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FINAL REPORT FOR SAMPLES TAKEN IN SUPPORT OF SX PORE WATER EXTRACTION TEST PROJECT STAGES I AND II – SOIL SAMPLING

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Abstract: This final report contains the analytical results for the RCRA characterization of soil samples in support of SX Pore water extraction for stages I and II.

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Key Words: (Continued from page 1) B2NRC0, B2NRB5, B2NRB6, B2NRB7, B2NRB8, B2NRC1, Advanced Technologies and Laboratories, ATL, WRPS, SW-846.

FINAL REPORT FOR SAMPLES TAKEN IN SUPPORT OF SX PORE WATER EXTRACTION TEST PROJECT STAGES I AND II - SOIL SAMPLING

ATL Document No. 20130168

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Table of Contents

Narrative 1
1.0 Introduction 1
2.0 Sample Receipt and Breakdown 1
2.1 Sample Receipt 1
2.2 Sample Breakdown 1
3.0 Analytical Results Summary 2
3.1 Sample Digestions 3
3.2 Inorganic Analyses 3
4.0 Procedures 6
5.0 References 7
Attachment 1 DATA SUMMARY REPORT 8
Attachment 2 SAMPLE BREAKDOWN DIAGRAMS 38
Core No. C8760 - I001 39
Core No. C8760 - I002 40
Core No. C8760 - I003 41
Equipment Blank 42
Field Blank 43
Core No. C8762 - I001 44
Core No. C8762 - I002 45
Core No. C8762 - I003 46
Attachment 3 HOLDING TIME AND ANALYSIS DATE REPORT 47
Attachment 4 ANALYTICAL BATCH AND LABORATORY SAMPLE ID INDEX 54
Attachment 5 GEOLOGICAL REPORT 57
Attachment 6 CORRESPONDENCE 74
Attachment 7 RECEIPT PAPERWORK 86

222-S LABORATORY

FINAL REPORT FOR SAMPLES TAKEN IN SUPPORT OF SX PORE WATER EXTRACTION TEST PROJECT STAGES I AND II – SOIL SAMPLING

1.0 INTRODUCTION

This final report presents the results for the samples taken from SX Farm between February 19, 2013 and March 7, 2013. The samples were analyzed in accordance with RPP-PLAN-54366, *Field Sampling and Analysis Plan for SX Pore Water Extraction Test Project Stages I and II* (FSAP); ATL-MP-1011, *ATL Quality Assurance Project Plan for 222-S Laboratory* (QAPP); SW-846, *Test Methods for Evaluating Solid Waste: Physical/Chemical Methods*; and the additional guidance given by the client's point of contact.

Because the 222-S Laboratory facility was designed to analyze hazardous and complex tank waste samples, most SW-846 test methods performed at the 222-S Laboratory contain deviations that are listed in an appendix to the analytical procedures. All other known deviations or variances from SW-846 are documented in this narrative. The following attachments are included in this report.

Attachment 1	Data Summary Report
Attachment 2	Sample Breakdown Diagrams
Attachment 3	Holding Time and Analysis Date Report
Attachment 4	Analytical Batch and Laboratory Sample Identification Number Index
Attachment 5	Geological Report
Attachment 6	Correspondence
Attachment 7	Receipt Paperwork

2.0 SAMPLE RECEIPT AND BREAKDOWN

2.1 SAMPLE RECEIPT

Three intervals from core number C8760, three intervals from core number C8762, one equipment blank, and one field blank were received by the 222-S Laboratory between February 19, 2013 and March 7, 2013.There were no samples received from core number C8758, which was originally scheduled. The samples were delivered in coolers. All coolers contained a temperature blank except the cooler that contained C8760 interval I001.The temperatures of the temperature blanks were measured and recorded on the sample receipt checklists and/or the chain of custody forms. All temperature blanks were in compliance with the SW-846-specified preservation temperature of 6°C except the temperature blank corresponding to samples taken from C8760, intervals I002 and I003, which demonstrated a temperature blank of 15°C upon sample receipt. The laboratory was unable to measure the temperature of samples taken from C8760, interval I001.

2.2 SAMPLE BREAKDOWN

The laboratory received each core interval as three liner samples and one shoe sample when complete core recovery was obtained. All core intervals had complete recovery .The liner samples from each core interval were extruded, described, and then composited with the shoe sample. This work was performed by the Washington River Protection Solutions (WRPS) geologist and chemical technologist. The WRPS geologist measured the bulk density for core liners that had sufficient recovery (see Attachments 1 and 2) and the percent moisture for all composite samples. The geologist's report is included in Attachment 5.

3.0 ANALYTICAL RESULTS SUMMARY

The Data Summary Report (Attachment 1) presents the final analytical results for those analytes requested in the FSAP. Secondary analytes were reported only if detected.

The "Det Limit" column in Attachment 1 contains the method detection limit (MDL).

In Attachment 1, the column labeled "A#" indicates the aliquot class or the method used for sample preparation before analysis. For solid samples, the aliquot classes are defined as follows:

> "A" indicates samples were prepared by SW-846 3050B.
>
> "W" indicates samples were prepared by a standard water digest.
>
> "WV" indicates samples were prepared by a vadose water digest

Samples without a letter identifier in the "A#" column were analyzed directly with no separate preparation or with sample preparation performed as a part of the procedure steps.

The "Qual Flags" column in Attachment 1 contains data qualifier flags from FEAD CP-15383, *Common Requirements of the Format for Electronic Analytical Data,* that are defined as follows:

> "B" for inorganic results is used to indicate that the reported result should be considered an estimate because it is below the quantitation limit. The "B" flag is applied to sample concentrations that are greater than the MDL but less than the quantitation limit.
>
> "C" for inorganic results is used to indicate that the analyte was detected in the method or preparation blank and in the sample, and the result for the blank is greater than 20% of the reported sample result.
>
> "U" for all results is used to indicate that the reported result is less than the calculated detection limit.

Manual calculations using rounded results from the Data Summary Report (Attachment 1) or result calculation forms may differ slightly from the actual results derived from the raw data.

3.1 SAMPLE DIGESTIONS

3.1.1 SW-846 3050B – Acid Digestion-Heating Block

This acid digestion follows SW-846 3050B using a heating block and nitric and hydrochloric acids. An aliquot of approximately 1 to 5 g of each sample was digested. All heating-block digestions were filtered and diluted to a final volume of 50 mL. In soil, this digestion is a leach of the acid soluble species only. This digestion was used for all inductively coupled plasma/mass spectrometry (ICP/MS) analyses except for ^{99}Tc and isotopic tin (^{117}Sn and ^{126}Sn). The digestion is modified for the ^{99}Tc analysis by using only nitric acid. This is done to eliminate the possibility of the formation of a zinc-chlorine ion pair of mass 99. The laboratory believes this ion, when present, is responsible for low-level false positives. A separate digestion for isotopic tin was prepared using additional hydrochloric acid to improve matrix spike (MS) recoveries.

3.1.2 Water Digestion

A water digestion or leach was prepared for the anions by ion chromatography (IC) analysis using approximately 4 to 5 g of sample. Sonification was used, and the leachate was then filtered. In soil, this digestion is a leach of the water soluble species only.

3.1.3 Vadose Water Digestion

An approximately 60-gram sample of soil was leached using a ratio of one part water to one part soil. To maintain a one-to-one ratio, the amount of water added to the sample was adjusted based on the percent moisture of the soil. The slurries were placed on a shaker table for about 1 hour, transferred to a centrifuge tube and centrifuged at 4,000 rpm for 30 minutes, and then filtered using a disposable vacuum filtration system. The filtrates were transferred to clean bottles and then analyzed for ^{99}Tc by ICP/MS and anions by IC. A separate unfiltered aliquot was analyzed for conductivity.

3.2 INORGANIC ANALYSES

3.2.1 Conductivity

The conductivity analysis was performed on the liner composite samples from core holes C8760 and C8762. The FSAP lists an administrative holding time requirement of 28 days. SW-846 9050A lists a holding time of 28 days for aqueous samples only. There is no promulgated holding time for the conductivity measurement of a soil sample. All conductivity measurements were taken on the vadose water digest portion within 28 days of sampling. There were no notable issues with these batches, and all QC requirements in the FSAP and the QAPP were met.

3.2.2 pH Analysis

The pH analysis was performed on the liner composite samples from core holes C8760 and C8762. The FSAP lists a pH holding time requirement of “24 hours or as soon as possible.” All solid pH measurements were taken as soon as possible after liner extrusion and compositing of

the sample. The sampling-to-analysis times are listed in Attachment 3. There is no correlation between pH results and time to analysis, and the results fall within an expected range for alkaline soils. This indicates that the variation in time has no apparent effect on the soil results. The FSAP requires pH analysis to be performed on the vadose water digest; however, the pH was measured using the standard SW-846 pH procedure for solid matrix samples, which is a water digest with a sample size of approximately 5 grams. This deviation from the FSAP requirement was approved by the customer (see correspondence in Attachment 6). All other QC acceptance requirements in the FSAP and the QAPP were met.

3.2.3 Ion Chromatography – Anions and Small Organic Acids

For the solid samples, IC analysis was performed on the vadose water digest and also on the standard water digest of subsamples of the liner composite samples. The equipment and field blanks were analyzed directly. Required and target detection limits listed in the FSAP were met for all analytes.

SW-846 lists the holding time for anion analysis as 48 hours for nitrate, nitrite, and phosphate and 28 days for fluoride, bromide, chloride, and sulfate. There is no holding time in SW-846 for small organic acids. All SW-846 holding times were met. The holding time for soils samples does not start until the water digest is performed.

The preparation blank results are not corrected for the digestion factor. Therefore, the correct units for the preparation blank are ug/mL. Since the preparation blank is not corrected by the digestion factor, comparison to the sample results was performed using the raw data. The units column in Attachment 1 is for sample results.

Batch 40023: A vadose water digestion was performed to prepare the samples for analysis. Only nitrate was required to be reported from the vadose water digested samples. Nitrate was detected in the preparation blank at a concentration level above the MDL but below the quantitation limit. Since all sample results were above the quantitation limit and more than five times the blank result, “C” flags are not required. Therefore, the usability of the data is not affected.

Batch 40199: Another vadose water digestion was performed to prepare these samples for IC analysis. Only nitrate was required to be reported from the vadose water digested samples. There were no notable issues with this batch, and all QC requirements in the FSAP and the QAPP were met.

Batches 40121 and 40139: The equipment and field blanks were analyzed in these batches. These liquid samples were analyzed directly, with no separate preparation. Fluoride, acetate, formate, chloride, sulfate, and nitrate were detected in the equipment blank at a concentration level above the MDL but below the quantitation limit. In addition, fluoride and chloride were detected in the field blank at a concentration level above the MDL but below the quantitation limit. A “B” flag was applied to these results to indicate that the reported results should be considered estimates. Bromide and phosphate are secondary analytes and, according to the FSAP, are required to be reported only when detected above the MDL.

Batch 40440: A standard water digestion, as described in section 3.1.2, was performed to prepare the samples for IC analysis. Chloride, nitrite, sulfate, nitrate, and acetate were detected in the preparation blank at a concentration level above the MDL but below the estimated quantitation limit (EQL). Sample results with less than five times the blank concentration have been flagged with a "C". Since all blank and flagged sample results were below the quantitation limit, the usability of the data was not affected. In addition, formate was detected in the preparation blank at a concentration level above the EQL; all sample results for formate were less than five times the blank result and, therefore, have been flagged with a "C". The customer was notified about the formate concentration being above the EQL in the preparation blank, but, re-analysis was not requested since formate is not a critical analyte for this project. The RPD for oxalate exceeded the 30% requirement in the FSAP at 34.5%. Since the results for this analyte were below the quantitation limit, this criterion does not apply. All other QC requirements in the FSAP and the QAPP were met. Bromide and phosphate are secondary analytes, according to the FSAP, and are reported only if detected above the MDL.

3.2.4 Inductively Coupled Plasma/Mass Spectroscopy

The ICP/MS analyses were performed on a standard SW-846 3050B acid digestion of the liner composite samples. ICP/MS analysis for ^{126}Sn was performed on the same type of acid digest with additional hydrochloric acid, which is required to keep tin in solution. For all samples, the ICP/MS ^{99}Tc analysis was performed on the sample digest without the addition of hydrochloric acid. Hydrochloric acid is not used for ^{99}Tc analysis because of the potential formation of a zinc-chloride ion pair of mass 99. In addition, ^{99}Tc was analyzed using the vadose water digest. The equipment blanks were analyzed directly for actinides, ^{126}Sn, and ^{99}Tc using ICP/MS.

Direct is the most accurate type of calibration; however, standard material is not commercially available for all isotopes of interest. Concentrations isotopes with no available standards are estimated based on the instrument's response to another isotope of the same element, which is known as "isotope substitution" and is an indirect method of calibration.

Table 1. Inductively Coupled Plasma-Mass Spectroscopy Standards and Spikes

Standard Type	Analytes Analyzed
Direct calibration standards	^{232}Th, ^{233}U, ^{235}U, ^{238}U, ^{237}Np, ^{99}Tc, ^{117}Sn
Matrix spike, laboratory control standard, and calibration verification standards	^{232}Th, ^{233}U, ^{235}U, ^{238}U, ^{237}Np, ^{99}Tc
Isotope substitution	^{234}U (^{235}U), ^{236}U (^{235}U), ^{230}Th (^{232}Th), ^{126}Sn (^{117}Sn)

Technetium-99

The FSAP lists the holding time for isotopic analytes as 6 months. All samples were analyzed within the holding time. Required and target detection limits were met for the acid-digested and vadose water-digested samples.

The acid-digested ^{99}Tc analysis is subject to isobaric interference from natural ruthenium, cobalt argide, and zinc chloride ions. However, these samples were analyzed using an ICP/MS with a

collision cell, which eliminates the polyatomic interferences. Interference from natural ^{99}Ru seems unlikely since none of the more abundant nature isotopes (100, 101, and 102) were detected.

There were no notable issues with these batches, and all QC requirements in the FSAP and the QAPP were met.

Tin-126

For the solid samples, analysis for ^{126}Sn was performed from the acid digest, with additional hydrochloric acid, which results in better MS recoveries but appears to cause an isobaric interference with ^{126}Sn. The laboratory has concluded that the most likely interferences are from the polyatomic ions, zirconium chloride, strontium argide, and yttrium chloride—all with a mass of 126. A preliminary investigation indicated that using an ICP/MS with a collision cell will eliminate this interference. The FSAP lists the holding time for isotopic analytes as 6 months. All samples were analyzed within the holding time. No required or target detection limits are listed in the FSAP for ^{126}Sn. Direct calibration was performed for ^{117}Sn. Isotopic substitution was performed for ^{126}Sn using ^{117}Sn + ^{126}Sn as the baseline response. There were no required or target detection limits listed in the FSAP for ^{126}Sn.

Actinides

All required detection limits were met for all isotopes in all samples. Target detection limits were also met except for ^{233}U and ^{230}Th. The FSAP lists the holding time for isotopic analytes as 6 months. All samples were analyzed within the holding time.

There were no notable issues with this analytical batch, and all QC acceptance requirements in the FSAP and the QAPP were met.

4.0 PROCEDURES

Table 2 lists the procedures used in analyzing the samples contained in this report.

Table 2. Analytical Procedures

Analysis	Preparation Method	Analysis Procedure
Inorganic Analyses		
Conductivity	LA-504-102, Rev. B-0-A (Vadose Water Digest)	LA-512-107, Rev. H-0
pH	LA-212-105, Rev. I-0 (SW-846 9045D)	LA-212-105, Rev. I-0 (SW-846 9045D)
Anions & Organic Acids – IC	LA-504-101, Rev. N-0 LA-504-102, Rev. B-0-A (Vadose Water Digest) Direct	LA-533-166, Rev. B-1-A (SW-846 9056A)
^{126}Sn, ^{99}Tc – ICP/MS	Direct	LA-506-102, Rev. G-1 LA-506-103, Rev. B-1

Table 2. Analytical Procedures

Analysis	Preparation Method	Analysis Procedure
^{99}Tc – ICP/MS	LA-504-102, Rev. B-0-A (Vadose Water Digest) LA-505-163, Rev. H-0-A (SW-846 3050B)	LA-506-103, Rev. B-1
^{126}Sn, – ICP/MS	LA-505-163, Rev. H-0-A (SW-846 3050B)	LA-506-102, Rev. G-1
Actinides – ICP/MS	LA-505-163, Rev. H-0-A (SW-846 3050B)	LA-506-102, Rev. G-1

5.0 REFERENCES

ATL-MP-1011, *ATL Quality Assurance Project Plan for 222-S Laboratory*, Rev. 11A, Advanced Technologies and Laboratories International, Inc., Richland, Washington.

FEAD CP-15383, 2007, *Common Requirements of the Format for Electronic Analytical Data*, Version 8, CH2M Hill Plateau Remediation Co., Richland, WA.

RPP-PLAN-54366, *Field Sampling and Analysis Plan for SX Pore Water Extraction Test Project Stages I and II*, Rev. 0, Washington River Protection Solutions, LLC, Richland, Washington.

SW-846, 1986, *Test Methods for Evaluating Solid Waste: Physical/Chemical Methods*, Third Edition, as amended, U.S. Environmental Protection Agency, Washington, D.C.

Attachment 1

DATA SUMMARY REPORT

05 - Jun - 2013 12:52:59
DSRHardcopyWOLimits 2.7.31
DSR.Jar v. 2.7.31

SX Tank Farm PW
Data Summary of All Results

Sample Group: 20130167
Core Number: C8762
Customer Sample ID: B2NRC2
Sample Portion: Field Blank

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Anions and Small Organic Acids															
S13V000003			16984-48-8	Fluoride	ug/mL	95.2	<1.61E-03	0.0220	n/a	n/a	n/a	n/a	1.61E-03	n/a	B
S13V000003			GLYCOLATE	Glycolate	ug/mL	94.8	<9.37E-03	<9.37E-03	n/a	n/a	n/a	n/a	9.37E-03	n/a	U
S13V000003			71-50-1	Acetate	ug/mL	92.6	<6.04E-03	<6.04E-03	n/a	n/a	n/a	n/a	6.04E-03	n/a	U
S13V000003			FORMATE	Formate	ug/mL	96.9	<4.67E-03	<4.67E-03	n/a	n/a	n/a	n/a	4.67E-03	n/a	U
S13V000003			16887-00-6	Chloride	ug/mL	95.1	0.0140	0.0110	n/a	n/a	n/a	n/a	9.98E-03	n/a	B
S13V000003			14797-65-0	Nitrite	ug/mL	101	<0.0192	<0.0192	n/a	n/a	n/a	n/a	0.0192	n/a	U
S13V000003			14808-79-8	Sulfate	ug/mL	95.3	<0.0187	<0.0187	n/a	n/a	n/a	n/a	0.0187	n/a	U
S13V000003			338-70-5	Oxalate	ug/mL	96.6	<0.0231	<0.0231	n/a	n/a	n/a	n/a	0.0231	n/a	U
S13V000003			14797-55-8	Nitrate	ug/mL	94.4	<0.0208	<0.0208	n/a	n/a	n/a	n/a	0.0208	n/a	U
ICP/MS															
S13V000004			14269-63-7	Thorium-230	ug/mL	n/a	<7.00E-09	<1.40E-08	n/a	n/a	n/a	n/a	1.40E-08	n/a	U
S13V000004			TH-232	Thorium-232	ug/mL	101	<5.00E-07	<1.00E-06	n/a	n/a	n/a	n/a	1.00E-06	n/a	U
S13V000004			13968-55-3	Uranium-233	ug/mL	103	<2.00E-07	<4.00E-07	n/a	n/a	n/a	n/a	4.00E-07	n/a	U
S13V000004			13966-29-5	Uranium-234	ug/mL	n/a	<5.00E-09	<1.00E-08	n/a	n/a	n/a	n/a	1.00E-08	n/a	U
S13V000004			15117-96-1	Uranium-235	ug/mL	102	<1.00E-08	<2.00E-08	n/a	n/a	n/a	n/a	2.00E-08	n/a	U
S13V000004			13982-70-2	Uranium-236	ug/mL	n/a	<4.00E-09	<8.00E-09	n/a	n/a	n/a	n/a	8.00E-09	n/a	U
S13V000004			13994-20-2	Neptunium-237	ug/mL	108	<1.00E-07	<2.00E-07	n/a	n/a	n/a	n/a	2.00E-07	n/a	U
S13V000004			U-238	Uranium-238	ug/mL	99.8	<5.00E-07	<1.00E-06	n/a	n/a	n/a	n/a	1.00E-06	n/a	U
S13V000004			SN-117	Tin-117	ug/mL	109	<1.00E-05	5.94E-04	n/a	n/a	n/a	n/a	1.00E-04	n/a	
S13V000004			15832-50-5	Tin-126	ug/mL	n/a	<2.00E-07	<2.00E-06	n/a	n/a	n/a	n/a	2.00E-06	n/a	U
TC-99 by MS															
S13V000004			14133-76-7	Technetium-99	pCi/mL	n/a	n/a	<0.0204	n/a	n/a	n/a	n/a	0.0204	n/a	U

NA = Not Analyzed, ND = Not Detected

B - Estimated
C - Blank Contamination
U - Less Than Detection Limit

SX Tank Farm PW
Data Summary of All Results

Sample Group: 20130167
Core Number: C8762
Customer Sample ID: B2NRC3
Sample Portion: Equipment Blank

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Anions and Small Organic Acids															
S13V000001			16984-48-8	Fluoride	ug/mL	96.3	<1.61E-03	0.0210	n/a	n/a	n/a	n/a	1.61E-03	n/a	B
S13V000001			GLYCOLATE	Glycolate	ug/mL	95.8	<9.37E-03	<9.37E-03	n/a	n/a	n/a	n/a	9.37E-03	n/a	U
S13V000001			71-50-1	Acetate	ug/mL	93.9	<6.04E-03	0.0530	n/a	n/a	n/a	n/a	6.04E-03	n/a	B
S13V000001			FORMATE	Formate	ug/mL	97.7	<4.67E-03	0.108	n/a	n/a	n/a	n/a	4.67E-03	n/a	B
S13V000001			16887-00-6	Chloride	ug/mL	94.4	<9.98E-03	0.0230	n/a	n/a	n/a	n/a	9.98E-03	n/a	B
S13V000001			14797-65-0	Nitrite	ug/mL	104	<0.0192	<0.0192	n/a	n/a	n/a	n/a	0.0192	n/a	U
S13V000001			14808-79-8	Sulfate	ug/mL	96.6	<0.0187	0.0210	n/a	n/a	n/a	n/a	0.0187	n/a	B
S13V000001			338-70-5	Oxalate	ug/mL	98.2	<0.0231	<0.0231	n/a	n/a	n/a	n/a	0.0231	n/a	U
S13V000001			14797-55-8	Nitrate	ug/mL	95.4	<0.0208	0.170	n/a	n/a	n/a	n/a	0.0208	n/a	B
ICP/MS															
S13V000002			14269-63-7	Thorium-230	ug/mL	n/a	<7.00E-09	<1.40E-08	<1.40E-08	n/a	n/a	n/a	1.40E-08	n/a	U
S13V000002			TH-232	Thorium-232	ug/mL	101	<5.00E-07	1.99E-06	1.91E-06	1.95E-06	4.31	98.4	1.00E-06	n/a	
S13V000002			13968-55-3	Uranium-233	ug/mL	103	<2.00E-07	<4.00E-07	<4.00E-07	n/a	n/a	98.1	4.00E-07	n/a	U
S13V000002			13966-29-5	Uranium-234	ug/mL	n/a	<5.00E-09	<1.00E-08	<1.00E-08	n/a	n/a	n/a	1.00E-08	n/a	U
S13V000002			15117-96-1	Uranium-235	ug/mL	102	<1.00E-08	<2.00E-08	<2.00E-08	n/a	n/a	110	2.00E-08	n/a	U
S13V000002			13982-70-2	Uranium-236	ug/mL	n/a	<4.00E-09	<8.00E-09	<8.00E-09	n/a	n/a	n/a	8.00E-09	n/a	U
S13V000002			13994-20-2	Neptunium-237	ug/mL	108	<1.00E-07	<2.00E-07	<2.00E-07	n/a	n/a	98.6	2.00E-07	n/a	U
S13V000002			U-238	Uranium-238	ug/mL	99.8	<5.00E-07	1.27E-06	1.21E-06	1.24E-06	5.24	99.4	1.00E-06	n/a	
S13V000002			SN-117	Tin-117	ug/mL	109	<1.00E-05	3.51E-04	3.31E-04	3.41E-04	5.89	107	1.00E-04	n/a	
S13V000002			15832-50-5	Tin-126	ug/mL	n/a	<2.00E-07	<2.00E-06	<2.00E-06	n/a	n/a	n/a	2.00E-06	n/a	U
TC-99 by MS															
S13V000002			14133-76-7	Technetium-99	pCi/mL	n/a	n/a	<0.0204	<0.0204	n/a	n/a	101	0.0204	n/a	U

