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FINAL REPORT FOR THE ARRA U-ANCILLARY HEPA FILTER COLLECTED IN MARCH 2010 – SAMPLE DELIVERY GROUP 222S20100123

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222-S LABORATORY

FINAL REPORT FOR THE ARRA U-ANCILLARY HEPA FILTER COLLECTED IN MARCH 2010 – SAMPLE DELIVERY GROUP 222S20100123

1.0 INTRODUCTION

This report presents the results for the HEPA filter sample received on March 22, 2010, from ARRA U-Ancillary sampling. The sample was analyzed in accordance with GC-LOI-10-0007, *Letter of Instruction for Analysis of HEPA Filter Sample from BOS U-Ancillary* (LOI); DOE/RL-2004-58, *Sampling and Analysis Plan for the U Plant Ancillary Facilities D&D Project, Balance of Site* (SAP); 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 customer point of contact (POC).

Due to the hazardous and complex nature of Hanford 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 for Primary Analytes
Attachment 2	Sample Breakdown Diagrams
Attachment 3	Holding Time Report
Attachment 4	Surrogate Recoveries
Attachment 5	Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Recoveries
Attachment 6	Correspondence
Attachment 7	Receipt Paperwork

The chain of custody (COC) forms requested metals analysis by the Toxic Characteristic Leaching Procedure (TCLP). However, the COC forms also indicated that the 20× rule be applied when TCLP is requested. The results obtained using the total metals analysis by inductively coupled plasma (ICP), ICP-mass spectrometry (ICP-MS), and total mercury methods were compared to 20× the TCLP regulatory levels. Since all results were below these levels, the TCLP analysis was not performed. The customer agreed with this approach (see correspondence in Attachment 6).

The "Analytical Performance Requirements for Solid" table in the SAP did not include all analytes requested in the LOI and on the COCs. However, the quality control limits provided for the limited set of analytes were applied to all analytes requested. This was agreed upon by the customer POC. Additionally, the customer was informed of the laboratory's inability to meet the duplicate precision criteria for all analytes. It is the laboratory's opinion that the failures were due to non-homogeneity of these analytes in the sample matrix and repreparation/reanalysis would not necessarily provide improved results. With a HEPA filter matrix, it is unlikely that material would be evenly distributed across the filter material. Since duplicate failures were observed from several different digestions, the customer concurred with proceeding without additional digestions or analyses (see correspondence in Attachment 6).

2.0 SAMPLE RECEIPT, HANDLING, AND APPEARENCE

Two HEPA filter samples, B243C0 and B243C1, were collected on March 19, 2010, and received at the 222-S Laboratory on March 22, 2010, in good condition and with adequate paperwork. The chain of custody indicated no preservation was required for the sample. However, SW-846 requires cooling to ≤ 6 °C for anions and mercury analysis. There was no evidence of cooling of the samples during delivery. The samples were placed in a refrigerator upon receipt. After receipt, the customer POC indicated that sample B243C1 was additional material provided for sample B243C0 and was to be used if needed to perform the requested analyses. A message was received indicating that B243C1 be cancelled (see Attachment 6.)

3.0 HOLDING TIMES

Attachment 3 presents the Holding Time Report for all methods with applicable holding times based on SW-846. As indicated in this attachment, all holding times were met.

4.0 ANALYTICAL RESULTS SUMMARY

The Data Summary Report (Attachment 1) presents the final analytical results for those analytes requested in the Sampling Authorization Form (SAF). The SAF and LOI list a number of metals to be reported by ICP-MS. Although not indicated, it was verbally agreed that the laboratory would only use the ICP-MS method (6020) to report those analytes for which we could not meet the requested detection limits by ICP.

The "Det Limit" column in Attachment 1 contains the method detection limit (MDL) for non-radionuclide analyses or the minimum detectable activity for radionuclides.

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

- "A" indicates samples prepared by an acid digest that follows SW-846 Method 3050B.
- "E" indicates samples prepared by a strong acid digest.
- "O" indicates samples that were extracted for organic analysis.
- "W" indicates samples that were prepared by a water digest.

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

The "Qual Flags" column in Attachment 1 contains data qualifier flags that are defined as follows:

- "B" indicates that the reported inorganic analyte result should be considered an estimate because the sample concentration is greater than the MDL but less than the quantitation limit.
- "J" indicates that the reported radionuclide result should be considered an estimate because the counting uncertainty is greater than 30%.
- "M" indicates that the relative percent difference (RPD) between the sample and the duplicate results for inorganic analytes is greater than 30%.

- "N" indicates that the MS was outside of range listed in the SAP.
- "U" indicates that the reported result is less than the calculated detection limit.
- "X" is a user defined flag. For this report, the "X" flag is applied to a result where the serial dilution by ICP did not meet the acceptance criteria. This is further discussed in section 4.1.4.

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

4.1 INORGANIC ANALYSES

4.1.1 pH Analysis

The pH of the samples was determined on direct aliquots. The pH LCS measurements and RPD between sample and duplicate results met the acceptance criteria in ATL-MP-1011.

4.1.2 Mercury

The Hg analysis was performed on acid-digested aliquots. The LCS recovery and spike recovery met the criteria in the SAP. The sample and duplicate results were less than the MDL; therefore, calculation of an RPD was not applicable. No Hg was detected in the method blank. The reported MDL met the required detection limit (RDL) in the SAP.

4.1.3 Ion Chromatography

Ion chromatography analysis was performed on water-digested aliquots. The LCS recoveries and MS recoveries and RPDs met the requirements in the SAP. No requested analytes were detected in the preparation blank. There were no RDL requirements in the SAP for anions analysis in a solid matrix.

