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**FLUOR**

## Memorandum

M4W41-SLF-08-777

| | | | | |
|---|---|---|---|---|
| To: | H. Hampt | E6-35 | Date: | August 4, 2008 |
| From: | S. L. Fitzgerald, Manager<br>WSCF Analytical Lab | by William H. Bond | | |
| cc: | w/Attachments | | | |
| | T. F. Dale | S3-30 | P. D. Mix | S3-30 |
| | D. Felmy (PNNL) | K6-75 | J. E. Trechter | S3-30 |
| | A. J. Kopriva | S3-30 | S. J. Trent | E6-35 |
| | H. K. Meznarich | S3-30 | File/LB | |

Subject: FINAL RESULTS FOR SAMPLE DELIVERY GROUP WSCF20081171

Reference:
1) Letter of Instruction for Analytical Services for the Groundwater Performance Assessment Project and Analytical Laboratory Transition Plan, FH-0602422, September 19, 2006
2) HNF-SD-CD-QAPP-017, Rev. 9, Waste Sampling & Characterization Facility Quality Assurance Plan

This transmittal contains the following information for sample delivery group WSCF20081171:

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

SLF/cmj

Attachments 4

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ATTACHMENT 1

**COVER SHEET**

Consisting of 2 pages
Including cover page

# WSCF SAF NUMBER CROSS REFERENCE

Group#: WSCF20081171
Data Deliverable Date: 23-jul-2008
Data Deliverable: Cover Sheet

| SAF# | Sample ID | WSCF# | Matrix |
|---|---|---|---|
| I08-044 | B1VTR8 | W08P002797 | WATER |
| W08-004 | B1V389 | W08P002796 | WATER |
| W08-006 | B1VPB2 | W08P002792 | WATER |
| | B1VPB3 | W08P002793 | WATER |
| | B1VPB5 | W08P002794 | WATER |
| | B1VPB6 | W08P002795 | WATER |
| | B1VPB8 | W08P002788 | WATER |
| | B1VPB9 | W08P002789 | WATER |
| | B1VR28 | W08P002784 | WATER |
| | B1VR29 | W08P002785 | WATER |
| | B1VR30 | W08P002786 | WATER |
| | B1VR31 | W08P002787 | WATER |
| | B1VR32 | W08P002801 | WATER |
| | B1VR33 | W08P002805 | WATER |
| | B1VR50 | W08P002776 | WATER |
| | B1VR51 | W08P002777 | WATER |
| | B1VR52 | W08P002778 | WATER |
| | B1VR53 | W08P002779 | WATER |
| | B1VR54 | W08P002799 | WATER |
| | B1VR55 | W08P002803 | WATER |
| | B1VR60 | W08P002766 | WATER |
| | B1VR61 | W08P002767 | WATER |
| | B1VR62 | W08P002768 | WATER |
| | B1VR63 | W08P002769 | WATER |
| | B1VR64 | W08P002770 | WATER |
| | B1VR65 | W08P002771 | WATER |
| | B1VR70 | W08P002772 | WATER |
| | B1VR71 | W08P002773 | WATER |
| | B1VR72 | W08P002774 | WATER |
| | B1VR73 | W08P002775 | WATER |
| | B1VR74 | W08P002798 | WATER |
| | B1VR75 | W08P002802 | WATER |
| | B1VR80 | W08P002780 | WATER |
| | B1VR81 | W08P002781 | WATER |
| | B1VR82 | W08P002782 | WATER |
| | B1VR83 | W08P002783 | WATER |
| | B1VR84 | W08P002800 | WATER |
| | B1VR85 | W08P002804 | WATER |
| | B1VRJ6 | W08P002790 | WATER |
| | B1VRJ7 | W08P002791 | WATER |

M4W41-SLF-08-777

ATTACHMENT 2

**NARRATIVE**

Consisting of 4 pages
Including cover page

## Introduction

Forty (40) groundwater samples were received at the WSCF Laboratory on June 10, 2008. Samples were analyzed for the analytes indicated on the attached copy of the chain of custody (COC) form in accordance with the *Groundwater Remediation Program – Letter of Instruction*, referenced in the cover letter.

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

It should be noted that the attached chain of custody was stamped "ICED" by the WSCF Laboratory Sample Custodian during sample receiving, indicating the presence of ice in the sample container.

## Analytical Methodology for Requested Analyses

Refer to *WSCF Method References Report,* pages 15-17 for a complete listing of approved analytical methods.

## Inorganic Comments

**Anions** – 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 66-68 for QC details. Analytical Note(s):

- Sample results were D flagged if dilution(s) were required.
- Sample results that were less than the reportable limit, however greater than the method detection limit were B flagged.

All QC controls are within the established limits.

**ICP-AES 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 69-75 for QC details. Analytical Note(s):

- Matrix Spikes and Matrix Spike Duplicates were analyzed on samples B1V7W1 (SDG# 20081142 and B1VR65 of this SDG.

- <u>Batch QC – B1V7W1</u>
    - Calcium, Magnesium and Sodium – Check standard was analyzed to ensure linearity because sample results were greater than the calibration standard.

- Batch QC – B1VR65
    - Calcium, Magnesium and Sodium sample results exceeded the spiking levels by a factor of four. Spike recoveries are not valid. Check standard was analyzed to ensure um linearity because sample results were greater than the calibration standard.

All other 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 page 76 for QC details. Analytical Note(s):

- Matrix Spikes and Matrix Spike Duplicates were analyzed on samples B1V654 and B1V662 (SDG# 20081134).

All QC controls are within the established limits.

**Total Alkalinity** – The hold time requirement for this analysis was met. A Duplicate and Laboratory Control Sample were analyzed with this delivery group per GRP Letter of Instruction. See page 77 for QC details. Analytical Note(s):

- Duplicates were analyzed on samples B1VRK3 (SDG# 20081163) and B1VR33 of this SDG.

All QC controls are within the established limits.

**Total Organic Carbon** – The hold time requirement for this analysis was met. A Matrix Spike, Matrix Spike Duplicate, Blank and Method Spike were analyzed with this delivery group per the GRP Letter of Instruction. See page 78 for QC details. Analytical Note(s):

- Matrix Spikes and Matrix Spike Duplicates were analyzed on samples# B1VPK2 (SDG# 20081142); and B1VR60 and B1VR80 of this SDG.

All QC controls are within the established limits.

**Organic Comments**

**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 GRP Letter of Instruction. See pages 85-87 for QC details. Analytical Note(s):

- Matrix Spike and Matrix Spike Duplicate were analyzed on sample# B1V6C1 (SDG# 20081163).

- Sample results that were less than the method detection limit, however greater than the lowest calibration standard were J flagged.

- Carbon Tetrachloride (B1V389) – Sample result was E flagged (estimate).

All 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 97-99 for QC details. Analytical Note(s):

- Gross Alpha / Gross Beta – Duplicate QC was analyzed on sample# B1V967 (SDG# 20081163).

- Technetium-99 – Duplicates and Matrix Spikes were analyzed on samples B1V967 (SDG# 20081142) and B1VPB3 of this SDG. Matrix Spike (B1VPB2) exceeded established laboratory limits due to high sample activity. 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.

for Scot L. Fitzgerald
WSCF Analytical Laboratory Manager

Pauline D. Mix
WSCF Client Services

M4W41-SLF-08-777

ATTACHMENT 3

**ANALYTICAL RESULTS**

Consisting of 93 pages
Including cover page

# WSCF
# ANALYTICAL RESULTS REPORT

**for**

**GPAP**
**Richland, WA 99352**

**Attention: Steve Trent E6-35**

Analytical: William H. Baird WW Baird 8/4/2008

Client Services: P.D. Miy P.D. Miy 8/1/2008

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

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Report#: WSCF20081171
Report Date: 1-aug-2008
*Report WGPP/ver. 5.2*
*GPAP*

w13qlog v4.2 01-aug-2008 06:42:10

Department: Inorganic

W13q Worklist/Batch/QC Report for Group# WSCF20081171

| WL# | S# | Batch | QC# | Tray Type | Sample# | Test |
|---|---|---|---|---|---|---|
| 36699 | 1 | 37116 | 41441 | LCS | | Total Alkalinity as mg/L CaCO3 |
| 36699 | 13 | 37116 | 41441 | LCS | | Total Alkalinity as mg/L CaCO3 |
| 36699 | 24 | 37116 | 41441 | LCS | | Total Alkalinity as mg/L CaCO3 |
| 36699 | 3 | 37116 | 41441 | DUP | W08P002755 | Total Alkalinity as mg/L CaCO3 |
| 36699 | 16 | 37116 | 41441 | SAMPLE | W08P002771 | Total Alkalinity as mg/L CaCO3 |
| 36699 | 17 | 37116 | 41441 | SAMPLE | W08P002789 | Total Alkalinity as mg/L CaCO3 |
| 36699 | 18 | 37116 | 41441 | SAMPLE | W08P002791 | Total Alkalinity as mg/L CaCO3 |
| 36699 | 19 | 37116 | 41441 | SAMPLE | W08P002793 | Total Alkalinity as mg/L CaCO3 |
| 36699 | 20 | 37116 | 41441 | SAMPLE | W08P002795 | Total Alkalinity as mg/L CaCO3 |
| 36699 | 21 | 37116 | 41441 | SAMPLE | W08P002802 | Total Alkalinity as mg/L CaCO3 |
| 36699 | 22 | 37116 | 41441 | SAMPLE | W08P002803 | Total Alkalinity as mg/L CaCO3 |
| 36699 | 23 | 37116 | 41441 | SAMPLE | W08P002804 | Total Alkalinity as mg/L CaCO3 |
| 36743 | 2 | 37161 | 41502 | BLANK | | Anions by Ion Chromatography |
| 36743 | 13 | 37161 | 41502 | BLANK | | Anions by Ion Chromatography |
| 36743 | 25 | 37161 | 41502 | BLANK | | Anions by Ion Chromatography |
| 36743 | 3 | 37161 | 41502 | LCS | | Anions by Ion Chromatography |
| 36743 | 14 | 37161 | 41502 | LCS | | Anions by Ion Chromatography |
| 36743 | 8 | 37161 | 41502 | SAMPLE | W08P002771 | Anions by Ion Chromatography |
| 36743 | 9 | 37161 | 41502 | SAMPLE | W08P002789 | Anions by Ion Chromatography |
| 36743 | 5 | 37161 | 41502 | DUP | W08P002791 | Anions by Ion Chromatography |
| 36743 | 6 | 37161 | 41502 | MS | W08P002791 | Anions by Ion Chromatography |
| 36743 | 7 | 37161 | 41502 | MSD | W08P002791 | Anions by Ion Chromatography |
| 36743 | 4 | 37161 | 41502 | SAMPLE | W08P002791 | Anions by Ion Chromatography |
| 36743 | 7 | 37161 | 41502 | SPK-RPD | W08P002791 | Anions by Ion Chromatography |
| 36743 | 10 | 37161 | 41502 | SAMPLE | W08P002793 | Anions by Ion Chromatography |
| 36743 | 11 | 37161 | 41502 | SAMPLE | W08P002795 | Anions by Ion Chromatography |
| 36743 | 12 | 37161 | 41502 | SAMPLE | W08P002797 | Anions by Ion Chromatography |
| 36743 | 16 | 37161 | 41502 | DUP | W08P002802 | Anions by Ion Chromatography |
| 36743 | 17 | 37161 | 41502 | MS | W08P002802 | Anions by Ion Chromatography |
| 36743 | 18 | 37161 | 41502 | MSD | W08P002802 | Anions by Ion Chromatography |
| 36743 | 15 | 37161 | 41502 | SAMPLE | W08P002802 | Anions by Ion Chromatography |
| 36743 | 18 | 37161 | 41502 | SPK-RPD | W08P002802 | Anions by Ion Chromatography |
| 36743 | 19 | 37161 | 41502 | SAMPLE | W08P002803 | Anions by Ion Chromatography |
| 36743 | 21 | 37161 | 41502 | SAMPLE | W08P002804 | Anions by Ion Chromatography |
| 36743 | 22 | 37161 | 41502 | SAMPLE | W08P002805 | Anions by Ion Chromatography |
| 36759 | 1 | 37177 | 41521 | BLANK | | Total Organic Carbon |
| 36759 | 2 | 37177 | 41521 | METHSPIKE | | Total Organic Carbon |
| 36759 | 3 | 37177 | 41521 | SPK-RSD | | Total Organic Carbon |
| 36759 | 4 | 37177 | 41521 | MS | W08P002766 | Total Organic Carbon |
| 36759 | 5 | 37177 | 41521 | MSD | W08P002766 | Total Organic Carbon |
| 36759 | 7 | 37177 | 41521 | SAMPLE | W08P002766 | Total Organic Carbon |
| 36759 | 5 | 37177 | 41521 | SPK-RPD | W08P002766 | Total Organic Carbon |
| 36759 | 8 | 37177 | 41521 | SAMPLE | W08P002767 | Total Organic Carbon |
| 36759 | 9 | 37177 | 41521 | SAMPLE | W08P002768 | Total Organic Carbon |
| 36759 | 10 | 37177 | 41521 | SAMPLE | W08P002769 | Total Organic Carbon |
| 36759 | 11 | 37177 | 41521 | SAMPLE | W08P002772 | Total Organic Carbon |
| 36759 | 12 | 37177 | 41521 | SAMPLE | W08P002773 | Total Organic Carbon |
| 36759 | 13 | 37177 | 41521 | SAMPLE | W08P002774 | Total Organic Carbon |
| 36759 | 14 | 37177 | 41521 | SAMPLE | W08P002775 | Total Organic Carbon |
| 36759 | 15 | 37177 | 41521 | SAMPLE | W08P002776 | Total Organic Carbon |

| | | | | | | |
|---|---|---|---|---|---|---|
| 36759 | 16 | 37177 | 41521 | SAMPLE | W08P002777 | Total Organic Carbon |
| 36804 | 1 | 37223 | 41567 | BLANK | | Total Organic Carbon |
| 36804 | 2 | 37223 | 41567 | METHSPIKE | | Total Organic Carbon |
| 36804 | 3 | 37223 | 41567 | SPK-RSD | | Total Organic Carbon |
| 36804 | 4 | 37223 | 41567 | MS | W08P002717 | Total Organic Carbon |
| 36804 | 5 | 37223 | 41567 | MSD | W08P002717 | Total Organic Carbon |
| 36804 | 5 | 37223 | 41567 | SPK-RPD | W08P002717 | Total Organic Carbon |
| 36804 | 14 | 37223 | 41567 | SAMPLE | W08P002778 | Total Organic Carbon |
| 36804 | 15 | 37223 | 41567 | SAMPLE | W08P002779 | Total Organic Carbon |
| 36820 | 1 | 37242 | 41582 | BLANK | | ICP-200.8 MS All possible meta |
| 36820 | 2 | 37242 | 41582 | LCS | | ICP-200.8 MS All possible meta |
| 36820 | 4 | 37242 | 41582 | MS | W08P002695 | ICP-200.8 MS All possible meta |
| 36820 | 5 | 37242 | 41582 | MSD | W08P002695 | ICP-200.8 MS All possible meta |
| 36820 | 5 | 37242 | 41582 | SPK-RPD | W08P002695 | ICP-200.8 MS All possible meta |
| 36820 | 7 | 37242 | 41582 | MS | W08P002697 | ICP-200.8 MS All possible meta |
| 36820 | 8 | 37242 | 41582 | MSD | W08P002697 | ICP-200.8 MS All possible meta |
| 36820 | 8 | 37242 | 41582 | SPK-RPD | W08P002697 | ICP-200.8 MS All possible meta |
| 36820 | 35 | 37242 | 41582 | SAMPLE | W08P002770 | ICP-200.8 MS All possible meta |
| 36820 | 36 | 37242 | 41582 | SAMPLE | W08P002771 | ICP-200.8 MS All possible meta |
| 36820 | 37 | 37242 | 41582 | SAMPLE | W08P002798 | ICP-200.8 MS All possible meta |
| 36820 | 38 | 37242 | 41582 | SAMPLE | W08P002799 | ICP-200.8 MS All possible meta |
| 36820 | 39 | 37242 | 41582 | SAMPLE | W08P002800 | ICP-200.8 MS All possible meta |
| 36820 | 40 | 37242 | 41582 | SAMPLE | W08P002801 | ICP-200.8 MS All possible meta |
| 36820 | 41 | 37242 | 41582 | SAMPLE | W08P002802 | ICP-200.8 MS All possible meta |
| 36820 | 42 | 37242 | 41582 | SAMPLE | W08P002803 | ICP-200.8 MS All possible meta |
| 36820 | 43 | 37242 | 41582 | SAMPLE | W08P002804 | ICP-200.8 MS All possible meta |
| 36820 | 44 | 37242 | 41582 | SAMPLE | W08P002805 | ICP-200.8 MS All possible meta |
| 36841 | 1 | 37261 | 41604 | BLANK | | Total Organic Carbon |
| 36841 | 2 | 37261 | 41604 | METHSPIKE | | Total Organic Carbon |
| 36841 | 3 | 37261 | 41604 | SPK-RSD | | Total Organic Carbon |
| 36841 | 4 | 37261 | 41604 | MS | W08P002780 | Total Organic Carbon |
| 36841 | 5 | 37261 | 41604 | MSD | W08P002780 | Total Organic Carbon |
| 36841 | 7 | 37261 | 41604 | SAMPLE | W08P002780 | Total Organic Carbon |
| 36841 | 5 | 37261 | 41604 | SPK-RPD | W08P002780 | Total Organic Carbon |
| 36841 | 9 | 37261 | 41604 | SAMPLE | W08P002781 | Total Organic Carbon |
| 36841 | 10 | 37261 | 41604 | SAMPLE | W08P002782 | Total Organic Carbon |
| 36841 | 11 | 37261 | 41604 | SAMPLE | W08P002783 | Total Organic Carbon |
| 36841 | 12 | 37261 | 41604 | SAMPLE | W08P002784 | Total Organic Carbon |
| 36841 | 13 | 37261 | 41604 | SAMPLE | W08P002785 | Total Organic Carbon |
| 36841 | 14 | 37261 | 41604 | SAMPLE | W08P002786 | Total Organic Carbon |
| 36841 | 15 | 37261 | 41604 | SAMPLE | W08P002787 | Total Organic Carbon |
| 36846 | 1 | 37266 | 41607 | LCS | | Total Alkalinity as mg/L CaCO3 |
| 36846 | 13 | 37266 | 41607 | LCS | | Total Alkalinity as mg/L CaCO3 |
| 36846 | 20 | 37266 | 41607 | LCS | | Total Alkalinity as mg/L CaCO3 |
| 36846 | 3 | 37266 | 41607 | DUP | W08P002805 | Total Alkalinity as mg/L CaCO3 |
| 36846 | 2 | 37266 | 41607 | SAMPLE | W08P002805 | Total Alkalinity as mg/L CaCO3 |
| 36846 | 19 | 37266 | 41607 | DUP | W08Q000077 | Total Alkalinity as mg/L CaCO3 |
| 37133 | 1 | 37558 | 41924 | BLANK | | ICP Metals Analysis, Grd H20 P |
| 37133 | 2 | 37558 | 41924 | LCS | | ICP Metals Analysis, Grd H20 P |
| 37133 | 4 | 37558 | 41924 | MS | W08P002771 | ICP Metals Analysis, Grd H20 P |
| 37133 | 5 | 37558 | 41924 | MSD | W08P002771 | ICP Metals Analysis, Grd H20 P |
| 37133 | 3 | 37558 | 41924 | SAMPLE | W08P002771 | ICP Metals Analysis, Grd H20 P |
| 37133 | 5 | 37558 | 41924 | SPK-RPD | W08P002771 | ICP Metals Analysis, Grd H20 P |
| 37133 | 6 | 37558 | 41924 | SAMPLE | W08P002788 | ICP Metals Analysis, Grd H20 P |
| 37133 | 7 | 37558 | 41924 | SAMPLE | W08P002789 | ICP Metals Analysis, Grd H20 P |

| | | | | | | |
|---|---|---|---|---|---|---|
| 37133 | 8 | 37558 | 41924 | SAMPLE | W08P002790 | ICP Metals Analysis, Grd H20 P |
| 37133 | 9 | 37558 | 41924 | SAMPLE | W08P002791 | ICP Metals Analysis, Grd H20 P |
| 37133 | 10 | 37558 | 41924 | SAMPLE | W08P002792 | ICP Metals Analysis, Grd H20 P |
| 37133 | 11 | 37558 | 41924 | SAMPLE | W08P002793 | ICP Metals Analysis, Grd H20 P |
| 37133 | 12 | 37558 | 41924 | SAMPLE | W08P002794 | ICP Metals Analysis, Grd H20 P |
| 37133 | 13 | 37558 | 41924 | SAMPLE | W08P002795 | ICP Metals Analysis, Grd H20 P |
| 37133 | 14 | 37558 | 41924 | SAMPLE | W08P002798 | ICP Metals Analysis, Grd H20 P |
| 37133 | 15 | 37558 | 41924 | SAMPLE | W08P002799 | ICP Metals Analysis, Grd H20 P |
| 37133 | 16 | 37558 | 41924 | SAMPLE | W08P002800 | ICP Metals Analysis, Grd H20 P |
| 37133 | 17 | 37558 | 41924 | SAMPLE | W08P002801 | ICP Metals Analysis, Grd H20 P |
| 37133 | 18 | 37558 | 41924 | SAMPLE | W08P002802 | ICP Metals Analysis, Grd H20 P |
| 37133 | 19 | 37558 | 41924 | SAMPLE | W08P002803 | ICP Metals Analysis, Grd H20 P |
| 37133 | 20 | 37558 | 41924 | SAMPLE | W08P002804 | ICP Metals Analysis, Grd H20 P |
| 37133 | 21 | 37558 | 41924 | SAMPLE | W08P002805 | ICP Metals Analysis, Grd H20 P |
| 37132 | 1 | 37555 | 41934 | BLANK | | ICP Metals Analysis, Grd H20 P |
| 37132 | 2 | 37555 | 41934 | LCS | | ICP Metals Analysis, Grd H20 P |
| 37132 | 4 | 37555 | 41934 | MS | W08P002737 | ICP Metals Analysis, Grd H20 P |
| 37132 | 5 | 37555 | 41934 | MSD | W08P002737 | ICP Metals Analysis, Grd H20 P |
| 37132 | 5 | 37555 | 41934 | SPK-RPD | W08P002737 | ICP Metals Analysis, Grd H20 P |
| 37132 | 24 | 37555 | 41934 | SAMPLE | W08P002770 | ICP Metals Analysis, Grd H20 P |

w13qlog v4.2 01-aug-2008 06:42:10

Department: Organic

W13q Worklist/Batch/QC Report for Group# WSCF20081171

| WL# | S# | Batch | QC# | Tray Type | Sample# | Test |
|---|---|---|---|---|---|---|
| | | | 41952 | BLANK | | VOA Ground Water Protection |
| | | | 41952 | LCS | | VOA Ground Water Protection |
| | | | 41952 | MS | W08P002764 | VOA Ground Water Protection |
| | | | 41952 | MSD | W08P002764 | VOA Ground Water Protection |
| | | | 41952 | SPK-RPD | W08P002764 | VOA Ground Water Protection |
| | | | 41952 | SAMPLE | W08P002796 | VOA Ground Water Protection |
| | | | 41952 | SURR | W08P002796 | VOA Ground Water Protection |
| | | | 41952 | SAMPLE | W08P002797 | VOA Ground Water Protection |
| | | | 41952 | SURR | W08P002797 | VOA Ground Water Protection |

w13qlog v4.2 01-aug-2008 06:42:10

Department: Radiochemistry

W13q Worklist/Batch/QC Report for Group# WSCF20081171

| WL# | S# | Batch | QC# | Tray Type | Sample# | Test |
|---|---|---|---|---|---|---|
| 36683 | 1 | 37100 | 41597 | BLANK | | TC99 by Liquid Scin. |
| 36683 | 2 | 37100 | 41597 | LCS | | TC99 by Liquid Scin. |
| 36683 | 3 | 37100 | 41597 | DUP | W08P002731 | TC99 by Liquid Scin. |
| 36683 | 4 | 37100 | 41597 | MS | W08P002731 | TC99 by Liquid Scin. |
| 36683 | 17 | 37100 | 41597 | SAMPLE | W08P002771 | TC99 by Liquid Scin. |
| 36683 | 18 | 37100 | 41597 | SAMPLE | W08P002789 | TC99 by Liquid Scin. |
| 36683 | 19 | 37100 | 41597 | SAMPLE | W08P002791 | TC99 by Liquid Scin. |
| 36773 | 1 | 37191 | 41611 | BLANK | | TC99 by Liquid Scin. |
| 36773 | 2 | 37191 | 41611 | LCS | | TC99 by Liquid Scin. |
| 36773 | 4 | 37191 | 41611 | DUP | W08P002793 | TC99 by Liquid Scin. |
| 36773 | 3 | 37191 | 41611 | MS | W08P002793 | TC99 by Liquid Scin. |
| 36773 | 5 | 37191 | 41611 | SAMPLE | W08P002793 | TC99 by Liquid Scin. |
| 36773 | 6 | 37191 | 41611 | SAMPLE | W08P002795 | TC99 by Liquid Scin. |
| 36773 | 7 | 37191 | 41611 | SAMPLE | W08P002802 | TC99 by Liquid Scin. |
| 36773 | 8 | 37191 | 41611 | SAMPLE | W08P002803 | TC99 by Liquid Scin. |
| 36773 | 9 | 37191 | 41611 | SAMPLE | W08P002804 | TC99 by Liquid Scin. |
| 36773 | 10 | 37191 | 41611 | SAMPLE | W08P002805 | TC99 by Liquid Scin. |
| 37240 | 1 | 37672 | 42053 | BLANK | | Gross Alpha/Gross Beta (AB32) |
| 37240 | 2 | 37672 | 42053 | LCS | | Gross Alpha/Gross Beta (AB32) |
| 37240 | 3 | 37672 | 42053 | DUP | W08P002756 | Gross Alpha/Gross Beta (AB32) |
| 37240 | 8 | 37672 | 42053 | SAMPLE | W08P002771 | Gross Alpha/Gross Beta (AB32) |
| 37240 | 9 | 37672 | 42053 | SAMPLE | W08P002802 | Gross Alpha/Gross Beta (AB32) |
| 37240 | 10 | 37672 | 42053 | SAMPLE | W08P002803 | Gross Alpha/Gross Beta (AB32) |
| 37240 | 11 | 37672 | 42053 | SAMPLE | W08P002804 | Gross Alpha/Gross Beta (AB32) |
| 37240 | 12 | 37672 | 42053 | SAMPLE | W08P002805 | Gross Alpha/Gross Beta (AB32) |
| 37291 | 1 | 37720 | 42124 | BLANK | | Gross Alpha on Alpha Plateau |
| 37291 | 2 | 37720 | 42124 | LCS | | Gross Alpha on Alpha Plateau |
| 37291 | 3 | 37720 | 42124 | DUP | W08P002756 | Gross Alpha on Alpha Plateau |
| 37291 | 8 | 37720 | 42124 | SAMPLE | W08P002771 | Gross Alpha on Alpha Plateau |
| 37291 | 9 | 37720 | 42124 | SAMPLE | W08P002802 | Gross Alpha on Alpha Plateau |
| 37291 | 10 | 37720 | 42124 | SAMPLE | W08P002803 | Gross Alpha on Alpha Plateau |
| 37291 | 11 | 37720 | 42124 | SAMPLE | W08P002804 | Gross Alpha on Alpha Plateau |
| 37291 | 12 | 37720 | 42124 | SAMPLE | W08P002805 | Gross Alpha on Alpha Plateau |

# 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-344-406** LA-344-406: TOTAL ORGANIC CARBON (TOC) BASED ON SW-846

| | |
|---|---|
| **EPA SW-846 9060** | TOTAL ORGANIC CARBON |
| **HEIS 9060_TOC** | Total Organic Carbon |

**LA-505-411** LA-505-411: ELEMENTAL ANALYSIS BY INDUCTIVELY COUPLED PLASMA ATOMIC EMISSION SPE

| | |
|---|---|
| **HEIS 6010_METALS_ICP** | Inductively Coupled Plasma-Atomic Emmision Spectrometry |

**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 |
| **HEIS RADISOTOPES_ICPMS** | Radioisotopes by ICP/MS |

**LA-531-411** LA-531-411: ALKALINITY (TITRIMETRIC)

| | |
|---|---|
| **HEIS 2320B** | Alkalinity |
| **Standard Methods 2320B** | Alkalinity |

**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 |

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-523-455** | 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) |

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-508-421** LA-508-421: OPERATION OF THE TRI-CARB MODEL 2500TR LIQUID SCINTILLATION ANALYZER

| | |
|---|---|
| **HEIS ALPHA_LSC** | A/B Liquid Scintilillation |
| **HEIS BETA_LSC** | A/B Liquid Scintilallation |
| **HEIS TC99_3MDSK_LSC** | TC99 by Liquid Scintillation |
| **HEIS TRITIUM_EIE_LSC** | Tritium Liquid Scintillation |

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 E6-35
**SAF Number:** W08-006
**Sample #** W08P002766
**Client ID:** B1VR60 PNNL-GPP WSCF

**Matrix:** WATER

**Group #:** WSCF20081171
**Department:** Inorganic
**Sampled:** 06/10/08
**Received:** 06/10/08

| Test Performed | CAS # | Method | RQ | Result | Unit | TP Err | Unit | DF | MDL | PQL | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Total organic carbon** | | | | | | | | | | | |
| Total organic carbon | TOC | LA-344-406 | U | < 0.300 | mg/L | . | | 1.00 | 0.30 | | 06/14/08 |

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

B - The analyte < the RDL but > = the IDL/MDL (inorg)
E - Analyte is an estimate, has potentially larger errors.(org)
U - Analyzed for but not detected above limiting criteria(inorg)

D - Analyte was identified at a secondary dilution factor(inorg)
J - Analyte < lowest calibration but > = MDL.(org)
U - Analyzed for but not detected above limiting criteria.(org)

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

# WSCF
# ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35
**SAF Number:** W08-006
**Sample #** W08P002767
**Client ID:** B1VR61 PNNL-GPP WSCF

**Matrix:** WATER

**Group #:** WSCF20081171
**Department:** Inorganic
**Sampled:** 06/10/08
**Received:** 06/10/08

| Test Performed | CAS # | Method | RQ | Result | Unit | TP Err | Unit | DF | MDL | PQL | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Total organic carbon** | | | | | | | | | | | |
| Total organic carbon | TOC | LA-344-406 | | 0.333 | mg/L | | | 1.00 | 0.30 | | 06/14/08 |

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

B - The analyte < the RDL but >= the IDL/MDL (inorg)
E - Analyte is an estimate, has potentially larger errors.(org)
U - Analyzed for but not detected above limiting criteria(inorg)

D - Analyte was identified at a secondary dilution factor(inorg)
J - Analyte < lowest calibration but >= MDL.(org)
U - Analyzed for but not detected above limiting criteria.(org)

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

# WSCF
# ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35
**SAF Number:** W08-006
**Sample #** W08P002768
**Client ID:** B1VR62 PNNL-GPP WSCF

**Matrix:** WATER

**Group #:** WSCF20081171
**Department:** Inorganic
**Sampled:** 06/10/08
**Received:** 06/10/08

| Test Performed | CAS # | Method | RQ | Result | Unit | TP Err | Unit | DF | MDL | PQL | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Total organic carbon** | | | | | | | | | | | |
| Total organic carbon | TOC | LA-344-406 | | 0.317 | mg/L | | | 1.00 | 0.30 | | 06/14/08 |

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

B - The analyte < the RDL but > = the IDL/MDL (inorg)
E - Analyte is an estimate, has potentially larger errors.(org)
U - Analyzed for but not detected above limiting criteria(inorg)

D - Analyte was identified at a secondary dilution factor(inorg)
J - Analyte < lowest calibration but > = MDL.(org)
U - Analyzed for but not detected above limiting criteria.(org)

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

# WSCF
# ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35
**SAF Number:** W08-006
**Sample #** W08P002769
**Client ID:** B1VR63 PNNL-GPP WSCF

**Matrix:** WATER

**Group #:** WSCF20081171
**Department:** Inorganic
**Sampled:** 06/10/08
**Received:** 06/10/08

| Test Performed | CAS # | Method | RQ | Result | Unit | TP Err | Unit | DF | MDL | PQL | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Total organic carbon** | | | | | | | | | | | |
| Total organic carbon | TOC | LA-344-406 | | 0.321 | mg/L | | | 1.00 | 0.30 | | 06/14/08 |

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

B - The analyte < the RDL but > = the IDL/MDL (inorg)
E - Analyte is an estimate, has potentially larger errors.(org)
U - Analyzed for but not detected above limiting criteria(inorg)

