

RECEIVED JUNE 6, 2008

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FLUOR**Memorandum**

M4W41-SLF-08-610

To: H. Hampt E6-35 Date: June 6, 2008

From: S. L. Fitzgerald, Manager
 WSCF Analytical Lab 

cc: w/Attachments

| | | | |
|-----------------|-------|----------------|-------|
| T. F. Dale | S3-30 | J. E. Trechter | S3-30 |
| A. J. Kopriva | S3-30 | S. J. Trent | E6-35 |
| H. K. Meznarich | S3-30 | File/LB | |
| P. D. Mix | S3-30 | | |

Subject: FINAL RESULTS FOR SAMPLE DELIVERY GROUP WSCF20080908 – SAF NUMBER F08-010

Reference: (1) Groundwater Protection Program-Letter of Instruction, FH-EIS-2003-MEM-001, October 31, 2002

(2) HNF-SD-CD-QAPP-017, Rev. 8, Waste Sampling & Characterization Facility Quality Assurance Plan

This letter contains the following information for sample delivery group WSCF20080908:

- Cover Sheet (Attachment 1)
- Narrative (Attachment 2)
- Analytical Results (Attachment 3)
- Sample Receipt Information (Attachment 4)

SLF/grf

Attachments 4

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ATTACHMENT 1

COVER SHEET

Consisting of 2 pages
Including cover page

WSCF SAF NUMBER CROSS REFERENCE

Group#: WSCF20080908
Data Deliverable Date: 20-jun-2008
Data Deliverable: Cover Sheet

| SAF# | Sample ID | WSCF# | Matrix |
|---------|-----------|------------|---------|
| F08-010 | B1VFR8 | W08GR01168 | GASEOUS |
| | B1VFR9 | W08GR01169 | GASEOUS |

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ATTACHMENT 2

NARRATIVE

Consisting of 2 pages
Including cover page

Introduction

Two (2) S&GRP samples were received at the WSCF Laboratory on May 6, 2008. Samples were analyzed for the analytes indicated on the attached copy of the chain of custody (COC) form in accordance with the *Groundwater Remediation Program – Letter of Instruction*, referenced in the cover letter.

The narrative (Attachment 2) will address sample characteristics, analyses requested and general information in performance of the analytical methods. A Data Summary Report (Attachment 3) includes analytical results, a comment report detailing method abnormalities, tentatively identified peaks if applicable, method references, and Laboratory QC information as applicable. Copies of the chain of custody and sample receipt documentation are included as Attachment 4.

Analytical Methodology for Requested Analyses

Refer to *WSCF Method References Report*, page 9, for a complete listing of approved analytical methods.

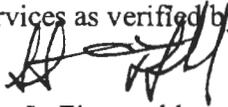
Organic Comments

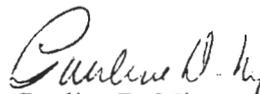
VOC (Vapor) – A Laboratory Control Sample (LCS), LCS Duplicate and Limit of Quantitation Standard (low-level standard) were analyzed with this delivery group. See pages 12 through 13 for QC details.

- Sample results were D flagged if dilution(s) were required.

All QC controls are within the established limits.

I certify that this data package is in compliance with the LOI, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Analytical Manager and Client Services as verified by the following signatures.


Scot L. Fitzgerald
WSCF Analytical Laboratory Manager


Pauline D. Mix
WSCF Client Services

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ATTACHMENT 3

ANALYTICAL RESULTS

Consisting of 9 pages
Including cover page

WSCF
ANALYTICAL RESULTS REPORT

for

Groundwater Remediation Program

Richland, WA 99354

Attention: Steve Trent

Analytical:

S. Fitzgerald 6/6/08

Client Services:

P.D. Mix 6/5/2008

All results are reported on an "as received" basis unless otherwise noted in the comment section.

