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COMPOSITING, HOMOGENIZATION, AND CHARACTERIZATION OF SAMPLES FROM HANFORD TANK 241-AN-104 (U)

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LIST OF ACRONYMS

AA	Atomic Absorption Spectroscopy
ADS	Analytical Development Section
DL	Detection Limit
ICP-ES	Inductively Coupled Plasma- Emission Spectroscopy
LCS	Laboratory Control Standard
MRQ	Minimum Reportable Quantity
MS	Matrix Spike
QC	Quality Control
%RSD	Percent Relative Standard Deviation
RPP-WTP	River Protection Project-Waste Treatment Plant
SRTC	Savannah River Technology Center

1.0 SUMMARY OF TESTING

As part of the program to provide pretreatment development and testing services to support the River Protection Project-Waste Treatment Plant (RPP-WTP) mission to treat Hanford tank waste, a ~4.5-L sample of waste from Tank 241-AN-104 was received at the Savannah River Technology Center (SRTC). The waste sample was characterized and diluted to provide feed for pretreatment testing. The characterization data provides a basis for rational development of pretreatment processes, determination of reagent requirements, verification of tank composition, and development of physical design parameters for the pretreatment plant.

1.1 OBJECTIVES

The objectives of the task as defined by the test specification and approved task plan were to:

- Prepare a composite sample from the multiple 241-AN-104 samples.
- Confirm that homogenous sub-samples can be drawn for analytical measurements.
- Characterize the as-received 241-AN-104 sample.
- Dilute a small portion of the sample to a 7 M sodium concentration.
- Characterize the 7 M 241-AN-104 sample.
- Dilute the bulk sample to a 5 M sodium concentration for use by pretreatment tasks.
- Characterize the 5 M 241-AN-104 sample.
- Evaluate the 5 M and 7 M diluted 241-AN-104 samples after six months of aging.
- Compare liquid fraction analytical results to Specifications 7 requirements.
- Compare solids fraction analytical results to Specification 8 requirements.
- Report analytical results.

1.2 CONDUCT OF TESTING

A total of fifteen 500 mL jars of 241-AN-104 tank waste were received at SRTC and composited in a 10-L carboy. A homogeneity test indicated the mixing and sampling system were capable of providing representative sub-samples of the composite. The as-received filtered supernate and the solids collected were analyzed and the supernate found to have a sodium concentration of 10.2 M. Physical properties were measured on the as-received slurry. A 230-mL sub-sample of the as-received 241-AN-104 sample was diluted to a 7 M sodium concentration using ~150 mL of deionized, distilled water. The filtered supernate fraction of the 7 M diluted 241-AN-104 sample was analyzed. The insoluble (entrained) solids were found to be less than 2 wt% of the sample and, therefore, did not require analysis. The bulk sample (~2.7 L) was diluted with 4.2 L of deionized, distilled water. The filtered supernate fraction of the 5 M diluted 241-AN-104 sample was analyzed. The insoluble (entrained) solids were found to be less than 2 wt% of the sample and, as such, did not require analysis.

After six months, a visual examination of the 5 M diluted 241-AN-104 samples found no observable precipitation of solids in the either the filtered supernate or slurry samples. With no precipitation observed in the aged samples, no further analysis was required as stated in Test Exception 24590-WTP-TEF-RT-03-028**.**

1.3 RESULTS AND PERFORMANCE AGAINST OBJECTIVES

All of the main objectives of the task were met. However, as part of the reporting objective, data quality requirements were specified for each analyte. Due to the radioactive nature of the sample, dilutions of the raw samples were required to allow removal from the Shielded Cells facility for analysis. These dilutions combined with the presence of very low concentrations of some analytes in the sample make it difficult to meet all of the data quality requirements for all analytes. In those limited cases where the data quality requirements were not met, quality control (QC) flags in the data tables identify the specific criteria not met.

1.4 QUALITY REQUIREMENTS

This work was conducted in accordance with the RPP-WTP QA requirements specified for work conducted by SRTC as identified in DOE IWO M0SRLE60. SRTC has provided matrices to RPP-WTP demonstrating compliance of the SRTC QA program with the requirements specified by RPP-WTP. Specific information regarding the compliance of the SRTC QA program with RW-0333P, Revision 10, NQA-1 1989, Part 1, Basic and Supplementary Requirements and NQA-2a 1990, Subpart 2.7 is contained in these matrices. The DOE Quality and Assurance Requirements and Description (QARD), DOE/RW-0333P, Rev. 10, did not apply to this task.

Overall the data quality for the analysis of the 241-AN-104 sample was reasonably good. The quality control of the sample analysis consisted of the use of triplicate sample analysis, blanks, laboratory control standards (LCS), and a matrix spike (MS).

The characterization task was conducted under an approved task and quality assurance plan[1] based on a test specification issued by RPP-WTP.[2] The characterization data represents the composition of the 241-AN-104 sample received at SRTC and makes no assertions as to the validity of the data with respect to the tank contents as a whole or to any feed delivered from this tank. Recent experience at SRS indicates a combined sampling and analytical error on the order of 15 - 20% associated with obtaining small samples from a well mixed waste tank.[3]

1.5 ISSUES

None

2.0 SAMPLE RECEIVING AND COMPOSITING

A total of fifteen 500-mL glass jars of 241-AN-104 tank waste were received at SRTC in September 2002. The 241-AN-104 samples were obtained from a full-depth core sample taken through riser 22 in August 2000. Appendix A contains more detail on the sample history.

Visual inspection at SRTC showed that about half the jars contained a clear liquid phase on top with only a light dusting of solids on the bottom. The other jars were found to contain a crystalline solids phase on the bottom (~1/3 of the sample volume) and a clear liquid phase on top. No separate organic layers were observed in any of the jars. Many of the jars were only partially filled. The fifteen jars were composited into a 10-L polyethylene carboy. Each jar was weighed before and after addition through a 1/8" by 1/8" mesh screen into the carboy. A large amount of solids had collected on the screen after the compositing. The solids were collected separately and found to weigh 313 g. After consulting with the customer, the solids were broken up and added back to the carboy. The large chunks of crystalline solids were easily broken into smaller clumps with a spatula using light pressure.

The volume of sample in the 10-L carboy after emptying all of the sample jars was ~4.5 L with ~30 volume percent settled solids. The total weight of sample added to the carboy was 6894 g based on the measured net weight of each jar. Table 2-1 shows the jar and lab IDs taken from each jar, the measured net weight based on the full and empty weight of each jar, and the reported net weight of each jar from the chain of custody documentation (Appendix A). Even with the inevitable loss of a few grams of sample per jar when transferring the contents to the carboy, the total measured weight of sample exceeds the reported net weight in the jars. The discrepancy can be attributed to the difference between the measured and reported net weight in the three jars labeled 18380, 18386, and 18388.

Table 2-1. Sample Jar IDs and Net Weights of Sample

Jar ID	Lab ID	Sample Origin	Measured Net Weight (g)	Reported Net Weight (g)
18381	S02T001107	Core 282 #12	397	398
18383	S02T001108	Core 282 #13	374	386
18384	S02T001110	Core 282 #17	380	391
18388	S02T001059	Core 282 #14	343	176
18382	S02T001109	Core 282 #16	400	410
18385	S02T001111	Core 282 #18	374	386
18386	S02T001061	Core 282 #19	404	260
18264	S02T001095	2002COMP2	625	639
18265	S02T001086	2002COMP1	623	639
18267	S02T001096	2002COMP3	619	657
18259	S02T001078	2002COMP	622	639
18389	S02T001044	Core 282 #10	396	418
18380	S02T001049	Core 282 #11	394	95
18379	S02T001102	Core 282 #9	437	446
18266	S02T001101	2002COMP4	506	520
		Totals	6894 g	6460 g

3.0 HOMOGENEITY TESTING AND SUB-SAMPLING

The 10-L carboy was equipped with a mechanical stirrer and a steel dip leg (3/8" ID) connected with tubing (3/8" ID) to a peristaltic pump for sampling purposes. The steel dip leg could be raised or lowered to collect sample from any height in the carboy. A homogeneity test was conducted to ensure that the agitation and sampling system could provide representative sub-samples of the slurry. Twelve ~225 mL sub-samples were obtained and collected into 250 mL graduated cylinders. The sub-samples were obtained from either the top, bottom, or midpoint of the original sample height in the 10-L carboy. The first sub-sample was obtained after 1 hour of mixing and 1/2 hour of re-circulation through the sampling pump system. The dip leg was then moved to the position for the next sampling event and the sample re-circulated for 15 minutes before obtaining the next sample. After settling for 24 hours the volume of settled solids in each of the 12 graduated cylinders was recorded. Table 3-1 shows the results of the homogeneity test on the as-received 241-AN-104 sample.

The average volume percent settled solids of the twelve sub-samples after settling for 24 hours was 89.9 %, with a percent relative standard deviation of 1.64 %. The volume percent solids reading from the 10-L carboy prior to the homogeneity test indicated the settled solids were only ~30 %. Since the solids in the sub-samples appeared to be much finer in size relative to the original unmixed sample, and were settling very slowly, the solids were allowed to settle for another 24 hours. After 48 hours the average volume percent settled solids of the twelve sub-samples was 80.1%, with a percent relative standard deviation of 2.39 %. The data collected indicated the sampling system provided representative sub-samples independent of sampling height or sampling order. The agitation system appears to have converted the large coarse crystalline solids into very fine particles that were much easier to keep suspended and very slow to settle.

One of the twelve 225-mL sub-samples was kept as an archive sample. Another 2 sub-samples were kept for chemical and physical characterization. A fourth sub-sample was set aside for use in the 7 M dilution task. The remaining eight sub-samples were returned to the carboy for bulk dilution of the sample to 5 M sodium.

Table 3-1. Homogeneity Test Results of the As-Received 241-AN-104 Sample

Cylinder No.	Sampling Height in Carboy	Volume of Sample (mL)	Volume of Settled Solids @ 24 hours (mL)	Volume Percent Solids @ 24 hours	Volume of Settled Solids @ 48 hours (mL)	Volume Percent Solids @ 48 Hours
1	Top	245	217	88.6%	190	77.6%
2	Midpoint	242	215	88.8%	190	78.5%
3	Bottom	229	204	89.1%	180	78.6%
4	Top	248	220	88.7%	198	79.8%
5	Midpoint	248	221	89.1%	200	80.6%
6	Bottom	250	228	91.2%	205	82.0%
7	Top	239	214	89.5%	190	79.5%
8	Midpoint	257	240	93.4%	214	83.3%
9	Bottom	234	214	91.5%	188	80.3%
10	Top	233	210	90.1%	180	77.3%
11	Midpoint	245	217	88.6%	200	81.6%
12	Bottom	246	222	90.2%	202	82.1%
			Average	89.9%		80.1%
			Std Dev.	1.47%		1.91%
			%RSD	1.64%		2.39%

4.0 DILUTION OF THE AS-RECEVIED 241-AN-104 SAMPLE TO 5 M AND 7 M SODIUM

4.1 BULK DILUTION OF THE AS-RECEIVED SAMPLE TO 5 M SODIUM

The as-received 241-AN-104 sample was diluted with deionized, distilled water to provide a sodium concentration in the supernate of ~5 M. The volume of water required to dilute 2.7 L of the as-received sample to a 5 M sodium concentration was calculated based on the assumption of no dissolution of the solids in the sample. Since a large percentage of the solids were expected to dissolve during the dilution, the calculation provided a measure of conservatism to ensure the target sodium concentration would not be overshot. A total volume of 4.18 L of deionized distilled water was added to the sample in several steps to prevent overshooting the 5 M sodium endpoint. After the final dilution, analysis of the filtered supernate indicated a final sodium concentration of 5.12 M. The final sample volume after dilution to a 5 M sodium concentration was approximately 6.70 L.

Samples of the filtered supernate were sent for analysis and a limited number of physical property measurements were made on the 5 M diluted sample. Analysis of the insoluble solids was not required since the solids concentration was much less than 2 wt%.

4.2 DILUTION OF THE AS-RECEIVED SAMPLE TO 7 M SODIUM

A 230-mL sub-sample of the as-received 241-AN-104 sample was diluted to a 7 M sodium concentration using ~150 mL of deionized, distilled water. The filtered supernate fraction of the 7 M diluted 241-AN-104 sample was analyzed. The insoluble (entrained) solids were found to be less than 2 wt% of the sample and, therefore, did not require analysis.

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5.0 SAMPLE PREPARATION FOR ANALYSIS

5.1 PREPARATION OF SAMPLES FOR THE ANALYSIS OF LIQUID FRACTIONS

Samples of the supernate were obtained by vacuum filtering a portion of the sample through a 0.45µ Nylon filter disc. Portions of the filtered supernate were diluted with deionized distilled water or nitric acid to reduce the sample activity and allow removal from the Shielded Cells for chemical characterization. Generally a 15 - 20 fold dilution was required on supernate samples to meet the dose limits for the analytical laboratories. All sample preparations of the filtered supernate samples were conducted in triplicate. Supernate samples were analyzed for species listed in the test specification. Section 7.0 presents the results of the analyses. The weight of the solids collected was recorded to calculate the weight percent of damp vacuum filtered solids. Solids collected on the filter were not washed to remove interstitial supernate.

A blank was prepared concurrently with the sample preparations, substituting deionized distilled water in place of the sample aliquot.

Additional sample preparations specific to individual analytical methods were conducted by the Analytical Development Section (ADS) on the samples removed from the Shielded Cells, as necessary.

5.2 PREPARATION OF SAMPLES FOR THE ANALYSIS OF SOLIDS FRACTIONS

Samples of the solids fraction were prepared for analysis by aqua-regia digestion and fusion with sodium peroxide followed by uptake in hydrochloric acid. For the aqua-regia digestion and fusion with sodium peroxide methods, solids were collected by vacuum filtering a portion of the sample through a 0.45µ Nylon filter disc. Solids collected on the filter were not washed to remove interstitial supernate. The solids collected were dried at 100° C until the dry weight of the solids remained stable (i.e., less than 5 mg change in weight between measurements). Weighed portions of the dried solids were digested and diluted to reduce activity and allow removal from the Shielded Cells. Sample preparations for some radiochemical analyses, such as C^{14} and I^{129}, were conducted in the Shielded Cells with the undigested damp solids prior to removal for analysis. All sample preparations were conducted in triplicate. Section 7.0 presents the results of the dried solids analysis of the 241-AN-104 sample.

Duplicate digestions of a glass standard containing many of the elements found in tank samples were prepared concurrently with the sample digestions. Table 5-1 lists the composition of the Analytical Reference Glass-1 (ARG-1) glass standard.[4] A blank was prepared concurrently with the sample preparations consisting of the digestion reagents and incorporated any manipulations and dilutions conducted on the sample.

A water contact of the unwashed, damp, as-received solids collected by vacuum filtering a portion of the sample through a 0.45µ Nylon filter disc was also conducted to allow analysis of water soluble species present in the solids. Section 7.0 presents the results of the water contact of the 241-AN-104 as-received solids on a wet solids basis.

Additional sample preparations specific to individual analytical methods were conducted by the Analytical Development Section on the samples removed from the Shielded Cells as necessary.

5.3 DOSE RATE LIMITS FOR ANALYTICAL LABORATORIES

Samples sent to the analytical laboratories require dose rates of <10 mrem/hr whole body dose and <1000 mrem/hr extremity dose. In order to avoid exceeding the dose rate limits and the need for re-preparing the samples, dilutions were made targeting a whole body dose rate of between 2 - 5 mrem/hr. This working dose rate range provides some cushion against the unavoidable presence of contamination on the outside of the sample bottles. Additionally, sample handling in the cells, such as pipetting, weighing, or transferring from one container to another, invariably leads to some contamination of the sample. Efforts to minimize the level of contamination include regular cleaning of the manipulator fingers, cleaning of cell surfaces, and the use of clean supplies. Blanks prepared in the Shielded Cells in the same manner as the sample provide some indication of the level of contamination introduced.

Table 5-1. Composition of the Analytical Reference Glass-1 Standard

Element	Wt% in Glass
Al	2.50%
B	2.69%
Ba	0.079%
Ca	1.02%
Cr	0.064%
Cu	0.003%
Fe	9.79%
K	2.26%
Li	1.49%
Mg	0.52%
Mn	1.46%
Na	8.52%
Ni	0.83%
P	0.11%
Si	22.4%
Sr	0.003%
Ti	0.69%
Zn	0.016%
Zr	0.096%

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6.0 PHYSICAL PROPERTY MEASUREMENTS

6.1 DENSITY AND WEIGHT PERCENT SOLIDS MEASUREMENTS

The weight percent total solids in the samples were measured in the Shielded Cells using a conventional drying oven at 100 °C. The weight percent dissolved solids in a sample of the filtered supernate were measured in the same manner. The weight percent insoluble solids were measured by filtering a known weight of the sample through a pre-weighed 0.45 µ nylon filter disc. The filter disc and solids obtained were dried using a conventional drying oven at 100 °C. The weight percent vacuum filtered solids were measured by filtering a known weight of the sample and determining the weight of damp solids recovered. The weight percent oxides were measured by first measuring the weight percent total solids of the sample in an oven at 100° C. The sample was then placed in furnace and heated to 1050 °C to determine the weight percent oxides. All filtrations were made through a 0.45 µ Nylon membrane. All measurements were made in triplicate.

Wt% dissolved solids	(wt dissolved solids/wt of supernate) x 100
Wt% total solids	(wt total solids/wt of total sample) x 100
Wt% insoluble solids	(wt insoluble solids/wt of total sample) x 100
Wt% vacuum filterable solids	(wt of damp solids/wt of total sample) x 100
Wt% oxides	(wt of oxides/wt of dry solids in sample) x 100

Density measurements were made in the Shielded Cells on both the total sample and the filtered supernate. The temperature in the Shielded Cells varies between ~18 - 25 °C depending on the temperature outside the building. The temperature was recorded for all density measurements and noted in the tables of analytical results.

6.2 RHEOLOGY MEASUREMENTS

Rheology measurements were made on the as-received 241-AN-104 sample in triplicate at 25 °C and 35 °C. The as-received 241-AN-104 sample behaved like a Newtonian fluid. The low solids content and sample volume available precluded the measurement of the yield strength of the sample. Table 6-1 provides a summary of the results. Appendix B contains a detailed account of the rheology measurements.

Table 6-1. Summary of Rheological Measurements of the As-Received 241-AN-104 Sample

Sample	Temperature (°C)	Fitted Shear Rate Range (s^{-1})	Viscosity (cP)
Replicate 1	25	0-2700	27.5
Replicate 2	25	150-2700	28.3
Replicate 3	25	0-2700	27.0
Replicate 1	35	282-2700	23.3
Replicate 2	35	228-2700	22.9
Replicate 3	35	0-2700	24.0

6.3 PARTICLE SIZE MEASUREMENTS

The Contained Scanning Electron Microscope (CSEM) was used to study the physical features of the 241-AN-104 particles and their structural relationships. The CSEM was used to produce an EDX (energy dispersive x-ray) spectrum, which gives a qualitative elemental analysis of the sample constituents. Samples were measured in triplicate. Particle size measurements by laser light scattering techniques could not be obtained because the dose rates were too high for the quantity of sample required for this analysis. Qualitative analysis of the 241-AN-104 solids shows the following elements: Na, Al, K, Cr, and Si. The solids in the 241-AN-104 sample appear to be mainly composed of crystalline, precipitated salts. An estimate of the particle size from the micrographs ranges from large platelets of >40 μm to smaller particles of ~4 μm. Appendix C shows micrographs from the CSEM analysis.

6.4 HEAT CAPACITY

Heat capacity measurements were performed on the as-received 241-AN-104 sample in triplicate using a Differential Scanning Calorimeter. During the measurements, one of the three sample cups leaked. The remaining two samples were each run twice. Table 6-2 shows the average heat capacity for each of the two sample replicates. The results were converted to units of J/g-°C using the conversion factor of 4.1876 J/cal. The heat capacity of pure water was measured concurrently with the samples and found to be 0.982 cal/g-°C versus the theoretical value of 1.0 cal/g-°C. Plots of the heat capacity as a function of temperature for each of the sample replicates are shown in Appendix D.

Table 6-2. Summary of Heat Capacity Measurements of the As-Received 241-AN-104 Sample

Sample	Average Heat Capacity (Cal/g-°C)	Average Heat Capacity (J/g-°C)
Replicate 1	0.758	3.17
Replicate 2	0.743	3.11
Average	0.751	3.14
%RSD	1.4%	1.4%

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7.0 ANALYTICAL RESULTS AND DATA EVALUATION

7.1 GENERAL INFORMATION

Table 7-1 through Table 7-10 provide the physical properties and chemical and radiochemical composition of the 241-AN-104 tank waste sample received at SRTC. The tables include the results of all replicates, blanks, laboratory control and matrix spike recoveries, and quality control flags within each table to allow easy identification of data quality. Analytical results for liquid samples use units of mg/L or mCi/L. Appendix E contains the raw data for all analyses. The following list identifies the data tables included in this section with a brief description of the sample analyzed:

Table 7-1 Abbreviations of analytical methods used for each analysis
Table 7-2 Physical properties (density and wt% solids measurements) of the as-received 241-AN-104 sample
Table 7-3 Chemical (inorganic and organic) and radiochemical composition of the filtered supernate from the as-received 241-AN-104 sample
Table 7-4 Physical properties (density and wt% solids measurements) of the 7 M diluted 241-AN-104 sample
Table 7-5 Chemical (inorganic and organic) and radiochemical composition of the filtered supernate from the 7 M diluted 241-AN-104 sample
Table 7-6 Physical properties (density and wt% solids measurements) of the 5 M diluted 241-AN-104 sample
Table 7-7 Chemical (inorganic and organic) and radiochemical composition of the filtered supernate from the 5 M diluted 241-AN-104 sample
Table 7-8 Chemical (inorganic and organic) and radiochemical composition of the aqua-regia digestion of the filtered solids from the as-received 241-AN-104 sample
Table 7-9 Chemical (inorganic and organic) and radiochemical composition of the sodium peroxide fusion digestion of the filtered solids from the as-received 241-AN-104 sample
Table 7-10 Chemical (inorganic and organic) and radiochemical composition of the water contact of the filtered solids from the as-received 241-AN-104 sample

7.2 QC FLAGS

The analytical results in tables include a QC flag in the last column to indicate failure to meet the quality control requirements stated in the test specification. The test specification and approved task plan for the characterization of the 241-AN-104 samples set requirements for the minimum reportable quantity (MRQ), the percent relative standard deviation (%RSD) for the three replicate samples, the percent recovery of the laboratory control standard (LCS), and the percent recovery of the matrix spike (MS) in the analysis of each analyte. In addition, analyses in which the concentration of the analyte in the blank exceeded 5% of the concentration in the sample were flagged. Results where the analyte concentration was less than ten times the estimated detection limit (DL) for the analyte were also flagged. The DL for the analyte was determined based on the analysis of high purity standards. Values less than ten times the DL typically have greater uncertainty.

The following defines the QC flags used in the tables:

None Analyte meets all QC requirements.

U_M Analyte does not meet the MRQ requirement.

U_R Analyte does not meet the %RSD requirement.

U_L Analyte does not meet the percent recovery of the LCS requirement.

U_S Analyte does not meet the percent recovery of the MS requirement.

U_B Analyte concentration in the blank exceeds 5% of the concentration measured in the sample.

U_E Analyte concentration measured at less than ten times the DL for the sample.

U_G Analyte concentration in the glass standard exceeds 5% of the concentration measured in the sample. This flag is only used for the analysis of solids samples and only for those analytes not present in the glass standard.

In general, most of the QC failures can be attributed to low concentrations present in the sample, exacerbated by the dilution necessary to allow removal of the samples from the Shielded Cells for analysis in the ADS laboratory hoods. In particular, meeting the MRQ requirement depends heavily on the dilution required for handling the sample. In other cases, extensive sample preparation in the Shielded Cells led to contamination of the sample as evidenced by significant concentrations of radionuclides in the blanks. With many of the radionuclides in the sample being present at very low concentrations (e.g., at or near the detection limits), a small amount of contamination introduced into the sample can lead to large errors in the measurement. The presence of contamination in the sample generally led to large %RSD for the replicate analyses.

7.3 DATA EVALUATION

7.3.1 Discussion of Table 7-2, Physical Properties of the As-Received 241-AN-104 Sample

- All measurements met the QC requirements.

- Only single measurements of the weight percent insoluble solids and vacuum filtered solids were made due to the low solids content of the sample. These analyses generally show poor reproducibility as a result of varying amounts of interstitial supernate being trapped in the solids. The solids cannot be washed to remove the interstitial supernate because a high percentage of the solids would dissolve in water.

Table 7-2 - continued

- The weight percent insoluble solids value is biased high due to presence of interstitial supernate in the solids filtered from the sample. The solids filtered from the sample could not be washed since most of the material would dissolve. The weight percent insoluble solids calculated from the weight percent total solids and the weight percent dissolved solids was 8.88 wt%.
- The results of the weight percent oxide determination for the filtered supernate and the filterable solids of the as-received 241-AN-104 sample appear to be counter-intuitive. However, from the aqua-regia digestion, the majority of the filterable solids (unwashed) in the as-received sample appear to be precipitated salts (~30 wt% Na). The water contact dissolution of the solids indicates $NaNO_3$ as the predominant salt. Water insoluble solids account for only a very small fraction of the filterable solids. With the weight percent oxide values calculated from the gram of oxide produced per gram of dry solids, and the fact that both the supernate and the filterable solids contain predominately sodium salts, the weight percent oxide values for the supernate and filterable solids should be very similar. The weight percent oxide value for filterable solids being lower than the supernate value may be due to experimental error since the sample size used for the filterable solids was less than 0.2 g versus 1.5 – 2 g used for the supernate samples. However, the filterable solids appear to be mostly $NaNO_3$ while the supernate dried solids were calculated to be only ~30 wt% $NaNO_3$. The higher loss in weight during calcining of the filterable solids may be attributable to the greater conversion of nitrate versus some of the other salts present in the supernate sample.

7.3.2 Discussion of Table 7-3, Composition of the As-Received 241-AN-104 Supernate Sample

- Good agreement (4% difference) was obtained for the cation/anion balance although the anion concentration appears slightly low. Using the sodium and potassium values from AA for the cation concentration yields 10.1 M. Summing the concentrations of free hydroxide, Al from ICP-ES, TIC calculated as a carbonate concentration, and the anions obtained from IC produces an anion concentration of 10.5 M. Substituting the sodium value from ICP-ES raises the cation concentration to 10.2 M and lowers the percent difference to 3%.
- The sodium concentrations obtained from ICP-ES and AA show good agreement with a difference of only 1%.
- The potassium concentrations obtained from ICP-ES and AA show reasonable agreement with a difference of 17%. The ICP-ES analysis produced the higher value of the two measurement techniques.

Table 7-3 - continued

- Poor agreement was obtained between the phosphorus concentrations from IC and ICP-ES. Comparing the molarity of phosphate as determined by IC with the molarity of phosphorus from ICP-ES shows a difference of 2X. The phosphorus concentration in the sample is quite low and was less than 10 times the detection limit for the IC analysis. The molarity of sulfur in the sample also shows a 2X difference between the results from the IC and ICP-ES for that element. In both cases the ICP-ES produced the higher value. The difference in the results produced by the two methods may be a result of sample matrix. The sample was diluted with nitric acid for the ICP-ES method. Water was used to dilute the sample for analysis by IC since nitric acid would compromise the analysis of the anions.
- Approximately 2/3 of the total organic carbon remains unaccounted for after summing the carbon contribution from formate, oxalate, acetate, and glycolate from the IC and comparing to the results of the TOC analysis. SRTC has no method for gluconate which may account for some of the difference between TOC and the organics measured.
- The Cs^{137} value from gamma counting shows good agreement with the value obtained from the ICP-MS with a difference of only 9%. The Tc^{99} values from counting and the ICP-MS method show a difference of 17%. The ICP-MS produced the higher value of the two methods.
- For the anion analysis (IC designator in the table), the PO_4^{3-} and Br^- were flagged for values less than 10X the detection limit. The oxalate result was flagged for not meeting the MRQ of 1.5E+02 mg/L.
- The ammonia result was flagged for not meeting the required MRQ of 1.4E+02 mg/L.
- Both the TIC and TOC matrix spike recoveries were outside the required range. The high TIC spike recovery appears to be due to the sample adsorbing CO_2. The TOC matrix spike recovery was just outside of the 75-125% range.
- Boron, lead, cerium, and vanadium from the ICP-ES analysis were flagged for results less than 10X the detection limits. Both Li and Ba were flagged for not meeting the required MRQ. The Li detection limit was ~5X the MRQ, while the Ba detection limit was ~2X the required MRQ. Ce and Pb were also flagged for high %RSD attributable to the concentrations being close to the detection limits.
- The results for Hg, As, and Se were flagged for not meeting the MRQ.
- The results for citrate, glycolate, succinate, EDTA, HEDTA, IDA, and NTA were all flagged for not meeting the suggested MRQs.
- The Rb result from ICP-MS was flagged due to a low LCS recovery for mass 85. The LCS recovery for mass 86, however, was within the required range.
- The W result from the ICP-MS was flagged due to a matrix spike recovery for mass 182 higher than the required 75-130%. For mass 183, the spike recovery was within the required range at 88%.

Table 7-3 - continued

- The Cs^{137} result from the ICP-MS was flagged due to a low matrix spike recovery for mass 137. Recoveries for the Ba in the standard at mass values of 134, 135, 136, and 138 were all within the required range.
- The U^{235} result from the ICP-MS was flagged for a value less than 10X the detection limits.
- The Sn^{126} result from separation/extended counting was flagged for a %RSD slightly higher than the required 15%. The Pa^{231} was all flagged for not meeting the MRQ.
- The I^{129} results were flagged for a %RSD slightly higher than the required 15%.

7.3.3 Discussion of Table 7-4, Physical Properties of the 7 M Diluted 241-AN-104 Sample

- All measurements met the QC requirements. The results for the 7 M diluted sample appear to follow the expected trend with respect to the results from as-received sample (i.e., decreasing concentrations of analytes following dilution). However, since a large fraction of the solids present in the as-received sample dissolved during the dilution to 7 M sodium a direct correlation cannot be made between the results for the two samples.
- Only single measurements of the weight percent insoluble solids and vacuum filtered solids were made due to the low solids content of the sample. These analyses generally show poor reproducibility as a result of varying amounts of interstitial supernate being trapped in the solids. The solids cannot be washed to remove the interstitial supernate because a high percentage of the solids would dissolve in water.

7.3.4 Discussion of Table 7-5, Composition of the 7 M Diluted 241-AN-104 Supernate Sample

- In general, the results for the 7 M diluted sample appear to follow the expected trend with respect to the results from as-received sample (i.e., decreasing concentrations of analytes following dilution). However, since a large fraction of the solids present in the as-received sample dissolved during the dilution to 7 M sodium, a direct correlation cannot be made between the results for the two samples. Large discrepancies between the concentrations found in the two samples are noted in the discussion that follows.
- Good agreement (4% difference) was obtained for the cation/anion balance. Using the sodium and potassium values from AA for the cation concentration yields 6.58 M. Summing the concentrations of free hydroxide, Al from ICP-ES, TIC calculated as a carbonate concentration, and the anions obtained from IC produces an anion concentration of 6.32 M. Substituting the sodium value from ICP-ES in place of the AA value raises the cation concentration to 7.40 M and percent difference to 16%.
- The sodium concentrations obtained from ICP-ES and AA show good agreement with a difference of 13%.

Table 7-5 - continued

- The potassium concentrations obtained from ICP-ES and AA show a difference of ~3%.
- The phosphorus concentration measured by IC and ICP-ES shows a difference of 30%. The sulfur concentration by the same two methods show a difference of 40%. In both cases the ICP-ES produced the higher values of the two measurement techniques. The difference in the results produced by the two methods may be a result of sample matrix. The sample was diluted with nitric acid for the ICP-ES method. Water was used to dilute the sample for analysis by IC since nitric acid would compromise the analysis of the anions.
- Approximately 85% of the total organic carbon remains unaccounted for after summing the carbon contribution from formate, oxalate, acetate, and glycolate from the IC and comparing to the results of the TOC analysis. SRTC has no method for gluconate, which may account for some of the difference between TOC and the organics measured. The 7 M samples TOC was ~2X the level determined in the as-received sample. This comparison does not follow the expected trend with dilution of the as-received sample. However, the solids in the as-received sample could possibly contain some organic carbon in the form of precipitated oxalate salts that could dissolve during the dilution. The oxalate concentration in the 7 M sample was slightly higher than the concentration found in the as-received supernate. Additionally, the oxalate concentration in the water contact of the as-received solids (**Table 7-10**) shows elevated levels of oxalate relative to other anions versus the ratios of these anions measured in the as-received supernate sample. This indicates that some oxalate may be dissolving from the solids during the water contact.
- The Cs^{137} value from gamma counting shows good agreement with the value obtained from the ICP-MS (11% difference). The Tc^{99} values from counting and the ICP-MS method show a difference of only 2%.
- For the anion analysis (IC designator in the table) several analytes (PO_4^{3-}, $C_2O_4^{2-}$, F^-, Br^-, CHO_2^-) were flagged for values less than 10X the detection limit. The F^- concentration in the 7 M sample was found to be 3.5X higher than the concentration found in the as-received supernate sample.
- The ammonia result was flagged for not meeting the required MRQ of 1.4E+02 mg/L.
- Several of the elements from the ICP-ES analysis (B, Ce, Fe, Pb, and V) were flagged for being less than 10 times the detection limit. The Ba and Li results were flagged for not meeting the required MRQ. The sample blank showed a Si concentration greater than 5% of the sample concentration.
- The results for Hg, As, and Se were flagged for not meeting the MRQ. Arsenic was also flagged for a high matrix spike recovery. At the low arsenic concentrations in the sample a small amount of an interfering species can lead to large errors in the spike recovery.
- The results for citrate, glycolate, succinate, EDTA, HEDTA, IDA, and NTA were all flagged for not meeting the suggested MRQs. The acetate was flagged for a result less than 10X the detection limit and consequently a high %RSD.

Table 7-5 - continued

- The results for citrate, glycolate, succinate, EDTA, HEDTA, IDA, and NTA were all flagged for not meeting the suggested MRQs. The acetate was flagged for a result less than 10X the detection limit and consequently a high %RSD.
- The W value from the ICP-MS was flagged for a high matrix spike recovery.
- The Pa^{231} was flagged for not meeting the required MRQ.
- The Sr^{90} was flagged for an %RSD slightly above the required 15%.
- The Se^{79} result was flagged for being less than 10 times the detection limits. The low concentration present in the sample led to a high %RSD for two results above the detection limit.

7.3.5 Discussion of Table 7-6, Physical Properties of the 5 M Diluted 241-AN-104 Sample

- All measurements met the QC requirements. The results for the 5 M diluted sample appear to follow the expected trend with respect to the results from as-received and 7 M diluted samples (i.e., decreasing concentrations of analytes following dilution). However, since a large fraction of the solids present in the as-received sample dissolved during the dilution to 5 M sodium, a direct correlation cannot be made between the results for the samples.
- Only single measurements of the weight percent insoluble solids and vacuum filtered solids were made due to the low solids content of the sample. These analyses generally show poor reproducibility as a result of varying amounts of interstitial supernate being trapped in the solids. The solids cannot be washed to remove the interstitial supernate because a high percentage of the solids would dissolve in water.

7.3.6 Discussion of Table 7-7, Composition of the 5 M Diluted 241-AN-104 Supernate Sample

- In general, results for the 5 M diluted sample appear to follow the expected trend with respect to the results from the as-received sample (i.e., decreasing concentrations of analytes following dilution). However, since a large fraction of the solids present in the as-received sample dissolved during the dilution to 5 M sodium a direct correlation cannot be made between the results for the samples. Large discrepancies between the concentrations found in the samples are noted in the discussion that follows.
- Good agreement (3% difference) was obtained for the cation/anion balance. Using the sodium and potassium values from AA for the cation concentration yields 5.17 M. Summing the concentrations of free hydroxide, Al from ICP-ES, TIC calculated as a carbonate concentration, and the anions obtained from IC produces an anion concentration of 5.03 M. Substituting the sodium value from ICP-ES in place of the AA value raises the cation concentration to 5.19 M.

Table 7-7 - continued

- The sodium concentrations obtained from ICP-ES and AA show good agreement with a difference of <1%.
- The potassium concentrations obtained from ICP-ES and AA show a difference of ~6%.
- Approximately 72% of the total organic carbon remains unaccounted for after summing the carbon contribution from formate, oxalate, acetate, and glycolate from the IC and comparing to the results of the TOC analysis. SRTC has no method for gluconate, which may account for some of the difference between TOC and the organics measured. The 5 M samples TOC was ~2X the level determined in the as-received sample and approximately the same as the 7 M diluted sample. This comparison does not follow the expected trend with dilution of the as-received sample. However, the solids in the as-received sample could possibly contain some organic carbon in the form of precipitated oxalate salts that could dissolve during the dilution. The oxalate concentration in the 5 M sample was slightly higher than the concentration found in the as-received supernate and the 7 M diluted sample. Additionally, the oxalate concentration in the water contact of the as-received solids (Table 7-10) shows elevated levels of oxalate relative to other anions versus the ratios of these anions measured in the as-received supernate sample. This indicates that some oxalate may be dissolving from the solids during the water contact.
- The Cs^{137} value from gamma counting and the value obtained from the ICP-MS show a difference of 25%. The value from gamma counting provides the more conservative (higher) value. The Tc^{99} values from counting and the ICP-MS method show a difference of only 1%.
- The oxalate from IC anion analysis shows a 2X increase relative to the 7 M diluted sample. The F^- concentration in the 5 M diluted sample dropped ~3X from the concentration measured in the 7 M diluted sample. The fluoride value for the 5 M diluted sample and the as-received sample suggest the fluoride concentration measure in the 7 M diluted sample may be erroneous.
- Several elements from the ICP-ES analysis (Ag, Ce, Fe, La, P, Pb, S, Si, and V) were flagged for being less than 10 times the detection limit. The B, Ba, and Li results were flagged for not meeting the required MRQ. The Ce concentration increased ~5X relative to the as-received and 7 M diluted samples. Most of the increase can be attributed to the Ce contamination, as evidenced by the concentration found in the blank sample. The iron concentration also increased ~10X relative to the as-received and 7 M diluted samples, again attributed to sample contamination, as evidenced by the levels observed in the blank sample.
- The result for Na by AA was flagged for a %RSD slightly higher than the required 3.5%. The results for As and Se were flagged for not meeting the MRQ. The Se was also flagged for a high matrix spike recovery.
- Results for EDTA, HEDTA, IDA, and NTA were all flagged for not meeting the suggested MRQs. The acetate and citrate were flagged for low matrix spike recoveries.

Table 7-7 - continued

- In the ICP-MS, the W value was flagged for a high matrix spike recovery. The I^{127} showed blank contamination and the Pu^{239} did not meet the required MRQ. The U^{235} was flagged for a result less than 10X the detection limit. The U^{238} value increased by ~30-50% over the concentrations found in the as-received and 7 M diluted samples. The ICP-MS for all three samples (as-received, 7 M diluted, and 5 M diluted) were rerun and showed the same result.
- From gamma counting, the Cs^{137} and Sn^{126} were flagged for %RSDs slightly higher than the required 15%. Pa^{231} was all flagged for not meeting the required MRQ.
- The Se^{79} result was flagged for not meeting the required MRQ.
- The $Pu^{239/240}$, Pu^{241}, and $Cm^{243/244}$ from alpha counting were flagged for %RSDs slightly higher than the required 15%. Additionally, the sample blank showed contamination with $Pu^{239/240}$ and $Cm^{243/244}$.

7.3.7 Discussion of Table 7-8, Composition of the Aqua-Regia Digested As-Received 241-AN-104 Filterable Solids

- The results for As and Se by AA were flagged for not meeting the MRQ. The As was also flagged for a high matrix spike recovery.
- Several of the elements from the ICP-ES analysis (B, Be, Cd, Li, Mo, Sb, Ti, U, Zn, and Zr) were flagged for not meeting the MRQs. Several of the elements (Ca, Cu, La, Ni, P, Pb, S, and Sr) were flagged for results less than 10X the detection limits. Cu and Ni were flagged for not meeting the required % RSD, however, in both cases the results were also less than 10 times the detection limits. S, U, and V were found in the glass standard at greater than 5% of the sample concentration. The sample blank showed contamination with K. However, the K contamination was not observed in the AA method for potassium.
- The sodium result by AA and ICP-ES show good agreement with a difference of 7%.
- The potassium result by AA and ICP-ES show poor agreement with a difference of 500%. The large difference between the two results is attributed to the blank contamination observed in the ICP-ES result. The K in the glass standards for both methods is within 15% of the expected concentration. The AA method for K generally shows less interference from matrix effects and should be considered the more reliable value.
- The results from the ICP-MS show contamination of the glass standard for Y, Ru, Pr, Sm^{151}, Ta, Bi, W, Th, Rb, I^{127}, and Cs^{133}. The blank sample made with the same chemicals and preparation steps only shows contamination with Ru, Bi, and I^{127}. The U^{233} and U^{234} results were flagged for not meeting the required MRQs. The Np^{237} and U^{236} results were less than 10X the detection limits.

Table 7-8 - continued

- The Tc^{99} from liquid scintillation was flagged for contamination found in one replicate of the glass standard. The Tc^{99} values determined by liquid scintillation and by ICP-MS show good agreement with a difference of <1%.
- The Cs^{137} concentration measured by gamma spectroscopy and ICP-MS show a difference of ~5x. The values for Cs^{135} and Cs^{137} from the ICP-MS have a high bias due to the presence of Ba in the solids and should not be considered reliable. The results for mass 133 may be biased high also due to the presence of a significant interference or contamination in the glass standard. The glass standards containing Ba show the expected values at mass 135 and 137 based on natural abundance.
- However, using the Cs isotopic ratios from the 241-AN-104 supernate data of 3.7:1:1.3 (Cs^{133}:Cs^{135}:Cs^{137}) and the Cs^{133} result for the solids from ICP-MS, the estimated value for Cs^{137} (2.92E+02 mCi/Kg) agrees well with the value for Cs^{137} measured by gamma spectroscopy (2.99E+02 mCi/Kg). This indicates that the Cs^{133} value from the ICP-MS for the solids appears to be reasonable and the contamination seen in the glass standard at mass 133 may not be present in the sample.
- The C^{14} result was flagged due to a low spike recovery. The high activity level of the sample required additional separation steps to isolate the C^{14} from other activity. The Pu^{238} and Pu^{241} from alpha counting were flagged for %RSDs slightly higher than the required 15%. Additionally, the sample blank and glass standard showed contamination with Pu^{238}. The glass standard also showed contamination with $Pu^{239/240}$. The Am^{241}, Am^{243}, and $Cm^{243/244}$ were flagged for not meeting the required MRQ. The samples were re-prepared and analyzed a second time with essentially the same results.

7.3.8 Discussion of Table 7-9, Composition of the Sodium Peroxide Fusion Digested As-Received 241-AN-104 Filterable Solids

- The result for As by AA was flagged for not meeting the MRQ and also for a high matrix spike recovery. The K result agrees with the K by AA for the aqua-regia samples with a difference of 12%.
- Many of the elements in the ICP-ES analysis (B, Ba, Be, Cd, Ce, Cu, K, La, Li, Mg, Mo, P, Pb, Sb, U, and V) flagged for results less than 10X the detection limits. Since the detection limits on the peroxide fusion sample were lower than aqua-regia digested sample, low levels of contamination in the blank samples and glass standards were detected leading to a large number of results being flagged for contamination of blanks and standards. The results of the ICP-ES for the sodium peroxide fusion sample agree reasonably well with the results for the aqua-regia sample for the major species such as Al, Cr, S, Si. Although the sample contains a significant concentration of K and P, the results between the sodium peroxide fusion and aqua-regia digested sample show a difference of ~50% for the K and ~60% for the P. However, with the exception of the K in the aqua-regia samples, all these results are less than 10X the detection limits which could explain the variability. The other major component of the solids, Na, cannot be measured in the sodium peroxide fusion samples.

Table 7-9 - continued

- The potassium result by AA and ICP-ES show poor agreement with a ~4X difference. The large difference between the two results is attributed to the blank contamination observed in the ICP-ES result. The K contamination in the blank was not observed in the AA method, indicating there may be an interference present in the ICP-ES method. The K in the glass standards for both methods showed fairly large deviations from the expected concentration. The K results from the aqua-regia digestions appear to be of better quality.
- The results from the ICP-MS show contamination or interferences present in the glass standard for V, Co, Y, Pr, Sm^{151}, Ta, Bi, Th, Cs^{133}, Tc^{99}, and U^{238}. The blank sample only shows contamination with Bi and Tc^{99}. The Rb, I^{127}, Np^{237}, U^{233}, U^{234}, and U^{236} results were flagged for not meeting the required MRQs. A number of the results (Co, Y, Ru, Pr, Bi, Cs^{135}, Cs^{137}, Tc^{99}, and U^{235}) were less than 10X the detection limits.
- The results of the ICP-MS for the sodium peroxide fusion and the aqua-regia show reasonable agreement with the exception of Y (2X difference), Ru (2X difference), Pd (20X difference), and Bi (50% difference).
- The Cs^{137} concentration measured by gamma spectroscopy and ICP-MS show a difference of ~5x. The values for Cs^{135} and Cs^{137} from the ICP-MS have a high bias due to the presence of Ba in the solids and should not be considered reliable. The results for mass 133 may be biased high also due to the presence of a significant interference or contamination in the glass standard. The glass standards containing Ba show the expected values at mass 135 and 137 based on natural abundance.
- However, using the Cs isotopic ratios from the 241-AN-104 supernate data of 3.7:1:1.3 (Cs^{133}:Cs^{135}:Cs^{137}) and the Cs^{133} result for the solids from ICP-MS, the estimated value for Cs^{137} (2.91E+02 mCi/Kg) agrees well with the value for Cs^{137} measured by gamma spectroscopy (2.66E+02 mCi/Kg). This indicates that the Cs^{133} value from the ICP-MS for the solids appears to be reasonable and the contamination seen in the glass standard at mass 133 may not be present in the sample.
- Good agreement was found for the results of the Cs isotopes between the sodium peroxide fusion and aqua-regia digestions. The Cs^{137} by gamma counting shows a difference of ~10%. The Cs^{133}, Cs^{135}, and Cs^{137} by ICP-MS show differences of 7%, 29%, and 19% respectively.
- The results from the cesium removal/extended gamma counting method show contamination of the glass standard for Eu^{154} and Co^{60}. The results of the peroxide fusion digestions agree well with those of the aqua-regia digestions with <11% difference for all detectable radionuclides.
- The Sr^{90} results show good agreement with the aqua-regia result (2% difference).
- The Pu^{238}, $Pu^{239/240}$ $Cm^{243/244}$, and total alpha from alpha counting were flagged for high %RSD's , blank contamination, and glass standard contamination. The Am^{241}, Am^{243}, and Pu^{241} were flagged for not meeting the required MRQ. The samples were re-prepared and analyzed a second time with essentially the same result. The total alpha and the $Pu^{239/240}$ show good agreement with the results of the aqua-regia digestion. The Pu^{238} result shows a difference of ~6X with the result from the aqua-regia digestion.

7.3.9 Discussion of Table 7-10, Composition of the Water Contact of the As-Received 241-AN-104 Filterable Solids

- For the anion analysis (IC designator in the table) all of the analytes except for the NO_3^-, CHO_2^-, and Br^- were flagged for values less than 10X the detection limit. The NO_3^- and PO_4^{3-} results were flagged for high %RSDs.
- Both the TIC and TOC were flagged for blank contamination. The TIC matrix spike recovery was outside the required range. The TOC also shows a high % RSD.
- In the ICP-ES analysis, K and S were flagged for results less than 10X the detection limits. The K was also flagged for a high %RSD and blank contamination.
- The Tc^{99} result was flagged for a high % RSD.

7.4 DATA TABLES

The data in Table 7-1 through Table 7-10 show the results of the characterization of the 241-AN-104 sample and include all replicates, blanks, standards, and matrix spike submitted with the samples. Cells left intentionally blank in the tables have been filled with a dash.

Table 7-1. Abbreviations of Analytical Methods Used in Table 7-2 through Table 7-10

Analytical Method	Abbreviation in Tables	ADS Procedure No.
Ion Chromatography	IC	ADS-2306
Ammonia Purge and Trap	PT	ADS-2306
Titration	T	ADS-1206 Rev. 1
ICP-AES	IE	ADS-1564
ICP-MS	IM	ADS-1543
AA	AA	ADS-1554 Rev. 3
Calc. By Difference	Diff	NA
Acidification	A	ADS-1206 Rev. 1
Gamma Spec.	GS	ADS-2420
Separation/Gamma Spec.	SG	ADS-2420
Separation/Alpha Spec.	SA	ADS-2453 ADS-2449
Separation/ Liquid Scintillation	SL	ADS-2447 ADS-2444 ADS-2407
Alpha Counting	AC	ADS-2402
HPLC	HL	ADS-2660
GC-MS	GM	ADS-2661

Table 7-2. Physical Properties of the As-Received 241-AN-104 Sample

Property	Units	1st Replicate	2nd Replicate	3rd Replicate	Average	%RSD	QC Flag
Density of Filtered Supernate[a]	g/mL	1.45	1.44	1.44	1.44	0.4%	-
Density of Slurry[a]	g/mL	1.50	1.50	1.51	1.50	0.4%	-
Wt% Vacuum Filtered Solids	Wt%	24.4*	-	-	-	-	-
Wt% Total Solids	Wt%	51.9	52.3	52.2	52.1	0.4%	-
Wt% Dissolved Solids	Wt%	47.3	47.6	47.5	47.5	0.3%	-
Wt% Insoluble Solids (measured)	Wt%	14.0*	-	-	-	-	-
Wt% Oxides of Filtered Supernate[b]	Wt%	68.5	70.4	68.0	69.0	1.9%	-
Wt% Oxides of Filtered Solids[b]	Wt%	58.1	53.7	55.3	55.7	4.0%	-

[a] The density was measured at the ambient temperature of the Shielded Cells (25° C).
[b] The wt% oxide measure is the grams of oxide formed divided by the grams of dry solids from the sample multiplied by 100.

*Single value
** Average of two replicates
QC Flags: none - meets all QC
U_B - blank exceeds 5% of sample concentration
U_E - value less than 10x the DL
U_R - fails %RSD criteria
U_L - fails % Recovery of LCS
ND - not detected
U_M - fails minimum MRQ criteria
U_S - fails % Recovery of MS
N/A - not applicable

Table 7-3. Composition of the As-Received 241-AN-104 Supernate Sample

Analyte	1st Replicate (mg/L)	2nd Replicate (mg/L)	3rd Replicate (mg/L)	Average (mg/L)	%RSD	Blank (mg/L)	LCS % Recovery	MS % Recovery	QC Flag
NO_3^- (IC)	1.61E+05	1.35E+05	1.40E+05	1.45E+05	9.2%	<3.3E+02	98%	108%	-
NO_2^- (IC)	1.11E+05	9.54E+04	9.72E+04	1.01E+05	8.5%	<3.3E+02	102%	110%	-
PO_4^{3-} (IC)	8.89E+02	5.80E+02	5.30E+02	6.67E+02	29%	<3.3E+02	98%	104%	U_E U_R
SO_4^{2-} (IC)	1.87E+03	1.62E+03	1.37E+03	1.62E+03	15%	<1.6E+02	101%	104%	-
$C_2O_4^{2-}$ (IC)	<2.3E+02	<2.3E+02	<2.2E+02	<2.3E+02	-	<3.3E+02	103%	107%	U_M
Cl^- (IC)	7.84E+03	6.80E+03	6.45E+03	7.03E+03	10%	<3.3E+02	99%	100%	-
F^- (IC)	<4.7E+01	<4.6E+01	<4.4E+01	<4.6E+01	-	<6.6E+01	104%	93%	-
Br^- (IC)	4.45E+02	3.48E+02	3.32E+02	3.75E+02	16%	<3.3E+02	98%	107%	U_E
CHO_2^- (IC)	2.04E+03	1.90E+03	1.79E+03	1.91E+03	6.4%	<3.3E+02	102%	112%	-
NH_4^+ (PT)	<2.3E+02	<2.3E+02	<2.2E+02	<2.3E+02	-	<3.3E+02	106%	120%	U_M
OH^-_{free} (T)	6.33E+04	6.35E+04	5.86E+04	6.18E+04	4.5%	<1.1E+03	-	-	-
OH^-_{total} (T)	8.95E+04	8.56E+04	8.57E+04	8.69E+04	2.6%	<1.1E+03	100%	-	-
TIC (A)	2.14E+03	2.12E+03	2.10E+03	2.12E+03	0.8%	<1.9E+01	102%	180%	U_S
TOC (Diff)	4.02E+03	3.32E+03	3.58E+03	3.64E+03	10%	<1.2E+02	104%	74%	U_S
Ag (IE)	<1.9E+00	<1.9E+00	<1.9E+00	<1.9E+00	-	<1.9E+00	100%	-	-
Al (IE)	3.33E+04	3.35E+04	3.37E+04	3.35E+04	0.6%	<4.9E+00	101%	-	-
B (IE)	3.32E+01	4.14E+01	3.85E+01	3.77E+01	11%	<6.5E+00	100%	-	U_E
Ba (IE)	<4.5E+00	<4.4E+00	<4.4E+00	<4.5E+00	-	<4.4E+00	102%	107%	U_M
Ca (IE)	<5.5E+00	<5.4E+00	<5.4E+00	<5.4E+00	-	<5.3E+00	101%	-	-
Cd (IE)	<1.0E+00	<9.8E-01	<9.8E-01	<9.8E-01	-	<9.7E-01	100%	102%	-
Ce (IE)	2.40E+01	2.67E+01	1.40E+01	2.16E+01	31%	<6.3E+00	100%	-	U_E U_R
Cr (IE)	3.40E+02	3.33E+02	3.45E+02	3.39E+02	1.8%	<1.4E+00	102%	101%	-
Fe (IE)	<4.7E-01	<4.7E-01	<4.7E-01	<4.7E-01	-	<4.6E-01	102%	102%	-
K (IE)	6.13E+03	6.41E+03	6.78E+03	6.44E+03	5.1%	<2.2E+02	98%	-	-
La (IE)	<1.7E+00	<1.7E+00	<1.7E+00	<1.7E+00	-	<1.7E+00	99%	-	-
Li (IE)	<1.0E+01	<1.0E+01	<1.0E+01	<1.0E+01	-	<1.0E+01	100%	-	U_M
Mg (IE)	<1.3E+00	<1.2E+00	<1.2E+00	<1.2E+00	-	<1.2E+00	105%	-	-

*Single value
** Average of two replicates
QC Flags: none - meets all QC
U_B - blank exceeds 5% of sample concentration
U_E - value less than 10x the DL
U_R - fails %RSD criteria
U_L - fails % Recovery of LCS
ND - not detected
U_M - fails minimum MRQ criteria
U_S - fails % Recovery of MS
N/A - not applicable

Table 7-3. Composition of the As-Received 241-AN-104 Supernate Sample - continued

Analyte	1st Replicate (mg/L)	2nd Replicate (mg/L)	3rd Replicate (mg/L)	Average (mg/L)	%RSD	Blank (mg/L)	LCS % Recovery	MS % Recovery	QC Flag
Na (IE)	2.40E+05	2.31E+05	2.33E+05	2.35E+05	2.0%	<5.1E+00	94%	105%	-
Ni (IE)	<3.2E+00	<3.2E+00	<3.2E+00	<3.2E+00	-	<3.1E+00	107%	107%	-
P (IE)	4.65E+02	4.64E+02	4.70E+02	4.66E+02	0.7%	<1.6E+01	95%	-	-
Pb (IE)	4.09E+01	1.33E+01	3.78E+01	3.07E+01	49%	2.19E+01	103%	-	U_E U_R
S (IE)	1.20E+03	1.19E+03	1.23E+03	1.21E+03	1.7%	<3.2E+01	93%	-	-
Si (IE)	2.24E+02	2.28E+02	2.24E+02	2.25E+02	1.0%	<3.9E+00	96%	-	-
V (IE)	9.41E+00	8.12E+00	1.05E+01	9.34E+00	13%	<1.4E+00	98%	-	U_E
U (IE)	<5.4E+01	<5.3E+01	<5.3E+01	<5.3E+01	-	<5.3E+01	99%	-	-
Na (AA)	2.40E+05	2.37E+05	2.35E+05	2.37E+05	1.1%	<7.2E+03	100%	99%	-
K (AA)	5.74E+03	5.41E+03	5.35E+03	5.50E+03	3.8%	<1.2E+02	100%	97%	-
Hg (AA)	<2.6E+00	<2.6E+00	<2.6E+00	<2.6E+00	-	<2.6E+00	106%	95%	U_M
As (AA)	<1.1E+00	<1.1E+00	<1.1E+00	<1.1E+00	-	<1.0E+00	106%	112%	U_M
Se (AA)	<1.1E+00	<1.1E+00	<1.1E+00	<1.1E+00	-	<1.0E+00	109%	118%	U_M
Citrate (IC)	<2.3E+02	<2.3E+02	<2.2E+02	<2.3E+02	-	<3.3E+02	105%	5%	U_M U_S
Glycolate (IC)	<2.3E+02	<2.3E+02	<2.2E+02	<2.3E+02	-	<3.3E+02	102%	98%	U_M
Acetate (IC)	1.52E+03	1.48E+03	1.46E+03	1.49E+03	2.1%	<3.3E+02	101%	101%	
Succinate (IC)	<2.3E+02	<2.3E+02	<2.2E+02	<2.3E+02	-	<3.3E+02	109%	103%	U_M
EDTA (HL)	<1.2E+03	<1.2E+03	<1.1E+03	<1.1E+03	-	<1.6E+03	105%	111%	U_M
HEDTA (HL)	<1.2E+03	<1.2E+03	<1.1E+03	<1.1E+03	-	<1.6E+03	104%	108%	U_M
IDA (GM)	<2.3E+03	<2.3E+03	<2.2E+03	<2.3E+03	-	<3.3E+03	89%	116%	U_M
NTA (GM)	<2.3E+03	<2.3E+03	<2.2E+03	<2.3E+03	-	<3.3E+03	89%	116%	U_M
ED3A (GM)	ND	ND	ND	-	-	ND	89%	116%	
Rb (IM)	1.11E+01	1.19E+01	1.19E+01	1.16E+01	3.8%	<4.4E-02	66%	88%	U_L
W (IM)	2.09E+02	2.39E+02	2.33E+02	2.27E+02	7.0%	9.92E-01	88%	184%	U_S
Th (IM)	<8.3E-03	<8.2E-03	<8.2E-03	<8.2E-03	-	<8.1E-03	95%	95%	-
I^{127} (IM)	2.26E+00	2.79E+00	2.20E+00	2.42E+00	13%	<3.8E-02	-	-	-

*Single value
** Average of two replicates
QC Flags: none - meets all QC
U_B - blank exceeds 5% of sample concentration
U_E - value less than 10x the DL
U_R - fails %RSD criteria
U_L - fails % Recovery of LCS
ND - not detected
U_M - fails minimum MRQ criteria
U_S - fails % Recovery of MS
N/A - not applicable

Table 7-3. Composition of the As-Received 241-AN-104 Supernate Sample - continued

Analyte	1st Replicate (mg/L)	2nd Replicate (mg/L)	3rd Replicate (mg/L)	Average (mg/L)	%RSD	Blank (mg/L)	LCS % Recovery	MS % Recovery	QC Flag
Cs^{133} (IM)	1.52E+01	1.68E+01	1.66E+01	1.62E+01	5.6%	<4.2E-02	90%	93%	-
Cs^{135} (IM)	4.10E+00	4.59E+00	4.48E+00	4.39E+00	5.9%	<2.8E-02	98%	91%	-
Cs^{137} (IM)	5.37E+00	5.91E+00	5.80E+00	5.69E+00	5.0%	<8.3E-03	102%	59%	U_S
Tc^{99}_{total} (IM)	1.38E+01	1.43E+01	1.40E+01	1.41E+01	1.9%	<2.4E-02	103%	90%	-
Np^{237} (IM)	<8.3E-03	<8.2E-03	<8.2E-03	<8.2E-03	-	<8.1E-03	-	-	-
Pu^{239} (IM)	<8.3E-03	<8.2E-03	<8.2E-03	<8.2E-03	-	<8.1E-03	-	-	-
Pu^{240} (IM)	<8.3E-03	<8.2E-03	<8.2E-03	<8.2E-03	-	<8.1E-03	-	-	-
Pu/Am^{241} (IM)	<8.3E-03	<8.2E-03	<8.2E-03	<8.2E-03	-	<8.1E-03	-	-	-
U^{233} (IM)	<8.3E-03	<8.2E-03	<8.2E-03	<8.2E-03	-	<8.1E-03	-	-	-
U^{234} (IM)	<8.3E-03	<8.2E-03	<8.2E-03	<8.2E-03	-	<8.1E-03	-	-	-
U^{235} (IM)	2.33E-02	2.25E-02	2.28E-02	2.29E-02	1.8%	<8.1E-03	106%	-	U_E
U^{236} (IM)	<8.3E-03	<8.2E-03	<8.2E-03	<8.2E-03	-	<8.1E-03	-	-	-
U^{238} (IM)	2.89E+00	3.00E+00	2.93E+00	2.94E+00	1.9%	<8.1E-03	95%	96%	-

*Single value
** Average of two replicates
QC Flags: none - meets all QC
U_B - blank exceeds 5% of sample concentration
U_E - value less than 10x the DL
U_R - fails %RSD criteria
U_L - fails % Recovery of LCS
ND - not detected
U_M - fails minimum MRQ criteria
U_S - fails % Recovery of MS
N/A - not applicable

Table 7-3. Composition of the As-Received 241-AN-104 Supernate Sample - continued

Analyte	1st Replicate (mCi/L)	2nd Replicate (mCi/L)	3rd Replicate (mCi/L)	Average (mCi/L)	%RSD	Blank (mCi/L)	LCS % Recovery	MS % Recovery	QC Flag
Cs^{137} (GS)	5.60E+02	5.42E+02	5.30E+02	5.44E+02	2.8%	<3.3E-02	-	-	
Eu^{154} (GS)	<6.4E-05	<6.3E-05	<6.2E-05	<6.3E-05	-	<4.8E-05	-	-	
Eu^{155} (GS)	<1.0E-04	<1.1E-04	<9.8E-05	<1.0E-04	-	<6.0E-05	-	-	
Co^{60} (GS)	5.87E-04	6.22E-04	5.79E-04	5.96E-04	3.8%	<3.7E-05	-	-	
Sn^{126} (GS)	4.02E-04	3.56E-04	5.25E-04	4.28E-04	20%	<5.1E-05	-	-	U_R
Sb^{125} (GS)	<1.2E-04	<1.1E-04	<1.2E-04	<1.1E-04	-	<8.4E-05	-	-	
Sb^{126} (GS)	4.14E-04	4.35E-04	3.96E-04	4.15E-04	4.7%	<2.9E-05	-	-	
Pa^{231} (GS)	<1.3E-03	<1.3E-03	<1.2E-03	<1.3E-03	-	<1.0E-03	-	-	U_M
Sr^{90} (SL)	9.03E-02	8.10E-02	8.38E-02	8.50E-02	5.6%	<5.0E-03	124%	-	-
Se^{79} (SL)	6.44E-04	6.17E-04	5.81E-04	6.14E-04	5.2%	-	-	-	-
Ni^{63} (SL)	<2.6E-03	<2.9E-03	<2.6E-03	<2.7E-03	-	<5.8E-05	-	-	U_M
H^3 (SL)	<1.4E-03	<1.2E-03	<1.3E-03	<1.3E-03	-	<3.0E-04	89%	91%	-
C^{14} (SL)	3.19E-04	2.63E-04	3.52E-04	3.12E-04	14%	<9.2E-05	89%	108%	-
Ni^{59} (SG)	<5.6E-05	<6.6E-05	<9.2E-05	<7.1E-05	-	<2.4E-05	-	-	-
$Tc^{99}_{pertech}$ (SL)	2.00E-01	2.01E-01	1.92E-01	1.98E-01	2.4%	<1.3E-04	-	-	-
I^{129} (SG)	1.64E-04	1.57E-04	2.10E-04	1.77E-04	16%	4.16E-05	-	-	U_R
Pu^{238} (SA)	<1.7E-04	<1.9E-04	<3.1E-04	<2.2E-04	-	<3.2E-05	-	-	-
$Pu^{239/240}$ (SA)	<1.1E-04	<5.3E-05	<1.1E-04	<9.4E-05	-	<5.0E-06	-	-	-
Pu^{241} (SA)	<1.3E-03	<1.3E-03	<1.5E-03	<1.4E-03	-	<3.3E-04	-	-	-
Am^{241} (SG)	<4.1E-03	<1.9E-03	<2.0E-03	<2.7E-03	-	<2.0E-03	-	-	-
Am^{243} (SG)	<2.2E-03	<8.8E-04	<1.3E-03	<1.5E-03	-	<8.7E-04	-	-	-
Cm^{242} (SA)	<4.8E-05	<2.2E-05	<2.4E-05	<3.1E-05	-	<2.3E-05	-	-	-
$Cm^{243/244}$ (SA)	<1.5E-03	<7.8E-04	<4.5E-04	<9.1E-04	-	<1.8E-03	-	-	-
Alpha (AC)	<8.7E-03	<7.0E-03	<8.6E-03	<8.1E-03	-	<8.1E-03	80%	78%	-
$Alpha_{sum}$	-	-	-	<5.4E-03*	-	-	-	-	-

*Single value
** Average of two replicates
QC Flags: none - meets all QC
U_R - fails %RSD criteria
U_M - fails minimum MRQ criteria
U_B - blank exceeds 5% of sample concentration
U_L - fails % Recovery of LCS
U_S - fails % Recovery of MS
U_E - value less than 10x the DL
ND - not detected
N/A - not applicable

Table 7-4. Physical Properties of the 7 M Diluted 241-AN-104 Sample

Property	Units	1st Replicate	2nd Replicate	3rd Replicate	Average	%RSD	QC Flag
Density of Filtered Supernate[a]	g/mL	1.32	1.32	1.32	1.32	0.3%	-
Density of Slurry[a]	g/mL	1.32	1.31	1.33	1.32	0.6%	-
Wt% Vacuum Filtered Solids	Wt%	1.37*	-	-	-	-	-
Wt% Total Solids	Wt%	36.0	36.0	35.8	35.9	0.3%	-
Wt% Dissolved Solids	Wt%	35.2	35.2	35.4	35.3	0.3%	-
Wt% Insoluble Solids (measured)	Wt%	0.76*	-	-	-	-	-
Wt% Oxides of Filtered Supernate[b]	Wt%	69.2	66.5	68.4	68.1	2.1%	-

[a] The density was measured at the ambient temperature of the Shielded Cells (25° C).
[b] The wt% oxide measure is the grams of oxide formed divided by the grams of dry solids from the sample multiplied by 100.

*Single value
** Average of two replicates
QC Flags: none - meets all QC
U_B - blank exceeds 5% of sample concentration
U_E - value less than 10x the DL
U_R - fails %RSD criteria
U_L - fails % Recovery of LCS
ND - not detected
U_M - fails minimum MRQ criteria
U_S - fails % Recovery of MS
N/A - not applicable

Table 7-5. Composition of the 7 M Diluted 241-AN-104 Supernate Sample

Analyte	1st Replicate (mg/L)	2nd Replicate (mg/L)	3rd Replicate (mg/L)	Average (mg/L)	%RSD	Blank (mg/L)	LCS % Recovery	MS % Recovery	QC Flag
NO_3^- (IC)	8.50E+04	8.80E+04	8.60E+04	8.63E+04	1.7%	<4.1E+02	98%	78%	-
NO_2^- (IC)	5.60E+04	5.83E+04	5.72E+04	5.72E+04	2.1%	<4.1E+02	103%	93%	-
PO_4^{3-} (IC)	1.09E+03	1.09E+03	1.10E+03	1.09E+03	0.5%	<4.1E+02	97%	104%	U_E
SO_4^{2-} (IC)	4.06E+03	4.04E+03	4.08E+03	4.06E+03	0.5%	<2.1E+02	98%	92%	-
$C_2O_4^{2-}$ (IC)	2.63E+02	2.47E+02	2.40E+02	2.50E+02	4.6%	<4.1E+02	100%	97%	U_E
Cl^- (IC)	3.94E+03	3.96E+03	4.02E+03	3.97E+03	1.1%	<8.2E+01	100%	95%	-
F^- (IC)	2.02E+02	2.06E+02	2.00E+02	2.03E+02	1.5%	<8.2E+01	104%	91%	U_E
Br^- (IC)	1.62E+02	1.44E+02	1.60E+02	1.55E+02	6.2%	<4.1E+02	98%	95%	U_E
CHO_2^- (IC)	1.05E+03	1.05E+03	1.06E+03	1.05E+03	0.5%	<4.1E+02	103%	101%	U_E
NH_4^+ (PT)	<2.0E+02	<2.1E+02	<2.0E+02	<2.0E+02	-	<2.1E+02	104%	92%	U_M
OH^-_{free} (T)	3.09E+04	3.02E+04	2.94E+04	3.01E+04	2.5%	<7.0E+02	-	-	-
OH^-_{total} (T)	6.32E+04	6.34E+04	6.39E+04	6.35E+04	0.6%	<7.0E+02	100%	-	-
TIC (A)	5.74E+03	5.69E+03	5.68E+03	5.70E+03	0.6%	1.10E+01	96%	113%	-
TOC (Diff)	6.34E+03	6.67E+03	5.62E+03	6.21E+03	8.6%	5.10E+01	103%	92%	-
Ag (IE)	<1.7E+00	<1.7E+00	<1.7E+00	<1.7E+00	-	<1.8E+00	102%	-	-
Al (IE)	1.93E+04	1.83E+04	1.83E+04	1.87E+04	3.1%	<4.6E+00	102%	-	-
B (IE)	2.70E+01	2.79E+01	2.51E+01	2.67E+01	5.3%	<6.2E+00	103%	-	U_E
Ba (IE)	<4.1E+00	<4.0E+00	<4.0E+00	<4.0E+00	-	<4.2E+00	106%	103%	U_M
Ca (IE)	<4.9E+00	<4.8E+00	<4.8E+00	<4.9E+00	-	<5.1E+00	94%	-	-
Cd (IE)	<9.0E-01	<8.7E-01	<8.8E-01	<8.9E-01	-	<9.2E-01	104%	97%	-
Ce (IE)	1.42E+01	1.58E+01	1.93E+01	1.64E+01	16%	<5.9E+00	97%	-	U_E U_R
Cr (IE)	2.19E+02	2.11E+02	2.11E+02	2.14E+02	2.2%	<1.3E+00	104%	95%	-
Fe (IE)	<4.3E-01	5.48E-01	<4.2E-01	5.48E-01*	-	<4.4E-01	102%	96%	U_E
K (IE)	3.45E+03	3.59E+03	3.49E+03	3.51E+03	2.2%	<2.1E+02	93%	-	-
La (IE)	<1.5E+00	<1.5E+00	<1.5E+00	<1.5E+00	-	<1.6E+00	96%	-	-
Li (IE)	<9.2E+00	<8.9E+00	<9.0E+00	<9.1E+00	-	<9.5E+00	98%	-	U_M
Mg (IE)	<1.1E+00	<1.1E+00	<1.1E+00	<1.1E+00	-	<1.2E+00	104%	-	-

*Single value
** Average of two replicates
QC Flags: none - meets all QC
U_B - blank exceeds 5% of sample concentration
U_E - value less than 10x the DL
U_R - fails %RSD criteria
U_L - fails % Recovery of LCS
ND - not detected
U_M - fails minimum MRQ criteria
U_S - fails % Recovery of MS
N/A - not applicable

Table 7-5. Composition of the 7 M Diluted 241-AN-104 Supernate Sample - continued

Analyte	1st Replicate (mg/L)	2nd Replicate (mg/L)	3rd Replicate (mg/L)	Average (mg/L)	%RSD	Blank (mg/L)	LCS % Recovery	MS % Recovery	QC Flag
Na (IE)	1.67E+05	1.71E+05	1.68E+05	1.68E+05	1.2%	4.84E+01	98%	111%	-
Ni (IE)	<2.9E+00	<2.8E+00	<2.8E+00	<2.8E+00	-	<3.0E+00	107%	101%	-
P (IE)	6.30E+02	5.90E+02	6.24E+02	6.14E+02	3.5%	<1.5E+01	101%	-	-
Pb (IE)	1.92E+01	1.78E+01	1.91E+01	1.87E+01	4.3%	<7.0E+00	107%	-	U_E
S (IE)	1.92E+03	1.82E+03	1.93E+03	1.89E+03	3.1%	<3.0E+01	102%	-	-
Si (IE)	1.50E+02	1.42E+02	1.45E+02	1.46E+02	2.8%	1.09E+01	101%	-	U_B
V (IE)	3.93E+00	4.94E+00	3.97E+00	4.28E+00	13%	<1.3E+00	103%	-	U_E
U (IE)	<4.9E+01	<4.7E+01	<4.8E+01	<4.8E+01	-	<5.0E+01	98%	-	-
Na (AA)	1.52E+05	1.48E+05	1.47E+05	1.49E+05	1.9%	<6.8E+03	99%	103%	-
K (AA)	3.70E+03	3.57E+03	3.62E+03	3.63E+03	1.8%	<1.1E+02	101%	104%	-
Hg (AA)	<2.4E+00	<2.3E+00	<2.3E+00	<2.3E+00	-	<2.4E+00	95%	96%	U_M
As (AA)	<9.7E-01	<9.4E-01	<9.5E-01	<9.5E-01	-	<9.9E-01	102%	156%	U_M U_S
Se (AA)	<9.7E-01	<9.4E-01	<9.5E-01	<9.5E-01	-	<9.9E-01	107%	114%	U_M
Citrate (IC)	<2.0E+02	<2.1E+02	<2.0E+02	<2.0E+02	-	<2.1E+02	113%	20%	U_M U_S
Glycolate (IC)	<2.0E+02	<2.1E+02	<2.0E+02	<2.0E+02	-	<2.1E+02	106%	80%	U_M
Acetate (IC)	6.46E+02	6.18E+02	1.00E+03	7.55E+02	28%	<2.1E+02	107%	89%	U_E U_R
Succinate (IC)	<2.0E+02	<2.1E+02	<2.0E+02	<2.0E+02	-	<2.1E+02	100%	73%	U_M
EDTA (HL)	<4.0E+02	<4.1E+02	<4.0E+02	<4.1E+02	-	<4.1E+02	-	-	U_M
HEDTA (HL)	<4.0E+02	<4.1E+02	<4.0E+02	<4.1E+02	-	<4.1E+02	-	-	U_M
IDA (GM)	<2.0E+03	<2.1E+03	<2.0E+03	<2.0E+03	-	<2.1E+03	-	-	U_M
NTA (GM)	<2.0E+03	<2.1E+03	<2.0E+03	<2.0E+03	-	<2.1E+03	-	-	U_M
ED3A (GM)	ND	ND	ND	-	-	ND	-	-	-
Rb (IM)	6.42E+00	6.85E+00	7.05E+00	6.77E+00	4.7%	<4.6E-02	98%	97%	-
W (IM)	1.34E+02	1.47E+02	1.47E+02	1.43E+02	5.4%	8.93E-01	95%	258%	U_S
Th (IM)	<5.9E-03	<5.7E-03	<5.8E-03	<5.8E-03	-	<6.0E-03	96%	95%	-
I^{127} (IM)	1.16E+00	1.34E+00	1.43E+00	1.31E+00	10%	7.62E-03	-	-	-

*Single value
** Average of two replicates
QC Flags: none - meets all QC
U_B - blank exceeds 5% of sample concentration
U_E - value less than 10x the DL
U_R - fails %RSD criteria
U_L - fails % Recovery of LCS
ND - not detected
U_M - fails minimum MRQ criteria
U_S - fails % Recovery of MS
N/A - not applicable

Table 7-5. Composition of the 7 M Diluted 241-AN-104 Supernate Sample - continued

Analyte	1st Replicate (mg/L)	2nd Replicate (mg/L)	3rd Replicate (mg/L)	Average (mg/L)	%RSD	Blank (mg/L)	LCS % Recovery	MS % Recovery	QC Flag
Cs^{133} (IM)	9.37E+00	1.02E+01	1.03E+01	9.94E+00	5.0%	<2.0E-02	100%	107%	-
Cs^{135} (IM)	2.31E+00	2.58E+00	2.57E+00	2.49E+00	6.1%	<2.0E-02	90%	115%	-
Cs^{137} (IM)	3.14E+00	3.41E+00	3.56E+00	3.37E+00	6.2%	<2.1E-02	98%	100%	-
Tc^{99}_{total} (IM)	7.53E+00	7.65E+00	7.89E+00	7.69E+00	2.4%	<2.2E-02	-	-	-
Np^{237} (IM)	<5.9E-03	<5.7E-03	<5.8E-03	<5.8E-03	-	<6.0E-03	-	-	-
Pu^{239} (IM)	<5.9E-03	<5.7E-03	<5.8E-03	<5.8E-03	-	<6.0E-03	-	-	-
Pu^{240} (IM)	<5.9E-03	<5.7E-03	<5.8E-03	<5.8E-03	-	<6.0E-03	-	-	-
Pu/Am^{241} (IM)	<5.9E-03	<5.7E-03	<5.8E-03	<5.8E-03	-	<6.0E-03	-	-	-
U^{233} (IM)	<5.9E-03	<5.7E-03	<5.8E-03	<5.8E-03	-	<6.0E-03	-	-	-
U^{234} (IM)	<5.9E-03	<5.7E-03	<5.8E-03	<5.8E-03	-	<6.0E-03	-	-	-
U^{235} (IM)	2.04E-02	1.61E-02	2.14E-02	1.93E-02	15%	<6.0E-03	89%	-	-
U^{236} (IM)	<5.9E-03	<5.7E-03	<5.8E-03	<5.8E-03	-	<6.0E-03	-	-	-
U^{238} (IM)	2.44E+00	2.42E+00	2.44E+00	2.43E+00	0.5%	<6.0E-03	98%	97%	-

*Single value
** Average of two replicates
QC Flags: none - meets all QC
U_B - blank exceeds 5% of sample concentration
U_E - value less than 10x the DL
U_R - fails %RSD criteria
U_L - fails % Recovery of LCS
ND - not detected
U_M - fails minimum MRQ criteria
U_S - fails % Recovery of MS
N/A - not applicable

Table 7-5. Composition of the 7 M Diluted 241-AN-104 Supernate Sample - continued

Analyte	1st Replicate (mCi/L)	2nd Replicate (mCi/L)	3rd Replicate (mCi/L)	Average (mCi/L)	%RSD	Blank (mCi/L)	LCS % Recovery	MS % Recovery	QC Flag
Cs^{137} (GS)	3.47E+02	3.15E+02	3.21E+02	3.27E+02	5.2%	2.66E-02	-	-	-
Eu^{154} (GS)	<5.9E-05	<5.7E-05	<5.8E-05	<5.8E-05	-	<4.7E-05	-	-	-
Eu^{155} (GS)	<8.7E-05	<8.5E-05	<8.6E-05	<8.6E-05	-	<5.8E-05	-	-	-
Co^{60} (GS)	4.16E-04	4.08E-04	4.15E-04	4.13E-04	1.2%	<3.5E-05	-	-	-
Sn^{126} (GS)	<2.7E-04	<2.1E-04	2.46E-04	2.46E-04*	-	<4.9E-05	-	-	-
Sb^{125} (GS)	<1.0E-04	<1.0E-04	<1.0E-04	<1.0E-04	-	<8.6E-05	-	-	-
Sb^{126} (GS)	2.52E-04	2.46E-04	2.57E-04	2.52E-04	2.2%	<2.8E-05	-	-	-
Pa^{231} (GS)	<1.1E-03	<1.1E-03	<1.1E-03	<1.1E-03	-	<1.0E-03	-	-	U_M
Sr^{90} (SL)	1.19E-01	9.11E-02	8.98E-02	1.00E-01	17%	1.33E-02	108%	104%	U_R
Se^{79} (SL)	4.55E-05	<3.2E-04	6.53E-05	5.54E-05	25%	<8.3E-04	-	-	U_R
Ni^{63} (SL)	<9.5E-03	<6.8E-03	<2.0E-03	<6.1E-03	-	-	-	-	U_M
H^3 (SL)	8.60E-04	8.84E-04	8.40E-04	8.61E-04	2.6%	<2.7E-04	89%	90%	-
C^{14} (SL)	3.33E-04	3.67E-04	4.04E-04	3.68E-04	10%	<1.0E-04	104%	95%	-
Ni^{59} (SG)	<5.6E-05	<1.8E-04	<5.8E-05	<9.6E-05	-	-	-	-	-
$Tc^{99}_{pertech}$ (SL)	1.39E-01	1.35E-01	1.27E-01	1.34E-01	4.6%	<2.1E-04	-	-	-
I^{129} (SG)	8.70E-05	1.11E-04	9.28E-05	9.70E-05	13%	<1.2E-05	-	-	-
Pu^{238} (SA)	<2.8E-04	<2.9E-04	<1.4E-04	<2.4E-04	-	<1.1E-04	-	-	-
$Pu^{239/240}$ (SA)	<1.6E-04	<9.0E-05	<3.5E-05	<9.4E-05	-	<7.9E-06	-	-	-
Pu^{241} (SA)	<1.8E-03	<1.2E-03	<9.5E-04	<1.3E-03	-	<3.3E-04	-	-	-
Am^{241} (SG)	<2.1E-03	<2.3E-03	<1.6E-03	<2.0E-03	-	<2.3E-03	-	-	-
Cm^{242} (SA)	<3.6E-05	<2.4E-05	<1.9E-05	<2.6E-05	-	<1.9E-05	-	-	-
$Cm^{243/244}$ (SA)	<4.5E-04	<3.3E-04	<8.3E-04	<5.4E-04	-	<1.6E-03	-	-	-
Alpha (AC)	<7.3E-03	<5.8E-03	<7.2E-03	<6.8E-03	-	<7.5E-03	91%	78%	-
$Alpha_{sum}$	-	-	-	<2.9E-03	-	-	-	-	-

*Single value
** Average of two replicates
QC Flags: none - meets all QC
U_B - blank exceeds 5% of sample concentration
U_E - value less than 10x the DL
U_R - fails %RSD criteria
U_L - fails % Recovery of LCS
ND - not detected
U_M - fails minimum MRQ criteria
U_S - fails % Recovery of MS
N/A - not applicable

Table 7-6. Physical Properties of the 5 M Diluted 241-AN-104 Sample

Property	Units	1st Replicate	2nd Replicate	3rd Replicate	Average	%RSD	QC Flag
Density of Filtered Supernate[a]	g/mL	1.25	1.25	1.25	1.25	0.0%	-
Density of Slurry[a]	g/mL	1.26	1.27	1.27	1.27	0.5%	-
Wt% Vacuum Filtered Solids	Wt%	2.17*	-	-	-	-	-
Wt% Total Solids	Wt%	27.4	27.7	27.4	27.5	0.6%	-
Wt% Dissolved Solids	Wt%	26.9	27.2	27.2	27.1	0.6%	-
Wt% Insoluble Solids (measured)	Wt%	0.75*	-	-	-	-	-
Wt% Oxides of Filtered Supernate[b]	Wt%	58.8	63.8	64.2	62.3	4.8%	-

[a] The density was measured at the ambient temperature of the Shielded Cells (23° C).
[b] The wt% oxide measure is the grams of oxide formed divided by the grams of dry solids from the sample multiplied by 100.

