

**FINAL REPORT FOR SAMPLE RECEIVED IN  
DECEMBER, 2010, FROM 100-BC QC SAMPLING**

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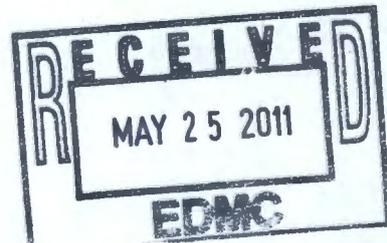
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 01-14-11  
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**222-S LABORATORY****FINAL REPORT FOR THE SAMPLE RECEIVED IN DECEMBER, 2010,  
FROM 100-BC QC SAMPLING****1.0 INTRODUCTION**

This final report presents the result for one ground water sample taken on December 10, 2010. The sample was analyzed in accordance with Sampling Authorization Form F10-227; *100 Area Remedial Investigation / Feasibility Analysis – 100-BC QC Sampling* (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

**2.0 SAMPLE RECEIPT AND HANDLING**

The sample was received on December 10, 2010, approximately four hours after sampling, with adequate paperwork. The sample was not delivered to Door 13 in a cooler. The sample temperature was not measured. The sample was placed in to a refrigerator.

**3.0 ANALYTICAL RESULTS SUMMARY**

The Data Summary Report (Attachment 1) present the final analytical results for those analytes requested in the SAF. The “Det Limit” column in Attachment 1 contains the method detection limit (MDL) for non-radionuclide analyses.

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.
- “C” indicates that the analyte was detected in the method blank and the sample, and the concentration detected in the blank was greater than 5% of the sample result.
- “B” is applied to sample concentrations that are 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 on direct aliquots of all samples. All requirements in the SAF and QAPP were met. Nitrate was detected below the quantitation level in two of the continuing calibration blanks. The nitrate concentrations detected in the blanks were greater than 5% of the sample result; therefore, a "C" flag was applied to the sample result for nitrate. In addition, the nitrate result for the sample was above the MDL but below the EQL; therefore a "B" flag was also applied to the sample result for nitrate. Since the result for nitrate was below the quantitation limit, reanalysis was not required.

#### 3.1.2 Hexavalent Chromium by Spectrophotometric Determination

The hexavalent chromium analysis was performed on direct aliquots of the sample. 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
Anions by Ion Chromatography	NA	SW-846 9056A
Hexavalent Chromium Analysis by Spectrophotometric Determination	NA	SW-846 7196A

## 5.0 REFERENCES

ATL-MP-1011, 2010, *ATL Quality Assurance Project Plan for 222-S Laboratory*, Rev. 9-A, Applied Technologies and Laboratories International, Inc., Richland, Washington.

Sampling Authorization Form F10-227; 100 Area Remedial Investigation/Feasibility Analysis – 100-BC QC Sampling, 2010, CH2M Hill, Plateau Remediation Company, Richland, Washington

Attachment 1

DATA SUMMARY REPORT

WSCF GW Diversion FY11  
 Data Summary Report

Sample Group: 20101228

Customer Group or SDG Number: 222S20101228

Customer Sample ID: B27PN1A

Customer Sample ID: B27PN1A

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S10M000633			18540-29-9	Hexavalent Chromium	ug/mL	106	<9.00E-03	<9.68E-03	n/a	n/a	n/a	n/a	9.68E-03	n/a	U
S10M000634			16984-48-8	Fluoride	ug/mL	102	<1.61E-03	<6.44E-03	n/a	n/a	n/a	n/a	6.44E-03	n/a	U
S10M000634			16887-00-6	Chloride	ug/mL	104	<9.98E-03	<0.0399	n/a	n/a	n/a	n/a	0.0399	n/a	U
S10M000634			14797-65-0	Nitrite	ug/mL	102	<0.0192	<0.0768	n/a	n/a	n/a	n/a	0.0768	n/a	U
S10M000634			14808-79-8	Sulfate	ug/mL	107	<0.0187	<0.0748	n/a	n/a	n/a	n/a	0.0748	n/a	U
S10M000634			24959-67-9	Bromide	ug/mL	108	<0.0580	<0.232	n/a	n/a	n/a	n/a	0.232	n/a	U
S10M000634			14797-55-8	Nitrate	ug/mL	107	0.0328	0.185	n/a	n/a	n/a	n/a	0.0832	n/a	CB
S10M000634			14265-44-2	Phosphate	ug/mL	107	<0.0167	<0.0668	n/a	n/a	n/a	n/a	0.0668	n/a	U

NA = Not Analyzed, ND = Not Detected

U - < Det Limit

B - Estimated

C - Blank Contamination

Attachment 2

HOLDING TIME REPORT

Ordered by Holding Time

## All Hold Times

Holding Time	Sample Group	Sample	Matrix	Method	Prep Method	Sample Date	Received Date	Prep Date	Analysis Date	Missed Holding Time	Hold Time Days/Hr Remaining
12/11/10 08:05	20101228	S10M000633	LIQUID	CHROMIUM V1		12/10/10 08:05	12/10/10 12:00	N/A	12/10/10 19:00	N	13h
12/12/10 08:05	20101228	S10M000634	LIQUID	IC - ANIONS/SMALL ORG. ACIDS		12/10/10 08:05	12/10/10 12:00	N/A	12/11/10 08:06	N	24h