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Contract#: FH-EIS-2003-MEM-001

Report#: WSCF20080908

Report Date: 5-jun-2008

Report WGPP/ver. 5.2

Groundwater Remediation Program

W13q Worklist/Batch/QC Report for Group# WSCF20080908

| WL# | S# | Batch | QC# | Tray Type | Sample# | Test |
|-----|----|-------|-------|-----------|------------|--------------------|
| | | | 41119 | LCS | | Headspace Analysis |
| | | | 41119 | LCS-DUP | | Headspace Analysis |
| | | | 41119 | LCS-RPD | | Headspace Analysis |
| | | | 41119 | LOQ | | Headspace Analysis |
| | | | 41119 | SAMPLE | W08GR01168 | Headspace Analysis |
| | | | 41119 | SAMPLE | W08GR01169 | Headspace Analysis |

WSCF

METHOD REFERENCES REPORT

Department: Organic

The results provided in this report were generated using the following WSCF Laboratory procedures. For your convenience, this table provides a listing of the regulatory or industry methods that are referenced by each of these WSCF procedures. Please note that the most recent version of the regulatory or industry method is listed here even though the WSCF procedure may reference an older version of the method. Also, a reference to a regulatory or industry method here does not necessarily indicate a verbatim implementation of that method.

| | |
|-------------------|---|
| LA-523-449 | LA-523-449: DETERMINATION OF VOLATILE ORGANIC COMPOUNDS FOR INDUSTRIAL HYGIENE |
| | EPA TO Methods TO-15 mod. Determination Of Volatile Organic Compounds (VOCs) In Ambient Air -Modified- |
| | HEIS TO-15_VOA_GAS VOA TO-15 |

Note: A complete list of WSCF analytical procedures and referenced regulatory or industry methods is available online at <http://www2.rl.gov/phmc/as-dol>.

Report Date: 5-jun-2008
Report#: WSCF20080908
Report WGPPM/5.2

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WSCF ANALYTICAL RESULTS REPORT

Attention: Steve Trent
SAF Number: F08-010
Sample # W08GR01168
Client ID: B1VFR8

TRENT
 WSCF

Matrix: GASEOUS

Group #: WSCF20080908
Department: Organic
Sampled: 05/06/08
Received: 05/06/08

| Test Performed | CAS # | Method | RQ | Result | Unit | TP Err | Unit | DF | MDL | PQL | Analysis Date |
|---------------------------|----------|------------|----|--------|----------|--------|------|------|-----|-----|---------------|
| Headspace Analysis | | | | | | | | | | | |
| Acetone | 67-64-1 | LA-523-449 | < | 25 | PPB(V/V) | | | 1.00 | 25 | | 05/19/08 |
| Methylenechloride | 75-09-2 | LA 523-449 | < | 10 | PPB(V/V) | | | 1.00 | 10 | | 05/19/08 |
| 2-Butanone | 78-93-3 | LA-523-449 | < | 10 | PPB(V/V) | | | 1.00 | 10 | | 05/19/08 |
| Chloroform | 67-66-3 | LA-523-449 | < | 10 | PPB(V/V) | | | 1.00 | 10 | | 05/19/08 |
| Carbon tetrachloride | 56-23-5 | LA-523-449 | < | 10 | PPB(V/V) | | | 1.00 | 10 | | 05/19/08 |
| Trichloroethene | 79-01-6 | LA-523-449 | < | 10 | PPB(V/V) | | | 1.00 | 10 | | 05/19/08 |
| Tetrachloroethene | 127-18-4 | LA-523-449 | < | 10 | PPB(V/V) | | | 1.00 | 10 | | 05/19/08 |

MDL=Minimum Detection Limit

RQ=Result Qualifier

TP Err=Total Propagated Error

DF=Dilution Factor

D - Analyte was identified at a secondary dilution factor

* - Indicates results that have NOT been validated;

+ - Indicates more than six qualifier symbols

Report WGPP/ver. 5.2

Groundwater Remediation Program

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WSCF ANALYTICAL RESULTS REPORT