*Single value
** Average of two replicates
QC Flags: none - meets all QC
U_B - blank exceeds 5% of sample concentration
U_E - value less than 10x the DL
U_R - fails %RSD criteria
U_L - fails % Recovery of LCS
ND - not detected
U_M - fails minimum MRQ criteria
U_S - fails % Recovery of MS
N/A - not applicable

Table 7-7. Composition of the 5 M Diluted 241-AN-104 Supernate Sample

Analyte	1st Replicate (mg/L)	2nd Replicate (mg/L)	3rd Replicate (mg/L)	Average (mg/L)	%RSD	Blank (mg/L)	LCS % Recovery	MS % Recovery	QC Flag
NO_3^- (IC)	6.57E+04	6.77E+04	6.47E+04	6.60E+04	2.3%	<2.5E+02	96%	83%	-
NO_2^- (IC)	4.20E+04	4.37E+04	4.11E+04	4.23E+04	3.1%	<2.5E+02	96%	93%	-
PO_4^{3-} (IC)	9.19E+02	9.41E+02	9.03E+02	9.21E+02	2.0%	<2.5E+02	96%	98%	-
SO_4^{2-} (IC)	2.85E+03	2.90E+03	2.83E+03	2.86E+03	1.1%	<1.2E+02	97%	92%	-
$C_2O_4^{2-}$ (IC)	5.39E+02	5.27E+02	5.20E+02	5.29E+02	1.9%	<2.5E+02	98%	95%	-
Cl^- (IC)	3.10E+03	3.15E+03	3.07E+03	3.11E+03	1.3%	<5.0E+01	98%	94%	-
F^- (IC)	1.23E+02	1.25E+02	1.11E+02	1.20E+02	6.2%	<5.0E+01	102%	81%	-
Br^- (IC)	<2.5E+02	<2.5E+02	<2.5E+02	<2.5E+02	-	<2.5E+02	94%	99%	-
CHO_2^- (IC)	1.27E+03	1.28E+03	1.27E+03	1.28E+03	0.2%	<2.5E+02	97%	100%	-
NH_4^+ (PT)	<1.2E+02	<1.3E+02	<1.2E+02	<1.2E+02	-	<1.2E+02	105%	101%	-
OH^-_{free} (T)	2.23E+04	2.20E+04	2.38E+04	2.27E+04	4.3%	<4.2E+02	102%	-	-
OH^-_{total} (T)	4.40E+04	4.29E+04	3.96E+04	4.21E+04	5.4%	<4.2E+02	106%	-	-
TIC (A)	4.93E+03	5.39E+03	5.62E+03	5.31E+03	6.7%	1.46E+02	101%	109%	-
TOC (Diff)	2.67E+03	2.70E+03	2.24E+03	2.54E+03	10%	1.91E+02	107%	84%	-
Ag (IE)	<9.9E+00	<9.9E+00	<1.1E+01	<1.0E+01	-	<9.7E+00	103%	-	U_E
Al (IE)	1.57E+04	1.59E+04	1.71E+04	1.62E+04	4.6%	<6.9E+01	102%	-	-
B (IE)	<3.5E+01	<3.5E+01	<3.8E+01	<3.6E+01	-	<3.4E+01	100%	-	U_M
Ba (IE)	<2.4E+01	<2.4E+01	<2.6E+01	<2.4E+01	-	<2.3E+01	99%	98%	U_M
Ca (IE)	<2.8E+01	<2.8E+01	<3.1E+01	<2.9E+01	-	<2.8E+01	99%	-	-
Cd (IE)	<5.2E+00	<5.2E+00	<5.7E+00	<5.4E+00	-	<5.1E+00	98%	96%	-
Ce (IE)	1.37E+02	1.18E+02	1.41E+02	1.32E+02	9.5%	1.21E+02	103%	-	U_E U_B
Cr (IE)	1.53E+02	1.57E+02	1.68E+02	1.59E+02	4.8%	<7.3E+00	98%	96%	-
Fe (IE)	8.97E+00	5.94E+00	<4.9E+00	6.61E+00	32%	6.97E+00	99%	98%	U_E U_B U_R
K (IE)	3.02E+03	2.34E+03	3.04E+03	2.80E+03	14%	<1.1E+03	100%	-	-
La (IE)	1.06E+01	<8.9E+00	<9.9E+00	1.06E+01*	-	<8.7E+00	101%	-	U_E
Li (IE)	<5.3E+01	<5.3E+01	<5.9E+01	<5.5E+01	-	<5.2E+01	100%	-	U_M
Mg (IE)	<6.5E+00	<6.6E+00	<7.3E+00	<6.8E+00	-	<6.4E+00	101%	-	-

*Single value
** Average of two replicates
QC Flags: none - meets all QC
U_B - blank exceeds 5% of sample concentration
U_E - value less than 10x the DL
U_R - fails %RSD criteria
U_L - fails % Recovery of LCS
ND - not detected
U_M - fails minimum MRQ criteria
U_S - fails % Recovery of MS
N/A - not applicable

Table 7-7. Composition of the 5 M Diluted 241-AN-104 Supernate Sample - continued

Analyte	1st Replicate (mg/L)	2nd Replicate (mg/L)	3rd Replicate (mg/L)	Average (mg/L)	%RSD	Blank (mg/L)	LCS % Recovery	MS % Recovery	QC Flag
Na (IE)	1.15E+05	1.15E+05	1.23E+05	1.18E+05	3.9%	<5.3E+01	93%	92%	-
Ni (IE)	<1.7E+01	<1.7E+01	<1.8E+01	<1.7E+01	-	<1.6E+01	99%	95%	-
P (IE)	3.96E+02	3.92E+02	4.15E+02	4.01E+02	3.0%	<8.3E+01	99%	-	U_E
Pb (IE)	1.95E+02	<3.9E+01	<4.4E+01	1.95E+02*	-	<3.9E+01	100%	-	U_E
S (IE)	1.33E+03	1.36E+03	1.52E+03	1.40E+03	7.4%	<1.7E+02	97%	-	U_E
Si (IE)	7.72E+01	7.66E+01	8.24E+01	7.87E+01	4.1%	<2.0E+01	102%	-	U_E
V (IE)	4.32E+00	4.05E+00	4.10E+00	4.16E+00	3.5%	4.37E+00	87%	-	U_E
U (IE)	<2.8E+02	<2.8E+02	<3.1E+02	<2.9E+02	-	<2.7E+02	103%	-	-
Na (AA)	1.19E+05	1.11E+05	1.23E+05	1.17E+05	5.3%	<3.7E+03	101%	98%	U_R
K (AA)	2.68E+03	2.67E+03	2.59E+03	2.64E+03	1.9%	7.40E+01	104%	105%	-
Hg (AA)	<1.4E+00	<1.4E+00	<1.5E+00	<1.4E+00	-	<1.3E+00	96%	87%	-
As (AA)	<6.2E-01	<6.2E-01	<6.9E-01	<6.4E-01	-	<6.1E-01	91%	79%	U_M
Se (AA)	<6.2E-01	<6.2E-01	<6.9E-01	<6.4E-01	-	<6.1E-01	94%	66%	U_M U_S
Citrate (IC)	<1.2E+02	<1.3E+02	<1.2E+02	<1.2E+02	-	<1.2E+02	100%	13%	U_S
Glycolate (IC)	<1.2E+02	<1.3E+02	<1.2E+02	<1.2E+02	-	<1.2E+02	101%	93%	-
Acetate (IC)	4.04E+02	4.89E+02	4.58E+02	4.50E+02	10%	<1.2E+02	103%	66%	U_S
Succinate (IC)	<1.2E+02	<1.3E+02	<1.2E+02	<1.2E+02	-	<1.2E+02	109%	85%	-
EDTA (HL)	<6.1E+02	<6.3E+02	<6.2E+02	<6.2E+02	-	<6.2E+02	100%	100%	U_M
HEDTA (HL)	<6.1E+02	<6.3E+02	<6.2E+02	<6.2E+02	-	<6.2E+02	98%	104%	U_M
IDA (GM)	<1.2E+03	<1.3E+03	<1.2E+03	<1.2E+03	-	<1.2E+03	96%	81%	U_M
NTA (GM)	<1.2E+03	<1.3E+03	<1.2E+03	<1.2E+03	-	<1.2E+03	96%	81%	U_M
ED3A (GM)	ND	ND	ND	-	-	ND	-	-	-
Rb (IM)	5.07E+00	5.14E+00	5.60E+00	5.27E+00	5.5%	<7.6E-02	102%	118%	-
W (IM)	8.89E+01	9.02E+01	9.93E+01	9.28E+01	6.1%	3.02E+00	104%	140%	U_S
Th (IM)	<1.5E-02	<1.5E-02	<1.6E-02	<1.5E-02	-	<1.4E-02	-	90%	-
I^{127} (IM)	1.41E+00	1.43E+00	1.59E+00	1.48E+00	6.9%	1.49E-01	-	-	U_B

*Single value
** Average of two replicates
QC Flags: none - meets all QC
U_B - blank exceeds 5% of sample concentration
U_E - value less than 10x the DL
U_R - fails %RSD criteria
U_L - fails % Recovery of LCS
ND - not detected
U_M - fails minimum MRQ criteria
U_S - fails % Recovery of MS
N/A - not applicable

Table 7-7. Composition of the 5 M Diluted 241-AN-104 Supernate Sample - continued

Analyte	1st Replicate (mg/L)	2nd Replicate (mg/L)	3rd Replicate (mg/L)	Average (mg/L)	%RSD	Blank (mg/L)	LCS % Recovery	MS % Recovery	QC Flag
Cs^{133} (IM)	7.27E+00	7.13E+00	8.00E+00	7.47E+00	6.3%	<1.8E-02	104%	110%	-
Cs^{135} (IM)	1.97E+00	1.93E+00	2.12E+00	2.00E+00	5.0%	<5.0E-03	105%	88%	-
Cs^{137} (IM)	2.56E+00	2.50E+00	2.84E+00	2.64E+00	6.9%	<1.5E-02	105%	91%	-
Tc^{99}_{total} (IM)	6.09E+00	6.00E+00	6.65E+00	6.25E+00	5.7%	7.19E-03	-	-	-
Np^{237} (IM)	<1.5E-02	<1.5E-02	<1.6E-02	<1.5E-02	-	<1.4E-02	-	-	-
Pu^{239} (IM)	<1.5E-02	<1.5E-02	<1.6E-02	<1.5E-02	-	<1.4E-02	-	-	U_M
Pu^{240} (IM)	<1.5E-02	<1.5E-02	<1.6E-02	<1.5E-02	-	<1.4E-02	-	-	-
Pu/Am^{241} (IM)	<1.5E-02	<1.5E-02	<1.6E-02	<1.5E-02	-	<1.4E-02	-	-	-
U^{233} (IM)	<1.5E-02	<1.5E-02	<1.6E-02	<1.5E-02	-	<1.4E-02	-	-	-
U^{234} (IM)	<1.5E-02	<1.5E-02	<1.6E-02	<1.5E-02	-	<1.4E-02	-	-	-
U^{235} (IM)	2.95E-02	2.01E-02	3.36E-02	2.77E-02	25%	<1.4E-02	-	-	U_E U_R
U^{236} (IM)	<1.5E-02	<1.5E-02	<1.6E-02	<1.5E-02	-	<1.4E-02	-	-	-
U^{238} (IM)	4.21E+00	4.03E+00	3.85E+00	4.03E+00	4.4%	<1.4E-02	107%	96%	-

*Single value
** Average of two replicates
QC Flags: none - meets all QC
U_B - blank exceeds 5% of sample concentration
U_E - value less than 10x the DL
U_R - fails %RSD criteria
U_L - fails % Recovery of LCS
ND - not detected
U_M - fails minimum MRQ criteria
U_S - fails % Recovery of MS
N/A - not applicable

Table 7-7. Composition of the 5 M Diluted 241-AN-104 Supernate Sample - continued

Analyte	1st Replicate (mCi/L)	2nd Replicate (mCi/L)	3rd Replicate (mCi/L)	Average (mCi/L)	%RSD	Blank (mCi/L)	LCS % Recovery	MS % Recovery	QC Flag
Cs^{137} (GS)	2.42E+02	3.22E+02	3.50E+02	3.05E+02	19%	<5.3E-03	-	-	U_R
Eu^{154} (GS)	<4.3E-05	<4.0E-05	<4.5E-05	<4.3E-05	-	<2.0E-05	-	-	-
Eu^{155} (GS)	<6.0E-05	<5.8E-05	<6.5E-05	<6.1E-05	-	<2.7E-05	-	-	-
Co^{60} (GS)	2.87E-04	3.04E-04	3.11E-04	3.01E-04	4.2%	<1.7E-05	-	-	-
Sn^{126} (GS)	1.52E-04	2.15E-04	2.02E-04	1.90E-04	17%	<2.2E-05	-	-	U_R
Sb^{125} (GS)	<1.4E-04	<1.2E-04	<1.5E-04	<1.4E-04	-	<4.0E-05	-	-	-
Sb^{126} (GS)	1.80E-04	1.89E-04	1.94E-04	1.88E-04	3.8%	<1.4E-05	-	-	-
Pa^{231} (GS)	<1.2E-03	<1.1E-03	<1.2E-03	<1.1E-03	-	<4.6E-04	-	-	U_M
Sr^{90} (SL)	4.19E-02	4.56E-02	4.25E-02	4.33E-02	4.5%	<1.8E-03	88%	91%	-
Se^{79} (SL)	<5.0E-04	<4.6E-04	<6.7E-04	<5.4E-04	-	<4.7E-04	-	-	U_M
Ni^{63} (SL)	7.21E-04	7.52E-04	8.20E-04	7.64E-04	6.6%	<2.2E-05	-	-	-
H^3 (SL)	1.36E-03	-	1.29E-03	1.32E-03**	3.7%	<5.7E-04	100%	100%	-
C^{14} (SL)	<5.7E-04	<5.8E-04	<6.3E-04	<5.9E-04		<3.4E-05	102%	107%	-
Ni^{59} (SG)	<3.9E-05	<4.1E-05	<4.8E-05	<4.3E-05	-	<2.8E-05	-	-	-
$Tc^{99}_{pertech}$ (SL)	1.16E-01	8.93E-02	1.08E-01	1.04E-01	13%	<1.0E-04	-	-	-
I^{129} (SG)	4.31E-05	6.16E-05	6.47E-05	5.65E-05	21%	<8.0E-06	-	-	U_R
Pu^{238} (SA)	1.00E-04	1.30E-04	1.19E-04	1.17E-04	13%	4.30E-06	-	-	-
$Pu^{239/240}$ (SA)	1.78E-05	2.07E-05	3.34E-05	2.40E-05	34%	2.11E-06	-	-	U_R U_B
Pu^{241} (SA)	1.55E-04	1.37E-04	2.08E-04	1.67E-04	22%	<3.6E-05	-	-	U_R
Am^{241} (SG)	<6.7E-04	<5.8E-04	<8.0E-04	<6.8E-04	-	<4.1E-04	-	-	-
Am^{243} (SG)	<3.4E-04	<4.0E-04	<5.9E-04	<4.4E-04	-	<3.3E-04	-	-	-
Cm^{242} (SA)	<4.7E-06	<1.6E-05	<1.5E-05	<1.2E-05	-	<1.3E-05	-	-	-
$Cm^{243/244}$ (SA)	5.09E-04	1.06E-03	7.21E-04	7.63E-04	36%	1.70E-03	-	-	U_R U_B
Alpha (AC)	<4.8E-03	<3.5E-03	<4.8E-03	<4.3E-03		<3.8E-03	77%	73%	-
$Alpha_{sum}$	-	-	-	<2.1E-03*	-	-	-	-	-

*Single value
** Average of two replicates
QC Flags: none - meets all QC
U_R - fails %RSD criteria
U_M - fails minimum MRQ criteria
U_B - blank exceeds 5% of sample concentration
U_L - fails % Recovery of LCS
U_S - fails % Recovery of MS
U_E - value less than 10x the DL
ND - not detected
N/A - not applicable

Table 7-8. Composition of the Aqua-Regia Digested As-Received 241-AN-104 Filterable Solids

Analyte	1st Replicate (mg/Kg)	2nd Replicate (mg/Kg)	3rd Replicate (mg/Kg)	Average (mg/Kg)	%RSD	Blank (mg/L)	1st Glass Std (mg/Kg)	2nd Glass Std (mg/Kg)	Average (mg/Kg)	%RSD	Glass Std Comp (mg/Kg)	LCS % Recovery	MS % Recovery	QC Flag
Na (AA)	3.49E+05	3.19E+05	3.22E+05	3.30E+05	5.0%	7.53E+03	7.29E+04	7.31E+04	7.30E+04	0.3%	8.52E+04	97%	98%	-
K (AA)	3.43E+03	3.10E+03	2.75E+03	3.09E+03	11%	<1.3E+02	1.85E+04	2.12E+04	1.99E+04	9.6%	2.26E+04	102%	102%	-
Hg (AA)	<9.0E+01	<9.6E+01	<7.8E+01	<8.8E+01	-	<9.2E+01	<1.1E+02	<1.1E+02	<1.1E+02	-	-	96%	105%	U_M
As (AA)	<3.7E+01	<3.9E+01	<3.2E+01	<3.6E+01	-	<3.8E+01	<4.5E+01	<4.5E+01	<4.5E+01	-	-	101%	156%	U_M U_S
Se (AA)	<3.7E+01	<3.9E+01	<3.2E+01	<3.6E+01	-	<3.8E+01	<4.5E+01	<4.5E+01	<4.5E+01	-	-	106%	108%	-
Ag (IE)	<6.5E+01	<7.0E+01	<5.7E+01	<6.4E+01	-	<6.7E+01	<8.0E+01	<8.0E+01	<8.0E+01	-	-	102%	-	-
Al (IE)	2.05E+04	1.94E+04	1.80E+04	1.93E+04	6.5%	<1.8E+02	2.15E+04	2.09E+04	2.12E+04	2.0%	2.50E+04	100%	-	-
B (IE)	<2.3E+02	<2.4E+02	<2.0E+02	<2.2E+02	-	<2.3E+02	2.53E+04	2.55E+04	2.54E+04	0.6%	2.69E+04	100%	-	U_M
Ba (IE)	<1.6E+02	<1.7E+02	<1.4E+02	<1.5E+02	10%	<1.6E+02	7.30E+02	7.63E+02	7.47E+02	3.1%	7.90E+02	101%	86%	-
Be (IE)	<3.2E+01	<3.4E+01	<2.7E+01	<3.1E+01	10%	<3.2E+01	<3.9E+01	<3.9E+01	<3.9E+01	0.2%	-	-	-	U_M
Ca (IE)	9.20E+02	8.75E+02	8.04E+02	8.66E+02	6.8%	<1.9E+02	1.04E+04	1.08E+04	1.06E+04	2.7%	1.02E+04	103%	-	U_E
Cd (IE)	<3.4E+01	<3.7E+01	<3.0E+01	<3.4E+01	-	<3.5E+01	<4.2E+01	<4.2E+01	<4.19E+01	-	-	102%	86%	U_M
Ce (IE)	<2.2E+02	3.64E+02	<1.9E+02	3.64E+02*	-	<2.3E+02	<2.7E+02	<2.7E+02	<2.70E+02	-	-	99%	-	-
Cr (IE)	5.06E+03	4.20E+03	4.24E+03	4.50E+03	11%	<5.0E+01	4.85E+02	4.82E+02	4.84E+02	0.4%	6.40E+02	103%	82%	-
Cu (IE)	8.22E+00	1.29E+01	2.69E+01	1.60E+01	61%	<8.3E+00	6.36E+01	2.56E+01	4.46E+01	60%	3.00E+01	101%	-	U_E U_R
Fe (IE)	4.35E+02	4.11E+02	4.07E+02	4.18E+02	3.6%	<1.7E+01	9.90E+04	9.96E+04	9.93E+04	0.4%	9.79E+04	102%	84%	-
K (IE)	2.13E+04	1.74E+04	<6.6E+03	1.94E+04**	14%	1.36E+04	2.82E+04	2.40E+04	2.61E+04	11%	2.26E+04	101%	-	U_B

* Single value
** Average of two replicates
QC Flags: none - meets all QC
U_R - fails %RSD criteria
U_M - fails minimum MRQ criteria
U_B - blank >5% of sample concentration
U_L - fails % Recovery of LCS
U_S - fails % Recovery of MS
U_E - value less than 10x the DL
U_G -glass std >5% of sample concentration
ND - not detected
N/A - not applicable

Table 7-8. Composition of the Aqua-Regia Digested As-Received 241-AN-104 Filterable Solids - continued

Analyte	1st Replicate (mg/Kg)	2nd Replicate (mg/Kg)	3rd Replicate (mg/Kg)	Average (mg/Kg)	%RSD	Blank (mg/L)	1st Glass Std (mg/Kg)	2nd Glass Std (mg/Kg)	Average (mg/Kg)	%RSD	Glass Std Comp (mg/Kg)	LCS % Recovery	MS % Recovery	QC Flag
La (IE)	<5.9E+01	9.02E+01	<5.1E+01	9.02E+01*	-	<6.0E+01	<7.2E+01	<7.2E+01	<7.2E+01	-	-	100%	-	U_E
Li (IE)	<3.5E+02	<3.8E+02	<3.1E+02	<3.4E+02	-	<3.6E+02	1.50E+04	1.50E+04	1.50E+04	0.0%	1.49E+04	100%	-	U_M
Mg (IE)	<4.3E+01	<4.6E+01	<3.8E+01	<4.2E+01	-	<4.4E+01	5.10E+03	5.14E+03	5.12E+03	0.6%	5.20E+03	103%	-	-
Mn (IE)	<6.5E+00	<7.0E+00	<5.7E+00	<6.4E+00	-	<6.7E+00	1.48E+04	1.48E+04	1.48E+04	0.0%	1.46E+04	103%	-	-
Mo (IE)	<4.3E+02	<4.6E+02	<3.8E+02	<4.2E+02	-	<5.3E+02	<5.3E+02	<5.3E+02	<5.3E+02	-	-	103%	-	U_M
Na (IE)	3.73E+05	3.45E+05	3.46E+05	3.55E+05	4.5%	6.45E+02	8.39E+04	8.37E+04	8.38E+04	0.2%	8.52E+04	101%	84%	-
Ni (IE)	1.21E+02	<1.2E+02	2.06E+02	1.64E+02**	37%	<1.1E+02	8.07E+03	8.48E+03	8.28E+03	3.5%	8.27E+03	102%	86%	U_E U_R
P (IE)	3.58E+03	2.94E+03	3.79E+03	3.44E+03	13%	<5.8E+02	1.18E+03	8.00E+02	9.90E+02	27%	1.10E+03	98%	-	U_E
Pb (IE)	<2.6E+02	<2.8E+02	3.69E+02	3.69E+02*	-	<2.7E+02	<3.2E+02	<3.2E+02	<3.2E+02	-	-	101%	-	U_E
S (IE)	1.01E+04	1.19E+04	1.21E+04	1.14E+04	9.7%	<1.1E+03	<1.4E+03	1.96E+03	1.96E+03*	-	-	97%	-	U_E U_G
Sb (IE)	<3.1E+03	<3.3E+03	<2.7E+03	<3.0E+03	-	<3.8E+03	<3.8E+03	<3.8E+03	<3.8E+03	-	-	102%	-	U_M
Si (IE)	1.94E+03	1.87E+03	2.07E+03	1.96E+03	5.2%	4.66E+02	1.29E+04	7.27E+03	1.01E+04	39%	2.24E+05	96%	-	U_B
Sr (IE)	7.19E+01	1.01E+02	7.39E+01	8.23E+01	20%	<6.3E+01	2.14E+03	2.23E+03	2.19E+03	2.9%	3.00E+01	102%	-	U_E U_R
Ti (IE)	<6.3E+01	<6.7E+01	<5.5E+01	<6.2E+01	-	<6.4E+01	6.44E+03	6.50E+03	6.47E+03	0.7%	6.90E+03	101%	-	U_M
U (IE)	<1.9E+03	<2.0E+03	<1.6E+03	<1.8E+03	-	<1.9E+03	<2.3E+03	2.28E+03	2.28E+03*	-	-	103%	-	U_G U_M
V (IE)	<4.9E+01	<5.2E+01	<4.3E+01	<4.8E+01	-	<5.0E+01	9.61E+01	1.26E+02	1.11E+02	19%	-	103%	-	U_G
Zn (IE)	<2.6E+01	<2.8E+01	<2.3E+01	<2.6E+01	-	<2.7E+01	1.86E+02	1.85E+02	1.86E+02	0.4%	1.60E+02	101%	-	U_M
Zr (IE)	<1.9E+02	<2.0E+02	<1.6E+02	<1.8E+02	-	<1.9E+02	6.42E+02	6.16E+02	6.29E+02	2.9%	9.60E+02	101%	-	U_M

* Single value
** Average of two replicates
QC Flags: none - meets all QC
U_R - fails %RSD criteria
U_M - fails minimum MRQ criteria
U_B - blank >5% of sample concentration
U_L - fails % Recovery of LCS
U_S - fails % Recovery of MS
U_E - value less than 10x the DL
U_G -glass std >5% of sample concentration
ND - not detected
N/A - not applicable

Table 7-8. Composition of the Aqua-Regia Digested As-Received 241-AN-104 Filterable Solids - continued

Analyte	1st Replicate (mg/Kg)	2nd Replicate (mg/Kg)	3rd Replicate (mg/Kg)	Average (mg/Kg)	%RSD	Blank (mg/L)	1st Glass Std (mg/Kg)	2nd Glass Std (mg/Kg)	Average (mg/Kg)	%RSD	Glass Std Comp (mg/Kg)	LCS % Recovery	MS % Recovery	QC Flag
Y (IM)	2.30E+00	2.07E+00	2.14E+00	2.17E+00	5.6%	<1.14E-02	6.99E+00	7.20E+00	7.09E+00	2.1%	-	-	-	U_G
Ru (IM)	7.90E+00	7.09E+00	6.65E+00	7.21E+00	8.8%	<5.34E-01	<6.38E-01	<6.40E-01	<6.39E-01	-	-	98%	104%	-
Rh (IM)	4.18E+00	3.82E+00	3.59E+00	3.86E+00	7.7%	<6.7E-02	<8.1E-02	<8.09E-02	<8.08E-02	-	-	98%	104%	-
Pd (IM)	1.35E+01	1.14E+01	1.16E+01	1.22E+01	9.2%	<5.4E-01	<3.2E+00	<3.5E+00	<3.4E+00	-	-	101%	110%	-
Sb (IM)	<4.3E-01	<4.2E-01	<4.9E-01	<4.5E-01	-	<4.2E-01	<1.6E+00	<1.8E+00	<1.7E+00	-	-	95%	91%	-
Te (IM)	<6.0E+00	<6.0E+00	<6.0E+00	<6.0E+00	-	<6.0E+00	<6.0E+00	<6.0E+00	<6.0E+00	-	-	100%	94%	-
Nd (IM)	<6.0E+02	<6.0E+02	<6.0E+02	<6.0E+02	-	<6.0E+02	<6.0E+02	<6.0E+02	<6.0E+02	-	-	99%	91%	-
Pr (IM)	3.60E+00	2.85E+00	2.96E+00	3.13E+00	13%	<5.4E-02	1.44E+00	1.44E+00	1.44E+00	0.2%	-	96%	91%	U_G
Sm^{151} (IM)	<1.7E-01	<1.3E-01	<1.5E-01	<1.5E-01	-	<4.9E-02	<8.5E-02	<8.8E-02	<8.7E-02	-	-	99%	91%	U_G
Ta (IM)	<6.7E-02	<7.1E-02	<5.8E-02	<6.5E-02	-	<6.8E-02	2.44E-01	1.21E-01	1.82E-01	48%	-	-	88%	U_G
Pt (IM)	<3.0E+00	<3.0E+00	<3.0E+00	<3.0E+00	-	<3.0E+00	<3.0E+00	<3.0E+00	<3.0E+00	-	-	-	-	-
Tl (IM)	<6.0E+02	<6.0E+02	<6.0E+02	<6.0E+02	-	<6.0E+02	<6.0E+02	<6.0E+02	<6.0E+02	-	-	99%	89%	-
Bi (IM)	4.49E+00	4.25E+00	3.97E+00	4.23E+00	6.2%	2.08E+00	2.55E+00	2.40E+00	2.48E+00	4.2%	-	98%	93%	U_E U_G U_B
W (IM)	1.42E+02	1.26E+02	1.16E+02	1.28E+02	10%	<6.3E-01	7.61E+00	7.88E+00	7.75E+00	2.4%	-	-	88%	U_G
Th (IM)	4.15E+00	3.64E+00	3.39E+00	3.73E+00	10%	<1.8E-01	1.65E+00	1.66E+00	1.65E+00	0.2%	-	99%	95%	U_G
Rb (IM)	2.84E+00	2.74E+00	2.47E+00	2.68E+00	7.1%	<3.1E-01	4.46E+01	4.48E+01	4.47E+01	0.2%	2.10E+00	101%	102%	U_E U_G
I^{127} (IM)	1.85E+00	1.99E+00	1.89E+00	1.91E+00	3.6%	5.76E-01	5.34E-01	1.13E+01	5.91E+00	129%	-	-	-	U_G U_B
I^{129} (SG)	<6.1E-02	<1.1E-01	<9.8E-02	<8.9E-02	-	<3.5E-03	-	-	-	-	-	-	-	-

* Single value
** Average of two replicates
QC Flags: none - meets all QC
U_R - fails %RSD criteria
U_M - fails minimum MRQ criteria
U_B - blank >5% of sample concentration
U_L - fails % Recovery of LCS
U_S - fails % Recovery of MS
U_E - value less than 10x the DL
U_G -glass std >5% of sample concentration
ND - not detected
N/A - not applicable

Table 7-8. Composition of the Aqua-Regia Digested As-Received 241-AN-104 Filterable Solids - continued

Analyte	1st Replicate (mg/Kg)	2nd Replicate (mg/Kg)	3rd Replicate (mg/Kg)	Average (mg/Kg)	%RSD	Blank (mg/L)	1st Glass Std (mg/Kg)	2nd Glass Std (mg/Kg)	Average (mg/Kg)	%RSD	Glass Std Comp (mg/Kg)	LCS % Recovery	MS % Recovery	QC Flag
Cs^{133} (IM)	9.58E+00	8.87E+00	8.41E+00	8.95E+00	6.6%	<1.6E-01	6.93E+00	5.29E+00	6.11E+00	19%	-	104%	100%	U_G
Cs^{135} (IM)	2.86E+00	2.50E+00	2.44E+00	2.60E+00	8.8%	<1.1E-01	5.19E+01	5.22E+01	5.20E+01	0.4%	5.13E+01	98%	102%	-
Cs^{137} (IM)	2.20E+01	1.93E+01	1.90E+01	2.01E+01	8.2%	<1.9E-01	8.86E+01	8.95E+01	8.90E+01	0.8%	8.85E+01	97%	80%	-
Tc^{99} (IM)	7.73E+00	7.48E+00	7.07E+00	7.43E+00	4.5%	1.64E-01	1.58E-01	1.51E-01	1.55E-01	2.9%	-	98%	104%	-
Np^{237} (IM)	<1.8E-01	<1.9E-01	1.63E-01	1.63E-01*	-	<1.8E-01	<2.2E-01	<2.2E-01	<2.2E-01	-	-	-	-	U_E
Pu^{239} (IM)	<1.8E-01	<1.9E-01	<1.6E-01	<1.8E-01	-	<1.8E-01	<2.2E-01	<2.2E-01	<2.2E-01	-	-	-	-	-
Pu^{240} (IM)	<1.8E-01	<1.9E-01	<1.6E-01	<1.8E-01	-	<1.8E-01	<2.2E-01	<2.2E-01	<2.2E-01	-	-	-	-	-
Pu/Am^{241} (IM)	<1.8E-01	<1.9E-01	<1.6E-01	<1.8E-01	-	<1.8E-01	<2.2E-01	<2.2E-01	<2.2E-01	-	-	-	-	-
U^{233} (IM)	<1.8E-01	<1.9E-01	<1.6E-01	<1.8E-01	-	<1.8E-01	<2.2E-01	<2.2E-01	<2.2E-01	-	-	-	-	U_M
U^{234} (IM)	<1.8E-01	<1.9E-01	<1.6E-01	<1.8E-01	-	<1.8E-01	<2.2E-01	<2.2E-01	<2.2E-01	-	-	-	-	U_M
U^{235} (IM)	4.77E+00	4.10E+00	4.13E+00	4.33E+00	8.7%	<1.8E-01	<2.2E-01	<2.2E-01	<2.2E-01	-	-	95%	97%	U_E
U^{236} (IM)	2.69E-01	2.47E-01	1.84E-01	2.33E-01	19%	<1.8E-01	<2.2E-01	<2.2E-01	<2.2E-01	-	-	-	-	U_E U_R
U^{238} (IM)	6.02E+02	5.11E+02	5.08E+02	5.41E+02	9.9%	4.68E-01	5.12E+00	5.51E+00	5.32E+00	5.2%	-	97%	89%	-

* Single value
** Average of two replicates
QC Flags: none - meets all QC
U_R - fails %RSD criteria
U_M - fails minimum MRQ criteria
U_B - blank >5% of sample concentration
U_L - fails % Recovery of LCS
U_S - fails % Recovery of MS
U_E - value less than 10x the DL
U_G -glass std >5% of sample concentration
ND - not detected
N/A - not applicable

Table 7-8. Composition of the Aqua-Regia Digested As-Received 241-AN-104 Filterable Solids - continued

Analyte	1st Replicate (mCi/Kg)	2nd Replicate (mCi/Kg)	3rd Replicate (mCi/Kg)	Average (mCi/Kg)	%RSD	Blank (mCi/Kg)	1st Glass Std (mCi/Kg)	2nd Glass Std (mCi/Kg)	Average (mCi/Kg)	%RSD	Glass Std Comp (mCi/Kg)	LCS % Recovery	MS % Recovery	QC Flag
Cs^{134} (GS)	<3.6E-01	<4.2E-01	<2.7E-01	<3.5E-01	-	<5.6E-02	<6.1E-02	<6.2E-02	<6.2E-02	-	-	-	-	-
Cs^{137} (GS)	3.19E+02	2.98E+02	2.79E+02	2.99E+02	6.9%	<1.1E-01	<8.0E-02	<9.7E-02	<8.9E-02	-	-	-	-	-
Eu^{152} (GS)	<2.0E-02	<1.8E-02	<1.5E-02	<1.7E-02	-	<1.0E-02	<1.3E-02	<1.3E-02	<1.3E-02	-	-	-	-	-
Eu^{154} (GS)	8.32E-02	6.75E-02	6.86E-02	7.31E-02	12%	<2.3E-03	<2.7E-03	<2.9E-03	<2.8E-03	-	-	-	-	-
Eu^{155} (GS)	4.64E-02	3.60E-02	3.57E-02	3.94E-02	15%	<2.9E-03	<3.4E-03	<3.5E-03	<3.4E-03	-	-	-	-	-
Co^{60} (GS)	2.34E-02	1.85E-02	1.82E-02	2.01E-02	14%	<1.3E-03	<1.6E-03	<1.7E-03	<1.7E-03	-	-	-	-	-
Sn^{126} (GS)	<3.1E-03	<2.6E-03	<2.3E-03	<2.7E-03	-	<1.4E-03	<1.6E-03	<1.6E-03	<1.6E-03	-	-	-	-	-
Sb^{125} (GS)	<9.0E-03	<7.7E-03	<6.8E-03	<7.8E-03	-	<1.4E-03	<4.5E-03	<4.7E-03	<4.6E-03	-	-	-	-	-
Sb^{126} (GS)	<3.1E-03	<2.6E-03	<2.3E-03	<2.7E-03	-	<1.4E-03	<1.6E-03	<3.1E-03	<2.4E-03	-	-	-	-	-
Pa^{231} (GS)	<1.2E-01	<1.0E-01	<9.1E-02	<1.0E-01	-	<4.5E-02	<5.5E-02	<5.7E-02	<5.6E-02	-	-	-	-	-
Sr^{90} (SL)	6.44E+01	5.89E+01	5.10E+01	5.81E+01	12%	<1.6E-01	<1.9E-01	7.21E-01	7.21E-01*	-	-	100%	87%	-
Tc^{99} (SL)	1.31E-01	1.27E-01	1.14E-01	1.24E-01	7.4%	<4.7E-03	<5.9E-03	1.62E-02	1.62E-02*	-	-	-	-	U_G
Se^{79} (SL)	<5.8E-03	<2.3E-03	<4.6E-03	<4.2E-03	-	<3.1E-02	<1.6E-02	<2.5E-03	<9.0E-03	-	-	-	-	-
H^3 (SL)	<1.0E-02	<1.1E-02	<9.0E-03	<1.0E-02	-	<1.1E-02	<1.3E-02	<1.3E-02	<1.3E-02	-	-	95%	91%	-
C^{14} (SL)	1.46E-04	1.86E-04	2.10E-04	1.81E-04	18%	<9.1E-06	-	-	-	-	-	106%	57%	U_R U_S

* Single value
** Average of two replicates
QC Flags: none - meets all QC
U_R - fails %RSD criteria
U_M - fails minimum MRQ criteria
U_B - blank >5% of sample concentration
U_L - fails % Recovery of LCS
U_S - fails % Recovery of MS
U_E - value less than 10x the DL
U_G -glass std >5% of sample concentration
ND - not detected
N/A - not applicable

Table 7-8. Composition of the Aqua-Regia Digested As-Received 241-AN-104 Filterable Solids - continued

Analyte	1st Replicate (mCi/Kg)	2nd Replicate (mCi/Kg)	3rd Replicate (mCi/Kg)	Average (mCi/Kg)	%RSD	Blank (mCi/Kg)	1st Glass Std (mCi/Kg)	2nd Glass Std (mCi/Kg)	Average (mCi/Kg)	%RSD	Glass Std Comp (mCi/Kg)	LCS % Recovery	MS % Recovery	QC Flag
Ni^{59} (SL)	5.68E-03	<3.6E-03	1.72E-03	3.70E-03**	76%	<3.3E-03	<3.1E-03	<3.4E-03	<3.2E-03	-	-	-	-	U_R
Ni^{63} (SL)	3.20E-01	2.24E-01	2.64E-01	2.70E-01	18%	<1.5E-03	<5.1E-03	<2.6E-03	<3.9E-03	-	-	-	-	U_R
Pu^{238} (SA)	6.08E-03	8.83E-03	8.29E-03	7.73E-03	19%	2.84E-03	2.16E-03	4.46E-03	3.31E-03	49%	-	-	-	U_R U_G U_B
$Pu^{239/240}$ (SA)	7.61E-03	8.69E-03	7.93E-03	8.08E-03	6.9%	<1.0E-03	1.36E-03	2.05E-03	1.70E-03	28%	-	-	-	U_G
Pu^{241} (SA)	2.38E-02	3.94E-02	2.66E-02	2.99E-02	28%	<4.7E-03	<3.8E-03	<3.0E-03	<3.4E-03	-	-	-	-	U_R
Pu^{242} (IM)	<7.1E-04	<7.5E-04	<6.1E-04	<6.9E-04	-	<7.2E-04	<8.6E-04	<8.6E-04	<8.6E-04	-	-	-	-	-
Am^{241} (SG)	<1.7E-01	<1.5E-01	<9.6E-02	<1.4E-01	-	<2.3E-01	<5.6E-01	<9.8E-02	<3.3E-01	-	-	-	-	U_M
Am^{243} (SG)	<3.6E-02	<6.8E-02	<2.7E-02	<4.4E-02	-	<1.5E-01	<3.5E-01	<1.6E-01	<2.6E-01	-	-	-	-	U_M
Cm^{242} (SA)	<3.5E-03	<1.4E-03	<1.9E-03	<2.2E-03	-	<3.9E-03	<1.1E-02	<2.2E-03	<6.5E-03	-	-	-	-	-
$Cm^{244/243}$ (SA)	<3.3E-02	<1.8E-02	<3.6E-02	<2.9E-02	-	<4.1E-02	<3.3E-01	<2.5E-02	<1.8E-01	-	-	-	-	U_M
Alpha (AC)	1.12E+00	1.38E+00	1.22E+00	1.24E+00	11%	<3.2E-01	<3.6E-01	<2.9E-01	<3.2E-01	-	-	77%	77%	-
$Alpha^{Sum}$	-	-	-	<2.3E-01*	-	-	-	-	-	-	-	-	-	-

* Single value
** Average of two replicates
QC Flags: none - meets all QC
U_R - fails %RSD criteria
U_M - fails minimum MRQ criteria
U_B - blank >5% of sample concentration
U_L - fails % Recovery of LCS
U_S - fails % Recovery of MS
U_E - value less than 10x the DL
U_G -glass std >5% of sample concentration
ND - not detected
N/A - not applicable

Table 7-9. Composition of the Sodium Peroxide Fusion Digested As-Received 241-AN-104 Filterable Solids

Analyte	1st Replicate (mg/Kg)	2nd Replicate (mg/Kg)	3rd Replicate (mg/Kg)	Average (mg/Kg)	%RSD	Blank (mg/L)	1st Glass Std (mg/Kg)	2nd Glass Std (mg/Kg)	Average (mg/Kg)	%RSD	Glass Std Comp (mg/Kg)	LCS % Recovery	MS % Recovery	QC Flag
K (AA)	2.66E+03	2.87E+03	2.60E+03	2.71E+03	5.2%	<2.9E+02	1.56E+04	1.73E+04	1.65E+04	7.3%	2.26E+04	102%	98%	-
As (AA)	<3.7E+01	<4.0E+01	<4.0E+01	<3.9E+01	-	<3.9E+01	<4.4E+01	<4.5E+01	<4.5E+01	-	-	105%	145%	U_M U_S
Se (AA)	<3.7E+01	<4.0E+01	<4.0E+01	<3.9E+01	-	<3.9E+01	<4.4E+01	<4.5E+01	<4.5E+01	-	-	102%	93%	-
Ag (IE)	2.85E+02	3.98E+02	2.96E+02	3.26E+02	19%	1.63E+02	1.08E+02	1.59E+02	1.34E+02	27%	-	100%	-	U_R U_B U_G
Al (IE)	1.65E+04	1.89E+04	1.66E+04	1.73E+04	7.8%	4.97E+01	2.15E+04	2.28E+04	2.21E+04	4.2%	2.50E+04	100%	-	-
B (IE)	5.69E+01	3.46E+01	3.45E+01	4.20E+01	31%	<2.7E+01	2.46E+04	2.65E+04	2.56E+04	5.3%	2.69E+04	101%	-	U_E U_R
Ba (IE)	<3.1E+01	3.56E+01	3.29E+01	3.42E+01**	5.7%	<1.8E+01	7.79E+02	8.56E+02	8.17E+02	6.7%	7.90E+02	99%	106%	U_E
Be (IE)	<7.5E+00	5.53E+00	<4.5E+00	5.53E+00*	-	<4.4E+00	1.88E+01	2.14E+01	2.01E+01	9.1%	-	100%	-	U_E U_G
Ca (IE)	1.47E+03	1.97E+03	1.79E+03	1.74E+03	15%	1.12E+03	1.02E+04	1.10E+04	1.06E+04	5.0%	1.02E+04	98%	-	U_B
Cd (IE)	4.70E+01	4.77E+01	4.21E+01	4.56E+01	6.7%	1.99E+01	3.87E+01	3.81E+01	3.84E+01	1.1%	-	100%	99%	U_E U_B U_G
Ce (IE)	3.17E+02	3.94E+02	3.37E+02	3.49E+02	11%	2.66E+02	3.04E+02	3.18E+02	3.11E+02	3.0%	-	99%	-	U_E U_B U_G
Cr (IE)	3.99E+03	4.18E+03	3.84E+03	4.00E+03	4.2%	4.28E+01	6.56E+02	6.58E+02	6.57E+02	0.3%	6.40E+02	99%	103%	-
Cu (IE)	<1.6E+00	8.32E+00	6.88E+00	7.60E+00**	13%	3.07E+01	4.24E+01	3.30E+01	3.77E+01	18%	3.00E+01	99%	-	U_E U_B
Fe (IE)	7.76E+02	9.30E+02	6.49E+02	7.85E+02	18%	2.81E+02	8.72E+04	9.48E+04	9.10E+04	5.9%	9.79E+04	99%	100%	U_B U_R
K (IE)	8.85E+03	8.26E+03	9.35E+03	8.82E+03	6.2%	7.45E+03	3.26E+04	3.45E+04	3.35E+04	4.0%	2.26E+04	91%	-	U_E U_B

* Single value
** Average of two replicates
QC Flags: none - meets all QC
U_R - fails %RSD criteria
U_M - fails minimum MRQ criteria
U_B - blank >5% of sample concentration
U_L - fails % Recovery of LCS
U_S - fails % Recovery of MS
U_E - value less than 10x the DL
U_G -glass std >5% of sample concentration
ND - not detected
N/A - not applicable

Table 7-9. Composition of the Sodium Peroxide Fusion Digested As-Received 241-AN-104 Filterable Solids - continued

Analyte	1st Replicate (mg/Kg)	2nd Replicate (mg/Kg)	3rd Replicate (mg/Kg)	Average (mg/Kg)	%RSD	Blank (mg/L)	1st Glass Std (mg/Kg)	2nd Glass Std (mg/Kg)	Average (mg/Kg)	%RSD	Glass Std Comp (mg/Kg)	LCS % Recovery	MS % Recovery	QC Flag
La (IE)	1.68E+01	2.88E+01	2.96E+01	2.51E+01	29%	2.16E+01	3.73E+01	4.41E+01	4.07E+01	12%	-	99%	-	U_E U_R U_B U_G
Li (IE)	8.91E+01	1.10E+02	1.07E+02	1.02E+02	11%	4.07E+01	1.66E+04	1.76E+04	1.71E+04	4.2%	1.49E+04	97%	-	U_E U_B
Mg (IE)	<8.7E+00	6.02E+00	<5.2E+00	6.02E+00*	-	<5.0E+00	4.68E+03	5.10E+03	4.89E+03	6.2%	5.20E+03	99%	-	U_E
Mn (IE)	5.53E+01	7.21E+01	5.31E+01	6.02E+01	17%	3.23E+00	1.33E+04	1.46E+04	1.40E+04	6.7%	1.46E+04	99%	-	U_R
Mo (IE)	2.06E+02	1.89E+02	1.66E+02	1.87E+02	11%	3.75E+01	2.74E+02	3.63E+02	3.19E+02	20%	-	100%	-	U_E U_B U_G
Ni (IE)	2.77E+02	2.50E+02	2.27E+02	2.51E+02	9.9%	2.21E+01	7.39E+03	8.03E+03	7.71E+03	5.9%	8.27E+03	99%	101%	-
P (IE)	5.93E+02	2.75E+03	6.46E+02	1.33E+03	93%	6.55E+01	1.06E+03	9.75E+02	1.02E+03	6.1%	1.10E+03	98%	-	U_E U_R
Pb (IE)	<5.2E+01	<3.2E+01	7.29E+01	7.29E+01*	-	<3.0E+01	5.79E+01	7.69E+01	6.74E+01	20%	-	99%	-	U_E U_G
S (IE)	9.97E+03	1.17E+04	9.95E+03	1.05E+04	9.4%	1.93E+02	1.50E+03	1.80E+03	1.65E+03	13%	-	97%	-	U_G
Sb (IE)	6.14E+02	3.79E+02	3.65E+02	4.53E+02	31%	1.04E+02	4.32E+02	4.19E+02	4.26E+02	2.2%	-	101%	-	U_E U_R U_B U_G
Si (IE)	2.44E+03	2.52E+03	2.35E+03	2.44E+03	3.5%	2.12E+02	2.00E+05	2.14E+05	2.07E+05	4.8%	2.24E+05	98%	-	-
Sr (IE)	3.10E+02	4.46E+02	4.09E+02	3.88E+02	18%	2.57E+02	2.19E+03	2.38E+03	2.28E+03	6.0%	3.00E+01	99%	-	U_B U_R
Ti (IE)	<1.3E+01	<7.6E+00	<7.6E+00	<9.3E+00	-	<7.3E+00	6.31E+03	6.89E+03	6.60E+03	6.2%	6.90E+03	100%	-	-
U (IE)	6.04E+02	8.26E+02	7.49E+02	7.26E+02	16%	4.52E+02	3.44E+03	3.71E+03	3.58E+03	5.2%	-	101%	-	U_E U_B U_G
V (IE)	1.25E+01	1.23E+01	1.14E+01	1.21E+01	4.9%	<1.7E+00	1.26E+02	1.35E+02	1.31E+02	4.9%	-	99%	-	U_E U_G
Zn (IE)	4.92E+01	5.16E+01	4.94E+01	5.01E+01	2.7%	2.82E+01	2.53E+02	2.65E+02	2.59E+02	3.3%	1.60E+02	100%	-	U_B

* Single value
** Average of two replicates
QC Flags: none - meets all QC
U_R - fails %RSD criteria
U_M - fails minimum MRQ criteria
U_B - blank >5% of sample concentration
U_L - fails % Recovery of LCS
U_S - fails % Recovery of MS
U_E - value less than 10x the DL
U_G -glass std >5% of sample concentration
ND - not detected
N/A - not applicable

Table 7-9. Composition of the Sodium Peroxide Fusion Digested As-Received 241-AN-104 Filterable Solids - continued

Analyte	1st Replicate (mg/Kg)	2nd Replicate (mg/Kg)	3rd Replicate (mg/Kg)	Average (mg/Kg)	%RSD	Blank (mg/L)	1st Glass Std (mg/Kg)	2nd Glass Std (mg/Kg)	Average (mg/Kg)	%RSD	Glass Std Comp (mg/Kg)	LCS % Recovery	MS % Recovery	QC Flag
V (IM)	6.43E+02	7.17E+02	6.46E+02	6.69E+02	6.3%	5.42E+02	7.17E+02	8.16E+02	7.66E+02	9.1%	-	98%	135%	U_G U_S
Co (IM)	4.44E+00	4.68E+00	3.47E+00	4.20E+00	15%	<2.6E+00	5.69E+01	6.16E+01	5.92E+01	5.5%	-	97%	114%	U_E U_G
Y (IM)	5.65E+00	5.09E+00	3.70E+00	4.81E+00	21%	<3.95E+00	8.11E+00	8.01E+00	8.06E+00	0.8%	-	-	-	U_E U_R U_G
Ru (IM)	1.69E+01	1.70E+01	1.62E+01	1.67E+01	2.8%	<9.65E+00	<5.51E+00	<5.64E+00	<5.58E+00	-	-	97%	109%	U_E
Rh (IM)	4.21E+00	4.82E+00	3.93E+00	4.32E+00	11%	<3.6E-01	<2.1E-01	3.11E-01	3.11E-01*	-	-	97%	109%	-
Pd (IM)	5.69E+02	4.97E+02	4.28E+02	4.98E+02	14%	<1.6E+02	<1.0E+02	<1.5E+02	<1.3E+02	-	-	98%	-	-
Sb (IM)	<3.2E+00	<3.1E+00	<3.1E+00	<3.2E+00	-	<7.4E+00	<4.6E+00	<3.9E+00	<4.2E+00	-	-	99%	94%	-
Te (IM)	<6.0E+00	<6.0E+00	<6.0E+00	<6.0E+00	-	<6.0E+00	<6.0E+00	<6.0E+00	<6.0E+00	-	-	99%	96%	-
Nd (IM)	<6.0E+02	<6.0E+02	<6.0E+02	<6.0E+02	-	<6.0E+02	<6.0E+02	<6.0E+02	<6.0E+02	-	-	98%	93%	-
Pr (IM)	2.36E+00	2.98E+00	2.37E+00	2.57E+00	14%	<1.1E+00	1.12E+00	1.31E+00	1.21E+00	11%	-	95%	92%	U_E U_G
Sm^{151} (IM)	<1.7E-01	<2.8E-01	<2.3E-01	<2.3E-01	-	<3.6E-01	<2.1E-01	<2.5E-01	<2.3E-01	-	-	98%	93%	-
Ta (IM)	<3.3E-01	<3.7E-01	<3.5E-01	<3.5E-01	-	<6.9E-01	1.41E+01	1.30E+01	1.35E+01	5.9%		101%	100%	U_G
Pt (IM)	<3.0E+00	<3.0E+00	<3.0E+00	<3.0E+00	-	<3.0E+00	<3.0E+00	<3.0E+00	<3.0E+00	-	-	-	-	-
Tl (IM)	<6.0E+02	<6.0E+02	<6.0E+02	<6.0E+02	-	<6.0E+02	<6.0E+02	<6.0E+02	<6.0E+02	-	-	104%	98%	-
Bi (IM)	6.88E+00	7.50E+00	5.82E+00	6.73E+00	13%	6.71E+00	2.82E+00	3.64E+00	3.23E+00	18%	-	103%	91%	U_E U_B U_G
W (IM)	1.45E+02	8.86E+01	1.01E+02	1.12E+02	27%	<6.4E+00	<1.5E+01	<1.3E+01	<1.4E+01	-	-	101%	100%	U_R
Th (IM)	2.80E+00	3.01E+00	2.74E+00	2.85E+00	5.1%	<1.8E+00	2.00E+00	2.15E+00	2.07E+00	5.2%	-	107%	99%	U_G

* Single value
** Average of two replicates
QC Flags: none - meets all QC
U_R - fails %RSD criteria
U_M - fails minimum MRQ criteria
U_B - blank >5% of sample concentration
U_L - fails % Recovery of LCS
U_S - fails % Recovery of MS
U_E - value less than 10x the DL
U_G -glass std >5% of sample concentration
ND - not detected
N/A - not applicable

Table 7-9. Composition of the Sodium Peroxide Fusion Digested As-Received 241-AN-104 Filterable Solids - continued

Analyte	1st Replicate (mg/Kg)	2nd Replicate (mg/Kg)	3rd Replicate (mg/Kg)	Average (mg/Kg)	%RSD	Blank (mg/L)	1st Glass Std (mg/Kg)	2nd Glass Std (mg/Kg)	Average (mg/Kg)	%RSD	Glass Std Comp (mg/Kg)	LCS % Recovery	MS % Recovery	QC Flag
Rb (IM)	<1.2E+01	<1.3E+01	<1.2E+01	<1.2E+01	-	<1.3E+01	6.27E+01	6.49E+01	6.38E+01	2.4%	2.10E+00	96%	107%	U_M
I^{127} (IM)	<1.0E+00	<1.1E+00	<1.1E+00	<1.1E+00	-	<2.2E+00	<1.2E+00	<1.3E+00	<1.3E+00	-	-	-	-	U_M
Cs^{133} (IM)	9.12E+00	1.07E+01	8.94E+00	9.57E+00	9.8%	<4.9E+00	9.29E+00	9.87E+00	9.58E+00	4.3%	-	95%	94%	U_G
Cs^{135} (IM)	3.40E+00	3.58E+00	3.05E+00	3.35E+00	8.0%	<8.6E-01	4.79E+01	5.06E+01	4.93E+01	3.9%	5.14E+01	95%	92%	U_E
Cs^{137} (IM)	2.49E+01	2.55E+01	2.13E+01	2.39E+01	9.5%	<1.3E+00	8.61E+01	8.88E+01	8.75E+01	2.2%	8.85E+01	101%	94%	U_E
Tc^{99} (IM)	9.57E+00	9.86E+00	8.74E+00	9.39E+00	6.2%	9.68E-01	1.10E+00	1.13E+00	1.11E+00	1.9%	-	-	-	U_E U_B U_G
Np^{237} (IM)	<8.4E-01	<9.4E-01	<9.1E-01	<9.4E-01	-	<1.8E+00	<1.0E+00	<1.0E+00	<1.0E+00	-	-	-	-	U_M
Pu^{239} (IM)	<8.4E-01	<9.4E-01	<9.1E-01	<9.0E-01	-	<1.8E+00	<1.0E+00	<1.0E+00	<1.0E+00	-	-	-	-	-
Pu^{240} (IM)	<8.4E-01	<9.4E-01	<9.1E-01	<9.0E-01	-	<1.8E+00	<1.0E+00	<1.0E+00	<1.0E+00	-	-	-	-	-
Pu/Am^{241} (IM)	<8.4E-01	<9.4E-01	<9.1E-01	<9.0E-01	-	<1.8E+00	<1.0E+00	<1.0E+00	<1.0E+00	-	-	-	-	-
U^{233} (IM)	<8.4E-01	<9.4E-01	<9.1E-01	<9.0E-01	-	<1.8E+00	<1.0E+00	<1.0E+00	<1.0E+00	-	-	-	-	U_M
U^{234} (IM)	<8.4E-01	<9.4E-01	<9.1E-01	<9.0E-01	-	<1.8E+00	<1.0E+00	<1.0E+00	<1.0E+00	-	-	-	-	U_M
U^{235} (IM)	3.25E+00	3.66E+00	2.98E+00	3.30E+00	10%	<1.8E+00	<1.0E+00	<1.0E+00	<1.0E+00	-	-	-	-	U_E
U^{236} (IM)	<8.4E-01	<9.4E-01	<9.1E-01	<9.0E-01	-	<1.8E+00	<1.0E+00	<1.0E+00	<1.0E+00	-	-	-	-	U_M
U^{238} (IM)	3.78E+02	4.59E+02	3.94E+02	4.10E+02	10%	<1.8E+00	1.75E+01	1.59E+02	8.80E+01	113%	-	107%	96%	U_G

* Single value
** Average of two replicates
QC Flags: none - meets all QC
U_R - fails %RSD criteria
U_M - fails minimum MRQ criteria
U_B - blank >5% of sample concentration
U_L - fails % Recovery of LCS
U_S - fails % Recovery of MS
U_E - value less than 10x the DL
U_G -glass std >5% of sample concentration
ND - not detected
N/A - not applicable

Table 7-9. Composition of the Sodium Peroxide Fusion Digested As-Received 241-AN-104 Filterable Solids - continued

Analyte	1st Replicate (mCi/Kg)	2nd Replicate (mCi/Kg)	3rd Replicate (mCi/Kg)	Average (mCi/Kg)	%RSD	Blank (mCi/Kg)	1st Glass Std (mCi/Kg)	2nd Glass Std (mCi/Kg)	Average (mCi/Kg)	%RSD	Glass Std Comp (mCi/Kg)	LCS % Recovery	MS % Recovery	QC Flag
Cs^{134} (GS)	<2.6E-01	<3.2E-01	<4.1E-01	<3.3E-01	-	<2.8E-01	<6.9E-02	<8.1E-02	<7.5E-02	-	-	-	-	-
Cs^{137} (GS)	2.61E+02	2.88E+02	2.48E+02	2.66E+02	7.7%	<4.0E-01	2.31E+00	1.04E+01	6.33E+00	90%	-	-	-	-
Eu^{152} (GS)	<1.6E-02	<1.6E-02	<1.5E-02	<1.6E-02	-	<1.0E-02	<1.2E-02	<1.3E-02	<1.3E-02	-	-	-	-	-
Eu^{154} (GS)	6.58E-02	7.68E-02	6.01E-02	6.76E-02	13%	<1.9E-03	5.10E-03	6.45E-02	3.48E-02	121%	-	-	-	U_G
Eu^{155} (GS)	3.50E-02	3.77E-02	3.41E-02	3.56E-02	5.2%	<2.2E-03	<3.1E-03	8.13E-03	8.13E-03*	-	-	-	-	-
Co^{60} (GS)	1.90E-02	1.98E-02	1.77E-02	1.88E-02	5.6%	<1.3E-03	1.52E-03	<1.6E-03	1.52E-03*	-	-	-	-	U_G
Sn^{126} (GS)	<9.6E-03	<8.3E-03	<7.2E-03	<8.3E-03	-	<1.9E-03	<2.7E-03	<3.7E-03	<3.2E-03	-	-	-	-	U_M
Sb^{125} (GS)	<6.9E-03	<6.4E-03	<5.8E-03	<6.4E-03	-	<3.2E-03	<3.8E-03	<4.5E-03	<4.1E-03	-	-	-	-	-
Sb^{126} (GS)	<2.4E-03	<2.2E-03	<2.0E-03	<2.2E-03	-	<1.1E-03	<1.3E-03	<1.5E-03	<1.4E-03	-	-	-	-	-
Pa^{231} (GS)	<9.0E-02	<8.2E-02	<7.3E-02	<8.2E-02	-	<3.8E-02	<4.6E-02	<5.1E-02	<4.8E-02	-	-	-	-	-
Sr^{90} (SL)	5.01E+01	6.73E+01	5.41E+01	5.72E+01	16%	1.21E+00	3.29E+00	7.54E+00	5.41E+00	56%	-	97%	109%	U_R U_G

* Single value
** Average of two replicates
QC Flags: none - meets all QC
U_R - fails %RSD criteria
U_M - fails minimum MRQ criteria
U_B - blank >5% of sample concentration
U_L - fails % Recovery of LCS
U_S - fails % Recovery of MS
U_E - value less than 10x the DL
U_G -glass std >5% of sample concentration
ND - not detected
N/A - not applicable

Table 7-9. Composition of the Sodium Peroxide Fusion Digested As-Received 241-AN-104 Filterable Solids - continued

Analyte	1st Replicate (mCi/Kg)	2nd Replicate (mCi/Kg)	3rd Replicate (mCi/Kg)	Average (mCi/Kg)	%RSD	Blank (mCi/Kg)	1st Glass Std (mCi/Kg)	2nd Glass Std (mCi/Kg)	Average (mCi/Kg)	%RSD	Glass Std Comp (mCi/Kg)	LCS % Recovery	MS % Recovery	QC Flag
Pu^{238} (SA)	3.13E-02	1.01E-01	1.18E-02	4.81E-02	98%	3.53E-02	9.46E-02	3.89E-01	2.42E-01	86%	-	-	-	U_R U_B U_G
$Pu^{239/240}$ (SA)	7.12E-03	1.81E-02	7.88E-03	1.10E-02	55%	<3.5E-03	1.13E-02	1.49E-01	8.02E-02	121%	-	-	-	U_R U_G
Pu^{241} (SA)	<5.3E-02	<1.5E-01	<3.7E-02	<8.1E-02	-	<3.2E-02	<2.7E-01	<4.0E+00	<2.2E+00	-	-	-	-	U_M
Pu^{242} (IM)	<3.3E-03	<3.7E-03	<3.6E-03	<3.5E-03	-	<7.0E-03	<4.0E-03	<4.1E-03	<4.0E-03	-	-	-	-	-
Am^{241} (SG)	<1.0E-01	<1.6E-01	-	<1.3E-01**	-	<9.5E-02	<1.0E-01	<5.7E-01	<3.3E-01	-	-	-	-	U_M
Am^{243} (SG)	<8.8E-02	<2.9E-02	-	<5.8E-02**	-	<8.5E-02	<3.6E-02	<4.1E-01	<2.3E-01	-	-	-	-	U_M
Cm^{242} (SA)	<2.5E-03	<6.2E-04	-	<1.6E-03**	-	<6.4E-04	<5.7E-04	<1.9E-03	<1.2E-03	-	-	-	-	-
$Cm^{244/243}$ (SA)	1.86E-01	3.88E-01	-	2.87E-01**	50%	1.39E-01	3.17E-01	2.14E-01	2.66E-01	27%	-	-	-	U_R U_B U_G
Alpha (AC)	7.57E-01	1.70E+00	8.57E-01	1.10E+00	47%	3.06E-01	4.43E-01	1.01E+00	7.26E-01	55%	-	74%	65%	U_R U_B U_G
$Alpha^{Sum}$	-	-	-	<5.4E-01	-	-	-	-	-	-	-	-	-	-

* Single value
** Average of two replicates
QC Flags: none - meets all QC
U_R - fails %RSD criteria
U_M - fails minimum MRQ criteria
U_B - blank >5% of sample concentration
U_L - fails % Recovery of LCS
U_S - fails % Recovery of MS
U_E - value less than 10x the DL
U_G -glass std >5% of sample concentration
ND - not detected
N/A - not applicable

Table 7-10. Composition of the Water Contact of the As-Received 241-AN-104 Filterable Solids

Analyte	1st Replicate (mg/Kg)	2nd Replicate (mg/Kg)	3rd Replicate (mg/Kg)	Average (mg/Kg)	%RSD	Blank (mg/Kg)	LCS % Recovery	MS % Recovery	QC Flag
NO_3^- (IC)	2.96E+05	2.34E+05	1.66E+05	2.32E+05	28%	<8.5E+03	100%	113%	U_R
NO_2^- (IC)	2.81E+04	2.47E+04	3.08E+04	2.79E+04	11%	<8.5E+03	105%	106%	U_E
PO_4^{3-} (IC)	7.81E+03	7.00E+03	5.43E+03	6.74E+03	18%	<8.5E+03	99%	98%	U_E U_R
SO_4^{2-} (IC)	1.56E+04	1.40E+04	1.48E+04	1.48E+04	5.4%	<4.2E+03	100%	100%	U_E
$C_2O_4^{2-}$ (IC)	1.87E+04	1.56E+04	1.74E+04	1.73E+04	9.0%	<8.5E+03	104%	102%	U_E
Cl^- (IC)	2.60E+03	2.47E+03	2.53E+03	2.54E+03	2.6%	<1.7E+03	101%	99%	U_E
F^- (IC)	<2.1E+03	<1.6E+03	1.45E+03	1.45E+03*	-	<1.7E+03	105%	105%	U_E
Br^- (IC)	<1.0E+04	<8.2E+03	<7.2E+03	<8.6E+03	-	<8.5E+03	100%	99%	-
CHO_2^- (IC)	<1.0E+04	<8.2E+03	<7.2E+03	<8.6E+03	-	<8.5E+03	106%	103%	-
OH^-_{free} (T)	<1.8E+04	<1.4E+04	<1.2E+04	<1.5E+04	-	<1.4E+04	-	-	-
OH^-_{total} (T)	6.17E+04	5.12E+04	5.86E+04	5.71E+04	9.4%	<1.4E+04	102%	-	-
TIC (A)	3.26E+04	2.80E+04	3.00E+04	3.02E+04	7.5%	2.28E+03	102%	180%	U_B U_S
TOC (Diff)	2.73E+04	1.40E+04	6.15E+03	1.58E+04	68%	7.48E+03	104%	86%	U_B U_R
Al (IE)	1.08E+04	9.22E+03	1.13E+04	1.04E+04	10%	<8.9E+01	101%	92%	-
Cr (IE)	2.03E+03	1.66E+03	1.87E+03	1.85E+03	9.9%	<2.5E+01	102%	103%	-
K (IE)	8.79E+03	<3.9E+03	<3.4E+03	8.79E+03*	-	4.69E+03	115%	-	U_E U_R
Na (IE)	2.92E+05	2.40E+05	2.34E+05	2.55E+05	12%	6.30E+02	104%	102%	-
P (IE)	4.32E+03	3.49E+03	3.26E+03	3.69E+03	16%	<2.9E+02	100%	-	U_R
S (IE)	6.35E+03	5.93E+03	6.01E+03	6.10E+03	3.7%	<5.8E+02	107%	-	U_E

*Single value
** Average of two replicates
QC Flags: none - meets all QC
U_B - blank exceeds 5% of sample concentration
U_E - value less than 10x the DL
U_R - fails %RSD criteria
U_L - fails % Recovery of LCS
ND - not detected
U_M - fails minimum MRQ criteria
U_S - fails % Recovery of MS
N/A - not applicable

Table 7-10. Composition of the Water Contact of the As-Received 241-AN-104 Filterable Solids - continued

Analyte	1st Replicate (mCi/Kg)	2nd Replicate (mCi/Kg)	3rd Replicate (mCi/Kg)	Average (mCi/Kg)	%RSD	Blank (mCi/Kg)	LCS % Recovery	MS % Recovery	QC Flag
Cs^{137} (GS)	1.75E+02	1.52E+02	1.84E+02	1.70E+02	9.7%	1.59E+00	-	-	-
$Tc^{99}_{pertech}$ (SL)	2.39E-01	1.51E-01	1.83E-01	1.91E-01	23%	<2.4E-03	-	-	U_R

*Single value
** Average of two replicates
QC Flags: none - meets all QC
U_B - blank exceeds 5% of sample concentration
U_E - value less than 10x the DL
U_R - fails %RSD criteria
U_L - fails % Recovery of LCS
ND - not detected
U_M - fails minimum MRQ criteria
U_S - fails % Recovery of MS
N/A - not applicable

8.0 SIX-MONTH AGING STUDY OF THE DILUTED 241-AN-104 SAMPLES

8.1 SIX-MONTH AGING STUDY OF THE 5 M DILUTED 241-AN-104 SAMPLE

After completing the dilution of the as-received 241-AN-104 sample to 5 M sodium concentration, samples of the 5 M diluted slurry and 5 M diluted filtered supernate were sealed in poly bottles. After sitting undisturbed for six months the sealed samples were visually examined for the presence of precipitated solids. Neither the filtered supernate nor the slurry sample showed any visible evidence of precipitation. With no precipitation observed in the aged samples, no further analysis was required as stated in Test Exception 24590-WTP-TEF-RT-03-028**.**

8.2 SIX-MONTH AGING STUDY OF THE 7 M DILUTED 241-AN-104 SAMPLE

The 7 M diluted 241-AN-104 aging study was conducted in the same manner as the 5 M aging study. After sitting undisturbed for six months, the samples were visually examined for the presence of precipitated solids. No precipitation was observed in either the filtered supernate or the slurry samples. Therefore, no further analysis was required as stated in Test Exception 24590-WTP-TEF-RT-03-028**.**

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9.0 COMPARISON TO SPECIFICATION 7 AND 8

9.1 COMPARISON OF THE AS-RECEIVED 241-AN-104 FILTERED SUPERNATE TO SPECIFICATION 7

Specification 7 defines the Low Activity Waste Envelopes A, B, and C and the compositional and radionuclide limits for each of those envelopes. The as-received 241-AN-104 filtered supernate sample was compared to the limits for Envelope A. Values for the as-received 241-AN-104 filtered supernate sample were obtained from Table 7-3 and converted to units of molarity. The concentrations for each analyte were then divided by the sodium concentration for comparison to the Specification 7 limits shown in Table 9-1. The as-received 241-AN-104 filtered supernate sample meets all of the specification limits except for the uranium limit. The uranium concentration in the as-received 241-AN-104 supernate is 102% of the Specification 7 limit.

9.2 COMPARISON OF THE AS-RECEIVED 241-AN-104 FILTERABLE SOLIDS TO SPECIFICATION 8

Specification 8 defines the compositional and radionuclide limits for the High-Level Waste envelope (Envelope D). The as-received 241-AN-104 solids sample (unwashed) was compared to the Specification 8 limits. The composition for the as-received 241-AN-104 solids sample was obtained from Table 7-9 and Table 7-10. The concentrations on a total dried solids basis were converted to a non-volatile oxide basis (grams per 100 grams of oxides) using the wt% oxide value of 55.7% for the sample (see Table 7-8). The composition of the as-received 241-AN-104 solids sample meets all of the specification limits except for those of Cl NO_2/NO_3, Cr, Na, and S as shown in Table 9-2. The as-received 241-AN-104 solids sample is primarily composed of precipitated salts as opposed to the metal oxides and hydroxides of a true sludge sample. All the species exceeding the Specification 8 limits are usually fairly soluble and generally associated with the liquid or salt cake phases of tank waste.