4.1.4 Inductively Coupled Plasma/Atomic Emission Spectroscopy

The ICP/AES analysis was performed on acid-digested aliquots. All LCS recoveries met the requirements in the SAP. The analytes with RDLs listed in the SAP met the requirement, except for selenium. Therefore, selenium was reported from ICP-MS.

The RPDs exceeded 30% for iron, potassium, and manganese. For potassium and manganese, the results were less than the quantitation limit; therefore, the RPD criteria were not applicable. For iron, the results were greater than the quantitation limit; therefore, an "M" flag was applied to indicate the precision failure. As mentioned previously, it is the laboratory's opinion that the RPD failure was due to non-homogeneity of the material on the HEPA filter, and the customer accepted the results with the RPD failures (see Attachment 6).

The MS recoveries for iron, silicon, and uranium were outside of the limits listed in the SAP. For uranium, the concentration of analyte in the sample was greater than four times the spike concentration. Therefore, the spike recovery criteria are not applicable and no flag was applied. An "N" flag was applied to the iron and silicon results to indicate this failure. It is the laboratory's opinion that the failure of the matrix spike was also due to non-homogeneity of the material on the HEPA filter, as discussed for the RPD failures. Therefore, no repreparation or reanalysis was requested.

A low level of iron was detected in the preparation blank. A low level of silver was detected in one of the continuing calibration blanks. Since the concentrations of analyte in the blanks were less than the quantitation limits, no reanalysis was required.

For silicon, the post digestion spike had a recovery above the acceptance range listed in ATL-MP-1011. This failure, along with the MS failure, could indicate a sample matrix interference problem. In addition, the low level standard analyzed at the end of the analytical run had a recovery above the acceptable range. This could indicate a high bias in the results. The SAF requested analysis by SW-846 Method 6010. The typical acid digest for this analytical method is Method 3050. This digestion does not list silicon as an analyte that can be analyzed using this digestion. No other method is currently available at the 222-S Laboratory. Reanalysis and flagging of data is not required for these failures.

Note that the uranium result obtained from the ICP-MS analysis was approximately five times higher than the result obtained from the ICP-AES. This is an indication that the Method 3050 digest did not successfully dissolve the UO_3 that was expected to be on the filter. The ICP-MS analysis was performed using a much more rigorous digestion method.

4.1.5 Inductively Coupled Plasma/Mass Spectrometry

The ICP-MS analysis was performed on acid-digested aliquots. The requested analytes were total thorium and total uranium. The results were reported as ^{230}Th, ^{232}Th, ^{233}U, ^{234}U, ^{235}U, and ^{238}U. As discussed in Section 4.1.4, SW-846 Method 3050 digestion was not used for this analysis. An acid digestion using concentrated hydrochloric and nitric acids was used to get the uranium oxide into solution more effectively.

An LCS and MS were not prepared during the acid digestion. These quality control samples were prepared at the time of the instrument analysis.

The LCS recoveries and spike recoveries met the criteria in the SAP. No thorium or ^{233}U were detected in the samples; therefore, calculation of an RPD was not applicable. For the remaining uranium isotopes, all of the RPDs were greater than 30%. The ^{234}U result was below the quantitation limit; therefore, the RPD criteria were not applicable. The ^{235}U and ^{238}U results were flagged with an "M" to indicate the RPD failure. It is the laboratory's opinion that these high RPDs were due to non-homogeneous distribution of sample material on the HEPA filter. As discussed previously, the customer POC accepted the results without additional preparation or reanalysis (see Attachment 6). No required analytes were detected in the preparation blanks.

Direct calibration, where a standard containing the isotope and element of interest is used to calibrate the response of the isotope, is the most accurate type of calibration; however, standard material is not available for all the isotopes of interest. Concentrations of those isotopes without available standards are estimated based on the instrument's mass-response curve, which is generated by using the intensity/concentration relationship for the available isotope standards. Results estimated in this manner are designated "semi-quantitative." The 222-S Laboratory currently does not have standards available for calibration, calibration checks, or matrix spikes for ^{230}Th, ^{233}U, or ^{234}U. The results for these isotopes are all considered semi-quantitative.

4.2 RADIOCHEMICAL ANALYSIS

4.2.1 Total Alpha/Total Beta

The total alpha/total beta analysis was performed on acid-digested aliquots using the strong acid digest. The LCS recoveries, spike recoveries, and RPDs met the criteria in the SAP. The LCS and spike were prepared after the digestion. No alpha or beta activity was detected in the preparation blank. The reported minimum detectable activity (MDA) met the RDL requirement in the SAP.

4.2.2 Gamma Energy Analysis

The GEA was performed on acid-digested aliquots using the strong acid digest. The only isotopes requested in the LOI and the SAF were ^{137}Cs and ^{228}Th. Of these, the LCS contained only ^{137}Cs; the recovery met the criteria in the SAP. No ^{137}Cs was detected in the sample or duplicate. A low level of ^{228}Th was detected in the sample portion but not in the duplicate. Therefore, calculation of RPDs was not applicable. Neither isotope was detected in the preparation blank. There was no RDL requirement listed for ^{228}Th. The reported MDA for ^{137}Cs did not meet the RDL requirement in the SAP. The laboratory is unable to obtain the requested RDL.

4.2.3 Strontium-90

The ^{90}Sr analysis was performed on acid-digested aliquots using the strong acid digest. The LCS recovery and RPD met the criteria in the SAP. No ^{90}Sr activity was detected in the preparation blank. The reported MDA was approximately a factor of ten higher than the RDL requirement in the SAP. The laboratory is unable to obtain the requested RDL.

4.2.4 Americium-241

The ^{241}Am analysis was performed on acid-digested aliquots using the strong acid digest. The LCS recovery met the criteria in the SAP. No ^{241}Am activity was detected in the sample or duplicate; therefore, calculation of an RPD was not applicable. No ^{241}Am activity was detected in the preparation blank. The reported MDA did not meet the RDL requirement in the SAP.

