0080019

RECEIVED AUGUST 11, 2008

Fluor Hanford
WSCF Analytical Lab
P.O. Box 1000
Richland, WA 99352
Telephone 373-7495
Telefax 372-0456

FLUOR

Memorandum

M4W41-SLF-08-809

To:	H. Hampt	E6-35	Date:	August 11, 2008
From:	S. L. Fitzgerald, Manager WSCF Analytical Lab			

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 WSCF20081273

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 WSCF20081273:

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

SLF/grf

Attachments 4

RECEIVED
JAN 29 2009
EDMC

M4W41-SLF-08-809

ATTACHMENT 1

COVER SHEET

Consisting of 2 pages
Including cover page

WSCF SAF NUMBER CROSS REFERENCE

Group#: WSCF20081273
Data Deliverable Date: 07-aug-2008
Data Deliverable: Cover Sheet

SAF#	Sample ID		WSCF#	Matrix
G08-006	B1VJY5	G	W08P003102	WATER
	B1VJY6	G	W08P003103	WATER
	B1VK10	G	W08P003106	WATER
	B1VK11	G	W08P003107	WATER
	B1VK14	G	W08P003100	WATER
	B1VK15	G	W08P003101	WATER
S08-006	B1VLC9		W08P003085	WATER
	B1VLD1	G	W08P003097	WATER
	B1VLD3	G	W08P003098	WATER
	B1VLD5	G	W08P003099	WATER
	B1VLL7	G	W08P003108	WATER
	B1VLL8	G	W08P003109	WATER
	B1VLN4	G	W08P003110	WATER
	B1VLN5	G	W08P003111	WATER
	B1VM45	G	W08P003104	WATER
	B1VM46	G	W08P003105	WATER

M4W41-SLF-08-809

ATTACHMENT 2

NARRATIVE

Consisting of 4 pages
Including cover page

Introduction

Sixteen (16) groundwater samples were received at the WSCF Laboratory on June 25, 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 through 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 37 through 39 for QC details. Analytical Note(s):

- Duplicates, Matrix Spikes and Matrix Spike Duplicates were analyzed on samples B1VNP4 (SDG# 20081288) and B1VK11 of this SDG.
- 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.

Cyanide – The hold time requirement for this analysis was met. A Matrix Spike, Matrix Spike Duplicate, Blank and Laboratory Control Sample were analyzed with this delivery group per GRP Letter of Instruction. See page 40 for QC details. Analytical Note(s):

- Matrix Spike and Matrix Spike Duplicate were analyzed on sample# B1V577 (SDG# 20081261, SAF# F08-103).

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 41 through 44 for QC details. Analytical Note(s):

- Matrix Spike and Matrix Spike Duplicate were analyzed on sample# B1V884 (SDG# 20081252).
- Calcium, Magnesium and Sodium – Sample results exceeded spiking levels by a factor of 4. Spike recoveries are not valid. Check standard was analyzed to ensure 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 45 for QC details. Analytical Note(s):

- Matrix Spikes and Matrix Spike Duplicates were analyzed on samples B1VM29 and B1VM35 (SDG# 20081287).

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 46 for QC details. Analytical Note(s):

- Duplicates were analyzed on samples B1VRK0 (SDG# 20081240) and B1VK09 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 47 for QC details. Analytical Note(s):

- Matrix Spikes and Matrix Spike Duplicates were analyzed on samples B1VR10 (SDG# 20081260) and B1VNP9 (SDG# 20081288).

All QC controls are within the established limits.

Organic Comments

TPHD-WA – 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. See page 50 for QC details. Analytical Note(s):

- Matrix Spike and Matrix Spike Duplicate were analyzed on sample# B1VKV7 (SDG# 20081252).

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 61 through 66 for QC details. Analytical Note(s):

- Gross Alpha / Gross Beta – Duplicate QC was analyzed on sample# B1VLH7 (SDG# 20081245). Duplicate Relative Percent Differences (RPDs) exceeded established laboratory limits. No flags issued.

- Strontium-89/09 and 85 (tracer) – Duplicate QC was analyzed on sample# B1VLH7 (SDG# 20081245).

- Technetium-99 – Duplicate and Matrix Spike were analyzed on sample# B1VJK8 (SDG# 20081288). Matrix Spike recovery was less than established laboratory limits. No flags issued.

- Tritium – Duplicate and Matrix Spike were analyzed on sample# B1VLH3 (SDG# 20081245).

All other QC controls are within the established limits.