D - Analyte was identified at a secondary dilution factor(inorg)
J - Analyte < lowest calibration but > = MDL.(org)
U - Analyzed for but not detected above limiting criteria.(org)

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

# WSCF
# ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35
**SAF Number:** W08-006
**Sample #** W08P002770
**Client ID:** B1VR64 PNNL-GPP WSCF

**Matrix:** WATER

**Group #:** WSCF20081171
**Department:** Inorganic
**Sampled:** 06/10/08
**Received:** 06/10/08

| Test Performed | CAS # | Method | RQ | Result | Unit | TP Err | Unit | DF | MDL | PQL | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **ICP Metals Analysis, Grd H20 P Prep** | | | | | | | | | | | **07/17/08** |
| **ICP Metals Analysis, Grd H20 P** | | | | | | | | | | | |
| Iron | 7439-89-6 | LA-505-411 | U | < 25.0 | ug/L | | | 1.00 | 25 | | 07/18/08 |
| Magnesium | 7439-95-4 | LA-505-411 | | 1.09e+04 | ug/L | | | 1.00 | 50 | | 07/18/08 |
| Manganese | 7439-96-5 | LA-505-411 | | 8.60 | ug/L | | | 1.00 | 4.0 | | 07/18/08 |
| Nickel | 7440-02-0 | LA-505-411 | | 17.9 | ug/L | | | 1.00 | 4.0 | | 07/18/08 |
| Potassium | 7440-09-7 | LA-505-411 | | 5.94e+03 | ug/L | | | 1.00 | 1.7e+02 | | 07/18/08 |
| Silver | 7440-22-4 | LA-505-411 | U | < 5.00 | ug/L | | | 1.00 | 5.0 | | 07/18/08 |
| Sodium | 7440-23-5 | LA-505-411 | | 1.87e+04 | ug/L | | | 1.00 | 51 | | 07/18/08 |
| Antimony | 7440-36-0 | LA-505-411 | U | < 56.0 | ug/L | | | 1.00 | 56 | | 07/18/08 |
| Barium | 7440-39-3 | LA-505-411 | | 25.0 | ug/L | | | 1.00 | 4.0 | | 07/18/08 |
| Cadmium | 7440-43-9 | LA-505-411 | U | < 4.00 | ug/L | | | 1.00 | 4.0 | | 07/18/08 |
| Chromium | 7440-47-3 | LA-505-411 | U | < 13.0 | ug/L | | | 1.00 | 13 | | 07/18/08 |
| Cobalt | 7440-48-4 | LA-505-411 | U | < 4.00 | ug/L | | | 1.00 | 4.0 | | 07/18/08 |
| Copper | 7440-50-8 | LA-505-411 | U | < 6.00 | ug/L | | | 1.00 | 6.0 | | 07/18/08 |
| Vanadium | 7440-62-2 | LA-505-411 | | 24.8 | ug/L | | | 1.00 | 12 | | 07/18/08 |
| Zinc | 7440-66-6 | LA-505-411 | U | < 9.00 | ug/L | | | 1.00 | 9.0 | | 07/18/08 |
| Calcium | 7440-70-2 | LA-505-411 | | 3.78e+04 | ug/L | | | 1.00 | 73 | | 07/18/08 |
| Strontium | 7440-24-6 | LA-505-411 | | 189 | ug/L | | | 1.00 | 4.0 | | 07/18/08 |
| Beryllium | 7440-41-7 | LA-505-411 | U | < 4.00 | ug/L | | | 1.00 | 4.0 | | 07/18/08 |
| **ICP-200.8 MS All possible meta Prep** | | | | | | | | | | | **06/24/08** |
| **ICP-200.8 MS All possible meta** | | | | | | | | | | | |
| Lead | 7439-92-1 | LA-505-412 | U | < 0.100 | ug/L | | | 1.00 | 0.100 | | 06/24/08 |

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D - Analyte was identified at a secondary dilution factor(inorg)
J - Analyte < lowest calibration but > = MDL.(org)
U - Analyzed for but not detected above limiting criteria.(org)

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# WSCF
# ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35
**SAF Number:** W08-006
**Sample #** W08P002771
**Client ID:** B1VR65 PNNL-GPP WSCF

**Matrix:** WATER

**Group #:** WSCF20081171
**Department:** Inorganic
**Sampled:** 06/10/08
**Received:** 06/10/08

| Test Performed | CAS # | Method | RQ | Result | Unit | TP Err | Unit | DF | MDL | PQL | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Anions by Ion Chromatography** | | | | | | | | | | | |
| Fluoride | 16984-48-8 | LA-533-410 | D | 0.217 | mg/L | | | 2.00 | 0.042 | | 06/11/08 |
| Chloride | 16887-00-6 | LA-533-410 | D | 7.26 | mg/L | | | 2.00 | 0.22 | | 06/11/08 |
| Nitrogen in Nitrite | NO2-N | LA-533-410 | DU | < 0.0198 | mg/L | | | 2.00 | 0.020 | | 06/11/08 |
| Nitrogen in Nitrate | NO3-N | LA-533-410 | D | 1.56 | mg/L | | | 2.00 | 0.072 | | 06/11/08 |
| Sulfate | 14808-79-8 | LA-533-410 | D | 76.4 | mg/L | | | 2.00 | 0.15 | | 06/11/08 |
| **ICP Metals Analysis, Grd H20 P Prep** | | | | | | | | | | | **07/17/08** |
| **ICP Metals Analysis, Grd H20 P** | | | | | | | | | | | |
| Iron | 7439-89-6 | LA-505-411 | | 77.0 | ug/L | | | 1.00 | 25 | | 07/20/08 |
| Magnesium | 7439-95-4 | LA-505-411 | | 1.06e+04 | ug/L | | | 1.00 | 50 | | 07/20/08 |
| Manganese | 7439-96-5 | LA-505-411 | U | < 4.00 | ug/L | | | 1.00 | 4.0 | | 07/20/08 |
| Nickel | 7440-02-0 | LA-505-411 | | 22.9 | ug/L | | | 1.00 | 4.0 | | 07/20/08 |
| Potassium | 7440-09-7 | LA-505-411 | | 4.95e+03 | ug/L | | | 1.00 | 1.7e+02 | | 07/20/08 |
| Silver | 7440-22-4 | LA-505-411 | U | < 5.00 | ug/L | | | 1.00 | 5.0 | | 07/20/08 |
| Sodium | 7440-23-5 | LA-505-411 | | 1.62e+04 | ug/L | | | 1.00 | 51 | | 07/20/08 |
| Antimony | 7440-36-0 | LA-505-411 | U | < 56.0 | ug/L | | | 1.00 | 56 | | 07/20/08 |
| Barium | 7440-39-3 | LA-505-411 | | 26.0 | ug/L | | | 1.00 | 4.0 | | 07/20/08 |
| Cadmium | 7440-43-9 | LA-505-411 | U | < 4.00 | ug/L | | | 1.00 | 4.0 | | 07/20/08 |
| Chromium | 7440-47-3 | LA-505-411 | | 14.6 | ug/L | | | 1.00 | 13 | | 07/20/08 |
| Cobalt | 7440-48-4 | LA-505-411 | U | < 4.00 | ug/L | | | 1.00 | 4.0 | | 07/20/08 |
| Copper | 7440-50-8 | LA-505-411 | U | < 6.00 | ug/L | | | 1.00 | 6.0 | | 07/20/08 |
| Vanadium | 7440-62-2 | LA-505-411 | | 25.8 | ug/L | | | 1.00 | 12 | | 07/20/08 |
| Zinc | 7440-66-6 | LA-505-411 | U | < 9.00 | ug/L | | | 1.00 | 9.0 | | 07/20/08 |
| Calcium | 7440-70-2 | LA-505-411 | | 3.86e+04 | ug/L | | | 1.00 | 73 | | 07/20/08 |
| Strontium | 7440-24-6 | LA-505-411 | | 193 | ug/L | | | 1.00 | 4.0 | | 07/20/08 |

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

B - The analyte < the RDL but > = the IDL/MDL (inorg)
E - Analyte is an estimate, has potentially larger errors.(org)
U - Analyzed for but not detected above limiting criteria(inorg)

D - Analyte was identified at a secondary dilution factor(inorg)
J - Analyte < lowest calibration but > = MDL.(org)
U - Analyzed for but not detected above limiting criteria.(org)

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

# WSCF
# ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35
**SAF Number:** W08-006
**Sample #** W08P002771
**Client ID:** B1VR65 PNNL-GPP WSCF

**Matrix:** WATER

**Group #:** WSCF20081171
**Department:** Inorganic
**Sampled:** 06/10/08
**Received:** 06/10/08

| Test Performed | CAS # | Method | RQ | Result | Unit | TP Err | Unit | DF | MDL | PQL | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Beryllium | 7440-41-7 | LA-505-411 | U | < 4.00 | ug/L | | | 1.00 | 4.0 | | 07/20/08 |
| **ICP-200.8 MS All possible meta Prep** | | | | | | | | | | | **06/24/08** |
| **ICP-200.8 MS All possible meta** | | | | | | | | | | | |
| Lead | 7439-92-1 | LA-505-412 | U | < 0.100 | ug/L | | | 1.00 | 0.100 | | 06/24/08 |
| **Total Alkalinity as mg/L CaCO3** | | | | | | | | | | | |
| Total Alkalinity as mg/L CaCO3 | ALKALINITY | LA-531-411 | | 91.0 | mg/L | | | 1.00 | 1.0 | | 06/12/08 |

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

B - The analyte < the RDL but > = the IDL/MDL (inorg)
E - Analyte is an estimate, has potentially larger errors.(org)
U - Analyzed for but not detected above limiting criteria(inorg)

D - Analyte was identified at a secondary dilution factor(inorg)
J - Analyte < lowest calibration but > = MDL.(org)
U - Analyzed for but not detected above limiting criteria.(org)

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# WSCF
# ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35
**SAF Number:** W08-006
**Sample #** W08P002772
**Client ID:** B1VR70 PNNL-GPP WSCF

**Matrix:** WATER

**Group #:** WSCF20081171
**Department:** Inorganic
**Sampled:** 06/10/08
**Received:** 06/10/08

| Test Performed | CAS # | Method | RQ | Result | Unit | TP Err | Unit | DF | MDL | PQL | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Total organic carbon** | | | | | | | | | | | |
| Total organic carbon | TOC | LA-344-406 | | 0.394 | mg/L | | | 1.00 | 0.30 | | 06/14/08 |

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

B - The analyte < the RDL but > = the IDL/MDL (inorg)
E - Analyte is an estimate, has potentially larger errors.(org)
U - Analyzed for but not detected above limiting criteria(inorg)

D - Analyte was identified at a secondary dilution factor(inorg)
J - Analyte < lowest calibration but > = MDL.(org)
U - Analyzed for but not detected above limiting criteria.(org)

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

# WSCF
# ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35
**SAF Number:** W08-006
**Sample #** W08P002773
**Client ID:** B1VR71 PNNL-GPP WSCF

**Matrix:** WATER

**Group #:** WSCF20081171
**Department:** Inorganic
**Sampled:** 06/10/08
**Received:** 06/10/08

| Test Performed | CAS # | Method | RQ | Result | Unit | TP Err | Unit | DF | MDL | PQL | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Total organic carbon** | | | | | | | | | | | |
| Total organic carbon | TOC | LA-344-406 | | 0.365 | mg/L | | | 1.00 | 0.30 | | 06/14/08 |

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

B - The analyte < the RDL but >= the IDL/MDL (inorg)
E - Analyte is an estimate, has potentially larger errors.(org)
U - Analyzed for but not detected above limiting criteria(inorg)

D - Analyte was identified at a secondary dilution factor(inorg)
J - Analyte < lowest calibration but >= MDL.(org)
U - Analyzed for but not detected above limiting criteria.(org)

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

# WSCF
# ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35
**SAF Number:** W08-006
**Sample #** W08P002774
**Client ID:** B1VR72 PNNL-GPP WSCF

**Matrix:** WATER

**Group #:** WSCF20081171
**Department:** Inorganic
**Sampled:** 06/10/08
**Received:** 06/10/08

| Test Performed | CAS # | Method | RQ | Result | Unit | TP Err | Unit | DF | MDL | PQL | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Total organic carbon** | | | | | | | | | | | |
| Total organic carbon | TOC | LA-344-406 | | 0.362 | mg/L | | | 1.00 | 0.30 | | 06/14/08 |

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

B - The analyte < the RDL but > = the IDL/MDL (inorg)
E - Analyte is an estimate, has potentially larger errors.(org)
U - Analyzed for but not detected above limiting criteria(inorg)

D - Analyte was identified at a secondary dilution factor(inorg)
J - Analyte < lowest calibration but > = MDL.(org)
U - Analyzed for but not detected above limiting criteria.(org)

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

# WSCF
# ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35
**SAF Number:** W08-006
**Sample #** W08P002775
**Client ID:** B1VR73 PNNL-GPP WSCF

**Matrix:** WATER

**Group #:** WSCF20081171
**Department:** Inorganic
**Sampled:** 06/10/08
**Received:** 06/10/08

| Test Performed | CAS # | Method | RQ | Result | Unit | TP Err | Unit | DF | MDL | PQL | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Total organic carbon** | | | | | | | | | | | |
| Total organic carbon | TOC | LA-344-406 | | 0.348 | mg/L | | | 1.00 | 0.30 | | 06/14/08 |

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

B - The analyte < the RDL but > = the IDL/MDL (inorg)
E - Analyte is an estimate, has potentially larger errors.(org)
U - Analyzed for but not detected above limiting criteria(inorg)

D - Analyte was identified at a secondary dilution factor(inorg)
J - Analyte < lowest calibration but > = MDL.(org)
U - Analyzed for but not detected above limiting criteria.(org)

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

# WSCF
# ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35
**SAF Number:** W08-006
**Sample #** W08P002776
**Client ID:** B1VR50 PNNL-GPP WSCF

**Matrix:** WATER

**Group #:** WSCF20081171
**Department:** Inorganic
**Sampled:** 06/10/08
**Received:** 06/10/08

| Test Performed | CAS # | Method | RQ | Result | Unit | TP Err | Unit | DF | MDL | PQL | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Total organic carbon** | | | | | | | | | | | |
| Total organic carbon | TOC | LA-344-406 | | 0.408 | mg/L | | | 1.00 | 0.30 | | 06/14/08 |

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

B - The analyte < the RDL but > = the IDL/MDL (inorg)
E - Analyte is an estimate, has potentially larger errors.(org)
U - Analyzed for but not detected above limiting criteria(inorg)

D - Analyte was identified at a secondary dilution factor(inorg)
J - Analyte < lowest calibration but > = MDL.(org)
U - Analyzed for but not detected above limiting criteria.(org)

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

# WSCF
# ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35
**SAF Number:** W08-006
**Sample #** W08P002777
**Client ID:** B1VR51 PNNL-GPP WSCF

**Matrix:** WATER

**Group #:** WSCF20081171
**Department:** Inorganic
**Sampled:** 06/10/08
**Received:** 06/10/08

| Test Performed | CAS # | Method | RQ | Result | Unit | TP Err | Unit | DF | MDL | PQL | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Total organic carbon** | | | | | | | | | | | |
| Total organic carbon | TOC | LA-344-406 | | 0.355 | mg/L | | | 1.00 | 0.30 | | 06/14/08 |

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

B - The analyte < the RDL but >= the IDL/MDL (inorg)
E - Analyte is an estimate, has potentially larger errors.(org)
U - Analyzed for but not detected above limiting criteria(inorg)

D - Analyte was identified at a secondary dilution factor(inorg)
J - Analyte < lowest calibration but >= MDL.(org)
U - Analyzed for but not detected above limiting criteria.(org)

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# WSCF
# ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35
**SAF Number:** W08-006
**Sample #** W08P002778
**Client ID:** B1VR52 PNNL-GPP WSCF

**Matrix:** WATER

**Group #:** WSCF20081171
**Department:** Inorganic
**Sampled:** 06/10/08
**Received:** 06/10/08

| Test Performed | CAS # | Method | RQ | Result | Unit | TP Err | Unit | DF | MDL | PQL | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Total organic carbon** | | | | | | | | | | | |
| Total organic carbon | TOC | LA-344-406 | | 0.428 | mg/L | | | 1.00 | 0.30 | | 06/20/08 |

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

B - The analyte < the RDL but > = the IDL/MDL (inorg)
E - Analyte is an estimate, has potentially larger errors.(org)
U - Analyzed for but not detected above limiting criteria(inorg)

D - Analyte was identified at a secondary dilution factor(inorg)
J - Analyte < lowest calibration but > = MDL.(org)
U - Analyzed for but not detected above limiting criteria.(org)

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# WSCF
# ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35
**SAF Number:** W08-006
**Sample #** W08P002779
**Client ID:** B1VR53 PNNL-GPP WSCF

**Matrix:** WATER

**Group #:** WSCF20081171
**Department:** Inorganic
**Sampled:** 06/10/08
**Received:** 06/10/08

| Test Performed | CAS # | Method | RQ | Result | Unit | TP Err | Unit | DF | MDL | PQL | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Total organic carbon** | | | | | | | | | | | |
| Total organic carbon | TOC | LA-344-406 | | 0.400 | mg/L | | | 1.00 | 0.30 | | 06/20/08 |

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

B - The analyte < the RDL but > = the IDL/MDL (inorg)
E - Analyte is an estimate, has potentially larger errors.(org)
U - Analyzed for but not detected above limiting criteria(inorg)

D - Analyte was identified at a secondary dilution factor(inorg)
J - Analyte < lowest calibration but > = MDL.(org)
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# WSCF
# ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35
**SAF Number:** W08-006
**Sample #** W08P002780
**Client ID:** B1VR80 PNNL-GPP WSCF

**Matrix:** WATER

**Group #:** WSCF20081171
**Department:** Inorganic
**Sampled:** 06/10/08
**Received:** 06/10/08

| Test Performed | CAS # | Method | RQ | Result | Unit | TP Err | Unit | DF | MDL | PQL | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Total organic carbon** | | | | | | | | | | | |
| Total organic carbon | TOC | LA-344-406 | | 0.444 | mg/L | | | 1.00 | 0.30 | | 06/24/08 |

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

B - The analyte < the RDL but >= the IDL/MDL (inorg)
E - Analyte is an estimate, has potentially larger errors.(org)
U - Analyzed for but not detected above limiting criteria(inorg)

D - Analyte was identified at a secondary dilution factor(inorg)
J - Analyte < lowest calibration but >= MDL.(org)
U - Analyzed for but not detected above limiting criteria.(org)

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# WSCF
# ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35
**SAF Number:** W08-006
**Sample #** W08P002781
**Client ID:** B1VR81 PNNL-GPP WSCF

**Matrix:** WATER

**Group #:** WSCF20081171
**Department:** Inorganic
**Sampled:** 06/10/08
**Received:** 06/10/08

| Test Performed | CAS # | Method | RQ | Result | Unit | TP Err | Unit | DF | MDL | PQL | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Total organic carbon** | | | | | | | | | | | |
| Total organic carbon | TOC | LA-344-406 | | 0.453 | mg/L | | | 1.00 | 0.30 | | 06/24/08 |

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

B - The analyte < the RDL but > = the IDL/MDL (inorg)
E - Analyte is an estimate, has potentially larger errors.(org)
U - Analyzed for but not detected above limiting criteria(inorg)

D - Analyte was identified at a secondary dilution factor(inorg)
J - Analyte < lowest calibration but > = MDL.(org)
U - Analyzed for but not detected above limiting criteria.(org)

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# WSCF
# ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35
**SAF Number:** W08-006
**Sample #** W08P002782
**Client ID:** B1VR82 PNNL-GPP WSCF

**Matrix:** WATER

**Group #:** WSCF20081171
**Department:** Inorganic
**Sampled:** 06/10/08
**Received:** 06/10/08

| Test Performed | CAS # | Method | RQ | Result | Unit | TP Err | Unit | DF | MDL | PQL | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Total organic carbon** | | | | | | | | | | | |
| Total organic carbon | TOC | LA-344-406 | | 0.449 | mg/L | | | 1.00 | 0.30 | | 06/24/08 |

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

B - The analyte < the RDL but > = the IDL/MDL (inorg)
E - Analyte is an estimate, has potentially larger errors.(org)
U - Analyzed for but not detected above limiting criteria(inorg)

D - Analyte was identified at a secondary dilution factor(inorg)
J - Analyte < lowest calibration but > = MDL.(org)
U - Analyzed for but not detected above limiting criteria.(org)

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# WSCF
# ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35
**SAF Number:** W08-006
**Sample #** W08P002783
**Client ID:** B1VR83 PNNL-GPP WSCF

**Matrix:** WATER

**Group #:** WSCF20081171
**Department:** Inorganic
**Sampled:** 06/10/08
**Received:** 06/10/08

| Test Performed | CAS # | Method | RQ | Result | Unit | TP Err | Unit | DF | MDL | PQL | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Total organic carbon** | | | | | | | | | | | |
| Total organic carbon | TOC | LA-344-406 | | 0.473 | mg/L | | | 1.00 | 0.30 | | 06/24/08 |

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

B - The analyte < the RDL but >= the IDL/MDL (inorg)
E - Analyte is an estimate, has potentially larger errors.(org)
U - Analyzed for but not detected above limiting criteria(inorg)

D - Analyte was identified at a secondary dilution factor(inorg)
J - Analyte < lowest calibration but >= MDL.(org)
U - Analyzed for but not detected above limiting criteria.(org)

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# WSCF
# ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35
**SAF Number:** W08-006
**Sample #** W08P002784
**Client ID:** B1VR28 PNNL-GPP WSCF

**Matrix:** WATER

**Group #:** WSCF20081171
**Department:** Inorganic
**Sampled:** 06/10/08
**Received:** 06/10/08

| Test Performed | CAS # | Method | RQ | Result | Unit | TP Err | Unit | DF | MDL | PQL | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Total organic carbon** | | | | | | | | | | | |
| Total organic carbon | TOC | LA-344-406 | | 0.809 | mg/L | | | 1.00 | 0.30 | | 06/24/08 |

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

B - The analyte < the RDL but > = the IDL/MDL (inorg)
E - Analyte is an estimate, has potentially larger errors.(org)
U - Analyzed for but not detected above limiting criteria(inorg)

D - Analyte was identified at a secondary dilution factor(inorg)
J - Analyte < lowest calibration but > = MDL.(org)
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# WSCF
# ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35
**SAF Number:** W08-006
**Sample #** W08P002785
**Client ID:** B1VR29 PNNL-GPP WSCF

**Matrix:** WATER

**Group #:** WSCF20081171
**Department:** Inorganic
**Sampled:** 06/10/08
**Received:** 06/10/08

| Test Performed | CAS # | Method | RQ | Result | Unit | TP Err | Unit | DF | MDL | PQL | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Total organic carbon** | | | | | | | | | | | |
| Total organic carbon | TOC | LA-344-406 | | 0.901 | mg/L | | | 1.00 | 0.30 | | 06/24/08 |

**MDL=Minimum Detection Limit**
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D - Analyte was identified at a secondary dilution factor(inorg)
J - Analyte < lowest calibration but > = MDL.(org)
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# WSCF
# ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35
**SAF Number:** W08-006
**Sample #** W08P002786
**Client ID:** B1VR30 PNNL-GPP WSCF

**Matrix:** WATER

**Group #:** WSCF20081171
**Department:** Inorganic
**Sampled:** 06/10/08
**Received:** 06/10/08

| Test Performed | CAS # | Method | RQ | Result | Unit | TP Err | Unit | DF | MDL | PQL | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Total organic carbon** | | | | | | | | | | | |
| Total organic carbon | TOC | LA-344-406 | | 0.897 | mg/L | | | 1.00 | 0.30 | | 06/24/08 |

**MDL=Minimum Detection Limit**
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B - The analyte < the RDL but > = the IDL/MDL (inorg)
E - Analyte is an estimate, has potentially larger errors.(org)
U - Analyzed for but not detected above limiting criteria(inorg)

D - Analyte was identified at a secondary dilution factor(inorg)
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# WSCF
# ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35
**SAF Number:** W08-006
**Sample #** W08P002787
**Client ID:** B1VR31 PNNL-GPP WSCF

**Matrix:** WATER

**Group #:** WSCF20081171
**Department:** Inorganic
**Sampled:** 06/10/08
**Received:** 06/10/08

| Test Performed | CAS # | Method | RQ | Result | Unit | TP Err | Unit | DF | MDL | PQL | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Total organic carbon** | | | | | | | | | | | |
| Total organic carbon | TOC | LA-344-406 | | 0.926 | mg/L | | | 1.00 | 0.30 | | 06/24/08 |

**MDL=Minimum Detection Limit**
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**TP Err=Total Propagated Error**
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# WSCF
# ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35
**SAF Number:** W08-006
**Sample #** W08P002788
**Client ID:** B1VPB8 PNNL-GPP WSCF

**Matrix:** WATER

**Group #:** WSCF20081171
**Department:** Inorganic
**Sampled:** 06/10/08
**Received:** 06/10/08

| Test Performed | CAS # | Method | RQ | Result | Unit | TP Err | Unit | DF | MDL | PQL | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **ICP Metals Analysis, Grd H20 P Prep** | | | | | | | | | | | **07/17/08** |
| **ICP Metals Analysis, Grd H20 P** | | | | | | | | | | | |
| Iron | 7439-89-6 | LA-505-411 | U | < 25.0 | ug/L | | | 1.00 | 25 | | 07/20/08 |
| Magnesium | 7439-95-4 | LA-505-411 | | 1.30e+04 | ug/L | | | 1.00 | 50 | | 07/20/08 |
| Manganese | 7439-96-5 | LA-505-411 | U | < 4.00 | ug/L | | | 1.00 | 4.0 | | 07/20/08 |
| Nickel | 7440-02-0 | LA-505-411 | U | < 4.00 | ug/L | | | 1.00 | 4.0 | | 07/20/08 |
| Potassium | 7440-09-7 | LA-505-411 | | 3.31e+03 | ug/L | | | 1.00 | 1.7e+02 | | 07/20/08 |
| Silver | 7440-22-4 | LA-505-411 | U | < 5.00 | ug/L | | | 1.00 | 5.0 | | 07/20/08 |
| Sodium | 7440-23-5 | LA-505-411 | | 2.28e+04 | ug/L | | | 1.00 | 51 | | 07/20/08 |
| Antimony | 7440-36-0 | LA-505-411 | U | < 56.0 | ug/L | | | 1.00 | 56 | | 07/20/08 |
| Barium | 7440-39-3 | LA-505-411 | | 40.5 | ug/L | | | 1.00 | 4.0 | | 07/20/08 |
| Cadmium | 7440-43-9 | LA-505-411 | U | < 4.00 | ug/L | | | 1.00 | 4.0 | | 07/20/08 |
| Chromium | 7440-47-3 | LA-505-411 | | 262 | ug/L | | | 1.00 | 13 | | 07/20/08 |
| Cobalt | 7440-48-4 | LA-505-411 | U | < 4.00 | ug/L | | | 1.00 | 4.0 | | 07/20/08 |
| Copper | 7440-50-8 | LA-505-411 | U | < 6.00 | ug/L | | | 1.00 | 6.0 | | 07/20/08 |
| Vanadium | 7440-62-2 | LA-505-411 | | 25.1 | ug/L | | | 1.00 | 12 | | 07/20/08 |
| Zinc | 7440-66-6 | LA-505-411 | U | < 9.00 | ug/L | | | 1.00 | 9.0 | | 07/20/08 |
| Calcium | 7440-70-2 | LA-505-411 | | 4.10e+04 | ug/L | | | 1.00 | 73 | | 07/20/08 |
| Strontium | 7440-24-6 | LA-505-411 | | 168 | ug/L | | | 1.00 | 4.0 | | 07/20/08 |
| Beryllium | 7440-41-7 | LA-505-411 | U | < 4.00 | ug/L | | | 1.00 | 4.0 | | 07/20/08 |

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# WSCF
# ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35
**SAF Number:** W08-006
**Sample #** W08P002789
**Client ID:** B1VPB9 PNNL-GPP WSCF

**Matrix:** WATER

**Group #:** WSCF20081171
**Department:** Inorganic
**Sampled:** 06/10/08
**Received:** 06/10/08

| Test Performed | CAS # | Method | RQ | Result | Unit | TP Err | Unit | DF | MDL | PQL | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Anions by Ion Chromatography** | | | | | | | | | | | |
| Fluoride | 16984-48-8 | LA-533-410 | D | 0.336 | mg/L | | | 2.00 | 0.042 | | 06/11/08 |
| Chloride | 16887-00-6 | LA-533-410 | D | 7.60 | mg/L | | | 2.00 | 0.22 | | 06/11/08 |
| Nitrogen in Nitrite | NO2-N | LA-533-410 | DU | < 0.0198 | mg/L | | | 2.00 | 0.020 | | 06/11/08 |
| Nitrogen in Nitrate | NO3-N | LA-533-410 | D | 25.6 | mg/L | | | 10.00 | 0.36 | | 06/11/08 |
| Sulfate | 14808-79-8 | LA-533-410 | D | 18.3 | mg/L | | | 2.00 | 0.15 | | 06/11/08 |
| **ICP Metals Analysis, Grd H20 P Prep** | | | | | | | | | | | **07/17/08** |
| **ICP Metals Analysis, Grd H20 P** | | | | | | | | | | | |
| Iron | 7439-89-6 | LA-505-411 | U | < 25.0 | ug/L | | | 1.00 | 25 | | 07/20/08 |
| Magnesium | 7439-95-4 | LA-505-411 | | 1.32e+04 | ug/L | | | 1.00 | 50 | | 07/20/08 |
| Manganese | 7439-96-5 | LA-505-411 | U | < 4.00 | ug/L | | | 1.00 | 4.0 | | 07/20/08 |
| Nickel | 7440-02-0 | LA-505-411 | U | < 4.00 | ug/L | | | 1.00 | 4.0 | | 07/20/08 |
| Potassium | 7440-09-7 | LA-505-411 | | 3.32e+03 | ug/L | | | 1.00 | 1.7e+02 | | 07/20/08 |
| Silver | 7440-22-4 | LA-505-411 | U | < 5.00 | ug/L | | | 1.00 | 5.0 | | 07/20/08 |
| Sodium | 7440-23-5 | LA-505-411 | | 2.28e+04 | ug/L | | | 1.00 | 51 | | 07/20/08 |
| Antimony | 7440-36-0 | LA-505-411 | U | < 56.0 | ug/L | | | 1.00 | 56 | | 07/20/08 |
| Barium | 7440-39-3 | LA-505-411 | | 40.5 | ug/L | | | 1.00 | 4.0 | | 07/20/08 |
| Cadmium | 7440-43-9 | LA-505-411 | U | < 4.00 | ug/L | | | 1.00 | 4.0 | | 07/20/08 |
| Chromium | 7440-47-3 | LA-505-411 | | 266 | ug/L | | | 1.00 | 13 | | 07/20/08 |
| Cobalt | 7440-48-4 | LA-505-411 | U | < 4.00 | ug/L | | | 1.00 | 4.0 | | 07/20/08 |
| Copper | 7440-50-8 | LA-505-411 | U | < 6.00 | ug/L | | | 1.00 | 6.0 | | 07/20/08 |
| Vanadium | 7440-62-2 | LA-505-411 | | 23.9 | ug/L | | | 1.00 | 12 | | 07/20/08 |
| Zinc | 7440-66-6 | LA-505-411 | | 9.30 | ug/L | | | 1.00 | 9.0 | | 07/20/08 |
| Calcium | 7440-70-2 | LA-505-411 | | 4.13e+04 | ug/L | | | 1.00 | 73 | | 07/20/08 |
| Strontium | 7440-24-6 | LA-505-411 | | 169 | ug/L | | | 1.00 | 4.0 | | 07/20/08 |

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D - Analyte was identified at a secondary dilution factor(inorg)
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# WSCF
# ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35
**SAF Number:** W08-006
**Sample #** W08P002789
**Client ID:** B1VPB9 PNNL-GPP WSCF

**Matrix:** WATER

**Group #:** WSCF20081171
**Department:** Inorganic
**Sampled:** 06/10/08
**Received:** 06/10/08

| Test Performed | CAS # | Method | RQ | Result | Unit | TP Err | Unit | DF | MDL | PQL | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Beryllium | 7440-41-7 | LA-505-411 | U | < 4.00 | ug/L | | | 1.00 | 4.0 | | 07/20/08 |
| **Total Alkalinity as mg/L CaCO3** | | | | | | | | | | | |
| Total Alkalinity as mg/L CaCO3 | ALKALINITY | LA-531-411 | | 93.0 | mg/L | | | 1.00 | 1.0 | | 06/12/08 |

