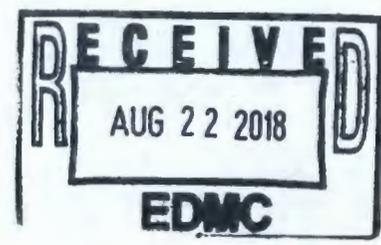


RPP-RPT-50450, Rev. 0

FINAL ANALYTICAL REPORT FOR SAMPLES FROM WASTE MANAGEMENT AREA C FOR WELL C7570

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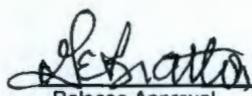


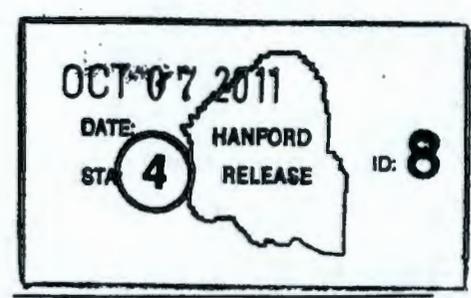
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Abstract: This final report contains the analytical results supporting the analysis of Vadose samples from core 7570 – Waste Management Area C. It also contains the results for one equipment blank.

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Release Approval
10/5/2011
Date



Approved For Public Release

**FINAL ANALYTICAL REPORT FOR SAMPLES FROM
WASTE MANAGEMENT AREA C FOR WELL C7570**

ATL Document No. 20100400 Rev.1

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Advanced Technologies and Laboratories International, Inc.

Date Published

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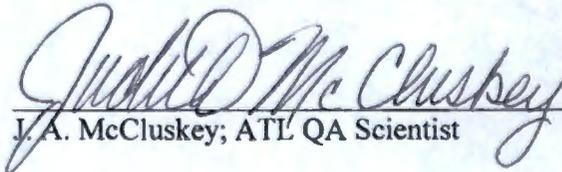
 8-25-11
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222-S LABORATORY

FINAL ANALYTICAL REPORT FOR SAMPLES FROM WASTE MANAGEMENT AREA C FOR WELL C7570

1.0 INTRODUCTION

This final report is a reissue of report ATL-20100400 Rev.0. Changes are based on the Report Comment Record (RCR) received from the Vadose customer (see Attachment 8). In addition the results of the reanalysis of ⁹⁹Tc from report ATL-20101214 have been incorporated.

This final report presents the results for the samples taken from Waste Management Area C between May 11, 2010 and May 12, 2010. The samples were analyzed in accordance with RPP-PLAN-44354, *Field Sampling and Analysis Plan for Soil Samples at Well C7570 - Waste Management Area C* (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 in 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 Report
Attachment 4	Geological Report
Attachment 5	Characterization Change Notices (CCN) and Correspondence
Attachment 6	Receipt Paperwork

2.0 GENERAL DISCUSSION

From the original inductively coupled plasma/mass spectrometry (ICP/MS) analysis of the samples of bore hole C7570, results above the quantitation limit were reported for ⁹⁹Tc (see ATL-20100400, *Final Analytical Report for Samples from Waste Management Area C For Well C7570*, Rev.0) for all samples in the acid digested aliquot. In an effort to determine the nature of the positive results for ⁹⁹Tc, ATL was asked by the client to re-prepare and reanalyze the samples (see Attachment 5). The reanalysis was performed using an ICP/MS with a collision cell, which the original ICP/MS analysis did not use. Both water-digested and acid-digested aliquots were analyzed. In addition, these new aliquots were analyzed by chemical separation followed by liquid scintillation counting (LSC). A detailed comparison of these results were discussed in ATL-20101214, *Final Analytical Report of a Comparative Analysis for Technetium-99 in Samples from Waste Management Area C, Well C7570*, Rev.0. Using the new ICP/MS analysis and the confirming radiochemistry results, the laboratory concluded that the original positive results were due to isobaric interferences. Based on this the client and the laboratory agreed the second ICP/MS results should be reported in place of the original result (see Attachment 5). These are

presented in Attachment 1. Since the radiochemistry analysis was only used for confirmation, the LSC results have not been reported.

3.0 SAMPLE RECEIPT AND BREAKDOWN

3.1 SAMPLE RECEIPT

A total of four split spoon samples from four intervals from borehole C7570 along with one field blank were received by the 222-S Laboratory on May 12, 2010. The samples were delivered in a cooler with ice. The temperatures of the samples (temperature blanks were not available) were measured and recorded on the sample receipt checklist. Samples B248D4, B248B5, and B248B6 were received above the required temperature in the FSAP (4 °C) at 12 °C.

3.2 SAMPLE BREAKDOWN

The borehole samples were described and homogenized by the Washington River Protection Solutions, Inc. (WRPS) geologist. The geologist's report is included in Attachment 4.

4.0 ANALYTICAL RESULTS SUMMARY

The Data Summary Report (Attachment 1) presents the final analytical results for those analytes requested in the FSAP. In addition to the analyses requested in the FSAP, CCN WMAC-002 requests that the laboratory standard acid digest be used for ⁹⁹Tc by inductively coupled plasma/mass spectroscopy (ICP/MS). Based on the instruction on the chain of custody form, pH analysis was also performed on all samples.

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

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 that were prepared by SW-846 3050B.

"WV" indicates samples that 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 that are defined as follows:

"B" indicates that the reported result should be considered an estimate because it is below the estimated quantitation limit.

"U" indicates that the reported result is less than the calculated method 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.

4.1 SAMPLE DIGESTIONS

4.1.1 SW-846 3050B - Acid Digestion-Heating Block

This acid digestion follows SW-846 3050B, which uses a heating block and nitric and hydrochloric acids. An aliquot of approximately 4 g of 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. The digestion is modified for the ^{99}Tc analysis by using only nitric acid. This is done to eliminate the possibility of the formation a zinc-chlorine ion pair of mass 99. The laboratory believes this ion, when present, is responsible for low level false positives. The matrix spikes used with this digestion are pre-digestion spikes.

4.1.2 Vadose Water Digestion

A 30-g 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. They were then transferred to a centrifuge tube and centrifuged at 4,000 rpm for 30 minutes and filtered using a disposable vacuum filtration system. The filtrates were transferred to a clean bottle and then analyzed for nitrate using an ion chromatograph and for ^{99}Tc using ICP/MS. Due to the size of the aliquot, the matrix spikes used with this digestion are post-digestion spikes.

4.2 INORGANIC ANALYSES

4.2.1 pH Analysis

The pH analysis was performed on all samples. These analyses met all quality control (QC) requirements in the FSAP and QAPP. SW-846 lists a pH holding time requirement of "as soon as possible." All soil pH measurements were taken after the samples were released for analysis by the WRPS geologist. The sampling to analysis times for the soil composite samples varied from 5.5 to 6.4 days (see Attachment 3). The water sample was analyzed 2.5 days after sampling.