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

Scot L. Fitzgerald
WSCF Analytical Laboratory Manager

Pauline D. Mix
WSCF Client Services

M4W41-SLF-08-809

ATTACHMENT 3

ANALYTICAL RESULTS

Consisting of 60 pages
Including cover page

WSCF
ANALYTICAL RESULTS REPORT

for

GPAP
Richland, WA 99352

Attention: Steve Trent E6-35

Analytical: S. Fitzgerald 8/11/08

Client Services: R.D. Mix 8/11/2008

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

This information is intended for the use of the addressee only. If the reader of this report is not the intended recipient or is not authorized by the recipient to receive the report, you are hereby notified that any dissemination, distribution or copying of this report is strictly prohibited. If you have received this report in error, please notify WSCF Laboratory immediately by telephone at (509) 373-7020 or (509) 531-E004. Information designation of this report is the responsibility of the customer.

Report#: WSCF20081273
Report Date: 11-aug-2008
Report WGPP/ver. 5.2
GPAP

w13qlog v4.2 11-aug-2008 07:01:23

Department: Inorganic

W13q Worklist/Batch/QC Report for Group# WSCF20081273

WL#	S#	Batch	QC#	Tray Type	Sample#	Test
36909	2	37330	41679	BLANK		Anions by Ion Chromatography
36909	14	37330	41679	BLANK		Anions by Ion Chromatography
36909	25	37330	41679	BLANK		Anions by Ion Chromatography
36909	3	37330	41679	LCS		Anions by Ion Chromatography
36909	15	37330	41679	LCS		Anions by Ion Chromatography
36909	4	37330	41679	SAMPLE	W08P003085	Anions by Ion Chromatography
36909	5	37330	41679	SAMPLE	W08P003101	Anions by Ion Chromatography
36909	6	37330	41679	SAMPLE	W08P003103	Anions by Ion Chromatography
36909	7	37330	41679	SAMPLE	W08P003105	Anions by Ion Chromatography
36909	11	37330	41679	DUP	W08P003107	Anions by Ion Chromatography
36909	12	37330	41679	MS	W08P003107	Anions by Ion Chromatography
36909	13	37330	41679	MSD	W08P003107	Anions by Ion Chromatography
36909	10	37330	41679	SAMPLE	W08P003107	Anions by Ion Chromatography
36909	13	37330	41679	SPK-RPD	W08P003107	Anions by Ion Chromatography
36909	8	37330	41679	SAMPLE	W08P003109	Anions by Ion Chromatography
36909	9	37330	41679	SAMPLE	W08P003111	Anions by Ion Chromatography
36909	22	37330	41679	DUP	W08P003143	Anions by Ion Chromatography
36909	23	37330	41679	MS	W08P003143	Anions by Ion Chromatography
36909	24	37330	41679	MSD	W08P003143	Anions by Ion Chromatography
36909	24	37330	41679	SPK-RPD	W08P003143	Anions by Ion Chromatography
36924	1	37345	41702	LCS		Total Alkalinity as mg/L CaCO3
36924	13	37345	41702	LCS		Total Alkalinity as mg/L CaCO3
36924	24	37345	41702	LCS		Total Alkalinity as mg/L CaCO3
36924	36	37345	41702	LCS		Total Alkalinity as mg/L CaCO3
36924	46	37345	41702	LCS		Total Alkalinity as mg/L CaCO3
36924	3	37345	41702	DUP	W08P002897	Total Alkalinity as mg/L CaCO3
36924	26	37345	41702	DUP	W08P003018	Total Alkalinity as mg/L CaCO3
36924	31	37345	41702	SAMPLE	W08P003101	Total Alkalinity as mg/L CaCO3
36924	32	37345	41702	SAMPLE	W08P003103	Total Alkalinity as mg/L CaCO3
36924	33	37345	41702	SAMPLE	W08P003105	Total Alkalinity as mg/L CaCO3
36924	34	37345	41702	SAMPLE	W08P003107	Total Alkalinity as mg/L CaCO3
36924	35	37345	41702	SAMPLE	W08P003109	Total Alkalinity as mg/L CaCO3
36924	37	37345	41702	SAMPLE	W08P003111	Total Alkalinity as mg/L CaCO3
36933	1	37349	41733	BLANK		Cyanide by Midi/Spectrophotom
36933	2	37349	41733	LCS		Cyanide by Midi/Spectrophotom
36933	5	37349	41733	MS	W08GR01833	Cyanide by Midi/Spectrophotom
36933	6	37349	41733	MSD	W08GR01833	Cyanide by Midi/Spectrophotom
36933	6	37349	41733	SPK-RPD	W08GR01833	Cyanide by Midi/Spectrophotom
36933	12	37349	41733	SAMPLE	W08P003109	Cyanide by Midi/Spectrophotom
36933	13	37349	41733	SAMPLE	W08P003111	Cyanide by Midi/Spectrophotom
37088	1	37514	41869	BLANK		ICP-200.8 MS All possible meta
37088	2	37514	41869	LCS		ICP-200.8 MS All possible meta
37088	19	37514	41869	SAMPLE	W08P003109	ICP-200.8 MS All possible meta
37088	20	37514	41869	SAMPLE	W08P003111	ICP-200.8 MS All possible meta
37088	4	37514	41869	MS	W08P003118	ICP-200.8 MS All possible meta
37088	5	37514	41869	MSD	W08P003118	ICP-200.8 MS All possible meta
37088	5	37514	41869	SPK-RPD	W08P003118	ICP-200.8 MS All possible meta
37088	7	37514	41869	MS	W08P003120	ICP-200.8 MS All possible meta
37088	8	37514	41869	MSD	W08P003120	ICP-200.8 MS All possible meta

