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**FINAL REPORT FOR THE SAMPLES RECEIVED IN
MARCH, 2010, FOR SAF 110-020**

**Document No.: 20100270 Reissue 1
SDG: 222S20100270**

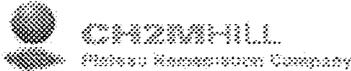
Carolina S. Menjivar
Advanced Technologies and Laboratories International, Inc.

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April 19, 2010

Prepared for:

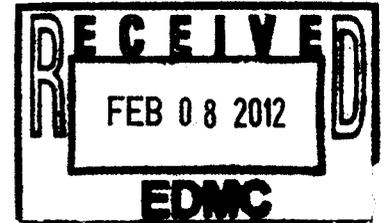
Prepared by:

*RDR 6309
KB
6-16-10*



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Carolina S. Menjivar 04-19-10
C. S. Menjivar, Project Manager

222-S LABORATORY**FINAL REPORT FOR SAMPLES RECEIVED IN MARCH, 2010,
FOR SAF I10-020**

1.0 INTRODUCTION

This report has been reissued in order to correct the result for sample B247R5 due to a calculation error. This correction was requested by the client in a Recheck, Recount, or Reanalysis Order Number 10041522-S-R6309 (see Attachment 4).

This final report presents the result for ten ground water samples taken on March 10, 2010. The samples were analyzed in accordance with Sampling Authorization Form I10-020; 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	Recheck, Recount, or Reanalysis Order

2.0 SAMPLE RECEIPT AND HANDLING

The samples were received on March 10, 2010, with adequate paperwork. For all samples, except B247N9, B247P0, B248N3, and B248N4, the measured temperature of the outside of the sample container was 12 °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 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 Hexavalent Chromium by Spectrophotometric Determination

The hexavalent chromium analysis was performed on direct aliquots of the samples. All requirements in the SAF and QAPP were met.

4.0 PROCEDURES

Table 1 lists the analytical procedure used for analysis of this sample.

Table 1. Analytical Procedures.

Analysis	Preparation Method	Analysis Procedure
Hexavalent Chromium Analysis by Spectrophotometric Determination	NA	SW846-7196A

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 I10-020; 2010, CH2M Hill, Plateau Remediation Company, Richland, Washington

Attachment 1

DATA SUMMARY REPORT

WSCF - Anions & HexCr
 Data Summary of All Results

Sample Group: 20100270
 Customer Group or SDG Number: 22S20100270
 Customer Sample ID: B247N9
 Customer Sample ID: B247N9

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S10M000175			18540-29-9	Hexavalent Chromium	ug/mL	101	<9.00E-03	0.0132	n/a	n/a	n/a	n/a	9.68E-03	n/a	B

U - < Det Limit

B - Estimated

NA = Not Analyzed, ND = Not Detectec

WSCF - Anions & HexCr
 Data Summary of All Results

Sample Group: 20100270
 Customer Group or SDG Number: 222S20100270
 Customer Sample ID: B247P0
 Customer Sample ID: B247P0

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S10M000176			18540-29-9	Hexavalent Chromium	ug/mL	101	<9.00E-03	0.0174	n/a	n/a	n/a	n/a	9.66E-03	n/a	B

U - < Det Limit

B - Estimated

NA = Not Analyzed, ND = Not Detectec

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WSCF - Anions & HexCr
Data Summary of All Results

Sample Group: 20100270
Customer Group or SDG Number: 222S20100270
Customer Sample ID: B247R4
Customer Sample ID: B247R4

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S10M000167			18540-29-9	Hexavalent Chromium	ug/mL	99.8	<9.00E-03	0.0201	n/a	n/a	n/a	n/a	9.66E-03	n/a	B

