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**FLUOR**

## Memorandum

M4W41-SLF-07-651

To: H. Hampt E6-35 Date: September 18, 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 WSCF20071366 – SAF NUMBER F07-043

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 groupWSCF20071366:

- Cover Sheet (Attachment 1)
- Narrative (Attachment 2)
- Analytical Results (Attachment 3)
- Sample Receipt Information (Attachment 4)
- Sample Record Sheet (Attachment 5)

SLF/grf

Attachments 5

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ATTACHMENT 1

**COVER SHEET**

Consisting of 2 pages
Including cover page

# WSCF SAF NUMBER CROSS REFERENCE

| | | |
|---|---|---|
| Group#: | WSCF20071366 | |
| Data Deliverable Date: | 19-sep-2007 | |
| Data Deliverable: | Cover Sheet | |

| SAF# | Sample ID | WSCF# | Matrix |
|---|---|---|---|
| F07-043 | B1NRH7 | W07GR02025 | SOIL |
| | BINRF0 | W07GR02027 | SOIL |

M4W41-SLF-07-651

ATTACHMENT 2

**NARRATIVE**

Consisting of 5 pages
Including cover page

| | |
|---|---|
| **Sample Delivery Group** | **WSCF20071366** |
| **Sample Matrix** | **Solid** |
| **Data Deliverable** | **Summary Report** |

## Introduction

Three (3) groundwater samples were received at the WSCF Laboratory on August 3, 2007. Two of the three 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. Analyses of the high concentration soil VOA sample material and the corresponding Methanol Blank (B1NRF1) were not required.

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. In addition, copy of the sample record sheet is included as Attachment 5.

## Analytical Methodology for Requested Analyses

Refer to *WSCF Method References Report,* pages 14 through 16, for a complete listing of approved analytical methods.

## Inorganic Comments

**Anions** – The hold time requirements for this analysis were met. .A Duplicate, Matrix Spike, Matrix Spike Duplicate, Blank and Laboratory Control Sample were analyzed with this delivery group per GRP Letter of Instruction. See pages 18 through 19 for QC details. Analytical Note(s):

- Sample results were D flagged (dilution).
- Sample results that were less than the reportable limit, however greater than the method detection limit were B flagged.
- Sulfate Duplicate Relative Percent Difference (RPD) exceeded established laboratory limits. No flags issued.

All other QC controls are within the established limits.

**Cyanide** – The hold time requirement for this analysis was met. A Matrix Spike, Matrix Spike Duplicate, Blank and Laboratory Control Sample were analyzed with this delivery group per GRP Letter of Instruction. See page 20 for QC details.

All QC controls are within the established limits.

**ICP-MS Metals** – The hold time requirements for this analysis were met. A Matrix Spike, Matrix Spike Duplicate, Blank and Laboratory Control Sample were analyzed with this delivery group per the GRP Letter of Instruction. See pages 21 through 22 for QC details.

All QC controls are within the established limits.

**Percent Solids** - Percent solids were performed for organic analyses result correction.

**Organic Comments**

- Sample results are moisture corrected and reported on dry weight basis.

**PCB** – The hold time requirement for this analysis was met. A Matrix Spike, Matrix Spike Duplicate, Blank and Laboratory Control Sample were analyzed with this delivery group per the GRP Letter of Instruction. See pages 30 through 31 for QC details.

All QC controls are within the established limits.

**Semi-VOA** – The hold time requirement for this analysis was met A Matrix Spike, Matrix Spike Duplicate, Blank and Laboratory Control Sample were analyzed with this delivery group per the GPP Letter of Instruction. See pages 32 through 35 QC details.

- Nitrobenzene-d5 (Surrogate) – Spike Relative Percent Difference (RPD) exceeded established laboratory limits. No flags issued.

All other QC controls are within the established limits.

**TPHD-WA** – The hold time requirement for this analysis was met. A Matrix Spike, Matrix Spike Duplicate, Blank and Laboratory Control Sample were analyzed with this delivery group. See page 36 for QC details.

All QC controls are within the established limits.

**TPHG-WA** – The hold time requirement for this analysis was met. A Duplicate, Matrix Spike, Matrix Spike Duplicate, Blank and Laboratory Control Sample were analyzed with this delivery group. See page 37 for QC details.

All QC controls are within the established limits.

**VOA** – The hold time requirement for this analysis was met. A Matrix Spike, Matrix Spike Duplicate, Blank and Laboratory Control Sample were analyzed with this delivery group. See pages 38 through 40 for QC details. Analytical Note(s):

- Analyses of the high concentration soil VOA sample material and the corresponding Methanol Blank (B1NRF1) were not required.

- Matrix Spike and Matrix Spike Duplicate were analyzed on sample# B1P3L0 (SDG# 20071365, SAF# F07-043).

- Acetone contamination detected in the Blank was evaluated and sample result was B flagged.

All other QC controls are within the established limits.

**Radiochemistry Comments**

**Rad Chem** – There are no hold times associated with WSCF's radiochemical methods. A Duplicate, Matrix Spike, Blank and Laboratory Control Sample were analyzed with this delivery group. See pages 45 through 49 for QC details. Analytical Note(s):

- Americium-241 – Duplicate Relative Percent Difference (RPD) slightly exceeded established laboratory limits. No flags issued.

- Strontium-89/90 – Duplicate RPD exceeded established laboratory limits. No flags issued.

- Strontium-85 – Tracer recovery exceeded established laboratory limits due to low sample activity. No flags issued.

- Uranium-235 – RPD exceeded established laboratory limits. No flags issued.

All other 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

Abbreviations

Hg – mercury
IC – ion chromatography
ICP – inductively coupled plasma
ICP/AES – ICP/atomic emission spectroscopy
ICP/MS – ICP/mass spectrometry
Total U – total uranium
AT/TB – total alpha/total beta
AEA – Alpha Energy Analysis
WTPH-G – Total Hydrocarbons-Gasoline
Am – americium
Cm - curium
Pu – plutonium
Np – neptunium
GEA – gamma energy analysis
H3 – Tritium
Sr – Strontium 89, 90
WTPH-D – Total Hydrocarbons-Diesel
TSS – Total Suspended Solids

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ATTACHMENT 3

**ANALYTICAL RESULTS**

Consisting of 43 pages
Including cover page

# WSCF
# ANALYTICAL RESULTS REPORT

**for**

**Groundwater Remediation Program**

**Richland, WA 99354**

**Attention: Steve Trent**

Analytical: S. F. Fitzgerald 9/18/07

Client Services: F. D. Mir 9/18/2007

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

This information is intended for the use of the addressee only. If the reader of this report is not the intended recipient or is not authorized by the recipient to receive the report, you are hereby notified that any dissemination, distribution or copying of this report is strictly prohibited. If you have received this report in error, please notify WSCF Laboratory immediately by telephone at (509) 373-7020 or (509) 531-8004. Information designation of this report is the responsibility of the customer.

Contract#: FH-EIS-2003-MEM-001
Report#: WSCF20071366
Report Date: 17-sep-2007
*Report WGPP/ver. 5.2*
*Groundwater Remediation Program*

w13qlog v4.2 17-sep-2007 14:48:41

Department: Inorganic

W13q Worklist/Batch/QC Report for Group# WSCF20071366

| WL# | S# | Batch | QC# | Tray Type | Sample# | Test |
|---|---|---|---|---|---|---|
| | | | | SAMPLE | W07GR02025 | Percent Solids |
| 32904 | 12 | 33303 | 37369 | BLANK | | Cyanide by Midi/Spectrophotom |
| 32904 | 13 | 33303 | 37369 | LCS | | Cyanide by Midi/Spectrophotom |
| 32904 | 15 | 33303 | 37369 | MS | W07GR02025 | Cyanide by Midi/Spectrophotom |
| 32904 | 16 | 33303 | 37369 | MSD | W07GR02025 | Cyanide by Midi/Spectrophotom |
| 32904 | 14 | 33303 | 37369 | SAMPLE | W07GR02025 | Cyanide by Midi/Spectrophotom |
| 32904 | 16 | 33303 | 37369 | SPK-RPD | W07GR02025 | Cyanide by Midi/Spectrophotom |
| 32931 | 1 | 33330 | 37430 | BLANK | | ICP-200.8 MS All possible meta |
| 32931 | 2 | 33330 | 37430 | LCS | | ICP-200.8 MS All possible meta |
| 32931 | 4 | 33330 | 37430 | MS | W07GR02025 | ICP-200.8 MS All possible meta |
| 32931 | 5 | 33330 | 37430 | MSD | W07GR02025 | ICP-200.8 MS All possible meta |
| 32931 | 3 | 33330 | 37430 | SAMPLE | W07GR02025 | ICP-200.8 MS All possible meta |
| 32931 | 5 | 33330 | 37430 | SPK-RPD | W07GR02025 | ICP-200.8 MS All possible meta |
| 33219 | 2 | 33623 | 37713 | BLANK | | Anions by Ion Chromatography |
| 33219 | 12 | 33623 | 37713 | BLANK | | Anions by Ion Chromatography |
| 33219 | 3 | 33623 | 37713 | LCS | | Anions by Ion Chromatography |
| 33219 | 5 | 33623 | 37713 | DUP | W07GR02025 | Anions by Ion Chromatography |
| 33219 | 6 | 33623 | 37713 | MS | W07GR02025 | Anions by Ion Chromatography |
| 33219 | 7 | 33623 | 37713 | MSD | W07GR02025 | Anions by Ion Chromatography |
| 33219 | 4 | 33623 | 37713 | SAMPLE | W07GR02025 | Anions by Ion Chromatography |
| 33219 | 7 | 33623 | 37713 | SPK-RPD | W07GR02025 | Anions by Ion Chromatography |

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Department: Organic

W13q Worklist/Batch/QC Report for Group# WSCF20071366

| WL# | S# | Batch | QC# | Tray Type | Sample# | Test |
|---|---|---|---|---|---|---|
| | | | 37354 | BLANK | | VOA Ground Water Protection |
| | | | 37354 | LCS | | VOA Ground Water Protection |
| | | | 37354 | MS | W07GR02021 | VOA Ground Water Protection |
| | | | 37354 | MSD | W07GR02021 | VOA Ground Water Protection |
| | | | 37354 | SPK-RPD | W07GR02021 | VOA Ground Water Protection |
| | | | 37354 | SAMPLE | W07GR02027 | VOA Ground Water Protection |
| | | | 37354 | SURR | W07GR02027 | VOA Ground Water Protection |
| | | | 37422 | BLANK | | SW-846 8270C Semi-Vols |
| | | | 37422 | LCS | | SW-846 8270C Semi-Vols |
| | | | 37422 | MS | W07GR02025 | SW-846 8270C Semi-Vols |
| | | | 37422 | MSD | W07GR02025 | SW-846 8270C Semi-Vols |
| | | | 37422 | SAMPLE | W07GR02025 | SW-846 8270C Semi-Vols |
| | | | 37422 | SPK-RPD | W07GR02025 | SW-846 8270C Semi-Vols |
| | | | 37422 | SURR | W07GR02025 | SW-846 8270C Semi-Vols |
| | | | 37428 | BLANK | | NWTPH-D TPH Diesel Range (Wa) |
| | | | 37428 | LCS | | NWTPH-D TPH Diesel Range (Wa) |
| | | | 37428 | MS | W07GR02025 | NWTPH-D TPH Diesel Range (Wa) |
| | | | 37428 | MSD | W07GR02025 | NWTPH-D TPH Diesel Range (Wa) |
| | | | 37428 | SAMPLE | W07GR02025 | NWTPH-D TPH Diesel Range (Wa) |
| | | | 37428 | SPK-RPD | W07GR02025 | NWTPH-D TPH Diesel Range (Wa) |
| | | | 37428 | SURR | W07GR02025 | NWTPH-D TPH Diesel Range (Wa) |
| | | | 37432 | BLANK | | PCBs complete list |
| | | | 37432 | LCS | | PCBs complete list |
| | | | 37432 | MS | W07GR02025 | PCBs complete list |
| | | | 37432 | MSD | W07GR02025 | PCBs complete list |
| | | | 37432 | SAMPLE | W07GR02025 | PCBs complete list |
| | | | 37432 | SPK-RPD | W07GR02025 | PCBs complete list |
| | | | 37432 | SURR | W07GR02025 | PCBs complete list |
| 33339 | 1 | 33739 | 37824 | BLANK | | NWTPH-GX TPH Gasoline Range |
| 33339 | 2 | 33739 | 37824 | LCS | | NWTPH-GX TPH Gasoline Range |
| 33339 | 4 | 33739 | 37824 | DUP | W07GR02025 | NWTPH-GX TPH Gasoline Range |
| 33339 | 5 | 33739 | 37824 | MS | W07GR02025 | NWTPH-GX TPH Gasoline Range |
| 33339 | 6 | 33739 | 37824 | MSD | W07GR02025 | NWTPH-GX TPH Gasoline Range |
| 33339 | 3 | 33739 | 37824 | SAMPLE | W07GR02025 | NWTPH-GX TPH Gasoline Range |
| 33339 | 6 | 33739 | 37824 | SPK-RPD | W07GR02025 | NWTPH-GX TPH Gasoline Range |

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Department: Radiochemistry

W13q Worklist/Batch/QC Report for Group# WSCF20071366

| WL# | S# | Batch | QC# | Tray Type | Sample# | Test |
|---|---|---|---|---|---|---|
| 32892 | 1 | 33287 | 37387 | BLANK | | Uranium Isotopics by AEA |
| 32892 | 2 | 33287 | 37387 | LCS | | Uranium Isotopics by AEA |
| 32892 | 3 | 33287 | 37387 | DUP | W07GR02025 | Uranium Isotopics by AEA |
| 32892 | 4 | 33287 | 37387 | SAMPLE | W07GR02025 | Uranium Isotopics by AEA |
| 32892 | 5 | 33287 | 37387 | SURR | W07GR02025 | Uranium Isotopics by AEA |
| 32964 | 1 | 33365 | 37494 | BLANK | | Strontium 89/90 |
| 32964 | 2 | 33365 | 37494 | LCS | | Strontium 89/90 |
| 32964 | 3 | 33365 | 37494 | DUP | W07GR02025 | Strontium 89/90 |
| 32964 | 4 | 33365 | 37494 | SAMPLE | W07GR02025 | Strontium 89/90 |
| 32964 | 5 | 33365 | 37494 | SURR | W07GR02025 | Strontium 89/90 |
| 32894 | 1 | 33289 | 37762 | BLANK | | Plutonium Isotopics by AEA |
| 32894 | 2 | 33289 | 37762 | LCS | | Plutonium Isotopics by AEA |
| 32894 | 3 | 33289 | 37762 | DUP | W07GR02025 | Plutonium Isotopics by AEA |
| 32894 | 4 | 33289 | 37762 | SAMPLE | W07GR02025 | Plutonium Isotopics by AEA |
| 32894 | 5 | 33289 | 37762 | SURR | W07GR02025 | Plutonium Isotopics by AEA |
| 32895 | 1 | 33290 | 37764 | BLANK | | Americium by AEA |
| 32895 | 2 | 33290 | 37764 | LCS | | Americium by AEA |
| 32895 | 3 | 33290 | 37764 | DUP | W07GR02025 | Americium by AEA |
| 32895 | 4 | 33290 | 37764 | SAMPLE | W07GR02025 | Americium by AEA |
| 32895 | 5 | 33290 | 37764 | SURR | W07GR02025 | Americium by AEA |
| 32854 | 1 | 33247 | 37791 | BLANK | | Gamma Energy Analysis-grd H2O |
| 32854 | 2 | 33247 | 37791 | LCS | | Gamma Energy Analysis-grd H2O |
| 32854 | 3 | 33247 | 37791 | DUP | W07GR02025 | Gamma Energy Analysis-grd H2O |
| 32854 | 4 | 33247 | 37791 | SAMPLE | W07GR02025 | Gamma Energy Analysis-grd H2O |

# WSCF
# METHOD REFERENCES REPORT

**Department:** Inorganic

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-505-412** | LA-505-412: DETERMINATION OF TRACE ELEMENTS IN WATERS AND WASTES BY INDUCTIVELY | |
| | **EPA-600/R-94-111 200.8** | DETERMINATION OF TRACE ELEMENTS IN WATERS AND WASTES BY INDUCTIVELY COUPLED PLAS |
| | **HEIS 200.8_METALS_ICPMS** | Inductively Coupled Plasma - Mass Spectrometry |
| **LA-519-412** | LA-519-412: TOTAL RESIDUE/% SOLIDS DRIED AT 103 - 105 C | |
| | **EPA-600/4-79-020 160.1** | Resisual, Filterable |
| | **EPA-600/4-79-020 160.3** | RESIDUE, TOTAL |
| | **HEIS 160.1_TDS** | Residual, Filterable |
| | **Standard Methods 2540B** | Total Solids Dried at 103-105 C |
| **LA-533-410** | LA-533-410: ANION ANALYSIS BY ION CHROMATOGRAPHY | |
| | **EPA-600/R-94-111 300.0** | DETERMINATION OF INORGANIC ANIONS BY ION CHROMATOGRAPHY |
| | **HEIS 300.0_ANIONS_IC** | Determination of Inorganic Anions by Ion Chromatography |
| **LA-695-402** | LA-695-402: DETERMINATION OF CYANIDE BY MIDIDISTILLATION AND SPECTROPHOTOMETRIC | |
| | **EPA-600/4-79-020 335.2** | Cyanide, Total |
| | **HEIS 335.2_CYANIDE** | Cyanide, Total |

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.