37088	8	37514	41869	SPK-RPD	W08P003120	ICP-200.8 MS All possible meta
37279	1	37709	42028	BLANK		Total Organic Carbon
37279	2	37709	42028	METHSPIKE		Total Organic Carbon
37279	3	37709	42028	SPK-RSD		Total Organic Carbon
37279	4	37709	42028	MS	W08P003056	Total Organic Carbon
37279	5	37709	42028	MSD	W08P003056	Total Organic Carbon
37279	5	37709	42028	SPK-RPD	W08P003056	Total Organic Carbon
37279	8	37709	42028	SAMPLE	W08P003107	Total Organic Carbon
37279	17	37709	42028	MS	W08P003135	Total Organic Carbon
37279	18	37709	42028	MSD	W08P003135	Total Organic Carbon
37279	18	37709	42028	SPK-RPD	W08P003135	Total Organic Carbon
37349	1	37618	42272	BLANK		ICP Metals Analysis, Grd H20 P
37349	2	37618	42272	LCS		ICP Metals Analysis, Grd H20 P
37349	4	37618	42272	MS	W08P003032	ICP Metals Analysis, Grd H20 P
37349	5	37618	42272	MSD	W08P003032	ICP Metals Analysis, Grd H20 P
37349	5	37618	42272	SPK-RPD	W08P003032	ICP Metals Analysis, Grd H20 P
37349	12	37618	42272	SAMPLE	W08P003100	ICP Metals Analysis, Grd H20 P
37349	13	37618	42272	SAMPLE	W08P003101	ICP Metals Analysis, Grd H20 P
37349	14	37618	42272	SAMPLE	W08P003102	ICP Metals Analysis, Grd H20 P
37349	15	37618	42272	SAMPLE	W08P003103	ICP Metals Analysis, Grd H20 P
37349	16	37618	42272	SAMPLE	W08P003104	ICP Metals Analysis, Grd H20 P
37349	17	37618	42272	SAMPLE	W08P003105	ICP Metals Analysis, Grd H20 P
37349	18	37618	42272	SAMPLE	W08P003106	ICP Metals Analysis, Grd H20 P
37349	19	37618	42272	SAMPLE	W08P003107	ICP Metals Analysis, Grd H20 P
37349	20	37618	42272	SAMPLE	W08P003108	ICP Metals Analysis, Grd H20 P
37349	21	37618	42272	SAMPLE	W08P003109	ICP Metals Analysis, Grd H20 P
37349	22	37618	42272	SAMPLE	W08P003110	ICP Metals Analysis, Grd H20 P
37349	23	37618	42272	SAMPLE	W08P003111	ICP Metals Analysis, Grd H20 P

w13qlog v4.2 11-aug-2008 07:01:23

Department: Organic

W13q Worklist/Batch/QC Report for Group# WSCF20081273

WL#	S#	Batch	QC#	Tray Type	Sample#	Test
			41776	BLANK		NWTPH-D TPH Diesel Range (Wa)
			41776	LCS		NWTPH-D TPH Diesel Range (Wa)
			41776	MS	W08P003035	NWTPH-D TPH Diesel Range (Wa)
			41776	MSD	W08P003035	NWTPH-D TPH Diesel Range (Wa)
			41776	SPK-RPD	W08P003035	NWTPH-D TPH Diesel Range (Wa)
			41776	SAMPLE	W08P003107	NWTPH-D TPH Diesel Range (Wa)
			41776	SURR	W08P003107	NWTPH-D TPH Diesel Range (Wa)

