

**FINAL REPORT FOR THE SAMPLES RECEIVED IN  
MARCH, 2010 FOR SAF W10-001**

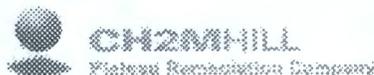
**Document No.: 20100187  
SDG: 222S20100187**

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Advanced Technologies and Laboratories International, Inc.

**Date Published**  
May 3, 2010

Prepared for:

Prepared by:



**RECEIVED**  
AUG 10 2010

**EDMC**

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## 222-S LABORATORY

### FINAL REPORT FOR THE SAMPLES RECEIVED IN FEBRUARY, 2010 FOR SAF W10-001

#### 1.0 INTRODUCTION

This final report presents the results for two water samples taken on February 25, 2010. The samples were analyzed in accordance with Sampling Authorization Form W10-001; *RCRA January 2010* (SAF) and ATL-MP-1011; *ATL Quality Assurance Project Plan for 222-S Laboratory* (QAPP). The following attachments are included in this report.

Attachment 1	Data Summary Report
Attachment 2	Holding Time Report
Attachment 3	Receipt Paperwork
Attachment 4	Issue Resolution Form
Attachment 5	Original Analysis Results/Analysis Time

#### 2.0 SAMPLE RECEIPT AND HANDLING

The samples were received on February 25, 2010 with adequate paperwork. The measured temperature of the outside of the sample container was 17 °C. This was reported to the client on the laboratory's sample receipt check list (see Attachment 3).

#### 3.0 ANALYTICAL RESULTS SUMMARY

The Data Summary Report (Attachment 1) presents the final analytical results. The "Det Limit" column in Attachment 1 contains the method detection limit (MDL). In order to demonstrate batch precision and accuracy, Attachment 1 also contains the matrix spikes and duplicates associated with the analysis of the samples in this SDG, even if they were from a different SGD.

In Attachment 1, the column labeled "A#" indicates the aliquot class or the method used for sample preparation before analysis. For analysis without a preparation step, this column is left blank.

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

- "B" indicates that the reported result is greater than the method detection limit (MDL), but lower than the quantitation limit.
- "U" indicates that the reported result is lower than the method detection limit (MDL).

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.

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### 3.1 ANALYSES

#### 3.1.1 Anions by Ion Chromatography

The ion chromatography analysis for anions was performed by preparing dilutions of the sample. All requirements in the SAF and QAPP were met, except the holding time requirement of 48 hours for nitrite, and phosphate. This was due to following reasons:

- Dilutions of the samples were prepared on 02/26/2010. Holding time requirement was met; however, these dilutions did not provide results with required detection limits for nitrite, phosphate, fluoride and bromide (see Attachment 5).
- Due to an oversight of our analytical staff, reanalysis was not performed until 04/05/2010. Detection limits were met; however, the analysis time lapse exceeded the holding time requirements (see Attachment 4).

The initial and closing method blanks contained chloride below the quantitation limit and at less than 5% of the sample. Therefore reanalysis was not required.

### 4.0 PROCEDURES

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

**Table 1. Analytical Procedures.**

Analysis	Preparation Method	Analysis Procedure
Anions by Ion Chromatography	NA	SW846-9056A

### 5.0 REFERENCES

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

Sampling Authorization Form W10-001; CH2M Hill, Plateau Remediation Company, Richland, Washington.

