

**FINAL REPORT FOR THE SAMPLES RECEIVED IN
FEBRUARY, 2010, FOR SAF F10-065**

**Document No.: 20100175
SDG: 222S20100175**

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Prepared for:

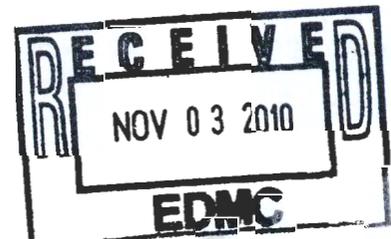


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222-S LABORATORY

FINAL REPORT FOR SAMPLES RECEIVED IN FEBRUARY, 2010, FOR SAF F10-065

1.0 INTRODUCTION

This final report presents the result for the two ground water samples taken on February 25 and 26, 2010. The samples were analyzed in accordance with Sampling Authorization Form F10-065; *ARRA 200 ZP-1 Remedial Action Wells Sampling and Analysis* (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 Forms |

2.0 SAMPLE RECEIPT AND HANDLING

The samples were received on February 25 and 26, 2010, with adequate paperwork. The samples did not show evidence of cooling. The measured temperature of the outside of the sample containers were 17 °C and 16 °C. This was reported to the client on the laboratory's sample receipt check list (see Attachment 3) and Issue Resolution Form No. 10-050 (see Attachment 4).

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).

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.

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 sample. All requirements in the SAF and QAPP were met with one exception. For the analytical batch

containing sample B23CW4, the low level standard recovery was below the required 75% at 40%. Since there was a negative instrument response for this sample, it is the laboratory's opinion that data quality was not affected.

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 F10-065; *ARRA 200 ZP-1 Remedial Action Wells Sampling and Analysis, Revision 3*, 2009, CH2M Hill, Plateau Remediation Company, Richland, Washington

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recovery was below the required 75% at 40%. Since the sample results were below the method detection limit, the data quality was not affected.

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Attachment 1

DATA SUMMARY REPORT

WSCF - Anions & HexCr
 Data Summary of All Results

Sample Group: 20100175

Customer Group or SDG Number: 222S20100175

Customer Sample ID: B23CW4

Customer Sample ID: B23CW4

| Sample# | R | A# | CAS # | Analyte | Unit | STD % | Blank | Result | Duplicate | Average | RPD % | Spk Rec % | Det Limit | Cnt Err % | Qual Flags |
|------------|---|----|------------|---------------------|-------|-------|-----------|-----------|-----------|---------|-------|-----------|-----------|-----------|------------|
| S10M000091 | | | 18540-29-9 | Hexavalent Chromium | ug/mL | 98.2 | <9.00E-03 | <9.70E-03 | <9.70E-03 | n/a | n/a | 105 | 9.70E-03 | n/a | U |

NA = Not Analyzed, ND = Not Detectec

U - < Det Limit

WSCF - Anions & HexCr
 Data Summary of All Results

Sample Group: 20100175

Customer Group or SDG Number: 222S20100175

Customer Sample ID: B23CW5

Customer Sample ID: B23CW5

| Sample# | R | A# | CAS # | Analyte | Unit | STD % | Blank | Result | Duplicate | Average | RPD % | Spk Rec % | Det Limit | Cnt Err % | Qual Flags |
|------------|---|----|------------|---------------------|-------|-------|-----------|-----------|-----------|---------|-------|-----------|-----------|-----------|------------|
| S10M000108 | | | 18540-29-9 | Hexavalent Chromium | ug/mL | 99.7 | <9.00E-03 | <9.68E-03 | <9.68E-03 | n/a | n/a | 102 | 9.68E-03 | n/a | U |

NA = Not Analyzed, ND = Not Detectec

U - < Det Limit

Attachment 2

HOLDING TIME REPORT

Hold Time Report**SDG No. 222S20100175**

| Sample Group | Sample | Matrix | Method | Sample Date | Received Date | Analysis Date | Missed Holding Time |
|---------------------|---------------|---------------|---------------|--------------------|----------------------|----------------------|----------------------------|
| 20100175 | S10M000091 | LIQUID | SW846-7196 | 02/25/10 08:00 | 02/25/10 08:50 | 02/25/10 18:30 | N |
| 20100175 | S10M000108 | LIQUID | SW846-7196 | 02/26/10 13:18 | 02/26/10 14:20 | 02/26/10 15:00 | 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>2-25-10</u> | | Group #: <u>2010176 2010175</u> <i>APR 2/26/2010</i> |
| Number of Samples: <u>4+2</u> | | |
| Sample Custodian: <u>R. J. R. R. R.</u> | | |
| Sample Custodian to Complete: | | |
| Action | OK? (Y/N) | N/A |
| RSA/COC provided? | ✓ | |
| 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 checked="" type="checkbox"/> Check if no cooler and/or no ice <u>14°C 17°C</u> <i>WFR 2-25-2010</i> |
| 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 <u>RJR</u> | Date <u>2-25-10</u> |
| If No, comment on communication and resolution: <u>for J.R. R. R.</u> | | |
| Other Comments: <u>sample in cooler without ice</u> | | |