w13qlog v4.2 11-aug-2008 07:01:23

Department: Radiochemistry

W13q Worklist/Batch/QC Report for Group# WSCF20081273

WL#	S#	Batch	QC#	Tray Type	Sample#	Test
36931	1	37353	41718	BLANK		Strontium 89/90
36931	2	37353	41718	LCS		Strontium 89/90
36931	3	37353	41718	DUP	W08P002925	Strontium 89/90
36931	14	37353	41718	SAMPLE	W08P003101	Strontium 89/90
36931	15	37353	41718	SURR	W08P003101	Strontium 89/90
36931	16	37353	41718	SAMPLE	W08P003103	Strontium 89/90
36931	17	37353	41718	SURR	W08P003103	Strontium 89/90
36931	18	37353	41718	SAMPLE	W08P003105	Strontium 89/90
36931	19	37353	41718	SURR	W08P003105	Strontium 89/90
36931	20	37353	41718	SAMPLE	W08P003107	Strontium 89/90
36931	21	37353	41718	SURR	W08P003107	Strontium 89/90
36944	1	37367	41742	BLANK		Gamma Energy Analysis-grd H2O
36944	2	37367	41742	LCS		Gamma Energy Analysis-grd H2O
36944	3	37367	41742	DUP	W08P003109	Gamma Energy Analysis-grd H2O
36944	4	37367	41742	SAMPLE	W08P003109	Gamma Energy Analysis-grd H2O
36944	5	37367	41742	SAMPLE	W08P003111	Gamma Energy Analysis-grd H2O
37073	1	37499	41949	BLANK		Gross Alpha on Alpha Plateau
37073	2	37499	41949	LCS		Gross Alpha on Alpha Plateau
37073	3	37499	41949	DUP	W08P002925	Gross Alpha on Alpha Plateau
37073	9	37499	41949	SAMPLE	W08P003085	Gross Alpha on Alpha Plateau
37073	10	37499	41949	SAMPLE	W08P003097	Gross Alpha on Alpha Plateau
37073	11	37499	41949	SAMPLE	W08P003098	Gross Alpha on Alpha Plateau
37073	12	37499	41949	SAMPLE	W08P003099	Gross Alpha on Alpha Plateau
37073	13	37499	41949	SAMPLE	W08P003101	Gross Alpha on Alpha Plateau
37073	14	37499	41949	SAMPLE	W08P003103	Gross Alpha on Alpha Plateau
37073	15	37499	41949	SAMPLE	W08P003105	Gross Alpha on Alpha Plateau
37073	16	37499	41949	SAMPLE	W08P003107	Gross Alpha on Alpha Plateau
37073	17	37499	41949	SAMPLE	W08P003109	Gross Alpha on Alpha Plateau
37073	18	37499	41949	SAMPLE	W08P003111	Gross Alpha on Alpha Plateau
37002	1	37425	41957	BLANK		Gross Alpha/Gross Beta (AB32)
37002	2	37425	41957	LCS		Gross Alpha/Gross Beta (AB32)
37002	3	37425	41957	DUP	W08P002925	Gross Alpha/Gross Beta (AB32)
37002	9	37425	41957	SAMPLE	W08P003085	Gross Alpha/Gross Beta (AB32)
37002	10	37425	41957	SAMPLE	W08P003097	Gross Alpha/Gross Beta (AB32)
37002	11	37425	41957	SAMPLE	W08P003098	Gross Alpha/Gross Beta (AB32)
37002	12	37425	41957	SAMPLE	W08P003099	Gross Alpha/Gross Beta (AB32)
37002	13	37425	41957	SAMPLE	W08P003101	Gross Alpha/Gross Beta (AB32)
37002	14	37425	41957	SAMPLE	W08P003103	Gross Alpha/Gross Beta (AB32)
37002	15	37425	41957	SAMPLE	W08P003105	Gross Alpha/Gross Beta (AB32)
37002	16	37425	41957	SAMPLE	W08P003107	Gross Alpha/Gross Beta (AB32)
37002	17	37425	41957	SAMPLE	W08P003109	Gross Alpha/Gross Beta (AB32)
37002	18	37425	41957	SAMPLE	W08P003111	Gross Alpha/Gross Beta (AB32)
36915	1	37336	42104	BLANK		Tritium by Liq Sct column prep
36915	2	37336	42104	LCS		Tritium by Liq Sct column prep
36915	4	37336	42104	DUP	W08P002927	Tritium by Liq Sct column prep
36915	3	37336	42104	MS	W08P002927	Tritium by Liq Sct column prep
36915	11	37336	42104	SAMPLE	W08P003101	Tritium by Liq Sct column prep
36915	12	37336	42104	SAMPLE	W08P003103	Tritium by Liq Sct column prep