4.2.2 Ion Chromatography – Anions and Small Organic Acids

Ion chromatography analysis was performed on all samples. SW-846 lists holding time requirements for nitrate by IC of 48 hours after sampling for water and 48 hours after digestion for soil. All holding times were met except for the equipment blank sample, which was analyzed in 56 hours. This sample was not received by the laboratory until 31 hours after sampling. The laboratory met the target and required detection limits in the FSAP for this analysis. There were no notable issues with these batches, and all QC requirements in the FSAP and the QAPP were met.

4.2.3 Inductively Coupled Plasma/Mass Spectroscopy – Technetium-99

Technetium-99 analysis was performed on all samples. The target detection limit listed in the FSAP for ^{99}Tc was not met for the acid digested results but was achieved for the vadose water

analysis. There was no required detection limit in the FSAP. The FSAP lists a holding time of 6 months for ^{99}Tc . The original analyses met this holding time, however the reanalysis results reported in Attachment 1 were analyzed beyond the holding time. There were no notable issues with these batches, and all QC requirements in the FSAP and the QAPP were met.

5.0 PROCEDURES

Table 1 lists the analytical procedures used for analysis of the Area C samples.

Table 1. Analytical Procedures

Analysis	Preparation Method (Solids)	Analysis Procedure
Inorganic Analyses		
pH (solid)	LA-212-105, Rev. G-0 (SW-846 9045D)	LA-212-105, Rev. G-0 (SW-846 9045D)
pH (liquid)		LA-212-106, Rev. H-0 (SW-846 9040C)
Anions & Organic Acids – IC	08-ATL-078 Vadose Water Digest	LA-533-115, Rev. J-0
^{99}Tc – ICP/MS	LA-505-163, Rev. G-0 (SW-846 3050B) LA-505-102, Rev. A-0 Vadose Water Digest	LA-506-103, Rev. B-0

6.0 REFERENCES

- ATL-MP-1011, 2010, *ATL Quality Assurance Project Plan for 222-S Laboratory*, Rev. 9, Advanced Technologies and Laboratories International, Inc., 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.
- RPP-PLAN-44354, 2010, *Field Sampling and Analysis Plan for Soil Samples at Well C7570 - Waste Management Area C*, Rev. 0, Washington River Protection Solutions, Inc.
- ATL-20101214, *Final Analytical Report of a Comparative Analysis for Technetium-99 in Samples from Waste Management Area C, Well C7570*, Rev.0. Advanced Technologies and Laboratories International, Inc., Richland, Washington.

Attachment 1

DATA SUMMARY REPORT

Data Summary Report

Sample Group: 20100399

Core Number: C7570

Customer Sample ID: B248D4

Sample Depth: Equipment Blank

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S10V000950			14133-76-7	Technetium-99	ug/mL	99.1	<4.00E-07	<4.00E-07	n/a	n/a	n/a	n/a	4.00E-07	n/a	U
S10V000951			14797-55-8	Nitrate	ug/mL	98.8	<0.0208	0.0992	0.0821	0.0907	18.9	101	0.0208	n/a	B
S10V000951			PH	pH	unitless	n/a	n/a	4.84	4.86	4.85	0.412	n/a	0.0100	n/a	

NA = Not Analyzed, ND = Not Detected

U - Less Than Detection Limit

B - Estimated

Data Summary Report

Sample Group: 20100400

Core Number: C7570

Customer Sample ID: B248B3

Sample Depth: 246-248

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S10V000952			%WATERA	%WATER-APD	%	n/a	n/a	6.070	n/a	n/a	n/a	n/a	0.01000	n/a	
S10V000952			WT%SOLID	Weight percent solids	%	n/a	n/a	93.9	n/a	n/a	n/a	n/a	0.0100	n/a	
S10V000952			PH	pH	unitless	n/a	n/a	8.64	8.65	8.64	0.116	n/a	0.0100	n/a	

NA = Not Analyzed, ND = Not Detected

U - Less Than Detection Limit

B - Estimated

Data Summary Report

Sample Group: 20101214

Core Number: C7570

Customer Sample ID: B248B3

Sample Depth: 246-248

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Crt Err %	Qual Flags
S10V003577		A	14133-76-7	Technetium-99	ug/g	113	<6.00E-05	<5.97E-04	n/a	n/a	n/a	n/a	5.97E-04	n/a	U

NA = Not Analyzed, ND = Not Detected

U - Less Than Detection Limit

B - Estimated

Data Summary Report

Sample Group: 20101214

Core Number: C7570

Customer Sample ID: B248B3 WE

Sample Depth: 246-248

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S10V003576		WV	14133-76-7	Technetium-99	ug/g	105	<6.00E-06	<5.99E-06	n/a	n/a	n/a	n/a	5.99E-06	n/a	U

NA = Not Analyzed, ND = Not Detected

U - Less Than Detection Limit

B - Estimated

Data Summary Report

Sample Group: 20100400
 Core Number: C7570
 Customer Sample ID: B248B3 WE
 Sample Depth: 246-248

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S10V000956		WV	14797-55-8	Nitrate	ug/g	99.9	<0.0208	22.1	n/a	n/a	n/a	n/a	0.119	n/a	

NA = Not Analyzed, ND = Not Detected

U - Less Than Detection Limit

B - Estimated

Data Summary Report

Sample Group: 20100400

Core Number: C7570

Customer Sample ID: B248B4

Sample Depth: 249.4-251.4

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S10V000953			%WATERA	%WATER-APD	%	n/a	n/a	2.770	n/a	n/a	n/a	n/a	0.01000	n/a	
S10V000953			WT%SOLID	Weight percent solids	%	n/a	n/a	97.2	n/a	n/a	n/a	n/a	0.0100	n/a	
S10V000953			PH	pH	unitless	n/a	n/a	8.70	n/a	n/a	n/a	n/a	0.0100	n/a	

NA = Not Analyzed, ND = Not Detected

U - Less Than Detection Limit

B - Estimated

Data Summary Report

Sample Group: 20101214

Core Number: C7570

Customer Sample ID: B248B4

Sample Depth: 249.4-251.4

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S10V003641		A	14133-76-7	Technetium-99	ug/g	113	<6.00E-05	<6.01E-04	<5.96E-04	n/a	n/a	91.4	6.01E-04	n/a	U

NA = Not Analyzed, ND = Not Detected

U - Less Than Detection Limit

B - Estimated

Data Summary Report

Sample Group: 20101214

Core Number: C7570

Customer Sample ID: B248B4 WE

Sample Depth: 249.4-251.4

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S10V003640		WV	14133-76-7	Technetium-99	ug/g	105	<6.00E-06	<6.03E-06	n/a	n/a	n/a	n/a	6.03E-06	n/a	U