**MDL = Minimum Detection Limit**
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D - Analyte was identified at a secondary dilution factor(inorg)
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# WSCF
# ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35
**SAF Number:** W08-006
**Sample #** W08P002790
**Client ID:** B1VRJ6 PNNL-GPP WSCF

**Matrix:** WATER

**Group #:** WSCF20081171
**Department:** Inorganic
**Sampled:** 06/10/08
**Received:** 06/10/08

| Test Performed | CAS # | Method | RQ | Result | Unit | TP Err | Unit | DF | MDL | PQL | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **ICP Metals Analysis, Grd H20 P Prep** | | | | | | | | | | | **07/17/08** |
| **ICP Metals Analysis, Grd H20 P** | | | | | | | | | | | |
| Iron | 7439-89-6 | LA-505-411 | | 182 | ug/L | | | 1.00 | 25 | | 07/20/08 |
| Magnesium | 7439-95-4 | LA-505-411 | | 7.32e+03 | ug/L | | | 1.00 | 50 | | 07/20/08 |
| Manganese | 7439-96-5 | LA-505-411 | | 5.30 | ug/L | | | 1.00 | 4.0 | | 07/20/08 |
| Nickel | 7440-02-0 | LA-505-411 | | 22.4 | ug/L | | | 1.00 | 4.0 | | 07/20/08 |
| Potassium | 7440-09-7 | LA-505-411 | | 2.48e+03 | ug/L | | | 1.00 | 1.7e+02 | | 07/20/08 |
| Silver | 7440-22-4 | LA-505-411 | U | < 5.00 | ug/L | | | 1.00 | 5.0 | | 07/20/08 |
| Sodium | 7440-23-5 | LA-505-411 | | 1.75e+04 | ug/L | | | 1.00 | 51 | | 07/20/08 |
| Antimony | 7440-36-0 | LA-505-411 | U | < 56.0 | ug/L | | | 1.00 | 56 | | 07/20/08 |
| Barium | 7440-39-3 | LA-505-411 | | 21.8 | ug/L | | | 1.00 | 4.0 | | 07/20/08 |
| Cadmium | 7440-43-9 | LA-505-411 | U | < 4.00 | ug/L | | | 1.00 | 4.0 | | 07/20/08 |
| Chromium | 7440-47-3 | LA-505-411 | | 49.4 | ug/L | | | 1.00 | 13 | | 07/20/08 |
| Cobalt | 7440-48-4 | LA-505-411 | U | < 4.00 | ug/L | | | 1.00 | 4.0 | | 07/20/08 |
| Copper | 7440-50-8 | LA-505-411 | | 7.40 | ug/L | | | 1.00 | 6.0 | | 07/20/08 |
| Vanadium | 7440-62-2 | LA-505-411 | | 29.3 | ug/L | | | 1.00 | 12 | | 07/20/08 |
| Zinc | 7440-66-6 | LA-505-411 | U | < 9.00 | ug/L | | | 1.00 | 9.0 | | 07/20/08 |
| Calcium | 7440-70-2 | LA-505-411 | | 2.21e+04 | ug/L | | | 1.00 | 73 | | 07/20/08 |
| Strontium | 7440-24-6 | LA-505-411 | | 90.1 | ug/L | | | 1.00 | 4.0 | | 07/20/08 |
| Beryllium | 7440-41-7 | LA-505-411 | U | < 4.00 | ug/L | | | 1.00 | 4.0 | | 07/20/08 |

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

B - The analyte < the RDL but > = the IDL/MDL (inorg)
E - Analyte is an estimate, has potentially larger errors.(org)
U - Analyzed for but not detected above limiting criteria(inorg)

D - Analyte was identified at a secondary dilution factor(inorg)
J - Analyte < lowest calibration but > = MDL.(org)
U - Analyzed for but not detected above limiting criteria.(org)

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

# WSCF
# ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35
**SAF Number:** W08-006
**Sample #** W08P002791
**Client ID:** B1VRJ7 PNNL-GPP WSCF

**Matrix:** WATER

**Group #:** WSCF20081171
**Department:** Inorganic
**Sampled:** 06/10/08
**Received:** 06/10/08

| Test Performed | CAS # | Method | RQ | Result | Unit | TP Err | Unit | DF | MDL | PQL | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Anions by Ion Chromatography** | | | | | | | | | | | |
| Fluoride | 16984-48-8 | LA-533-410 | D | 0.359 | mg/L | | | 2.00 | 0.042 | | 06/11/08 |
| Chloride | 16887-00-6 | LA-533-410 | D | 4.95 | mg/L | | | 2.00 | 0.22 | | 06/11/08 |
| Nitrogen in Nitrite | NO2-N | LA-533-410 | DU | < 0.0198 | mg/L | | | 2.00 | 0.020 | | 06/11/08 |
| Nitrogen in Nitrate | NO3-N | LA-533-410 | D | 1.75 | mg/L | | | 2.00 | 0.072 | | 06/11/08 |
| Sulfate | 14808-79-8 | LA-533-410 | D | 14.6 | mg/L | | | 2.00 | 0.15 | | 06/11/08 |
| **ICP Metals Analysis, Grd H20 P Prep** | | | | | | | | | | | **07/17/08** |
| **ICP Metals Analysis, Grd H20 P** | | | | | | | | | | | |
| Iron | 7439-89-6 | LA-505-411 | | 75.9 | ug/L | | | 1.00 | 25 | | 07/20/08 |
| Magnesium | 7439-95-4 | LA-505-411 | | 7.36e+03 | ug/L | | | 1.00 | 50 | | 07/20/08 |
| Manganese | 7439-96-5 | LA-505-411 | | 5.50 | ug/L | | | 1.00 | 4.0 | | 07/20/08 |
| Nickel | 7440-02-0 | LA-505-411 | U | < 4.00 | ug/L | | | 1.00 | 4.0 | | 07/20/08 |
| Potassium | 7440-09-7 | LA-505-411 | | 2.55e+03 | ug/L | | | 1.00 | 1.7e+02 | | 07/20/08 |
| Silver | 7440-22-4 | LA-505-411 | U | < 5.00 | ug/L | | | 1.00 | 5.0 | | 07/20/08 |
| Sodium | 7440-23-5 | LA-505-411 | | 1.78e+04 | ug/L | | | 1.00 | 51 | | 07/20/08 |
| Antimony | 7440-36-0 | LA-505-411 | U | < 56.0 | ug/L | | | 1.00 | 56 | | 07/20/08 |
| Barium | 7440-39-3 | LA-505-411 | | 22.1 | ug/L | | | 1.00 | 4.0 | | 07/20/08 |
| Cadmium | 7440-43-9 | LA-505-411 | U | < 4.00 | ug/L | | | 1.00 | 4.0 | | 07/20/08 |
| Chromium | 7440-47-3 | LA-505-411 | U | < 13.0 | ug/L | | | 1.00 | 13 | | 07/20/08 |
| Cobalt | 7440-48-4 | LA-505-411 | U | < 4.00 | ug/L | | | 1.00 | 4.0 | | 07/20/08 |
| Copper | 7440-50-8 | LA-505-411 | U | < 6.00 | ug/L | | | 1.00 | 6.0 | | 07/20/08 |
| Vanadium | 7440-62-2 | LA-505-411 | | 30.0 | ug/L | | | 1.00 | 12 | | 07/20/08 |
| Zinc | 7440-66-6 | LA-505-411 | U | < 9.00 | ug/L | | | 1.00 | 9.0 | | 07/20/08 |
| Calcium | 7440-70-2 | LA-505-411 | | 2.20e+04 | ug/L | | | 1.00 | 73 | | 07/20/08 |
| Strontium | 7440-24-6 | LA-505-411 | | 90.3 | ug/L | | | 1.00 | 4.0 | | 07/20/08 |

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

B - The analyte < the RDL but > = the IDL/MDL (inorg)
E - Analyte is an estimate, has potentially larger errors.(org)
U - Analyzed for but not detected above limiting criteria(inorg)

D - Analyte was identified at a secondary dilution factor(inorg)
J - Analyte < lowest calibration but > = MDL.(org)
U - Analyzed for but not detected above limiting criteria.(org)

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

# WSCF
# ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35
**SAF Number:** W08-006
**Sample #** W08P002791
**Client ID:** B1VRJ7 PNNL-GPP WSCF

**Matrix:** WATER

**Group #:** WSCF20081171
**Department:** Inorganic
**Sampled:** 06/10/08
**Received:** 06/10/08

| Test Performed | CAS # | Method | RQ | Result | Unit | TP Err | Unit | DF | MDL | PQL | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Beryllium | 7440-41-7 | LA-505-411 | U | < 4.00 | ug/L | | | 1.00 | 4.0 | | 07/20/08 |
| **Total Alkalinity as mg/L CaCO3** | | | | | | | | | | | |
| Total Alkalinity as mg/L CaCO3 | ALKALINITY | LA-531-411 | | 97.0 | mg/L | | | 1.00 | 1.0 | | 06/12/08 |

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

B - The analyte < the RDL but > = the IDL/MDL (inorg)
E - Analyte is an estimate, has potentially larger errors.(org)
U - Analyzed for but not detected above limiting criteria(inorg)

D - Analyte was identified at a secondary dilution factor(inorg)
J - Analyte < lowest calibration but > = MDL.(org)
U - Analyzed for but not detected above limiting criteria.(org)

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# WSCF
# ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35
**SAF Number:** W08-006
**Sample #** W08P002792
**Client ID:** B1VPB2 PNNL-GPP WSCF

**Matrix:** WATER

**Group #:** WSCF20081171
**Department:** Inorganic
**Sampled:** 06/10/08
**Received:** 06/10/08

| Test Performed | CAS # | Method | RQ | Result | Unit | TP Err | Unit | DF | MDL | PQL | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **ICP Metals Analysis, Grd H20 P Prep** | | | | | | | | | | | **07/17/08** |
| **ICP Metals Analysis, Grd H20 P** | | | | | | | | | | | |
| Iron | 7439-89-6 | LA-505-411 | U | < 25.0 | ug/L | | | 1.00 | 25 | | 07/20/08 |
| Magnesium | 7439-95-4 | LA-505-411 | | 1.67e+04 | ug/L | | | 1.00 | 50 | | 07/20/08 |
| Manganese | 7439-96-5 | LA-505-411 | U | < 4.00 | ug/L | | | 1.00 | 4.0 | | 07/20/08 |
| Nickel | 7440-02-0 | LA-505-411 | U | < 4.00 | ug/L | | | 1.00 | 4.0 | | 07/20/08 |
| Potassium | 7440-09-7 | LA-505-411 | | 3.89e+03 | ug/L | | | 1.00 | 1.7e+02 | | 07/20/08 |
| Silver | 7440-22-4 | LA-505-411 | U | < 5.00 | ug/L | | | 1.00 | 5.0 | | 07/20/08 |
| Sodium | 7440-23-5 | LA-505-411 | | 3.38e+04 | ug/L | | | 1.00 | 51 | | 07/20/08 |
| Antimony | 7440-36-0 | LA-505-411 | U | < 56.0 | ug/L | | | 1.00 | 56 | | 07/20/08 |
| Barium | 7440-39-3 | LA-505-411 | | 74.7 | ug/L | | | 1.00 | 4.0 | | 07/20/08 |
| Cadmium | 7440-43-9 | LA-505-411 | U | < 4.00 | ug/L | | | 1.00 | 4.0 | | 07/20/08 |
| Chromium | 7440-47-3 | LA-505-411 | | 630 | ug/L | | | 1.00 | 13 | | 07/20/08 |
| Cobalt | 7440-48-4 | LA-505-411 | U | < 4.00 | ug/L | | | 1.00 | 4.0 | | 07/20/08 |
| Copper | 7440-50-8 | LA-505-411 | U | < 6.00 | ug/L | | | 1.00 | 6.0 | | 07/20/08 |
| Vanadium | 7440-62-2 | LA-505-411 | | 18.5 | ug/L | | | 1.00 | 12 | | 07/20/08 |
| Zinc | 7440-66-6 | LA-505-411 | U | < 9.00 | ug/L | | | 1.00 | 9.0 | | 07/20/08 |
| Calcium | 7440-70-2 | LA-505-411 | | 5.82e+04 | ug/L | | | 1.00 | 73 | | 07/20/08 |
| Strontium | 7440-24-6 | LA-505-411 | | 251 | ug/L | | | 1.00 | 4.0 | | 07/20/08 |
| Beryllium | 7440-41-7 | LA-505-411 | U | < 4.00 | ug/L | | | 1.00 | 4.0 | | 07/20/08 |

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

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U - Analyzed for but not detected above limiting criteria(inorg)

D - Analyte was identified at a secondary dilution factor(inorg)
J - Analyte < lowest calibration but > = MDL.(org)
U - Analyzed for but not detected above limiting criteria.(org)

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# WSCF
# ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35
**SAF Number:** W08-006
**Sample #** W08P002793
**Client ID:** B1VPB3 PNNL-GPP WSCF

**Matrix:** WATER

**Group #:** WSCF20081171
**Department:** Inorganic
**Sampled:** 06/10/08
**Received:** 06/10/08

| Test Performed | CAS # | Method | RQ | Result | Unit | TP Err | Unit | DF | MDL | PQL | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Anions by Ion Chromatography** | | | | | | | | | | | |
| Fluoride | 16984-48-8 | LA-533-410 | D | 0.234 | mg/L | | | 2.00 | 0.042 | | 06/11/08 |
| Chloride | 16887-00-6 | LA-533-410 | D | 13.1 | mg/L | | | 2.00 | 0.22 | | 06/11/08 |
| Nitrogen in Nitrite | NO2-N | LA-533-410 | DU | < 0.0198 | mg/L | | | 2.00 | 0.020 | | 06/11/08 |
| Nitrogen in Nitrate | NO3-N | LA-533-410 | D | 46.9 | mg/L | | | 10.00 | 0.36 | | 06/11/08 |
| Sulfate | 14808-79-8 | LA-533-410 | D | 26.1 | mg/L | | | 2.00 | 0.15 | | 06/11/08 |
| **ICP Metals Analysis, Grd H20 P Prep** | | | | | | | | | | | **07/17/08** |
| **ICP Metals Analysis, Grd H20 P** | | | | | | | | | | | |
| Iron | 7439-89-6 | LA-505-411 | | 176 | ug/L | | | 1.00 | 25 | | 07/20/08 |
| Magnesium | 7439-95-4 | LA-505-411 | | 1.65e+04 | ug/L | | | 1.00 | 50 | | 07/20/08 |
| Manganese | 7439-96-5 | LA-505-411 | | 16.2 | ug/L | | | 1.00 | 4.0 | | 07/20/08 |
| Nickel | 7440-02-0 | LA-505-411 | | 9.20 | ug/L | | | 1.00 | 4.0 | | 07/20/08 |
| Potassium | 7440-09-7 | LA-505-411 | | 3.96e+03 | ug/L | | | 1.00 | 1.7e+02 | | 07/20/08 |
| Silver | 7440-22-4 | LA-505-411 | U | < 5.00 | ug/L | | | 1.00 | 5.0 | | 07/20/08 |
| Sodium | 7440-23-5 | LA-505-411 | | 3.42e+04 | ug/L | | | 1.00 | 51 | | 07/20/08 |
| Antimony | 7440-36-0 | LA-505-411 | U | < 56.0 | ug/L | | | 1.00 | 56 | | 07/20/08 |
| Barium | 7440-39-3 | LA-505-411 | | 74.7 | ug/L | | | 1.00 | 4.0 | | 07/20/08 |
| Cadmium | 7440-43-9 | LA-505-411 | U | < 4.00 | ug/L | | | 1.00 | 4.0 | | 07/20/08 |
| Chromium | 7440-47-3 | LA-505-411 | | 620 | ug/L | | | 1.00 | 13 | | 07/20/08 |
| Cobalt | 7440-48-4 | LA-505-411 | U | < 4.00 | ug/L | | | 1.00 | 4.0 | | 07/20/08 |
| Copper | 7440-50-8 | LA-505-411 | U | < 6.00 | ug/L | | | 1.00 | 6.0 | | 07/20/08 |
| Vanadium | 7440-62-2 | LA-505-411 | | 18.3 | ug/L | | | 1.00 | 12 | | 07/20/08 |
| Zinc | 7440-66-6 | LA-505-411 | | 12.9 | ug/L | | | 1.00 | 9.0 | | 07/20/08 |
| Calcium | 7440-70-2 | LA-505-411 | | 5.67e+04 | ug/L | | | 1.00 | 73 | | 07/20/08 |
| Strontium | 7440-24-6 | LA-505-411 | | 246 | ug/L | | | 1.00 | 4.0 | | 07/20/08 |

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

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

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# WSCF
# ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35
**SAF Number:** W08-006
**Sample #** W08P002793
**Client ID:** B1VPB3 PNNL-GPP WSCF

**Matrix:** WATER

**Group #:** WSCF20081171
**Department:** Inorganic
**Sampled:** 06/10/08
**Received:** 06/10/08

| Test Performed | CAS # | Method | RQ | Result | Unit | TP Err | Unit | DF | MDL | PQL | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Beryllium | 7440-41-7 | LA-505-411 | U | < 4.00 | ug/L | | | 1.00 | 4.0 | | 07/20/08 |
| **Total Alkalinity as mg/L CaCO3** | | | | | | | | | | | |
| Total Alkalinity as mg/L CaCO3 | ALKALINITY | LA-531-411 | | 80.0 | mg/L | | | 1.00 | 1.0 | | 06/12/08 |

**MDL=Minimum Detection Limit**
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**TP Err=Total Propagated Error**
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D - Analyte was identified at a secondary dilution factor(inorg)
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# WSCF
# ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35
**SAF Number:** W08-006
**Sample #** W08P002794
**Client ID:** B1VPB5 PNNL-GPP WSCF

**Matrix:** WATER

**Group #:** WSCF20081171
**Department:** Inorganic
**Sampled:** 06/10/08
**Received:** 06/10/08

| Test Performed | CAS # | Method | RQ | Result | Unit | TP Err | Unit | DF | MDL | PQL | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **ICP Metals Analysis, Grd H20 P Prep** | | | | | | | | | | | **07/17/08** |
| **ICP Metals Analysis, Grd H20 P** | | | | | | | | | | | |
| Iron | 7439-89-6 | LA-505-411 | U | < 25.0 | ug/L | | | 1.00 | 25 | | 07/20/08 |
| Magnesium | 7439-95-4 | LA-505-411 | | 9.72e+03 | ug/L | | | 1.00 | 50 | | 07/20/08 |
| Manganese | 7439-96-5 | LA-505-411 | U | < 4.00 | ug/L | | | 1.00 | 4.0 | | 07/20/08 |
| Nickel | 7440-02-0 | LA-505-411 | U | < 4.00 | ug/L | | | 1.00 | 4.0 | | 07/20/08 |
| Potassium | 7440-09-7 | LA-505-411 | | 3.38e+03 | ug/L | | | 1.00 | 1.7e+02 | | 07/20/08 |
| Silver | 7440-22-4 | LA-505-411 | U | < 5.00 | ug/L | | | 1.00 | 5.0 | | 07/20/08 |
| Sodium | 7440-23-5 | LA-505-411 | | 2.57e+04 | ug/L | | | 1.00 | 51 | | 07/20/08 |
| Antimony | 7440-36-0 | LA-505-411 | U | < 56.0 | ug/L | | | 1.00 | 56 | | 07/20/08 |
| Barium | 7440-39-3 | LA-505-411 | | 44.8 | ug/L | | | 1.00 | 4.0 | | 07/20/08 |
| Cadmium | 7440-43-9 | LA-505-411 | U | < 4.00 | ug/L | | | 1.00 | 4.0 | | 07/20/08 |
| Chromium | 7440-47-3 | LA-505-411 | U | < 13.0 | ug/L | | | 1.00 | 13 | | 07/20/08 |
| Cobalt | 7440-48-4 | LA-505-411 | U | < 4.00 | ug/L | | | 1.00 | 4.0 | | 07/20/08 |
| Copper | 7440-50-8 | LA-505-411 | U | < 6.00 | ug/L | | | 1.00 | 6.0 | | 07/20/08 |
| Vanadium | 7440-62-2 | LA-505-411 | | 23.1 | ug/L | | | 1.00 | 12 | | 07/20/08 |
| Zinc | 7440-66-6 | LA-505-411 | U | < 9.00 | ug/L | | | 1.00 | 9.0 | | 07/20/08 |
| Calcium | 7440-70-2 | LA-505-411 | | 3.34e+04 | ug/L | | | 1.00 | 73 | | 07/20/08 |
| Strontium | 7440-24-6 | LA-505-411 | | 152 | ug/L | | | 1.00 | 4.0 | | 07/20/08 |
| Beryllium | 7440-41-7 | LA-505-411 | U | < 4.00 | ug/L | | | 1.00 | 4.0 | | 07/20/08 |

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

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U - Analyzed for but not detected above limiting criteria(inorg)

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J - Analyte < lowest calibration but > = MDL.(org)
U - Analyzed for but not detected above limiting criteria.(org)

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# WSCF
# ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35
**SAF Number:** W08-006
**Sample #** W08P002795
**Client ID:** B1VPB6 PNNL-GPP WSCF

**Matrix:** WATER

**Group #:** WSCF20081171
**Department:** Inorganic
**Sampled:** 06/10/08
**Received:** 06/10/08

| Test Performed | CAS # | Method | RQ | Result | Unit | TP Err | Unit | DF | MDL | PQL | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Anions by Ion Chromatography** | | | | | | | | | | | |
| Fluoride | 16984-48-8 | LA-533-410 | D | 0.345 | mg/L | | | 2.00 | 0.042 | | 06/11/08 |
| Chloride | 16887-00-6 | LA-533-410 | D | 15.3 | mg/L | | | 2.00 | 0.22 | | 06/11/08 |
| Nitrogen in Nitrite | NO2-N | LA-533-410 | DU | < 0.0198 | mg/L | | | 2.00 | 0.020 | | 06/11/08 |
| Nitrogen in Nitrate | NO3-N | LA-533-410 | D | 14.9 | mg/L | | | 10.00 | 0.36 | | 06/11/08 |
| Sulfate | 14808-79-8 | LA-533-410 | D | 27.3 | mg/L | | | 2.00 | 0.15 | | 06/11/08 |
| **ICP Metals Analysis, Grd H20 P Prep** | | | | | | | | | | | **07/17/08** |
| **ICP Metals Analysis, Grd H20 P** | | | | | | | | | | | |
| Iron | 7439-89-6 | LA-505-411 | | 144 | ug/L | | | 1.00 | 25 | | 07/20/08 |
| Magnesium | 7439-95-4 | LA-505-411 | | 9.70e+03 | ug/L | | | 1.00 | 50 | | 07/20/08 |
| Manganese | 7439-96-5 | LA-505-411 | U | < 4.00 | ug/L | | | 1.00 | 4.0 | | 07/20/08 |
| Nickel | 7440-02-0 | LA-505-411 | | 10.3 | ug/L | | | 1.00 | 4.0 | | 07/20/08 |
| Potassium | 7440-09-7 | LA-505-411 | | 3.35e+03 | ug/L | | | 1.00 | 1.7e+02 | | 07/20/08 |
| Silver | 7440-22-4 | LA-505-411 | U | < 5.00 | ug/L | | | 1.00 | 5.0 | | 07/20/08 |
| Sodium | 7440-23-5 | LA-505-411 | | 2.52e+04 | ug/L | | | 1.00 | 51 | | 07/20/08 |
| Antimony | 7440-36-0 | LA-505-411 | U | < 56.0 | ug/L | | | 1.00 | 56 | | 07/20/08 |
| Barium | 7440-39-3 | LA-505-411 | | 45.5 | ug/L | | | 1.00 | 4.0 | | 07/20/08 |
| Cadmium | 7440-43-9 | LA-505-411 | U | < 4.00 | ug/L | | | 1.00 | 4.0 | | 07/20/08 |
| Chromium | 7440-47-3 | LA-505-411 | | 22.5 | ug/L | | | 1.00 | 13 | | 07/20/08 |
| Cobalt | 7440-48-4 | LA-505-411 | U | < 4.00 | ug/L | | | 1.00 | 4.0 | | 07/20/08 |
| Copper | 7440-50-8 | LA-505-411 | U | < 6.00 | ug/L | | | 1.00 | 6.0 | | 07/20/08 |
| Vanadium | 7440-62-2 | LA-505-411 | | 23.6 | ug/L | | | 1.00 | 12 | | 07/20/08 |
| Zinc | 7440-66-6 | LA-505-411 | U | < 9.00 | ug/L | | | 1.00 | 9.0 | | 07/20/08 |
| Calcium | 7440-70-2 | LA-505-411 | | 3.33e+04 | ug/L | | | 1.00 | 73 | | 07/20/08 |
| Strontium | 7440-24-6 | LA-505-411 | | 151 | ug/L | | | 1.00 | 4.0 | | 07/20/08 |

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

B - The analyte < the RDL but > = the IDL/MDL (inorg)
E - Analyte is an estimate, has potentially larger errors.(org)
U - Analyzed for but not detected above limiting criteria(inorg)

D - Analyte was identified at a secondary dilution factor(inorg)
J - Analyte < lowest calibration but > = MDL.(org)
U - Analyzed for but not detected above limiting criteria.(org)

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

# WSCF
# ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35
**SAF Number:** W08-006
**Sample #** W08P002795
**Client ID:** B1VPB6 PNNL-GPP WSCF

**Matrix:** WATER

**Group #:** WSCF20081171
**Department:** Inorganic
**Sampled:** 06/10/08
**Received:** 06/10/08

| Test Performed | CAS # | Method | RQ | Result | Unit | TP Err | Unit | DF | MDL | PQL | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Beryllium | 7440-41-7 | LA-505-411 | U | < 4.00 | ug/L | | | 1.00 | 4.0 | | 07/20/08 |
| **Total Alkalinity as mg/L CaCO3** | | | | | | | | | | | |
| Total Alkalinity as mg/L CaCO3 | ALKALINITY | LA-531-411 | | 87.0 | mg/L | | | 1.00 | 1.0 | | 06/12/08 |

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

B - The analyte < the RDL but > = the IDL/MDL (inorg)
E - Analyte is an estimate, has potentially larger errors.(org)
U - Analyzed for but not detected above limiting criteria(inorg)

D - Analyte was identified at a secondary dilution factor(inorg)
J - Analyte < lowest calibration but > = MDL.(org)
U - Analyzed for but not detected above limiting criteria.(org)

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# WSCF
# ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35
**SAF Number:** I08-044
**Sample #** W08P002797
**Client ID:** B1VTR8 PNNL-GPP WSCF

**Matrix:** WATER

**Group #:** WSCF20081171
**Department:** Inorganic
**Sampled:** 06/10/08
**Received:** 06/10/08

| Test Performed | CAS # | Method | RQ | Result | Unit | TP Err | Unit | DF | MDL | PQL | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Anions by Ion Chromatography** | | | | | | | | | | | |
| Fluoride | 16984-48-8 | LA-533-410 | D | 0.250 | mg/L | | | 2.00 | 0.042 | | 06/11/08 |
| Chloride | 16887-00-6 | LA-533-410 | D | 29.6 | mg/L | | | 10.00 | 1.1 | | 06/11/08 |
| Nitrogen in Nitrite | NO2-N | LA-533-410 | BD | 0.0502 | mg/L | | | 2.00 | 0.020 | | 06/11/08 |
| Nitrogen in Nitrate | NO3-N | LA-533-410 | D | 7.32 | mg/L | | | 2.00 | 0.072 | | 06/11/08 |
| Sulfate | 14808-79-8 | LA-533-410 | D | 67.6 | mg/L | | | 2.00 | 0.15 | | 06/11/08 |

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

B - The analyte < the RDL but > = the IDL/MDL (inorg)
E - Analyte is an estimate, has potentially larger errors.(org)
U - Analyzed for but not detected above limiting criteria(inorg)

D - Analyte was identified at a secondary dilution factor(inorg)
J - Analyte < lowest calibration but > = MDL.(org)
U - Analyzed for but not detected above limiting criteria.(org)

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

# WSCF
# ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35
**SAF Number:** W08-006
**Sample #** W08P002798
**Client ID:** B1VR74 PNNL-GPP WSCF

**Matrix:** WATER

**Group #:** WSCF20081171
**Department:** Inorganic
**Sampled:** 06/10/08
**Received:** 06/10/08

| Test Performed | CAS # | Method | RQ | Result | Unit | TP Err | Unit | DF | MDL | PQL | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **ICP Metals Analysis, Grd H20 P Prep** | | | | | | | | | | | **07/17/08** |
| **ICP Metals Analysis, Grd H20 P** | | | | | | | | | | | |
| Iron | 7439-89-6 | LA-505-411 | | 52.9 | ug/L | | | 1.00 | 25 | | 07/20/08 |
| Magnesium | 7439-95-4 | LA-505-411 | | 1.50e+04 | ug/L | | | 1.00 | 50 | | 07/20/08 |
| Manganese | 7439-96-5 | LA-505-411 | | 4.30 | ug/L | | | 1.00 | 4.0 | | 07/20/08 |
| Nickel | 7440-02-0 | LA-505-411 | U | < 4.00 | ug/L | | | 1.00 | 4.0 | | 07/20/08 |
| Potassium | 7440-09-7 | LA-505-411 | | 5.26e+03 | ug/L | | | 1.00 | 1.7e+02 | | 07/20/08 |
| Silver | 7440-22-4 | LA-505-411 | U | < 5.00 | ug/L | | | 1.00 | 5.0 | | 07/20/08 |
| Sodium | 7440-23-5 | LA-505-411 | | 1.42e+04 | ug/L | | | 1.00 | 51 | | 07/20/08 |
| Antimony | 7440-36-0 | LA-505-411 | U | < 56.0 | ug/L | | | 1.00 | 56 | | 07/20/08 |
| Barium | 7440-39-3 | LA-505-411 | | 40.4 | ug/L | | | 1.00 | 4.0 | | 07/20/08 |
| Cadmium | 7440-43-9 | LA-505-411 | U | < 4.00 | ug/L | | | 1.00 | 4.0 | | 07/20/08 |
| Chromium | 7440-47-3 | LA-505-411 | U | < 13.0 | ug/L | | | 1.00 | 13 | | 07/20/08 |
| Cobalt | 7440-48-4 | LA-505-411 | U | < 4.00 | ug/L | | | 1.00 | 4.0 | | 07/20/08 |
| Copper | 7440-50-8 | LA-505-411 | U | < 6.00 | ug/L | | | 1.00 | 6.0 | | 07/20/08 |
| Vanadium | 7440-62-2 | LA-505-411 | | 21.5 | ug/L | | | 1.00 | 12 | | 07/20/08 |
| Zinc | 7440-66-6 | LA-505-411 | U | < 9.00 | ug/L | | | 1.00 | 9.0 | | 07/20/08 |
| Calcium | 7440-70-2 | LA-505-411 | | 5.73e+04 | ug/L | | | 1.00 | 73 | | 07/20/08 |
| Strontium | 7440-24-6 | LA-505-411 | | 311 | ug/L | | | 1.00 | 4.0 | | 07/20/08 |
| Beryllium | 7440-41-7 | LA-505-411 | U | < 4.00 | ug/L | | | 1.00 | 4.0 | | 07/20/08 |
| **ICP-200.8 MS All possible meta Prep** | | | | | | | | | | | **06/24/08** |
| **ICP-200.8 MS All possible meta** | | | | | | | | | | | |
| Lead | 7439-92-1 | LA-505-412 | U | < 0.100 | ug/L | | | 1.00 | 0.100 | | 06/25/06 |

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

B - The analyte < the RDL but >= the IDL/MDL (inorg)
E - Analyte is an estimate, has potentially larger errors.(org)
U - Analyzed for but not detected above limiting criteria(inorg)

D - Analyte was identified at a secondary dilution factor(inorg)
J - Analyte < lowest calibration but >= MDL.(org)
U - Analyzed for but not detected above limiting criteria.(org)

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

# WSCF
# ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35
**SAF Number:** W08-006
**Sample #** W08P002799
**Client ID:** B1VR54 PNNL-GPP WSCF