Attachment 3

RECEIPT PAPERWORK

ATL	<b>SAMPLE RECEIPT AND CHAIN OF CUSTODY VERIFICATION CHECKLIST</b>	LO-090-101 Rev <u>EE.0</u>	
Date Samples Received: <u>12.10.10</u>		Group #: <u>20101228</u> <u>1229</u>	
Number of Samples: <u>6</u>			
Sample Custodian: <u>rt steels</u>			
<b>Sample Custodian to Complete:</b>			
Action	OK? (Y/N)	N/A	Comments
RSA/COC provided?	y		
RSR provided?		✓	
Verify GKI is complete		✓	<u>on file</u>
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
Verify that COC or RSA is accurate and complete, containing the following information:			
• Client name and client sample number	y		
• Date and time of sampling	y		
• Sampling location or origin	y		
• Container type, size, and number	y		
• Analysis request is clear	y		
• Signature of persons relinquishing and receiving samples	y		
• Date and/or time of sample custody exchange	y		
Verify that sample numbers on containers match the COC and/or RSA	y		
Samples stored properly (e.g., refrigeration)	y		
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>rtS</u> Date <u>12.10.10</u>			
If No, comment on communication and resolution:			
Other Comments:			

CH2MHill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F10-227-151	PAGE 1 OF 2
COLLECTOR <i>Patterson, Ferris, Wallace</i>	COMPANY CONTACT DALE DYKEMAN	TELEPHONE NO. (509) 373-2530	PROJECT COORDINATOR DYKEMAN, DL		PRICE CODE 7N	DATA TURNAROUND 45 Days / 45 Days
SAMPLING LOCATION C7783 (199-B2-15); I-014 FTB	PROJECT DESIGNATION 100 Area Remedial Investigation/Feasibility Analysis - 100-BC QC Sampling		SAF NO. F10-227	AIR QUALITY <input type="checkbox"/>		
ICE CHEST NO.	FIELD LOGBOOK NO. <i>HNF-U-585-15 pg 21</i>	ACTUAL SAMPLE DEPTH <i>N/A</i>	COA 300078ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE		
SHIPPED TO <del>Waste Sampling &amp; Characterization</del> <i>222-5 KS 12/10/10</i>			BILL OF LADING/AIR BILL NO. N/A			

MATRIX*	POSSIBLE SAMPLE HAZARDS/ REMARKS	PRESERVATION	HCl to pH <2/Cool~4C	Cool~4C	HNO3 to pH <2	HNO3 to pH <2	Cool~4C	HNO3 to pH <2	HNO3 to pH <2	HCl to pH <2	None	HNO3 to pH <2
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	Contains Radibactive 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)		14/10 Days	24 Hours	28 Days	6 Months	48 Hours	6 Months	6 Months	6 Months	6 Months	6 Months
		TYPE OF CONTAINER	aG	aG	G	G	P	G/P	G/P	G/P	G	G/P
		NO. OF CONTAINER(S)	3	1	1	1	1	1	2	2	1	1
		VOLUME	1000mL	500mL	500mL	500mL	500mL	500mL	1L	1L	50mL	500mL
	SPECIAL HANDLING AND/OR STORAGE	SAMPLE ANALYSIS	TPH-Diesel Range - W/TPH-D;	Chromium Hex - 7196;	200.8_HG ICP/MS (100 Area RI/FS);	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	IC Anions - 300.0 (100 Area RI/FS);	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	Strontium 89,90 - Total Sr;	Technetium 99;	Tritium Ion;	Gamma Spectroscopy (100 Area RI/FS);
SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME									
B27PN1A	WATER	12/10/10	0805									

*KS 12/10/10*

*GRP# 20101228 cm 01/14/11 \*  
 Sam# ~~510M000634~~ (chrom) 510M000633  
 cm 11/14/11, ~~510M000635~~ (IC Anions) 510M000634*

**ORIGIN!!**

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
<i>Calvin Ferris / Calvin Ferris</i>	<i>12-10-10 1200</i>	<i>RT Stegle RT Stegle</i>	<i>12-10-10 1200</i>	** The laboratory is to report all TICs for Method 8260. <input type="checkbox"/> <input type="checkbox"/> ** The CACN for all analytical work at WSCF laboratory is 401736ES20. <input type="checkbox"/> ** The 100 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF.	
				(1) ICP/MS - 200.8 (Add-on) (Uranium); ICP/MS - 200.8 (100 Area RI/FS); <i>KS 12/10/10</i>	
				(2) Gross Alpha (Gross alpha); Gross Beta (Gross beta); <i>KS 12/10/10</i>	
				<i>* - Diverted to 222-5 due to WSCF outages <del>01/14/11</del> KS 12/10/10</i>	

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