NA = Not Analyzed, ND = Not Detected

U - Less Than Detection Limit

B - Estimated

Data Summary Report

Sample Group: 20100400

Core Number: C7570

Customer Sample ID: B248B4 WE

Sample Depth: 249.4-251.4

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S10V000957		WV	14797-55-8	Nitrate	ug/g	99.9	<0.0208	6.80	6.99	6.90	2.80	102	0.127	n/a	

NA = Not Analyzed, ND = Not Detected

U - Less Than Detection Limit

B - Estimated

Data Summary Report

Sample Group: 20100400

Core Number: C7570

Customer Sample ID: B248B5

Sample Depth: 254-256

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S10V000954			%WATERA	%WATER-APD	%	n/a	n/a	2.720	n/a	n/a	n/a	n/a	0.01000	n/a	
S10V000954			WT%SOLID	Weight percent solids	%	n/a	n/a	97.3	n/a	n/a	n/a	n/a	0.0100	n/a	
S10V000954			PH	pH	unitless	n/a	n/a	8.65	n/a	n/a	n/a	n/a	0.0100	n/a	

NA = Not Analyzed, ND = Not Detected

U - Less Than Detection Limit

B - Estimated

Data Summary Report

Sample Group: 20101214

Core Number: C7570

Customer Sample ID: B248B5

Sample Depth: 254-256

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S10V003644		A	14133-76-7	Technetium-99	ug/g	113	<6.00E-05	<6.08E-04	n/a	n/a	n/a	n/a	6.08E-04	n/a	U

NA = Not Analyzed, ND = Not Detected

U - Less Than Detection Limit

B - Estimated

Data Summary Report

Sample Group: 20101214

Core Number: C7570

Customer Sample ID: B248B5 WE

Sample Depth: 254-256

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S10V003643		WV	14133-76-7	Technetium-99	ug/g	105	<6.00E-06	<5.98E-06	<5.99E-06	n/a	n/a	118	5.98E-06	n/a	U

NA = Not Analyzed, ND = Not Detected

U - Less Than Detection Limit

B - Estimated

Data Summary Report

Sample Group: 20100400

Core Number: C7570

Customer Sample ID: B248B5 WE

Sample Depth: 254-256

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S10V000958		WV	14797-55-8	Nitrate	ug/g	99.9	<0.0208	8.55	n/a	n/a	n/a	n/a	0.116	n/a	

NA = Not Analyzed, ND = Not Detected

U - Less Than Detection Limit

B - Estimated

Data Summary Report

Sample Group: 20100400

Core Number: C7570

Customer Sample ID: B248B6

Sample Depth: 260-262

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S10V000955			%WATERA	%WATER-APD	%	n/a	n/a	7.310	n/a	n/a	n/a	n/a	0.01000	n/a	
S10V000955			WT%SOLID	Weight percent solids	%	n/a	n/a	92.7	n/a	n/a	n/a	n/a	0.0100	n/a	
S10V000955			PH	pH	unitless	n/a	n/a	8.53	n/a	n/a	n/a	n/a	0.0100	n/a	

NA = Not Analyzed, ND = Not Detected

U - Less Than Detection Limit

B - Estimated

Data Summary Report

Sample Group: 20101214

Core Number: C7570

Customer Sample ID: B248B6

Sample Depth: 260-262

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S10V003647		A	14133-76-7	Technetium-99	ug/g	113	<6.00E-05	<6.05E-04	n/a	n/a	n/a	n/a	6.05E-04	n/a	U

NA = Not Analyzed, ND = Not Detected

U - Less Than Detection Limit

B - Estimated

Data Summary Report

Sample Group: 20101214

Core Number: C7570

Customer Sample ID: B248B6 WE

Sample Depth: 260-262

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S10V003646		WV	14133-76-7	Technetium-99	ug/g	105	<6.00E-06	<6.03E-06	n/a	n/a	n/a	n/a	6.03E-06	n/a	U

NA = Not Analyzed, ND = Not Detected

U - Less Than Detection Limit

B - Estimated

Data Summary Report

Sample Group: 20100400

Core Number: C7570

Customer Sample ID: B248B6 WE

Sample Depth: 260-262

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S10V000959		WV	14797-55-8	Nitrate	ug/g	99.9	<0.0208	0.165	n/a	n/a	n/a	n/a	0.134	n/a	B

