

**FINAL REPORT FOR THE SAMPLES RECEIVED IN
MARCH, 2010, FOR SAF F09-056**

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SDG: 222S20100278

Carolina S. Menjivar

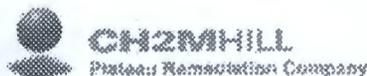
Advanced Technologies and Laboratories International, Inc.

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Prepared for:

Prepared by:



Mike Neely

CH2M Hill Plateau Remediation Co.

P.O. Box 850

Richland, WA 99352

509-373-0654

ATL, Inc.

P.O. Box 250

Richland, WA 99352-0250

509-372-2525

C. S. Menjivar 4/29/10
C. S. Menjivar, Project Manager

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222-S LABORATORY

FINAL REPORT FOR THE SAMPLES RECEIVED IN MARCH, 2010 FOR SAF F09-056

1.0 INTRODUCTION

This final report presents the results for one water sample taken on March 11, 2010. The sample was analyzed in accordance with Sampling Authorization Form F09-056; *ARRA 100-HR-3 Remedial Process Optimization Wells – Groundwater (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

2.0 SAMPLE RECEIPT AND HANDLING

One sample was received on March 11, 2010 with adequate paperwork. The measured temperature of the outside of the sample container was 4 °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:

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

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.

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, nitrate, and phosphate. Detection limits were achieved; however, the analysis time lapse exceeded the holding time requirements (see Attachment 4).

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 F09-056, *ARRA 100-HR-3 Remedial Process Optimization Wells-Groundwater*, CH2M Hill, Plateau Remediation Company, Richland, Washington.

Attachment 1

DATA SUMMARY REPORT

WSCF - Anions & HexCr
Data Summary of All Results

Sample Group: 20100278

Customer Group or SDG Number: 222S201000278

Customer Sample ID: B23PT6

Customer Sample ID: B23PT6

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S10M000212			16984-48-8	Fluoride	ug/mL	93.6	<6.16E-03	0.334	n/a	n/a	n/a	n/a	0.0370	n/a	
S10M000212			16887-00-6	Chloride	ug/mL	95.5	<3.10E-03	23.6	n/a	n/a	n/a	n/a	0.0186	n/a	
S10M000212			14797-65-0	Nitrite	ug/mL	93.3	<0.0400	<0.240	n/a	n/a	n/a	n/a	0.240	n/a	U
S10M000212			24959-67-9	Bromide	ug/mL	94.9	<0.0237	0.574	n/a	n/a	n/a	n/a	0.142	n/a	B
S10M000212			14797-55-8	Nitrate	ug/mL	95.6	<0.0162	70.8	n/a	n/a	n/a	n/a	0.0972	n/a	
S10M000212			14265-44-2	Phosphate	ug/mL	95.1	<0.0381	<0.229	n/a	n/a	n/a	n/a	0.229	n/a	U
S10M000212			14808-79-8	Sulfate	ug/mL	95.6	<0.0219	170	n/a	n/a	n/a	n/a	1.12	n/a	

NA = Not Analyzed, ND = Not Detectec

B - Estimated

U - < Det Limit

WSCF - Anions & HexCr
Data Summary of All Results

Sample Group: 20100244

Customer Group or SDG Number: 222S20100244

Customer Sample ID: B24CH7

Customer Sample ID: B24CH7

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Crit Err %	Qual Flags
S10M000184			16984-48-8	Fluoride	ug/mL	93.6	<6.16E-03	0.373	0.357	0.365	4.57	94.9	0.0370	n/a	
S10M000184			16887-00-6	Chloride	ug/mL	95.5	<3.10E-03	20.5	20.4	20.4	0.499	91.8	0.0186	n/a	
S10M000184			14797-65-0	Nitrite	ug/mL	93.3	<0.0400	<0.240	<0.240	n/a	n/a	97.6	0.240	n/a	U
S10M000184			24959-67-9	Bromide	ug/mL	94.9	<0.0237	<0.142	<0.142	n/a	n/a	95.4	0.142	n/a	U
S10M000184			14797-55-8	Nitrate	ug/mL	95.6	<0.0162	19.9	20.2	20.0	1.63	103	0.0972	n/a	
S10M000184			14265-44-2	Phosphate	ug/mL	95.1	<0.0381	0.317	0.299	0.308	5.71	98.0	0.229	n/a	B
S10M000184			14808-79-8	Sulfate	ug/mL	95.6	<0.0219	52.5	51.6	52.0	1.59	102	0.131	n/a	

NA = Not Analyzed, ND = Not Detectec

U - < Det Limit

B - Estimated

Attachment 2

HOLDING TIME REPORT

Hold Time Report SDG222S20100278

Customer Sample ID	Sample Group	Laboratory Sample ID	Method	Sample Date	Received Date	Analysis Date	Analysis Time Lapse	Missed Holding Time
B23PT6	20100278	S10M000212	SW846-9056A	03/11/10 11:11	03/11/10 13:15	04/01/10 23:37	22 days	Yes, for NO ₂ , NO ₃ , PO ₄