# 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-523-427** | LA-523-427: POLYCHLORINATED BIPHENYLS (PCBs) BY GAS CHROMATOGRAPHY | |
| | **EPA SW-846 3510C** | SEPARATORY FUNNEL LIQUID-LIQUID EXTRACTION |
| | **EPA SW-846 3545** | PRESSURIZED FLUID EXTRACTION (PFE) |
| | **EPA SW-846 3665A** | SULFURIC ACID/PERMANGANATE CLEANUP |
| | **EPA SW-846 8000B** | DETERMINATIVE CHROMATOGRAPHIC SEPARATIONS |
| | **EPA SW-846 8082A** | POLYCHLORINATED BIPHENYLS (PCBs) BY GAS CHROMATOGRAPHY |
| | **HEIS 8082_PCB_GC** | Polychlorinated Biphenyls (PCBs) by Gas Chromatography |
| **LA-523-443** | LA-523-443: GAS CHROMATOGRAPH ANALYSIS OF GASOLINE RANGE TOTAL PETROLEUM HYDROCA | |
| | **HEIS WTPH_GASOLINE** | Total Petroleum Hydrocarbons, Gasoline |
| | **WDOE TPH NWTPH-G** | Volatile Petroleum Products Method for Soil and Water |
| **LA-523-455** | LA-523-455: VOLATILE SAMPLE ANALYSIS BY SW-846 | |
| | **EPA SW-846 8000B** | DETERMINATIVE CHROMATOGRAPHIC SEPARATIONS |
| | **EPA SW-846 8260B** | VOLATILE ORGANIC COMPOUNDS BY GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS) |
| | **HEIS 8260_VOA_GCMS** | Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS) |
| **LA-523-456** | LA-523-456: SEMIVOLATILE SAMPLE ANALYSIS BY SW-846, METHOD 8270C | |
| | **EPA SW-846 8000B** | DETERMINATIVE CHROMATOGRAPHIC SEPARATIONS |
| | **EPA SW-846 8270C** | SEMIVOLATILE ORGANIC COMPOUNDS BY GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS) |
| | **HEIS 8270_SVOA_GCMS** | Semivolatile Orgamoc Compounds By Gas Chromatography/Mass Spectrometry (GC/MS) |
| **LA-523-493** | NWTPH-Diesel and/or Gasoline | |
| | **HEIS WTPH_DIESEL (HEIS)** | Total Petroleum Hydrocarbons in Diesel |
| | **WDOE TPHD** | Total Petroleum Hydrocarbons in Diesel |

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.

# WSCF
# METHOD REFERENCES REPORT

**Department:** Radiochemistry

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-508-415** LA-508-415: OPERATION OF THE PROTEAN 2-INCH ALPHA/BETA COUNTING SYSTEM FOR GROSS

| | |
|---|---|
| **HEIS ALPHA_GPC** | GROSS ALPHA GPC |
| **HEIS BETA_GPC** | GROSS BETA GPC |
| **HEIS SRTOT_SEP_PRECIP_GPC** | Strontium 89/90 |

**LA-508-471** LA-508-471: ALPHA ENERGY ANALYZER DATA ACQUISITION AND SYSTEM CHECKOUT USING ALP

| | |
|---|---|
| **HEIS PUISO_IE_PRECIP_AEA** | Plutonium by Alpha Energy Analysis |
| **HEIS RAISO_AEA** | Radium-226 |

**LA-508-481** LA-508-481: GAMMA ENERGY ANALYSIS USING PROCOUNT SOFTWARE

| | |
|---|---|
| **HEIS GAMMA_GS** | Gamma Emmision Spectrometry |

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.

# WSCF
# ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent
**SAF Number:** F07-043
**Sample #** W07GR02025
**Client ID:** B1NRH7 TRENT WSCF

**Matrix:** SOIL

**Group #:** WSCF20071366
**Department:** Inorganic
**Sampled:** 07/24/07
**Received:** 08/03/07

| Test Performed | CAS # | Method | RQ | Result | Unit | TP Err | Unit | DF | MDL | PQL | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Anions by Ion Chromatography Prep** | | | | | | | | | | | **09/06/07** |
| **Anions by Ion Chromatography** | | | | | | | | | | | |
| Fluoride | 16984-48-8 | LA-533-410 | DU | < 0.300 | mg/kg | | | 50.00 | 0.30 | | 09/06/07 |
| Nitrogen in Nitrite | NO2-N | LA-533-410 | DU | < 0.500 | mg/kg | | | 50.00 | 0.50 | | 09/06/07 |
| Nitrogen in Nitrate | NO3-N | LA-533-410 | BD | 0.796 | mg/kg | | | 50.00 | 0.25 | | 09/06/07 |
| Phosphate (P) by IC | PO4-P | LA-533-410 | DU | < 2.00 | mg/kg | | | 50.00 | 2.0 | | 09/06/07 |
| Sulfate | 14808-79-8 | LA-533-410 | BD | 6.46 | mg/kg | | | 50.00 | 3.5 | | 09/06/07 |
| **Cyanide** | | | | | | | | | | | |
| Cyanide | 57-12-5 | LA-695-402 | U | < 0.199 | mg/kg | | | 1.00 | 0.20 | | 08/07/07 |
| **ICP-200.8 MS All possible meta Prep** | | | | | | | | | | | **08/13/07** |
| **ICP-200.8 MS All possible meta** | | | | | | | | | | | |
| Silver | 7440-22-4 | LA-505-412 | U | < 0.100 | mg/kg | | | 1.00 | 0.100 | | 08/14/07 |
| Barium | 7440-39-3 | LA-505-412 | | 79.4 | mg/kg | | | 1.00 | 0.200 | | 08/14/07 |
| Cadmium | 7440-43-9 | LA-505-412 | U | < 0.100 | mg/kg | | | 1.00 | 0.100 | | 08/14/07 |
| Chromium | 7440-47-3 | LA-505-412 | | 8.29 | mg/kg | | | 1.00 | 0.501 | | 08/14/07 |
| Copper | 7440-50-8 | LA-505-412 | | 7.81 | mg/kg | | | 1.00 | 0.100 | | 08/14/07 |
| Lead | 7439-92-1 | LA-505-412 | | 5.87 | mg/kg | | | 1.00 | 0.100 | | 08/14/07 |
| Mercury | 7439-97-6 | LA-505-412 | U | < 0.0501 | mg/kg | | | 1.00 | 0.0501 | | 08/14/07 |
| Uranium | 7440-61-1 | LA-505-412 | | 0.465 | mg/kg | | | 1.00 | 0.0501 | | 08/14/07 |
| Arsenic | 7440-38-2 | LA-505-412 | | 2.98 | mg/kg | | | 1.00 | 0.401 | | 08/14/07 |
| Selenium | 7782-49-2 | LA-505-412 | | 0.419 | mg/kg | | | 1.00 | 0.301 | | 08/14/07 |
| **Total solids** | | | | | | | | | | | |
| Total solids | TS | LA-519-412 | | 97.5 | Percent | | | 1.00 | 0.0 | | 08/07/07 |

**MDL = Minimum Detection Limit**
**RQ = Result Qualifier**
**TP Err = Total Propagated Error**
**DF = Dilution Factor**

B - The Analyte detected in both the BLANK and the SAMPLE.(org)
D - Analyte was identified at a secondary dilution factor(inorg)
U - Analyzed for but not detected above limiting criteria.(org)

B - The analyte < the RDL but > = the IDL/MDL (inorg)
U - Analyzed for but not detected above limiting criteria(inorg)

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

# WSCF ANALYTICAL LABORATORY QC REPORT

**Department:** Inorganic

SDG Number: WSCF20071366
Matrix: SOLID
Test: Anions by Ion Chromatography

Sample Date: 07/24/07
Receive Date:08/03/07

| QC Type | Analyte | CAS # | QC Found | QC Yield | Units | Lower Limit | Upper Limit | RPD(%) | RPD Limit | RQ | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lab ID: W07GR02025 | | | | | | | | | | | |
| BATCH QC ASSOCIATED WITH SAMPLE | | | | | | | | | | | |
| DUP | Fluoride | 16984-48-8 | <0.294 | | RPD | | | n/a | 20.000 | U | 09/06/07 |
| DUP | Nitrogen in Nitrite | NO2-N | <0.49 | | RPD | | | n/a | 20.000 | U | 09/06/07 |
| DUP | Nitrogen in Nitrate | NO3-N | 0.6684 | | RPD | | | 17.390 | 20.000 | | 09/06/07 |
| DUP | Phosphate (P) by IC | PO4-P | <1.96 | | RPD | | | n/a | 20.000 | U | 09/06/07 |
| DUP | Sulfate | 14808-79-8 | 4.6728 | | RPD | | | 32.035 | 20.000 * | | 09/06/07 |
| MS | Fluoride | 16984-48-8 | 0.473764 | 93.815 | % Recov | 75.000 | 125.000 | | | | 09/06/07 |
| MS | Nitrogen in Nitrite | NO2-N | 0.48264 | 96.528 | % Recov | 75.000 | 125.000 | | | | 09/06/07 |
| MS | Nitrogen in Nitrate | NO3-N | 0.501858 | 110.057 | % Recov | 75.000 | 125.000 | | | | 09/06/07 |
| MS | Phosphate (P) by IC | PO4-P | 0.873348 | 90.596 | % Recov | 75.000 | 125.000 | | | | 09/06/07 |
| MS | Sulfate | 14808-79-8 | 1.84866 | 92.433 | % Recov | 75.000 | 125.000 | | | | 09/06/07 |
| MSD | Fluoride | 16984-48-8 | 0.473016 | 93.667 | % Recov | 75.000 | 125.000 | | | | 09/06/07 |
| MSD | Nitrogen in Nitrite | NO2-N | 0.480656 | 96.131 | % Recov | 75.000 | 125.000 | | | | 09/06/07 |
| MSD | Nitrogen in Nitrate | NO3-N | 0.439296 | 96.337 | % Recov | 75.000 | 125.000 | | | | 09/06/07 |
| MSD | Phosphate (P) by IC | PO4-P | 0.882362 | 91.531 | % Recov | 75.000 | 125.000 | | | | 09/06/07 |
| MSD | Sulfate | 14808-79-8 | 1.790018 | 89.501 | % Recov | 75.000 | 125.000 | | | | 09/06/07 |
| SPK-RPD | Fluoride | 16984-48-8 | 93.667 | | RPD | | | 0.158 | 20.000 | | 09/06/07 |
| SPK-RPD | Nitrogen in Nitrite | NO2-N | 96.131 | | RPD | | | 0.412 | 20.000 | | 09/06/07 |
| SPK-RPD | Nitrogen in Nitrate | NO3-N | 96.337 | | RPD | | | 13.295 | 20.000 | | 09/06/07 |
| SPK-RPD | Phosphate (P) by IC | PO4-P | 91.531 | | RPD | | | 1.027 | 20.000 | | 09/06/07 |
| SPK-RPD | Sulfate | 14808-79-8 | 89.501 | | RPD | | | 3.223 | 20.000 | | 09/06/07 |
| BATCH QC | | | | | | | | | | | |
| BLANK | Fluoride | 16984-48-8 | <6e-3 | n/a | mg/L | 0.000 | 0.030 | | | U | 09/06/07 |
| BLANK | Fluoride | 16984-48-8 | <6e-3 | n/a | mg/L | 0.000 | 0.030 | | | U | 09/06/07 |
| BLANK | Nitrogen in Nitrite | NO2-N | <1e-2 | n/a | mg/L | 0.000 | 0.020 | | | U | 09/06/07 |
| BLANK | Nitrogen in Nitrite | NO2-N | <1e-2 | n/a | mg/L | 0.000 | 0.020 | | | U | 09/06/07 |

# WSCF ANALYTICAL LABORATORY QC REPORT

**Department:** **Inorganic**

SDG Number: WSCF20071366
Matrix: SOLID
Test: Anions by Ion Chromatography

Sample Date:
Receive Date:

| QC Type | Analyte | CAS # | QC Found | QC Yield | Units | Lower Limit | Upper Limit | RPD(%) | RPD Limit | RQ | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|
| BLANK | Nitrogen in Nitrate | NO3-N | <5e-3 | n/a | mg/L | 0.000 | 0.040 | | | U | 09/06/07 |
| BLANK | Nitrogen in Nitrate | NO3-N | <5e-3 | n/a | mg/L | 0.000 | 0.040 | | | U | 09/06/07 |
| BLANK | Phosphate (P) by IC | PO4-P | <4e-2 | n/a | mg/L | 0.000 | 0.200 | | | U | 09/06/07 |
| BLANK | Phosphate (P) by IC | PO4-P | <4e-2 | n/a | mg/L | 0.000 | 0.200 | | | U | 09/06/07 |
| BLANK | Sulfate | 14808-79-8 | <7e-2 | n/a | mg/L | 0.000 | 0.200 | | | U | 09/06/07 |
| BLANK | Sulfate | 14808-79-8 | <7e-2 | n/a | mg/L | 0.000 | 0.200 | | | U | 09/06/07 |
| LCS | Fluoride | 16984-48-8 | 107.9148 | 106.846 | % Recov | 80.000 | 120.000 | | | | 09/06/07 |
| LCS | Nitrogen in Nitrite | NO2-N | 101.4789 | 101.479 | % Recov | 80.000 | 120.000 | | | | 09/06/07 |
| LCS | Nitrogen in Nitrate | NO3-N | 93.3153 | 102.319 | % Recov | 80.000 | 120.000 | | | | 09/06/07 |
| LCS | Phosphate (P) by IC | PO4-P | 194.0297 | 100.638 | % Recov | 80.000 | 120.000 | | | | 09/06/07 |
| LCS | Sulfate | 14808-79-8 | 394.1881 | 98.547 | % Recov | 80.000 | 120.000 | | | | 09/06/07 |

# WSCF ANALYTICAL LABORATORY QC REPORT

**Department:** **Inorganic**

SDG Number: WSCF20071366
Matrix: SOLID
Test: Cyanide by Midi/Spectrophotom

Sample Date: 07/24/07
Receive Date:08/03/07

| QC Type | Analyte | CAS # | QC Found | QC Yield | Units | Lower Limit | Upper Limit | RPD(%) | RPD Limit | RQ | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lab ID: W07GR02025 | | | | | | | | | | | |
| BATCH QC ASSOCIATED WITH SAMPLE | | | | | | | | | | | |
| MS | Cyanide by Midi/Spectrophotom | 57-12-5 | 1.84 | 94.359 | % Recov | 75.000 | 125.000 | | | | 08/07/07 |
| MSD | Cyanide by Midi/Spectrophotom | 57-12-5 | 1.78 | 91.282 | % Recov | 75.000 | 125.000 | | | | 08/07/07 |
| SPK-RPD | Cyanide by Midi/Spectrophotom | 57-12-5 | 91.282 | | RPD | | | 3.315 | 20.000 | | 08/07/07 |
| BATCH QC | | | | | | | | | | | |
| BLANK | Cyanide by Midi/Spectrophotom | 57-12-5 | < 4 | n/a | ug/L | -4.000 | 4.000 | | | U | 08/07/07 |
| LCS | Cyanide by Midi/Spectrophotom | 57-12-5 | 49.8 | 101.840 | % Recov | 85.000 | 115.000 | | | | 08/07/07 |

