Persulfate Oxidation	6.12E+03	1	3.64E+03	8.59E+03	µg/mL
Tungsten	ICP	3.04E+02	1	0.00E+00	2.43E+03	µg/mL
Uranium*	ICP	< 5.01E+01				µg/mL
Vanadium*	ICP	< 5.01E+00				µg/mL

Tank 241-SY-101 95 Percent Two-Sided Confidence Interval for the Mean Concentration for Liquid June 6, 2007 Core 327 Centrifuged Liquid (Sampling Dates -- June 6, 2007 - June 19, 2007)

Analyte	Method	Mean	df	LL	UL	Units
Yttrium*	ICP	< 2.50E+ 00				μg/mL
Zinc*	ICP	6.48E+ 00	1	0.00E+ 00	5.70E+ 01	μg/mL
Zirconium*	ICP	< 2.50E+ 00				μg/mL

* a "less than" value was used in the calculation

Tank 241-SY-101 Transfers (1994 to present)

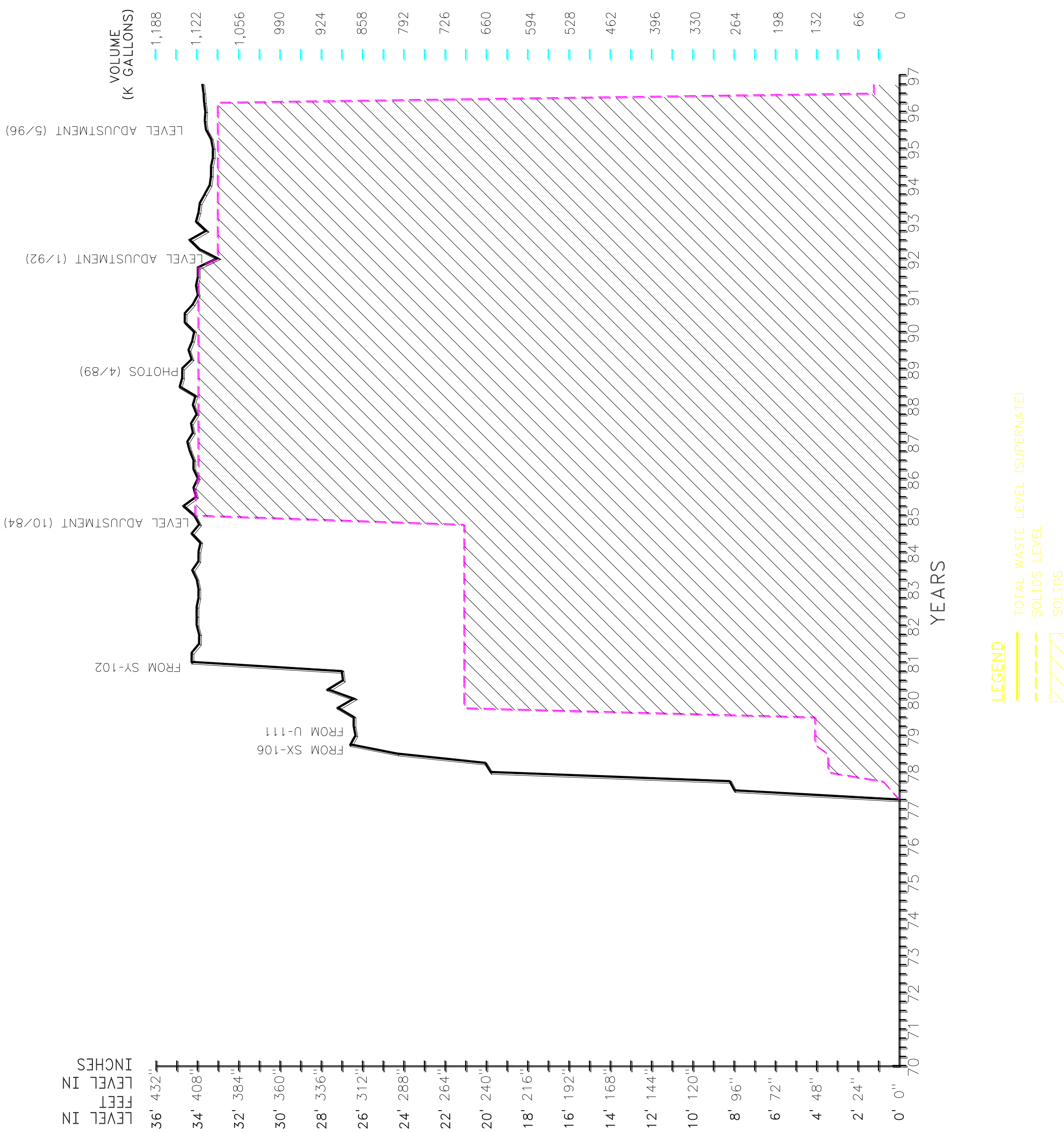
Transfer Source	Transfer Destination	Waste Type	Time Period	Estimated Waste Volume	
				kL	kgal
Flush Water From Miscellaneous Sources		Dilute Non-Complexed	12/1/99 - 12/31/99	11	3
	241-SY-102	Complexant Concentrate	12/18/99 - 12/19/99	-336	-89
Flush Water From Miscellaneous Sources		Dilute Non-Complexed	12/20/99 - 12/20/99	234	62