4.2.5 Plutonium-238 and Plutonium-239/240

The ^{238}Pu and $^{239/240}$Pu analysis was performed on acid-digested aliquots using the strong acid digest. The LCS recovery met the criteria in the SAP. No ^{238}Pu or $^{239/240}$Pu activity was detected in the sample or duplicate; therefore, calculation of an RPD was not applicable. No ^{238}Pu or $^{239/240}$Pu activity was detected in the preparation blank. The reported MDA did not meet the RDL requirement in the SAP.

4.3 POLYCHLORINATED BIPHENYLS ANALYSIS

The PCB analysis was performed using a methylene chloride extraction of a subsample of the filter. No Aroclors were detected in the sample or the preparation blank. The LCS, MS, and MSD consisted of only Aroclor-1254 because it is the most common Aroclor detected in Hanford Site samples. The LCS, MS, and MSD recoveries met the requirements in the SAP. The RPD for the MS and MSD met the requirement in the SAP. The MS and MSD recoveries and spike RPD results are provided in Attachment 5.

Surrogate recoveries are presented in Attachment 4. SW-846 allows the use of either decachlorobiphenyl (DCB) or tetrachloro-m-xylene (TCX) surrogates. All of the DCB recoveries were within the laboratory statistical process control (SPC) limits. The recoveries for TCX were above the SPC limits for the sample, MS, and MSD portions only. It is the laboratory's opinion that there was matrix interference causing the high recoveries for TCX in the sample portions because the recoveries for this surrogate for the LCS and preparation blank met the criteria. Since SW-846 does not require analysis of two surrogates, the recoveries for DCB were within the SPC limits, and the MS and MSD recoveries met the requirement in the SAP, no repreparation or reanalysis was requested.

5.0 PROCEDURES

Table 1 lists the analytical procedures used for analysis of the ARRA U-Ancillary HEPA filter.

Table 1. Analytical Procedures

Analysis	Preparation Method	Analysis Procedure
Inorganic Analyses		
pH (9045C)	Direct	LA-212-105, Rev. G-0
Mercury – Cold Vapor Atomic Absorption (7471A)	LA-325-106, Rev. G-0	LA-325-106, Rev. G-0
IC (9056A)	LA-504-101, Rev. L-0	LA-533-115, Rev. J-0
ICP/AES (3050B/6010C)	LA-505-163, Rev. G-0	LA-505-161, Rev. J-0-A
ICP/MS: metals (3050B/6020A)	LA-505-163, Rev. G-0	LA-506-103, Rev. A-0
ICP/MS: actinides	LA-544-101 Rev. F-0	LA-506-102, Rev. E-0
Radiochemical Analyses		
Total Alpha/Total Beta	LA-544-101 Rev. F-0	LA-508-1011, Rev. L-2
GEA	LA-544-101 Rev. F-0	LA-548-121, Rev. I-0
^{90}Sr – Separation/Beta counting	LA-544-101 Rev. F-0	LA-220-103, Rev. J-0
^{241}Am – Separation/AEA	LA-544-101 Rev. F-0	LA-953-104, Rev. H-1
$^{239/240}$Pu, ^{238}Pu – Separation/AEA	LA-544-101 Rev. F-0	LA-953-104, Rev. H-1
Organic Analyses		
PCB – GC/Electron Capture Detector (3540C/8082A)	LA-523-138, Rev. F-0-A	LA-523-140, Rev. G-0

6.0 REFERENCES

ATL-MP-1011, 2009, *ATL Quality Assurance Project Plan for 222-S Laboratory*, Rev. 9, Advanced Technologies and Laboratories International, Inc., Richland, Washington.

DOE/RL-2004-58, 2004, *Sampling and Analysis Plan for the U Plant Ancillary Facilities D&D Project, Balance of Site*, U.S. Department of Energy, Richland, Washington.

Memorandum, from C. Haitt-Caoile, CHPRC, to R. A. Bushaw, ATL, *Letter of Instruction for Analysis of HEPA Filter Sample from BOS U-Ancillary*, GC-LOI-10-0007, dated February 9, 2010.