# WSCF ANALYTICAL LABORATORY QC REPORT

**Department:** Inorganic

SDG Number: WSCF20071366
Matrix: SOLID
Test: ICP-200.8 MS All possible meta

Sample Date: 07/24/07
Receive Date:08/03/07

Lab ID: W07GR02025
BATCH QC ASSOCIATED WITH SAMPLE

| QC Type | Analyte | CAS # | QC Found | QC Yield | Units | Lower Limit | Upper Limit | RPD(%) | RPD Limit | RQ | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MS | Silver | 7440-22-4 | 174.4 | 87.200 | % Recov | 70.000 | 130.000 | | | | 08/14/07 |
| MS | Arsenic | 7440-38-2 | 197.025 | 98.513 | % Recov | 70.000 | 130.000 | | | | 08/14/07 |
| MS | Barium | 7440-39-3 | 158.03 | 79.015 | % Recov | 70.000 | 130.000 | | | | 08/14/07 |
| MS | Cadmium | 7440-43-9 | 195.6 | 97.800 | % Recov | 70.000 | 130.000 | | | | 08/14/07 |
| MS | Chromium | 7440-47-3 | 185.311 | 92.656 | % Recov | 70.000 | 130.000 | | | | 08/14/07 |
| MS | Copper | 7440-50-8 | 180.792 | 90.396 | % Recov | 70.000 | 130.000 | | | | 08/14/07 |
| MS | Mercury | 7439-97-6 | 2.237 | 111.850 | % Recov | 70.000 | 130.000 | | | | 08/14/07 |
| MS | Lead | 7439-92-1 | 200.227 | 100.114 | % Recov | 70.000 | 130.000 | | | | 08/14/07 |
| MS | Selenium | 7782-49-2 | 197.4807 | 98.740 | % Recov | 70.000 | 130.000 | | | | 08/14/07 |
| MS | Uranium | 7440-61-1 | 198.0349 | 99.017 | % Recov | 70.000 | 130.000 | | | | 08/14/07 |
| MSD | Silver | 7440-22-4 | 176.7 | 88.350 | % Recov | 70.000 | 130.000 | | | | 08/14/07 |
| MSD | Arsenic | 7440-38-2 | 195.025 | 97.513 | % Recov | 70.000 | 130.000 | | | | 08/14/07 |
| MSD | Barium | 7440-39-3 | 186.53 | 93.265 | % Recov | 70.000 | 130.000 | | | | 08/14/07 |
| MSD | Cadmium | 7440-43-9 | 195.3 | 97.650 | % Recov | 70.000 | 130.000 | | | | 08/14/07 |
| MSD | Chromium | 7440-47-3 | 184.311 | 92.156 | % Recov | 70.000 | 130.000 | | | | 08/14/07 |
| MSD | Copper | 7440-50-8 | 179.692 | 89.846 | % Recov | 70.000 | 130.000 | | | | 08/14/07 |
| MSD | Mercury | 7439-97-6 | 2.181 | 109.050 | % Recov | 70.000 | 130.000 | | | | 08/14/07 |
| MSD | Lead | 7439-92-1 | 195.827 | 97.913 | % Recov | 70.000 | 130.000 | | | | 08/14/07 |
| MSD | Selenium | 7782-49-2 | 194.4807 | 97.240 | % Recov | 70.000 | 130.000 | | | | 08/14/07 |
| MSD | Uranium | 7440-61-1 | 196.2349 | 98.117 | % Recov | 70.000 | 130.000 | | | | 08/14/07 |
| SPK-RPD | Silver | 7440-22-4 | 88.350 | | RPD | | | 1.310 | 20.000 | | 08/14/07 |
| SPK-RPD | Arsenic | 7440-38-2 | 97.513 | | RPD | | | 1.020 | 20.000 | | 08/14/07 |
| SPK-RPD | Barium | 7440-39-3 | 93.265 | | RPD | | | 16.543 | 20.000 | | 08/14/07 |
| SPK-RPD | Cadmium | 7440-43-9 | 97.650 | | RPD | | | 0.153 | 20.000 | | 08/14/07 |
| SPK-RPD | Chromium | 7440-47-3 | 92.156 | | RPD | | | 0.541 | 20.000 | | 08/14/07 |
| SPK-RPD | Copper | 7440-50-8 | 89.846 | | RPD | | | 0.610 | 20.000 | | 08/14/07 |

# WSCF ANALYTICAL LABORATORY QC REPORT

**Department:** Inorganic

SDG Number: WSCF20071366
Matrix: SOLID
Test: ICP-200.8 MS All possible meta

Sample Date: 07/24/07
Receive Date:08/03/07

| QC Type | Analyte | CAS # | QC Found | QC Yield | Units | Lower Limit | Upper Limit | RPD(%) | RPD Limit | RQ | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SPK-RPD | Mercury | 7439-97-6 | 109.050 | | RPD | | | 2.535 | 20.000 | | 08/14/07 |
| SPK-RPD | Lead | 7439-92-1 | 97.913 | | RPD | | | 2.223 | 20.000 | | 08/14/07 |
| SPK-RPD | Selenium | 7782-49-2 | 97.240 | | RPD | | | 1.531 | 20.000 | | 08/14/07 |
| SPK-RPD | Uranium | 7440-61-1 | 98.117 | | RPD | | | 0.913 | 20.000 | | 08/14/07 |
| **BATCH QC** | | | | | | | | | | | |
| BLANK | Silver | 7440-22-4 | <0.1 | n/a | ug/L | | | | | U | 08/14/07 |
| BLANK | Arsenic | 7440-38-2 | <0.4 | n/a | ug/L | | | | | U | 08/14/07 |
| BLANK | Barium | 7440-39-3 | <0.2 | n/a | ug/L | | | | | U | 08/14/07 |
| BLANK | Cadmium | 7440-43-9 | <0.1 | n/a | ug/L | | | | | U | 08/14/07 |
| BLANK | Chromium | 7440-47-3 | <0.5 | n/a | ug/L | | | | | U | 08/14/07 |
| BLANK | Copper | 7440-50-8 | <0.1 | n/a | ug/L | | | | | U | 08/14/07 |
| BLANK | Mercury | 7439-97-6 | <5e-2 | n/a | ug/L | | | | | U | 08/14/07 |
| BLANK | Lead | 7439-92-1 | <0.1 | n/a | ug/L | | | | | U | 08/14/07 |
| BLANK | Selenium | 7782-49-2 | <0.3 | n/a | ug/L | | | | | U | 08/14/07 |
| BLANK | Uranium | 7440-61-1 | <5e-2 | n/a | ug/L | | | | | U | 08/14/07 |
| LCS | Silver | 7440-22-4 | 147.7 | 113.615 | % Recov | 98.000 | 134.000 | | | | 08/14/07 |
| LCS | Arsenic | 7440-38-2 | 169 | 104.969 | % Recov | 75.000 | 134.000 | | | | 08/14/07 |
| LCS | Barium | 7440-39-3 | 256.8 | 101.905 | % Recov | 87.000 | 121.000 | | | | 08/14/07 |
| LCS | Cadmium | 7440-43-9 | 130.2 | 101.719 | % Recov | 95.000 | 124.000 | | | | 08/14/07 |
| LCS | Chromium | 7440-47-3 | 71.16 | 102.388 | % Recov | 77.000 | 125.000 | | | | 08/14/07 |
| LCS | Copper | 7440-50-8 | 148 | 100.000 | % Recov | 84.000 | 122.000 | | | | 08/14/07 |
| LCS | Mercury | 7439-97-6 | 16.69 | 98.757 | % Recov | 71.000 | 132.000 | | | | 08/14/07 |
| LCS | Lead | 7439-92-1 | 146.4 | 103.099 | % Recov | 92.000 | 123.000 | | | | 08/14/07 |
| LCS | Selenium | 7782-49-2 | 71.04 | 110.654 | % Recov | 52.000 | 157.000 | | | | 08/14/07 |
| LCS | Uranium | 7440-61-1 | 383.6 | 95.900 | % Recov | 81.000 | 125.000 | | | | 08/14/07 |

# WSCF
# ANALYTICAL COMMENT REPORT

**Attention:** Steve Trent
**Project Number** F07-043

**Group #:** WSCF20071366
Department: Inorganic

| Sample # | Client ID | Lab Area | Test | Comment |
|---|---|---|---|---|
| | | VALGROUP | | U-235 duplicate is flagged for poor RPD however the sample activity is low level. RPD doesn't apply to low level samples. lmh<br><br>Organics: All results are moisture corrected and reported on a dry weight basis. cgc<br><br>SVOA: The spike relative percent difference for the surrogate Nitrobenzene-d5 exceeded the control limit of 20%. The nitrobenzene-d5 recovery in the MS was higher than usual while the recovery in the MSD is lower than usual accounting for the spike-rpd exceeding the 20% control limit. Nitrobenzene-d5 recoveries are within control limits however. cgc<br><br>W07GR02025/Sr89/90 duplicate is flagged for poor RPD because the sample and dup are not homogeneous. lmh<br><br>Sr85 tracer recovery is flagged for a high recovery. Since all the other tracer recoveries came out fine, this batch has been approved. lmh<br><br>IC Anion - Sample dup out of limits for sulfate; However, analyte concentration in sample below calibration range. DTS |

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 COMMENT REPORT

**Attention:** Steve Trent
**Project Number** F07-043

**Group #:** WSCF20071366
Department: Inorganic

| Sample # | Client ID | Lab Area | Test | Comment |
|---|---|---|---|---|
| | | | | Am241/duplicate is flagged for poor RPD due to no homogeneity. lmh |
| | | | | W07GR02025 GEA Am-241 detected at 0.8 pCi/g. |

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 RESULTS REPORT

**Attention:** Steve Trent
**SAF Number:** F07-043
**Sample #** W07GR02025
**Client ID:** B1NRH7 TRENT WSCF

**Matrix:** SOIL

**Group #:** WSCF20071366
**Department:** Organic
**Sampled:** 07/24/07
**Received:** 08/03/07

| Test Performed | CAS # | Method | RQ | Result | Unit | TP Err | Unit | DF | MDL | PQL | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **NWTPH-D TPH Diesel Range (Wa) Prep** | | | | | | | | | | | **08/07/07** |
| **NWTPH-D TPH Diesel Range (Wa)** | | | | | | | | | | | |
| Total Pet. Hydrocarbons Diesel | TPHDIESEL | LA-523-493 | U | < 3.10e+03 | ug/kg | | | 1.00 | 3.1e+03 | | 08/13/07 |
| Kerosene | TPHKEROSENE | LA-523-493 | U | < 3.10e+03 | ug/kg | | | 1.00 | 3.1e+03 | | 08/13/07 |
| **NWTPH-GX TPH Gasoline Range Prep** | | | | | | | | | | | **08/08/07** |
| **NWTPH-GX TPH Gasoline Range** | | | | | | | | | | | |
| Total Pet. Hydrocarbons Gas | TPHGASOLINE | LA-523-443 | U | < 250 | ug/kg | | | 1.00 | 2.5e+02 | | 08/08/07 |
| **PCBs complete list Prep** | | | | | | | | | | | **08/07/07** |
| **PCBs complete list** | | | | | | | | | | | |
| Aroclor-1016 | 12674-11-2 | LA-523-427 | U | < 10.0 | ug/kg | | | 1.00 | 10 | | 08/09/07 |
| Aroclor-1221 | 11104-28-2 | LA-523-427 | U | < 20.0 | ug/kg | | | 1.00 | 20 | | 08/09/07 |
| Aroclor-1232 | 11141-16-5 | LA-523-427 | U | < 10.0 | ug/kg | | | 1.00 | 10 | | 08/09/07 |
| Aroclor-1242 | 53469-21-9 | LA-523-427 | U | < 10.0 | ug/kg | | | 1.00 | 10 | | 08/09/07 |
| Aroclor-1248 | 12672-29-6 | LA-523-427 | U | < 10.0 | ug/kg | | | 1.00 | 10 | | 08/09/07 |
| Aroclor-1254 | 11097-69-1 | LA-523-427 | U | < 10.0 | ug/kg | | | 1.00 | 10 | | 08/09/07 |
| Aroclor-1260 | 11096-82-5 | LA-523-427 | U | < 10.0 | ug/kg | | | 1.00 | 10 | | 08/09/07 |
| Aroclor-1262 | 37324-23-5 | LA-523-427 | U | < 10.0 | ug/kg | | | 1.00 | 10 | | 08/09/07 |
| Aroclor-1268 | 11100-14-4 | LA-523-427 | U | < 10.0 | ug/kg | | | 1.00 | 10 | | 08/09/07 |
| **SW-846 8270C Semi-Vols Prep** | | | | | | | | | | | **08/07/07** |
| **SW-846 8270C Semi-Vols** | | | | | | | | | | | |
| 4-Nitrophenol | 100-02-7 | LA-523-456 | U | < 340 | ug/kg | | | 1.00 | 3.4e+02 | | 08/09/07 |
| 1,4-Dichlorobenzene | 106-46-7 | LA-523-456 | U | < 260 | ug/kg | | | 1.00 | 2.6e+02 | | 08/09/07 |
| Phenol | 108-95-2 | LA-523-456 | U | < 150 | ug/kg | | | 1.00 | 1.5e+02 | | 08/09/07 |
| 1,2,4-Trichlorobenzene | 120-82-1 | LA-523-456 | U | < 150 | ug/kg | | | 1.00 | 1.5e+02 | | 08/09/07 |
| 2,4-Dinitrotoluene | 121-14-2 | LA-523-456 | U | < 150 | ug/kg | | | 1.00 | 1.5e+02 | | 08/09/07 |

**MDL=Minimum Detection Limit**
**RQ=Result Qualifier**
**TP Err=Total Propagated Error**
**DF=Dilution Factor**

B - The Analyte detected in both the BLANK and the SAMPLE.(org)
D - Analyte was identified at a secondary dilution factor(inorg)
U - Analyzed for but not detected above limiting criteria.(org)

B - The analyte < the RDL but > = the IDL/MDL (inorg)
U - Analyzed for but not detected above limiting criteria(inorg)

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

# WSCF
# ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent
**SAF Number:** F07-043
**Sample #** W07GR02025
**Client ID:** B1NRH7 TRENT WSCF

**Matrix:** SOIL

**Group #:** WSCF20071366
**Department:** Organic
**Sampled:** 07/24/07
**Received:** 08/03/07

| Test Performed | CAS # | Method | RQ | Result | Unit | TP Err | Unit | DF | MDL | PQL | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Pyrene | 129-00-0 | LA-523-456 | U | < 150 | ug/kg | | | 1.00 | 1.5e+02 | | 08/09/07 |
| 4-Chloro-3-methylphenol | 59-50-7 | LA-523-456 | U | < 150 | ug/kg | | | 1.00 | 1.5e+02 | | 08/09/07 |
| N-Nitrosodi-n-dipropylamine | 621-64-7 | LA-523-456 | U | < 150 | ug/kg | | | 1.00 | 1.5e+02 | | 08/09/07 |
| Acenaphthene | 83-32-9 | LA-523-456 | U | < 150 | ug/kg | | | 1.00 | 1.5e+02 | | 08/09/07 |
| Pentachlorophenol | 87-86-5 | LA-523-456 | U | < 410 | ug/kg | | | 1.00 | 4.1e+02 | | 08/09/07 |
| 2-Chlorophenol | 95-57-8 | LA-523-456 | U | < 150 | ug/kg | | | 1.00 | 1.5e+02 | | 08/09/07 |
| Tributyl phosphate | 126-73-8 | LA-523-456 | U | < 150 | ug/kg | | | 1.00 | 1.5e+02 | | 08/09/07 |

**MDL=Minimum Detection Limit**
**RQ=Result Qualifier**
**TP Err=Total Propagated Error**
**DF=Dilution Factor**

B - The Analyte detected in both the BLANK and the SAMPLE.(org)
D - Analyte was identified at a secondary dilution factor(inorg)
U - Analyzed for but not detected above limiting criteria.(org)

B - The analyte < the RDL but > = the IDL/MDL (inorg)
U - Analyzed for but not detected above limiting criteria(inorg)

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

# WSCF
# ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent
**SAF Number:** F07-043
**Sample #** W07GR02027
**Client ID:** BINRF0 TRENT WSCF