Attachment 1

DATA SUMMARY REPORT

WSCF - Anions & HexCr  
 Data Summary of All Results

Sample Group: 20100187

Customer Group or SDG Number: 222S20100187

Customer Sample ID: B23D19

Customer Sample ID: B23D19

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S10M000097			16984-48-8	Fluoride	ug/mL	92.4	<6.16E-03	0.498	n/a	n/a	n/a	n/a	0.0370	n/a	
S10M000097			16887-00-6	Chloride	ug/mL	101	0.0365	106	107	106	1.25	98.1	0.313	n/a	
S10M000097			14797-65-0	Nitrite	ug/mL	91.7	<0.0400	<0.240	n/a	n/a	n/a	n/a	0.240	n/a	U
S10M000097			24959-67-9	Bromide	ug/mL	93.9	<0.0237	0.159	n/a	n/a	n/a	n/a	0.142	n/a	B
S10M000097			14797-55-8	Nitrate	ug/mL	101	<0.0162	415	415	415	0.0922	105	1.64	n/a	
S10M000097			14265-44-2	Phosphate	ug/mL	94.3	<0.0381	<0.229	n/a	n/a	n/a	n/a	0.229	n/a	U
S10M000097			14808-79-8	Sulfate	ug/mL	101	<0.0219	164	164	164	0.0962	103	2.21	n/a	

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B - Estimated

U - < Det Limit

NA = Not Analyzed, ND = Not Detected

**WSCF - Anions & HexCr  
 Data Summary of All Results**

**Sample Group: 20100187**

**Customer Group or SDG Number: 222S20100187**

**Customer Sample ID: B23D20**

**Customer Sample ID: B23D20**

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S10M000098			16984-48-8	Fluoride	ug/mL	92.4	<6.16E-03	0.888	n/a	n/a	n/a	n/a	0.0370	n/a	
S10M000098			16887-00-6	Chloride	ug/mL	101	0.0365	111	n/a	n/a	n/a	n/a	0.313	n/a	
S10M000098			14797-65-0	Nitrite	ug/mL	91.7	<0.0400	<0.240	n/a	n/a	n/a	n/a	0.240	n/a	U
S10M000098			24959-67-9	Bromide	ug/mL	93.9	<0.0237	0.718	n/a	n/a	n/a	n/a	0.142	n/a	B
S10M000098			14797-55-8	Nitrate	ug/mL	101	<0.0162	417	n/a	n/a	n/a	n/a	1.64	n/a	
S10M000098			14265-44-2	Phosphate	ug/mL	94.3	<0.0381	<0.229	n/a	n/a	n/a	n/a	0.229	n/a	U
S10M000098			14808-79-8	Sulfate	ug/mL	101	<0.0219	172	n/a	n/a	n/a	n/a	2.21	n/a	

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B - Estimated

U - < Det Limit

NA = Not Analyzed, ND = Not Detected

**WSCF - Anions & HexCr**  
**Data Summary of All Results**

Sample Group: 20100176

Customer Group or SDG Number: 222S20100176

Customer Sample ID: B23CT9

Customer Sample ID: B23CT9

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S10M000093			16984-48-8	Fluoride	ug/mL	93.0	<6.16E-03	0.210	0.308	0.259	38.1	93.0	0.129	n/a	B
S10M000093			16887-00-6	Chloride	ug/mL	101	0.0365	32.4	32.1	32.2	0.975	90.8	0.0651	n/a	
S10M000093			14797-65-0	Nitrite	ug/mL	91.7	<0.0400	<0.240	<0.240	n/a	n/a	101	0.240	n/a	U
S10M000093			24959-67-9	Bromide	ug/mL	93.9	<0.0237	<0.142	<0.142	n/a	n/a	96.5	0.142	n/a	U
S10M000093			14797-55-8	Nitrate	ug/mL	101	<0.0162	41.3	41.4	41.4	0.351	104	0.340	n/a	
S10M000093			14265-44-2	Phosphate	ug/mL	94.3	<0.0381	<0.229	<0.229	n/a	n/a	101	0.229	n/a	U
S10M000093			14808-79-8	Sulfate	ug/mL	101	<0.0219	23.4	23.8	23.6	1.71	104	0.460	n/a	

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NA = Not Analyzed, ND = Not Detected

