

**FINAL REPORT FOR THE BERYLLIUM WIPE SAMPLE  
FROM THE PLUTONIUM FINISHING PLANT,  
BUILDING 234-5Z, ROOM 136 –  
SAMPLE DELIVERY GROUP 222S20100331**

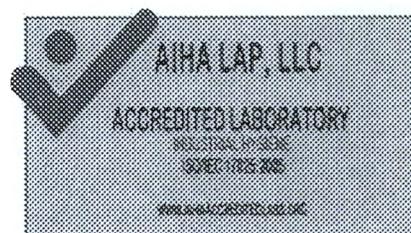
**Document No.: 20100331**

**Ruth A. Bushaw**

Advanced Technologies and Laboratories International, Inc.

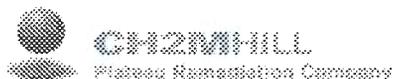
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*R. A. Bushaw* 6/3/2010  
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## NARRATIVE

### FINAL REPORT FOR THE BERYLLIUM WIPE SAMPLE FROM THE PLUTONIUM FINISHING PLANT, BUILDING 234-5Z, ROOM 136 – SAMPLE DELIVERY GROUP 222S20100331

This is the final analytical report for the beryllium wipe sample received at the 222-S Laboratory on March 25, 2010 in good condition and with adequate paperwork and assigned to sample group 20100331. Following the issuance of the preliminary report, the sample was reanalyzed. Results are discussed in the Analytical Summary below.

#### DISCLAIMERS

- The information contained in this report is intended only for the use of the addressee and should be considered confidential.
- This report shall not be reproduced, except in full, without written approval of the laboratory.
- The results shown in this report pertain only to the actual samples tested.
- These results conform to the referenced requirements and specifications with any deviations or modifications discussed in the following narrative.

#### PROCEDURES

Method	Preparation Method	Analysis Procedure
SW-846 Method 6010C		LA-505-171, Rev. G-0
SRNL, WRCS-TR-2004-00395	LA-505-114, Rev. B-0	

#### METHOD MODIFICATION:

LA-505-114: This digestion procedure is a modification of the Westinghouse Savannah River Company (SRNL) Analytical Development Section Method (WRCS-TR-2004-00395, Revision 1, Method #1) Industrial Hygiene Procedure. The SRNL procedure utilizes a drying oven to heat and evaporate the sample and a hot plate for digestion. Laboratory procedure LA-505-114 uses a microwave for digestion. This method is applicable for acid digestion of air filter media, wipes, and bulk materials for Be analysis by inductively coupled plasma. Nitric acid, hydrochloric acid, hydrofluoric acid, and hydrogen peroxide are added to the sample and allowed to stand for one hour prior to microwave digestion.

#### ANALYTICAL SUMMARY

The sample was analyzed in accordance with ATL-MP-1029, *ATL Industrial Hygiene Quality Assurance Project Plan for 222-S Laboratory* and Memorandum PFP-LOI-10-0001, *Letter of instruction for Analysis of Beryllium Swipe Samples from Glove boxes in the PFP Complex* (LOI). The analyses presented in this report meet all requirements of the LOI and ATL-MP-1029. Based on possible matrix interference, the sample was originally diluted by a factor of ten and the IH required detection limit of 0.05 µg/sample was not achieved. Following issuance of the preliminary report, the sample was reanalyzed with no dilution. On the reanalysis, a profile scan was run and a beryllium peak was observed. However, three analytes (aluminum, iron, and copper) saturated the detector and the profile shows interference on the beryllium peak. It is the laboratory's opinion that copper is the interfering element. A post-

digestion spike gave a low recovery (~ 70%) that fails to meet the typical control limits of 75% - 125% recovery. This failure is an additional indication of matrix interference. An "N" flag was applied to the sample result to indicate the spike failure. A "J" flag was applied to indicate that the result is an estimate due to the matrix interference.