	241-SY-102	Complexant Concentrate	1/25/00 - 1/27/00	-912	-241
Flush Water From Miscellaneous Sources		Dilute Non-Complexed	1/28/00 - 2/23/00	908	240
	241-SY-102	Dilute Non-Complexed	2/29/00 - 3/3/00	-1082	-286
Flush Water From Miscellaneous Sources		Dilute Non-Complexed	3/13/00 - 3/16/00	847	224
241-SY-102		Dilute Non-Complexed	11/11/02 - 11/14/02	579	153
	241-AW-102	Dilute Complexed	7/15/03 - 7/24/03	-2021	-534
Tank Farms		Dilute Complexed	7/24/03 - 7/24/03	18	5
241-SY-102		Dilute Non-Complexed	7/25/03 - 8/6/03	760	201
241-S-112		Dilute Non-Complexed	9/28/03 - 10/2/03	832	220
	241-AP-107	Dilute Non-Complexed	10/16/03 - 10/25/03	-2414	-638
Tank Farms		Dilute Non-Complexed	12/19/03 - 12/23/03	22	6
Corrosion Control		Dilute Non-Complexed	2/17/05 - 2/23/05	79	21
241-SY-102		Dilute Non-Complexed	5/29/05 - 6/1/05	863	228
Tank Farms		Dilute Non-Complexed	6/3/05 - 6/29/05	26	7
Double contained		Dilute Non-Complexed	6/9/05 - 6/10/05	41	11