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

ARRA U-Ancillary
Data Summary Report

Sample Group: 20100123

Customer Group or SDG Number: 222S20100123

Customer Sample ID: B243C0

Sample Portion: Acid Digest

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S10M000085		A	7440-22-4	Silver	ug/g	83.8	<5.00E-03	<0.224	<0.234	n/a	n/a	80.1	0.224	n/a	U
S10M000085		A	7429-90-5	Aluminum	ug/g	81.4	<0.0300	70.2	58.5	64.4	18.1	89.2	13.4	n/a	
S10M000085		A	7440-38-2	Arsenic	ug/g	86.7	<0.0500	<2.24	<2.34	n/a	n/a	91.2	2.24	n/a	U
S10M000085		A	7440-39-3	Barium	ug/g	82.2	<3.00E-03	68.9	75.4	72.2	9.05	96.0	0.134	n/a	
S10M000085		A	7440-41-7	Beryllium	ug/g	85.8	<1.00E-03	<0.448	<0.469	n/a	n/a	86.1	0.448	n/a	U
S10M000085		A	7440-43-9	Cadmium	ug/g	82.9	<5.00E-03	0.865	0.766	0.815	12.2	99.0	0.224	n/a	
S10M000085		A	7440-47-3	Chromium	ug/g	82.4	<5.00E-03	6.39	5.24	5.81	19.8	99.5	0.224	n/a	
S10M000085		A	7439-89-6	Iron	ug/g	83.0	0.0142	137	80.4	109	51.9	50.0	2.24	n/a	NMX
S10M000085		A	7440-09-7	Potassium	ug/g	88.8	<0.500	398	290	344	31.6	109	224	n/a	B
S10M000085		A	7439-95-4	Magnesium	ug/g	80.2	<0.0500	37.6	33.0	35.3	13.0	72.0	22.4	n/a	B
S10M000085		A	7439-96-5	Manganese	ug/g	81.1	<3.00E-03	2.88	1.75	2.31	49.2	86.9	1.34	n/a	B
S10M000085		A	7440-23-5	Sodium	ug/g	84.6	<0.100	5.22E+03	4.98E+03	5.10E+03	4.72	19.7	44.8	n/a	
S10M000085		A	7440-02-0	Nickel	ug/g	80.0	<0.0200	<8.96	<9.38	n/a	n/a	87.3	8.96	n/a	U
S10M000085		A	7439-92-1	Lead	ug/g	82.0	<0.0500	3.71	3.92	3.82	5.62	99.9	2.24	n/a	B
S10M000085		A	7440-21-3	Silicon	ug/g	86.2	<0.0300	383	294	339	26.5	167	13.4	n/a	N
S10M000085		A	7440-61-1	Uranium	ug/g	89.5	<0.100	5.49E+03	4.88E+03	5.19E+03	11.9	-32.2	44.8	n/a	
S10M000085		A	7440-62-2	Vanadium	ug/g	84.3	<5.00E-03	3.32	2.52	2.92	27.4	79.7	2.24	n/a	B
S10M000085		A	7440-66-6	Zinc	ug/g	84.3	<5.00E-03	69.4	65.9	67.6	5.09	113	2.24	n/a	
S10M000085		A	7782-49-2	Selenium	ug/g	98.0	7.69E-03	<0.273	<0.286	n/a	n/a	90.8	0.273	n/a	U

Sample Portion: Env Digest

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S10M000086		E	12587-46-1	Gross alpha	uCi/g	95.2	<7.62E-06	0.0166	0.0130	0.0148	24.7	101	5.00E-06	1.32	
S10M000086		E	12587-47-2	Gross beta	uCi/g	108	<1.66E-05	0.0195	0.0148	0.0172	27.3	119	1.25E-05	0.94	
S10M000086		E	14596-10-2	Americium-241	uCi/g	102	<8.10E-04	<7.90E-04	<7.61E-04	n/a	n/a	n/a	7.90E-04	n/a	U
S10M000086		E	10045-97-3	Cesium-137	uCi/g	103	<1.70E-05	<1.57E-05	<1.86E-05	n/a	n/a	n/a	1.57E-05	n/a	U
S10M000086		E	14274-82-9	Thorium-228	uCi/g	n/a	<3.50E-04	2.63E-03	<1.12E-03	n/a	n/a	n/a	1.06E-03	27.63	
S10M000086		E	14269-63-7	Thorium-230	ug/g	n/a	<0.426	<0.426	<0.428	n/a	n/a	n/a	0.426	n/a	U

NA = Not Analyzed, ND = Not Detected

B - Estimated
U - < Det Limit
N - Spike Outside Range
M - RPD Outside Range
X - Comment
J - Estimated

ARRA U-Ancillary
Data Summary Report

Sample Group: 20100123

Customer Group or SDG Number: 222S20100123

Customer Sample ID: B243C0

Sample Portion: Env Digest

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S10M000086		E	TH-232	Thorium-232	ug/g	99.1	<10.3	<10.3	11.0	n/a	n/a	97.6	10.3	n/a	U
S10M000086		E	13968-55-3	Uranium-233	ug/g	n/a	<0.608	<0.608	<0.611	n/a	n/a	n/a	0.608	n/a	U
S10M000086		E	13966-29-5	Uranium-234	ug/g	n/a	<0.304	2.02	1.43	1.72	34.2	n/a	0.304	n/a	B
S10M000086		E	15117-96-1	Uranium-235	ug/g	99.8	<0.669	231	166	199	32.5	96.6	0.669	n/a	M
S10M000086		E	U-238	Uranium-238	ug/g	98.7	<33.5	2.72E+04	1.95E+04	2.33E+04	33.0	96.5	33.5	n/a	M
S10M000086		E	PU-239/240	Plutonium-239/240	uCi/g	98.5	<5.26E-04	<4.45E-04	<4.66E-04	n/a	n/a	n/a	4.45E-04	n/a	U
S10M000086		E	13981-16-3	Plutonium-238	uCi/g	n/a	<5.26E-04	<4.45E-04	<4.66E-04	n/a	n/a	n/a	4.45E-04	n/a	U
S10M000086		E	SR-89/90	Strontium-89/90	uCi/g	95.5	<1.59E-05	2.35E-05	2.40E-05	2.38E-05	1.89	n/a	1.15E-05	78.64	J

Sample Portion: PCB Extract

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S10M000088		O	12674-11-2	Aroclor 1016	ug/kg	n/a	<40.9	<37.6	n/a	n/a	n/a	n/a	37.6	n/a	U
S10M000088		O	11104-28-2	Aroclor 1221	ug/kg	n/a	<13.0	<11.9	n/a	n/a	n/a	n/a	11.9	n/a	U
S10M000088		O	11141-16-5	Aroclor 1232	ug/kg	n/a	<71.2	<65.5	n/a	n/a	n/a	n/a	65.5	n/a	U
S10M000088		O	53469-21-9	Aroclor 1242	ug/kg	n/a	<41.8	<38.4	n/a	n/a	n/a	n/a	38.4	n/a	U
S10M000088		O	12672-29-6	Aroclor 1248	ug/kg	n/a	<13.3	<12.2	n/a	n/a	n/a	n/a	12.2	n/a	U
S10M000088		O	11097-69-1	Aroclor 1254	ug/kg	84.4	<7.77	<7.15	n/a	n/a	n/a	98.2	7.15	n/a	U
S10M000088		O	11096-82-5	Aroclor 1260	ug/kg	n/a	<56.4	<51.9	n/a	n/a	n/a	n/a	51.9	n/a	U

