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 WSCF Analytical Lab
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FLUOR

Memorandum

To: H. Hampt E6-35 Date: M4W41-SLF-07-937
 December 3, 2007

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

cc: w/Attachments

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

Subject: FINAL RESULTS FOR SAMPLE DELIVERY GROUP WSCF20071873 – SAF NUMBER F02-002

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 WSCF20071873:

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

SLF/grf

Attachments 4

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M4W41-SLF-07-937

ATTACHMENT 1

COVER SHEET

Consisting of 2 pages
Including cover page

WSCF SAF NUMBER CROSS REFERENCE

Group#: WSCF20071873
Data Deliverable Date: 03-dec-2007
Data Deliverable: Cover Sheet

| SAF# | Sample ID | WSCF# | Matrix |
|---------|-----------|------------|---------|
| F02-002 | B1R3R9 | W07GR02681 | GASEOUS |
| | B1R3T0 | W07GR02682 | GASEOUS |

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ATTACHMENT 2

NARRATIVE

**Consisting of 2 pages
Including cover page**

Introduction

Two (2) groundwater samples were received at the WSCF Laboratory on October 18, 2007. 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.

It should be noted that the attached chain of custody was stamped “iced” and initialed by the WSCF Laboratory Sample Custodian during sample receiving, indicating the presence of ice in the sample container.

Analytical Methodology for Requested Analyses

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

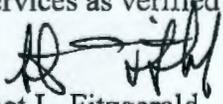
Organic Comments

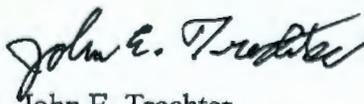
VOC (Vapor) – A Laboratory Control Sample (LCS), LCS Duplicate and Limit of Quantitation Standard (low-level standard) were analyzed with this delivery group. See pages 13 through 14 for QC details.

- 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


John E. Trechter
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: *[Signature]* S. Fitzgerald 12/3/07
Client Services: *[Signature]* John Trechter 12/3/07

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#: WSCF20071873
Report Date: 20-nov-2007
Report WGPP/ver. 5.2
Groundwater Remediation Program

Department: Organic

W13q Worklist/Batch/QC Report for Group# WSCF20071873

| WL# | S# | Batch | QC# | Tray Type | Sample# | Test |
|-----|----|-------|-------|-----------|------------|--------------------|
| | | | 38752 | LCS | | Headspace Analysis |
| | | | 38752 | LCS-DUP | | Headspace Analysis |
| | | | 38752 | LCS-RPD | | Headspace Analysis |
| | | | 38752 | LOQ | | Headspace Analysis |
| | | | 38752 | SAMPLE | W07GR02681 | Headspace Analysis |
| | | | 38752 | SAMPLE | W07GR02682 | 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: 20-nov-2007
Report#: WSCF20071873
Report WGPPM/5.2

Page 1

WSCF

ANALYTICAL RESULTS REPORT

Attention: Steve Trent
SAF Number: F02-002
Sample # W07GR02681
Client ID: B1R3R9

TRENT
 WSCF

Matrix: GASEOUS

Group #: WSCF20071873
Department: Organic
Sampled: 10/18/07
Received: 10/18/07

| Test Performed | CAS # | Method | RQ | Result | Unit | TP Err | Unit | DF | MDL | PQL | Analysis Date |
|---------------------------|----------|------------|----|---------|----------|--------|------|-----------|---------|-----|---------------|
| Headspace Analysis | | | | | | | | | | | |
| Methylenechloride | 75-09-2 | LA-523-449 | U | < 10 | PPB(V/V) | | | 2.00 | 10 | | 11/14/07 |
| Chloroform | 67-66-3 | LA-523-449 | | 90 | PPB(V/V) | | | 2.00 | 10 | | 11/14/07 |
| Trichloroethene | 79-01-8 | LA-523-449 | | 37 | PPB(V/V) | | | 2.00 | 10 | | 11/14/07 |
| Carbon tetrachloride | 56-23-5 | LA-523-449 | D | 1.0e+04 | PPB(V/V) | | | 2.00e+002 | 1.0e+03 | | 11/14/07 |
| Tetrachloroethene | 127-18-4 | LA-523-449 | U | < 10 | PPB(V/V) | | | 2.00 | 10 | | 11/14/07 |
| Acetone | 67-64-1 | LA-523-449 | U | < 25 | PPB(V/V) | | | 2.00 | 25 | | 11/14/07 |
| 2-Butanone | 78-93-3 | LA-523-449 | U | < 10 | PPB(V/V) | | | 2.00 | 10 | | 11/14/07 |

MDL = Minimum Detection Limit

D - Analyte was identified at a secondary dilution factor

U - Analyzed for but not detected above limiting criteria.