Table 9-1. Comparison of the As-Received 241-AN-104 Filtered Supernate to Specification 7 Composition Limits.

Analyte	Average Value from Table 7.3 (M)	QC Flag	Average Analyte to Na Molar Ratio	Specification 7, Envelope A Maximum Ratio	% of Maximum	Meets Specification 7?
Al	3.35E+04	-	1.22E-01	2.50E-01	49%	Yes
Ba	<4.5E+00	U_M	<3.2E-06	1.00E-04	<3.2%	Yes
Ca	<5.4E+00	-	<1.3E-05	4.00E-02	<0.03%	Yes
Cd	<9.8E-01	-	<8.6E-07	4.00E-03	<0.02%	Yes
Cl	7.03E+03	-	1.94E-02	3.70E-02	53%	Yes
Cr	3.39E+02	-	6.39E-04	6.90E-03	9.3%	Yes
F	<4.6E+01	-	<2.4E-04	9.10E-02	<0.3%	Yes
Fe	<4.7E-01	-	<8.2E-07	1.00E-02	<0.01%	Yes
Hg	<2.6E+00	U_M	<1.3E-06	1.40E-05	<9.0%	Yes
K	6.44E+03	-	1.61E-02	1.80E-01	9.0%	Yes
La	<1.7E+00	-	<1.2E-06	8.30E-05	<1.4%	Yes
Ni	<3.2E+00	-	<5.3E-06	3.00E-03	<0.2%	Yes
NO_2	1.01E+05	-	2.16E-01	3.80E-01	57%	Yes
NO_3	1.45E+05	-	2.30E-01	8.00E-01	29%	Yes
Pb	1.43E+03	U_E	1.45E-05	6.80E-04	2.1%	Yes
PO_4	3.62E+03	U_E	1.48E-03	3.80E-02	3.9%	Yes
SO_4	1.62E+03	-	3.69E-03	1.00E-02	37%	Yes
TIC	2.12E+03	-	1.73E-02	3.00E-01	5.8%	Yes
TOC	3.64E+03	-	2.97E-02	5.00E-01	5.9%	Yes
U	2.96E+00	-	1.22E-03	1.20E-03	102%	No

a) The K value from ICP-ES was used in the table as being more conservative than the AA value.
b) P and S values from ICP-ES were used in the table as being more conservative than the IC values.
c) The total uranium was calculated from the ICP-MS values for mass 235 and 238.

Table 9-1. Comparison of the As-Received 241-AN-104 Filtered Supernate to Specification 7 Composition Limits - continued

Radionuclide	Average Value from Table 7.3 (Bq)	QC Flag	Average Analyte to Na Ratio	Specification 7, Envelope A Maximum Ratio	% of Maximum	Meets Specification 7
TRU	<2.5E+05	-	<2.5E+04	4.80E+05	<5.1%	Yes
Cs^{137}	2.01E+10	-	2.0E+09	4.30E+09	46%	Yes
Sr^{90}	3.15E+06	-	3.1E+05	4.40E+07	0.7%	Yes
Tc^{99}	8.68E+06	-	8.5E+05	7.10E+06	12%	Yes
Co^{60}	2.21E+04	-	2.2E+03	6.10E+04	3.5%	Yes
Eu^{154}	<2.3E+03	-	<2.3E+02	1.20E+06	<0.02%	Yes

a) The TRU was calculated by summing the Pu^{238}, $Pu^{239/240}$, Am^{241}, Am^{243}, Cm^{242}, and $Cm^{243/244}$ alpha spectroscopy results.
b) The Tc^{99} result from ICP-MS for mass 99.

QC Flags: none - meets all QC
U_B - blank exceeds 5% of sample concentration
U_E - value less than 10x the DL
U_R - fails %RSD criteria
U_L - fails % Recovery of LCS
ND - not detected
U_M - fails minimum MRQ criteria
U_S - fails % Recovery of MS
N/A - not applicable

Table 9-2. Comparison of the As-Received 241-AN-104 Filterable Solids to Specification 8 Limits.

Non-Volatile Element	Concentration in Dry Solids (mg/Kg)	Concentration in Calcined Solids (g/100 g)	Specification 8 Maximum (g/100 g)	% of Maximum	Meets Specification 8?
As	<3.6E+01	<6.5E-03	1.60E-01	<4.0%	Yes
B	<2.2E+02	<4.0E-02	1.30E+00	<3.1%	Yes
Be	<3.1E+01	<5.5E-03	6.50E-02	<8.5%	Yes
Ce	3.64E+02	6.54E-02	8.10E-01	8.1%	Yes
Co	4.20E+00	7.53E-04	4.50E-01	0.2%	Yes
Cs	3.17E+01	5.69E-03	5.80E-01	1.0%	Yes
Cu	1.60E+01	2.87E-03	4.80E-01	0.6%	Yes
Hg	<8.8E+01	<1.6E-02	1.00E-01	<16%	Yes
La	9.02E+01	1.62E-02	2.60E+00	0.6%	Yes
Li	<3.4E+02	<6.2E-02	1.40E-01	<44%	Yes
Mn	<6.4E+00	<1.1E-03	6.50E+00	<0.02%	Yes
Mo	<4.2E+02	<7.6E-02	6.50E-01	<12%	Yes
Nd	<6.0E+02	<1.1E-01	1.70E+00	<6.3%	Yes
Pr	3.13E+00	5.63E-04	3.50E-01	0.2%	Yes
Pu	<3.2E+00	<5.8E-04	5.40E-02	<1.1%	Yes
Rb	2.68E+00	4.82E-04	1.90E-01	0.3%	Yes
Sb	<4.5E-01	<8.0E-05	8.40E-01	<0.01%	Yes
Se	<3.6E+01	<6.5E-03	5.20E-01	<1.2%	Yes
Sr	8.23E+01	1.48E-02	5.20E-01	2.8%	Yes
Ta	<6.5E-02	<1.2E-05	3.00E-02	<0.04%	Yes
Tc	7.43E+00	1.33E-03	2.60E-01	0.5%	Yes
Te	<6.0E+00	<1.1E-03	1.30E-01	<0.8%	Yes
Tl	<6.0E+02	<1.1E-01	4.50E-01	<24%	Yes
V	<4.8E+01	<8.6E-03	3.20E-02	<27%	Yes
W	1.28E+02	2.30E-02	2.40E-01	9.6%	Yes
Y	2.17E+00	3.90E-04	1.60E-01	0.2%	Yes
Zn	<2.6E+01	<4.6E-03	4.20E-01	<1.1%	Yes

Table 9-2. Comparison of the As-Received 241-AN-104 Filterable Solids to Specification 8 Limits - continued

Non-Volatile Element	Concentration in Dry Solids (mg/Kg)	Concentration in Calcined Solids (g/100 g)	Specification 8 Maximum (g/100 g)	% of Maximum	Meets Specification 8?
Cl^-	3.36E+03	6.03E-01	3.30E-01	183%	No
CO_3^{2-}	4.00E+04	7.18E+00	3.00E+01	24%	Yes
NO_2^-/NO_3^-	3.44E+05	6.18E+01	3.60E+01	172%	No
TOC	2.09E+04	3.75E+00	1.10E+01	34%	Yes
CN^-	Not determined		1.60E+00		
NH3	Not determined		1.60E+00		

Table 9-2. Comparison of the As-Received 241-AN-104 Filterable Solids to Specification 8 Limits - continued

Non-Volatile Element	Concentration in Dry Solids (mCi/Kg)	Concentration in Calcined Solids (Ci/100 g)	Specification 8 Maximum (Ci/100 g)	% of Maximum	Meets Specification 8?
H^{3}	<1.0E-02	<1.8E-06	6.50E-05	<2.8%	Yes
C^{14}	1.81E-04	3.25E-08	6.50E-06	0.5%	Yes
Co^{60}	2.01E-02	3.60E-06	1.00E-02	0.04%	Yes
Sr^{90}	5.81E+01	1.04E-02	1.00E+01	0.1%	Yes
Tc^{99}	1.24E-01	2.22E-05	1.50E-02	0.1%	Yes
Sb^{125}	<7.8E-03	<1.4E-06	3.20E-02	<0.004%	Yes
Sn^{126}	<2.7E-03	<4.8E-07	1.50E-04	<0.3%	Yes
I^{129}	<1.6E-05	<2.8E-09	2.90E-07	<1.0%	Yes
Cs^{137}	2.99E+02	5.36E-02	1.50E+00	3.6%	Yes
Eu^{152}	<1.7E-02	<3.1E-06	4.80E-04	<0.7%	Yes
Eu^{154}	7.31E-02	1.31E-05	5.20E-02	0.03%	Yes
Eu^{155}	3.94E-02	7.07E-06	2.90E-02	0.02%	Yes
U^{233}	<1.7E-03	<3.0E-07	9.00E-07	<34%	Yes
U^{235}	9.36E-06	1.68E-09	2.50E-07	0.7%	Yes
Np^{237}	1.15E-04	2.07E-08	7.40E-05	0.03%	Yes
Pu^{238}	7.73E-03	1.39E-06	3.50E-04	0.4%	Yes
Pu^{239}	8.08E-03	1.45E-06	3.10E-03	0.05%	Yes
Pu^{241}	2.99E-02	5.38E-06	2.20E-02	0.02%	Yes
Am^{241}	<1.4E-01	<2.5E-05	9.00E-02	<0.03%	Yes
$Cm^{243/244}$	<2.9E-02	<5.2E-06	3.00E-03	<0.2%	Yes

Table 9-2. Comparison of the As-Received 241-AN-104 Filterable Solids to Specification 8 Limits - continued

Non-Volatile Element	Concentration in Dry Solids (mg/Kg)	Concentration in Calcined Solids (g/100 g)	Specification 8 Maximum (g/100 g)	% of Maximum	Meets Specification 8?
Ag	<6.4E+01	<1.1E-02	5.50E-01	<2.1%	Yes
Al	1.93E+04	3.46E+00	1.40E+01	25%	Yes
Ba	<1.5E+02	<2.7E-02	4.50E+00	<0.6%	Yes
Bi	4.23E+00	7.60E-04	2.80E+00	0.0%	Yes
Ca	8.66E+02	1.56E-01	7.10E+00	2.2%	Yes
Cd	<4.6E+01	<8.2E-03	4.50E+00	<0.2%	Yes
Cr	4.50E+03	8.08E-01	6.80E-01	119%	No
F	1.92E+03	3.45E-01	3.50E+00	9.8%	Yes
Fe	4.18E+02	7.50E-02	2.90E+01	0.3%	Yes
K	3.09E+03	5.55E-01	1.30E+00	43%	Yes
Mg	<6.0E+00	<1.1E-03	2.10E+00	<0.1%	Yes
Na	3.55E+05	6.37E+01	1.90E+01	335%	No
Th	3.73E+00	6.69E-04	5.00E+00	0.01%	Yes
Ni	1.64E+02	2.94E-02	2.40E+00	1.2%	Yes
P	3.44E+03	6.17E-01	1.70E+00	36%	Yes
Pb	3.69E+02	6.62E-02	1.10E+00	6.0%	Yes
Pd	1.22E+01	2.19E-03	1.30E-01	1.7%	Yes
Rh	3.86E+00	6.94E-04	1.30E-01	0.5%	Yes
Ru	7.21E+00	1.30E-03	3.50E-01	0.4%	Yes
S	1.14E+04	2.04E+00	6.50E-01	314%	No
Si	2.44E+03	4.37E-01	1.90E+01	2.3%	Yes
Ti	<6.2E+01	<1.1E-02	1.30E+00	<0.8%	Yes
U	5.45E+02	9.78E-02	1.40E+01	0.7%	Yes
Zr	<1.8E+02	<3.3E-02	1.50E+01	<0.2%	Yes

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10.0 GENERAL DESCRIPTION OF ANALYTICAL PROCEDURES

10.1 INDUCTIVELY COUPLED PLASMA-ATOMIC EMISSION SPECTROSCOPY

Samples were diluted as necessary to bring analytes within the instrument range. A scandium internal standard was added to all samples after dilution at a concentration of 2 mg/L. Background and internal standard correction were applied to the results. An LCS containing the analytes of interest was run with the samples. A matrix spike containing Ba, Ca, Cr, Fe, Na, and Ni was run with each set of samples. The subset of elements used for the matrix spike was specified in the task plan.

10.2 ION CHROMATOGRAPHY FOR ANIONS AND ORGANICS ACIDS

For IC Anions, samples were diluted with a carbonate/bicarbonate diluent, as necessary, to bring analytes to within instrument calibration. An LCS containing the analytes of interest was analyzed concurrently with samples. One sample replicate was spiked with known concentrations of the analytes of interest for each set of samples.

Organic acids were determined by ion exclusion chromatography (IEC). Samples were diluted in a high salt solution as necessary to bring analytes to within instrument calibration. An LCS containing the analytes of interest was analyzed concurrently with samples. One sample replicate was spiked with known concentrations of the analytes of interest for each set of samples.

10.3 FREE HYDROXIDE AND TOTAL BASE TITRATIONS

Total hydroxide (total base) was determined by titration to an inflection end point closest to pH 7.00. An LCS containing 1.00 N NaOH was run in triplicate before and after each set of samples.

Free hydroxide was determined by incremental inflection point titration. The titration curves were examined to determine the free hydroxide concentration. A lab control standard containing hydroxide, aluminate, and carbonate was run in triplicate before and after each set of samples.

Carbonate was determined by precipitation using saturated barium chloride. The precipitate was dissolved in acid and the carbonate concentration determined via back titration. An LCS containing hydroxide, aluminate, and carbonate was run in triplicate before and after each set of samples.

No matrix spikes were performed on any of the base titrations.

10.4 ATOMIC ABSORPTION SPECTROSCOPY

Sodium, potassium, and mercury were analyzed by AA. The mercury was determined using the cold vapor technique. Samples were diluted as necessary to bring analytes within the instrument calibration range. An LCS containing the analyte of interest was run with the samples. A matrix spike containing the analyte of interest was made on one of the sample replicates for each set of samples.

10.5 AMMONIA

Ammonia was analyzed by ion (cation) chromatography after a purge and trap procedure to isolate the ammonia from the sample.

Due to high concentrations of sodium ions which interfere with the analysis of ammonium ions (NH4+), dissolved ammonia in the sample was purged using helium gas and trapped in an acidic solution for cation analysis. A 1-mL sample aliquot was added to a 2 molar hydroxide solution and purged for 15 minutes. An LCS containing the sample analyte was analyzed concurrently with samples. A sample replicate was spiked with the analyte at a known concentration, purged for 15 minutes, and trapped in an acidic solution for cations analysis. Measured values were adjusted to account for purge efficiency losses.

10.6 ORGANICS

EDTA and HEDTA were analyzed by Ion Pair Chromatography (IPC). The copper complex of EDTA and HEDTA were used as the LCS. For the matrix spike, EDTA and HEDTA were spiked into the sample followed by preparation and analysis.

IDA, NTA, and ED3A were analyzed by GC-MS. These compounds were converted from carboxylic acids to methyl esters by BF_3/methanol reagent for GC-MS analysis. The GC-MS instrument was calibrated using naphthalene-d8 as the LCS. The matrix spike was either Adipic acid or stearic-d35 acid which was then compared to acid methyl ester. Each sample was prepared in duplicate, one containing a spike of IDA and NTA. The IDA/NTA spike served as an internal standard.

10.7 TOTAL INORGANIC CARBON/TOTAL ORGANIC CARBON

Total carbon was determined by combustion at 780 °C in a stream of pure oxygen. The CO_2 produced was then measured. The inorganic carbon was determined by injecting an aliquot into an acid medium purged by an oxygen stream. Again, the CO_2 produced was then measured. By subtracting the inorganic carbon from the total carbon, the organic carbon was calculated. Instrument calibration used NIST traceable organic and inorganic standards before and after each set of samples. These standards also served as the LCS and were used for the matrix spike for the method. The matrix spike was made on one of the sample replicates.

10.8 INDUCTIVELY COUPLED PLASMA-MASS SPECTROMETRY

Samples were run concurrently with an LCS containing V, Co, As, Sr, Mo, Ru, Ag, Cd, Sb, Cs, Ba, La, Eu, Ho, Yb, Tl, Pb, Th, and U. This LCS provided a mass response covering most of the mass range of interest. However, the LCS did not cover every mass of species of interest such as I^{127}, and W isotopes so no LCS recovery was provided for these analytes. For some elements (Ru, Rh, Nd, Pr, Ta, and Pt), the LCS and MS recoveries from a nearby mass were used. In general a matrix spike using the LCS was made on one of the sample replicates. For some of the sample results without matrix spike recoveries in the data tables, a matrix spike containing only U was used. The following describes the calculation of the analytes of interest from the mass values:

V	mass 51
Co	mass 59
Y	mass 89
Ru	sum of mass 101, 102, and 104
Rh	mass 103
Pd	sum of mass 105, 106, 108, and 110
Sb	sum of mass 121 and 123
Te	sum of mass 122, 124, 125, 126, 128, and 130
Nd	sum of mass 142, 143, 144, 145, 146, 148, and 150
Pr	mass 141
Sm	mass 151
Ta	mass 181
Pt	sum of mass 190, 192, 194, 195, 196, and 198
Tl	sum of mass 203 and 205
Bi	mass 209
Rb	sum of mass 85 and 87
Tc^{99}	mass 99
I^{127}	mass 127
Cs^{133}	mass 133
Cs^{135}	mass 135.
Cs^{137}	mass 137
W	sum of mass 180, 182, 183, 184, 186.
Th	mass 232
U^{233}	mass 233
U^{234}	mass 234
U^{235}	mass 235
U^{236}	mass 236
U^{238}	mass 238
Np^{237}	mass 237
Pu^{239}	mass 239
Pu^{240}	mass 240

10.9 ALPHA COUNTING

Prior to the analysis, Cs^{137} was removed from aliquots of the samples in order to reduce bias effects caused by large beta/alpha ratios. The Cs^{137} removal was accomplished using Bio-Rad AMP1 resin. Following the Cs removal process, an aliquot of each stripped solution was added to a stainless steel planchet and analyzed for alpha activity.

10.10 GAMMA SPECTROMETRY

An aliquot of each sample was analyzed by gamma spectroscopy analysis using a high purity germanium detector. Results are background subtracted.

10.11 H^3 ANALYSIS

For the tritium analysis, an aliquot of each sample was subjected to a steam distillation to separate the tritium containing fraction from the remainder of the sample. An aliquot of each distillate was added to liquid scintillation cocktail to be analyzed for tritium. The samples were counted on a Packard Instruments liquid scintillation counter along with an instrument blank. The instrument blank was counted first and was used to establish an instrument background that was subtracted from the count results for the samples.

10.12 TC^{99} ANALYSIS (FOR PERTECHNETATE FORM)

Tc^{99m} tracers were generated initially by neutron irradiation of natural molybdenum using SRTC's Cf^{252} Neutron Activation Analysis facility. Mo^{98} was activated to Mo^{99} which subsequently beta decays to Tc^{99m}. The Tc^{99m} was then extracted from the Mo^{99} to form a Tc^{99m} tracer.

Aliquots of the sample were diluted with water, Tc^{99m} tracer was added, and the Tc^{99} was subsequently extracted using an Aliquat 336 based extraction. Aliquat 336 extracts Tc^{99} in the pertechnetate form. The extractant was then analyzed first by gamma spectroscopy to determine Tc^{99m} tracer recoveries, and then analyzed by liquid scintillation analysis to determine Tc^{99}. Tc^{99m} tracer recoveries were applied to the liquid scintillation results to quantify the Tc^{99}. A blank solution was also run through the extraction process to ensure no cross contamination existed at the laboratory level.

10.13 SR^{90} ANALYSIS

An aliquot of each sample was analyzed for Sr^{90} using an Eichrom Sr-Spec based extraction procedure. A Sr^{90} spiked blank was analyzed with the sample batch to establish Sr^{90}/Y^{90} counting efficiencies and Sr chemical recoveries. Aliquots of each sample's Sr extract were analyzed by neutron activation analysis to determine Sr carrier recoveries, the results of which were normalized to the results of the Sr^{90} spiked blank sample so each sample could be yielded by the recovery of its stable Sr carrier recovery. The LCS and matrix spike samples were treated exactly like the samples.

Once the extractions were complete, aliquots of the resultant Sr^{90}/Y^{90} containing extracts mixed with liquid scintillation cocktail were counted in the ADS Radiochemistry Counting Facility. The samples were counted on a Packard Instruments liquid scintillation counter along with an instrument blank. The instrument blank was counted first and was used to establish an instrument background that was subtracted from the count results for the samples.

10.14 SE^{79} ANALYSIS

Aliquots of the sample were spiked initially with stable Se which acted as both a chemical carrier and a Se yield tracer for the Se^{79} measurements. The samples were then oxidized. Next the solutions were reduced to precipitate out Se metal. The Se metal was washed repeatedly, re-dissolved, and the dissolution was then subjected to a series of decontamination steps with several types of analytical resins added in batch mode, which were subsequently filtered off. The decontaminated solutions were then concentrated. Aliquots of the concentrate were analyzed by neutron activation analysis to determine Se carrier yields, and by liquid scintillation to measure Se^{79} activities.

10.15 ALPHA SPECTROSCOPY FOR PLUTONIUM ISOTOPICS

An aliquot of each sample dissolution was subjected to a thenoyltrifluoroacetone (TTA) separation. An aliquot of the sample dissolution was initially spiked with a Pu^{238} tracer. A second aliquot of straight sample dissolution was analyzed along with the spiked sample. In addition, a third aliquot was used for determining the Pu^{241} concentration. All the plutonium in the samples was reduced once using hydroxylamine. An anion-complexing reagent (aluminum nitrate) was then added, and the solutions were oxidized with 4M sodium nitrite. The plutonium was then extracted from the matrix using a TTA solution. The TTA layer was mounted on a counting dish, the mount was then analyzed by alpha spectroscopy. A blank sample was run with the sample set.

The analysis results for the $Pu^{239/240}$ alpha peak were yielded using the Pu^{238} recoveries from the Pu^{238} traced sample separation. The ratio of the $Pu^{239/240}$ to the Pu^{238} in the sample was obtained from the alpha spectroscopy analysis of the non-spiked sample. That ratio was applied to the determined $Pu^{239/240}$ value to determine the Pu^{238} activity in the sample.

The sample aliquot dedicated to the Pu^{241} analysis was added to liquid scintillation cocktail following the separation and analyzed for both Pu^{241} and gross Pu-alpha constituents. The ratio of Pu^{241} to total Pu alpha was determined and applied to the results from the plates in order to determine a Pu^{241} concentration.

10.16 I^{129} ANALYSIS

An aliquot of each sample was spiked with stable iodide and was subjected to a silver iodide precipitation method to separate any iodide in the matrix from other radionuclides. A blank DI water sample was analyzed along with the batch. The precipitates were analyzed for I^{129} activity with a low energy HPGe gamma spectroscopy detector. After the gamma analyses, the precipitates were analyzed by neutron activation analysis (NAA) to determine the levels of stable iodide carrier in the precipitates. The recoveries of the iodide carrier were used to correct the gamma spectroscopy results for the I^{129} recoveries. Uncertainties provided are 1 sigma.

10.17 AM/CM ANALYSIS

Aliquots of sample were run through an Am/Cm separation procedure to separate the trivalent Am/Cm isotopes from the higher valence state actinides following a sample oxidation step. Samples were run through the procedure in duplicate, one sample spiked with Am^{243} for yielding purposes, one sample unspiked to correct for any Am^{243} that may be present in the samples. The Am/Cm sample mount was analyzed by alpha spectroscopy for $Cm^{244/243}$ and Cm^{242} and by low energy gamma spectrometry for Am^{241}. The results were yielded by using the Am^{243} tracer alpha result and the Am^{243} tracer gamma result. A blank sample was run through all of the analyses with every batch of samples.

10.18 C^{14} ANALYSIS

Aliquots of sample were wet-ashed with a sodium persulfate/silver nitrate oxidation in conjunction with concentrated sulfuric acid. The carbon dioxide emitted was absorbed with Packard Instruments Carbosorb E. The Carbosorb E was then slurried into Ultima Gold AB, and analyzed by liquid scintillation analysis for C^{14}. Each sample was run through the process in duplicate. A blank solution, spiked with a C^{14} standard, was run (in duplicate) in parallel with the samples to determine C^{14} recoveries. The average recoveries were applied to the sample results to quantify the C^{14} concentrations. A second blank solution, spiked with the C^{14} standard was also run in duplicate through the process to serve as the laboratory control sample. One customer sample was spiked with some C^{14} (again in duplicate) and run through the process to serve as the matrix spike. A blank solution was also run through the entire process to ensure no cross contamination existed at the laboratory level.

11.0 REFERENCES

1. Stallings, M. E., Coleman, C. J., Hay, M. S., Martin, K. B., *Task Technical and Quality Assurance Plan Compositing, Homogenizing, and Characterizing Samples from Hanford Tank 241-AN-104*, WSRC-TR-2002-00386, SRT-RPP-2002-00199, Rev. 0, September 9, 2002, Savannah River Site, Aiken, SC 29808.

2. Arakali, A., Abel, K. H., *Tank 241-AN-104 Sample Compositing, Homogenization, and Analyses - Test Specification*, 24590-WTP-TSP-RT-02-011, Rev. 0, May 31, 2002.

3. Hay, M. S., Edwards, T. B., *Statistical Analysis of ESP Verification Test Samples*, WSRC-RP-94-1224, November 4, 1994, Savannah River Site, Aiken, SC 29808.

4. C. J. Coleman, R. A. Dewberry, M. F. Bryant, J. J. Gemmill, *SRL's Performance in Round Robin #6 - Analysis of Simulated Defense Waste Glass (U)*, WSRC-TR-91-187, Rev. 0, May 31, 1991, Westinghouse Savannah River Company, Aiken, SC.

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APPENDIX A. SAMPLE HISTORY

Fluor Hanford
P. O. Box 1000
Richland, WA 99352

FLUOR

Memorandum

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REISSUE

To:	D. B. Hardy	T6-12	Date:	May 14, 2002
From:	M. A. Neely, Client Services Production Control	T6-04	Telephone:	372-0654

cc:	R. Akita	T6-50	K. L. Powell	T6-04
	A. Arakali	H4-02	J. R. Prilucik	T6-12
	P. J. Brackenbury	H4-02	D. L. Renberger	S3-30
	T. A. Brown	T6-14	H. K. Schnebly	T6-50
	C.M. Caprio	T6-12	C. M. Seidel	T6-12
	R. L. Clawson	H1-11	G. A. Stanton	R2-12
	R. K. Fuller	T6-12	J. L. Westcott	T4-05
	N. L. Hulse	R2-12	W. I. Winters	T6-07
	S. G. McKinney	R2-12	E. C. Vogt	T6-14
	T. R. Pauly	S7-83	CMS-File/LB	

Subject: PACKAGING AND SHIPPING FOR TANK 241-AN-104

CH2MHILL Hanford Group, Inc. (CHG) has requested Fluor Hanford (FH) Analytical Services to process and prepare tank 241-AN-104 materials in support of the Department of Energy, Office of River Protection (DOE-ORP) Tank Waste Treatment ICD-23 activities. CHG has contracted FH, through Analytical Services, to package tank waste samples for shipment to the Savannah River Technology Center (SRTC) on or before September 3, 2002. The actual shipping date will be confirmed by Bechtel National Inc. (BNI), DOE-ORP, SRTC, and CHG prior to shipment. The 222-S Laboratory will perform all analyses and activities required by the DOE to package the material for shipment according to Department of Transportation (DOT) specifications, and deliver the material to the carrier's truck at the 222-S Laboratory.

The attached Letter of Instruction (LOI) has been revised and reissued to accommodate a request by CHG that Segment 1R (Vial Number 18325) be set aside for future shipment to the Pacific Northwest National Laboratory (PNNL) for a heal mixing study test.

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Tank 241-AN-104
Letter of Instruction Supporting PAS-1 Cask Shipment

Approvals

N. L. Hulse, Tank 241-AN-104 Coordinator — Date 5-14-02
Data Development and Interpretation
CH2M HILL Hanford Group, Inc.

D. B. Hardy, Production Control — Date 5/14/02
Analytical Services
Fluor Hanford

C. M. Seidel, Analytical Chemistry — Date 5/14/02
Analytical Services
Fluor Hanford

R.L. Clawson, Transportation Services — Date 5/13/02
Duratek Technical Services

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LIST OF ABBREVIATIONS

AN-104	Tank 241-AN-104
CHG	CH2MHill Hanford Group, Inc.
BNI	Bechtel National, Inc.
Ci	curie
COC	Chain of Custody
CPO	Characterization Project Operations
DOE-ORP	Department of Energy – Office of River Protection
DOT	Department of Transportation
DQO	Data Quality Objectives
FH	Fluor Hanford, Inc.
FY	fiscal year
g	gram
g/L	gram per liter
ICP/AES	inductively coupled plasma - atomic emission spectroscopy
kgal	kilogallon
kL	kiloliter
ICD-23	Interface Control Document
L	Liter
LAW	Low Activity Waste
LOI	Letter of Instruction
LMHC	Lockheed Martin Hanford Corporation
mL	Milliliter
ORP	Office of River Protection
PIC	person in charge
PNNL	Pacific Northwest National Laboratory
QA	quality assurance
QC	quality control
RPP	River Protection Project
SRTC	Savannah River Technology Center
TBq	terabecquerel
TCD	Tank Characterization Database
TOC	total organic carbon
TWINS	Tank Waste Information Network System
WMH	Waste Management Hanford
WTP	Waste Treatment Plant
µCi	microcurie
µCi/g	microcuries per gram

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1.0 OBJECTIVES

This Letter of Instruction (LOI) directs the laboratory to process and prepare the 241-AN-104 tank material as directed in support of the Department of Energy, Office of River Protection (DOE-ORP) Waste Treatment Plant (WTP) Interface Control Document-23 (ICD-23). CH2M Hill Hanford Group (CHG) has contracted Fluor Hanford, Inc. (FH) to package tank waste samples for shipment to the Savannah River Technology Center (SRTC). Samples from tank 241-AN-104 will be prepared for shipment on or before September 3, 2002. This shipping date is based on SRTC's schedule and capacity to receive this material. The actual shipping date will be confirmed by DOE-ORP, Bechtel National, Inc. (BNI), SRTC, and CHG prior to packaging the material for shipment. The 222-S Laboratory will perform all analyses and activities required by the DOE to package the material according to Department of Transportation (DOT) specifications, and deliver and load the material onto the carrier's truck at the 222-S Laboratory.

2.0 TANK BACKGROUND

The most current measurements for tank 241-AN-104 indicate that the tank contains 604 kgal of supernatant and 449 kgal of saltcake, with the waste categorized as double-shell slurry feed. The waste level is 382.9 inches (corresponding to 1053 kgal of waste) from the bottom of the tank [Letter (a)]. Tank 241-AN-104 was sampled during August 2000 per Letter of Instruction (LOI) [(Letter (a) and Letter (b)]. These samples were taken to address the requirements of the Interface Control Document-23 (ICD-23). Tank 241-AN-104 is a Phase I source tank for low activity waste (LAW) feed, and samples have been requested for the waste treatment contractor (BNI 2002).

A core sample, consisting of 21 segments, was obtained from riser 22 to provide a minimum of 3.5 L of supernatant and associated solids to meet the ICD-23 requirements for providing sample material to the waste treatment plant contractor. The samples for ICD-23 will be packaged for shipment from the 222-S Laboratory as directed by this LOI.

The 222-S Laboratory will estimate the quantities of liquid phase, based on sample weights, densities, volumes, and visual observations using information from the August 2000 sampling event. The samples will be packaged for shipment in compliance with the appropriate transportation requirements as directed by the WTP contractor and the certified shipper, Duratek Technical Services.

3.0 LABORATORY ANALYSIS REQUIREMENTS

3.1 Sample Receipt

Tank 241-AN-104 was core sampled during August 2000 using a rotary mode core sampling truck. A full depth core sample, consisting of 21 segments, was collected from the tank and then transported to the 222-S Laboratory. The 222-S Laboratory received the core samples and inspected each sample. The core samples were extruded at the 222-S Laboratory into 22 separate sample bottles (i.e., two (2) 250mL bottles and twenty (20) 500mL sample bottles). At the time of the extrusions, the following items were recorded: color, appearance, and mass. In addition, the samples were photographed during the extrusion process. [Note: At the direction of CHG,

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approximately 30 grams of core Segment 1, and the entire Segment 15 and Segment 20 are being used for corrosion control studies. In addition, CHG has also requested that Segment 1R (Vial Number 18325) be shipped to the Pacific Northwest National Laboratory (PNNL) for a heal mixing study test. Therefore, only 19 sample bottles of the tank material are available for the AN-104 ICD-23 shipment to SRTC.]

The sample material has been stored as follows:

- Between the date sampled and the receipt at the laboratory, the samples were stored in the field at the AN tank farm. Samples were sealed in an onsite transfer cask and transported to the 222-S Laboratory. The samples were subject to the outside ambient temperature.
- Between receipt at the laboratory and load-in to the 11A Hot Cell, the onsite transfer casks were stored in the door 10 anteroom. In this area the samples were still sealed in the onsite transfer casks. Storage time in this area was typically less than 2-3 hours. The samples were subject to the laboratory ambient temperature of approximately 70-72°F.
- The samples were then loaded into the 11A Hot Cell where the core sample material was extruded, and then placed in storage until the material will be shipped to SRTC. The ambient temperature in the 11A Hot Cell is about 78°F.
- The samples will be packaged for shipment to SRTC by placing the bottle used in the above step into a steel pig. (Note: If compositing or consolidation of samples is required to complete loading of the cask, documentation will be provided on the composition of each composite). This pig will then be placed into a rack inside the PAS-1 shipping cask. After packaging and cask leak testing, the casks will be transported by truck to the SRTC. During this transport, the samples will be subjected to the outside ambient temperature.
- See Table 1 for a list of the tank 241-AN-104 samples that were collected during the August 2000 sampling event.

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Table 1. Tank 241-AN-104, Riser 22, FY 2000 Sampling Event

Jar/Vial #	Tare Wt# (g)	Core #	Segment #	Gross Wt# 2002	Net Wt# 2002	Vial Size (ml)
18324	299	282	1[1]	690.2	391.2	500
18325	297.4	282	1R[1]	729.3	431.9	500
18259	291.3	282	2	738.09	446.79	500
18260	292.3	282	3R	730.4	438.1	500
18265	292.9	282	4	731.9	439.0	500
18264	293.7	282	5	751.3	457.6	500
18266	295.3	282	6	740.2	444.9	500
18267	294	282	7	749.80	455.80	500
17939	216.4	282	8	558.5	342.1	250
17944	215	282	8	320.98	105.98	250
18379	292.5	282	9	743.46	450.96	500
18389	294.8	282	10	744.6	449.8	500
18380	294.1	282	11	723.5	429.4	500
18381	295.5	282	12	696.0	400.5	500
18383	291.4	282	13	678.0	386.6	500
18388	294.2	282	14	689.3	395.1	500
18392	293.7	282	15[1]	686.62	392.92	500
18382	295.5	282	16	708.2	412.7	500
18384	293.9	282	17	687.4	393.5	500
18385	293.4	282	18	6891.8	388.4	500
18386	298.1	282	19	706.7	408.6	500
18387	294.8	282	20[1]	612.7	317.9	500

Footnote:
[1]At the direction of CHG, approximately 30 grams of core Segment 1, and the entire Segment 15 and Segment 20 are being used for corrosion control studies (AN-104 CC1). In addition, CHG has also requested that Segment 1R be shipped to the PNNL for a heal mixing study test. As a result, these samples will not be included in the AN-104 ICD-23 shipment to SRTC. Therefore, this will result in providing BNI with approximately 7.6 K-grams of tank material with a volume of approximately 5.1 Liters.

3.2 Specific Methods and Sample Analyses

The intention of this LOI is not to repeat any analyses that were directed under any other work instructions. Information collected prior to this LOI is applicable to address the issues here, if collected on the material being shipped. Selected analytical results that were retrieved from the Tank Waste Information Network System (TWINS) database are included as Attachment A to this LOI. (Note: Analytical data results with data qualifiers were not retrieved from the TWINS database for this summary.)

The August 2000 samples were visually inspected as they were received at the laboratory. The samples were again visually inspected on March 14, 2002. The results of this most recent visual inspection are included as Attachment B to this LOI. The visual inspection of these samples revealed the following observations.

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- The liquid phase in all 20 sample bottles appears to be homogenous. The liquid phase of this tank is saturated or nearly saturated with dissolved salts. Therefore, the liquid phase in all 20 sample bottles is expected to be homogeneous with finely suspended particles.
- Ten (10) of the sample bottles have "minimal settled solids" (i.e., a light "dusting" on the bottom of the bottle, which is not even enough to composite into one sample for analyses in the lab).
- Two (2) of the bottles (Jar Numbers 18325 and 18389) have a small amount of "light gray solids (crystalline)" on the bottom of the bottle.
- Eight (8) of the bottles (Jar Numbers 18380, 18381, 18383, 18388, 18382, 18384, 18385, and 18386) have large amounts of "dark gray solids" in the bottle.

Additional analytical testing, as summarized below, is required on the August 2000 core samples to address the PAS-1 Cask DOT shipping requirements.

- A liquid composite sample and a solid composite sample representing the material being shipped to SRTC shall be prepared from the samples identified in Table 1 and Attachment A, as indicated below.
  1) The liquid composite sample shall be prepared from Jar Numbers 18267, 18389, and 18388.
  2) The solid composite sample shall be prepared by sampling the solid material present in Jar Numbers 18380, 18388, 18389, and 18386.
- The liquid sample and the solid composite samples identified above shall be analyzed in triplicate as directed in Table 2.

Two (2) PAS-1 Casks are available for this shipment. Since each PAS-1 Shipping Cask will only hold eight (8) 500mL bottles, or sixteen (16) 250mL bottles (or a total of 4.0L), it will be necessary to repackage the 241-AN-104 sample material for this shipment into 500mL bottles suitable for shipping in the PAS-1 Cask so that the total number of sample bottles can be reduced from 19 to 16.

- When consolidating sample bottles containing solids, only bottles from adjacent, sequentially numbered, segments shall be combined.
- Since the liquid phase is considered to be homogenous, sample bottles containing only liquid shall be used to "top off" other liquid-only sample bottles.
- A record will be kept, and documentation shall be provided, detailing sample bottle combinations/consolidations.

(Note: If the shipper defines the maximum shipping volume per cask as 2 liters the material may be packaged in 250mL bottles.) The identified material will be packaged for shipment to SRTC as directed by the Duratek Technical Services Packaging and Shipping point of contact.

Table 2. Required Analysis for DOT Shipping Calculations

Sample ANALYSES													
Project Name	AN-104 ICD-23 Support			COMMENTS						REPORTING LEVELS		
Plan Number	B3500-MAN-02-043									FORMAT I	Early Notify	
										FORMAT II	Letter Report	
PROGRAM	PROGRAM CONTACTS											
A. CHG Tank Characterization	Program Management	C.M. Seidel										
B. PAS-1 Cask Shipment	Shipping Contact	R.L. Clawson		TANK	241-AN-104							
ANALYSES - Liquid				SAMPLE[1]	PREP[2]	QUALITY CONTROL[3]				CRITERIA			REPORT
PROGRAM	METHOD	ANALYSIS	PROCEDURE	Core Samples		DUP	SPIKE	BLK	STD	UNITS	NOTIFICATION LIMIT[4]	EXPECTED RANGE[4]	
B	Beta Counting	Total Beta	LA-508-101	One Liquid (see Page 4)	a	Triplicate	N/A	each Batch	each Batch	µCi/mL			II
B	GEA	All detects and ^{137}Cs	LA-548-121	One Liquid (see Page 4)	d	Triplicate	N/A	each Batch	each Batch	µCi/mL			II
B	TOC	Organics	LA-344-105	One Liquid (see Page 4)	d	Triplicate	each Batch	each Batch	each Batch	µg/mL			II
B	ICP/AES	Al	LA-505-161	One Liquid (see Page 4)	a	Triplicate	each Batch	each Batch	each Batch	µg/mL			II
B	ICP/MS	^{233}U, ^{235}U, $^{239}Pu/U$, ^{239}Pu, ^{241}Pu	LA-506-101	One Liquid (see Page 4)	a	Triplicate	each Batch	each Batch	each Batch	µg/mL	Sum > 2 µg/mL		II
ANALYSES – Settled Solids				SAMPLE[1]	PREP[2]	QUALITY CONTROL[3]				CRITERIA			REPORT
PROGRAM	METHOD	ANALYSIS	PROCEDURE	Core Sample		DUP	SPIKE	BLK	STD	UNITS	NOTIFICATION LIMIT[4]	EXPECTED RANGE[4]	
B	Beta Counting	Total Beta	LA-508-101	Two Composites (see Page 4)	f	Triplicate	N/A	each Batch	each Batch	µCi/g			II
B	GEA	All detects and ^{137}Cs	LA-548-121	Two Composites (see Page 4)	f	Triplicate	N/A	each Batch	each Batch	µCi/g			II
B	TOC	Organics	LA-342-100	Two Composites (see Page 4)	d	Triplicate	each Batch	each Batch	each Batch	µg/g			II
B	ICP/AES	Al	LA-505-161	Two Composites (see Page 4)	f or a	Triplicate	each Batch	each Batch	each Batch	µg/g			II
B	ICP/MS	^{233}U, ^{235}U, $^{239}Pu/U$, ^{239}Pu, ^{241}Pu	LA-506-101	Two Composites (see Page 4)	f or a	Triplicate	each Batch	each Batch	each Batch	µg/g	Sum > 2mg/g		II

[1] Analysis is required on one composite sample of each physical phase. Historical information supports the assumption that the liquid phase of this tank is homogeneous.
[2] d-direct, f-fusion, a-acid, w-water
[3] DUP = duplicate, PB = preparation batch, Batch = analytical batch; mtrx = matrix; BLK = blank, STD = calibration standard, smpl = sample, N/A = not applicable.
[4] Units for notification limits and expected range are in the units' column.
(Note: ^{238}U includes only an acid digest matrix.)

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4.0 QUALITY ASSURANCE AND QUALITY CONTROL

Processes, services, activities, and conditions adverse to quality requirements in this LOI or references herein shall be controlled to prevent inadvertent use. Nonconforming sampling and analysis processes shall be identified, controlled, reported, and dispositioned as required by Section 3, paragraph 3.3, Nonconformance Control, of the *Project Hanford Quality Assurance Program Description* (PHMC 1997).

All parties are subject to Title 10, Code of Federal Regulations, Part 830.120, *Quality Assurance Requirements*, and the enforcement actions under 10 CFR 820, *General Statement of Enforcement Policy*.

4.1 Laboratory Operations

Laboratories performing analyses in support of this LOI shall have approved and implemented Quality Assurance Plans. These QA plans shall meet the *Hanford Analytical Services Quality Assurance Requirements Document* (DOE-RL 1998) minimum requirements as the baseline for laboratory quality systems. Quality requirements for conducting Characterization Project sampling and analysis are described in *Tank Waste Remediation System, Characterization Project, Quality Policies,* HNF-SD-WM-QAPP-025, rev. 4, (Board, D.C., 1998), and this LOI.

Analytical quality control (QC) requirements (duplicates, spikes, blanks, laboratory control samples) are identified in Table 2. The laboratory will follow the standard criteria found in the laboratory QAPP or HASQARD as minimum requirements. The laboratory shall also use calibration and calibration check standards appropriate for the analytical instrumentation being used. The criteria presented are goals for demonstrating reliable method performance. It is understood that the laboratory will follow its internal QC system for required actions whenever QC failures occur. If sample QC failures occur, or if all analyses cannot be performed (e.g., insufficient sample), then the analysts shall consult with supervisors/customers to determine the proper action. The laboratory should provide a suggested course of action at that time. All sample QC failures and limitations on the associated data shall be discussed in the narrative of the letter report. Proper notification of all data not meeting QC requirements, as specified in *222-S Laboratory Quality Assurance Plan, Revision 5,* HNF-SD-CP-QAPP-016, shall be included with the data.

4.2 Sample Custody

The field sampling team initiated the chain-of-custody (COC) form. The sealed and labeled samples were shipped to the 222-S Laboratory along with the chain-of-custody forms. The receipt and control of samples in the 222-S Laboratory are described in laboratory procedure LO-090-101.

The laboratory will prepare and deliver to the transportation carrier, chain-of-custody documentation that will accompany the samples as they are transferred from the 222-S Laboratory to SRTC. The 222-S Laboratory will provide the carrier with COC forms documenting: 1) the transportation of the 241-AN-104 samples from the field to the 222-S Lab, and 2) the transportation of the 241-AN-104 samples from the 222-S Lab to SRTC. For samples originating from the laboratory archive, information will be included to allow tracing the sample to it's original tank sampling location. This will include any compositing information or sample treatment occurring within the laboratory (when used), as well as copies of the sample break down diagrams (SBDs).

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5.0 EXCEPTIONS, CLARIFICATIONS, AND ASSUMPTIONS

5.1 Exceptions to DQO Requirements

This LOI assumes that samples taken from the liquid phase of this tank will be identical as they represent the same tank material. If inspection or other evidence indicates samples taken from this location are not identical, additional sample analysis may be required.

5.2 Clarifications and Assumptions

A number of clarifications and assumptions relating to the notification limits or decision thresholds identified in the applicable DQO efforts need to be made with respect to the analyses in Table 2. Each of these issues is discussed below:

If the analytical results are close to the NuPac PAS-1 acceptance limits, then the analytical results should be compared to their limits at a 95% confidence level (one-tailed test). (The laboratory certified shipper performs this analysis). The equation for determining the upper confidence value is shown here.

$$\hat{\mu} + t_{(n-1)} * \frac{\sqrt{\hat{\sigma}^2}}{\sqrt{n}}$$

Where $\hat{\mu}$ is the sample mean, $\hat{\sigma}^2$ is the sample variance, n is the number of observations (for a sample run in duplicate, n equals 2), and $t_{(n-1)}$ is the quantile from Student's t distribution with (n-1) degrees of freedom (for a one-sided 95% confidence interval and when n is 2, t is 6.314). This equation is appropriate for confidence limit estimates of the mean when the sample size is small. This equation, as well as a table of values for the Student t statistic, should be found in any introductory statistics textbook.

To maintain constancy, this LOI will require TOC analysis by furnace oxidation to be performed on liquid samples. The energy equivalent of TOC is given below.

$$X = (\text{wt \% TOC dry weight basis}) * \frac{1{,}200\ \text{J/g}}{4.5}$$

NOTE: 1,200 J/g represents the energy equivalent of 4.5 wt% TOC (based on sodium acetate average energetics standard).

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6.0 ORGANIZATION

The organization and responsibility of key personnel involved with the tank 241-AN-104 ICD-23 project are listed in Table 3.

Table 3. Tank AN-104 Project Key Personnel

Responsibility	Organization	Contact	Phone
CHG AN-104 Tank Coordinator	CHG Process Engineering	N. L. Hulse	372-3409
222-S Laboratory Project Coordinator	222-S Laboratory Production Control Support	C. M. Caprio	372-2553
222-S Laboratory Point of Contact (Day Shift)	Analytical Chemistry	C. M. Seidel	373-5211
222-S Laboratory Point of Contact (Off Shift)	Analytical Chemistry	222-S Laboratory (WMH) – Shift Manager	373-2435
Savannah River Technology Center Point of Contact	Savannah River Technology Center	K. Martin	803-725-4997
Packaging and Shipping Point of Contact	222-S Certified Shipper	R. L. Clawson	372-0653
Analytical Production Management	Client Services	M. A. Neely	373-0654

7.0 DELIVERABLES

7.1 Analytical Final Report

All analyses shall be reported in a letter report that includes summary tables of analytical and quality control results. Analyses identified in Table 2 must be completed and released in this letter report on or before July 15, 2002. This report shall include precision and recovery data for each measurement. The data shall include the data for all samples, including (as applicable) solids, liquids, spikes, duplicate, and associated blanks taken and analyzed.

In addition, this letter report shall also include the following: brief tank history, brief discussion of most recent tank sampling event, brief discussion of samples being shipped to SRTC, documentation detailing sample bottle combinations/consolidations, analytical results for samples analyzed formatted for the DOT shipping calculations, chain of custody (COC) forms documenting the transportation of the 241-AN-104 samples from the field to the 222-S Lab, (COC) forms initiating the transportation of the 241-AN-104 samples from the 222-S Lab to SRTC, copies of the sample breakdown diagrams (SBDs), copies of Hot Cell extrusion report, copies of Hot Cell extrusion photographs. This letter report shall be issued as an external letter available to all Hanford contractors through the Records Inventory and Disposition Schedule (RIDS). The raw data shall be accessible to the program in accordance with the laboratory's RIDS and until the respective waste tank is closed or the waste is treated.

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The minimum distribution for this letter report shall be:

Address to:	R.L. Clawson	Duratek Technical Services
Copy to:	P.J. Brackenbury	Bechtel National Inc.
	K. Martin	SRTC
	N.L. Hulse	CHG
	G.A. Stanton	CHG
	T.R. Pauly	CHG
	C.M. Seidel	FH
	K.L. Powell	FH
	M.A. Neely	FH
	C.M. Caprio	FH
	J.L. Westcott	FH

7.2 Electronic Data Transfer

In addition to this letter report, an electronic version of the analytical results shall be provided to the Tank Characterization Database (TCD) representative within one week of the letter report being issued. The data must be available to the Washington State Department of Ecology within 7 days of release of the letter report.

7.3 Sample Shipment

The tank 241-AN-104 core samples are to be ready for shipment to the waste treatment plant contractor no later than September 3, 2002, or as soon as possible as directed by SRTC after that date. Using the information reported in Section 7.1, and historical information or documentation, guidance on volume of material to be packaged in each cask will be provided by the laboratory's certified shipper, along with any special restrictions or instructions. R.L. Clawson of Duratek Technical Services, or his appointed representative, will be the certified shipper for this activity. The radiological and hazardous chemical characteristics data for this shipment shall be submitted to the shipper in the format provided in Attachment C to this LOI in order to allow the shipper to perform the shipping calculations to determine the packaging and labeling requirements for this shipment.

The 222-S Laboratory shall use this guidance to package the material according to DOT specifications, and load the material on the carrier's truck at the 222-S Laboratory. The funding to support the above-described activities is provided by CHG. Therefore, the retrieval of this material from archive, sample preparation, packaging for shipment, certified shipper support, and other activities supporting this shipment are to be charged to CACN/COA: 116294/EF20. The laboratory analyses for LABCORE are to be charged to CACN/COA: 117119/EF20. However, Bechtel National Inc. will provide funding for the carrier and transportation of the samples to SRTC. If multiple shipments are necessary, then the second shipment will be packaged and ready within 14 calendar days after the return of empty shipping containers.

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Sample shipments are to be addressed to:

Bldg. 773A
East Wing Truck Dock
Aiken, SC 29802

Attention:

Name	Phone#	Pager	Pager Extension
Keisha Martin	(803) 725-4997	(803) 725-PAGE	19583
Bill Wilmarth	(803) 725-1727	(803) 725-PAGE	11481
Lynda Wingard	(803) 725-7097	(803) 725-PAGE	11880

8.0 CHANGE CONTROL

Under certain circumstances, it may become necessary for the performing laboratory to make decisions concerning a sample without review of the data by the customer or the Characterization Project. All significant changes (such as additions or new analysis or additional samples) shall be documented by a change notice to this LOI or by a letter. All changes shall also be clearly documented in the analytical project file. Insignificant changes (such as procedure numbers) may be made by the project coordinator by placing a notation in the permanent record. The analytical project manager or author of this LOI determines significance.

9.0 ENVIRONMENTAL AND SAFETY

Applicable DOE contractual Environmental, Safety, and Health (ESH) Requirements hold for this activity. Sample handling and transportation shall be performed per approved CPO and/or 222-S Laboratory work packages and procedures.

DOE contractual safety requirements hold for this activity. For the work to be performed at the waste treatment plant contractor the Contractor's safety requirements apply.

10.0 REFERENCES

Adams, M. R., J. W. Hunt, R. R. Thompson, 2000, *Letter of Intent for River Protection Project (RPP) Characterization Program: Process Engineering, Hanford Analytical Services, Characterization Project Operations and Quality Assurance,* RPP-5539, Rev. 0, CH2M HILL Hanford Group, Inc., Richland Washington.

Adams, M.R. 2000a, *CPO Requirements Planning & Support & Data Development & Interpretation Desk Instruction Manual*, RPP-6831, Rev. 0A, CH2M HILL Hanford Group, Inc., Richland Washington.

Board, D. C., 1998, *Tank Waste Remediation System, Characterization Project, Quality Policies*, HNF-SD WM-QAPP-025, Rev. 4, Lockheed Martin Hanford Corp. for Fluor Daniel Hanford, Inc., Richland, Washington.

BNI, 2002, *ICD 23 - Interface Control Document for Waste Treatability Samples*, 24590-WTP-ICD-MG-01-023, Rev. 0, Richland, Washington, dated March 14, 2002.

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CHG, 2000a, *Operating Specifications for the 241-AN, AP, AW, AY, AZ, and SY Tank Farms*, OSD-T-151-00007, Rev. H-24, CH2M HILL Hanford Group, Inc. Richland, Washington.

CHG, 2000b, *Measurements / SACS Surface Level*, Tank Characterization Database, January 10, 2001, internet at http://twins.pnl.gov:8001/twins3/twins.htm

CHG, 1999, *Nonconforming Item Reporting and Control*, RPP-PRO-298, Rev. 0, CH2M HILL Hanford Group, Inc., Richland, Washington.

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DOE, 1998, *Hanford Analytical Services Quality Assurance Requirements Documents*, DOE/RL-96-68, Rev. 2, U.S. Department of Energy, Richland Field Office, Richland, Washington.

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Lang, L. L., Bobrowski, S. F., and S. J. Harris, 1999, *Standard Electronic Format Specification for Tank Characterization Data Loader: Version 3.0*, HNF-3638, Rev. 1, prepared by Pacific Northwest National Laboratory for Lockheed Martin Hanford Corp., Richland, Washington.

Letter (a), L. A. Fort, LMHC, to T. A. Brown WMH, and J. S. Lee, LHMC, *Request for Core Samples from Tank 241-AN-104*, LHMC-74B20-99-051, dated December 20, 1999.

Letter (b), N. L. Hulse, to T. A. Brown, and J. S. Lee, *Request for Core Samples from Tank 241-AN-104*, CHG-74B10-00-007, dated May 15, 2000.

NuPac PAS-1 Consolidated SAR , Revision 5, January 21, 2000.

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ATTACHMENT A

Selected Analytical Results from TWINS for the 1996 Core Sampling Event

Consisting of 13 pages,
Including cover page

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Selected Analytical Resutls from TWINS for the 1996 Core Sampling Event of 241-AN-104, Riser 10A, Core 163

Constituent Name	Aggregation Level	Reported Value	Reported Unit	Lab Sample ID	Segment	Sample Date/Time	Sample State	CAS Number
Acetate	Segment Solids	425.6	ug/g	S96T005290W	1	9/9/96 6:35	SOLID	71-50-1
Acetate	Drainable Liquid	1917	ug/mL	S96T005256	2	9/9/96 10:30	LIQUID	71-50-1
Acetate	Segment Solids	476.5	ug/g	S96T005291W	2	9/9/96 10:30	SOLID	71-50-1
Acetate	Drainable Liquid	620.7	ug/mL	S96T005260	4	9/9/96 13:10	LIQUID	71-50-1
Acetate	Drainable Liquid	180.9	ug/mL	S96T005527	5	9/9/96 17:53	LIQUID	71-50-1
Acetate	Drainable Liquid	189.5	ug/mL	S96T005554	6	9/10/96 1:22	LIQUID	71-50-1
Acetate	Drainable Liquid	550.9	ug/mL	S96T005255	7	9/10/96 12:44	LIQUID	71-50-1
Acetate	Drainable Liquid	564.3	ug/mL	S96T005258	9	9/10/96 16:48	LIQUID	71-50-1
Acetate	Drainable Liquid	289.6	ug/mL	S96T005528	10	9/10/96 17:43	LIQUID	71-50-1
Acetate	Drainable Liquid	820.4	ug/mL	S96T005739	11	9/10/96 20:18	LIQUID	71-50-1
Acetate	Segment Solids	495.9	ug/g	S96T005784W	12	9/10/96 21:10	SOLID	71-50-1
Acetate	Drainable Liquid	788.4	ug/mL	S96T005766	12	9/10/96 21:10	LIQUID	71-50-1
Acetate	Drainable Liquid	826	ug/mL	S96T005741	14	9/11/96 2:35	LIQUID	71-50-1
Acetate	Segment Lower Half	442.5	ug/g	S96T005752W	14	9/11/96 2:35	SOLID	71-50-1
Acetate	Segment Upper Half	429.5	ug/g	S96T005751W	14	9/11/96 2:35	SOLID	71-50-1
Acetate	Segment Lower Half	1019	ug/g	S96T005292W	16	9/11/96 11:20	SOLID	71-50-1
Acetate	Segment Lower Half	554.7	ug/g	S96T005785W	18	9/11/96 18:08	SOLID	71-50-1
Acetate	Segment Upper Half	608.3	ug/g	S96T005779W	18	9/11/96 18:08	SOLID	71-50-1
Acetate	Segment Lower Half	439.5	ug/g	S96T005561W	20	9/11/96 22:43	SOLID	71-50-1
Acetate	Segment Upper Half	483.5	ug/g	S96T005558W	20	9/11/96 22:43	SOLID	71-50-1
Aluminum	Segment Solids	20900	ug/g	S96T005287A	1	9/9/96 6:35	SOLID	7429-90-5
Aluminum	Segment Solids	21700	ug/g	S96T005284F	1	9/9/96 6:35	SOLID	7429-90-5
Aluminum	Segment Solids	16100	ug/g	S96T005285F	2	9/9/96 10:30	SOLID	7429-90-5
Aluminum	Segment Lower Half	17100	ug/g	S96T005288A	2	9/9/96 10:30	SOLID	7429-90-5
Aluminum	Drainable Liquid	37500	ug/mL	S96T005256D	2	9/9/96 10:30	LIQUID	7429-90-5
Aluminum	Drainable Liquid	40200	ug/mL	S96T005260D	4	9/9/96 13:10	LIQUID	7429-90-5
Aluminum	Drainable Liquid	37300	ug/mL	S96T005527D	5	9/9/96 17:53	LIQUID	7429-90-5
Aluminum	Drainable Liquid	38700	ug/mL	S96T005554D	6	9/10/96 1:22	LIQUID	7429-90-5
Aluminum	Drainable Liquid	41000	ug/mL	S96T005255D	7	9/10/96 12:44	LIQUID	7429-90-5
Aluminum	Drainable Liquid	36800	ug/mL	S96T005257D	8	9/10/96 13:35	LIQUID	7429-90-5
Aluminum	Drainable Liquid	39200	ug/mL	S96T005258D	9	9/10/96 16:48	LIQUID	7429-90-5
Aluminum	Drainable Liquid	35400	ug/mL	S96T005528D	10	9/10/96 17:43	LIQUID	7429-90-5
Aluminum	Drainable Liquid	37400	ug/mL	S96T005739D	11	9/10/96 20:18	LIQUID	7429-90-5
Aluminum	Segment Solids	21200	ug/g	S96T005782A	12	9/10/96 21:10	SOLID	7429-90-5
Aluminum	Drainable Liquid	40400	ug/mL	S96T005766D	12	9/10/96 21:10	LIQUID	7429-90-5
Aluminum	Segment Solids	21500	ug/g	S96T005780F	12	9/10/96 21:10	SOLID	7429-90-5
Aluminum	Segment Upper Half	20200	ug/g	S96T005747F	14	9/11/96 2:35	SOLID	7429-90-5
Aluminum	Drainable Liquid	37300	ug/mL	S96T005741D	14	9/11/96 2:35	LIQUID	7429-90-5
Aluminum	Segment Lower Half	21000	ug/g	S96T005748F	14	9/11/96 2:35	SOLID	7429-90-5
Aluminum	Segment Lower Half	21300	ug/g	S96T005750A	14	9/11/96 2:35	SOLID	7429-90-5
Aluminum	Segment Upper Half	20000	ug/g	S96T005749A	14	9/11/96 2:35	SOLID	7429-90-5
Aluminum	Segment Lower Half	19500	ug/g	S96T005289A	16	9/11/96 11:20	SOLID	7429-90-5
Aluminum	Segment Lower Half	21000	ug/g	S96T005286F	16	9/11/96 11:20	SOLID	7429-90-5
Aluminum	Segment Upper Half	18600	ug/g	S96T005294A	16	9/11/96 11:20	SOLID	7429-90-5
Aluminum	Segment Upper Half	19500	ug/g	S96T005293F	16	9/11/96 11:20	SOLID	7429-90-5
Aluminum	Segment Lower Half	17900	ug/g	S96T005783A	18	9/11/96 18:08	SOLID	7429-90-5
Aluminum	Segment Upper Half	25900	ug/g	S96T005777F	18	9/11/96 18:08	SOLID	7429-90-5
Aluminum	Segment Upper Half	17800	ug/g	S96T005778A	18	9/11/96 18:08	SOLID	7429-90-5
Aluminum	Segment Lower Half	21400	ug/g	S96T005781F	18	9/11/96 18:08	SOLID	7429-90-5
Aluminum	Segment Lower Half	18800	ug/g	S96T005560A	20	9/11/96 22:43	SOLID	7429-90-5
Aluminum	Segment Upper Half	17500	ug/g	S96T005557A	20	9/11/96 22:43	SOLID	7429-90-5
Aluminum	Segment Upper Half	21700	ug/g	S96T005556F	20	9/11/96 22:43	SOLID	7429-90-5
Aluminum	Segment Lower Half	16700	ug/g	S96T005559F	20	9/11/96 22:43	SOLID	7429-90-5
Boron	Segment Solids	155	ug/g	S96T005287A	1	9/9/96 6:35	SOLID	7440-42-8
Boron	Segment Lower Half	200	ug/g	S96T005288A	2	9/9/96 10:30	SOLID	7440-42-8
Boron	Drainable Liquid	65.8	ug/mL	S96T005256D	2	9/9/96 10:30	LIQUID	7440-42-8

B3500-MAN-02-043
REISSUE

Selected Analytical Results from TWINS for the 1996 Core Sampling Event of 241-AN-104, Riser 10A, Core 163

Constituent Name	Aggregation Level	Reported Value	Reported Unit	Lab Sample ID	Segment	Sample Date/Time	Sample State	CAS Number
Boron	Drainable Liquid	70.1	ug/mL	S96T005260D	4	9/9/96 13:10	LIQUID	7440-42-8
Boron	Drainable Liquid	61.2	ug/mL	S96T005527D	5	9/9/96 17:53	LIQUID	7440-42-8
Boron	Drainable Liquid	64	ug/mL	S96T005554D	6	9/10/96 1:22	LIQUID	7440-42-8
Boron	Drainable Liquid	67	ug/mL	S96T005255D	7	9/10/96 12:44	LIQUID	7440-42-8
Boron	Drainable Liquid	66.1	ug/mL	S96T005257D	8	9/10/96 13:35	LIQUID	7440-42-8
Boron	Drainable Liquid	67	ug/mL	S96T005258D	9	9/10/96 16:48	LIQUID	7440-42-8
Boron	Drainable Liquid	60.9	ug/mL	S96T005528D	10	9/10/96 17:43	LIQUID	7440-42-8
Boron	Drainable Liquid	63.7	ug/mL	S96T005739D	11	9/10/96 20:18	LIQUID	7440-42-8
Boron	Segment Solids	109	ug/g	S96T005782A	12	9/10/96 21:10	SOLID	7440-42-8
Boron	Drainable Liquid	59.1	ug/mL	S96T005766D	12	9/10/96 21:10	LIQUID	7440-42-8
Boron	Drainable Liquid	64	ug/mL	S96T005741D	14	9/11/96 2:35	LIQUID	7440-42-8
Boron	Segment Lower Half	104	ug/g	S96T005750A	14	9/11/96 2:35	SOLID	7440-42-8
Boron	Segment Upper Half	86.2	ug/g	S96T005749A	14	9/11/96 2:35	SOLID	7440-42-8
Boron	Segment Lower Half	217	ug/g	S96T005289A	16	9/11/96 11:20	SOLID	7440-42-8
Boron	Segment Upper Half	164	ug/g	S96T005294A	16	9/11/96 11:20	SOLID	7440-42-8
Boron	Segment Lower Half	95.8	ug/g	S96T005783A	18	9/11/96 18:08	SOLID	7440-42-8
Boron	Segment Upper Half	124	ug/g	S96T005778A	18	9/11/96 18:08	SOLID	7440-42-8
Boron	Segment Lower Half	168	ug/g	S96T005560A	20	9/11/96 22:43	SOLID	7440-42-8
Boron	Segment Upper Half	167	ug/g	S96T005557A	20	9/11/96 22:43	SOLID	7440-42-8
Bromide	Drainable Liquid	916.9	ug/mL	S96T005260	4	9/9/96 13:10	LIQUID	24959-67-9
Bromide	Drainable Liquid	815.8	ug/mL	S96T005527	5	9/9/96 17:53	LIQUID	24959-67-9
Bromide	Drainable Liquid	736.3	ug/mL	S96T005554	6	9/10/96 1:22	LIQUID	24959-67-9
Bromide	Drainable Liquid	654.9	ug/mL	S96T005255	7	9/10/96 12:44	LIQUID	24959-67-9
Bromide	Drainable Liquid	731.3	ug/mL	S96T005257	8	9/10/96 13:35	LIQUID	24959-67-9
Bromide	Drainable Liquid	1104	ug/mL	S96T005258	9	9/10/96 16:48	LIQUID	24959-67-9
Bromide	Drainable Liquid	1107	ug/mL	S96T005528	10	9/10/96 17:43	LIQUID	24959-67-9
Bromide	Segment Solids	1038	ug/g	S96T005784W	12	9/10/96 21:10	SOLID	24959-67-9
Bromide	Drainable Liquid	1128	ug/mL	S96T005766	12	9/10/96 21:10	LIQUID	24959-67-9
Bromide	Drainable Liquid	757.2	ug/mL	S96T005741	14	9/11/96 2:35	LIQUID	24959-67-9
Bromide	Segment Upper Half	667.9	ug/g	S96T005779W	18	9/11/96 18:08	SOLID	24959-67-9
Cadmium	Segment Solids	7.21	ug/g	S96T005287A	1	9/9/96 6:35	SOLID	7440-43-9
Cadmium	Segment Lower Half	3.61	ug/g	S96T005288A	2	9/9/96 10:30	SOLID	7440-43-9
Cadmium	Segment Solids	8.01	ug/g	S96T005782A	12	9/10/96 21:10	SOLID	7440-43-9
Cadmium	Segment Lower Half	8.41	ug/g	S96T005750A	14	9/11/96 2:35	SOLID	7440-43-9
Cadmium	Segment Upper Half	7.14	ug/g	S96T005749A	14	9/11/96 2:35	SOLID	7440-43-9
Cadmium	Segment Lower Half	12.6	ug/g	S96T005289A	16	9/11/96 11:20	SOLID	7440-43-9
Cadmium	Segment Upper Half	14.7	ug/g	S96T005294A	16	9/11/96 11:20	SOLID	7440-43-9
Cadmium	Segment Lower Half	6.13	ug/g	S96T005783A	18	9/11/96 18:08	SOLID	7440-43-9
Cadmium	Segment Upper Half	6.47	ug/g	S96T005778A	18	9/11/96 18:08	SOLID	7440-43-9
Cadmium	Segment Lower Half	11	ug/g	S96T005560A	20	9/11/96 22:43	SOLID	7440-43-9
Cadmium	Segment Upper Half	10.6	ug/g	S96T005557A	20	9/11/96 22:43	SOLID	7440-43-9
Calcium	Segment Solids	170	ug/g	S96T005287A	1	9/9/96 6:35	SOLID	7440-70-2
Calcium	Segment Lower Half	255	ug/g	S96T005288A	2	9/9/96 10:30	SOLID	7440-70-2
Calcium	Segment Solids	133	ug/g	S96T005782A	12	9/10/96 21:10	SOLID	7440-70-2
Calcium	Segment Lower Half	151	ug/g	S96T005750A	14	9/11/96 2:35	SOLID	7440-70-2
Calcium	Segment Upper Half	133	ug/g	S96T005749A	14	9/11/96 2:35	SOLID	7440-70-2
Calcium	Segment Lower Half	244	ug/g	S96T005289A	16	9/11/96 11:20	SOLID	7440-70-2
Calcium	Segment Upper Half	257	ug/g	S96T005294A	16	9/11/96 11:20	SOLID	7440-70-2
Calcium	Segment Lower Half	288	ug/g	S96T005783A	18	9/11/96 18:08	SOLID	7440-70-2
Calcium	Segment Upper Half	271	ug/g	S96T005778A	18	9/11/96 18:08	SOLID	7440-70-2
Calcium	Segment Upper Half	359	ug/g	S96T005557A	20	9/11/96 22:43	SOLID	7440-70-2
Calcium	Segment Lower Half	296	ug/g	S96T005560A	20	9/11/96 22:43	SOLID	7440-70-2
Chloride	Segment Solids	4626	ug/g	S96T005290W	1	9/9/96 6:35	SOLID	16887-00-6
Chloride	Drainable Liquid	15330	ug/mL	S96T005256	2	9/9/96 10:30	LIQUID	16887-00-6
Chloride	Segment Solids	4471	ug/g	S96T005291W	2	9/9/96 10:30	SOLID	16887-00-6
Chloride	Drainable Liquid	8157	ug/mL	S96T005260	4	9/9/96 13:10	LIQUID	16887-00-6

B3500-MAN-02-043
REISSUE

Selected Analytical Resutls from TWINS for the 1996 Core Sampling Event of 241-AN-104, Riser 10A, Core 163

Constituent Name	Aggregation Level	Reported Value	Reported Unit	Lab Sample ID	Segment	Sample Date/Time	Sample State	CAS Number
Chloride	Drainable Liquid	7596	ug/mL	S96T005527	5	9/9/96 17:53	LIQUID	16887-00-6
Chloride	Drainable Liquid	8000	ug/mL	S96T005554	6	9/10/96 1:22	LIQUID	16887-00-6
Chloride	Drainable Liquid	3655	ug/mL	S96T005255	7	9/10/96 12:44	LIQUID	16887-00-6
Chloride	Drainable Liquid	7988	ug/mL	S96T005257	8	9/10/96 13:35	LIQUID	16887-00-6
Chloride	Drainable Liquid	7611	ug/mL	S96T005258	9	9/10/96 16:48	LIQUID	16887-00-6
Chloride	Drainable Liquid	7809	ug/mL	S96T005528	10	9/10/96 17:43	LIQUID	16887-00-6
Chloride	Drainable Liquid	7647	ug/mL	S96T005739	11	9/10/96 20:18	LIQUID	16887-00-6
Chloride	Segment Solids	4688	ug/g	S96T005784W	12	9/10/96 21:10	SOLID	16887-00-6
Chloride	Drainable Liquid	7595	ug/mL	S96T005766	12	9/10/96 21:10	LIQUID	16887-00-6
Chloride	Drainable Liquid	8152	ug/mL	S96T005741	14	9/11/96 2:35	LIQUID	16887-00-6
Chloride	Segment Upper Half	4688	ug/g	S96T005751W	14	9/11/96 2:35	SOLID	16887-00-6
Chloride	Segment Lower Half	4849	ug/g	S96T005752W	14	9/11/96 2:35	SOLID	16887-00-6
Chloride	Segment Upper Half	4329	ug/g	S96T005295W	16	9/11/96 11:20	SOLID	16887-00-6
Chloride	Segment Lower Half	4754	ug/g	S96T005292W	16	9/11/96 11:20	SOLID	16887-00-6
Chloride	Segment Lower Half	3829	ug/g	S96T005785W	18	9/11/96 18:08	SOLID	16887-00-6
Chloride	Segment Upper Half	3864	ug/g	S96T005779W	18	9/11/96 18:08	SOLID	16887-00-6
Chloride	Segment Lower Half	3711	ug/g	S96T005561W	20	9/11/96 22:43	SOLID	16887-00-6
Chloride	Segment Upper Half	3848	ug/g	S96T005558W	20	9/11/96 22:43	SOLID	16887-00-6
Chromium	Segment Solids	1440	ug/g	S96T005284F	1	9/9/96 6:35	SOLID	7440-47-3
Chromium	Segment Solids	1200	ug/g	S96T005287A	1	9/9/96 6:35	SOLID	7440-47-3
Chromium	Segment Solids	683	ug/g	S96T005285F	2	9/9/96 10:30	SOLID	7440-47-3
Chromium	Segment Lower Half	728	ug/g	S96T005288A	2	9/9/96 10:30	SOLID	7440-47-3
Chromium	Drainable Liquid	332	ug/mL	S96T005256D	2	9/9/96 10:30	LIQUID	7440-47-3
Chromium	Drainable Liquid	348	ug/mL	S96T005260D	4	9/9/96 13:10	LIQUID	7440-47-3
Chromium	Drainable Liquid	326	ug/mL	S96T005527D	5	9/9/96 17:53	LIQUID	7440-47-3
Chromium	Drainable Liquid	337	ug/mL	S96T005554D	6	9/10/96 1:22	LIQUID	7440-47-3
Chromium	Drainable Liquid	358	ug/mL	S96T005255D	7	9/10/96 12:44	LIQUID	7440-47-3
Chromium	Drainable Liquid	317	ug/mL	S96T005257D	8	9/10/96 13:35	LIQUID	7440-47-3
Chromium	Drainable Liquid	341	ug/mL	S96T005258D	9	9/10/96 16:48	LIQUID	7440-47-3
Chromium	Drainable Liquid	308	ug/mL	S96T005528D	10	9/10/96 17:43	LIQUID	7440-47-3
Chromium	Drainable Liquid	324	ug/mL	S96T005739D	11	9/10/96 20:18	LIQUID	7440-47-3
Chromium	Segment Solids	1220	ug/g	S96T005782A	12	9/10/96 21:10	SOLID	7440-47-3
Chromium	Drainable Liquid	358	ug/mL	S96T005766D	12	9/10/96 21:10	LIQUID	7440-47-3
Chromium	Segment Solids	1250	ug/g	S96T005780F	12	9/10/96 21:10	SOLID	7440-47-3
Chromium	Drainable Liquid	344	ug/mL	S96T005741D	14	9/11/96 2:35	LIQUID	7440-47-3
Chromium	Segment Lower Half	1480	ug/g	S96T005748F	14	9/11/96 2:35	SOLID	7440-47-3
Chromium	Segment Lower Half	1260	ug/g	S96T005750A	14	9/11/96 2:35	SOLID	7440-47-3
Chromium	Segment Upper Half	1210	ug/g	S96T005747F	14	9/11/96 2:35	SOLID	7440-47-3
Chromium	Segment Upper Half	1050	ug/g	S96T005749A	14	9/11/96 2:35	SOLID	7440-47-3
Chromium	Segment Lower Half	1970	ug/g	S96T005289A	16	9/11/96 11:20	SOLID	7440-47-3
Chromium	Segment Lower Half	1610	ug/g	S96T005286F	16	9/11/96 11:20	SOLID	7440-47-3
Chromium	Segment Upper Half	2270	ug/g	S96T005294A	16	9/11/96 11:20	SOLID	7440-47-3
Chromium	Segment Upper Half	2240	ug/g	S96T005293F	16	9/11/96 11:20	SOLID	7440-47-3
Chromium	Segment Lower Half	1020	ug/g	S96T005783A	18	9/11/96 18:08	SOLID	7440-47-3
Chromium	Segment Upper Half	1370	ug/g	S96T005777F	18	9/11/96 18:08	SOLID	7440-47-3
Chromium	Segment Upper Half	987	ug/g	S96T005778A	18	9/11/96 18:08	SOLID	7440-47-3
Chromium	Segment Lower Half	1220	ug/g	S96T005781F	18	9/11/96 18:08	SOLID	7440-47-3
Chromium	Segment Upper Half	1470	ug/g	S96T005557A	20	9/11/96 22:43	SOLID	7440-47-3
Chromium	Segment Lower Half	1390	ug/g	S96T005560A	20	9/11/96 22:43	SOLID	7440-47-3
Chromium	Segment Upper Half	3040	ug/g	S96T005556F	20	9/11/96 22:43	SOLID	7440-47-3
Chromium	Segment Lower Half	1100	ug/g	S96T005559F	20	9/11/96 22:43	SOLID	7440-47-3
Copper	Segment Solids	4.7	ug/g	S96T005287A	1	9/9/96 6:35	SOLID	7440-50-8
Copper	Segment Lower Half	4.75	ug/g	S96T005289A	16	9/11/96 11:20	SOLID	7440-50-8
Copper	Segment Upper Half	4.69	ug/g	S96T005294A	16	9/11/96 11:20	SOLID	7440-50-8
Copper	Segment Upper Half	4.39	ug/g	S96T005557A	20	9/11/96 22:43	SOLID	7440-50-8
Fluoride	Segment Solids	304.8	ug/g	S96T005290W	1	9/9/96 6:35	SOLID	16984-48-8