Attachment 1

**DATA SUMMARY REPORT**

**DATA SUMMARY FOR SAMPLE DELIVERY GROUP 222S20100331**

Customer Sample ID	Sample Portion	Lab Sample ID	Analyte	Standard (% Recovery)	Blank ( $\mu\text{g}/\text{sample}$ )	Result ( $\mu\text{g}/\text{sample}$ )	Spike (% Recovery)	Reporting Limit ( $\mu\text{g}/\text{sample}$ )	Qualifier
B24W12	Ghost wipe	S10M000265	Beryllium	96.5	<0.0500	0.153	69.8	0.0500	JN

NA = Not Analyzed, ND = Not Detected

J - Estimated

N - Spike Outside Range

Attachment 2

ANALYSIS DATE REPORT

## ANALYSIS DATE REPORT

Sample	Customer Sample Id	Method	Prep Method	Preparation Date	Analysis Date
S10M000265	B24W12	ICP-BE	MICROWAVE	04/26/2010 18:30	05/26/2010 10:00

Attachment 3

RECEIPT PAPERWORK

ATL	<b>SAMPLE RECEIPT AND CHAIN OF CUSTODY VERIFICATION CHECKLIST</b>	LO-090-101 Rev <u>EE-0</u>
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Date Samples Received: 3/25/10Group #: 20100331Number of Samples: 1Sample Custodian: [Signature]**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
Samples are intact and in good condition	✓		If No, provide comments on back <u>Paint Can</u>
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? yes PM Initials ROS Date 4/1/2010

If No, comment on communication and resolution:

Other Comments:

Unable to verify numbers on the container.

Chain of Custody/Sample Analysis Request

Hanford Company		C.O.C. Number <b>NA</b>		Page of <b>1</b>			
Collector <b>Garin Erickson</b>		Contact/Requestor <b>Bob Cathel</b> <del>John Herber</del> on 3/26/10		Telephone <b>942-6493</b> or <b>5126110</b>	MSIN <b>TS-51</b>		
SAF Number <b>F10-146</b>		Sample Origin <b>Bldg 234-52, Room 136</b>		Purchase Order/Change Code <b>SLA</b>			
Project Title <b>PPF Beryllium Swipes - Other Solid</b>		Logbook No <b>NA</b>		Ice Chest No <b>NA</b>	Temp. <b>NA</b>		
Shipped To (Lab) <b>ATL 222-5</b>		Method of Shipment <b>Gov't Vehicle</b>		Bill of Lading/Air Bill No. <b>NA</b>			
Protocol		Data Turnaround <b>45 days</b>		Offsite Property No. <b>NA</b>			
Sample No.	Lab ID	* Date	Time	No./Type Container	Sample Analysis	Preservative	
<b>1HSF-05779-001</b> <b>B24W12</b>		<b>1/26/10</b>	<b>1400</b>	<b>1</b>	<b>Beryllium wipe sample from Room 136</b> <b>To be Analyze for Beryllium</b> <i>per 3/26/10</i>	<b>None</b>	
<b>SIOM000265</b>					<b>Per PFP-LOI-10-0001</b>		
Group # <b>2225 20100331</b>							
Possible Sample Hazards/Remarks (List all known wastes) <b>Pu/d / Be Contamination</b>				SPECIAL INSTRUCTIONS		Hold Time	
MSDS <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No							
Relinquished By <b>J Herber</b>	Print <b>J Herber</b>	Sign <i>J Herber</i>	Date/Time <b>2/11/10 12:45</b>	Received By <b>KREG BRASEL</b>	Print <b>KREG BRASEL</b>	Sign <i>Kreg Brasel</i>	
Relinquished By <b>KREG BRASEL</b>	Print <b>KREG BRASEL</b>	Sign <i>Kreg Brasel</i>	Date/Time <b>3/25/10 1305</b>	Received By <b>Robin Scott</b>	Print <b>Robin Scott</b>	Sign <i>Robin Scott</i>	
Relinquished By <b>Robin Scott</b>	Print <b>Robin Scott</b>	Sign <i>Robin Scott</i>	Date/Time <b>3/25/10 1402</b>	Received By <b>MARVIN HUCK</b>	Print <b>MARVIN HUCK</b>	Sign <i>Marvin Huck</i>	
Relinquished By <b>MARVIN HUCK</b>	Print <b>MARVIN HUCK</b>	Sign <i>Marvin Huck</i>	Date/Time <b>3-25-10 1428</b>	Received By <b>C EDWARDS</b>	Print <b>C EDWARDS</b>	Sign <i>C Edwards</i>	
FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)					Disposed By	Date/Time