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

WSCF

ANALYTICAL RESULTS REPORT

Attention: Steve Trent
SAF Number: F02-002
Sample # W07GR02682
Client ID: B1R3T0

TRENT
 WSCF

Matrix: GASEOUS

Group #: WSCF20071873
Department: Organic
Sampled: 10/18/07
Received: 10/18/07

| Test Performed | CAS # | Method | RQ | Result | Unit | TP Err | Unit | DF | MDL | PQL | Analysis Date |
|---------------------------|----------|------------|----|--------|----------|--------|------|------|-----|-----|---------------|
| Headspace Analysis | | | | | | | | | | | |
| Methylenechloride | 75-09-2 | LA-523-449 | U | < 10 | PPB(V/V) | | | 2.00 | 10 | | 11/14/07 |
| Chloroform | 67-66-3 | LA-523-449 | U | < 10 | PPB(V/V) | | | 2.00 | 10 | | 11/14/07 |
| Trichloroethene | 79-01-6 | LA-523-449 | U | < 10 | PPB(V/V) | | | 2.00 | 10 | | 11/14/07 |
| Carbon tetrachloride | 56-23-5 | LA-523-449 | U | < 10 | PPB(V/V) | | | 2.00 | 10 | | 11/14/07 |
| Tetrachloroethene | 127-18-4 | LA-523-449 | U | < 10 | PPB(V/V) | | | 2.00 | 10 | | 11/14/07 |
| Acetone | 67-64-1 | LA-523-449 | U | < 25 | PPB(V/V) | | | 2.00 | 25 | | 11/14/07 |
| 2-Butanone | 78-93-3 | LA-523-449 | U | < 10 | PPB(V/V) | | | 2.00 | 10 | | 11/14/07 |

MDL=Minimum Detection Limit

D - Analyte was identified at a secondary dilution factor

U - Analyzed for but not detected above limiting criteria.

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

WSCF
ANALYTICAL COMMENT REPORT

Attention: Steve Trent
Project Number F02-002

Group #: WSCF20071873
Department: Organic

| Sample # | Client ID | Lab Area | Test | Comment |
|----------|-----------|----------|------|---|
| | | VALGROUP | | All QC requirements were met MS 11/20/2007 |

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

VALTEST - Test Validation
LOGTEST - Login for Tests

TESTDATA - Test Data Entry

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WSCF ANALYTICAL LABORATORY QC REPORT

Department: Organic

SDG Number: WSCF20071873
 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 | 100 | 100.000 | % Recov | 70.000 | 130.000 | | | | 11/14/07 |
| LCS | Carbon tetrachloride | 58-23-5 | 43 | 100.000 | % Recov | 70.000 | 130.000 | | | | 11/14/07 |
| LCS | Chloroform | 67-66-3 | 42 | 102.439 | % Recov | 70.000 | 130.000 | | | | 11/14/07 |
| LCS | Methylenechloride | 75-09-2 | 43 | 100.000 | % Recov | 70.000 | 130.000 | | | | 11/14/07 |
| LCS | 2-Butanone | 78-93-3 | 39 | 95.122 | % Recov | 70.000 | 130.000 | | | | 11/14/07 |
| LCS | Tetrachloroethene | 127-18-4 | 42 | 100.000 | % Recov | 70.000 | 130.000 | | | | 11/14/07 |
| LCS | Trichloroethene | 79-01-6 | 42 | 100.000 | % Recov | 70.000 | 130.000 | | | | 11/14/07 |
| LCS-DUP | Acetone | 67-64-1 | 98 | 98.000 | % Recov | 70.000 | 130.000 | | | | 11/14/07 |
| LCS-DUP | Carbon tetrachloride | 58-23-5 | 42 | 100.000 | % Recov | 70.000 | 130.000 | | | | 11/14/07 |
| LCS-DUP | Chloroform | 67-66-3 | 40 | 97.581 | % Recov | 70.000 | 130.000 | | | | 11/14/07 |
| LCS-DUP | Methylenechloride | 75-09-2 | 42 | 97.674 | % Recov | 70.000 | 130.000 | | | | 11/14/07 |
| LCS-DUP | 2-Butanone | 78-93-3 | 37 | 90.244 | % Recov | 70.000 | 130.000 | | | | 11/14/07 |
| LCS-DUP | Tetrachloroethene | 127-18-4 | 41 | 97.819 | % Recov | 70.000 | 130.000 | | | | 11/14/07 |
| LCS-DUP | Trichloroethene | 79-01-6 | 41 | 97.819 | % Recov | 70.000 | 130.000 | | | | 11/14/07 |
| LCS-RPD | Acetone | 67-64-1 | 98.000 | | RPD | | | 4.082 | 25.000 | | 11/14/07 |
| LCS-RPD | Carbon tetrachloride | 58-23-5 | 100.000 | | RPD | | | 0.000 | 25.000 | | 11/14/07 |
| LCS-RPD | Chloroform | 67-66-3 | 97.581 | | RPD | | | 4.878 | 25.000 | | 11/14/07 |
| LCS-RPD | Methylenechloride | 75-09-2 | 97.674 | | RPD | | | 2.353 | 25.000 | | 11/14/07 |
| LCS-RPD | 2-Butanone | 78-93-3 | 90.244 | | RPD | | | 6.263 | 25.000 | | 11/14/07 |
| LCS-RPD | Tetrachloroethene | 127-18-4 | 97.819 | | RPD | | | 2.410 | 25.000 | | 11/14/07 |
| LCS-RPD | Trichloroethene | 79-01-6 | 97.819 | | RPD | | | 2.410 | 25.000 | | 11/14/07 |
| LOQ | Acetone | 67-64-1 | 12.2 | 97.800 | % Recov | 50.000 | 150.000 | | | | 11/14/07 |
| LOQ | Carbon tetrachloride | 58-23-5 | 5.2 | 98.113 | % Recov | 50.000 | 150.000 | | | | 11/14/07 |
| LOQ | Chloroform | 67-66-3 | 5.1 | 98.077 | % Recov | 50.000 | 150.000 | | | | 11/14/07 |
| LOQ | Methylenechloride | 75-09-2 | 5.4 | 101.887 | % Recov | 50.000 | 150.000 | | | | 11/14/07 |
| LOQ | 2-Butanone | 78-93-3 | 5.0 | 98.039 | % Recov | 50.000 | 150.000 | | | | 11/14/07 |
| LOQ | Tetrachloroethene | 127-18-4 | 5.2 | 98.113 | % Recov | 50.000 | 150.000 | | | | 11/14/07 |