Sample Portion: Parent

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S10M000084			7439-97-6	Mercury	ug/g	102	<1.00E-04	<0.0228	<0.0224	n/a	n/a	93.7	0.0228	n/a	U
S10M000084			PH	pH	unitless	n/a	n/a	5.47	5.88	5.68	7.22	n/a	0.0100	n/a	

Sample Portion: Water Digest

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S10M000087		W	14808-79-8	Sulfate	ug/g	103	<0.0187	5.82E+03	6.87E+03	6.35E+03	16.6	106	18.7	n/a	

NA = Not Analyzed, ND = Not Detected

B - Estimated
U - < Det Limit
N - Spike Outside Range
M - RPD Outside Range
X - Comment
J - Estimated

ARRA U-Ancillary
Data Summary Report

Sample Group: 20100123
Customer Group or SDG Number: 222S20100123
Customer Sample ID: B243C0
Sample Portion: Water Digest

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S10M000087		W	14797-55-8	Nitrate	ug/g	100	<0.0208	2.44E+03	2.96E+03	2.70E+03	19.1	91.0	20.8	n/a	
S10M000087		W	14265-44-2	Phosphate	ug/g	97.0	<0.0167	<16.7	<16.5	n/a	n/a	106	16.7	n/a	U

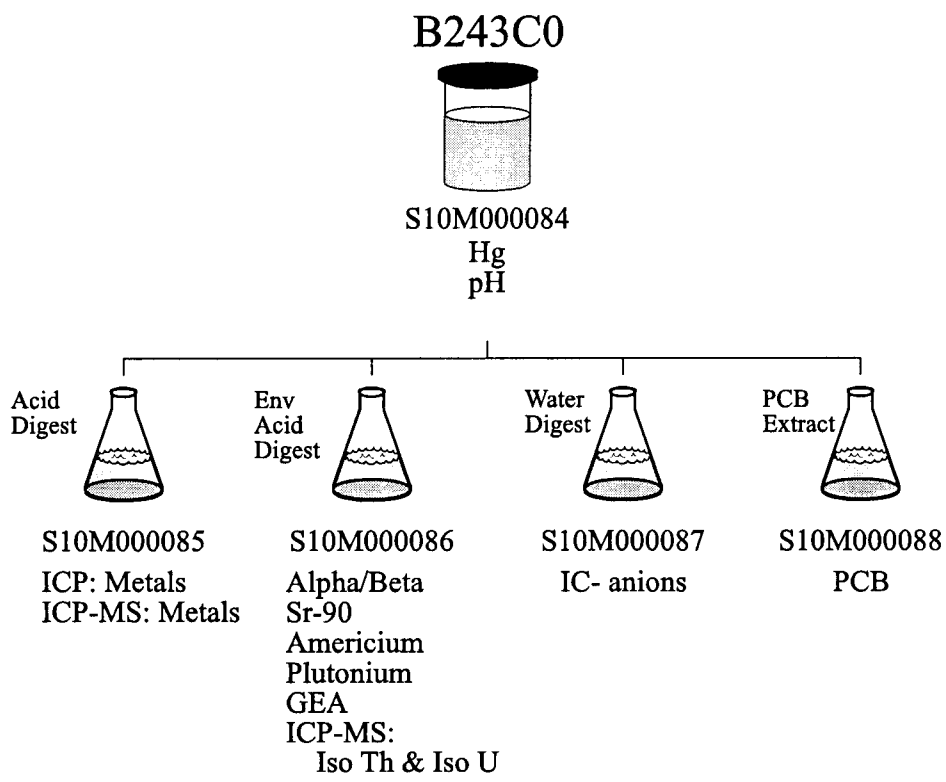
NA = Not Analyzed, ND = Not Detected

B - Estimated
U - < Det Limit
N - Spike Outside Range
M - RPD Outside Range
X - Comment
J - Estimated

Attachment 2

SAMPLE BREAKDOWN DIAGRAMS

ARRA U-Ancillary HEPA Filter
Group: 222S20100123



Attachment 3

HOLDING TIME REPORT

Hold Time Report

Sample Group	Sample	Matrix	Method	Prep Method	Sample Date	Received Date	Prep Date	Analysis Date	Missed Holding Time
20100123	S10M000087	SOLID	IC - ANIONS/SMALL ORG. ACIDS	WATER DIGEST	03/19/10 11:15	03/22/10 10:20	4/6/2010 13:40	04/08/10 03:43	N
20100123	S10M000087	SOLID	IC - ANIONS/SMALL ORG. ACIDS	WATER DIGEST	03/19/10 11:15	03/22/10 10:20	4/6/2010 13:40	04/08/10 05:18	N
20100123	S10M000084	SOLID	HG	ACID DIGEST	03/19/10 11:15	03/22/10 10:20	4/15/2010 19:40	04/15/10 21:37	N
20100123	S10M000085	SOLID	ICP-RCRA METALS	ACID DIGEST, SOLID	03/19/10 11:15	03/22/10 10:20	4/7/2010 13:08	04/19/10 10:48	N
20100123	S10M000085	SOLID	MS PERIODIC TABLE	ACID DIGEST, SOLID	03/19/10 11:15	03/22/10 10:20	4/7/2010 13:08	04/15/10 16:08	N
20100123	S10M000085	SOLID	ICP-RCRA METALS	ACID DIGEST, SOLID	03/19/10 11:15	03/22/10 10:20	4/7/2010 13:08	04/13/10 14:18	N

Attachment 4

SURROGATE RECOVERIES

FORM 2
SOIL PESTICIDE SURROGATE RECOVERY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: ARRAU_ANCILLARY

GC Column(1): RESTEK XTI-5 ID: 0.25 (mm)