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REISSUE

Selected Analytical Resutls from TWINS for the 1996 Core Sampling Event of 241-AN-104, Riser 10A, Core 163

Constituent Name	Aggregation Level	Reported Value	Reported Unit	Lab Sample ID	Segment	Sample Date/Time	Sample State	CAS Number
Fluoride	Segment Solids	411.2	ug/g	S96T005291W	2	9/9/96 10:30	SOLID	16984-48-8
Fluoride	Segment Solids	583.1	ug/g	S96T005784W	12	9/10/96 21:10	SOLID	16984-48-8
Fluoride	Segment Upper Half	618.9	ug/g	S96T005751W	14	9/11/96 2:35	SOLID	16984-48-8
Fluoride	Segment Lower Half	677	ug/g	S96T005752W	14	9/11/96 2:35	SOLID	16984-48-8
Fluoride	Segment Upper Half	806.1	ug/g	S96T005295W	16	9/11/96 11:20	SOLID	16984-48-8
Fluoride	Segment Lower Half	1021	ug/g	S96T005292W	16	9/11/96 11:20	SOLID	16984-48-8
Fluoride	Segment Lower Half	675	ug/g	S96T005785W	18	9/11/96 18:08	SOLID	16984-48-8
Fluoride	Segment Upper Half	651.8	ug/g	S96T005779W	18	9/11/96 18:08	SOLID	16984-48-8
Fluoride	Segment Lower Half	3301	ug/g	S96T005561W	20	9/11/96 22:43	SOLID	16984-48-8
Fluoride	Segment Upper Half	893.2	ug/g	S96T005558W	20	9/11/96 22:43	SOLID	16984-48-8
Formate	Segment Solids	707.6	ug/g	S96T005290W	1	9/9/96 6:35	SOLID	12311-97-6
Formate	Drainable Liquid	1249	ug/mL	S96T005256	2	9/9/96 10:30	LIQUID	12311-97-6
Formate	Segment Solids	645.1	ug/g	S96T005291W	2	9/9/96 10:30	SOLID	12311-97-6
Formate	Drainable Liquid	1112	ug/mL	S96T005260	4	9/9/96 13:10	LIQUID	12311-97-6
Formate	Drainable Liquid	459.5	ug/mL	S96T005527	5	9/9/96 17:53	LIQUID	12311-97-6
Formate	Drainable Liquid	491	ug/mL	S96T005554	6	9/10/96 1:22	LIQUID	12311-97-6
Formate	Drainable Liquid	1070	ug/mL	S96T005255	7	9/10/96 12:44	LIQUID	12311-97-6
Formate	Drainable Liquid	1019	ug/mL	S96T005258	9	9/10/96 16:48	LIQUID	12311-97-6
Formate	Drainable Liquid	418.6	ug/mL	S96T005528	10	9/10/96 17:43	LIQUID	12311-97-6
Formate	Drainable Liquid	1024	ug/mL	S96T005739	11	9/10/96 20:18	LIQUID	12311-97-6
Formate	Segment Solids	650.9	ug/g	S96T005784W	12	9/10/96 21:10	SOLID	12311-97-6
Formate	Drainable Liquid	1168	ug/mL	S96T005766	12	9/10/96 21:10	LIQUID	12311-97-6
Formate	Drainable Liquid	1089	ug/mL	S96T005741	14	9/11/96 2:35	LIQUID	12311-97-6
Formate	Segment Lower Half	624.9	ug/g	S96T005752W	14	9/11/96 2:35	SOLID	12311-97-6
Formate	Segment Upper Half	633.2	ug/g	S96T005751W	14	9/11/96 2:35	SOLID	12311-97-6
Formate	Segment Upper Half	915.4	ug/g	S96T005295W	16	9/11/96 11:20	SOLID	12311-97-6
Formate	Segment Lower Half	1417	ug/g	S96T005292W	16	9/11/96 11:20	SOLID	12311-97-6
Formate	Segment Lower Half	850.7	ug/g	S96T005785W	18	9/11/96 18:08	SOLID	12311-97-6
Formate	Segment Upper Half	879.8	ug/g	S96T005779W	18	9/11/96 18:08	SOLID	12311-97-6
Formate	Segment Lower Half	636.3	ug/g	S96T005561W	20	9/11/96 22:43	SOLID	12311-97-6
Formate	Segment Upper Half	690.9	ug/g	S96T005558W	20	9/11/96 22:43	SOLID	12311-97-6
Gross alpha	Segment Solids	0.0808	uCi/g	S96T005284F	1	9/9/96 6:35	SOLID	12587-46-1
Gross alpha	Segment Solids	0.0493	uCi/g	S96T005285F	2	9/9/96 10:30	SOLID	12587-46-1
Gross alpha	Drainable Liquid	0.0025	uCi/mL	S96T005528	10	9/10/96 17:43	LIQUID	12587-46-1
Gross alpha	Drainable Liquid	0.00362	uCi/mL	S96T005766	12	9/10/96 21:10	LIQUID	12587-46-1
Gross alpha	Segment Lower Half	0.0226	uCi/g	S96T005286F	16	9/11/96 11:20	SOLID	12587-46-1
Gross alpha	Segment Lower Half	0.0498	uCi/g	S96T005559F	20	9/11/96 22:43	SOLID	12587-46-1
Iron	Segment Solids	489	ug/g	S96T005287A	1	9/9/96 6:35	SOLID	7439-89-6
Iron	Segment Lower Half	198	ug/g	S96T005288A	2	9/9/96 10:30	SOLID	7439-89-6
Iron	Drainable Liquid	33.3	ug/mL	S96T005255D	7	9/10/96 12:44	LIQUID	7439-89-6
Iron	Segment Solids	75.8	ug/g	S96T005782A	12	9/10/96 21:10	SOLID	7439-89-6
Iron	Segment Lower Half	87.1	ug/g	S96T005750A	14	9/11/96 2:35	SOLID	7439-89-6
Iron	Segment Upper Half	91.1	ug/g	S96T005749A	14	9/11/96 2:35	SOLID	7439-89-6
Iron	Segment Lower Half	87	ug/g	S96T005289A	16	9/11/96 11:20	SOLID	7439-89-6
Iron	Segment Upper Half	102	ug/g	S96T005294A	16	9/11/96 11:20	SOLID	7439-89-6
Iron	Segment Lower Half	77.8	ug/g	S96T005783A	18	9/11/96 18:08	SOLID	7439-89-6
Iron	Segment Upper Half	107	ug/g	S96T005778A	18	9/11/96 18:08	SOLID	7439-89-6
Iron	Segment Lower Half	1890	ug/g	S96T005781F	18	9/11/96 18:08	SOLID	7439-89-6
Iron	Segment Upper Half	104	ug/g	S96T005557A	20	9/11/96 22:43	SOLID	7439-89-6
Iron	Segment Lower Half	171	ug/g	S96T005560A	20	9/11/96 22:43	SOLID	7439-89-6
Lead	Drainable Liquid	61.5	ug/mL	S96T005260D	4	9/9/96 13:10	LIQUID	7439-92-1
Lead	Drainable Liquid	60.2	ug/mL	S96T005554D	6	9/10/96 1:22	LIQUID	7439-92-1
Lead	Drainable Liquid	67	ug/mL	S96T005255D	7	9/10/96 12:44	LIQUID	7439-92-1
Lead	Drainable Liquid	60.8	ug/mL	S96T005258D	9	9/10/96 16:48	LIQUID	7439-92-1
Lead	Drainable Liquid	60.5	ug/mL	S96T005528D	10	9/10/96 17:43	LIQUID	7439-92-1
Lead	Drainable Liquid	64.7	ug/mL	S96T005739D	11	9/10/96 20:18	LIQUID	7439-92-1

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REISSUE

Selected Analytical Results from TWINS for the 1996 Core Sampling Event of 241-AN-104, Riser 10A, Core 163

Constituent Name	Aggregation Level	Reported Value	Reported Unit	Lab Sample ID	Segment	Sample Date/Time	Sample State	CAS Number
Lead	Drainable Liquid	77.7	ug/mL	S96T005766D	12	9/10/96 21:10	LIQUID	7439-92-1
Lead	Drainable Liquid	60.1	ug/mL	S96T005741D	14	9/11/96 2:35	LIQUID	7439-92-1
Lithium	Drainable Liquid	12.5	ug/mL	S96T005256D	2	9/9/96 10:30	LIQUID	7439-93-2
Lithium	Segment Lower Half	47	ug/g	S96T005288A	2	9/9/96 10:30	SOLID	7439-93-2
Lithium	Drainable Liquid	7.19	ug/mL	S96T005260D	4	9/9/96 13:10	LIQUID	7439-93-2
Lithium	Drainable Liquid	21.2	ug/mL	S96T005255D	7	9/10/96 12:44	LIQUID	7439-93-2
Lithium	Drainable Liquid	8.97	ug/mL	S96T005258D	9	9/10/96 16:48	LIQUID	7439-93-2
Lithium	Segment Solids	25.4	ug/g	S96T005782A	12	9/10/96 21:10	SOLID	7439-93-2
Lithium	Segment Lower Half	5.28	ug/g	S96T005750A	14	9/11/96 2:35	SOLID	7439-93-2
Lithium	Segment Upper Half	11.9	ug/g	S96T005749A	14	9/11/96 2:35	SOLID	7439-93-2
Lithium	Segment Upper Half	5.36	ug/g	S96T005294A	16	9/11/96 11:20	SOLID	7439-93-2
Lithium	Segment Upper Half	15.1	ug/g	S96T005778A	18	9/11/96 18:08	SOLID	7439-93-2
Lithium	Segment Upper Half	7.83	ug/g	S96T005557A	20	9/11/96 22:43	SOLID	7439-93-2
Lithium	Segment Lower Half	8.39	ug/g	S96T005560A	20	9/11/96 22:43	SOLID	7439-93-2
Manganese	Segment Solids	18	ug/g	S96T005287A	1	9/9/96 6:35	SOLID	7439-96-5
Manganese	Segment Lower Half	9.7	ug/g	S96T005288A	2	9/9/96 10:30	SOLID	7439-96-5
Manganese	Segment Solids	13	ug/g	S96T005782A	12	9/10/96 21:10	SOLID	7439-96-5
Manganese	Segment Lower Half	13.8	ug/g	S96T005750A	14	9/11/96 2:35	SOLID	7439-96-5
Manganese	Segment Upper Half	11.5	ug/g	S96T005749A	14	9/11/96 2:35	SOLID	7439-96-5
Manganese	Segment Lower Half	16.5	ug/g	S96T005289A	16	9/11/96 11:20	SOLID	7439-96-5
Manganese	Segment Upper Half	16.8	ug/g	S96T005294A	16	9/11/96 11:20	SOLID	7439-96-5
Manganese	Segment Lower Half	12.9	ug/g	S96T005783A	18	9/11/96 18:08	SOLID	7439-96-5
Manganese	Segment Upper Half	13.4	ug/g	S96T005778A	18	9/11/96 18:08	SOLID	7439-96-5
Manganese	Segment Lower Half	26.1	ug/g	S96T005560A	20	9/11/96 22:43	SOLID	7439-96-5
Manganese	Segment Upper Half	15.3	ug/g	S96T005557A	20	9/11/96 22:43	SOLID	7439-96-5
Molybdenum	Segment Solids	44.1	ug/g	S96T005287A	1	9/9/96 6:35	SOLID	7439-98-7
Molybdenum	Drainable Liquid	77	ug/mL	S96T005256D	2	9/9/96 10:30	LIQUID	7439-98-7
Molybdenum	Segment Lower Half	37.4	ug/g	S96T005288A	2	9/9/96 10:30	SOLID	7439-98-7
Molybdenum	Drainable Liquid	83.2	ug/mL	S96T005260D	4	9/9/96 13:10	LIQUID	7439-98-7
Molybdenum	Drainable Liquid	77.5	ug/mL	S96T005527D	5	9/9/96 17:53	LIQUID	7439-98-7
Molybdenum	Drainable Liquid	80.5	ug/mL	S96T005554D	6	9/10/96 1:22	LIQUID	7439-98-7
Molybdenum	Drainable Liquid	84.3	ug/mL	S96T005255D	7	9/10/96 12:44	LIQUID	7439-98-7
Molybdenum	Drainable Liquid	73	ug/mL	S96T005257D	8	9/10/96 13:35	LIQUID	7439-98-7
Molybdenum	Drainable Liquid	80.4	ug/mL	S96T005258D	9	9/10/96 16:48	LIQUID	7439-98-7
Molybdenum	Drainable Liquid	74.4	ug/mL	S96T005528D	10	9/10/96 17:43	LIQUID	7439-98-7
Molybdenum	Drainable Liquid	77.3	ug/mL	S96T005739D	11	9/10/96 20:18	LIQUID	7439-98-7
Molybdenum	Drainable Liquid	85.4	ug/mL	S96T005766D	12	9/10/96 21:10	LIQUID	7439-98-7
Molybdenum	Segment Solids	45.2	ug/g	S96T005782A	12	9/10/96 21:10	SOLID	7439-98-7
Molybdenum	Drainable Liquid	75.4	ug/mL	S96T005741D	14	9/11/96 2:35	LIQUID	7439-98-7
Molybdenum	Segment Lower Half	45.2	ug/g	S96T005750A	14	9/11/96 2:35	SOLID	7439-98-7
Molybdenum	Segment Upper Half	42	ug/g	S96T005749A	14	9/11/96 2:35	SOLID	7439-98-7
Molybdenum	Segment Lower Half	42.2	ug/g	S96T005289A	16	9/11/96 11:20	SOLID	7439-98-7
Molybdenum	Segment Upper Half	41.6	ug/g	S96T005294A	16	9/11/96 11:20	SOLID	7439-98-7
Molybdenum	Segment Lower Half	38	ug/g	S96T005783A	18	9/11/96 18:08	SOLID	7439-98-7
Molybdenum	Segment Upper Half	36.8	ug/g	S96T005778A	18	9/11/96 18:08	SOLID	7439-98-7
Molybdenum	Segment Lower Half	40.6	ug/g	S96T005560A	20	9/11/96 22:43	SOLID	7439-98-7
Molybdenum	Segment Upper Half	37.3	ug/g	S96T005557A	20	9/11/96 22:43	SOLID	7439-98-7
Nickel	Segment Solids	1090	ug/g	S96T005284F	1	9/9/96 6:35	SOLID	7440-02-0
Nickel	Segment Solids	42.8	ug/g	S96T005287A	1	9/9/96 6:35	SOLID	7440-02-0
Nickel	Segment Solids	2750	ug/g	S96T005285F	2	9/9/96 10:30	SOLID	7440-02-0
Nickel	Segment Lower Half	23.7	ug/g	S96T005288A	2	9/9/96 10:30	SOLID	7440-02-0
Nickel	Segment Solids	1720	ug/g	S96T005780F	12	9/10/96 21:10	SOLID	7440-02-0
Nickel	Segment Solids	43.5	ug/g	S96T005782A	12	9/10/96 21:10	SOLID	7440-02-0
Nickel	Segment Lower Half	46.5	ug/g	S96T005750A	14	9/11/96 2:35	SOLID	7440-02-0
Nickel	Segment Upper Half	3630	ug/g	S96T005747F	14	9/11/96 2:35	SOLID	7440-02-0
Nickel	Segment Upper Half	41	ug/g	S96T005749A	14	9/11/96 2:35	SOLID	7440-02-0

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Selected Analytical Results from TWINS for the 1996 Core Sampling Event of 241-AN-104, Riser 10A, Core 163

Constituent Name	Aggregation Level	Reported Value	Reported Unit	Lab Sample ID	Segment	Sample Date/Time	Sample State	CAS Number
Nickel	Segment Lower Half	4620	ug/g	S96T005748F	14	9/11/96 2:35	SOLID	7440-02-0
Nickel	Segment Lower Half	74.8	ug/g	S96T005289A	16	9/11/96 11:20	SOLID	7440-02-0
Nickel	Segment Lower Half	2250	ug/g	S96T005286F	16	9/11/96 11:20	SOLID	7440-02-0
Nickel	Segment Upper Half	89.3	ug/g	S96T005294A	16	9/11/96 11:20	SOLID	7440-02-0
Nickel	Segment Upper Half	2380	ug/g	S96T005293F	16	9/11/96 11:20	SOLID	7440-02-0
Nickel	Segment Lower Half	8600	ug/g	S96T005781F	18	9/11/96 18:08	SOLID	7440-02-0
Nickel	Segment Lower Half	36.8	ug/g	S96T005783A	18	9/11/96 18:08	SOLID	7440-02-0
Nickel	Segment Upper Half	39.7	ug/g	S96T005778A	18	9/11/96 18:08	SOLID	7440-02-0
Nickel	Segment Upper Half	23600	ug/g	S96T005777F	18	9/11/96 18:08	SOLID	7440-02-0
Nickel	Segment Lower Half	1470	ug/g	S96T005559F	20	9/11/96 22:43	SOLID	7440-02-0
Nickel	Segment Lower Half	59.8	ug/g	S96T005560A	20	9/11/96 22:43	SOLID	7440-02-0
Nickel	Segment Upper Half	2020	ug/g	S96T005556F	20	9/11/96 22:43	SOLID	7440-02-0
Nickel	Segment Upper Half	62.2	ug/g	S96T005557A	20	9/11/96 22:43	SOLID	7440-02-0
Nitrate	Segment Solids	142400	ug/g	S96T005290W	1	9/9/96 6:35	SOLID	14797-55-8
Nitrate	Drainable Liquid	319900	ug/mL	S96T005256	2	9/9/96 10:30	LIQUID	14797-55-8
Nitrate	Segment Solids	221800	ug/g	S96T005291W	2	9/9/96 10:30	SOLID	14797-55-8
Nitrate	Drainable Liquid	173100	ug/mL	S96T005260	4	9/9/96 13:10	LIQUID	14797-55-8
Nitrate	Drainable Liquid	157500	ug/mL	S96T005527	5	9/9/96 17:53	LIQUID	14797-55-8
Nitrate	Drainable Liquid	159700	ug/mL	S96T005554	6	9/10/96 1:22	LIQUID	14797-55-8
Nitrate	Drainable Liquid	78460	ug/mL	S96T005255	7	9/10/96 12:44	LIQUID	14797-55-8
Nitrate	Drainable Liquid	166000	ug/mL	S96T005257	8	9/10/96 13:35	LIQUID	14797-55-8
Nitrate	Drainable Liquid	173100	ug/mL	S96T005258	9	9/10/96 16:48	LIQUID	14797-55-8
Nitrate	Drainable Liquid	178300	ug/mL	S96T005528	10	9/10/96 17:43	LIQUID	14797-55-8
Nitrate	Drainable Liquid	152200	ug/mL	S96T005739	11	9/10/96 20:18	LIQUID	14797-55-8
Nitrate	Segment Solids	111400	ug/g	S96T005784W	12	9/10/96 21:10	SOLID	14797-55-8
Nitrate	Drainable Liquid	141900	ug/mL	S96T005766	12	9/10/96 21:10	LIQUID	14797-55-8
Nitrate	Drainable Liquid	166100	ug/mL	S96T005741	14	9/11/96 2:35	LIQUID	14797-55-8
Nitrate	Segment Lower Half	97720	ug/g	S96T005752W	14	9/11/96 2:35	SOLID	14797-55-8
Nitrate	Segment Upper Half	96210	ug/g	S96T005751W	14	9/11/96 2:35	SOLID	14797-55-8
Nitrate	Segment Upper Half	100300	ug/g	S96T005295W	16	9/11/96 11:20	SOLID	14797-55-8
Nitrate	Segment Lower Half	104100	ug/g	S96T005292W	16	9/11/96 11:20	SOLID	14797-55-8
Nitrate	Segment Lower Half	104200	ug/g	S96T005785W	18	9/11/96 18:08	SOLID	14797-55-8
Nitrate	Segment Upper Half	115600	ug/g	S96T005779W	18	9/11/96 18:08	SOLID	14797-55-8
Nitrate	Segment Lower Half	161100	ug/g	S96T005561W	20	9/11/96 22:43	SOLID	14797-55-8
Nitrate	Segment Upper Half	139500	ug/g	S96T005558W	20	9/11/96 22:43	SOLID	14797-55-8
Nitrite	Segment Solids	69320	ug/g	S96T005290W	1	9/9/96 6:35	SOLID	14797-65-0
Nitrite	Drainable Liquid	227100	ug/mL	S96T005256	2	9/9/96 10:30	LIQUID	14797-65-0
Nitrite	Segment Solids	69010	ug/g	S96T005291W	2	9/9/96 10:30	SOLID	14797-65-0
Nitrite	Drainable Liquid	113600	ug/mL	S96T005260	4	9/9/96 13:10	LIQUID	14797-65-0
Nitrite	Drainable Liquid	132700	ug/mL	S96T005527	5	9/9/96 17:53	LIQUID	14797-65-0
Nitrite	Drainable Liquid	119100	ug/mL	S96T005554	6	9/10/96 1:22	LIQUID	14797-65-0
Nitrite	Drainable Liquid	49300	ug/mL	S96T005255	7	9/10/96 12:44	LIQUID	14797-65-0
Nitrite	Drainable Liquid	117400	ug/mL	S96T005257	8	9/10/96 13:35	LIQUID	14797-65-0
Nitrite	Drainable Liquid	107700	ug/mL	S96T005258	9	9/10/96 16:48	LIQUID	14797-65-0
Nitrite	Drainable Liquid	129200	ug/mL	S96T005528	10	9/10/96 17:43	LIQUID	14797-65-0
Nitrite	Drainable Liquid	91010	ug/mL	S96T005739	11	9/10/96 20:18	LIQUID	14797-65-0
Nitrite	Segment Solids	63810	ug/g	S96T005784W	12	9/10/96 21:10	SOLID	14797-65-0
Nitrite	Drainable Liquid	118300	ug/mL	S96T005766	12	9/10/96 21:10	LIQUID	14797-65-0
Nitrite	Drainable Liquid	312600	ug/mL	S96T005741	14	9/11/96 2:35	LIQUID	14797-65-0
Nitrite	Segment Lower Half	65830	ug/g	S96T005752W	14	9/11/96 2:35	SOLID	14797-65-0
Nitrite	Segment Upper Half	64460	ug/g	S96T005751W	14	9/11/96 2:35	SOLID	14797-65-0
Nitrite	Segment Upper Half	56690	ug/g	S96T005295W	16	9/11/96 11:20	SOLID	14797-65-0
Nitrite	Segment Lower Half	62630	ug/g	S96T005292W	16	9/11/96 11:20	SOLID	14797-65-0
Nitrite	Segment Lower Half	60240	ug/g	S96T005785W	18	9/11/96 18:08	SOLID	14797-65-0
Nitrite	Segment Upper Half	61740	ug/g	S96T005779W	18	9/11/96 18:08	SOLID	14797-65-0
Nitrite	Segment Lower Half	56880	ug/g	S96T005561W	20	9/11/96 22:43	SOLID	14797-65-0

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REISSUE

Selected Analytical Resutls from TWINS for the 1996 Core Sampling Event of 241-AN-104, Riser 10A, Core 163

Constituent Name	Aggregation Level	Reported Value	Reported Unit	Lab Sample ID	Segment	Sample Date/Time	Sample State	CAS Number
Nitrite	Segment Upper Half	60230	ug/g	S96T005558W	20	9/11/96 22:43	SOLID	14797-65-0
Oxalate	Segment Solids	9520	ug/g	S96T005290W	1	9/9/96 6:35	SOLID	338-70-5
Oxalate	Segment Solids	5755	ug/g	S96T005291W	2	9/9/96 10:30	SOLID	338-70-5
Oxalate	Drainable Liquid	526.6	ug/mL	S96T005260	4	9/9/96 13:10	LIQUID	338-70-5
Oxalate	Drainable Liquid	905.9	ug/mL	S96T005258	9	9/10/96 16:48	LIQUID	338-70-5
Oxalate	Segment Solids	7379	ug/g	S96T005784W	12	9/10/96 21:10	SOLID	338-70-5
Oxalate	Segment Lower Half	10180	ug/g	S96T005752W	14	9/11/96 2:35	SOLID	338-70-5
Oxalate	Segment Upper Half	9914	ug/g	S96T005751W	14	9/11/96 2:35	SOLID	338-70-5
Oxalate	Segment Upper Half	9188	ug/g	S96T005295W	16	9/11/96 11:20	SOLID	338-70-5
Oxalate	Segment Lower Half	10400	ug/g	S96T005292W	16	9/11/96 11:20	SOLID	338-70-5
Oxalate	Segment Lower Half	5936	ug/g	S96T005785W	18	9/11/96 18:08	SOLID	338-70-5
Oxalate	Segment Upper Half	6127	ug/g	S96T005779W	18	9/11/96 18:08	SOLID	338-70-5
Oxalate	Segment Lower Half	8438	ug/g	S96T005561W	20	9/11/96 22:43	SOLID	338-70-5
Oxalate	Segment Upper Half	6205	ug/g	S96T005558W	20	9/11/96 22:43	SOLID	338-70-5
Percent Water	Segment Solids	42.53	%	S96T005269	1	9/9/96 6:35	SOLID	
Percent Water	Drainable Liquid	52.1	%	S96T005256	2	9/9/96 10:30	LIQUID	
Percent Water	Segment Solids	50.56	%	S96T005270	2	9/9/96 10:30	SOLID	
Percent Water	Drainable Liquid	52.13	%	S96T005260	4	9/9/96 13:10	LIQUID	
Percent Water	Drainable Liquid	52.09	%	S96T005527	5	9/9/96 17:53	LIQUID	
Percent Water	Drainable Liquid	52.41	%	S96T005554	6	9/10/96 1:22	LIQUID	
Percent Water	Drainable Liquid	51.47	%	S96T005255	7	9/10/96 12:44	LIQUID	
Percent Water	Drainable Liquid	52.13	%	S96T005257	8	9/10/96 13:35	LIQUID	
Percent Water	Drainable Liquid	51.92	%	S96T005258	9	9/10/96 16:48	LIQUID	
Percent Water	Drainable Liquid	51.77	%	S96T005528	10	9/10/96 17:43	LIQUID	
Percent Water	Drainable Liquid	50.94	%	S96T005739	11	9/10/96 20:18	LIQUID	
Percent Water	Segment Solids	46.83	%	S96T005771	12	9/10/96 21:10	SOLID	
Percent Water	Drainable Liquid	52.44	%	S96T005766	12	9/10/96 21:10	LIQUID	
Percent Water	Drainable Liquid	51.77	%	S96T005741	14	9/11/96 2:35	LIQUID	
Percent Water	Segment Upper Half	44.54	%	S96T005743	14	9/11/96 2:35	SOLID	
Percent Water	Segment Lower Half	44.4	%	S96T005744	14	9/11/96 2:35	SOLID	
Percent Water	Drainable Liquid	51.55	%	S96T005741	14	9/11/96 2:35	LIQUID	
Percent Water	Segment Upper Half	50.23	%	S96T005271	16	9/11/96 11:20	SOLID	
Percent Water	Segment Lower Half	46.27	%	S96T005272	16	9/11/96 11:20	SOLID	
Percent Water	Segment Upper Half	40.95	%	S96T005772	18	9/11/96 18:08	SOLID	
Percent Water	Segment Lower Half	39.9	%	S96T005773	18	9/11/96 18:08	SOLID	
Percent Water	Segment Upper Half	40.8	%	S96T005548	20	9/11/96 22:43	SOLID	
Percent Water	Segment Lower Half	41.27	%	S96T005549	20	9/11/96 22:43	SOLID	
Phosphate	Segment Solids	3088	ug/g	S96T005290W	1	9/9/96 6:35	SOLID	14265-44-2
Phosphate	Drainable Liquid	3859	ug/mL	S96T005256	2	9/9/96 10:30	LIQUID	14265-44-2
Phosphate	Segment Solids	3221	ug/g	S96T005291W	2	9/9/96 10:30	SOLID	14265-44-2
Phosphate	Drainable Liquid	2458	ug/mL	S96T005260	4	9/9/96 13:10	LIQUID	14265-44-2
Phosphate	Drainable Liquid	2169	ug/mL	S96T005527	5	9/9/96 17:53	LIQUID	14265-44-2
Phosphate	Drainable Liquid	2672	ug/mL	S96T005554	6	9/10/96 1:22	LIQUID	14265-44-2
Phosphate	Drainable Liquid	2615	ug/mL	S96T005255	7	9/10/96 12:44	LIQUID	14265-44-2
Phosphate	Drainable Liquid	1747	ug/mL	S96T005257	8	9/10/96 13:35	LIQUID	14265-44-2
Phosphate	Drainable Liquid	2068	ug/mL	S96T005258	9	9/10/96 16:48	LIQUID	14265-44-2
Phosphate	Drainable Liquid	1839	ug/mL	S96T005528	10	9/10/96 17:43	LIQUID	14265-44-2
Phosphate	Drainable Liquid	1252	ug/mL	S96T005739	11	9/10/96 20:18	LIQUID	14265-44-2
Phosphate	Segment Solids	4823	ug/g	S96T005784W	12	9/10/96 21:10	SOLID	14265-44-2
Phosphate	Drainable Liquid	1039	ug/mL	S96T005766	12	9/10/96 21:10	LIQUID	14265-44-2
Phosphate	Drainable Liquid	1027	ug/mL	S96T005741	14	9/11/96 2:35	LIQUID	14265-44-2
Phosphate	Segment Lower Half	2603	ug/g	S96T005752W	14	9/11/96 2:35	SOLID	14265-44-2
Phosphate	Segment Upper Half	2284	ug/g	S96T005751W	14	9/11/96 2:35	SOLID	14265-44-2
Phosphate	Segment Upper Half	2692	ug/g	S96T005295W	16	9/11/96 11:20	SOLID	14265-44-2
Phosphate	Segment Lower Half	3500	ug/g	S96T005292W	16	9/11/96 11:20	SOLID	14265-44-2
Phosphate	Segment Lower Half	3496	ug/g	S96T005785W	18	9/11/96 18:08	SOLID	14265-44-2

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REISSUE

Selected Analytical Resutls from TWINS for the 1996 Core Sampling Event of 241-AN-104, Riser 10A, Core 163

Constituent Name	Aggregation Level	Reported Value	Reported Unit	Lab Sample ID	Segment	Sample Date/Time	Sample State	CAS Number
Phosphate	Segment Upper Half	3379	ug/g	S96T005779W	18	9/11/96 18:08	SOLID	14265-44-2
Phosphate	Segment Lower Half	15920	ug/g	S96T005561W	20	9/11/96 22:43	SOLID	14265-44-2
Phosphate	Segment Upper Half	3704	ug/g	S96T005558W	20	9/11/96 22:43	SOLID	14265-44-2
Phosphorus	Segment Solids	1120	ug/g	S96T005287A	1	9/9/96 6:35	SOLID	7723-14-0
Phosphorus	Drainable Liquid	862	ug/mL	S96T005256D	2	9/9/96 10:30	LIQUID	7723-14-0
Phosphorus	Segment Lower Half	1400	ug/g	S96T005288A	2	9/9/96 10:30	SOLID	7723-14-0
Phosphorus	Drainable Liquid	1000	ug/mL	S96T005260D	4	9/9/96 13:10	LIQUID	7723-14-0
Phosphorus	Drainable Liquid	960	ug/mL	S96T005527D	5	9/9/96 17:53	LIQUID	7723-14-0
Phosphorus	Drainable Liquid	992	ug/mL	S96T005554D	6	9/10/96 1:22	LIQUID	7723-14-0
Phosphorus	Drainable Liquid	1030	ug/mL	S96T005255D	7	9/10/96 12:44	LIQUID	7723-14-0
Phosphorus	Drainable Liquid	835	ug/mL	S96T005257D	8	9/10/96 13:35	LIQUID	7723-14-0
Phosphorus	Drainable Liquid	876	ug/mL	S96T005258D	9	9/10/96 16:48	LIQUID	7723-14-0
Phosphorus	Drainable Liquid	785	ug/mL	S96T005528D	10	9/10/96 17:43	LIQUID	7723-14-0
Phosphorus	Drainable Liquid	729	ug/mL	S96T005739D	11	9/10/96 20:18	LIQUID	7723-14-0
Phosphorus	Drainable Liquid	554	ug/mL	S96T005766D	12	9/10/96 21:10	LIQUID	7723-14-0
Phosphorus	Segment Solids	1600	ug/g	S96T005782A	12	9/10/96 21:10	SOLID	7723-14-0
Phosphorus	Drainable Liquid	559	ug/mL	S96T005741D	14	9/11/96 2:35	LIQUID	7723-14-0
Phosphorus	Segment Lower Half	957	ug/g	S96T005750A	14	9/11/96 2:35	SOLID	7723-14-0
Phosphorus	Segment Upper Half	809	ug/g	S96T005749A	14	9/11/96 2:35	SOLID	7723-14-0
Phosphorus	Segment Lower Half	1150	ug/g	S96T005289A	16	9/11/96 11:20	SOLID	7723-14-0
Phosphorus	Segment Upper Half	1180	ug/g	S96T005294A	16	9/11/96 11:20	SOLID	7723-14-0
Phosphorus	Segment Lower Half	1220	ug/g	S96T005783A	18	9/11/96 18:08	SOLID	7723-14-0
Phosphorus	Segment Upper Half	1270	ug/g	S96T005778A	18	9/11/96 18:08	SOLID	7723-14-0
Phosphorus	Segment Lower Half	5360	ug/g	S96T005559F	20	9/11/96 22:43	SOLID	7723-14-0
Phosphorus	Segment Lower Half	6210	ug/g	S96T005560A	20	9/11/96 22:43	SOLID	7723-14-0
Phosphorus	Segment Upper Half	1400	ug/g	S96T005557A	20	9/11/96 22:43	SOLID	7723-14-0
Potassium	Segment Solids	5240000	ug/g	S96T005284F	1	9/9/96 6:35	SOLID	7440-09-7
Potassium	Segment Solids	3590	ug/g	S96T005287A	1	9/9/96 6:35	SOLID	7440-09-7
Potassium	Drainable Liquid	6680	ug/mL	S96T005256D	2	9/9/96 10:30	LIQUID	7440-09-7
Potassium	Segment Solids	5260000	ug/g	S96T005285F	2	9/9/96 10:30	SOLID	7440-09-7
Potassium	Segment Lower Half	3050	ug/g	S96T005288A	2	9/9/96 10:30	SOLID	7440-09-7
Potassium	Drainable Liquid	7200	ug/mL	S96T005260D	4	9/9/96 13:10	LIQUID	7440-09-7
Potassium	Drainable Liquid	6520	ug/mL	S96T005527D	5	9/9/96 17:53	LIQUID	7440-09-7
Potassium	Drainable Liquid	6850	ug/mL	S96T005554D	6	9/10/96 1:22	LIQUID	7440-09-7
Potassium	Drainable Liquid	7240	ug/mL	S96T005255D	7	9/10/96 12:44	LIQUID	7440-09-7
Potassium	Drainable Liquid	6640	ug/mL	S96T005257D	8	9/10/96 13:35	LIQUID	7440-09-7
Potassium	Drainable Liquid	7140	ug/mL	S96T005258D	9	9/10/96 16:48	LIQUID	7440-09-7
Potassium	Drainable Liquid	6430	ug/mL	S96T005528D	10	9/10/96 17:43	LIQUID	7440-09-7
Potassium	Drainable Liquid	6630	ug/mL	S96T005739D	11	9/10/96 20:18	LIQUID	7440-09-7
Potassium	Drainable Liquid	7360	ug/mL	S96T005766D	12	9/10/96 21:10	LIQUID	7440-09-7
Potassium	Segment Solids	5670000	ug/g	S96T005780F	12	9/10/96 21:10	SOLID	7440-09-7
Potassium	Segment Solids	3660	ug/g	S96T005782A	12	9/10/96 21:10	SOLID	7440-09-7
Potassium	Drainable Liquid	6760	ug/mL	S96T005741D	14	9/11/96 2:35	LIQUID	7440-09-7
Potassium	Segment Lower Half	3650	ug/g	S96T005750A	14	9/11/96 2:35	SOLID	7440-09-7
Potassium	Segment Upper Half	4670000	ug/g	S96T005747F	14	9/11/96 2:35	SOLID	7440-09-7
Potassium	Segment Upper Half	3450	ug/g	S96T005749A	14	9/11/96 2:35	SOLID	7440-09-7
Potassium	Segment Lower Half	4760000	ug/g	S96T005748F	14	9/11/96 2:35	SOLID	7440-09-7
Potassium	Segment Lower Half	3450	ug/g	S96T005289A	16	9/11/96 11:20	SOLID	7440-09-7
Potassium	Segment Lower Half	6560000	ug/g	S96T005286F	16	9/11/96 11:20	SOLID	7440-09-7
Potassium	Segment Upper Half	3330	ug/g	S96T005294A	16	9/11/96 11:20	SOLID	7440-09-7
Potassium	Segment Upper Half	7060000	ug/g	S96T005293F	16	9/11/96 11:20	SOLID	7440-09-7
Potassium	Segment Lower Half	9520000	ug/g	S96T005781F	18	9/11/96 18:08	SOLID	7440-09-7
Potassium	Segment Lower Half	3200	ug/g	S96T005783A	18	9/11/96 18:08	SOLID	7440-09-7
Potassium	Segment Upper Half	3150	ug/g	S96T005778A	18	9/11/96 18:08	SOLID	7440-09-7
Potassium	Segment Upper Half	7220000	ug/g	S96T005777F	18	9/11/96 18:08	SOLID	7440-09-7
Potassium	Segment Lower Half	6320000	ug/g	S96T005559F	20	9/11/96 22:43	SOLID	7440-09-7

B3500-MAN-02-043
REISSUE

Selected Analytical Resutls from TWINS — he 1996 Core Sampling Event of 241-AN-104, Riser 10A, Core 163

Constituent Name	Aggregation Level	Reported Value	F	orted Unit	Lab Sample ID	Segment	Sample Date/Time	Sample State	CAS Number
Potassium	Segment Lower Half	3350	u		S96T005560A	20	9/11/96 22:43	SOLID	7440-09-7
Potassium	Segment Upper Half	6160000	u		S96T005556F	20	9/11/96 22:43	SOLID	7440-09-7
Potassium	Segment Upper Half	3070	u		S96T005557A	20	9/11/96 22:43	SOLID	7440-09-7
Silicon	Segment Solids	803	u		S96T005287A	1	9/9/96 6:35	SOLID	7440-21-3
Silicon	Drainable Liquid	202	u	L	S96T005256D	2	9/9/96 10:30	LIQUID	7440-21-3
Silicon	Segment Solids	1180	u		S96T005285F	2	9/9/96 10:30	SOLID	7440-21-3
Silicon	Segment Lower Half	952	u		S96T005288A	2	9/9/96 10:30	SOLID	7440-21-3
Silicon	Drainable Liquid	234	u	L	S96T005260D	4	9/9/96 13:10	LIQUID	7440-21-3
Silicon	Drainable Liquid	173	u	L	S96T005527D	5	9/9/96 17:53	LIQUID	7440-21-3
Silicon	Drainable Liquid	200	u	L	S96T005554D	6	9/10/96 1:22	LIQUID	7440-21-3
Silicon	Drainable Liquid	230	u	L	S96T005255D	7	9/10/96 12:44	LIQUID	7440-21-3
Silicon	Drainable Liquid	236	u	L	S96T005257D	8	9/10/96 13:35	LIQUID	7440-21-3
Silicon	Drainable Liquid	220	u	L	S96T005258D	9	9/10/96 16:48	LIQUID	7440-21-3
Silicon	Drainable Liquid	204	u	L	S96T005528D	10	9/10/96 17:43	LIQUID	7440-21-3
Silicon	Drainable Liquid	245	u	L	S96T005739D	11	9/10/96 20:18	LIQUID	7440-21-3
Silicon	Drainable Liquid	158	u	L	S96T005766D	12	9/10/96 21:10	LIQUID	7440-21-3
Silicon	Segment Solids	507	u		S96T005782A	12	9/10/96 21:10	SOLID	7440-21-3
Silicon	Drainable Liquid	220	u	L	S96T005741D	14	9/11/96 2:35	LIQUID	7440-21-3
Silicon	Segment Lower Half	579	ug		S96T005750A	14	9/11/96 2:35	SOLID	7440-21-3
Silicon	Segment Upper Half	193	ug		S96T005749A	14	9/11/96 2:35	SOLID	7440-21-3
Silicon	Segment Lower Half	938	ug		S96T005748F	14	9/11/96 2:35	SOLID	7440-21-3
Silicon	Segment Lower Half	1030	ug		S96T005289A	16	9/11/96 11:20	SOLID	7440-21-3
Silicon	Segment Upper Half	780	ug		S96T005294A	16	9/11/96 11:20	SOLID	7440-21-3
Silicon	Segment Lower Half	1260	ug		S96T005781F	18	9/11/96 18:08	SOLID	7440-21-3
Silicon	Segment Lower Half	675	ug		S96T005783A	18	9/11/96 18:08	SOLID	7440-21-3
Silicon	Segment Upper Half	377	ug		S96T005778A	18	9/11/96 18:08	SOLID	7440-21-3
Silicon	Segment Lower Half	882	ug		S96T005560A	20	9/11/96 22:43	SOLID	7440-21-3
Silicon	Segment Upper Half	742	ug		S96T005557A	20	9/11/96 22:43	SOLID	7440-21-3
Silver	Segment Solids	14.1	ug		S96T005287A	1	9/9/96 6:35	SOLID	7440-22-4
Silver	Drainable Liquid	19.1	ug	mL	S96T005256D	2	9/9/96 10:30	LIQUID	7440-22-4
Silver	Segment Lower Half	16.9	ug		S96T005288A	2	9/9/96 10:30	SOLID	7440-22-4
Silver	Drainable Liquid	19.2	ug	mL	S96T005260D	4	9/9/96 13:10	LIQUID	7440-22-4
Silver	Drainable Liquid	18	ug	mL	S96T005527D	5	9/9/96 17:53	LIQUID	7440-22-4
Silver	Drainable Liquid	18.6	ug	mL	S96T005554D	6	9/10/96 1:22	LIQUID	7440-22-4
Silver	Drainable Liquid	19.3	u	mL	S96T005255D	7	9/10/96 12:44	LIQUID	7440-22-4
Silver	Drainable Liquid	17.7	u	mL	S96T005257D	8	9/10/96 13:35	LIQUID	7440-22-4
Silver	Drainable Liquid	19.6	u	mL	S96T005258D	9	9/10/96 16:48	LIQUID	7440-22-4
Silver	Drainable Liquid	17	u	mL	S96T005528D	10	9/10/96 17:43	LIQUID	7440-22-4
Silver	Drainable Liquid	17.2	u	mL	S96T005739D	11	9/10/96 20:18	LIQUID	7440-22-4
Silver	Drainable Liquid	18.3	u	mL	S96T005766D	12	9/10/96 21:10	LIQUID	7440-22-4
Silver	Segment Solids	12.3	u	g	S96T005782A	12	9/10/96 21:10	SOLID	7440-22-4
Silver	Drainable Liquid	18.1	u	mL	S96T005741D	14	9/11/96 2:35	LIQUID	7440-22-4
Silver	Segment Lower Half	13	u	g	S96T005750A	14	9/11/96 2:35	SOLID	7440-22-4
Silver	Segment Upper Half	13.8	u	g	S96T005749A	14	9/11/96 2:35	SOLID	7440-22-4
Silver	Segment Lower Half	15	u	/g	S96T005289A	16	9/11/96 11:20	SOLID	7440-22-4
Silver	Segment Upper Half	38.6	u	/g	S96T005294A	16	9/11/96 11:20	SOLID	7440-22-4
Silver	Segment Lower Half	15	u	/g	S96T005783A	18	9/11/96 18:08	SOLID	7440-22-4
Silver	Segment Upper Half	14.4	u	/g	S96T005778A	18	9/11/96 18:08	SOLID	7440-22-4
Silver	Segment Lower Half	17.7	u	/g	S96T005560A	20	9/11/96 22:43	SOLID	7440-22-4
Silver	Segment Upper Half	15.7	u	/g	S96T005557A	20	9/11/96 22:43	SOLID	7440-22-4
Sodium	Segment Solids	231000	u	/g	S96T005284F	1	9/9/96 6:35	SOLID	7440-23-5
Sodium	Segment Solids	191000	u	/g	S96T005287A	1	9/9/96 6:35	SOLID	7440-23-5
Sodium	Drainable Liquid	248000	u	/mL	S96T005256D	2	9/9/96 10:30	LIQUID	7440-23-5
Sodium	Segment Solids	220000	u	/g	S96T005285F	2	9/9/96 10:30	SOLID	7440-23-5
Sodium	Segment Lower Half	196000	u	/g	S96T005288A	2	9/9/96 10:30	SOLID	7440-23-5
Sodium	Drainable Liquid	271000	u	/mL	S96T005260D	4	9/9/96 13:10	LIQUID	7440-23-5

B3500-MAN-02-043
REISSUE

Selected Analytical Resutls from TWINS for the 1996 Core Sampling Event of 241-AN-104, Riser 10A, Core 163

Constituent Name	Aggregation Level	Reported Value	Reported Unit	Lab Sample ID	Segment	Sample Date/Time	Sample State	CAS Number
Sodium	Drainable Liquid	251000	ug/mL	S96T005527D	5	9/9/96 17:53	LIQUID	7440-23-5
Sodium	Drainable Liquid	256000	ug/mL	S96T005554D	6	9/10/96 1:22	LIQUID	7440-23-5
Sodium	Drainable Liquid	273000	ug/mL	S96T005255D	7	9/10/96 12:44	LIQUID	7440-23-5
Sodium	Drainable Liquid	247000	ug/mL	S96T005257D	8	9/10/96 13:35	LIQUID	7440-23-5
Sodium	Drainable Liquid	271000	ug/mL	S96T005258D	9	9/10/96 16:48	LIQUID	7440-23-5
Sodium	Drainable Liquid	243000	ug/mL	S96T005528D	10	9/10/96 17:43	LIQUID	7440-23-5
Sodium	Drainable Liquid	246000	ug/mL	S96T005739D	11	9/10/96 20:18	LIQUID	7440-23-5
Sodium	Drainable Liquid	263000	ug/mL	S96T005766D	12	9/10/96 21:10	LIQUID	7440-23-5
Sodium	Segment Solids	218000	ug/g	S96T005780F	12	9/10/96 21:10	SOLID	7440-23-5
Sodium	Segment Solids	173000	ug/g	S96T005782A	12	9/10/96 21:10	SOLID	7440-23-5
Sodium	Drainable Liquid	247000	ug/mL	S96T005741D	14	9/11/96 2:35	LIQUID	7440-23-5
Sodium	Segment Lower Half	183000	ug/g	S96T005750A	14	9/11/96 2:35	SOLID	7440-23-5
Sodium	Segment Upper Half	224000	ug/g	S96T005747F	14	9/11/96 2:35	SOLID	7440-23-5
Sodium	Segment Upper Half	190000	ug/g	S96T005749A	14	9/11/96 2:35	SOLID	7440-23-5
Sodium	Segment Lower Half	220000	ug/g	S96T005748F	14	9/11/96 2:35	SOLID	7440-23-5
Sodium	Segment Lower Half	191000	ug/g	S96T005289A	16	9/11/96 11:20	SOLID	7440-23-5
Sodium	Segment Lower Half	238000	ug/g	S96T005286F	16	9/11/96 11:20	SOLID	7440-23-5
Sodium	Segment Upper Half	193000	ug/g	S96T005294A	16	9/11/96 11:20	SOLID	7440-23-5
Sodium	Segment Upper Half	232000	ug/g	S96T005293F	16	9/11/96 11:20	SOLID	7440-23-5
Sodium	Segment Lower Half	318000	ug/g	S96T005781F	18	9/11/96 18:08	SOLID	7440-23-5
Sodium	Segment Lower Half	196000	ug/g	S96T005783A	18	9/11/96 18:08	SOLID	7440-23-5
Sodium	Segment Upper Half	192000	ug/g	S96T005778A	18	9/11/96 18:08	SOLID	7440-23-5
Sodium	Segment Upper Half	314000	ug/g	S96T005777F	18	9/11/96 18:08	SOLID	7440-23-5
Sodium	Segment Lower Half	241000	ug/g	S96T005559F	20	9/11/96 22:43	SOLID	7440-23-5
Sodium	Segment Lower Half	231000	ug/g	S96T005560A	20	9/11/96 22:43	SOLID	7440-23-5
Sodium	Segment Upper Half	256000	ug/g	S96T005556F	20	9/11/96 22:43	SOLID	7440-23-5
Sodium	Segment Upper Half	202000	ug/g	S96T005557A	20	9/11/96 22:43	SOLID	7440-23-5
Solid density	Segment Solids	1.76	g/mL	S96T005768	12	9/10/96 21:10	SOLID	
Solid density	Segment Upper Half	1.65	g/mL	S96T005728	14	9/11/96 2:35	SOLID	
Solid density	Segment Lower Half	1.61	g/mL	S96T005729	14	9/11/96 2:35	SOLID	
Solid density	Segment Upper Half	1.56	g/mL	S96T005226	16	9/11/96 11:20	SOLID	
Solid density	Segment Lower Half	1.57	g/mL	S96T005227	16	9/11/96 11:20	SOLID	
Solid density	Segment Upper Half	1.59	g/mL	S96T005769	18	9/11/96 18:08	SOLID	
Solid density	Segment Lower Half	1.71	g/mL	S96T005770	18	9/11/96 18:08	SOLID	
Solid density	Segment Upper Half	1.63	g/mL	S96T005552	20	9/11/96 22:43	SOLID	
Solid density	Segment Lower Half	1.64	g/mL	S96T005553	20	9/11/96 22:43	SOLID	
Specific gravity	Drainable Liquid	1.384	unitless	S96T005256	2	9/9/96 10:30	LIQUID	
Specific gravity	Drainable Liquid	1.369	unitless	S96T005260	4	9/9/96 13:10	LIQUID	
Specific gravity	Drainable Liquid	1.358	unitless	S96T005527	5	9/9/96 17:53	LIQUID	
Specific gravity	Drainable Liquid	1.344	unitless	S96T005554	6	9/10/96 1:22	LIQUID	
Specific gravity	Drainable Liquid	1.416	unitless	S96T005255	7	9/10/96 12:44	LIQUID	
Specific gravity	Drainable Liquid	1.402	unitless	S96T005257	8	9/10/96 13:35	LIQUID	
Specific gravity	Drainable Liquid	1.354	unitless	S96T005258	9	9/10/96 16:48	LIQUID	
Specific gravity	Drainable Liquid	1.362	unitless	S96T005528	10	9/10/96 17:43	LIQUID	
Specific gravity	Drainable Liquid	1.34	unitless	S96T005739	11	9/10/96 20:18	LIQUID	
Specific gravity	Drainable Liquid	1.449	unitless	S96T005766	12	9/10/96 21:10	LIQUID	
Specific gravity	Drainable Liquid	1.489	unitless	S96T005741	14	9/11/96 2:35	LIQUID	
Sulfate	Segment Solids	11380	ug/g	S96T005290W	1	9/9/96 6:35	SOLID	14808-79-8
Sulfate	Drainable Liquid	2796	ug/mL	S96T005256	2	9/9/96 10:30	LIQUID	14808-79-8
Sulfate	Segment Solids	3653	ug/g	S96T005291W	2	9/9/96 10:30	SOLID	14808-79-8
Sulfate	Drainable Liquid	1925	ug/mL	S96T005260	4	9/9/96 13:10	LIQUID	14808-79-8
Sulfate	Drainable Liquid	1036	ug/mL	S96T005527	5	9/9/96 17:53	LIQUID	14808-79-8
Sulfate	Drainable Liquid	1023	ug/mL	S96T005255	7	9/10/96 12:44	LIQUID	14808-79-8
Sulfate	Drainable Liquid	1045	ug/mL	S96T005257	8	9/10/96 13:35	LIQUID	14808-79-8
Sulfate	Drainable Liquid	1484	ug/mL	S96T005258	9	9/10/96 16:48	LIQUID	14808-79-8
Sulfate	Drainable Liquid	1452	ug/mL	S96T005528	10	9/10/96 17:43	LIQUID	14808-79-8

B3500-MAN-02-043
REISSUE

Selected Analytical Results from TWINS for the 1996 Core Sampling Event of 241-AN-104, Riser 10A, Core 163

Constituent Name	Aggregation Level	Reported Value	Reported Unit	Lab Sample ID	Segment	Sample Date/Time	Sample State	CAS Number
Sulfate	Segment Solids	7544	ug/g	S96T005784W	12	9/10/96 21:10	SOLID	14808-79-8
Sulfate	Drainable Liquid	911.3	ug/mL	S96T005766	12	9/10/96 21:10	LIQUID	14808-79-8
Sulfate	Drainable Liquid	1670	ug/mL	S96T005741	14	9/11/96 2:35	LIQUID	14808-79-8
Sulfate	Segment Lower Half	10410	ug/g	S96T005752W	14	9/11/96 2:35	SOLID	14808-79-8
Sulfate	Segment Upper Half	9571	ug/g	S96T005751W	14	9/11/96 2:35	SOLID	14808-79-8
Sulfate	Segment Upper Half	12600	ug/g	S96T005295W	16	9/11/96 11:20	SOLID	14808-79-8
Sulfate	Segment Lower Half	12940	ug/g	S96T005292W	16	9/11/96 11:20	SOLID	14808-79-8
Sulfate	Segment Lower Half	16490	ug/g	S96T005785W	18	9/11/96 18:08	SOLID	14808-79-8
Sulfate	Segment Upper Half	16480	ug/g	S96T005779W	18	9/11/96 18:08	SOLID	14808-79-8
Sulfate	Segment Lower Half	10370	ug/g	S96T005561W	20	9/11/96 22:43	SOLID	14808-79-8
Sulfate	Segment Upper Half	14400	ug/g	S96T005558W	20	9/11/96 22:43	SOLID	14808-79-8
Sulfur	Segment Solids	4500	ug/g	S96T005284F	1	9/9/96 6:35	SOLID	7704-34-9
Sulfur	Segment Solids	3510	ug/g	S96T005287A	1	9/9/96 6:35	SOLID	7704-34-9
Sulfur	Drainable Liquid	1210	ug/mL	S96T005256D	2	9/9/96 10:30	LIQUID	7704-34-9
Sulfur	Segment Lower Half	1870	ug/g	S96T005288A	2	9/9/96 10:30	SOLID	7704-34-9
Sulfur	Drainable Liquid	1200	ug/mL	S96T005260D	4	9/9/96 13:10	LIQUID	7704-34-9
Sulfur	Drainable Liquid	1120	ug/mL	S96T005527D	5	9/9/96 17:53	LIQUID	7704-34-9
Sulfur	Drainable Liquid	1140	ug/mL	S96T005554D	6	9/10/96 1:22	LIQUID	7704-34-9
Sulfur	Drainable Liquid	1220	ug/mL	S96T005255D	7	9/10/96 12:44	LIQUID	7704-34-9
Sulfur	Drainable Liquid	1110	ug/mL	S96T005257D	8	9/10/96 13:35	LIQUID	7704-34-9
Sulfur	Drainable Liquid	1180	ug/mL	S96T005258D	9	9/10/96 16:48	LIQUID	7704-34-9
Sulfur	Drainable Liquid	1050	ug/mL	S96T005528D	10	9/10/96 17:43	LIQUID	7704-34-9
Sulfur	Drainable Liquid	1120	ug/mL	S96T005739D	11	9/10/96 20:18	LIQUID	7704-34-9
Sulfur	Segment Solids	2550	ug/g	S96T005782A	12	9/10/96 21:10	SOLID	7704-34-9
Sulfur	Drainable Liquid	1390	ug/mL	S96T005766D	12	9/10/96 21:10	LIQUID	7704-34-9
Sulfur	Segment Solids	2760	ug/g	S96T005780F	12	9/10/96 21:10	SOLID	7704-34-9
Sulfur	Drainable Liquid	1470	ug/mL	S96T005741D	14	9/11/96 2:35	LIQUID	7704-34-9
Sulfur	Segment Lower Half	3340	ug/g	S96T005750A	14	9/11/96 2:35	SOLID	7704-34-9
Sulfur	Segment Upper Half	3400	ug/g	S96T005747F	14	9/11/96 2:35	SOLID	7704-34-9
Sulfur	Segment Upper Half	2990	ug/g	S96T005749A	14	9/11/96 2:35	SOLID	7704-34-9
Sulfur	Segment Lower Half	3920	ug/g	S96T005748F	14	9/11/96 2:35	SOLID	7704-34-9
Sulfur	Segment Lower Half	4550	ug/g	S96T005289A	16	9/11/96 11:20	SOLID	7704-34-9
Sulfur	Segment Lower Half	4180	ug/g	S96T005286F	16	9/11/96 11:20	SOLID	7704-34-9
Sulfur	Segment Upper Half	4910	ug/g	S96T005294A	16	9/11/96 11:20	SOLID	7704-34-9
Sulfur	Segment Upper Half	5010	ug/g	S96T005293F	16	9/11/96 11:20	SOLID	7704-34-9
Sulfur	Segment Lower Half	6880	ug/g	S96T005781F	18	9/11/96 18:08	SOLID	7704-34-9
Sulfur	Segment Lower Half	5590	ug/g	S96T005783A	18	9/11/96 18:08	SOLID	7704-34-9
Sulfur	Segment Upper Half	5430	ug/g	S96T005778A	18	9/11/96 18:08	SOLID	7704-34-9
Sulfur	Segment Upper Half	7840	ug/g	S96T005777F	18	9/11/96 18:08	SOLID	7704-34-9
Sulfur	Segment Lower Half	3970	ug/g	S96T005559F	20	9/11/96 22:43	SOLID	7704-34-9
Sulfur	Segment Lower Half	4330	ug/g	S96T005560A	20	9/11/96 22:43	SOLID	7704-34-9
Sulfur	Segment Upper Half	5560	ug/g	S96T005556F	20	9/11/96 22:43	SOLID	7704-34-9
Sulfur	Segment Upper Half	5160	ug/g	S96T005557A	20	9/11/96 22:43	SOLID	7704-34-9
Uranium	Segment Upper Half	230	ug/g	S96T005294A	16	9/11/96 11:20	SOLID	7440-61-1
Uranium	Segment Lower Half	268	ug/g	S96T005783A	18	9/11/96 18:08	SOLID	7440-61-1
Uranium	Segment Upper Half	264	ug/g	S96T005778A	18	9/11/96 18:08	SOLID	7440-61-1
Uranium	Segment Lower Half	353	ug/g	S96T005560A	20	9/11/96 22:43	SOLID	7440-61-1
Uranium	Segment Upper Half	237	ug/g	S96T005557A	20	9/11/96 22:43	SOLID	7440-61-1
Zinc	Segment Solids	466	ug/g	S96T005284F	1	9/9/96 6:35	SOLID	7440-66-6
Zinc	Segment Solids	26.2	ug/g	S96T005287A	1	9/9/96 6:35	SOLID	7440-66-6
Zinc	Segment Lower Half	26.8	ug/g	S96T005288A	2	9/9/96 10:30	SOLID	7440-66-6
Zinc	Drainable Liquid	9	ug/mL	S96T005256D	2	9/9/96 10:30	LIQUID	7440-66-6
Zinc	Drainable Liquid	7.74	ug/mL	S96T005260D	4	9/9/96 13:10	LIQUID	7440-66-6
Zinc	Drainable Liquid	7.75	ug/mL	S96T005257D	8	9/10/96 13:35	LIQUID	7440-66-6
Zinc	Drainable Liquid	7.66	ug/mL	S96T005258D	9	9/10/96 16:48	LIQUID	7440-66-6
Zinc	Segment Solids	10.2	ug/g	S96T005782A	12	9/10/96 21:10	SOLID	7440-66-6

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Selected Analytical Results from TWINS for the 1996 Core Sampling Event of 241-AN-104, Riser 10A, Core 163

Constituent Name	Aggregation Level	Reported Value	Reported Unit	Lab Sample ID	Segment	Sample Date/Time	Sample State	CAS Number
Zinc	Segment Lower Half	7.68	ug/g	S96T005750A	14	9/11/96 2:35	SOLID	7440-66-6
Zinc	Segment Upper Half	9.61	ug/g	S96T005749A	14	9/11/96 2:35	SOLID	7440-66-6
Zinc	Segment Upper Half	17.8	ug/g	S96T005294A	16	9/11/96 11:20	SOLID	7440-66-6
Zinc	Segment Upper Half	253	ug/g	S96T005293F	16	9/11/96 11:20	SOLID	7440-66-6
Zinc	Segment Lower Half	16.9	ug/g	S96T005289A	16	9/11/96 11:20	SOLID	7440-66-6
Zinc	Segment Lower Half	8.51	ug/g	S96T005783A	18	9/11/96 18:08	SOLID	7440-66-6
Zinc	Segment Upper Half	8.5	ug/g	S96T005778A	18	9/11/96 18:08	SOLID	7440-66-6
Zinc	Segment Lower Half	27.2	ug/g	S96T005560A	20	9/11/96 22:43	SOLID	7440-66-6
Zinc	Segment Upper Half	24.1	ug/g	S96T005557A	20	9/11/96 22:43	SOLID	7440-66-6
Zirconium	Segment Solids	13.9	ug/g	S96T005287A	1	9/9/96 6:35	SOLID	7440-67-7
Zirconium	Segment Lower Half	9.09	ug/g	S96T005288A	2	9/9/96 10:30	SOLID	7440-67-7
Zirconium	Drainable Liquid	7.98	ug/mL	S96T005256D	2	9/9/96 10:30	LIQUID	7440-67-7
Zirconium	Drainable Liquid	6.78	ug/mL	S96T005260D	4	9/9/96 13:10	LIQUID	7440-67-7
Zirconium	Drainable Liquid	6.93	ug/mL	S96T005527D	5	9/9/96 17:53	LIQUID	7440-67-7
Zirconium	Drainable Liquid	7.53	ug/mL	S96T005554D	6	9/10/96 1:22	LIQUID	7440-67-7
Zirconium	Drainable Liquid	8.01	ug/mL	S96T005255D	7	9/10/96 12:44	LIQUID	7440-67-7
Zirconium	Segment Solids	20.1	ug/g	S96T005782A	12	9/10/96 21:10	SOLID	7440-67-7
Zirconium	Drainable Liquid	8.73	ug/mL	S96T005741D	14	9/11/96 2:35	LIQUID	7440-67-7
Zirconium	Segment Lower Half	12.9	ug/g	S96T005750A	14	9/11/96 2:35	SOLID	7440-67-7
Zirconium	Segment Upper Half	11.8	ug/g	S96T005749A	14	9/11/96 2:35	SOLID	7440-67-7
Zirconium	Segment Upper Half	19.5	ug/g	S96T005294A	16	9/11/96 11:20	SOLID	7440-67-7
Zirconium	Segment Lower Half	19.2	ug/g	S96T005289A	16	9/11/96 11:20	SOLID	7440-67-7
Zirconium	Segment Lower Half	19.9	ug/g	S96T005783A	18	9/11/96 18:08	SOLID	7440-67-7
Zirconium	Segment Upper Half	20.4	ug/g	S96T005778A	18	9/11/96 18:08	SOLID	7440-67-7
Zirconium	Segment Lower Half	24.2	ug/g	S96T005560A	20	9/11/96 22:43	SOLID	7440-67-7
Zirconium	Segment Upper Half	19.3	ug/g	S96T005557A	20	9/11/96 22:43	SOLID	7440-67-7

Note: Analytical results with data qualifiers were not retrieved from the TWINS database for this summary.

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REISSUE

ATTACHMENT B

Results of Visual Inspection of Samples

Consisting of 2 pages,
Including cover page

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B3500-MAN-02-043
REISSUE

Results of Visual Inspection of AN-104 Samples Conducted on March 14, 2002

Date	Location	Box #	Jar/Vial #	Tare Wt# (g)	Tank #	Core #	Segment #	Gross Wt# 2002	Net Wt# 2002	Vial Size (ml)	Liquids Observations		Solids Observations	
											Vol. (mL)	Comments	Vol. (mL)	Comments
24-Aug-00	11A1B	138	18324	299	AN-104	282	1	690.2	391.2	500	250	Clear Liquid		Minimal Settled Solids
23-Aug-00	11A1B	157	18325	297.4	AN-104	282	1R	729.3	431.9	500	375	Clear Liquid	30	Light Gray Solids (Crystalline)
23-Aug-00	11A1B	156	18259	291.3	AN-104	282	2	738.09	446.79	500	375	Clear Liquid		Minimal Settled Solids
23-Aug-00	11A1B	156	18260	292.3	AN-104	282	3R	730.4	438.1	500	375	Clear Liquid		Minimal Settled Solids
23-Aug-00	11A1B	156	18265	292.9	AN-104	282	4	731.9	439.0	500	375	Clear Liquid		Minimal Settled Solids
23-Aug-00	11A1B	156	18264	293.7	AN-104	282	5	751.3	457.6	500	375	Clear Liquid		Minimal Settled Solids
23-Aug-00	11A1B	138	18266	295.3	AN-104	282	6	740.2	444.9	500	375	Clear Liquid		Minimal Settled Solids
23-Aug-00	11A1B	156	18267	294	AN-104	282	7	749.80	455.80	500	400	Clear Liquid		Minimal Settled Solids
24-Aug-00	11A1B	137	17939	216.4	AN-104	282	8	558.5	342.1	250	230	Clear Liquid		Minimal Settled Solids
24-Aug-00	11A1B	146	17944	215	AN-104	282	8	320.98	105.98	250	60	Clear Liquid		Minimal Settled Solids
28-Aug-00	11A1B	156	18379	292.5	AN-104	282	9	743.46	450.96	500	375	Clear Liquid		Minimal Settled Solids
28-Aug-00	11A1B	157	18389	294.8	AN-104	282	10	744.6	449.8	500	375	Clear Liquid	15	Light Gray Solids (Crystalline)
28-Aug-00	11A1B	156	18380	294.1	AN-104	282	11	723.5	429.4	500	375	Clear Liquid	85	Dark Gray Solids
28-Aug-00	11A1B	157	18381	295.5	AN-104	282	12	696.0	400.5	500	250	Clear Liquid	160	Dark Gray Solids
28-Aug-00	11A1B	157	18383	291.4	AN-104	282	13	678.0	386.6	500	250	Clear Liquid	160	Dark Gray Solids
28-Aug-00	11A1B	147	18388	294.2	AN-104	282	14	689.3	395.1	500	250	Clear Liquid	170	Dark Gray Solids
24-Aug-00	11A1B	147	18392	293.7	AN-104	282	15	686.62	392.92	500		Sample Not Available		Sample Not Available
24-Aug-00	11A1B	157	18382	295.5	AN-104	282	16	708.2	412.7	500	250	Clear Liquid	200	Dark Gray Solids
24-Aug-00	11A1B	138	18384	293.9	AN-104	282	17	687.4	393.5	500	250	Clear Liquid	190	Dark Gray Solids
24-Aug-00	11A1B	138	18385	293.4	AN-104	282	18	6891.8	388.4	500	250	Clear Liquid	210	Dark Gray Solids
24-Aug-00	11A1B	157	18386	298.1	AN-104	282	19	706.7	408.6	500	250	Clear Liquid	210	Dark Gray Solids
24-Aug-00	11A1B	156	18387	294.8	AN-104	282	20	612.7	317.9	500		Sample Not Available		Sample Not Available
Total Number of Samples Collected =									22					
Total Net Weight In Grams =								7,607.03						
Approximate Total Volume in mL (assumes density = 1.50 gm/mL) =								5,071.35						

Notes: As per CHG direction, approximately 30 grams of Segment 1, and the entire Segment 15 and Segment 20 are being used for corrosion control studies (AN-104 CC1). In addition, CHG has also requested that Segment 1R be shipped to the PNNL for a mixing study test. As a result, these samples will not be included in the AN-104 ICD-23 shipment to SRTC.
The Liquids and Solids Observations (approximate volumes and comments) were made during visual inspections of the samples in the Hot Cell on March 14, 2002.

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REISSUE

ATTACHMENT C

Format Example for the DOT Shipping Calcuations

Consisting of 4 pages,
Including cover page

B3500-MAN-02-043
REISSUE

The information summarized below indicates the specific type of information that the 222-S Duratek certified shipper requires in order to perform the DOT shipping calculations to determine the packaging and labeling requirements for the shipment.

HAZCHEM DATA

1) For each chemical analyte, provide the name of the compound, and
2) Quantity (mass) in kilograms (Kg). (Note: If this information is exported from Labcore to an Excel spreadsheet, then a column can be inserted to do the conversion from concentration to Kg.)

RADCHEM DATA

1) Container type (i.e., 125 ml glass bottle, etc.)
2) Lab ID No.
3) Physical form (i.e., liquid, solid, etc.)
4) Sample volume, in cubic meters (let Excel do unit conversion)
5) Quantity (mass) in kilograms (let Excel do unit conversion)
6) Radionuclides in becquerels (Bq) or curie (Ci) (let Excel do the unit conversion)

Attached is a formatted example depicting the above requested information.

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REISSUE

Maximum Concentrations - Used to Represent Sample No. S01T000770, Jar No. 9333, Group No. 2001234
Tank 241-S-102, Core No. = 125, Segment No. = Saltcake Composite, Segment Portion = Core Composite

Analyte	Unit	Result	Information for Shipping Calculations	
			Mass (Kg)	Radionuclides (Ci)
Container Type = 30 mL Glass Jar Lab ID Number = S01T000770 Physical Form = Solid				
Sample Net Weight	g	30.00		
Sample Net Weight	Kg	3.00E-02		
Sample Volume	m^3	1.78E-05		
% Water by TGA using Mettler	%	21		
Bulk Density of Sample	g/mL	1.69		
Dose Rate(hotcell) in mrem/hr	mrem/hour	350		
Dose Rate(samp prep)in mrem/hr	mrem/hour	10		
Alpha of Digested Solid	uCi/g	0.0324		9.72E-07
Americium-241 by GEA	uCi/g	<0.634		1.90E-05
Beta of Solid Sample	uCi/g	110		3.30E-03
Cesium-137 by GEA	uCi/g	99.5		2.99E-03
Cobalt-60 by GEA	uCi/g	<0.0197		5.91E-07
Europium-154 by GEA	uCi/g	<0.0646		1.94E-06
Europium-155 by GEA	uCi/g	<0.242		7.26E-06
Strontium-89/90 High Level	uCi/g	5.76		1.73E-04
Aluminium -ICP-H20 Dig/Acid	ug/g	1.12E+04	3.36E-04	
Antimony -ICP-H20 Dig/Acid	ug/g	<42.4	1.27E-06	
Arsenic -ICP-H20 Dig/Acid	ug/g	<70.7	2.12E-06	
Barium -ICP-H20 Dig/Acid	ug/g	<35.4	1.06E-06	
Beryllium -ICP-H20 Dig/Acid	ug/g	<3.54	1.06E-07	
Bismuth -ICP-H20 Dig/Acid	ug/g	<70.7	2.12E-06	
Boron -ICP-H20 Dig/Acid	ug/g	500	1.50E-05	
Bromide by Ion Chromatograph	ug/g	1.75E+03	5.25E-05	
Cadmium -ICP-H20 Dig/Acid	ug/g	<3.54	1.06E-07	
Calcium -ICP-Acid Digest	ug/g	404	1.21E-05	
Cerium -ICP-H20 Dig/Acid	ug/g	<70.7	2.12E-06	
Chloride-IC-Dionex 4000/4500	ug/g	3.00E+03	9.00E-05	
Chromium -ICP-Acid Digest	ug/g	2.04E+03	6.12E-05	
Cobalt -ICP-H20 Dig/Acid	ug/g	<14.1	4.23E-07	
Copper -ICP-Acid Digest	ug/g	5.08	1.52E-07	
Fluoride-IC-Dionex 4000/4500	ug/g	321	9.63E-06	
Iron -ICP-Acid Digest	ug/g	4.65E+03	1.40E-04	
Lanthanum -ICP-H20 Dig/Acid	ug/g	<35.4	1.06E-06	
Lead -ICP-Acid Digest	ug/g	42.4	1.27E-06	
Lithium -ICP-Acid Digest	ug/g	5.81	1.74E-07	

B3500-MAN-02-043
REISSUE

Maximum Concentrations - Used to Represent Sample No. S01T000770, Jar No. 9333, Group No. 2001234
Tank 241-S-102, Core No. = 125, Segment No. = Saltcake Composite, Segment Portion = Core Composite

Analyte	Unit	Result	Information for Shipping Calculations	
			Mass (Kg)	Radionuclides (Gi)
Magnesium -ICP-H20 Dig/Acid	ug/g	<70.7	2.12E-06	
Manganese -ICP-Acid Digest	ug/g	76.3	2.29E-06	
Molybdenum -ICP-Acid Digest	ug/g	24.3	7.29E-07	
Neodymium -ICP-H20 Dig/Acid	ug/g	<70.7	2.12E-06	
Nickel -ICP-Acid Digest	ug/g	14.9	4.47E-07	
Nitrate by IC-Dionex 4000/4500	ug/g	4.31E+05	1.29E-02	
Nitrite-IC - Dionex 4000/4500	ug/g	3.14E+04	9.42E-04	
Oxalate-IC-Dionex 4000/4500	ug/g	3.32E+03	9.96E-05	
Phosphate-IC-Dionex 4000/4500	ug/g	1.08E+04	3.24E-04	
Phosphorus -ICP-H20 Dig/Acid	ug/g	3.17E+03	9.51E-05	
Potassium -ICP-H20 Dig/Acid	ug/g	1.18E+03	3.54E-05	
Samarium -ICP-H20 Dig/Acid	ug/g	<70.7	2.12E-06	
Selenium -ICP-H20 Dig/Acid	ug/g	<70.7	2.12E-06	
Silicon -ICP-H20 Dig/Acid	ug/g	640	1.92E-05	
Silver -ICP-H20 Dig/Acid	ug/g	16.4	4.92E-07	
Sodium -ICP-H20 Dig/Acid	ug/g	2.21E+05	6.63E-03	
Strontium -ICP-H20 Dig/Acid	ug/g	<7.07	2.12E-07	
Sulfate by IC-Dionex 4000/4500	ug/g	6.11E+03	1.83E-04	
Sulfur -ICP-H20 Dig/Acid	ug/g	1.65E+03	4.95E-05	
Thallium -ICP-H20 Dig/Acid	ug/g	<141	4.23E-06	
TIC by Acid/Coulometry	ug/g	5.15E+03	1.55E-04	
Titanium-ICP-Acid Digest	ug/g	5.8	1.74E-07	
TOC by Persulfate/Coulometry	ug/g	1.95E+03	5.85E-05	
Uranium by Phosphorescence	ug/g	350	1.05E-05	
Uranium -ICP-H20 Dig/Acid	ug/g	<354	1.06E-05	
Vanadium -ICP-H20 Dig/Acid	ug/g	<35.4	1.06E-06	
Zinc -ICP-Acid Digest	ug/g	24.6	7.38E-07	
Zirconium -ICP-H20 Dig/Acid	ug/g	<7.07	2.12E-07	

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. No.

Page 1 of 1

Collector Tank Farms	Contact/Requestor Christina Caprio	Telephone No. 509-372-2553	MSIN T6-12
SAF No. N/A	Sample Origin Tank 241-AN-104	Purchase Order/Charge Code CACN: 116294 COA: EF20	
Project Title AN-104 ICD23 (241-AN-104 ICD23 Sample Shipment to SRTC)	Logbook No. N/A	Ice Chest No. N/A	Temp. N/A
Shipped To (Lab) Savannah River Technology Center (SRTC)	Method of Shipment PAS-1 Shipping Cask	Bill of Lading/Air Bill No. N/A	
Protocol N/A	Data Turnaround N/A	Offsite Property No. N/A	

FAX 509-373-4671

Sample No.	Lab ID	·	Date	Time	No./Type Container	Sample Analysis	Preservative
Core 282,	S02T001061	S			1/500 mL glass	Net Wt. 260g	N/A
Segment 19							
						NOTE: This sample is not necessarily representative	
						of the waste in the tanks that will be shipped to the	
						Vitrification Plant	
						Matrix is Liquid with Solids. Jar # 18366	

POSSIBLE SAMPLE HAZARDS/REMARKS (List all known wastes) MSDS ☐ Yes ☐ No
Copies of original chain of custodies for parent samples and sample breakdown are provided as attached paperwork.

SPECIAL INSTRUCTIONS
Ship to: Bldg. 773A, East Wing Truck Dock
Aiken, SC 29802
ATTN. Keisha Martin, 803-725-4997, pager: 803-725-PAGE, ext. 19583; Cecil Woodard, 803-725-1241, same page #, ext. 18588; Sharon Smith, 803-725-7709, same page #, ext. 14737

Hold Time

	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Relinquished By			8/29/02				8/29/02
Relinquished By			Date/Time	Received By			Date/Time
Relinquished By			Date/Time	Received By			Date/Time
Relinquished By			Date/Time	Received By			9/4/02 1000 Date/Time
Relinquished By			Date/Time	Received By			Date/Time

Matrix*

S = Soil	DS = Drum Solids		
SE = Sediment	DL = Drum Liquids		
SO = Solid	T = Tissue		
SL = Sludge	WI = Wipe		
W = Water	L = Liquid		
O = Oil	V = Vegetation		
A = Air	X = Other		

FINAL SAMPLE DISPOSITION: Disposal Method (e.g., Return to customer, per lab procedure, used in process) — Disposed By — Date/Time

All samples containing hazardous materials shall be picked up by requestor and returned to parent container or site of origin.