All samples containing hazardous materials shall be picked up by requestor and returned to parent container or site of origin.  
DISTRIBUTION: White - Remain with Samples Color - Customer BC-6000-828 (09/95)

## GENERATOR KNOWLEDGE INFORMATION

1. Chain of Custody Number \_\_\_\_\_ CACN/COA SLA \_\_\_\_\_ Customer Identification Number IHSF-05779-0012. List generator knowledge or description of process that produced sample. Or list description of sample source:  
Swipe sample from glovebox in building 234-5Z, room 136.MSDS Available?  No  Yes Hanford MSDS No. \_\_\_\_\_

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

a) Does the sample contain any of the following listed waste codes?

*By checking "unknown" the customer understands that no knowledge is available following a careful search.*

List Federal Waste Code(s): \_\_\_\_\_

List Constituent(s): \_\_\_\_\_

P Codes: \_\_\_\_\_  Yes  No  UnknownU Codes: \_\_\_\_\_  Yes  No  UnknownK Codes: \_\_\_\_\_  Yes  No  UnknownF 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  UnknownD002:  pH ≤2  pH ≥12.5  Solid Corrosive (WSC2)  Yes  No  UnknownD003:  Cyanide  Sulfide  Water Reactive  Other \_\_\_\_\_  Yes  No  UnknownD004-D043 (Identify applicable waste codes and concentrations): \_\_\_\_\_ (i.e., peroxide former, explosive, air reactive)  Yes  No  Unknown

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):

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

Not applicable.

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

(\*State mixture rule for ignitability)

WT01:  Yes  No  UnknownWP01:  Yes  No  UnknownWT02:  Yes  No  UnknownWP02:  Yes  No  UnknownW001:  Yes  No  UnknownWP03:  Yes  No  Unknown

List constituents and concentrations: \_\_\_\_\_

F003\*:  Yes  No  Unknown4. 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 &amp; Sign

Bob CathelBob Cathel

Date

3/9/10

RADIOACTIVE SHIPMENT RECORD

3. Page 1 of 1

4. Ship Prepaid

5. Via Site Carrier

1. SHIP FROM U.S. DEPT. OF ENERGY C/O  
 Company CH2MHILL PRC  
 Address PFP  
 City, State, Zip 200 West Area  
 Contact Jeff Widney  
 Phone 372-3090

2. SHIP TO  U.S. DEPT. OF ENERGY C/O  
 Company ATLII  
 Address 222-S  
 City, State, Zip 200 West Area  
 Attention Gerald Ritenour  
 Phone 372-2742

6. SHIPMENT AUTHORIZATION KJ001 NUMBER  
 7. EMERGENCY RESPONSE  
 Telephone 1-509-373-3800  
 Emergency Response Guide(s) 163

HM 8. Proper Shipping Name:  Radioactive Material, Type A package  
 PRI HAZ 7 SUB HAZ UN ID UN2915

9. No. Pkg.	Model Package	COC/Spec	Serial No.	Seal No.	Isotopes	C.S.I.	T.I.	Bq/Package	Gr. Wt. Kg.
1	Viking	DOT 7A TYPE A	S/N 12	05290	Pu239Pu240Am241	N/A	N/A	1.56E-5 TBq	9 Kg