| CH2M Hill Plateau Remediation Company | | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST | | | | F10-065-146 | PAGE 1 OF 1 |
|---|--|---|--|--|---------------------|---|--|
| COLLECTOR <i>Kaver Chamberlain</i> | | COMPANY CONTACT DYEKMAN, DL | | TELEPHONE NO. 373-2530 | | PROJECT COORDINATOR DYEKMAN, DL | |
| SAMPLING LOCATION EW-12 (C7019, 299-W11-49); I-006 | | PROJECT DESIGNATION ARRA 200-ZP-1 Remedial Action Wells Sampling and Analysis - Water | | | | PRICE CODE 1A | |
| ICE CHEST NO. | | FIELD LOGBOOK NO. <i>9984</i> | | ACTUAL SAMPLE DEPTH <i>397</i> | | AIR QUALITY <input type="checkbox"/> | |
| SHIPPED TO Waste Sampling & Characterization <i>222-5 2/25/10</i> | | OFFSITE PROPERTY NO. N/A | | | | BILL OF LADING/AIR BILL NO. N/A | |
| MATRIX* 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 | 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 Cool~1C | | | | |
| | | | TYPE OF CONTAINER aG | | | | |
| | | | NO. OF CONTAINER(S) 1 | | | | |
| | | | VOLUME 500mL | | | | |
| | SPECIAL HANDLING AND/OR STORAGE | | SAMPLE ANALYSIS Chromium Hex - 7195; | | | | |
| SAMPLE NO. | MATRIX* | SAMPLE DATE | SAMPLE TIME | | | | |
| B23CW4 | WATER | 2-25-10 | 0800 | ✓ | | | |
| <i>5109M000091</i> | | | | | | | |
| CHAIN OF POSSESSION | | | | SIGN/ PRINT NAMES | | SPECIAL INSTRUCTIONS | |
| RELINQUISHED BY/REMOVED FROM | | DATE/TIME | RECEIVED BY/STORED IN | | DATE/TIME | | ** The CACN for all analytical work at WSCF laboratory is 401648ES20. <input type="checkbox"/> ** Cr VI holding times MUST BE MET. Sample Management Project Coordinator must be contacted immediately if there is a problem. <input type="checkbox"/> ** The 200 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF. <i>ALL Samples Filtered</i> <i>17⁰²</i>  ORIGINAL <i>GRP# 20100176 et al 2-25-10</i> 20100175 |
| <i>E. Kaver Chamberlain</i> | | <i>2-25-10 0850</i> | <i>DL Dyekman</i> | | <i>2-25-10 0850</i> | | |
| 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 | | |
| 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 | |

| | | | |
|---|---|--------------------------|--|
| ATL | SAMPLE RECEIPT AND CHAIN OF CUSTODY VERIFICATION CHECKLIST | | LO-090-101 Rev <u>P.D.1</u> |
| Date Samples Received: <u>2.26.10</u> | | Group #: <u>20100175</u> | |
| Number of Samples: <u>4</u> | | <u>176</u> | |
| Sample Custodian: <u>[Signature]</u> | | | |
| Sample Custodian to Complete: | | | |
| Action | OK? (Y/N) | N/A | Comments |
| RSA/COC provided? | ✓ | | |
| RSR provided? | | ✓ | |
| Verify GKI is complete | ✓ | | File |
| 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>16°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) | ✓ | | 2B Ref #4 #3 |
| 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>MPR</u> | Date <u>2/26/2010</u> |
| If No, comment on communication and resolution: <u>Sample not in cooler</u> | | | |
| Other Comments: | | | |