Attention: Steve Trent
SAF Number: F08-010
Sample # W08GR01169
Client ID: B1VFR9

**TRENT
WSCF**

Matrix: GASEOUS

Group #: WSCF20080908
Department: Organic
Sampled: 05/06/08
Received: 05/06/08

| Test Performed | CAS # | Method | RQ | Result | Unit | TP Err | Unit | DF | MDL | PQL | Analysis Date |
|---------------------------|----------|------------|----|---------|----------|--------|------|-----------|---------|-----|---------------|
| Headspace Analysis | | | | | | | | | | | |
| Acetone | 67-64-1 | LA-523-449 | | < 12 | PPB(V/V) | | | 1.00 | 12 | | 05/19/08 |
| Methylenechloride | 75-09-2 | LA 523-449 | | < 10 | PPB(V/V) | | | 1.00 | 10 | | 05/19/08 |
| 2-Butanone | 78-93-3 | LA-523-449 | | < 10 | PPB(V/V) | | | 1.00 | 10 | | 05/19/08 |
| Chloroform | 67-66-3 | LA-523-449 | | 1.0e+02 | PPB(V/V) | | | 1.00 | 10 | | 05/19/08 |
| Carbon tetrachloride | 56-23-5 | LA-523-449 | D | 12,000 | PPB(V/V) | | | 4.00e+002 | 2.0e+03 | | 05/19/08 |
| Trichloroethene | 79-01-6 | LA-523-449 | | 38 | PPB(V/V) | | | 1.00 | 10 | | 05/19/08 |
| Tetrachloroethene | 127-18-4 | LA-523-449 | | < 10 | PPB(V/V) | | | 1.00 | 10 | | 05/19/08 |

MDL=Minimum Detection Limit

D - Analyte was identified at a secondary dilution factor

RQ=Result Qualifier

TP Err=Total Propagated Error

DF=Dilution Factor

* - Indicates results that have NOT been validated; + - Indicates more than six qualifier symbols

Report WGPP/ver. 5.2

Groundwater Remediation Program

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WSCF ANALYTICAL LABORATORY QC REPORT

Department: Organic

SDG Number: WSCF20080908
 Matrix: VAPOR
 Test: Headspace Analysis

Sample Date:
 Receive Date:

| QC Type | Analyte | CAS # | QC Found | QC Yield | Units | Lower Limit | Upper Limit | RPD(%) | RPD Limit | RQ | Analysis Date |
|-----------------|----------------------|----------|----------|----------|---------|-------------|-------------|--------|-----------|----|---------------|
| BATCH QC | | | | | | | | | | | |
| LCS | Acetone | 67-64-1 | 92 | 92.000 | % Recov | 70.000 | 130.000 | | | | 05/19/08 |
| LCS | Carbon tetrachloride | 56-23-5 | 44 | 102.326 | % Recov | 70.000 | 130.000 | | | | 05/19/08 |
| LCS | Chloroform | 67-66-3 | 42 | 102.439 | % Recov | 70.000 | 130.000 | | | | 05/19/08 |
| LCS | Methylenechloride | 75-09-2 | 43 | 100.000 | % Recov | 70.000 | 130.000 | | | | 05/19/08 |
| LCS | 2-Butanone | 78-93-3 | 37 | 90.244 | % Recov | 70.000 | 130.000 | | | | 05/19/08 |
| LCS | Tetrachloroethene | 127-18-4 | 42 | 100.000 | % Recov | 70.000 | 130.000 | | | | 05/19/08 |
| LCS | Trichloroethene | 79-01-6 | 43 | 102.381 | % Recov | 70.000 | 130.000 | | | | 05/19/08 |
| LCS-DUP | Acetone | 67-64-1 | 91 | 91.000 | % Recov | 70.000 | 130.000 | | | | 05/19/08 |
| LCS-DUP | Carbon tetrachloride | 56-23-5 | 42 | 97.674 | % Recov | 70.000 | 130.000 | | | | 05/19/08 |
| LCS-DUP | Chloroform | 67-66-3 | 43 | 104.878 | % Recov | 70.000 | 130.000 | | | | 05/19/08 |
| LCS-DUP | Methylenechloride | 75-09-2 | 43 | 100.000 | % Recov | 70.000 | 130.000 | | | | 05/19/08 |
| LCS-DUP | 2-Butanone | 78-93-3 | 35 | 85.366 | % Recov | 70.000 | 130.000 | | | | 05/19/08 |
| LCS-DUP | Tetrachloroethene | 127-18-4 | 46 | 109.524 | % Recov | 70.000 | 130.000 | | | | 05/19/08 |
| LCS-DUP | Trichloroethene | 79-01-6 | 44 | 104.762 | % Recov | 70.000 | 130.000 | | | | 05/19/08 |
| LCS-RPD | Acetone | 67-64-1 | 91.000 | | RPD | | | 1.093 | 25.000 | | 05/19/08 |
| LCS-RPD | Carbon tetrachloride | 56-23-5 | 97.674 | | RPD | | | 4.652 | 25.000 | | 05/19/08 |
| LCS-RPD | Chloroform | 67-66-3 | 104.878 | | RPD | | | 2.353 | 25.000 | | 05/19/08 |
| LCS-RPD | Methylenechloride | 75-09-2 | 100.000 | | RPD | | | 0.000 | 25.000 | | 05/19/08 |
| LCS-RPD | 2-Butanone | 78-93-3 | 85.366 | | RPD | | | 5.555 | 25.000 | | 05/19/08 |
| LCS-RPD | Tetrachloroethene | 127-18-4 | 109.524 | | RPD | | | 9.091 | 25.000 | | 05/19/08 |
| LCS-RPD | Trichloroethene | 79-01-6 | 104.762 | | RPD | | | 2.299 | 25.000 | | 05/19/08 |
| LOQ | Acetone | 67-64-1 | 14 | 112.000 | % Recov | 50.000 | 150.000 | | | | 05/19/08 |
| LOQ | Carbon tetrachloride | 56-23-5 | 5.7 | 107.547 | % Recov | 50.000 | 150.000 | | | | 05/19/08 |
| LOQ | Chloroform | 67-66-3 | 5.3 | 101.923 | % Recov | 50.000 | 150.000 | | | | 05/19/08 |
| LOQ | Methylenechloride | 75-09-2 | 5.6 | 105.660 | % Recov | 50.000 | 150.000 | | | | 05/19/08 |
| LOQ | 2-Butanone | 78-93-3 | 4.5 | 88.235 | % Recov | 50.000 | 150.000 | | | | 05/19/08 |
| LOQ | Tetrachloroethene | 127-18-4 | 5.7 | 107.547 | % Recov | 50.000 | 150.000 | | | | 05/19/08 |

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Organic

SDG Number: WSCF20080908
Matrix: VAPOR
Test: Headspace Analysis

Sample Date:
Receive Date:

| QC Type | Analyte | CAS # | QC Found | QC Yield | Units | Lower Limit | Upper Limit | RPD(%) | RPD Limit | RQ | Analysis Date |
|---------|-----------------|---------|----------|----------|---------|-------------|-------------|--------|-----------|----|---------------|
| LOQ | Trichloroethene | 79-01-6 | 5.2 | 98.113 | % Recov | 50.000 | 150.000 | | | | 05/19/08 |

WSCF ANALYTICAL COMMENT REPORT

Attention: Steve Trent
Project Number F08-010

Group #: WSCF20080908
Department: Organic

| Sample # | Client ID | Lab Area | Test | Comment |
|----------|-----------|----------|------|--|
| | | VALGROUP | | All QC requirements for the requested analytes were met MS 6/5/08 |

Lab Areas: VALGROUP - Group Validation
LOGSAMP - Login for Sample

VALTEST - Test Validation
LOGTEST - Login for Tests

TESTDATA - Test Data Entry

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ATTACHMENT 4

SAMPLE RECEIPT INFORMATION

Consisting of 3 pages
Including cover page

Waste Sampling and Characterization Facility
P.O. BOX 1970 S3-30, Richland, WA 99352
PHONE: (509) 373-7004/FAX: (509) 373-7134

File
06/20/08
[Signature]