DISTRIBUTION: White - Remain with Samples Color - Customer

BC-6000-828 (04/98)

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. No.

Page 1 of 1

Collector Tank Farms	Contact/Requestor Christina Caprio	Telephone No. 509-372-2553	MSIN T6-12 FAX 509-373-4671
SAF No. N/A	Sample Origin Tank 241-AN-104	Purchase Order/Charge Code CACN: 116294 COA: EP20	
Project Title AN-104 ICD23 (241-AN-104 ICD23 Sample Shipment to SRTC)	Logbook No. N/A	Ice Chest No. N/A	Temp. N/A
Shipped To (Lab) Savannah River Technology Center (SRTC)	Method of Shipment PAS-1 Shipping Cask	Bill of Lading/Air Bill No. N/A	
Protocol N/A	Data Turnaround N/A	Offsite Property No. N/A	

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
Core 282,	S02T001111	S			1/500 mL glass	Net Wt. 386g	N/A
Segment 18							
						NOTE: This sample is not necessarily representative	
						of the waste in the tanks that will be shipped to the	
						Vitrification Plant	
						Matrix is Liquid with Solids. VOA # (2 vials)	

POSSIBLE SAMPLE HAZARDS/REMARKS (List all known wastes) MSDS ☐ Yes ☒ No
Copies of original chain of custodies for parent samples and sample breakdown are provided as attached paperwork.

SPECIAL INSTRUCTIONS
Ship to: Bldg. 773A, East Wing Truck Dock
Aiken, SC 29802
ATTN. Keisha Martin, 803-725-4997, pager: 803-725-PAGE, ext. 19563; Cecil Woodard, 803-725-1241, same page #, ext. 18588; Sharon Smith, 803-725-7709, same page #, ext. 14737

Hold Time

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
			8/29/02				8/29/02
Relinquished By			Date/Time	Received By			Date/Time
Relinquished By			Date/Time	Received By			Date/Time
Relinquished By			Date/Time	Received By			Date/Time
			9/4/02 1000				9/4/02 1000

Matrix*

S = Soil	DS = Drum Solids	SE = Sediment	DL = Drum Liquids
SO = Solid	T = Tissue	SL = Sludge	WI = Wipe
W = Water	L = Liquid	O = Oil	V = Vegetation
A = Air	X = Other		

FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)	Disposed By	Date/Time

All samples containing hazardous materials shall be picked up by requestor and returned to parent container or site of origin.

DISTRIBUTION: White - Remain with Samples Color - Customer

BC-6000-828 (04/98)

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 1 of 1

Collector Tank Farms	Contact/Requestor Christina Caprio	Telephone No. 509-372-2553	MSIN T6-12 FAX 509-373-4671
SAF No. N/A	Sample Origin Tank 241-AN-104	Purchase Order/Charge Code CACN: 116294 COA: EF20	
Project Title AN-104 ICD23 (241-AN-104 ICD23 Sample Shipment to SRTC)	Logbook No. N/A	Ice Chest No. N/A	Temp. N/A
Shipped To (Lab) Savannah River Technology Center (SRTC)	Method of Shipment PAS-1 Shipping Cask	Bill of Lading/Air Bill No. N/A	
Protocol N/A	Data Turnaround N/A	Offsite Property No. N/A	

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
Core 282,	S02T001109	S			1/500 mL glass	Net Wt. 410g	N/A
Segment 16							
						NOTE: This sample is not necessarily representative	
						of the waste in the tanks that will be shipped to the	
						Vitrification Plant	
						Matrix is Liquid with Solids. Jar # 18362	

POSSIBLE SAMPLE HAZARDS/REMARKS (List all known wastes) MSDS ☐ Yes ☒ No
Copies of original chain of custodies for parent samples and sample breakdown are provided as attached paperwork.

SPECIAL INSTRUCTIONS
Ship to: Bldg. 773A, East Wing Truck Dock
Aiken, SC 29802
ATTN. Keisha Martin, 803-725-4997, pager: 803-725-PAGE, ext. 19583; Cecil Woodard, 803-725-1241, same page #, ext. 18588; Sharon Smith, 803-725-7709, same page #, ext. 14737

Hold Time

	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Relinquished By	A.J. Steele		8/29/02				
Relinquished By				Received By			Date/Time
Relinquished By				Received By			Date/Time
Relinquished By				Received By	Carolyn M. Conley		9/4/02 1000
Relinquished By				Received By			Date/Time

Matrix*
S = Soil DS = Drum Solids
SE = Sediment DL = Drum Liquids
SO = Solid T = Tissue
SL = Sludge WI = Wipe
W = Water L = Liquid
O = Oil V = Vegetation
A = Air X = Other

FINAL SAMPLE DISPOSITION | Disposal Method (e.g., Return to customer, per lab procedure, used in process) | Disposed By | Date/Time

All samples containing hazardous materials shall be picked up by requestor and returned to parent container or site of origin.

DISTRIBUTION: White - Remain with Samples Color - Customer

BC-6000-828 (04/98)

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. No.

Page 1 of 1

Collector Tank Farms	Contact/Requestor Christina Caprio	Telephone No. 509-372-2553	MSIN T6-12 FAX 509-373-4671
SAF No. N/A	Sample Origin Tank 241-AN-104	Purchase Order/Charge Code CACN: 116294 COA: EF20	
Project Title AN-104 ICD23 (241-AN-104 ICD23 Sample Shipment to SRTC)	Logbook No. N/A	Ice Chest No. N/A	Temp. N/A
Shipped To (Lab) Savannah River Technology Center (SRTC)	Method of Shipment FAS-1 Shipping Cask	Bill of Lading/Air Bill No. N/A	
Protocol N/A	Data Turnaround N/A	Offsite Property No. N/A	

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
Core 282.	S02T001059	S			1/500 mL glass	Net Wt. 176g	N/A
Segment 14							
						NOTE: This sample is not necessarily representative	
						of the waste in the tanks that will be shipped to the	
						Vitrification Plant	
						Matrix is Liquid with Solids. Jar # 12326	

POSSIBLE SAMPLE HAZARDS/REMARKS (List all known wastes) MSDS ☐ Yes ☒ No

Copies of original chain of custodies for parent samples and sample breakdown are provided as attached paperwork.

SPECIAL INSTRUCTIONS

Ship to: Bldg. 773A, East Wing Truck Dock
Aiken, SC 29802
ATTN. Keisha Martin, 803-725-4997, pager:
803-725-PAGE, ext. 19583; Cecil Woodard,
803-725-1241, same page #, ext. 18588; Sharon
Smith, 803-725-7709, same page #, ext. 14737

Hold Time

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
			8/29/02				9/3/02
Relinquished By			Date/Time	Received By			Date/Time
							9/26/02 1230
Relinquished By			Date/Time	Received By			Date/Time
							9/4/02 1000
Relinquished By			Date/Time	Received By			Date/Time

Matrix*

S = Soil	DS = Drum Solids	O = Oil	V = Vegetation
SE = Sediment	DL = Drum Liquids	A = Air	X = Other
SO = Solid	T = Tissue		
SL = Sludge	WI = Wipe		
W = Water	L = Liquid		

FINAL SAMPLE DISPOSITION: Disposal Method (e.g., Return to customer, per lab procedure, used in process) — Disposed By — Date/Time

All samples containing hazardous materials shall be picked up by requestor and returned to parent container or site of origin.

DISTRIBUTION: White - Remain with Samples Color - Customer

BC-6000-828 (04/98)

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. No.

Page 1 of 1

Collector Tank Farms	Contact/Requestor Christina Caprio	Telephone No. 509-372-2553	MSIN T6-12 FAX 509-373-4671
SAF No. N/A	Sample Origin Tank 241-AN-104	Purchase Order/Charge Code CACN: 116294 COA: EF20	
Project Title AN-104 ICD23 (241-AN-104 ICD23 Sample Shipment to SRTC)	Logbook No. N/A	Ice Chest No. N/A	Temp. N/A
Shipped To (Lab) Savannah River Technology Center (SRTC)	Method of Shipment PAS-1 Shipping Cask	Bill of Lading/Air Bill No. N/A	
Protocol N/A	Data Turnaround N/A	Offsite Property No. N/A	

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
Core 282,	S02T001110	S			1/500 mL glass	Net Wt. 391g	N/A
Segment 17							
						NOTE: This sample is not necessarily representative	
						of the waste in the tanks that will be shipped to the	
						Vitrification Plant	
						Matrix is Liquid with Solids. Jar # 18364	

POSSIBLE SAMPLE HAZARDS/REMARKS (List all known wastes) MSDS ☐ Yes ☒ No
Copies of original chain of custodies for parent samples and sample breakdown are provided as attached paperwork.

SPECIAL INSTRUCTIONS
Ship to: Bldg. 773A, East Wing Truck Dock
Aiken, SC 29802
ATTN. Keisha Martin, 803-725-4997, pager:
803-725 PAGE, ext. 19583; Cecil Woodard,
803-725 1241, same page #, ext. 18588; Sharon
Smith, 803-725-7709, same page #, ext. 14737

Hold Time

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
			8/29/02				8/29/02
Relinquished By			Date/Time	Received By			Date/Time
Relinquished By			Date/Time	Received By			Date/Time
Relinquished By			Date/Time	Received By			Date/Time
							9/4/02 1000
Relinquished By			Date/Time	Received By			Date/Time

Matrix*

S = Soil	DS = Drum Solids	SE = Sediment	DL = Drum Liquids
SO = Solid	T = Tissue	SL = Sludge	WI = Wipe
W = Water	L = Liquid	O = Oil	V = Vegetation
A = Air	X = Other		

FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)	Disposed By	Date/Time

All samples containing hazardous materials shall be picked up by requestor and returned to parent container or site of origin.

DISTRIBUTION: White - Remain with Samples Color - Customer

BC-6000-828 (04/98)

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. No.

Page 1 of 1

Collector Tank Farms	Contact/Requestor Christina Caprio	Telephone No. 509-372-2553	MSIN T6-12 FAX 509-373-4671
SAF No. N/A	Sample Origin Tank 241-AN-104	Purchase Order/Charge Code CACN: 116294 COA: EF20	
Project Title AN-104 ICD23 (241-AN-104 ICD23 Sample Shipment to SRTC)	Logbook No. N/A	Ice Chest No. N/A	Temp. N/A
Shipped To (Lab) Savannah River Technology Center (SRTC)	Method of Shipment PAS-1 Shipping Cask	Bill of Lading/Air Bill No. N/A	
Protocol N/A	Data Turnaround N/A	Offsite Property No. N/A	

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
Core 282,	S02T001108	S			1/500 mL glass	Net Wt. 386g	N/A
Segment 13							
						NOTE: This sample is not necessarily representative	
						of the waste in the tanks that will be shipped to the	
						Vitrification Plant	
						Matrix is Liquid with Solids. Jar # 18385	

POSSIBLE SAMPLE HAZARDS/REMARKS (List all known wastes) MSDS ☐ Yes ☒ No

Copies of original chain of custodies for parent samples and sample breakdown are provided as attached paperwork.

SPECIAL INSTRUCTIONS

Ship to: Bldg. 773A, East Wing Truck Dock
Aiken, SC 29802
ATTN. Keisha Martin, 803-725-4997, pager: 803-725-PAGE, ext. 19583; Cecil Woodard, 803-725-1241, same page #, ext. 18588; Sharon Smith, 803-725-7709, same page #, ext. 14737

Hold Time

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
			8/29/02				8/29/02
Relinquished By			Date/Time	Received By			Date/Time
Relinquished By			Date/Time	Received By			Date/Time
Relinquished By			Date/Time	Received By			9/4/02 1000 Date/Time
Relinquished By			Date/Time	Received By			Date/Time

Matrix*

S = Soil	DS = Drum Solids		
SE = Sediment	DL = Drum Liquids		
SO = Solid	T = Tissue		
SL = Sludge	WI = Wipe		
W = Water	L = Liquid		
O = Oil	V = Vegetation		
A = Air	X = Other		

FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)	Disposed By	Date/Time

All samples containing hazardous materials shall be picked up by requestor and returned to parent container or site of origin.

DISTRIBUTION: White - Remain with Samples Color - Customer

BC-6000-828 (04/98)

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. No.

Page 1 of 1

Collector Tank Farms	Contact/Requestor Christina Capriо	Telephone No. 509-372-2553	MSIN T6-12 FAX 509-373-4671
SAF No. N/A	Sample Origin Tank 241-AN-104	Purchase Order/Charge Code CACN: 116294 COA: EF20	
Project Title AN-104 ICD23 (241-AN-104 ICD23 Sample Shipment to SRTC)	Logbook No. N/A	Ice Chest No. N/A	Temp. N/A
Shipped To (Lab) Savannah River Technology Center (SRTC)	Method of Shipment PAS-1 Shipping Cask	Bill of Lading/Air Bill No. N/A	
Protocol N/A	Data Turnaround N/A	Offsite Property No. N/A	

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
Core 282,	S02T001107	S			1/500 mL glass	Net Wt. 398g	N/A
Segment 12							
						NOTE: This sample is not necessarily representative	
						of the waste in the tanks that will be shipped to the	
						Vitrification Plant	
						Matrix is Liquid with Solids. Jar # 18361	

POSSIBLE SAMPLE HAZARDS/REMARKS (List all known wastes) MSDS ☐ Yes ☒ No
Copies of original chain of custodies for parent samples and sample breakdown are provided as attached paperwork.

SPECIAL INSTRUCTIONS
Ship to: Bldg. 773A, East Wing Truck Dock
Aiken, SC 29802
ATTN. Keisha Martin, 803-725-4997, pager: 803-725-PAGE, ext. 19583; Cecil Woodard, 803-725-1241, same page #, ext. 18588; Sharon Smith, 803-725-7709, same page #, ext. 14737

Hold Time

	Print	Sign	Date/Time
Relinquished By			8/29/02
Received By			Date/Time
Relinquished By			Date/Time
Received By			Date/Time
Relinquished By			Date/Time
Received By			9/4/02 1000
Relinquished By			Date/Time
Received By			Date/Time

Matrix*

S = Soil	DS = Drum Solids		
SE = Sediment	DL = Drum Liquids		
SO = Solid	T = Tissue		
SL = Sludge	WI = Wipe		
W = Water	L = Liquid		
O = Oil	V = Vegetation		
A = Air	X = Other		

FINAL SAMPLE DISPOSITION
Disposal Method (e.g., Return to customer, per lab procedure, used in process) Disposed By Date/Time

All samples containing hazardous materials shall be picked up by requestor and returned to parent container or site of origin.

DISTRIBUTION: White - Remain with Samples Color - Customer

BC-6000-828 (04/98)

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. No.

Page 1 of 1

Collector Tank Farms	Contact/Requestor Christina Caprio	Telephone No. 509-372-2553	MSIN T6-12	FAX 509-373-4671
SAF No. N/A	Sample Origin Tank 241-AN-104	Purchase Order/Charge Code CACN: 116294 COA: EF20		
Project Title AN-104 ICD23 (241-AN-104 ICD23 Sample Shipment to SRTC)	Logbook No. N/A	Ice Chest No. N/A	Temp. N/A	
Shipped To (Lab) Savannah River Technology Center (SRTC)	Method of Shipment PAS-1 Shipping Cask	Bill of Lading/Air Bill No. N/A		
Protocol N/A	Data Turnaround N/A	Offsite Property No. N/A		

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
2002COMP4	S02T001101	L			1/500 mL glass	Net Wt. 520.4g	N/A
						NOTE: This sample is not necessarily representative	
						of the waste in the tanks that will be shipped to the	
						Vitrification Plant	
						Jar # 1826	

POSSIBLE SAMPLE HAZARDS/REMARKS (List all known wastes) MSDS ☐ Yes ☒ No

Copies of original chain of custodies for parent samples and sample breakdown/composite preparation information are provided as attached paperwork. The field numbers are not defined on the COC because there were >1 item included in the composite. See the attached sample breakdown document for that information.

SPECIAL INSTRUCTIONS

Ship to: Bldg. 773A, East Wing Truck Dock
Aiken, SC 29802
ATTN. Keisha Martin, 803-725-4997, pager: 803-725-PAGE, ext. 19583; Cecil Woodard, 803-725-1241, same page #, ext. 18588; Sharon Smith, 803-725-7709, same page #, ext. 14737

Hold Time

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
			8/21/02				08/21/02
Relinquished By			Date/Time	Received By			Date/Time
Relinquished By			Date/Time	Received By			Date/Time
Relinquished By			Date/Time	Received By			9/4/02 1600 Date/Time

Matrix*

S = Soil	DS = Drum Solids	SE = Sediment	DL = Drum Liquids
SO = Solid	T = Tissue	SL = Sludge	WI = Wipe
W = Water	L = Liquid	O = Oil	V = Vegetation
A = Air	X = Other		

FINAL SAMPLE DISPOSITION: Disposal Method (e.g., Return to customer, per lab procedure, used in process) — Disposed By — Date/Time

All samples containing hazardous materials shall be picked up by requestor and returned to parent container or site of origin.

DISTRIBUTION: White - Remain with Samples Color - Customer

BC-6000-828 (04/98)

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. No.

Page 1 of 1

Collector Tank Farms	Contact/Requestor Christina Caprio	Telephone No. 509-372-2553	MSIN T6-12	FAX 509-373-4671
SAF No. N/A	Sample Origin Tank 241-AN-104	Purchase Order/Charge Code CACN: 116294 COA: EF20		
Project Title AN-104 ICD23 (241-AN-104 ICD23 Sample Shipment to SRTC)	Logbook No. N/A	Ice Chest No. N/A	Temp. N/A	
Shipped To (Lab) Savannah River Technology Center (SRTC)	Method of Shipment PAS-1 Shipping Cask	Bill of Lading/Air Bill No. N/A		
Protocol N/A	Data Turnaround N/A	Offsite Property No. N/A		

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
Core 282,	S02T001102	L			1/500 mL glass	Net Wt. 446g	N/A
Segment 9							
						NOTE: This sample is not necessarily representative	
						of the waste in the tanks that will be shipped to the	
						Vitrification Plant	
						Jar # 16374	

POSSIBLE SAMPLE HAZARDS/REMARKS (List all known wastes) MSDS ☐ Yes ☒ No
Copies of original chain of custodies for parent samples and sample breakdown are provided as attached paperwork.

SPECIAL INSTRUCTIONS

Ship to: Bldg. 773A, East Wing Truck Dock
Aiken, SC 29802
ATTN. Keisha Martin, 803-725-4997, pager: 803-725-PAGE, ext. 19583; Cecil Woodard, 803-725-1241, same page #, ext. 18588; Sharon Smith, 803-725-7709, same page #, ext. 14737

Hold Time

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
			8/21/02				8/21/02
Relinquished By			Date/Time	Received By			Date/Time
Relinquished By			Date/Time	Received By			Date/Time
Relinquished By			Date/Time	Received By			Date/Time

Matrix*

S = Soil	DS = Drum Solids	SE = Sediment	DL = Drum Liquids
SO = Solid	T = Tissue	SL = Sludge	WI = Wipe
W = Water	L = Liquid	O = Oil	V = Vegetation
A = Air	X = Other		

FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)	Disposed By	Date/Time

All samples containing hazardous materials shall be picked up by requestor and returned to parent container or site of origin.

DISTRIBUTION: White - Remain with Samples Color - Customer

BC-6000-828 (04/98)

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

COC No:

Page 1 of 1

Collector Tank Farms	Contact/Requestor Christine Capriio	Telephone No. 509-372-2553 MSIN T6-12	FAX 509-373-4671
SAF No. N/A	Sample Origin Tank 241-AN-104	Purchase Order/Charge Code CACN: 116294 COA: EP20	
Project Title AN-104 ICD23 (241-AN-104 ICD23 Sample Shipment to SRTC)	Logbook No. N/A	Ice Chest No. N/A	Temp. N/A
Shipped To (Lab) Savannah River Technology Center (SRTC)	Method of Shipment PAS-1 Shipping Cask	Bill of Lading/Air Bill No. N/A	
Protocol N/A	Data Turnaround N/A	Offsite Property No. N/A	

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
Core 282,	S02T001049	S			1/500 mL glass	Net Wt. 94.7g	N/A
Segment 11							
						NOTE: This sample is not necessarily representative	
						of the waste in the tanks that will be shipped to the	
						Vitrification Plant	
						Matrix is Liquid with Solids. Jar # 16360	

POSSIBLE SAMPLE HAZARDS/REMARKS (List all known wastes) MSDS ☐ Yes ☒ No

Copies of original chain of custodies for parent samples and sample breakdown are provided as attached paperwork.

SPECIAL INSTRUCTIONS

Ship to: Bldg. 773A, East Wing Truck Dock
Aiken, SC 29802
ATTN: Keisha Martin, 803-725-4997, pager: 803-725-PAGE, ext. 19583; Cecil Woodard, 803-725 1241, same page #, ext. 18588; Sharon Smith, 803-725-7709, same page #, ext. 14737

Hold Time

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
	K.T. Steele		9/9/02				
Relinquished By			Date/Time	Received By			Date/Time
Relinquished By			Date/Time	Received By			Date/Time
Relinquished By			Date/Time	Received By			Date/Time
					Carolyn M. Conley		9/4/02 1000

Matrix*

S = Soil	DS = Drum Solids	O = Oil	V = Vegetation
SE = Sediment	DL = Drum Liquids	A = Air	X = Other
SO = Solid	T = Tissue		
SL = Sludge	WI = Wipe		
W = Water	L = Liquid		

FINAL SAMPLE DISPOSITION: Disposal Method (e.g., Return to customer, per lab procedure, used in process) — Disposed By — Date/Time

All samples containing hazardous materials shall be picked up by requestor and returned to parent container or site of origin.

DISTRIBUTION: White - Remain with Samples Color - Customer

BC-5000-828 (04/98)

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. No.

Page 1 of 1

Collector Tank Farms	Contact/Requestor Christina Caprio	Telephone No. 509-372-2553	MSIN T6-12
SAF No. N/A	Sample Origin Tank 241-AN-104	Purchase Order/Charge Code CACN: 116294 COA: EF20	
Project Title AN-104 ICD23 (241-AN-104 ICD23 Sample Shipment to SRTC)	Logbook No. N/A	Ice Chest No. N/A	Temp. N/A
Shipped To (Lab) Savannah River Technology Center (SRTC)	Method of Shipment PAS-1 Shipping Cask	Bill of Lading/Air Bill No. N/A	
Protocol N/A	Data Turnaround N/A	Offsite Property No. N/A	

FAX 509-373-4671

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
Core 282,	S02T001044	L			1/500 mL glass	Net Wt. 418.3g	N/A
Segment 10							
						NOTE: This sample is not necessarily representative	
						of the waste in the tanks that will be shipped to the	
						Vitrification Plant	
						Jar # 10369	

POSSIBLE SAMPLE HAZARDS/REMARKS (List all known wastes) MSDS ☐ Yes ☒ No
Copies of original chain of custodies for parent samples and sample breakdown are provided as attached paperwork.

SPECIAL INSTRUCTIONS
Ship to: Bldg. 773A, East Wing Truck Dock
Aiken, SC 29802
ATTN. Keisha Martin, 803-725-4997, pager: 803-725-PAGE, ext. 19583; Cecil Woodard, 803-725-1241, same page #, ext. 18588; Sharon Smith, 803-725-7709, same page #, ext. 14737

Hold Time

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
			8/27/02				8/29/02
Relinquished By			Date/Time	Received By			Date/Time
Relinquished By			Date/Time	Received By			Date/Time
Relinquished By			Date/Time	Received By			Date/Time

Matrix*

S = Soil	DS = Drum Solids	SE = Sediment	DL = Drum Liquids
SO = Solid	T = Tissue	SL = Sludge	WI = Wipe
W = Water	L = Liquid	O = Oil	V = Vegetation
A = Air	X = Other		

FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)	Disposed By	Date/Time

All samples containing hazardous materials shall be picked up by requestor and returned to parent container or site of origin.

DISTRIBUTION: White - Remain with Samples Color - Customer

BC-6000-828 (04/98)

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. No.

Page 1 of 1

Collector Tank Farms	Contact/Requestor Christina Caprio	Telephone No. 509-372-2553	MSIN T6-12	FAX 509-373-4671
SAF No. N/A	Sample Origin Tank 241-AN-104	Purchase Order/Charge Code CACN: 116294 COA: EF20		
Project Title AN-104 ICD23 (241-AN-104 ICD23 Sample Shipment to SRTC)	Logbook No. N/A	Ice Chest No. N/A		Temp. N/A
Shipped To (Lab) Savannah River Technology Center (SRTC)	Method of Shipment PAS-1 Shipping Cask	Bill of Lading/Air Bill No. N/A		
Protocol N/A	Data Turnaround N/A	Offsite Property No. N/A		

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
2002COMP	S02T001078	L			1/500 mL glass	Net Wt. 638.7g	N/A
						NOTE: This sample is not necessarily representative	
						of the waste in the tanks that will be shipped to the	
						Vitrification Plant	
						jar # 18259	

POSSIBLE SAMPLE HAZARDS/REMARKS (List all known wastes) MSDS ☐ Yes ☒ No

Copies of original chain of custodies for parent samples and sample breakdown/composite preparation information are provided as attached paperwork. The field numbers are not defined on the COC because there were >1 item included in the composite. See the attached sample breakdown document for that information.

SPECIAL INSTRUCTIONS

Ship to: Bldg. 773A, East Wing Truck Dock
Aiken, SC 29802
ATTN. Keisha Martin, 803-725-4997, pager: 803-725-PAGE, ext. 19583; Cecil Woodard, 803-725-1241, same page #, ext. 18588; Sharon Smith, 803-725-7709, same page #, ext. 14737

Hold Time

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
			8/21/02				08/29/02
Relinquished By			Date/Time	Received By			Date/Time
Relinquished By			Date/Time	Received By			Date/Time
Relinquished By			Date/Time	Received By			Date/Time
Relinquished By			Date/Time	Received By			Date/Time

Matrix*

S = Soil	DS = Drum Solids	O = Oil	V = Vegetation
SE = Sediment	DL = Drum Liquids	A = Air	X = Other
SO = Solid	T = Tissue		
SL = Sludge	WI = Wipe		
W = Water	L = Liquid		

FINAL SAMPLE DISPOSITION

Disposal Method (e.g., Return to customer, per lab procedure, used in process)

Disposed By

Date/Time

All samples containing hazardous materials shall be picked up by requestor and returned to parent container or site of origin.

DISTRIBUTION: White - Remain with Samples Color - Customer

BC-6000-828 (04/98)

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. No.

Page 1 of 1

Collector Tank Farms	Contact/Requestor Christina Caprio	Telephone No. 509-372-2553	MSIN T6-12	FAX 509-373-4671	
SAF No. N/A	Sample Origin Tank 241-AN-104	Purchase Order/Charge Code CACN: 116294 COA: EF20			
Project Title AN-104 ICD23 (241-AN-104 ICD23 Sample Shipment to SRTC)	Logbook No. N/A	Ice Chest No. N/A	Temp. N/A		
Shipped To (Lab) Savannah River Technology Center (SRTC)	Method of Shipment PAS-1 Shipping Cask	Bill of Lading/Air Bill No. N/A			
Protocol N/A	Data Turnaround N/A	Offsite Property No. N/A			

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
2002COMP3	S02T001096	L			1/500 mL glass	Net Wt. 657.3g	N/A
						NOTE: This sample is not necessarily representative	
						of the waste in the tanks that will be shipped to the	
						Vitrification Plant	

Jar # 18267

POSSIBLE SAMPLE HAZARDS/REMARKS (List all known wastes) MSDS ☐ Yes ☒ No

Copies of original chain of custodies for parent samples and sample breakdown/composite preparation are provided as attached paperwork. The field numbers are not defined on the COC because there were >1 item included in the composite. See the attached sample breakdown document for that information.

SPECIAL INSTRUCTIONS

Ship to: Bldg. 773A, East Wing Truck Dock
Aiken, SC 29802

ATTN. Keisha Martin, 803-725-4997, pager: 803-725-PAGE, ext. 19583; Cecil Woodard, 803-725-1241, same page #, ext. 18588; Sharon Smith, 803-725-7709, same page #, ext. 14737

Hold Time

Relinquished By	Print	Sign	Date/Time
			8/29/02
Relinquished By			Date/Time
Relinquished By			Date/Time
Relinquished By			Date/Time
Relinquished By			Date/Time

Received By	Print	Sign	Date/Time
			8/29/02
Received By			Date/Time
Received By			Date/Time
Received By			9/4/02 1000
Received By			Date/Time

Matrix*

S = Soil	DS = Drum Solids	SE = Sediment	DL = Drum Liquids
SO = Solid	T = Tissue	SL = Sludge	WI = Wipe
W = Water	L = Liquid	O = Oil	V = Vegetation
A = Air	X = Other		

FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)	Disposed By	Date/Time

All samples containing hazardous materials shall be picked up by requestor and returned to parent container or site of origin.

DISTRIBUTION: White - Remain with Samples Color - Customer

BC-6000-828 (04/98)

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. No.

Page 1 of 1

Collector Tank Farms	Contact/Requestor Christina Caprio	Telephone No. 509-372-2553	MSIN T6-12
SAF No. N/A	Sample Origin Tank 241-AN-104	Purchase Order/Charge Code CACN: 116294 COA: EF20	FAX 509-373-4671
Project Title AN-104 ICD23 (241-AN-104 ICD23 Sample Shipment to SRTC)	Logbook No. N/A	Ice Chest No. N/A	Temp. N/A
Shipped To (Lab) Savannah River Technology Center (SRTC)	Method of Shipment PAS-1 Shipping Cask	Bill of Lading/Air Bill No. N/A	
Protocol N/A	Data Turnaround N/A	Offsite Property No. N/A	

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
2002COMP1	S02T001086	L			1/500 mL glass	Net Wt. 639.4g	N/A
						NOTE: This sample is not necessarily representative	
						of the waste in the tanks that will be shipped to the	
						Vitrification Plant	
						Jar # 162165	

POSSIBLE SAMPLE HAZARDS/REMARKS (List all known wastes) MSDS ☐ Yes ☒ No

Copies of original chain of custodies for parent samples and sample breakdown/composite preparation information are provided as attached paperwork. The field numbers are not defined on the COC because there were >1 item included in the composite. See the attached sample breakdown document for that information.

SPECIAL INSTRUCTIONS

Ship to: Bldg. 773A, East Wing Truck Dock
Aiken, SC 29802

ATTN: Keisha Martin, 803-725-4997, pager: 803 725-PAGE, ext. 19583; Cecil Woodard, 803 725-1241, same page #, ext. 18588; Sharon Smith, 803-725-7709, same page #, ext. 14737

Hold Time

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
			8/29/02				08/29/02
Relinquished By			Date/Time	Received By			Date/Time
Relinquished By			Date/Time	Received By			Date/Time
							9/4/02 1000
Relinquished By			Date/Time	Received By			Date/Time

Matrix*

S = Soil	DS = Drum Solids	O = Oil	V = Vegetation
SE = Sediment	DL = Drum Liquids	A = Air	X = Other
SO = Solid	T = Tissue		
SL = Sludge	WI = Wipe		
W = Water	L = Liquid		

FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)	Disposed By	Date/Time

All samples containing hazardous materials shall be picked up by requestor and returned to parent container or site of origin.

DISTRIBUTION: White - Remain with Samples Color - Customer

BC-6000-828 (04/98)

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. No.

Page 1 of 1

Collector Tank Farms	Contact/Requestor Christina Caprio	Telephone No. 509-372-2553 MSIN T6-12	FAX 509-373-4671
SAF No. N/A	Sample Origin Tank 241-AN-104	Purchase Order/Charge Code CACN: 116294 COA: EF20	
Project Title AN-104 ICD23 (241-AN-104 ICD23 Sample Shipment to SRTC)	Logbook No. N/A	Ice Chest No. N/A	Temp. N/A
Shipped To (Lab) Savannah River Technology Center (SRTC)	Method of Shipment PAS-1 Shipping Cask	Bill of Lading/Air Bill No. N/A	
Protocol N/A	Data Turnaround N/A	Offsite Property No. N/A	

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
2002COMP2	S02T001095	L			1/500 mL glass	Net Wt. 638.6g	N/A
						NOTE: This sample is not necessarily representative	
						of the waste in the tanks that will be shipped to the	
						Vitrification Plant	
						Jar # 182647	

POSSIBLE SAMPLE HAZARDS/REMARKS (List all known wastes) MSDS ☐ Yes ☒ No

Copies of original chain of custodies for parent samples and sample breakdown/composite preparation information are provided as attached paperwork. The field numbers are not defined on the COC because there were >1 item included in the composite. See the attached sample breakdown document for that information.

SPECIAL INSTRUCTIONS

Ship to: Bldg. 773A, East Wing Truck Dock
Aiken, SC 29802
ATTN. Keisha Martin, 803-725-4997, pager: 803-725-PAGE, ext. 19583; Cecil Woodard, 803-725-1241, same page #, ext. 18588; Sharon Smith, 803-725-7709, same page #, ext. 14737

Hold Time

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
			9/29/02				9/30/02
Relinquished By			Date/Time	Received By			Date/Time
Relinquished By			Date/Time	Received By			Date/Time
Relinquished By			Date/Time	Received By			Date/Time

Matrix*

S = Soil	DS = Drum Solids		
SE = Sediment	DL = Drum Liquids		
SO = Solid	T = Tissue		
SL = Sludge	WI = Wipe		
W = Water	L = Liquid		
O = Oil	V = Vegetation		
A = Air	X = Other		

FINAL SAMPLE DISPOSITION: Disposal Method (e.g., Return to customer, per lab procedure, used in process) — Disposed By — Date/Time

All samples containing hazardous materials shall be picked up by requestor and returned to parent container or site of origin.

DISTRIBUTION: White - Remain with Samples Color - Customer

BC-6000-828 (04/98)

APPENDIX B. RHEOLOGY REPORT

SRS savannah river site ™

WESTINGHOUSE SAVANNAH RIVER COMPANY
INTEROFFICE MEMORANDUM

SRT-GPD-2003-00072, Rev. 1

December 17, 2003

To: M.S. Hay, 773-42A

From : T.L. Fellinger, 773-A TLF

Technical Reviewer: E.K. Hansen 12/19/03 Date

Rheological Results for AN-104 Salt Slurry Sample (U)

Introduction

A rheological analysis request form (#0043) was filled out requesting three rheological measurements of an AN-104 sample at 25°C and 35°C. All of the rheological measurements were completed in the Shielded Facility located at the Savannah River Technology Center (SRTC). This memo summarizes the data collected from the rheological measurements of this sample.

Experimental

Approximately 60mLs of AN-104 salt slurry sample were transferred from B-block to A-block of the Shielded Cells. Approximately 10 mL of the salt slurry was used to complete the rheological measurements. All of the rheological measurements for the salt slurry samples were obtained using the Haake RV30/M5 system located in Cell 2 of the Shielded Cells Facility. The specifications for the instrument can be found in the section called "Summary of the Instrument's Specifications Used to Complete the Rheological Measurements". A NIST traceable Newtonian oil standard (28.25 cP @ 25°C) was used to check and verify the instrument's response prior to the start of the salt slurry measurements and after the last salt slurry measurement. The NV rotor and NV cup was used in all of the salt slurry measurements obtained. The NV rotor and NV cup and the MVI rotor and MV cup were used for the Newtonian oil measurements obtained. The MVI rotor and MV cup were used for the Newtonian oil measurement prior to the salt slurry measurement. Visual inspection of the NV rotor and MVI rotor did not indicate any physical damage that could effect the measurements.

The NV rotor was selected for the salt slurry measurements, because it is primarily used for rheological measurements of low viscosity fluids working in the medium shear rate range[1]. The NV rotor has been traditionally used to quantify the flow properties of salt slurries which have very low insoluble solids concentration. The NV rotor and cup is a double coaxial cylindrical system. The NV rotor has four holes in the top face of the rotor for removal of excess sample. All the rheological measurements for this study were conducted at 25°C and/or 35°C.

Summary of the Instrument's Specifications Used to Complete the Rheological Measurements

The Haake RV30/M5 system is a controlled rate rheometer that is operated remotely in the Shielded Cells environment. A water bath/circulator is used to supply water to the water jacket that surrounds the MV or NV cup and maintains the temperature of the sample in the MV or NV cup. The technical specifications for the RV30/M5 system are listed in Table 1. The shear rate and shear stress ranges provided (in Table 1) are the capabilities of the various rotors/cups that can be used with the M5 measuring head.

Table 1 – Technical Specifications for the System[1]

Speed Range:	0.05 to 500 rpm
Shear Rate Range:	0.004 to 40,000 s^{-1}
Shear Stress Range:	0.2 to 70,000 Pa
Temperature Range:	Depends on Water Bath /Circulator
Torque Range:	0.049 to 4.9 Ncm

The error in the measured shear stress is 0.5% of full span (100% Tau) and the error for the measured shear rate is 0.5% of the reading. Table 2 provides the maximum shear rate, maximum shear stress, and physical dimensions associated with NV and the MVI rotor.

Table 2 – Maximum Shear Rate, Maximum Shear Stress, and Physical Dimensions Associated with the NV and the MVI Rotors[1]

Maximum Shear Stress (Tau) and Shear Rate (D)

MVI	NV
100% Tau = 322 Pa	100% Tau = 178 Pa
100% D = 1170 (seconds^{-1})	100% D = 2700 (seconds^{-1})

Physical Dimensions

MVI	NV
Inner Cylinder (MVI Rotor)	Inner Cylinder (NV Rotor)
Radius R_i – 20.04 mm	Radii $R_{2, 3}$ – 17.85, 20.1 mm
Height L – 60 mm	Height L – 60 mm
Outer Cylinder (MV Cup)	Outer Cylinder (NV Cup)
Radius R_a – 21 mm	Radii $R_{1, 4}$ – 17.5, 20.5 mm
Radii Ratio (R_a/ R_i) – 1.05	Radii Ratio (R_a/ R_i) – 1.02
Gap Width – 0.96 mm	Gap Width – 0.35 mm

Programming of the RV30

Table 3 contains the programming times and shear rate ranges for the salt slurry samples at 25°C and 35°C, and the oil standard at 25°C. A hold time of one minute at the maximum shear rate were programmed for these measurements.

Table 3 – Programming Times and Shear Rate Ranges for the Salt Slurry Samples and the Standard Oil Samples

	Salt Slurry Samples at 25°C and 35°C	**Standard Oil**	**Standard Oil**
Up Curve (Ramp Up)	0 – 2700s^{-1}, 5 minutes	0 – 2700s^{-1}, 5 minutes	0 – 1100s^{-1}, 5 minutes
Hold	2700s^{-1} 1 minute	2700s^{-1} 1 minute	1100s^{-1} 1 minute
Down Curve (Ramp Down)	2700 – 0s^{-1}, 5 minutes	2700 – 0s^{-1}, 5 minutes	1100 - 0s^{-1}, 5 minutes

Results of the Flow Curves

To prepare the samples for measurement, the salt slurry sample was mixed and poured into the measuring cup. While pouring the samples into the measuring cup, a visual observation of the sample was noted. The salt slurry sample had a dark, but fluid appearance. The measuring cup was loaded into the instrument and the measurements were completed successfully. This process was repeated a total of three times in order to make sure that the flow curves were repeatable and that a representative sample had been obtained from the bottle. An example of the raw data obtained from the rheometer (up flow curves only) for the salt slurry sample at 25°C and 35°C are plotted in Figures 1 and 2, respectively. The other duplicate runs of the salt slurry sample performed at 25°C and 35°C are presented in Appendix A.

The data shown in Figures 1 and 2 were curve fitted using the Newtonian fluid model between a shear rate of $0s^{-1}$ to $2700s^{-1}$ for Figure 1, and a shear rate of $282s^{-1}$ to $2700s^{-1}$ for Figure 2.

Figure 1 - Flow Curve for the Salt Slurry Sample at 25°C

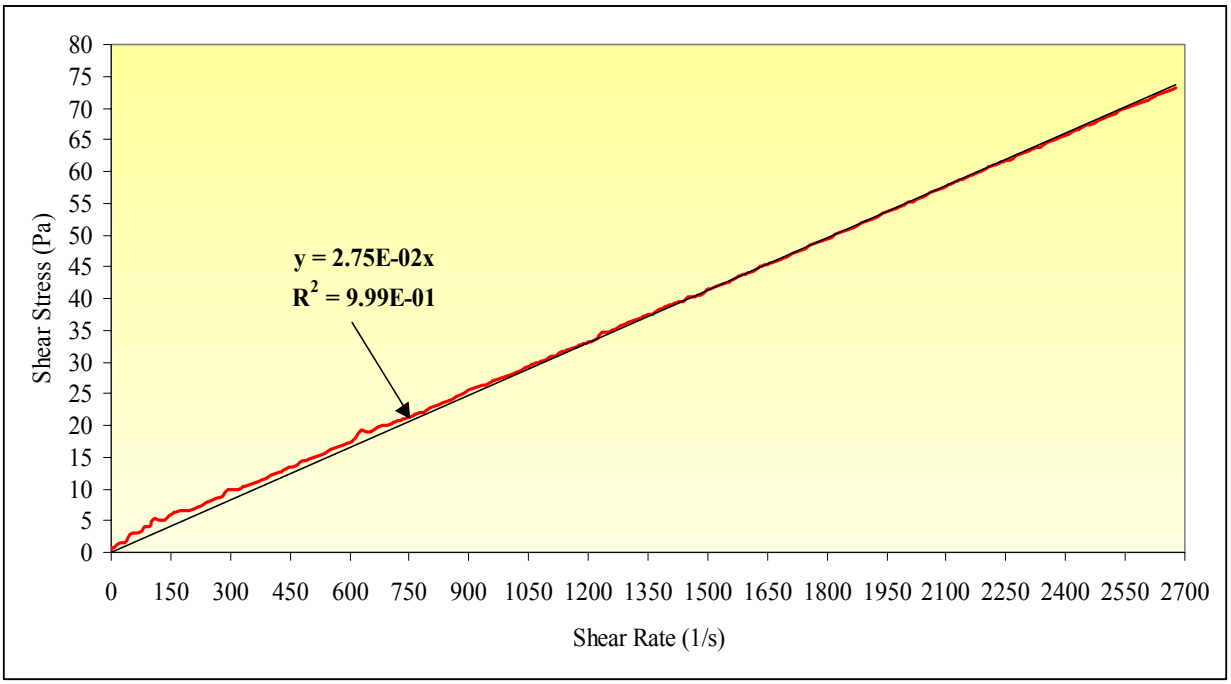
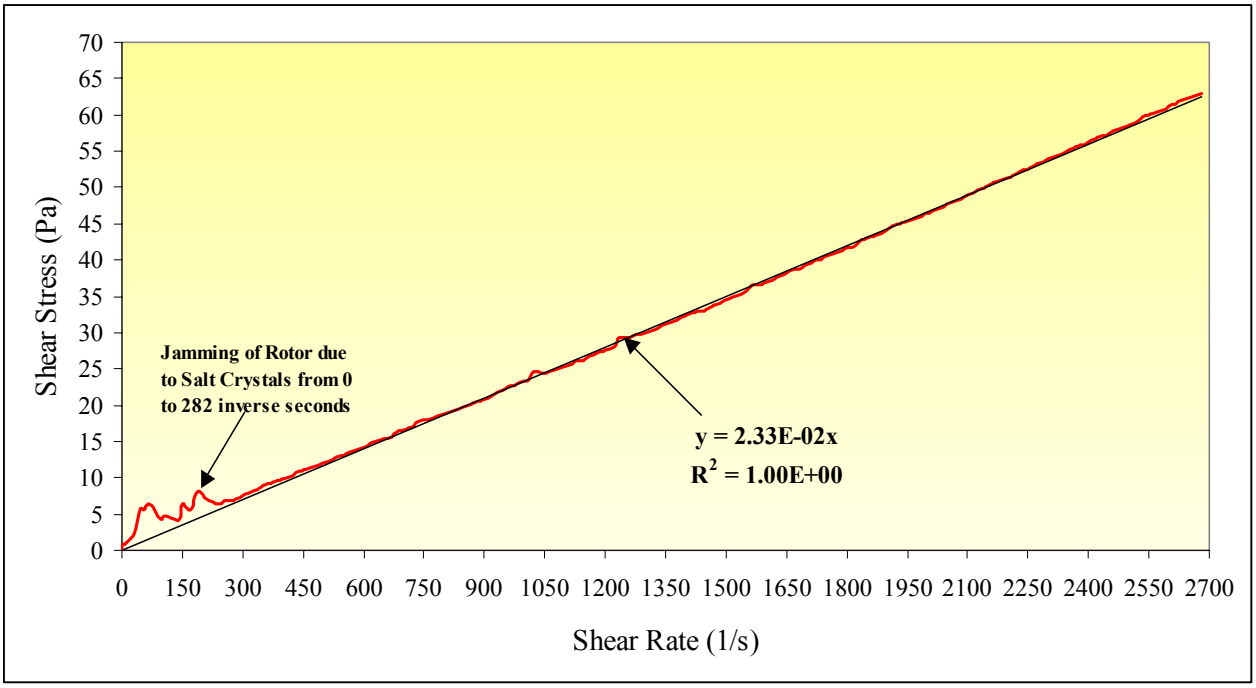


Figure 2 – Flow Curve for the Salt Slurry Sample at 35°C



As noted in Figure 2, there was some jamming or bridging of particles in the gap between the rotor and the cup. This jamming/bridging is noted by several spiked responses at the lower shear rate range. After 282 inverses seconds, the jamming/bridging of the gap appears to be overcome by the shear rate. This behavior was also noted for the down curve for this sample run, and in the other sample runs at 25°C and 35°C located in Appendix A. The raw data for Figures 1 and 2 along with the graphs and raw data for the duplicate runs at 25°C and 35°C are located in Appendix A. Appendix B contains the results of the up flow curves and the raw data for the Newtonian oil standard used to check the operability of the instrument. Since the curve fit of the rheological data obtained for these samples were performed on the up curves, it was decided to omit all of the down curves for the samples in all of the Figures and in Appendix A. Inspection of the down curve for the three samples showed it to be slightly above or on top of the up curves, but yielding essentially the same rheological results.

The samples behaved like a Newtonian fluid. Table 4 presents the results for all of the samples fitted to a Newtonian model on the up curves. The Newtonian model is defined as:

Tau = ηD or $\{\tau = \frac{\eta}{1000}\dot{\gamma}\}$

Where: Tau (τ) = Shear stress {Pa}
η = Viscosity {centipoise = cP or mPa·sec}
D ($\dot{\gamma}$) = shear rate {s^{-1}}

Table 4 - Newtonian Model Results for Figure 1, Figure 2, and Appendix A for the Salt Slurry Sample at 25°C and 35°C

Figure	Fitted Shear Rate Range (s^{-1})	Temperature	η (cP)	R^2
1	0 – 2700	25°C	27.5	0.99
A-1*	150 – 2700	25°C	28.3	0.99
A-2	0 – 2700	25°C	27.0	1.00
2*	282 – 2700	35°C	23.3	1.00
A-3*	228 – 2700	35°C	22.9	1.00
A-4	0 – 2700	35°C	24.0	0.99

* Jamming/Bridging of particles at lower shear rate ranges

Averaging the Newtonian results from Figure 1, Figure A-1, and Figure A-2 for the salt slurry measurement (completed at 25°C) yielded a consistency value of 27.6cP ± 0.7cP. Averaging the Newtonian results from Figure 2, Figure A-3, and Figure A-4 for the salt slurry (at 35°C) yielded a consistency value of 23.4cP ± 0.6cP.

Conclusions

- The AN104 salt slurry samples behaved like a Newtonian fluid.
- Rheological measurements were completed for the salt slurry sample at 25°C and 35°C. The average of the Newtonian model results for the consistency at 25°C were 27.6cP ± 0.7cP. The average of the Newtonian model results for the consistency at 35°C were 23.4cP ± 0.6cP.

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Quality Assurance

All data and records generated from this task will be maintained in a laboratory notebook. Prior to measurement of the salt slurry samples, the rheometer parts were visually inspected for damage and the rheometer operability was verified by testing with a NIST traceable oil standard.

References

[1] Haake, "Instruction Manual Rotovisco RV30".

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Appendix A – Raw Data

Figure 1 Raw Data Salt Slurry Results at 25°C

D[1/s]	Tau[Pa]	D[1/s]	Tau[Pa]
0.00E+00	4.07E-02	5.42E+02	1.58E+01
1.45E+00	3.95E-01	5.52E+02	1.61E+01
6.51E+00	7.27E-01	5.64E+02	1.64E+01
1.51E+01	1.34E+00	5.75E+02	1.68E+01
2.39E+01	1.60E+00	5.86E+02	1.70E+01
3.29E+01	1.62E+00	5.96E+02	1.72E+01
4.41E+01	2.37E+00	6.06E+02	1.76E+01
5.38E+01	3.00E+00	6.19E+02	1.83E+01
6.60E+01	3.00E+00	6.29E+02	1.92E+01
7.58E+01	3.17E+00	6.41E+02	1.91E+01
8.57E+01	4.12E+00	6.51E+02	1.91E+01
9.81E+01	4.12E+00	6.61E+02	1.93E+01
1.08E+02	5.22E+00	6.73E+02	1.98E+01
1.20E+02	5.08E+00	6.83E+02	1.99E+01
1.30E+02	5.13E+00	6.93E+02	2.01E+01
1.40E+02	5.20E+00	7.05E+02	2.04E+01
1.53E+02	6.18E+00	7.15E+02	2.06E+01
1.63E+02	6.32E+00	7.28E+02	2.08E+01
1.72E+02	6.64E+00	7.37E+02	2.11E+01
1.85E+02	6.61E+00	7.47E+02	2.13E+01
1.95E+02	6.68E+00	7.60E+02	2.16E+01
2.07E+02	6.91E+00	7.69E+02	2.18E+01
2.18E+02	7.12E+00	7.82E+02	2.21E+01
2.28E+02	7.39E+00	7.92E+02	2.24E+01
2.38E+02	7.91E+00	8.02E+02	2.27E+01
2.51E+02	8.06E+00	8.14E+02	2.31E+01
2.60E+02	8.25E+00	8.24E+02	2.33E+01
2.72E+02	8.51E+00	8.34E+02	2.35E+01
2.82E+02	8.76E+00	8.46E+02	2.38E+01
2.94E+02	9.80E+00	8.56E+02	2.41E+01
3.04E+02	9.83E+00	8.68E+02	2.45E+01
3.14E+02	9.95E+00	8.78E+02	2.47E+01
3.26E+02	1.02E+01	8.88E+02	2.51E+01
3.36E+02	1.04E+01	9.00E+02	2.56E+01
3.46E+02	1.06E+01	9.11E+02	2.59E+01
3.59E+02	1.10E+01	9.23E+02	2.61E+01
3.69E+02	1.12E+01	9.33E+02	2.63E+01
3.79E+02	1.14E+01	9.43E+02	2.65E+01
3.91E+02	1.18E+01	9.55E+02	2.67E+01
4.01E+02	1.21E+01	9.65E+02	2.71E+01
4.11E+02	1.23E+01	9.77E+02	2.74E+01
4.24E+02	1.27E+01	9.87E+02	2.77E+01
4.34E+02	1.30E+01	9.97E+02	2.78E+01
4.46E+02	1.33E+01	1.01E+03	2.82E+01
4.56E+02	1.35E+01	1.02E+03	2.85E+01
4.66E+02	1.38E+01	1.03E+03	2.87E+01
4.81E+02	1.44E+01	1.04E+03	2.91E+01
4.89E+02	1.45E+01	1.05E+03	2.94E+01
4.99E+02	1.47E+01	1.06E+03	2.97E+01
5.09E+02	1.50E+01	1.08E+03	2.99E+01
5.20E+02	1.53E+01	1.09E+03	3.02E+01
5.32E+02	1.56E+01	1.10E+03	3.05E+01

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D[1/s]	Tau[Pa]	D[1/s]	Tau[Pa]
1.11E+03	3.08E+01	1.69E+03	4.64E+01
1.12E+03	3.10E+01	1.70E+03	4.66E+01
1.13E+03	3.13E+01	1.71E+03	4.71E+01
1.14E+03	3.17E+01	1.72E+03	4.73E+01
1.15E+03	3.19E+01	1.73E+03	4.77E+01
1.16E+03	3.21E+01	1.75E+03	4.79E+01
1.17E+03	3.25E+01	1.76E+03	4.83E+01
1.18E+03	3.27E+01	1.77E+03	4.86E+01
1.19E+03	3.30E+01	1.78E+03	4.88E+01
1.20E+03	3.32E+01	1.79E+03	4.91E+01
1.21E+03	3.35E+01	1.80E+03	4.94E+01
1.23E+03	3.42E+01	1.81E+03	4.97E+01
1.24E+03	3.48E+01	1.82E+03	5.01E+01
1.25E+03	3.47E+01	1.83E+03	5.03E+01
1.26E+03	3.50E+01	1.84E+03	5.07E+01
1.27E+03	3.52E+01	1.85E+03	5.10E+01
1.28E+03	3.58E+01	1.87E+03	5.12E+01
1.29E+03	3.59E+01	1.87E+03	5.15E+01
1.30E+03	3.62E+01	1.89E+03	5.19E+01
1.31E+03	3.64E+01	1.90E+03	5.21E+01
1.32E+03	3.67E+01	1.91E+03	5.24E+01
1.33E+03	3.70E+01	1.92E+03	5.27E+01
1.34E+03	3.73E+01	1.93E+03	5.30E+01
1.36E+03	3.75E+01	1.94E+03	5.33E+01
1.37E+03	3.78E+01	1.95E+03	5.37E+01
1.38E+03	3.82E+01	1.96E+03	5.39E+01
1.39E+03	3.85E+01	1.97E+03	5.42E+01
1.40E+03	3.88E+01	1.98E+03	5.45E+01
1.41E+03	3.91E+01	2.00E+03	5.48E+01
1.42E+03	3.93E+01	2.01E+03	5.51E+01
1.43E+03	3.96E+01	2.02E+03	5.52E+01
1.44E+03	3.99E+01	2.03E+03	5.56E+01
1.45E+03	4.01E+01	2.04E+03	5.59E+01
1.46E+03	4.03E+01	2.05E+03	5.62E+01
1.47E+03	4.05E+01	2.06E+03	5.66E+01
1.49E+03	4.08E+01	2.07E+03	5.69E+01
1.50E+03	4.13E+01	2.08E+03	5.73E+01
1.51E+03	4.15E+01	2.09E+03	5.75E+01
1.52E+03	4.18E+01	2.10E+03	5.78E+01
1.53E+03	4.20E+01	2.11E+03	5.79E+01
1.54E+03	4.24E+01	2.13E+03	5.86E+01
1.55E+03	4.26E+01	2.13E+03	5.86E+01
1.56E+03	4.29E+01	2.14E+03	5.88E+01
1.57E+03	4.32E+01	2.16E+03	5.92E+01
1.58E+03	4.35E+01	2.17E+03	5.94E+01
1.60E+03	4.39E+01	2.18E+03	5.97E+01
1.61E+03	4.41E+01	2.19E+03	6.00E+01
1.62E+03	4.43E+01	2.20E+03	6.04E+01
1.63E+03	4.48E+01	2.21E+03	6.07E+01
1.64E+03	4.51E+01	2.22E+03	6.10E+01
1.65E+03	4.54E+01	2.23E+03	6.13E+01
1.66E+03	4.57E+01	2.24E+03	6.16E+01
1.67E+03	4.57E+01	2.25E+03	6.19E+01
1.68E+03	4.61E+01	2.27E+03	6.22E+01

SRT-GPD-2003-00072, Rev. 1

D[1/s]	Tau[Pa]	D[1/s]	Tau[Pa]
2.28E+03	6.24E+01	2.70E+03	7.36E+01
2.29E+03	6.27E+01	2.70E+03	7.37E+01
2.30E+03	6.30E+01	2.70E+03	7.37E+01
2.31E+03	6.33E+01	2.70E+03	7.37E+01
2.32E+03	6.36E+01	2.70E+03	7.38E+01
2.33E+03	6.39E+01	2.70E+03	7.37E+01
2.34E+03	6.41E+01	2.70E+03	7.38E+01
2.35E+03	6.45E+01	2.70E+03	7.38E+01
2.36E+03	6.47E+01	2.70E+03	7.37E+01
2.38E+03	6.50E+01	2.70E+03	7.37E+01
2.39E+03	6.53E+01	2.70E+03	7.38E+01
2.40E+03	6.55E+01	2.70E+03	7.38E+01
2.41E+03	6.58E+01	2.70E+03	7.38E+01
2.42E+03	6.62E+01	2.70E+03	7.38E+01
2.43E+03	6.65E+01	2.70E+03	7.38E+01
2.44E+03	6.69E+01	2.70E+03	7.38E+01
2.45E+03	6.72E+01	2.70E+03	7.39E+01
2.46E+03	6.74E+01	2.70E+03	7.38E+01
2.47E+03	6.77E+01	2.70E+03	7.39E+01
2.48E+03	6.80E+01	2.70E+03	7.39E+01
2.49E+03	6.83E+01	2.70E+03	7.39E+01
2.50E+03	6.86E+01	2.70E+03	7.39E+01
2.52E+03	6.88E+01	2.70E+03	7.39E+01
2.53E+03	6.92E+01	2.70E+03	7.39E+01
2.54E+03	6.96E+01	2.70E+03	7.39E+01
2.55E+03	6.99E+01	2.70E+03	7.39E+01
2.56E+03	7.01E+01	2.70E+03	7.39E+01
2.57E+03	7.04E+01	2.70E+03	7.39E+01
2.58E+03	7.06E+01	2.70E+03	7.39E+01
2.59E+03	7.10E+01	2.70E+03	7.40E+01
2.60E+03	7.13E+01	2.70E+03	7.40E+01
2.61E+03	7.15E+01	2.70E+03	7.39E+01
2.63E+03	7.19E+01	2.70E+03	7.39E+01
2.63E+03	7.21E+01	2.70E+03	7.39E+01
2.65E+03	7.25E+01	2.70E+03	7.40E+01
2.66E+03	7.27E+01	2.70E+03	7.40E+01
2.67E+03	7.29E+01	2.70E+03	7.40E+01
2.68E+03	7.33E+01	2.70E+03	7.39E+01
2.68E+03	7.33E+01	2.70E+03	7.39E+01
2.68E+03	7.34E+01	2.70E+03	7.39E+01
2.69E+03	7.34E+01	2.70E+03	7.39E+01
2.69E+03	7.35E+01	2.70E+03	7.39E+01
2.69E+03	7.34E+01	2.70E+03	7.39E+01
2.69E+03	7.34E+01	2.70E+03	7.39E+01
2.69E+03	7.34E+01	2.70E+03	7.39E+01
2.69E+03	7.35E+01	2.70E+03	7.40E+01
2.69E+03	7.35E+01	2.70E+03	7.40E+01
2.69E+03	7.35E+01	2.70E+03	7.40E+01
2.69E+03	7.35E+01	2.70E+03	7.40E+01
2.69E+03	7.36E+01	2.70E+03	7.40E+01
2.70E+03	7.36E+01	2.70E+03	7.40E+01
2.70E+03	7.36E+01	2.70E+03	7.40E+01
2.70E+03	7.37E+01	2.70E+03	7.40E+01
2.70E+03	7.37E+01	2.70E+03	7.41E+01

SRT-GPD-2003-00072, Rev. 1

D[1/s]	Tau[Pa]	D[1/s]	Tau[Pa]
2.70E+03	7.41E+01	2.70E+03	7.45E+01
2.70E+03	7.41E+01	2.70E+03	7.45E+01
2.70E+03	7.41E+01	2.70E+03	7.45E+01
2.70E+03	7.42E+01	2.70E+03	7.45E+01
2.70E+03	7.42E+01	2.70E+03	7.45E+01
2.70E+03	7.42E+01	2.70E+03	7.45E+01
2.70E+03	7.41E+01	2.70E+03	7.45E+01
2.70E+03	7.41E+01	2.70E+03	7.45E+01
2.70E+03	7.40E+01	2.70E+03	7.45E+01
2.70E+03	7.40E+01	2.70E+03	7.45E+01
2.70E+03	7.40E+01	2.70E+03	7.45E+01
2.70E+03	7.40E+01	2.70E+03	7.45E+01
2.70E+03	7.40E+01	2.70E+03	7.46E+01
2.70E+03	7.40E+01	2.70E+03	7.46E+01
2.70E+03	7.40E+01	2.70E+03	7.46E+01
2.70E+03	7.41E+01	2.70E+03	7.46E+01
2.70E+03	7.41E+01	2.70E+03	7.46E+01
2.70E+03	7.41E+01	2.70E+03	7.46E+01
2.70E+03	7.41E+01	2.70E+03	7.46E+01
2.70E+03	7.42E+01	2.70E+03	7.45E+01
2.70E+03	7.41E+01	2.70E+03	7.45E+01
2.70E+03	7.41E+01	2.70E+03	7.46E+01
2.70E+03	7.42E+01	2.70E+03	7.46E+01
2.70E+03	7.42E+01	2.70E+03	7.46E+01
2.70E+03	7.42E+01	2.70E+03	7.45E+01
2.70E+03	7.42E+01	2.70E+03	7.45E+01
2.70E+03	7.43E+01	2.70E+03	7.46E+01
2.70E+03	7.43E+01	2.70E+03	7.46E+01
2.70E+03	7.43E+01	2.70E+03	7.46E+01
2.70E+03	7.43E+01	2.70E+03	7.47E+01
2.70E+03	7.43E+01	2.70E+03	7.47E+01
2.70E+03	7.43E+01	2.70E+03	7.46E+01
2.70E+03	7.44E+01	2.70E+03	7.46E+01
2.70E+03	7.44E+01	2.70E+03	7.46E+01
2.70E+03	7.44E+01	2.70E+03	7.46E+01
2.70E+03	7.44E+01	2.70E+03	7.46E+01
2.70E+03	7.44E+01	2.70E+03	7.46E+01
2.70E+03	7.44E+01	2.70E+03	7.47E+01
2.70E+03	7.45E+01	2.70E+03	7.47E+01
2.70E+03	7.45E+01	2.70E+03	7.47E+01
2.70E+03	7.45E+01	2.70E+03	7.47E+01
2.70E+03	7.45E+01	2.70E+03	7.47E+01
2.70E+03	7.45E+01	2.70E+03	7.48E+01
2.70E+03	7.45E+01	2.70E+03	7.48E+01
2.70E+03	7.46E+01	2.70E+03	7.48E+01
2.70E+03	7.46E+01	2.70E+03	7.48E+01
2.70E+03	7.46E+01	2.70E+03	7.48E+01
2.70E+03	7.46E+01	2.70E+03	7.49E+01
2.70E+03	7.45E+01	2.70E+03	7.49E+01
2.70E+03	7.45E+01	2.70E+03	7.49E+01
2.70E+03	7.45E+01	2.70E+03	7.49E+01
2.70E+03	7.44E+01	2.70E+03	7.49E+01
2.70E+03	7.45E+01	2.70E+03	7.49E+01
2.70E+03	7.44E+01	2.70E+03	7.50E+01

SRT-GPD-2003-00072, Rev. 1

D[1/s]	Tau[Pa]	D[1/s]	Tau[Pa]
2.70E+03	7.50E+01	2.70E+03	7.52E+01
2.70E+03	7.50E+01	2.70E+03	7.52E+01
2.70E+03	7.50E+01	2.70E+03	7.52E+01
2.70E+03	7.50E+01	2.70E+03	7.52E+01
2.70E+03	7.50E+01	2.70E+03	7.53E+01
2.70E+03	7.50E+01	2.70E+03	7.53E+01
2.70E+03	7.51E+01	2.70E+03	7.53E+01
2.70E+03	7.51E+01	2.70E+03	7.53E+01
2.70E+03	7.51E+01	2.70E+03	7.53E+01
2.70E+03	7.51E+01	2.70E+03	7.53E+01
2.70E+03	7.52E+01	2.70E+03	7.53E+01
2.70E+03	7.52E+01	2.70E+03	7.53E+01
2.70E+03	7.51E+01	2.70E+03	7.53E+01
2.70E+03	7.51E+01	2.70E+03	7.53E+01
2.70E+03	7.51E+01	2.70E+03	7.54E+01
2.70E+03	7.51E+01	2.70E+03	7.54E+01
2.70E+03	7.52E+01	2.70E+03	7.54E+01
2.70E+03	7.52E+01	2.70E+03	7.54E+01
2.70E+03	7.51E+01	2.70E+03	7.54E+01
2.70E+03	7.51E+01	2.70E+03	7.54E+01
2.70E+03	7.51E+01	2.69E+03	7.53E+01
2.70E+03	7.51E+01	2.69E+03	7.50E+01
2.70E+03	7.51E+01	2.68E+03	7.48E+01
2.70E+03	7.51E+01	2.67E+03	7.46E+01
2.70E+03	7.51E+01	2.66E+03	7.43E+01
2.70E+03	7.51E+01	2.65E+03	7.41E+01
2.70E+03	7.51E+01	2.64E+03	7.40E+01
2.70E+03	7.51E+01	2.62E+03	7.36E+01
2.70E+03	7.52E+01	2.61E+03	7.33E+01
2.70E+03	7.52E+01	2.60E+03	7.30E+01
2.70E+03	7.51E+01	2.59E+03	7.28E+01
2.70E+03	7.51E+01	2.58E+03	7.25E+01
2.70E+03	7.51E+01	2.57E+03	7.26E+01
2.70E+03	7.51E+01	2.56E+03	7.21E+01
2.70E+03	7.51E+01	2.55E+03	7.18E+01
2.70E+03	7.51E+01	2.54E+03	7.15E+01
2.70E+03	7.51E+01	2.53E+03	7.12E+01
2.70E+03	7.51E+01	2.52E+03	7.09E+01
2.70E+03	7.52E+01	2.51E+03	7.06E+01
2.70E+03	7.51E+01	2.50E+03	7.03E+01
2.70E+03	7.51E+01	2.48E+03	7.00E+01
2.70E+03	7.51E+01	2.47E+03	6.98E+01
2.70E+03	7.51E+01	2.46E+03	6.95E+01
2.70E+03	7.51E+01	2.45E+03	6.91E+01
2.70E+03	7.52E+01	2.44E+03	6.89E+01
2.70E+03	7.52E+01	2.43E+03	6.86E+01
2.70E+03	7.51E+01	2.42E+03	6.83E+01
2.70E+03	7.51E+01	2.41E+03	6.80E+01
2.70E+03	7.51E+01	2.40E+03	6.78E+01
2.70E+03	7.51E+01	2.39E+03	6.75E+01
2.70E+03	7.51E+01	2.38E+03	6.72E+01
2.70E+03	7.51E+01	2.37E+03	6.69E+01
2.70E+03	7.52E+01	2.35E+03	6.66E+01
2.70E+03	7.52E+01	2.34E+03	6.64E+01

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D[1/s]	Tau[Pa]	D[1/s]	Tau[Pa]
2.33E+03	6.61E+01	1.75E+03	5.01E+01
2.32E+03	6.58E+01	1.74E+03	4.98E+01
2.31E+03	6.55E+01	1.73E+03	4.96E+01
2.30E+03	6.52E+01	1.71E+03	4.92E+01
2.29E+03	6.49E+01	1.70E+03	4.88E+01
2.28E+03	6.46E+01	1.69E+03	4.85E+01
2.27E+03	6.43E+01	1.68E+03	4.82E+01
2.26E+03	6.40E+01	1.67E+03	4.80E+01
2.24E+03	6.37E+01	1.66E+03	4.77E+01
2.23E+03	6.35E+01	1.65E+03	4.74E+01
2.22E+03	6.33E+01	1.64E+03	4.72E+01
2.21E+03	6.29E+01	1.63E+03	4.69E+01
2.20E+03	6.26E+01	1.62E+03	4.65E+01
2.19E+03	6.23E+01	1.61E+03	4.62E+01
2.18E+03	6.20E+01	1.60E+03	4.59E+01
2.17E+03	6.17E+01	1.58E+03	4.57E+01
2.16E+03	6.14E+01	1.57E+03	4.59E+01
2.15E+03	6.12E+01	1.56E+03	4.54E+01
2.14E+03	6.09E+01	1.55E+03	4.49E+01
2.13E+03	6.06E+01	1.54E+03	4.45E+01
2.11E+03	6.03E+01	1.53E+03	4.43E+01
2.10E+03	5.99E+01	1.52E+03	4.41E+01
2.09E+03	5.97E+01	1.51E+03	4.37E+01
2.08E+03	5.93E+01	1.50E+03	4.32E+01
2.07E+03	5.91E+01	1.49E+03	4.29E+01
2.06E+03	5.88E+01	1.48E+03	4.26E+01
2.05E+03	5.84E+01	1.46E+03	4.22E+01
2.04E+03	5.81E+01	1.45E+03	4.20E+01
2.03E+03	5.79E+01	1.44E+03	4.18E+01
2.02E+03	5.76E+01	1.43E+03	4.16E+01
2.01E+03	5.72E+01	1.42E+03	4.13E+01
2.00E+03	5.69E+01	1.41E+03	4.09E+01
1.99E+03	5.66E+01	1.40E+03	4.07E+01
1.97E+03	5.64E+01	1.39E+03	4.05E+01
1.96E+03	5.61E+01	1.38E+03	4.03E+01
1.95E+03	5.59E+01	1.37E+03	3.99E+01
1.94E+03	5.55E+01	1.36E+03	3.94E+01
1.93E+03	5.52E+01	1.35E+03	3.91E+01
1.92E+03	5.50E+01	1.34E+03	3.91E+01
1.91E+03	5.46E+01	1.32E+03	3.87E+01
1.90E+03	5.44E+01	1.31E+03	3.84E+01
1.89E+03	5.42E+01	1.30E+03	3.79E+01
1.88E+03	5.39E+01	1.29E+03	3.76E+01
1.87E+03	5.35E+01	1.28E+03	3.74E+01
1.85E+03	5.32E+01	1.27E+03	3.72E+01
1.84E+03	5.30E+01	1.26E+03	3.67E+01
1.83E+03	5.26E+01	1.25E+03	3.67E+01
1.82E+03	5.23E+01	1.24E+03	3.61E+01
1.81E+03	5.19E+01	1.23E+03	3.58E+01
1.80E+03	5.17E+01	1.22E+03	3.55E+01
1.79E+03	5.13E+01	1.21E+03	3.52E+01
1.78E+03	5.11E+01	1.19E+03	3.49E+01
1.77E+03	5.06E+01	1.18E+03	3.48E+01
1.76E+03	5.05E+01	1.17E+03	3.46E+01

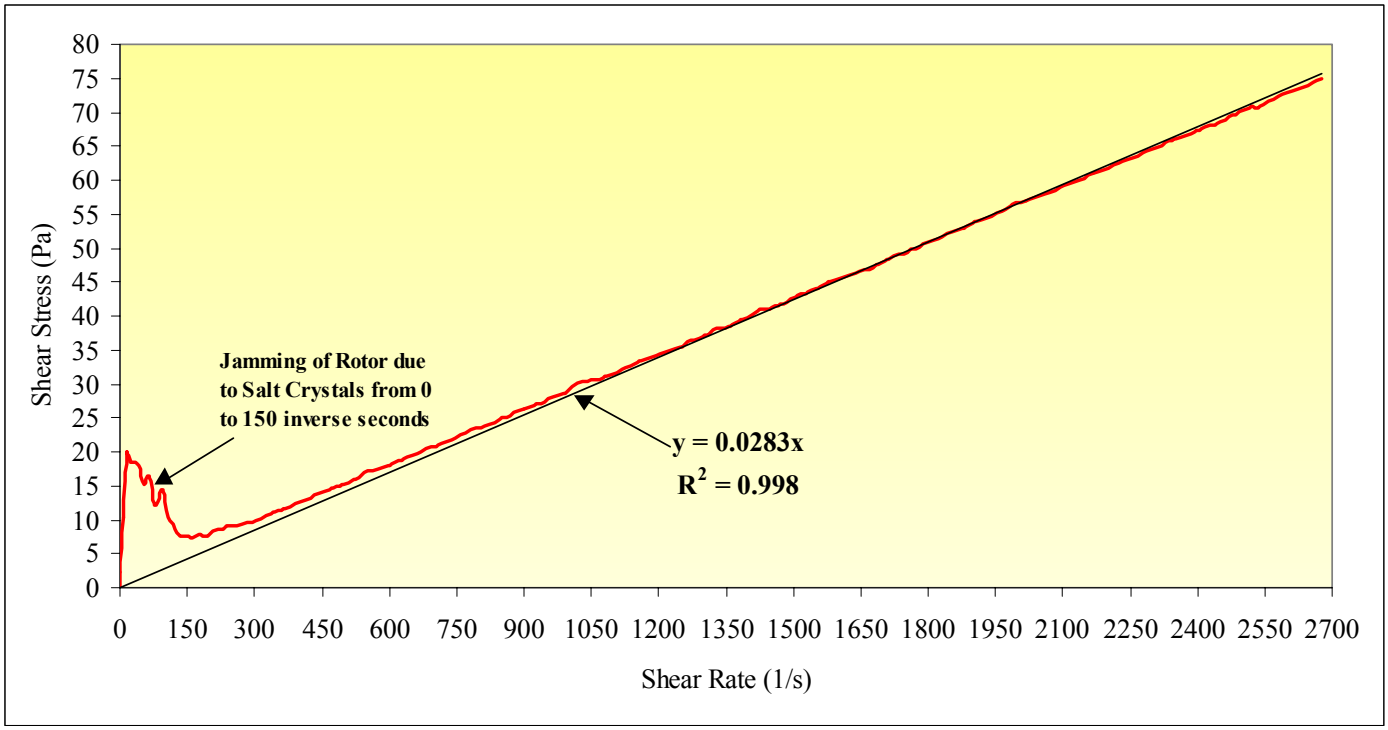
SRT-GPD-2003-00072, Rev. 1

D[1/s]	Tau[Pa]	D[1/s]	Tau[Pa]
1.16E+03	3.42E+01	5.74E+02	1.73E+01
1.15E+03	3.37E+01	5.61E+02	1.69E+01
1.14E+03	3.34E+01	5.53E+02	1.67E+01
1.13E+03	3.30E+01	5.43E+02	1.63E+01
1.12E+03	3.27E+01	5.33E+02	1.60E+01
1.11E+03	3.23E+01	5.21E+02	1.56E+01
1.10E+03	3.18E+01	5.11E+02	1.54E+01
1.09E+03	3.17E+01	5.01E+02	1.51E+01
1.07E+03	3.14E+01	4.88E+02	1.48E+01
1.06E+03	3.08E+01	4.79E+02	1.48E+01
1.06E+03	3.07E+01	4.68E+02	1.44E+01
1.05E+03	3.06E+01	4.56E+02	1.39E+01
1.03E+03	3.01E+01	4.46E+02	1.36E+01
1.02E+03	2.97E+01	4.34E+02	1.40E+01
1.01E+03	2.96E+01	4.24E+02	1.35E+01
1.00E+03	2.97E+01	4.14E+02	1.30E+01
9.88E+02	2.93E+01	4.01E+02	1.25E+01
9.77E+02	2.88E+01	3.92E+02	1.21E+01
9.67E+02	2.87E+01	3.79E+02	1.17E+01
9.55E+02	2.82E+01	3.69E+02	1.14E+01
9.44E+02	2.79E+01	3.59E+02	1.11E+01
9.34E+02	2.76E+01	3.49E+02	1.08E+01
9.22E+02	2.71E+01	3.37E+02	1.04E+01
9.11E+02	2.67E+01	3.26E+02	1.02E+01
9.01E+02	2.64E+01	3.14E+02	9.91E+00
8.89E+02	2.61E+01	3.04E+02	9.58E+00
8.79E+02	2.58E+01	2.94E+02	9.29E+00
8.69E+02	2.54E+01	2.82E+02	8.95E+00
8.59E+02	2.51E+01	2.74E+02	8.72E+00
8.46E+02	2.48E+01	2.61E+02	8.55E+00
8.36E+02	2.45E+01	2.52E+02	8.27E+00
8.26E+02	2.42E+01	2.40E+02	7.85E+00
8.14E+02	2.38E+01	2.30E+02	7.54E+00
8.04E+02	2.37E+01	2.19E+02	7.28E+00
7.91E+02	2.32E+01	2.07E+02	6.85E+00
7.81E+02	2.30E+01	1.96E+02	6.51E+00
7.71E+02	2.27E+01	1.87E+02	6.23E+00
7.60E+02	2.24E+01	1.74E+02	5.87E+00
7.48E+02	2.21E+01	1.64E+02	5.59E+00
7.38E+02	2.18E+01	1.52E+02	5.45E+00
7.28E+02	2.15E+01	1.42E+02	5.02E+00
7.15E+02	2.11E+01	1.32E+02	4.57E+00
7.05E+02	2.08E+01	1.19E+02	4.28E+00
6.96E+02	2.04E+01	1.10E+02	3.79E+00
6.83E+02	2.00E+01	9.72E+01	3.93E+00
6.73E+02	1.98E+01	8.74E+01	3.62E+00
6.63E+02	1.97E+01	7.73E+01	3.00E+00
6.51E+02	1.93E+01	6.49E+01	2.38E+00
6.41E+02	1.91E+01	5.50E+01	2.31E+00
6.29E+02	1.86E+01	4.26E+01	2.47E+00
6.19E+02	1.83E+01	3.28E+01	2.35E+00
6.09E+02	1.84E+01	2.27E+01	1.96E+00
5.97E+02	1.81E+01	5.74E+02	1.73E+01
5.86E+02	1.77E+01	5.61E+02	1.69E+01