**Matrix:** WATER

**Group #:** WSCF20081171
**Department:** Inorganic
**Sampled:** 06/10/08
**Received:** 06/10/08

| Test Performed | CAS # | Method | RQ | Result | Unit | TP Err | Unit | DF | MDL | PQL | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **ICP Metals Analysis, Grd H20 P Prep** | | | | | | | | | | | **07/17/08** |
| **ICP Metals Analysis, Grd H20 P** | | | | | | | | | | | |
| Iron | 7439-89-6 | LA-505-411 | U | < 25.0 | ug/L | | | 1.00 | 25 | | 07/20/08 |
| Magnesium | 7439-95-4 | LA-505-411 | | 1.49e+04 | ug/L | | | 1.00 | 50 | | 07/20/08 |
| Manganese | 7439-96-5 | LA-505-411 | U | < 4.00 | ug/L | | | 1.00 | 4.0 | | 07/20/08 |
| Nickel | 7440-02-0 | LA-505-411 | U | < 4.00 | ug/L | | | 1.00 | 4.0 | | 07/20/08 |
| Potassium | 7440-09-7 | LA-505-411 | | 5.39e+03 | ug/L | | | 1.00 | 1.7e+02 | | 07/20/08 |
| Silver | 7440-22-4 | LA-505-411 | U | < 5.00 | ug/L | | | 1.00 | 5.0 | | 07/20/08 |
| Sodium | 7440-23-5 | LA-505-411 | | 1.39e+04 | ug/L | | | 1.00 | 51 | | 07/20/08 |
| Antimony | 7440-36-0 | LA-505-411 | U | < 56.0 | ug/L | | | 1.00 | 56 | | 07/20/08 |
| Barium | 7440-39-3 | LA-505-411 | | 36.6 | ug/L | | | 1.00 | 4.0 | | 07/20/08 |
| Cadmium | 7440-43-9 | LA-505-411 | U | < 4.00 | ug/L | | | 1.00 | 4.0 | | 07/20/08 |
| Chromium | 7440-47-3 | LA-505-411 | U | < 13.0 | ug/L | | | 1.00 | 13 | | 07/20/08 |
| Cobalt | 7440-48-4 | LA-505-411 | U | < 4.00 | ug/L | | | 1.00 | 4.0 | | 07/20/08 |
| Copper | 7440-50-8 | LA-505-411 | U | < 6.00 | ug/L | | | 1.00 | 6.0 | | 07/20/08 |
| Vanadium | 7440-62-2 | LA-505-411 | | 23.6 | ug/L | | | 1.00 | 12 | | 07/20/08 |
| Zinc | 7440-66-6 | LA-505-411 | U | < 9.00 | ug/L | | | 1.00 | 9.0 | | 07/20/08 |
| Calcium | 7440-70-2 | LA-505-411 | | 5.68e+04 | ug/L | | | 1.00 | 73 | | 07/20/08 |
| Strontium | 7440-24-6 | LA-505-411 | | 316 | ug/L | | | 1.00 | 4.0 | | 07/20/08 |
| Beryllium | 7440-41-7 | LA-505-411 | U | < 4.00 | ug/L | | | 1.00 | 4.0 | | 07/20/08 |
| **ICP-200.8 MS All possible meta Prep** | | | | | | | | | | | **06/24/08** |
| **ICP-200.8 MS All possible meta** | | | | | | | | | | | |
| Lead | 7439-92-1 | LA-505-412 | U | < 0.100 | ug/L | | | 1.00 | 0.100 | | 06/25/08 |

**MDL=Minimum Detection Limit**
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E - Analyte is an estimate, has potentially larger errors.(org)
U - Analyzed for but not detected above limiting criteria(inorg)

D - Analyte was identified at a secondary dilution factor(inorg)
J - Analyte < lowest calibration but > = MDL.(org)
U - Analyzed for but not detected above limiting criteria.(org)

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# WSCF
# ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35
**SAF Number:** W08-006
**Sample #** W08P002800
**Client ID:** B1VR84 PNNL-GPP WSCF

**Matrix:** WATER

**Group #:** WSCF20081171
**Department:** Inorganic
**Sampled:** 06/10/08
**Received:** 06/10/08

| Test Performed | CAS # | Method | RQ | Result | Unit | TP Err | Unit | DF | MDL | PQL | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **ICP Metals Analysis, Grd H20 P Prep** | | | | | | | | | | | **07/17/08** |
| **ICP Metals Analysis, Grd H20 P** | | | | | | | | | | | |
| Iron | 7439-89-6 | LA-505-411 | U | < 25.0 | ug/L | | | 1.00 | 25 | | 07/20/08 |
| Magnesium | 7439-95-4 | LA-505-411 | | 1.92e+04 | ug/L | | | 1.00 | 50 | | 07/20/08 |
| Manganese | 7439-96-5 | LA-505-411 | U | < 4.00 | ug/L | | | 1.00 | 4.0 | | 07/20/08 |
| Nickel | 7440-02-0 | LA-505-411 | U | < 4.00 | ug/L | | | 1.00 | 4.0 | | 07/20/08 |
| Potassium | 7440-09-7 | LA-505-411 | | 5.81e+03 | ug/L | | | 1.00 | 1.7e+02 | | 07/20/08 |
| Silver | 7440-22-4 | LA-505-411 | U | < 5.00 | ug/L | | | 1.00 | 5.0 | | 07/20/08 |
| Sodium | 7440-23-5 | LA-505-411 | | 1.74e+04 | ug/L | | | 1.00 | 51 | | 07/20/08 |
| Antimony | 7440-36-0 | LA-505-411 | U | < 56.0 | ug/L | | | 1.00 | 56 | | 07/20/08 |
| Barium | 7440-39-3 | LA-505-411 | | 52.2 | ug/L | | | 1.00 | 4.0 | | 07/20/08 |
| Cadmium | 7440-43-9 | LA-505-411 | U | < 4.00 | ug/L | | | 1.00 | 4.0 | | 07/20/08 |
| Chromium | 7440-47-3 | LA-505-411 | U | < 13.0 | ug/L | | | 1.00 | 13 | | 07/20/08 |
| Cobalt | 7440-48-4 | LA-505-411 | U | < 4.00 | ug/L | | | 1.00 | 4.0 | | 07/20/08 |
| Copper | 7440-50-8 | LA-505-411 | U | < 6.00 | ug/L | | | 1.00 | 6.0 | | 07/20/08 |
| Vanadium | 7440-62-2 | LA-505-411 | | 22.4 | ug/L | | | 1.00 | 12 | | 07/20/08 |
| Zinc | 7440-66-6 | LA-505-411 | U | < 9.00 | ug/L | | | 1.00 | 9.0 | | 07/20/08 |
| Calcium | 7440-70-2 | LA-505-411 | | 7.22e+04 | ug/L | | | 1.00 | 73 | | 07/20/08 |
| Strontium | 7440-24-6 | LA-505-411 | | 374 | ug/L | | | 1.00 | 4.0 | | 07/20/08 |
| Beryllium | 7440-41-7 | LA-505-411 | U | < 4.00 | ug/L | | | 1.00 | 4.0 | | 07/20/08 |
| **ICP-200.8 MS All possible meta Prep** | | | | | | | | | | | **06/24/08** |
| **ICP-200.8 MS All possible meta** | | | | | | | | | | | |
| Lead | 7439-92-1 | LA-505-412 | U | < 0.100 | ug/L | | | 1.00 | 0.100 | | 06/25/08 |

**MDL=Minimum Detection Limit**
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E - Analyte is an estimate, has potentially larger errors.(org)
U - Analyzed for but not detected above limiting criteria(inorg)

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J - Analyte < lowest calibration but > = MDL.(org)
U - Analyzed for but not detected above limiting criteria.(org)

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# WSCF
# ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35
**SAF Number:** W08-006
**Sample #** W08P002801
**Client ID:** B1VR32 PNNL-GPP WSCF

**Matrix:** WATER

**Group #:** WSCF20081171
**Department:** Inorganic
**Sampled:** 06/10/08
**Received:** 06/10/08

| Test Performed | CAS # | Method | RQ | Result | Unit | TP Err | Unit | DF | MDL | PQL | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **ICP Metals Analysis, Grd H20 P Prep** | | | | | | | | | | | **07/17/08** |
| **ICP Metals Analysis, Grd H20 P** | | | | | | | | | | | |
| Iron | 7439-89-6 | LA-505-411 | U | < 25.0 | ug/L | | | 1.00 | 25 | | 07/20/08 |
| Magnesium | 7439-95-4 | LA-505-411 | | 1.15e+04 | ug/L | | | 1.00 | 50 | | 07/20/08 |
| Manganese | 7439-96-5 | LA-505-411 | U | < 4.00 | ug/L | | | 1.00 | 4.0 | | 07/20/08 |
| Nickel | 7440-02-0 | LA-505-411 | U | < 4.00 | ug/L | | | 1.00 | 4.0 | | 07/20/08 |
| Potassium | 7440-09-7 | LA-505-411 | | 5.20e+03 | ug/L | | | 1.00 | 1.7e+02 | | 07/20/08 |
| Silver | 7440-22-4 | LA-505-411 | U | < 5.00 | ug/L | | | 1.00 | 5.0 | | 07/20/08 |
| Sodium | 7440-23-5 | LA-505-411 | | 1.84e+04 | ug/L | | | 1.00 | 51 | | 07/20/08 |
| Antimony | 7440-36-0 | LA-505-411 | U | < 56.0 | ug/L | | | 1.00 | 56 | | 07/20/08 |
| Barium | 7440-39-3 | LA-505-411 | | 27.4 | ug/L | | | 1.00 | 4.0 | | 07/20/08 |
| Cadmium | 7440-43-9 | LA-505-411 | U | < 4.00 | ug/L | | | 1.00 | 4.0 | | 07/20/08 |
| Chromium | 7440-47-3 | LA-505-411 | U | < 13.0 | ug/L | | | 1.00 | 13 | | 07/20/08 |
| Cobalt | 7440-48-4 | LA-505-411 | U | < 4.00 | ug/L | | | 1.00 | 4.0 | | 07/20/08 |
| Copper | 7440-50-8 | LA-505-411 | U | < 6.00 | ug/L | | | 1.00 | 6.0 | | 07/20/08 |
| Vanadium | 7440-62-2 | LA-505-411 | | 23.4 | ug/L | | | 1.00 | 12 | | 07/20/08 |
| Zinc | 7440-66-6 | LA-505-411 | U | < 9.00 | ug/L | | | 1.00 | 9.0 | | 07/20/08 |
| Calcium | 7440-70-2 | LA-505-411 | | 4.30e+04 | ug/L | | | 1.00 | 73 | | 07/20/08 |
| Strontium | 7440-24-6 | LA-505-411 | | 219 | ug/L | | | 1.00 | 4.0 | | 07/20/08 |
| Beryllium | 7440-41-7 | LA-505-411 | U | < 4.00 | ug/L | | | 1.00 | 4.0 | | 07/20/08 |
| **ICP-200.8 MS All possible meta Prep** | | | | | | | | | | | **06/24/08** |
| **ICP-200.8 MS All possible meta** | | | | | | | | | | | |
| Lead | 7439-92-1 | LA-505-412 | U | < 0.100 | ug/L | | | 1.00 | 0.100 | | 06/25/08 |

**MDL=Minimum Detection Limit**
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E - Analyte is an estimate, has potentially larger errors.(org)
U - Analyzed for but not detected above limiting criteria(inorg)

D - Analyte was identified at a secondary dilution factor(inorg)
J - Analyte < lowest calibration but > = MDL.(org)
U - Analyzed for but not detected above limiting criteria.(org)

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

# WSCF
# ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35
**SAF Number:** W08-006
**Sample #** W08P002802
**Client ID:** B1VR75 PNNL-GPP WSCF

**Matrix:** WATER

**Group #:** WSCF20081171
**Department:** Inorganic
**Sampled:** 06/10/08
**Received:** 06/10/08

| Test Performed | CAS # | Method | RQ | Result | Unit | TP Err | Unit | DF | MDL | PQL | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Anions by Ion Chromatography** | | | | | | | | | | | |
| Fluoride | 16984-48-8 | LA-533-410 | BD | 0.145 | mg/L | | | 2.00 | 0.042 | | 06/11/08 |
| Chloride | 16887-00-6 | LA-533-410 | D | 16.6 | mg/L | | | 2.00 | 0.22 | | 06/11/08 |
| Nitrogen in Nitrite | NO2-N | LA-533-410 | DU | < 0.0198 | mg/L | | | 2.00 | 0.020 | | 06/11/08 |
| Nitrogen in Nitrate | NO3-N | LA-533-410 | D | 6.89 | mg/L | | | 2.00 | 0.072 | | 06/11/08 |
| Sulfate | 14808-79-8 | LA-533-410 | D | 113 | mg/L | | | 10.00 | 0.77 | | 06/11/08 |
| **ICP Metals Analysis, Grd H20 P Prep** | | | | | | | | | | | **07/17/08** |
| **ICP Metals Analysis, Grd H20 P** | | | | | | | | | | | |
| Iron | 7439-89-6 | LA-505-411 | | 119 | ug/L | | | 1.00 | 25 | | 07/20/08 |
| Magnesium | 7439-95-4 | LA-505-411 | | 1.61e+04 | ug/L | | | 1.00 | 50 | | 07/20/08 |
| Manganese | 7439-96-5 | LA-505-411 | U | < 4.00 | ug/L | | | 1.00 | 4.0 | | 07/20/08 |
| Nickel | 7440-02-0 | LA-505-411 | | 6.10 | ug/L | | | 1.00 | 4.0 | | 07/20/08 |
| Potassium | 7440-09-7 | LA-505-411 | | 5.63e+03 | ug/L | | | 1.00 | 1.7e+02 | | 07/20/08 |
| Silver | 7440-22-4 | LA-505-411 | U | < 5.00 | ug/L | | | 1.00 | 5.0 | | 07/20/08 |
| Sodium | 7440-23-5 | LA-505-411 | | 1.52e+04 | ug/L | | | 1.00 | 51 | | 07/20/08 |
| Antimony | 7440-36-0 | LA-505-411 | U | < 56.0 | ug/L | | | 1.00 | 56 | | 07/20/08 |
| Barium | 7440-39-3 | LA-505-411 | | 43.6 | ug/L | | | 1.00 | 4.0 | | 07/20/08 |
| Cadmium | 7440-43-9 | LA-505-411 | U | < 4.00 | ug/L | | | 1.00 | 4.0 | | 07/20/08 |
| Chromium | 7440-47-3 | LA-505-411 | | 13.6 | ug/L | | | 1.00 | 13 | | 07/20/08 |
| Cobalt | 7440-48-4 | LA-505-411 | U | < 4.00 | ug/L | | | 1.00 | 4.0 | | 07/20/08 |
| Copper | 7440-50-8 | LA-505-411 | U | < 6.00 | ug/L | | | 1.00 | 6.0 | | 07/20/08 |
| Vanadium | 7440-62-2 | LA-505-411 | | 24.1 | ug/L | | | 1.00 | 12 | | 07/20/08 |
| Zinc | 7440-66-6 | LA-505-411 | U | < 9.00 | ug/L | | | 1.00 | 9.0 | | 07/20/08 |
| Calcium | 7440-70-2 | LA-505-411 | | 6.08e+04 | ug/L | | | 1.00 | 73 | | 07/20/08 |
| Strontium | 7440-24-6 | LA-505-411 | | 331 | ug/L | | | 1.00 | 4.0 | | 07/20/08 |

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

B - The analyte < the RDL but > = the IDL/MDL (inorg)
E - Analyte is an estimate, has potentially larger errors.(org)
U - Analyzed for but not detected above limiting criteria(inorg)

D - Analyte was identified at a secondary dilution factor(inorg)
J - Analyte < lowest calibration but > = MDL.(org)
U - Analyzed for but not detected above limiting criteria.(org)

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

# WSCF
# ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35
**SAF Number:** W08-006
**Sample #** W08P002802
**Client ID:** B1VR75 PNNL-GPP WSCF

**Matrix:** WATER

**Group #:** WSCF20081171
**Department:** Inorganic
**Sampled:** 06/10/08
**Received:** 06/10/08

| Test Performed | CAS # | Method | RQ | Result | Unit | TP Err | Unit | DF | MDL | PQL | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Beryllium | 7440-41-7 | LA-505-411 | U | < 4.00 | ug/L | | | 1.00 | 4.0 | | 07/20/08 |
| **ICP-200.8 MS All possible meta Prep** | | | | | | | | | | | **06/24/08** |
| **ICP-200.8 MS All possible meta** | | | | | | | | | | | |
| Lead | 7439-92-1 | LA-505-412 | | 0.150 | ug/L | | | 1.00 | 0.100 | | 06/25/08 |
| **Total Alkalinity as mg/L CaCO3** | | | | | | | | | | | |
| Total Alkalinity as mg/L CaCO3 | ALKALINITY | LA-531-411 | | 93.0 | mg/L | | | 1.00 | 1.0 | | 06/12/08 |

**MDL=Minimum Detection Limit**
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**DF=Dilution Factor**

B - The analyte < the RDL but >= the IDL/MDL (inorg)
E - Analyte is an estimate, has potentially larger errors.(org)
U - Analyzed for but not detected above limiting criteria(inorg)

D - Analyte was identified at a secondary dilution factor(inorg)
J - Analyte < lowest calibration but >= MDL.(org)
U - Analyzed for but not detected above limiting criteria.(org)

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# WSCF
# ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35
**SAF Number:** W08-006
**Sample #** W08P002803
**Client ID:** B1VR55 PNNL-GPP WSCF

**Matrix:** WATER

**Group #:** WSCF20081171
**Department:** Inorganic
**Sampled:** 06/10/08
**Received:** 06/10/08

| Test Performed | CAS # | Method | RQ | Result | Unit | TP Err | Unit | DF | MDL | PQL | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Anions by Ion Chromatography** | | | | | | | | | | | |
| Fluoride | 16984-48-8 | LA-533-410 | BD | 0.130 | mg/L | | | 2.00 | 0.042 | | 06/11/08 |
| Chloride | 16887-00-6 | LA-533-410 | D | 20.2 | mg/L | | | 2.00 | 0.22 | | 06/11/08 |
| Nitrogen in Nitrite | NO2-N | LA-533-410 | DU | < 0.0198 | mg/L | | | 2.00 | 0.020 | | 06/11/08 |
| Nitrogen in Nitrate | NO3-N | LA-533-410 | D | 4.24 | mg/L | | | 2.00 | 0.072 | | 06/11/08 |
| Sulfate | 14808-79-8 | LA-533-410 | D | 96.4 | mg/L | | | 2.00 | 0.15 | | 06/11/08 |
| **ICP Metals Analysis, Grd H20 P Prep** | | | | | | | | | | | **07/17/08** |
| **ICP Metals Analysis, Grd H20 P** | | | | | | | | | | | |
| Iron | 7439-89-6 | LA-505-411 | | 195 | ug/L | | | 1.00 | 25 | | 07/20/08 |
| Magnesium | 7439-95-4 | LA-505-411 | | 1.47e+04 | ug/L | | | 1.00 | 50 | | 07/20/08 |
| Manganese | 7439-96-5 | LA-505-411 | | 6.80 | ug/L | | | 1.00 | 4.0 | | 07/20/08 |
| Nickel | 7440-02-0 | LA-505-411 | U | < 4.00 | ug/L | | | 1.00 | 4.0 | | 07/20/08 |
| Potassium | 7440-09-7 | LA-505-411 | | 5.52e+03 | ug/L | | | 1.00 | 1.7e+02 | | 07/20/08 |
| Silver | 7440-22-4 | LA-505-411 | U | < 5.00 | ug/L | | | 1.00 | 5.0 | | 07/20/08 |
| Sodium | 7440-23-5 | LA-505-411 | | 1.41e+04 | ug/L | | | 1.00 | 51 | | 07/20/08 |
| Antimony | 7440-36-0 | LA-505-411 | U | < 56.0 | ug/L | | | 1.00 | 56 | | 07/20/08 |
| Barium | 7440-39-3 | LA-505-411 | | 36.0 | ug/L | | | 1.00 | 4.0 | | 07/20/08 |
| Cadmium | 7440-43-9 | LA-505-411 | U | < 4.00 | ug/L | | | 1.00 | 4.0 | | 07/20/08 |
| Chromium | 7440-47-3 | LA-505-411 | U | < 13.0 | ug/L | | | 1.00 | 13 | | 07/20/08 |
| Cobalt | 7440-48-4 | LA-505-411 | U | < 4.00 | ug/L | | | 1.00 | 4.0 | | 07/20/08 |
| Copper | 7440-50-8 | LA-505-411 | U | < 6.00 | ug/L | | | 1.00 | 6.0 | | 07/20/08 |
| Vanadium | 7440-62-2 | LA-505-411 | | 23.0 | ug/L | | | 1.00 | 12 | | 07/20/08 |
| Zinc | 7440-66-6 | LA-505-411 | U | < 9.00 | ug/L | | | 1.00 | 9.0 | | 07/20/08 |
| Calcium | 7440-70-2 | LA-505-411 | | 5.47e+04 | ug/L | | | 1.00 | 73 | | 07/20/08 |
| Strontium | 7440-24-6 | LA-505-411 | | 310 | ug/L | | | 1.00 | 4.0 | | 07/20/08 |

**MDL = Minimum Detection Limit**
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**DF = Dilution Factor**

B - The analyte < the RDL but > = the IDL/MDL (inorg)
E - Analyte is an estimate, has potentially larger errors.(org)
U - Analyzed for but not detected above limiting criteria(inorg)

D - Analyte was identified at a secondary dilution factor(inorg)
J - Analyte < lowest calibration but > = MDL.(org)
U - Analyzed for but not detected above limiting criteria.(org)

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

# WSCF
# ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35
**SAF Number:** W08-006
**Sample #** W08P002803
**Client ID:** B1VR55 PNNL-GPP WSCF

**Matrix:** WATER

**Group #:** WSCF20081171
**Department:** Inorganic
**Sampled:** 06/10/08
**Received:** 06/10/08

| Test Performed | CAS # | Method | RQ | Result | Unit | TP Err | Unit | DF | MDL | PQL | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Beryllium | 7440-41-7 | LA-505-411 | U | < 4.00 | ug/L | | | 1.00 | 4.0 | | 07/20/08 |
| **ICP-200.8 MS All possible meta Prep** | | | | | | | | | | | **06/24/08** |
| **ICP-200.8 MS All possible meta** | | | | | | | | | | | |
| Lead | 7439-92-1 | LA-505-412 | U | < 0.100 | ug/L | | | 1.00 | 0.100 | | 06/25/08 |
| **Total Alkalinity as mg/L CaCO3** | | | | | | | | | | | |
| Total Alkalinity as mg/L CaCO3 | ALKALINITY | LA-531-411 | | 97.0 | mg/L | | | 1.00 | 1.0 | | 06/12/08 |

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

B - The analyte < the RDL but >= the IDL/MDL (inorg)
E - Analyte is an estimate, has potentially larger errors.(org)
U - Analyzed for but not detected above limiting criteria(inorg)

D - Analyte was identified at a secondary dilution factor(inorg)
J - Analyte < lowest calibration but >= MDL.(org)
U - Analyzed for but not detected above limiting criteria.(org)

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# WSCF
# ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35
**SAF Number:** W08-006
**Sample #** W08P002804
**Client ID:** B1VR85 PNNL-GPP WSCF

**Matrix:** WATER

**Group #:** WSCF20081171
**Department:** Inorganic
**Sampled:** 06/10/08
**Received:** 06/10/08

| Test Performed | CAS # | Method | RQ | Result | Unit | TP Err | Unit | DF | MDL | PQL | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Anions by Ion Chromatography** | | | | | | | | | | | |
| Fluoride | 16984-48-8 | LA-533-410 | BD | 0.146 | mg/L | | | 2.00 | 0.042 | | 06/12/08 |
| Chloride | 16887-00-6 | LA-533-410 | D | 22.7 | mg/L | | | 2.00 | 0.22 | | 06/12/08 |
| Nitrogen in Nitrite | NO2-N | LA-533-410 | DU | < 0.0198 | mg/L | | | 2.00 | 0.020 | | 06/12/08 |
| Nitrogen in Nitrate | NO3-N | LA-533-410 | D | 12.3 | mg/L | | | 10.00 | 0.36 | | 06/12/08 |
| Sulfate | 14808-79-8 | LA-533-410 | D | 137 | mg/L | | | 10.00 | 0.77 | | 06/12/08 |
| **ICP Metals Analysis, Grd H20 P Prep** | | | | | | | | | | | **07/17/08** |
| **ICP Metals Analysis, Grd H20 P** | | | | | | | | | | | |
| Iron | 7439-89-6 | LA-505-411 | U | < 25.0 | ug/L | | | 1.00 | 25 | | 07/20/08 |
| Magnesium | 7439-95-4 | LA-505-411 | | 1.93e+04 | ug/L | | | 1.00 | 50 | | 07/20/08 |
| Manganese | 7439-96-5 | LA-505-411 | U | < 4.00 | ug/L | | | 1.00 | 4.0 | | 07/20/08 |
| Nickel | 7440-02-0 | LA-505-411 | U | < 4.00 | ug/L | | | 1.00 | 4.0 | | 07/20/08 |
| Potassium | 7440-09-7 | LA-505-411 | | 5.95e+03 | ug/L | | | 1.00 | 1.7e+02 | | 07/20/08 |
| Silver | 7440-22-4 | LA-505-411 | U | < 5.00 | ug/L | | | 1.00 | 5.0 | | 07/20/08 |
| Sodium | 7440-23-5 | LA-505-411 | | 1.76e+04 | ug/L | | | 1.00 | 51 | | 07/20/08 |
| Antimony | 7440-36-0 | LA-505-411 | U | < 56.0 | ug/L | | | 1.00 | 56 | | 07/20/08 |
| Barium | 7440-39-3 | LA-505-411 | | 52.5 | ug/L | | | 1.00 | 4.0 | | 07/20/08 |
| Cadmium | 7440-43-9 | LA-505-411 | U | < 4.00 | ug/L | | | 1.00 | 4.0 | | 07/20/08 |
| Chromium | 7440-47-3 | LA-505-411 | U | < 13.0 | ug/L | | | 1.00 | 13 | | 07/20/08 |
| Cobalt | 7440-48-4 | LA-505-411 | U | < 4.00 | ug/L | | | 1.00 | 4.0 | | 07/20/08 |
| Copper | 7440-50-8 | LA-505-411 | U | < 6.00 | ug/L | | | 1.00 | 6.0 | | 07/20/08 |
| Vanadium | 7440-62-2 | LA-505-411 | | 22.3 | ug/L | | | 1.00 | 12 | | 07/20/08 |
| Zinc | 7440-66-6 | LA-505-411 | U | < 9.00 | ug/L | | | 1.00 | 9.0 | | 07/20/08 |
| Calcium | 7440-70-2 | LA-505-411 | | 7.07e+04 | ug/L | | | 1.00 | 73 | | 07/20/08 |
| Strontium | 7440-24-6 | LA-505-411 | | 373 | ug/L | | | 1.00 | 4.0 | | 07/20/08 |

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D - Analyte was identified at a secondary dilution factor(inorg)
J - Analyte < lowest calibration but > = MDL.(org)
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# WSCF
# ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35
**SAF Number:** W08-006
**Sample #** W08P002804
**Client ID:** B1VR85 PNNL-GPP WSCF

**Matrix:** WATER

**Group #:** WSCF20081171
**Department:** Inorganic
**Sampled:** 06/10/08
**Received:** 06/10/08

| Test Performed | CAS # | Method | RQ | Result | Unit | TP Err | Unit | DF | MDL | PQL | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Beryllium | 7440-41-7 | LA-505-411 | U | < 4.00 | ug/L | | | 1.00 | 4.0 | | 07/20/08 |
| **ICP-200.8 MS All possible meta Prep** | | | | | | | | | | | **06/24/08** |
| **ICP-200.8 MS All possible meta** | | | | | | | | | | | |
| Lead | 7439-92-1 | LA-505-412 | U | < 0.100 | ug/L | | | 1.00 | 0.100 | | 06/25/08 |
| **Total Alkalinity as mg/L CaCO3** | | | | | | | | | | | |
| Total Alkalinity as mg/L CaCO3 | ALKALINITY | LA-531-411 | | 91.0 | mg/L | | | 1.00 | 1.0 | | 06/12/08 |

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

B - The analyte < the RDL but >= the IDL/MDL (inorg)
E - Analyte is an estimate, has potentially larger errors.(org)
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D - Analyte was identified at a secondary dilution factor(inorg)
J - Analyte < lowest calibration but >= MDL.(org)
U - Analyzed for but not detected above limiting criteria.(org)

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# WSCF
# ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35
**SAF Number:** W08-006
**Sample #** W08P002805
**Client ID:** B1VR33 PNNL-GPP WSCF

**Matrix:** WATER

**Group #:** WSCF20081171
**Department:** Inorganic
**Sampled:** 06/10/08
**Received:** 06/10/08

| Test Performed | CAS # | Method | RQ | Result | Unit | TP Err | Unit | DF | MDL | PQL | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Anions by Ion Chromatography** | | | | | | | | | | | |
| Fluoride | 16984-48-8 | LA-533-410 | D | 0.233 | mg/L | | | 2.00 | 0.042 | | 06/12/08 |
| Chloride | 16887-00-6 | LA-533-410 | D | 14.5 | mg/L | | | 2.00 | 0.22 | | 06/12/08 |
| Nitrogen in Nitrite | NO2-N | LA-533-410 | DU | < 0.0198 | mg/L | | | 2.00 | 0.020 | | 06/12/08 |
| Nitrogen in Nitrate | NO3-N | LA-533-410 | D | 2.75 | mg/L | | | 2.00 | 0.072 | | 06/12/08 |
| Sulfate | 14808-79-8 | LA-533-410 | D | 71.9 | mg/L | | | 2.00 | 0.15 | | 06/12/08 |
| **ICP Metals Analysis, Grd H20 P Prep** | | | | | | | | | | | **07/17/08** |
| **ICP Metals Analysis, Grd H20 P** | | | | | | | | | | | |
| Iron | 7439-89-6 | LA-505-411 | U | < 25.0 | ug/L | | | 1.00 | 25 | | 07/20/08 |
| Magnesium | 7439-95-4 | LA-505-411 | | 1.15e+04 | ug/L | | | 1.00 | 50 | | 07/20/08 |
| Manganese | 7439-96-5 | LA-505-411 | U | < 4.00 | ug/L | | | 1.00 | 4.0 | | 07/20/08 |
| Nickel | 7440-02-0 | LA-505-411 | U | < 4.00 | ug/L | | | 1.00 | 4.0 | | 07/20/08 |
| Potassium | 7440-09-7 | LA-505-411 | | 5.28e+03 | ug/L | | | 1.00 | 1.7e+02 | | 07/20/08 |
| Silver | 7440-22-4 | LA-505-411 | U | < 5.00 | ug/L | | | 1.00 | 5.0 | | 07/20/08 |
| Sodium | 7440-23-5 | LA-505-411 | | 1.89e+04 | ug/L | | | 1.00 | 51 | | 07/20/08 |
| Antimony | 7440-36-0 | LA-505-411 | U | < 56.0 | ug/L | | | 1.00 | 56 | | 07/20/08 |
| Barium | 7440-39-3 | LA-505-411 | | 27.4 | ug/L | | | 1.00 | 4.0 | | 07/20/08 |
| Cadmium | 7440-43-9 | LA-505-411 | U | < 4.00 | ug/L | | | 1.00 | 4.0 | | 07/20/08 |
| Chromium | 7440-47-3 | LA-505-411 | U | < 13.0 | ug/L | | | 1.00 | 13 | | 07/20/08 |
| Cobalt | 7440-48-4 | LA-505-411 | U | < 4.00 | ug/L | | | 1.00 | 4.0 | | 07/20/08 |
| Copper | 7440-50-8 | LA-505-411 | U | < 6.00 | ug/L | | | 1.00 | 6.0 | | 07/20/08 |
| Vanadium | 7440-62-2 | LA-505-411 | | 23.4 | ug/L | | | 1.00 | 12 | | 07/20/08 |
| Zinc | 7440-66-6 | LA-505-411 | U | < 9.00 | ug/L | | | 1.00 | 9.0 | | 07/20/08 |
| Calcium | 7440-70-2 | LA-505-411 | | 4.18e+04 | ug/L | | | 1.00 | 73 | | 07/20/08 |
| Strontium | 7440-24-6 | LA-505-411 | | 217 | ug/L | | | 1.00 | 4.0 | | 07/20/08 |

**MDL = Minimum Detection Limit**
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D - Analyte was identified at a secondary dilution factor(inorg)
J - Analyte < lowest calibration but > = MDL.(org)
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# WSCF
# ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35
**SAF Number:** W08-006
**Sample #** W08P002805
**Client ID:** B1VR33 PNNL-GPP WSCF

**Matrix:** WATER

**Group #:** WSCF20081171
**Department:** Inorganic
**Sampled:** 06/10/08
**Received:** 06/10/08

| Test Performed | CAS # | Method | RQ | Result | Unit | TP Err | Unit | DF | MDL | PQL | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Beryllium | 7440-41-7 | LA-505-411 | U | < 4.00 | ug/L | | | 1.00 | 4.0 | | 07/20/08 |
| **ICP-200.8 MS All possible meta Prep** | | | | | | | | | | | **06/24/08** |
| **ICP-200.8 MS All possible meta** | | | | | | | | | | | |
| Lead | 7439-92-1 | LA-505-412 | U | < 0.100 | ug/L | | | 1.00 | 0.100 | | 06/25/08 |
| **Total Alkalinity as mg/L CaCO3** | | | | | | | | | | | |
| Total Alkalinity as mg/L CaCO3 | ALKALINITY | LA-531-411 | | 98.0 | mg/L | | | 1.00 | 1.0 | | 06/20/08 |