U - < Det Limit

B - Estimated

Attachment 2

HOLDING TIME REPORT

**Hold Time Report**

**SDG 222S20100187**

Customer Sample ID	Sample Group	Laboratory Sample ID	Method	Sample Date	Received Date	Analysis Date	Analysis Time Lapse	Missed Holding Time
B23D19	20100187	S10M000097	SW846-9056A	02/25/10 11:24	02/25/10 15:00	02/26/10 00:02	13 hours	N
B23D19	20100187	S10M000097	SW846-9056A	02/25/10 11:24	02/25/10 15:00	04/05/10 19:28	39 days	<b>Yes, NO2, PO4, Fl, Br</b>
B23D20	20100187	S10M000098	SW846-9056A	02/25/10 11:24	02/25/10 15:00	02/26/10 00:44	13 hours	N
B23D20	20100187	S10M000098	SW846-9056A	02/25/10 11:24	02/25/10 15:00	04/05/10 19:42	39 days	<b>Yes, NO2, PO4, Fl, Br</b>

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Attachment 3

RECEIPT PAPERWORK

<b>ATL</b>	<b>SAMPLE RECEIPT AND CHAIN OF CUSTODY VERIFICATION CHECKLIST</b>	LO-090-101 Rev <u>D.D. 1</u>
Date Samples Received: <u>2-25-10</u>		Group #: <u>20100187</u>
Number of Samples: <u>4</u>		
Sample Custodian: <u>RLH/ub</u>		
<b>Sample Custodian to Complete:</b>		
Action	OK? (Y/N)	N/A
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 checked="" type="checkbox"/> Check if no cooler and/or no ice <u>17.2</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.)		
<b>PM to Complete:</b>		
Samples acceptable for release? <u>yes</u>	PM Initials <u>DLH</u>	Date <u>2-25-2010</u>
If No, comment on communication and resolution: <u>Sample in bag, no cooling</u>		
Other Comments:		

Collector KE Hamilton CHPRC	Contact/Requester Karen Waters-Husted	Telephone No. 509-376-4650
SAF No. W10-001	Sampling Origin Hanford Site	Purchase Order/Charge Code 300071ES20
Project Title RCRA JANUARY 2010	Logbook No: HNF-N-506 26170	Ice Chest No. N/A
Shipped To (Lab) <del>Waste Sampling &amp; Characterization</del> <i>223 Lab</i>	Method of Shipment Government Vehicle	Bill of Lading/Air Bill No. N/A
Protocol RCRA <i>DAW 02/25/10</i>	Priority: 45 Days	Offsite Property No. N/A

**POSSIBLE SAMPLE HAZARDS/REMARKS**  
 \*\* \*\* Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (1990/1993)

**SPECIAL INSTRUCTIONS** Hold Time Total Activity Exemption: Yes  No   
 Site-Wide Generator Knowledge Information Form applies.  
 The CACN for all analytical work at WSCF is 401647

Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B23D19	N	W	02/25/10	1124	1x500-mL P	300.0_ANIONS_IC: List-1 (5)	28 Days/48 Hours	Cool-4C
						<i>SIOM000097</i>		<i>17.0 °C</i>
						<i>6APB22520100187</i>		
						<i>DAW 02/25/10</i>		

Relinquished By KE Hamilton CHPRC	Print <i>KE Hamilton</i>	Sign <i>[Signature]</i>	Date/Time <i>1500</i> FEB 25 2010	Received By <i>[Signature]</i>	Print <i>[Signature]</i>	Sign <i>[Signature]</i>	Date/Time <i>1500</i> FEB 25 2010	<b>Matrix *</b>
Relinquished By	Date/Time	Received By	Date/Time	Relinquished By	Date/Time	Received By	Date/Time	S = Soil                      DS = Drum Solid SE = Sediment              DI = Drum Limb SO = Solid                    T = Tissue SL = Sludge                  WI = Wine W = Water                    L = Limid O = Oil                        V = Vegetation A = Air                        X = Other
Relinquished By	Date/Time	Received By	Date/Time	Relinquished By	Date/Time	Received By	Date/Time	
Relinquished By	Date/Time	Received By	Date/Time	Relinquished By	Date/Time	Received By	Date/Time	
Relinquished By	Date/Time	Received By	Date/Time	Relinquished By	Date/Time	Received By	Date/Time	
<b>FINAL SAMPLE DISPOSITION</b>	Disposal Method (e.g., Return to customer, per lab procedure, used in process)						Disposed By	Date/Time