NA = Not Analyzed, ND = Not Detected

B - Estimated C - Blank Contamination U - Less Than Detection Limit

SX Tank Farm PW
Data Summary of All Results

Sample Group: 20130168
Core Number: C8760
Customer Sample ID: B2NPN5
Sample Portion: Liner B

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
BULK DENSITY, VADOSE															
S13V000006			BULKDENSI	Bulk Density	g/mL	n/a	n/a	2.02	n/a	n/a	n/a	n/a	0.0100	n/a	

NA = Not Analyzed, ND = Not Detected

B - Estimated C - Blank Contamination U - Less Than Detection Limit

SX Tank Farm PW
Data Summary of All Results

Sample Group: 20130168
Core Number: C8760
Customer Sample ID: B2NPN8
Sample Portion: Composite

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
% Water by APD Test Plan															
S13V000009			%WATERAP	%WATER-APD	%	n/a	n/a	10.98	n/a	n/a	n/a	n/a	0.01000	n/a	
Anions and Small Organic Acids															
S13V000014		W	16984-48-8	Fluoride	ug/g	98.2	<1.00E-03	1.26	1.34	1.30	5.96	92.9	0.0554	n/a	
S13V000014		W	GLYCOLATE	Glycolate	ug/g	98.4	<5.00E-03	<0.177	0.709	0.443	120	96.5	0.177	n/a	U
S13V000014		W	71-50-1	Acetate	ug/g	102	0.215	3.50	3.76	3.63	7.32	95.7	0.310	n/a	C
S13V000014		W	FORMATE	Formate	ug/g	105	0.234	4.50	5.07	4.78	12.0	100	0.465	n/a	C
S13V000014		W	16887-00-6	Chloride	ug/g	98.2	0.0170	4.54	5.02	4.78	9.97	107	0.177	n/a	
S13V000014		W	14797-65-0	Nitrite	ug/g	95.8	0.133	1.20	1.05	1.12	12.8	92.6	0.775	n/a	CB
S13V000014		W	14808-79-8	Sulfate	ug/g	100	0.0200	16.9	18.5	17.7	8.81	99.2	0.509	n/a	
S13V000014		W	338-70-5	Oxalate	ug/g	101	<0.0220	2.79	4.12	3.45	38.5	77.2	0.288	n/a	B
S13V000014		W	14797-55-8	Nitrate	ug/g	100	0.0530	3.93	4.86	4.40	21.2	100	0.698	n/a	
ICP/MS															
S13V000015		A	14269-63-7	Thorium-230	ug/g	n/a	<7.00E-06	<8.12E-05	<8.16E-05	n/a	n/a	n/a	8.12E-05	n/a	U
S13V000015		A	TH-232	Thorium-232	ug/g	108	<5.00E-04	6.32	5.79	6.05	8.70	96.5	5.80E-03	n/a	
S13V000015		A	13968-55-3	Uranium-233	ug/g	103	<2.00E-04	<2.32E-03	<2.33E-03	n/a	n/a	112	2.32E-03	n/a	U
S13V000015		A	13966-29-5	Uranium-234	ug/g	n/a	<5.00E-06	<5.80E-05	<5.83E-05	n/a	n/a	n/a	5.80E-05	n/a	U
S13V000015		A	15117-96-1	Uranium-235	ug/g	106	<1.00E-05	5.99E-03	5.03E-03	5.51E-03	17.4	100	1.16E-04	n/a	
S13V000015		A	13982-70-2	Uranium-236	ug/g	n/a	<4.00E-06	<4.64E-05	<4.66E-05	n/a	n/a	n/a	4.64E-05	n/a	U
S13V000015		A	13994-20-2	Neptunium-237	ug/g	112	<1.00E-04	<1.16E-03	<1.17E-03	n/a	n/a	94.2	1.16E-03	n/a	U
S13V000015		A	U-238	Uranium-238	ug/g	106	<5.00E-04	0.854	0.718	0.786	17.2	99.7	5.80E-03	n/a	
Solids % - Gravimetric by APD															
S13V000009			WT%SOLIDS	Weight percent solids	%	n/a	n/a	89.0	n/a	n/a	n/a	n/a	0.0100	n/a	
pH on Solid Samples															
S13V000009			PH	pH	unitless	n/a	n/a	8.79	8.84	8.82	0.567	n/a	0.0100	n/a	
ICP/MS															
S13V000013		A	SN-117	Tin-117	ug/g	104	<1.00E-04	0.0423	0.0403	0.0413	4.75	99.3	4.63E-03	n/a	
S13V000013		A	15832-50-5	Tin-126	ug/g	n/a	<2.00E-06	<9.27E-05	<9.66E-05	n/a	n/a	n/a	9.27E-05	n/a	U
TC-99 by MS															
S13V000016		A	14133-76-7	Technetium-99	pCi/g	98.7	<1.02	<11.4	<11.4	n/a	n/a	99.5	11.4	n/a	U

NA = Not Analyzed, ND = Not Detected

B - Estimated C - Blank Contamination U - Less Than Detection Limit

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SX Tank Farm PW
Data Summary of All Results

Sample Group: 20130168
Core Number: C8760
Customer Sample ID: B2NPN8 WE
Sample Portion: Composite

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Anions and Small Organic Acids															
S13V000012		WV	14797-55-8	Nitrate	ug/g	98.9	0.0810	6.05	6.25	6.15	3.18	102	0.0784	n/a	
Conductivity															
S13V000011			CONDUCT	Conductivity	uMHO/cm	103	0.991	175	177	176	0.852	n/a	0.0100	n/a	
TC-99 by MS															
S13V000012		WV	14133-76-7	Technetium-99	pCi/g	91.4	<0.102	<0.128	<0.126	n/a	n/a	96.7	0.128	n/a	U

NA = Not Analyzed, ND = Not Detected

B - Estimated
C - Blank Contamination
U - Less Than Detection Limit

SX Tank Farm PW
Data Summary of All Results

Sample Group: 20130168
Core Number: C8760
Customer Sample ID: B2NPN9
Sample Portion: Liner A

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
BULK DENSITY, VADOSE															
S13V000017			BULKDENSI	Bulk Density	g/mL	n/a	n/a	2.00	n/a	n/a	n/a	n/a	0.0100	n/a	

NA = Not Analyzed, ND = Not Detected

B - Estimated C - Blank Contamination U - Less Than Detection Limit

SX Tank Farm PW
Data Summary of All Results

Sample Group: 20130168
Core Number: C8760
Customer Sample ID: B2NPP0
Sample Portion: Liner B

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
BULK DENSITY, VADOSE															
S13V000018			BULKDENSI	Bulk Density	g/mL	n/a	n/a	1.96	n/a	n/a	n/a	n/a	0.0100	n/a	

NA = Not Analyzed, ND = Not Detected

B - Estimated C - Blank Contamination U - Less Than Detection Limit

SX Tank Farm PW
Data Summary of All Results

Sample Group: 20130168
Core Number: C8760
Customer Sample ID: B2NPP3
Sample Portion: Composite

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
% Water by APD Test Plan															
S13V000021			%WATERAP	%WATER-APD	%	n/a	n/a	12.29	n/a	n/a	n/a	n/a	0.01000	n/a	
Anions and Small Organic Acids															
S13V000026		W	16984-48-8	Fluoride	ug/g	98.2	<1.00E-03	1.62	n/a	n/a	n/a	n/a	0.0551	n/a	
S13V000026		W	GLYCOLATE	Glycolate	ug/g	98.4	<5.00E-03	<0.176	n/a	n/a	n/a	n/a	0.176	n/a	U
S13V000026		W	71-50-1	Acetate	ug/g	102	0.215	2.29	n/a	n/a	n/a	n/a	0.308	n/a	CB
S13V000026		W	FORMATE	Formate	ug/g	105	0.234	3.15	n/a	n/a	n/a	n/a	0.462	n/a	C
S13V000026		W	16887-00-6	Chloride	ug/g	98.2	0.0170	5.47	n/a	n/a	n/a	n/a	0.176	n/a	
S13V000026		W	14797-65-0	Nitrite	ug/g	95.8	0.133	1.37	n/a	n/a	n/a	n/a	0.771	n/a	CB
S13V000026		W	14808-79-8	Sulfate	ug/g	100	0.0200	19.6	n/a	n/a	n/a	n/a	0.506	n/a	
S13V000026		W	338-70-5	Oxalate	ug/g	101	<0.0220	1.27	n/a	n/a	n/a	n/a	0.286	n/a	B
S13V000026		W	14797-55-8	Nitrate	ug/g	100	0.0530	6.88	n/a	n/a	n/a	n/a	0.694	n/a	
S13V000026		W	14265-44-2	Phosphate	ug/g	99.6	<0.0150	1.93	n/a	n/a	n/a	n/a	0.220	n/a	B
Solids % - Gravimetric by APD															
S13V000021			WT%SOLIDS	Weight percent solids	%	n/a	n/a	87.7	n/a	n/a	n/a	n/a	0.0100	n/a	
pH on Solid Samples															
S13V000021			PH	pH	unitless	n/a	n/a	8.79	n/a	n/a	n/a	n/a	0.0100	n/a	
ICP/MS															
S13V000025		A	SN-117	Tin-117	ug/g	104	<1.00E-04	0.0371	n/a	n/a	n/a	n/a	5.02E-03	n/a	
S13V000025		A	15832-50-5	Tin-126	ug/g	n/a	<2.00E-06	<1.00E-04	n/a	n/a	n/a	n/a	1.00E-04	n/a	U
S13V000027		A	14269-63-7	Thorium-230	ug/g	n/a	<7.00E-06	<7.74E-05	n/a	n/a	n/a	n/a	7.74E-05	n/a	U
S13V000027		A	TH-232	Thorium-232	ug/g	108	<5.00E-04	5.80	n/a	n/a	n/a	n/a	5.53E-03	n/a	
S13V000027		A	13968-55-3	Uranium-233	ug/g	103	<2.00E-04	<2.21E-03	n/a	n/a	n/a	n/a	2.21E-03	n/a	U
S13V000027		A	13966-29-5	Uranium-234	ug/g	n/a	<5.00E-06	<5.53E-05	n/a	n/a	n/a	n/a	5.53E-05	n/a	U
S13V000027		A	15117-96-1	Uranium-235	ug/g	106	<1.00E-05	5.96E-03	n/a	n/a	n/a	n/a	1.11E-04	n/a	
S13V000027		A	13982-70-2	Uranium-236	ug/g	n/a	<4.00E-06	<4.42E-05	n/a	n/a	n/a	n/a	4.42E-05	n/a	U
S13V000027		A	13994-20-2	Neptunium-237	ug/g	112	<1.00E-04	<1.11E-03	n/a	n/a	n/a	n/a	1.11E-03	n/a	U
S13V000027		A	U-238	Uranium-238	ug/g	106	<5.00E-04	0.797	n/a	n/a	n/a	n/a	5.53E-03	n/a	
TC-99 by MS															
S13V000028		A	14133-76-7	Technetium-99	pCi/g	98.7	<1.02	<11.4	n/a	n/a	n/a	n/a	11.4	n/a	U

NA = Not Analyzed, ND = Not Detected

B - Estimated C - Blank Contamination U - Less Than Detection Limit

SX Tank Farm PW
Data Summary of All Results

Sample Group: 20130168
Core Number: C8760
Customer Sample ID: B2NPP3 WE
Sample Portion: Composite

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Anions and Small Organic Acids															
S13V000024		WV	14797-55-8	Nitrate	ug/g	98.9	0.0810	7.92	n/a	n/a	n/a	n/a	0.0810	n/a	
Conductivity															
S13V000023			CONDUCT	Conductivity	uMHO/cm	103	0.991	163	n/a	n/a	n/a	n/a	0.0100	n/a	
TC-99 by MS															
S13V000024		WV	14133-76-7	Technetium-99	pCi/g	91.4	<0.102	<0.131	n/a	n/a	n/a	n/a	0.131	n/a	U

NA = Not Analyzed, ND = Not Detected

B - Estimated C - Blank Contamination U - Less Than Detection Limit

SX Tank Farm PW
Data Summary of All Results

Sample Group: 20130168
Core Number: C8760
Customer Sample ID: B2NPP4
Sample Portion: Liner A

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
BULK DENSITY, VADOSE															
S13V000029			BULKDENSI	Bulk Density	g/mL	n/a	n/a	1.89	n/a	n/a	n/a	n/a	0.0100	n/a	

NA = Not Analyzed, ND = Not Detected

B - Estimated C - Blank Contamination U - Less Than Detection Limit

SX Tank Farm PW
Data Summary of All Results

Sample Group: 20130168
Core Number: C8760
Customer Sample ID: B2NPP5
Sample Portion: Liner B

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
BULK DENSITY, VADOSE															
S13V000030			BULKDENSI	Bulk Density	g/mL	n/a	n/a	1.83	n/a	n/a	n/a	n/a	0.0100	n/a	

NA = Not Analyzed, ND = Not Detected

B - Estimated C - Blank Contamination U - Less Than Detection Limit

SX Tank Farm PW
Data Summary of All Results

Sample Group: 20130168
Core Number: C8760
Customer Sample ID: B2NPP6
Sample Portion: Liner C

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
BULK DENSITY, VADOSE															
S13V000031			BULKDENSI	Bulk Density	g/mL	n/a	n/a	1.86	n/a	n/a	n/a	n/a	0.0100	n/a	

NA = Not Analyzed, ND = Not Detected

B - Estimated C - Blank Contamination U - Less Than Detection Limit

SX Tank Farm PW
Data Summary of All Results

Sample Group: 20130168
Core Number: C8760
Customer Sample ID: B2NPP8
Sample Portion: Composite

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
% Water by APD Test Plan															
S13V000033			%WATERAP	%WATER-APD	%	n/a	n/a	11.29	n/a	n/a	n/a	n/a	0.01000	n/a	
ICP/MS															
S13V000039		A	14269-63-7	Thorium-230	ug/g	n/a	<7.00E-06	<7.73E-05	n/a	n/a	n/a	n/a	7.73E-05	n/a	U
S13V000039		A	TH-232	Thorium-232	ug/g	108	<5.00E-04	5.32	n/a	n/a	n/a	n/a	5.52E-03	n/a	
S13V000039		A	13968-55-3	Uranium-233	ug/g	103	<2.00E-04	<2.21E-03	n/a	n/a	n/a	n/a	2.21E-03	n/a	U
S13V000039		A	13966-29-5	Uranium-234	ug/g	n/a	<5.00E-06	6.05E-05	n/a	n/a	n/a	n/a	5.52E-05	n/a	
S13V000039		A	15117-96-1	Uranium-235	ug/g	106	<1.00E-05	5.44E-03	n/a	n/a	n/a	n/a	1.10E-04	n/a	
S13V000039		A	13982-70-2	Uranium-236	ug/g	n/a	<4.00E-06	<4.42E-05	n/a	n/a	n/a	n/a	4.42E-05	n/a	U
S13V000039		A	13994-20-2	Neptunium-237	ug/g	112	<1.00E-04	<1.10E-03	n/a	n/a	n/a	n/a	1.10E-03	n/a	U
S13V000039		A	U-238	Uranium-238	ug/g	106	<5.00E-04	0.717	n/a	n/a	n/a	n/a	5.52E-03	n/a	
Solids % - Gravimetric by APD															
S13V000033			WT%SOLIDS	Weight percent solids	%	n/a	n/a	88.7	n/a	n/a	n/a	n/a	0.0100	n/a	
pH on Solid Samples															
S13V000033			PH	pH	unitless	n/a	n/a	8.88	n/a	n/a	n/a	n/a	0.0100	n/a	
Anions and Small Organic Acids															
S13V000038		W	16984-48-8	Fluoride	ug/g	98.2	<1.00E-03	1.12	n/a	n/a	n/a	n/a	0.0556	n/a	
S13V000038		W	GLYCOLATE	Glycolate	ug/g	98.4	<5.00E-03	<0.178	n/a	n/a	n/a	n/a	0.178	n/a	U
S13V000038		W	71-50-1	Acetate	ug/g	102	0.215	2.66	n/a	n/a	n/a	n/a	0.311	n/a	C
S13V000038		W	FORMATE	Formate	ug/g	105	0.234	3.48	n/a	n/a	n/a	n/a	0.467	n/a	C
S13V000038		W	16887-00-6	Chloride	ug/g	98.2	0.0170	5.56	n/a	n/a	n/a	n/a	0.178	n/a	
S13V000038		W	14797-65-0	Nitrite	ug/g	95.8	0.133	1.33	n/a	n/a	n/a	n/a	0.779	n/a	CB
S13V000038		W	14808-79-8	Sulfate	ug/g	100	0.0200	18.9	n/a	n/a	n/a	n/a	0.512	n/a	
S13V000038		W	338-70-5	Oxalate	ug/g	101	<0.0220	0.434	n/a	n/a	n/a	n/a	0.289	n/a	B
S13V000038		W	14797-55-8	Nitrate	ug/g	100	0.0530	8.53	n/a	n/a	n/a	n/a	0.701	n/a	
S13V000038		W	14265-44-2	Phosphate	ug/g	99.6	<0.0150	1.87	n/a	n/a	n/a	n/a	0.222	n/a	B
ICP/MS															
S13V000037		A	SN-117	Tin-117	ug/g	104	<1.00E-04	0.0325	n/a	n/a	n/a	n/a	5.12E-03	n/a	
S13V000037		A	15832-50-5	Tin-126	ug/g	n/a	<2.00E-06	<1.02E-04	n/a	n/a	n/a	n/a	1.02E-04	n/a	U
TC-99 by MS															

NA = Not Analyzed, ND = Not Detected

B - Estimated C - Blank Contamination U - Less Than Detection Limit

SX Tank Farm PW
Data Summary of All Results

Sample Group: 20130168
Core Number: C8760
Customer Sample ID: B2NPP8
Sample Portion: Composite

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
TC-99 by MS															
S13V000040		A	14133-76-7	Technetium-99	pCi/g	98.7	<1.02	<11.3	n/a	n/a	n/a	n/a	11.3	n/a	U

NA = Not Analyzed, ND = Not Detected

B - Estimated C - Blank Contamination U - Less Than Detection Limit

SX Tank Farm PW
Data Summary of All Results

Sample Group: 20130168
Core Number: C8760
Customer Sample ID: B2NPP8 WE
Sample Portion: Composite

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Anions and Small Organic Acids															
S13V000036		WV	14797-55-8	Nitrate	ug/g	98.9	0.0810	8.79	n/a	n/a	n/a	n/a	0.0789	n/a	
Conductivity															
S13V000035			CONDUCT	Conductivity	uMHO/cm	103	0.991	158	n/a	n/a	n/a	n/a	0.0100	n/a	
TC-99 by MS															
S13V000036		WV	14133-76-7	Technetium-99	pCi/g	91.4	<0.102	<0.128	n/a	n/a	n/a	n/a	0.128	n/a	U

NA = Not Analyzed, ND = Not Detected

B - Estimated C - Blank Contamination U - Less Than Detection Limit

SX Tank Farm PW
Data Summary of All Results

Sample Group: 20130185
Core Number: C8762
Customer Sample ID: B2NR97
Sample Portion: Liner A

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
BULK DENSITY, VADOSE															
S13V000041			BULKDENSI	Bulk Density	g/mL	n/a	n/a	2.14	n/a	n/a	n/a	n/a	0.0100	n/a	

NA = Not Analyzed, ND = Not Detected

B - Estimated C - Blank Contamination U - Less Than Detection Limit

SX Tank Farm PW
Data Summary of All Results

Sample Group: 20130185
Core Number: C8762
Customer Sample ID: B2NR98
Sample Portion: Liner B

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
BULK DENSITY, VADOSE															
S13V000042			BULKDENSI	Bulk Density	g/mL	n/a	n/a	2.12	n/a	n/a	n/a	n/a	0.0100	n/a	

NA = Not Analyzed, ND = Not Detected

B - Estimated C - Blank Contamination U - Less Than Detection Limit

SX Tank Farm PW
Data Summary of All Results

Sample Group: 20130185
Core Number: C8762
Customer Sample ID: B2NRB1
Sample Portion: Liner A

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
BULK DENSITY, VADOSE															
S13V000052			BULKDENSI	Bulk Density	g/mL	n/a	n/a	1.78	n/a	n/a	n/a	n/a	0.0100	n/a	

NA = Not Analyzed, ND = Not Detected

B - Estimated C - Blank Contamination U - Less Than Detection Limit

SX Tank Farm PW
Data Summary of All Results

Sample Group: 20130185
Core Number: C8762
Customer Sample ID: B2NRB2
Sample Portion: Liner B

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
BULK DENSITY, VADOSE															
S13V000053			BULKDENSI	Bulk Density	g/mL	n/a	n/a	1.69	n/a	n/a	n/a	n/a	0.0100	n/a	

NA = Not Analyzed, ND = Not Detected

B - Estimated C - Blank Contamination U - Less Than Detection Limit

SX Tank Farm PW
Data Summary of All Results

Sample Group: 20130185
Core Number: C8762
Customer Sample ID: B2NRB3
Sample Portion: Liner C

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
BULK DENSITY, VADOSE															
S13V000054			BULKDENSI	Bulk Density	g/mL	n/a	n/a	1.51	n/a	n/a	n/a	n/a	0.0100	n/a	

NA = Not Analyzed, ND = Not Detected

B - Estimated C - Blank Contamination U - Less Than Detection Limit

SX Tank Farm PW
Data Summary of All Results

Sample Group: 20130185
Core Number: C8762
Customer Sample ID: B2NRB5
Sample Portion: Liner A

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
BULK DENSITY, VADOSE															
S13V000063			BULKDENSI	Bulk Density	g/mL	n/a	n/a	2.11	n/a	n/a	n/a	n/a	0.0100	n/a	

NA = Not Analyzed, ND = Not Detected

B - Estimated C - Blank Contamination U - Less Than Detection Limit

SX Tank Farm PW
Data Summary of All Results

Sample Group: 20130185
Core Number: C8762
Customer Sample ID: B2NRB7
Sample Portion: Liner C

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
BULK DENSITY, VADOSE															
S13V000065			BULKDENSI	Bulk Density	g/mL	n/a	n/a	2.13	n/a	n/a	n/a	n/a	0.0100	n/a	

NA = Not Analyzed, ND = Not Detected

B - Estimated C - Blank Contamination U - Less Than Detection Limit

SX Tank Farm PW
Data Summary of All Results

Sample Group: 20130185
Core Number: C8762
Customer Sample ID: B2NRB9
Sample Portion: Composite