Tank 241-SY-101 Transfers (1994 to present)

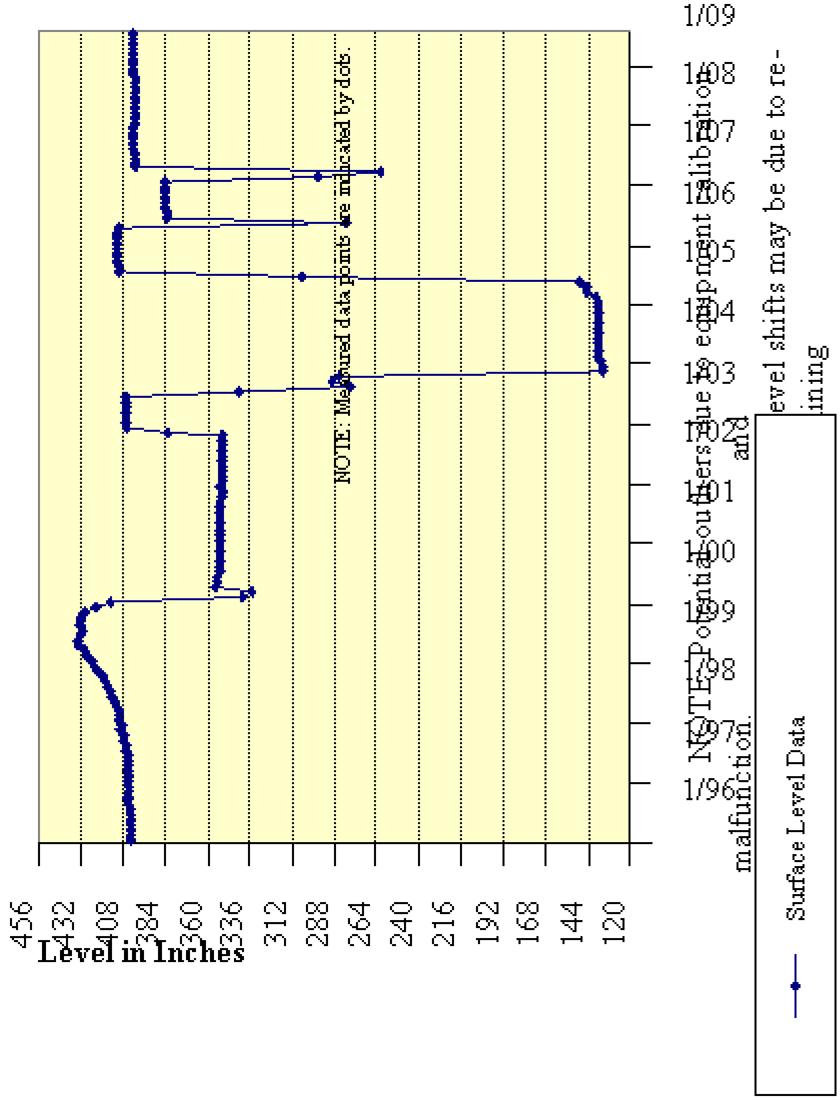
Transfer Source	Transfer Destination	Waste Type	Time Period	Estimated Waste Volume	
				kL	kgal
receiver tank (DCRT) 244-TX used for interim storage of waste					
Double contained receiver tank (DCRT) 244-S used for interim storage of waste		Dilute Non-Complexed	6/14/05 - 6/14/05	30	8
241-SY-102		Dilute Non-Complexed	6/15/05 - 6/29/05	1832	484

The table does not include transfers or minor losses less than 3 kgal.
All pre-1994 data is included in the Waste Status and Transaction Summary Report (Agnew, 1997) (Sy101wst.xls)