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20100187



### GENERATOR KNOWLEDGE INFORMATION

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

2. List generator knowledge or description of process that produced sample. Or list description of sample source:  
Sitewide S&GRP Characterization and Monitoring Sampling and Analysis

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: _____	<input type="radio"/> Yes	<input checked="" type="radio"/> No	<input type="radio"/> Unknown
U Codes: _____	<input type="radio"/> Yes	<input checked="" type="radio"/> No	<input type="radio"/> Unknown
K Codes: _____	<input type="radio"/> Yes	<input checked="" type="radio"/> No	<input type="radio"/> Unknown
F Codes: <u>F001 - F005; F039</u>	<input checked="" type="radio"/> Yes	<input type="radio"/> No	<input type="radio"/> Unknown

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

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

N/A

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):  
N/A

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

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

(\*State mixture rule for ignitability)

WT01: <input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> Unknown	WP01: <input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> Unknown
WT02: <input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> Unknown	WP02: <input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> Unknown
W001: <input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> Unknown	WP03: <input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> Unknown
List constituents and concentrations:	F003:* <input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> Unknown

N/A

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)

<input type="checkbox"/> PCB Liquid Waste	<input type="checkbox"/> PCB Bulk Product Waste	<input type="checkbox"/> PCB Transformer ≥500 ppm	<input type="checkbox"/> Unknown
<input type="checkbox"/> PCB Remediation Waste	<input type="checkbox"/> PCB R&D Waste	<input type="checkbox"/> PCB contaminated electrical equipment (capacitor/ballast) <500 ppm	
<input type="checkbox"/> PCB Spill Material	<input type="checkbox"/> PCB Item	<input type="checkbox"/> 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 SAJBA / SJ TRENT Date 12/9/07

Attachment 4

ISSUE RESOLUTION FORM

## ISSUE RESOLUTION FORM

**CHPRC TRACKING NUMBER:** 10-092 (revision 1)

Date : 4/27/10

SAF No.: See table

SDG: See table

LOGIN No.: See attached table

TEST: IC -Anions

Sample No.(s) See table

Submitted By: C. S. Menjivar

Phone No: 372-2525

Fax No.: 373-4884

Submitted To: Heidi Hampt

Phone No. 376-4319

Fax No. 373-1788

**ISSUE**

The table below displays the samples for which the required reporting limit for nitrite, phosphate, bromide, and fluoride was missed. In most cases, samples were reanalyzed far out of holding time in order to obtain the required RL.

**PROPOSED RESOLUTION**

Report the reanalysis with the lower detection limit and provide table in report with original analysis result (if applicable) and report analysis time. Explain in narrative.

**CHPRC/BHI/WMH/PNNL COMMENTS**

Accept proposed resolution.

Heidi Hampt 4/28/10

Signature and Date

SAF	SDG	HEIS #	LAB ID
F10-065	222S20100176	B23CT9	S10M000093
F10-043	222S20100186	B24DP5	S10M000096
W10-001	222S20100187	B23D19	S10M000097
W10-001	222S20100187	B23D20	S10M000098
S10-012	222S2010188	B23198	S10M000099
W10-022	<b>222S20100190</b>	B23X46	S10M000100
X10-036	222S20100191	B248F0	S10M000101
X10-036	222S20100191	B248F3	S10M000102
X10-036	222S20100191	B248F6	S10M000103
F10-065	222S20100176	B23CV0	S10M000110
W10-002	222S20100243	B23X10	S10M000129
X10-033	222S20100244	B24CJ1	S10M000130
X10-034	222S20100247	B248T7	S10M000135
X10-034	222S20100247	B248R8	S10M000136
X10-034	222S20100247	B249H9	S10M000137
X10-034	222S20100247	B24B04	S10M000138
X10-034	222S20100247	B24B14	S10M000139
X10-034	222S20100247	B24B17	S10M000140
X10-034	222S20100247	B24B20	S10M000141
X10-034	222S20100247	B24B47	S10M000143
X10-033	222S20100244	B24CJ9	S10M000144
S10-012	222S20100253	B22YX7	S10M000145
S10-001	222S20100255	B23FC9	S10M000146