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
% Water by APD Test Plan															
S13V000045			%WATERAP	%WATER-APD	%	n/a	n/a	15.60	n/a	n/a	n/a	n/a	0.01000	n/a	
Solids % - Gravimetric by APD															
S13V000045			WT%SOLIDS	Weight percent solids	%	n/a	n/a	84.4	n/a	n/a	n/a	n/a	0.0100	n/a	
pH on Solid Samples															
S13V000045			PH	pH	unitless	n/a	n/a	8.85	8.94	8.90	1.01	n/a	0.0100	n/a	
Anions and Small Organic Acids															
S13V000049		W	16984-48-8	Fluoride	ug/g	98.2	<1.00E-03	1.27	n/a	n/a	n/a	n/a	0.0555	n/a	
S13V000049		W	GLYCOLATE	Glycolate	ug/g	98.4	<5.00E-03	<0.178	n/a	n/a	n/a	n/a	0.178	n/a	U
S13V000049		W	71-50-1	Acetate	ug/g	102	0.215	2.48	n/a	n/a	n/a	n/a	0.311	n/a	CB
S13V000049		W	FORMATE	Formate	ug/g	105	0.234	2.97	n/a	n/a	n/a	n/a	0.466	n/a	C
S13V000049		W	16887-00-6	Chloride	ug/g	98.2	0.0170	4.65	n/a	n/a	n/a	n/a	0.178	n/a	
S13V000049		W	14797-65-0	Nitrite	ug/g	95.8	0.133	1.88	n/a	n/a	n/a	n/a	0.777	n/a	CB
S13V000049		W	14808-79-8	Sulfate	ug/g	100	0.0200	31.5	n/a	n/a	n/a	n/a	0.511	n/a	
S13V000049		W	338-70-5	Oxalate	ug/g	101	<0.0220	<0.289	n/a	n/a	n/a	n/a	0.289	n/a	U
S13V000049		W	14797-55-8	Nitrate	ug/g	100	0.0530	7.29	n/a	n/a	n/a	n/a	0.700	n/a	
S13V000049		W	14265-44-2	Phosphate	ug/g	99.6	<0.0150	2.53	n/a	n/a	n/a	n/a	0.222	n/a	B
ICP/MS															
S13V000048		A	SN-117	Tin-117	ug/g	104	<1.00E-04	0.0340	n/a	n/a	n/a	n/a	5.11E-03	n/a	
S13V000048		A	15832-50-5	Tin-126	ug/g	n/a	<2.00E-06	<1.02E-04	n/a	n/a	n/a	n/a	1.02E-04	n/a	U
S13V000050		A	14269-63-7	Thorium-230	ug/g	n/a	<7.00E-06	<8.07E-05	n/a	n/a	n/a	n/a	8.07E-05	n/a	U
S13V000050		A	TH-232	Thorium-232	ug/g	108	<5.00E-04	7.13	n/a	n/a	n/a	n/a	5.77E-03	n/a	
S13V000050		A	13968-55-3	Uranium-233	ug/g	103	<2.00E-04	<2.31E-03	n/a	n/a	n/a	n/a	2.31E-03	n/a	U
S13V000050		A	13966-29-5	Uranium-234	ug/g	n/a	<5.00E-06	<5.77E-05	n/a	n/a	n/a	n/a	5.77E-05	n/a	U
S13V000050		A	15117-96-1	Uranium-235	ug/g	106	<1.00E-05	6.87E-03	n/a	n/a	n/a	n/a	1.15E-04	n/a	
S13V000050		A	13982-70-2	Uranium-236	ug/g	n/a	<4.00E-06	<4.61E-05	n/a	n/a	n/a	n/a	4.61E-05	n/a	U
S13V000050		A	13994-20-2	Neptunium-237	ug/g	112	<1.00E-04	<1.15E-03	n/a	n/a	n/a	n/a	1.15E-03	n/a	U
S13V000050		A	U-238	Uranium-238	ug/g	106	<5.00E-04	0.957	n/a	n/a	n/a	n/a	5.77E-03	n/a	
TC-99 by MS															
S13V000051		A	14133-76-7	Technetium-99	pCi/g	98.7	<1.02	<11.3	n/a	n/a	n/a	n/a	11.3	n/a	U

NA = Not Analyzed, ND = Not Detected

B - Estimated C - Blank Contamination U - Less Than Detection Limit

SX Tank Farm PW
Data Summary of All Results

Sample Group: 20130185
Core Number: C8762
Customer Sample ID: B2NRB9 WE
Sample Portion: Composite

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Anions and Small Organic Acids															
S13V000047		WV	14797-55-8	Nitrate	ug/g	100	<0.0150	8.22	8.19	8.21	0.390	102	0.171	n/a	
Conductivity															
S13V000046			CONDUCT	Conductivity	uMHO/cm	102	0.361	213	218	215	2.32	n/a	0.0100	n/a	
TC-99 by MS															
S13V000047		WV	14133-76-7	Technetium-99	pCi/g	113	<0.102	<0.139	<0.139	n/a	n/a	96.2	0.139	n/a	U

NA = Not Analyzed, ND = Not Detected

B - Estimated C - Blank Contamination U - Less Than Detection Limit

SX Tank Farm PW
Data Summary of All Results

Sample Group: 20130185
Core Number: C8762
Customer Sample ID: B2NRC0
Sample Portion: Composite

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
% Water by APD Test Plan															
S13V000056			%WATERAP	%WATER-APD	%	n/a	n/a	7.220	n/a	n/a	n/a	n/a	0.01000	n/a	
ICP/MS															
S13V000059		A	SN-117	Tin-117	ug/g	104	<1.00E-04	0.0262	n/a	n/a	n/a	n/a	5.08E-03	n/a	
S13V000059		A	15832-50-5	Tin-126	ug/g	n/a	<2.00E-06	<1.02E-04	n/a	n/a	n/a	n/a	1.02E-04	n/a	U
S13V000061		A	14269-63-7	Thorium-230	ug/g	n/a	<7.00E-06	<7.77E-05	n/a	n/a	n/a	n/a	7.77E-05	n/a	U
S13V000061		A	TH-232	Thorium-232	ug/g	108	<5.00E-04	4.90	n/a	n/a	n/a	n/a	5.55E-03	n/a	
S13V000061		A	13968-55-3	Uranium-233	ug/g	103	<2.00E-04	<2.22E-03	n/a	n/a	n/a	n/a	2.22E-03	n/a	U
S13V000061		A	13966-29-5	Uranium-234	ug/g	n/a	<5.00E-06	1.34E-04	n/a	n/a	n/a	n/a	5.55E-05	n/a	
S13V000061		A	15117-96-1	Uranium-235	ug/g	106	<1.00E-05	4.86E-03	n/a	n/a	n/a	n/a	1.11E-04	n/a	
S13V000061		A	13982-70-2	Uranium-236	ug/g	n/a	<4.00E-06	<4.44E-05	n/a	n/a	n/a	n/a	4.44E-05	n/a	U
S13V000061		A	13994-20-2	Neptunium-237	ug/g	112	<1.00E-04	<1.11E-03	n/a	n/a	n/a	n/a	1.11E-03	n/a	U
S13V000061		A	U-238	Uranium-238	ug/g	106	<5.00E-04	0.674	n/a	n/a	n/a	n/a	5.55E-03	n/a	
Solids % - Gravimetric by APD															
S13V000056			WT%SOLIDS	Weight percent solids	%	n/a	n/a	92.8	n/a	n/a	n/a	n/a	0.0100	n/a	
TC-99 by MS															
S13V000062		A	14133-76-7	Technetium-99	pCi/g	98.7	<1.02	<11.4	n/a	n/a	n/a	n/a	11.4	n/a	U
pH on Solid Samples															
S13V000056			PH	pH	unitless	n/a	n/a	8.91	n/a	n/a	n/a	n/a	0.0100	n/a	
Anions and Small Organic Acids															
S13V000060		W	16984-48-8	Fluoride	ug/g	98.2	<1.00E-03	1.02	n/a	n/a	n/a	n/a	0.0553	n/a	B
S13V000060		W	GLYCOLATE	Glycolate	ug/g	98.4	<5.00E-03	<0.177	n/a	n/a	n/a	n/a	0.177	n/a	U
S13V000060		W	71-50-1	Acetate	ug/g	102	0.215	2.62	n/a	n/a	n/a	n/a	0.310	n/a	C
S13V000060		W	FORMATE	Formate	ug/g	105	0.234	2.92	n/a	n/a	n/a	n/a	0.465	n/a	C
S13V000060		W	16887-00-6	Chloride	ug/g	98.2	0.0170	2.77	n/a	n/a	n/a	n/a	0.177	n/a	
S13V000060		W	14797-65-0	Nitrite	ug/g	95.8	0.133	1.15	n/a	n/a	n/a	n/a	0.775	n/a	CB
S13V000060		W	14808-79-8	Sulfate	ug/g	100	0.0200	18.5	n/a	n/a	n/a	n/a	0.509	n/a	
S13V000060		W	338-70-5	Oxalate	ug/g	101	<0.0220	<0.288	n/a	n/a	n/a	n/a	0.288	n/a	U
S13V000060		W	14797-55-8	Nitrate	ug/g	100	0.0530	5.22	n/a	n/a	n/a	n/a	0.697	n/a	
S13V000060		W	14265-44-2	Phosphate	ug/g	99.6	<0.0150	1.90	n/a	n/a	n/a	n/a	0.221	n/a	B

NA = Not Analyzed, ND = Not Detected

B - Estimated C - Blank Contamination U - Less Than Detection Limit

SX Tank Farm PW
Data Summary of All Results

Sample Group: 20130185
Core Number: C8762
Customer Sample ID: B2NRC0 WE
Sample Portion: Composite

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Anions and Small Organic Acids															
S13V000058		WV	14797-55-8	Nitrate	ug/g	100	<0.0150	5.01	n/a	n/a	n/a	n/a	0.0731	n/a	
Conductivity															
S13V000057			CONDUCT	Conductivity	uMHO/cm	102	0.361	151	n/a	n/a	n/a	n/a	0.0100	n/a	
TC-99 by MS															
S13V000058		WV	14133-76-7	Technetium-99	pCi/g	113	<0.102	<0.119	n/a	n/a	n/a	n/a	0.119	n/a	U

NA = Not Analyzed, ND = Not Detected

B - Estimated C - Blank Contamination U - Less Than Detection Limit

SX Tank Farm PW
Data Summary of All Results

Sample Group: 20130185
Core Number: C8762
Customer Sample ID: B2NRC1
Sample Portion: Composite

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
% Water by APD Test Plan															
S13V000067			%WATERAP	%WATER-APD	%	n/a	n/a	13.90	n/a	n/a	n/a	n/a	0.01000	n/a	
Anions and Small Organic Acids															
S13V000071		W	16984-48-8	Fluoride	ug/g	98.2	<1.00E-03	1.50	n/a	n/a	n/a	n/a	0.0553	n/a	
S13V000071		W	GLYCOLATE	Glycolate	ug/g	98.4	<5.00E-03	<0.177	n/a	n/a	n/a	n/a	0.177	n/a	U
S13V000071		W	71-50-1	Acetate	ug/g	102	0.215	2.69	n/a	n/a	n/a	n/a	0.310	n/a	C
S13V000071		W	FORMATE	Formate	ug/g	105	0.234	2.92	n/a	n/a	n/a	n/a	0.465	n/a	C
S13V000071		W	16887-00-6	Chloride	ug/g	98.2	0.0170	5.00	n/a	n/a	n/a	n/a	0.177	n/a	
S13V000071		W	14797-65-0	Nitrite	ug/g	95.8	0.133	1.87	n/a	n/a	n/a	n/a	0.774	n/a	CB
S13V000071		W	14808-79-8	Sulfate	ug/g	100	0.0200	33.4	n/a	n/a	n/a	n/a	0.509	n/a	
S13V000071		W	338-70-5	Oxalate	ug/g	101	<0.0220	<0.288	n/a	n/a	n/a	n/a	0.288	n/a	U
S13V000071		W	14797-55-8	Nitrate	ug/g	100	0.0530	13.8	n/a	n/a	n/a	n/a	0.697	n/a	
S13V000071		W	14265-44-2	Phosphate	ug/g	99.6	<0.0150	2.23	n/a	n/a	n/a	n/a	0.221	n/a	B
ICP/MS															
S13V000072		A	14269-63-7	Thorium-230	ug/g	n/a	<7.00E-06	<7.53E-05	n/a	n/a	n/a	n/a	7.53E-05	n/a	U
S13V000072		A	TH-232	Thorium-232	ug/g	108	<5.00E-04	6.68	n/a	n/a	n/a	n/a	5.38E-03	n/a	
S13V000072		A	13968-55-3	Uranium-233	ug/g	103	<2.00E-04	<2.15E-03	n/a	n/a	n/a	n/a	2.15E-03	n/a	U
S13V000072		A	13966-29-5	Uranium-234	ug/g	n/a	<5.00E-06	6.84E-05	n/a	n/a	n/a	n/a	5.38E-05	n/a	
S13V000072		A	15117-96-1	Uranium-235	ug/g	106	<1.00E-05	6.26E-03	n/a	n/a	n/a	n/a	1.08E-04	n/a	
S13V000072		A	13982-70-2	Uranium-236	ug/g	n/a	<4.00E-06	<4.31E-05	n/a	n/a	n/a	n/a	4.31E-05	n/a	U
S13V000072		A	13994-20-2	Neptunium-237	ug/g	112	<1.00E-04	<1.08E-03	n/a	n/a	n/a	n/a	1.08E-03	n/a	U
S13V000072		A	U-238	Uranium-238	ug/g	106	<5.00E-04	0.845	n/a	n/a	n/a	n/a	5.38E-03	n/a	
Solids % - Gravimetric by APD															
S13V000067			WT%SOLIDS	Weight percent solids	%	n/a	n/a	86.1	n/a	n/a	n/a	n/a	0.0100	n/a	
TC-99 by MS															
S13V000073		A	14133-76-7	Technetium-99	pCi/g	98.7	<1.02	<11.3	n/a	n/a	n/a	n/a	11.3	n/a	U
pH on Solid Samples															
S13V000067			PH	pH	unitless	n/a	n/a	8.70	n/a	n/a	n/a	n/a	0.0100	n/a	
ICP/MS															
S13V000070		A	SN-117	Tin-117	ug/g	104	<1.00E-04	0.0300	n/a	n/a	n/a	n/a	4.79E-03	n/a	

NA = Not Analyzed, ND = Not Detected

B - Estimated C - Blank Contamination U - Less Than Detection Limit

SX Tank Farm PW
Data Summary of All Results

Sample Group: 20130185
Core Number: C8762
Customer Sample ID: B2NRC1
Sample Portion: Composite

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
ICP/MS															
S13V000070		A	15832-50-5	Tin-126	ug/g	n/a	<2.00E-06	<9.57E-05	n/a	n/a	n/a	n/a	9.57E-05	n/a	U

NA = Not Analyzed, ND = Not Detected

B - Estimated C - Blank Contamination U - Less Than Detection Limit

05 - Jun - 2013 12:52:59
DSRHardcopyWOLimits 2.7.31
DSR.Jar v. 2.7.31

SX Tank Farm PW
Data Summary of All Results

Sample Group: 20130185
Core Number: C8762
Customer Sample ID: B2NRC1 WE
Sample Portion: Composite

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
Anions and Small Organic Acids															
S13V000069		WV	14797-55-8	Nitrate	ug/g	100	<0.0150	14.6	n/a	n/a	n/a	n/a	0.166	n/a	
Conductivity															
S13V000068			CONDUCT	Conductivity	uMHO/cm	102	0.361	199	n/a	n/a	n/a	n/a	0.0100	n/a	
TC-99 by MS															
S13V000069		WV	14133-76-7	Technetium-99	pCi/g	113	<0.102	<0.134	n/a	n/a	n/a	n/a	0.134	n/a	U

NA = Not Analyzed, ND = Not Detected

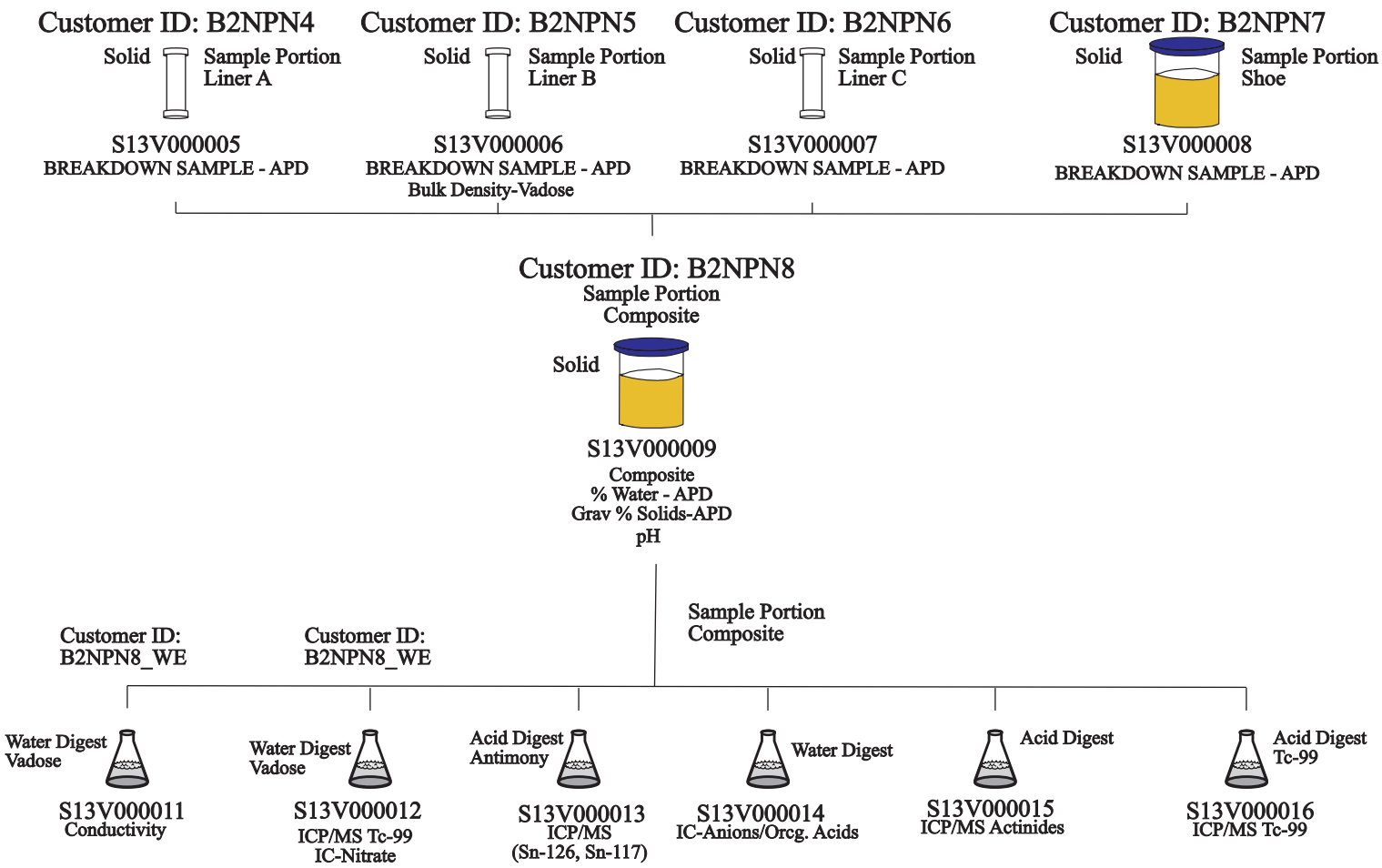
B - Estimated C - Blank Contamination U - Less Than Detection Limit

Attachment 2

SAMPLE BREAKDOWN DIAGRAMS

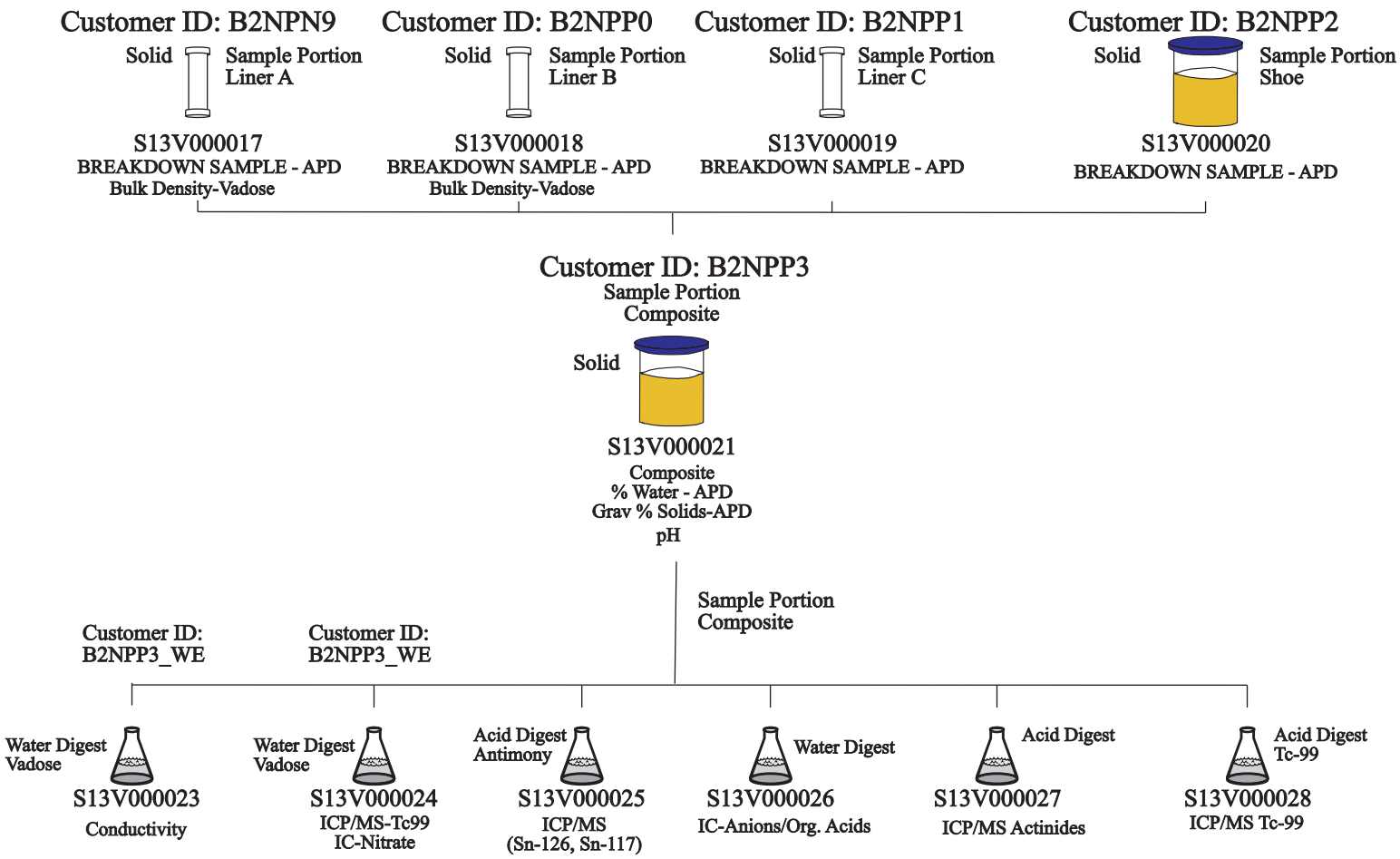
Vadose Zone: SX Tank Farm PW
Core No.: C8760
Group 20130168

Sample Depth: 121' - 123'
Segment No: I001



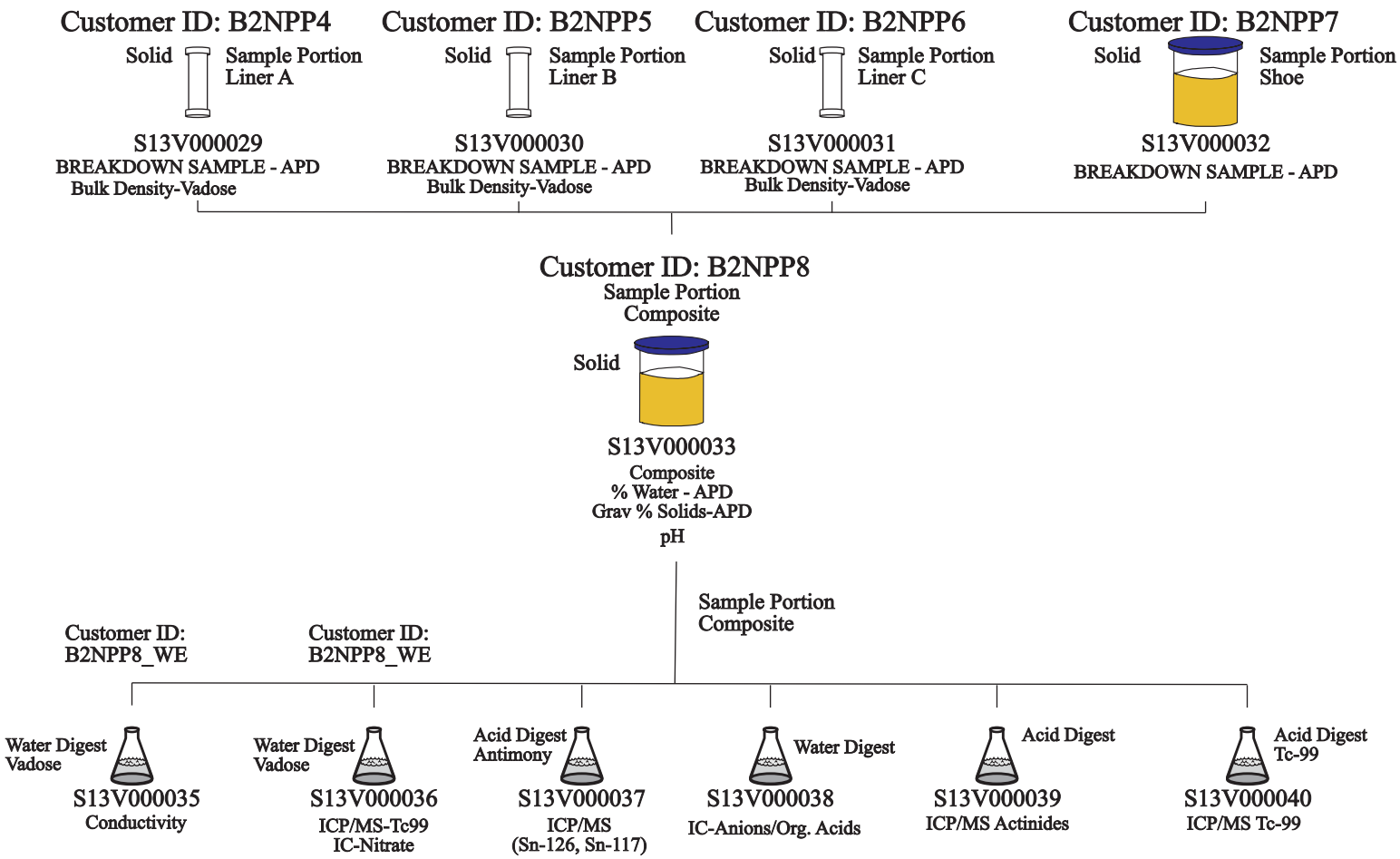
Vadose Zone: SX Tank Farm PW
Core No.: C8760
Group 20130168