B - Estimated

U - < Det Limit

NA = Not Analyzed, ND = Not Detected

WSCF - Anions & HexCr
Data Summary of All Results

Sample Group: 20100270

Customer Group or SDG Number: 222S20100270

Customer Sample ID: B247R5

Customer Sample ID: B247R5

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S10M000168			18540-29-9	Hexavalent Chromium	ug/mL	99.8	<9.00E-03	0.0236	n/a	n/a	n/a	n/a	9.68E-03	n/a	B

U - < Det Limit

B - Estimated

NA = Not Analyzed, ND = Not Detected

WSCF - Anions & HexCr
 Data Summary of All Results

Sample Group: 20100270
 Customer Group or SDG Number: 222S20100270
 Customer Sample ID: B248N3
 Customer Sample ID: B248N3

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S10M000177			18540-29-9	Hexavalent Chromium	ug/mL	101	<9.00E-03	0.0101	n/a	n/a	n/a	n/a	9.68E-03	n/a	B

U - < Det Limit

B - Estimated

NA = Not Analyzed, ND = Not Detected

WSCF - Anions & HexCr
 Data Summary of All Results

Sample Group: 20100270
 Customer Group or SDG Number: 222S20100270
 Customer Sample ID: B248N4
 Customer Sample ID: B248N4

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S10M000178			18540-29-9	Hexavalent Chromium	ug/mL	101	<9.00E-03	<9.68E-03	n/a	n/a	n/a	n/a	9.68E-03	n/a	U

U - < Det Limit

B - Estimated

NA = Not Analyzed, ND = Not Detectec

WSCF - Anions & HexCr
 Data Summary of All Results

Sample Group: 20100270
 Customer Group or SDG Number: 222S20100270
 Customer Sample ID: B248N6
 Customer Sample ID: B248N6

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S10M000169			18540-29-9	Hexavalent Chromium	ug/mL	99.8	<9.00E-03	0.965	n/a	n/a	n/a	n/a	9.66E-03	n/a	n/a

U - < Det Limit

B - Estimated

NA = Not Analyzed, ND = Not Detected

WSCF - Anions & HexCr
 Data Summary of All Results

Sample Group: 20100270
 Customer Group or SDG Number: 222S20100270
 Customer Sample ID: B248N7
 Customer Sample ID: B248N7

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S10M000170			18540-29-9	Hexavalent Chromium	ug/mL	99.8	<9.00E-03	0.967	n/a	n/a	n/a	n/a	9.68E-03	n/a	n/a

U - < Det Limit

B - Estimated

NA = Not Analyzed, ND = Not Detected

WSCF - Anions & HexCr
 Data Summary of All Results

Sample Group: 20100270
 Customer Group or SDG Number: 222S20100270
 Customer Sample ID: B248N8
 Customer Sample ID: B248N8

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S10M000171			18540-29-9	Hexavalent Chromium	ug/mL	99.8	<9.00E-03	0.960	n/a	n/a	n/a	n/a	9.68E-03	n/a	n/a

U - < Det Limit

B - Estimated

NA = Not Analyzed, ND = Not Detected

WSCF - Anions & HexCr
 Data Summary of All Results

Sample Group: 20100270
 Customer Group or SDG Number: 222S20100270
 Customer Sample ID: B248N9
 Customer Sample ID: B248N9

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S10M000172			18540-29-9	Hexavalent Chromium	ug/mL	101	<9.00E-03	0.974	n/a	n/a	n/a	n/a	9.66E-03	n/a	n/a