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

B - The analyte < the RDL but >= the IDL/MDL (inorg)
E - Analyte is an estimate, has potentially larger errors.(org)
U - Analyzed for but not detected above limiting criteria(inorg)

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J - Analyte < lowest calibration but >= MDL.(org)
U - Analyzed for but not detected above limiting criteria.(org)

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# WSCF ANALYTICAL LABORATORY QC REPORT

**Department:** Inorganic

SDG Number: WSCF20081171
Matrix: WATER
Test: Anions by Ion Chromatography

Sample Date: 06/10/08
Receive Date:06/10/08

| QC Type | Analyte | CAS # | QC Found | QC Yield | Units | Lower Limit | Upper Limit | RPD(%) | RPD Limit | RQ | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Lab ID: W08P002791** | | | | | | | | | | | |
| **BATCH QC ASSOCIATED WITH SAMPLE** | | | | | | | | | | | |
| DUP | Chloride | 16887-00-6 | 5.0818 | | RPD | | | 2.555 | 20.000 | | 06/11/08 |
| DUP | Fluoride | 16984-48-8 | 0.3872 | | RPD | | | 7.447 | 20.000 | | 06/11/08 |
| DUP | Nitrogen in Nitrite | NO2-N | <1.98e-2 | | RPD | | | n/a | 20.000 | U | 06/11/08 |
| DUP | Nitrogen in Nitrate | NO3-N | 1.7599 | | RPD | | | 0.678 | 20.000 | | 06/11/08 |
| DUP | Sulfate | 14808-79-8 | 14.9004 | | RPD | | | 1.809 | 20.000 | | 06/11/08 |
| MS | Chloride | 16887-00-6 | 1.08136 | 108.679 | % Recov | 80.000 | 120.000 | | | | 06/11/08 |
| MS | Fluoride | 16984-48-8 | 0.53006 | 107.517 | % Recov | 80.000 | 120.000 | | | | 06/11/08 |
| MS | Nitrogen in Nitrite | NO2-N | 0.47262 | 96.061 | % Recov | 80.000 | 120.000 | | | | 06/11/08 |
| MS | Nitrogen in Nitrate | NO3-N | 0.45488 | 101.991 | % Recov | 80.000 | 120.000 | | | | 06/11/08 |
| MS | Sulfate | 14808-79-8 | 1.9683 | 100.423 | % Recov | 80.000 | 120.000 | | | | 06/11/08 |
| MSD | Chloride | 16887-00-6 | 1.11828 | 112.390 | % Recov | 80.000 | 120.000 | | | | 06/11/08 |
| MSD | Fluoride | 16984-48-8 | 0.53732 | 108.990 | % Recov | 80.000 | 120.000 | | | | 06/11/08 |
| MSD | Nitrogen in Nitrite | NO2-N | 0.4737 | 96.280 | % Recov | 80.000 | 120.000 | | | | 06/11/08 |
| MSD | Nitrogen in Nitrate | NO3-N | 0.47398 | 106.274 | % Recov | 80.000 | 120.000 | | | | 06/11/08 |
| MSD | Sulfate | 14808-79-8 | 2.01762 | 102.940 | % Recov | 80.000 | 120.000 | | | | 06/11/08 |
| SPK-RPD | Chloride | 16887-00-6 | 112.390 | | RPD | | | 3.357 | 20.000 | | 06/12/08 |
| SPK-RPD | Fluoride | 16984-48-8 | 108.990 | | RPD | | | 1.361 | 20.000 | | 06/12/08 |
| SPK-RPD | Nitrogen in Nitrite | NO2-N | 96.280 | | RPD | | | 0.228 | 20.000 | | 06/12/08 |
| SPK-RPD | Nitrogen in Nitrate | NO3-N | 106.274 | | RPD | | | 4.113 | 20.000 | | 06/12/08 |
| SPK-RPD | Sulfate | 14808-79-8 | 102.940 | | RPD | | | 2.475 | 20.000 | | 06/12/08 |
| **Lab ID: W08P002802** | | | | | | | | | | | |
| **BATCH QC ASSOCIATED WITH SAMPLE** | | | | | | | | | | | |
| DUP | Chloride | 16887-00-6 | 16.6045 | | RPD | | | 0.274 | 20.000 | | 06/11/08 |
| DUP | Fluoride | 16984-48-8 | 0.1556 | | RPD | | | 7.259 | 20.000 | | 06/11/08 |
| DUP | Nitrogen in Nitrite | NO2-N | <1.98e-2 | | RPD | | | n/a | 20.000 | U | 06/11/08 |

# WSCF ANALYTICAL LABORATORY QC REPORT

**Department:** **Inorganic**

SDG Number: WSCF20081171
Matrix: WATER
Test: Anions by Ion Chromatography

Sample Date: 06/10/08
Receive Date:06/10/08

| QC Type | Analyte | CAS # | QC Found | QC Yield | Units | Lower Limit | Upper Limit | RPD(%) | RPD Limit | RQ | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|
| DUP | Nitrogen in Nitrate | NO3-N | 6.8861 | | RPD | | | 0.064 | 20.000 | | 06/11/08 |
| DUP | Sulfate | 14808-79-8 | 112.913 | | RPD | | | 0.145 | 20.000 | | 06/11/08 |
| MS | Chloride | 16887-00-6 | 0.9794 | 98.432 | % Recov | 80.000 | 120.000 | | | | 06/11/08 |
| MS | Fluoride | 16984-48-8 | 0.50725 | 102.890 | % Recov | 80.000 | 120.000 | | | | 06/11/08 |
| MS | Nitrogen in Nitrite | NO2-N | 0.51775 | 105.234 | % Recov | 80.000 | 120.000 | | | | 06/11/08 |
| MS | Nitrogen in Nitrate | NO3-N | 0.46155 | 103.487 | % Recov | 80.000 | 120.000 | | | | 06/11/08 |
| MS | Sulfate | 14808-79-8 | 2.03448 | 103.800 | % Recov | 80.000 | 120.000 | | | | 06/11/08 |
| MSD | Chloride | 16887-00-6 | 0.9401 | 94.482 | % Recov | 80.000 | 120.000 | | | | 06/11/08 |
| MSD | Fluoride | 16984-48-8 | 0.5053 | 102.495 | % Recov | 80.000 | 120.000 | | | | 06/11/08 |
| MSD | Nitrogen in Nitrite | NO2-N | 0.518 | 105.285 | % Recov | 80.000 | 120.000 | | | | 06/11/08 |
| MSD | Nitrogen in Nitrate | NO3-N | 0.4516 | 101.256 | % Recov | 80.000 | 120.000 | | | | 06/11/08 |
| MSD | Sulfate | 14808-79-8 | 2.05846 | 105.023 | % Recov | 80.000 | 120.000 | | | | 06/11/08 |
| SPK-RPD | Chloride | 16887-00-6 | 94.482 | | RPD | | | 4.095 | 20.000 | | 06/12/08 |
| SPK-RPD | Fluoride | 16984-48-8 | 102.495 | | RPD | | | 0.385 | 20.000 | | 06/12/08 |
| SPK-RPD | Nitrogen in Nitrite | NO2-N | 105.285 | | RPD | | | 0.048 | 20.000 | | 06/12/08 |
| SPK-RPD | Nitrogen in Nitrate | NO3-N | 101.256 | | RPD | | | 2.179 | 20.000 | | 06/12/08 |
| SPK-RPD | Sulfate | 14808-79-8 | 105.023 | | RPD | | | 1.171 | 20.000 | | 06/12/08 |

## BATCH QC

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| BLANK | Chloride | 16887-00-6 | <0.11 | n/a | mg/L | 0.000 | 0.030 | | | U | 06/11/08 |
| BLANK | Chloride | 16887-00-6 | <0.11 | n/a | mg/L | 0.000 | 0.030 | | | U | 06/12/08 |
| BLANK | Chloride | 16887-00-6 | <0.11 | n/a | mg/L | 0.000 | 0.030 | | | U | 06/11/08 |
| BLANK | Fluoride | 16984-48-8 | <2.1e-2 | n/a | mg/L | 0.000 | 0.030 | | | U | 06/11/08 |
| BLANK | Fluoride | 16984-48-8 | <2.1e-2 | n/a | mg/L | 0.000 | 0.030 | | | U | 06/12/08 |
| BLANK | Fluoride | 16984-48-8 | <2.1e-2 | n/a | mg/L | 0.000 | 0.030 | | | U | 06/11/08 |
| BLANK | Nitrogen in Nitrite | NO2-N | <9.9e-3 | n/a | mg/L | 0.000 | 0.020 | | | U | 06/11/08 |
| BLANK | Nitrogen in Nitrite | NO2-N | <9.9e-3 | n/a | mg/L | 0.000 | 0.020 | | | U | 06/12/08 |
| BLANK | Nitrogen in Nitrite | NO2-N | <9.9e-3 | n/a | mg/L | 0.000 | 0.020 | | | U | 06/11/08 |
| BLANK | Nitrogen in Nitrate | NO3-N | <3.6e-2 | n/a | mg/L | 0.000 | 0.040 | | | U | 06/11/08 |
| BLANK | Nitrogen in Nitrate | NO3-N | <3.6e-2 | n/a | mg/L | 0.000 | 0.040 | | | U | 06/11/08 |

# WSCF ANALYTICAL LABORATORY QC REPORT

**Department:** Inorganic

SDG Number: WSCF20081171
Matrix: WATER
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 | <3.6e-2 | n/a | mg/L | 0.000 | 0.040 | | | U | 06/12/08 |
| BLANK | Sulfate | 14808-79-8 | <7.7e-2 | n/a | mg/L | 0.000 | 0.200 | | | U | 06/11/08 |
| BLANK | Sulfate | 14808-79-8 | <7.7e-2 | n/a | mg/L | 0.000 | 0.200 | | | U | 06/12/08 |
| BLANK | Sulfate | 14808-79-8 | <7.7e-2 | n/a | mg/L | 0.000 | 0.200 | | | U | 06/11/08 |
| LCS | Chloride | 16887-00-6 | 204.1152 | 101.550 | % Recov | 80.000 | 120.000 | | | | 06/11/08 |
| LCS | Chloride | 16887-00-6 | 203.0683 | 101.029 | % Recov | 80.000 | 120.000 | | | | 06/11/08 |
| LCS | Fluoride | 16984-48-8 | 106.9934 | 107.423 | % Recov | 80.000 | 120.000 | | | | 06/11/08 |
| LCS | Fluoride | 16984-48-8 | 107.5969 | 108.029 | % Recov | 80.000 | 120.000 | | | | 06/11/08 |
| LCS | Nitrogen in Nitrite | NO2-N | 103.1359 | 103.758 | % Recov | 80.000 | 120.000 | | | | 06/11/08 |
| LCS | Nitrogen in Nitrite | NO2-N | 103.7866 | 104.413 | % Recov | 80.000 | 120.000 | | | | 06/11/08 |
| LCS | Nitrogen in Nitrate | NO3-N | 94.9193 | 105.349 | % Recov | 80.000 | 120.000 | | | | 06/11/08 |
| LCS | Nitrogen in Nitrate | NO3-N | 94.5817 | 104.974 | % Recov | 80.000 | 120.000 | | | | 06/11/08 |
| LCS | Sulfate | 14808-79-8 | 388.0573 | 97.994 | % Recov | 80.000 | 120.000 | | | | 06/11/08 |
| LCS | Sulfate | 14808-79-8 | 401.177 | 101.307 | % Recov | 80.000 | 120.000 | | | | 06/11/08 |

# WSCF ANALYTICAL LABORATORY QC REPORT

**Department:** Inorganic

SDG Number: WSCF20081171
Matrix: WATER
Test: ICP Metals Analysis, Grd H20 P

Sample Date: 06/10/08
Receive Date:06/10/08

Lab ID: W08P002771
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 | 970.7 | 97.070 | % Recov | 75.000 | 125.000 | | | | 07/20/08 |
| MS | Barium | 7440-39-3 | 512.8 | 102.560 | % Recov | 75.000 | 125.000 | | | | 07/20/08 |
| MS | Beryllium | 7440-41-7 | 541.3 | 108.260 | % Recov | 75.000 | 125.000 | | | | 07/20/08 |
| MS | Calcium | 7440-70-2 | 2520 | 252.000 | % Recov | 75.000 | 125.000 | | | * | 07/20/08 |
| MS | Cadmium | 7440-43-9 | 978.8 | 97.880 | % Recov | 75.000 | 125.000 | | | | 07/20/08 |
| MS | Cobalt | 7440-48-4 | 967.3 | 96.730 | % Recov | 75.000 | 125.000 | | | | 07/20/08 |
| MS | Chromium | 7440-47-3 | 1054.4 | 105.440 | % Recov | 75.000 | 125.000 | | | | 07/20/08 |
| MS | Copper | 7440-50-8 | 993.4 | 99.340 | % Recov | 75.000 | 125.000 | | | | 07/20/08 |
| MS | Iron | 7439-89-6 | 1132 | 113.200 | % Recov | 75.000 | 125.000 | | | | 07/20/08 |
| MS | Potassium | 7440-09-7 | 7638 | 76.380 | % Recov | 75.000 | 125.000 | | | | 07/20/08 |
| MS | Magnesium | 7439-95-4 | 1280 | 128.000 | % Recov | 75.000 | 125.000 | | | * | 07/20/08 |
| MS | Manganese | 7439-96-5 | 1035 | 103.500 | % Recov | 75.000 | 125.000 | | | | 07/20/08 |
| MS | Sodium | 7440-23-5 | 1050 | 105.000 | % Recov | 75.000 | 125.000 | | | | 07/20/08 |
| MS | Nickel | 7440-02-0 | 993.1 | 99.310 | % Recov | 75.000 | 125.000 | | | | 07/20/08 |
| MS | Antimony | 7440-36-0 | 984.2 | 98.420 | % Recov | 75.000 | 125.000 | | | | 07/20/08 |
| MS | Strontium | 7440-24-6 | 535.6 | 107.120 | % Recov | 75.000 | 125.000 | | | | 07/20/08 |
| MS | Vanadium | 7440-62-2 | 1011.2 | 101.120 | % Recov | 75.000 | 125.000 | | | | 07/20/08 |
| MS | Zinc | 7440-66-6 | 1046 | 104.600 | % Recov | 75.000 | 125.000 | | | | 07/20/08 |
| MSD | Silver | 7440-22-4 | 960.3 | 96.030 | % Recov | 75.000 | 125.000 | | | | 07/20/08 |
| MSD | Barium | 7440-39-3 | 503.4 | 100.680 | % Recov | 75.000 | 125.000 | | | | 07/20/08 |
| MSD | Beryllium | 7440-41-7 | 532.7 | 106.540 | % Recov | 75.000 | 125.000 | | | | 07/20/08 |
| MSD | Calcium | 7440-70-2 | 2210 | 221.000 | % Recov | 75.000 | 125.000 | | | * | 07/20/08 |
| MSD | Cadmium | 7440-43-9 | 974.4 | 97.440 | % Recov | 75.000 | 125.000 | | | | 07/20/08 |
| MSD | Cobalt | 7440-48-4 | 965.5 | 96.550 | % Recov | 75.000 | 125.000 | | | | 07/20/08 |
| MSD | Chromium | 7440-47-3 | 1011.4 | 101.140 | % Recov | 75.000 | 125.000 | | | | 07/20/08 |
| MSD | Copper | 7440-50-8 | 972.4 | 97.240 | % Recov | 75.000 | 125.000 | | | | 07/20/08 |

# WSCF ANALYTICAL LABORATORY QC REPORT

**Department:** Inorganic

SDG Number: WSCF20081171
Matrix: WATER
Test: ICP Metals Analysis, Grd H20 P

Sample Date: 06/10/08
Receive Date:06/10/08

| QC Type | Analyte | CAS # | QC Found | QC Yield | Units | Lower Limit | Upper Limit | RPD(%) | RPD Limit | RQ | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MSD | Iron | 7439-89-6 | 984 | 98.400 | % Recov | 75.000 | 125.000 | | | | 07/20/08 |
| MSD | Potassium | 7440-09-7 | 7578 | 75.780 | % Recov | 75.000 | 125.000 | | | | 07/20/08 |
| MSD | Magnesium | 7439-95-4 | 1120 | 112.000 | % Recov | 75.000 | 125.000 | | | | 07/20/08 |
| MSD | Manganese | 7439-96-5 | 1022 | 102.200 | % Recov | 75.000 | 125.000 | | | | 07/20/08 |
| MSD | Sodium | 7440-23-5 | 810 | 81.000 | % Recov | 75.000 | 125.000 | | | | 07/20/08 |
| MSD | Nickel | 7440-02-0 | 982.1 | 98.210 | % Recov | 75.000 | 125.000 | | | | 07/20/08 |
| MSD | Antimony | 7440-36-0 | 971.8 | 97.180 | % Recov | 75.000 | 125.000 | | | | 07/20/08 |
| MSD | Strontium | 7440-24-6 | 523.4 | 104.680 | % Recov | 75.000 | 125.000 | | | | 07/20/08 |
| MSD | Vanadium | 7440-62-2 | 998.2 | 99.820 | % Recov | 75.000 | 125.000 | | | | 07/20/08 |
| MSD | Zinc | 7440-66-6 | 1045 | 104.500 | % Recov | 75.000 | 125.000 | | | | 07/20/08 |
| SPK-RPD | Silver | 7440-22-4 | 96.030 | | RPD | | | 1.077 | 20.000 | | 07/20/08 |
| SPK-RPD | Barium | 7440-39-3 | 100.680 | | RPD | | | 1.850 | 20.000 | | 07/20/08 |
| SPK-RPD | Beryllium | 7440-41-7 | 106.540 | | RPD | | | 1.601 | 20.000 | | 07/20/08 |
| SPK-RPD | Calcium | 7440-70-2 | 221.000 | | RPD | | | 13.108 | 20.000 | | 07/20/08 |
| SPK-RPD | Cadmium | 7440-43-9 | 97.440 | | RPD | | | 0.451 | 20.000 | | 07/20/08 |
| SPK-RPD | Cobalt | 7440-48-4 | 96.550 | | RPD | | | 0.186 | 20.000 | | 07/20/08 |
| SPK-RPD | Chromium | 7440-47-3 | 101.140 | | RPD | | | 4.163 | 20.000 | | 07/20/08 |
| SPK-RPD | Copper | 7440-50-8 | 97.240 | | RPD | | | 2.137 | 20.000 | | 07/20/08 |
| SPK-RPD | Iron | 7439-89-6 | 98.400 | | RPD | | | 13.989 | 20.000 | | 07/20/08 |
| SPK-RPD | Potassium | 7440-09-7 | 75.780 | | RPD | | | 0.789 | 20.000 | | 07/20/08 |
| SPK-RPD | Magnesium | 7439-95-4 | 112.000 | | RPD | | | 13.333 | 20.000 | | 07/20/08 |
| SPK-RPD | Manganese | 7439-96-5 | 102.200 | | RPD | | | 1.264 | 20.000 | | 07/20/08 |
| SPK-RPD | Sodium | 7440-23-5 | 81.000 | | RPD | | | 25.806 | 20.000 * | | 07/20/08 |
| SPK-RPD | Nickel | 7440-02-0 | 98.210 | | RPD | | | 1.114 | 20.000 | | 07/20/08 |
| SPK-RPD | Antimony | 7440-36-0 | 97.180 | | RPD | | | 1.268 | 20.000 | | 07/20/08 |
| SPK-RPD | Strontium | 7440-24-6 | 104.680 | | RPD | | | 2.304 | 20.000 | | 07/20/08 |
| SPK-RPD | Vanadium | 7440-62-2 | 99.820 | | RPD | | | 1.294 | 20.000 | | 07/20/08 |
| SPK-RPD | Zinc | 7440-66-6 | 104.500 | | RPD | | | 0.096 | 20.000 | | 07/20/08 |

# WSCF ANALYTICAL LABORATORY QC REPORT

**Department:** Inorganic

SDG Number: WSCF20081171
Matrix: WATER
Test: ICP Metals Analysis, Grd H20 P

Sample Date:
Receive Date:

| QC Type | Analyte | CAS # | QC Found | QC Yield | Units | Lower Limit | Upper Limit | RPD(%) | RPD Limit | RQ | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **BATCH QC** | | | | | | | | | | | |
| BLANK | Silver | 7440-22-4 | <5 | n/a | ug/L | | | | | U | 07/20/08 |
| BLANK | Barium | 7440-39-3 | <4 | n/a | ug/L | | | | | U | 07/20/08 |
| BLANK | Beryllium | 7440-41-7 | <4 | n/a | ug/L | | | | | U | 07/20/08 |
| BLANK | Calcium | 7440-70-2 | <73 | n/a | ug/L | | | | | U | 07/20/08 |
| BLANK | Cadmium | 7440-43-9 | <4 | n/a | ug/L | | | | | U | 07/20/08 |
| BLANK | Cobalt | 7440-48-4 | <4 | n/a | ug/L | | | | | U | 07/20/08 |
| BLANK | Chromium | 7440-47-3 | <13 | n/a | ug/L | | | | | U | 07/20/08 |
| BLANK | Copper | 7440-50-8 | <6 | n/a | ug/L | | | | | U | 07/20/08 |
| BLANK | Iron | 7439-89-6 | <25 | n/a | ug/L | | | | | U | 07/20/08 |
| BLANK | Potassium | 7440-09-7 | <170 | n/a | ug/L | | | | | U | 07/20/08 |
| BLANK | Magnesium | 7439-95-4 | <50 | n/a | ug/L | | | | | U | 07/20/08 |
| BLANK | Manganese | 7439-96-5 | <4 | n/a | ug/L | | | | | U | 07/20/08 |
| BLANK | Sodium | 7440-23-5 | <51 | n/a | ug/L | | | | | U | 07/20/08 |
| BLANK | Nickel | 7440-02-0 | <4 | n/a | ug/L | | | | | U | 07/20/08 |
| BLANK | Antimony | 7440-36-0 | <56 | n/a | ug/L | | | | | U | 07/20/08 |
| BLANK | Strontium | 7440-24-6 | <4 | n/a | ug/L | | | | | U | 07/20/08 |
| BLANK | Vanadium | 7440-62-2 | <12 | n/a | ug/L | | | | | U | 07/20/08 |
| BLANK | Zinc | 7440-66-6 | <9 | n/a | ug/L | | | | | U | 07/20/08 |
| LCS | Silver | 7440-22-4 | 979.7 | 97.970 | % Recov | 80.000 | 120.000 | | | | 07/20/08 |
| LCS | Barium | 7440-39-3 | 500.7 | 100.140 | % Recov | 80.000 | 120.000 | | | | 07/20/08 |
| LCS | Beryllium | 7440-41-7 | 525.5 | 105.100 | % Recov | 80.000 | 120.000 | | | | 07/20/08 |
| LCS | Calcium | 7440-70-2 | 992.6 | 99.260 | % Recov | 80.000 | 120.000 | | | | 07/20/08 |
| LCS | Cadmium | 7440-43-9 | 1004 | 100.400 | % Recov | 80.000 | 120.000 | | | | 07/20/08 |
| LCS | Cobalt | 7440-48-4 | 984.7 | 98.470 | % Recov | 80.000 | 120.000 | | | | 07/20/08 |
| LCS | Chromium | 7440-47-3 | 1009 | 100.900 | % Recov | 80.000 | 120.000 | | | | 07/20/08 |
| LCS | Copper | 7440-50-8 | 989 | 98.900 | % Recov | 80.000 | 120.000 | | | | 07/20/08 |
| LCS | Iron | 7439-89-6 | 982.2 | 98.220 | % Recov | 80.000 | 120.000 | | | | 07/20/08 |
| LCS | Potassium | 7440-09-7 | 9602 | 96.020 | % Recov | 80.000 | 120.000 | | | | 07/20/08 |

# WSCF ANALYTICAL LABORATORY QC REPORT

**Department:** Inorganic

SDG Number: WSCF20081171
Matrix: WATER
Test: ICP Metals Analysis, Grd H20 P

Sample Date:
Receive Date:

| QC Type | Analyte | CAS # | QC Found | QC Yield | Units | Lower Limit | Upper Limit | RPD(%) | RPD Limit | RQ | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|
| LCS | Magnesium | 7439-95-4 | 1006 | 100.600 | % Recov | 80.000 | 120.000 | | | | 07/20/08 |
| LCS | Manganese | 7439-96-5 | 1005 | 100.500 | % Recov | 80.000 | 120.000 | | | | 07/20/08 |
| LCS | Sodium | 7440-23-5 | 1052 | 105.200 | % Recov | 80.000 | 120.000 | | | | 07/20/08 |
| LCS | Nickel | 7440-02-0 | 1010 | 101.000 | % Recov | 80.000 | 120.000 | | | | 07/20/08 |
| LCS | Antimony | 7440-36-0 | 1029 | 102.900 | % Recov | 80.000 | 120.000 | | | | 07/20/08 |
| LCS | Strontium | 7440-24-6 | 519 | 103.800 | % Recov | 80.000 | 120.000 | | | | 07/20/08 |
| LCS | Vanadium | 7440-62-2 | 994.3 | 99.430 | % Recov | 80.000 | 120.000 | | | | 07/20/08 |
| LCS | Zinc | 7440-66-6 | 1072 | 107.200 | % Recov | 80.000 | 120.000 | | | | 07/20/08 |

Lab ID: W08P002737
BATCH QC ASSOCIATED WITH SAMPLE

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MS | Silver | 7440-22-4 | 1001 | 100.100 | % Recov | 75.000 | 125.000 | | | | 07/18/08 |
| MS | Barium | 7440-39-3 | 507.6 | 101.520 | % Recov | 75.000 | 125.000 | | | | 07/18/08 |
| MS | Beryllium | 7440-41-7 | 556 | 111.200 | % Recov | 75.000 | 125.000 | | | | 07/18/08 |
| MS | Calcium | 7440-70-2 | 1042 | 104.200 | % Recov | 75.000 | 125.000 | | | | 07/18/08 |
| MS | Cadmium | 7440-43-9 | 1031 | 103.100 | % Recov | 75.000 | 125.000 | | | | 07/18/08 |
| MS | Cobalt | 7440-48-4 | 1008 | 100.800 | % Recov | 75.000 | 125.000 | | | | 07/18/08 |
| MS | Chromium | 7440-47-3 | 1019 | 101.900 | % Recov | 75.000 | 125.000 | | | | 07/18/08 |
| MS | Copper | 7440-50-8 | 999.1 | 99.910 | % Recov | 75.000 | 125.000 | | | | 07/18/08 |
| MS | Iron | 7439-89-6 | 1005 | 100.500 | % Recov | 75.000 | 125.000 | | | | 07/18/08 |
| MS | Potassium | 7440-09-7 | 9527 | 95.270 | % Recov | 75.000 | 125.000 | | | | 07/18/08 |
| MS | Magnesium | 7439-95-4 | 1025 | 102.500 | % Recov | 75.000 | 125.000 | | | | 07/18/08 |
| MS | Manganese | 7439-96-5 | 1030 | 103.000 | % Recov | 75.000 | 125.000 | | | | 07/18/08 |
| MS | Sodium | 7440-23-5 | 1080 | 108.000 | % Recov | 75.000 | 125.000 | | | | 07/18/08 |
| MS | Nickel | 7440-02-0 | 1031 | 103.100 | % Recov | 75.000 | 125.000 | | | | 07/18/08 |
| MS | Antimony | 7440-36-0 | 1047 | 104.700 | % Recov | 75.000 | 125.000 | | | | 07/18/08 |
| MS | Strontium | 7440-24-6 | 528.3 | 105.660 | % Recov | 75.000 | 125.000 | | | | 07/18/08 |
| MS | Vanadium | 7440-62-2 | 1014 | 101.400 | % Recov | 75.000 | 125.000 | | | | 07/18/08 |
| MS | Zinc | 7440-66-6 | 1101 | 110.100 | % Recov | 75.000 | 125.000 | | | | 07/18/08 |
| MSD | Silver | 7440-22-4 | 971.8 | 97.180 | % Recov | 75.000 | 125.000 | | | | 07/18/08 |

# WSCF ANALYTICAL LABORATORY QC REPORT

**Department:** Inorganic

SDG Number: WSCF20081171
Matrix: WATER
Test: ICP Metals Analysis, Grd H20 P

Sample Date: 06/05/08
Receive Date:06/05/08

| QC Type | Analyte | CAS # | QC Found | QC Yield | Units | Lower Limit | Upper Limit | RPD(%) | RPD Limit | RQ | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MSD | Barium | 7440-39-3 | 497.2 | 99.440 | % Recov | 75.000 | 125.000 | | | | 07/18/08 |
| MSD | Beryllium | 7440-41-7 | 540.7 | 108.140 | % Recov | 75.000 | 125.000 | | | | 07/18/08 |
| MSD | Calcium | 7440-70-2 | 990.9 | 99.090 | % Recov | 75.000 | 125.000 | | | | 07/18/08 |
| MSD | Cadmium | 7440-43-9 | 990.6 | 99.060 | % Recov | 75.000 | 125.000 | | | | 07/18/08 |
| MSD | Cobalt | 7440-48-4 | 966.8 | 96.680 | % Recov | 75.000 | 125.000 | | | | 07/18/08 |
| MSD | Chromium | 7440-47-3 | 985.3 | 98.530 | % Recov | 75.000 | 125.000 | | | | 07/18/08 |
| MSD | Copper | 7440-50-8 | 984.6 | 98.460 | % Recov | 75.000 | 125.000 | | | | 07/18/08 |
| MSD | Iron | 7439-89-6 | 1004 | 100.400 | % Recov | 75.000 | 125.000 | | | | 07/18/08 |
| MSD | Potassium | 7440-09-7 | 9559 | 95.590 | % Recov | 75.000 | 125.000 | | | | 07/18/08 |
| MSD | Magnesium | 7439-95-4 | 999.6 | 99.960 | % Recov | 75.000 | 125.000 | | | | 07/18/08 |
| MSD | Manganese | 7439-96-5 | 996.2 | 99.620 | % Recov | 75.000 | 125.000 | | | | 07/18/08 |
| MSD | Sodium | 7440-23-5 | 1034 | 103.400 | % Recov | 75.000 | 125.000 | | | | 07/18/08 |
| MSD | Nickel | 7440-02-0 | 992.5 | 99.250 | % Recov | 75.000 | 125.000 | | | | 07/18/08 |
| MSD | Antimony | 7440-36-0 | 1039 | 103.900 | % Recov | 75.000 | 125.000 | | | | 07/18/08 |
| MSD | Strontium | 7440-24-6 | 517 | 103.400 | % Recov | 75.000 | 125.000 | | | | 07/18/08 |
| MSD | Vanadium | 7440-62-2 | 984 | 98.400 | % Recov | 75.000 | 125.000 | | | | 07/18/08 |
| MSD | Zinc | 7440-66-6 | 1058 | 105.800 | % Recov | 75.000 | 125.000 | | | | 07/18/08 |
| SPK-RPD | Silver | 7440-22-4 | 97.180 | | RPD | | | 2.960 | 20.000 | | 07/18/08 |
| SPK-RPD | Barium | 7440-39-3 | 99.440 | | RPD | | | 2.070 | 20.000 | | 07/18/08 |
| SPK-RPD | Beryllium | 7440-41-7 | 108.140 | | RPD | | | 2.790 | 20.000 | | 07/18/08 |
| SPK-RPD | Calcium | 7440-70-2 | 99.090 | | RPD | | | 5.027 | 20.000 | | 07/18/08 |
| SPK-RPD | Cadmium | 7440-43-9 | 99.060 | | RPD | | | 3.997 | 20.000 | | 07/18/08 |
| SPK-RPD | Cobalt | 7440-48-4 | 96.680 | | RPD | | | 4.173 | 20.000 | | 07/18/08 |
| SPK-RPD | Chromium | 7440-47-3 | 98.530 | | RPD | | | 3.363 | 20.000 | | 07/18/08 |
| SPK-RPD | Copper | 7440-50-8 | 98.460 | | RPD | | | 1.462 | 20.000 | | 07/18/08 |
| SPK-RPD | Iron | 7439-89-6 | 100.400 | | RPD | | | 0.100 | 20.000 | | 07/18/08 |
| SPK-RPD | Potassium | 7440-09-7 | 95.590 | | RPD | | | 0.335 | 20.000 | | 07/18/08 |
| SPK-RPD | Magnesium | 7439-95-4 | 99.960 | | RPD | | | 2.509 | 20.000 | | 07/18/08 |
| SPK-RPD | Manganese | 7439-96-5 | 99.620 | | RPD | | | 3.336 | 20.000 | | 07/18/08 |
| SPK-RPD | Sodium | 7440-23-5 | 103.400 | | RPD | | | 4.352 | 20.000 | | 07/18/08 |