Sample Depth:123'-125'
Segment No: I002



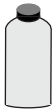
Vadose Zone: SX Tank Farm PW
Core No.: C8760
Group 20130168

Sample Depth:125'-127'
Segment No: I003



Vadose Zone: SX Tank Farm PW
Core No.: C8762
Group 20130167
Matrix: Liquid

Segment No:. Equipment Blank #1
Sample Depth: Equipment Blank #1
Customer ID: B2NRC3

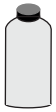


S13V000001
IC - Anions/Org Acids

S13V000002
ICP/MS Tc-99
ICP/MS Actinides
ICP/MS (Sn-126, Sn-117)

Vadose Zone: SX Tank Farm PW
Core No.: C8762
Group 20130167
Matrix: Liquid

Segment No:. Field Blank #1
Sample Depth: Field Blank #1
Customer ID: B2NRC2

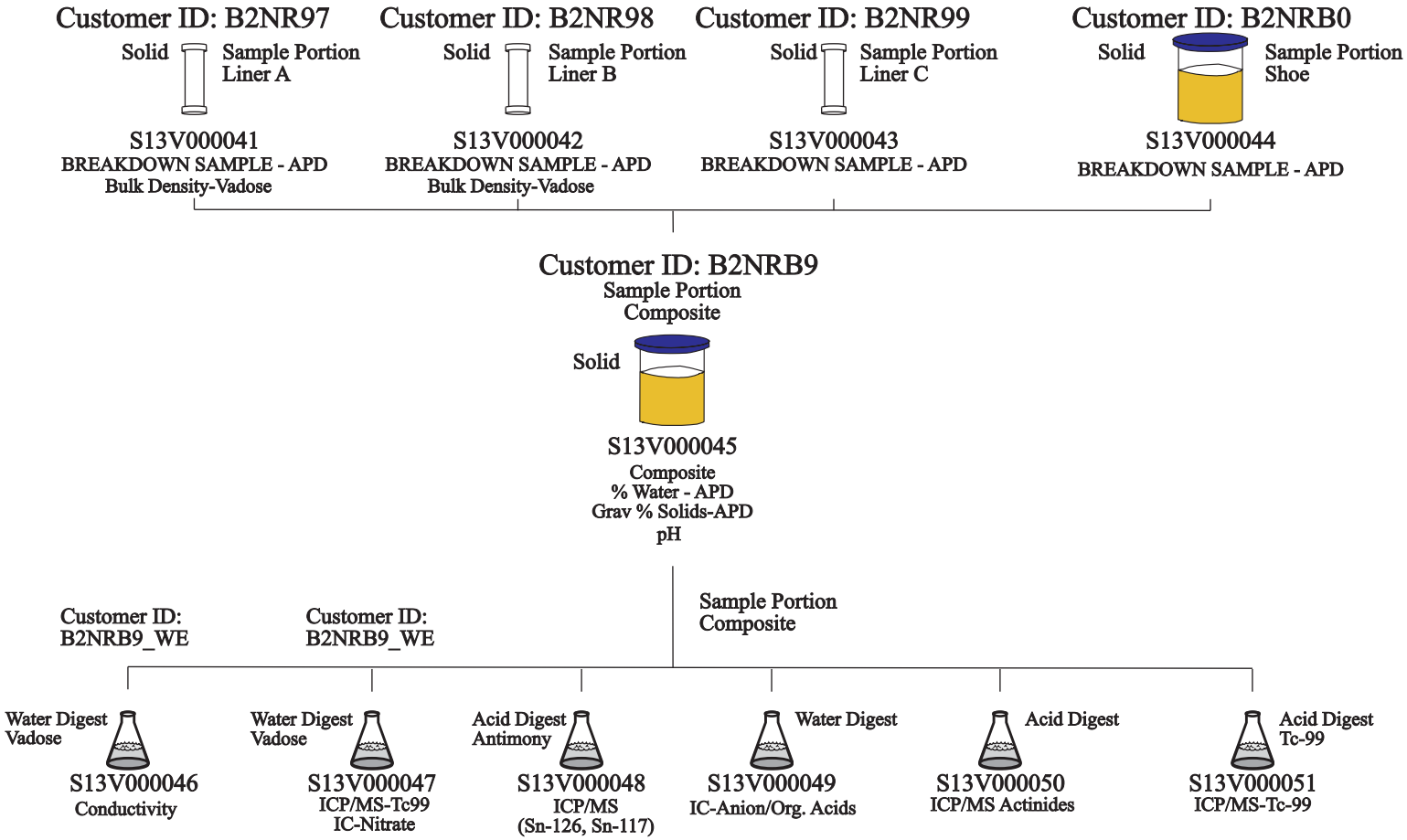


S13V000003
IC - Anions/Org Acids

S13V000004
ICP/MS Tc-99
ICP/MS Actinides
ICP/MS (Sn-126, Sn-117)

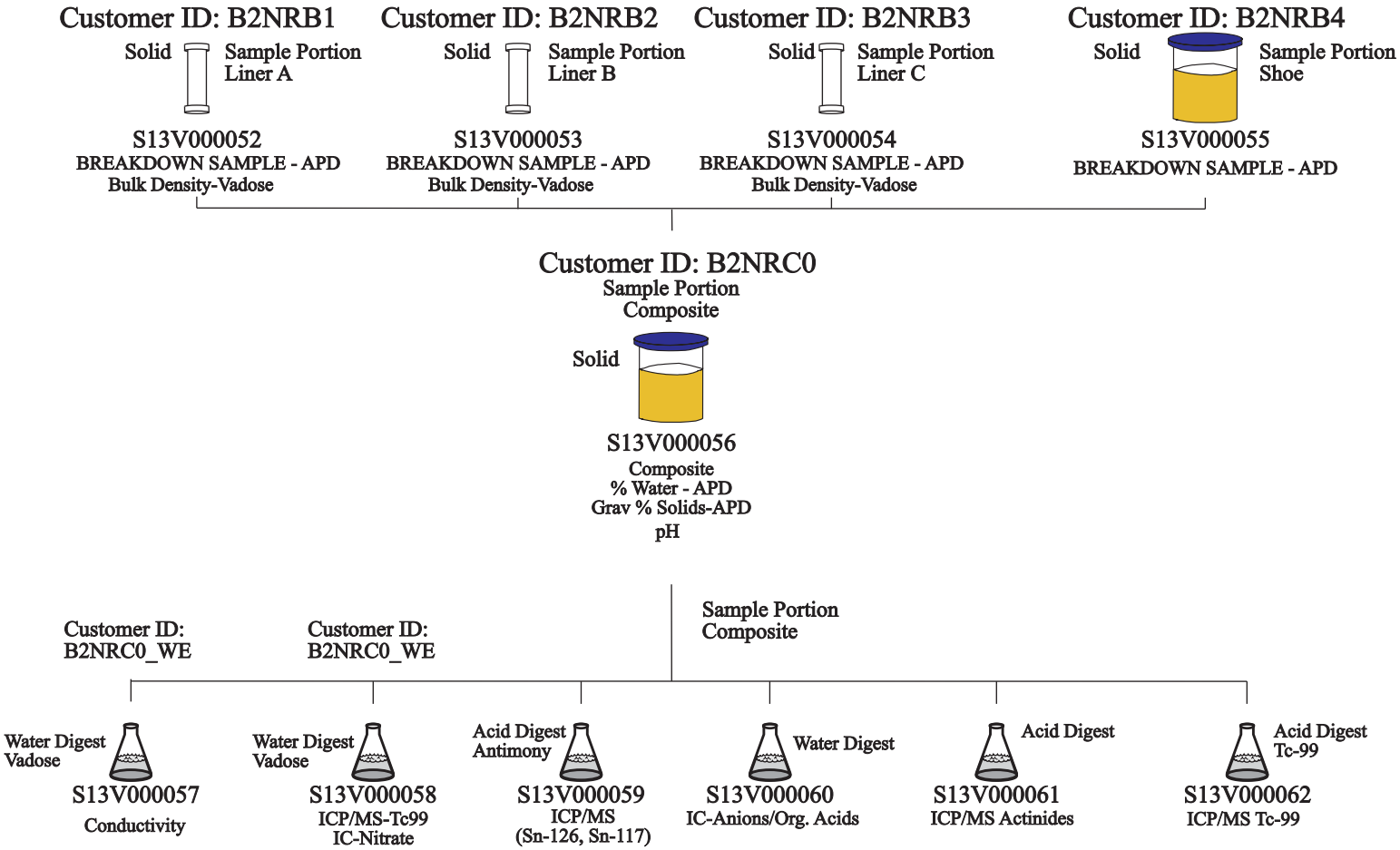
Vadose Zone: SX Tank Farm PW
Core No.: C8762
Group 20130185

Sample Depth:123'-125'
Segment No: I001



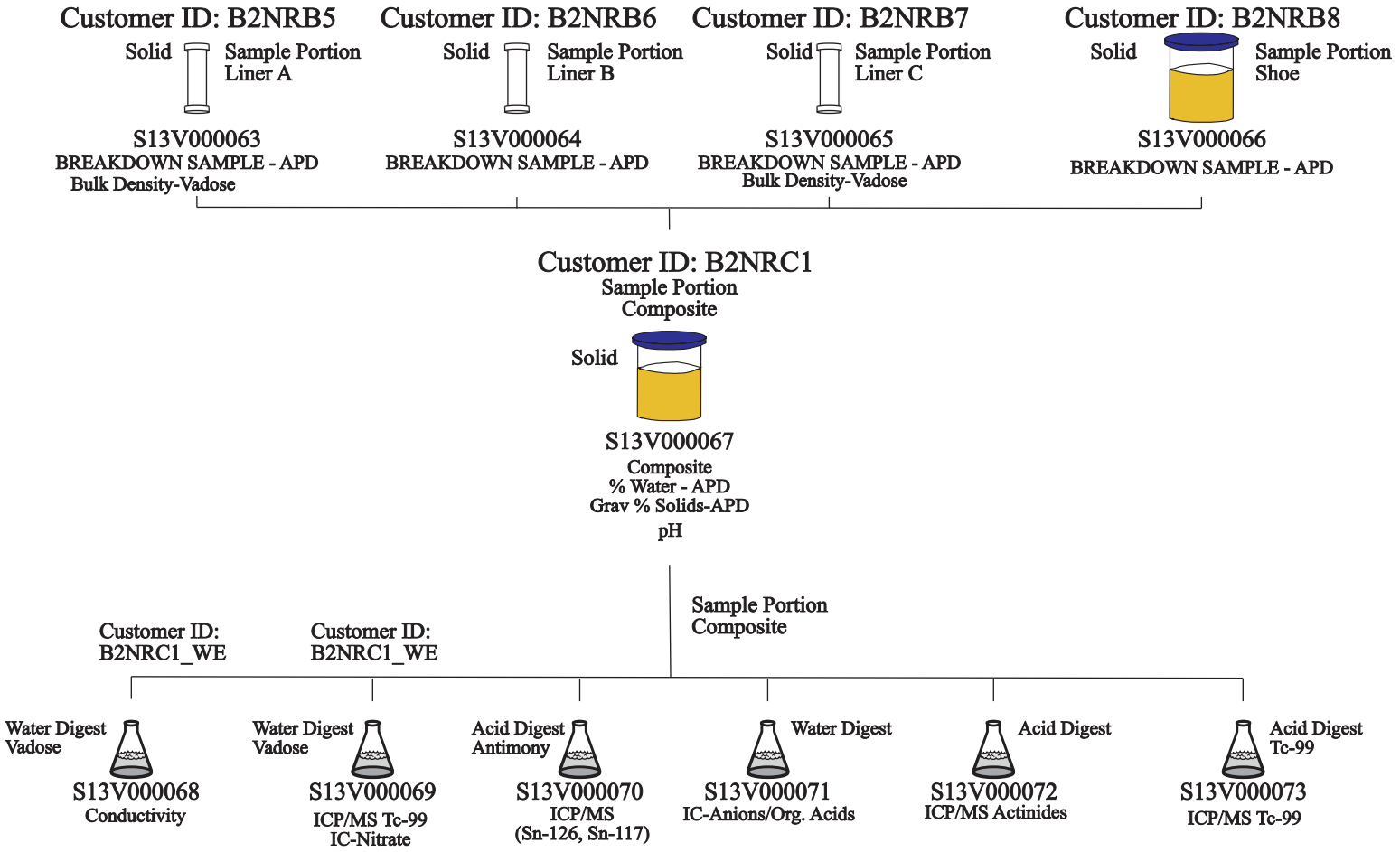
Vadose Zone: SX Tank Farm PW
Core No.: C8762
Group 20130185

Sample Depth:125'-127'
Segment No: I002



Vadose Zone: SX Tank Farm PW
Core No.: C8762
Group 20130185

Sample Depth:127'-129'
Segment No: I003



Attachment 3

HOLDING TIME AND ANALYSIS DATE REPORT

Holding Time and Analysis Date Report: Conductivity

Laboratory Sample ID	Customer Sample ID	Method	Prep Method	Sample Date Time	Received Date	Analysis Date	Missed Holding Time
S13V000011	B2NPN8 WE	SW-846 9050A	Vadose Water Digest	02/19/2013 10:48	02/19/2013 12:51	03/05/2013 09:30	N
S13V000023	B2NPP3 WE	SW-846 9050A	Vadose Water Digest	02/27/2013 10:47	02/27/2013 13:50	03/05/2013 09:30	N
S13V000035	B2NPP8 WE	SW-846 9050A	Vadose Water Digest	02/27/2013 13:24	02/27/2013 13:50	03/05/2013 09:30	N
S13V000046	B2NRB9 WE	SW-846 9050A	Vadose Water Digest	03/08/2013 12:05	03/08/2013 12:32	03/14/2013 11:19	N
S13V000057	B2NRC0 WE	SW-846 9050A	Vadose Water Digest	03/07/2013 10:00	03/08/2013 11:30	03/14/2013 11:19	N
S13V000068	B2NRC1 WE	SW-846 9050A	Vadose Water Digest	03/07/2013 10:56	03/08/2013 11:30	03/14/2013 11:19	N

Holding Time and Analysis Date Report: IC Anions and Organic Acids

Laboratory Sample ID	Customer Sample ID	Method	Prep Method	Sample Date Time	Received Date	Preparation Date	Analysis Date	Missed Holding Time
S13V000001	B2NRC3	SW-846 9056A	N/A	03/06/2013 09:25	03/06/2013 13:30	N/A	03/07/2013 08:43	N
S13V000003	B2NRC2	SW-846 9056A	N/A	03/07/2013 10:09	03/07/2013 11:30	N/A	03/07/2013 23:59	N
S13V000014	B2NPN8	SW-846 9056A	Water Digest	02/19/2013 10:48	02/19/2013 12:51	03/19/2013 09:17	03/19/2013 16:33	N
S13V000026	B2NPP3	SW-846 9056A	Water Digest	02/27/2013 10:47	02/27/2013 13:50	03/19/2013 09:17	03/19/2013 19:17	N
S13V000038	B2NPP8	SW-846 9056A	Water Digest	02/27/2013 13:24	02/27/2013 13:50	03/19/2013 09:17	03/19/2013 19:50	N
S13V000049	B2NRB9	SW-846 9056A	Water Digest	03/06/2013 13:05	03/08/2013 12:00	03/19/2013 09:17	03/19/2013 20:23	N
S13V000060	B2NRC0	SW-846 9056A	Water Digest	03/07/2013 10:00	03/08/2013 11:30	03/19/2013 09:17	03/19/2013 22:34	N
S13V000071	B2NRC1	SW-846 9056A	Water Digest	03/07/2013 10:56	03/08/2013 11:30	03/19/2013 09:17	03/19/2013 23:07	N
S13V000012	B2NPN8 WE	SW-846 9056A	Vadose Water Digest	02/19/2013 10:48	02/19/2013 12:51	03/04/2013 08:45	03/04/2013 14:33	N
S13V000024	B2NPP3 WE	SW-846 9056A	Vadose Water Digest	02/27/2013 10:47	02/27/2013 13:50	03/04/2013 08:45	03/04/2013 16:45	N
S13V000036	B2NPP8 WE	SW-846 9056A	Vadose Water Digest	02/27/2013 13:24	02/27/2013 13:50	03/04/2013 08:45	03/04/2013 17:17	N
S13V000047	B2NRB9 WE	SW-846 9056A	Vadose Water Digest	03/06/2013 13:05	03/08/2013 12:00	03/11/2013 09:00	03/11/2013 16:27	N
S13V000058	B2NRC0 WE	SW-846 9056A	Vadose Water Digest	03/07/2013 10:00	03/08/2013 11:30	03/11/2013 09:00	03/11/2013 18:05	N
S13V000069	B2NRC1 WE	SW-846 9056A	Vadose Water Digest	03/07/2013 10:56	03/08/2013 11:30	03/11/2013 09:00	03/11/2013 18:38	N

Holding Time and Analysis Date Report: ICP/MS Actinides

Laboratory Sample ID	Customer Sample ID	Method	Prep Method	Sample Date Time	Received Date	Preparation Date	Analysis Date	Missed Holding Time
S13V000002	B2NRC3	ICP/MS Actinides	N/A	03/06/2013 09:25	03/06/2013 13:30	N/A	04/03/2013 11:25	N
S13V000004	B2NRC2	ICP/MS Actinides	N/A	03/07/2013 10:09	03/07/2013 11:57	N/A	04/03/2013 11:37	N
S13V000015	B2NPN8	ICP/MS Actinides	SW-846 3050B	02/19/2013 10:48	02/19/2013 12:51	03/21/2013 08:45	04/03/2013 11:55	N
S13V000027	B2NPP3	ICP/MS Actinides	SW-846 3050B	02/27/2013 10:47	02/27/2013 13:50	03/21/2013 08:45	04/03/2013 12:43	N
S13V000039	B2NPP8	ICP/MS Actinides	SW-846 3050B	02/27/2013 13:24	02/27/2013 13:50	03/21/2013 08:45	04/03/2013 12:49	N
S13V000050	B2NRB9	ICP/MS Actinides	SW-846 3050B	03/06/2013 13:05	03/08/2013 12:00	03/21/2013 08:45	04/03/2013 12:55	N
S13V000061	B2NRC0	ICP/MS Actinides	SW-846 3050B	03/07/2013 10:00	03/08/2013 11:30	03/21/2013 08:45	04/03/2013 13:01	N
S13V000072	B2NRC1	ICP/MS Actinides	SW-846 3050B	03/07/2013 10:56	03/08/2013 11:30	03/21/2013 08:45	04/03/2013 13:07	N

Holding Time and Analysis Date Report: ICP/MS Tin-126

Laboratory Sample ID	Customer Sample ID	Method	Prep Method	Sample Date Time	Received Date	Preparation Date	Analysis Date	Missed Holding Time
S13V000002	B2NRC3	SW-846 6020A	N/A	03/06/2013 09:25	03/06/2013 13:30	N/A	03/26/2013 11:44	N
S13V000004	B2NRC2	SW-846 6020A	N/A	03/07/2013 10:09	03/07/2013 11:57	N/A	03/26/2013 11:54	N
S13V000013	B2NPN8	SW-846 6020A	SW-846 3050B	02/19/2013 10:48	02/19/2013 12:51	03/22/2013 09:05	03/26/2013 10:38	N
S13V000025	B2NPP3	SW-846 6020A	SW-846 3050B	02/27/2013 10:47	02/27/2013 13:50	03/22/2013 09:05	03/26/2013 10:48	N
S13V000037	B2NPP8	SW-846 6020A	SW-846 3050B	02/27/2013 13:24	02/27/2013 13:50	03/22/2013 09:05	03/26/2013 10:53	N
S13V000048	B2NRB9	SW-846 6020A	SW-846 3050B	03/06/2013 13:05	03/08/2013 12:00	03/22/2013 09:05	03/26/2013 10:57	N
S13V000059	B2NRC0	SW-846 6020A	SW-846 3050B	03/07/2013 10:00	03/08/2013 11:30	03/22/2013 09:05	03/26/2013 11:02	N
S13V000070	B2NRC1	SW-846 6020A	SW-846 3050B	03/07/2013 10:56	03/08/2013 11:30	03/22/2013 09:05	03/26/2013 11:07	N

Holding Time and Analysis Date Report: ICP/MS Tc-99

Laboratory Sample ID	Customer Sample ID	Method	Prep Method	Sample Date Time	Received Date	Preparation Date	Analysis Date	Missed Holding Time
S13V000016	B2NPN8	ICP/MS Tc-99	SW-846 3050B	02/19/2013 10:48	02/19/2013 12:51	03/18/2013 09:24	03/19/2013 13:42	N
S13V000028	B2NPP3	ICP/MS Tc-99	SW-846 3050B	02/27/2013 10:47	02/27/2013 13:50	03/18/2013 09:24	03/19/2013 14:02	N
S13V000040	B2NPP8	ICP/MS Tc-99	SW-846 3050B	02/27/2013 13:24	02/27/2013 13:50	03/18/2013 09:24	03/19/2013 14:07	N
S13V000051	B2NRB9	ICP/MS Tc-99	SW-846 3050B	03/06/2013 13:05	03/08/2013 12:00	03/18/2013 09:24	03/19/2013 14:11	N
S13V000062	B2NRC0	ICP/MS Tc-99	SW-846 3050B	03/07/2013 10:00	03/08/2013 11:30	03/18/2013 09:24	03/19/2013 14:15	N
S13V000073	B2NRC1	ICP/MS Tc-99	SW-846 3050B	03/07/2013 10:56	03/08/2013 11:30	03/18/2013 09:24	03/19/2013 14:19	N
S13V000012	B2NPN8 WE	ICP/MS Tc-99	Vadose Water Digest	02/19/2013 10:48	02/19/2013 12:51	03/04/2013 08:45	03/04/2013 17:10	N
S13V000024	B2NPP3 WE	ICP/MS Tc-99	Vadose Water Digest	02/27/2013 10:47	02/27/2013 13:50	03/04/2013 08:45	03/04/2013 17:18	N
S13V000036	B2NPP8 WE	ICP/MS Tc-99	Vadose Water Digest	02/27/2013 13:24	02/27/2013 13:50	03/04/2013 08:45	03/04/2013 17:22	N
S13V000047	B2NRB9 WE	ICP/MS Tc-99	Vadose Water Digest	03/06/2013 13:05	03/08/2013 12:00	03/11/2013 09:00	03/11/2013 14:30	N
S13V000058	B2NRC0 WE	ICP/MS Tc-99	Vadose Water Digest	03/07/2013 10:00	03/08/2013 11:30	03/11/2013 09:00	03/11/2013 14:38	N
S13V000069	B2NRC1 WE	ICP/MS Tc-99	Vadose Water Digest	03/07/2013 10:56	03/08/2013 11:30	03/11/2013 09:00	03/11/2013 14:42	N
S13V000002	B2NRC3	ICP/MS Tc-99	N/A	03/06/2013 09:25	03/06/2013 13:30	N/A	03/19/2013 13:21	N
S13V000004	B2NRC2	ICP/MS Tc-99	N/A	03/07/2013 10:09	03/07/2013 11:57	N/A	03/19/2013 13:29	N