	CLIENT SAMPLE NO.	S1 %REC #	TCX %REC #	S3 %REC #	S4 %REC #	S5 %REC #	S6 %REC #	TOT OUT
01	BLANK	110	104					0
02	LCS	110	114					0
03	S10M000088	84	136*					1
04	S10M000088MS	95	136*					1
05	S10M000088MS	101	137*					1
06								
07								
08								
09								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								

ADVISORY
QC LIMITS

S1 = Decachlorobiphenyl (DC (64-133)
S2 (TCX) = Tetrachloro-m-Xylene (53-115)

Column to be used to flag recovery values
* Values outside of QC limits
D Surrogate diluted out

Attachment 5

MATRIX SPIKE AND MATRIX SPIKE DUPLICATE RECOVERIES

FORM 3
SOIL PESTICIDE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: ARRAU_ANCILLARY

Matrix Spike - Sample No.: S10M000088

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC #	QC. LIMITS REC.
Aroclor-1254	456.8	0.000	448.4	98	70-130

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Aroclor-1254	467.1	478.0	102	6	30	70-130

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 1 outside limits
Spike Recovery: 0 out of 2 outside limits

COMMENTS: _____

FORM III PEST

Attachment 6

CORRESPONDENCE

Bushaw, Ruth A

From: Widrig, Dana L
Sent: Monday, March 22, 2010 11:52 AM
To: Bushaw, Ruth A
Cc: Steele, Richard T; Hansen, Daniel R; Ayres, Doris E; Crisp, Bryan D
Subject: RE: ARRA U-Ancillary - HEPA Filter Sample Receipt

Ruth,

Please treat the entire sample material provided in both bottles as one sample. Please cancel HEIS number B243C1 associated with the sample.

Let me know if there are questions –

Thanks,

Dana

Is this Rick Steele from 325 bldg Hot Cells?

From: Bushaw, Ruth A
Sent: Monday, March 22, 2010 11:38 AM
To: Widrig, Dana L
Cc: Steele, Richard T; Hansen, Daniel R
Subject: ARRA U-Ancillary - HEPA Filter Sample Receipt
Importance: High

Dana,

As we discussed on the phone, we received two 1-L bottles for the ARRA U-Ancillary HEPA filter. The outer tag on the bag contained only sample number B243C1. However, two chain of custody (COC) forms were received; one with B243C0 and the other with B243C1. The person who delivered the samples indicated that both samples were in the bag. Although you verbally indicated that one of the samples was only for additional material for analysis, if we needed it, the COCs indicate that we should analyze both samples.

If you really intend to only require analysis on one of these two bottles, as we discussed, please let me know by responding to this email. I currently have sample B243C0 logged into our LIMS system; I plan to run analytical duplicates from that sample bottle. Therefore, if you are going to cancel analysis of one of the samples, please cancel B243C1, and I will indicate that on the COC and attach a copy of this email.

Thanks,
Ruth A. Bushaw
Project Manager
ATL International, Inc.
222-S Laboratory
office: 509-373-4314
cell: 509-554-4978

Bushaw, Ruth A

From: Moder, Daniel L
Sent: Wednesday, April 21, 2010 2:33 PM
To: Bushaw, Ruth A
Cc: Widrig, Dana L; Hansen, Daniel R
Subject: RE: Failure of Duplicate Analyses for ARRA U-Ancillary HEPA Filter

Yes this is acceptable.

Dan

From: Bushaw, Ruth A
Sent: Monday, April 19, 2010 4:19 PM
To: Moder, Daniel L
Cc: Widrig, Dana L; Hansen, Daniel R
Subject: Failure of Duplicate Analyses for ARRA U-Ancillary HEPA Filter
Importance: High

Dan,

I'm reviewing data that I have received to date for the ARRA U-Ancillary HEPA filter. LOI instructs us to follow the SAP DOE-RL-2004-58. Although this SAP does not include all of the analytes requested in the SAF and LOI, it is the only document that I have for this project that provides QC criteria, so I have been applying the ±30% RPD and 70% - 130% spike criteria to all requested analytes. I will discuss this in the case narrative of the final report. I hope that this is acceptable to you.

We have a number of analytes that have failed to meet the duplicate RPD criteria of ±30%. Since this is a HEPA filter that is not evenly covered with material, it would be difficult to obtain analytical duplicates that meet the ±30% criteria. Analytes that failed the criteria are from several different digestions performed on the filter material, indicating that it is a sample matrix issue and not a laboratory preparation issue. My current plan is to accept the failures, which will be appropriately qualified with data flags, and explain in the narrative that it is the laboratory's opinion that this is a sample matrix issue, based on the failures over several different sample preparations, so no digestion and reanalysis was requested. Is this acceptable to you?

I also wanted to make you aware that, since the SW846 6010 method was requested for ICP metals, we ran the SW846 3050 acid digest. This digest was not sufficient for putting UO_3 into solution for analysis. This was evident when the total uranium result by ICP was compared with the U-238 result from ICP-MS. The ICP-MS analysis, as well as all of the radionuclide analyses, was run from an acid digest that uses much stronger acid concentrations, so the UO_3 dissolved better. The ICP-MS result was about 5 times higher than the total uranium by ICP.

Thanks,
Ruth A. Bushaw

Project Manager
ATL International, Inc.
222-S Laboratory
office: 509-373-4314
cell: 509-554-4978

Bushaw, Ruth A

From: Moder, Daniel L
Sent: Thursday, April 22, 2010 10:26 AM
To: Bushaw, Ruth A
Cc: Burnside, Michael E; Eby, Mark E
Subject: RE: ARRA U-Ancillary HEPA Filter Metals Analysis

Sounds good to me.