NA = Not Analyzed, ND = Not Detected

U - Less Than Detection Limit

B - Estimated

Attachment 2

SAMPLE BREAKDOWN DIAGRAM

Project: Well C7570
Group 20100399
Core No.: C7570

Segment No. Equipment Blank
Customer I: B248D4

Liquid



S10V000950
ICP/MS, Tc-99

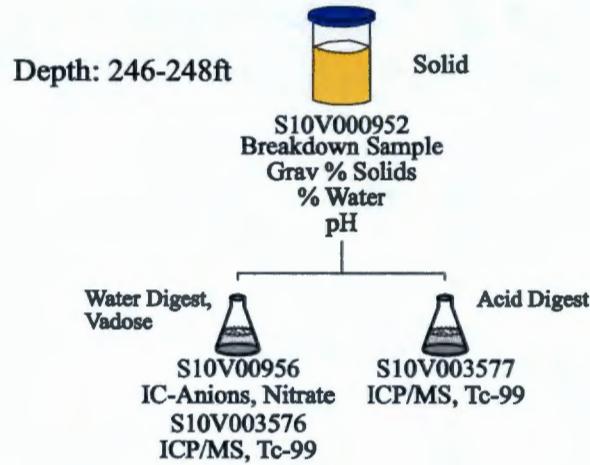
Liquid



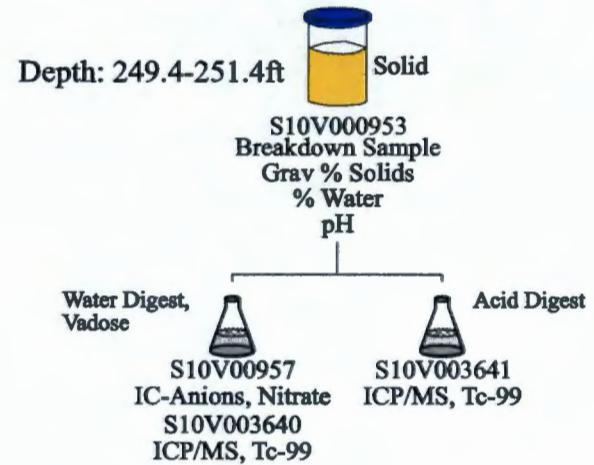
S10V000951
IC - Anions Nitrate
pH

Project: Well C7570
 Group No: 20100400, 20101214
 Core: C7570

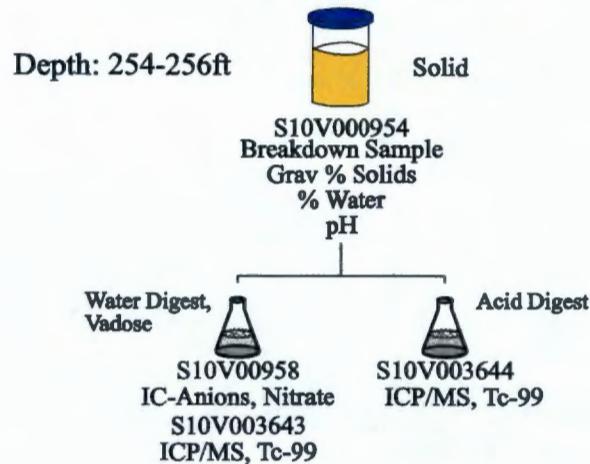
Customer Sample ID: B248B3



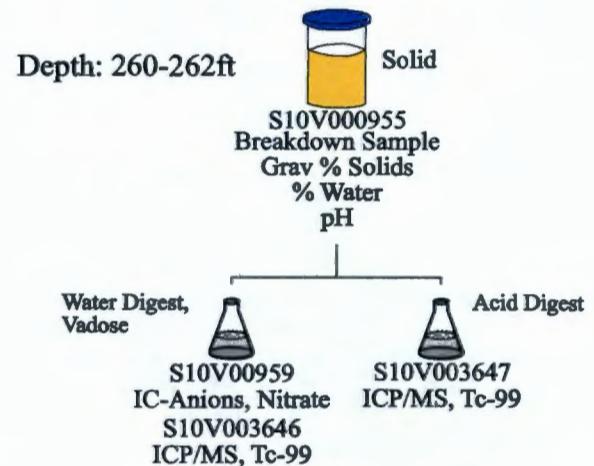
Customer Sample ID: B248B4



Customer Sample ID: B248B5



Customer Sample ID: B248B6



Attachment 3

HOLDING TIME REPORT

Hold Time Report: pH

Sample Group	Sample	Matrix	Method	Prep Method	Sample Date	Received Date	Prep Date	Analysis Date	Lapse Time (Days)
20100399	S10V000951	LIQUID	SW-846 9040C		05/11/10 07:30	05/12/10 14:30	N/A	05/13/10 20:07	2.5
20100400	S10V000952	SOLID	SW-846 9045D	SW-846 9045D	05/11/10 13:15	05/12/10 08:30	N/A	05/17/10 23:35	6.4
20100400	S10V000953	SOLID	SW-846 9045D	SW-846 9045D	05/11/10 14:15	05/12/10 08:30	N/A	05/17/10 23:35	6.4
20100400	S10V000954	SOLID	SW-846 9045D	SW-846 9045D	05/12/10 08:58	05/12/10 14:30	N/A	05/17/10 23:35	5.6
20100400	S10V000955	SOLID	SW-846 9045D	SW-846 9045D	05/12/10 10:45	05/12/10 14:30	N/A	05/17/10 23:35	5.5

Holding Time Report: IC Nitrate

Sample Group	Sample	Matrix	Method	Prep Method	Sample Date	Received Date	Prep Date	Analysis Date	Missed Holding Time
20100399	S10V000951	LIQUID	SW-486 9056A		05/11/10 07:30	05/12/10 14:30	N/A	05/13/10 15:41	Y
20100400	S10V000956	SOLID	SW-486 9056A	Vadose Water Digest	05/11/10 13:15	05/12/10 08:30	06/09/10	06/09/10 23:36	N
20100400	S10V000957	SOLID	SW-486 9056A	Vadose Water Digest	05/11/10 14:50	05/12/10 08:30	06/09/10	06/10/10 00:08	N
20100400	S10V000958	SOLID	SW-486 9056A	Vadose Water Digest	05/12/10 08:58	05/12/10 14:30	06/09/10	06/10/10 01:44	N
20100400	S10V000959	SOLID	SW-486 9056A	Vadose Water Digest	05/12/10 10:45	05/12/10 14:30	06/09/10	06/10/10 02:16	N

Hold Time Report: ICP/MS Tc-99

Sample Group	Sample	Matrix	Method	Prep Method	Sample Date	Received Date	Prep Date	Analysis Date	Missed Holding Time
20100399	S10V000950	LIQUID	ICP/MS Tc-99		05/11/10 07:30	05/12/10 14:30	N/A	6/28/2010	N
20101214	S10V003577	SOLID	ICP/MS Tc-99	SW-846 3050B	05/11/10 13:15	05/12/10 08:30	12/29/2010	2/1/2011	Y
20101214	S10V003641	SOLID	ICP/MS Tc-99	SW-846 3050B	05/11/10 14:50	05/12/10 08:30	12/29/2010	2/1/2011	Y
20101214	S10V003644	SOLID	ICP/MS Tc-99	SW-846 3050B	05/12/10 08:58	05/12/10 14:30	12/29/2010	2/1/2011	Y
20101214	S10V003647	SOLID	ICP/MS Tc-99	SW-846 3050B	05/12/10 10:45	05/12/10 14:30	12/29/2010	2/1/2011	Y
20101214	S10V003576	SOLID	ICP/MS Tc-99	Vadose Water Digest	05/11/10 13:15	05/12/10 08:30	01/20/2011	2/1/2011	Y
20101214	S10V003640	SOLID	ICP/MS Tc-99	Vadose Water Digest	05/11/10 14:50	05/12/10 08:30	01/20/2011	2/1/2011	Y
20101214	S10V003643	SOLID	ICP/MS Tc-99	Vadose Water Digest	05/12/10 08:58	05/12/10 14:30	01/20/2011	2/1/2011	Y
20101214	S10V003646	SOLID	ICP/MS Tc-99	Vadose Water Digest	05/12/10 10:45	05/12/10 14:30	01/20/2011	2/1/2011	Y

Attachment 4

GEOLOGICAL REPORT

Table A-1 Geologic descriptions of Well 7570 outside C farm samples. Described during sample breakdown by Gary A. Cooke, WA State Professional Geologist, #2785.

Sample ID	Laboratory I.D.	Date examined	Description
B248B3 246' - 248' S10V000952	S10V000952	5/19/2010	(gm)S slightly gravelly, slightly muddy sand. Slightly moist. Poorly sorted sand, dominantly medium sand with minor gravel and mud. Gravel is sub-angular to sub-rounded. Mud occurs as clay clasts, (slightly cohesive, easily broken), and loose silt, trace mica. Slightly salt and pepper texture, largest fragment 16mm (excluded) Color:2.5Y6/3 Acid reactivity: Moderate
B248B4 249.4' - 251.4' S10V000953	S10V000953	5/19/2010	gS gravelly sand, very slightly moist. Poorly sorted sand and gravel, rounded to sub-angular. Largest fragment 18mm, five pieces excluded, little or no silt, trace mica. Color: 2.5Y6/3 Acid reactivity: slight to moderate
B248B5 254' - 256'* S10V000954	S10V000954	5/19/2010	gS gravelly sand, dry. Poorly sorted, sand and gravel, minor silt. Gravel: rounded to sub-angular, largest fragment 18mm, two pieces excluded. Scattered white grains dissolve in acid, trace mica. Color : 2.5Y6/2 Acid reactivity: Moderate
B248B6 260' - 262' S10V000955	S10V000955	5/19/2010	sG sandy gravel. Moist to wet, free moisture inside bottle, salt and pepper texture, poorly sorted, medium sand, medium to fine gravel, sub-rounded to angular, largest fragment 16mm, two pieces excluded. Mix of mafic and felsic material, trace mica. Color: 2.5Y4/2 Acid reactivity: slight

Munsell colors were determined using the 2.5Y color card.