Holding Time and Analysis Date Report: pH

Laboratory Sample ID	Customer Sample ID	Method	Prep Method	Sample Date Time	Received Date	Analysis Date	Missed Holding Time
S13V000009	B2NPN8	SW-846 9045D	SW-846 9045D	02/19/2013 10:48	02/19/2013 12:51	03/14/2013 01:45	Y
S13V000021	B2NPP3	SW-846 9045D	SW-846 9045D	02/27/2013 10:47	02/27/2013 13:50	03/14/2013 01:45	Y
S13V000033	B2NPP8	SW-846 9045D	SW-846 9045D	02/27/2013 13:24	02/27/2013 13:30	03/14/2013 01:45	Y
S13V000045	B2NRB9	SW-846 9045D	SW-846 9045D	03/06/2013 00:00	03/08/2013 12:00	03/19/2013 13:30	Y
S13V000056	B2NRC0	SW-846 9045D	SW-846 9045D	03/08/2013 10:00	03/08/2013 11:30	03/19/2013 13:30	Y
S13V000067	B2NRC1	SW-846 9045D	SW-846 9045D	03/08/2013 10:56	03/08/2013 11:30	03/19/2013 13:30	Y

Attachment 4

ANALYTICAL BATCH AND LABORATORY SAMPLE ID INDEX

ANALYTICAL BATCH AND LABORATORY SAMPLE ID INDEX

METHOD	BATCH	SAMPLE	MATRIX	SAMPLE GROUP
IC - ANIONS/SMALL ORG. ACIDS	00040121	S13V000001	LIQUID	20130167
IC - ANIONS/SMALL ORG. ACIDS	00040139	S13V000003	LIQUID	20130167
MS ACTINIDES	00040814	S13V000002	LIQUID	20130167
MS ACTINIDES	00040814	S13V000004	LIQUID	20130167
MS ANTIMONY	00040614	S13V000002	LIQUID	20130167
MS ANTIMONY	00040614	S13V000004	LIQUID	20130167
MS TC-99	00040446	S13V000002	LIQUID	20130167
MS TC-99	00040446	S13V000004	LIQUID	20130167
TC-99 by MS	00040856	S13V000002	LIQUID	20130167
TC-99 by MS	00040856	S13V000004	LIQUID	20130167
%WATER-APD	00040032	S13V000009	SOLID	20130168
%WATER-APD	00040032	S13V000021	SOLID	20130168
%WATER-APD	00040032	S13V000033	SOLID	20130168
BULK DENSITY, VADOSE	00040307	S13V000006	SOLID	20130168
BULK DENSITY, VADOSE	00040307	S13V000017	SOLID	20130168
BULK DENSITY, VADOSE	00040307	S13V000018	SOLID	20130168
BULK DENSITY, VADOSE	00040307	S13V000029	SOLID	20130168
BULK DENSITY, VADOSE	00040307	S13V000030	SOLID	20130168
BULK DENSITY, VADOSE	00040307	S13V000031	SOLID	20130168
CONDUCTIVITY	00040039	S13V000011	SOLID	20130168
CONDUCTIVITY	00040039	S13V000023	SOLID	20130168
CONDUCTIVITY	00040039	S13V000035	SOLID	20130168
GRAV. PERCENT SOLID - APD	00040382	S13V000009	SOLID	20130168
GRAV. PERCENT SOLID - APD	00040382	S13V000021	SOLID	20130168
GRAV. PERCENT SOLID - APD	00040382	S13V000033	SOLID	20130168
IC - ANIONS/SMALL ORG. ACIDS	00040023	S13V000012	SOLID	20130168
IC - ANIONS/SMALL ORG. ACIDS	00040023	S13V000024	SOLID	20130168
IC - ANIONS/SMALL ORG. ACIDS	00040023	S13V000036	SOLID	20130168
IC - ANIONS/SMALL ORG. ACIDS	00040440	S13V000014	SOLID	20130168
IC - ANIONS/SMALL ORG. ACIDS	00040440	S13V000026	SOLID	20130168
IC - ANIONS/SMALL ORG. ACIDS	00040440	S13V000038	SOLID	20130168
MS ACTINIDES	00040812	S13V000015	SOLID	20130168
MS ACTINIDES	00040812	S13V000027	SOLID	20130168
MS ACTINIDES	00040812	S13V000039	SOLID	20130168
MS ANTIMONY	00040613	S13V000013	SOLID	20130168
MS ANTIMONY	00040613	S13V000025	SOLID	20130168
MS ANTIMONY	00040613	S13V000037	SOLID	20130168
MS TC-99	00040024	S13V000012	SOLID	20130168
MS TC-99	00040024	S13V000024	SOLID	20130168
MS TC-99	00040024	S13V000036	SOLID	20130168
MS TC-99	00040445	S13V000016	SOLID	20130168
MS TC-99	00040445	S13V000028	SOLID	20130168
MS TC-99	00040445	S13V000040	SOLID	20130168
PH SOLID	00040132	S13V000009	SOLID	20130168
PH SOLID	00040132	S13V000021	SOLID	20130168
PH SOLID	00040132	S13V000033	SOLID	20130168
TC-99 by MS	00040027	S13V000012	SOLID	20130168
TC-99 by MS	00040027	S13V000024	SOLID	20130168
TC-99 by MS	00040027	S13V000036	SOLID	20130168
TC-99 by MS	00040855	S13V000016	SOLID	20130168

ANALYTICAL BATCH AND LABORATORY SAMPLE ID INDEX

METHOD	BATCH	SAMPLE	MATRIX	SAMPLE GROUP
TC-99 by MS	00040855	S13V000028	SOLID	20130168
TC-99 by MS	00040855	S13V000040	SOLID	20130168
%WATER-APD	00040238	S13V000045	SOLID	20130185
%WATER-APD	00040238	S13V000056	SOLID	20130185
%WATER-APD	00040238	S13V000067	SOLID	20130185
BULK DENSITY, VADOSE	00040307	S13V000041	SOLID	20130185
BULK DENSITY, VADOSE	00040307	S13V000042	SOLID	20130185
BULK DENSITY, VADOSE	00040307	S13V000052	SOLID	20130185
BULK DENSITY, VADOSE	00040307	S13V000053	SOLID	20130185
BULK DENSITY, VADOSE	00040307	S13V000054	SOLID	20130185
BULK DENSITY, VADOSE	00040307	S13V000063	SOLID	20130185
BULK DENSITY, VADOSE	00040307	S13V000065	SOLID	20130185
CONDUCTIVITY	00040287	S13V000046	SOLID	20130185
CONDUCTIVITY	00040287	S13V000057	SOLID	20130185
CONDUCTIVITY	00040287	S13V000068	SOLID	20130185
GRAV. PERCENT SOLID - APD	00040382	S13V000045	SOLID	20130185
GRAV. PERCENT SOLID - APD	00040382	S13V000056	SOLID	20130185
GRAV. PERCENT SOLID - APD	00040382	S13V000067	SOLID	20130185
IC - ANIONS/SMALL ORG. ACIDS	00040199	S13V000047	SOLID	20130185
IC - ANIONS/SMALL ORG. ACIDS	00040199	S13V000058	SOLID	20130185
IC - ANIONS/SMALL ORG. ACIDS	00040199	S13V000069	SOLID	20130185
IC - ANIONS/SMALL ORG. ACIDS	00040440	S13V000049	SOLID	20130185
IC - ANIONS/SMALL ORG. ACIDS	00040440	S13V000060	SOLID	20130185
IC - ANIONS/SMALL ORG. ACIDS	00040440	S13V000071	SOLID	20130185
MS ACTINIDES	00040812	S13V000050	SOLID	20130185
MS ACTINIDES	00040812	S13V000061	SOLID	20130185
MS ACTINIDES	00040812	S13V000072	SOLID	20130185
MS ANTIMONY	00040613	S13V000048	SOLID	20130185
MS ANTIMONY	00040613	S13V000059	SOLID	20130185
MS ANTIMONY	00040613	S13V000070	SOLID	20130185
MS TC-99	00040198	S13V000047	SOLID	20130185
MS TC-99	00040198	S13V000058	SOLID	20130185
MS TC-99	00040198	S13V000069	SOLID	20130185
MS TC-99	00040445	S13V000051	SOLID	20130185
MS TC-99	00040445	S13V000062	SOLID	20130185
MS TC-99	00040445	S13V000073	SOLID	20130185
PH SOLID	00040373	S13V000045	SOLID	20130185
PH SOLID	00040373	S13V000056	SOLID	20130185
PH SOLID	00040373	S13V000067	SOLID	20130185
TC-99 by MS	00040236	S13V000047	SOLID	20130185
TC-99 by MS	00040236	S13V000058	SOLID	20130185
TC-99 by MS	00040236	S13V000069	SOLID	20130185
TC-99 by MS	00040855	S13V000051	SOLID	20130185
TC-99 by MS	00040855	S13V000062	SOLID	20130185
TC-99 by MS	00040855	S13V000073	SOLID	20130185

Attachment 5

GEOLOGICAL REPORT

Sample Group	Sample ID	Laboratory ID	Date Examined	Description
20130168	C8760 B2NPN4 121'-123'	S13V000005	2/28/2013 9:37	Top is full, bottom is a little irregular with a 2mm depression, 75mm from the top it becomes a very fine grained sand, slightly moist, mS muddy sand, the silty section has a hackly fracture, moderately well sorted, slightly cohesive, largest particle is <1mm, fine grained sand to silt, color is 2.5Y 5/3, acid reactivity on the silt section is slight. acid reactivity on the sandy section is slight to moderate.
20130168	C8760 B2NPN5 121'-123'	S13V000006	2/28/2013 9:37	Tube is full, tube has black skins on the sides, 75mm in from the top it changes from sand to silt, slightly moist, mS muddy sand, fine grained sand to silt, moderately well sorted, slightly cohesive, largest particles <1mm, color 2.5Y 5/3, acid reactivity slight to moderate.
20130168	C8760 B2NPN6 121'-123'	S13V000007	2/28/2013 9:37	Top is full, bottom has a 2mm depression across the tube, 10mm in from bottom section there are black skins throughout, evidence that it got quite hot in the driving process, see picture (B2NPN6A), slightly moist, mS muddy sand, fine grained sand to silt, moderately well sorted, slighty cohesive, largest particle <1mm, color 2.5Y 5/3, acid reactivity moderate.
20130168	C8760 B2NPN7 121'-123'	S13V000008	2/28/2013 9:37	Slightly moist, (m)S slightly muddy sand, predominately fine grained sand to silt, slightly cohesive, moderately well sorted, largest particle <1mm, color 2.5Y 5/3, acid reactivity is slight.
20130168	C8760 B2NPN9 123'-125'	S13V000017	2/28/2013 9:37	Tube is full, slightly moist, (m)S slightly muddy sand, very slightly cohesive, fine grained sand grading to silt, largest particle <1mm, moderately well sorted, trace mica, uniform color and texture, color 2.5Y 5/3, acid reactivity is slight.
20130168	C8760 B2NPP0 123'-125'	S13V000018	2/28/2013 9:37	Tube is full, top of tube has bulge, lots of black skins, bottom has a depression, slightly moist, mS muddy sand, slightly cohesive, hackly fracture, moderately well sorted, silt to fine sand, uniform color and texture, largest particle <1mm, trace of mica, color 2.5Y 5/2, acid reactivity is slight.
20130168	C8760 B2NPP1 123'-125'	S13V000019	2/28/2013 9:37	Top has a big depression of 15mm, bottom has several depressions about 5mm deep, abundant black skins from liner wall, slightly moist, mS muddy sand, very slightly cohesive, uniform color and texture, fine grained sand to silt, largest particle <1mm, trace mica , color 2.5Y 5/2, acid reactivity is slight.

Sample Group	Sample ID	Laboratory ID	Date Examined	Description
20130168	C8760 B2NPP2 123'-125'	S13V000020	2/28/2013 9:37	Slightly moist, mS muddy sand, slightly cohesive, fine grained sand with silt, largest particle <1mm, uniform color and texture, moderately well sorted, trace mica, color, 2.5Y 5/3, acid reactivity is moderate.
20130168	C8760 B2NPP4 125'-127'	S13V000029	2/28/2013 9:37	Tube is full, slightly moist, mS muddy sand, brown skins from liner walls, fine grained sand and silt, slightly cohesive, the last 5mm on top is more clay rich, uniform color and texture, moderately well sorted, largest particle <1mm, trace mica, color 2.5Y 5/2, acid reactivity is slight to moderate.
20130168	C8760 B2NPP5 125'-127'	S13V000030	2/28/2013 9:37	Tube is full, slightly moist, mS muddy sand, fine grained sand to silt, moderately well sorted, uniform color and texture, slightly cohesive, trace mica, largest particle <1mm, color 2.5Y 5/3, acid reactivity is slight to moderate.
20130168	C8760 B2NPP6 125'-127'	S13V000031	2/28/2013 9:37	Tube is full, abundant black skins, slightly moist, mS muddy sand, moderately cohesive, fine grained sand to silt, uniform color and texture, moderately well sorted, trace mica, largest particle <1mm, color 2.5Y 4/3 acid reactivity is slight.
20130168	C8760 B2NPP7 125'-127'	S13V000032	2/28/2013 9:37	Slightly moist (m)S slightly muddy sand, fine sand to very fine sand with trace of silt, slightly salt and pepper texture, non cohesive, moderately well sorted, trace mica, largest particle <1mm, color 2.5Y 6/3, acid reactivity is slight.
20130185	C8762 B2NR97 123'-125'	S13V000041	3/8/2013 9:27	Tube is full, slightly moist to moist, sM sandy mud, fine grained sand to silt, slightly cohesive, uniform color and texture, slightly blocky in part, largest particle <1mm, color 2.5Y 5/3, acid reactivity is slight to moderate.
20130185	C8762 B2NR98 123'-125'	S13V000042	3/8/2013 9:27	Tube is full, slight moist to moist, sM sandy mud, fine grained sand to silt, slightly to moderately cohesive, uniform color and texture, blocky in part, largest particle <1mm, trace mica, color 2.5Y 5/3, acid reactivity is slight.

Sample Group	Sample ID	Laboratory ID	Date Examined	Description
20130185	C8762 B2NR99 123'-125'	S13V000043	3/8/2013 9:27	Top is full, bottom has irregular depressions up to 5mm, 60mm from the top it is becoming more silty, lithology from the bottom 90mm is slightly moist, sM sandy mud, fine grained sand to silty, moderately cohesive, blocky in part, uniform color and texture, largest particle is <1mm, color 2.5Y 5/3, acid reactivity for this part is slight to moderate. The top 60mm is slightly moist to moist, mS muddy sand, fine sand grading to silt, moderately hard to dig out, color 2.5Y 5/3,acid slight to moderate. left side of photograph (B2NR99) is the sandy part.
20130185	C8762 B2NRB0 123'-125'	S13V000044	3/8/2013 9:27	Slightly moist, mS muddy sand, fine grained sand to silt, very slightly cohesive, uniform color and texture, largest particle <1mm, trace mica, color 2.5Y 5/4, acid reactivity is slight to moderate.
20130185	C8762 B2NRB1 125'-127'	S13V000052	3/8/2013 9:27	Tube is full, black skins from liner walls, very slightly moist, (m)S slightly muddy sand, fine grained sand to silt, non cohesive, uniform color and texture, largest particle <1mm, trace mica, color 2.5Y 6/2, acid reactivity is slight.
20130185	C8762 B2NRB2 125'-127'	S13V000053	3/8/2013 9:27	Tube is full, slightly moist, (m)S slightly muddy sand, predominately fine grained sand to silt, well sorted, non cohesive, uniform color and texture, largest particle <1mm, trace mica, color 2.5Y 5/3, acid reactivity is slight.
20130185	C8762 B2NRB3 125'-127'	S13V000054	3/8/2013 9:27	Tube is full, slightly moist, (m)S slightly muddy sand, very fine grained sand to silt, very slightly cohesive, uniform color and texture, well sorted, largest particle <1mm, abundant mica, color 2.5 Y5/2, acid reactivity is slight.
20130185	C8762 B2NRB4 125'-127'	S13V000055	3/8/2013 9:27	Slightly moist, (m)S slightly muddy sand, very fine grained sand to silt, predominately sand, non cohesive uniform color texture, well sorted, largest particle <1mm, abundant mica, color 2.5Y 6/2, acid reactivity is slight.

Sample Group	Sample ID	Laboratory ID	Date Examined	Description
20130185	C8762 B2NRB5 127'-129'	S13V000063	3/8/2013 9:27	Tube is full, slightly moist, black skins from liner wall, (m)S slightly muddy sand, very fine sand to silt, slightly cohesive, uniform color and texture, well sorted, largest particle <1mm, abundant mica, color 2.5Y 5/3 acid reactivity is slight.
20130185	C8762 B2NRB6 127'-129'	S13V000064	3/8/2013 9:27	Top of tube has a 10mm wide and 7mm deep depression, bottom of tube is full, slightly moist to moist, sM sandy mud, cohesive, uniform color and texture, well sorted, largest particle <1mm, color 2.5Y 4/2, acid reactivity is slight to moderate.
20130185	C8762 B2NRB7 127'-129'	S13V000065	3/8/2013 9:27	Tube is full, sheen of moisture on top of tube, moist, sM sandy mud, fine grained sand to silt, cohesive, blocky, uniform color and texture, well sorted, largest particle <1mm, color 2.5Y 4/2, acid reactivity is slight to moderate.
20130185	C8762 B2NRB8 127'-129'	S13V000066	3/8/2013 9:27	Sightly moist, mS muddy sand, fine grained sand to silt, uniform color and texture, well sorted, largest particle <1mm, abundant mica, color 2.5Y 6/2, acid reactivity is slight.