**Matrix:** SOIL

**Group #:** WSCF20071366
**Department:** Organic
**Sampled:** 07/24/07
**Received:** 08/03/07

| Test Performed | CAS # | Method | RQ | Result | Unit | TP Err | Unit | DF | MDL | PQL | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **VOA Ground Water Protection** | | | | | | | | | | | |
| 1,1-Dichloroethene | 75-35-4 | LA-523-455 | U | < 1.10 | ug/kg | | | 1.00 | 1.1 | | 08/07/07 |
| Trichloroethene | 79-01-6 | LA-523-455 | U | < 1.10 | ug/kg | | | 1.00 | 1.1 | | 08/07/07 |
| Benzene | 71-43-2 | LA-523-455 | U | < 1.10 | ug/kg | | | 1.00 | 1.1 | | 08/07/07 |
| Toluene | 108-88-3 | LA-523-455 | U | < 1.10 | ug/kg | | | 1.00 | 1.1 | | 08/07/07 |
| Chlorobenzene | 108-90-7 | LA-523-455 | U | < 1.10 | ug/kg | | | 1.00 | 1.1 | | 08/07/07 |
| 1,1-Dichloroethane | 75-34-3 | LA-523-455 | U | < 1.10 | ug/kg | | | 1.00 | 1.1 | | 08/07/07 |
| Ethylbenzene | 100-41-4 | LA-523-455 | U | < 1.10 | ug/kg | | | 1.00 | 1.1 | | 08/07/07 |
| Styrene | 100-42-5 | LA-523-455 | U | < 1.10 | ug/kg | | | 1.00 | 1.1 | | 08/07/07 |
| cis-1,3-Dichloropropene | 10061-01-5 | LA-523-455 | U | < 1.10 | ug/kg | | | 1.00 | 1.1 | | 08/07/07 |
| trans-1,3-Dichloropropene | 10061-02-6 | LA-523-455 | U | < 1.10 | ug/kg | | | 1.00 | 1.1 | | 08/07/07 |
| 1,2-Dichloroethane | 107-06-2 | LA-523-455 | U | < 1.10 | ug/kg | | | 1.00 | 1.1 | | 08/07/07 |
| 4-Methyl-2-Pentanone | 108-10-1 | LA-523-455 | U | < 1.10 | ug/kg | | | 1.00 | 1.1 | | 08/07/07 |
| Dibromochloromethane | 124-48-1 | LA-523-455 | U | < 1.10 | ug/kg | | | 1.00 | 1.1 | | 08/07/07 |
| Tetrachloroethene | 127-18-4 | LA-523-455 | U | < 1.10 | ug/kg | | | 1.00 | 1.1 | | 08/07/07 |
| Xylenes (total) | 1330-20-7 | LA-523-455 | U | < 1.10 | ug/kg | | | 1.00 | 1.1 | | 08/07/07 |
| 1,2-Dichloroethene(Total) | 540-59-0 | LA-523-455 | U | < 1.10 | ug/kg | | | 1.00 | 1.1 | | 08/07/07 |
| Carbon tetrachloride | 56-23-5 | LA-523-455 | U | < 1.10 | ug/kg | | | 1.00 | 1.1 | | 08/07/07 |
| 2-Hexanone | 591-78-6 | LA-523-455 | U | < 1.10 | ug/kg | | | 1.00 | 1.1 | | 08/07/07 |
| Acetone | 67-64-1 | LA-523-455 | B | 7.00 | ug/kg | | | 1.00 | 1.1 | | 08/07/07 |
| Chloroform | 67-66-3 | LA-523-455 | U | < 1.10 | ug/kg | | | 1.00 | 1.1 | | 08/07/07 |
| 1,1,1-Trichloroethane | 71-55-6 | LA-523-455 | U | < 1.10 | ug/kg | | | 1.00 | 1.1 | | 08/07/07 |
| Bromomethane | 74-83-9 | LA-523-455 | U | < 1.10 | ug/kg | | | 1.00 | 1.1 | | 08/07/07 |
| Chloromethane | 74-87-3 | LA-523-455 | U | < 1.10 | ug/kg | | | 1.00 | 1.1 | | 08/07/07 |
| Chloroethane | 75-00-3 | LA-523-455 | U | < 1.10 | ug/kg | | | 1.00 | 1.1 | | 08/07/07 |

**MDL = Minimum Detection Limit**
**RQ = Result Qualifier**
**TP Err = Total Propagated Error**
**DF = Dilution Factor**

B - The Analyte detected in both the BLANK and the SAMPLE.(org)
D - Analyte was identified at a secondary dilution factor(inorg)
U - Analyzed for but not detected above limiting criteria.(org)

B - The analyte < the RDL but > = the IDL/MDL (inorg)
U - Analyzed for but not detected above limiting criteria(inorg)

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

# WSCF
# ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent
**SAF Number:** F07-043
**Sample #** W07GR02027
**Client ID:** BINRF0 TRENT WSCF

**Matrix:** SOIL

**Group #:** WSCF20071366
**Department:** Organic
**Sampled:** 07/24/07
**Received:** 08/03/07

| Test Performed | CAS # | Method | RQ | Result | Unit | TP Err | Unit | DF | MDL | PQL | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Vinyl chloride | 75-01-4 | LA-523-455 | U | < 1.10 | ug/kg | | | 1.00 | 1.1 | | 08/07/07 |
| Methylenechloride | 75-09-2 | LA-523-455 | U | < 1.10 | ug/kg | | | 1.00 | 1.1 | | 08/07/07 |
| Carbon disulfide | 75-15-0 | LA-523-455 | U | < 1.10 | ug/kg | | | 1.00 | 1.1 | | 08/07/07 |
| Bromoform | 75-25-2 | LA-523-455 | U | < 1.10 | ug/kg | | | 1.00 | 1.1 | | 08/07/07 |
| Bromodichloromethane | 75-27-4 | LA-523-455 | U | < 1.10 | ug/kg | | | 1.00 | 1.1 | | 08/07/07 |
| 1,2-Dichloropropane | 78-87-5 | LA-523-455 | U | < 1.10 | ug/kg | | | 1.00 | 1.1 | | 08/07/07 |
| 2-Butanone | 78-93-3 | LA-523-455 | U | < 1.10 | ug/kg | | | 1.00 | 1.1 | | 08/07/07 |
| 1,1,2-Trichloroethane | 79-00-5 | LA-523-455 | U | < 1.10 | ug/kg | | | 1.00 | 1.1 | | 08/07/07 |
| 1,1,2,2-Tetrachloroethane | 79-34-5 | LA-523-455 | U | < 1.10 | ug/kg | | | 1.00 | 1.1 | | 08/07/07 |
| 1-Butanol | 71-36-3 | LA-523-455 | U | < 110 | ug/kg | | | 1.00 | 1.1e+02 | | 08/07/07 |
| n-Butylbenzene | 104-51-8 | LA-523-455 | U | < 1.10 | ug/kg | | | 1.00 | 1.1 | | 08/07/07 |
| trans-1,2-Dichloroethylene | 156-60-5 | LA-523-455 | U | < 1.10 | ug/kg | | | 1.00 | 1.1 | | 08/07/07 |
| cis-1,2-Dichloroethylene | 156-59-2 | LA-523-455 | U | < 1.10 | ug/kg | | | 1.00 | 1.1 | | 08/07/07 |

**MDL=Minimum Detection Limit**
**RQ=Result Qualifier**
**TP Err=Total Propagated Error**
**DF=Dilution Factor**

B - The Analyte detected in both the BLANK and the SAMPLE.(org)
D - Analyte was identified at a secondary dilution factor(inorg)
U - Analyzed for but not detected above limiting criteria.(org)

B - The analyte < the RDL but > = the IDL/MDL (inorg)
U - Analyzed for but not detected above limiting criteria(inorg)

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

# WSCF
# TENTATIVELY IDENTIFIED PEAK REPORT

**Attention:** Steve Trent
**Project Number** F07-043 :F07-043

**Group #:** WSCF20071366
**Department:** Organic

| Sample # | Client ID | Test Name | Peak Name | CAS# | RT | RQ | Result | Units |
|---|---|---|---|---|---|---|---|---|
| W07GR02025 | B1NRH7 TRENT | SW-846 8270C Semi-Vols | SMP 17.285 Unknown | Unknown | 17.2852 | J | 5.2e+03 | ug/kg |

RQ=Result Qualifier J - Analyte < lowest calibration but > = MDL.(org)

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# WSCF ANALYTICAL LABORATORY QC REPORT

**Department:** Organic

SDG Number: WSCF20071366
Matrix: SOLID
Test: PCBs complete list

Sample Date: 07/24/07
Receive Date:08/03/07

| QC Type | Analyte | CAS # | QC Found | QC Yield | Units | Lower Limit | Upper Limit | RPD(%) | RPD Limit | RQ | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lab ID: W07GR02025 | | | | | | | | | | | |
| BATCH QC ASSOCIATED WITH SAMPLE | | | | | | | | | | | |
| MS | Aroclor-1260 | 11096-82-5 | 221.83 | 109.000 | % Recov | 75.000 | 125.000 | | | | 08/09/07 |
| MS | Decachlorobiphenyl | 2051-24-3 | 235.22 | 116.000 | % Recov | 50.000 | 150.000 | | | | 08/09/07 |
| MS | Tetrachloro-m-xylene | 877-09-8 | 181.11 | 89.200 | % Recov | 50.000 | 150.000 | | | | 08/09/07 |
| MSD | Aroclor-1260 | 11096-82-5 | 225.58 | 111.000 | % Recov | 75.000 | 125.000 | | | | 08/09/07 |
| MSD | Decachlorobiphenyl | 2051-24-3 | 205.82 | 101.000 | % Recov | 50.000 | 150.000 | | | | 08/09/07 |
| MSD | Tetrachloro-m-xylene | 877-09-8 | 182.40 | 89.400 | % Recov | 50.000 | 150.000 | | | | 08/09/07 |
| SPK-RPD | Aroclor-1260 | 11096-82-5 | 111.000 | | RPD | | | 1.818 | 25.000 | | 08/09/07 |
| SPK-RPD | Decachlorobiphenyl | 2051-24-3 | 101.000 | | RPD | | | 13.825 | 20.000 | | 08/09/07 |
| SPK-RPD | Tetrachloro-m-xylene | 877-09-8 | 89.400 | | RPD | | | 0.224 | 20.000 | | 08/09/07 |
| SURR | Decachlorobiphenyl | 2051-24-3 | 219.46 | 108.000 | % Recov | 50.000 | 150.000 | | | | 08/09/07 |
| SURR | Tetrachloro-m-xylene | 877-09-8 | 175.10 | 85.900 | % Recov | 50.000 | 150.000 | | | | 08/09/07 |
| BATCH QC | | | | | | | | | | | |
| BLANK | Aroclor-1016 | 12674-11-2 | < 10 | n/a | UGKG | | | | | U | 08/09/07 |
| BLANK | Aroclor-1221 | 11104-28-2 | < 20 | n/a | ug/Kg | | | | | U | 08/09/07 |
| BLANK | Aroclor-1232 | 11141-16-5 | < 10 | n/a | ug/Kg | | | | | U | 08/09/07 |
| BLANK | Aroclor-1242 | 53469-21-9 | < 10 | n/a | ug/Kg | | | | | U | 08/09/07 |
| BLANK | Aroclor-1248 | 12672-29-6 | < 10 | n/a | ug/Kg | | | | | U | 08/09/07 |
| BLANK | Aroclor-1254 | 11097-69-1 | < 10 | n/a | ug/Kg | | | | | U | 08/09/07 |
| BLANK | Aroclor-1260 | 11096-82-5 | < 10 | n/a | ug/Kg | | | | | U | 08/09/07 |
| BLANK | Aroclor-1262 | 37324-23-5 | < 10 | n/a | ug/Kg | | | | | U | 08/09/07 |
| BLANK | Aroclor-1268 | 11100-14-4 | < 10 | n/a | ug/Kg | | | | | U | 08/09/07 |
| BLANK | Decachlorobiphenyl | 2051-24-3 | 235.81 | 118.000 | % Recov | 50.000 | 150.000 | | | | 08/09/07 |
| BLANK | Tetrachloro-m-xylene | 877-09-8 | 176.47 | 88.200 | % Recov | 50.000 | 150.000 | | | | 08/09/07 |
| LCS | Aroclor-1260 | 11096-82-5 | 225.56 | 113.000 | % Recov | 70.000 | 130.000 | | | | 08/09/07 |
| LCS | Decachlorobiphenyl | 2051-24-3 | 233.40 | 117.000 | % Recov | 50.000 | 150.000 | | | | 08/09/07 |

# WSCF ANALYTICAL LABORATORY QC REPORT

**Department:** Organic

SDG Number: WSCF20071366
Matrix: SOLID
Test: PCBs complete list

Sample Date:
Receive Date:

| QC Type | Analyte | CAS # | QC Found | QC Yield | Units | Lower Limit | Upper Limit | RPD(%) | RPD Limit | RQ | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|
| LCS | Tetrachloro-m-xylene | 877-09-8 | 151.37 | 75.700 | % Recov | 50.000 | 150.000 | | | | 08/09/07 |

# WSCF ANALYTICAL LABORATORY QC REPORT

**Department:** Organic

SDG Number: WSCF20071366
Matrix: SOLID
Test: SW-846 8270C Semi-Vols

Sample Date: 07/24/07
Receive Date:08/03/07

Lab ID: W07GR02025
BATCH QC ASSOCIATED WITH SAMPLE

| QC Type | Analyte | CAS # | QC Found | QC Yield | Units | Lower Limit | Upper Limit | RPD(%) | RPD Limit | RQ | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MS | 1,2,4-Trichlorobenzene | 120-82-1 | 3866.8 | 94.400 | % Recov | 75.000 | 121.000 | | | | 08/09/07 |
| MS | 1,4-Dichlorobenzene | 106-46-7 | 3552.3 | 86.800 | % Recov | 68.000 | 121.000 | | | | 08/09/07 |
| MS | 2,4-Dinitrotoluene | 121-14-2 | 3245.3 | 79.300 | % Recov | 66.000 | 113.000 | | | | 08/09/07 |
| MS | 2-Fluorophenol(Surr) | 367-12-4 | 3502.6 | 85.500 | % Recov | 72.000 | 120.000 | | | | 08/09/07 |
| MS | Acenaphthene | 83-32-9 | 3501.7 | 85.500 | % Recov | 69.000 | 125.000 | | | | 08/09/07 |
| MS | 4-Chloro-3-methylphenol | 59-50-7 | 6087.4 | 99.100 | % Recov | 68.000 | 116.000 | | | | 08/09/07 |
| MS | 2-Chlorophenol | 95-57-8 | 5351.6 | 87.100 | % Recov | 65.000 | 124.000 | | | | 08/09/07 |
| MS | N-Nitrosodi-n-dipropylamine | 621-64-7 | 3198.2 | 78.100 | % Recov | 69.000 | 127.000 | | | | 08/09/07 |
| MS | 2-Fluorobiphenyl(Surr) | 321-60-8 | 3784.6 | 92.400 | % Recov | 66.000 | 122.000 | | | | 08/09/07 |
| MS | Phenol | 108-95-2 | 4639.6 | 75.500 | % Recov | 71.000 | 122.000 | | | | 08/09/07 |
| MS | Nitrobenzene-d5(Surr) | 4165-60-0 | 4220.6 | 103.000 | % Recov | 63.000 | 125.000 | | | | 08/09/07 |
| MS | 4-Nitrophenol | 100-02-7 | 4485.5 | 73.000 | % Recov | 55.000 | 113.000 | | | | 08/09/07 |
| MS | Pentachlorophenol | 87-86-5 | 4990.0 | 81.200 | % Recov | 50.000 | 113.000 | | | | 08/09/07 |
| MS | Phenol-d5(Surr) | 4165-62-2 | 2913.8 | 71.200 | % Recov | 66.000 | 124.000 | | | | 08/09/07 |
| MS | Pyrene | 129-00-0 | 3542.1 | 86.500 | % Recov | 67.000 | 125.000 | | | | 08/09/07 |
| MS | 2,4,6-Tribromophenol(Surr) | 118-79-6 | 3623.4 | 88.500 | % Recov | 49.000 | 120.000 | | | | 08/09/07 |
| MS | Terphenyl-d14(Surr) | 98904-43-9 | 3490.8 | 85.200 | % Recov | 58.000 | 128.000 | | | | 08/09/07 |
| MSD | 1,2,4-Trichlorobenzene | 120-82-1 | 3370.4 | 82.300 | % Recov | 75.000 | 121.000 | | | | 08/09/07 |
| MSD | 1,4-Dichlorobenzene | 106-46-7 | 3242.1 | 79.200 | % Recov | 68.000 | 121.000 | | | | 08/09/07 |
| MSD | 2,4-Dinitrotoluene | 121-14-2 | 2992.7 | 73.100 | % Recov | 66.000 | 113.000 | | | | 08/09/07 |
| MSD | 2-Fluorophenol(Surr) | 367-12-4 | 3258.0 | 79.600 | % Recov | 72.000 | 120.000 | | | | 08/09/07 |
| MSD | Acenaphthene | 83-32-9 | 3345.5 | 81.700 | % Recov | 69.000 | 125.000 | | | | 08/09/07 |
| MSD | 4-Chloro-3-methylphenol | 59-50-7 | 5653.4 | 92.000 | % Recov | 68.000 | 116.000 | | | | 08/09/07 |
| MSD | 2-Chlorophenol | 95-57-8 | 5097.9 | 83.000 | % Recov | 65.000 | 124.000 | | | | 08/09/07 |
| MSD | N-Nitrosodi-n-dipropylamine | 621-64-7 | 3028.3 | 73.900 | % Recov | 69.000 | 127.000 | | | | 08/09/07 |
| MSD | 2-Fluorobiphenyl(Surr) | 321-60-8 | 3560.3 | 86.900 | % Recov | 66.000 | 122.000 | | | | 08/09/07 |