* Initial chain of custody had 252'-254' as the depth for this sample, therefore the original breakdown sheets in the raw data (generated prior to the correction) reflect that depth.

Well 7570 Photographic Log and Scanned Geologic Descriptions
12/03/2010

Figure A-1 Sample B248B3, 246-248 feet.

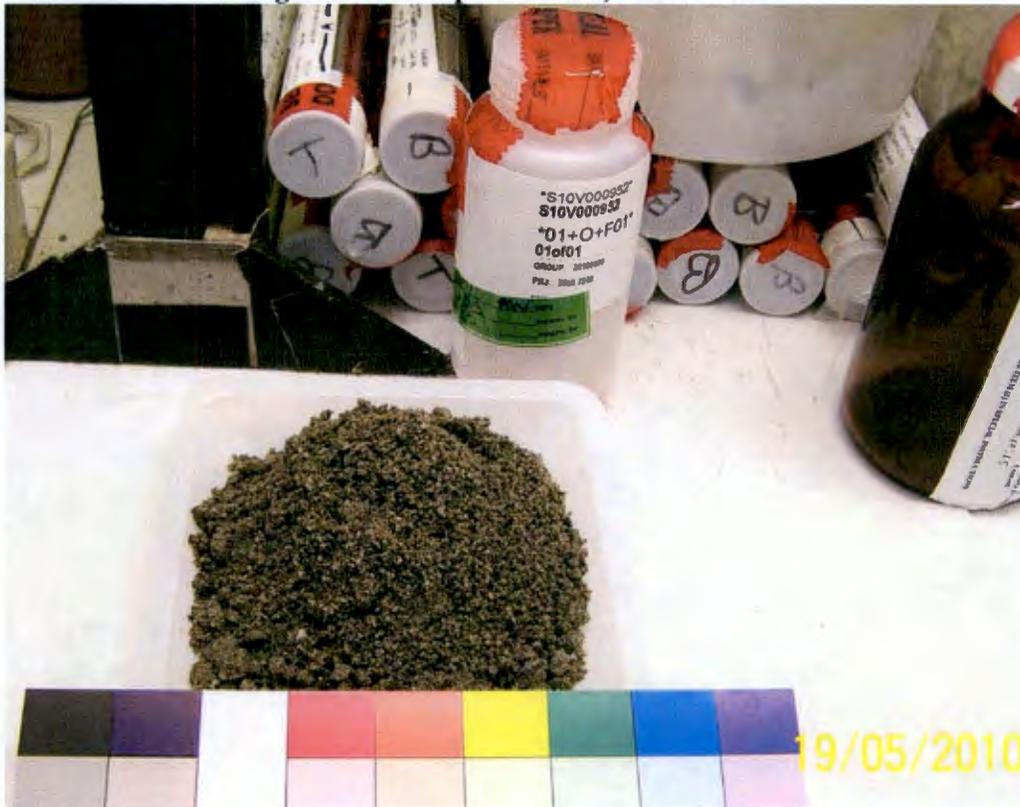


Figure A-2 Sample B248B4, 249.4-251.4 feet.



Figure A-3 Sample B248B5, 254-256 feet.



Figure A-4 Sample B248B6, 260-262 feet.



Attachment 5

CHARACTERIZATION CHANGE NOTICES
AND CORRESPONDENCE

REVIEW COMMENT RECORD (RCR)				1. Date 2/11/2011		2. Review No.		
				3. Project No.		Page 1 of 1		
5. Document Number(s)/Title(s) ATL#201000400 Rev.0 Final Analytical Report for Samples from Waste Management Area C for Core Hole C7570, in Support of RCRA Soil Characterization			6. Program/Project/Building Number WRPS		7. Reviewer HL Anastos		8. Organization/Group Closure and Corrective Measures	9. Location/Phone 1200 Jadwin/ Rm. 301 373-2616
17. Comment Submittal Approval			10. Agreement With Indicated Comment Disposition(s)			11. CLOSED		
Date _____ Organization Manager (optional) (print and sign)			8-4-11 Date HL Anastos <i>HL Anastos</i> Reviewer/Point of Contact (print and sign)			8-4-11 Date HL Anastos <i>HL Anastos</i> Reviewer/Point of Contact (print and sign)		
			GP Ritenour <i>GP Ritenour</i> Author/Originator (print and sign)			GP Ritenour <i>GP Ritenour</i> Author/Originator (print and sign)		
12. Item	13a. Comments	13b. Basis	13c. Recommendation	14. Reviewer Concurrence Required (Y or N)	15. Disposition (provide justification if NOT accepted)	16. Status		
1	B248B4 has incorrect sampling depth (249'-251') on SBD and DSR.	COC Review	Correct sampling depths correct depth is 249.4'-251.4'.	Y	Fixed	<i>Closed</i>		
2	COC V10-007-001 relinquished time and received time are different.	COC Review	Document discrepancy on RCR.	N	N/A	CLOSED		
3	COC V10-007-002 relinquished time and received time are different.	COC Review	Document discrepancy on RCR.	N	N/A	CLOSED		

**VADOSE ZONE
CHARACTERIZATION CHANGE NOTICE**

Document: RPP-PLAN-44354 Rev 0 **Change Number:** WMAC-002 **ECN to TSAP Required?** Y / N

Requestor: Heather L. Anastos **Date:** 11-22-10

Original Requirement: Original document only required performing Tc-99 analysis on 1:1 water digest (e.g., Table 3-1). CCN WMAC-002 associated with this plan directed analysis of Tc-99 to be performed on both an acid digest and a 1:1 water leach.

Samples Impacted: Following samples collected in C Farm at C7570: B248B3, B248B4, B248B5, and B248B6.

Technetium-99 was detected in these samples (intervals at 246' – 262') in the acid digest samples; however, no Tc-99 was detected in the water leach samples. Additional analysis is requested to investigate this anomaly.

Proposed Change: For the samples listed above, reanalyze Tc-99 by both acid digest and water leach using radiochemistry separation followed by liquid scintillation counting and via ICP/MS.

Reason for Change: Encountered unexpected results

Date Change Effective: 11-22-10

Schedule Impact: The ICP/MS instrument is currently out-of-service due to maintenance activities. The instrument is expected to be returned to service on or around 12/15/2010. The laboratory has 30 days from when the instrument is returned to service to perform this requested analysis. Reporting requirements will be a letter report with data summary tables.