241-SY-101 HTCE Surface Levels

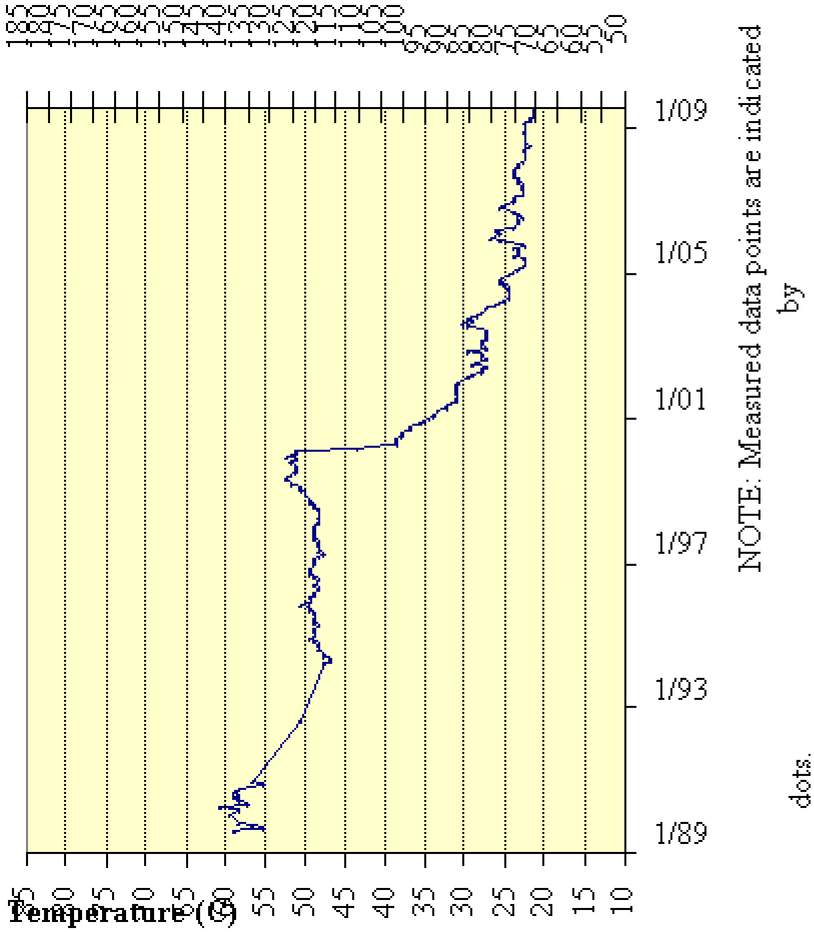


241-SY-101 Average Monthly Tank Surface Level (after 1/1/96 only)