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Organic

SDG Number: WSCF20071873

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 | 78-01-6 | 5.3 | 100.000 | % Recov | 50.000 | 150.000 | | | | 11/14/07 |

M4W41-SLF-07-937

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

ACKNOWLEDGMENT OF SAMPLES RECEIVED

Groundwater Remediation Program

Richland, WA 99354
Attn: Steve Trent

Customer Code: GPP
PO#: 122598/ES20
Group#: 20071873
Project#: F02-002
Proj Mgr: Steve Trent G6-35
Phone: 373-5869

12/03/07


The following samples were received from you on 10/18/07. 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 |
|------------|-----------|------------------|-----------------------|-------------|
| W07GR02681 | B1R3R9 | TRENT @IHVAP3 | Drum Head Space Vapor | 10/18/07 |
| W07GR02682 | B1R3T0 | TRENT @IHVAP3 | Drum Head Space Vapor | 10/18/07 |

Test Acronym Description

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

COLLECTOR **POPE**
 SAMPLING LOCATION
 200 West
 ICE CHEST NO.

12/03/01
 20071873

COMPANY CONTACT
 CLEMENTS, RL
 TELEPHONE NO.
 372-1761
 PROJECT DESIGNATION
 200-ZP-1 Pump and Treat Operational Monitoring
 FIELD LOGBOOK NO.
 HNF-N-575-1
 ACTUAL SAMPLE DEPTH

PROJECT COORDINATOR
 TRENT, SJ
 PRICE CODE 9N
 SAF NO.
 F02-002
 AIR QUALITY
 COA
 122598ES20
 METHOD OF SHIPMENT
 GOVERNMENT VEHICLE

DATA
 TURNAROUND
 45 Days / 45
 Days

SHIPPED TO
 Waste Sampling & Characterization

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
 SPECIAL HANDLING AND/OR STORAGE

PRESERVATION
 None
 TYPE OF CONTAINER
 Summa
 Canister
 NO. OF CONTAINER(S)
 1
 VOLUME
 6L
 SAMPLE ANALYSIS
 SEE ITEM (1) IN
 SPECIAL
 INSTRUCTIONS

| SAMPLE NO. | MATRIX* | SAMPLE DATE | SAMPLE TIME | |
|------------|---------|-------------|-------------|---|
| B1R3R9 | GASEOUS | 10-18-07 | 1055 | X |
| B1R3T0 | GASEOUS | 10-18-07 | 1056 | X |

CHAIN OF POSSESSION

SIGN/ PRINT NAMES

SPECIAL INSTRUCTIONS

| RELINQUISHED BY/REMOVED FROM | DATE/TIME | RECEIVED BY/STORED IN | DATE/TIME |
|------------------------------|-----------|-----------------------|---------------|
| J. Pope / 10/18/07 | 1345 | [Signature] | 10/18/07 1345 |
| 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 |

(1)VOA - T0-15 (2-Butanone, Acetone, Carbon tetrachloride, Chloroform, Methylene chloride, Tetrachloroethene, Trichloroethene)

ICE
 NA KB 10/18/07
 initial
 Date

17 of 17

LABORATORY SECTION
 FINAL SAMPLE DISPOSITION

RECEIVED BY
 DISPOSAL METHOD

TITLE
 DATE/TIME
 DISPOSED BY
 DATE/TIME