# WSCF ANALYTICAL LABORATORY QC REPORT

**Department:** Organic

SDG Number: WSCF20071366
Matrix: SOLID
Test: SW-846 8270C Semi-Vols

Sample Date: 07/24/07
Receive Date:08/03/07

| QC Type | Analyte | CAS # | QC Found | QC Yield | Units | Lower Limit | Upper Limit | RPD(%) | RPD Limit | RQ | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MSD | Phenol | 108-95-2 | 5174.0 | 84.200 | % Recov | 71.000 | 122.000 | | | | 08/09/07 |
| MSD | Nitrobenzene-d5(Surr) | 4165-60-0 | 3078.4 | 75.200 | % Recov | 63.000 | 125.000 | | | | 08/09/07 |
| MSD | 4-Nitrophenol | 100-02-7 | 4124.6 | 67.100 | % Recov | 55.000 | 113.000 | | | | 08/09/07 |
| MSD | Pentachlorophenol | 87-86-5 | 4656.6 | 75.800 | % Recov | 50.000 | 113.000 | | | | 08/09/07 |
| MSD | Phenol-d5(Surr) | 4165-62-2 | 3198.1 | 78.100 | % Recov | 66.000 | 124.000 | | | | 08/09/07 |
| MSD | Pyrene | 129-00-0 | 3306.5 | 80.700 | % Recov | 67.000 | 125.000 | | | | 08/09/07 |
| MSD | 2,4,6-Tribromophenol(Surr) | 118-79-6 | 3320.6 | 81.100 | % Recov | 49.000 | 120.000 | | | | 08/09/07 |
| MSD | Terphenyl-d14(Surr) | 98904-43-9 | 3267.1 | 79.800 | % Recov | 58.000 | 128.000 | | | | 08/09/07 |
| SPK-RPD | 1,2,4-Trichlorobenzene | 120-82-1 | 82.300 | | RPD | | | 13.696 | 20.000 | | 08/09/07 |
| SPK-RPD | 1,4-Dichlorobenzene | 106-46-7 | 79.200 | | RPD | | | 9.157 | 20.000 | | 08/09/07 |
| SPK-RPD | 2,4-Dinitrotoluene | 121-14-2 | 73.100 | | RPD | | | 8.136 | 20.000 | | 08/09/07 |
| SPK-RPD | 2-Fluorophenol(Surr) | 367-12-4 | 79.600 | | RPD | | | 7.147 | 20.000 | | 08/09/07 |
| SPK-RPD | Acenaphthene | 83-32-9 | 81.700 | | RPD | | | 4.545 | 20.000 | | 08/09/07 |
| SPK-RPD | 4-Chloro-3-methylphenol | 59-50-7 | 92.000 | | RPD | | | 7.431 | 20.000 | | 08/09/07 |
| SPK-RPD | 2-Chlorophenol | 95-57-8 | 83.000 | | RPD | | | 4.821 | 20.000 | | 08/09/07 |
| SPK-RPD | N-Nitrosodi-n-dipropylamine | 621-64-7 | 73.900 | | RPD | | | 5.526 | 20.000 | | 08/09/07 |
| SPK-RPD | 2-Fluorobiphenyl(Surr) | 321-60-8 | 86.900 | | RPD | | | 6.135 | 20.000 | | 08/09/07 |
| SPK-RPD | Phenol | 108-95-2 | 84.200 | | RPD | | | 10.895 | 20.000 | | 08/09/07 |
| SPK-RPD | Nitrobenzene-d5(Surr) | 4165-60-0 | 75.200 | | RPD | | | 31.201 | 20.000 * | | 08/09/07 |
| SPK-RPD | 4-Nitrophenol | 100-02-7 | 67.100 | | RPD | | | 8.423 | 20.000 | | 08/09/07 |
| SPK-RPD | Pentachlorophenol | 87-86-5 | 75.800 | | RPD | | | 6.879 | 20.000 | | 08/09/07 |
| SPK-RPD | Phenol-d5(Surr) | 4165-62-2 | 78.100 | | RPD | | | 9.243 | 20.000 | | 08/09/07 |
| SPK-RPD | Pyrene | 129-00-0 | 80.700 | | RPD | | | 6.938 | 20.000 | | 08/09/07 |
| SPK-RPD | 2,4,6-Tribromophenol(Surr) | 118-79-6 | 81.100 | | RPD | | | 8.726 | 20.000 | | 08/09/07 |
| SPK-RPD | Terphenyl-d14(Surr) | 98904-43-9 | 79.800 | | RPD | | | 6.545 | 20.000 | | 08/09/07 |
| SURR | 2-Fluorophenol(Surr) | 367-12-4 | 4381.4 | 107.000 | % Recov | 72.000 | 120.000 | | | | 08/09/07 |
| SURR | 2-Fluorobiphenyl(Surr) | 321-60-8 | 4067.3 | 99.400 | % Recov | 66.000 | 122.000 | | | | 08/09/07 |
| SURR | Nitrobenzene-d5(Surr) | 4165-60-0 | 4128.9 | 101.000 | % Recov | 63.000 | 125.000 | | | | 08/09/07 |
| SURR | Phenol-d5(Surr) | 4165-62-2 | 3162.9 | 77.300 | % Recov | 66.000 | 124.000 | | | | 08/09/07 |
| SURR | 2,4,6-Tribromophenol(Surr) | 118-79-6 | 4446.6 | 109.000 | % Recov | 49.000 | 120.000 | | | | 08/09/07 |

# WSCF ANALYTICAL LABORATORY QC REPORT

**Department:** Organic

SDG Number: WSCF20071366
Matrix: SOLID
Test: SW-846 8270C Semi-Vols

Sample Date: 07/24/07
Receive Date:08/03/07

| QC Type | Analyte | CAS # | QC Found | QC Yield | Units | Lower Limit | Upper Limit | RPD(%) | RPD Limit | RQ | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SURR | Terphenyl-d14(Surr) | 98904-43-9 | 4517.6 | 110.000 | % Recov | 58.000 | 128.000 | | | | 08/09/07 |
| **BATCH QC** | | | | | | | | | | | |
| BLANK | 1,2,4-Trichlorobenzene | 120-82-1 | < 150 | n/a | ug/Kg | | | | | U | 08/09/07 |
| BLANK | 1,4-Dichlorobenzene | 106-46-7 | < 250 | n/a | ug/Kg | | | | | U | 08/09/07 |
| BLANK | 2,4-Dinitrotoluene | 121-14-2 | < 150 | n/a | ug/Kg | | | | | U | 08/09/07 |
| BLANK | 2-Fluorophenol(Surr) | 367-12-4 | 3393.2 | 84.800 | % Recov | 72.000 | 120.000 | | | | 08/09/07 |
| BLANK | Acenaphthene | 83-32-9 | < 150 | n/a | ug/Kg | | | | | U | 08/09/07 |
| BLANK | 4-Chloro-3-methylphenol | 59-50-7 | < 150 | n/a | ug/Kg | | | | | U | 08/09/07 |
| BLANK | 2-Chlorophenol | 95-57-8 | < 150 | n/a | ug/Kg | | | | | U | 08/09/07 |
| BLANK | N-Nitrosodi-n-dipropylamine | 621-64-7 | < 150 | n/a | ug/Kg | | | | | U | 08/09/07 |
| BLANK | 2-Fluorobiphenyl(Surr) | 321-60-8 | 4274.6 | 107.000 | % Recov | 66.000 | 122.000 | | | | 08/09/07 |
| BLANK | Phenol | 108-95-2 | < 150 | n/a | ug/Kg | | | | | U | 08/09/07 |
| BLANK | Nitrobenzene-d5(Surr) | 4165-60-0 | 3273.1 | 81.800 | % Recov | 63.000 | 125.000 | | | | 08/09/07 |
| BLANK | 4-Nitrophenol | 100-02-7 | < 330 | n/a | ug/Kg | | | | | U | 08/09/07 |
| BLANK | Pentachlorophenol | 87-86-5 | < 400 | n/a | ug/Kg | | | | | U | 08/09/07 |
| BLANK | Phenol-d5(Surr) | 4165-62-2 | 3345.8 | 83.600 | % Recov | 66.000 | 124.000 | | | | 08/09/07 |
| BLANK | Pyrene | 129-00-0 | < 150 | n/a | ug/Kg | | | | | U | 08/09/07 |
| BLANK | Tributyl phosphate | 126-73-8 | < 150 | n/a | ug/Kg | | | | | U | 08/09/07 |
| BLANK | 2,4,6-Tribromophenol(Surr) | 118-79-6 | 4161.9 | 104.000 | % Recov | 49.000 | 120.000 | | | | 08/09/07 |
| BLANK | Terphenyl-d14(Surr) | 98904-43-9 | 3424.9 | 85.600 | % Recov | 58.000 | 128.000 | | | | 08/09/07 |
| LCS | 1,2,4-Trichlorobenzene | 120-82-1 | 3960.9 | 99.000 | % Recov | 76.000 | 118.000 | | | | 08/09/07 |
| LCS | 1,4-Dichlorobenzene | 106-46-7 | 4007.8 | 100.000 | % Recov | 68.000 | 121.000 | | | | 08/09/07 |
| LCS | 2,4-Dinitrotoluene | 121-14-2 | 3603.2 | 90.100 | % Recov | 68.000 | 112.000 | | | | 08/09/07 |
| LCS | 2-Fluorophenol(Surr) | 367-12-4 | 4036.2 | 101.000 | % Recov | 50.000 | 110.000 | | | | 08/09/07 |
| LCS | Acenaphthene | 83-32-9 | 4133.9 | 103.000 | % Recov | 75.000 | 121.000 | | | | 08/09/07 |
| LCS | 4-Chloro-3-methylphenol | 59-50-7 | 5882.1 | 98.000 | % Recov | 68.000 | 117.000 | | | | 08/09/07 |
| LCS | 2-Chlorophenol | 95-57-8 | 6144.3 | 102.000 | % Recov | 84.000 | 114.000 | | | | 08/09/07 |
| LCS | N-Nitrosodi-n-dipropylamine | 621-64-7 | 3726.7 | 93.200 | % Recov | 76.000 | 119.000 | | | | 08/09/07 |
| LCS | 2-Fluorobiphenyl(Surr) | 321-60-8 | 4305.8 | 108.000 | % Recov | 58.000 | 109.000 | | | | 08/09/07 |

# WSCF ANALYTICAL LABORATORY QC REPORT

**Department:** **Organic**

SDG Number: WSCF20071366
Matrix: SOLID
Test: SW-846 8270C Semi-Vols

Sample Date:
Receive Date:

| QC Type | Analyte | CAS # | QC Found | QC Yield | Units | Lower Limit | Upper Limit | RPD(%) | RPD Limit | RQ | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|
| LCS | Phenol | 108-95-2 | 5557.8 | 92.600 | % Recov | 80.000 | 113.000 | | | | 08/09/07 |
| LCS | Nitrobenzene-d5(Surr) | 4165-60-0 | 4087.3 | 102.000 | % Recov | 60.000 | 118.000 | | | | 08/09/07 |
| LCS | 4-Nitrophenol | 100-02-7 | 5156.2 | 85.900 | % Recov | 42.000 | 123.000 | | | | 08/09/07 |
| LCS | Pentachlorophenol | 87-86-5 | 5869.6 | 97.800 | % Recov | 55.000 | 120.000 | | | | 08/09/07 |
| LCS | Phenol-d5(Surr) | 4165-62-2 | 3566.4 | 89.200 | % Recov | 59.000 | 116.000 | | | | 08/09/07 |
| LCS | Pyrene | 129-00-0 | 4038.1 | 101.000 | % Recov | 67.000 | 122.000 | | | | 08/09/07 |
| LCS | 2,4,6-Tribromophenol(Surr) | 118-79-6 | 3981.1 | 99.500 | % Recov | 60.000 | 120.000 | | | | 08/09/07 |
| LCS | Terphenyl-d14(Surr) | 98904-43-9 | 4035.2 | 101.000 | % Recov | 60.000 | 120.000 | | | | 08/09/07 |

# WSCF ANALYTICAL LABORATORY QC REPORT

**Department:** Organic

SDG Number: WSCF20071366
Matrix: SOLID
Test: NWTPH-D TPH Diesel Range (Wa)

Sample Date: 07/24/07
Receive Date:08/03/07

| QC Type | Analyte | CAS # | QC Found | QC Yield | Units | Lower Limit | Upper Limit | RPD(%) | RPD Limit | RQ | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lab ID: W07GR02025 | | | | | | | | | | | |
| BATCH QC ASSOCIATED WITH SAMPLE | | | | | | | | | | | |
| MS | ortho-Terphenyl Surr | 84-15-1 | 21400 | 104.000 | % Recov | 70.000 | 130.000 | | | | 08/13/07 |
| MS | Total Pet. Hydrocarbons Diesel | TPHDIESEL | 104290 | 102.000 | % Recov | 75.000 | 125.000 | | | | 08/13/07 |
| MSD | ortho-Terphenyl Surr | 84-15-1 | 22345 | 109.000 | % Recov | 70.000 | 130.000 | | | | 08/13/07 |
| MSD | Total Pet. Hydrocarbons Diesel | TPHDIESEL | 108770 | 106.000 | % Recov | 75.000 | 125.000 | | | | 08/13/07 |
| SPK-RPD | ortho-Terphenyl Surr | 84-15-1 | 109.000 | | RPD | | | 4.695 | 20.000 | | 08/13/07 |
| SPK-RPD | Total Pet. Hydrocarbons Diesel | TPHDIESEL | 106.000 | | RPD | | | 3.846 | 20.000 | | 08/13/07 |
| SURR | ortho-Terphenyl Surr | 84-15-1 | 21819 | 107.000 | % Recov | 70.000 | 130.000 | | | | 08/13/07 |
| BATCH QC | | | | | | | | | | | |
| BLANK | Kerosene | TPHKEROSENE | < 3000 | n/a | ug/Kg | | | | | U | 08/13/07 |
| BLANK | ortho-Terphenyl Surr | 84-15-1 | 19946 | 99.700 | % Recov | 70.000 | 130.000 | | | | 08/13/07 |
| BLANK | Total Pet. Hydrocarbons Diesel | TPHDIESEL | < 3000 | n/a | ug/Kg | | | | | U | 08/13/07 |
| LCS | ortho-Terphenyl Surr | 84-15-1 | 19415 | 97.100 | % Recov | 70.000 | 130.000 | | | | 08/13/07 |
| LCS | Total Pet. Hydrocarbons Diesel | TPHDIESEL | 97370 | 97.400 | % Recov | 80.000 | 120.000 | | | | 08/13/07 |

# WSCF ANALYTICAL LABORATORY QC REPORT

**Department:** Organic

SDG Number: WSCF20071366
Matrix: SOLID
Test: NWTPH-GX TPH Gasoline Range

Sample Date: 07/24/07
Receive Date:08/03/07

| QC Type | Analyte | CAS # | QC Found | QC Yield | Units | Lower Limit | Upper Limit | RPD(%) | RPD Limit | RQ | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lab ID: W07GR02025 | | | | | | | | | | | |
| BATCH QC ASSOCIATED WITH SAMPLE | | | | | | | | | | | |
| DUP | Total Pet. Hydrocarbons Gas | TPHGASOLINE | <250 | | RPD | | | n/a | 20.000 | U | 08/08/07 |
| MS | Total Pet. Hydrocarbons Gas | TPHGASOLINE | 4300 | 84.314 | % Recov | 50.000 | 150.000 | | | | 08/08/07 |
| MSD | Total Pet. Hydrocarbons Gas | TPHGASOLINE | 4200 | 82.353 | % Recov | 50.000 | 150.000 | | | | 08/08/07 |
| SPK-RPD | Total Pet. Hydrocarbons Gas | TPHGASOLINE | 82.353 | | RPD | | | 2.353 | 20.000 | | 08/08/07 |
| BATCH QC | | | | | | | | | | | |
| BLANK | Total Pet. Hydrocarbons Gas | TPHGASOLINE | <250 | n/a | mg/L | 0.000 | 300.000 | | | U | 08/08/07 |
| LCS | Total Pet. Hydrocarbons Gas | TPHGASOLINE | 4800 | 96.000 | % Recov | 85.000 | 115.000 | | | | 08/08/07 |