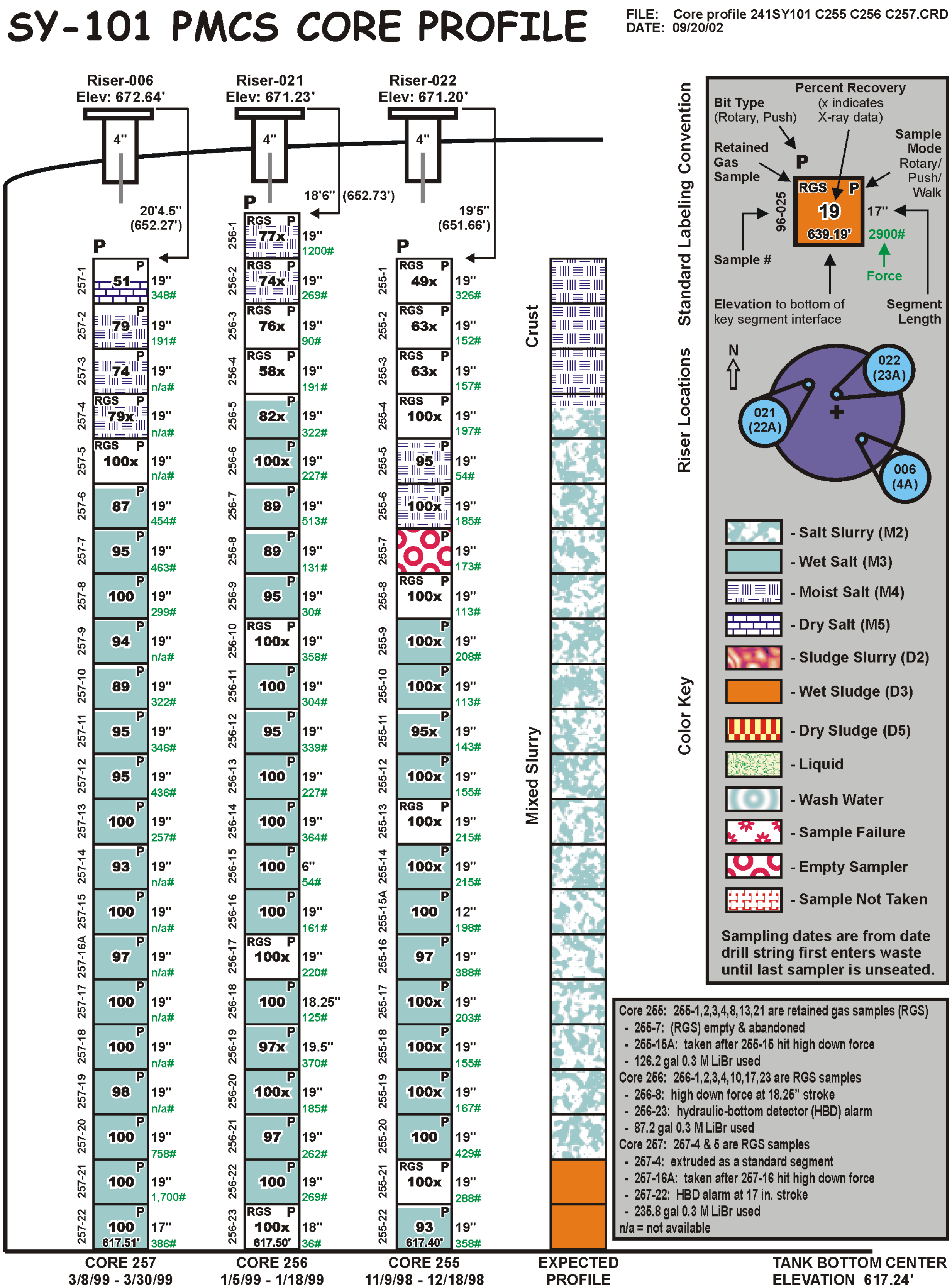


241-SY-101 Tank Temperature Profile

Temperature (F)



241-SY-101 Core Profiles



Standard Acronym Definitions

Acronym	Definition
%	percent
1C	first cycle decontamination waste
AEA	alpha energy analysis
ANOVA	analysis of variance
AT	alpha total
BBI	Best-basis inventory
BBIM	Best-basis inventory maintenance
BD	below detection limit
BNFL	British Nuclear Fuel Limited, Inc.
BPE	barometric pressure estimate
Btu/hr	British thermal units per hour
BYSltCk	saltcake blend from ITS in BY Tank Farm
CAS	Chemical Abstract Services
CC	concentrated complexant
CEO	change engineering order
CGM	combustible gas meter
CHG	CH2M Hill Hanford Group, Inc.
Ci	curies
CI	confidence interval
Ci/g	curies per gram
Ci/L	curies per liter
cm	centimeter
cm^3	cubic centimeter
cP	centipoise
CRW1	REDOX cladding waste
CWHT	concentrated waste holding tank
DCB	decachlorobyphenyl
df	degrees of freedom
dl	drainable liquid
DOE	U.S. Department of Energy
DQO	data quality objectives
DSA	data source access
DSC	differential scanning calorimetry
DSS	double-shell slurry
DSSF	double-shell slurry feed

Standard Acronym Definitions

Acronym	Definition
DST	double-shell tank
E	engineering assessment-based
EB	evaporator bottoms
Ecology	Washington State Department of Ecology
EVAP	evaporator feed waste
FIC	Food Instrument Corporation
FP	fission product waste from cesium and strontium recovery in B-Plant
ft	feet
ft^2	square feet
ft^3/hr	cubic feet per hour
ft^3/min	cubic feet per minute
g	gram
g/cc	grams per cubic centimeter
g/cm^3	grams per cubic centimeter
g/gal	grams per gallon
g/L	grams per liter
g/mL	grams per milliliter
GC	gas chromatographs
GCS	gas characterization system
GEA	gravimetric energy analysis
GRE	gas release event
μC/mL	micrograms of carbon per milliliter
μCi/g	microcuries per gram
μCi/gal	microcuries per gallon
μCi/L	microcuries per liter
μCi/mL	microcuries per milliliter
μeq/g	microequivalents per gram
μeq/mL	microequivalents per milliliter
μg	microgram
μg/g	micrograms per gram
μg/ml	micrograms per milliliter
μgC/g	micrograms of carbon per gram
μmol	micromole
μmol/L	micromoles per liter