| | | | | | | | |
|--|---|--|---|---|--|---------------------------------------|-------------|
| CH2MHill Plateau Remediation Company | | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST | | | | F10-065-147 | PAGE 1 OF 1 |
| COLLECTOR R Crow | | COMPANY CONTACT DYEKMAN, DL | TELEPHONE NO. 373-2530 | PROJECT COORDINATOR DYEKMAN, DL | PRICE CODE 1A | DATA TURNAROUND 24 Hours / 15 Days | |
| SAMPLING LOCATION EW-12 (C7019, 299-W11-49); I-007 | | PROJECT DESIGNATION ARRA 200-ZP-1 Remedial Action Wells Sampling and Analysis - Water | | SAF NO. F10-065 | AIR QUALITY <input type="checkbox"/> | | |
| ICE CHEST NO. | | FIELD LOGBOOK NO. HNF-N-585 8 pg. 85 | ACTUAL SAMPLE DEPTH 417' | COA 300194ES10 | METHOD OF SHIPMENT GOVERNMENT VEHICLE | | |
| SHIPPED TO Waste Sampling & Characterization 222-5 RS 2/26/10 | | OFFSITE PROPERTY NO. N/A | | BILL OF LADING/AIR BILL NO. N/A | | | |
| MATRIX* 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 | 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 Cool~4C 1600 | | | | |
| | | | TYPE OF CONTAINER aG | | | | |
| | | | NO. OF CONTAINER(S) 1 | | | | |
| | | | VOLUME 500mL | | | | |
| | SPECIAL HANDLING AND/OR STORAGE | | SAMPLE ANALYSIS Chromium Hex - 7196; | | | | |
| SAMPLE NO. | MATRIX* | SAMPLE DATE | SAMPLE TIME | | | | |
| B23CW5 | WATER | 2-26-10 | 1318 | | | | |
| | GRP# 20100175 | | | | | | |
| | S10M000108 | | | | | | |
| CHAIN OF POSSESSION | | SIGN/ PRINT NAMES | | SPECIAL INSTRUCTIONS | | | |
| RELINQUISHED BY/REMOVED FROM R Crow / RCrow | DATE/TIME 2-26-10 1420 | RECEIVED BY/STORED IN R Crow | DATE/TIME 2-26-10 1420 | ** The CACN for all analytical work at WSCF laboratory is 401648ES20. <input type="checkbox"/> ** Cr VI holding times MUST BE MET. Sample Management Project Coordinator must be contacted immediately if there is a problem. <input type="checkbox"/> ** The 200 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF. | | | |
| 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 | | | | |
| 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 | | | |

ORIGINAL

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:
 200 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): _____

P Codes: _____ Yes No Unknown

U Codes: _____ Yes No Unknown

K Codes: _____ Yes No Unknown

F Codes: F001 - F005 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 Unknown

D002: pH ≤2 pH ≥12.5 Solid Corrosive (WSC2) Yes No Unknown

D003: Cyanide Sulfide Water Reactive Other _____ Yes No Unknown

D004-D043 (Identify applicable waste codes and concentrations): _____ (i.e., peroxide former, explosive, air reactive) Yes 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)

WT01: Yes No Unknown

WT02: Yes No Unknown

W001: Yes No Unknown

List constituents and concentrations: _____

N/A

(*State mixture rule for ignitability)

WP01: Yes No Unknown

WP02: Yes No Unknown

WP03: Yes No Unknown

F003*: Yes No Unknown

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)

- 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 & Sign SJ TRENT / SA JPH Date 12/3/07

Attachment 4

ISSUE RESOLUTION FORMS

ISSUE RESOLUTION FORM

CHPRC TRACKING NUMBER: 10-050

Date: 2/25/2010

SAF No. F10-043, F10-65, S10-012, W10-001, W10-002

SDG: 222S20100175, 176, 185, 186, 187, 188, 190

LOGIN No.: S10M000091-93 and 95-100

TEST: Anions, HexCr, & VOA

Sample No.(s) B23CW4, B23CT9, B23PV2, B24DP5, B23D19, B23D20, B23198, B23X46

Submitted By: G. P. Ritenour

Phone No: 372-2742

Fax No.: 373-4884

Submitted To: Heidi Hampt

Phone No. 376-4319

Fax No. 373-1788

ISSUE

All samples were received outside of the recommended cooling temperatures of $4\pm 2^{\circ}\text{C}$ or $<6^{\circ}\text{C}$. Except as noted below, samples were received in a bag or cooler without evidence of cooling (no ice or blue ice). For two samples, B24DP5 and B23PV, the sample custodian could not remember the exact packing configuration. For these samples temperature was 13°C .

PROPOSED RESOLUTION

Analyze and note in report narrative

CHPRC/BHI/WMH/PNNL COMMENTS

Accept proposed resolution. Remember to include a copy of the IRF in the report narratives.

Heidi Hampt 3/2/10

Signature and Date