# WSCF ANALYTICAL LABORATORY QC REPORT

**Department:** Organic

SDG Number: WSCF20071366
Matrix: SOLID
Test: VOA Ground Water Protection

Sample Date: 07/21/07
Receive Date:08/03/07

Lab ID: W07GR02021
BATCH QC ASSOCIATED WITH SAMPLE

| QC Type | Analyte | CAS # | QC Found | QC Yield | Units | Lower Limit | Upper Limit | RPD(%) | RPD Limit | RQ | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MS | 1,1-Dichloroethene | 75-35-4 | 20.940 | 98.000 | % Recov | 63.000 | 117.000 | | | | 08/07/07 |
| MS | Benzene | 71-43-2 | 21.860 | 102.000 | % Recov | 75.000 | 129.000 | | | | 08/07/07 |
| MS | 4-Bromofluorobenzene(Surr) | 460-00-4 | 41.960 | 98.200 | % Recov | 84.000 | 116.000 | | | | 08/07/07 |
| MS | Chlorobenzene | 108-90-7 | 18.790 | 87.900 | % Recov | 79.000 | 119.000 | | | | 08/07/07 |
| MS | 1,2-Dichloroethane-d4(Surr) | 17060-07-0 | 38.220 | 89.400 | % Recov | 82.000 | 136.000 | | | | 08/07/07 |
| MS | Toluene-d8(Surr) | 2037-26-5 | 43.640 | 102.000 | % Recov | 89.000 | 119.000 | | | | 08/07/07 |
| MS | Toluene | 108-88-3 | 21.930 | 103.000 | % Recov | 76.000 | 120.000 | | | | 08/07/07 |
| MS | Trichloroethene | 79-01-6 | 17.810 | 83.400 | % Recov | 73.000 | 123.000 | | | | 08/07/07 |
| MSD | 1,1-Dichloroethene | 75-35-4 | 19.770 | 86.400 | % Recov | 63.000 | 117.000 | | | | 08/07/07 |
| MSD | Benzene | 71-43-2 | 21.860 | 95.500 | % Recov | 75.000 | 129.000 | | | | 08/07/07 |
| MSD | 4-Bromofluorobenzene(Surr) | 460-00-4 | 45.390 | 99.100 | % Recov | 84.000 | 116.000 | | | | 08/07/07 |
| MSD | Chlorobenzene | 108-90-7 | 18.380 | 80.300 | % Recov | 79.000 | 119.000 | | | | 08/07/07 |
| MSD | 1,2-Dichloroethane-d4(Surr) | 17060-07-0 | 40.300 | 88.000 | % Recov | 82.000 | 136.000 | | | | 08/07/07 |
| MSD | Toluene-d8(Surr) | 2037-26-5 | 46.320 | 101.000 | % Recov | 89.000 | 119.000 | | | | 08/07/07 |
| MSD | Toluene | 108-88-3 | 21.780 | 95.100 | % Recov | 76.000 | 120.000 | | | | 08/07/07 |
| MSD | Trichloroethene | 79-01-6 | 17.640 | 77.100 | % Recov | 73.000 | 123.000 | | | | 08/07/07 |
| SPK-RPD | 1,1-Dichloroethene | 75-35-4 | 86.400 | | RPD | | | 12.581 | 20.000 | | 08/07/07 |
| SPK-RPD | Benzene | 71-43-2 | 95.500 | | RPD | | | 6.582 | 20.000 | | 08/07/07 |
| SPK-RPD | 4-Bromofluorobenzene(Surr) | 460-00-4 | 99.100 | | RPD | | | 0.912 | 20.000 | | 08/07/07 |
| SPK-RPD | Chlorobenzene | 108-90-7 | 80.300 | | RPD | | | 9.037 | 20.000 | | 08/07/07 |
| SPK-RPD | 1,2-Dichloroethane-d4(Surr) | 17060-07-0 | 88.000 | | RPD | | | 1.578 | 20.000 | | 08/07/07 |
| SPK-RPD | Toluene-d8(Surr) | 2037-26-5 | 101.000 | | RPD | | | 0.985 | 20.000 | | 08/07/07 |
| SPK-RPD | Toluene | 108-88-3 | 95.100 | | RPD | | | 7.976 | 20.000 | | 08/07/07 |
| SPK-RPD | Trichloroethene | 79-01-6 | 77.100 | | RPD | | | 7.850 | 20.000 | | 08/07/07 |

# WSCF ANALYTICAL LABORATORY QC REPORT

**Department:** Organic

SDG Number: WSCF20071366
Matrix: SOLID
Test: VOA Ground Water Protection

Sample Date: 07/24/07
Receive Date:08/03/07

| QC Type | Analyte | CAS # | QC Found | QC Yield | Units | Lower Limit | Upper Limit | RPD(%) | RPD Limit | RQ | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lab ID: W07GR02027 | | | | | | | | | | | |
| BATCH QC ASSOCIATED WITH SAMPLE | | | | | | | | | | | |
| SURR | 4-Bromofluorobenzene(Surr) | 460-00-4 | 51.590 | 96.900 | % Recov | 71.000 | 125.000 | | | | 08/07/07 |
| SURR | 1,2-Dichloroethane-d4(Surr) | 17060-07-0 | 46.270 | 86.900 | % Recov | 80.000 | 134.000 | | | | 08/07/07 |
| SURR | Toluene-d8(Surr) | 2037-26-5 | 55.790 | 105.000 | % Recov | 80.000 | 126.000 | | | | 08/07/07 |
| BATCH QC | | | | | | | | | | | |
| BLANK | 1,1-Dichloroethane | 75-34-3 | < 2.0 | n/a | ug/Kg | | | | | U | 08/07/07 |
| BLANK | 1,1,1-Trichloroethane | 71-55-6 | < 2.0 | n/a | ug/Kg | | | | | U | 08/07/07 |
| BLANK | 1,1,2-Trichloroethane | 79-00-5 | < 2.0 | n/a | ug/Kg | | | | | U | 08/07/07 |
| BLANK | 1,1,2,2-Tetrachloroethane | 79-34-5 | < 2.0 | n/a | ug/Kg | | | | | U | 08/07/07 |
| BLANK | 1,1-Dichloroethene | 75-35-4 | < 2.0 | n/a | ug/Kg | | | | | U | 08/07/07 |
| BLANK | 1,2-Dichloroethane | 107-06-2 | < 2.0 | n/a | ug/Kg | | | | | U | 08/07/07 |
| BLANK | 1,2-Dichloroethene(Total) | 540-59-0 | < 2.0 | n/a | ug/Kg | | | | | U | 08/07/07 |
| BLANK | 1-Butanol | 71-36-3 | < 200 | n/a | ug/Kg | | | | | U | 08/07/07 |
| BLANK | 2-Hexanone | 591-78-6 | < 2.0 | n/a | ug/Kg | | | | | U | 08/07/07 |
| BLANK | 4-Methyl-2-Pentanone | 108-10-1 | < 2.0 | n/a | ug/Kg | | | | | U | 08/07/07 |
| BLANK | Acetone | 67-64-1 | 15 | 15.000 | ug/Kg | | | | | | 08/07/07 |
| BLANK | Bromodichloromethane | 75-27-4 | < 2.0 | n/a | ug/Kg | | | | | U | 08/07/07 |
| BLANK | Benzene | 71-43-2 | < 2.0 | n/a | ug/Kg | | | | | U | 08/07/07 |
| BLANK | 4-Bromofluorobenzene(Surr) | 460-00-4 | 96.120 | 96.100 | % Recov | 71.000 | 125.000 | | | | 08/07/07 |
| BLANK | Bromoform | 75-25-2 | < 2.0 | n/a | ug/Kg | | | | | U | 08/07/07 |
| BLANK | n-Butylbenzene | 104-51-8 | < 2.0 | n/a | ug/Kg | | | | | U | 08/07/07 |
| BLANK | Carbon disulfide | 75-15-0 | < 2.0 | n/a | ug/Kg | | | | | U | 08/07/07 |
| BLANK | Carbon tetrachloride | 56-23-5 | < 2.0 | n/a | ug/Kg | | | | | U | 08/07/07 |
| BLANK | Dibromochloromethane | 124-48-1 | < 2.0 | n/a | ug/Kg | | | | | U | 08/07/07 |
| BLANK | Chloroform | 67-66-3 | < 2.0 | n/a | ug/Kg | | | | | U | 08/07/07 |
| BLANK | Chlorobenzene | 108-90-7 | < 2.0 | n/a | ug/Kg | | | | | U | 08/07/07 |
| BLANK | cis-1,2-Dichloroethylene | 156-59-2 | < 2.0 | n/a | ug/Kg | | | | | U | 08/07/07 |

# WSCF ANALYTICAL LABORATORY QC REPORT

**Department:** Organic

SDG Number: WSCF20071366
Matrix: SOLID
Test: VOA Ground Water Protection

Sample Date:
Receive Date:

| QC Type | Analyte | CAS # | QC Found | QC Yield | Units | Lower Limit | Upper Limit | RPD(%) | RPD Limit | RQ | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|
| BLANK | cis-1,3-Dichloropropene | 10061-01-5 | < 2.0 | n/a | ug/Kg | | | | | U | 08/07/07 |
| BLANK | Chloroethane | 75-00-3 | < 2.0 | n/a | ug/Kg | | | | | U | 08/07/07 |
| BLANK | 1,2-Dichloroethane-d4(Surr) | 17060-07-0 | 84.940 | 84.900 | % Recov | 80.000 | 134.000 | | | | 08/07/07 |
| BLANK | trans-1,2-Dichloroethylene | 156-60-5 | < 2.0 | n/a | ug/Kg | | | | | U | 08/07/07 |
| BLANK | 1,2-Dichloropropane | 78-87-5 | < 2.0 | n/a | ug/Kg | | | | | U | 08/07/07 |
| BLANK | Ethylbenzene | 100-41-4 | < 2.0 | n/a | ug/Kg | | | | | U | 08/07/07 |
| BLANK | Bromomethane | 74-83-9 | < 2.0 | n/a | ug/Kg | | | | | U | 08/07/07 |
| BLANK | Chloromethane | 74-87-3 | < 2.0 | n/a | ug/Kg | | | | | U | 08/07/07 |
| BLANK | 2-Butanone | 78-93-3 | < 2.0 | n/a | ug/Kg | | | | | U | 08/07/07 |
| BLANK | Methylenechloride | 75-09-2 | < 2.0 | n/a | ug/Kg | | | | | U | 08/07/07 |
| BLANK | Tetrachloroethene | 127-18-4 | < 2.0 | n/a | ug/Kg | | | | | U | 08/07/07 |
| BLANK | Styrene | 100-42-5 | < 2.0 | n/a | ug/Kg | | | | | U | 08/07/07 |
| BLANK | Xylenes (total) | 1330-20-7 | < 2.0 | n/a | ug/Kg | | | | | U | 08/07/07 |
| BLANK | Toluene-d8(Surr) | 2037-26-5 | 100.10 | 100.000 | % Recov | 80.000 | 126.000 | | | | 08/07/07 |
| BLANK | Toluene | 108-88-3 | < 2.0 | n/a | ug/Kg | | | | | U | 08/07/07 |
| BLANK | trans-1,3-Dichloropropene | 10061-02-6 | < 2.0 | n/a | ug/Kg | | | | | U | 08/07/07 |
| BLANK | Trichloroethene | 79-01-6 | < 2.0 | n/a | ug/Kg | | | | | U | 08/07/07 |
| BLANK | Vinyl chloride | 75-01-4 | < 2.0 | n/a | ug/Kg | | | | | U | 08/07/07 |
| LCS | 1,1-Dichloroethene | 75-35-4 | 45.980 | 92.000 | % Recov | 70.000 | 130.000 | | | | 08/07/07 |
| LCS | Benzene | 71-43-2 | 48.810 | 97.600 | % Recov | 70.000 | 130.000 | | | | 08/07/07 |
| LCS | 4-Bromofluorobenzene(Surr) | 460-00-4 | 96.580 | 96.600 | % Recov | 71.000 | 125.000 | | | | 08/07/07 |
| LCS | Chlorobenzene | 108-90-7 | 40.530 | 81.100 | % Recov | 70.000 | 130.000 | | | | 08/07/07 |
| LCS | 1,2-Dichloroethane-d4(Surr) | 17060-07-0 | 85.630 | 85.600 | % Recov | 80.000 | 134.000 | | | | 08/07/07 |
| LCS | Toluene-d8(Surr) | 2037-26-5 | 104.90 | 105.000 | % Recov | 80.000 | 126.000 | | | | 08/07/07 |
| LCS | Toluene | 108-88-3 | 49.100 | 98.200 | % Recov | 70.000 | 130.000 | | | | 08/07/07 |
| LCS | Trichloroethene | 79-01-6 | 40.170 | 80.300 | % Recov | 70.000 | 130.000 | | | | 08/07/07 |

# WSCF
# ANALYTICAL COMMENT REPORT

**Attention:** Steve Trent
**Project Number** F07-043

**Group #:** WSCF20071366
Department: Organic

| Sample # | Client ID | Lab Area | Test | Comment |
|---|---|---|---|---|
| | | VALGROUP | | U-235 duplicate is flagged for poor RPD however the sample activity is low level. RPD doesn't apply to low level samples. lmh<br><br>Organics: All results are moisture corrected and reported on a dry weight basis. cgc<br><br>SVOA: The spike relative percent difference for the surrogate Nitrobenzene-d5 exceeded the control limit of 20%. The nitrobenzene-d5 recovery in the MS was higher than usual while the recovery in the MSD is lower than usual accounting for the spike-rpd exceeding the 20% control limit. Nitrobenzene-d5 recoveries are within control limits however. cgc<br><br>W07GR02025/Sr89/90 duplicate is flagged for poor RPD because the sample and dup are not homogeneous. lmh<br><br>Sr85 tracer recovery is flagged for a high recovery. Since all the other tracer recoveries came out fine, this batch has been approved. lmh<br><br>IC Anion - Sample dup out of limits for sulfate; However, analyte concentration in sample below calibration range. DTS |

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 COMMENT REPORT

**Attention:** Steve Trent
**Project Number** F07-043

**Group #:** WSCF20071366
Department: Organic

| Sample # | Client ID | Lab Area | Test | Comment |
|---|---|---|---|---|
| | | | | Am241/duplicate is flagged for poor RPD due to no homogeneity. lmh |
| | | | | W07GR02025 GEA Am-241 detected at 0.8 pCi/g. |