ACKNOWLEDGMENT OF SAMPLES RECEIVED

Groundwater Remediation Program

Richland, WA 99354
Attn: Steve Trent

Customer Code: GPP
PO#: 122598/ES20
Group#: 20080908
Project#: F08-010
Proj Mgr: Steve Trent E6-35
Phone: 373-5869

The following samples were received from you on 05/06/08. 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 Waste Sampling and Characterization Facility.

| Sample# | Sample Id | Tests Scheduled | Matrix | Sample Date |
|------------|-----------|------------------|-----------------------|-------------|
| W08GR01168 | B1VFR8 | TRENT @IHVAP3 | Drum Head Space Vapor | 05/06/08 |
| W08GR01169 | B1VFR9 | TRENT @IHVAP3 | Drum Head Space Vapor | 05/06/08 |

Test Acronym Description

| Test Acronym | Description |
|--------------|--------------------|
| @IHVAP3 | Headspace Analysis |

| | | | | | |
|--|--|-----------------------------------|---|---|---|
| COLLECTOR PFISTER, CONNOLLY | COMPANY CONTACT BYRNES, ME | TELEPHONE NO. 373-3996 | PROJECT COORDINATOR TRENT, SJ | PRICE CODE 9N | DATA TURNAROUND 45 Days / 45 Days |
| SAMPLING LOCATION ZP-1 Pump & Treat Quarterly Sampling | PROJECT DESIGNATION 200-ZP-1 Pump and Treat Operational Monitoring | | SAF NO. F08-010 | AIR QUALITY <input type="checkbox"/> | |
| ICE CHEST NO. N/A | FIELD LOGBOOK NO. HNF-N-575- 4 | ACTUAL SAMPLE DEPTH N/A | COA 122598ES20 | METHOD OF SHIPMENT GOVERNMENT VEHICLE | |
| SHIPPED TO Waste Sampling & Characterization 20080908 | OFFSITE PROPERTY NO. | | BILL OF LADING/AIR BILL No. | | |

| | | | | | | | |
|---|---|-----------------------------|--|---------------------------------|---------------------|--|--|
| MATRIX* A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WT=Wipe X=Other | POSSIBLE SAMPLE HAZARDS/ REMARKS | PRESERVATION None | TYPE OF CONTAINER Summa Canister | NO. OF CONTAINER(S) 1 | VOLUME 6L | SPECIAL HANDLING AND/OR STORAGE | SAMPLE ANALYSIS SEE ITEM (1) IN SPECIAL INSTRUCTIONS |
|---|---|-----------------------------|--|---------------------------------|---------------------|--|--|

| SAMPLE NO. | MATRIX* | SAMPLE DATE | SAMPLE TIME | | | | |
|----------------------|---------|-------------|-------------|---|--|--|--|
| B1VFR8 2008091108 | GASEOUS | 5/6/08 | 1338 | ✓ | | | |
| B1VFR9 1169 | GASEOUS | 5/6/08 | 1341 | ✓ | | | |

ICED

| | | |
|--|---|--|
| CHAIN OF POSSESSION | SIGN/ PRINT NAMES | SPECIAL INSTRUCTIONS |
| RELINQUISHED BY/REMOVED FROM R. PFISTER 5/6/08 1410 | RECEIVED BY/STORED IN [Signature] 5/6/08 140 | (1)VOA - T0-15 (2-Butanone, Acetone, Carbon tetrachloride, Chloroform, Methylene chloride, Tetrachloroethene, Trichloroethene) |
| RELINQUISHED BY/REMOVED FROM | RECEIVED BY/STORED IN | B1VFR8 - EFFLUENT STACK |
| RELINQUISHED BY/REMOVED FROM | RECEIVED BY/STORED IN | B1VFR9 - POST CHILLER |
| RELINQUISHED BY/REMOVED FROM | RECEIVED BY/STORED IN | |
| RELINQUISHED BY/REMOVED FROM | RECEIVED BY/STORED IN | |
| RELINQUISHED BY/REMOVED FROM | RECEIVED BY/STORED IN | |
| RELINQUISHED BY/REMOVED FROM | RECEIVED BY/STORED IN | |

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

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