SRT-GPD-2003-00072, Rev. 1

D[1/s]	Tau[Pa]	D[1/s]	Tau[Pa]
5.53E+02	1.67E+01	2.82E+02	8.95E+00
5.43E+02	1.63E+01	2.74E+02	8.72E+00
5.33E+02	1.60E+01	2.61E+02	8.55E+00
5.21E+02	1.56E+01	2.52E+02	8.27E+00
5.11E+02	1.54E+01	2.40E+02	7.85E+00
5.01E+02	1.51E+01	2.30E+02	7.54E+00
4.88E+02	1.48E+01	2.19E+02	7.28E+00
4.79E+02	1.48E+01	2.07E+02	6.85E+00
4.68E+02	1.44E+01	1.96E+02	6.51E+00
4.56E+02	1.39E+01	1.87E+02	6.23E+00
4.46E+02	1.36E+01	1.74E+02	5.87E+00
4.34E+02	1.40E+01	1.64E+02	5.59E+00
4.24E+02	1.35E+01	1.52E+02	5.45E+00
4.14E+02	1.30E+01	1.42E+02	5.02E+00
4.01E+02	1.25E+01	1.32E+02	4.57E+00
3.92E+02	1.21E+01	1.19E+02	4.28E+00
3.79E+02	1.17E+01	1.10E+02	3.79E+00
3.69E+02	1.14E+01	9.72E+01	3.93E+00
3.59E+02	1.11E+01	8.74E+01	3.62E+00
3.49E+02	1.08E+01	7.73E+01	3.00E+00
3.37E+02	1.04E+01	6.49E+01	2.38E+00
3.26E+02	1.02E+01	5.50E+01	2.31E+00
3.14E+02	9.91E+00	4.26E+01	2.47E+00
3.04E+02	9.58E+00	3.28E+01	2.35E+00
2.94E+02	9.29E+00	2.27E+01	1.96E+00

Figure A-1 - Flow Curve for the Salt Slurry Sample at 25°C (Run 2)



Raw Data Salt Slurry Results Run #2 at 25°C

SRT-GPD-2003-00072, Rev. 1

D[1/s]	Tau[Pa]	D[1/s]	Tau[Pa]
0.00E+00	6.65E-02	5.52E+02	1.71E+01
9.68E-01	2.37E+00	5.65E+02	1.72E+01
7.35E+00	1.04E+01	5.75E+02	1.76E+01
1.44E+01	1.96E+01	5.85E+02	1.78E+01
2.28E+01	1.84E+01	5.97E+02	1.80E+01
3.32E+01	1.84E+01	6.07E+02	1.83E+01
4.25E+01	1.79E+01	6.19E+02	1.86E+01
5.41E+01	1.52E+01	6.29E+02	1.88E+01
6.41E+01	1.65E+01	6.39E+02	1.91E+01
7.62E+01	1.21E+01	6.51E+02	1.95E+01
8.61E+01	1.28E+01	6.61E+02	1.98E+01
9.61E+01	1.45E+01	6.71E+02	1.99E+01
1.08E+02	1.03E+01	6.84E+02	2.04E+01
1.18E+02	9.42E+00	6.94E+02	2.07E+01
1.29E+02	7.87E+00	7.04E+02	2.09E+01
1.42E+02	7.59E+00	7.16E+02	2.11E+01
1.52E+02	7.65E+00	7.26E+02	2.14E+01
1.62E+02	7.43E+00	7.38E+02	2.18E+01
1.74E+02	7.76E+00	7.49E+02	2.20E+01
1.84E+02	7.72E+00	7.59E+02	2.26E+01
1.94E+02	7.68E+00	7.71E+02	2.29E+01
2.07E+02	8.31E+00	7.82E+02	2.33E+01
2.17E+02	8.73E+00	7.91E+02	2.35E+01
2.29E+02	8.72E+00	8.04E+02	2.37E+01
2.39E+02	9.05E+00	8.13E+02	2.38E+01
2.50E+02	9.13E+00	8.24E+02	2.41E+01
2.61E+02	9.19E+00	8.36E+02	2.44E+01
2.71E+02	9.32E+00	8.46E+02	2.48E+01
2.83E+02	9.50E+00	8.56E+02	2.50E+01
2.93E+02	9.70E+00	8.68E+02	2.54E+01
3.03E+02	9.96E+00	8.78E+02	2.58E+01
3.14E+02	1.02E+01	8.90E+02	2.61E+01
3.26E+02	1.06E+01	9.00E+02	2.64E+01
3.36E+02	1.08E+01	9.10E+02	2.66E+01
3.46E+02	1.11E+01	9.22E+02	2.67E+01
3.59E+02	1.15E+01	9.32E+02	2.70E+01
3.69E+02	1.17E+01	9.44E+02	2.73E+01
3.79E+02	1.20E+01	9.55E+02	2.79E+01
3.91E+02	1.23E+01	9.64E+02	2.82E+01
4.01E+02	1.26E+01	9.77E+02	2.84E+01
4.14E+02	1.30E+01	9.87E+02	2.86E+01
4.23E+02	1.33E+01	9.96E+02	2.89E+01
4.33E+02	1.36E+01	1.01E+03	2.95E+01
4.46E+02	1.39E+01	1.02E+03	3.01E+01
4.56E+02	1.42E+01	1.03E+03	3.03E+01
4.67E+02	1.44E+01	1.04E+03	3.03E+01
4.76E+02	1.47E+01	1.05E+03	3.06E+01
4.88E+02	1.50E+01	1.06E+03	3.07E+01
4.99E+02	1.53E+01	1.08E+03	3.10E+01
5.09E+02	1.55E+01	1.09E+03	3.12E+01
5.21E+02	1.59E+01	1.10E+03	3.15E+01
5.31E+02	1.61E+01	1.11E+03	3.18E+01
5.43E+02	1.69E+01	1.12E+03	3.21E+01

SRT-GPD-2003-00072, Rev. 1

D[1/s]	Tau[Pa]	D[1/s]	Tau[Pa]
1.13E+03	3.25E+01	1.71E+03	4.83E+01
1.14E+03	3.28E+01	1.73E+03	4.88E+01
1.15E+03	3.31E+01	1.74E+03	4.91E+01
1.16E+03	3.34E+01	1.75E+03	4.92E+01
1.17E+03	3.36E+01	1.76E+03	4.96E+01
1.18E+03	3.39E+01	1.77E+03	4.99E+01
1.19E+03	3.42E+01	1.78E+03	5.02E+01
1.20E+03	3.44E+01	1.79E+03	5.06E+01
1.22E+03	3.48E+01	1.80E+03	5.08E+01
1.23E+03	3.49E+01	1.81E+03	5.11E+01
1.24E+03	3.52E+01	1.82E+03	5.14E+01
1.25E+03	3.55E+01	1.83E+03	5.18E+01
1.26E+03	3.58E+01	1.84E+03	5.21E+01
1.27E+03	3.63E+01	1.85E+03	5.24E+01
1.28E+03	3.64E+01	1.86E+03	5.26E+01
1.29E+03	3.67E+01	1.88E+03	5.29E+01
1.30E+03	3.72E+01	1.89E+03	5.32E+01
1.31E+03	3.73E+01	1.90E+03	5.37E+01
1.32E+03	3.79E+01	1.91E+03	5.39E+01
1.34E+03	3.82E+01	1.92E+03	5.41E+01
1.34E+03	3.83E+01	1.93E+03	5.44E+01
1.35E+03	3.85E+01	1.94E+03	5.48E+01
1.37E+03	3.88E+01	1.95E+03	5.51E+01
1.38E+03	3.93E+01	1.96E+03	5.53E+01
1.39E+03	3.95E+01	1.97E+03	5.57E+01
1.40E+03	3.97E+01	1.99E+03	5.62E+01
1.41E+03	4.01E+01	2.00E+03	5.66E+01
1.42E+03	4.07E+01	2.01E+03	5.68E+01
1.43E+03	4.09E+01	2.02E+03	5.70E+01
1.44E+03	4.11E+01	2.03E+03	5.72E+01
1.45E+03	4.13E+01	2.04E+03	5.75E+01
1.47E+03	4.16E+01	2.05E+03	5.78E+01
1.48E+03	4.18E+01	2.06E+03	5.80E+01
1.49E+03	4.21E+01	2.07E+03	5.83E+01
1.50E+03	4.25E+01	2.08E+03	5.86E+01
1.51E+03	4.29E+01	2.09E+03	5.90E+01
1.52E+03	4.32E+01	2.10E+03	5.92E+01
1.53E+03	4.34E+01	2.11E+03	5.95E+01
1.54E+03	4.38E+01	2.13E+03	5.99E+01
1.55E+03	4.40E+01	2.14E+03	6.00E+01
1.56E+03	4.43E+01	2.15E+03	6.04E+01
1.57E+03	4.47E+01	2.16E+03	6.06E+01
1.58E+03	4.50E+01	2.17E+03	6.09E+01
1.59E+03	4.52E+01	2.18E+03	6.13E+01
1.61E+03	4.55E+01	2.19E+03	6.16E+01
1.62E+03	4.58E+01	2.20E+03	6.19E+01
1.63E+03	4.62E+01	2.21E+03	6.22E+01
1.64E+03	4.63E+01	2.22E+03	6.25E+01
1.65E+03	4.65E+01	2.23E+03	6.27E+01
1.66E+03	4.69E+01	2.24E+03	6.30E+01
1.67E+03	4.69E+01	2.26E+03	6.33E+01
1.68E+03	4.73E+01	2.27E+03	6.36E+01
1.69E+03	4.76E+01	2.28E+03	6.39E+01
1.70E+03	4.80E+01	2.29E+03	6.42E+01

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D[1/s]	Tau[Pa]	D[1/s]	Tau[Pa]
2.30E+03	6.45E+01	2.70E+03	7.55E+01
2.31E+03	6.48E+01	2.70E+03	7.55E+01
2.32E+03	6.51E+01	2.70E+03	7.55E+01
2.33E+03	6.55E+01	2.70E+03	7.55E+01
2.34E+03	6.58E+01	2.70E+03	7.55E+01
2.35E+03	6.60E+01	2.70E+03	7.56E+01
2.36E+03	6.63E+01	2.70E+03	7.56E+01
2.38E+03	6.66E+01	2.70E+03	7.56E+01
2.39E+03	6.69E+01	2.70E+03	7.55E+01
2.40E+03	6.74E+01	2.70E+03	7.55E+01
2.41E+03	6.74E+01	2.70E+03	7.55E+01
2.42E+03	6.77E+01	2.70E+03	7.55E+01
2.43E+03	6.80E+01	2.70E+03	7.55E+01
2.44E+03	6.82E+01	2.70E+03	7.55E+01
2.45E+03	6.86E+01	2.70E+03	7.55E+01
2.46E+03	6.90E+01	2.70E+03	7.55E+01
2.47E+03	6.93E+01	2.70E+03	7.55E+01
2.48E+03	6.97E+01	2.70E+03	7.55E+01
2.49E+03	7.00E+01	2.70E+03	7.55E+01
2.50E+03	7.03E+01	2.70E+03	7.55E+01
2.52E+03	7.06E+01	2.70E+03	7.54E+01
2.53E+03	7.08E+01	2.70E+03	7.54E+01
2.54E+03	7.07E+01	2.70E+03	7.54E+01
2.55E+03	7.12E+01	2.70E+03	7.54E+01
2.56E+03	7.16E+01	2.70E+03	7.55E+01
2.57E+03	7.20E+01	2.70E+03	7.55E+01
2.58E+03	7.23E+01	2.70E+03	7.55E+01
2.59E+03	7.26E+01	2.70E+03	7.55E+01
2.60E+03	7.29E+01	2.70E+03	7.55E+01
2.61E+03	7.32E+01	2.70E+03	7.55E+01
2.63E+03	7.35E+01	2.70E+03	7.55E+01
2.64E+03	7.38E+01	2.70E+03	7.56E+01
2.65E+03	7.40E+01	2.70E+03	7.56E+01
2.66E+03	7.44E+01	2.70E+03	7.57E+01
2.67E+03	7.47E+01	2.70E+03	7.57E+01
2.68E+03	7.49E+01	2.70E+03	7.56E+01
		2.70E+03	7.56E+01
2.68E+03	7.50E+01	2.70E+03	7.56E+01
2.68E+03	7.51E+01	2.70E+03	7.55E+01
2.69E+03	7.51E+01	2.70E+03	7.55E+01
2.69E+03	7.52E+01	2.70E+03	7.55E+01
2.69E+03	7.52E+01	2.70E+03	7.55E+01
2.69E+03	7.53E+01	2.70E+03	7.55E+01
2.69E+03	7.53E+01	2.70E+03	7.55E+01
2.69E+03	7.53E+01	2.70E+03	7.55E+01
2.69E+03	7.53E+01	2.70E+03	7.55E+01
2.69E+03	7.53E+01	2.70E+03	7.55E+01
2.69E+03	7.53E+01	2.70E+03	7.55E+01
2.69E+03	7.53E+01	2.70E+03	7.55E+01
2.69E+03	7.54E+01	2.70E+03	7.55E+01
2.70E+03	7.54E+01	2.70E+03	7.54E+01
2.70E+03	7.54E+01	2.70E+03	7.54E+01
2.70E+03	7.54E+01	2.70E+03	7.54E+01
2.70E+03	7.54E+01	2.70E+03	7.54E+01

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D[1/s]	Tau[Pa]	D[1/s]	Tau[Pa]
2.70E+03	7.54E+01	2.70E+03	7.54E+01
2.70E+03	7.54E+01	2.70E+03	7.54E+01
2.70E+03	7.53E+01	2.70E+03	7.54E+01
2.70E+03	7.54E+01	2.70E+03	7.54E+01
2.70E+03	7.54E+01	2.70E+03	7.54E+01
2.70E+03	7.54E+01	2.70E+03	7.54E+01
2.70E+03	7.54E+01	2.70E+03	7.53E+01
2.70E+03	7.54E+01	2.70E+03	7.53E+01
2.70E+03	7.54E+01	2.70E+03	7.53E+01
2.70E+03	7.55E+01	2.70E+03	7.53E+01
2.70E+03	7.55E+01	2.70E+03	7.53E+01
2.70E+03	7.54E+01	2.70E+03	7.53E+01
2.70E+03	7.54E+01	2.70E+03	7.53E+01
2.70E+03	7.54E+01	2.70E+03	7.53E+01
2.70E+03	7.54E+01	2.70E+03	7.53E+01
2.70E+03	7.53E+01	2.70E+03	7.54E+01
2.70E+03	7.53E+01	2.70E+03	7.54E+01
2.70E+03	7.53E+01	2.70E+03	7.54E+01
2.70E+03	7.54E+01	2.70E+03	7.54E+01
2.70E+03	7.54E+01	2.70E+03	7.54E+01
2.70E+03	7.53E+01	2.70E+03	7.54E+01
2.70E+03	7.54E+01	2.70E+03	7.54E+01
2.70E+03	7.54E+01	2.70E+03	7.54E+01
2.70E+03	7.54E+01	2.70E+03	7.54E+01
2.70E+03	7.54E+01	2.70E+03	7.54E+01
2.70E+03	7.55E+01	2.70E+03	7.54E+01
2.70E+03	7.55E+01	2.70E+03	7.53E+01
2.70E+03	7.54E+01	2.70E+03	7.53E+01
2.70E+03	7.54E+01	2.70E+03	7.53E+01
2.70E+03	7.54E+01	2.70E+03	7.53E+01
2.70E+03	7.54E+01	2.70E+03	7.54E+01
2.70E+03	7.54E+01	2.70E+03	7.54E+01
2.70E+03	7.54E+01	2.70E+03	7.54E+01
2.70E+03	7.54E+01	2.70E+03	7.53E+01
2.70E+03	7.55E+01	2.70E+03	7.53E+01
2.70E+03	7.55E+01	2.70E+03	7.53E+01
2.70E+03	7.54E+01	2.70E+03	7.53E+01
2.70E+03	7.55E+01	2.70E+03	7.53E+01
2.70E+03	7.55E+01	2.70E+03	7.53E+01
2.70E+03	7.55E+01	2.70E+03	7.52E+01
2.70E+03	7.55E+01	2.70E+03	7.52E+01
2.70E+03	7.55E+01	2.70E+03	7.52E+01
2.70E+03	7.55E+01	2.70E+03	7.53E+01
2.70E+03	7.55E+01	2.70E+03	7.52E+01
2.70E+03	7.55E+01	2.70E+03	7.53E+01
2.70E+03	7.55E+01	2.70E+03	7.52E+01
2.70E+03	7.55E+01	2.70E+03	7.53E+01
2.70E+03	7.55E+01	2.70E+03	7.53E+01
2.70E+03	7.55E+01	2.70E+03	7.53E+01
2.70E+03	7.54E+01	2.70E+03	7.52E+01
2.70E+03	7.55E+01	2.70E+03	7.52E+01
2.70E+03	7.54E+01	2.70E+03	7.52E+01
2.70E+03	7.54E+01	2.70E+03	7.52E+01

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D[1/s]	Tau[Pa]	D[1/s]	Tau[Pa]
2.70E+03	7.52E+01	2.70E+03	7.52E+01
2.70E+03	7.53E+01	2.70E+03	7.52E+01
2.70E+03	7.53E+01	2.70E+03	7.52E+01
2.70E+03	7.53E+01	2.70E+03	7.52E+01
2.70E+03	7.53E+01	2.70E+03	7.52E+01
2.70E+03	7.53E+01	2.70E+03	7.53E+01
2.70E+03	7.53E+01	2.70E+03	7.53E+01
2.70E+03	7.53E+01	2.70E+03	7.53E+01
2.70E+03	7.53E+01	2.70E+03	7.53E+01
2.70E+03	7.53E+01	2.70E+03	7.53E+01
2.70E+03	7.53E+01	2.70E+03	7.53E+01
2.70E+03	7.53E+01	2.70E+03	7.53E+01
2.70E+03	7.53E+01	2.70E+03	7.53E+01
2.70E+03	7.53E+01	2.70E+03	7.53E+01
2.70E+03	7.53E+01	2.70E+03	7.53E+01
2.70E+03	7.54E+01	2.70E+03	7.53E+01
2.70E+03	7.53E+01	2.70E+03	7.53E+01
2.70E+03	7.54E+01	2.70E+03	7.53E+01
2.70E+03	7.54E+01	2.70E+03	7.52E+01
2.70E+03	7.54E+01	2.69E+03	7.50E+01
2.70E+03	7.54E+01	2.69E+03	7.47E+01
2.70E+03	7.55E+01	2.68E+03	7.44E+01
2.70E+03	7.55E+01	2.67E+03	7.42E+01
2.70E+03	7.55E+01	2.66E+03	7.40E+01
2.70E+03	7.54E+01	2.65E+03	7.36E+01
2.70E+03	7.55E+01	2.64E+03	7.34E+01
2.70E+03	7.54E+01	2.62E+03	7.32E+01
2.70E+03	7.54E+01	2.61E+03	7.29E+01
2.70E+03	7.54E+01	2.60E+03	7.26E+01
2.70E+03	7.54E+01	2.59E+03	7.24E+01
2.70E+03	7.54E+01	2.58E+03	7.20E+01
2.70E+03	7.53E+01	2.57E+03	7.18E+01
2.70E+03	7.53E+01	2.56E+03	7.16E+01
2.70E+03	7.53E+01	2.55E+03	7.13E+01
2.70E+03	7.53E+01	2.54E+03	7.10E+01
2.70E+03	7.53E+01	2.53E+03	7.07E+01
2.70E+03	7.53E+01	2.52E+03	7.03E+01
2.70E+03	7.53E+01	2.51E+03	7.00E+01
2.70E+03	7.53E+01	2.49E+03	6.97E+01
2.70E+03	7.53E+01	2.48E+03	6.94E+01
2.70E+03	7.53E+01	2.47E+03	6.93E+01
2.70E+03	7.53E+01	2.46E+03	6.89E+01
2.70E+03	7.53E+01	2.45E+03	6.86E+01
2.70E+03	7.53E+01	2.44E+03	6.82E+01
2.70E+03	7.54E+01	2.43E+03	6.80E+01
2.70E+03	7.53E+01	2.42E+03	6.77E+01
2.70E+03	7.53E+01	2.41E+03	6.75E+01
2.70E+03	7.53E+01	2.40E+03	6.72E+01
2.70E+03	7.53E+01	2.39E+03	6.68E+01
2.70E+03	7.53E+01	2.37E+03	6.66E+01
2.70E+03	7.53E+01	2.36E+03	6.63E+01
2.70E+03	7.53E+01	2.35E+03	6.60E+01
2.70E+03	7.52E+01	2.34E+03	6.57E+01
2.70E+03	7.53E+01	2.33E+03	6.54E+01

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D[1/s]	Tau[Pa]	D[1/s]	Tau[Pa]
2.32E+03	6.52E+01	1.74E+03	4.95E+01
2.31E+03	6.48E+01	1.73E+03	4.92E+01
2.30E+03	6.46E+01	1.72E+03	4.90E+01
2.29E+03	6.43E+01	1.70E+03	4.86E+01
2.28E+03	6.39E+01	1.69E+03	4.84E+01
2.27E+03	6.37E+01	1.68E+03	4.82E+01
2.26E+03	6.34E+01	1.67E+03	4.78E+01
2.25E+03	6.31E+01	1.66E+03	4.75E+01
2.24E+03	6.28E+01	1.65E+03	4.72E+01
2.22E+03	6.25E+01	1.64E+03	4.69E+01
2.21E+03	6.22E+01	1.63E+03	4.66E+01
2.20E+03	6.20E+01	1.62E+03	4.63E+01
2.19E+03	6.17E+01	1.61E+03	4.61E+01
2.18E+03	6.13E+01	1.60E+03	4.57E+01
2.17E+03	6.11E+01	1.58E+03	4.55E+01
2.16E+03	6.08E+01	1.57E+03	4.52E+01
2.15E+03	6.05E+01	1.56E+03	4.49E+01
2.14E+03	6.02E+01	1.55E+03	4.45E+01
2.13E+03	5.99E+01	1.54E+03	4.43E+01
2.12E+03	5.96E+01	1.53E+03	4.41E+01
2.10E+03	5.93E+01	1.52E+03	4.38E+01
2.09E+03	5.91E+01	1.51E+03	4.35E+01
2.08E+03	5.87E+01	1.50E+03	4.32E+01
2.07E+03	5.88E+01	1.49E+03	4.29E+01
2.06E+03	5.85E+01	1.48E+03	4.25E+01
2.05E+03	5.80E+01	1.46E+03	4.22E+01
2.04E+03	5.77E+01	1.46E+03	4.19E+01
2.03E+03	5.74E+01	1.44E+03	4.19E+01
2.02E+03	5.71E+01	1.43E+03	4.16E+01
2.01E+03	5.69E+01	1.42E+03	4.14E+01
2.00E+03	5.64E+01	1.41E+03	4.10E+01
1.99E+03	5.61E+01	1.40E+03	4.09E+01
1.98E+03	5.59E+01	1.39E+03	4.14E+01
1.96E+03	5.55E+01	1.38E+03	4.07E+01
1.95E+03	5.52E+01	1.37E+03	4.04E+01
1.94E+03	5.50E+01	1.36E+03	3.99E+01
1.93E+03	5.46E+01	1.35E+03	3.93E+01
1.92E+03	5.44E+01	1.33E+03	3.90E+01
1.91E+03	5.41E+01	1.32E+03	3.85E+01
1.90E+03	5.38E+01	1.31E+03	3.83E+01
1.89E+03	5.35E+01	1.30E+03	3.78E+01
1.88E+03	5.33E+01	1.29E+03	3.76E+01
1.87E+03	5.30E+01	1.28E+03	3.74E+01
1.86E+03	5.28E+01	1.27E+03	3.71E+01
1.85E+03	5.25E+01	1.26E+03	3.67E+01
1.83E+03	5.21E+01	1.25E+03	3.65E+01
1.83E+03	5.19E+01	1.24E+03	3.64E+01
1.81E+03	5.16E+01	1.23E+03	3.59E+01
1.80E+03	5.14E+01	1.22E+03	3.55E+01
1.79E+03	5.10E+01	1.21E+03	3.52E+01
1.78E+03	5.07E+01	1.20E+03	3.52E+01
1.77E+03	5.06E+01	1.18E+03	3.48E+01
1.76E+03	5.02E+01	1.17E+03	3.45E+01
1.75E+03	4.99E+01	1.16E+03	3.41E+01

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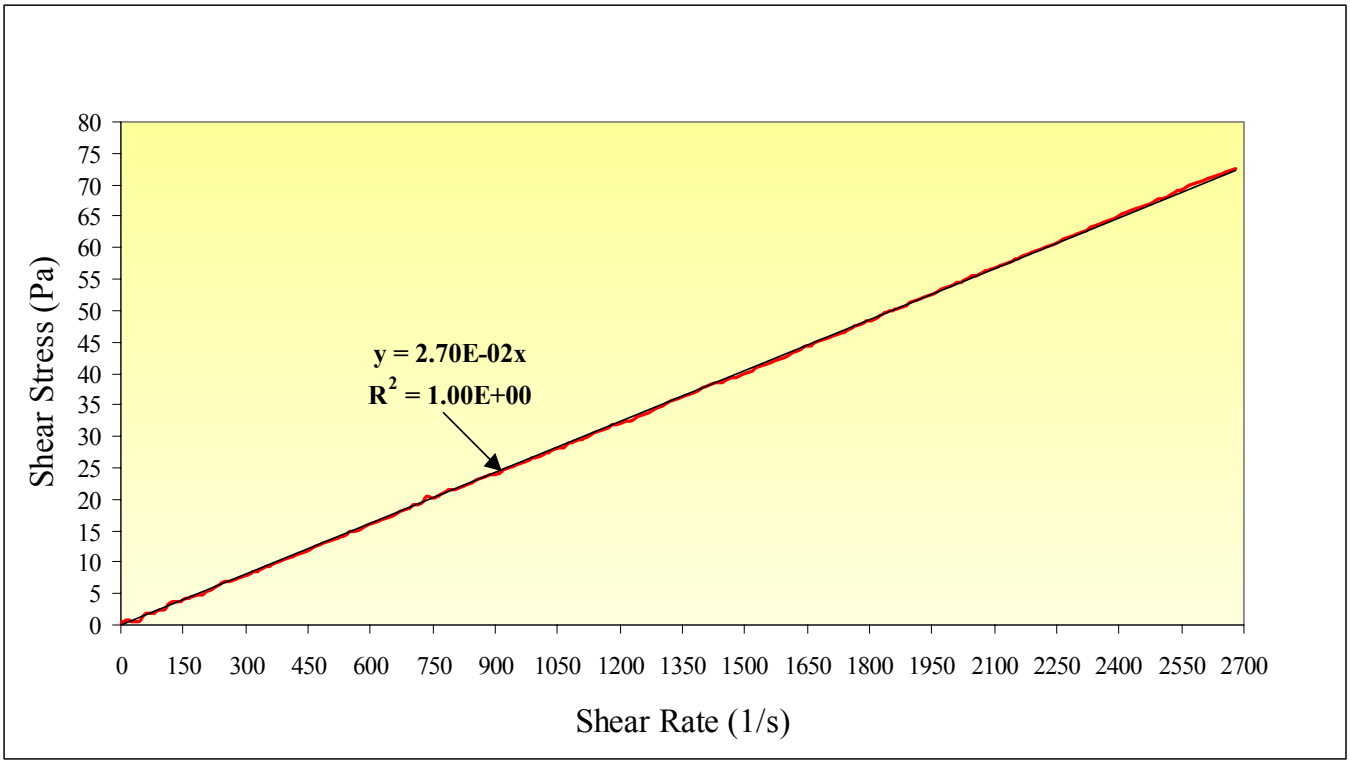
D[1/s]	Tau[Pa]	D[1/s]	Tau[Pa]
1.15E+03	3.38E+01	5.65E+02	1.84E+01
1.14E+03	3.38E+01	5.53E+02	1.78E+01
1.13E+03	3.35E+01	5.43E+02	1.73E+01
1.12E+03	3.31E+01	5.33E+02	1.70E+01
1.11E+03	3.28E+01	5.21E+02	1.65E+01
1.10E+03	3.25E+01	5.11E+02	1.62E+01
1.09E+03	3.23E+01	4.99E+02	1.57E+01
1.07E+03	3.18E+01	4.89E+02	1.65E+01
1.06E+03	3.14E+01	4.79E+02	1.67E+01
1.05E+03	3.10E+01	4.66E+02	1.58E+01
1.04E+03	3.08E+01	4.57E+02	1.53E+01
1.03E+03	3.07E+01	4.45E+02	1.47E+01
1.02E+03	3.04E+01	4.35E+02	1.44E+01
1.01E+03	2.99E+01	4.25E+02	1.43E+01
9.99E+02	2.95E+01	4.12E+02	1.38E+01
9.87E+02	2.92E+01	4.03E+02	1.33E+01
9.77E+02	2.90E+01	3.90E+02	1.28E+01
9.67E+02	2.86E+01	3.80E+02	1.25E+01
9.55E+02	2.83E+01	3.70E+02	1.22E+01
9.45E+02	2.81E+01	3.60E+02	1.20E+01
9.33E+02	2.77E+01	3.47E+02	1.16E+01
9.22E+02	2.74E+01	3.37E+02	1.17E+01
9.13E+02	2.71E+01	3.26E+02	1.12E+01
9.00E+02	2.68E+01	3.16E+02	1.09E+01
8.90E+02	2.66E+01	3.04E+02	1.06E+01
8.78E+02	2.61E+01	2.93E+02	1.04E+01
8.68E+02	2.58E+01	2.84E+02	9.92E+00
8.58E+02	2.55E+01	2.71E+02	9.55E+00
8.46E+02	2.51E+01	2.61E+02	9.12E+00
8.36E+02	2.49E+01	2.52E+02	8.87E+00
8.26E+02	2.46E+01	2.42E+02	8.55E+00
8.13E+02	2.43E+01	2.29E+02	8.11E+00
8.03E+02	2.40E+01	2.19E+02	8.35E+00
7.93E+02	2.38E+01	2.06E+02	7.79E+00
7.81E+02	2.37E+01	1.96E+02	7.28E+00
7.71E+02	2.33E+01	1.86E+02	7.09E+00
7.59E+02	2.36E+01	1.74E+02	6.84E+00
7.49E+02	2.32E+01	1.64E+02	6.38E+00
7.39E+02	2.28E+01	1.54E+02	6.23E+00
7.27E+02	2.22E+01	1.41E+02	5.65E+00
7.17E+02	2.18E+01	1.31E+02	5.62E+00
7.04E+02	2.14E+01	1.19E+02	5.05E+00
6.95E+02	2.10E+01	1.09E+02	4.72E+00
6.85E+02	2.07E+01	9.92E+01	5.21E+00
6.74E+02	2.04E+01	8.68E+01	4.39E+00
6.62E+02	2.01E+01	7.68E+01	3.75E+00
6.52E+02	1.98E+01	6.45E+01	3.84E+00
6.42E+02	1.95E+01	5.45E+01	4.01E+00
6.30E+02	1.91E+01	4.47E+01	4.17E+00
6.19E+02	1.89E+01	3.22E+01	3.59E+00
6.07E+02	1.91E+01	2.24E+01	2.85E+00
5.97E+02	1.89E+01		
5.87E+02	1.88E+01		
5.75E+02	1.87E+01		

Figure A-2 - Flow Curve for the Salt Slurry Sample at 25°C (Run 3)



Raw Data Salt Slurry Results Run #3 at 25°C

D[1/s]	Tau[Pa]	D[1/s]	Tau[Pa]
0.00E+00	0.00E+00	2.51E+02	6.88E+00
1.45E+00	3.20E-01	2.60E+02	6.96E+00
6.55E+00	4.58E-01	2.72E+02	7.14E+00
1.55E+01	6.76E-01	2.82E+02	7.38E+00
2.38E+01	4.86E-01	2.93E+02	7.60E+00
3.28E+01	4.14E-01	3.05E+02	7.95E+00
4.44E+01	5.89E-01	3.15E+02	8.23E+00
5.83E+01	1.86E+00	3.25E+02	8.54E+00
6.33E+01	1.93E+00	3.35E+02	8.79E+00
7.59E+01	1.79E+00	3.48E+02	9.19E+00
8.59E+01	2.20E+00	3.58E+02	9.43E+00
9.85E+01	2.52E+00	3.69E+02	9.72E+00
1.08E+02	2.66E+00	3.81E+02	1.00E+01
1.18E+02	3.45E+00	3.91E+02	1.03E+01
1.31E+02	3.62E+00	4.00E+02	1.06E+01
1.41E+02	3.81E+00	4.13E+02	1.09E+01
1.51E+02	4.03E+00	4.23E+02	1.12E+01
1.63E+02	4.22E+00	4.36E+02	1.15E+01
1.73E+02	4.48E+00	4.45E+02	1.18E+01
1.85E+02	4.72E+00	4.55E+02	1.21E+01
1.95E+02	4.92E+00	4.67E+02	1.24E+01
2.05E+02	5.21E+00	4.77E+02	1.27E+01
2.18E+02	5.53E+00	4.87E+02	1.29E+01
2.28E+02	6.02E+00	4.99E+02	1.33E+01
2.38E+02	6.50E+00	5.09E+02	1.35E+01

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D[1/s]	Tau[Pa]	D[1/s]	Tau[Pa]
5.22E+02	1.39E+01	1.11E+03	2.95E+01
5.32E+02	1.42E+01	1.12E+03	2.98E+01
5.42E+02	1.45E+01	1.13E+03	3.01E+01
5.52E+02	1.48E+01	1.14E+03	3.06E+01
5.64E+02	1.50E+01	1.15E+03	3.08E+01
5.74E+02	1.52E+01	1.16E+03	3.11E+01
5.86E+02	1.56E+01	1.17E+03	3.13E+01
5.97E+02	1.59E+01	1.18E+03	3.19E+01
6.07E+02	1.62E+01	1.19E+03	3.19E+01
6.19E+02	1.65E+01	1.20E+03	3.21E+01
6.29E+02	1.68E+01	1.21E+03	3.24E+01
6.40E+02	1.71E+01	1.23E+03	3.25E+01
6.50E+02	1.74E+01	1.24E+03	3.30E+01
6.60E+02	1.77E+01	1.25E+03	3.32E+01
6.73E+02	1.80E+01	1.26E+03	3.36E+01
6.82E+02	1.82E+01	1.27E+03	3.39E+01
6.95E+02	1.86E+01	1.28E+03	3.43E+01
7.05E+02	1.90E+01	1.29E+03	3.45E+01
7.15E+02	1.92E+01	1.30E+03	3.49E+01
7.28E+02	1.96E+01	1.31E+03	3.52E+01
7.37E+02	2.04E+01	1.32E+03	3.55E+01
7.48E+02	2.03E+01	1.33E+03	3.58E+01
7.60E+02	2.05E+01	1.35E+03	3.61E+01
7.65E+02	2.06E+01	1.36E+03	3.65E+01
7.88E+02	2.15E+01	1.37E+03	3.67E+01
7.91E+02	2.16E+01	1.38E+03	3.69E+01
7.97E+02	2.17E+01	1.39E+03	3.72E+01
8.10E+02	2.18E+01	1.40E+03	3.76E+01
8.24E+02	2.21E+01	1.41E+03	3.79E+01
8.32E+02	2.23E+01	1.42E+03	3.82E+01
8.43E+02	2.27E+01	1.43E+03	3.85E+01
8.57E+02	2.31E+01	1.44E+03	3.87E+01
8.67E+02	2.33E+01	1.45E+03	3.89E+01
8.79E+02	2.36E+01	1.47E+03	3.93E+01
8.89E+02	2.38E+01	1.47E+03	3.94E+01
8.99E+02	2.40E+01	1.49E+03	3.97E+01
9.11E+02	2.43E+01	1.50E+03	3.99E+01
9.21E+02	2.47E+01	1.51E+03	4.02E+01
9.33E+02	2.49E+01	1.52E+03	4.05E+01
9.44E+02	2.52E+01	1.53E+03	4.08E+01
9.54E+02	2.55E+01	1.54E+03	4.11E+01
9.66E+02	2.58E+01	1.55E+03	4.14E+01
9.76E+02	2.61E+01	1.56E+03	4.18E+01
9.88E+02	2.65E+01	1.57E+03	4.20E+01
9.98E+02	2.67E+01	1.58E+03	4.23E+01
1.01E+03	2.70E+01	1.60E+03	4.26E+01
1.02E+03	2.73E+01	1.61E+03	4.29E+01
1.03E+03	2.75E+01	1.62E+03	4.33E+01
1.04E+03	2.78E+01	1.63E+03	4.36E+01
1.05E+03	2.80E+01	1.64E+03	4.39E+01
1.06E+03	2.83E+01	1.65E+03	4.43E+01
1.07E+03	2.86E+01	1.66E+03	4.45E+01
1.09E+03	2.90E+01	1.67E+03	4.48E+01
1.09E+03	2.93E+01	1.68E+03	4.52E+01

SRT-GPD-2003-00072, Rev. 1

D[1/s]	Tau[Pa]	D[1/s]	Tau[Pa]
1.69E+03	4.54E+01	2.28E+03	6.16E+01
1.70E+03	4.57E+01	2.29E+03	6.19E+01
1.71E+03	4.60E+01	2.30E+03	6.22E+01
1.72E+03	4.63E+01	2.31E+03	6.25E+01
1.74E+03	4.66E+01	2.32E+03	6.28E+01
1.75E+03	4.69E+01	2.33E+03	6.32E+01
1.76E+03	4.72E+01	2.34E+03	6.34E+01
1.77E+03	4.76E+01	2.35E+03	6.38E+01
1.78E+03	4.79E+01	2.36E+03	6.40E+01
1.79E+03	4.83E+01	2.37E+03	6.44E+01
1.80E+03	4.85E+01	2.39E+03	6.47E+01
1.81E+03	4.87E+01	2.40E+03	6.49E+01
1.82E+03	4.90E+01	2.41E+03	6.53E+01
1.83E+03	4.93E+01	2.42E+03	6.56E+01
1.84E+03	4.96E+01	2.43E+03	6.59E+01
1.86E+03	4.99E+01	2.44E+03	6.62E+01
1.87E+03	5.03E+01	2.45E+03	6.65E+01
1.88E+03	5.06E+01	2.46E+03	6.68E+01
1.89E+03	5.09E+01	2.47E+03	6.70E+01
1.90E+03	5.12E+01	2.48E+03	6.73E+01
1.91E+03	5.15E+01	2.50E+03	6.77E+01
1.92E+03	5.18E+01	2.51E+03	6.79E+01
1.93E+03	5.20E+01	2.51E+03	6.81E+01
1.94E+03	5.24E+01	2.53E+03	6.85E+01
1.95E+03	5.26E+01	2.54E+03	6.89E+01
1.96E+03	5.30E+01	2.55E+03	6.91E+01
1.97E+03	5.33E+01	2.56E+03	6.94E+01
1.99E+03	5.36E+01	2.57E+03	6.98E+01
2.00E+03	5.39E+01	2.58E+03	7.01E+01
2.01E+03	5.42E+01	2.59E+03	7.04E+01
2.02E+03	5.45E+01	2.60E+03	7.07E+01
2.03E+03	5.48E+01	2.61E+03	7.10E+01
2.04E+03	5.52E+01	2.62E+03	7.13E+01
2.05E+03	5.54E+01	2.64E+03	7.15E+01
2.06E+03	5.57E+01	2.65E+03	7.17E+01
2.07E+03	5.60E+01	2.66E+03	7.20E+01
2.08E+03	5.63E+01	2.67E+03	7.22E+01
2.09E+03	5.66E+01	2.68E+03	7.25E+01
2.10E+03	5.69E+01	2.68E+03	7.26E+01
2.11E+03	5.72E+01	2.69E+03	7.26E+01
2.13E+03	5.75E+01	2.69E+03	7.26E+01
2.14E+03	5.78E+01	2.69E+03	7.27E+01
2.15E+03	5.81E+01	2.69E+03	7.27E+01
2.16E+03	5.83E+01	2.69E+03	7.28E+01
2.17E+03	5.86E+01	2.69E+03	7.28E+01
2.18E+03	5.90E+01	2.69E+03	7.29E+01
2.19E+03	5.93E+01	2.69E+03	7.29E+01
2.20E+03	5.95E+01	2.69E+03	7.29E+01
2.21E+03	5.99E+01	2.69E+03	7.30E+01
2.22E+03	6.01E+01	2.69E+03	7.30E+01
2.24E+03	6.05E+01	2.70E+03	7.30E+01
2.25E+03	6.07E+01	2.70E+03	7.30E+01
2.25E+03	6.10E+01	2.70E+03	7.30E+01
2.27E+03	6.13E+01	2.70E+03	7.30E+01

SRT-GPD-2003-00072, Rev. 1

D[1/s]	Tau[Pa]	D[1/s]	Tau[Pa]
2.70E+03	7.31E+01	2.70E+03	7.33E+01
2.70E+03	7.31E+01	2.70E+03	7.33E+01
2.70E+03	7.31E+01	2.70E+03	7.34E+01
2.70E+03	7.31E+01	2.70E+03	7.33E+01
2.70E+03	7.31E+01	2.70E+03	7.33E+01
2.70E+03	7.32E+01	2.70E+03	7.34E+01
2.70E+03	7.31E+01	2.70E+03	7.34E+01
2.70E+03	7.32E+01	2.70E+03	7.34E+01
2.70E+03	7.32E+01	2.70E+03	7.33E+01
2.70E+03	7.32E+01	2.70E+03	7.33E+01
2.70E+03	7.32E+01	2.70E+03	7.33E+01
2.70E+03	7.32E+01	2.70E+03	7.33E+01
2.70E+03	7.33E+01	2.70E+03	7.33E+01
2.70E+03	7.33E+01	2.70E+03	7.33E+01
2.70E+03	7.33E+01	2.70E+03	7.33E+01
2.70E+03	7.33E+01	2.70E+03	7.34E+01
2.70E+03	7.33E+01	2.70E+03	7.33E+01
2.70E+03	7.33E+01	2.70E+03	7.33E+01
2.70E+03	7.33E+01	2.70E+03	7.33E+01
2.70E+03	7.33E+01	2.70E+03	7.33E+01
2.70E+03	7.33E+01	2.70E+03	7.33E+01
2.70E+03	7.33E+01	2.70E+03	7.33E+01
2.70E+03	7.33E+01	2.70E+03	7.33E+01
2.70E+03	7.33E+01	2.70E+03	7.33E+01
2.70E+03	7.33E+01	2.70E+03	7.33E+01
2.70E+03	7.33E+01	2.70E+03	7.33E+01
2.70E+03	7.33E+01	2.70E+03	7.33E+01
2.70E+03	7.33E+01	2.70E+03	7.33E+01
2.70E+03	7.33E+01	2.70E+03	7.34E+01
2.70E+03	7.33E+01	2.70E+03	7.33E+01
2.70E+03	7.33E+01	2.70E+03	7.33E+01
2.70E+03	7.33E+01	2.70E+03	7.33E+01
2.70E+03	7.33E+01	2.70E+03	7.33E+01
2.70E+03	7.33E+01	2.70E+03	7.33E+01
2.70E+03	7.33E+01	2.70E+03	7.33E+01
2.70E+03	7.33E+01	2.70E+03	7.33E+01
2.70E+03	7.33E+01	2.70E+03	7.33E+01
2.70E+03	7.33E+01	2.70E+03	7.33E+01
2.70E+03	7.33E+01	2.70E+03	7.33E+01
2.70E+03	7.33E+01	2.70E+03	7.33E+01
2.70E+03	7.33E+01	2.70E+03	7.33E+01
2.70E+03	7.33E+01	2.70E+03	7.33E+01
2.70E+03	7.33E+01	2.70E+03	7.33E+01
2.70E+03	7.33E+01	2.70E+03	7.33E+01
2.70E+03	7.33E+01	2.70E+03	7.33E+01
2.70E+03	7.33E+01	2.70E+03	7.33E+01
2.70E+03	7.33E+01	2.70E+03	7.33E+01
2.70E+03	7.33E+01	2.70E+03	7.33E+01
2.70E+03	7.33E+01	2.70E+03	7.33E+01
2.70E+03	7.33E+01	2.70E+03	7.33E+01
2.70E+03	7.33E+01	2.70E+03	7.33E+01
2.70E+03	7.33E+01	2.70E+03	7.33E+01
2.70E+03	7.33E+01	2.70E+03	7.33E+01
2.70E+03	7.33E+01	2.70E+03	7.33E+01
2.70E+03	7.33E+01	2.70E+03	7.33E+01

SRT-GPD-2003-00072, Rev. 1

D[1/s]	Tau[Pa]	D[1/s]	Tau[Pa]
2.70E+03	7.33E+01	2.70E+03	7.34E+01
2.70E+03	7.33E+01	2.70E+03	7.34E+01
2.70E+03	7.33E+01	2.70E+03	7.34E+01
2.70E+03	7.33E+01	2.70E+03	7.34E+01
2.70E+03	7.33E+01	2.70E+03	7.34E+01
2.70E+03	7.33E+01	2.70E+03	7.34E+01
2.70E+03	7.33E+01	2.70E+03	7.34E+01
2.70E+03	7.33E+01	2.70E+03	7.33E+01
2.70E+03	7.33E+01	2.70E+03	7.34E+01
2.70E+03	7.33E+01	2.70E+03	7.33E+01
2.70E+03	7.33E+01	2.70E+03	7.33E+01
2.70E+03	7.33E+01	2.70E+03	7.33E+01
2.70E+03	7.33E+01	2.70E+03	7.33E+01
2.70E+03	7.34E+01	2.70E+03	7.33E+01
2.70E+03	7.34E+01	2.70E+03	7.33E+01
2.70E+03	7.34E+01	2.70E+03	7.33E+01
2.70E+03	7.34E+01	2.70E+03	7.33E+01
2.70E+03	7.34E+01	2.70E+03	7.33E+01
2.70E+03	7.34E+01	2.70E+03	7.33E+01
2.70E+03	7.33E+01	2.70E+03	7.34E+01
2.70E+03	7.34E+01	2.70E+03	7.33E+01
2.70E+03	7.33E+01	2.70E+03	7.33E+01
2.70E+03	7.34E+01	2.70E+03	7.33E+01
2.70E+03	7.33E+01	2.70E+03	7.33E+01
2.70E+03	7.33E+01	2.70E+03	7.33E+01
2.70E+03	7.33E+01	2.70E+03	7.33E+01
2.70E+03	7.33E+01	2.70E+03	7.34E+01
2.70E+03	7.33E+01	2.70E+03	7.33E+01
2.70E+03	7.33E+01	2.70E+03	7.33E+01
2.70E+03	7.33E+01	2.70E+03	7.34E+01
2.70E+03	7.33E+01	2.70E+03	7.33E+01
2.70E+03	7.33E+01	2.70E+03	7.34E+01
2.70E+03	7.33E+01	2.70E+03	7.33E+01
2.70E+03	7.33E+01	2.70E+03	7.34E+01
2.70E+03	7.33E+01	2.70E+03	7.33E+01
2.70E+03	7.33E+01	2.70E+03	7.33E+01
2.70E+03	7.33E+01	2.70E+03	7.33E+01
2.70E+03	7.33E+01	2.70E+03	7.33E+01
2.70E+03	7.34E+01	2.70E+03	7.34E+01
2.70E+03	7.34E+01	2.70E+03	7.33E+01
2.70E+03	7.34E+01	2.70E+03	7.34E+01
2.70E+03	7.33E+01	2.70E+03	7.34E+01
2.70E+03	7.33E+01	2.70E+03	7.33E+01
2.70E+03	7.33E+01	2.70E+03	7.33E+01
2.70E+03	7.34E+01	2.70E+03	7.33E+01
2.70E+03	7.34E+01	2.70E+03	7.33E+01
2.70E+03	7.34E+01	2.70E+03	7.33E+01
2.70E+03	7.33E+01	2.70E+03	7.34E+01
2.70E+03	7.33E+01	2.70E+03	7.33E+01
2.70E+03	7.34E+01	2.70E+03	7.33E+01
2.70E+03	7.34E+01	2.70E+03	7.34E+01
2.70E+03	7.34E+01	2.70E+03	7.33E+01
2.70E+03	7.34E+01	2.70E+03	7.34E+01
2.70E+03	7.34E+01	2.70E+03	7.33E+01

SRT-GPD-2003-00072, Rev. 1

D[1/s]	Tau[Pa]	D[1/s]	Tau[Pa]
2.70E+03	7.33E+01	2.33E+03	6.35E+01
2.70E+03	7.33E+01	2.32E+03	6.32E+01
2.70E+03	7.33E+01	2.31E+03	6.29E+01
2.70E+03	7.34E+01	2.30E+03	6.26E+01
2.70E+03	7.33E+01	2.29E+03	6.23E+01
2.70E+03	7.33E+01	2.28E+03	6.19E+01
2.70E+03	7.34E+01	2.27E+03	6.17E+01
2.70E+03	7.33E+01	2.26E+03	6.15E+01
2.70E+03	7.33E+01	2.25E+03	6.11E+01
2.70E+03	7.34E+01	2.24E+03	6.08E+01
2.70E+03	7.34E+01	2.22E+03	6.06E+01
2.70E+03	7.34E+01	2.21E+03	6.03E+01
2.70E+03	7.34E+01	2.20E+03	5.99E+01
2.70E+03	7.33E+01	2.19E+03	5.97E+01
2.70E+03	7.33E+01	2.18E+03	5.93E+01
2.70E+03	7.33E+01	2.17E+03	5.91E+01
2.70E+03	7.33E+01	2.16E+03	5.88E+01
2.70E+03	7.33E+01	2.15E+03	5.86E+01
2.70E+03	7.33E+01	2.14E+03	5.83E+01
2.70E+03	7.33E+01	2.13E+03	5.81E+01
2.69E+03	7.31E+01	2.12E+03	5.77E+01
2.69E+03	7.29E+01	2.11E+03	5.74E+01
2.68E+03	7.27E+01	2.09E+03	5.70E+01
2.67E+03	7.25E+01	2.08E+03	5.67E+01
2.66E+03	7.22E+01	2.07E+03	5.65E+01
2.65E+03	7.19E+01	2.06E+03	5.62E+01
2.64E+03	7.16E+01	2.05E+03	5.58E+01
2.62E+03	7.13E+01	2.04E+03	5.56E+01
2.61E+03	7.10E+01	2.03E+03	5.53E+01
2.60E+03	7.06E+01	2.02E+03	5.51E+01
2.59E+03	7.04E+01	2.01E+03	5.48E+01
2.58E+03	7.01E+01	2.00E+03	5.46E+01
2.57E+03	7.00E+01	1.99E+03	5.43E+01
2.56E+03	6.96E+01	1.97E+03	5.39E+01
2.55E+03	6.93E+01	1.96E+03	5.36E+01
2.54E+03	6.90E+01	1.95E+03	5.33E+01
2.53E+03	6.87E+01	1.94E+03	5.30E+01
2.52E+03	6.83E+01	1.93E+03	5.27E+01
2.51E+03	6.80E+01	1.92E+03	5.25E+01
2.50E+03	6.77E+01	1.91E+03	5.22E+01
2.48E+03	6.75E+01	1.90E+03	5.19E+01
2.47E+03	6.72E+01	1.89E+03	5.17E+01
2.46E+03	6.69E+01	1.88E+03	5.13E+01
2.45E+03	6.66E+01	1.87E+03	5.10E+01
2.44E+03	6.63E+01	1.86E+03	5.08E+01
2.43E+03	6.61E+01	1.84E+03	5.05E+01
2.42E+03	6.57E+01	1.83E+03	5.02E+01
2.40E+03	6.53E+01	1.82E+03	4.99E+01
2.40E+03	6.53E+01	1.81E+03	4.96E+01
2.39E+03	6.51E+01	1.80E+03	4.93E+01
2.38E+03	6.46E+01	1.79E+03	4.90E+01
2.37E+03	6.44E+01	1.78E+03	4.88E+01
2.35E+03	6.39E+01	1.77E+03	4.84E+01
2.35E+03	6.38E+01	1.76E+03	4.82E+01

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D[1/s]	Tau[Pa]	D[1/s]	Tau[Pa]
1.75E+03	4.79E+01	1.16E+03	3.23E+01
1.74E+03	4.75E+01	1.15E+03	3.19E+01
1.73E+03	4.73E+01	1.14E+03	3.15E+01
1.72E+03	4.70E+01	1.13E+03	3.12E+01
1.70E+03	4.67E+01	1.12E+03	3.09E+01
1.69E+03	4.65E+01	1.11E+03	3.06E+01
1.68E+03	4.61E+01	1.10E+03	3.02E+01
1.67E+03	4.59E+01	1.09E+03	3.01E+01
1.66E+03	4.56E+01	1.08E+03	2.97E+01
1.65E+03	4.53E+01	1.06E+03	2.94E+01
1.64E+03	4.49E+01	1.05E+03	2.91E+01
1.63E+03	4.45E+01	1.04E+03	2.89E+01
1.62E+03	4.44E+01	1.03E+03	2.85E+01
1.61E+03	4.45E+01	1.02E+03	2.82E+01
1.59E+03	4.41E+01	1.01E+03	2.79E+01
1.58E+03	4.37E+01	9.99E+02	2.76E+01
1.57E+03	4.33E+01	9.89E+02	2.73E+01
1.56E+03	4.31E+01	9.77E+02	2.71E+01
1.55E+03	4.28E+01	9.67E+02	2.68E+01
1.54E+03	4.24E+01	9.54E+02	2.64E+01
1.53E+03	4.22E+01	9.44E+02	2.61E+01
1.52E+03	4.19E+01	9.34E+02	2.59E+01
1.51E+03	4.17E+01	9.22E+02	2.55E+01
1.50E+03	4.12E+01	9.11E+02	2.51E+01
1.49E+03	4.10E+01	9.02E+02	2.48E+01
1.47E+03	4.07E+01	8.89E+02	2.45E+01
1.46E+03	4.03E+01	8.79E+02	2.42E+01
1.45E+03	4.01E+01	8.69E+02	2.39E+01
1.44E+03	3.98E+01	8.57E+02	2.36E+01
1.43E+03	3.95E+01	8.47E+02	2.33E+01
1.42E+03	3.92E+01	8.37E+02	2.30E+01
1.41E+03	3.91E+01	8.24E+02	2.27E+01
1.40E+03	3.89E+01	8.14E+02	2.25E+01
1.39E+03	3.85E+01	8.05E+02	2.21E+01
1.38E+03	3.82E+01	7.92E+02	2.18E+01
1.37E+03	3.79E+01	7.82E+02	2.15E+01
1.36E+03	3.75E+01	7.72E+02	2.12E+01
1.35E+03	3.72E+01	7.59E+02	2.09E+01
1.33E+03	3.69E+01	7.49E+02	2.06E+01
1.32E+03	3.67E+01	7.37E+02	2.02E+01
1.31E+03	3.65E+01	7.27E+02	2.00E+01
1.30E+03	3.61E+01	7.17E+02	1.97E+01
1.29E+03	3.59E+01	7.07E+02	1.94E+01
1.28E+03	3.53E+01	6.96E+02	1.91E+01
1.27E+03	3.51E+01	6.84E+02	1.87E+01
1.26E+03	3.49E+01	6.74E+02	1.84E+01
1.25E+03	3.48E+01	6.61E+02	1.81E+01
1.24E+03	3.45E+01	6.52E+02	1.79E+01
1.23E+03	3.42E+01	6.41E+02	1.76E+01
1.22E+03	3.41E+01	6.29E+02	1.72E+01
1.21E+03	3.37E+01	6.19E+02	1.71E+01
1.19E+03	3.31E+01	6.08E+02	1.68E+01
1.18E+03	3.29E+01	5.97E+02	1.64E+01
1.17E+03	3.28E+01	5.87E+02	1.61E+01

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D[1/s]	Tau[Pa]	D[1/s]	Tau[Pa]
5.75E+02	1.57E+01	2.95E+02	7.87E+00
5.65E+02	1.55E+01	2.82E+02	7.54E+00
5.53E+02	1.51E+01	2.72E+02	7.26E+00
5.43E+02	1.48E+01	2.60E+02	6.90E+00
5.33E+02	1.45E+01	2.52E+02	6.63E+00
5.20E+02	1.42E+01	2.39E+02	6.29E+00
5.11E+02	1.39E+01	2.28E+02	6.01E+00
5.01E+02	1.37E+01	2.18E+02	5.78E+00
4.88E+02	1.33E+01	2.06E+02	5.42E+00
4.79E+02	1.30E+01	1.96E+02	5.06E+00
4.66E+02	1.27E+01	1.86E+02	4.86E+00
4.56E+02	1.24E+01	1.74E+02	4.54E+00
4.46E+02	1.22E+01	1.64E+02	4.16E+00
4.34E+02	1.18E+01	1.54E+02	3.95E+00
4.24E+02	1.16E+01	1.41E+02	3.49E+00
4.12E+02	1.12E+01	1.31E+02	3.36E+00
4.02E+02	1.09E+01	1.19E+02	2.94E+00
3.92E+02	1.06E+01	1.09E+02	2.53E+00
3.80E+02	1.03E+01	9.92E+01	2.54E+00
3.70E+02	1.00E+01	8.67E+01	2.02E+00
3.60E+02	9.72E+00	7.73E+01	1.56E+00
3.47E+02	9.40E+00	6.50E+01	1.31E+00
3.37E+02	9.14E+00	5.51E+01	1.67E+00
3.27E+02	8.83E+00	4.25E+01	1.30E+00
3.15E+02	8.46E+00	2.98E+01	7.25E-01
3.05E+02	8.16E+00	2.23E+01	3.26E-01

Figure 2 Raw Data Salt Slurry Results at 35°C

D[1/s]	Tau[Pa]	D[1/s]	Tau[Pa]
0.00E+00	4.24E-02	2.51E+02	6.63E+00
1.45E+00	5.40E-01	2.60E+02	6.76E+00
6.47E+00	8.61E-01	2.72E+02	6.94E+00
1.55E+01	1.21E+00	2.82E+02	7.11E+00
2.78E+01	1.93E+00	2.92E+02	7.29E+00
3.25E+01	2.29E+00	3.05E+02	7.62E+00
4.45E+01	5.71E+00	3.15E+02	7.85E+00
5.43E+01	5.56E+00	3.25E+02	8.06E+00
6.40E+01	6.47E+00	3.37E+02	8.44E+00
7.64E+01	5.97E+00	3.47E+02	8.69E+00
8.66E+01	5.10E+00	3.57E+02	8.97E+00
9.65E+01	4.36E+00	3.70E+02	9.17E+00
1.09E+02	4.70E+00	3.79E+02	9.43E+00
1.19E+02	4.56E+00	3.92E+02	9.62E+00
1.31E+02	4.38E+00	4.02E+02	9.87E+00
1.41E+02	4.39E+00	4.11E+02	1.00E+01
1.51E+02	6.45E+00	4.24E+02	1.03E+01
1.61E+02	5.72E+00	4.34E+02	1.06E+01
1.74E+02	5.85E+00	4.46E+02	1.08E+01
1.84E+02	7.96E+00	4.56E+02	1.11E+01
1.96E+02	7.96E+00	4.66E+02	1.13E+01
2.06E+02	7.31E+00	4.78E+02	1.16E+01
2.16E+02	6.75E+00	4.88E+02	1.17E+01
2.29E+02	6.61E+00	4.98E+02	1.20E+01
2.39E+02	6.50E+00	5.10E+02	1.22E+01

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D[1/s]	Tau[Pa]	D[1/s]	Tau[Pa]
5.20E+02	1.25E+01	1.11E+03	2.56E+01
5.33E+02	1.28E+01	1.12E+03	2.58E+01
5.42E+02	1.30E+01	1.13E+03	2.60E+01
5.53E+02	1.32E+01	1.14E+03	2.62E+01
5.65E+02	1.34E+01	1.15E+03	2.64E+01
5.75E+02	1.36E+01	1.16E+03	2.67E+01
5.86E+02	1.38E+01	1.17E+03	2.69E+01
5.98E+02	1.41E+01	1.18E+03	2.71E+01
6.08E+02	1.44E+01	1.19E+03	2.74E+01
6.18E+02	1.47E+01	1.20E+03	2.77E+01
6.28E+02	1.49E+01	1.21E+03	2.79E+01
6.41E+02	1.52E+01	1.23E+03	2.83E+01
6.50E+02	1.54E+01	1.24E+03	2.92E+01
6.60E+02	1.55E+01	1.25E+03	2.94E+01
6.73E+02	1.57E+01	1.26E+03	2.94E+01
6.82E+02	1.62E+01	1.27E+03	2.95E+01
6.95E+02	1.65E+01	1.28E+03	2.97E+01
7.05E+02	1.67E+01	1.29E+03	2.98E+01
7.15E+02	1.69E+01	1.30E+03	3.00E+01
7.26E+02	1.71E+01	1.31E+03	3.02E+01
7.36E+02	1.78E+01	1.32E+03	3.05E+01
7.48E+02	1.79E+01	1.33E+03	3.07E+01
7.58E+02	1.80E+01	1.34E+03	3.11E+01
7.71E+02	1.81E+01	1.35E+03	3.13E+01
7.81E+02	1.84E+01	1.37E+03	3.15E+01
7.91E+02	1.86E+01	1.38E+03	3.18E+01
8.03E+02	1.89E+01	1.39E+03	3.20E+01
8.13E+02	1.91E+01	1.40E+03	3.23E+01
8.25E+02	1.93E+01	1.41E+03	3.25E+01
8.35E+02	1.96E+01	1.42E+03	3.28E+01
8.45E+02	1.98E+01	1.43E+03	3.30E+01
8.58E+02	2.00E+01	1.44E+03	3.31E+01
8.67E+02	2.00E+01	1.45E+03	3.32E+01
8.77E+02	2.03E+01	1.47E+03	3.36E+01
8.89E+02	2.05E+01	1.48E+03	3.38E+01
8.99E+02	2.09E+01	1.49E+03	3.39E+01
9.12E+02	2.11E+01	1.50E+03	3.44E+01
9.22E+02	2.15E+01	1.51E+03	3.46E+01
9.32E+02	2.19E+01	1.52E+03	3.48E+01
9.44E+02	2.21E+01	1.53E+03	3.51E+01
9.55E+02	2.24E+01	1.54E+03	3.53E+01
9.64E+02	2.26E+01	1.55E+03	3.57E+01
9.77E+02	2.28E+01	1.56E+03	3.64E+01
9.87E+02	2.31E+01	1.57E+03	3.65E+01
9.98E+02	2.33E+01	1.58E+03	3.67E+01
1.01E+03	2.34E+01	1.59E+03	3.69E+01
1.02E+03	2.47E+01	1.61E+03	3.71E+01
1.03E+03	2.46E+01	1.62E+03	3.73E+01
1.04E+03	2.45E+01	1.63E+03	3.76E+01
1.05E+03	2.45E+01	1.64E+03	3.79E+01
1.06E+03	2.46E+01	1.65E+03	3.80E+01
1.07E+03	2.48E+01	1.66E+03	3.85E+01
1.09E+03	2.51E+01	1.67E+03	3.87E+01
1.10E+03	2.53E+01	1.68E+03	3.88E+01

SRT-GPD-2003-00072, Rev. 1

D[1/s]	Tau[Pa]	D[1/s]	Tau[Pa]
1.69E+03	3.92E+01	2.28E+03	5.34E+01
1.70E+03	3.94E+01	2.29E+03	5.36E+01
1.71E+03	3.97E+01	2.30E+03	5.39E+01
1.73E+03	4.00E+01	2.31E+03	5.41E+01
1.74E+03	4.01E+01	2.32E+03	5.44E+01
1.75E+03	4.04E+01	2.33E+03	5.46E+01
1.76E+03	4.06E+01	2.34E+03	5.49E+01
1.77E+03	4.09E+01	2.35E+03	5.52E+01
1.78E+03	4.11E+01	2.36E+03	5.54E+01
1.79E+03	4.13E+01	2.37E+03	5.57E+01
1.80E+03	4.16E+01	2.39E+03	5.59E+01
1.81E+03	4.19E+01	2.40E+03	5.61E+01
1.82E+03	4.22E+01	2.41E+03	5.65E+01
1.83E+03	4.25E+01	2.42E+03	5.66E+01
1.84E+03	4.28E+01	2.43E+03	5.69E+01
1.85E+03	4.30E+01	2.44E+03	5.72E+01
1.87E+03	4.33E+01	2.45E+03	5.75E+01
1.88E+03	4.35E+01	2.46E+03	5.78E+01
1.89E+03	4.37E+01	2.47E+03	5.79E+01
1.90E+03	4.41E+01	2.48E+03	5.81E+01
1.91E+03	4.45E+01	2.50E+03	5.85E+01
1.92E+03	4.47E+01	2.51E+03	5.86E+01
1.93E+03	4.50E+01	2.52E+03	5.89E+01
1.94E+03	4.51E+01	2.53E+03	5.93E+01
1.95E+03	4.54E+01	2.54E+03	5.97E+01
1.96E+03	4.57E+01	2.55E+03	5.99E+01
1.97E+03	4.59E+01	2.56E+03	6.02E+01
1.99E+03	4.61E+01	2.57E+03	6.03E+01
2.00E+03	4.64E+01	2.58E+03	6.06E+01
2.01E+03	4.65E+01	2.59E+03	6.09E+01
2.02E+03	4.69E+01	2.60E+03	6.12E+01
2.03E+03	4.72E+01	2.61E+03	6.15E+01
2.04E+03	4.74E+01	2.62E+03	6.18E+01
2.05E+03	4.78E+01	2.63E+03	6.20E+01
2.06E+03	4.79E+01	2.65E+03	6.22E+01
2.07E+03	4.82E+01	2.66E+03	6.25E+01
2.08E+03	4.85E+01	2.67E+03	6.27E+01
2.09E+03	4.88E+01	2.68E+03	6.30E+01
2.10E+03	4.90E+01	2.68E+03	6.31E+01
2.11E+03	4.93E+01	2.69E+03	6.32E+01
2.13E+03	4.96E+01	2.69E+03	6.32E+01
2.14E+03	4.99E+01	2.69E+03	6.32E+01
2.15E+03	5.01E+01	2.69E+03	6.33E+01
2.16E+03	5.04E+01	2.69E+03	6.33E+01
2.17E+03	5.07E+01	2.69E+03	6.33E+01
2.18E+03	5.09E+01	2.69E+03	6.33E+01
2.19E+03	5.12E+01	2.69E+03	6.33E+01
2.20E+03	5.15E+01	2.69E+03	6.34E+01
2.21E+03	5.17E+01	2.69E+03	6.34E+01
2.22E+03	5.20E+01	2.69E+03	6.34E+01
2.23E+03	5.23E+01	2.70E+03	6.34E+01
2.24E+03	5.26E+01	2.70E+03	6.34E+01
2.25E+03	5.28E+01	2.70E+03	6.34E+01
2.27E+03	5.32E+01	2.70E+03	6.34E+01

D[1/s]	Tau[Pa]	D[1/s]	Tau[Pa]
2.70E+03	6.34E+01	2.70E+03	6.34E+01
2.70E+03	6.35E+01	2.70E+03	6.34E+01
2.70E+03	6.35E+01	2.70E+03	6.35E+01
2.70E+03	6.35E+01	2.70E+03	6.35E+01
2.70E+03	6.34E+01	2.70E+03	6.35E+01
2.70E+03	6.35E+01	2.70E+03	6.35E+01
2.70E+03	6.34E+01	2.70E+03	6.35E+01
2.70E+03	6.34E+01	2.70E+03	6.35E+01
2.70E+03	6.34E+01	2.70E+03	6.35E+01
2.70E+03	6.34E+01	2.70E+03	6.35E+01
2.70E+03	6.34E+01	2.70E+03	6.35E+01
2.70E+03	6.34E+01	2.70E+03	6.35E+01
2.70E+03	6.34E+01	2.70E+03	6.35E+01
2.70E+03	6.34E+01	2.70E+03	6.34E+01
2.70E+03	6.34E+01	2.70E+03	6.34E+01
2.70E+03	6.34E+01	2.70E+03	6.35E+01
2.70E+03	6.34E+01	2.70E+03	6.35E+01
2.70E+03	6.33E+01	2.70E+03	6.35E+01
2.70E+03	6.33E+01	2.70E+03	6.34E+01
2.70E+03	6.34E+01	2.70E+03	6.34E+01
2.70E+03	6.34E+01	2.70E+03	6.34E+01
2.70E+03	6.33E+01	2.70E+03	6.34E+01
2.70E+03	6.33E+01	2.70E+03	6.34E+01
2.70E+03	6.34E+01	2.70E+03	6.34E+01
2.70E+03	6.34E+01	2.70E+03	6.34E+01
2.70E+03	6.34E+01	2.70E+03	6.34E+01
2.70E+03	6.33E+01	2.70E+03	6.34E+01
2.70E+03	6.33E+01	2.70E+03	6.33E+01
2.70E+03	6.34E+01	2.70E+03	6.33E+01
2.70E+03	6.34E+01	2.70E+03	6.33E+01
2.70E+03	6.34E+01	2.70E+03	6.33E+01
2.70E+03	6.34E+01	2.70E+03	6.33E+01
2.70E+03	6.34E+01	2.70E+03	6.33E+01
2.70E+03	6.34E+01	2.70E+03	6.33E+01
2.70E+03	6.34E+01	2.70E+03	6.33E+01
2.70E+03	6.34E+01	2.70E+03	6.33E+01
2.70E+03	6.33E+01	2.70E+03	6.33E+01
2.70E+03	6.33E+01	2.70E+03	6.33E+01
2.70E+03	6.33E+01	2.70E+03	6.33E+01
2.70E+03	6.33E+01	2.70E+03	6.33E+01
2.70E+03	6.33E+01	2.70E+03	6.32E+01
2.70E+03	6.33E+01	2.70E+03	6.32E+01
2.70E+03	6.33E+01	2.70E+03	6.31E+01
2.70E+03	6.33E+01	2.70E+03	6.31E+01
2.70E+03	6.34E+01	2.70E+03	6.31E+01
2.70E+03	6.34E+01	2.70E+03	6.31E+01
2.70E+03	6.34E+01	2.70E+03	6.32E+01
2.70E+03	6.34E+01	2.70E+03	6.32E+01
2.70E+03	6.34E+01	2.70E+03	6.32E+01
2.70E+03	6.34E+01	2.70E+03	6.31E+01
2.70E+03	6.34E+01	2.70E+03	6.31E+01
2.70E+03	6.34E+01	2.70E+03	6.31E+01
2.70E+03	6.34E+01	2.70E+03	6.31E+01
2.70E+03	6.34E+01	2.70E+03	6.32E+01

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D[1/s]	Tau[Pa]	D[1/s]	Tau[Pa]
2.70E+03	6.32E+01	2.70E+03	6.33E+01
2.70E+03	6.32E+01	2.70E+03	6.33E+01
2.70E+03	6.32E+01	2.70E+03	6.33E+01
2.70E+03	6.33E+01	2.70E+03	6.33E+01
2.70E+03	6.33E+01	2.70E+03	6.33E+01
2.70E+03	6.33E+01	2.70E+03	6.33E+01
2.70E+03	6.33E+01	2.70E+03	6.33E+01
2.70E+03	6.33E+01	2.70E+03	6.33E+01
2.70E+03	6.33E+01	2.70E+03	6.33E+01
2.70E+03	6.33E+01	2.70E+03	6.34E+01
2.70E+03	6.33E+01	2.70E+03	6.33E+01
2.70E+03	6.33E+01	2.70E+03	6.33E+01
2.70E+03	6.33E+01	2.70E+03	6.34E+01
2.70E+03	6.33E+01	2.70E+03	6.33E+01
2.70E+03	6.32E+01	2.70E+03	6.34E+01
2.70E+03	6.32E+01	2.70E+03	6.33E+01
2.70E+03	6.33E+01	2.70E+03	6.33E+01
2.70E+03	6.32E+01	2.70E+03	6.33E+01
2.70E+03	6.32E+01	2.70E+03	6.33E+01
2.70E+03	6.32E+01	2.70E+03	6.33E+01
2.70E+03	6.31E+01	2.70E+03	6.33E+01
2.70E+03	6.31E+01	2.70E+03	6.33E+01
2.70E+03	6.31E+01	2.70E+03	6.33E+01
2.70E+03	6.31E+01	2.70E+03	6.33E+01
2.70E+03	6.32E+01	2.70E+03	6.33E+01
2.70E+03	6.31E+01	2.70E+03	6.33E+01
2.70E+03	6.31E+01	2.70E+03	6.33E+01
2.70E+03	6.31E+01	2.70E+03	6.33E+01
2.70E+03	6.31E+01	2.70E+03	6.33E+01
2.70E+03	6.32E+01	2.70E+03	6.32E+01
2.70E+03	6.32E+01	2.70E+03	6.32E+01
2.70E+03	6.32E+01	2.70E+03	6.32E+01
2.70E+03	6.32E+01	2.70E+03	6.32E+01
2.70E+03	6.32E+01	2.70E+03	6.31E+01
2.70E+03	6.32E+01	2.70E+03	6.31E+01
2.70E+03	6.33E+01	2.70E+03	6.31E+01
2.70E+03	6.33E+01	2.70E+03	6.32E+01
2.70E+03	6.33E+01	2.70E+03	6.32E+01
2.70E+03	6.33E+01	2.70E+03	6.32E+01
2.70E+03	6.33E+01	2.70E+03	6.31E+01
2.70E+03	6.33E+01	2.70E+03	6.32E+01
2.70E+03	6.33E+01	2.70E+03	6.32E+01
2.70E+03	6.33E+01	2.70E+03	6.32E+01
2.70E+03	6.33E+01	2.70E+03	6.32E+01
2.70E+03	6.33E+01	2.70E+03	6.32E+01
2.70E+03	6.33E+01	2.70E+03	6.32E+01
2.70E+03	6.33E+01	2.70E+03	6.32E+01
2.70E+03	6.33E+01	2.70E+03	6.32E+01
2.70E+03	6.33E+01	2.70E+03	6.32E+01
2.70E+03	6.33E+01	2.70E+03	6.32E+01
2.70E+03	6.33E+01	2.70E+03	6.32E+01
2.70E+03	6.33E+01	2.70E+03	6.31E+01
2.70E+03	6.32E+01	2.70E+03	6.32E+01
2.70E+03	6.33E+01	2.70E+03	6.32E+01

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D[1/s]	Tau[Pa]	D[1/s]	Tau[Pa]
2.70E+03	6.32E+01	2.33E+03	5.49E+01
2.70E+03	6.32E+01	2.32E+03	5.46E+01
2.70E+03	6.33E+01	2.31E+03	5.44E+01
2.70E+03	6.33E+01	2.30E+03	5.42E+01
2.70E+03	6.33E+01	2.29E+03	5.39E+01
2.70E+03	6.33E+01	2.28E+03	5.37E+01
2.70E+03	6.33E+01	2.27E+03	5.34E+01
2.70E+03	6.33E+01	2.26E+03	5.32E+01
2.70E+03	6.33E+01	2.25E+03	5.30E+01
2.70E+03	6.33E+01	2.23E+03	5.27E+01
2.70E+03	6.33E+01	2.22E+03	5.25E+01
2.70E+03	6.34E+01	2.21E+03	5.22E+01
2.70E+03	6.33E+01	2.20E+03	5.19E+01
2.70E+03	6.34E+01	2.19E+03	5.18E+01
2.70E+03	6.34E+01	2.18E+03	5.14E+01
2.70E+03	6.34E+01	2.17E+03	5.12E+01
2.70E+03	6.33E+01	2.16E+03	5.09E+01
2.70E+03	6.33E+01	2.15E+03	5.07E+01
2.70E+03	6.33E+01	2.14E+03	5.05E+01
2.70E+03	6.33E+01	2.13E+03	5.02E+01
2.69E+03	6.32E+01	2.12E+03	4.99E+01
2.69E+03	6.30E+01	2.11E+03	4.98E+01
2.68E+03	6.28E+01	2.09E+03	4.94E+01
2.67E+03	6.26E+01	2.08E+03	4.92E+01
2.66E+03	6.24E+01	2.07E+03	4.89E+01
2.65E+03	6.21E+01	2.06E+03	4.86E+01
2.63E+03	6.18E+01	2.05E+03	4.83E+01
2.63E+03	6.15E+01	2.04E+03	4.81E+01
2.62E+03	6.13E+01	2.03E+03	4.79E+01
2.60E+03	6.10E+01	2.02E+03	4.77E+01
2.59E+03	6.08E+01	2.01E+03	4.75E+01
2.58E+03	6.06E+01	2.00E+03	4.72E+01
2.57E+03	6.03E+01	1.99E+03	4.70E+01
2.56E+03	6.01E+01	1.98E+03	4.67E+01
2.55E+03	5.98E+01	1.96E+03	4.65E+01
2.54E+03	5.96E+01	1.95E+03	4.62E+01
2.53E+03	5.94E+01	1.94E+03	4.59E+01
2.52E+03	5.91E+01	1.93E+03	4.57E+01
2.51E+03	5.89E+01	1.92E+03	4.55E+01
2.50E+03	5.86E+01	1.90E+03	4.50E+01
2.48E+03	5.83E+01	1.90E+03	4.50E+01
2.47E+03	5.81E+01	1.89E+03	4.48E+01
2.46E+03	5.79E+01	1.88E+03	4.45E+01
2.45E+03	5.76E+01	1.87E+03	4.42E+01
2.44E+03	5.75E+01	1.86E+03	4.40E+01
2.43E+03	5.72E+01	1.85E+03	4.38E+01
2.42E+03	5.70E+01	1.84E+03	4.35E+01
2.41E+03	5.66E+01	1.82E+03	4.32E+01
2.40E+03	5.64E+01	1.81E+03	4.30E+01
2.39E+03	5.62E+01	1.80E+03	4.26E+01
2.38E+03	5.59E+01	1.79E+03	4.24E+01
2.37E+03	5.57E+01	1.78E+03	4.22E+01
2.36E+03	5.53E+01	1.77E+03	4.19E+01
2.34E+03	5.51E+01	1.76E+03	4.16E+01