2013 SX Barrier PW Photographic Log

Figure A-1: Core C8760, Sample B2NPN4, I001, Liner A

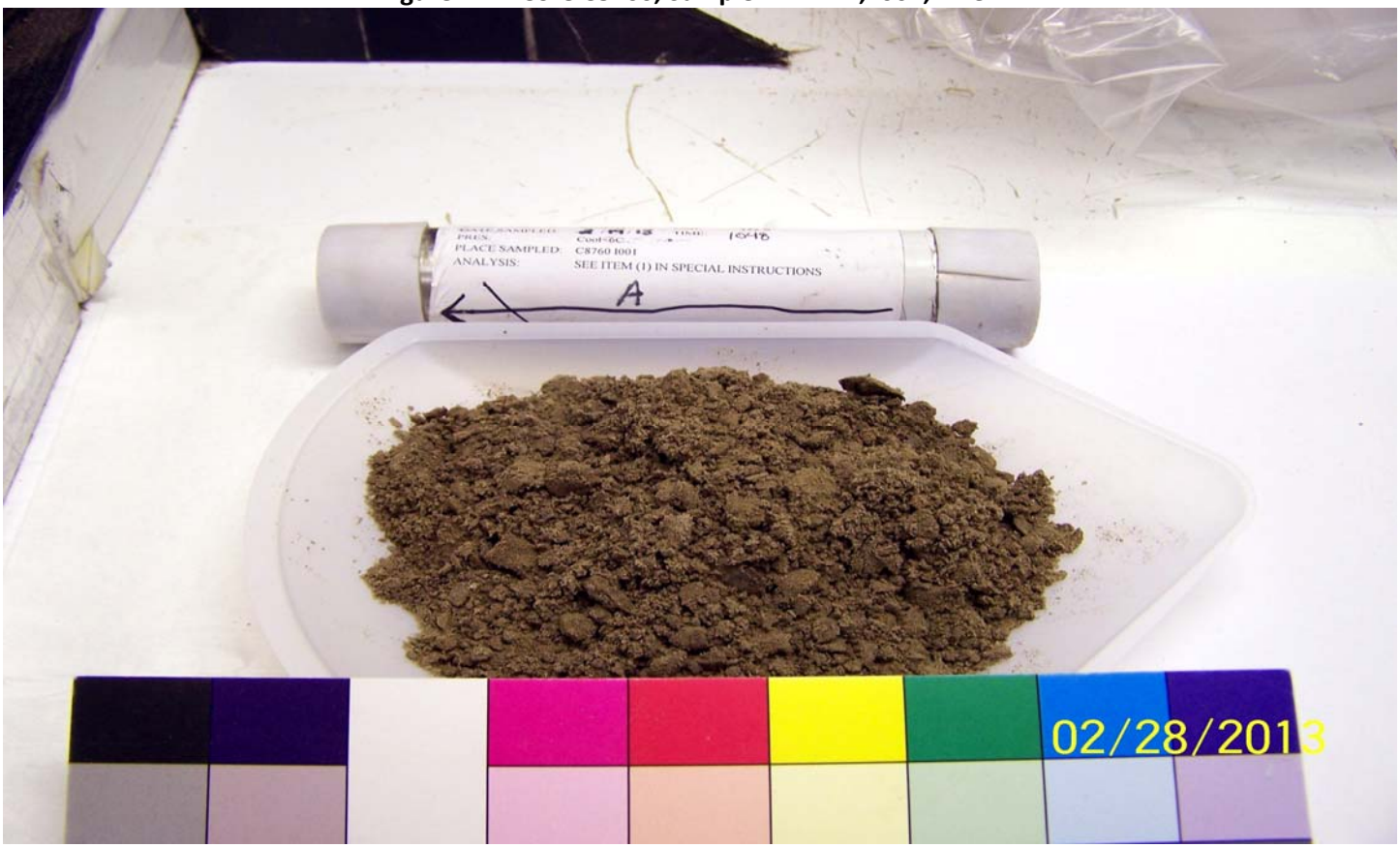


Figure A-2: Core C8760, Sample B2NPN5, I001, Liner B

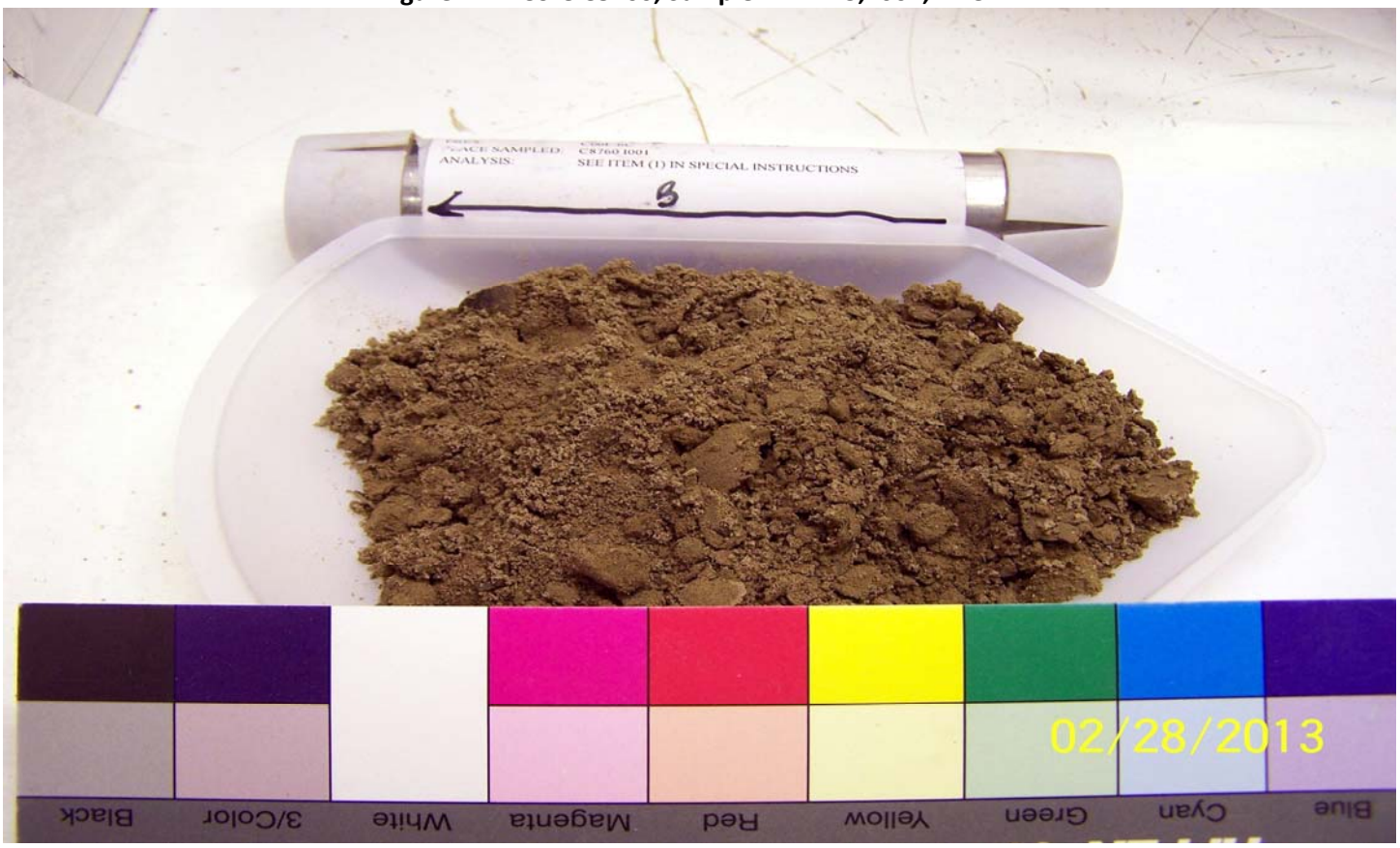


Figure A-3: Core C8760, Sample B2NPN6, I001, Liner C

Figure A-4: Core C8760, Sample B2NPN7, I001, Shoe

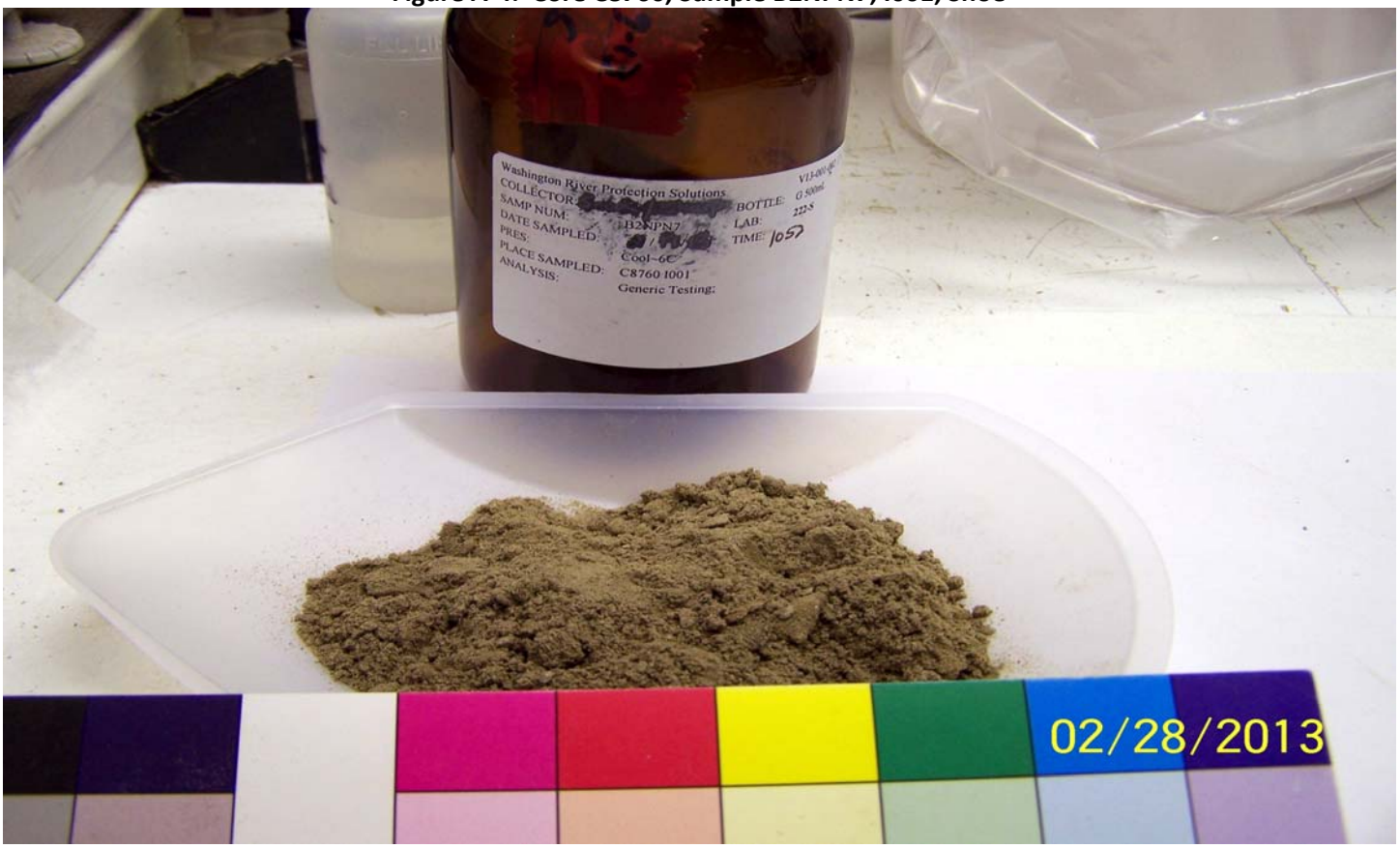


Figure A-5: Core C8760, Sample B2NPN9, I002, Liner A

Figure A-6: Core C8760, Sample B2NPP0, I002, Liner B

Figure A-7: Core C8760, Sample B2NPP1, I002, Liner C

Figure A-8: Core C8760, Sample B2NPP2, I002, Shoe

Figure A-9: Core C8760, Sample B2NPP4, I003, Liner A

Figure A-10: Core C8760, Sample B2NPP5, I003, Liner B

Figure A-11: Core C8760, Sample B2NPP6, I003, Liner C

Figure A-12: Core C8760, Sample B2NPP7, I003, Shoe

Figure A-13: Core C8762, Sample B2NR97, I001, Liner A

Figure A-14: Core C8762, Sample B2NR98, I001, Liner B

Figure A-15: Core C8762, Sample B2NR99, I001, Liner C

Figure A-16: Core C8762, Sample B2NRB0, I001, Shoe

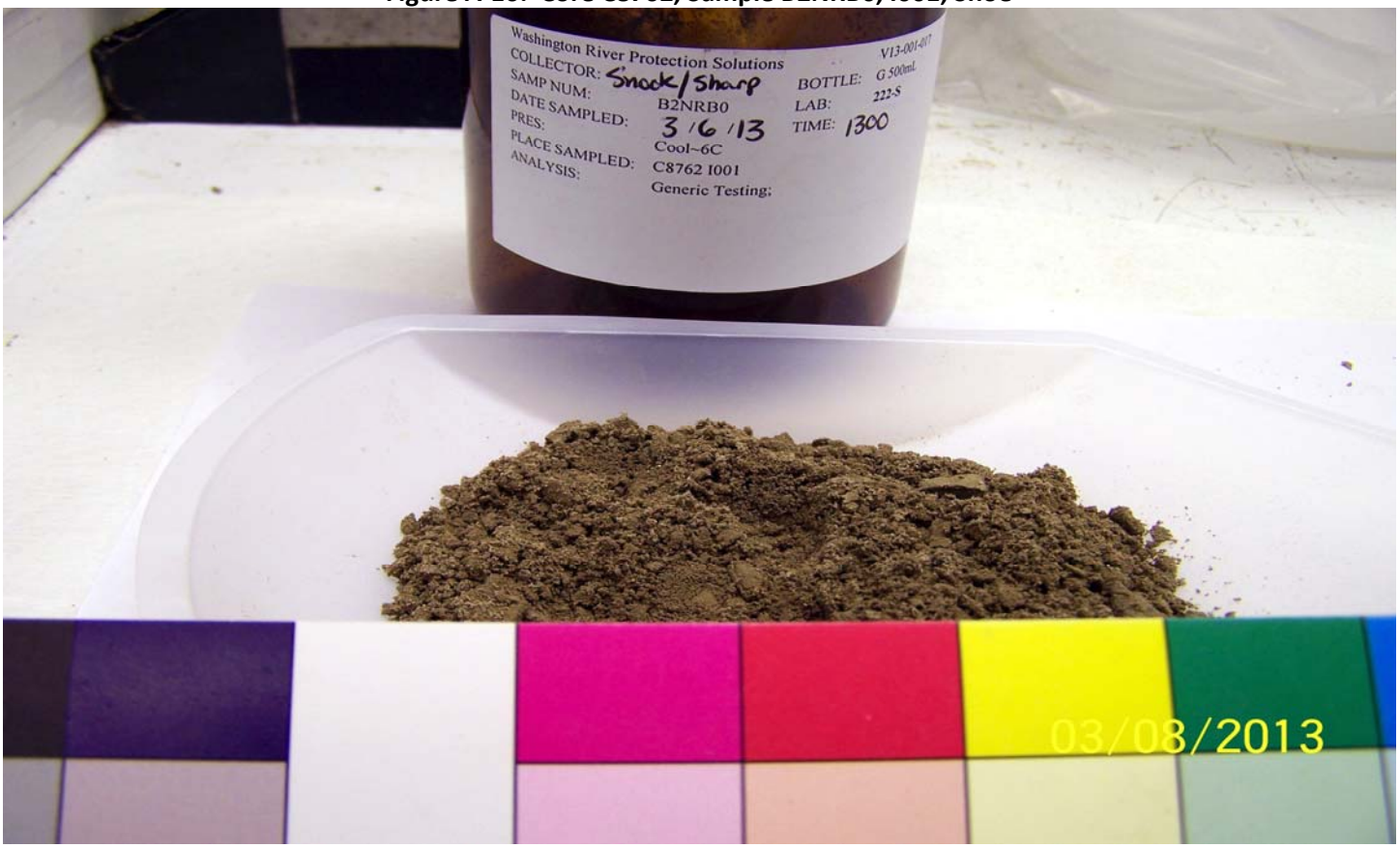


Figure A-17: Core C8762, Sample B2NRB1, I002, Liner A

Figure A-18: Core C8762, Sample B2NRB2, I002, Liner B

Figure A-19: Core C8762, Sample B2NRB3, I002, Liner C

Figure A-20: Core C8762, Sample B2NRB4, I002, Shoe

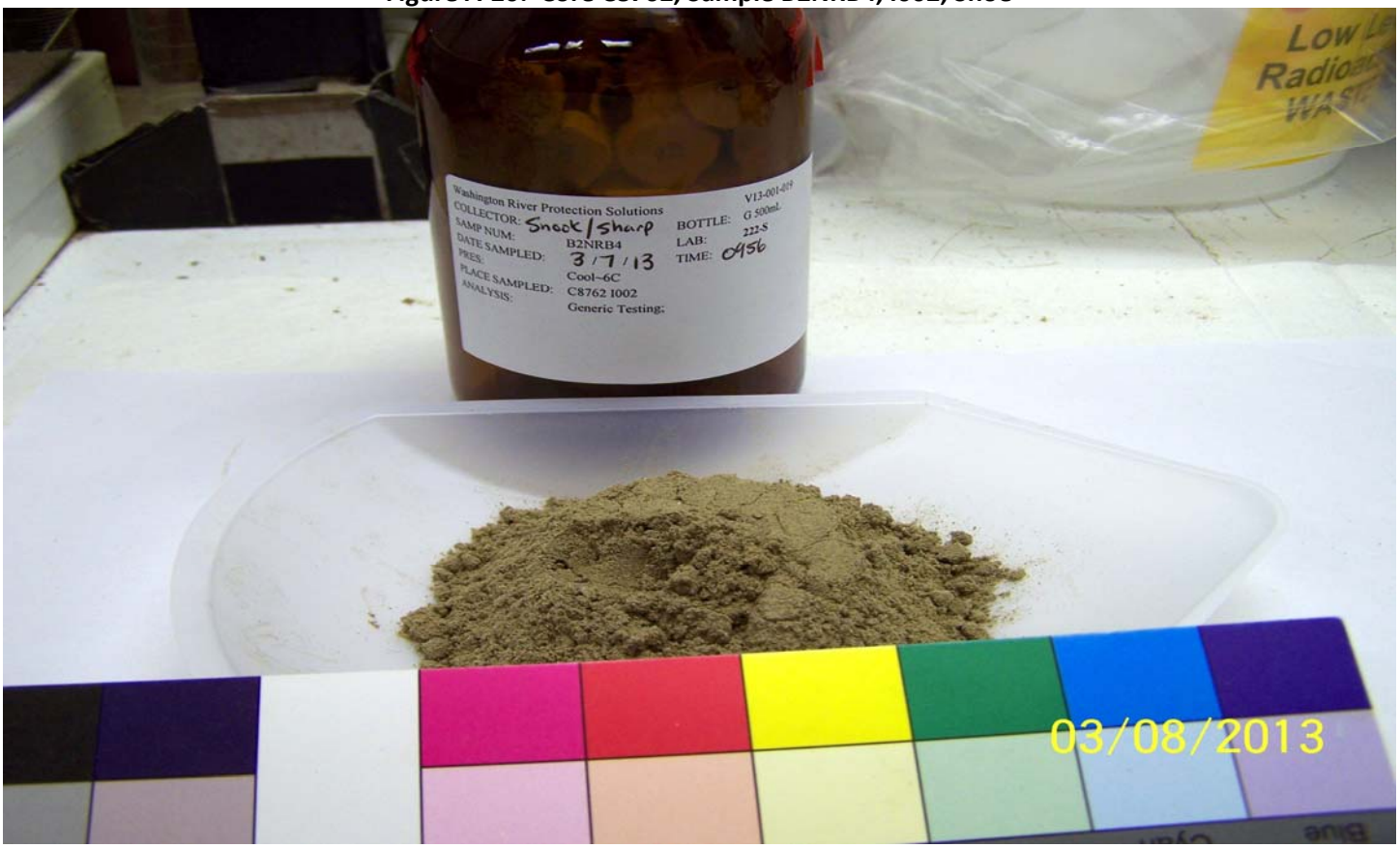
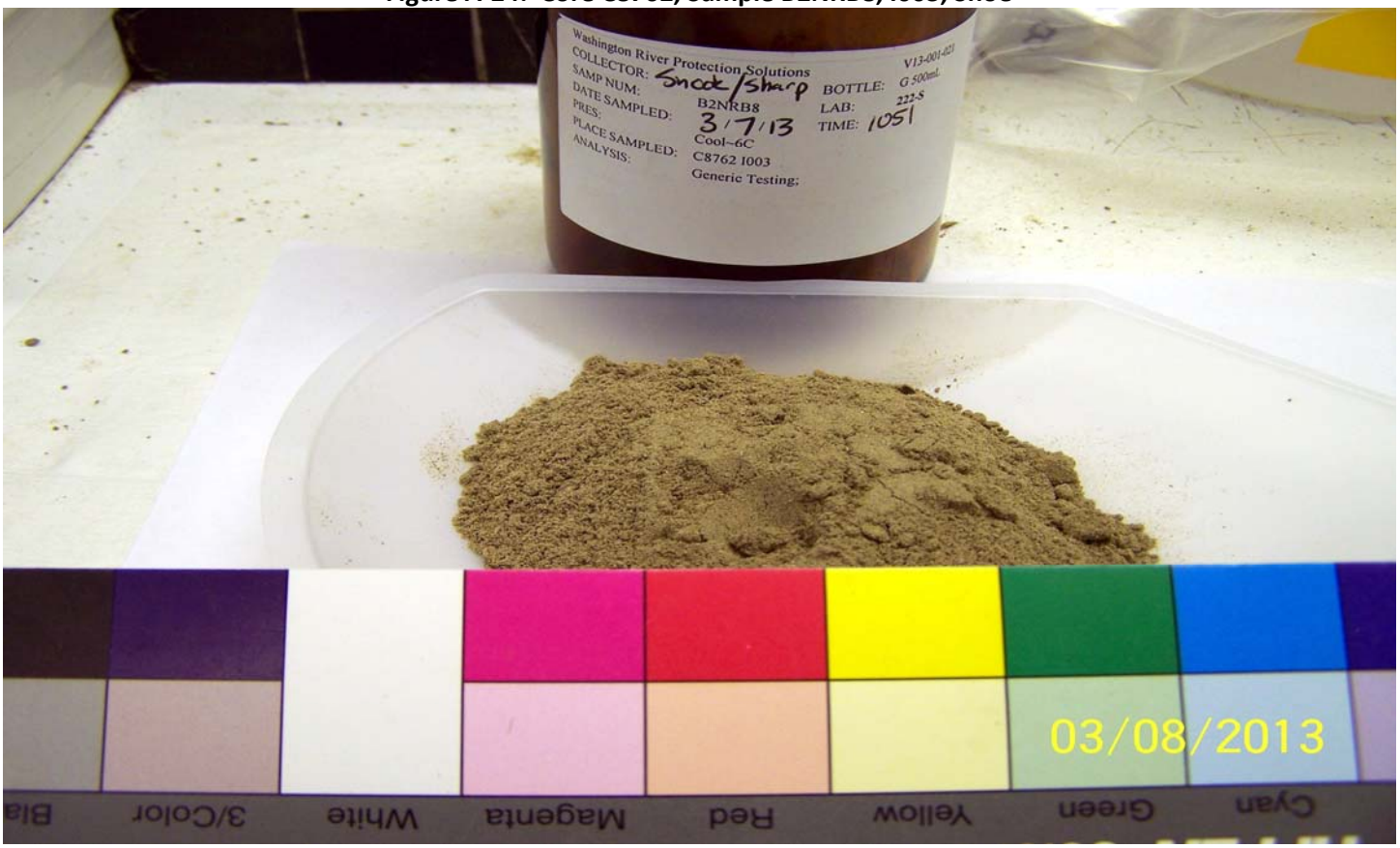


Figure A-21: Core C8762, Sample B2NRB5, I003, Liner A

Figure A-22: Core C8762, Sample B2NRB6, I003, Liner B

Figure A-23: Core C8762, Sample B2NRB7, I003, Liner C

Figure A-24: Core C8762, Sample B2NRB8, I003, Shoe



Attachment 6

CORRESPONDENCE

Menjivar, Carolina S

From: McKinney, Steve G
Sent: Tuesday, February 05, 2013 12:12 PM
To: Ritenour, Gerald P; Menjivar, Carolina S
Subject: FW: SX pore water extraction characterization direct push

---

From: Sydnor, Harold A
Sent: Wednesday, January 23, 2013 10:39 AM
To: McKinney, Steve G
Subject: SX pore water extraction characterization direct push

Sampling borehole are C8758, C8760 and C8762
Sample per sample boring 2-3 for a total of 6 to 9
Maximum depth about 125' bgs

Harold Sydnor
(509) 373-3967

washington river protection solutions
contractor to the United States Department of Energy

Menjivar, Carolina S

From: Tabor, Cynthia L
Sent: Thursday, May 09, 2013 12:49 PM
To: McKinney, Steve G; Menjivar, Carolina S
Subject: RE: SX Tank Farm PW - Ion Chromatography result for Formate

I concur

(Sorry Steve..I forgot to send the email out)

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CONTRACTOR TO THE UNITED STATES DEPARTMENT OF ENERGY

From: McKinney, Steve G
Sent: Thursday, May 09, 2013 11:31 AM
To: Menjivar, Carolina S
Cc: Tabor, Cynthia L
Subject: RE: SX Tank Farm PW - Ion Chromatography result for Formate

A rerun for Formate is not necessary, per customer direction. Just document in the narrative…

Thanks.

From: Menjivar, Carolina S
Sent: Monday, May 06, 2013 3:36 PM
To: McKinney, Steve G
Cc: Ritenour, Gerald P
Subject: FW: SX Tank Farm PW - Ion Chromatography result for Formate
Importance: High

Hi Steve,
Have you have a chance to discuss this issue with the client? I am in the process of writing the final report and I would like to know if it is ok to report Formate, as described below, with explanation in the narrative.

Thanks,

Carolina.

From: Menjivar, Carolina S
Sent: Monday, April 22, 2013 10:28 AM
To: McKinney, Steve G
Cc: Ritenour, Gerald P
Subject: FW: SX Tank Farm PW - Ion Chromatography result for Formate

Steve,

I forgot to mention that all sample results for formate are below the target detection limit listed in the FSAP (10ug/g). Sample results, adjusted by the digest factor, range from 2.9 to 4.5ug/g.

Thanks,

Carolina S. Menjivar
Project Coordinator
Advanced Technoligies and Laboratories International, Inc.
Contractor to the Office of River Protection
U.S. Department of Energy
222-S Laboratory
2713S/133/200W
509-372-2525

From: Menjivar, Carolina S
Sent: Monday, April 22, 2013 9:41 AM
To: McKinney, Steve G
Cc: Ritenour, Gerald P
Subject: SX Tank Farm PW - Ion Chromatography result for Formate

Steve,
Formate was detected in both the samples and the associated preparation blank. Formate was detected in the preparation blank at a concentration level above the EQL. The table below contains the raw results for formate in the prep blank and the samples.

Laboratory Sample ID	Prep Blank Result (ug/ml)	Sample Result (ug/mL)	EQL (ug/mL)
S13V000014	0.234	0.406	0.225
S13V000026	0.234	0.286	0.225
S13V000038	0.234	0.313	0.225
S13V000049	0.234	0.267	0.225
S13V000060	0.234	0.264	0.225
S13V000071	0.234	0.264	0.225

Question: Can we report formate with a "C" flag and an explanation in the narrative? Or do you prefer a complete re-preparation and re-analysis of all samples and prep blank? Please advise.

Thanks,

Carolina S. Menjivar
Project Coordinator
Advanced Technoligies and Laboratories International, Inc.
Contractor to the Office of River Protection
U.S. Department of Energy
222-S Laboratory
2713S/133/200W
509-372-2525

Menjivar, Carolina S

From: Tabor, Cynthia L
Sent: Tuesday, May 14, 2013 3:09 PM
To: McKinney, Steve G
Cc: Menjivar, Carolina S; Ritenour, Gerald P
Subject: RE: SX Tank Farm PW -IC Results - Blank Contamination Flags

OK with..Just make sure it is corrected in Data Report.

Thanks

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CONTRACTOR TO THE UNITED STATES DEPARTMENT OF ENERGY

From: McKinney, Steve G
Sent: Monday, May 13, 2013 11:45 AM
To: Tabor, Cynthia L
Subject: FW: SX Tank Farm PW -IC Results - Blank Contamination Flags

..during review, Carolina found a couple of extra instances of blank contamination that was not flagged as such in the preliminary report. They are for acetate and nitrite, both of which, if you account for the blank result, are nearly non-detects… These results are on the "normal" water digest, not the Vadose digest…

..ok with this..?

Thanks.

From: Menjivar, Carolina S
Sent: Monday, May 13, 2013 11:37 AM
To: McKinney, Steve G
Cc: Ritenour, Gerald P
Subject: SX Tank Farm PW -IC Results - Blank Contamination Flags

Steve,
Upon final review of the IC results for SX Tank Farm PW samples, it was found that the following QC flag was missing in the "preliminary data summary report":

- "C" flag to indicate that the acetate concentration for all samples was five times less than the prep blank concentration.
- "C" flag to indicate that the nitrite concentration for all samples was less than five times the prep blank concentration.

These “C” flags were added to the data in OmniLIMS and they are going to be included in the Final Data Summary Report. Do you agree with this approach? Any comments?

Thanks,

Carolina S. Menjívar
Project Coordinator

Advanced Technologies and Laboratories International, Inc.

Contractor to the Office of River Protection
U.S. Department of Energy
222-S Laboratory
Phone: 372-2525

Menjivar, Carolina S

From: McKinney, Steve G
Sent: Thursday, May 16, 2013 9:25 AM
To: Menjivar, Carolina S
Subject: RE: SX-Tank farm PW- RPP-PLAN-54366 - pH Analysis

..yes, and even add her e-mail to the correspondence section of the report… As far as I know the FSAP has not been updated. I believe the SAF will have to be updated to allow the HEIS upload, so that will be taken care of.

Thanks.

From: Menjivar, Carolina S
Sent: Wednesday, May 15, 2013 4:31 PM
To: McKinney, Steve G
Subject: FW: SX-Tank farm PW- RPP-PLAN-54366 - pH Analysis

Steve,
The pH analysis was performed as listed in the Sampling Authorization Form (SAF-V13-001), as indicated by Cindy in the e-mail below. But, do you know if the FSAP was updated? If it was not updated, I might have to mention this deviation from the FSAP on the final report. Do you agree?
Thanks,

Carolina.