# WSCF ANALYTICAL LABORATORY QC REPORT

**Department:** Inorganic

SDG Number: WSCF20081171
Matrix: WATER
Test: ICP Metals Analysis, Grd H20 P

Sample Date: 06/05/08
Receive Date:06/05/08

| QC Type | Analyte | CAS # | QC Found | QC Yield | Units | Lower Limit | Upper Limit | RPD(%) | RPD Limit | RQ | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SPK-RPD | Nickel | 7440-02-0 | 99.250 | | RPD | | | 3.805 | 20.000 | | 07/18/08 |
| SPK-RPD | Antimony | 7440-36-0 | 103.900 | | RPD | | | 0.767 | 20.000 | | 07/18/08 |
| SPK-RPD | Strontium | 7440-24-6 | 103.400 | | RPD | | | 2.162 | 20.000 | | 07/18/08 |
| SPK-RPD | Vanadium | 7440-62-2 | 98.400 | | RPD | | | 3.003 | 20.000 | | 07/18/08 |
| SPK-RPD | Zinc | 7440-66-6 | 105.800 | | RPD | | | 3.983 | 20.000 | | 07/18/08 |

## BATCH QC

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| BLANK | Silver | 7440-22-4 | <5 | n/a | ug/L | | | | | U | 07/18/08 |
| BLANK | Barium | 7440-39-3 | <4 | n/a | ug/L | | | | | U | 07/18/08 |
| BLANK | Beryllium | 7440-41-7 | <4 | n/a | ug/L | | | | | U | 07/18/08 |
| BLANK | Calcium | 7440-70-2 | <73 | n/a | ug/L | | | | | U | 07/18/08 |
| BLANK | Cadmium | 7440-43-9 | <4 | n/a | ug/L | | | | | U | 07/18/08 |
| BLANK | Cobalt | 7440-48-4 | <4 | n/a | ug/L | | | | | U | 07/18/08 |
| BLANK | Chromium | 7440-47-3 | <13 | n/a | ug/L | | | | | U | 07/18/08 |
| BLANK | Copper | 7440-50-8 | <6 | n/a | ug/L | | | | | U | 07/18/08 |
| BLANK | Iron | 7439-89-6 | <25 | n/a | ug/L | | | | | U | 07/18/08 |
| BLANK | Potassium | 7440-09-7 | <170 | n/a | ug/L | | | | | U | 07/18/08 |
| BLANK | Magnesium | 7439-95-4 | <50 | n/a | ug/L | | | | | U | 07/18/08 |
| BLANK | Manganese | 7439-96-5 | <4 | n/a | ug/L | | | | | U | 07/18/08 |
| BLANK | Sodium | 7440-23-5 | <51 | n/a | ug/L | | | | | U | 07/18/08 |
| BLANK | Nickel | 7440-02-0 | <4 | n/a | ug/L | | | | | U | 07/18/08 |
| BLANK | Antimony | 7440-36-0 | <56 | n/a | ug/L | | | | | U | 07/18/08 |
| BLANK | Strontium | 7440-24-6 | <4 | n/a | ug/L | | | | | U | 07/18/08 |
| BLANK | Vanadium | 7440-62-2 | <12 | n/a | ug/L | | | | | U | 07/18/08 |
| BLANK | Zinc | 7440-66-6 | <9 | n/a | ug/L | | | | | U | 07/18/08 |
| LCS | Silver | 7440-22-4 | 1010 | 101.000 | % Recov | 80.000 | 120.000 | | | | 07/18/08 |
| LCS | Barium | 7440-39-3 | 519 | 103.800 | % Recov | 80.000 | 120.000 | | | | 07/18/08 |
| LCS | Beryllium | 7440-41-7 | 568.7 | 113.740 | % Recov | 80.000 | 120.000 | | | | 07/18/08 |
| LCS | Calcium | 7440-70-2 | 1058 | 105.800 | % Recov | 80.000 | 120.000 | | | | 07/18/08 |
| LCS | Cadmium | 7440-43-9 | 1043 | 104.300 | % Recov | 80.000 | 120.000 | | | | 07/18/08 |

# WSCF ANALYTICAL LABORATORY QC REPORT

**Department:** **Inorganic**

SDG Number: WSCF20081171
Matrix: WATER
Test: ICP Metals Analysis, Grd H20 P

Sample Date:
Receive Date:

| QC Type | Analyte | CAS # | QC Found | QC Yield | Units | Lower Limit | Upper Limit | RPD(%) | RPD Limit | RQ | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|
| LCS | Cobalt | 7440-48-4 | 1025 | 102.500 | % Recov | 80.000 | 120.000 | | | | 07/18/08 |
| LCS | Chromium | 7440-47-3 | 1038 | 103.800 | % Recov | 80.000 | 120.000 | | | | 07/18/08 |
| LCS | Copper | 7440-50-8 | 1027 | 102.700 | % Recov | 80.000 | 120.000 | | | | 07/18/08 |
| LCS | Iron | 7439-89-6 | 1023 | 102.300 | % Recov | 80.000 | 120.000 | | | | 07/18/08 |
| LCS | Potassium | 7440-09-7 | 10050 | 100.500 | % Recov | 80.000 | 120.000 | | | | 07/18/08 |
| LCS | Magnesium | 7439-95-4 | 1051 | 105.100 | % Recov | 80.000 | 120.000 | | | | 07/18/08 |
| LCS | Manganese | 7439-96-5 | 1046 | 104.600 | % Recov | 80.000 | 120.000 | | | | 07/18/08 |
| LCS | Sodium | 7440-23-5 | 1110 | 111.000 | % Recov | 80.000 | 120.000 | | | | 07/18/08 |
| LCS | Nickel | 7440-02-0 | 1044 | 104.400 | % Recov | 80.000 | 120.000 | | | | 07/18/08 |
| LCS | Antimony | 7440-36-0 | 1043 | 104.300 | % Recov | 80.000 | 120.000 | | | | 07/18/08 |
| LCS | Strontium | 7440-24-6 | 541.4 | 108.280 | % Recov | 80.000 | 120.000 | | | | 07/18/08 |
| LCS | Vanadium | 7440-62-2 | 1031 | 103.100 | % Recov | 80.000 | 120.000 | | | | 07/18/08 |
| LCS | Zinc | 7440-66-6 | 1119 | 111.900 | % Recov | 80.000 | 120.000 | | | | 07/18/08 |

# WSCF ANALYTICAL LABORATORY QC REPORT

**Department:** **Inorganic**

SDG Number: WSCF20081171
Matrix: WATER
Test: ICP-200.8 MS All possible meta

Sample Date: 06/04/08
Receive Date:06/04/08

| QC Type | Analyte | CAS # | QC Found | QC Yield | Units | Lower Limit | Upper Limit | RPD(%) | RPD Limit | RQ | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Lab ID: W08P002695** | | | | | | | | | | | |
| **BATCH QC ASSOCIATED WITH SAMPLE** | | | | | | | | | | | |
| MS | Lead | 7439-92-1 | 37.71 | 94.275 | % Recov | 70.000 | 130.000 | | | | 06/24/08 |
| MSD | Lead | 7439-92-1 | 37.42 | 93.550 | % Recov | 70.000 | 130.000 | | | | 06/24/08 |
| SPK-RPD | Lead | 7439-92-1 | 93.550 | | RPD | | | 0.772 | 20.000 | | 06/25/08 |
| **Lab ID: W08P002697** | | | | | | | | | | | |
| **BATCH QC ASSOCIATED WITH SAMPLE** | | | | | | | | | | | |
| MS | Lead | 7439-92-1 | 39.59 | 98.975 | % Recov | 70.000 | 130.000 | | | | 06/24/08 |
| MSD | Lead | 7439-92-1 | 37.22 | 93.050 | % Recov | 70.000 | 130.000 | | | | 06/24/08 |
| SPK-RPD | Lead | 7439-92-1 | 93.050 | | RPD | | | 6.171 | 20.000 | | 06/25/08 |
| **BATCH QC** | | | | | | | | | | | |
| BLANK | Lead | 7439-92-1 | <0.1 | n/a | ug/L | | | | | U | 06/24/08 |
| LCS | Lead | 7439-92-1 | 38.26 | 95.650 | % Recov | 85.000 | 115.000 | | | | 06/24/08 |

# WSCF ANALYTICAL LABORATORY QC REPORT

**Department:** Inorganic

SDG Number: WSCF20081171
Matrix: WATER
Test: Total Alkalinity as mg/L CaCO3

Sample Date: 06/09/08
Receive Date:06/09/08

| QC Type | Analyte | CAS # | QC Found | QC Yield | Units | Lower Limit | Upper Limit | RPD(%) | RPD Limit | RQ | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Lab ID: W08P002755** | | | | | | | | | | | |
| **BATCH QC ASSOCIATED WITH SAMPLE** | | | | | | | | | | | |
| DUP | Total Alkalinity as mg/L CaCO3 | ALKALINITY | 93.5 | | RPD | | | 5.721 | 20.000 | | 06/12/08 |
| **BATCH QC** | | | | | | | | | | | |
| LCS | Total Alkalinity as mg/L CaCO3 | ALKALINITY | 114.4 | 99.478 | %Recove | 80.000 | 120.000 | | | | 06/12/08 |
| LCS | Total Alkalinity as mg/L CaCO3 | ALKALINITY | 115.4 | 100.348 | %Recove | 80.000 | 120.000 | | | | 06/12/08 |
| LCS | Total Alkalinity as mg/L CaCO3 | ALKALINITY | 115.2 | 100.174 | %Recove | 80.000 | 120.000 | | | | 06/12/08 |
| **Lab ID: W08P002805** | | | | | | | | | | | |
| **BATCH QC ASSOCIATED WITH SAMPLE** | | | | | | | | | | | |
| DUP | Total Alkalinity as mg/L CaCO3 | ALKALINITY | 98.4 | | RPD | | | 0.000 | 20.000 | | 06/20/08 |
| **Lab ID: W08Q000077** | | | | | | | | | | | |
| **BATCH QC ASSOCIATED WITH SAMPLE** | | | | | | | | | | | |
| DUP | Total Alkalinity as mg/L CaCO3 | ALKALINITY | 52.4 | | RPD | | | 0.191 | 20.000 | | 06/20/08 |
| **BATCH QC** | | | | | | | | | | | |
| LCS | Total Alkalinity as mg/L CaCO3 | ALKALINITY | 115.0 | 100.000 | %Recove | 80.000 | 120.000 | | | | 06/20/08 |
| LCS | Total Alkalinity as mg/L CaCO3 | ALKALINITY | 115.4 | 100.348 | %Recove | 80.000 | 120.000 | | | | 06/20/08 |
| LCS | Total Alkalinity as mg/L CaCO3 | ALKALINITY | 115.6 | 100.522 | %Recove | 80.000 | 120.000 | | | | 06/20/08 |

# WSCF ANALYTICAL LABORATORY QC REPORT

**Department:** Inorganic

SDG Number: WSCF20081171
Matrix: WATER
Test: Total Organic Carbon

Sample Date: 06/10/08
Receive Date:06/10/08

| QC Type | Analyte | CAS # | QC Found | QC Yield | Units | Lower Limit | Upper Limit | RPD(%) | RPD Limit | RQ | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Lab ID: W08P002766** | | | | | | | | | | | |
| **BATCH QC ASSOCIATED WITH SAMPLE** | | | | | | | | | | | |
| MS | Total Organic Carbon | TOC | 4.174 | 104.350 | % Recov | 75.000 | 125.000 | | | | 06/14/08 |
| MSD | Total Organic Carbon | TOC | 4.095 | 102.375 | % Recov | 75.000 | 125.000 | | | | 06/14/08 |
| SPK-RPD | Total Organic Carbon | TOC | 102.375 | | RPD | | | 1.911 | 20.000 | | 06/14/08 |
| **BATCH QC** | | | | | | | | | | | |
| BLANK | Total Organic Carbon | TOC | <0.045 | n/a | mg/L | 0.000 | 300.000 | | | U | 06/14/08 |
| METHSPIKE | Total Organic Carbon | TOC | 2.102 | 105.100 | % Recov | 80.000 | 120.000 | | | | 06/14/08 |
| SPK-RSD | Total Organic Carbon | TOC | 1.288 | 1.288 | % RSD | 0.000 | 20.000 | | | | 06/14/08 |
| **Lab ID: W08P002717** | | | | | | | | | | | |
| **BATCH QC ASSOCIATED WITH SAMPLE** | | | | | | | | | | | |
| MS | Total Organic Carbon | TOC | 4.014 | 100.350 | % Recov | 75.000 | 125.000 | | | | 06/20/08 |
| MSD | Total Organic Carbon | TOC | 4.084 | 102.100 | % Recov | 75.000 | 125.000 | | | | 06/20/08 |
| SPK-RPD | Total Organic Carbon | TOC | 102.100 | | RPD | | | 1.729 | 20.000 | | 06/20/08 |
| **BATCH QC** | | | | | | | | | | | |
| BLANK | Total Organic Carbon | TOC | <0.045 | n/a | mg/L | 0.000 | 300.000 | | | U | 06/20/08 |
| METHSPIKE | Total Organic Carbon | TOC | 2.023 | 101.150 | % Recov | 80.000 | 120.000 | | | | 06/20/08 |
| SPK-RSD | Total Organic Carbon | TOC | 1.258 | 1.258 | % RSD | 0.000 | 20.000 | | | | 06/20/08 |
| **Lab ID: W08P002780** | | | | | | | | | | | |
| **BATCH QC ASSOCIATED WITH SAMPLE** | | | | | | | | | | | |
| MS | Total Organic Carbon | TOC | 4.049 | 101.225 | % Recov | 75.000 | 125.000 | | | | 06/24/08 |
| MSD | Total Organic Carbon | TOC | 4.057 | 101.425 | % Recov | 75.000 | 125.000 | | | | 06/24/08 |
| SPK-RPD | Total Organic Carbon | TOC | 101.425 | | RPD | | | 0.197 | 20.000 | | 06/24/08 |

# WSCF ANALYTICAL LABORATORY QC REPORT

**Department:** Inorganic

SDG Number: WSCF20081171
Matrix: WATER
Test: Total Organic Carbon

Sample Date:
Receive Date:

| QC Type | Analyte | CAS # | QC Found | QC Yield | Units | Lower Limit | Upper Limit | RPD(%) | RPD Limit | RQ | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **BATCH QC** | | | | | | | | | | | |
| BLANK | Total Organic Carbon | TOC | < 0.045 | n/a | mg/L | 0.000 | 300.000 | | | U | 06/24/08 |
| METHSPIKE | Total Organic Carbon | TOC | 2.004 | 100.200 | % Recov | 80.000 | 120.000 | | | | 06/24/08 |
| SPK-RSD | Total Organic Carbon | TOC | 0.4395 | 0.439 | % RSD | 0.000 | 20.000 | | | | 06/24/08 |

# WSCF
# ANALYTICAL COMMENT REPORT

**Attention:** Steve Trent E6-35

**Group #:** WSCF20081171
**Department:** Inorganic

| Sample # | Client ID | Lab Area | Test | Comment |
|---|---|---|---|---|
| | | VALGROUP | | Tc-99/matrix spike recovery is flagged for the high recovery due to high Tc-99 activity in the sample. Matrix spike criterion does not apply to high level samples. lmh<br><br>ICP-AES: [Samples W08P2771; 2788-2795; 2798-2805]<br>No zirconium is present in the LCS standard.<br>Sodium, magnesium, and calcium sample results exceed spiking level by a factor of 4 so spike recoveries are not valid.<br>Check standard is used to ensure sodium, magnesium, and calcium linearity because sample results are greater than the calibration standard.<br><br>ICP-AES: [Sample W08P2770]<br>No zirconium present in the LCS.<br>Check standard is used to ensure calcium, magnesium, and sodium linearity because sample results are greater than the calibration standard. |

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 E6-35
**SAF Number:** W08-004
**Sample #** W08P002796
**Client ID:** B1V389 PNNL-GPP WSCF

**Matrix:** WATER

**Group #:** WSCF20081171
**Department:** Organic
**Sampled:** 06/10/08
**Received:** 06/10/08

| 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 | < 1.00 | ug/L | | | 1.00 | 1.0 | | 06/20/08 |
| Trichloroethene | 79-01-6 | LA-523-455 | | 8.00 | ug/L | | | 1.00 | 1.0 | | 06/20/08 |
| Benzene | 71-43-2 | LA-523-455 | U | < 1.00 | ug/L | | | 1.00 | 1.0 | | 06/20/08 |
| Toluene | 108-88-3 | LA-523-455 | U | < 1.00 | ug/L | | | 1.00 | 1.0 | | 06/20/08 |
| Chlorobenzene | 108-90-7 | LA-523-455 | U | < 1.00 | ug/L | | | 1.00 | 1.0 | | 06/20/08 |
| 1,1-Dichloroethane | 75-34-3 | LA-523-455 | U | < 1.00 | ug/L | | | 1.00 | 1.0 | | 06/20/08 |
| Ethylbenzene | 100-41-4 | LA-523-455 | U | < 1.00 | ug/L | | | 1.00 | 1.0 | | 06/20/08 |
| 1,2-Dichloroethane | 107-06-2 | LA-523-455 | U | < 1.00 | ug/L | | | 1.00 | 1.0 | | 06/20/08 |
| 4-Methyl-2-Pentanone | 108-10-1 | LA-523-455 | U | < 1.00 | ug/L | | | 1.00 | 1.0 | | 06/20/08 |
| Tetrachloroethene | 127-18-4 | LA-523-455 | U | < 1.00 | ug/L | | | 1.00 | 1.0 | | 06/20/08 |
| Xylenes (total) | 1330-20-7 | LA-523-455 | U | < 1.00 | ug/L | | | 1.00 | 1.0 | | 06/20/08 |
| Carbon tetrachloride | 56-23-5 | LA-523-455 | E | 1.30e+03 | ug/L | | | 1.00 | 1.0 | | 06/20/08 |
| Acetone | 67-64-1 | LA-523-455 | U | < 1.00 | ug/L | | | 1.00 | 1.0 | | 06/20/08 |
| Chloroform | 67-66-3 | LA-523-455 | | 8.20 | ug/L | | | 1.00 | 1.0 | | 06/20/08 |
| 1,1,1-Trichloroethane | 71-55-6 | LA-523-455 | U | < 1.00 | ug/L | | | 1.00 | 1.0 | | 06/20/08 |
| Vinyl chloride | 75-01-4 | LA-523-455 | U | < 1.00 | ug/L | | | 1.00 | 1.0 | | 06/20/08 |
| Methylenechloride | 75-09-2 | LA-523-455 | U | < 1.00 | ug/L | | | 1.00 | 1.0 | | 06/20/08 |
| Carbon disulfide | 75-15-0 | LA-523-455 | U | < 1.00 | ug/L | | | 1.00 | 1.0 | | 06/20/08 |
| 2-Butanone | 78-93-3 | LA-523-455 | U | < 1.00 | ug/L | | | 1.00 | 1.0 | | 06/20/08 |
| 1,1,2-Trichloroethane | 79-00-5 | LA-523-455 | U | < 1.00 | ug/L | | | 1.00 | 1.0 | | 06/20/08 |
| 1-Butanol | 71-36-3 | LA-523-455 | U | < 100 | ug/L | | | 1.00 | 1.0e+02 | | 06/20/08 |
| Tetrahydrofuran | 109-99-9 | LA-523-455 | U | < 2.00 | ug/L | | | 1.00 | 2.0 | | 06/20/08 |
| trans-1,2-Dichloroethylene | 156-60-5 | LA-523-455 | U | < 1.00 | ug/L | | | 1.00 | 1.0 | | 06/20/08 |
| cis-1,2-Dichloroethylene | 156-59-2 | LA-523-455 | U | < 1.00 | ug/L | | | 1.00 | 1.0 | | 06/20/08 |

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

B - The analyte < the RDL but >= the IDL/MDL (inorg)
E - Analyte is an estimate, has potentially larger errors.(org)
U - Analyzed for but not detected above limiting criteria(inorg)

D - Analyte was identified at a secondary dilution factor(inorg)
J - Analyte < lowest calibration but >= MDL.(org)
U - Analyzed for but not detected above limiting criteria.(org)

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

# WSCF
# ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35
**SAF Number:** W08-004
**Sample #** W08P002796
**Client ID:** B1V389 PNNL-GPP WSCF

**Matrix:** WATER

**Group #:** WSCF20081171
**Department:** Organic
**Sampled:** 06/10/08
**Received:** 06/10/08

| Test Performed | CAS # | Method | RQ | Result | Unit | TP Err | Unit | DF | MDL | PQL | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Ethyl cyanide | 107-12-0 | LA-523-455 | U | < 2.00 | ug/L | | | 1.00 | 2.0 | | 08/20/08 |
| 1,4-Dichlorobenzene | 106-46-7 | LA-523-455 | U | < 1.00 | ug/L | | | 1.00 | 1.0 | | 08/20/08 |

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

B - The analyte < the RDL but > = the IDL/MDL (inorg)
E - Analyte is an estimate, has potentially larger errors.(org)
U - Analyzed for but not detected above limiting criteria(inorg)

D - Analyte was identified at a secondary dilution factor(inorg)
J - Analyte < lowest calibration but > = MDL.(org)
U - Analyzed for but not detected above limiting criteria.(org)

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

# WSCF
# ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35
**SAF Number:** I08-044
**Sample #** W08P002797
**Client ID:** B1VTR8 PNNL-GPP WSCF

**Matrix:** WATER

**Group #:** WSCF20081171
**Department:** Organic
**Sampled:** 06/10/08
**Received:** 06/10/08

| 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 | < 1.00 | ug/L | | | 1.00 | 1.0 | | 06/20/08 |
| Trichloroethene | 79-01-6 | LA-523-455 | U | < 1.00 | ug/L | | | 1.00 | 1.0 | | 06/20/08 |
| Benzene | 71-43-2 | LA-523-455 | U | < 1.00 | ug/L | | | 1.00 | 1.0 | | 06/20/08 |
| Toluene | 108-88-3 | LA-523-455 | U | < 1.00 | ug/L | | | 1.00 | 1.0 | | 06/20/08 |
| Chlorobenzene | 108-90-7 | LA-523-455 | U | < 1.00 | ug/L | | | 1.00 | 1.0 | | 06/20/08 |
| 1,1-Dichloroethane | 75-34-3 | LA-523-455 | U | < 1.00 | ug/L | | | 1.00 | 1.0 | | 06/20/08 |
| Ethylbenzene | 100-41-4 | LA-523-455 | U | < 1.00 | ug/L | | | 1.00 | 1.0 | | 06/20/08 |
| 1,2-Dichloroethane | 107-06-2 | LA-523-455 | U | < 1.00 | ug/L | | | 1.00 | 1.0 | | 06/20/08 |
| 4-Methyl-2-Pentanone | 108-10-1 | LA-523-455 | U | < 1.00 | ug/L | | | 1.00 | 1.0 | | 06/20/08 |
| Tetrachloroethene | 127-18-4 | LA-523-455 | U | < 1.00 | ug/L | | | 1.00 | 1.0 | | 06/20/08 |
| Xylenes (total) | 1330-20-7 | LA-523-455 | U | < 1.00 | ug/L | | | 1.00 | 1.0 | | 06/20/08 |
| Carbon tetrachloride | 56-23-5 | LA-523-455 | U | < 1.00 | ug/L | | | 1.00 | 1.0 | | 06/20/08 |
| Acetone | 67-64-1 | LA-523-455 | U | < 1.00 | ug/L | | | 1.00 | 1.0 | | 06/20/08 |
| Chloroform | 67-66-3 | LA-523-455 | U | < 1.00 | ug/L | | | 1.00 | 1.0 | | 06/20/08 |
| 1,1,1-Trichloroethane | 71-55-6 | LA-523-455 | U | < 1.00 | ug/L | | | 1.00 | 1.0 | | 06/20/08 |
| Vinyl chloride | 75-01-4 | LA-523-455 | U | < 1.00 | ug/L | | | 1.00 | 1.0 | | 06/20/08 |
| Methylenechloride | 75-09-2 | LA-523-455 | J | 2.30 | ug/L | | | 1.00 | 1.0 | | 06/20/08 |
| Carbon disulfide | 75-15-0 | LA-523-455 | U | < 1.00 | ug/L | | | 1.00 | 1.0 | | 06/20/08 |
| 2-Butanone | 78-93-3 | LA-523-455 | U | < 1.00 | ug/L | | | 1.00 | 1.0 | | 06/20/08 |
| 1,1,2-Trichloroethane | 79-00-5 | LA-523-455 | U | < 1.00 | ug/L | | | 1.00 | 1.0 | | 06/20/08 |
| 1-Butanol | 71-36-3 | LA-523-455 | U | < 100 | ug/L | | | 1.00 | 1.0e+02 | | 06/20/08 |
| Tetrahydrofuran | 109-99-9 | LA-523-455 | U | < 2.00 | ug/L | | | 1.00 | 2.0 | | 06/20/08 |
| trans-1,2-Dichloroethylene | 156-60-5 | LA-523-455 | U | < 1.00 | ug/L | | | 1.00 | 1.0 | | 06/20/08 |
| cis-1,2-Dichloroethylene | 156-59-2 | LA-523-455 | U | < 1.00 | ug/L | | | 1.00 | 1.0 | | 06/20/08 |

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

B - The analyte < the RDL but > = the IDL/MDL (inorg)
E - Analyte is an estimate, has potentially larger errors.(org)
U - Analyzed for but not detected above limiting criteria(inorg)

D - Analyte was identified at a secondary dilution factor(inorg)
J - Analyte < lowest calibration but > = MDL.(org)
U - Analyzed for but not detected above limiting criteria.(org)

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

# WSCF
# ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35
**SAF Number:** I08-044
**Sample #** W08P002797
**Client ID:** B1VTR8 PNNL-GPP WSCF

**Matrix:** WATER

**Group #:** WSCF20081171
**Department:** Organic
**Sampled:** 06/10/08
**Received:** 06/10/08

| Test Performed | CAS # | Method | RQ | Result | Unit | TP Err | Unit | DF | MDL | PQL | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Ethyl cyanide | 107-12-0 | LA-523-455 | U | < 2.00 | ug/L | | | 1.00 | 2.0 | | 06/20/08 |
| 1,4-Dichlorobenzene | 106-46-7 | LA-523-455 | U | < 1.00 | ug/L | | | 1.00 | 1.0 | | 06/20/08 |

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

B - The analyte < the RDL but > = the IDL/MDL (inorg)
E - Analyte is an estimate, has potentially larger errors.(org)
U - Analyzed for but not detected above limiting criteria(inorg)

D - Analyte was identified at a secondary dilution factor(inorg)
J - Analyte < lowest calibration but > = MDL.(org)
U - Analyzed for but not detected above limiting criteria.(org)

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

# WSCF ANALYTICAL LABORATORY QC REPORT

**Department:** Organic

SDG Number: WSCF20081171
Matrix: WATER
Test: VOA Ground Water Protection

Sample Date: 06/09/08
Receive Date:06/09/08

Lab ID: W08P002764
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 | 26.160 | 105.000 | % Recov | 63.000 | 117.000 | | | | 06/20/08 |
| MS | Benzene | 71-43-2 | 25.890 | 104.000 | % Recov | 75.000 | 129.000 | | | | 06/20/08 |
| MS | 4-Bromofluorobenzene(Surr) | 460-00-4 | 55.260 | 111.000 | % Recov | 75.000 | 125.000 | | | | 06/20/08 |
| MS | Chlorobenzene | 108-90-7 | 26.700 | 107.000 | % Recov | 79.000 | 119.000 | | | | 06/20/08 |
| MS | 1,2-Dichloroethane-d4(Surr) | 17060-07-0 | 57.190 | 114.000 | % Recov | 75.000 | 125.000 | | | | 06/20/08 |
| MS | Toluene-d8(Surr) | 2037-26-5 | 51.960 | 104.000 | % Recov | 75.000 | 125.000 | | | | 06/20/08 |
| MS | Toluene | 108-88-3 | 25.980 | 104.000 | % Recov | 76.000 | 120.000 | | | | 06/20/08 |
| MS | Trichloroethene | 79-01-6 | 27.073 | 108.000 | % Recov | 73.000 | 123.000 | | | | 06/20/08 |
| MSD | 1,1-Dichloroethene | 75-35-4 | 26.170 | 105.000 | % Recov | 63.000 | 117.000 | | | | 06/20/08 |
| MSD | Benzene | 71-43-2 | 25.900 | 104.000 | % Recov | 75.000 | 129.000 | | | | 06/20/08 |
| MSD | 4-Bromofluorobenzene(Surr) | 460-00-4 | 55.390 | 111.000 | % Recov | 75.000 | 125.000 | | | | 06/20/08 |
| MSD | Chlorobenzene | 108-90-7 | 27.450 | 110.000 | % Recov | 79.000 | 119.000 | | | | 06/20/08 |
| MSD | 1,2-Dichloroethane-d4(Surr) | 17060-07-0 | 57.220 | 114.000 | % Recov | 75.000 | 125.000 | | | | 06/20/08 |
| MSD | Toluene-d8(Surr) | 2037-26-5 | 51.710 | 103.000 | % Recov | 75.000 | 125.000 | | | | 06/20/08 |
| MSD | Toluene | 108-88-3 | 26.270 | 105.000 | % Recov | 76.000 | 120.000 | | | | 06/20/08 |
| MSD | Trichloroethene | 79-01-6 | 26.903 | 108.000 | % Recov | 73.000 | 123.000 | | | | 06/20/08 |
| SPK-RPD | 1,1-Dichloroethene | 75-35-4 | 105.000 | | RPD | | | 0.000 | 20.000 | | 06/20/08 |
| SPK-RPD | Benzene | 71-43-2 | 104.000 | | RPD | | | 0.000 | 20.000 | | 06/20/08 |
| SPK-RPD | 4-Bromofluorobenzene(Surr) | 460-00-4 | 111.000 | | RPD | | | 0.000 | 20.000 | | 06/20/08 |
| SPK-RPD | Chlorobenzene | 108-90-7 | 110.000 | | RPD | | | 2.765 | 20.000 | | 06/20/08 |
| SPK-RPD | 1,2-Dichloroethane-d4(Surr) | 17060-07-0 | 114.000 | | RPD | | | 0.000 | 20.000 | | 06/20/08 |
| SPK-RPD | Toluene-d8(Surr) | 2037-26-5 | 103.000 | | RPD | | | 0.966 | 20.000 | | 06/20/08 |
| SPK-RPD | Toluene | 108-88-3 | 105.000 | | RPD | | | 0.957 | 20.000 | | 06/20/08 |
| SPK-RPD | Trichloroethene | 79-01-6 | 108.000 | | RPD | | | 0.000 | 20.000 | | 06/20/08 |