SAF	SDG	HEIS #	LAB ID
X10-034	222S20100247	B24B34	S10M000173
X10-034	222S20100247	B24B43	S10M000174
S10-003	222S20100271	B24FL9	S10M000180
X10-033	222S20100244	B24CH0	S10M000181
X10-033	222S20100244	B24CH1	S10M000182
X10-033	222S20100244	B24CH6	S10M000183
X10-033	222S20100244	B24CH8	S10M000185
X10-033	222S20100244	B24CF8	S10M000186
X10-033	222S20100244	B24CF9	S10M000187
F10-119	222S20100242	B243T9	S10M000189
F10-119	222S20100242	B243V0	S10M000190

Attachment 5

ORIGINAL ANALYSIS RESULTS/ ANALYSIS DATE

DATA SUMMARY REPORT- SDG222S20100187 - ORIGINAL ANALYSIS RESULTS-ANALYSIS TIME

Analysis Time	Customer Sample ID	Laboratory Sample ID	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD%	Spike Recovery %	Det Limit	Qual Flags
02/26/10 00:02	B23D19	S10M000097	Chloride	ug/mL	101	0.0365	106	107	106	1.25	98.1	0.313	
02/26/10 00:02	B23D19	S10M000097	Fluoride	ug/mL	93.0	<6.16E-03	<0.622	0.641	0.631	2.94	93.9	0.622	U
02/26/10 00:02	B23D19	S10M000097	Sulfate	ug/mL	101	<0.0219	164	164	164	0.101	103	2.21	
02/26/10 00:02	B23D19	S10M000097	Nitrate	ug/mL	101	<0.0162	415	415	415	0.0919	105	1.64	
02/26/10 00:02	B23D19	S10M000097	Nitrite	ug/mL	90.2	<0.0400	<4.04	<4.04	n/a	n/a	91.1	4.04	U
02/26/10 00:02	B23D19	S10M000097	Phosphate	ug/mL	96.5	<0.0381	<3.85	<3.85	n/a	n/a	98.2	3.85	U
02/26/10 00:02	B23D19	S10M000097	Bromide	ug/mL	102	<0.0237	<2.39	<2.39	n/a	n/a	102	2.39	U
02/26/10 00:44	B23D20	S10M000098	Chloride	ug/mL	101	0.0365	111	n/a	n/a	n/a	n/a	0.313	
02/26/10 00:44	B23D20	S10M000098	Fluoride	ug/mL	93.0	<6.16E-03	<0.622	n/a	n/a	n/a	n/a	0.622	U
02/26/10 00:44	B23D20	S10M000098	Sulfate	ug/mL	101	<0.0219	172	n/a	n/a	n/a	n/a	2.21	
02/26/10 00:44	B23D20	S10M000098	Nitrate	ug/mL	101	<0.0162	417	n/a	n/a	n/a	n/a	1.64	
02/26/10 00:44	B23D20	S10M000098	Nitrite	ug/mL	90.2	<0.0400	<4.04	n/a	n/a	n/a	n/a	4.04	U
02/26/10 00:44	B23D20	S10M000098	Phosphate	ug/mL	96.5	<0.0381	<3.85	n/a	n/a	n/a	n/a	3.85	U
02/26/10 00:44	B23D20	S10M000098	Bromide	ug/mL	102	<0.0237	<2.39	n/a	n/a	n/a	n/a	2.39	U

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