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D[1/s]	Tau[Pa]	D[1/s]	Tau[Pa]
1.75E+03	4.13E+01	1.16E+03	2.79E+01
1.74E+03	4.12E+01	1.15E+03	2.76E+01
1.73E+03	4.09E+01	1.14E+03	2.73E+01
1.71E+03	4.06E+01	1.13E+03	2.70E+01
1.70E+03	4.04E+01	1.12E+03	2.68E+01
1.69E+03	4.01E+01	1.11E+03	2.66E+01
1.68E+03	3.99E+01	1.10E+03	2.64E+01
1.67E+03	3.96E+01	1.09E+03	2.61E+01
1.66E+03	3.94E+01	1.07E+03	2.58E+01
1.65E+03	3.92E+01	1.06E+03	2.56E+01
1.64E+03	3.90E+01	1.05E+03	2.53E+01
1.63E+03	3.87E+01	1.04E+03	2.50E+01
1.62E+03	3.85E+01	1.03E+03	2.47E+01
1.61E+03	3.83E+01	1.02E+03	2.45E+01
1.60E+03	3.81E+01	1.01E+03	2.42E+01
1.58E+03	3.78E+01	9.99E+02	2.40E+01
1.57E+03	3.74E+01	9.89E+02	2.38E+01
1.56E+03	3.71E+01	9.76E+02	2.35E+01
1.55E+03	3.68E+01	9.66E+02	2.33E+01
1.54E+03	3.66E+01	9.56E+02	2.31E+01
1.53E+03	3.65E+01	9.44E+02	2.27E+01
1.52E+03	3.61E+01	9.34E+02	2.25E+01
1.51E+03	3.59E+01	9.21E+02	2.22E+01
1.50E+03	3.56E+01	9.11E+02	2.20E+01
1.49E+03	3.52E+01	9.01E+02	2.18E+01
1.48E+03	3.51E+01	8.89E+02	2.14E+01
1.46E+03	3.49E+01	8.79E+02	2.12E+01
1.45E+03	3.46E+01	8.69E+02	2.09E+01
1.44E+03	3.44E+01	8.59E+02	2.06E+01
1.43E+03	3.49E+01	8.46E+02	2.04E+01
1.42E+03	3.45E+01	8.37E+02	2.02E+01
1.41E+03	3.41E+01	8.26E+02	1.98E+01
1.40E+03	3.37E+01	8.14E+02	1.96E+01
1.39E+03	3.36E+01	8.04E+02	1.93E+01
1.38E+03	3.32E+01	7.94E+02	1.91E+01
1.37E+03	3.29E+01	7.81E+02	1.88E+01
1.36E+03	3.25E+01	7.70E+02	1.85E+01
1.35E+03	3.24E+01	7.60E+02	1.84E+01
1.34E+03	3.21E+01	7.47E+02	1.81E+01
1.33E+03	3.18E+01	7.38E+02	1.78E+01
1.31E+03	3.14E+01	7.28E+02	1.76E+01
1.30E+03	3.12E+01	7.16E+02	1.73E+01
1.29E+03	3.09E+01	7.06E+02	1.71E+01
1.28E+03	3.05E+01	6.94E+02	1.68E+01
1.27E+03	3.04E+01	6.85E+02	1.65E+01
1.26E+03	3.02E+01	6.74E+02	1.64E+01
1.25E+03	3.07E+01	6.62E+02	1.62E+01
1.24E+03	3.03E+01	6.52E+02	1.59E+01
1.23E+03	2.97E+01	6.40E+02	1.56E+01
1.22E+03	2.94E+01	6.30E+02	1.53E+01
1.21E+03	2.93E+01	6.20E+02	1.51E+01
1.20E+03	2.91E+01	6.08E+02	1.48E+01
1.18E+03	2.85E+01	5.98E+02	1.45E+01
1.17E+03	2.82E+01	5.85E+02	1.44E+01

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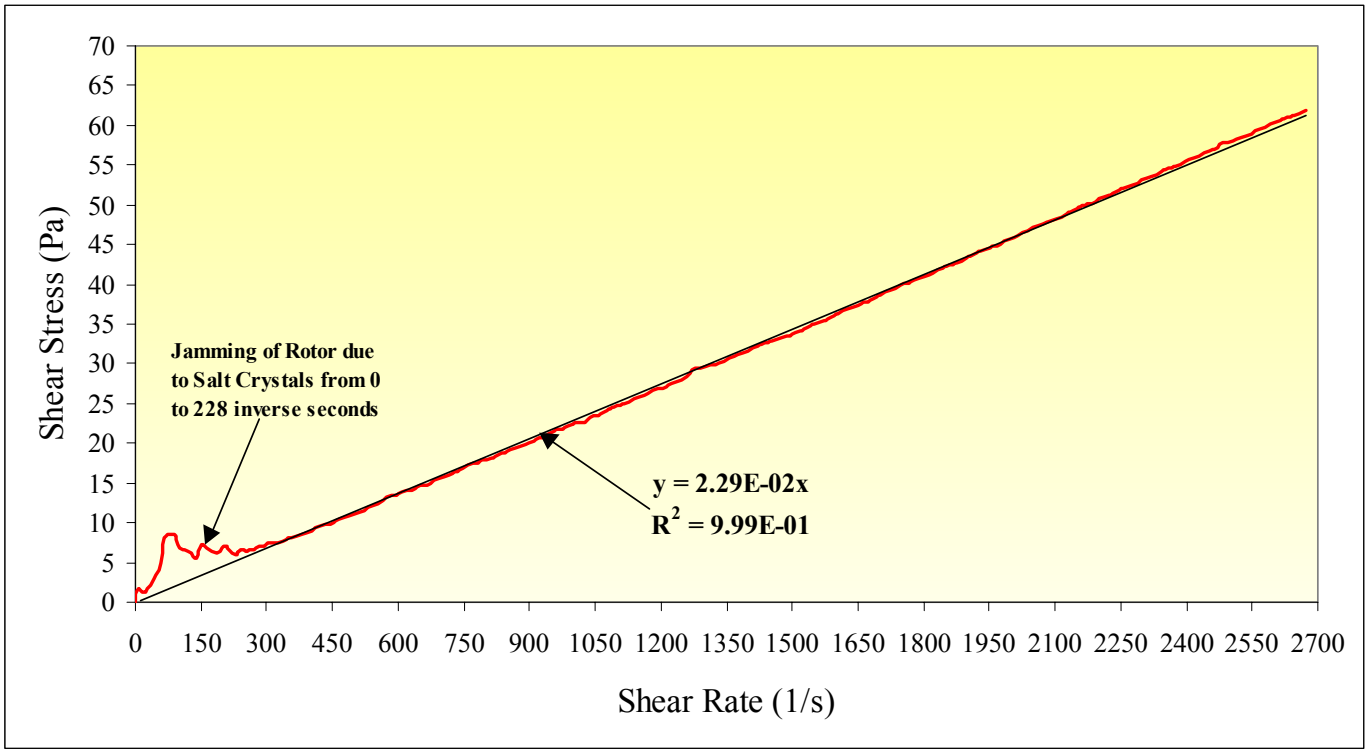
D[1/s]	Tau[Pa]	D[1/s]	Tau[Pa]
5.75E+02	1.41E+01	2.94E+02	7.24E+00
5.65E+02	1.38E+01	2.84E+02	7.02E+00
5.53E+02	1.36E+01	2.72E+02	6.73E+00
5.43E+02	1.34E+01	2.62E+02	6.51E+00
5.34E+02	1.31E+01	2.50E+02	6.23E+00
5.21E+02	1.28E+01	2.40E+02	5.98E+00
5.11E+02	1.25E+01	2.28E+02	5.66E+00
4.99E+02	1.28E+01	2.18E+02	5.44E+00
4.89E+02	1.23E+01	2.08E+02	5.23E+00
4.79E+02	1.19E+01	1.96E+02	4.99E+00
4.67E+02	1.16E+01	1.86E+02	4.66E+00
4.57E+02	1.13E+01	1.76E+02	4.47E+00
4.46E+02	1.11E+01	1.63E+02	4.06E+00
4.34E+02	1.08E+01	1.53E+02	3.87E+00
4.24E+02	1.05E+01	1.41E+02	3.51E+00
4.14E+02	1.02E+01	1.31E+02	3.41E+00
4.01E+02	9.83E+00	1.21E+02	2.99E+00
3.91E+02	9.56E+00	1.09E+02	3.64E+00
3.81E+02	9.34E+00	9.87E+01	3.21E+00
3.69E+02	9.03E+00	8.62E+01	3.99E+00
3.59E+02	8.82E+00	7.64E+01	4.78E+00
3.48E+02	8.57E+00	6.64E+01	4.89E+00
3.38E+02	8.31E+00	5.41E+01	3.24E+00
3.26E+02	7.98E+00	4.40E+01	2.20E+00
3.16E+02	7.75E+00	3.24E+01	1.31E+00
3.04E+02	7.47E+00	2.16E+01	7.08E-01

Figure A-3 - Flow Curve for the Salt Slurry Sample at 35°C (Run 2)



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Raw Data Salt Slurry Results Run #2 at 35°C

D[1/s]	Tau[Pa]	D[1/s]	Tau[Pa]
0.00E+00	0.00E+00	5.42E+02	1.21E+01
1.45E+00	1.09E+00	5.54E+02	1.23E+01
6.73E+00	1.66E+00	5.64E+02	1.28E+01
1.45E+01	1.34E+00	5.74E+02	1.32E+01
2.27E+01	1.31E+00	5.87E+02	1.33E+01
3.62E+01	2.21E+00	5.97E+02	1.35E+01
4.32E+01	2.93E+00	6.09E+02	1.39E+01
5.53E+01	4.10E+00	6.19E+02	1.40E+01
6.50E+01	8.10E+00	6.30E+02	1.41E+01
7.49E+01	8.47E+00	6.40E+02	1.44E+01
8.72E+01	8.60E+00	6.51E+02	1.46E+01
9.70E+01	7.20E+00	6.60E+02	1.48E+01
1.07E+02	6.62E+00	6.73E+02	1.50E+01
1.20E+02	6.48E+00	6.82E+02	1.54E+01
1.30E+02	5.76E+00	6.95E+02	1.56E+01
1.40E+02	5.61E+00	7.05E+02	1.58E+01
1.51E+02	7.22E+00	7.15E+02	1.60E+01
1.63E+02	6.75E+00	7.27E+02	1.64E+01
1.73E+02	6.43E+00	7.37E+02	1.65E+01
1.85E+02	6.12E+00	7.49E+02	1.69E+01
1.95E+02	6.31E+00	7.58E+02	1.72E+01
2.05E+02	7.14E+00	7.71E+02	1.74E+01
2.18E+02	6.32E+00	7.81E+02	1.76E+01
2.28E+02	6.03E+00	7.91E+02	1.78E+01
2.40E+02	6.65E+00	8.03E+02	1.80E+01
2.50E+02	6.45E+00	8.13E+02	1.82E+01
2.61E+02	6.63E+00	8.23E+02	1.84E+01
2.71E+02	6.60E+00	8.35E+02	1.87E+01
2.81E+02	6.95E+00	8.46E+02	1.89E+01
2.93E+02	6.95E+00	8.58E+02	1.91E+01
3.04E+02	7.51E+00	8.67E+02	1.95E+01
3.16E+02	7.47E+00	8.78E+02	1.96E+01
3.26E+02	7.51E+00	8.89E+02	1.98E+01
3.35E+02	7.78E+00	9.00E+02	2.00E+01
3.48E+02	8.01E+00	9.12E+02	2.03E+01
3.58E+02	8.13E+00	9.22E+02	2.06E+01
3.68E+02	8.36E+00	9.32E+02	2.08E+01
3.80E+02	8.56E+00	9.43E+02	2.11E+01
3.90E+02	8.76E+00	9.55E+02	2.15E+01
4.03E+02	9.04E+00	9.65E+02	2.17E+01
4.12E+02	9.31E+00	9.75E+02	2.18E+01
4.22E+02	9.56E+00	9.88E+02	2.21E+01
4.35E+02	9.75E+00	9.98E+02	2.24E+01
4.45E+02	9.92E+00	1.01E+03	2.26E+01
4.57E+02	1.01E+01	1.02E+03	2.27E+01
4.67E+02	1.04E+01	1.03E+03	2.29E+01
4.77E+02	1.06E+01	1.04E+03	2.32E+01
4.87E+02	1.08E+01	1.05E+03	2.34E+01
4.99E+02	1.11E+01	1.06E+03	2.37E+01
5.09E+02	1.13E+01	1.08E+03	2.40E+01
5.22E+02	1.16E+01	1.08E+03	2.42E+01
5.31E+02	1.19E+01	1.09E+03	2.45E+01

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D[1/s]	Tau[Pa]	D[1/s]	Tau[Pa]
1.11E+03	2.47E+01	1.69E+03	3.83E+01
1.12E+03	2.50E+01	1.70E+03	3.87E+01
1.13E+03	2.52E+01	1.71E+03	3.91E+01
1.14E+03	2.56E+01	1.72E+03	3.92E+01
1.15E+03	2.58E+01	1.73E+03	3.95E+01
1.16E+03	2.59E+01	1.75E+03	3.99E+01
1.17E+03	2.63E+01	1.76E+03	4.00E+01
1.18E+03	2.66E+01	1.77E+03	4.02E+01
1.19E+03	2.69E+01	1.78E+03	4.05E+01
1.20E+03	2.70E+01	1.79E+03	4.07E+01
1.22E+03	2.73E+01	1.80E+03	4.10E+01
1.23E+03	2.75E+01	1.81E+03	4.12E+01
1.24E+03	2.76E+01	1.82E+03	4.15E+01
1.25E+03	2.80E+01	1.83E+03	4.19E+01
1.26E+03	2.84E+01	1.84E+03	4.20E+01
1.27E+03	2.87E+01	1.85E+03	4.23E+01
1.28E+03	2.94E+01	1.87E+03	4.25E+01
1.29E+03	2.95E+01	1.88E+03	4.27E+01
1.30E+03	2.97E+01	1.89E+03	4.30E+01
1.31E+03	2.99E+01	1.90E+03	4.32E+01
1.32E+03	3.00E+01	1.91E+03	4.35E+01
1.33E+03	3.01E+01	1.92E+03	4.39E+01
1.34E+03	3.04E+01	1.93E+03	4.42E+01
1.36E+03	3.07E+01	1.94E+03	4.44E+01
1.37E+03	3.10E+01	1.95E+03	4.46E+01
1.38E+03	3.11E+01	1.96E+03	4.48E+01
1.39E+03	3.13E+01	1.97E+03	4.51E+01
1.40E+03	3.15E+01	1.98E+03	4.55E+01
1.41E+03	3.19E+01	2.00E+03	4.58E+01
1.42E+03	3.23E+01	2.01E+03	4.60E+01
1.43E+03	3.25E+01	2.02E+03	4.62E+01
1.44E+03	3.27E+01	2.03E+03	4.65E+01
1.45E+03	3.29E+01	2.04E+03	4.68E+01
1.46E+03	3.31E+01	2.05E+03	4.71E+01
1.48E+03	3.32E+01	2.06E+03	4.74E+01
1.49E+03	3.34E+01	2.07E+03	4.76E+01
1.50E+03	3.36E+01	2.08E+03	4.78E+01
1.51E+03	3.39E+01	2.09E+03	4.81E+01
1.52E+03	3.42E+01	2.10E+03	4.83E+01
1.53E+03	3.44E+01	2.12E+03	4.86E+01
1.54E+03	3.47E+01	2.13E+03	4.89E+01
1.55E+03	3.49E+01	2.14E+03	4.92E+01
1.56E+03	3.52E+01	2.15E+03	4.94E+01
1.57E+03	3.54E+01	2.16E+03	4.98E+01
1.58E+03	3.57E+01	2.17E+03	4.99E+01
1.60E+03	3.60E+01	2.18E+03	5.02E+01
1.61E+03	3.64E+01	2.19E+03	5.05E+01
1.62E+03	3.66E+01	2.20E+03	5.07E+01
1.63E+03	3.70E+01	2.21E+03	5.11E+01
1.64E+03	3.72E+01	2.22E+03	5.12E+01
1.65E+03	3.73E+01	2.23E+03	5.15E+01
1.66E+03	3.76E+01	2.25E+03	5.19E+01
1.67E+03	3.77E+01	2.26E+03	5.20E+01
1.68E+03	3.80E+01	2.27E+03	5.22E+01

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D[1/s]	Tau[Pa]	D[1/s]	Tau[Pa]
2.28E+03	5.26E+01	2.70E+03	6.25E+01
2.29E+03	5.28E+01	2.70E+03	6.25E+01
2.30E+03	5.31E+01	2.70E+03	6.25E+01
2.31E+03	5.34E+01	2.70E+03	6.25E+01
2.32E+03	5.36E+01	2.70E+03	6.24E+01
2.33E+03	5.39E+01	2.70E+03	6.24E+01
2.34E+03	5.41E+01	2.70E+03	6.24E+01
2.35E+03	5.44E+01	2.70E+03	6.24E+01
2.37E+03	5.46E+01	2.70E+03	6.24E+01
2.38E+03	5.49E+01	2.70E+03	6.25E+01
2.39E+03	5.51E+01	2.70E+03	6.25E+01
2.40E+03	5.54E+01	2.70E+03	6.25E+01
2.41E+03	5.57E+01	2.70E+03	6.25E+01
2.42E+03	5.59E+01	2.70E+03	6.25E+01
2.43E+03	5.62E+01	2.70E+03	6.24E+01
2.44E+03	5.65E+01	2.70E+03	6.24E+01
2.45E+03	5.67E+01	2.70E+03	6.24E+01
2.46E+03	5.70E+01	2.70E+03	6.25E+01
2.47E+03	5.73E+01	2.70E+03	6.25E+01
2.48E+03	5.78E+01	2.70E+03	6.25E+01
2.49E+03	5.78E+01	2.70E+03	6.25E+01
2.51E+03	5.81E+01	2.70E+03	6.26E+01
2.52E+03	5.83E+01	2.70E+03	6.25E+01
2.53E+03	5.86E+01	2.70E+03	6.25E+01
2.54E+03	5.87E+01	2.70E+03	6.24E+01
2.55E+03	5.90E+01	2.70E+03	6.25E+01
2.56E+03	5.93E+01	2.70E+03	6.24E+01
2.57E+03	5.96E+01	2.70E+03	6.24E+01
2.58E+03	5.99E+01	2.70E+03	6.25E+01
2.59E+03	6.01E+01	2.70E+03	6.24E+01
2.60E+03	6.03E+01	2.70E+03	6.25E+01
2.61E+03	6.06E+01	2.70E+03	6.24E+01
2.62E+03	6.07E+01	2.70E+03	6.24E+01
2.64E+03	6.10E+01	2.70E+03	6.24E+01
2.65E+03	6.13E+01	2.70E+03	6.25E+01
2.66E+03	6.15E+01	2.70E+03	6.25E+01
2.67E+03	6.19E+01	2.70E+03	6.24E+01
2.67E+03	6.19E+01	2.70E+03	6.24E+01
2.68E+03	6.20E+01	2.70E+03	6.24E+01
2.69E+03	6.23E+01	2.70E+03	6.25E+01
2.69E+03	6.23E+01	2.70E+03	6.25E+01
2.69E+03	6.23E+01	2.70E+03	6.25E+01
2.69E+03	6.23E+01	2.70E+03	6.25E+01
2.69E+03	6.23E+01	2.70E+03	6.25E+01
2.69E+03	6.23E+01	2.70E+03	6.25E+01
2.69E+03	6.23E+01	2.70E+03	6.25E+01
2.70E+03	6.23E+01	2.70E+03	6.26E+01
2.70E+03	6.23E+01	2.70E+03	6.26E+01
2.70E+03	6.24E+01	2.70E+03	6.26E+01
2.70E+03	6.24E+01	2.70E+03	6.26E+01
2.70E+03	6.24E+01	2.70E+03	6.26E+01
2.70E+03	6.24E+01	2.70E+03	6.26E+01
2.70E+03	6.25E+01	2.70E+03	6.26E+01
2.70E+03	6.25E+01	2.70E+03	6.26E+01

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D[1/s]	Tau[Pa]	D[1/s]	Tau[Pa]
2.70E+03	6.26E+01	2.70E+03	6.25E+01
2.70E+03	6.26E+01	2.70E+03	6.25E+01
2.70E+03	6.26E+01	2.70E+03	6.25E+01
2.70E+03	6.26E+01	2.70E+03	6.25E+01
2.70E+03	6.26E+01	2.70E+03	6.25E+01
2.70E+03	6.26E+01	2.70E+03	6.25E+01
2.70E+03	6.26E+01	2.70E+03	6.25E+01
2.70E+03	6.26E+01	2.70E+03	6.25E+01
2.70E+03	6.26E+01	2.70E+03	6.25E+01
2.70E+03	6.26E+01	2.70E+03	6.25E+01
2.70E+03	6.26E+01	2.70E+03	6.25E+01
2.70E+03	6.26E+01	2.70E+03	6.25E+01
2.70E+03	6.26E+01	2.70E+03	6.25E+01
2.70E+03	6.26E+01	2.70E+03	6.25E+01
2.70E+03	6.26E+01	2.70E+03	6.26E+01
2.70E+03	6.26E+01	2.70E+03	6.26E+01
2.70E+03	6.26E+01	2.70E+03	6.26E+01
2.70E+03	6.25E+01	2.70E+03	6.26E+01
2.70E+03	6.25E+01	2.70E+03	6.25E+01
2.70E+03	6.26E+01	2.70E+03	6.25E+01
2.70E+03	6.26E+01	2.70E+03	6.25E+01
2.70E+03	6.26E+01	2.70E+03	6.25E+01
2.70E+03	6.26E+01	2.70E+03	6.25E+01
2.70E+03	6.26E+01	2.70E+03	6.25E+01
2.70E+03	6.26E+01	2.70E+03	6.25E+01
2.70E+03	6.26E+01	2.70E+03	6.25E+01
2.70E+03	6.26E+01	2.70E+03	6.25E+01
2.70E+03	6.26E+01	2.70E+03	6.25E+01
2.70E+03	6.26E+01	2.70E+03	6.25E+01
2.70E+03	6.26E+01	2.70E+03	6.26E+01
2.70E+03	6.26E+01	2.70E+03	6.26E+01
2.70E+03	6.26E+01	2.70E+03	6.26E+01
2.70E+03	6.26E+01	2.70E+03	6.26E+01
2.70E+03	6.26E+01	2.70E+03	6.26E+01
2.70E+03	6.26E+01	2.70E+03	6.26E+01
2.70E+03	6.26E+01	2.70E+03	6.26E+01
2.70E+03	6.26E+01	2.70E+03	6.26E+01
2.70E+03	6.26E+01	2.70E+03	6.26E+01
2.70E+03	6.26E+01	2.70E+03	6.26E+01
2.70E+03	6.26E+01	2.70E+03	6.26E+01
2.70E+03	6.26E+01	2.70E+03	6.26E+01
2.70E+03	6.26E+01	2.70E+03	6.26E+01
2.70E+03	6.26E+01	2.70E+03	6.26E+01
2.70E+03	6.26E+01	2.70E+03	6.26E+01
2.70E+03	6.26E+01	2.70E+03	6.26E+01
2.70E+03	6.26E+01	2.70E+03	6.26E+01
2.70E+03	6.26E+01	2.70E+03	6.26E+01
2.70E+03	6.26E+01	2.70E+03	6.26E+01
2.70E+03	6.26E+01	2.70E+03	6.26E+01
2.70E+03	6.26E+01	2.70E+03	6.26E+01
2.70E+03	6.25E+01	2.70E+03	6.26E+01
2.70E+03	6.25E+01	2.70E+03	6.26E+01
2.70E+03	6.24E+01	2.70E+03	6.26E+01
2.70E+03	6.24E+01	2.70E+03	6.26E+01

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D[1/s]	Tau[Pa]	D[1/s]	Tau[Pa]
2.70E+03	6.26E+01	2.70E+03	6.22E+01
2.70E+03	6.26E+01	2.70E+03	6.22E+01
2.70E+03	6.26E+01	2.70E+03	6.23E+01
2.70E+03	6.26E+01	2.70E+03	6.23E+01
2.70E+03	6.26E+01	2.70E+03	6.23E+01
2.70E+03	6.26E+01	2.70E+03	6.23E+01
2.70E+03	6.26E+01	2.70E+03	6.23E+01
2.70E+03	6.27E+01	2.70E+03	6.23E+01
2.70E+03	6.26E+01	2.70E+03	6.22E+01
2.70E+03	6.26E+01	2.70E+03	6.22E+01
2.70E+03	6.26E+01	2.70E+03	6.22E+01
2.70E+03	6.26E+01	2.70E+03	6.22E+01
2.70E+03	6.26E+01	2.70E+03	6.22E+01
2.70E+03	6.26E+01	2.70E+03	6.23E+01
2.70E+03	6.26E+01	2.70E+03	6.20E+01
2.70E+03	6.25E+01	2.70E+03	6.20E+01
2.70E+03	6.25E+01	2.70E+03	6.19E+01
2.70E+03	6.25E+01	2.70E+03	6.19E+01
2.70E+03	6.25E+01	2.70E+03	6.20E+01
2.70E+03	6.25E+01	2.70E+03	6.20E+01
2.70E+03	6.25E+01	2.69E+03	6.19E+01
2.70E+03	6.25E+01	2.69E+03	6.19E+01
2.70E+03	6.25E+01	2.68E+03	6.18E+01
2.70E+03	6.26E+01	2.67E+03	6.17E+01
2.70E+03	6.26E+01	2.66E+03	6.14E+01
2.70E+03	6.26E+01	2.65E+03	6.12E+01
2.70E+03	6.26E+01	2.64E+03	6.10E+01
2.70E+03	6.26E+01	2.62E+03	6.07E+01
2.70E+03	6.26E+01	2.61E+03	6.05E+01
2.70E+03	6.26E+01	2.60E+03	6.02E+01
2.70E+03	6.26E+01	2.59E+03	6.00E+01
2.70E+03	6.26E+01	2.58E+03	5.98E+01
2.70E+03	6.26E+01	2.57E+03	5.94E+01
2.70E+03	6.25E+01	2.56E+03	5.93E+01
2.70E+03	6.25E+01	2.55E+03	5.90E+01
2.70E+03	6.25E+01	2.54E+03	5.86E+01
2.70E+03	6.25E+01	2.53E+03	5.84E+01
2.70E+03	6.25E+01	2.52E+03	5.82E+01
2.70E+03	6.25E+01	2.51E+03	5.79E+01
2.70E+03	6.25E+01	2.50E+03	5.77E+01
2.70E+03	6.24E+01	2.48E+03	5.75E+01
2.70E+03	6.23E+01	2.47E+03	5.73E+01
2.70E+03	6.23E+01	2.46E+03	5.70E+01
2.70E+03	6.23E+01	2.45E+03	5.68E+01
2.70E+03	6.23E+01	2.44E+03	5.65E+01
2.70E+03	6.23E+01	2.43E+03	5.62E+01
2.70E+03	6.23E+01	2.42E+03	5.59E+01
2.70E+03	6.23E+01	2.41E+03	5.57E+01
2.70E+03	6.23E+01	2.40E+03	5.55E+01
2.70E+03	6.23E+01	2.39E+03	5.53E+01
2.70E+03	6.23E+01	2.38E+03	5.50E+01
2.70E+03	6.23E+01	2.37E+03	5.47E+01
2.70E+03	6.23E+01	2.36E+03	5.45E+01
2.70E+03	6.23E+01	2.34E+03	5.43E+01

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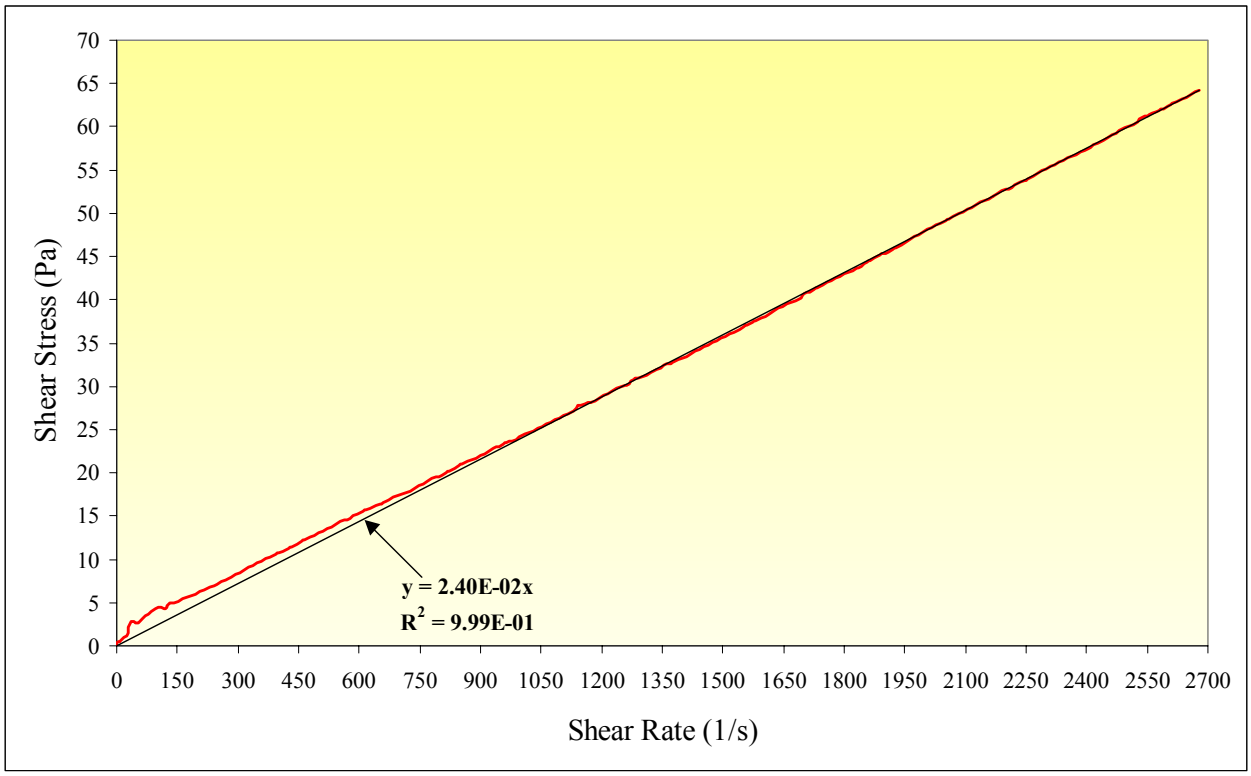
D[1/s]	Tau[Pa]	D[1/s]	Tau[Pa]
2.33E+03	5.40E+01	1.75E+03	4.05E+01
2.32E+03	5.38E+01	1.74E+03	4.03E+01
2.31E+03	5.36E+01	1.72E+03	4.00E+01
2.30E+03	5.33E+01	1.71E+03	3.98E+01
2.29E+03	5.31E+01	1.71E+03	3.94E+01
2.28E+03	5.28E+01	1.69E+03	3.92E+01
2.27E+03	5.26E+01	1.68E+03	3.92E+01
2.26E+03	5.23E+01	1.67E+03	3.89E+01
2.25E+03	5.21E+01	1.66E+03	3.87E+01
2.23E+03	5.18E+01	1.65E+03	3.86E+01
2.22E+03	5.16E+01	1.64E+03	3.84E+01
2.21E+03	5.14E+01	1.63E+03	3.81E+01
2.20E+03	5.12E+01	1.62E+03	3.78E+01
2.19E+03	5.08E+01	1.61E+03	3.74E+01
2.18E+03	5.06E+01	1.60E+03	3.73E+01
2.17E+03	5.04E+01	1.58E+03	3.70E+01
2.16E+03	5.01E+01	1.57E+03	3.68E+01
2.15E+03	4.99E+01	1.56E+03	3.65E+01
2.14E+03	4.95E+01	1.55E+03	3.64E+01
2.13E+03	4.94E+01	1.54E+03	3.65E+01
2.12E+03	4.91E+01	1.53E+03	3.61E+01
2.10E+03	4.88E+01	1.52E+03	3.58E+01
2.09E+03	4.86E+01	1.51E+03	3.54E+01
2.08E+03	4.84E+01	1.50E+03	3.51E+01
2.07E+03	4.81E+01	1.49E+03	3.48E+01
2.06E+03	4.78E+01	1.48E+03	3.47E+01
2.05E+03	4.77E+01	1.46E+03	3.49E+01
2.04E+03	4.73E+01	1.45E+03	3.48E+01
2.03E+03	4.71E+01	1.44E+03	3.43E+01
2.02E+03	4.68E+01	1.43E+03	3.39E+01
2.01E+03	4.66E+01	1.42E+03	3.37E+01
2.00E+03	4.63E+01	1.41E+03	3.34E+01
1.98E+03	4.60E+01	1.40E+03	3.30E+01
1.97E+03	4.58E+01	1.39E+03	3.32E+01
1.96E+03	4.56E+01	1.38E+03	3.27E+01
1.95E+03	4.53E+01	1.37E+03	3.21E+01
1.94E+03	4.52E+01	1.36E+03	3.19E+01
1.93E+03	4.49E+01	1.35E+03	3.15E+01
1.92E+03	4.47E+01	1.34E+03	3.13E+01
1.91E+03	4.44E+01	1.33E+03	3.12E+01
1.90E+03	4.42E+01	1.31E+03	3.07E+01
1.89E+03	4.39E+01	1.30E+03	3.04E+01
1.88E+03	4.37E+01	1.29E+03	3.04E+01
1.87E+03	4.34E+01	1.28E+03	3.03E+01
1.85E+03	4.30E+01	1.27E+03	3.00E+01
1.84E+03	4.28E+01	1.26E+03	2.98E+01
1.83E+03	4.25E+01	1.25E+03	2.93E+01
1.82E+03	4.23E+01	1.24E+03	2.90E+01
1.81E+03	4.21E+01	1.23E+03	2.89E+01
1.80E+03	4.18E+01	1.22E+03	2.85E+01
1.79E+03	4.16E+01	1.21E+03	2.82E+01
1.78E+03	4.14E+01	1.19E+03	2.78E+01
1.77E+03	4.11E+01	1.18E+03	2.76E+01
1.76E+03	4.07E+01	1.17E+03	2.74E+01

SRT-GPD-2003-00072, Rev. 1

D[1/s]	Tau[Pa]	D[1/s]	Tau[Pa]
1.16E+03	2.73E+01	5.76E+02	1.33E+01
1.15E+03	2.73E+01	5.64E+02	1.30E+01
1.14E+03	2.69E+01	5.54E+02	1.29E+01
1.13E+03	2.64E+01	5.42E+02	1.26E+01
1.12E+03	2.60E+01	5.32E+02	1.22E+01
1.11E+03	2.58E+01	5.18E+02	1.19E+01
1.10E+03	2.57E+01	5.13E+02	1.18E+01
1.09E+03	2.55E+01	5.07E+02	1.16E+01
1.07E+03	2.56E+01	4.91E+02	1.12E+01
1.06E+03	2.52E+01	4.80E+02	1.09E+01
1.05E+03	2.50E+01	4.69E+02	1.06E+01
1.04E+03	2.46E+01	4.58E+02	1.04E+01
1.03E+03	2.42E+01	4.47E+02	1.02E+01
1.02E+03	2.38E+01	4.34E+02	9.79E+00
1.01E+03	2.35E+01	4.24E+02	9.83E+00
1.00E+03	2.33E+01	4.14E+02	9.47E+00
9.88E+02	2.29E+01	4.01E+02	9.14E+00
9.77E+02	2.26E+01	3.88E+02	8.86E+00
9.65E+02	2.26E+01	3.81E+02	8.62E+00
9.55E+02	2.22E+01	3.71E+02	8.36E+00
9.45E+02	2.20E+01	3.59E+02	8.02E+00
9.33E+02	2.17E+01	3.49E+02	7.80E+00
9.22E+02	2.16E+01	3.36E+02	7.59E+00
9.12E+02	2.13E+01	3.26E+02	7.47E+00
9.02E+02	2.11E+01	3.17E+02	7.13E+00
8.89E+02	2.11E+01	3.04E+02	6.77E+00
8.79E+02	2.07E+01	2.94E+02	6.52E+00
8.69E+02	2.04E+01	2.82E+02	6.23E+00
8.57E+02	1.99E+01	2.72E+02	5.96E+00
8.47E+02	1.98E+01	2.62E+02	6.43E+00
8.37E+02	1.95E+01	2.51E+02	5.89E+00
8.25E+02	1.92E+01	2.41E+02	6.03E+00
8.15E+02	1.91E+01	2.28E+02	5.66E+00
8.02E+02	1.87E+01	2.19E+02	8.80E+00
7.92E+02	1.84E+01	2.06E+02	6.95E+00
7.83E+02	1.82E+01	1.96E+02	8.50E+00
7.70E+02	1.79E+01	1.86E+02	7.35E+00
7.60E+02	1.77E+01	1.74E+02	7.16E+00
7.48E+02	1.74E+01	1.64E+02	5.75E+00
7.38E+02	1.73E+01	1.54E+02	4.95E+00
7.26E+02	1.69E+01	1.41E+02	4.01E+00
7.16E+02	1.66E+01	1.31E+02	3.64E+00
7.06E+02	1.64E+01	1.19E+02	3.00E+00
6.95E+02	1.61E+01	1.09E+02	2.36E+00
6.85E+02	1.60E+01	9.92E+01	2.44E+00
6.73E+02	1.56E+01	8.61E+01	1.87E+00
6.63E+02	1.53E+01	7.69E+01	1.34E+00
6.51E+02	1.51E+01	6.45E+01	1.28E+00
6.41E+02	1.49E+01	5.45E+01	1.07E+00
6.31E+02	1.47E+01	4.46E+01	1.11E+00
6.19E+02	1.43E+01	3.39E+01	8.09E-01
6.08E+02	1.40E+01	2.38E+01	4.63E-01
5.96E+02	1.37E+01		
5.86E+02	1.35E+01		

Figure A-4 - Flow Curve for the Salt Slurry Sample at 35°C (Run 3)



Raw Data Salt Slurry Results Run #3 at 35°C

D[1/s]	Tau[Pa]	D[1/s]	Tau[Pa]
0.00E+00	7.96E-02	2.49E+02	7.18E+00
1.45E+00	2.84E-01	2.60E+02	7.46E+00
6.47E+00	5.39E-01	2.70E+02	7.66E+00
1.51E+01	8.54E-01	2.83E+02	8.01E+00
2.35E+01	1.24E+00	2.93E+02	8.27E+00
3.35E+01	2.43E+00	3.05E+02	8.49E+00
4.30E+01	2.77E+00	3.15E+02	8.74E+00
5.49E+01	2.71E+00	3.25E+02	9.03E+00
6.47E+01	3.16E+00	3.37E+02	9.32E+00
7.69E+01	3.72E+00	3.47E+02	9.52E+00
8.67E+01	3.90E+00	3.57E+02	9.79E+00
9.66E+01	4.31E+00	3.70E+02	1.00E+01
1.09E+02	4.48E+00	3.79E+02	1.03E+01
1.19E+02	4.35E+00	3.92E+02	1.06E+01
1.31E+02	4.94E+00	4.02E+02	1.08E+01
1.41E+02	4.92E+00	4.11E+02	1.10E+01
1.51E+02	5.12E+00	4.24E+02	1.13E+01
1.62E+02	5.40E+00	4.34E+02	1.15E+01
1.75E+02	5.57E+00	4.46E+02	1.18E+01
1.84E+02	5.77E+00	4.56E+02	1.20E+01
1.95E+02	6.03E+00	4.66E+02	1.23E+01
2.07E+02	6.27E+00	4.78E+02	1.26E+01
2.17E+02	6.44E+00	4.88E+02	1.28E+01
2.29E+02	6.74E+00	4.98E+02	1.30E+01
2.39E+02	6.97E+00	5.10E+02	1.33E+01

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D[1/s]	Tau[Pa]	D[1/s]	Tau[Pa]
5.20E+02	1.35E+01	1.11E+03	2.67E+01
5.33E+02	1.38E+01	1.12E+03	2.69E+01
5.43E+02	1.41E+01	1.13E+03	2.71E+01
5.53E+02	1.43E+01	1.14E+03	2.77E+01
5.64E+02	1.45E+01	1.15E+03	2.78E+01
5.76E+02	1.48E+01	1.16E+03	2.80E+01
5.86E+02	1.51E+01	1.17E+03	2.81E+01
5.96E+02	1.53E+01	1.18E+03	2.83E+01
6.08E+02	1.55E+01	1.19E+03	2.86E+01
6.18E+02	1.57E+01	1.20E+03	2.89E+01
6.28E+02	1.59E+01	1.21E+03	2.91E+01
6.41E+02	1.62E+01	1.23E+03	2.94E+01
6.51E+02	1.64E+01	1.24E+03	2.98E+01
6.60E+02	1.66E+01	1.25E+03	3.00E+01
6.72E+02	1.70E+01	1.26E+03	3.02E+01
6.82E+02	1.71E+01	1.27E+03	3.04E+01
6.95E+02	1.74E+01	1.28E+03	3.07E+01
7.05E+02	1.76E+01	1.29E+03	3.09E+01
7.14E+02	1.78E+01	1.30E+03	3.12E+01
7.27E+02	1.80E+01	1.31E+03	3.14E+01
7.37E+02	1.83E+01	1.32E+03	3.16E+01
7.49E+02	1.85E+01	1.34E+03	3.19E+01
7.59E+02	1.86E+01	1.35E+03	3.21E+01
7.69E+02	1.90E+01	1.35E+03	3.24E+01
7.81E+02	1.93E+01	1.37E+03	3.26E+01
7.91E+02	1.95E+01	1.38E+03	3.27E+01
8.04E+02	1.97E+01	1.39E+03	3.30E+01
8.13E+02	2.00E+01	1.40E+03	3.32E+01
8.24E+02	2.02E+01	1.41E+03	3.34E+01
8.36E+02	2.05E+01	1.42E+03	3.38E+01
8.46E+02	2.08E+01	1.43E+03	3.40E+01
8.56E+02	2.10E+01	1.44E+03	3.42E+01
8.68E+02	2.14E+01	1.45E+03	3.46E+01
8.78E+02	2.15E+01	1.46E+03	3.48E+01
8.90E+02	2.18E+01	1.47E+03	3.51E+01
9.00E+02	2.20E+01	1.49E+03	3.53E+01
9.10E+02	2.22E+01	1.50E+03	3.56E+01
9.22E+02	2.25E+01	1.51E+03	3.58E+01
9.32E+02	2.28E+01	1.52E+03	3.60E+01
9.45E+02	2.31E+01	1.53E+03	3.63E+01
9.55E+02	2.33E+01	1.54E+03	3.66E+01
9.65E+02	2.35E+01	1.55E+03	3.69E+01
9.77E+02	2.37E+01	1.56E+03	3.70E+01
9.87E+02	2.38E+01	1.57E+03	3.73E+01
9.97E+02	2.41E+01	1.58E+03	3.76E+01
1.01E+03	2.45E+01	1.60E+03	3.79E+01
1.02E+03	2.47E+01	1.61E+03	3.80E+01
1.03E+03	2.49E+01	1.62E+03	3.84E+01
1.04E+03	2.51E+01	1.63E+03	3.87E+01
1.05E+03	2.54E+01	1.64E+03	3.90E+01
1.06E+03	2.57E+01	1.65E+03	3.93E+01
1.08E+03	2.58E+01	1.66E+03	3.95E+01
1.09E+03	2.61E+01	1.67E+03	3.97E+01
1.09E+03	2.64E+01	1.68E+03	3.99E+01

SRT-GPD-2003-00072, Rev. 1

D[1/s]	Tau[Pa]	D[1/s]	Tau[Pa]
1.69E+03	4.03E+01	2.28E+03	5.46E+01
1.70E+03	4.06E+01	2.29E+03	5.49E+01
1.71E+03	4.09E+01	2.30E+03	5.52E+01
1.72E+03	4.12E+01	2.31E+03	5.54E+01
1.73E+03	4.14E+01	2.32E+03	5.57E+01
1.75E+03	4.17E+01	2.33E+03	5.59E+01
1.76E+03	4.20E+01	2.34E+03	5.62E+01
1.77E+03	4.22E+01	2.35E+03	5.64E+01
1.78E+03	4.25E+01	2.36E+03	5.66E+01
1.79E+03	4.27E+01	2.37E+03	5.68E+01
1.80E+03	4.30E+01	2.39E+03	5.72E+01
1.81E+03	4.32E+01	2.40E+03	5.73E+01
1.82E+03	4.34E+01	2.41E+03	5.76E+01
1.83E+03	4.37E+01	2.42E+03	5.79E+01
1.84E+03	4.39E+01	2.43E+03	5.81E+01
1.86E+03	4.43E+01	2.44E+03	5.85E+01
1.87E+03	4.45E+01	2.45E+03	5.87E+01
1.88E+03	4.48E+01	2.46E+03	5.91E+01
1.89E+03	4.52E+01	2.47E+03	5.93E+01
1.90E+03	4.53E+01	2.48E+03	5.96E+01
1.91E+03	4.56E+01	2.50E+03	5.99E+01
1.92E+03	4.59E+01	2.51E+03	6.01E+01
1.93E+03	4.60E+01	2.51E+03	6.03E+01
1.94E+03	4.64E+01	2.53E+03	6.06E+01
1.95E+03	4.66E+01	2.54E+03	6.10E+01
1.96E+03	4.70E+01	2.55E+03	6.12E+01
1.97E+03	4.73E+01	2.56E+03	6.14E+01
1.98E+03	4.76E+01	2.57E+03	6.18E+01
2.00E+03	4.78E+01	2.58E+03	6.19E+01
2.01E+03	4.81E+01	2.58E+03	6.19E+01
2.02E+03	4.83E+01	2.60E+03	6.23E+01
2.03E+03	4.86E+01	2.61E+03	6.26E+01
2.04E+03	4.89E+01	2.62E+03	6.29E+01
2.05E+03	4.92E+01	2.64E+03	6.32E+01
2.06E+03	4.93E+01	2.65E+03	6.34E+01
2.07E+03	4.97E+01	2.66E+03	6.37E+01
2.08E+03	5.00E+01	2.67E+03	6.40E+01
2.09E+03	5.02E+01	2.68E+03	6.42E+01
2.11E+03	5.05E+01	2.68E+03	6.44E+01
2.12E+03	5.07E+01	2.69E+03	6.44E+01
2.13E+03	5.09E+01	2.69E+03	6.44E+01
2.14E+03	5.12E+01	2.69E+03	6.45E+01
2.15E+03	5.14E+01	2.69E+03	6.45E+01
2.16E+03	5.17E+01	2.69E+03	6.45E+01
2.17E+03	5.20E+01	2.69E+03	6.45E+01
2.18E+03	5.24E+01	2.69E+03	6.45E+01
2.19E+03	5.26E+01	2.69E+03	6.46E+01
2.20E+03	5.27E+01	2.69E+03	6.46E+01
2.21E+03	5.30E+01	2.69E+03	6.46E+01
2.22E+03	5.33E+01	2.69E+03	6.46E+01
2.24E+03	5.36E+01	2.70E+03	6.46E+01
2.25E+03	5.38E+01	2.70E+03	6.46E+01
2.26E+03	5.40E+01	2.70E+03	6.46E+01
2.27E+03	5.43E+01	2.70E+03	6.46E+01

SRT-GPD-2003-00072, Rev. 1

D[1/s]	Tau[Pa]	D[1/s]	Tau[Pa]
2.70E+03	6.46E+01	2.70E+03	6.48E+01
2.70E+03	6.47E+01	2.70E+03	6.48E+01
2.70E+03	6.47E+01	2.70E+03	6.48E+01
2.70E+03	6.46E+01	2.70E+03	6.48E+01
2.70E+03	6.46E+01	2.70E+03	6.48E+01
2.70E+03	6.46E+01	2.70E+03	6.48E+01
2.70E+03	6.46E+01	2.70E+03	6.48E+01
2.70E+03	6.47E+01	2.70E+03	6.48E+01
2.70E+03	6.47E+01	2.70E+03	6.48E+01
2.70E+03	6.47E+01	2.70E+03	6.48E+01
2.70E+03	6.47E+01	2.70E+03	6.48E+01
2.70E+03	6.47E+01	2.70E+03	6.48E+01
2.70E+03	6.47E+01	2.70E+03	6.48E+01
2.70E+03	6.48E+01	2.70E+03	6.47E+01
2.70E+03	6.48E+01	2.70E+03	6.47E+01
2.70E+03	6.47E+01	2.70E+03	6.47E+01
2.70E+03	6.48E+01	2.70E+03	6.46E+01
2.70E+03	6.48E+01	2.70E+03	6.47E+01
2.70E+03	6.48E+01	2.70E+03	6.47E+01
2.70E+03	6.48E+01	2.70E+03	6.47E+01
2.70E+03	6.48E+01	2.70E+03	6.47E+01
2.70E+03	6.48E+01	2.70E+03	6.47E+01
2.70E+03	6.48E+01	2.70E+03	6.47E+01
2.70E+03	6.48E+01	2.70E+03	6.47E+01
2.70E+03	6.48E+01	2.70E+03	6.47E+01
2.70E+03	6.48E+01	2.70E+03	6.47E+01
2.70E+03	6.48E+01	2.70E+03	6.48E+01
2.70E+03	6.48E+01	2.70E+03	6.48E+01
2.70E+03	6.48E+01	2.70E+03	6.48E+01
2.70E+03	6.47E+01	2.70E+03	6.48E+01
2.70E+03	6.47E+01	2.70E+03	6.48E+01
2.70E+03	6.48E+01	2.70E+03	6.47E+01
2.70E+03	6.47E+01	2.70E+03	6.47E+01
2.70E+03	6.48E+01	2.70E+03	6.48E+01
2.70E+03	6.47E+01	2.70E+03	6.48E+01
2.70E+03	6.47E+01	2.70E+03	6.48E+01
2.70E+03	6.48E+01	2.70E+03	6.47E+01
2.70E+03	6.47E+01	2.70E+03	6.48E+01
2.70E+03	6.48E+01	2.70E+03	6.47E+01
2.70E+03	6.48E+01	2.70E+03	6.48E+01
2.70E+03	6.48E+01	2.70E+03	6.48E+01
2.70E+03	6.47E+01	2.70E+03	6.48E+01
2.70E+03	6.47E+01	2.70E+03	6.47E+01
2.70E+03	6.47E+01	2.70E+03	6.48E+01
2.70E+03	6.47E+01	2.70E+03	6.48E+01
2.70E+03	6.48E+01	2.70E+03	6.48E+01
2.70E+03	6.48E+01	2.70E+03	6.48E+01
2.70E+03	6.48E+01	2.70E+03	6.48E+01
2.70E+03	6.48E+01	2.70E+03	6.48E+01
2.70E+03	6.48E+01	2.70E+03	6.48E+01
2.70E+03	6.48E+01	2.70E+03	6.48E+01
2.70E+03	6.48E+01	2.70E+03	6.48E+01
2.70E+03	6.48E+01	2.70E+03	6.48E+01
2.70E+03	6.48E+01	2.70E+03	6.48E+01

SRT-GPD-2003-00072, Rev. 1

D[1/s]	Tau[Pa]	D[1/s]	Tau[Pa]
2.70E+03	6.48E+01	2.70E+03	6.48E+01
2.70E+03	6.48E+01	2.70E+03	6.47E+01
2.70E+03	6.48E+01	2.70E+03	6.47E+01
2.70E+03	6.48E+01	2.70E+03	6.47E+01
2.70E+03	6.48E+01	2.70E+03	6.47E+01
2.70E+03	6.48E+01	2.70E+03	6.48E+01
2.70E+03	6.48E+01	2.70E+03	6.47E+01
2.70E+03	6.48E+01	2.70E+03	6.47E+01
2.70E+03	6.48E+01	2.70E+03	6.47E+01
2.70E+03	6.48E+01	2.70E+03	6.47E+01
2.70E+03	6.49E+01	2.70E+03	6.47E+01
2.70E+03	6.49E+01	2.70E+03	6.47E+01
2.70E+03	6.49E+01	2.70E+03	6.47E+01
2.70E+03	6.49E+01	2.70E+03	6.47E+01
2.70E+03	6.49E+01	2.70E+03	6.47E+01
2.70E+03	6.48E+01	2.70E+03	6.47E+01
2.70E+03	6.49E+01	2.70E+03	6.47E+01
2.70E+03	6.48E+01	2.70E+03	6.47E+01
2.70E+03	6.49E+01	2.70E+03	6.47E+01
2.70E+03	6.48E+01	2.70E+03	6.47E+01
2.70E+03	6.48E+01	2.70E+03	6.47E+01
2.70E+03	6.48E+01	2.70E+03	6.48E+01
2.70E+03	6.48E+01	2.70E+03	6.47E+01
2.70E+03	6.48E+01	2.70E+03	6.47E+01
2.70E+03	6.48E+01	2.70E+03	6.47E+01
2.70E+03	6.48E+01	2.70E+03	6.47E+01
2.70E+03	6.48E+01	2.70E+03	6.46E+01
2.70E+03	6.48E+01	2.70E+03	6.47E+01
2.70E+03	6.48E+01	2.70E+03	6.47E+01
2.70E+03	6.48E+01	2.70E+03	6.46E+01
2.70E+03	6.48E+01	2.70E+03	6.46E+01
2.70E+03	6.48E+01	2.70E+03	6.46E+01
2.70E+03	6.48E+01	2.70E+03	6.47E+01
2.70E+03	6.48E+01	2.70E+03	6.47E+01
2.70E+03	6.48E+01	2.70E+03	6.47E+01
2.70E+03	6.48E+01	2.70E+03	6.47E+01
2.70E+03	6.48E+01	2.70E+03	6.47E+01
2.70E+03	6.48E+01	2.70E+03	6.47E+01
2.70E+03	6.48E+01	2.70E+03	6.47E+01
2.70E+03	6.48E+01	2.70E+03	6.48E+01
2.70E+03	6.48E+01	2.70E+03	6.47E+01
2.70E+03	6.48E+01	2.70E+03	6.47E+01
2.70E+03	6.48E+01	2.70E+03	6.47E+01
2.70E+03	6.48E+01	2.70E+03	6.47E+01
2.70E+03	6.48E+01	2.70E+03	6.46E+01
2.70E+03	6.48E+01	2.70E+03	6.47E+01
2.70E+03	6.48E+01	2.70E+03	6.46E+01
2.70E+03	6.48E+01	2.70E+03	6.46E+01
2.70E+03	6.48E+01	2.70E+03	6.46E+01
2.70E+03	6.47E+01	2.70E+03	6.46E+01
2.70E+03	6.48E+01	2.70E+03	6.46E+01
2.70E+03	6.48E+01	2.70E+03	6.46E+01
2.70E+03	6.48E+01	2.70E+03	6.46E+01
2.70E+03	6.48E+01	2.70E+03	6.46E+01

SRT-GPD-2003-00072, Rev. 1

D[1/s]	Tau[Pa]	D[1/s]	Tau[Pa]
2.70E+03	6.47E+01	2.33E+03	5.62E+01
2.70E+03	6.46E+01	2.32E+03	5.59E+01
2.70E+03	6.46E+01	2.31E+03	5.58E+01
2.70E+03	6.46E+01	2.30E+03	5.55E+01
2.70E+03	6.46E+01	2.29E+03	5.52E+01
2.70E+03	6.46E+01	2.28E+03	5.50E+01
2.70E+03	6.46E+01	2.27E+03	5.47E+01
2.70E+03	6.46E+01	2.26E+03	5.45E+01
2.70E+03	6.46E+01	2.25E+03	5.43E+01
2.70E+03	6.46E+01	2.23E+03	5.40E+01
2.70E+03	6.46E+01	2.22E+03	5.38E+01
2.70E+03	6.46E+01	2.21E+03	5.35E+01
2.70E+03	6.46E+01	2.20E+03	5.32E+01
2.70E+03	6.46E+01	2.19E+03	5.30E+01
2.70E+03	6.46E+01	2.18E+03	5.28E+01
2.70E+03	6.46E+01	2.17E+03	5.26E+01
2.70E+03	6.46E+01	2.16E+03	5.23E+01
2.70E+03	6.46E+01	2.15E+03	5.20E+01
2.70E+03	6.46E+01	2.14E+03	5.18E+01
2.70E+03	6.46E+01	2.13E+03	5.15E+01
2.69E+03	6.45E+01	2.12E+03	5.13E+01
2.69E+03	6.43E+01	2.11E+03	5.10E+01
2.68E+03	6.40E+01	2.09E+03	5.07E+01
2.67E+03	6.38E+01	2.08E+03	5.05E+01
2.66E+03	6.35E+01	2.07E+03	5.02E+01
2.65E+03	6.33E+01	2.06E+03	4.99E+01
2.64E+03	6.31E+01	2.05E+03	4.98E+01
2.63E+03	6.29E+01	2.04E+03	4.96E+01
2.61E+03	6.26E+01	2.03E+03	4.92E+01
2.60E+03	6.25E+01	2.02E+03	4.90E+01
2.59E+03	6.22E+01	2.01E+03	4.87E+01
2.58E+03	6.19E+01	2.00E+03	4.85E+01
2.57E+03	6.17E+01	1.99E+03	4.83E+01
2.56E+03	6.11E+01	1.97E+03	4.79E+01
2.55E+03	6.08E+01	1.96E+03	4.78E+01
2.54E+03	6.07E+01	1.95E+03	4.75E+01
2.53E+03	6.05E+01	1.94E+03	4.72E+01
2.52E+03	6.04E+01	1.93E+03	4.69E+01
2.51E+03	6.01E+01	1.92E+03	4.66E+01
2.50E+03	5.99E+01	1.91E+03	4.64E+01
2.49E+03	5.97E+01	1.90E+03	4.62E+01
2.47E+03	5.94E+01	1.89E+03	4.59E+01
2.46E+03	5.92E+01	1.88E+03	4.57E+01
2.45E+03	5.89E+01	1.87E+03	4.55E+01
2.44E+03	5.87E+01	1.86E+03	4.52E+01
2.43E+03	5.85E+01	1.85E+03	4.52E+01
2.42E+03	5.82E+01	1.83E+03	4.47E+01
2.41E+03	5.79E+01	1.82E+03	4.45E+01
2.40E+03	5.77E+01	1.81E+03	4.42E+01
2.39E+03	5.74E+01	1.80E+03	4.39E+01
2.38E+03	5.72E+01	1.79E+03	4.36E+01
2.37E+03	5.69E+01	1.78E+03	4.33E+01
2.36E+03	5.67E+01	1.77E+03	4.31E+01
2.34E+03	5.65E+01	1.76E+03	4.28E+01

SRT-GPD-2003-00072, Rev. 1

D[1/s]	Tau[Pa]	D[1/s]	Tau[Pa]
1.75E+03	4.25E+01	1.16E+03	2.90E+01
1.74E+03	4.23E+01	1.15E+03	2.87E+01
1.72E+03	4.21E+01	1.14E+03	2.83E+01
1.71E+03	4.19E+01	1.13E+03	2.81E+01
1.70E+03	4.17E+01	1.12E+03	2.83E+01
1.69E+03	4.13E+01	1.11E+03	2.78E+01
1.68E+03	4.12E+01	1.10E+03	2.75E+01
1.67E+03	4.09E+01	1.09E+03	2.71E+01
1.66E+03	4.06E+01	1.08E+03	2.70E+01
1.65E+03	4.05E+01	1.06E+03	2.75E+01
1.64E+03	4.02E+01	1.05E+03	2.74E+01
1.63E+03	4.03E+01	1.04E+03	2.69E+01
1.62E+03	4.01E+01	1.03E+03	2.62E+01
1.61E+03	3.97E+01	1.02E+03	2.58E+01
1.60E+03	3.96E+01	1.01E+03	2.57E+01
1.58E+03	3.93E+01	9.99E+02	2.53E+01
1.57E+03	3.89E+01	9.89E+02	2.50E+01
1.56E+03	3.85E+01	9.77E+02	2.46E+01
1.55E+03	3.81E+01	9.66E+02	2.43E+01
1.54E+03	3.83E+01	9.54E+02	2.39E+01
1.53E+03	3.79E+01	9.44E+02	2.38E+01
1.52E+03	3.74E+01	9.34E+02	2.36E+01
1.51E+03	3.71E+01	9.22E+02	2.32E+01
1.50E+03	3.68E+01	9.12E+02	2.31E+01
1.49E+03	3.65E+01	9.00E+02	2.28E+01
1.48E+03	3.62E+01	8.90E+02	2.25E+01
1.46E+03	3.59E+01	8.80E+02	2.23E+01
1.45E+03	3.58E+01	8.68E+02	2.20E+01
1.44E+03	3.56E+01	8.58E+02	2.18E+01
1.43E+03	3.55E+01	8.48E+02	2.15E+01
1.42E+03	3.52E+01	8.35E+02	2.11E+01
1.41E+03	3.49E+01	8.25E+02	2.09E+01
1.40E+03	3.54E+01	8.13E+02	2.07E+01
1.39E+03	3.48E+01	8.03E+02	2.04E+01
1.38E+03	3.43E+01	7.93E+02	2.02E+01
1.37E+03	3.40E+01	7.80E+02	2.00E+01
1.36E+03	3.37E+01	7.71E+02	1.98E+01
1.35E+03	3.33E+01	7.61E+02	1.96E+01
1.34E+03	3.32E+01	7.48E+02	1.91E+01
1.32E+03	3.30E+01	7.39E+02	1.89E+01
1.31E+03	3.27E+01	7.26E+02	1.85E+01
1.30E+03	3.24E+01	7.17E+02	1.84E+01
1.29E+03	3.19E+01	7.07E+02	1.82E+01
1.28E+03	3.18E+01	6.94E+02	1.78E+01
1.27E+03	3.15E+01	6.84E+02	1.76E+01
1.26E+03	3.13E+01	6.74E+02	1.73E+01
1.25E+03	3.10E+01	6.62E+02	1.71E+01
1.24E+03	3.07E+01	6.52E+02	1.85E+01
1.23E+03	3.04E+01	6.35E+02	1.72E+01
1.22E+03	3.02E+01	6.29E+02	1.69E+01
1.20E+03	2.99E+01	6.15E+02	1.64E+01
1.19E+03	2.97E+01	6.10E+02	1.62E+01
1.18E+03	2.97E+01	6.07E+02	1.61E+01
1.17E+03	2.93E+01	5.79E+02	1.52E+01

SRT-GPD-2003-00072, Rev. 1

D[1/s]	Tau[Pa]	D[1/s]	Tau[Pa]
5.77E+02	1.52E+01	2.94E+02	8.15E+00
5.66E+02	1.50E+01	2.82E+02	7.86E+00
5.55E+02	1.46E+01	2.72E+02	7.64E+00
5.45E+02	1.44E+01	2.62E+02	7.41E+00
5.32E+02	1.40E+01	2.51E+02	7.13E+00
5.22E+02	1.38E+01	2.41E+02	6.92E+00
5.12E+02	1.36E+01	2.28E+02	6.62E+00
4.99E+02	1.33E+01	2.19E+02	6.42E+00
4.90E+02	1.31E+01	2.06E+02	6.06E+00
4.77E+02	1.28E+01	1.96E+02	5.86E+00
4.67E+02	1.25E+01	1.86E+02	5.70E+00
4.57E+02	1.23E+01	1.74E+02	5.33E+00
4.45E+02	1.19E+01	1.64E+02	5.17E+00
4.35E+02	1.17E+01	1.54E+02	4.86E+00
4.23E+02	1.14E+01	1.41E+02	6.30E+00
4.13E+02	1.11E+01	1.31E+02	5.97E+00
4.03E+02	1.09E+01	1.19E+02	5.21E+00
3.91E+02	1.07E+01	1.09E+02	4.45E+00
3.81E+02	1.04E+01	9.92E+01	3.88E+00
3.70E+02	1.01E+01	8.68E+01	6.26E+00
3.59E+02	9.81E+00	7.68E+01	6.16E+00
3.47E+02	9.47E+00	6.45E+01	4.29E+00
3.37E+02	9.25E+00	5.46E+01	3.33E+00
3.27E+02	9.00E+00	4.47E+01	3.09E+00
3.17E+02	8.75E+00	3.22E+01	3.98E+00
3.04E+02	8.39E+00	2.24E+01	3.63E+00

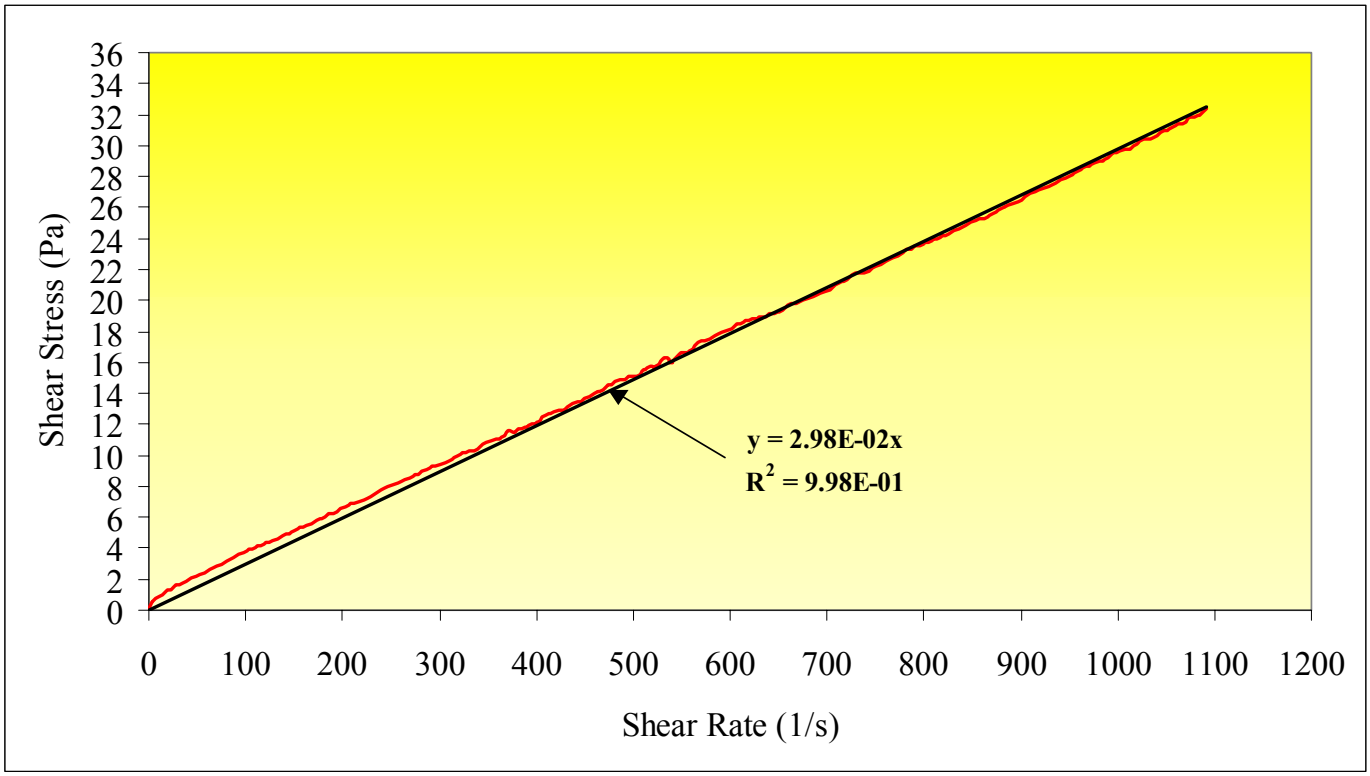
Appendix B – Newtonian Oil Runs

Table B-1 summarizes the results for the Newtonian oil runs completed using the MVI and NV geometry.