Standard Acronym Definitions

Acronym	Definition
HDW	Hanford defined waste
HHF	Hydrostatic head fluid
HLAN	Hanford local area network
HTCE	historical tank content estimate
IC	ion chromatography
ICP	inductively coupled plasma spectroscopy
ICP/AES	inductively coupled plasma/atomic emission spectrometry
ICP/MS	inductively coupled plasma/mass spectroscopy
IH	Industrial Hygiene
in.	inch
IS	insufficient sample
ITS	in-tank solidification
IX	ion exchange waste
J/g	joules per gram
kg	kilogram
kgal	kilogallon
kL	kiloliter
kW	kilowatt
LANL	Los Alamos National Laboratory
LAW	low activity waste
LCS	laboratory control standard
LEL	lower explosive limit
LFL	lower flammability limit
LH	lower half
LL	lower limit
LMHC	Lockheed Martin Hanford Corporation
LOI	letter of instruction
LOW	liquid observation well
m	meter
M	Hanford defined waste model-based
M/L	moles per liter
MDA	minimum detectable activity
mg	milligram
mg/L	milligrams per liter
mg/m^3	milligrams per cubic meter

Standard Acronym Definitions

Acronym	Definition
MIT	multi-functional instrument tree
mL	milliliter
mm	millimeter
MOU	memorandum of understanding
mRad/hr	millirad per hour
MRQ	minimum reportable quantity
m^2	square meter
m^3	cubic meter
m^3/hr	cubic meters per hour
MW	metal waste
n/a	not applicable
n/d	not detected
n/d	not determined
N/D	not determined
n/r	not reported
NA	not available
NCPLX	non-complexed
NF	not found
NR	not reported
NR	not required
NR	not requested
ORNL	Oak Ridge National Laboratory
ORP	Office of River Protection
OVM	organic vapor monitor
OWW	organic wash waste
PCB	polychlorinated biphenyl
pH	potential of hydrogen
PHMC	Project Hanford Management Contractor
PNNL	Pacific Northwest National Laboratory
ppm	parts per million
ppmv	parts per million by volume
PRSST	propagating reactive system screening test
PUREX	Plutonium Uranium Extraction
QC	quality control
R1	REDOX high-level waste generated from 1952 to 1957

Standard Acronym Definitions

Acronym	Definition
rad/hr	radiation absorbed dose per hour
REDOX	Reduction and Oxidation
REML	restricted maximum likelihood estimation methods
RGS	retained gas sampler
RPD	relative percent difference
RPP	River Protection Project
RR	re-run
RSD	relative standard deviation
S	sample-based
SACS	Surveillance Analysis Computer System
SAP	sampling and analysis plan
SD	standard deviation
SHMS	standard hydrogen monitoring systems
SMM	supernatant mixing model
SMMS	supernatant mixing model saltcake
SMMS1	SMM 242-S evaporator saltcake generated from 1973 until 1976
SMMS2	SMM 242-S evaporator saltcake generated from 1977 until 1980
SpG	specific gravity
°C	degrees centigrade
°F	degrees Fahrenheit
SST	single-shell tank
STP	standard temperature and pressure
SU	supernatant
SVOA	semi-volatile organic analysis
SWLIQ	dilute, non-complexed waste from 200-E Area single-shell tanks
T1SltCk	242-T evaporator saltcake waste, 1951 to 1955
TB	total beta
TBP	tributyl phosphate
TCD	tank characterization database
TCP	tank characterization plan
TCR	tank characterization report
TCX	tetrachloro-m-xylene
TGA	thermogravimetric analysis
TIC	total inorganic carbon
TIR	tank interpretive report

Standard Acronym Definitions

Acronym	Definition
TLM	tank layer model
TOC	total organic carbon
TRU	transuranic
TSAP	Tank Sampling and Analysis Plan
TWINS	Tank Waste Information Network System
TWRS	Tank Waste Remediation System
UH	upper half
UL	upper limit
VFI	void fraction instrument
VIDON	Visual Image Digital Object Network
vol%	volume percent
VSS	vapor sampling system
W	watts
W/Ci	watts per curie
W/L	watts per liter
WHC	Westinghouse Hanford Company
WIT	Waste Disposal Integration Team
WSTRS	waste status and transaction record summary
wt%	weight percent