Authorization:

<p>Vadose Zone ROC (Print/Sign): C.L. Tabor <u>HL Anastos for CLT per telecon</u> HL Anastos</p>	<p>Date: <u>12-3-2010</u></p>
<p>Vadose Zone Quality Assurance (Print/Sign): K.J. Dunbar <u>KJD</u></p>	<p>Date: <u>11-29-10</u></p>
<p>222-S Project Coordinator (Print/Sign): S.G. McKinney <u>Steve McKinney</u></p>	<p>Date: <u>12-6-10</u></p>
<p>ATL Project Coordinator (Print/Sign): G.P. Ritenour <u>Genal Ritenour</u></p>	<p>Date: <u>12-6-10</u></p>
<p>Lab Interface Lead (Print/Sign): H.L. Anastos <u>HL Anastos</u></p>	<p>Date: <u>11/22/2010</u></p>

cc: S. J. Eberlein, K. M. Hall, Dana Stewart, Dave Myers, Penny Berlin, Eric Wyse, Mike Connelly, Harold Sydnor, Cindy Tabor

VADOSE ZONE
CHARACTERIZATION CHANGE NOTICE

Document: RPP-PLAN-44354 Rev 0 Change Number: WMAC-002 ECN to TSAP Required? Y / N

Requestor: Cynthia L. Tabor Date: 5-19-10

Original Requirement: The plan indicates that the preparation method for technetium-99 is the 1:1 water digest (Section 3.0). Change Notice WMAC-001 requested the laboratory to use acid digest preparation method.

Samples Impacted: All soil samples identified in the plan.

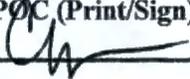
Proposed Change: The purpose of this change notice is to direct the laboratory to do the technetium-99 analyses on both water digest and the acid digest preparation method.

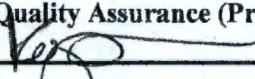
Reason for Change: Both preparation methods for technetium-99 are being requested in order to have consistent data analyses (i.e., previous technetium-99 analysis by PNNL was performed on both preparation methods). Both methods allow for calculating various factors such as the K_d coefficient, which can be used to help determine vertical migration.

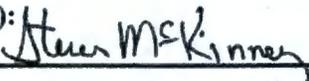
Date Change Effective: 5-17-10

Schedule Impact: None

Authorization:

Vadose Zone POC (Print/Sign): C.L. Tabor  Date: 5/24/10

Vadose Zone Quality Assurance (Print/Sign): K.J. Dunbar  Date: 5-24-10

222-S Project Coordinator (Print/Sign): S.G. McKinney  Date: 5-24-10

ATL Project Coordinator (Print/Sign): G.P. Ritenour  Date: 5-24-2010

Other (Optional, Print/Sign): _____ Date: _____

From: [Anastos, Heather L](#)
To: [Ritenour, Gerald P](#)
Cc: [McKinney, Steve G](#)
Subject: RE: Well 7570 ATL 20100400 Reissue as RPP-RPT-50450Rev0
Date: Thursday, August 11, 2011 8:10:35 AM

I agree.

Heather Anastos

Chemist, Closure & Corrective Measures
(509) 373-2616
2440 Stevens/Rm 1516



contractor to the United States Department of Energy

From: Ritenour, Gerald P
Sent: Thursday, August 11, 2011 7:58 AM
To: Anastos, Heather L
Cc: McKinney, Steve G
Subject: Well 7570 ATL 20100400 Reissue as RPP-RPT-50450Rev0

Heather,

As you probably recall this well had positive results for Tc in the acid digest and these results were presented in the initial report. Our Tc study using the samples in this report showed these results to be a false positives due to interferences. For the Tc Study we use both ICP/MS with a collision cell (Agilent) and Radiochemical separation/LSC to confirm. I'm not sure how you would like the final report for the RPP doc to present all this. My suggestion would be to drop the original ICP/MS Tc analysis and report the second one, with an explanation and reference to the radiochemical confirmation of the second result. Let me know if this works.

Thanks JR

*Gerald "JR" Ritenour
Project Manager
ATL Analytical Operations
Advanced Technologies and Laboratories International, Inc.
Contractor to the Office of River Protection
U.S. Department of Energy
(509) 372-2742 office
(509) 438-8837 cell
gerald_p_ritenour@rl.gov*

From: [Tabor, Cynthia L](#)
To: [McKinney, Steve G](#); [Ritenour, Gerald P](#)
Cc: [Dunbar, Kathryn J](#); [Berlin, Penelope](#)
Subject: FW: Five M-24 RCRA Monitoring Wells - C7570 - Daily Status Update for May 12, 2010
Date: Friday, September 10, 2010 8:39:07 AM
Attachments: [FW_HNF-N-585-12_page 7_attached.msg](#)

<http://idmsweb/idms/livmlink.exe?func=ll&objId=149398113&objAction=browse&viewType=1>

Hi all

There were some problems with the COCs regarding depths not being recorded as an interval (e.g, just used 254'). I found out the actual sample intervals and the documentation from PRC is below. We will need to COCs and lab data info updated with this info.

Let me know if you have any questions..

Thanks Cindy

From: Bentti, Emily E
Sent: Thursday, September 09, 2010 3:24 PM
To: Tabor, Cynthia L
Cc: Hogan, James G
Subject: FW: Five M-24 RCRA Monitoring Wells - C7570 - Daily Status Update for May 12, 2010

Cynthia –

I believe below is the documentation you need in regards to the question you had about the interval sampled for C7570 (I attached Jim's original email to me, including your original email to Dale Dyekman). Let me know if I can help with anything else.

Emily Bentti

From: Betsy Woodward [mailto:betsywoodward@gofreestone.com]
Sent: Wednesday, May 12, 2010 4:39 PM
To: Betsy Woodward; Ryan Brauchla; Kim Schuyler; Pat Cabbage; Wright, Christopher S; Howard, Bonnie J; Capelle, David P; Mehrer, James D; Geiger, James B; Thomas, Greg S; Wittreich, Curtis D; 'labroui@graminc.com'; Dyekman, Dale L; Baechler, Michael A; Blankenship, Dorman D; Kaas, Jadie L; Thackaberry, W R (Bill); Gent, Philip M; Weekes, David C; Rizzo, Al G; Oldham, Richard W; Swanson, L Craig; Walker, Leslie D; Hall, Laura C; John Houck; Steve Airhart; Dan Tyler; Madsen, Blair D; Troy Stevens; Scott Brinton; Stiles, Kyle K; Fies, Gregory A; Kasza, Greg L; Williams, Bruce A; Bultena, Leonard D; Chris Lewallen; Thompson, Kathleen R; Elliott, Wanda S; Ayres, Doris E; Green, Amie J; Lee, Art K; Willette, Angela J
Subject: Five M-24 RCRA Monitoring Wells - C7570 - Daily Status Update for May 12, 2010

Installation of Five M-24 RCRA Monitoring Wells

Borehole C7570 (299-E27-24)

4 of 5 wells

May 12, 2010

Drilling activities at C7570 continued today. The borehole and 9-in. temporary casing were advanced to 278.8 ft bgs. Continuous RCT monitoring and morning IH monitoring detected no contamination. Two split-spoon samples were collected for chemical analysis. Sampling is summarized in the table below.