# WSCF ANALYTICAL LABORATORY QC REPORT

**Department:** Organic

SDG Number: WSCF20081171
Matrix: WATER
Test: VOA Ground Water Protection

Sample Date: 06/10/08
Receive Date:06/10/08

| QC Type | Analyte | CAS # | QC Found | QC Yield | Units | Lower Limit | Upper Limit | RPD(%) | RPD Limit | RQ | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Lab ID: W08P002796** | | | | | | | | | | | |
| **BATCH QC ASSOCIATED WITH SAMPLE** | | | | | | | | | | | |
| SURR | 4-Bromofluorobenzene(Surr) | 460-00-4 | 55.910 | 112.000 | % Recov | 75.000 | 125.000 | | | | 06/20/08 |
| SURR | 1,2-Dichloroethane-d4(Surr) | 17060-07-0 | 59.100 | 118.000 | % Recov | 75.000 | 125.000 | | | | 06/20/08 |
| SURR | Toluene-d8(Surr) | 2037-26-5 | 52.670 | 105.000 | % Recov | 75.000 | 125.000 | | | | 06/20/08 |
| **Lab ID: W08P002797** | | | | | | | | | | | |
| **BATCH QC ASSOCIATED WITH SAMPLE** | | | | | | | | | | | |
| SURR | 4-Bromofluorobenzene(Surr) | 460-00-4 | 55.620 | 111.000 | % Recov | 75.000 | 125.000 | | | | 06/20/08 |
| SURR | 1,2-Dichloroethane-d4(Surr) | 17060-07-0 | 58.510 | 117.000 | % Recov | 75.000 | 125.000 | | | | 06/20/08 |
| SURR | Toluene-d8(Surr) | 2037-26-5 | 53.180 | 106.000 | % Recov | 75.000 | 125.000 | | | | 06/20/08 |
| **BATCH QC** | | | | | | | | | | | |
| BLANK | 1,1-Dichloroethane | 75-34-3 | < 1.0 | n/a | ug/L | | | | | U | 06/20/08 |
| BLANK | 1,1,1-Trichloroethane | 71-55-6 | < 1.0 | n/a | ug/L | | | | | U | 06/20/08 |
| BLANK | 1,1,2-Trichloroethane | 79-00-5 | < 1.0 | n/a | ug/L | | | | | U | 06/20/08 |
| BLANK | 1,1-Dichloroethene | 75-35-4 | < 1.0 | n/a | ug/L | | | | | U | 06/20/08 |
| BLANK | 1,2-Dichloroethane | 107-06-2 | < 1.0 | n/a | ug/L | | | | | U | 06/20/08 |
| BLANK | 1,4-Dichlorobenzene | 106-46-7 | < 1.0 | n/a | ug/L | | | | | U | 06/20/08 |
| BLANK | 1-Butanol | 71-36-3 | < 100 | n/a | ug/L | | | | | U | 06/20/08 |
| BLANK | 4-Methyl-2-Pentanone | 108-10-1 | < 1.0 | n/a | ug/L | | | | | U | 06/20/08 |
| BLANK | Acetone | 67-64-1 | < 1.0 | n/a | ug/L | | | | | U | 06/20/08 |
| BLANK | Benzene | 71-43-2 | < 1.0 | n/a | ug/L | | | | | U | 06/20/08 |
| BLANK | 4-Bromofluorobenzene(Surr) | 460-00-4 | 56.130 | 112.000 | % Recov | 75.000 | 125.000 | | | | 06/20/08 |
| BLANK | Carbon disulfide | 75-15-0 | < 1.0 | n/a | ug/L | | | | | U | 06/20/08 |
| BLANK | Carbon tetrachloride | 56-23-5 | < 1.0 | n/a | ug/L | | | | | U | 06/20/08 |
| BLANK | Chloroform | 67-66-3 | < 1.0 | n/a | ug/L | | | | | U | 06/20/08 |
| BLANK | Chlorobenzene | 108-90-7 | < 1.0 | n/a | ug/L | | | | | U | 06/20/08 |
| BLANK | cis-1,2-Dichloroethylene | 156-59-2 | < 1.0 | n/a | ug/L | | | | | U | 06/20/08 |

# WSCF ANALYTICAL LABORATORY QC REPORT

**Department:** Organic

SDG Number: WSCF20081171
Matrix: WATER
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 | 1,2-Dichloroethane-d4(Surr) | 17060-07-0 | 58.090 | 116.000 | % Recov | 75.000 | 125.000 | | | | 06/20/08 |
| BLANK | trans-1,2-Dichloroethylene | 156-60-5 | < 1.0 | n/a | ug/L | | | | | U | 06/20/08 |
| BLANK | Ethylbenzene | 100-41-4 | < 1.0 | n/a | ug/L | | | | | U | 06/20/08 |
| BLANK | Ethyl cyanide | 107-12-0 | < 2.0 | n/a | ug/L | | | | | U | 06/20/08 |
| BLANK | 2-Butanone | 78-93-3 | < 1.0 | n/a | ug/L | | | | | U | 06/20/08 |
| BLANK | Methylenechloride | 75-09-2 | < 1.0 | n/a | ug/L | | | | | U | 06/20/08 |
| BLANK | Tetrachloroethene | 127-18-4 | < 1.0 | n/a | ug/L | | | | | U | 06/20/08 |
| BLANK | Xylenes (total) | 1330-20-7 | < 1.0 | n/a | ug/L | 0.000 | 5.000 | | | U | 06/20/08 |
| BLANK | Tetrahydrofuran | 109-99-9 | < 2.0 | n/a | ug/L | | | | | U | 06/20/08 |
| BLANK | Toluene-d8(Surr) | 2037-26-5 | 51.410 | 103.000 | % Recov | 75.000 | 125.000 | | | | 06/20/08 |
| BLANK | Toluene | 108-88-3 | < 1.0 | n/a | ug/L | | | | | U | 06/20/08 |
| BLANK | Trichloroethene | 79-01-6 | < 1.0 | n/a | ug/L | | | | | U | 06/20/08 |
| BLANK | Vinyl chloride | 75-01-4 | < 1.0 | n/a | ug/L | | | | | U | 06/20/08 |
| LCS | 1,1-Dichloroethene | 75-35-4 | 26.270 | 105.000 | % Recov | 75.000 | 125.000 | | | | 06/21/08 |
| LCS | Benzene | 71-43-2 | 26.830 | 107.000 | % Recov | 75.000 | 125.000 | | | | 06/21/08 |
| LCS | 4-Bromofluorobenzene(Surr) | 460-00-4 | 55.600 | 111.000 | % Recov | 75.000 | 125.000 | | | | 06/21/08 |
| LCS | Chlorobenzene | 108-90-7 | 26.920 | 108.000 | % Recov | 75.000 | 125.000 | | | | 06/21/08 |
| LCS | 1,2-Dichloroethane-d4(Surr) | 17060-07-0 | 58.460 | 117.000 | % Recov | 75.000 | 125.000 | | | | 06/21/08 |
| LCS | Toluene-d8(Surr) | 2037-26-5 | 52.480 | 105.000 | % Recov | 75.000 | 125.000 | | | | 06/21/08 |
| LCS | Toluene | 108-88-3 | 26.750 | 107.000 | % Recov | 75.000 | 125.000 | | | | 06/21/08 |
| LCS | Trichloroethene | 79-01-6 | 22.390 | 89.600 | % Recov | 75.000 | 125.000 | | | | 06/21/08 |

# WSCF
# ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35
**SAF Number:** W08-006
**Sample #** W08P002771
**Client ID:** B1VR65 PNNL-GPP WSCF

**Matrix:** WATER

**Group #:** WSCF20081171
**Department:** Radiochemistry
**Sampled:** 06/10/08
**Received:** 06/10/08

| Test Performed | CAS # | Method | RQ | Result | Unit | TP Err | Unit | DF | MDL | PQL | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Gross Alpha on Alpha Plateau** | | | | | | | | | | | |
| Gross alpha on alpha plateau | 12587-46-1 | LA-508-415 | U | 0.800 | pCi/L | +-1.14 | pCi/L | 1.00 | 1.9 | | 07/28/08 |
| **Gross Alpha/Gross Beta (AB32)** | | | | | | | | | | | |
| Gross beta | 12587-47-2 | LA-508-415 | | 17.0 | pCi/L | +-3.23 | pCi/L | 1.00 | 3.2 | | 07/24/08 |
| **TC99 by Liquid Scin.** | | | | | | | | | | | |
| Tc-99 by Liquid Scin. | 14133-76-7 | LA-508-421 | | 18.0 | pCi/L | +-5.22 | pCi/L | 1.00 | 5.7 | | 06/16/08 |

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

B - The analyte < the RDL but > = the IDL/MDL (inorg)
E - Analyte is an estimate, has potentially larger errors.(org)
U - Analyzed for but not detected above limiting criteria(inorg)

D - Analyte was identified at a secondary dilution factor(inorg)
J - Analyte < lowest calibration but > = MDL.(org)
U - Analyzed for but not detected above limiting criteria.(org)

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

# WSCF
# ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35
**SAF Number:** W08-006
**Sample #** W08P002789
**Client ID:** B1VPB9 PNNL-GPP WSCF

**Matrix:** WATER

**Group #:** WSCF20081171
**Department:** Radiochemistry
**Sampled:** 06/10/08
**Received:** 06/10/08

| Test Performed | CAS # | Method | RQ | Result | Unit | TP Err | Unit | DF | MDL | PQL | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **TC99 by Liquid Scin.** | | | | | | | | | | | |
| Tc-99 by Liquid Scin. | 14133-76-7 | LA-508-421 | | 2.00e+04 | pCi/L | +-4.00e+03 | pCi/L | 1.00 | 5.7 | | 06/16/08 |

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

B - The analyte < the RDL but > = the IDL/MDL (inorg)
E - Analyte is an estimate, has potentially larger errors.(org)
U - Analyzed for but not detected above limiting criteria(inorg)

D - Analyte was identified at a secondary dilution factor(inorg)
J - Analyte < lowest calibration but > = MDL.(org)
U - Analyzed for but not detected above limiting criteria.(org)

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

# WSCF
# ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35
**SAF Number:** W08-006
**Sample #** W08P002791
**Client ID:** B1VRJ7 PNNL-GPP WSCF

**Matrix:** WATER

**Group #:** WSCF20081171
**Department:** Radiochemistry
**Sampled:** 06/10/08
**Received:** 06/10/08

| Test Performed | CAS # | Method | RQ | Result | Unit | TP Err | Unit | DF | MDL | PQL | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **TC99 by Liquid Scin.** | | | | | | | | | | | |
| Tc-99 by Liquid Scin. | 14133-76-7 | LA-508-421 | | 32.0 | pCi/L | +-7.68 | pCi/L | 1.00 | 5.7 | | 06/16/08 |

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

B - The analyte < the RDL but >= the IDL/MDL (inorg)
E - Analyte is an estimate, has potentially larger errors.(org)
U - Analyzed for but not detected above limiting criteria(inorg)

D - Analyte was identified at a secondary dilution factor(inorg)
J - Analyte < lowest calibration but >= MDL.(org)
U - Analyzed for but not detected above limiting criteria.(org)

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

# WSCF
# ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35
**SAF Number:** W08-006
**Sample #** W08P002793
**Client ID:** B1VPB3 PNNL-GPP WSCF

**Matrix:** WATER

**Group #:** WSCF20081171
**Department:** Radiochemistry
**Sampled:** 06/10/08
**Received:** 06/10/08

| Test Performed | CAS # | Method | RQ | Result | Unit | TP Err | Unit | DF | MDL | PQL | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **TC99 by Liquid Scin.** | | | | | | | | | | | |
| Tc-99 by Liquid Scin. | 14133-76-7 | LA-508-421 | | 1.40e+04 | pCi/L | +-2.80e+03 | pCi/L | 1.00 | 5.9 | | 06/23/08 |

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

B - The analyte < the RDL but >= the IDL/MDL (inorg)
E - Analyte is an estimate, has potentially larger errors.(org)
U - Analyzed for but not detected above limiting criteria(inorg)

D - Analyte was identified at a secondary dilution factor(inorg)
J - Analyte < lowest calibration but >= MDL.(org)
U - Analyzed for but not detected above limiting criteria.(org)

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

# WSCF
# ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35
**SAF Number:** W08-006
**Sample #** W08P002795
**Client ID:** B1VPB6 PNNL-GPP WSCF

**Matrix:** WATER

**Group #:** WSCF20081171
**Department:** Radiochemistry
**Sampled:** 06/10/08
**Received:** 06/10/08

| Test Performed | CAS # | Method | RQ | Result | Unit | TP Err | Unit | DF | MDL | PQL | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **TC99 by Liquid Scin.** | | | | | | | | | | | |
| Tc-99 by Liquid Scin. | 14133-76-7 | LA-508-421 | | 450 | pCi/L | +-90.0 | pCi/L | 1.00 | 5.9 | | 06/23/08 |

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

B - The analyte < the RDL but > = the IDL/MDL (inorg)
E - Analyte is an estimate, has potentially larger errors.(org)
U - Analyzed for but not detected above limiting criteria(inorg)

D - Analyte was identified at a secondary dilution factor(inorg)
J - Analyte < lowest calibration but > = MDL.(org)
U - Analyzed for but not detected above limiting criteria.(org)

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

# WSCF
# ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35
**SAF Number:** W08-006
**Sample #** W08P002802
**Client ID:** B1VR75 PNNL-GPP WSCF

**Matrix:** WATER

**Group #:** WSCF20081171
**Department:** Radiochemistry
**Sampled:** 06/10/08
**Received:** 06/10/08

| Test Performed | CAS # | Method | RQ | Result | Unit | TP Err | Unit | DF | MDL | PQL | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Gross Alpha on Alpha Plateau** | | | | | | | | | | | |
| Gross alpha on alpha plateau | 12587-46-1 | LA-508-415 | U | 1.20 | pCi/L | +-1.44 | pCi/L | 1.00 | 2.1 | | 07/28/08 |
| **Gross Alpha/Gross Beta (AB32)** | | | | | | | | | | | |
| Gross beta | 12587-47-2 | LA-508-415 | | 240 | pCi/L | +-24.0 | pCi/L | 1.00 | 3.3 | | 07/24/08 |
| **TC99 by Liquid Scin.** | | | | | | | | | | | |
| Tc-99 by Liquid Scin. | 14133-76-7 | LA-508-421 | | 380 | pCi/L | +-76.0 | pCi/L | 1.00 | 5.9 | | 06/23/08 |

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

B - The analyte < the RDL but > = the IDL/MDL (inorg)
E - Analyte is an estimate, has potentially larger errors.(org)
U - Analyzed for but not detected above limiting criteria(inorg)

D - Analyte was identified at a secondary dilution factor(inorg)
J - Analyte < lowest calibration but > = MDL.(org)
U - Analyzed for but not detected above limiting criteria.(org)

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

# WSCF
# ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35
**SAF Number:** W08-006
**Sample #** W08P002803
**Client ID:** B1VR55 PNNL-GPP WSCF

**Matrix:** WATER

**Group #:** WSCF20081171
**Department:** Radiochemistry
**Sampled:** 06/10/08
**Received:** 06/10/08

| Test Performed | CAS # | Method | RQ | Result | Unit | TP Err | Unit | DF | MDL | PQL | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Gross Alpha on Alpha Plateau** | | | | | | | | | | | |
| Gross alpha on alpha plateau | 12587-46-1 | LA-508-415 | | 2.50 | pCi/L | +-1.55 | pCi/L | 1.00 | 2.1 | | 07/28/08 |
| **Gross Alpha/Gross Beta (AB32)** | | | | | | | | | | | |
| Gross beta | 12587-47-2 | LA-508-415 | | 37.0 | pCi/L | +-5.18 | pCi/L | 1.00 | 3.3 | | 07/24/08 |
| **TC99 by Liquid Scin.** | | | | | | | | | | | |
| Tc-99 by Liquid Scin. | 14133-76-7 | LA-508-421 | | 46.0 | pCi/L | +-10.1 | pCi/L | 1.00 | 5.9 | | 06/23/08 |

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

B - The analyte < the RDL but > = the IDL/MDL (inorg)
E - Analyte is an estimate, has potentially larger errors.(org)
U - Analyzed for but not detected above limiting criteria(inorg)

D - Analyte was identified at a secondary dilution factor(inorg)
J - Analyte < lowest calibration but > = MDL.(org)
U - Analyzed for but not detected above limiting criteria.(org)

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

# WSCF
# ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35
**SAF Number:** W08-006
**Sample #** W08P002804
**Client ID:** B1VR85 PNNL-GPP WSCF

**Matrix:** WATER

**Group #:** WSCF20081171
**Department:** Radiochemistry
**Sampled:** 06/10/08
**Received:** 06/10/08

| Test Performed | CAS # | Method | RQ | Result | Unit | TP Err | Unit | DF | MDL | PQL | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Gross Alpha on Alpha Plateau** | | | | | | | | | | | |
| Gross alpha on alpha plateau | 12587-46-1 | LA-508-415 | U | 1.60 | pCi/L | +-1.47 | pCi/L | 1.00 | 2.2 | | 07/28/08 |
| **Gross Alpha/Gross Beta (AB32)** | | | | | | | | | | | |
| Gross beta | 12587-47-2 | LA-508-415 | | 3.90e+03 | pCi/L | +-390 | pCi/L | 1.00 | 3.3 | | 07/24/08 |
| **TC99 by Liquid Scin.** | | | | | | | | | | | |
| Tc-99 by Liquid Scin. | 14133-76-7 | LA-508-421 | | 7.10e+03 | pCi/L | +-1.42e+03 | pCi/L | 1.00 | 5.9 | | 06/23/08 |

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

B - The analyte < the RDL but >= the IDL/MDL (inorg)
E - Analyte is an estimate, has potentially larger errors.(org)
U - Analyzed for but not detected above limiting criteria(inorg)

D - Analyte was identified at a secondary dilution factor(inorg)
J - Analyte < lowest calibration but >= MDL.(org)
U - Analyzed for but not detected above limiting criteria.(org)

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

# WSCF
# ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35
**SAF Number:** W08-006
**Sample #** W08P002805
**Client ID:** B1VR33 PNNL-GPP WSCF

**Matrix:** WATER

**Group #:** WSCF20081171
**Department:** Radiochemistry
**Sampled:** 06/10/08
**Received:** 06/10/08

| Test Performed | CAS # | Method | RQ | Result | Unit | TP Err | Unit | DF | MDL | PQL | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Gross Alpha on Alpha Plateau** | | | | | | | | | | | |
| Gross alpha on alpha plateau | 12587-46-1 | LA-508-415 | U | 0.470 | pCi/L | +-1.13 | pCi/L | 1.00 | 2.0 | | 07/28/08 |
| **Gross Alpha/Gross Beta (AB32)** | | | | | | | | | | | |
| Gross beta | 12587-47-2 | LA-508-415 | | 84.0 | pCi/L | +-10.1 | pCi/L | 1.00 | 3.2 | | 07/24/08 |
| **TC99 by Liquid Scin.** | | | | | | | | | | | |
| Tc-99 by Liquid Scin. | 14133-76-7 | LA-508-421 | | 140 | pCi/L | +-28.0 | pCi/L | 1.00 | 5.9 | | 06/23/08 |

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

B - The analyte < the RDL but > = the IDL/MDL (inorg)
E - Analyte is an estimate, has potentially larger errors.(org)
U - Analyzed for but not detected above limiting criteria(inorg)

D - Analyte was identified at a secondary dilution factor(inorg)
J - Analyte < lowest calibration but > = MDL.(org)
U - Analyzed for but not detected above limiting criteria.(org)

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

# WSCF ANALYTICAL LABORATORY QC REPORT

**Department:** Radiochemistry

SDG Number: WSCF20081171
Matrix: WATER
Test: Gross Alpha on Alpha Plateau

Sample Date: 06/09/08
Receive Date:06/09/08

| QC Type | Analyte | CAS # | QC Found | QC Yield | Units | Lower Limit | Upper Limit | RPD(%) | RPD Limit | RQ | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lab ID: W08P002756 | | | | | | | | | | | |
| BATCH QC ASSOCIATED WITH SAMPLE | | | | | | | | | | | |
| DUP | Gross alpha on alpha plateau | 12587-46-1 | U2.7 | | RPD | | | n/a | 20.000 | | 07/28/08 |
| BATCH QC | | | | | | | | | | | |
| BLANK | Gross alpha on alpha plateau | 12587-46-1-ap | U-2.7E-01 | n/a | pCi/L | -100.000 | 100.000 | | | | 07/28/08 |
| LCS | Gross alpha on alpha plateau | 12587-46-1-ap | 69.5 | 89.677 | % Recov | 80.000 | 120.000 | | | | 07/28/08 |

# WSCF ANALYTICAL LABORATORY QC REPORT

**Department:** **Radiochemistry**

SDG Number: WSCF20081171
Matrix: WATER
Test: Gross Alpha/Gross Beta (AB32)

Sample Date: 06/09/08
Receive Date:06/09/08

| QC Type | Analyte | CAS # | QC Found | QC Yield | Units | Lower Limit | Upper Limit | RPD(%) | RPD Limit | RQ | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lab ID: W08P002756 | | | | | | | | | | | |
| BATCH QC ASSOCIATED WITH SAMPLE | | | | | | | | | | | |
| DUP | Gross beta | 12587-47-2 | 4.4E+03 | | RPD | | | 0.000 | 20.000 | | 07/24/08 |
| BATCH QC | | | | | | | | | | | |
| BLANK | Gross beta | 12587-47-2 | U-1.1 | n/a | pCi/L | -10.000 | 10.000 | | | | 07/24/08 |
| LCS | Gross beta | 12587-47-2 | 242.0 | 107.882 | % Recov | 80.000 | 120.000 | | | | 07/24/08 |

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: Radiochemistry

SDG Number: WSCF20081171
Matrix: WATER
Test: TC99 by Liquid Scin.

Sample Date: 06/05/08
Receive Date:06/05/08

| QC Type | Analyte | CAS # | QC Found | QC Yield | Units | Lower Limit | Upper Limit | RPD(%) | RPD Limit | RQ | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lab ID: W08P002731 | | | | | | | | | | | |
| BATCH QC ASSOCIATED WITH SAMPLE | | | | | | | | | | | |
| DUP | Tc-99 by Liquid Scin. | 14133-76-7 | 1.0E+03 | | RPD | | | 0.000 | 20.000 | | 06/16/08 |
| MS | Tc-99 by Liquid Scin. | 14133-76-7 | 770.0 | 102.360 | % Recov | 75.000 | 125.000 | | | | 06/16/08 |
| BATCH QC | | | | | | | | | | | |
| BLANK | Tc-99 by Liquid Scin. | 14133-76-7 | U1.1 | n/a | pCi/L | -10.000 | 10.000 | | | | 06/16/08 |
| LCS | Tc-99 by Liquid Scin. | 14133-76-7 | 193.7 | 102.977 | % Recov | 80.000 | 120.000 | | | | 06/16/08 |
| Lab ID: W08P002793 | | | | | | | | | | | |
| BATCH QC ASSOCIATED WITH SAMPLE | | | | | | | | | | | |
| DUP | Tc-99 by Liquid Scin. | 14133-76-7 | 1.6E+04 | | RPD | | | 13.333 | 20.000 | | 06/23/08 |
| MS | Tc-99 by Liquid Scin. | 14133-76-7 | 2261.6 | 300.645 | % Recov | 75.000 | 125.000 | | | | 06/23/08 |
| BATCH QC | | | | | | | | | | | |
| BLANK | Tc-99 by Liquid Scin. | 14133-76-7 | U-1.5 | n/a | pCi/L | -10.000 | 10.000 | | | | 06/23/08 |
| LCS | Tc-99 by Liquid Scin. | 14133-76-7 | 197 | 104.732 | % Recov | 80.000 | 120.000 | | | | 06/23/08 |

# WSCF
# ANALYTICAL COMMENT REPORT

**Attention:** Steve Trent E6-35

**Group #:** WSCF20081171
**Department:** Radiochemistry

| Sample # | Client ID | Lab Area | Test | Comment |
|---|---|---|---|---|
| | | VALGROUP | | Tc-99/matrix spike recovery is flagged for the high recovery due to high Tc-99 activity in the sample. Matrix spike criterion does not apply to high level samples. lmh<br><br>ICP-AES: [Samples W08P2771; 2788-2795; 2798-2805]<br>No zirconium is present in the LCS standard.<br>Sodium, magnesium, and calcium sample results exceed spiking level by a factor of 4 so spike recoveries are not valid.<br>Check standard is used to ensure sodium, magnesium, and calcium linearity because sample results are greater than the calibration standard.<br><br>ICP-AES: [Sample W08P2770]<br>No zirconium present in the LCS.<br>Check standard is used to ensure calcium, magnesium, and sodium linearity because sample results are greater than the calibration standard. |

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-08-777

ATTACHMENT 4

**SAMPLE RECEIPT INFORMATION**

Consisting of 15 pages
Including cover page

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

File
07/23/08

ACKNOWLEDGMENT OF SAMPLES RECEIVED

GPAP

Richland, WA 99352
Attn: Steve Trent E6-35

Customer Code: PNNL-GPP
PO#: 122543
Group#: 20081171

The following samples were received from you on 06/10/08. They have been scheduled for the tests listed beside each sample. If this information is incorrect, please contact your service representative. Thank you for using Waste Sampling and Characterization Facility.

| Sample# | Sample Id | Tests Scheduled | Matrix | Sample Date |
|---|---|---|---|---|
| W08P002766 | B1VR60 | PNNL-GPP<br>TOC-30 | Water | 06/10/08 |
| W08P002767 | B1VR61 | PNNL-GPP<br>TOC-30 | Water | 06/10/08 |
| W08P002768 | B1VR62 | PNNL-GPP<br>TOC-30 | Water | 06/10/08 |
| W08P002769 | B1VR63 | PNNL-GPP<br>TOC-30 | Water | 06/10/08 |
| W08P002770 | B1VR64 | PNNL-GPP<br>@2008 @GPP6010 | Water | 06/10/08 |
| W08P002771 | B1VR65 | PNNL-GPP<br>@2008 @AB-32 @ALPHA @GPP6010 @IC-30<br>@TC99-30 ALKALI | Water | 06/10/08 |
| W08P002772 | B1VR70 | PNNL-GPP<br>TOC-30 | Water | 06/10/08 |
| W08P002773 | B1VR71 | PNNL-GPP<br>TOC-30 | Water | 06/10/08 |
| W08P002774 | B1VR72 | PNNL-GPP<br>TOC-30 | Water | 06/10/08 |
| W08P002775 | B1VR73 | PNNL-GPP<br>TOC-30 | Water | 06/10/08 |
| W08P002776 | B1VR50 | PNNL-GPP<br>TOC-30 | Water | 06/10/08 |
| W08P002777 | B1VR51 | PNNL-GPP<br>TOC-30 | Water | 06/10/08 |
| W08P002778 | B1VR52 | PNNL-GPP<br>TOC-30 | Water | 06/10/08 |
| W08P002779 | B1VR53 | PNNL-GPP<br>TOC-30 | Water | 06/10/08 |
| W08P002780 | B1VR80 | PNNL-GPP<br>TOC-30 | Water | 06/10/08 |

GPAP

Richland, WA 99352
Attn: Steve Trent E6-35

Customer Code: PNNL-GPP
PO#: 122543
Group#: 20081171

| Sample# | Sample Id | Tests Scheduled | Matrix | Sample Date |
|---|---|---|---|---|
| W08P002781 | B1VR81 | PNNL-GPP<br>TOC-30 | Water | 06/10/08 |
| W08P002782 | B1VR82 | PNNL-GPP<br>TOC-30 | Water | 06/10/08 |
| W08P002783 | B1VR83 | PNNL-GPP<br>TOC-30 | Water | 06/10/08 |
| W08P002784 | B1VR28 | PNNL-GPP<br>TOC-30 | Water | 06/10/08 |
| W08P002785 | B1VR29 | PNNL-GPP<br>TOC-30 | Water | 06/10/08 |
| W08P002786 | B1VR30 | PNNL-GPP<br>TOC-30 | Water | 06/10/08 |
| W08P002787 | B1VR31 | PNNL-GPP<br>TOC-30 | Water | 06/10/08 |
| W08P002788 | B1VPB8 | PNNL-GPP<br>@GPP6010 | Water | 06/10/08 |
| W08P002789 | B1VPB9 | PNNL-GPP<br>@GPP6010 @IC-30 @TC99-30 ALKALI | Water | 06/10/08 |
| W08P002790 | B1VRJ6 | PNNL-GPP<br>@GPP6010 | Water | 06/10/08 |
| W08P002791 | B1VRJ7 | PNNL-GPP<br>@GPP6010 @IC-30 @TC99-30 ALKALI | Water | 06/10/08 |
| W08P002792 | B1VPB2 | PNNL-GPP<br>@GPP6010 | Water | 06/10/08 |
| W08P002793 | B1VPB3 | PNNL-GPP<br>@GPP6010 @IC-30 @TC99-30 ALKALI | Water | 06/10/08 |
| W08P002794 | B1VPB5 | PNNL-GPP<br>@GPP6010 | Water | 06/10/08 |
| W08P002795 | B1VPB6 | PNNL-GPP<br>@GPP6010 @IC-30 @TC99-30 ALKALI | Water | 06/10/08 |
| W08P002796 | B1V389 | PNNL-GPP<br>@VOA-GPP | Water | 06/10/08 |
| W08P002797 | B1VTR8 | PNNL-GPP<br>@IC-30 @VOA-GPP | Water | 06/10/08 |
| W08P002798 | B1VR74 | PNNL-GPP<br>@2008 @GPP6010 | Water | 06/10/08 |
| W08P002799 | B1VR54 | PNNL-GPP<br>@2008 @GPP6010 | Water | 06/10/08 |
| W08P002800 | B1VR84 | PNNL-GPP<br>@2008 @GPP6010 | Water | 06/10/08 |
| W08P002801 | B1VR32 | PNNL-GPP<br>@2008 @GPP6010 | Water | 06/10/08 |

GPAP

Richland, WA 99352
Attn: Steve Trent E6-35

Customer Code: PNNL-GPP
PO#: 122543
Group#: 20081171

| Sample# | Sample Id | Tests Scheduled | Matrix | Sample Date |
|---|---|---|---|---|
| W08P002802 | B1VR75 | PNNL-GPP<br>@2008 @AB-32 @ALPHA @GPP6010 @IC-30<br>@TC99-30 ALKALI | Water | 06/10/08 |
| W08P002803 | B1VR55 | PNNL-GPP<br>@2008 @AB-32 @ALPHA @GPP6010 @IC-30<br>@TC99-30 ALKALI | Water | 06/10/08 |
| W08P002804 | B1VR85 | PNNL-GPP<br>@2008 @AB-32 @ALPHA @GPP6010 @IC-30<br>@TC99-30 ALKALI | Water | 06/10/08 |
| W08P002805 | B1VR33 | PNNL-GPP<br>@2008 @AB-32 @ALPHA @GPP6010 @IC-30<br>@TC99-30 ALKALI | Water | 06/10/08 |

Test Acronym Description

| Test Acronym | Description |
|---|---|
| @2008 | ICP-200.8 MS All possible meta |
| @AB-32 | Gross Alpha/Gross Beta (AB32) |
| @ALPHA | Gross Alpha on Alpha Plateau |
| @GPP6010 | ICP Metals Analysis, Grd H20 P |
| @IC-30 | Anions by Ion Chromatography |
| @TC99-30 | TC99 by Liquid Scin. |
| @VOA-GPP | VOA Ground Water Protection |
| ALKALI | Total Alkalinity as mg/L CaCO3 |
| TOC-30 | Total Organic Carbon |

**FLUOR HANFORD**

# CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

7/23/08 20081171

**W08-006-52**



| | | |
|---|---|---|
| Collector SHEPARD | Contact/Requester Steve Trent | Telephone No. 509-373-5869 MSIN FAX |
| SAF No. W08-006 | Sampling Origin Hanford Site | Purchase Order/Charge Code |
| Project Title RCRA, JUNE 2008 | HNF-N-506-15 | Ice Chest No. 6W-1 Temp. |
| Shipped To (Lab) Waste Sampling & Characterization | Method of Shipment Govt. Vehicle | Bill of Lading/Air Bill No. |
| Protocol RCRA | Priority: 45 Days | Offsite Property No. |

**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 INSTRUCTIONS** Hold Time Total Activity Exemption: Yes ☑ No ☐
Site-Wide Generator Knowledge Information Form applies.

| Sample No. | Lab ID | * | Date | Time | No/Type Container | Sample Analysis | Preservative |
|---|---|---|---|---|---|---|---|
| B1VR60 | W08002766 | W | 6/10/08 | 0544 | 1x250-mL aGs* | 9060_TOC: TOC (1) | HCl or H2SO4 to pH <2 Cool~4C |
| B1VR61 | 2767 | W | | | 1x250-mL aGs* | 9060_TOC: TOC (1) | HCl or H2SO4 to pH <2 Cool~4C |
| B1VR62 | 2768 | W | | | 1x250-mL aGs* | 9060_TOC: TOC (1) | HCl or H2SO4 to pH <2 Cool~4C |
| B1VR63 | 2769 | W | | | 1x250-mL aGs* | 9060_TOC: TOC (1) | HCl or H2SO4 to pH <2 Cool~4C |
| B1VR64 (F) | 2770 | W | | | 1x500-mL G/P | 6010_METALS_ICP: List-3 (18) | HNO3 to pH <2 |
| B1VR64 (F) | ↓ | W | | | 1x500-mL G/P | 200.8_METALS_ICPMS: Lead (1) | HNO3 to pH <2 |
| B1VR65 | 2771 | W | | | 1x500-mL G/P | 6010_METALS_ICP: List-3 (18) | HNO3 to pH <2 |
| B1VR65 | | W | | | 1x250-mL G/P | 2320_ALKALINITY: Alkalinity (1) | Cool~4C |
| B1VR65 | | W | | | 1x500-mL P | 300.0_ANIONS_IC: List-1 (5) | Cool~4C |
| B1VR65 | | W | | | 1x500-mL G/P | 200.8_METALS_ICPMS: Lead (1) | HNO3 to pH <2 |
| B1VR65 | | W | | | 1x500-mL G/P | ALPHABETA_GPC: Alpha discrete + Beta (2); ALPHABETA_GPC: Alpha discrete + Beta (2) | HNO3 to pH <2 |
| B1VR65 | ↓ | W | | | 1x1000-mL G/P | TC99_3MDSK_LSC: Tc-99 (1) | HCl to pH <2 |