Thanks,
Dan

From: Bushaw, Ruth A
Sent: Wednesday, April 21, 2010 3:26 PM
To: Moder, Daniel L
Cc: Widrig, Dana L
Subject: ARRA U-Ancillary HEPA Filter Metals Analysis
Importance: High

Dan,

SAF F10-067 states, "As previously agreed, the 20X rule shall apply when TCLP is requested to meet project specific requirements." I calculated 20X the TCLP Regulatory levels and compared these to the results that we will report for the ARRA U-Ancillary HEPA filter. All of our results are less than these limits. Therefore, we are not expecting to perform a TCLP extraction and analysis on this sample. Please let me know if you agree.

Analyte	20X TCLP Regulatory Level (μg/g)	ARRA U-Ancillary HEPA Filter Result (μg/g)
As	100	< 2.24
Ba	2000	68.9
Cd	20	0.865
Cr	100	6.39
Pb	100	3.71
Hg	4	< 0.02
Se	20	< 0.273
Ag	100	< 0.224

Thanks,
Ruth A. Bushaw
Project Manager
ATL International, Inc.
222-S Laboratory
office: 509-373-4314
cell: 509-554-4978

This email and any accompanying documents contain confidential and / or privileged information. This information is intended only for the use of the individuals or entity named in this email. If you are not the intended recipient, please notify the sender and delete

Attachment 7

RECEIPT PAPERWORK

20100123

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F10-067-001	PAGE 1 OF 2
COLLECTOR K. Patterson	COMPANY CONTACT WIDRIG, DL	TELEPHONE NO. 376-2858	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 9N	DATA TURNAROUND
SAMPLING LOCATION U ANCILLARY HEPA FILTER; PIECE 1	PROJECT DESIGNATION ARRA U-Ancillary - HEPA Filter		SAF NO. F10-067	AIR QUALITY ☐	45 Days / 45 Days
ICE CHEST NO.	FIELD LOGBOOK NO. HNF-N-507-5	ACTUAL SAMPLE DEPTH N/A	COA 301959ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	
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 5400.5 (1990/1993)

SPECIAL HANDLING AND/OR STORAGE
222S20100123

PRESERVATION	None
TYPE OF CONTAINER	Wide Mouth - P
NO. OF CONTAINER(S)	1
VOLUME	1L
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B243C0	OTHER SOLID	3/19/10	1115	✓
S10M000084				

CHAIN OF POSSESSION	DATE/TIME	SIGN/ PRINT NAMES	DATE/TIME
RELINQUISHED BY/REMOVED FROM K. Patterson	3/19/10	RECEIVED BY/STORED IN SSmith	3/19/10 1530
RELINQUISHED BY/REMOVED FROM SSU-1	3/22/10 1040	RECEIVED BY/STORED IN K. Patterson	3/22/10 1040
RELINQUISHED BY/REMOVED FROM K. Patterson	3/22/10	RECEIVED BY/STORED IN [illegible] & [illegible]	3.22.10 1020
RELINQUISHED BY/REMOVED FROM		RECEIVED BY/STORED IN	
RELINQUISHED BY/REMOVED FROM		RECEIVED BY/STORED IN	
RELINQUISHED BY/REMOVED FROM		RECEIVED BY/STORED IN	
RELINQUISHED BY/REMOVED FROM		RECEIVED BY/STORED IN	

SPECIAL INSTRUCTIONS
SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS

ORIGINAL

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

A-6003-618(01/06)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F10-067-001	PAGE 2 OF 2
COLLECTOR	COMPANY CONTACT	TELEPHONE NO.	PROJECT COORDINATOR	PRICE CODE 9N	DATA TURNAROUND
	WIDRIG, DL	376-2858	WIDRIG, DL	AIR QUALITY ☐	45 Days / 45 Days
SAMPLING LOCATION	PROJECT DESIGNATION		SAF NO.		
U ANCILLARY HEPA FILTER; PIECE 1	ARRA U-Ancillary - HEPA Filter		F10-067		
ICE CHEST NO.	FIELD LOGBOOK NO.	ACTUAL SAMPLE DEPTH	COA	METHOD OF SHIPMENT	
	HNF-N- 307 5	N/A	301959ES10	GOVERNMENT VEHICLE	
SHIPPED TO	OFFSITE PROPERTY NO.		BILL OF LADING/AIR BILL NO.		
222-S Lab Operations	N/A		N/A		

SPECIAL INSTRUCTIONS

** The HEPAs contain UO3 powder.

** The appropriate GKI for the project is attached to the SAF.

** As previously agreed, the 20X rule shall apply when TCLP is requested to meet project specific requirements. All exceptions to this will have project approval and laboratory agreement to proceed with extraction and analysis. The laboratory shall note all deviations from these and other analyses in the final report narrative to meet S&GRP SDM process protocol and data quality requirements.
(1)6020_METALS_ICPMS (TAL) {Arsenic, Lead, Barium, Chromium, Cadmium, Plutonium-242, Beryllium, Manganese, Nickel, Vanadium, Silver, Selenium} ICP Metals - 6010B (TAL) {Sodium, Aluminum, Iron, Potassium, Barium, Chromium, Cadmium, Zinc, Manganese, Nickel, Vanadium, Magnesium, Silver} ICP Metals - 6010B (Add-On) {Arsenic, Lead, Beryllium, Silicon, Selenium} Mercury - 7471 - (CV); PCBs - 8082; Metals by ICP (TCLP) - 1311/6010 {Arsenic, Lead, Barium, Chromium, Cadmium, Silver, Selenium} Metals by ICP (TCLP) Add-on - 1311/6010 {Sodium, Aluminum, Iron, Potassium, Beryllium, Zinc, Manganese, Nickel, Vanadium, Magnesium, Uranium} Mercury (TCLP) - 1311/7470; IC Anions - 9056 {Nitrate, Phosphate, Sulfate} pH (Soil) - 9045; Gamma Spectroscopy {Cesium-137} Gamma Spec - Add-on {Thorium-228} Gross Alpha; Gross Beta; Isotopic Plutonium {Plutonium-239/240, Plutonium-238} Strontium-90 {Strontium-90} Americium-241 {Americium-241} Actinides ICPMS {Uranium-235, Uranium-234, Thorium-232, Uranium-233, Uranium-238, Thorium-230}