Table B-1 – Results for the Newtonian Oil at 25°C Completed in the MVI and the NV Geometry

Geometry	Fitted Shear Rate Range (s^{-1})	Temperature	η (cP)	R^2
MVI	0 – 1170	25°C	29.8	0.99
NV	0 - 2700	25°C	29.4	0.99
Known Value of Oil	-	25°C	28.4	-

Figure B-1 - Flow Curve for the Newtonian Oil Sample at 25°C (MVI)



Raw Data Newtonian Oil Results at 25°C (MVI)

D[1/s]	Tau[Pa]	D[1/s]	Tau[Pa]
0.00E+00	7.19E-02	6.33E+00	7.58E-01
1.07E+00	3.54E-01	9.68E+00	9.12E-01
2.69E+00	5.34E-01	1.33E+01	1.03E+00

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D[1/s]	Tau[Pa]	D[1/s]	Tau[Pa]
1.81E+01	1.19E+00	2.57E+02	8.20E+00
2.20E+01	1.33E+00	2.61E+02	8.36E+00
2.69E+01	1.49E+00	2.65E+02	8.45E+00
3.11E+01	1.62E+00	2.69E+02	8.58E+00
3.53E+01	1.76E+00	2.74E+02	8.77E+00
3.93E+01	1.91E+00	2.78E+02	8.78E+00
4.46E+01	2.10E+00	2.83E+02	8.97E+00
4.88E+01	2.23E+00	2.87E+02	9.08E+00
5.31E+01	2.33E+00	2.92E+02	9.32E+00
5.71E+01	2.43E+00	2.96E+02	9.30E+00
6.26E+01	2.62E+00	3.00E+02	9.39E+00
6.57E+01	2.74E+00	3.05E+02	9.49E+00
7.08E+01	2.87E+00	3.10E+02	9.62E+00
7.48E+01	2.97E+00	3.14E+02	9.73E+00
7.96E+01	3.13E+00	3.18E+02	9.94E+00
8.40E+01	3.27E+00	3.22E+02	1.01E+01
8.81E+01	3.43E+00	3.27E+02	1.02E+01
9.33E+01	3.58E+00	3.31E+02	1.03E+01
9.74E+01	3.70E+00	3.36E+02	1.03E+01
1.02E+02	3.80E+00	3.41E+02	1.05E+01
1.07E+02	3.93E+00	3.44E+02	1.07E+01
1.11E+02	4.03E+00	3.49E+02	1.08E+01
1.15E+02	4.20E+00	3.54E+02	1.09E+01
1.20E+02	4.27E+00	3.58E+02	1.10E+01
1.24E+02	4.43E+00	3.62E+02	1.11E+01
1.28E+02	4.52E+00	3.67E+02	1.13E+01
1.32E+02	4.64E+00	3.72E+02	1.16E+01
1.37E+02	4.80E+00	3.76E+02	1.15E+01
1.42E+02	4.88E+00	3.80E+02	1.16E+01
1.46E+02	4.97E+00	3.84E+02	1.17E+01
1.50E+02	5.13E+00	3.89E+02	1.18E+01
1.54E+02	5.25E+00	3.90E+02	1.18E+01
1.59E+02	5.38E+00	4.01E+02	1.21E+01
1.63E+02	5.47E+00	4.02E+02	1.22E+01
1.68E+02	5.62E+00	4.04E+02	1.23E+01
1.73E+02	5.83E+00	4.10E+02	1.26E+01
1.77E+02	5.90E+00	4.15E+02	1.27E+01
1.81E+02	6.06E+00	4.19E+02	1.28E+01
1.86E+02	6.23E+00	4.23E+02	1.29E+01
1.90E+02	6.29E+00	4.29E+02	1.29E+01
1.94E+02	6.40E+00	4.33E+02	1.31E+01
1.98E+02	6.55E+00	4.37E+02	1.34E+01
2.04E+02	6.67E+00	4.42E+02	1.34E+01
2.08E+02	6.86E+00	4.46E+02	1.35E+01
2.12E+02	6.91E+00	4.50E+02	1.37E+01
2.16E+02	6.97E+00	4.55E+02	1.38E+01
2.21E+02	7.12E+00	4.60E+02	1.40E+01
2.25E+02	7.21E+00	4.64E+02	1.41E+01
2.30E+02	7.33E+00	4.69E+02	1.42E+01
2.34E+02	7.52E+00	4.73E+02	1.44E+01
2.39E+02	7.80E+00	4.77E+02	1.45E+01
2.43E+02	7.85E+00	4.82E+02	1.48E+01
2.47E+02	7.96E+00	4.86E+02	1.48E+01
2.52E+02	8.09E+00	4.91E+02	1.49E+01

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D[1/s]	Tau[Pa]	D[1/s]	Tau[Pa]
2.57E+02	8.20E+00	4.95E+02	1.51E+01
2.61E+02	8.36E+00	4.99E+02	1.51E+01
2.65E+02	8.45E+00	5.03E+02	1.51E+01
2.69E+02	8.58E+00	5.08E+02	1.54E+01
2.74E+02	8.77E+00	5.12E+02	1.56E+01
2.78E+02	8.78E+00	5.17E+02	1.58E+01
2.83E+02	8.97E+00	5.22E+02	1.56E+01
2.87E+02	9.08E+00	5.26E+02	1.59E+01
2.92E+02	9.32E+00	5.30E+02	1.62E+01
2.96E+02	9.30E+00	5.35E+02	1.63E+01
3.00E+02	9.39E+00	5.39E+02	1.59E+01
3.05E+02	9.49E+00	5.44E+02	1.63E+01
3.10E+02	9.62E+00	5.48E+02	1.65E+01
3.14E+02	9.73E+00	5.52E+02	1.66E+01
3.18E+02	9.94E+00	5.57E+02	1.66E+01
3.22E+02	1.01E+01	5.61E+02	1.69E+01
3.27E+02	1.02E+01	5.65E+02	1.72E+01
3.31E+02	1.03E+01	5.70E+02	1.74E+01
3.36E+02	1.03E+01	5.75E+02	1.74E+01
3.41E+02	1.05E+01	5.79E+02	1.76E+01
3.44E+02	1.07E+01	5.84E+02	1.78E+01
3.49E+02	1.08E+01	5.88E+02	1.79E+01
3.54E+02	1.09E+01	5.92E+02	1.80E+01
3.58E+02	1.10E+01	5.97E+02	1.80E+01
3.62E+02	1.11E+01	6.01E+02	1.81E+01
3.67E+02	1.13E+01	6.05E+02	1.84E+01
3.72E+02	1.16E+01	6.10E+02	1.85E+01
3.76E+02	1.15E+01	6.14E+02	1.86E+01
3.80E+02	1.16E+01	6.18E+02	1.87E+01
3.84E+02	1.17E+01	6.24E+02	1.88E+01
3.89E+02	1.18E+01	6.27E+02	1.89E+01
3.90E+02	1.18E+01	6.32E+02	1.89E+01
4.01E+02	1.21E+01	6.36E+02	1.90E+01
4.02E+02	1.22E+01	6.41E+02	1.91E+01
4.04E+02	1.23E+01	6.45E+02	1.91E+01
4.10E+02	1.26E+01	6.49E+02	1.93E+01
4.15E+02	1.27E+01	6.54E+02	1.94E+01
4.19E+02	1.28E+01	6.59E+02	1.97E+01
4.23E+02	1.29E+01	6.63E+02	1.98E+01
4.29E+02	1.29E+01	6.67E+02	1.98E+01
4.33E+02	1.31E+01	6.71E+02	1.99E+01
4.37E+02	1.34E+01	6.76E+02	2.01E+01
4.42E+02	1.34E+01	6.81E+02	2.01E+01
4.46E+02	1.35E+01	6.85E+02	2.02E+01
4.50E+02	1.37E+01	6.89E+02	2.03E+01
4.55E+02	1.38E+01	6.93E+02	2.05E+01
4.60E+02	1.40E+01	6.99E+02	2.06E+01
4.64E+02	1.41E+01	7.03E+02	2.07E+01
4.69E+02	1.42E+01	7.07E+02	2.09E+01
4.73E+02	1.44E+01	7.12E+02	2.11E+01
4.77E+02	1.45E+01	7.16E+02	2.12E+01
4.82E+02	1.48E+01	7.20E+02	2.14E+01
4.86E+02	1.48E+01	7.25E+02	2.17E+01
4.91E+02	1.49E+01	7.30E+02	2.18E+01

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D[1/s]	Tau[Pa]	D[1/s]	Tau[Pa]
7.34E+02	2.18E+01	9.72E+02	2.87E+01
7.38E+02	2.18E+01	9.77E+02	2.89E+01
7.43E+02	2.19E+01	9.81E+02	2.90E+01
7.47E+02	2.21E+01	9.85E+02	2.90E+01
7.51E+02	2.22E+01	9.89E+02	2.92E+01
7.55E+02	2.24E+01	9.94E+02	2.94E+01
7.61E+02	2.25E+01	9.99E+02	2.95E+01
7.64E+02	2.27E+01	1.00E+03	2.97E+01
7.69E+02	2.27E+01	1.01E+03	2.98E+01
7.74E+02	2.29E+01	1.01E+03	2.98E+01
7.78E+02	2.30E+01	1.02E+03	3.00E+01
7.82E+02	2.33E+01	1.02E+03	3.02E+01
7.87E+02	2.33E+01	1.02E+03	3.03E+01
7.91E+02	2.35E+01	1.03E+03	3.04E+01
7.95E+02	2.36E+01	1.03E+03	3.05E+01
8.00E+02	2.37E+01	1.04E+03	3.07E+01
8.05E+02	2.38E+01	1.04E+03	3.08E+01
8.09E+02	2.39E+01	1.05E+03	3.10E+01
8.13E+02	2.40E+01	1.05E+03	3.10E+01
8.17E+02	2.41E+01	1.06E+03	3.12E+01
8.22E+02	2.42E+01	1.06E+03	3.13E+01
8.26E+02	2.43E+01	1.06E+03	3.14E+01
8.31E+02	2.45E+01	1.07E+03	3.15E+01
8.36E+02	2.46E+01	1.07E+03	3.18E+01
8.40E+02	2.47E+01	1.08E+03	3.18E+01
8.44E+02	2.49E+01	1.08E+03	3.20E+01
8.49E+02	2.50E+01	1.09E+03	3.21E+01
8.53E+02	2.52E+01	1.09E+03	3.24E+01
8.57E+02	2.53E+01	1.09E+03	3.21E+01
8.62E+02	2.53E+01	1.09E+03	3.19E+01
8.66E+02	2.54E+01	1.09E+03	3.20E+01
8.71E+02	2.56E+01	1.10E+03	3.21E+01
8.75E+02	2.57E+01	1.10E+03	3.22E+01
8.79E+02	2.59E+01	1.10E+03	3.23E+01
8.84E+02	2.61E+01	1.10E+03	3.23E+01
8.88E+02	2.62E+01	1.10E+03	3.24E+01
8.92E+02	2.63E+01	1.10E+03	3.25E+01
8.97E+02	2.64E+01	1.10E+03	3.23E+01
9.01E+02	2.65E+01	1.10E+03	3.24E+01
9.05E+02	2.67E+01	1.10E+03	3.21E+01
9.10E+02	2.69E+01	1.10E+03	3.22E+01
9.15E+02	2.70E+01	1.10E+03	3.23E+01
9.19E+02	2.71E+01	1.10E+03	3.22E+01
9.23E+02	2.72E+01	1.10E+03	3.22E+01
9.28E+02	2.74E+01	1.10E+03	3.22E+01
9.32E+02	2.74E+01	1.10E+03	3.22E+01
9.37E+02	2.76E+01	1.10E+03	3.22E+01
9.42E+02	2.78E+01	1.10E+03	3.21E+01
9.46E+02	2.79E+01	1.10E+03	3.22E+01
9.50E+02	2.80E+01	1.10E+03	3.23E+01
9.54E+02	2.81E+01	1.10E+03	3.23E+01
9.58E+02	2.83E+01	1.10E+03	3.23E+01
9.63E+02	2.85E+01	1.10E+03	3.23E+01
9.68E+02	2.86E+01	1.10E+03	3.23E+01

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D[1/s]	Tau[Pa]	D[1/s]	Tau[Pa]
1.10E+03	3.22E+01	1.10E+03	3.23E+01
1.10E+03	3.22E+01	1.10E+03	3.23E+01
1.10E+03	3.23E+01	1.10E+03	3.23E+01
1.10E+03	3.23E+01	1.10E+03	3.23E+01
1.10E+03	3.22E+01	1.10E+03	3.24E+01
1.10E+03	3.22E+01	1.10E+03	3.24E+01
1.10E+03	3.23E+01	1.10E+03	3.24E+01
1.10E+03	3.23E+01	1.10E+03	3.24E+01
1.10E+03	3.22E+01	1.10E+03	3.24E+01
1.10E+03	3.22E+01	1.10E+03	3.23E+01
1.10E+03	3.21E+01	1.10E+03	3.23E+01
1.10E+03	3.22E+01	1.10E+03	3.23E+01
1.10E+03	3.22E+01	1.10E+03	3.24E+01
1.10E+03	3.22E+01	1.10E+03	3.26E+01
1.10E+03	3.21E+01	1.10E+03	3.26E+01
1.10E+03	3.23E+01	1.10E+03	3.25E+01
1.10E+03	3.23E+01	1.10E+03	3.25E+01
1.10E+03	3.24E+01	1.10E+03	3.25E+01
1.10E+03	3.23E+01	1.10E+03	3.25E+01
1.10E+03	3.23E+01	1.10E+03	3.24E+01
1.10E+03	3.23E+01	1.10E+03	3.26E+01
1.10E+03	3.23E+01	1.10E+03	3.24E+01
1.10E+03	3.23E+01	1.10E+03	3.24E+01
1.10E+03	3.23E+01	1.10E+03	3.24E+01
1.10E+03	3.25E+01	1.10E+03	3.24E+01
1.10E+03	3.26E+01	1.10E+03	3.23E+01
1.10E+03	3.26E+01	1.10E+03	3.22E+01
1.10E+03	3.26E+01	1.10E+03	3.22E+01
1.10E+03	3.25E+01	1.10E+03	3.22E+01
1.10E+03	3.25E+01	1.10E+03	3.22E+01
1.10E+03	3.25E+01	1.10E+03	3.21E+01
1.10E+03	3.25E+01	1.10E+03	3.20E+01
1.10E+03	3.25E+01	1.10E+03	3.20E+01
1.10E+03	3.25E+01	1.10E+03	3.20E+01
1.10E+03	3.25E+01	1.10E+03	3.20E+01
1.10E+03	3.25E+01	1.10E+03	3.22E+01
1.10E+03	3.27E+01	1.10E+03	3.21E+01
1.10E+03	3.26E+01	1.10E+03	3.20E+01
1.10E+03	3.25E+01	1.10E+03	3.20E+01
1.10E+03	3.25E+01	1.10E+03	3.21E+01
1.10E+03	3.25E+01	1.10E+03	3.20E+01
1.10E+03	3.24E+01	1.10E+03	3.19E+01
1.10E+03	3.24E+01	1.10E+03	3.20E+01
1.10E+03	3.24E+01	1.10E+03	3.21E+01
1.10E+03	3.24E+01	1.10E+03	3.21E+01
1.10E+03	3.26E+01	1.10E+03	3.20E+01
1.10E+03	3.23E+01	1.10E+03	3.20E+01
1.10E+03	3.25E+01	1.10E+03	3.21E+01
1.10E+03	3.25E+01	1.10E+03	3.22E+01
1.10E+03	3.25E+01	1.10E+03	3.21E+01
1.10E+03	3.25E+01	1.10E+03	3.22E+01
1.10E+03	3.25E+01	1.10E+03	3.22E+01
1.10E+03	3.24E+01	1.10E+03	3.23E+01
1.10E+03	3.24E+01	1.10E+03	3.23E+01

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D[1/s]	Tau[Pa]	D[1/s]	Tau[Pa]
1.10E+03	3.23E+01	1.10E+03	3.24E+01
1.10E+03	3.23E+01	1.10E+03	3.24E+01
1.10E+03	3.23E+01	1.10E+03	3.23E+01
1.10E+03	3.24E+01	1.10E+03	3.24E+01
1.10E+03	3.24E+01	1.10E+03	3.23E+01
1.10E+03	3.24E+01	1.10E+03	3.24E+01
1.10E+03	3.23E+01	1.10E+03	3.24E+01
1.10E+03	3.24E+01	1.10E+03	3.25E+01
1.10E+03	3.23E+01	1.10E+03	3.25E+01
1.10E+03	3.24E+01	1.10E+03	3.24E+01
1.10E+03	3.24E+01	1.10E+03	3.26E+01
1.10E+03	3.24E+01	1.10E+03	3.25E+01
1.10E+03	3.25E+01	1.10E+03	3.25E+01
1.10E+03	3.25E+01	1.10E+03	3.25E+01
1.10E+03	3.24E+01	1.10E+03	3.25E+01
1.10E+03	3.24E+01	1.10E+03	3.25E+01
1.10E+03	3.23E+01	1.10E+03	3.25E+01
1.10E+03	3.23E+01	1.10E+03	3.25E+01
1.10E+03	3.24E+01	1.10E+03	3.24E+01
1.10E+03	3.24E+01	1.10E+03	3.23E+01
1.10E+03	3.24E+01	1.10E+03	3.23E+01
1.10E+03	3.25E+01	1.10E+03	3.23E+01
1.10E+03	3.26E+01	1.10E+03	3.23E+01
1.10E+03	3.25E+01	1.10E+03	3.24E+01
1.10E+03	3.25E+01	1.10E+03	3.25E+01
1.10E+03	3.26E+01	1.10E+03	3.25E+01
1.10E+03	3.26E+01	1.10E+03	3.23E+01
1.10E+03	3.26E+01	1.10E+03	3.24E+01
1.10E+03	3.26E+01	1.10E+03	3.24E+01
1.10E+03	3.26E+01	1.10E+03	3.23E+01
1.10E+03	3.25E+01	1.10E+03	3.24E+01
1.10E+03	3.24E+01	1.10E+03	3.24E+01
1.10E+03	3.25E+01	1.10E+03	3.23E+01
1.10E+03	3.25E+01	1.10E+03	3.24E+01
1.10E+03	3.25E+01	1.10E+03	3.25E+01
1.10E+03	3.24E+01	1.10E+03	3.24E+01
1.10E+03	3.24E+01	1.10E+03	3.25E+01
1.10E+03	3.24E+01	1.10E+03	3.25E+01
1.10E+03	3.25E+01	1.10E+03	3.24E+01
1.10E+03	3.25E+01	1.10E+03	3.24E+01
1.10E+03	3.25E+01	1.10E+03	3.24E+01
1.10E+03	3.24E+01	1.10E+03	3.24E+01
1.10E+03	3.24E+01	1.10E+03	3.24E+01
1.10E+03	3.24E+01	1.10E+03	3.24E+01
1.10E+03	3.24E+01	1.10E+03	3.22E+01
1.10E+03	3.24E+01	1.10E+03	3.23E+01
1.10E+03	3.24E+01	1.10E+03	3.23E+01
1.10E+03	3.24E+01	1.10E+03	3.23E+01
1.10E+03	3.24E+01	1.10E+03	3.22E+01
1.10E+03	3.23E+01	1.10E+03	3.22E+01
1.10E+03	3.24E+01	1.10E+03	3.22E+01
1.10E+03	3.23E+01	1.10E+03	3.23E+01
1.10E+03	3.24E+01	1.10E+03	3.24E+01
1.10E+03	3.24E+01	1.10E+03	3.23E+01

SRT-GPD-2003-00072, Rev. 1

D[1/s]	Tau[Pa]	D[1/s]	Tau[Pa]
1.10E+03	3.23E+01	9.06E+02	2.66E+01
1.10E+03	3.23E+01	9.02E+02	2.66E+01
1.10E+03	3.23E+01	9.01E+02	2.66E+01
1.10E+03	3.23E+01	8.91E+02	2.64E+01
1.10E+03	3.23E+01	8.89E+02	2.63E+01
1.10E+03	3.23E+01	8.86E+02	2.63E+01
1.10E+03	3.23E+01	8.81E+02	2.61E+01
1.10E+03	3.22E+01	8.76E+02	2.60E+01
1.10E+03	3.22E+01	8.72E+02	2.59E+01
1.10E+03	3.22E+01	8.66E+02	2.57E+01
1.10E+03	3.21E+01	8.62E+02	2.56E+01
1.09E+03	3.21E+01	8.58E+02	2.55E+01
1.09E+03	3.20E+01	8.53E+02	2.53E+01
1.09E+03	3.18E+01	8.48E+02	2.53E+01
1.08E+03	3.18E+01	8.44E+02	2.51E+01
1.08E+03	3.16E+01	8.40E+02	2.49E+01
1.07E+03	3.15E+01	8.35E+02	2.48E+01
1.07E+03	3.13E+01	8.31E+02	2.46E+01
1.07E+03	3.13E+01	8.26E+02	2.46E+01
1.06E+03	3.12E+01	8.22E+02	2.45E+01
1.06E+03	3.10E+01	8.18E+02	2.44E+01
1.05E+03	3.09E+01	8.13E+02	2.42E+01
1.05E+03	3.08E+01	8.09E+02	2.42E+01
1.04E+03	3.07E+01	8.04E+02	2.40E+01
1.04E+03	3.05E+01	8.00E+02	2.38E+01
1.03E+03	3.05E+01	7.96E+02	2.37E+01
1.03E+03	3.03E+01	7.91E+02	2.36E+01
1.03E+03	3.03E+01	7.87E+02	2.35E+01
1.02E+03	3.01E+01	7.82E+02	2.33E+01
1.02E+03	3.00E+01	7.78E+02	2.32E+01
1.01E+03	2.99E+01	7.74E+02	2.31E+01
1.01E+03	2.97E+01	7.69E+02	2.31E+01
1.00E+03	2.96E+01	7.64E+02	2.29E+01
9.99E+02	2.94E+01	7.60E+02	2.28E+01
9.94E+02	2.93E+01	7.56E+02	2.26E+01
9.90E+02	2.92E+01	7.52E+02	2.25E+01
9.86E+02	2.90E+01	7.47E+02	2.23E+01
9.81E+02	2.89E+01	7.43E+02	2.22E+01
9.76E+02	2.88E+01	7.38E+02	2.20E+01
9.72E+02	2.87E+01	7.34E+02	2.19E+01
9.68E+02	2.86E+01	7.30E+02	2.18E+01
9.64E+02	2.85E+01	7.24E+02	2.16E+01
9.59E+02	2.83E+01	7.20E+02	2.15E+01
9.54E+02	2.81E+01	7.16E+02	2.14E+01
9.50E+02	2.80E+01	7.11E+02	2.13E+01
9.46E+02	2.80E+01	7.07E+02	2.11E+01
9.42E+02	2.79E+01	7.03E+02	2.10E+01
9.37E+02	2.77E+01	6.98E+02	2.09E+01
9.32E+02	2.76E+01	6.94E+02	2.08E+01
9.28E+02	2.75E+01	6.89E+02	2.07E+01
9.24E+02	2.73E+01	6.85E+02	2.05E+01
9.19E+02	2.72E+01	6.81E+02	2.04E+01
9.15E+02	2.71E+01	6.76E+02	2.03E+01
9.11E+02	2.69E+01	6.72E+02	2.01E+01

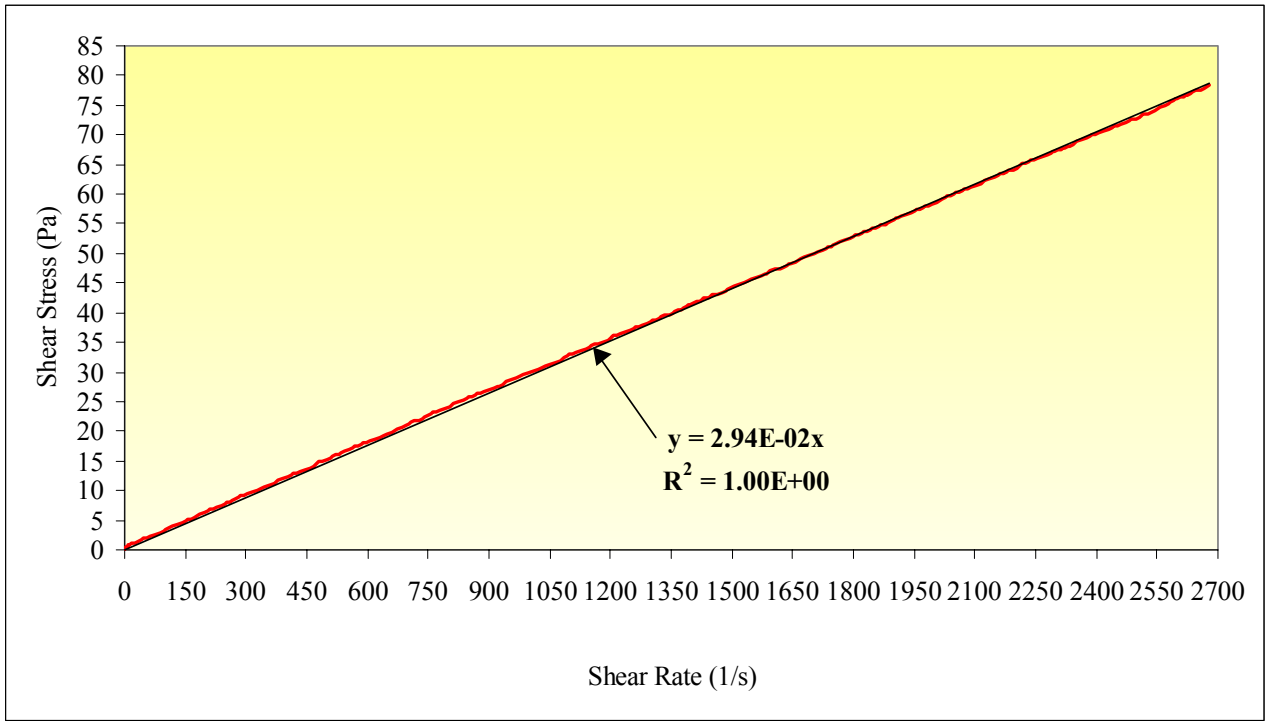
SRT-GPD-2003-00072, Rev. 1

D[1/s]	Tau[Pa]	D[1/s]	Tau[Pa]
6.68E+02	2.00E+01	4.29E+02	1.31E+01
6.63E+02	2.00E+01	4.24E+02	1.29E+01
6.59E+02	1.98E+01	4.20E+02	1.28E+01
6.55E+02	1.97E+01	4.16E+02	1.27E+01
6.49E+02	1.95E+01	4.12E+02	1.25E+01
6.45E+02	1.93E+01	4.08E+02	1.25E+01
6.41E+02	1.92E+01	4.03E+02	1.23E+01
6.36E+02	1.91E+01	3.98E+02	1.23E+01
6.32E+02	1.91E+01	3.94E+02	1.22E+01
6.28E+02	1.91E+01	3.89E+02	1.21E+01
6.23E+02	1.90E+01	3.85E+02	1.19E+01
6.19E+02	1.89E+01	3.81E+02	1.17E+01
6.15E+02	1.88E+01	3.76E+02	1.15E+01
6.10E+02	1.86E+01	3.72E+02	1.15E+01
6.06E+02	1.86E+01	3.67E+02	1.16E+01
6.02E+02	1.85E+01	3.63E+02	1.14E+01
5.97E+02	1.84E+01	3.58E+02	1.11E+01
5.92E+02	1.83E+01	3.54E+02	1.10E+01
5.88E+02	1.81E+01	3.50E+02	1.10E+01
5.83E+02	1.79E+01	3.45E+02	1.08E+01
5.79E+02	1.78E+01	3.41E+02	1.07E+01
5.75E+02	1.77E+01	3.36E+02	1.06E+01
5.71E+02	1.75E+01	3.32E+02	1.05E+01
5.66E+02	1.74E+01	3.27E+02	1.02E+01
5.62E+02	1.74E+01	3.23E+02	1.01E+01
5.57E+02	1.72E+01	3.19E+02	9.97E+00
5.52E+02	1.71E+01	3.14E+02	9.88E+00
5.48E+02	1.69E+01	3.10E+02	9.63E+00
5.44E+02	1.68E+01	3.06E+02	9.56E+00
5.39E+02	1.67E+01	3.01E+02	9.44E+00
5.35E+02	1.65E+01	2.97E+02	9.35E+00
5.31E+02	1.63E+01	2.92E+02	9.21E+00
5.26E+02	1.61E+01	2.87E+02	9.09E+00
5.22E+02	1.60E+01	2.83E+02	8.95E+00
5.18E+02	1.58E+01	2.79E+02	8.85E+00
5.14E+02	1.58E+01	2.75E+02	8.70E+00
5.08E+02	1.57E+01	2.71E+02	8.60E+00
5.04E+02	1.55E+01	2.65E+02	8.38E+00
5.00E+02	1.55E+01	2.61E+02	8.29E+00
4.95E+02	1.53E+01	2.57E+02	8.16E+00
4.91E+02	1.51E+01	2.53E+02	8.04E+00
4.87E+02	1.50E+01	2.48E+02	7.96E+00
4.83E+02	1.49E+01	2.43E+02	7.90E+00
4.78E+02	1.47E+01	2.39E+02	7.83E+00
4.73E+02	1.44E+01	2.35E+02	7.66E+00
4.69E+02	1.44E+01	2.30E+02	7.45E+00
4.64E+02	1.42E+01	2.26E+02	7.34E+00
4.60E+02	1.41E+01	2.22E+02	7.26E+00
4.56E+02	1.40E+01	2.17E+02	7.04E+00
4.51E+02	1.38E+01	2.12E+02	6.94E+00
4.46E+02	1.37E+01	2.08E+02	6.80E+00
4.42E+02	1.36E+01	2.04E+02	6.66E+00
4.38E+02	1.33E+01	2.00E+02	6.54E+00
4.34E+02	1.31E+01	1.94E+02	6.37E+00

SRT-GPD-2003-00072, Rev. 1

D[1/s]	Tau[Pa]	D[1/s]	Tau[Pa]
1.90E+02	6.19E+00	9.79E+01	3.60E+00
1.86E+02	6.09E+00	9.37E+01	3.47E+00
1.81E+02	6.03E+00	8.85E+01	3.30E+00
1.77E+02	5.92E+00	8.43E+01	3.19E+00
1.73E+02	5.74E+00	8.03E+01	3.07E+00
1.68E+02	5.63E+00	7.54E+01	2.91E+00
1.64E+02	5.54E+00	7.14E+01	2.81E+00
1.59E+02	5.38E+00	6.71E+01	2.66E+00
1.55E+02	5.31E+00	6.18E+01	2.51E+00
1.51E+02	5.18E+00	5.75E+01	2.37E+00
1.46E+02	5.05E+00	5.33E+01	2.24E+00
1.42E+02	4.91E+00	4.90E+01	2.11E+00
1.38E+02	4.79E+00	4.39E+01	1.94E+00
1.33E+02	4.67E+00	3.97E+01	1.82E+00
1.28E+02	4.52E+00	3.57E+01	1.69E+00
1.24E+02	4.38E+00	3.15E+01	1.56E+00
1.20E+02	4.26E+00	2.63E+01	1.40E+00
1.15E+02	4.14E+00	2.21E+01	1.28E+00
1.11E+02	4.01E+00	1.80E+01	1.17E+00
1.07E+02	3.88E+00	1.30E+01	1.03E+00
1.02E+02	3.73E+00	8.94E+00	9.30E-01

Figure B-2 - Flow Curve for the Newtonian Oil Sample at 25°C (NV)



Raw Data Newtonian Oil Results at 25°C (MVI)

D[1/s]	Tau[Pa]	D[1/s]	Tau[Pa]
0.00E+00	8.50E-02	6.55E+00	4.63E-01
1.58E+00	2.33E-01	1.39E+01	7.26E-01

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D[1/s]	Tau[Pa]	D[1/s]	Tau[Pa]
2.42E+01	1.04E+00	6.08E+02	1.84E+01
3.31E+01	1.30E+00	6.17E+02	1.87E+01
4.30E+01	1.60E+00	6.30E+02	1.91E+01
5.46E+01	2.00E+00	6.39E+02	1.93E+01
6.45E+01	2.31E+00	6.49E+02	1.97E+01
7.67E+01	2.66E+00	6.62E+02	2.00E+01
8.66E+01	2.98E+00	6.72E+02	2.04E+01
9.66E+01	3.29E+00	6.84E+02	2.06E+01
1.09E+02	3.66E+00	6.94E+02	2.09E+01
1.19E+02	3.97E+00	7.04E+02	2.13E+01
1.31E+02	4.35E+00	7.16E+02	2.18E+01
1.41E+02	4.63E+00	7.26E+02	2.19E+01
1.51E+02	4.96E+00	7.38E+02	2.23E+01
1.64E+02	5.30E+00	7.48E+02	2.26E+01
1.73E+02	5.59E+00	7.58E+02	2.29E+01
1.83E+02	5.90E+00	7.71E+02	2.32E+01
1.96E+02	6.26E+00	7.80E+02	2.35E+01
2.06E+02	6.52E+00	7.93E+02	2.39E+01
2.18E+02	6.94E+00	8.03E+02	2.42E+01
2.28E+02	7.21E+00	8.13E+02	2.46E+01
2.38E+02	7.53E+00	8.25E+02	2.49E+01
2.51E+02	7.90E+00	8.35E+02	2.52E+01
2.60E+02	8.18E+00	8.45E+02	2.55E+01
2.72E+02	8.57E+00	8.57E+02	2.58E+01
2.82E+02	8.84E+00	8.67E+02	2.60E+01
2.94E+02	9.17E+00	8.79E+02	2.64E+01
3.04E+02	9.48E+00	8.89E+02	2.66E+01
3.14E+02	9.78E+00	8.99E+02	2.69E+01
3.26E+02	1.01E+01	9.11E+02	2.73E+01
3.36E+02	1.04E+01	9.21E+02	2.77E+01
3.46E+02	1.07E+01	9.33E+02	2.79E+01
3.59E+02	1.11E+01	9.44E+02	2.84E+01
3.69E+02	1.13E+01	9.53E+02	2.86E+01
3.79E+02	1.17E+01	9.66E+02	2.90E+01
3.92E+02	1.20E+01	9.76E+02	2.92E+01
4.02E+02	1.23E+01	9.86E+02	2.95E+01
4.12E+02	1.26E+01	9.98E+02	2.98E+01
4.25E+02	1.30E+01	1.01E+03	3.01E+01
4.34E+02	1.32E+01	1.02E+03	3.05E+01
4.44E+02	1.35E+01	1.03E+03	3.07E+01
4.57E+02	1.39E+01	1.04E+03	3.11E+01
4.69E+02	1.44E+01	1.05E+03	3.14E+01
4.77E+02	1.46E+01	1.06E+03	3.16E+01
4.87E+02	1.49E+01	1.08E+03	3.19E+01
4.99E+02	1.53E+01	1.08E+03	3.24E+01
5.09E+02	1.56E+01	1.09E+03	3.27E+01
5.21E+02	1.59E+01	1.11E+03	3.31E+01
5.31E+02	1.62E+01	1.12E+03	3.33E+01
5.41E+02	1.65E+01	1.13E+03	3.36E+01
5.56E+02	1.70E+01	1.14E+03	3.40E+01
5.63E+02	1.72E+01	1.15E+03	3.43E+01
5.75E+02	1.75E+01	1.16E+03	3.46E+01
5.85E+02	1.78E+01	1.17E+03	3.48E+01
5.98E+02	1.82E+01	1.18E+03	3.52E+01

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D[1/s]	Tau[Pa]	D[1/s]	Tau[Pa]
1.19E+03	3.54E+01	1.78E+03	5.22E+01
1.20E+03	3.58E+01	1.79E+03	5.26E+01
1.22E+03	3.62E+01	1.80E+03	5.28E+01
1.23E+03	3.64E+01	1.81E+03	5.32E+01
1.24E+03	3.67E+01	1.82E+03	5.35E+01
1.25E+03	3.70E+01	1.83E+03	5.37E+01
1.26E+03	3.73E+01	1.84E+03	5.40E+01
1.27E+03	3.77E+01	1.85E+03	5.44E+01
1.28E+03	3.80E+01	1.86E+03	5.46E+01
1.29E+03	3.83E+01	1.88E+03	5.50E+01
1.30E+03	3.86E+01	1.89E+03	5.52E+01
1.31E+03	3.89E+01	1.90E+03	5.56E+01
1.32E+03	3.92E+01	1.91E+03	5.59E+01
1.33E+03	3.95E+01	1.92E+03	5.62E+01
1.34E+03	3.98E+01	1.93E+03	5.66E+01
1.36E+03	4.01E+01	1.94E+03	5.68E+01
1.37E+03	4.04E+01	1.95E+03	5.72E+01
1.38E+03	4.06E+01	1.96E+03	5.74E+01
1.39E+03	4.11E+01	1.97E+03	5.77E+01
1.40E+03	4.14E+01	1.99E+03	5.81E+01
1.41E+03	4.18E+01	2.00E+03	5.84E+01
1.42E+03	4.20E+01	2.01E+03	5.86E+01
1.43E+03	4.25E+01	2.02E+03	5.91E+01
1.44E+03	4.26E+01	2.03E+03	5.94E+01
1.45E+03	4.30E+01	2.04E+03	5.97E+01
1.47E+03	4.32E+01	2.05E+03	6.00E+01
1.48E+03	4.35E+01	2.06E+03	6.04E+01
1.49E+03	4.37E+01	2.07E+03	6.06E+01
1.50E+03	4.41E+01	2.08E+03	6.09E+01
1.51E+03	4.44E+01	2.09E+03	6.12E+01
1.52E+03	4.47E+01	2.10E+03	6.15E+01
1.53E+03	4.51E+01	2.12E+03	6.19E+01
1.54E+03	4.54E+01	2.13E+03	6.22E+01
1.55E+03	4.56E+01	2.14E+03	6.26E+01
1.56E+03	4.60E+01	2.15E+03	6.28E+01
1.57E+03	4.63E+01	2.16E+03	6.31E+01
1.58E+03	4.65E+01	2.17E+03	6.35E+01
1.58E+03	4.66E+01	2.18E+03	6.38E+01
1.61E+03	4.72E+01	2.19E+03	6.41E+01
1.61E+03	4.74E+01	2.20E+03	6.44E+01
1.62E+03	4.75E+01	2.21E+03	6.48E+01
1.63E+03	4.80E+01	2.22E+03	6.51E+01
1.64E+03	4.82E+01	2.23E+03	6.54E+01
1.66E+03	4.86E+01	2.24E+03	6.57E+01
1.67E+03	4.92E+01	2.26E+03	6.60E+01
1.68E+03	4.95E+01	2.27E+03	6.63E+01
1.69E+03	4.97E+01	2.28E+03	6.67E+01
1.70E+03	5.00E+01	2.29E+03	6.69E+01
1.71E+03	5.03E+01	2.30E+03	6.72E+01
1.72E+03	5.06E+01	2.31E+03	6.76E+01
1.74E+03	5.10E+01	2.32E+03	6.79E+01
1.75E+03	5.12E+01	2.33E+03	6.82E+01
1.76E+03	5.17E+01	2.34E+03	6.85E+01
1.77E+03	5.19E+01	2.35E+03	6.88E+01

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D[1/s]	Tau[Pa]	D[1/s]	Tau[Pa]
2.37E+03	6.92E+01	2.70E+03	7.87E+01
2.38E+03	6.94E+01	2.70E+03	7.87E+01
2.39E+03	6.97E+01	2.70E+03	7.87E+01
2.40E+03	7.02E+01	2.70E+03	7.87E+01
2.41E+03	7.04E+01	2.70E+03	7.87E+01
2.42E+03	7.07E+01	2.70E+03	7.87E+01
2.43E+03	7.10E+01	2.70E+03	7.87E+01
2.44E+03	7.13E+01	2.70E+03	7.87E+01
2.45E+03	7.16E+01	2.70E+03	7.87E+01
2.46E+03	7.19E+01	2.70E+03	7.87E+01
2.47E+03	7.22E+01	2.70E+03	7.87E+01
2.48E+03	7.26E+01	2.70E+03	7.87E+01
2.49E+03	7.28E+01	2.70E+03	7.87E+01
2.51E+03	7.30E+01	2.70E+03	7.87E+01
2.51E+03	7.34E+01	2.70E+03	7.87E+01
2.53E+03	7.34E+01	2.70E+03	7.87E+01
2.54E+03	7.38E+01	2.70E+03	7.87E+01
2.55E+03	7.42E+01	2.70E+03	7.87E+01
2.56E+03	7.47E+01	2.70E+03	7.87E+01
2.57E+03	7.51E+01	2.70E+03	7.87E+01
2.58E+03	7.53E+01	2.70E+03	7.87E+01
2.59E+03	7.58E+01	2.70E+03	7.87E+01
2.60E+03	7.60E+01	2.70E+03	7.87E+01
2.61E+03	7.64E+01	2.70E+03	7.87E+01
2.62E+03	7.67E+01	2.70E+03	7.87E+01
2.63E+03	7.70E+01	2.70E+03	7.87E+01
2.65E+03	7.74E+01	2.70E+03	7.87E+01
2.66E+03	7.76E+01	2.70E+03	7.86E+01
2.67E+03	7.79E+01	2.70E+03	7.86E+01
2.68E+03	7.83E+01	2.70E+03	7.86E+01
2.68E+03	7.84E+01	2.70E+03	7.86E+01
2.69E+03	7.84E+01	2.70E+03	7.86E+01
2.69E+03	7.85E+01	2.70E+03	7.87E+01
2.69E+03	7.85E+01	2.70E+03	7.87E+01
2.69E+03	7.85E+01	2.70E+03	7.87E+01
2.69E+03	7.86E+01	2.70E+03	7.87E+01
2.69E+03	7.85E+01	2.70E+03	7.87E+01
2.69E+03	7.86E+01	2.70E+03	7.87E+01
2.69E+03	7.86E+01	2.70E+03	7.87E+01
2.69E+03	7.86E+01	2.70E+03	7.87E+01
2.69E+03	7.86E+01	2.70E+03	7.87E+01
2.69E+03	7.87E+01	2.70E+03	7.86E+01
2.70E+03	7.87E+01	2.70E+03	7.86E+01
2.70E+03	7.87E+01	2.70E+03	7.86E+01
2.70E+03	7.87E+01	2.70E+03	7.85E+01
2.70E+03	7.87E+01	2.70E+03	7.85E+01
2.70E+03	7.87E+01	2.70E+03	7.85E+01
2.70E+03	7.87E+01	2.70E+03	7.85E+01
2.70E+03	7.87E+01	2.70E+03	7.85E+01
2.70E+03	7.87E+01	2.70E+03	7.86E+01
2.70E+03	7.87E+01	2.70E+03	7.86E+01
2.70E+03	7.87E+01	2.70E+03	7.86E+01
2.70E+03	7.87E+01	2.70E+03	7.86E+01
2.70E+03	7.86E+01	2.70E+03	7.86E+01

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D[1/s]	Tau[Pa]	D[1/s]	Tau[Pa]
2.70E+03	7.86E+01	2.70E+03	7.84E+01
2.70E+03	7.87E+01	2.70E+03	7.84E+01
2.70E+03	7.87E+01	2.70E+03	7.84E+01
2.70E+03	7.87E+01	2.70E+03	7.84E+01
2.70E+03	7.87E+01	2.70E+03	7.84E+01
2.70E+03	7.86E+01	2.70E+03	7.85E+01
2.70E+03	7.85E+01	2.70E+03	7.86E+01
2.70E+03	7.85E+01	2.70E+03	7.86E+01
2.70E+03	7.85E+01	2.70E+03	7.86E+01
2.70E+03	7.84E+01	2.70E+03	7.87E+01
2.70E+03	7.85E+01	2.70E+03	7.87E+01
2.70E+03	7.85E+01	2.70E+03	7.87E+01
2.70E+03	7.84E+01	2.70E+03	7.87E+01
2.70E+03	7.84E+01	2.70E+03	7.87E+01
2.70E+03	7.84E+01	2.70E+03	7.87E+01
2.70E+03	7.83E+01	2.70E+03	7.87E+01
2.70E+03	7.82E+01	2.70E+03	7.87E+01
2.70E+03	7.82E+01	2.70E+03	7.87E+01
2.70E+03	7.80E+01	2.70E+03	7.87E+01
2.70E+03	7.81E+01	2.70E+03	7.88E+01
2.70E+03	7.82E+01	2.70E+03	7.88E+01
2.70E+03	7.82E+01	2.70E+03	7.88E+01
2.70E+03	7.82E+01	2.70E+03	7.88E+01
2.70E+03	7.83E+01	2.70E+03	7.88E+01
2.70E+03	7.83E+01	2.70E+03	7.88E+01
2.70E+03	7.83E+01	2.70E+03	7.87E+01
2.70E+03	7.82E+01	2.70E+03	7.87E+01
2.70E+03	7.82E+01	2.70E+03	7.87E+01
2.70E+03	7.82E+01	2.70E+03	7.88E+01
2.70E+03	7.82E+01	2.70E+03	7.88E+01
2.70E+03	7.81E+01	2.70E+03	7.88E+01
2.70E+03	7.82E+01	2.70E+03	7.88E+01
2.70E+03	7.81E+01	2.70E+03	7.88E+01
2.70E+03	7.82E+01	2.70E+03	7.87E+01
2.70E+03	7.82E+01	2.70E+03	7.87E+01
2.70E+03	7.82E+01	2.70E+03	7.87E+01
2.70E+03	7.83E+01	2.70E+03	7.88E+01
2.70E+03	7.83E+01	2.70E+03	7.87E+01
2.70E+03	7.84E+01	2.70E+03	7.87E+01
2.70E+03	7.83E+01	2.70E+03	7.87E+01
2.70E+03	7.83E+01	2.70E+03	7.87E+01
2.70E+03	7.83E+01	2.70E+03	7.87E+01
2.70E+03	7.83E+01	2.70E+03	7.87E+01
2.70E+03	7.84E+01	2.70E+03	7.87E+01
2.70E+03	7.84E+01	2.70E+03	7.87E+01
2.70E+03	7.84E+01	2.70E+03	7.87E+01
2.70E+03	7.83E+01	2.70E+03	7.87E+01
2.70E+03	7.82E+01	2.70E+03	7.87E+01
2.70E+03	7.82E+01	2.70E+03	7.87E+01
2.70E+03	7.82E+01	2.70E+03	7.87E+01
2.70E+03	7.81E+01	2.70E+03	7.87E+01
2.70E+03	7.82E+01	2.70E+03	7.87E+01
2.70E+03	7.83E+01	2.70E+03	7.87E+01
2.70E+03	7.83E+01	2.70E+03	7.87E+01

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D[1/s]	Tau[Pa]	D[1/s]	Tau[Pa]
2.70E+03	7.87E+01	2.70E+03	7.87E+01
2.70E+03	7.87E+01	2.70E+03	7.87E+01
2.70E+03	7.87E+01	2.70E+03	7.87E+01
2.70E+03	7.87E+01	2.70E+03	7.87E+01
2.70E+03	7.87E+01	2.70E+03	7.87E+01
2.70E+03	7.87E+01	2.70E+03	7.87E+01
2.70E+03	7.87E+01	2.70E+03	7.87E+01
2.70E+03	7.87E+01	2.70E+03	7.87E+01
2.70E+03	7.87E+01	2.70E+03	7.87E+01
2.70E+03	7.87E+01	2.70E+03	7.87E+01
2.70E+03	7.87E+01	2.70E+03	7.87E+01
2.70E+03	7.87E+01	2.70E+03	7.87E+01
2.70E+03	7.87E+01	2.69E+03	7.86E+01
2.70E+03	7.87E+01	2.69E+03	7.82E+01
2.70E+03	7.87E+01	2.68E+03	7.80E+01
2.70E+03	7.87E+01	2.67E+03	7.78E+01
2.70E+03	7.87E+01	2.66E+03	7.74E+01
2.70E+03	7.87E+01	2.65E+03	7.72E+01
2.70E+03	7.87E+01	2.63E+03	7.68E+01
2.70E+03	7.87E+01	2.63E+03	7.66E+01
2.70E+03	7.87E+01	2.62E+03	7.61E+01
2.70E+03	7.87E+01	2.60E+03	7.58E+01
2.70E+03	7.87E+01	2.59E+03	7.56E+01
2.70E+03	7.87E+01	2.58E+03	7.52E+01
2.70E+03	7.87E+01	2.57E+03	7.48E+01
2.70E+03	7.87E+01	2.56E+03	7.44E+01
2.70E+03	7.87E+01	2.55E+03	7.42E+01
2.70E+03	7.87E+01	2.54E+03	7.40E+01
2.70E+03	7.87E+01	2.53E+03	7.37E+01
2.70E+03	7.87E+01	2.52E+03	7.33E+01
2.70E+03	7.87E+01	2.51E+03	7.31E+01
2.70E+03	7.87E+01	2.49E+03	7.27E+01
2.70E+03	7.87E+01	2.48E+03	7.25E+01
2.70E+03	7.87E+01	2.47E+03	7.22E+01
2.70E+03	7.87E+01	2.46E+03	7.19E+01
2.70E+03	7.87E+01	2.45E+03	7.15E+01
2.70E+03	7.87E+01	2.44E+03	7.12E+01
2.70E+03	7.88E+01	2.43E+03	7.09E+01
2.70E+03	7.87E+01	2.42E+03	7.08E+01
2.70E+03	7.87E+01	2.41E+03	7.04E+01
2.70E+03	7.87E+01	2.40E+03	7.01E+01
2.70E+03	7.87E+01	2.39E+03	6.98E+01
2.70E+03	7.87E+01	2.38E+03	6.94E+01
2.70E+03	7.87E+01	2.37E+03	6.91E+01
2.70E+03	7.87E+01	2.35E+03	6.87E+01
2.70E+03	7.87E+01	2.34E+03	6.85E+01
2.70E+03	7.87E+01	2.33E+03	6.82E+01
2.70E+03	7.87E+01	2.32E+03	6.79E+01
2.70E+03	7.87E+01	2.31E+03	6.75E+01
2.70E+03	7.87E+01	2.30E+03	6.73E+01
2.70E+03	7.87E+01	2.29E+03	6.69E+01
2.70E+03	7.87E+01	2.28E+03	6.66E+01
2.70E+03	7.87E+01	2.27E+03	6.62E+01
2.70E+03	7.87E+01	2.26E+03	6.60E+01

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D[1/s]	Tau[Pa]	D[1/s]	Tau[Pa]
2.24E+03	6.55E+01	1.66E+03	4.87E+01
2.23E+03	6.53E+01	1.65E+03	4.85E+01
2.22E+03	6.50E+01	1.64E+03	4.81E+01
2.21E+03	6.46E+01	1.63E+03	4.78E+01
2.20E+03	6.44E+01	1.62E+03	4.75E+01
2.19E+03	6.42E+01	1.61E+03	4.72E+01
2.18E+03	6.39E+01	1.60E+03	4.69E+01
2.17E+03	6.35E+01	1.59E+03	4.66E+01
2.16E+03	6.33E+01	1.58E+03	4.63E+01
2.15E+03	6.29E+01	1.56E+03	4.59E+01
2.14E+03	6.26E+01	1.55E+03	4.57E+01
2.13E+03	6.23E+01	1.54E+03	4.54E+01
2.11E+03	6.19E+01	1.53E+03	4.50E+01
2.10E+03	6.17E+01	1.52E+03	4.48E+01
2.10E+03	6.13E+01	1.51E+03	4.45E+01
2.08E+03	6.09E+01	1.50E+03	4.41E+01
2.07E+03	6.06E+01	1.49E+03	4.39E+01
2.06E+03	6.03E+01	1.48E+03	4.35E+01
2.05E+03	5.99E+01	1.46E+03	4.32E+01
2.04E+03	5.97E+01	1.45E+03	4.29E+01
2.03E+03	5.94E+01	1.44E+03	4.28E+01
2.02E+03	5.91E+01	1.43E+03	4.24E+01
2.01E+03	5.88E+01	1.42E+03	4.21E+01
2.00E+03	5.85E+01	1.41E+03	4.17E+01
1.99E+03	5.82E+01	1.40E+03	4.14E+01
1.97E+03	5.79E+01	1.39E+03	4.12E+01
1.96E+03	5.75E+01	1.38E+03	4.08E+01
1.95E+03	5.72E+01	1.37E+03	4.05E+01
1.94E+03	5.69E+01	1.36E+03	4.02E+01
1.93E+03	5.66E+01	1.35E+03	3.99E+01
1.92E+03	5.63E+01	1.34E+03	3.95E+01
1.91E+03	5.60E+01	1.32E+03	3.92E+01
1.90E+03	5.57E+01	1.31E+03	3.89E+01
1.89E+03	5.54E+01	1.30E+03	3.86E+01
1.88E+03	5.51E+01	1.29E+03	3.83E+01
1.87E+03	5.49E+01	1.28E+03	3.81E+01
1.86E+03	5.45E+01	1.27E+03	3.77E+01
1.84E+03	5.42E+01	1.26E+03	3.74E+01
1.83E+03	5.38E+01	1.25E+03	3.70E+01
1.82E+03	5.35E+01	1.24E+03	3.66E+01
1.81E+03	5.32E+01	1.23E+03	3.63E+01
1.80E+03	5.29E+01	1.21E+03	3.58E+01
1.79E+03	5.26E+01	1.20E+03	3.56E+01
1.78E+03	5.23E+01	1.20E+03	3.53E+01
1.77E+03	5.20E+01	1.18E+03	3.49E+01
1.76E+03	5.17E+01	1.17E+03	3.46E+01
1.75E+03	5.13E+01	1.16E+03	3.44E+01
1.74E+03	5.10E+01	1.15E+03	3.41E+01
1.72E+03	5.06E+01	1.14E+03	3.38E+01
1.71E+03	5.03E+01	1.13E+03	3.35E+01
1.70E+03	5.02E+01	1.12E+03	3.32E+01
1.69E+03	4.98E+01	1.11E+03	3.29E+01
1.68E+03	4.94E+01	1.10E+03	3.25E+01
1.67E+03	4.91E+01	1.09E+03	3.22E+01

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D[1/s]	Tau[Pa]	D[1/s]	Tau[Pa]
1.07E+03	3.19E+01	9.23E+02	2.76E+01
1.06E+03	3.16E+01	9.11E+02	2.72E+01
1.05E+03	3.13E+01	9.01E+02	2.69E+01
1.04E+03	3.10E+01	8.89E+02	2.65E+01
1.03E+03	3.07E+01	8.79E+02	2.62E+01
1.02E+03	3.04E+01	8.69E+02	2.59E+01
1.01E+03	2.99E+01	8.57E+02	2.56E+01
9.99E+02	2.96E+01	8.47E+02	2.52E+01
9.88E+02	2.93E+01	8.37E+02	2.50E+01
9.76E+02	2.90E+01	8.25E+02	2.46E+01
9.66E+02	2.88E+01	8.15E+02	2.44E+01
9.56E+02	2.85E+01	8.02E+02	2.40E+01
9.43E+02	2.81E+01	7.93E+02	2.38E+01
9.33E+02	2.78E+01	7.83E+02	2.36E+01

APPENDIX C. CSEM MICROGRAPHS

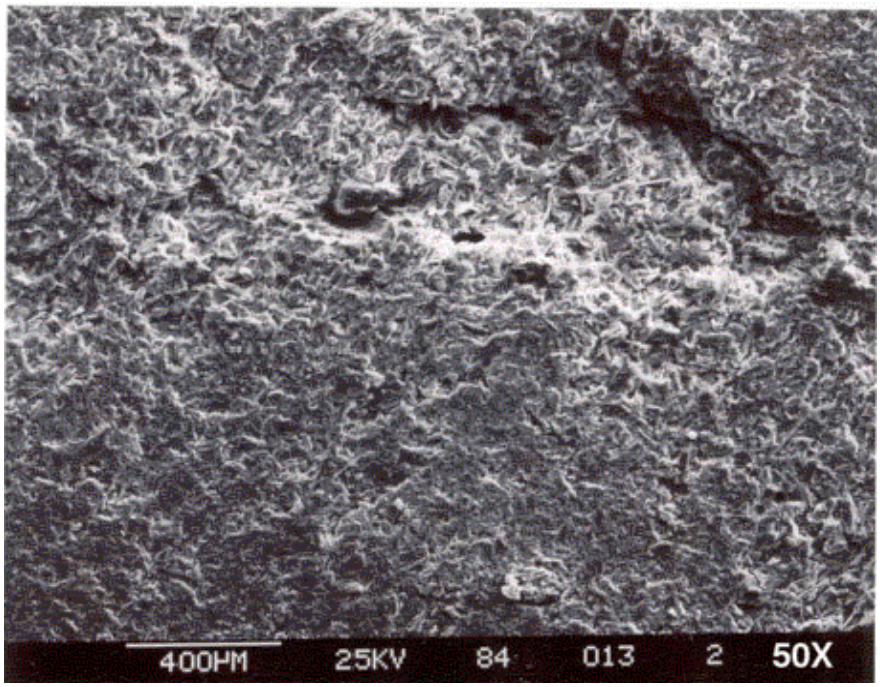

Figure C- 1. Micrograph of Replicate 1 of the 241-AN-104 As-Received Solids at 50X magnification

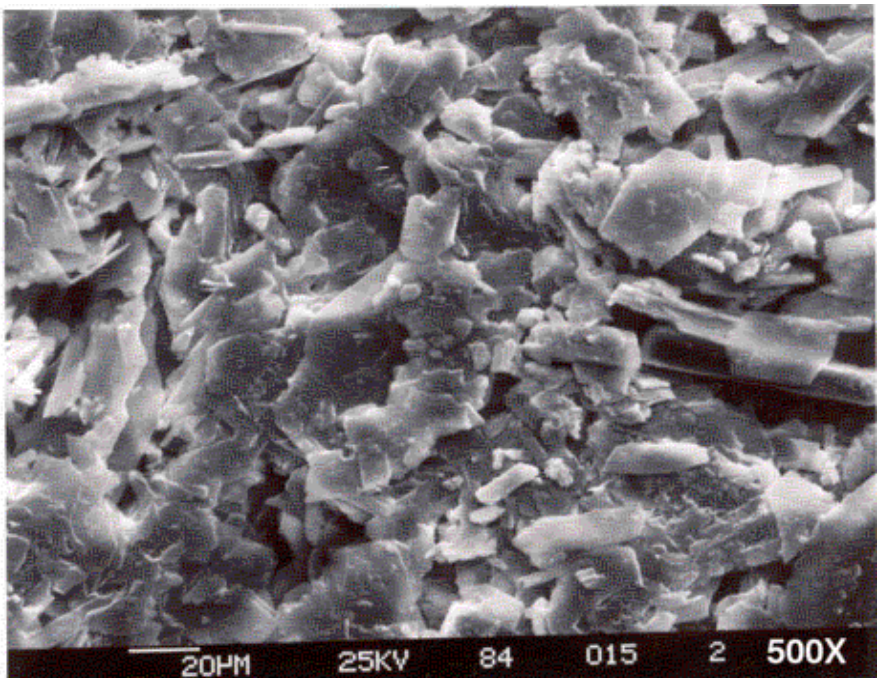

Figure C- 2. Micrograph of Replicate 1 of the 241-AN-104 As-Received Solids at 500X Magnification

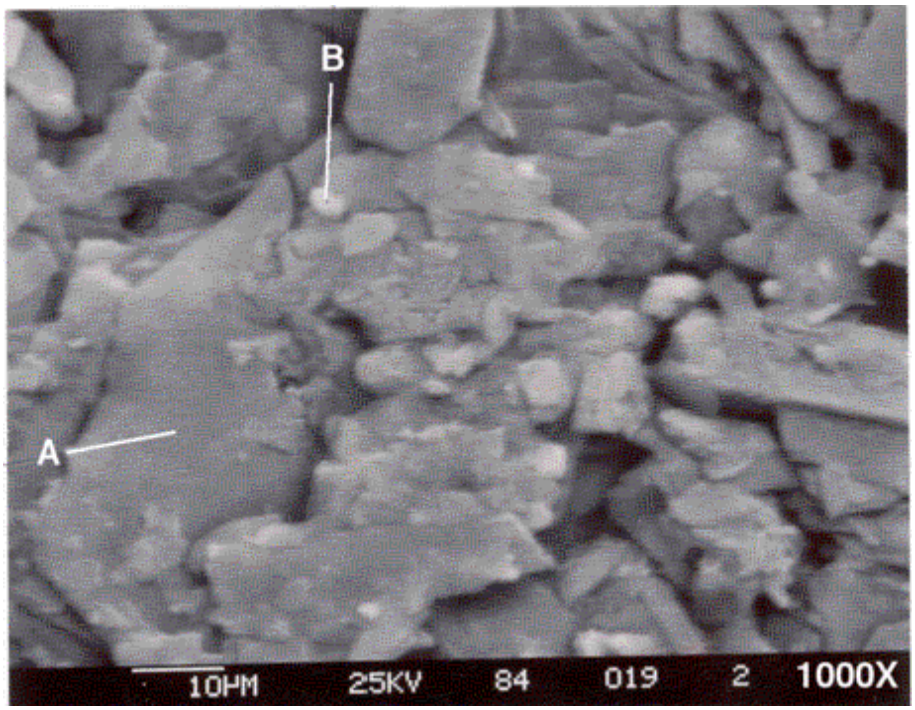

Figure C- 3. Micrograph of Replicate 1 of the 241-AN-104 As-Received Solids at 1000X Magnification

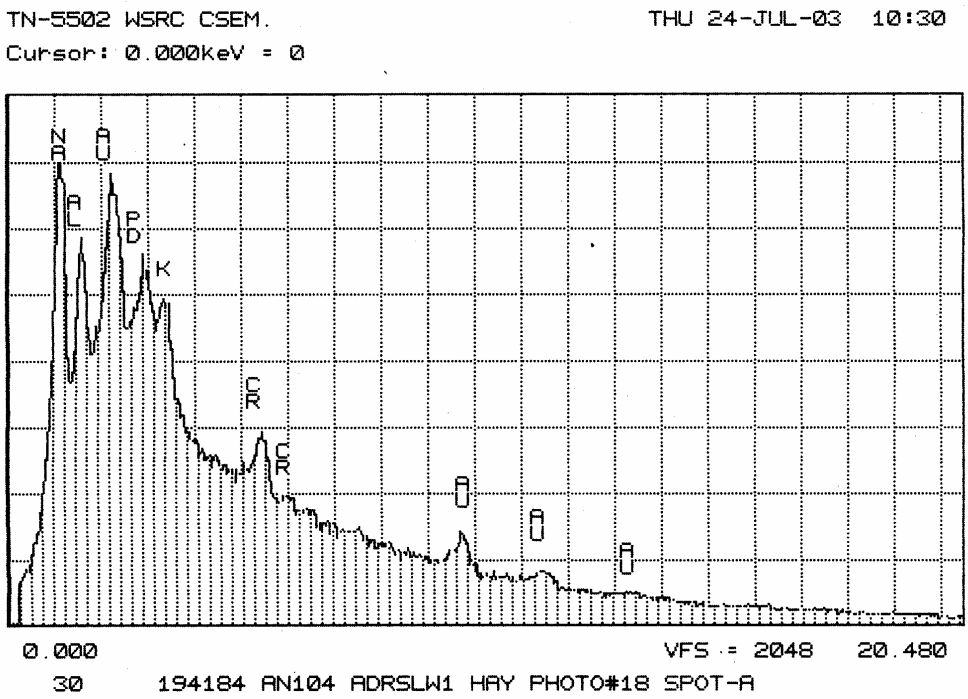

Figure C- 4. Composition of Spot A of the 241-AN-104 As-Received Solids

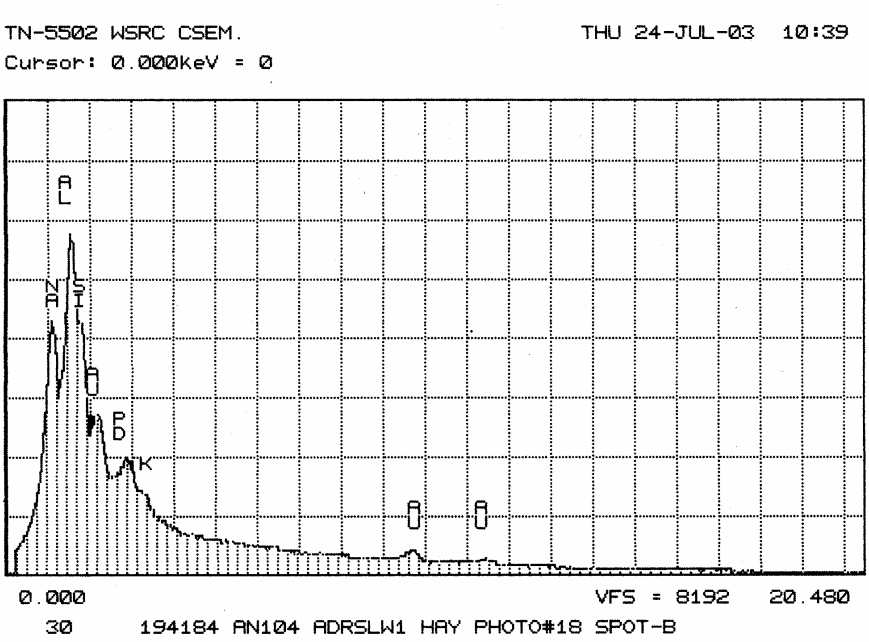

Figure C- 5. Composition of Spot B of the 241-AN-104 As-Received Solids

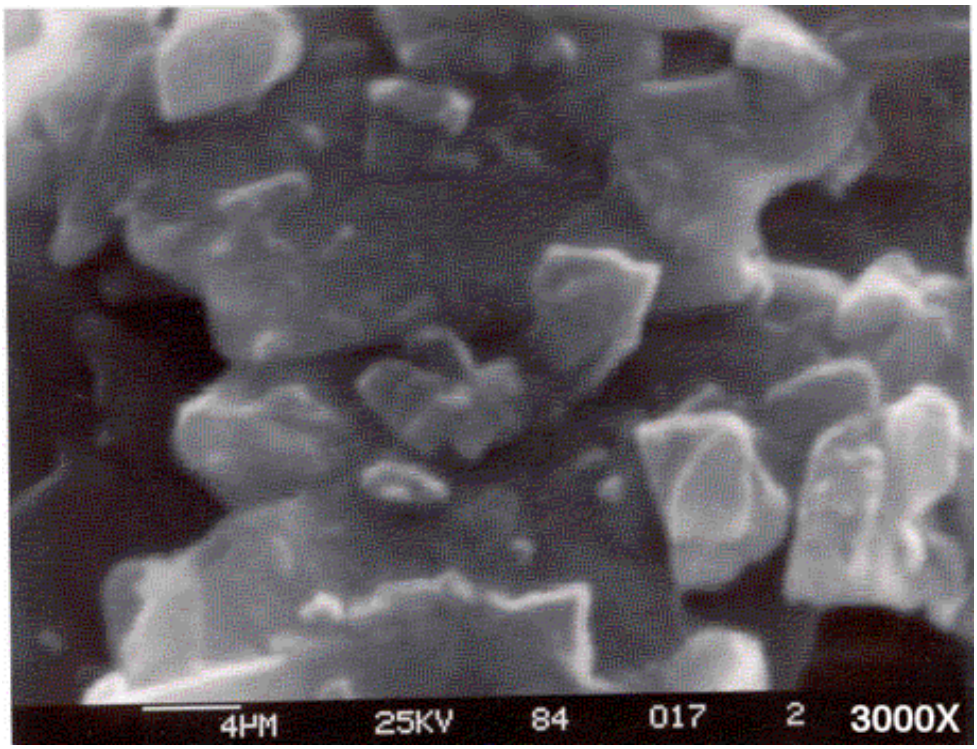

Figure C- 6. Micrograph of Replicate 1 of the 241-AN-104 As-Received Solids at 3000X Magnification

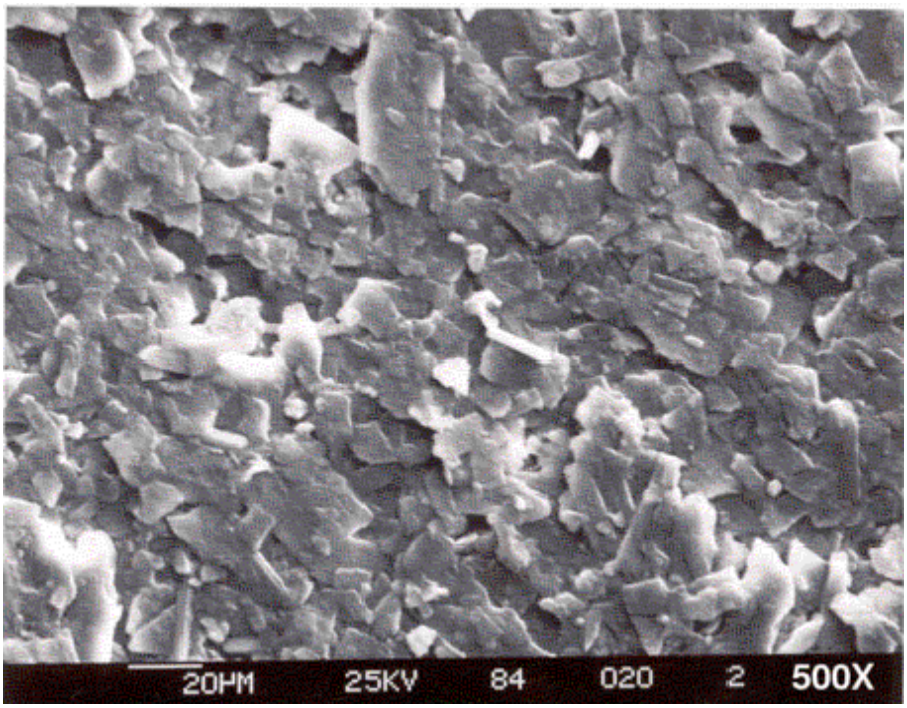

Figure C- 7. Micrograph of Replicate 2 of the 241-AN-104 As-Received Solids at 500X Magnification

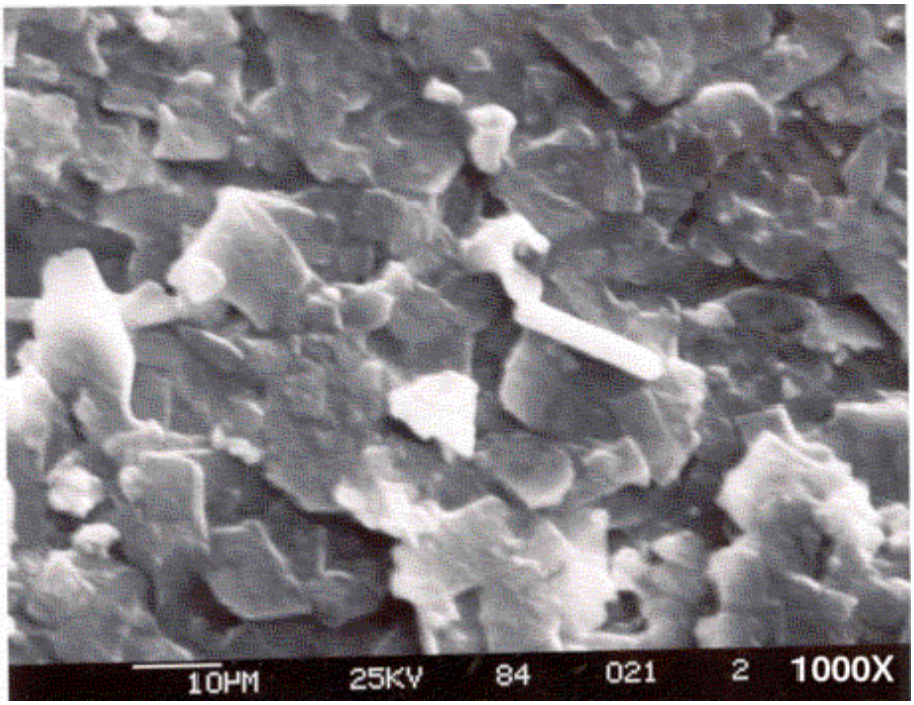

Figure C- 8. Micrograph of Replicate 2 of the 241-AN-104 As-Received Solids at 1000X Magnification

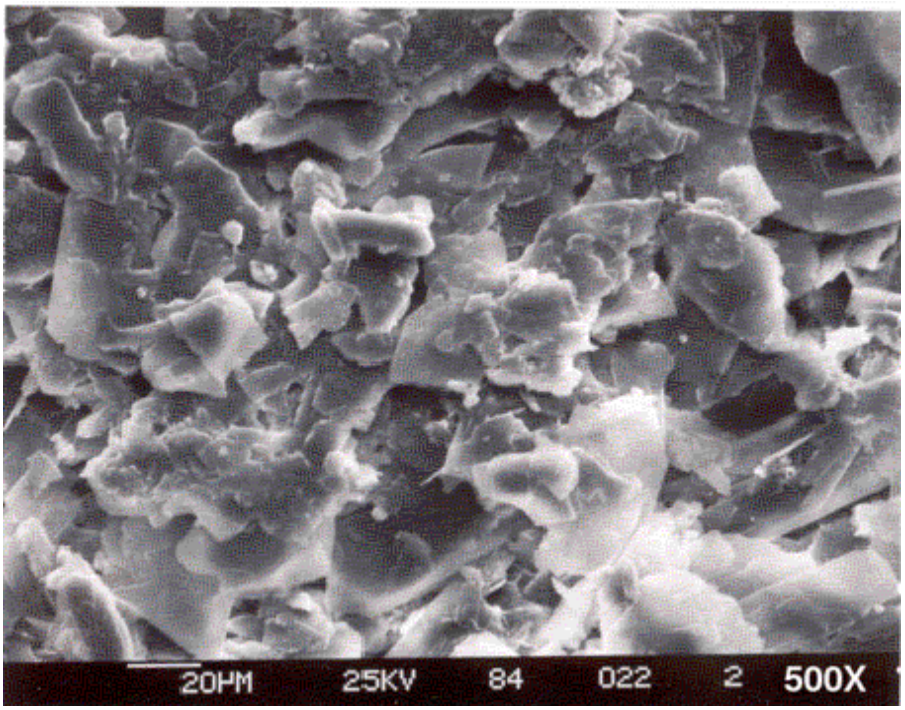

Figure C- 9. Micrograph of Replicate 3 of the 241-AN-104 As-Received Solids at 500X Magnification

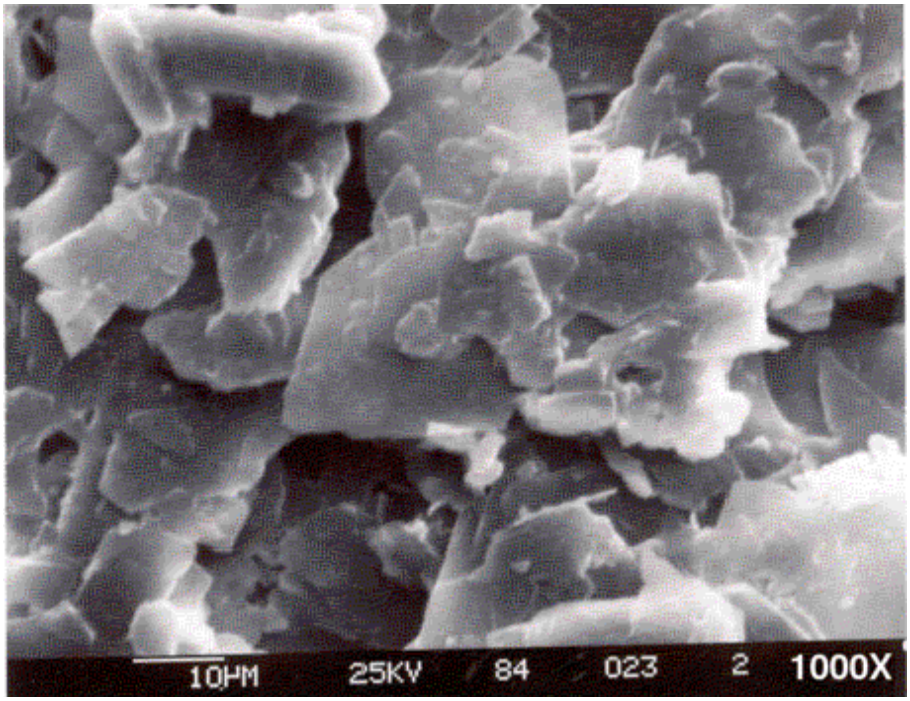

Figure C- 10. Micrograph of Replicate 3 of the 241-AN-104 As-Received Solids at 1000X Magnification

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APPENDIX D. HEAT CAPACITY DATA PLOTS

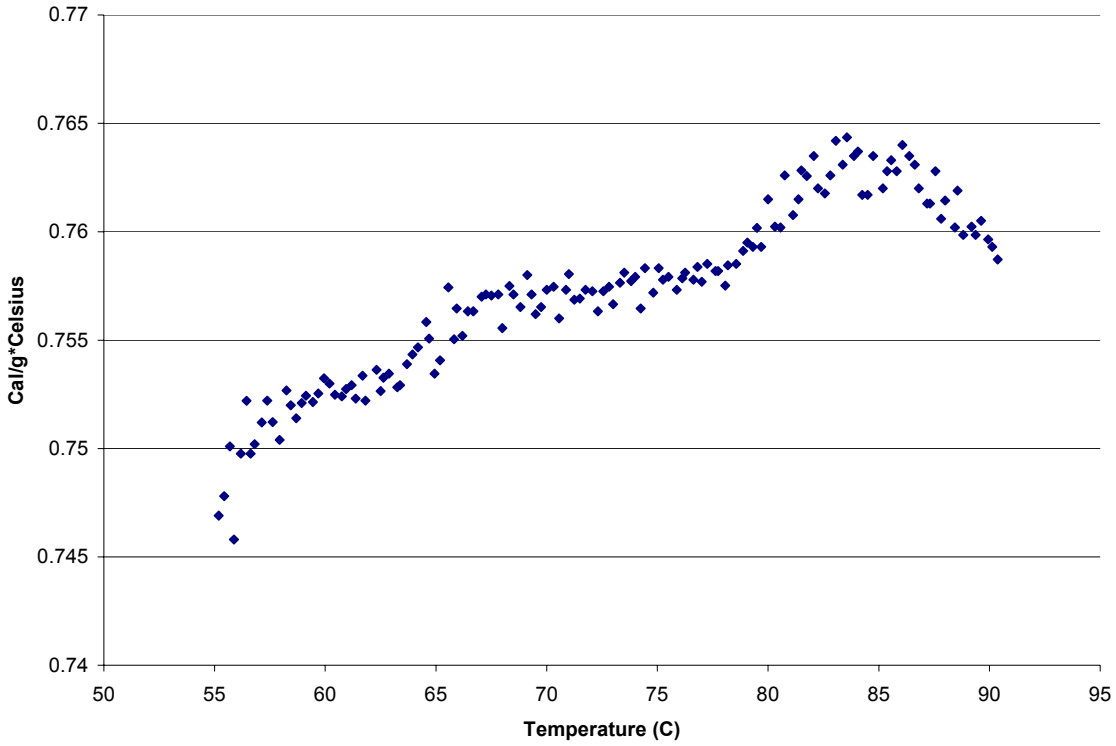

Figure D- 1. Heat Capacity as a Function of Temperature of the 1st Replicate of the As-Received 241-AN-104 Sample

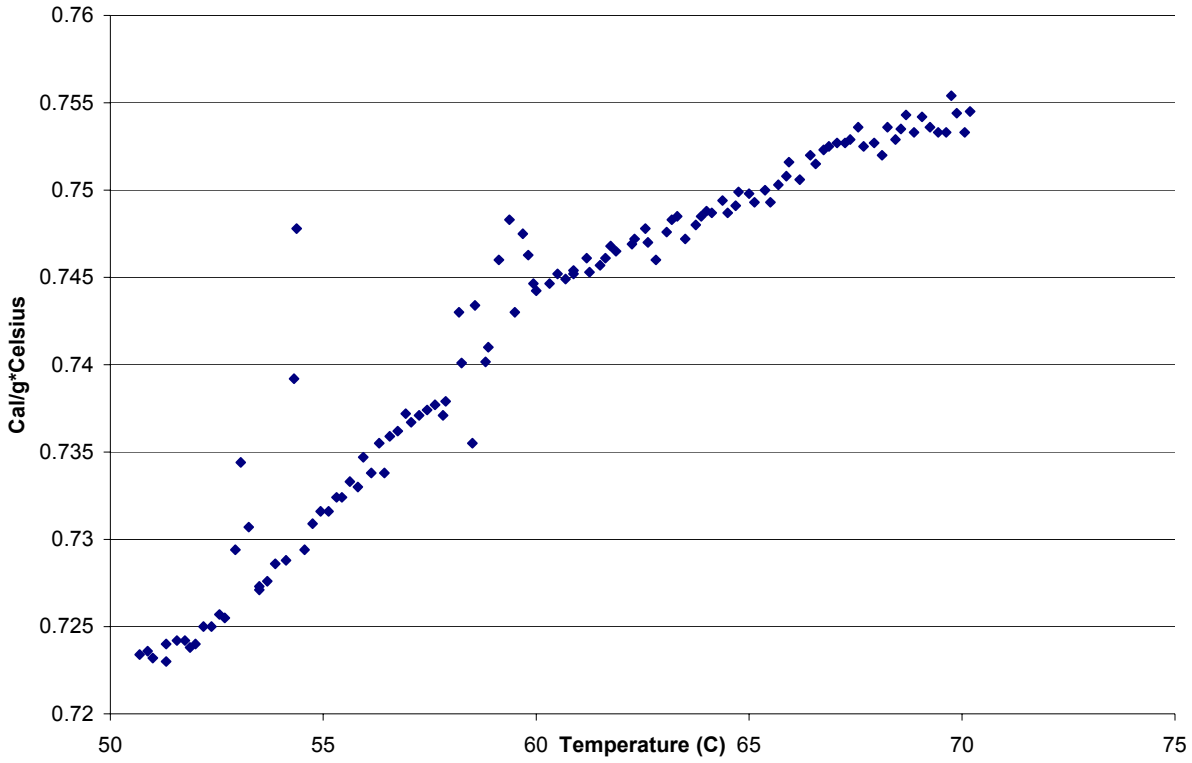

Figure D- 2. Heat Capacity as a Function of Temperature of the 2nd Replicate of the As-Received 241-AN-104 Sample

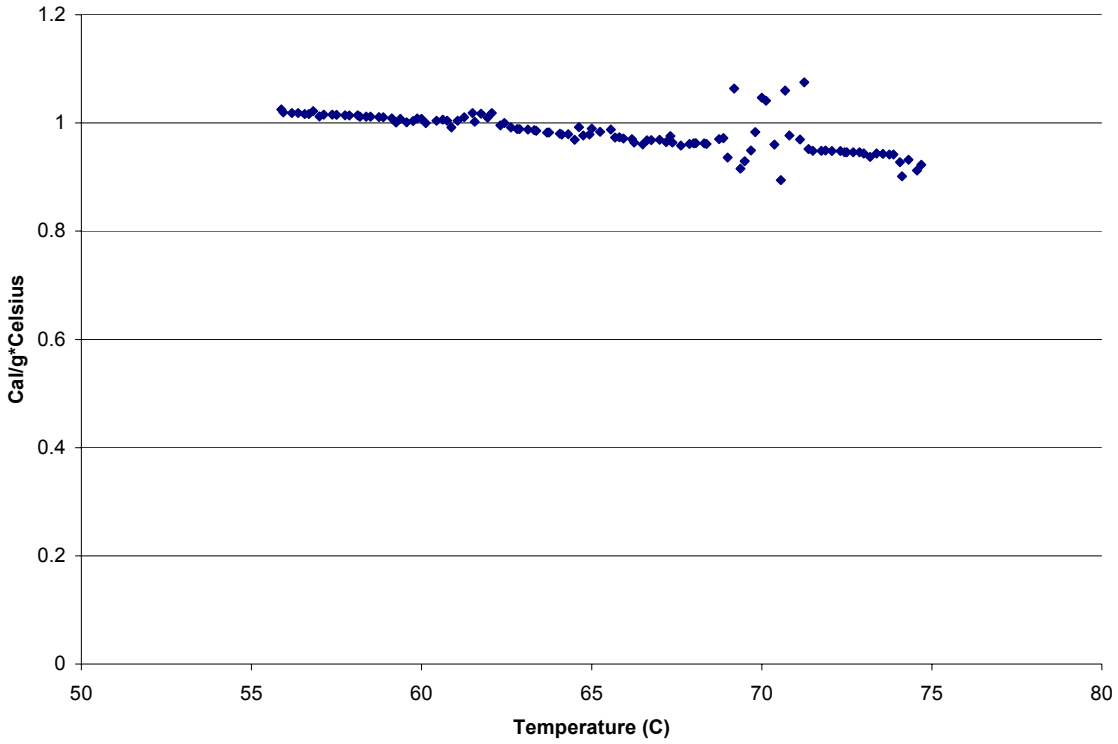

Figure D- 3. Heat Capacity as a Function of Temperature of Water Reference Sample

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APPENDIX E. RAW ANALYTICAL DATA

(The large volume of raw analytical data is available upon request.)

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