U - < Det Limit

B - Estimated

NA = Not Analyzed, ND = Not Detected

Attachment 2

HOLDING TIME REPORT

Hold Time Report SDG No 222S2010270

Sample Group	Sample	Matrix	Method	Sample Date	Received Date	Analysis Date	Missed Holding Time
20100270	S10M000169	LIQUID	SW846-7196	03/10/10 09:29	03/10/10 13:30	03/10/10 18:32	N
20100270	S10M000170	LIQUID	SW846-7196	03/10/10 09:29	03/10/10 13:30	03/10/10 18:32	N
20100270	S10M000171	LIQUID	SW846-7196	03/10/10 09:29	03/10/10 13:30	03/10/10 18:32	N
20100270	S10M000172	LIQUID	SW846-7196	03/10/10 09:29	03/10/10 13:30	03/10/10 18:32	N
20100270	S10M000177	LIQUID	SW846-7196	03/10/10 09:35	03/10/10 14:15	03/10/10 18:32	N
20100270	S10M000178	LIQUID	SW846-7196	03/10/10 09:35	03/10/10 14:15	03/10/10 18:32	N
20100270	S10M000167	LIQUID	SW846-7196	03/10/10 10:55	03/10/10 13:30	03/10/10 18:32	N
20100270	S10M000168	LIQUID	SW846-7196	03/10/10 10:55	03/10/10 13:30	03/10/10 18:32	N
20100270	S10M000175	LIQUID	SW846-7196	03/10/10 13:18	03/10/10 14:15	03/10/10 18:32	N
20100270	S10M000176	LIQUID	SW846-7196	03/10/10 13:18	03/10/10 14:15	03/10/10 18:32	N

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>3/10/10</u>		Group #: <u>20100270, 271</u>	
Number of Samples: <u>6</u>		<u>269</u> GPR 3-11-10	
Sample Custodian: <u>Cheryl Edwards</u>			
Sample Custodian to Complete:			
Action	OK? (Y/N)	N/A	Comments
RSA COC provided?	✓		
RSR provided?		✓	
Verify GKI is complete	✓		
Check that outer custody seal is intact, if present	✓		
Record cooler temperature in centigrade as appropriate <u>12°C</u>	✓		<input type="checkbox"/> 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)	✓		
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 _____	Date <u>3/10/10</u>
If No, comment on communication and resolution: <u>per C/R</u>			
Other Comments:			

CHPRC

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C.#
REVISION-020-70

Page 1 of 1

Collector: S.J. Southernland
 Contact/Requester: Karen Waters-Husted
 Telephone No.: 376-4650
 SAF No.: CHPRC
 Sampling Origin: Hartford Site
 Purchase Order/Charge Code: 30007JES20
 Project Title: 100KR4IAM_MARCH 2010
 Logbook No.: HNF-N-506 3/1/23
 Shipped To (Lab): 222-S Lab Operations
 Method of Shipment: Government Vehicle
 Bill of Lading/Air Bill No.: N/A
 Icc Chest No.: N/A
 Offsite Property No.: N/A
 Priority: 24 Hours **PRIORITY**

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 (1090)1993
 270 APR 3-11-10
 GSH 20100261

SPECIAL INSTRUCTIONS Hold Time: Total Activity Exemption: Yes No
 100 Area Generator: Knowledge Information Form applies. The CACN for all analytical work at WSCT is 401647.

Sample No.	Filter	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B248N6	Y	W 3/10/10	0929	1x500-mL aG	7196_CR6: Hexavalent Chromium (1) <i>SIC M000169</i>	24 Hours	Cool~4C
B248N7	N	W 3/10/10	0929	1x500-mL aG	7196_CR6: Hexavalent Chromium (1) <i>SIC M000170</i>	24 Hours	Cool~4C
					<i>N/A</i>		
					<i>3/10/10</i>		
					<i>N/A</i>		

Relinquished By: S.J. Southernland
 CHPRC
 Relinquished By: *[Signature]*
 Date/Time: MAR 10 2010 1530
 Received By: *[Signature]*
 Date/Time: MAR 10 2010 1530

Relinquished By: *[Signature]*
 Date/Time: *[Blank]*

Relinquished By: *[Signature]*
 Date/Time: *[Blank]*

FINAL SAMPLE DISPOSITION
 Disposal Method (e.g., Return to customer, per lab procedure, used in process):
 Disposed By: *[Signature]*
 Date/Time: *[Blank]*