Interval	Sample Type	Depth (ft bgs)	HEIS #
I-003	Soil: Split-spoon	254-256	B248B5
I-004	Soil: Split-spoon	260-262	B248B6

Current depths:

Borehole 278.8 ft bgs
 9-in. Casing 278.8 ft bgs
 Water Level 266 ft bgs (5/12/10)
 Estimated TD 327 ft bgs

Drilling/sampling activities will continue tomorrow, starting with a water sample.

Betsy Woodward • Geologist

Freestone Environmental Services, Inc. • www.gofreestone.com

1100 Jadwin Ave., Suite 250 • Richland, WA 99352

Tel: 509.943.5222 • Cell: 509.378.8191 • Fax: 509.943.5454

| REGULATORY PLANNING | FIELD DATA COLLECTION AND REPORTING |
 | CONCEPTUAL MODEL DEVELOPMENT | SOIL AND GROUNDWATER CLEANUP |

Attachment 6

RECEIPT PAPERWORK

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

Date Samples Received: 5/12/10 Group #: 20100400
 Number of Samples: 2
 Sample Custodian: Cheryl Edwards

Sample Custodian to Complete:

Action	OK? (Y/N)	N/A	Comments
RSA/COC provided?	Y		
RSR provided?		N/A	
Verify GKI is complete	Y		In file
Check that outer custody seal is intact, if present	Y		
Record cooler temperature in centigrade, as appropriate	Y		<input type="checkbox"/> Check if no cooler and/or no ice <u>2°C</u>
Samples are intact and in good condition	Y		If No, provide comments on back
Verify that COC or RSA is accurate and complete, containing the following information:			
• Client name and client sample number	Y		
• Date and time of sampling	Y		
• Sampling location or origin	Y		
• Container type, size, and number	Y		
• Analysis request is clear	Y		
• Signature of persons relinquishing and receiving samples	Y		
• Date and/or time of sample custody exchange	Y		
Verify that sample numbers on containers match the COC and/or RSA	Y		
Samples stored properly (e.g., refrigeration)	Y		

Notify the PM immediately if any problems are noted. (A "No" answer requires Project Manager resolution.)

PM to Complete:

Samples acceptable for release? yes PM Initials CD Date 5/12/10
 If No, comment on communication and resolution: for GR

Other Comments:

Washington River Protection Solutions		COMPANY CONTACT TABOR, CL		TELEPHONE NO. 376-0988	PROJECT COORDINATOR DYEKMAN, DL	PRICE CODE 80	DATA TURNAROUND 60 Days / 60 Days
COLLECTOR <i>Kausel Romo, Agulina</i>		PROJECT DESIGNATION M-24 RCRA Well in WMA C - Soil		SAF NO. V10-007		AIR QUALITY <input type="checkbox"/>	
SAMPLING LOCATION C7570; I-001		FIELD LOGBOOK NO. <i>P56</i> <i>HNF-W-585-12</i>		ACTUAL SAMPLE DEPTH <i>246' to 240'</i>	COA	METHOD OF SHIPMENT	
ICE CHEST NO.		SHIPPED TO 222-S Lab Operations		OFFSITE PROPERTY NO.	BILL OF LADING/AIR BILL NO.		

MATRIX* A=Air DL=Drum L=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 5400.5 (1990/1993)	PRESERVATION Cool~4C	<i>2C</i>					
		TYPE OF CONTAINER G/P						
		NO. OF CONTAINER(S) 1						
		VOLUME 250mL					<i>N/A</i>	
		SPECIAL HANDLING AND/OR STORAGE	SAMPLE ANALYSIS SEE ITEM (1) IN SPECIAL INSTRUCTIONS					

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME				
B248B3	SOIL	5-11-10	1315	<input checked="" type="checkbox"/>			
					<i>N/A</i>		<i>N/A</i>

CHAIN OF POSSESSION	SIGN/ PRINT NAMES
RELINQUISHED BY/REMOVED FROM <i>Edward E. ...</i>	RECEIVED BY/STORED IN <i>MO-413 SSU-R2</i>
DATE/TIME 5-11-10 1520	DATE/TIME 5-11-10 1520
RELINQUISHED BY/REMOVED FROM <i>MO 413 SSU-R2</i>	RECEIVED BY/STORED IN <i>...</i>
DATE/TIME 5-12-10 0800	DATE/TIME 5-12-10 0830
RELINQUISHED BY/REMOVED FROM	RECEIVED BY/STORED IN
DATE/TIME	DATE/TIME
RELINQUISHED BY/REMOVED FROM	RECEIVED BY/STORED IN
DATE/TIME	DATE/TIME
RELINQUISHED BY/REMOVED FROM	RECEIVED BY/STORED IN
DATE/TIME	DATE/TIME
RELINQUISHED BY/REMOVED FROM	RECEIVED BY/STORED IN
DATE/TIME	DATE/TIME

SPECIAL INSTRUCTIONS

** The 200 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF.

** The laboratory shall provide the final data package to the Task Manager within 120 days of sample receipt.

(1)Percent Water (TF) {Percent moisture (wet sample)} IC Anions - 9056 {Nitrate} *ME 4/9/10*
 RADISO_ICPMS (TF) {Technetium-99}; pH(soil) - 9045 *UT 4/9/10*

20100400
510V000952

ORIGINAL

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

RPP-RPT-50450 Rev.0
CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

V10-007-002

PAGE 1 OF 1

Washington River Protection Solutions		COMPANY CONTACT TABOR, CL		TELEPHONE NO. 376-0988	PROJECT COORDINATOR DYEKMAN, DL	PRICE CODE 80	DATA TURNAROUND 60 Days / 60 Days	
COLLECTOR <i>Kaun, Rughine</i>		PROJECT DESIGNATION M-24 RCRA Well in WMA C - Soil		SAF NO. V10-007		AIR QUALITY <input type="checkbox"/>		
SAMPLING LOCATION C7570; I-002		FIELD LOGBOOK NO. <i>P56</i> <i>1NF-N-585-12</i>		ACTUAL SAMPLE DEPTH <i>249.4 to 251.4</i>	COA			METHOD OF SHIPMENT
ICE CHEST NO.		OFFSITE PROPERTY NO.		BILL OF LADING/AIR BILL NO.				
SHIPPED TO 222-S Lab Operations								

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 5400.5 (1990/1993)	PRESERVATION	Cool~4C	<i>20</i>
		TYPE OF CONTAINER	G/P	
		NO. OF CONTAINER(S)	1	
		VOLUME	250mL	
SPECIAL HANDLING AND/OR STORAGE		SAMPLE ANALYSIS		
		SEE ITEM (1) TH SPECIAL INSTRUCTIONS		