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 RESULTS REPORT

**Attention:** Steve Trent
**SAF Number:** F07-043
**Sample #** W07GR02025
**Client ID:** B1NRH7 TRENT WSCF

**Matrix:** SOIL

**Group #:** WSCF20071366
**Department:** Radiochemistry
**Sampled:** 07/24/07
**Received:** 08/03/07

| Test Performed | CAS # | Method | RQ | Result | Unit | TP Err | Unit | DF | MDL | PQL | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Americium by AEA** | | | | | | | | | | | |
| Americium-241 | 14596-10-2 | LA-508-471 | | 0.370 | pCi/g | +-0.0925 | pCi/g | 1.00 | 0.028 | | 08/08/07 |
| Am-243 tracer by AEA | AM243 | LA-508-471 | | 3.90 | pCi/g | | | 1.00 | 0.016 | | 08/08/07 |
| **Gamma Energy Analysis-grd H2O** | | | | | | | | | | | |
| Cobalt-60 | 10198-40-0 | LA-508-481 | U | -3.85e-03 | pCi/g | +-5.92e-03 | pCi/g | 1.00 | 9.9e-03 | | 09/12/07 |
| Cesium-137 | 10045-97-3 | LA-508-481 | | 5.31 | pCi/g | +-0.843 | pCi/g | 1.00 | 0.013 | | 09/12/07 |
| Europium-152 | 14683-23-9 | LA-508-481 | U | -0.0267 | pCi/g | +-0.0299 | pCi/g | 1.00 | 0.045 | | 09/12/07 |
| Europium-154 | 15585-10-1 | LA-508-481 | U | -6.22e-03 | pCi/g | +-0.0221 | pCi/g | 1.00 | 0.032 | | 09/12/07 |
| Europium-155 | 14391-16-3 | LA-508-481 | U | 0.0223 | pCi/g | +-0.0394 | pCi/g | 1.00 | 0.065 | | 09/12/07 |
| **Plutonium Isotopics by AEA** | | | | | | | | | | | |
| Plutonium-238 | 13981-16-3 | LA-508-471 | U | 5.40e-03 | pCi/g | +-0.0421 | pCi/g | 1.00 | 0.073 | | 08/14/07 |
| Pu-239/240 by AEA | PU-239/240 | LA-508-471 | | 1.80 | pCi/g | +-0.468 | pCi/g | 1.00 | 0.013 | | 08/14/07 |
| Pu-242 tracer by AEA | PU242 | LA-508-471 | | 6.10 | pCi/g | | | 1.00 | 0.017 | | 08/14/07 |
| **Strontium 89/90** | | | | | | | | | | | |
| Strontium-89/90 | SR-RAD | LA-508-415 | | 3.50 | pCi/g | +-0.980 | pCi/g | 1.00 | 0.35 | | 08/14/07 |
| Sr-85 Tracer by Beta Counting | SR85 | LA-508-415 | | 112 | Percent | | | 1.00 | 0.0 | | 08/14/07 |
| **Uranium Isotopics by AEA** | | | | | | | | | | | |
| Uranium-233/234 | U-233/234 | LA-508-471 | | 0.120 | pCi/g | +-0.0432 | pCi/g | 1.00 | 0.013 | | 08/08/07 |
| Uranium-235 | 15117-96-1 | LA-508-471 | | 0.0120 | pCi/g | +-0.0103 | pCi/g | 1.00 | 5.2e-03 | | 08/08/07 |
| Uranium-238 | U-238 | LA-508-471 | | 0.110 | pCi/g | +-0.0396 | pCi/g | 1.00 | 4.8e-03 | | 08/08/07 |
| U-232 tracer by AEA | U232 | LA-508-471 | | 4.10 | pCi/g | | | 1.00 | 0.023 | | 08/08/07 |

**MDL=Minimum Detection Limit**
**RQ=Result Qualifier**
**TP Err=Total Propagated Error**
**DF=Dilution Factor**

B - The Analyte detected in both the BLANK and the SAMPLE.(org)
D - Analyte was identified at a secondary dilution factor(inorg)
U - Analyzed for but not detected above limiting criteria.(org)
B - The analyte < the RDL but > = the IDL/MDL (inorg)
U - Analyzed for but not detected above limiting criteria(inorg)

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

# WSCF
# TENTATIVELY IDENTIFIED PEAK REPORT

**Attention:** Steve Trent
**Project Number** F07-043 :F07-043

**Group #:** WSCF20071366
**Department:** Radiochemistry

| Sample # | Client ID | | Test Name | Peak Name | CAS# | RT | RQ | Result | Units |
|---|---|---|---|---|---|---|---|---|---|
| W07GR02025 | B1NRH7 | TRENT | Gamma Energy Analysis-grd H2O | AC-228 | | | | 0.66 | pCi/g |
| W07GR02025 | B1NRH7 | TRENT | Gamma Energy Analysis-grd H2O | AC-228 Count Error | | | | 21 | % |
| W07GR02025 | B1NRH7 | TRENT | Gamma Energy Analysis-grd H2O | AM-241 | | | | 0.82 | pCi/g |
| W07GR02025 | B1NRH7 | TRENT | Gamma Energy Analysis-grd H2O | AM-241 Count Error | | | | 19 | % |
| W07GR02025 | B1NRH7 | TRENT | Gamma Energy Analysis-grd H2O | BI-212 | | | | 0.46 | pCi/g |
| W07GR02025 | B1NRH7 | TRENT | Gamma Energy Analysis-grd H2O | BI-212 Count Error | | | | 21 | % |
| W07GR02025 | B1NRH7 | TRENT | Gamma Energy Analysis-grd H2O | BI-214 | | | | 0.55 | pCi/g |
| W07GR02025 | B1NRH7 | TRENT | Gamma Energy Analysis-grd H2O | BI-214 Count Error | | | | 12 | % |
| W07GR02025 | B1NRH7 | TRENT | Gamma Energy Analysis-grd H2O | CS-134 | | | | 0.042 | pCi/g |
| W07GR02025 | B1NRH7 | TRENT | Gamma Energy Analysis-grd H2O | CS-134 Count Error | | | | 34 | % |
| W07GR02025 | B1NRH7 | TRENT | Gamma Energy Analysis-grd H2O | K-40 | | | | 19 | pCi/g |
| W07GR02025 | B1NRH7 | TRENT | Gamma Energy Analysis-grd H2O | K-40 Count Error | | | | 13 | % |
| W07GR02025 | B1NRH7 | TRENT | Gamma Energy Analysis-grd H2O | PB-212 | | | | 0.77 | pCi/g |
| W07GR02025 | B1NRH7 | TRENT | Gamma Energy Analysis-grd H2O | PB-212 Count Error | | | | 9.6 | % |
| W07GR02025 | B1NRH7 | TRENT | Gamma Energy Analysis-grd H2O | PB-214 | | | | 0.88 | pCi/g |
| W07GR02025 | B1NRH7 | TRENT | Gamma Energy Analysis-grd H2O | PB-214 Count Error | | | | 22 | % |
| W07GR02025 | B1NRH7 | TRENT | Gamma Energy Analysis-grd H2O | RA-226 | | | | 0.47 | pCi/g |
| W07GR02025 | B1NRH7 | TRENT | Gamma Energy Analysis-grd H2O | RA-226 Count Error | | | | 16 | % |
| W07GR02025 | B1NRH7 | TRENT | Gamma Energy Analysis-grd H2O | RA-228 | | | | 0.65 | pCi/g |
| W07GR02025 | B1NRH7 | TRENT | Gamma Energy Analysis-grd H2O | RA-228 Count Error | | | | 17 | % |
| W07GR02025 | B1NRH7 | TRENT | Gamma Energy Analysis-grd H2O | SN-126 | | | | 0.16 | pCi/g |
| W07GR02025 | B1NRH7 | TRENT | Gamma Energy Analysis-grd H2O | SN-126 Count Error | | | | 23 | % |
| W07GR02025 | B1NRH7 | TRENT | Gamma Energy Analysis-grd H2O | TL 208 | | | | 0.22 | pCi/g |
| W07GR02025 | B1NRH7 | TRENT | Gamma Energy Analysis-grd H2O | TL-208 Count Error | | | | 15 | % |

RQ=Result Qualifier J - Analyte < lowest calibration but > = MDL.(org)

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# WSCF ANALYTICAL LABORATORY QC REPORT

**Department:** **Radiochemistry**

SDG Number: WSCF20071366
Matrix: SOLID
Test: Americium by AEA

Sample Date: 07/24/07
Receive Date:08/03/07

| QC Type | Analyte | CAS # | QC Found | QC Yield | Units | Lower Limit | Upper Limit | RPD(%) | RPD Limit | RQ | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lab ID: W07GR02025 | | | | | | | | | | | |
| BATCH QC ASSOCIATED WITH SAMPLE | | | | | | | | | | | |
| DUP | Americium-241 | 14596-10-2 | 0.46 | | RPD | | | 21.687 | 20.000 * | | 08/08/07 |
| DUP | Am-243 tracer by AEA | AM243 | 3.727 | 91.800 | % Recov | 30.000 | 105.000 | | | | 08/08/07 |
| SURR | Am-243 tracer by AEA | AM243 | 3.932 | 88.950 | % Recov | 30.000 | 105.000 | | | | 08/08/07 |
| BATCH QC | | | | | | | | | | | |
| BLANK | Americium-241 | 14596-10-2 | 6.1e-2 | 0.061 | pCi/g | -10.000 | 1000.000 | | | | 08/08/07 |
| BLANK | Am-243 tracer by AEA | AM243 | 3.995 | 77.630 | % Recov | 30.000 | 105.000 | | | | 08/08/07 |
| LCS | Americium-241 | 14596-10-2 | 11.19 | 94.430 | % Recov | 80.000 | 120.000 | | | | 08/08/07 |
| LCS | Am-243 tracer by AEA | AM243 | 11.09 | 95.370 | % Recov | 30.000 | 105.000 | | | | 08/08/07 |

# WSCF ANALYTICAL LABORATORY QC REPORT

**Department:** **Radiochemistry**

SDG Number: WSCF20071366
Matrix: SOLID
Test: Gamma Energy Analysis-grd H2O

Sample Date: 07/24/07
Receive Date:08/03/07

| QC Type | Analyte | CAS # | QC Found | QC Yield | Units | Lower Limit | Upper Limit | RPD(%) | RPD Limit | RQ | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lab ID: W07GR02025 | | | | | | | | | | | |
| BATCH QC ASSOCIATED WITH SAMPLE | | | | | | | | | | | |
| DUP | Cobalt-60 | 10198-40-0 | U4.045e-3 | | RPD | | | n/a | 20.000 | | 09/12/07 |
| DUP | Cesium-137 | 10045-97-3 | 5.559 | | RPD | | | 4.638 | 20.000 | | 09/12/07 |
| DUP | Europium-152 | 14683-23-9 | U1.409e-2 | | RPD | | | n/a | 20.000 | | 09/12/07 |
| DUP | Europium-154 | 15585-10-1 | U-1.704e-3 | | RPD | | | n/a | 20.000 | | 09/12/07 |
| DUP | Europium-155 | 14391-16-3 | U1.327e-2 | | RPD | | | n/a | 20.000 | | 09/12/07 |
| BATCH QC | | | | | | | | | | | |
| BLANK | Cobalt-60 | 10198-40-0 | U9.547e-4 | n/a | pCi/g | -10.000 | 1000.000 | | | | 08/08/07 |
| BLANK | Cesium-137 | 10045 97-3 | U-1.427e-3 | n/a | pCi/g | -10.000 | 1000.000 | | | | 08/08/07 |
| BLANK | Europium-152 | 14683-23-9 | U4.342e-3 | n/a | pCi/g | -10.000 | 1000.000 | | | | 08/08/07 |
| BLANK | Europium-154 | 15585-10-1 | U-1.924e-3 | n/a | pCi/g | -10.000 | 1000.000 | | | | 08/08/07 |
| BLANK | Europium-155 | 14391-16-3 | U7.659e-3 | n/a | pCi/g | -10.000 | 1000.000 | | | | 08/08/07 |
| LCS | Cobalt-60 | 10198-40-0 | 10530 | 105.936 | % Recov | 80.000 | 120.000 | | | | 09/12/07 |
| LCS | Cesium-137 | 10045-97-3 | 6400 | 105.960 | % Recov | 80.000 | 120.000 | | | | 09/12/07 |

# WSCF ANALYTICAL LABORATORY QC REPORT

**Department:** **Radiochemistry**

SDG Number: WSCF20071366
Matrix: SOLID
Test: Plutonium Isotopics by AEA

Sample Date: 07/24/07
Receive Date:08/03/07

| QC Type | Analyte | CAS # | QC Found | QC Yield | Units | Lower Limit | Upper Limit | RPD(%) | RPD Limit | RQ | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lab ID: W07GR02025 | | | | | | | | | | | |
| BATCH QC ASSOCIATED WITH SAMPLE | | | | | | | | | | | |
| DUP | Plutonium-238 | 13981-16-3 | U4e-2 | | RPD | | | n/a | 20.000 | | 08/14/07 |
| DUP | Pu-239/240 by AEA | PU-239/240 | 2.1 | | RPD | | | 15.385 | 20.000 | | 08/14/07 |
| DUP | Pu-242 tracer by AEA | PU242 | 5.815 | 95.270 | % Recov | 30.000 | 105.000 | | | | 08/14/07 |
| SURR | Pu-242 tracer by AEA | PU242 | 6.136 | 91.600 | % Recov | 30.000 | 105.000 | | | | 08/14/07 |
| BATCH QC | | | | | | | | | | | |
| BLANK | Plutonium-238 | 13981-16-3 | U-1.8e-3 | n/a | pCi/g | -10.000 | 1000.000 | | | | 08/14/07 |
| BLANK | Pu-239/240 by AEA | PU-239/240 | U8.9e-3 | n/a | pCi/g | -10.000 | 1000.000 | | | | 08/14/07 |
| BLANK | Pu-242 tracer by AEA | PU242 | 6.234 | 86.780 | % Recov | 30.000 | 105.000 | | | | 08/14/07 |
| LCS | Pu-239/240 by AEA | PU-239/240 | 13.16 | 102.452 | % Recov | 80.000 | 120.000 | | | | 08/14/07 |
| LCS | Pu-242 tracer by AEA | PU242 | 17.3 | 94.980 | % Recov | 30.000 | 105.000 | | | | 08/14/07 |

# WSCF ANALYTICAL LABORATORY QC REPORT

**Department:** Radiochemistry

SDG Number: WSCF20071366
Matrix: SOLID
Test: Strontium 89/90

Sample Date: 07/24/07
Receive Date:08/03/07

| QC Type | Analyte | CAS # | QC Found | QC Yield | Units | Lower Limit | Upper Limit | RPD(%) | RPD Limit | RQ | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lab ID: W07GR02025 | | | | | | | | | | | |
| BATCH QC ASSOCIATED WITH SAMPLE | | | | | | | | | | | |
| DUP | Sr-85 Tracer by Beta Counting | SR85 | 103.5 | 103.500 | % Recov | 30.000 | 105.000 | | | | 08/14/07 |
| DUP | Strontium-89/90 | SR-RAD | 4.9 | | RPD | | | 33.333 | 20.000 * | | 08/14/07 |
| SURR | Sr-85 Tracer by Beta Counting | SR85 | 111.9 | 111.900 | % Recov | 30.000 | 105.000 | | * | | 08/14/07 |
| BATCH QC | | | | | | | | | | | |
| BLANK | Sr-85 Tracer by Beta Counting | SR85 | 97.6 | 97.600 | % Recov | 30.000 | 105.000 | | | | 08/14/07 |
| BLANK | Strontium-89/90 | 10098-97-2 | U-1.0 | n/a | pCi/g | -10.000 | 300.000 | | | | 08/14/07 |
| LCS | Sr-85 Tracer by Beta Counting | SR85 | 100 | 100.000 | % Recov | 30.000 | 105.000 | | | | 08/14/07 |
| LCS | Strontium-89/90 | 10098-97-2 | 75.1 | 90.156 | % Recov | 80.000 | 120.000 | | | | 08/14/07 |

# WSCF ANALYTICAL LABORATORY QC REPORT

**Department:** Radiochemistry

SDG Number: WSCF20071366
Matrix: SOLID
Test: Uranium Isotopics by AEA

Sample Date: 07/24/07
Receive Date:08/03/07

| QC Type | Analyte | CAS # | QC Found | QC Yield | Units | Lower Limit | Upper Limit | RPD(%) | RPD Limit | RQ | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Lab ID: W07GR02025** | | | | | | | | | | | |
| **BATCH QC ASSOCIATED WITH SAMPLE** | | | | | | | | | | | |
| DUP | U-232 tracer by AEA | U232 | 3.885 | 90.140 | % Recov | 30.000 | 105.000 | | | | 08/08/07 |
| DUP | Uranium-233/234 | U-233/234 | 0.11 | | RPD | | | 8.696 | 20.000 | | 08/08/07 |
| DUP | Uranium-235 | 15117-96-1 | 9.4e-3 | | RPD | | | 24.299 | 20.000 * | | 08/08/07 |
| DUP | Uranium-238 | U-238 | 0.12 | | RPD | | | 8.696 | 20.000 | | 08/08/07 |
| SURR | U-232 tracer by AEA | U232 | 4.099 | 97.640 | % Recov | 30.000 | 105.000 | | | | 08/08/07 |
| **BATCH QC** | | | | | | | | | | | |
| BLANK | U-232 tracer by AEA | U232 | 4.165 | 90.950 | % Recov | 30.000 | 105.000 | | | | 08/08/07 |
| BLANK | Uranium-233/234 | 13966-29-5 | U9.3e-3 | n/a | pCi/g | -10.000 | 1000.000 | | | | 08/08/07 |
| BLANK | Uranium-235 | 15117-96-1 | U4.1e-3 | n/a | pCi/g | -10.000 | 1000.000 | | | | 08/08/07 |
| BLANK | Uranium-238 | 24678-82-8 | 9.3e-3 | 0.009 | pCi/g | -10.000 | 1000.000 | | | | 08/08/07 |
| LCS | U-232 tracer by AEA | U232 | 11.56 | 89.840 | % Recov | 30.000 | 105.000 | | | | 08/08/07 |
| LCS | Uranium-233/234 | 13966-29-5 | n/a | n/a | % Recov | 75.000 | 125.000 | | | | 08/08/07 |
| LCS | Uranium-235 | 15117-96-1 | n/a | n/a | % Recov | 75.000 | 125.000 | | | | 08/08/07 |
| LCS | Uranium-238 | 24678-82-8 | 20.33 | 107.254 | % Recov | 80.000 | 120.000 | | | | 08/08/07 |