Matrix *
 S = Soil, SF = Sediment, SI = Solid, W = Water, O = Oil, A = Air
 DS = Dism Solid, DI = Dism Liq, T = Tissue, WT = Wine, L = Liquid, V = Vegetation
 Other

ATL	SAMPLE RECEIPT AND CHAIN OF CUSTODY VERIFICATION CHECKLIST	LO-090-101 Rev <u>D.D.1</u>
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Date Samples Received: 3/10/10 Group #: 2000269270
 Number of Samples: 10 OPR
3-11-10
 Sample 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 <u>0°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 - Frig 4</u>

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 RT Date 3.10.10

If No, comment on communication and resolution:

For JR Ritenour

Other Comments:

**20100270 Resue 1
222-S**

REVISION 1

WRPS, P. O. Box 850
Richland, WA

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

ACKNOWLEDGMENT OF SAMPLES RECEIVED

Sample Group: 20100270

Specification Entity: WSCF - Anions & HexCr - CACN/COA 75A/401647

The following samples were received from you on 03/10/2010. 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 Tests Scheduled	Customer Sample ID	Matrix	Sample Date
S10M000167 CHROMIUM VI	B247R4	LIQUID	03/10/2010
S10M000168 CHROMIUM VI	B247R5	LIQUID	03/10/2010
S10M000169 CHROMIUM VI	B248N6	LIQUID	03/10/2010
S10M000170 CHROMIUM VI	B248N7	LIQUID	03/10/2010
S10M000171 CHROMIUM VI	B248N8	LIQUID	03/10/2010
S10M000172 CHROMIUM VI	B248N9	LIQUID	03/10/2010
S10M000175 CHROMIUM VI	B247N9	LIQUID	03/10/2010
S10M000176 CHROMIUM VI	B247P0	LIQUID	03/10/2010
S10M000177 CHROMIUM VI	B248N3	LIQUID	03/10/2010
S10M000178 CHROMIUM VI	B248N4	LIQUID	03/10/2010

Test Acronym Description

Test Acronym	Description
CHROMIUM VI	Chromium (VI) by Spec.

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&GRF Characterization and Monitoring Sampling and Analysis

MSDS Available? [X] 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 [X] No [] Unknown
U Codes: [] Yes [X] No [] Unknown
K Codes: [] Yes [X] No [] Unknown
F Codes: [] Yes [X] 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 [X] No [] Unknown
D002: [] pH ≤2 [] pH ≥12.5 [] Solid Corrosive (WSC2) [] Yes [X] No [] Unknown
D003: [] Cyanide [] Sulfide [] Water Reactive [] Other [] Yes [X] No [] Unknown
D004-D043 (Identify applicable waste codes and concentrations): (i.e., peroxide former, explosive, air reactive) [] Yes [X] No [] 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: [] Yes [X] No [] Unknown WP01: [] Yes [X] No [] Unknown
WT02: [] Yes [X] No [] Unknown WP02: [] Yes [X] No [] Unknown
W001: [] Yes [X] No [] Unknown WP03: [] Yes [X] No [] Unknown
List constituents and concentrations: F003*: [] Yes [X] No [] Unknown

N/A

4. Is this material TSCA regulated for PCBs? [] Yes [X] 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 [X] 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

RECHECK, RECOUNT, OR REANALYSIS ORDER

04/15/2010
RECHECK, RECOUNT, OR REANALYSIS ORDER
CONTRACT NO MW6-SBB-A19981

222-S Lab Operations
Hanford Works - 200W MSIN: T6-20
Richland, WA 99352

CHPRC Order Number: 100415222-S-R6309

Sample Delivery Group: 222S20100270

Special Instructions None

Samples(s)

Lab Sample ID	CHPRC Sample	Action	TAT	METHOD_NAME:
S10M000168	B247R5	Recheck	15/15	7196_CR6

Deliver Report Results to: CH2M Hill Plateau Remediation Company
P.O. Box 1600
Mail Stop - R3-60
Richland, WA 99352
C/O Mr. Mike Neely