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME
B248B4	SOIL	5-11-10	1450 ✓

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
<i>Ed Kaun</i>	<i>5-11-10 1520</i>	<i>MO413 SSUR2</i>	<i>5-11-10 1520</i>
<i>MO413 SSUR2</i>	<i>5-12-10 0800</i>	<i>DEAN ANDERSON</i>	<i>5/10 0830</i>

SPECIAL INSTRUCTIONS

** The 200 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF.

** The laboratory shall provide the final data package to the Task Manager within 120 days of sample receipt.

(1) Percent Water (TF) {Percent moisture (wet sample)} IC Anions - 9056 {Nitrate} *WE*
RADISO_ICPMS (TF) {Technetium-99}; *PH (SOIL) - 9045* *CT 4/8/10*

20100400
SI0V000953  **ORIGINAL**

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

ATL	SAMPLE RECEIPT AND CHAIN OF CUSTODY VERIFICATION CHECKLIST	LO-090-101 Rev _____	
Date Samples Received: <u>5/12/10</u>		Group #: <u>20100399, 20100400</u>	
Number of Samples: <u>4</u>		<u>C7570</u>	
Sample Custodian: <u>Tu Ghol</u>			
Sample Custodian to Complete:			
Action	OK? (Y/N)	N/A	Comments
RSA/COC provided?	✓		
RSR provided?		✓	
Verify GKI is complete		✓	
Check that outer custody seal is intact, if present	✓		
Record cooler temperature in centigrade, as appropriate	✓		<input type="checkbox"/> Check if no cooler and/or no ice <u>Blank 12°C</u>
Samples are intact and in good condition	✓		If No, provide comments on back
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	✓		
• 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. (A "No" answer requires Project Manager resolution.)			
PM to Complete:			
Samples acceptable for release? <u>yes</u> PM Initials <u>BPn</u> Date <u>5-12-2010</u>			
If No, comment on communication and resolution:			
Other Comments:			

Washington River Protection Solutions		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				V10-008-001	PAGE 1 OF 1	
COLLECTOR Romo, Kruer, Aguilar		COMPANY CONTACT TABOR, CL		TELEPHONE NO. 376-0988	PROJECT COORDINATOR DYEKMAN, DL	PRICE CODE 70	DATA TURNAROUND 60 Days / 60 Days	
SAMPLING LOCATION C7570; I-004EB		PROJECT DESIGNATION M-24 RCRA Wells in WMA C - QC Sampling			SAF NO. V10-008	AIR QUALITY <input type="checkbox"/>		
ICE CHEST NO.		FIELD LOGBOOK NO. 17NF-W-585-12	ACTUAL SAMPLE DEPTH N/A	COA	METHOD OF SHIPMENT			
SHIPPED TO 222-S Lab Operations		OFFSITE PROPERTY NO.			BILL OF LADING/AIR BILL NO.			
MATRDX* 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 5400.5 (1990/1993)	PRESERVATION Cool~4C	HNO3 to pH <2	TYPE OF CONTAINER aG	aG	NO. OF CONTAINER(S) 1	1	
	SPECIAL HANDLING AND/OR STORAGE	SAMPLE ANALYSIS IC Anions - 9056 (Nitrate) - WE 4/10/10	RADISO_ICPMS (TF) (Technetium-99)					
VOLUME	250mL	250mL						
SAMPLE NO.		MATRIX*	SAMPLE DATE	SAMPLE TIME				
B248D4		WATER	5-11-10	0730				
			N/A					N/A
CHAIN OF POSSESSION		SIGN/ PRINT NAMES			SPECIAL INSTRUCTIONS			
RELINQUISHED BY/REMOVED FROM		DATE/TIME	RECEIVED BY/STORED IN		DATE/TIME	** The 200 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF.		
Rob Romo		5-11-10 1520	MO 413 55UR2		5-11-10 1520			
RELINQUISHED BY/REMOVED FROM		DATE/TIME	RECEIVED BY/STORED IN		DATE/TIME	** The laboratory shall provide the final data package to the Task Manager within 120 days of sample receipt.		
MO 413 554R2		5/12/10 0710	Rob Romo		5/12/10 0710			
RELINQUISHED BY/REMOVED FROM		DATE/TIME	RECEIVED BY/STORED IN		DATE/TIME	20100400394 DPR 5-15-10		
J. Moulton		5/12/10 1430	TO T. G. ...		5/12/10 1430	ORIGINAL		
RELINQUISHED BY/REMOVED FROM		DATE/TIME	RECEIVED BY/STORED IN		DATE/TIME	S10V000950 - Tc		
						S10V000951 - pH + Anions		
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			

Washington River Protection Solutions		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				V10-007-003	PAGE 1 OF 1
COLLECTOR <i>ROMO, AQUILIA</i>		COMPANY CONTACT TABOR, CL	TELEPHONE NO. 376-0988	PROJECT COORDINATOR DYEKMAN, DL		PRICE CODE 80	DATA TURNAROUND 60 Days / 60 Days
SAMPLING LOCATION C7570; I-003		PROJECT DESIGNATION M-24 RCRA Well in WMA C - Soil		SAF NO. V10-007		AIR QUALITY <input type="checkbox"/>	
ICE CHEST NO.		FIELD LOGBOOK NO. <i>HNF-1-585-12</i>	ACTUAL SAMPLE DEPTH <i>254' - 256'</i>		COA <i>OPR 11-23-10</i>	METHOD OF SHIPMENT	
SHIPPED TO 222-S Lab Operations		OFFSITE PROPERTY NO.		BILL OF LADING/AIR BILL NO.			
MATRIX* A=Air DL=Drum L=Liquid 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 5400.5 (1990/1993)		PRESERVATION Cool-4C				
			TYPE OF CONTAINER G/P				
			NO. OF CONTAINER(S) 1				
			VOLUME 250ml				
	SPECIAL HANDLING AND/OR STORAGE		SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS			
SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME				
B248B5	SOIL	<i>5/12/10</i>	<i>0858</i>				
CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS			
RELINQUISHED BY/REMOVED FROM <i>J. Moulton</i>	DATE/TIME <i>5/12/10 1430</i>	RECEIVED BY/STORED IN <i>T. T. T. T. T.</i>	DATE/TIME <i>5/12/10 0140</i>	** The 200 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF. ** The laboratory shall provide the final data package to the Task Manager within 120 days of sample receipt. (1)Percent Water (TF) {Percent moisture (wet sample)} IC Anions - 9056 {Nitrate} <i>WE</i> RADISO_ICPMS (TF) {Technetium-99}; <i>pH (soil) - 9.045</i> <i>CUT</i> <i>20100400</i> <i>SDV000954</i>  ORIGINAL <i>4/8/10</i>			
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			