From: McKinney, Steve G
Sent: Wednesday, February 13, 2013 10:08 AM
To: Ritenour, Gerald P
Cc: Menjivar, Carolina S
Subject: FW: SX-Tank farm PW- RPP-PLAN-54366 - pH Analysis

From: Tabor, Cynthia L
Sent: Wednesday, February 13, 2013 7:50 AM
To: Berlin, Penelope (Energy Solutions); Shrum, Ann
Cc: McKinney, Steve G
Subject: FW: SX-Tank farm PW- RPP-PLAN-54366 - pH Analysis

It appears that we need to make an update to the SAF for pH…I say we go with the sampling paper we have for the first hole..and fix the SAF for the next…

Ok …

Thanks Cindy

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CLOSURE & CORRECTIVE MEASURES
washington river protection solutions
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CONTRACTOR TO THE UNITED STATES DEPARTMENT OF ENERGY

From: McKinney, Steve G
Sent: Wednesday, February 13, 2013 7:45 AM
To: Tabor, Cynthia L
Subject: RE: SX-Tank farm PW- RPP-PLAN-54366 - pH Analysis

..option 1…

From: Tabor, Cynthia L
Sent: Wednesday, February 13, 2013 7:12 AM
To: McKinney, Steve G
Subject: FW: SX-Tank farm PW- RPP-PLAN-54366 - pH Analysis

What have we done in the past?

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From: Menjivar, Carolina S
Sent: Tuesday, February 12, 2013 2:51 PM
To: Tabor, Cynthia L
Cc: Ritenour, Gerald P; McKinney, Steve G
Subject: SX-Tank farm PW- RPP-PLAN-54366 - pH Analysis

Cindy,

The pH analysis is listed on the FSAP (RPP-PLAN-54366 Rev. 0, page 4-5) to be performed on the water digest 1:1, the same digest type that is used for all quick turn analyses(Tc-99 by ICP/MS, nitrate by IC, and conductivity). If you take a look of the SAF V13-001, a suffix "WE" identifies the analytes that should be analyzed with the vadose 1:1 water digest. This suffix is used for identification purposes in the HEIS upload. The PH analysis (as listed in the SAF), does not have the suffix "WE".

We have two options:

1. The laboratory can perform the pH analysis, as listed in the FSAP; in this case the SAF No. V13-001 would need to be updated to include the WE suffix for the pH analysis. This is needed for the HEIS upload. This is how it has been done before.

2. The laboratory can do the standard SW-846 pH analysis for solid matrix samples, which is also a 1:1 water digest with smaller sample amount (5 g. soil)

Note: the typical water digest (vadose water digest 1:1) uses 70 g. of sample.

Please let us know which option will work better for you.

Thanks,

Carolina S. Menjivar
Project Coordinator

Washington River Protection Solutions
SAMPLING AUTHORIZATION FORM

SAF NUM V13-001 **SAF TITLE** Direct Push Samples for SX Pore Water Extraction Test Project **REV** 0

PROJECT	SX Tank Farm PW		
PROGRAM/PROJECT TYPE	Other Other		
OPERABLE UNIT	NONE		
REQUESTER	SHRUM, A	**CHARGE CODES**	
TASK MANAGER	TABOR, CL		
PROJECT COORDINATOR	SYDNOR, HA		
ESTIMATED START DATE	1/15/2013	**SAMPLE AREA**	200 West
ESTIMATED COMPLETION DATE	6/15/2013	**MATRIX**	SOIL
ESTIMATED NUMBER OF SAMPLES	30		
SAMPLING ORGANIZATIONS			

LABORATORY/PRICE_CODE/PRIORITY TURNAROUND/REQUIRED TURNAROUND/DATA DELIVERABLE

Primary / 222-S Lab Operations / C03 / 60 Days / 120 Days / Interim Results & Summary

SAF COMMENT

**GENERAL
The applicable FSAP is RPP-PLAN-54366. (Analytical and Quality Control information is summarized in Tables 3-1, 3-2, and 4-1).
There are 3 sampling sites and at each sampling site there will be approximately 2 vertical samples taken.

**FIELD
Material from the shoe will be put into 500 ml glass jar.
Field personnel will cap liners. When capping is not possible or the liners cannot be removed from the sampler, field personnel shall put material into a 250 ml or 500 ml glass jar.

**LABORATORY
Bulk Density will be determined for each liner, then the material from the liners and shoe (glass jar assigned to generic testing) shall be composited and analyzed. A Quick Turn sample will be analyzed for nitrate, pH, Tc-99 and conductivity on a 1:1 water digest. The nitrate and Tc-99 results will be reported on an expedited time frame (typically within one week of the last sample receipt batched together; however, upon request, results will be reported within 48 hours). The remainder of the composited material will be used for the rest of the analyses and will be reported with the pH and conductivity results in the final analysis report.

The final data package should be in Format VI with QA verification.

222S will transmit all COCs to IDMS.

SAF REVISION COMMENT

COC COMMENT

After bulk density is determined on the liners, the material from the liners and shoe (500 ml glass jar assigned to generic testing) shall be composited.

Washington River Protection Solutions
SAMPLING AUTHORIZATION FORM

SAF NUM V13-001 **SAF TITLE** Direct Push Samples for SX Pore Water Extraction Test Project **REV** 0

Field Sampling Requirements

Laboratory: 222-S Lab Operations **Matrix: SOIL**

Parameter / Analysis	Reference Method	Container / Volume	VolReq	Preservation	Holding Times
Bulk Density - D2937 (TF)	D2937_DENSITY	Liner 160 g	Full QC	Cool~6C	24 Hours
Bulk density - wet					
pH (Soil) - 9045	9045_PH	Liner 3X160 g	Full QC	Cool~6C	24 Hours
pH Measurement					
ICPMS Tc-99_WE(TF)	RADISOTOPES_ICPMS		Minimum		6 Months
Technetium-99					
IC Anions - 9056_WE	9056_ANIONS_IC		Minimum		48 Hours
Nitrate					
Conductivity - 9050_WE	9050_CONDUCT		Full QC		28 Days
IC Anions - 9056	9056_ANIONS_IC		Full QC		28 Days/48 Hours
2-Hydroxyacetate, Acetate, Bromide, Chloride, Fluoride, Formate, Nitrate, Nitrite, Oxalate, Phosphate, Sulfate					
Actinides ICPMS (TF)	RADISOTOPES_ICPMS		Full QC		6 Months
Neptunium-237, Thorium-230, Thorium-232, Uranium-233, Uranium-234, Uranium-235, Uranium-236, Uranium-238					
RADISO_ICPMS (TF)	RADISOTOPES_ICPMS		Full QC		6 Months
Technetium-99, Tin-126					
Percent Solids (TF)	%SOLIDS		Full QC		None
Percent Water (TF)	D2216_%MOIS		Full QC		None
Generic Testing	SPECIAL_STUDIES	G 500 mL	Full QC	Cool~6C	24 Hours

Key to Container Types

G = Glass
Gs = Glass w/ septum cap
Gs* = Glass w/ septum cap- no head space in container
P = Plastic (Polyethylene)
aG = Amber Glass
aGs = Amber Glass w/ septum cap
aGs* = Amber Glass w/ septum cap- no head space in container
aG/T = Amber Glass w/ Teflon Lined Lid

Washington River Protection Solutions
SAMPLING AUTHORIZATION FORM

SAF NUM V13-002 **SAF TITLE** Direct Push Samples for SX Pore Water Extraction Test Project - QC Sample **REV** 0

PROJECT	SX Tank Farm PW		
PROGRAM/PROJECT TYPE	Other Other		
OPERABLE UNIT	NONE		
REQUESTER	MCKINNEY, SG	**CHARGE CODES**	
TASK MANAGER	TABOR, CL		
PROJECT COORDINATOR	SHRUM, A		
ESTIMATED START DATE	1/15/2013	**SAMPLE AREA**	200 West
ESTIMATED COMPLETION DATE	6/15/2013	**MATRIX**	WATER
ESTIMATED NUMBER OF SAMPLES	2		
SAMPLING ORGANIZATIONS			

LABORATORY/PRICE_CODE/PRIORITY TURNAROUND/REQUIRED TURNAROUND/DATA DELIVERABLE

Primary / 222-S Lab Operations / C03 / 60 Days / 120 Days / Interim Results & Summary

SAF COMMENT

**GENERAL
The applicable FSAP is RPP-PLAN-54366. (Analytical and Quality Control information is summarized in Tables 3-1, 3-2, and 4-1).

**FIELD
These Equipment Rinsate Blanks and Field Blanks will be taken for every 20 soil sample or as otherwise directed

**LABORATORY
222S will transmit all COCs to IDMS.

SAF REVISION COMMENT

COC COMMENT

Washington River Protection Solutions
SAMPLING AUTHORIZATION FORM

SAF NUM V13-002 **SAF TITLE** Direct Push Samples for SX Pore Water Extraction Test Project - QC Sample **REV** 0

Field Sampling Requirements

Laboratory: 222-S Lab Operations **Matrix: WATER**

Parameter / Analysis	Reference Method	Container / Volume	VolReq	Preservation	Holding Times
RADISO_ICPMS (TF)	RADISOTOPES_ICPMS	G/P 500 mL	Full QC	HNO3 to pH <2	6 Months
Neptunium-237, Technetium-99, Thorium-230, Thorium-232, Tin-126, Uranium-233, Uranium-234, Uranium-235, Uranium-236, Uranium-238					
IC Anions - 9056	9056_ANIONS_IC	G/P 500 mL	Full QC	Cool~6C	28 Days/48 Hours

Key to Container Types

G = Glass
Gs = Glass w/ septum cap
Gs* = Glass w/ septum cap- no head space in container
P = Plastic (Polyethylene)
aG = Amber Glass
aGs = Amber Glass w/ septum cap
aGs* = Amber Glass w/ septum cap- no head space in container
aG/T = Amber Glass w/ Teflon Lined Lid

Attachment 7

RECEIPT PAPERWORK

ATL	SAMPLE RECEIPT AND CHAIN OF CUSTODY VERIFICATION CHECKLIST	LO-090-101 Rev F.f. 0

Date Samples Received: 2.19.13 Group #: 20130168

Number of Samples: 1 set 5x VAdose

Sample Custodian: RtKtab

Sample Custodian to Complete:

Action	Yes	No	N/A	Comments
RSA/COC provided?	✓			
RSR provided?	✓			
Verify GKI is complete	✓			☑ In Project File
Received from an alpha facility?		✓		☐ Contact PM for approval to release
Check that outer custody seal is intact, if present	✓			
Record cooler temperature in centigrade, as appropriate	See note *			☐ Check if no cooler and/or no ice
Samples are intact and in good condition	✓			If No, provide comments below
Verify that COC or RSA is accurate and complete, containing the following information:				
• Client name and client sample number	✓			
• Date and time of sampling	✓			
• Sampling location or origin	✓			
• Container type, size, and number	✓			
• Preservatives (if used) are noted on the COC/RSA and sample bottle			✓	
• Analysis request is clear	✓			
• Signature of persons relinquishing and receiving samples	✓			
• Date and/or time of sample custody exchange	✓			
Verify that sample numbers on containers match the COC and/or RSA	✓			
Samples stored properly (e.g. refrigeration)	✓			

Notify the PM immediately if any problems are noted.

Samples acceptable for release? yes Initials RKJ Date 2.19.13

If No, comment on communication and resolution:

Other Comments: * No Temp Blank provided
No Laser Thermometer Available
Samples were shipped in cooler on Ice. RtKtab 2.19.13

A-6005-342 (REV 3)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V13-001-001	PAGE 1 OF 1
COLLECTOR: Snook / Sharp	COMPANY CONTACT: SYDNOR, HA	TELEPHONE NO.: 373-3967	PROJECT COORDINATOR: SYDNOR, HA	PRICE CODE: C03	DATA TURNAROUND
SAMPLING LOCATION: C8760 I001	PROJECT DESIGNATION: Direct Push Samples for SX Pore Water Extraction Test Project		SAF NO.: V13-001	AIR QUALITY ☐	60 Days / 120 Days
ICE CHEST NO.: TFVS-09-005	FIELD LOGBOOK NO.: TFVZ-13-000001	ACTUAL SAMPLE DEPTH: 121'-123'	COA: N/A	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	ORIGINAL
SHIPPED TO: 222-S Lab Operations	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A		

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

POSSIBLE SAMPLE HAZARDS/ REMARKS
Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.

PRESERVATION	Cool~6C
HOLDING TIME	24 Hours
TYPE OF CONTAINER	Liner
NO. OF CONTAINER(S)	1
VOLUME	160g
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SPECIAL HANDLING AND/OR STORAGE

Temp: on Ice

GRP # 20130168

SAMPLE NO.		MATRIX*	SAMPLE DATE	SAMPLE TIME		
B2NPN4	A	SOIL	2-19-13	1048	✓	S13V000005
B2NPN5	B	SOIL	2-19-13	1048	✓	S13V00006
B2NPN6	C	SOIL	2-19-13	1048	✓	S13V00007

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Scott Snook / [signature]	2.19.13 1251	RTStack RTStack AR	2.19.13 1251
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME

SPECIAL INSTRUCTIONS
After bulk density is determined on the liners, the material from the liners and shoe (500 ml glass jar assigned to generic testing) shall be composited.
(1) Bulk Density - D2937 (TF) {Bulk density - wet};
[signature] 2-19-13

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 2/6/2013 A-6003-618 (REV 2)

RPP-RPT-55107 Rev. 0

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V13-001-002	PAGE 1 OF 1
COLLECTOR: Snook / Sharp	COMPANY CONTACT: SYDNOR, HA	TELEPHONE NO.: 373-3967	PROJECT COORDINATOR: SYDNOR, HA	PRICE CODE: C03	DATA TURNAROUND
SAMPLING LOCATION: C8760 I001	PROJECT DESIGNATION: Direct Push Samples for SX Pore Water Extraction Test Project		SAF NO.: V13-001	AIR QUALITY ☐	60 Days / 120 Days
ICE CHEST NO.: TFVS-09-005	FIELD LOGBOOK NO.: TFV2-13-000001	ACTUAL SAMPLE DEPTH: 121' - 123'	COA: N/A	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	ORIGINAL
SHIPPED TO: 222-S Lab Operations	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A		

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

POSSIBLE SAMPLE HAZARDS/ REMARKS
Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Cool~6C
HOLDING TIME	24 Hours
TYPE OF CONTAINER	G
NO. OF CONTAINER(S)	1
VOLUME	500mL
SAMPLE ANALYSIS	Generic Testing;

Temp: on ice allital

GRP# 20130168

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B2NPN7	SOIL	2-19-13	1052	✓

S13V000008

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Scott Snook / [signature]	2.19.13 1251	RTSteele RTSteele ATR	2.19.13 1251
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME

SPECIAL INSTRUCTIONS
After bulk density is determined on the liners, the material from the liners and shoe (500 ml glass jar assigned to generic testing) shall be composited.

[signature] 2-19-13

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 2/6/2013

A-6003-618 (REV 2)

ATL	SAMPLE RECEIPT AND CHAIN OF CUSTODY VERIFICATION CHECKLIST	LO-090-101 Rev F.F.0

Date Samples Received: 2.27.13 Group #: 20130168

Number of Samples: 2 sets 5 x VAdose

Sample Custodian: RHtech

Sample Custodian to Complete:

Action	Yes	No	N/A	Comments
RSA/COC provided?	✓			
RSR provided?	✓			
Verify GKI is complete	✓			☑ In Project File
Received from an alpha facility?		✓		☐ Contact PM for approval to release
Check that outer custody seal is intact, if present	✓			RHtech 6.25.13
Record cooler temperature in centigrade, as appropriate	15°C			☐ Check if no cooler and/or no ice
Samples are intact and in good condition	✓			If No, provide comments below
Verify that COC or RSA is accurate and complete, containing the following information:				
• Client name and client sample number	✓			RHtech 6.25.13
• Date and time of sampling	✓			
• Sampling location or origin	✓			
• Container type, size, and number	✓			
• Preservatives (if used) are noted on the COC/RSA and sample bottle			✓	
• Analysis request is clear	✓			
• Signature of persons relinquishing and receiving samples	✓			
• Date and/or time of sample custody exchange	✓			
Verify that sample numbers on containers match the COC and/or RSA	✓			
Samples stored properly (e.g., refrigeration)	✓			

Notify the PM immediately if any problems are noted.

Samples acceptable for release? Yes Initials RH Date 2.27.13

If No, comment on communication and resolution:

Other Comments:

A-6005-342 (REV 3)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V13-001-004	PAGE 1 OF 1
COLLECTOR: Snook / Sharp	COMPANY CONTACT: SYDNOR, HA	TELEPHONE NO.: 373-3967	PROJECT COORDINATOR: SYDNOR, HA	PRICE CODE: C03	DATA TURNAROUND
SAMPLING LOCATION: C8760 I002	PROJECT DESIGNATION: Direct Push Samples for SX Pore Water Extraction Test Project		SAF NO.: V13-001	AIR QUALITY ☐	60 Days / 120 Days
ICE CHEST NO.: TFVS-09-005	FIELD LOGBOOK NO.: TFVZ-13-000001	ACTUAL SAMPLE DEPTH: 123'-125'	COA: N/A	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	ORIGINAL
SHIPPED TO: 222-S Lab Operations	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A		

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

POSSIBLE SAMPLE HAZARDS/ REMARKS
Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.

PRESERVATION	Cool~6C
HOLDING TIME	24 Hours
TYPE OF CONTAINER	Liner
NO. OF CONTAINER(S)	1
VOLUME	160g
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SPECIAL HANDLING AND/OR STORAGE

Temp blank 15°C

GRP # 20130168 ✓

A S13V000017 ✓
B S13V000018 ✓
C S13V000019 ✓
~~Shoe S13V000020 See pg 2~~
mms 2-27-13

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B2NPN9	SOIL	2-27-13	1047	✓
B2NPP0	SOIL	2-27-13	1047	✓
B2NPP1	SOIL	2-27-13	1047	✓

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Scott Snook / Scott Snook	2-27-13 1350	RHTech RJSteele	2-27-13 1350
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME

SPECIAL INSTRUCTIONS
After bulk density is determined on the liners, the material from the liners and shoe (500 ml glass jar assigned to generic testing) shall be composited.
(1) Bulk Density - D2937 (TF) {Bulk density - wet};

RSP 2-27-13

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 2/6/2013 A-6003-618 (REV 2)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V13-001-005	PAGE 1 OF 1
COLLECTOR: Snook / Sharp	COMPANY CONTACT: SYDNOR, HA	TELEPHONE NO.: 373-3967	PROJECT COORDINATOR: SYDNOR, HA	PRICE CODE: C03	DATA TURNAROUND
SAMPLING LOCATION: C8760 I002	PROJECT DESIGNATION: Direct Push Samples for SX Pore Water Extraction Test Project		SAF NO.: V13-001	AIR QUALITY ☐	60 Days / 120 Days
ICE CHEST NO.: TFVS-09-005	FIELD LOGBOOK NO.: TFVZ-13-000001	ACTUAL SAMPLE DEPTH: 123' - 125'	COA: N/A	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	ORIGINAL
SHIPPED TO: 222-S Lab Operations	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A		

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

POSSIBLE SAMPLE HAZARDS/ REMARKS
Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Cool~6C
HOLDING TIME	24 Hours
TYPE OF CONTAINER	G
NO. OF CONTAINER(S)	1
VOLUME	500mL
SAMPLE ANALYSIS	Generic Testing;

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B2NPP2	SOIL	2-27-13	1057	✓

Temp blank 15°C

GRP # 20130168

Shoe 513V000020 ✓

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Scott Snook / Scott Snook	2-27-13 1350	RHTeel RTSteele ATL	2.27.13 1350
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME

SPECIAL INSTRUCTIONS
After bulk density is determined on the liners, the material from the liners and shoe (500 ml glass jar assigned to generic testing) shall be composited.

2-27-13

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 2/6/2013 A-6003-618 (REV 2)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V13-001-007	PAGE 1 OF 1
COLLECTOR: Snook / Shaw	COMPANY CONTACT: SYDNOR, HA	TELEPHONE NO.: 373-3967	PROJECT COORDINATOR: SYDNOR, HA	PRICE CODE: C03	DATA TURNAROUND
SAMPLING LOCATION: C8760 I003	PROJECT DESIGNATION: Direct Push Samples for SX Pore Water Extraction Test Project		SAF NO.: V13-001	AIR QUALITY ☐	60 Days / 120 Days
ICE CHEST NO.: TFVS-09-005	FIELD LOGBOOK NO.: TFVZ-13-000001	ACTUAL SAMPLE DEPTH: 125' - 127'	COA: N/A	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	ORIGINAL
SHIPPED TO: 222-S Lab Operations	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A		

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

POSSIBLE SAMPLE HAZARDS/ REMARKS
Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Cool~6C
HOLDING TIME	24 Hours
TYPE OF CONTAINER	Liner
NO. OF CONTAINER(S)	1
VOLUME	160g
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

Temp blank is °C

GRP # 20130168 ✓

A S13V000629 ✓
B S13V000630 ✓
C S13V000631 ✓

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B2NPP4	SOIL	2-27-13	1324	✓
B2NPP5	SOIL	2-27-13	1324	✓
B2NPP6	SOIL	2-27-13	1324	✓

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Scott Snook / Scott Snook	2-27-13 1350	RTSteele RTSteele AN	2-27-13 1350
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME

SPECIAL INSTRUCTIONS
After bulk density is determined on the liners, the material from the liners and shoe (500 ml glass jar assigned to generic testing) shall be composited.
(1) Bulk Density - D2937 (TF) {Bulk density - wet};

2-27-13

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 2/6/2013

A-6003-618 (REV 2)

RPP-RPT-55107 Rev. 0

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V13-001-008	PAGE 1 OF 1
COLLECTOR: Snook / Sharp	COMPANY CONTACT: SYDNOR, HA	TELEPHONE NO.: 373-3967	PROJECT COORDINATOR: SYDNOR, HA	PRICE CODE: C03	DATA TURNAROUND
SAMPLING LOCATION: C8760 I003	PROJECT DESIGNATION: Direct Push Samples for SX Pore Water Extraction Test Project		SAF NO.: V13-001	AIR QUALITY ☐	60 Days / 120 Days
ICE CHEST NO.: TFVS-09-005	FIELD LOGBOOK NO.: TFVZ-13-000001	ACTUAL SAMPLE DEPTH: 125' - 127'	COA: N/A	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	ORIGINAL
SHIPPED TO: 222-S Lab Operations	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A		

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

POSSIBLE SAMPLE HAZARDS/ REMARKS
Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Cool~6C
HOLDING TIME	24 Hours
TYPE OF CONTAINER	G
NO. OF CONTAINER(S)	1
VOLUME	500mL
SAMPLE ANALYSIS	Generic Testing;

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B2NPP7	SOIL	2-27-13	1327	✓

Temp blank 15°C
GRP# 20130168 ✓
shoe S13V000032 ✓

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM: Scott Snook / Scott Snook	DATE/TIME: 2-27-13 1350	RECEIVED BY/STORED IN: RJ Steele / RJ Steele ATL	DATE/TIME: 2-27-13 1350
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME

SPECIAL INSTRUCTIONS
After bulk density is determined on the liners, the material from the liners and shoe (500 ml glass jar assigned to generic testing) shall be composited.

RSP 2-27-13

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 2/6/2013 A-6003-618 (REV 2)

ATL	SAMPLE RECEIPT AND CHAIN OF CUSTODY VERIFICATION CHECKLIST	LO-090-101 Rev F.F.0

Date Samples Received: 3.6.13 Group #: 20130185 (4)
Number of Samples: 1 set + 1 equipment BLK (5x vadose) 20130167(2) EQ BLANK
Sample Custodian: RHtech

Sample Custodian to Complete:

Action	Yes	No	N/A	Comments
RSA/COC provided?	✓			
RSR provided?	✓			
Verify GKI is complete	✓			☑ In Project File
Received from an alpha facility?		✓		☐ Contact PM for approval to release
Check that outer custody seal is intact, if present	✓			RHtech 6-25-13
Record cooler temperature in centigrade, as appropriate	1.0			☐ Check if no cooler and/or no ice
Samples are intact and in good condition	✓			If No, provide comments below
Verify that COC or RSA is accurate and complete, containing the following information:				
• Client name and client sample number	✓			
• Date and time of sampling	✓			
• Sampling location or origin	✓			
• Container type, size, and number	✓			
• Preservatives (if used) are noted on the COC/RSA and sample bottle	✓			
• Analysis request is clear	✓			
• Signature of persons relinquishing and receiving samples	✓			
• Date and/or time of sample custody exchange	✓			RHtech 6-25-2013
Verify that sample numbers on containers match the COC and/or RSA	✓			
Samples stored properly (e.g., refrigeration)	✓			2 A Fridge

Notify the PM immediately if any problems are noted.