ORIGINAL

A-6003-618(01/06)

20100123

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F10-067-002	PAGE 1 OF 2
COLLECTOR: K Patterson	COMPANY CONTACT: WIDRIG, DL	TELEPHONE NO.: 376-2858	PROJECT COORDINATOR: WIDRIG, DL	PRICE CODE: 9N	DATA TURNAROUND
SAMPLING LOCATION: U ANCILLARY HEPA FILTER; PIECE 2	PROJECT DESIGNATION: ARRA U-Ancillary - HEPA Filter		SAF NO.: F10-067	AIR QUALITY ☐	45 Days / 45 Days
ICE CHEST NO.	FIELD LOGBOOK NO.: HNF-N-587-5	ACTUAL SAMPLE DEPTH: N/A	COA: 301959ES10	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	
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 5400.5 (1990/1993)

SPECIAL HANDLING AND/OR STORAGE: 222S 20100123

PRESERVATION	None
TYPE OF CONTAINER	Wide Mouth - P
NO. OF CONTAINER(S)	1
VOLUME	1L
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B243C1	OTHER SOLID	3/19/10	1115	V

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM: K Patterson	DATE/TIME: 3/19/10 1330	RECEIVED BY/STORED IN: SSU-1	DATE/TIME: 3/19/10 1330
RELINQUISHED BY/REMOVED FROM: SSU-1	DATE/TIME: 3/22/10 0940	RECEIVED BY/STORED IN: K Patterson	DATE/TIME: 3/22/10 0940
RELINQUISHED BY/REMOVED FROM: K Patterson	DATE/TIME: 3/22/10	RECEIVED BY/STORED IN: R Klick RTS/KEK	DATE/TIME: 3.22.10 1020
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

SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS

This sample cancelled per email from D. Widrig dated 3/22/2010.

RE Bushaw 3/22/2010

ORIGINAL

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

A 6003 618(01/06)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F10-067-002	PAGE 2 OF 2
COLLECTOR	COMPANY CONTACT WIDRIG, DL	TELEPHONE NO. 376-2858	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 9N	DATA TURNAROUND
SAMPLING LOCATION U ANCILLARY HEPA FILTER; PIECE 2	PROJECT DESIGNATION ARRA U-Ancillary - HEPA Filter		SAF NO. F10-067	AIR QUALITY ☐	45 Days / 45 Days
ICE CHEST NO.	FIELD LOGBOOK NO. HNF-N-507-5	ACTUAL SAMPLE DEPTH N/A	COA 301959ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. N/A		

SPECIAL INSTRUCTIONS

** The HEPAs contain UO3 powder.

** The appropriate GKI for the project is attached to the SAF.

** As previously agreed, the 20X rule shall apply when TCLP is requested to meet project specific requirements. All exceptions to this will have project approval and laboratory agreement to proceed with extraction and analysis. The laboratory shall note all deviations from these and other analyses in the final report narrative to meet S&GRP SDM process protocol and data quality requirements.
(1)6020_METALS_ICPMS (TAL) {Arsenic, Lead, Barium, Chromium, Cadmium, Plutonium-242, Beryllium, Manganese, Nickel, Vanadium, Silver, Selenium} ICP Metals - 6010B (TAL) {Sodium, Aluminum, Iron, Potassium, Barium, Chromium, Cadmium, Zinc, Manganese, Nickel, Vanadium, Magnesium, Silver} ICP Metals - 6010B (Add-On) {Arsenic, Lead, Beryllium, Silicon, Selenium} Mercury - 7471 - (CV); PCBs - 8082; Metals by ICP (TCLP) - 1311/6010 {Arsenic, Lead, Barium, Chromium, Cadmium, Silver, Selenium} Metals by ICP (TCLP) Add-on - 1311/6010 {Sodium, Aluminum, Iron, Potassium, Beryllium, Zinc, Manganese, Nickel, Vanadium, Magnesium, Uranium} Mercury (TCLP) - 1311/7470; IC Anions - 9056 {Nitrate, Phosphate, Sulfate} pH (Soil) - 9045; Gamma Spectroscopy {Cesium-137} Gamma Spec - Add-on {Thorium-228} Gross Alpha; Gross Beta; Isotopic Plutonium {Plutonium-239/240, Plutonium-238} Strontium-90 {Strontium-90} Americium-241 {Americium-241} Actinides ICPMS {Uranium-235, Uranium-234, Thorium-232, Uranium-233, Uranium-238, Thorium-230}

ORIGINAL

A-6003-618(01/06)

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

Date Samples Received: 3/22/10 Group #: 20100123

Number of Samples: 2

Sample Custodian: [illegible]

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		✓	☐ Check if no cooler and/or no ice
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)	✓		2B, shelf 2

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 RCB Date 3/22/2010

If No, comment on communication and resolution:

Alpha worksheets required

Other Comments:

There was no evidence of cooling of samples upon receipt

A-6005-342 (REV 0)

GENERATOR KNOWLEDGE INFORMATION

1. Chain of Custody Number _____ CACN/COA 301959 Customer Identification Number _____

2. List generator knowledge or description of process that produced sample. Or list description of sample source:
The sample HEPA Filter from BOS U-Ancillary with SAF number F10-067

MSDS Available? ◉ No ○ Yes Hanford MSDS No. N/A

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:			○ 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

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):
Unknown

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

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 CYNTHIA J. HIATT-CAOILE Date Feb. 9, 2010