Attachment 3

RECEIPT PAPERWORK

ATL	SAMPLE RECEIPT AND CHAIN OF CUSTODY VERIFICATION CHECKLIST	LO-090-101 Rev <u>D.D. 1</u>
Date Samples Received: <u>3-11-10</u>		Group #: <u>20100278</u>
Number of Samples: <u>2</u>		
Sample Custodian: <u>elitel</u>		
Sample Custodian to Complete:		
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 type="checkbox"/> Check if no cooler and/or no ice <u>4°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)	✓	<u>2B ref 44</u>
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>RT</u> Date <u>3-11-10</u>		
If No, comment on communication and resolution: <u>for JK Ritehour</u>		
Other Comments:		

CH2M Hill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				F09-056-082	PAGE 1 OF 1
COLLECTOR <i>Chacon</i>	COMPANY CONTACT DYEKMAN, DL	TELEPHONE NO. 373-2530	PROJECT COORDINATOR DYEKMAN, DL		PRICE CODE 7N	DATA TURNAROUND 45 Days / 45 Days	
SAMPLING LOCATION C7592 (199-D6-1); 1-002	PROJECT DESIGNATION ARRA 100-HR-3 Remedial Process Optimization Wells - Groundwater		SAF NO. F09-056	AIR QUALITY <input type="checkbox"/>			
ICE CHEST NO. <i>N/A</i>	FIELD LOGBOOK NO. <i>1</i>	ACTUAL SAMPLE DEPTH <i>105 FT</i>	COA 302160ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE			
SHIPPED TO <i>Waste Sampling & Characterization 222-S</i>	OFFSITE PROPERTY NO. N/A	BILL OF LADING/AIR BILL NO. N/A					
MATRIX* A=Air DL=Drum L=Liquids DS=Drum S=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 HNO3 to pH <2 Cool-4C HNO3 to pH <2 HNO3 to pH <2 HNO3 to pH <2 HCl to pH <2 None		<i>Grp 20100278</i> <i>Sample # 310M0002</i>		
			TYPE OF CONTAINER G/P P G/P G/P G/P G/P				
			NO. OF CONTAINER(S) 1 1 1 1 1 1				
			VOLUME 500mL 500mL 500mL 500mL 1L 1L 250mL				
			SAMPLE ANALYSIS SEE ITEM (1) IN SPECIAL INSTRUCTIONS SEE ITEM (2) IN SPECIAL INSTRUCTIONS SEE ITEM (3) IN SPECIAL INSTRUCTIONS Gross Alpha (Gross Alpha) Gross Beta (Gross Beta) Strontium-90,90 - Total Sr Technetium 99 (Technetium 99) Tritium - on 2r				
SPECIAL HANDLING AND/OR STORAGE							
SAMPLE NO. B23PT6	MATRIX* WATER	SAMPLE DATE 3-11-10	SAMPLE TIME 1111				
CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS			
RELINQUISHED BY/REMOVED FROM <i>AM Chacon</i>	DATE/TIME <i>3-11-10 1315</i>	RECEIVED BY/STORED IN <i>et al</i>	DATE/TIME <i>3-11-10 1315</i>	** The CACN for all analytical work at WSCF laboratory is 401649ES20. ** The 100 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF. (1) ICP Metals - 6010B (Add-On) {Strontium} ICP Metals - 6010B (TAL) {Sodium, Iron, Potassium, Barium, Chromium, Cobalt, Copper, Zinc, Manganese, Nickel, Vanadium, Calcium, Magnesium, Silver} ICP/MS - 200.8 (Add-on) {Beryllium} ICP/MS - 200.8 (TAL) {Antimony, Cadmium} (2) IC Anions - 300.0 {Chloride, Nitrogen in Nitrite, Fluoride, Nitrogen in Nitrate, Sulfate} (3) Gamma Spectroscopy {Europium-155, Cesium-137, Europium-154, Europium-152, Cobalt-60}			
RELINQUISHED BY/REMOVED FROM <i>CHPRG</i>	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			

222-S

WRPS, P. O. Box 850
Richland, WA

Phone: (509) 376-5029 / FAX: (509) 372-1878

ACKNOWLEDGMENT OF SAMPLES RECEIVED

Sample Group: 20100278 - CACN/COA 401649/ES20

Specification Entity: WSCF - Anions & HexCr

The following samples were received from you on 03/11/2010. They have been scheduled for the tests listed beside each sample. If this information is incorrect, please contact your service representative. Thank you for using 222-S.

Sample	Customer Sample ID	Matrix	Sample Date
Tests Scheduled			
S10M000212	B23PT6	LIQUID	03/11/2010
IC - ANIONS			

Test Acronym Description

Test Acronym	Description
IC - ANIONS	Anions by IC SW846

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:
 100 Area 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):	<input type="radio"/> Yes	<input checked="" type="radio"/> No	<input type="radio"/> Unknown
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: _____	_____	<input type="radio"/> Yes	<input checked="" 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 SJ TRENT / [Signature] Date 12/3/07

Attachment 4

ISSUE RESOLUTION FORM

ISSUE RESOLUTION FORM

CHPRC TRACKING NUMBER: 10-120

Date : 04/27/2010 SAF No.: F09-056

SDG: 222S20100278

LOGIN No.: S10M000212

TEST: IC Anions

Sample No.(s) : B23PT6

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

Sample was analyzed outside of the holding time period due to an oversight. Missed holding time for nitrite, nitrate, and phosphate.

PROPOSED RESOLUTION

Report and explain in narrative.

CHPRC/BHI/WMH/PNNL COMMENTS

Accept proposed resolution.

Heidi Hampt 4/28/10

Signature and Date