Samples acceptable for release? Y/ES Initials RH Date 3.6.13

If No, comment on communication and resolution:

Other Comments:

A-6005-342 (REV 3)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V13-002-002	PAGE 1 OF 1
COLLECTOR: Snock / Sharp	COMPANY CONTACT: SYDNOR, HA	TELEPHONE NO.: 373-3967	PROJECT COORDINATOR: SHRUM, A	PRICE CODE: C03	DATA TURNAROUND
SAMPLING LOCATION: C8762 Equipment Blank	PROJECT DESIGNATION: Direct Push Samples for SX Pore Water Extraction Test Project - QC Sample		SAF NO.: V13-002	AIR QUALITY ☐	60 Days / 120 Days
ICE CHEST NO.: TFVS-09-005	FIELD LOGBOOK NO.: TFVZ-13-000001	ACTUAL SAMPLE DEPTH: N/A	COA: N/A	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	ORIGINAL
SHIPPED TO: 222-S Lab Operations	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A		

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

POSSIBLE SAMPLE HAZARDS/ REMARKS
Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	HNO3 to pH <2	Cool~6C
HOLDING TIME	6 Months	28 Days/48 Hours
TYPE OF CONTAINER	G/P	G/P
NO. OF CONTAINER(S)	1	1
VOLUME	500mL	500mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	IC Anions - 9056;

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME		
B2NRC3	WATER	3-6-13	0925	✓	✓

→ S13V000001
↓ S13V000002

"EQ-BLANK" ✓

Temp blank 1.0 3/6/13

CRP # 20130167 mms 03/06/13
~~20130185~~
Sam#s S13V000001
S13V000002

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Scott Snock / Scott Snock	3-6-13/1330	RT Steele / ATR	3-6-13 1330
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME

SPECIAL INSTRUCTIONS
(1) RADISO_ICPMS (TF) {Neptunium-237, Technetium-99, Thorium-230, Thorium-232, Tin-126, Uranium-233, Uranium-234, Uranium-235, Uranium-236, Uranium-238};

RSP 3.16.13

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 2/20/2013 A-6003-618 (REV 2)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V13-001-016	PAGE 1 OF 1
COLLECTOR: Snook / Sharp	COMPANY CONTACT: SYDNOR, HA	TELEPHONE NO.: 373-3967	PROJECT COORDINATOR: SYDNOR, HA	PRICE CODE: C03	DATA TURNAROUND
SAMPLING LOCATION: C8762 I001	PROJECT DESIGNATION: Direct Push Samples for SX Pore Water Extraction Test Project		SAF NO.: V13-001	AIR QUALITY ☐	60 Days / 120 Days
ICE CHEST NO.: TFVS-09-005	FIELD LOGBOOK NO.: TFVZ-13-000001	ACTUAL SAMPLE DEPTH: 123' to 125'	COA: N/A	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	ORIGINAL
SHIPPED TO: 222-S Lab Operations	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A		

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

POSSIBLE SAMPLE HAZARDS/ REMARKS
Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Cool~6C
HOLDING TIME	24 Hours
TYPE OF CONTAINER	Liner
NO. OF CONTAINER(S)	1
VOLUME	160g
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

Temp blank 1.0 RHtu 3.6.13

QRP # 20130185 ✓

SAM #s 513V000041 ✓ Liner A
513V000042 ✓ Liner B
513V000043 ✓ Liner C

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B2NR97	SOIL	3-6-13	1305 ✓	✓
B2NR98	SOIL	3-6-13	1305 ✓	✓
B2NR99	SOIL	3-6-13	1305 ✓	✓

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM: Scott Snook / Brett Sharp	DATE/TIME: 3-6-13/1330	RECEIVED BY/STORED IN: RHtuck RHtuck ATL	DATE/TIME: 3.6.13 1330 ✓
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME

SPECIAL INSTRUCTIONS
After bulk density is determined on the liners, the material from the liners and shoe (500 ml glass jar assigned to generic testing) shall be composited.
(1) Bulk Density - D2937 (TF) {Bulk density - wet};

RSJ 3-6-13

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 2/20/2013 A-6003-618 (REV 2)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V13-001-017	PAGE 1 OF 1
COLLECTOR: Snook / Sharp	COMPANY CONTACT: SYDNOR, HA	TELEPHONE NO.: 373-3967	PROJECT COORDINATOR: SYDNOR, HA	PRICE CODE: C03	DATA TURNAROUND
SAMPLING LOCATION: C8762 I001	PROJECT DESIGNATION: Direct Push Samples for SX Pore Water Extraction Test Project		SAF NO.: V13-001	AIR QUALITY ☐	60 Days / 120 Days
ICE CHEST NO.: TFVS-09-005	FIELD LOGBOOK NO.: TFVZ-13-000001	ACTUAL SAMPLE DEPTH: 123' to 125'	COA: N/A	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	ORIGINAL
SHIPPED TO: 222-S Lab Operations	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A		

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

POSSIBLE SAMPLE HAZARDS/ REMARKS
Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Cool~6C
HOLDING TIME	24 Hours
TYPE OF CONTAINER	G
NO. OF CONTAINER(S)	1
VOLUME	500mL
SAMPLE ANALYSIS	Generic Testing;

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B2NRB0	SOIL	3-6-13	1300	✓

Temp blank 1.0 [illegible]

GRP# 20130185
SAM# ~~S13V000045~~ [illegible]
S13V000044 mms 03/06/13
Shoe

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Scott Snook / [illegible]	3-6-13/1330	RTSteele RTSteele ATR	3.6.13 1330
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME

SPECIAL INSTRUCTIONS
After bulk density is determined on the liners, the material from the liners and shoe (500 ml glass jar assigned to generic testing) shall be composited.

RET 3-6-13

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 2/20/2013 A-6003-618 (REV 2)

ATL	SAMPLE RECEIPT AND CHAIN OF CUSTODY VERIFICATION CHECKLIST	LO-090-101 Rev F.F.0

Date Samples Received: 3-7-13 Group #: 20130185 20130167

Number of Samples: 2 sets 5X VAdose + 1 F BLANK

Sample Custodian: RLtad

Sample Custodian to Complete:

Action	Yes	No	N/A	Comments
RSA/COC provided?	✓			
RSR provided?	✓			
Verify GKI is complete	✓			☑ In Project File
Received from an alpha facility?		✓		☐ Contact PM for approval to release
Check that outer custody seal is intact, if present	✓			
Record cooler temperature in centigrade, as appropriate	2.7			☐ Check if no cooler and/or no ice
Samples are intact and in good condition	✓			If No, provide comments below
Verify that COC or RSA is accurate and complete, containing the following information:				
• Client name and client sample number	✓			
• Date and time of sampling	✓			
• Sampling location or origin	✓			
• Container type, size, and number	✓			
• Preservatives (if used) are noted on the COC/RSA and sample bottle	✓			on Field blank
• Analysis request is clear	✓			
• Signature of persons relinquishing and receiving samples	✓			
• Date and/or time of sample custody exchange	✓			
Verify that sample numbers on containers match the COC and/or RSA	✓			
Samples stored properly (e.g., ~~refrigeration~~)	✓			

Notify the PM immediately if any problems are noted.

Samples acceptable for release? yes Initials RH Date 3-7-13

If No, comment on communication and resolution:

Other Comments:

A-6005-342 (REV 3)

RPP-RPT-55107 Rev. 0

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V13-002-001	PAGE 1 OF 1
COLLECTOR: Snook/Sharp	COMPANY CONTACT: SYDNOR, HA	TELEPHONE NO.: 373-3967	PROJECT COORDINATOR: SHRUM, A	PRICE CODE: C03	DATA TURNAROUND
SAMPLING LOCATION: C8762 Field Blank	PROJECT DESIGNATION: Direct Push Samples for SX Pore Water Extraction Test Project - QC Sample		SAF NO.: V13-002	AIR QUALITY ☐	60 Days / 120 Days
ICE CHEST NO.: TFVS-09-005	FIELD LOGBOOK NO.: TFVZ-13-000001	ACTUAL SAMPLE DEPTH: N/A	COA: N/A	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	ORIGINAL
SHIPPED TO: 222-S Lab Operations	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A		

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

POSSIBLE SAMPLE HAZARDS/ REMARKS
Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	HNO3 to pH <2	Cool~6C
HOLDING TIME	6 Months	28 Days/48 Hours
TYPE OF CONTAINER	G/P	G/P
NO. OF CONTAINER(S)	1	1
VOLUME	500mL	500mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	IC Anions - 9056;

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME		
B2NRC2	WATER	3-7-13	1009 ✓	✓	✓

Temp blank 2.7
RTSteele 3.7.13
GRP# 20130167 ✓
SAM# S13V000003 ✓
S13V000004 ✓
Field Blank

CHAIN OF POSSESSION	SIGN/ PRINT NAMES	SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM: Scott Snook/Scott Snook DATE/TIME: 3-7-13/1130	RECEIVED BY/STORED IN: RTSteele RTSteele ATR DATE/TIME: 3-7-13 1130 ✓	(1) RADISO_ICPMS (TF) {Neptunium-237, Technetium-99, Thorium-230, Thorium-232, Tin-126, Uranium-233, Uranium-234, Uranium-235, Uranium-236, Uranium-238}; 3-7-13
RELINQUISHED BY/REMOVED FROM: DATE/TIME:	RECEIVED BY/STORED IN: DATE/TIME:	
RELINQUISHED BY/REMOVED FROM: DATE/TIME:	RECEIVED BY/STORED IN: DATE/TIME:	
RELINQUISHED BY/REMOVED FROM: DATE/TIME:	RECEIVED BY/STORED IN: DATE/TIME:	
RELINQUISHED BY/REMOVED FROM: DATE/TIME:	RECEIVED BY/STORED IN: DATE/TIME:	
RELINQUISHED BY/REMOVED FROM: DATE/TIME:	RECEIVED BY/STORED IN: DATE/TIME:	
RELINQUISHED BY/REMOVED FROM: DATE/TIME:	RECEIVED BY/STORED IN: DATE/TIME:	

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 2/20/2013

A-6003-618 (REV 2)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V13-001-018	PAGE 1 OF 1
COLLECTOR: Snook / Sharp	COMPANY CONTACT: SYDNOR, HA	TELEPHONE NO.: 373-3967	PROJECT COORDINATOR: SYDNOR, HA	PRICE CODE: C03	DATA TURNAROUND
SAMPLING LOCATION: C8762 I002	PROJECT DESIGNATION: Direct Push Samples for SX Pore Water Extraction Test Project		SAF NO.: V13-001	AIR QUALITY ☐	60 Days / 120 Days
ICE CHEST NO.: TFVS-09-005	FIELD LOGBOOK NO.: TFVZ-13-000001	ACTUAL SAMPLE DEPTH: 125'-127'	COA: N/A	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	ORIGINAL
SHIPPED TO: 222-S Lab Operations	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A		

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

POSSIBLE SAMPLE HAZARDS/ REMARKS
Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Cool~6C
HOLDING TIME	24 Hours
TYPE OF CONTAINER	Liner
NO. OF CONTAINER(S)	1
VOLUME	160g
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B2NRB1	SOIL	3-7-13	1000	✓
B2NRB2	SOIL	3-7-13	1000	✓
B2NRB3	SOIL	3-7-13	1000	✓

Temp blank 2.7
[illegible] 3.7.13

GRP # 20130185
SAM # S13V000052 Liner A
S13V000053 Liner B
S13V000054 Liner C

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Scott Snook / Scott Snook	3-7-13/1130	RT Steele RT Steele AR	3.7.13 1130
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME

SPECIAL INSTRUCTIONS
After bulk density is determined on the liners, the material from the liners and shoe (500 ml glass jar assigned to generic testing) shall be composited.
(1) Bulk Density - D2937 (TF) {Bulk density - wet};

[signature] 3-7-13

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 2/20/2013 A-6003-618 (REV 2)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V13-001-019	PAGE 1 OF 1
COLLECTOR: Snook / Sharp	COMPANY CONTACT: SYDNOR, HA	TELEPHONE NO.: 373-3967	PROJECT COORDINATOR: SYDNOR, HA	PRICE CODE: C03	DATA TURNAROUND
SAMPLING LOCATION: C8762 I002	PROJECT DESIGNATION: Direct Push Samples for SX Pore Water Extraction Test Project		SAF NO.: V13-001	AIR QUALITY: ☐	60 Days / 120 Days
ICE CHEST NO.: TFVS-09-005	FIELD LOGBOOK NO.: TFVZ-13-000001	ACTUAL SAMPLE DEPTH: 125' - 127'	COA: N/A	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	ORIGINAL
SHIPPED TO: 222-S Lab Operations	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A		

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

POSSIBLE SAMPLE HAZARDS/ REMARKS
Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Cool~6C
HOLDING TIME	24 Hours
TYPE OF CONTAINER	G
NO. OF CONTAINER(S)	1
VOLUME	500mL
SAMPLE ANALYSIS	Generic Testing;

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B2NRB4	SOIL	3-7-13	0950 ✓	✓

Temp blank 2.7
RHtech 3.7.13

Grp # 20130185 ✓
Sam # 513V000055 ✓
Shoe

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Scott Snook / Scott Sharp	3-7-13 / 1130	RHTech RJSteele ATL	3.7.13 1130 ✓
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME

SPECIAL INSTRUCTIONS
After bulk density is determined on the liners, the material from the liners and shoe (500 ml glass jar assigned to generic testing) shall be composited.

3-7-13

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 2/20/2013

A-6003-618 (REV 2)

RPP-RPT-55107 Rev. 0

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V13-001-020	PAGE 1 OF 1
COLLECTOR: Sneek / Sharp	COMPANY CONTACT: SYDNOR, HA	TELEPHONE NO.: 373-3967	PROJECT COORDINATOR: SYDNOR, HA	PRICE CODE: C03	DATA TURNAROUND: 60 Days / 120 Days
SAMPLING LOCATION: C8762 I003	PROJECT DESIGNATION: Direct Push Samples for SX Pore Water Extraction Test Project		SAF NO.: V13-001	AIR QUALITY: ☐	
ICE CHEST NO.: TFVS-09-005	FIELD LOGBOOK NO.: TFVZ-13-000001	ACTUAL SAMPLE DEPTH: 127' - 129'	COA: N/A	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	ORIGINAL
SHIPPED TO: 222-S Lab Operations	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A		

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

POSSIBLE SAMPLE HAZARDS/ REMARKS
Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.

PRESERVATION	Cool~6C
HOLDING TIME	24 Hours
TYPE OF CONTAINER	Liner
NO. OF CONTAINER(S)	1
VOLUME	160g
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SPECIAL HANDLING AND/OR STORAGE

Temp blank 2.7 entered 3.7.13

Grp# Z0130185
Sam# S13V000063 Liner A
S13V000064 Liner B
S13V000065 Liner C

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B2NRB5	SOIL	3-7-13	1056 ✓	✓
B2NRB6	SOIL	3-7-13	1056 ✓	✓
B2NRB7	SOIL	3-7-13	1056 ✓	✓

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME ✓
Scott Sneek / Scott Sneek	3-7-13/1130	RE Steele RE Steele AFR	3.7.13 1130
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME

SPECIAL INSTRUCTIONS
After bulk density is determined on the liners, the material from the liners and shoe (500 ml glass jar assigned to generic testing) shall be composited.
(1) Bulk Density - D2937 (TF) {Bulk density - wet};

3-7-13

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 2/20/2013 A-6003-618 (REV 2)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V13-001-021	PAGE 1 OF 1
COLLECTOR: Snook / Sharp	COMPANY CONTACT: SYDNOR, HA	TELEPHONE NO.: 373-3967	PROJECT COORDINATOR: SYDNOR, HA	PRICE CODE: C03	DATA TURNAROUND: 60 Days / 120 Days
SAMPLING LOCATION: C8762 I003	PROJECT DESIGNATION: Direct Push Samples for SX Pore Water Extraction Test Project		SAF NO.: V13-001	AIR QUALITY: ☐	
ICE CHEST NO.: TFVS-09-005	FIELD LOGBOOK NO.: TFVZ-13-000001	ACTUAL SAMPLE DEPTH: 127'-129'	COA: N/A	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	ORIGINAL
SHIPPED TO: 222-S Lab Operations	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A		

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

POSSIBLE SAMPLE HAZARDS/ REMARKS
Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Cool~6C
HOLDING TIME	24 Hours
TYPE OF CONTAINER	G
NO. OF CONTAINER(S)	1
VOLUME	500mL
SAMPLE ANALYSIS	Generic Testing;

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B2NRB8	SOIL	3-7-13	1051 ✓	✓

Temp blank 2.7
RHtad 3.7.13

GRP# 20130185 ✓
Sam # S17V000066 ✓
Shoe

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME ✓
Scott Snook / Scott Sharp	3-7-13/1130	RHStule RHtad	3.7.13 1130
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME

SPECIAL INSTRUCTIONS
After bulk density is determined on the liners, the material from the liners and shoe (500 ml glass jar assigned to generic testing) shall be composited.

3-7-13

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 2/20/2013

A-6003-618 (REV 2)

GENERATOR KNOWLEDGE INFORMATION

1. Chain of Custody Number _____ CACN/COA _____ Customer Identification Number _____

2. List generator knowledge or description of process that produced sample. Or list description of sample source:
Soil samples from several depths from vadose zone direct push holes in SX-Farm. May be contaminated by REDOX supernatant releases.

MSDS Available? ◉ No ○ Yes Hanford MSDS No. _____

3. List all waste codes and constituents associated with the waste or media that was sampled, regardless of CERCLA status.

a) Does the sample contain any of the following listed waste codes?
By checking "unknown" the customer understands that no knowledge is available following a careful search.

	List Federal Waste Code(s):	List Constituent(s):			
P Codes:			○ Yes	◉ No	○ Unknown
U Codes:			○ Yes	◉ No	○ Unknown
K Codes:			○ Yes	◉ No	○ Unknown
F Codes:	F-001 through F-005		◉ Yes	○ No	○ Unknown

b) List applicable characteristic waste codes, flash point, pH, constituents, and concentrations as appropriate.

D001:	☐ FP <100°F	☐ FP ≥100 <140°F	☐ DOT Oxidizer	○ Yes	◉ No	○ Unknown
D002:	☐ pH ≤2	☐ pH ≥12.5	☐ Solid Corrosive (WSC2)	○ Yes	◉ No	○ Unknown
D003:	☐ Cyanide	☐ Sulfide	☐ Water Reactive	☐ Other _____ (i.e., peroxide former, explosive, air reactive)	○ Yes	◉ No	○ Unknown
D004-D043 (Identify applicable waste codes and concentrations):					◉ Yes	○ No	○ Unknown

D007 Chromium, D008 Lead, Other SST Part A COC's potential

c) If characteristic, list any known underlying hazardous constituents (UHCs) reasonably expected to be present, and their concentrations that may be present above the LDR treatment standard (40 CFR 268.48):
Chromium and Lead, may exceed levels for other UHC's listed in SST DQO but not expected based on previous subsurface analyses (PNNL-14849)

d) List any known Land Disposal Restrictions (LDR) subcategories, if applicable (40 CFR 268.40):
N/A

e) List any applicable Washington State dangerous waste codes: (not required if federally regulated)

WT01:	○ Yes	○ No	○ Unknown
WT02:	○ Yes	○ No	○ Unknown
W001:	○ Yes	○ No	○ Unknown

List constituents and concentrations:

(*State mixture rule for ignitability)

WP01:	○ Yes	○ No	○ Unknown
WP02:	○ Yes	○ No	○ Unknown
WP03:	○ Yes	○ No	○ Unknown
F003:*	○ Yes	○ No	○ Unknown

4. Is this material TSCA regulated for PCBs? ○ Yes ◉ No ○ Unknown ○ Analysis Requested

List concentration if applicable: _____

If yes, what is the source of the PCBs? (see TSCA PCB Hanford Site User Guide, DOE/RL-2001-50)

☐ PCB Liquid Waste ☐ PCB Bulk Product Waste ☐ PCB Transformer ≥500 ppm ☐ Unknown
☐ PCB Remediation Waste ☐ PCB R&D Waste ☐ PCB contaminated electrical equipment (capacitor/ballast) <500 ppm
☐ PCB Spill Material ☐ PCB Item ☐ Other PCB Waste (list) _____

5. Is this material TRU? ○ Yes ◉ No ○ Unknown

6. ACCURACY OF INFORMATION
Based on my inquiry of those individuals immediately responsible for obtaining this information, that to the best of my knowledge, the information entered in this document is true, accurate, and complete.

Print & Sign J.G. Field Date 5-4-09

A-6002-990 (08/03)

INFORMATION CLEARANCE REVIEW AND RELEASE APPROVAL

Part I: Background Information

Title: Final Report for Samples Taken in Support of SX Pore Water Extraction Test Project Stages I and II - Soil Sampling

Publish to OSTI? ☐ Yes ☑ No

Information Category:
☐ Abstract ☐ Journal Article ☐ Summary
☐ Internet ☐ Visual Aid ☐ Software
☐ Full Paper ☑ Report ☐ Other

Trademark/Copyright "Right to Use" Information or Permission Documentation	Yes	NA
	☐	☑

Document Number: RPP-RPT-55107 Revision 0 Date: January 2014

Author: Tabor, Cindy L

Part II: External/Public Presentation Information

Conference Name:

Sponsoring Organization(s): WRPS

Date of Conference: Conference Location:

Will Material be Handed Out? ☐ Yes ☑ No Will Information be Published? ☐ Yes ☑ No *(If Yes, attach copy of Conference format instructions/guidance.)*

Part III: WRPS Document Originator Checklist

Description	*Yes*	*N/A*	*Print/Sign/Date*
Information Product meets requirements in TFC-BSM-AD-C-01?	☐	☑	
Document Release Criteria in TFC-ENG-DESIGN-C-25 completed? (Attach checklist)	☐	☑	
If product contains pictures, safety review completed?	☑	☐	Roberts, Sheryl K IDMS workflow data attached

Part IV: WRPS Internal Review

Function	*Organization*	*Date*	*Print Name/Signature/Date*
Subject Matter Expert	WRPS	05/04/2020	Tabor, Cindy L Workflow data attached
Responsible Manager	WRPS	04/23/2020	Rutland, Paul L Workflow data attached
Other:			

Part V: IRM Clearance Services Review

Description	*Yes*	*No*	*Print Name/Signature*
Document Contains Classified Information?	☐	☒	If Answer is "Yes," ADC Approval Required Print Name/Signature/Date
Document Contains Information Restricted by DOE Operational Security Guidelines?	☐	☒	Reviewer Signature: Print Name/Signature/Date
Document is Subject to Release Restrictions? *If the answer is "Yes," please mark category at right and describe limitation or responsible organization below:*	☐	☒	Document contains: ☐ Applied Technology ☐ Protected CRADA ☐ Personal/Private ☐ Export Controlled ☐ Proprietary ☐ Procurement – Sensitive ☐ Patentable Info. ☐ OUO ☐ Predecisional Info. ☐ UCNI ☐ Restricted by Operational Security Guidelines ☐ Other (Specify)
Additional Comments from Information Clearance Specialist Review?	☐	☒	Information Clearance Specialist Approval APPROVED By Lynn M. Ayers at 10:46 am, May 04, 2020 Print Name/Signature/Date

When IRM Clearance Review is Complete – Return to WRPS Originator for Final Signature Routing (Part VI)

INFORMATION CLEARANCE REVIEW AND RELEASE APPROVAL

Part VI: Final Review and Approvals

Description	*Approved for Release*		*Print Name/Signature*
	Yes	*N/A*	
WRPS External Affairs	☒	☐	McKenna, Mark - IDMS workflow data attached
WRPS Office of Chief Counsel	☒	☐	Peters, Amber D - IDMS workflow data attached
DOE – ORP Public Affairs/Communications	☒	☐	Levardi, Yvonne & Tyree, Geoff - Workflow data attached
Other: DOE OCC	☒	☐	Zelen, Ben J - IDMS workflow data attached
Other: DOE ORP SME	☒	☐	Blackwell, Becky - IDMS workflow data attached

Comments Required for WRPS-Indicate Purpose of Document:

This final report presents the results for the samples taken from SX Farm between February 19, 2013 and March 7, 2013.

APPROVED
By Lynn M. Ayers at 10:46 am, May 04, 2020

Approved for Public Release; Further Dissemination Unlimited

Information Release Station

Was/Is Information Product Approved for Release? ☒ Yes ☐ No

If Yes, what is the Level of Releaser? ☑ Public/Unrestricted ☐ Other (Specify) _____

Date Information Product Stamped/Marked for Release: 05/04/2020

Was/Is Information Product Transferred to OSTI? ☐ Yes ☒ No

Forward Copies of Completed Form to WRPS Originator

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        Project Stages I and II - Soil Sampling." Clearance was requested by Cindy
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