# WSCF
# ANALYTICAL COMMENT REPORT

**Attention:** Steve Trent
**Project Number** F07-043

**Group #:** WSCF20071366
Department: Radiochemistry

| Sample # | Client ID | Lab Area | Test | Comment |
|---|---|---|---|---|
| | | VALGROUP | | U-235 duplicate is flagged for poor RPD however the sample activity is low level. RPD doesn't apply to low level samples. lmh<br><br>Organics: All results are moisture corrected and reported on a dry weight basis. cgc<br><br>SVOA: The spike relative percent difference for the surrogate Nitrobenzene-d5 exceeded the control limit of 20%. The nitrobenzene-d5 recovery in the MS was higher than usual while the recovery in the MSD is lower than usual accounting for the spike-rpd exceeding the 20% control limit. Nitrobenzene-d5 recoveries are within control limits however. cgc<br><br>W07GR02025/Sr89/90 duplicate is flagged for poor RPD because the sample and dup are not homogeneous. lmh<br><br>Sr85 tracer recovery is flagged for a high recovery. Since all the other tracer recoveries came out fine, this batch has been approved. lmh<br><br>IC Anion - Sample dup out of limits for sulfate; However, analyte concentration in sample below calibration range. DTS |

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 COMMENT REPORT

**Attention:** Steve Trent
**Project Number** F07-043

**Group #:** WSCF20071366
Department: Radiochemistry

| Sample # | Client ID | Lab Area | Test | Comment |
|---|---|---|---|---|
| | | | | Am241/duplicate is flagged for poor RPD due to no homogeneity. lmh<br>W07GR02025 GEA Am-241 detected at 0.8 pCi/g. |

Lab Areas: VALGROUP - Group Validation
LOGSAMP - Login for Sample
VALTEST - Test Validation
LOGTEST - Login for Tests
TESTDATA - Test Data Entry

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M4W41-SLF-07-651

ATTACHMENT 4

**SAMPLE RECEIPT INFORMATION**

Consisting of 5 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

9/19/07
File KB

ACKNOWLEDGMENT OF SAMPLES RECEIVED

Groundwater Remediation Program

Richland, WA 99354
Attn: Steve Trent

Customer Code: GPP
PO#: 122868/ES3
Group#: 20071366
Project#: F07-043
Proj Mgr: Steve Trent
Phone: 373-5869

The following samples were received from you on 08/03/07. 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 |
|---|---|---|---|---|
| W07GR02025 | B1NRH7 | TRENT<br>@2008 @AEA-30 @AEA-31 @AEA-32 @GEA-GPP<br>@IC-30 @PCBGPP @SR89_90 @SVOCGPP @TPHD-WA @TPHG<br>CN-02 PERSOLID | Solid, or handle as if solid | 07/24/07 |
| ~~W07GR02026~~ | ~~BINRF1~~ | ~~TRENT~~<br>~~@VOA-GPP~~ PDZ 9/18/2007 P.O.M. | ~~Solid, or handle as if solid~~ | ~~07/24/07~~ |
| W07GR02027 | BINRF0 | TRENT<br>@VOA-GPP | Solid, or handle as if solid | 07/24/07 |

Test Acronym Description

| Test Acronym | Description |
|---|---|
| @2008 | ICP-200.8 MS All possible meta |
| @AEA-30 | Plutonium Isotopics by AEA |
| @AEA-31 | Americium by AEA |
| @AEA-32 | Uranium Isotopics by AEA |
| @GEA-GPP | Gamma Energy Analysis-grd H2O |
| @IC-30 | Anions by Ion Chromatography |
| @PCBGPP | PCBs complete list |
| @SR89_90 | Strontium 89/90 |
| @SVOCGPP | SW-846 8270C Semi-Vols |
| @TPHD-WA | NWTPH-D TPH Diesel Range (Wa) |
| @TPHG-WA | NWTPH-GX TPH Gasoline Range |
| @VOA-GPP | VOA Ground Water Protection |
| CN-02 | Cyanide by Midi/Spectrophotom |
| PERSOLID | Percent Solids |

| Fluor Hanford Inc. | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST | | | F07-043-043 | PAGE 1 OF 1 |
|---|---|---|---|---|---|
| COLLECTOR<br>Pope/Pfister/Mokler 9/19 | COMPANY CONTACT<br>Trent, SJ | TELEPHONE NO.<br>373-5869 | PROJECT COORDINATOR<br>TRENT, SJ | PRICE CODE 8N<br>AIR QUALITY ☐ | DATA TURNAROUND<br>45 Days / 45 Days |
| SAMPLING LOCATION<br>C5515, I-023 54.5 - 57.0 | PROJECT DESIGNATION<br>216-A-2 and 216-A-21 Characterization Sampling and Analysis - Soil | | SAF NO.<br>F07-043 | | |
| ICE CHEST NO. | FIELD LOGBOOK NO. | COA<br>122868 ES3 | METHOD OF SHIPMENT<br>GOVERNMENT VEHICLE | | |
| SHIPPED TO<br>Waste Sampling & Characterization | OFFSITE PROPERTY NO.<br>N/A | | BILL OF LADING/AIR BILL NO.<br>N/A | | |

MATRIX*
A=Air
DL=Drum Liquids
DS=Drum Solids
L=Liquid
O=Oil
S=Soil
SE=Sediment
T=Tissue
V=Vegitation
W=Water
WI=Wipe
X=Other

**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 (1990/1993)

**SPECIAL HANDLING AND/OR STORAGE**
20071366

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PRESERVATION | Cool 4C | Cool 4C | Cool 4C | Cool 4C | Cool 4C | Cool 4C | None | | | |
| TYPE OF CONTAINER | aG | aG | G/P | aG | aG | aG | Square Bottle - Poly | | | |
| NO. OF CONTAINER(S) | 1 | 1 | 1 | 1 | 1 | 1 | 1 | | | |
| VOLUME | 120mL | 40mL | 120mL | 120mL | 120mL | 120mL | 500mL | | | |
| SAMPLE ANALYSIS | SEE ITEM (1) IN SPECIAL INSTRUCTIONS | TPH-Gasoline Range - WTPH-G; | SEE ITEM (2) IN SPECIAL INSTRUCTIONS | PCBs - 8082; | SEE ITEM (3) IN SPECIAL INSTRUCTIONS | Cyanide (Total) - 335.2; | SEE ITEM (4) IN SPECIAL INSTRUCTIONS | | | |

| SAMPLE NO. | MATRIX* | SAMPLE DATE | SAMPLE TIME | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| B1NRH7 | SOIL | 7/24/07 | 0835 | – | – | – | – | – | – | – | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |

**CHAIN OF POSSESSION** / **SIGN/ PRINT NAMES**

| RELINQUISHED BY/REMOVED FROM | DATE/TIME | RECEIVED BY/STORED IN | DATE/TIME |
|---|---|---|---|
| D. Parchen [signature] | 7/24/07 1300 | A2 Ref | 7-24-07 1300 |
| A2 REF 8/3/07 | 1203 | R. PFISTER/[signature] 8/3/07 | 1203 |
| R. PFISTER/[signature] 8/3/07 | 1400 | M. Heagney M.S. Heagney 8/3/07 | 1400 |
| | | | |
| | | | |
| | | | |
| | | | |

**SPECIAL INSTRUCTIONS**
(1)Semi-VOA - 8270B (Add-On) {Tributyl phosphate} TPH-Diesel Range - WTPH-D;
(2)ICP/MS - 200.8 (TAL) {Barium, Cadmium, Chromium, Copper, Silver} ICP/MS - 200.8 (Add-on) {Arsenic, Lead, Selenium, Uranium} 200.8_HG - ICPMS;
(3)IC Anions - 300.0 {Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Phosphorus in phosphate, Sulfate}
(4)Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155} Americium-241; Isotopic Plutonium; Isotopic Uranium; Strontium-89,90 -- Total Sr;

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

| Fluor Hanford Inc. | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST | F07-043-042 | PAGE 1 OF 1 |
|---|---|---|---|

| COLLECTOR | COMPANY CONTACT | TELEPHONE NO. | PROJECT COORDINATOR | PRICE CODE 8N | DATA TURNAROUND |
|---|---|---|---|---|---|
| Pope/Pfister/Mokler | Trent, SJ | 373-5869 | TRENT, SJ | | |
| **SAMPLING LOCATION** | **PROJECT DESIGNATION** | | **SAF NO.** | **AIR QUALITY** ☐ | 45 Days / 45 Days |
| C5515, I-023 • 54.5-57.0 | 216-A-2 and 216-A-21 Characterization Sampling and Analysis - Soil | | F07-043 | | |
| **ICE CHEST NO.** | **FIELD LOGBOOK NO.** | **COA** | **METHOD OF SHIPMENT** | | |
| | | 122868 ES3 | GOVERNMENT VEHICLE | | |
| **SHIPPED TO** | **OFFSITE PROPERTY NO.** | | **BILL OF LADING/AIR BILL NO.** | | |
| Waste Sampling & Characterization | N/A | | N/A | | |

MATRIX*
A=Air
DL=Drum Liquids
DS=Drum Solids
L=Liquid
O=Oil
S=Soil
SE=Sediment
T=Tissue
V=Vegitation
W=Water
WI=Wipe
X=Other

**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 (1990/1993)

**SPECIAL HANDLING AND/OR STORAGE**

| | |
|---|---|
| PRESERVATION | Cool 4C |
| TYPE OF CONTAINER | aGs* |
| NO. OF CONTAINER(S) | 1 |
| VOLUME | 40mL |
| SAMPLE ANALYSIS | SEE ITEM (1) IN SPECIAL INSTRUCTIONS |

| SAMPLE NO. | MATRIX* | SAMPLE DATE | SAMPLE TIME |
|---|---|---|---|
| B1NRF1 | SOIL | 7-24-07 | 0835 |
| 2026 | | | |

**CHAIN OF POSSESSION** / **SIGN/ PRINT NAMES**

| RELINQUISHED BY/REMOVED FROM | DATE/TIME | RECEIVED BY/STORED IN | DATE/TIME |
|---|---|---|---|
| D. Parker | 7-24-07 1300 | A2 Ref | 7-24-07 1300 |
| A2 REF | 8/3/07 1203 | R. PFISTER | 8/3/07 1203 |
| R. PFISTER | 8/3/07 1400 | M.S. Nagy | 8/3/07 1400 |
| | | | |
| | | | |
| | | | |
| | | | |

**SPECIAL INSTRUCTIONS**
(1)VOA - 5035/8260 (TCL); VOA - 5035/8260 - (Add-On) {1-Butanol, cis-1,2-Dichloroethylene, n-Butylbenzene, trans-1,2-Dichloroethylene}

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

| Fluor Hanford Inc. | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST | | | F07-043-041 | PAGE 1 OF 1 |
|---|---|---|---|---|---|
| COLLECTOR<br>Pope/Pfister/Mokler | COMPANY CONTACT<br>Trent, SJ | TELEPHONE NO.<br>373-5869 | PROJECT COORDINATOR<br>TRENT, SJ | PRICE CODE 8N<br>AIR QUALITY ☐ | DATA TURNAROUND<br>45 Days / 45 Days |
| SAMPLING LOCATION<br>C5515, I-023 54.5- 57.0 | PROJECT DESIGNATION<br>216-A-2 and 216-A-21 Characterization Sampling and Analysis - Soil | | SAF NO.<br>F07-043 | | |
| ICE CHEST NO. | FIELD LOGBOOK NO. | COA<br>122868 ES3 | METHOD OF SHIPMENT<br>GOVERNMENT VEHICLE | | |
| SHIPPED TO<br>Waste Sampling & Characterization | OFFSITE PROPERTY NO.<br>N/A | | BILL OF LADING/AIR BILL NO.<br>N/A | | |

MATRIX*
A=Air
DL=Drum Liquids
DS=Drum Solids
L=Liquid
O=Oil
S=Soil
SE=Sediment
T=Tissue
V=Vegitation
W=Water
WI=Wipe
X=Other

**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 (1990/1993)

**SPECIAL HANDLING AND/OR STORAGE**

| | | |
|---|---|---|
| PRESERVATION | Frozen | Cool 4C |
| TYPE OF CONTAINER | aGs* | aGs* |
| NO. OF CONTAINER(S) | 5 | 3 |
| VOLUME | 40mL | 40mL |
| SAMPLE ANALYSIS | SEE ITEM (1) IN SPECIAL INSTRUCTIONS | SEE ITEM (2) IN SPECIAL INSTRUCTIONS |

| SAMPLE NO. | MATRIX* | SAMPLE DATE | SAMPLE TIME | | |
|---|---|---|---|---|---|
| B1NRF0 | SOIL | 7/24/07 | 0835 | ✓ | ✓ |
| 2027 | | | | | |

**CHAIN OF POSSESSION** / **SIGN/ PRINT NAMES**

| RELINQUISHED BY/REMOVED FROM | DATE/TIME | RECEIVED BY/STORED IN | DATE/TIME |
|---|---|---|---|
| D. Parcher [signature] | 7-24-07 1300 | A2 Ref/Freeze | 7-24-07 1300 |
| A2 SITE FRIG | 8/3/07 1203 | R. PFISTER [signature] | 8/3/07 1203 |
| R. PFISTER [signature] | 8/3/07 1400 | M.S. Haguey [signature] | 8/3/07 1400 |
| | | | |
| | | | |
| | | | |
| | | | |

**SPECIAL INSTRUCTIONS** TCL [signature] 8/7/2007
(1)VOA - 5035/8260 (LOW LEVEL); VOA - 5035/8260 (LOW LEVEL) - (Add-On) {1-Butanol, cis-1,2-Dichloroethylene, n-Butylbenzene, trans-1,2-Dichloroethylene}
(2)VOA - 5035/8260 (HIGH LEVEL); VOA - 5035/8260 (HIGH LEVEL) - (Add-On) {1-Butanol, cis-1,2-Dichloroethylene, n-Butylbenzene, trans-1,2-Dichloroethylene}
TCL

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

M4W41-SLF-07-651

ATTACHMENT 5

**SAMPLE RECORD SHEET**

Consisting of 2 pages
Including cover page

| I-023 Depth 54.5' - 57.0' | | | | | | | |
|---|---|---|---|---|---|---|---|
| Sample Number | Sample Suffix[1] | Empty Weight[2] (g) | Weight with Sample[3] (g) | Weight of Sample[4] (g) | Methanol Added (g) | Methanol Added (mL) | Weight of Methanol and Sample |
| B1NRF0 | K | 31.4 | 36.3 | 4.9 | --- | --- | --- |
| B1NRF0 | L | 31.6 | 36.6 | 5.0 | --- | --- | --- |
| B1NRF0 | M | 31.4 | 36.1 | 4.7 | --- | --- | --- |
| B1NRF0 | N | 31.4 | 36.2 | 4.8 | --- | --- | --- |
| B1NRF0 | P | 31.5 | 36.3 | 4.8 | --- | --- | --- |
| | | | | | | | |
| B1NRF1 | | 30.2 | 30.2 | 0.0 | 3.7 | 5.0 | 33.9 |
| | | | | | | | |
| B1NRF0 | W | 29.9 | 34.7 | 4.8 | 3.9 | 5.0 | 38.6 |
| B1NRF0 | X | 30.0 | 34.6 | 4.6 | 3.9 | 5.0 | 38.5 |
| B1NRF0 | Y | 30.0 | 35.0 | 5.0 | 3.9 | 5.0 | 38.9 |

[1]Sample suffix of L, K, M, N and P relate to low-level concentration samples and will not
[2]Empty weight is to include all labels, stickers, bags, and anything else that will be
[3]Ensure that everything weighed for the empty bottle and no additional items (besides the
[4]Sample weight is the vial with sample minus the vial empty