10. Identify for Normal Form Only  
 Physical Form Solid  
 Chemical Form Oxide

11.  Highway Route Controlled Quantity  
 Exclusive Use Shipment with instructions  
 Placards Applied  
 Fissile Excepted, Grams 1.397E-03  
 UN ID Marking

12. LABELS APPLIED  
 Radioactive Yellow - II

13. ADDITIONAL LABELS / MARKINGS

HM 8. Proper Shipping Name: \_\_\_\_\_ PRI HAZ SUB HAZ UN ID

9. No. Pkg.	Model Package	COC/Spec	Serial No.	Seal No.	Isotopes	C.S.I.	T.I.	Bq/Package	Gr. Wt. Kg.

10. Identify for Normal Form Only  
 Physical Form  
 Chemical Form

11.  Highway Route Controlled Quantity  
 Exclusive Use Shipment with instructions  
 Placards Applied  
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12. LABELS APPLIED

13. ADDITIONAL LABELS / MARKINGS

HM 8. Proper Shipping Name: \_\_\_\_\_ PRI HAZ SUB HAZ UN ID

9. No. Pkg.	Model Package	COC/Spec	Serial No.	Seal No.	Isotopes	C.S.I.	T.I.	Bq/Package	Gr. Wt. Kg.

10. Identify for Normal Form Only  
 Physical Form  
 Chemical Form

11.  Highway Route Controlled Quantity  
 Exclusive Use Shipment with instructions  
 Placards Applied  
 Fissile Excepted, Grams  
 UN ID Marking

12. LABELS APPLIED

13. ADDITIONAL LABELS / MARKINGS

14. Shipment DE-Ci: 1.525E-04					Shipment Totals		C.S.I.	T.I.	Bq/Package	Gr. Wt. Kg.
							N/A	N/A	1.56E-5 TBq	9

15. Surface Dose Rate of Package  
 <0.005 or \_\_\_\_\_ mSv/hr  
 <0.5 or 10.2 mrem/hr (N+β γ)

Dose Rate @ 1 Meter from Surface of Package  
 <0.005 or \_\_\_\_\_ mSv/hr  
 <0.5 or 10.2 mrem/hr (N+β γ)

Smears of Outer Container  
 <4.0 Bq (220 dpm) β γ /cm<sup>2</sup>  
 <0.4 Bq (22 dpm) α /cm<sup>2</sup>  
 <Tbl. 2-2 HNF-5173 Limits

TRUCK LOAD OR EXCLUSIVE USE  
 Surface  <2 mSv/hr (200 mrem/hr)  
 @ 2 meters  <0.1 mSv/hr (10 mrem/hr)  
 @ Cab or sleeper  <0.02 mSv/hr (2 mrem/hr) (Using N+β γ)

Additional Data and Instructions (Inc. Readings on Internal Packaging)  
 Bldg. 23458 Survey No. 2-100325005 Date 03-25-10

16. TRANSPORTER  
 Vehicle Number 682 02762  
 DRIVER'S SIGNATURE *Marvin Huck* PRINT NAME MARVIN HUCK

17. RECEIVER  
 RECEIVER SIGNATURE *C Edwards* PRINT NAME C Edwards Date 3/25/10

18. This is to certify that the above named materials are properly classified, described, packaged, marked and labeled, and are in proper condition for transportation according to the applicable regulations of the Department of Transportation.  
 Certifier's Signature *Scott Weiss* Print Name Scott Weiss On behalf of DOE-RL Date 3/25/10 Organization CSG

19. AUTHORIZATION FOR SHIPMENT  
 AIR TRANSPORT CERTIFICATION  N/A  
 CARGO AIRCRAFT  Cargo Aircraft Only Labels Applied  
 PASSENGER AIRCRAFT  Ltd Qty  Research/Medical Diagnosis  <3 T.I.  Human Medical Research  
 Pkg. Dimensions (cm)

20. OFFSITE AUTHORIZATION  
 Survey No. Date Shipped Routing ETA  
 Approved for Shipment Offsite Date