ICED

| Relinquished By | Date/Time | Received By | Date/Time |
|---|---|---|---|
| Print: CA. SHEPARD Sign: [signature] | JUN 10 2008 1350 | Print: CA Hudson Sign: [signature] | JUN 10 2008 1350 |
| Relinquished By | Date/Time | Received By | Date/Time |
| Relinquished By | Date/Time | Received By | Date/Time |
| Relinquished By | Date/Time | Received By | Date/Time |

Matrix *

| | | | |
|---|---|---|---|
| S = Soil | | DS = Drum Solid | |
| SE = Sediment | | DL = Drum Liquid | |
| SO = Solid | | T = Tissue | |
| SL = Sludge | | WI = Wine | |
| W = Water | | L = Liquid | |
| O = Oil | | V = Vegetation | |
| A = Air | | X = Other | |

**FINAL SAMPLE DISPOSITION** Disposal Method (e.g., Return to customer, per lab procedure, used in process) Disposed By Date/Time

**FLUOR HANFORD**

# CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

**W08-006-56**



| | | |
|---|---|---|
| **Collector** Roy Shepard Fluor Hanford | **Contact/Requester** Steve Trent | **Telephone No.** 509-373-5869 **MSIN** **FAX** |
| **SAF No.** W08-006 | **Sampling Origin** Hanford Site | **Purchase Order/Charge Code** |
| **Project Title** RCRA JUNE 2008 | HNF-N-506-15 | **Ice Chest No.** GW 1 **Temp.** |
| **Shipped To (Lab)** Waste Sampling & Characterization | **Method of Shipment** Govt. Vehicle | **Bill of Lading/Air Bill No.** |
| **Protocol** RCRA | **Priority:** 45 Days | **Offsite Property No.** |

**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 INSTRUCTIONS** **Hold Time** Total Activity Exemption: Yes ☑ No ☐
Site-Wide Generator Knowledge Information Form applies.

| Sample No. | Lab ID | * | Date | Time | No/Type Container | Sample Analysis | Preservative |
|---|---|---|---|---|---|---|---|
| B1VR70 | 2772 | W | 61008 | 1932 | 1x250-mL aGs* | 9060_TOC: TOC (1) | HCl or H2SO4 to pH <2 Cool~4C |
| B1VR71 | 2773 | W | | | 1x250-mL aGs* | 9060_TOC: TOC (1) | HCl or H2SO4 to pH <2 Cool~4C |
| B1VR72 | 2774 | W | | | 1x250-mL aGs* | 9060_TOC: TOC (1) | HCl or H2SO4 to pH <2 Cool~4C |
| B1VR73 | 2775 | W | | | 1x250-mL aGs* | 9060_TOC: TOC (1) | HCl or H2SO4 to pH <2 Cool~4C |
| B1VR74 (F) | 2798 | W | | | 1x500-mL G/P | 6010_METALS_ICP: List-3 (18) | HNO3 to pH <2 |
| B1VR74 (F) | | W | | | 1x500-mL G/P | 200.8_METALS_ICPMS: Lead (1) | HNO3 to pH <2 |
| B1VR75 | 2802 | W | | | 1x500-mL G/P | 6010_METALS_ICP: List-3 (18) | HNO3 to pH <2 |
| B1VR75 | | W | | | 1x250-mL G/P | 2320_ALKALINITY: Alkalinity (1) | Cool~4C |
| B1VR75 | | W | | | 1x500-mL P | 300.0_ANIONS_IC: List-1 (5) | Cool~4C |
| B1VR75 | | W | | | 1x500-mL G/P | 200.8_METALS_ICPMS: Lead (1) | HNO3 to pH <2 |
| B1VR75 | | W | | | 1x500-mL G/P | ALPHABETA_GPC: Alpha discrete + Beta (2); ALPHABETA_GPC: Alpha discrete + Beta (2) | HNO3 to pH <2 |
| B1VR75 | | W | | | 1x1000-mL G/P | TC99_3MDSK_LSC: Tc-99 (1) | HCl to pH <2 |

ICED

| Relinquished By | Print | Sign | Date/Time | Received By | Print | Sign | Date/Time |
|---|---|---|---|---|---|---|---|
| Roy Shepard Fluor Hanford | | | JUN 10 2008 1350 | | CM Hudson | | JUN 10 2008 1350 |
| Relinquished By | | | Date/Time | Received By | | | Date/Time |
| Relinquished By | | | Date/Time | Received By | | | Date/Time |
| Relinquished By | | | Date/Time | Received By | | | Date/Time |

Matrix *

| | | | |
|---|---|---|---|
| S | = Soil | DS | = Drum Solid |
| SE | = Sediment | DL | = Drum Liquid |
| SO | = Solid | T | = Tissue |
| SL | = Sludge | WI | = Wine |
| W | = Water | L | = Liquid |
| O | = Oil | V | = Vegetation |
| A | = Air | X | = Other |

**FINAL SAMPLE DISPOSITION** Disposal Method (e.g., Return to customer, per lab procedure, used in process) Disposed By Date/Time

**FLUOR HANFORD**

# CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

**W08-006-48**



| | | |
|---|---|---|
| **Collector** Roy Shepard Fluor Hanford | **Contact/Requester** Steve Trent | **Telephone No.** 509-373-5869 **MSIN** **FAX** |
| **SAF No.** W08-006 | **Sampling Origin** Hanford Site | **Purchase Order/Charge Code** |
| **Project Title** RCRA, JUNE 2008 | HNF-N 506-15 | **Ice Chest No.** GW-1 **Temp.** |
| **Shipped To (Lab)** Waste Sampling & Characterization | **Method of Shipment** Govt. Vehicle | **Bill of Lading/Air Bill No.** |
| **Protocol** RCRA | **Priority:** 45 Days | **Offsite Property No.** |

**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 INSTRUCTIONS** **Hold Time** Total Activity Exemption: Yes ☑ No ☐
Site-Wide Generator Knowledge Information Form applies.

| Sample No. | Lab ID | * | Date | Time | No/Type Container | Sample Analysis | Preservative |
|---|---|---|---|---|---|---|---|
| B1VR50 | 2776 | W | 6/10/08 | 1353 | 1x250-mL aGs* | 9060_TOC: TOC (1) | HCl or H2SO4 to pH <2 Cool~4C |
| B1VR51 | 2777 | W | | | 1x250-mL aGs* | 9060_TOC: TOC (1) | HCl or H2SO4 to pH <2 Cool~4C |
| B1VR52 | 2778 | W | | | 1x250-mL aGs* | 9060_TOC: TOC (1) | HCl or H2SO4 to pH <2 Cool~4C |
| B1VR53 | 2779 | W | | | 1x250-mL aGs* | 9060_TOC: TOC (1) | HCl or H2SO4 to pH <2 Cool~4C |
| B1VR54 (F) | 2799 | W | | | 1x500-mL G/P | 6010_METALS_ICP: List-3 (18) | HNO3 to pH <2 |
| B1VR54 (F) | ↓ | W | | | 1x500-mL G/P | 200.8_METALS_ICPMS: Lead (1) | HNO3 to pH <2 |
| B1VR55 | 2803 | W | | | 1x500-mL G/P | 6010_METALS_ICP: List-3 (18) | HNO3 to pH <2 |
| B1VR55 | | W | | | 1x250-mL G/P | 2320_ALKALINITY: Alkalinity (1) | Cool~4C |
| B1VR55 | | W | | | 1x500-mL P | 300.0_ANIONS_IC: List-1 (5) | Cool~4C |
| B1VR55 | | W | | | 1x500-mL G/P | 200.8_METALS_ICPMS: Lead (1) | HNO3 to pH <2 |
| B1VR55 | | W | | | 1x500-mL G/P | ALPHABETA_GPC: Alpha discrete + Beta (2); ALPHABETA_GPC: Alpha discrete + Beta (2) | HNO3 to pH <2 |
| B1VR55 | ↓ | W | ↓ | ↓ | 1x1000-mL G/P | TC99_3MDSK_LSC: Tc-99 (1) | HCl to pH <2 |
| | | | | | | | |
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ICL

| Relinquished By | Print | Sign | Date/Time | Received By | Print | Sign | Date/Time |
|---|---|---|---|---|---|---|---|
| Roy Shepard Fluor Hanford | | | JUN 10 2008 1350 | M Hudson | | | JUN 10 2008 1350 |
| Relinquished By | | | Date/Time | Received By | | | Date/Time |
| Relinquished By | | | Date/Time | Received By | | | Date/Time |
| Relinquished By | | | Date/Time | Received By | | | Date/Time |

**Matrix ***

| | | | |
|---|---|---|---|
| S | = Soil | DS | = Drum Solid |
| SE | = Sediment | DL | = Drum Liquid |
| SO | = Solid | T | = Tissue |
| SL | = Sludge | WI | = Wipe |
| W | = Water | L | = Liquid |
| O | = Oil | V | = Vegetation |
| A | = Air | X | = Other |

**FINAL SAMPLE DISPOSITION** Disposal Method (e.g., Return to customer, per lab procedure, used in process) Disposed By Date/Time

**FLUOR HANFORD**

# CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C.# **W08-006-60**



| | | |
|---|---|---|
| **Collector** Roy Shepard, Fluor Hanford | **Contact/Requester** Steve Trent | **Telephone No.** 509-373-5869 **MSIN** **FAX** |
| **SAF No.** W08-006 | **Sampling Origin** Hanford Site | **Purchase Order/Charge Code** |
| **Project Title** RCRA JUNE 2008 | HNF-N-526-15 | **Ice Chest No.** GW-1 **Temp.** |
| **Shipped To (Lab)** Waste Sampling & Characterization | **Method of Shipment** Govt. Vehicle | **Bill of Lading/Air Bill No.** |
| **Protocol** RCRA | **Priority:** 45 Days | **Offsite Property No.** |

**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 INSTRUCTIONS** **Hold Time** Total Activity Exemption: Yes ☑ No ☐
Site-Wide Generator Knowledge Information Form applies.

| Sample No. | Lab ID | * | Date | Time | No/Type Container | Sample Analysis | Preservative |
|---|---|---|---|---|---|---|---|
| B1VR80 | 2780 | W | 6/10/08 | 1133 | 1x250-mL aGs* | 9060_TOC: TOC (1) | HCl or H2SO4 to pH <2 Cool~4C |
| B1VR81 | 2781 | W | | | 1x250-mL aGs* | 9060_TOC: TOC (1) | HCl or H2SO4 to pH <2 Cool~4C |
| B1VR82 | 2782 | W | | | 1x250-mL aGs* | 9060_TOC: TOC (1) | HCl or H2SO4 to pH <2 Cool~4C |
| B1VR83 | 2783 | W | | | 1x250-mL aGs* | 9060_TOC: TOC (1) | HCl or H2SO4 to pH <2 Cool~4C |
| B1VR84 (F) | 2800 | W | | | 1x500-mL G/P | 6010_METALS_ICP: List-3 (18) | HNO3 to pH <2 |
| B1VR84 (F) | ↓ | W | | | 1x500-mL G/P | 200.8_METALS_ICPMS: Lead (1) | HNO3 to pH <2 |
| B1VR85 | 2804 | W | | | 1x500-mL G/P | 6010_METALS_ICP: List-3 (18) | HNO3 to pH <2 |
| B1VR85 | | W | | | 1x250-mL G/P | 2320_ALKALINITY: Alkalinity (1) | Cool~4C |
| B1VR85 | | W | | | 1x500-mL P | 300.0_ANIONS_IC: List-1 (5) | Cool~4C |
| B1VR85 | | W | | | 1x500-mL G/P | 200.8_METALS_ICPMS: Lead (1) | HNO3 to pH <2 |
| B1VR85 | | W | | | 1x500-mL G/P | ALPHABETA_GPC: Alpha discrete + Beta (2); ALPHABETA_GPC: Alpha discrete + Beta (2) | HNO3 to pH <2 |
| B1VR85 | ↓ | W | ↓ | ↓ | 1x1000-mL G/P | TC99_3MDSK_LSC: Tc-99 (1) | HCl to pH <2 |

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| Relinquished By | Print | Sign | Date/Time | Received By | Print | Sign | Date/Time |
|---|---|---|---|---|---|---|---|
| Roy Shepard, Fluor Hanford | | JUN 10 2008 | 1350 | | Hutton | | JUN 10 2008 1350 |
| Relinquished By | | | Date/Time | Received By | | | Date/Time |
| Relinquished By | | | Date/Time | Received By | | | Date/Time |
| Relinquished By | | | Date/Time | Received By | | | Date/Time |

Matrix *

| | | | | | |
|---|---|---|---|---|---|
| S | = | Soil | DS | = | Drum Solid |
| SF | = | Sediment | DL | = | Drum Liquid |
| SO | = | Solid | T | = | Tissue |
| SL | = | Sludge | WI | = | Wine |
| W | = | Water | L | = | Liquid |
| O | = | Oil | V | = | Vegetation |
| A | = | Air | X | = | Other |

**FINAL SAMPLE DISPOSITION** Disposal Method (e.g., Return to customer, per lab procedure, used in process) Disposed By Date/Time

**FLUOR HANFORD**

# CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C.# **W08-006-38**



| | | |
|---|---|---|
| **Collector** Roy Shepard, Fluor Hanford | **Contact/Requester** Steve Trent | **Telephone No.** 509-373-5869 **MSIN** **FAX** |
| **SAF No.** W08-006 | **Sampling Origin** Hanford Site | **Purchase Order/Charge Code** |
| **Project Title** RCRA JUNE 2008 | HNF-N-506-15 | **Ice Chest No.** GW 1 **Temp.** |
| **Shipped To (Lab)** Waste Sampling & Characterization | **Method of Shipment** Govt. Vehicle | **Bill of Lading/Air Bill No.** |
| **Protocol** RCRA | **Priority:** 45 Days | **Offsite Property No.** |

**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 INSTRUCTIONS** **Hold Time** Total Activity Exemption: Yes ☑ No ☐
Site-Wide Generator Knowledge Information Form applies.

| Sample No. | Lab ID | * | Date | Time | No/Type Container | Sample Analysis | Preservative |
|---|---|---|---|---|---|---|---|
| B1VR28 | 2784 | W | 6-10-08 | 1015 | 1x250-mL aGs* | 9060_TOC: TOC (1) | HCl or H2SO4 to pH <2 Cool~4C |
| B1VR29 | 2785 | W | | | 1x250-mL aGs* | 9060_TOC: TOC (1) | HCl or H2SO4 to pH <2 Cool~4C |
| B1VR30 | 2786 | W | | | 1x250-mL aGs* | 9060_TOC: TOC (1) | HCl or H2SO4 to pH <2 Cool~4C |
| B1VR31 | 2787 | W | | | 1x250-mL aGs* | 9060_TOC: TOC (1) | HCl or H2SO4 to pH <2 Cool~4C |
| B1VR32 (F) | 2801 | W | | | 1x500-mL G/P | 6010_METALS_ICP: List-3 (18) | HNO3 to pH <2 |
| B1VR32 (F) | ↓ | W | | | 1x500-mL G/P | 200.8_METALS_ICPMS: Lead (1) | HNO3 to pH <2 |
| B1VR33 | 2805 | W | | | 1x500-mL G/P | 6010_METALS_ICP: List-3 (18) | HNO3 to pH <2 |
| B1VR33 | | W | | | 1x250-mL G/P | 2320_ALKALINITY: Alkalinity (1) | Cool~4C |
| B1VR33 | | W | | | 1x500-mL P | 300.0_ANIONS_IC: List-1 (5) | Cool~4C |
| B1VR33 | | W | | | 1x500-mL G/P | 200.8_METALS_ICPMS: Lead (1) | HNO3 to pH <2 |
| B1VR33 | | W | | | 1x500-mL G/P | ALPHABETA_GPC: Alpha discrete + Beta (2); ALPHABETA_GPC: Alpha discrete + Beta (2) | HNO3 to pH <2 |
| B1VR33 | | W | | | 1x1000-mL G/P | TC99_3MDSK_LSC: Tc-99 (1) | HCl to pH <2 |

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| Relinquished By | Print | Sign | Date/Time | Received By | Print | Sign | Date/Time |
|---|---|---|---|---|---|---|---|
| Roy Shepard, Fluor Hanford | | | JUN 10 2008 1351 | CA Hilton | | | JUN 10 2008 1350 |
| Relinquished By | | | Date/Time | Received By | | | Date/Time |
| Relinquished By | | | Date/Time | Received By | | | Date/Time |
| Relinquished By | | | Date/Time | Received By | | | Date/Time |

**Matrix ***

| | | | |
|---|---|---|---|
| S | = Soil | DS | = Drum Solid |
| SE | = Sediment | DL | = Drum Liquid |
| SO | = Solid | T | = Tissue |
| SL | = Sludge | WI | = Wine |
| W | = Water | L | = Liquid |
| O | = Oil | V | = Vegetation |
| A | = Air | X | = Other |

**FINAL SAMPLE DISPOSITION** Disposal Method (e.g., Return to customer, per lab procedure, used in process) Disposed By Date/Time

**FLUOR HANFORD**

# CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # **W08-006-286**

Page 1 of 1

| | | |
|---|---|---|
| Collector Scott E. Hamaker | Contact/Requester Steve Trent | Telephone No. 509-373-5869 MSIN FAX |
| SAF No. W08-006 | Sampling Origin Hanford Site | Purchase Order/Charge Code |
| Project Title RCRA JUNE 2008 | HNF-N-505-16 | Ice Chest No. GRP-03-004 Temp. |
| Shipped To (Lab) Waste Sampling & Characterization | Method of Shipment Govt. Vehicle | Bill of Lading/Air Bill No. |
| Protocol RCRA | Priority: 45 Days | Offsite Property No. |

**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 INSTRUCTIONS** Hold Time Total Activity Exemption: Yes ☑ No ☐
Site-Wide Generator Knowledge Information Form applies.

| Sample No. | Lab ID | * | Date | Time | No/Type Container | Sample Analysis | Preservative |
|---|---|---|---|---|---|---|---|
| B1VPB8 (F) | 2788 | W | 6/10/08 | 0935 | 1x500-mL G/P | 6010_METALS_ICP: List-3 (18) | HNO3 to pH <2 |
| B1VPB9 | 2789 | W | ↓ | ↓ | 1x500-mL G/P | 6010_METALS_ICP: List-3 (18) | HNO3 to pH <2 |
| B1VPB9 | ↓ | W | ↓ | ↓ | 1x250-mL G/P | 2320_ALKALINITY: Alkalinity (1) | Cool~4C |
| B1VPB9 | ↓ | W | ↓ | ↓ | 1x500-mL P | 300.0_ANIONS_IC: List-1 (5) | Cool~4C |
| B1VPB9 | ↓ | W | ↓ | ↓ | 1x1000-mL G/P | TC99_3MDSK_LSC: Tc-99 (1) | HCl to pH <2 |

ICED

| Relinquished By | Print / Sign | Date/Time | Received By | Print / Sign | Date/Time |
|---|---|---|---|---|---|
| Scott E. Hamaker | Scott Hamaker | 1440 JUN 10 2008 1440 | CA Hutton | [illegible] | JUN 10 2008 1440 |
| Relinquished By | | Date/Time | Received By | | Date/Time |
| Relinquished By | | Date/Time | Received By | | Date/Time |
| Relinquished By | | Date/Time | Received By | | Date/Time |

Matrix *

| | | | |
|---|---|---|---|
| S = Soil | | DS = Drum Soil | |
| SE = Sediment | | DL = Drum Liquid | |
| SO = Solid | | T = Tissue | |
| SL = Sludge | | WI = Wipe | |
| W = Water | | L = Liquid | |
| O = Oil | | V = Vegetation | |
| A = Air | | X = Other | |

| FINAL SAMPLE DISPOSITION | Disposal Method (e.g., Return to customer, per lab procedure, used in process) | Disposed By | Date/Time |
|---|---|---|---|

**FLUOR HANFORD**

# CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # **W08-006-310**



| | | |
|---|---|---|
| **Collector** Scott E. Hamaker | **Contact/Requester** Steve Trent | **Telephone No.** 509-373-5869 **MSIN** **FAX** |
| **SAF No.** W08-006 | **Sampling Origin** Hanford Site | **Purchase Order/Charge Code** |
| **Project Title** RCRA, JUNE 2008 | HNF-N-106-V6 | **Ice Chest No.** GRP-03-004 **Temp.** |
| **Shipped To (Lab)** Waste Sampling & Characterization | **Method of Shipment** Govt. Vehicle | **Bill of Lading/Air Bill No.** |
| **Protocol** RCRA | **Priority:** 45 Days | **Offsite Property No.** |

**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 INSTRUCTIONS** **Hold Time** Total Activity Exemption: Yes ☑ No ☐
Site-Wide Generator Knowledge Information Form applies.

| Sample No. | Lab ID | * | Date | Time | No/Type Container | Sample Analysis | Preservative |
|---|---|---|---|---|---|---|---|
| B1VRJ6 (F) | 2790 | W | 6/10/08 | 1134 | 1x500-mL G/P | 6010_METALS_ICP: List-3 (18) | HNO3 to pH <2 |
| B1VRJ7 | 2791 | W | | | 1x500-mL G/P | 6010_METALS_ICP: List-3 (18) | HNO3 to pH <2 |
| B1VRJ7 | | W | | | 1x250-mL G/P | 2320_ALKALINITY: Alkalinity (1) | Cool~4C |
| B1VRJ7 | | W | | | 1x500-mL P | 300.0_ANIONS_IC: List-1 (5) | Cool~4C |
| B1VRJ7 | | W | | | 1x1000-mL G/P | TC99_3MDSK_LSC: Tc-99 (1) | HCl to pH <2 |

ICED

| Relinquished By | Print | Sign | Date/Time | Received By | Print | Sign | Date/Time |
|---|---|---|---|---|---|---|---|
| Scott E. Hamaker | Scott Hamaker | | 1440 JUN 10 2008 | CA Hudson | | | 1440 JUN 10 2008 |
| Relinquished By | | | Date/Time | Received By | | | Date/Time |
| Relinquished By | | | Date/Time | Received By | | | Date/Time |
| Relinquished By | | | Date/Time | Received By | | | Date/Time |

Matrix *

| | | | | | |
|---|---|---|---|---|---|
| S | = Soil | | DS | = Drum Solid | |
| SE | = Sediment | | DL | = Drum Liquid | |
| SO | = Solid | | T | = Tissue | |
| SL | = Sludge | | WI | = Wine | |
| W | = Water | | L | = Liquid | |
| O | = Oil | | V | = Vegetation | |
| A | = Air | | X | = Other | |

**FINAL SAMPLE DISPOSITION** Disposal Method (e.g., Return to customer, per lab procedure, used in process) Disposed By Date/Time

**FLUOR HANFORD**

# CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # **W08-006-278**

Page 1 of 1

| | | |
|---|---|---|
| **Collector** Scott E. Hamaker | **Contact/Requester** Steve Trent | **Telephone No.** 509-373-5869 **MSIN** **FAX** |
| **SAF No.** W08-006 | **Sampling Origin** Hanford Site | **Purchase Order/Charge Code** |
| **Project Title** RCRA JUNE 2008 | HNF-N-506-16 | **Ice Chest No.** GRP-03-054 **Temp.** |
| **Shipped To (Lab)** Waste Sampling & Characterization | **Method of Shipment** Govt. Vehicle | **Bill of Lading/Air Bill No.** |
| **Protocol** RCRA | **Priority:** 45 Days | **Offsite Property No.** |

**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 INSTRUCTIONS** **Hold Time** Total Activity Exemption: Yes ☑ No ☐
Site-Wide Generator Knowledge Information Form applies.

| Sample No. | Lab ID | * | Date | Time | No/Type Container | Sample Analysis | Preservative |
|---|---|---|---|---|---|---|---|
| B1VPB2 (F) | 2792 | W | 6/10/08 | 1307 | 1x500-mL G/P | 6010_METALS_ICP: List-3 (18) | HNO3 to pH <2 |
| B1VPB3 | 2793 | W | | | 1x500-mL G/P | 6010_METALS_ICP: List-3 (18) | HNO3 to pH <2 |
| B1VPB3 | | W | | | 1x250-mL G/P | 2320_ALKALINITY: Alkalinity (1) | Cool~4C |
| B1VPB3 | | W | | | 1x500-mL P | 300.0_ANIONS_IC: List-1 (5) | Cool~4C |
| B1VPB3 | | W | | | 1x1000-mL G/P | TC99_3MDSK_LSC: Tc-99 (1) | HCl to pH <2 |

ICED

| Relinquished By | Print | Sign | Date/Time | Received By | Print | Sign | Date/Time |
|---|---|---|---|---|---|---|---|
| Scott E. Hamaker | | | 1440 JUN 10 2008 | | | | 1440 JUN 10 2008 |
| Relinquished By | | | Date/Time | Received By | | | Date Time |
| Relinquished By | | | Date/Time | Received By | | | Date/Time |
| Relinquished By | | | Date/Time | Received By | | | Date/Time |

Matrix *

| | | | |
|---|---|---|---|
| SE | = Sediment | DL | = Drum Liquid |
| SO | = Solid | T | = Tissue |
| SL | = Sludge | WI | = Wine |
| W | = Water | L | = Liquid |
| O | = Oil | V | = Vegetation |
| A | = Air | X | = Other |

**FINAL SAMPLE DISPOSITION** Disposal Method (e.g., Return to customer, per lab procedure, used in process) Disposed By Date/Time

**FLUOR HANFORD**

# CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

COC#: **W08-006-282**



| | | |
|---|---|---|
| **Collector** Scott E. Hamaker | **Contact/Requester** Steve Trent | **Telephone No.** 509-373-5869 **MSIN** **FAX** |
| **SAF No.** W08-006 | **Sampling Origin** Hanford Site | **Purchase Order/Charge Code** |
| **Project Title** RCRA JUNE 2008 | HWF-W-506-16 | **Ice Chest No.** GRP-03-04 **Temp.** |
| **Shipped To (Lab)** Waste Sampling & Characterization | **Method of Shipment** Govt. Vehicle | **Bill of Lading/Air Bill No.** |
| **Protocol** RCRA | **Priority:** 45 Days | **Offsite Property No.** |

**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 INSTRUCTIONS** **Hold Time** Total Activity Exemption: Yes ☑ No ☐
Site-Wide Generator Knowledge Information Form applies.

| Sample No. | Lab ID | * | Date | Time | No/Type Container | Sample Analysis | Preservative |
|---|---|---|---|---|---|---|---|
| B1VPB5 (F) | 2794 | W | 6/10/08 | 1404 | 1x500-mL G/P | 6010_METALS_ICP: List-3 (18) | HNO3 to pH <2 |
| B1VPB6 | 2795 | W | ↓ | ↓ | 1x500-mL G/P | 6010_METALS_ICP: List-3 (18) | HNO3 to pH <2 |
| B1VPB6 | ↓ | W | ↓ | ↓ | 1x250-mL G/P | 2320_ALKALINITY: Alkalinity (1) | Cool~4C |
| B1VPB6 | ↓ | W | ↓ | ↓ | 1x500-mL P | 300.0_ANIONS_IC: List-1 (5) | Cool~4C |
| B1VPB6 | ↓ | W | ↓ | ↓ | 1x1000-mL G/P | TC99_3MDSK_LSC: Tc-99 (1) | HCl to pH <2 |

ICED

| Relinquished By | Print / Sign | Date/Time | Received By | Print / Sign | Date/Time |
|---|---|---|---|---|---|
| Scott E. Hamaker | Scott Hamaker | 1440 JUN 10 2008 | OA Widon | OA Widon | 1440 JUN 10 2008 |
| Relinquished By | | Date/Time | Received By | | Date/Time |
| Relinquished By | | Date/Time | Received By | | Date/Time |
| Relinquished By | | Date/Time | Received By | | Date/Time |

Matrix *

| | | | |
|---|---|---|---|
| SE | = Sediment | DL | = Drum Liquid |
| SO | = Solid | T | = Tissue |
| SL | = Sludge | WI | = Wine |
| W | = Water | L | = Liquid |
| O | = Oil | V | = Vegetation |
| A | = Air | X | = Other |

**FINAL SAMPLE DISPOSITION** Disposal Method (e.g., Return to customer, per lab procedure, used in process) Disposed By Date/Time

**FLUOR HANFORD**

# CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # **W08-004-198**



| | | |
|---|---|---|
| **Collector** Fluor Hanford D. R. BREWINGTON | **Contact/Requester** Steve Trent | **Telephone No.** 509-373-5869 **MSIN** **FAX** |
| **SAF No.** W08-004 | **Sampling Origin** Hanford Site | **Purchase Order/Charge Code** |
| **Project Title** RCRA, APRIL 2008 | HNF-N-506-12 | **Ice Chest No.** GRF-03-026 **Temp.** |
| **Shipped To (Lab)** Waste Sampling & Characterization | **Method of Shipment** Govt. Vehicle | **Bill of Lading/Air Bill No.** |
| **Protocol** RCRA | **Priority:** 45 Days | **Offsite Property No.** |

**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 INSTRUCTIONS** **Hold Time** Total Activity Exemption: Yes ☑ No ☐
Site-Wide Generator Knowledge Information Form applies.

| Sample No. | Lab ID | * | Date | Time | No/Type Container | Sample Analysis | Preservative |
|---|---|---|---|---|---|---|---|
| B1V389 | WOF002796 | W | 04/14/08 | 1504 | 4x40-mL aGs* | 8260_VOA_GCMS: List-2 (25) | HCl or H2SO4 to pH <2 Cool~4C |
| B1V389 | ↓ | W | ↓ | ↓ | 1x20-mL P | Activity Scan | None |

ICED

| Relinquished By | Date/Time | Received By | Date/Time |
|---|---|---|---|
| Fluor Hanford D. R. BREWINGTON Print / Sign | JUN 10 2008 1125 | Print / Sign | JUN 10 2008 1525 |
| Relinquished By | Date/Time | Received By | Date/Time |
| Relinquished By | Date/Time | Received By | Date/Time |
| Relinquished By | Date/Time | Received By | Date/Time |

Matrix *

| | | | |
|---|---|---|---|
| SE = Sediment | | DD = Drum Debris | |
| SO = Solid | | T = Tissue | |
| SL = Sludge | | WI = Wire | |
| W = Water | | L = Liquid | |
| O = Oil | | V = Vegetation | |
| A = Air | | X = Other | |

**FINAL SAMPLE DISPOSITION** Disposal Method (e.g., Return to customer, per lab procedure, used in process) Disposed By Date/Time

**FLUOR HANFORD**

Fluor Hanford

# CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # **I08-044-27**

Page 1 of 1

| | | |
|---|---|---|
| Collector D. R. BREWINGTON | Contact/Requester Steve Trent | Telephone No. 509-373-5869 MSIN FAX |
| SAF No. I08-044 | Sampling Origin Hanford Site | Purchase Order/Charge Code |
| Project Title 2ZP1, JUNE 2008 | HNF-N-506-12 | Ice Chest No. GRP-03-026 Temp. |
| Shipped To (Lab) Waste Sampling & Characterization | Method of Shipment Govt. Vehicle | Bill of Lading/Air Bill No. |
| Protocol CERCLA | Priority: 45 Days | Offsite Property No. |

**POSSIBLE SAMPLE HAZARDS/REMARKS**
** **

**SPECIAL INSTRUCTIONS** **Hold Time** Total Activity Exemption: Yes ☑ No ☐
200 Area Generator Knowledge Information Form applies.

| Sample No. | Lab ID | * | Date | Time | No/Type Container | Sample Analysis | Preservative |
|---|---|---|---|---|---|---|---|
| B1VTR8 | 2797 | W | 6/10/08 | 1504 | 4x40-mL aGs* | 8260_VOA_GCMS: List-2 (25) | HCl or H2SO4 to pH <2 Cool~4C |
| B1VTR8 | ↓ | W | ↓ | | 1x500-mL P | 300.0_ANIONS_IC: List-1 (5) | Cool~4C |

ICED

| Relinquished By | Received By |
|---|---|
| Print: Fluor Hanford D. R. BREWINGTON Sign: JUN 10 2008 Date/Time: 15:25 | Print: Sign: JUN 10 2008 Date/Time: 15:25 |
| Relinquished By Date/Time | Received By Date/Time |
| Relinquished By Date/Time | Received By Date/Time |
| Relinquished By Date/Time | Received By Date/Time |

Matrix *

| | | | |
|---|---|---|---|
| SE | = Sediment | DL | = Drum Liquid |
| SO | = Solid | T | = Tissue |
| SL | = Sludge | WI | = Wipe |
| W | = Water | L | = Liquid |
| O | = Oil | V | = Vegetation |
| A | = Air | X | = Other |

| FINAL SAMPLE DISPOSITION | Disposal Method (e.g., Return to customer, per lab procedure, used in process) | Disposed By | Date/Time |
|---|---|---|---|