36915	13	37336	42104	SAMPLE	W08P003105	Tritium by Liq Sct column prep
36915	14	37336	42104	SAMPLE	W08P003107	Tritium by Liq Sct column prep
36915	15	37336	42104	SAMPLE	W08P003109	Tritium by Liq Sct column prep
36915	16	37336	42104	SAMPLE	W08P003111	Tritium by Liq Sct column prep
37003	1	37426	42207	BLANK		TC99 by Liquid Scin.
37003	4	37426	42207	LCS		TC99 by Liquid Scin.
37003	5	37426	42207	SAMPLE	W08P003105	TC99 by Liquid Scin.
37003	6	37426	42207	SAMPLE	W08P003109	TC99 by Liquid Scin.
37003	3	37426	42207	DUP	W08P003130	TC99 by Liquid Scin.
37003	2	37426	42207	MS	W08P003130	TC99 by Liquid Scin.

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

LA-695-402 LA-695-402: DETERMINATION OF CYANIDE BY MIDIDISTILLATION AND SPECTROPHOTOMETRIC

EPA-600/4-79-020 335.2	Cyanide, Total
HEIS 335.2_CYANIDE	Cyanide, Total

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

WSCF
METHOD REFERENCES REPORT

Department: Organic

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

LA-523-493 NWTPH-Diesel and/or Gasoline

HEIS WTPH_DIESEL (HEIS)	Total Petroleum Hydrocarbons in Diesel
WDOE TPHD	Total Petroleum Hydrocarbons in Diesel

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

WSCF
METHOD REFERENCES REPORT

Department: Radiochemistry

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

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

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

LA-508-421 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

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

HEIS GAMMA_GS	Gamma Emmision Spectrometry

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

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: S08-006
Sample # W08P003085
Client ID: B1VLC9 GPP-PNNL WSCF TRENT **Matrix:** WATER

Group #: WSCF20081273
Department: Inorganic
Sampled: 06/25/08
Received: 06/25/08

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	0.174	mg/L			2.00	0.042		06/26/08
Chloride	16887-00-6	LA-533-410	D	7.69	mg/L			2.00	0.22		06/26/08
Nitrogen in Nitrite	NO2-N	LA-533-410	DU	< 0.0198	mg/L			2.00	0.020		06/26/08
Nitrogen in Nitrate	NO3-N	LA-533-410	D	9.24	mg/L			2.00	0.072		06/26/08
Sulfate	14808-79-8	LA-533-410	D	35.5	mg/L			2.00	0.15		06/26/08

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)
D - Analyte was identified at a secondary dilution factor(inorg)
U - Analyzed for but not detected above limiting criteria.

D - Analyte was identified at a secondary dilution factor
U - Analyzed for but not detected above limiting criteria(inorg)
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: G08-006
Sample # W08P003100
Client ID: B1VK14 GPP-PNNL WSCF TRENT **Matrix:** WATER

Group #: WSCF20081273
Department: Inorganic
Sampled: 06/25/08
Received: 06/25/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
ICP Metals Analysis, Grd H20 P Prep											**07/29/08**
ICP Metals Analysis, Grd H20 P											
Iron	7439-89-6	LA-505-411	U	< 25.0	ug/L			1.00	25		08/06/08
Magnesium	7439-95-4	LA-505-411		5.00e+03	ug/L			1.00	50		08/06/08
Manganese	7439-96-5	LA-505-411	U	< 4.00	ug/L			1.00	4.0		08/06/08
Nickel	7440-02-0	LA-505-411	U	< 4.00	ug/L			1.00	4.0		08/06/08
Potassium	7440-09-7	LA-505-411		1.44e+03	ug/L			1.00	1.7e+02		08/06/08
Silver	7440-22-4	LA-505-411	U	< 5.00	ug/L			1.00	5.0		08/06/08
Sodium	7440-23-5	LA-505-411		5.80e+03	ug/L			1.00	51		08/06/08
Antimony	7440-36-0	LA-505-411	U	< 56.0	ug/L			1.00	56		08/06/08
Barium	7440-39-3	LA-505-411		32.0	ug/L			1.00	4.0		08/06/08
Cadmium	7440-43-9	LA-505-411	U	< 4.00	ug/L			1.00	4.0		08/06/08
Chromium	7440-47-3	LA-505-411	U	< 13.0	ug/L			1.00	13		08/06/08
Cobalt	7440-48-4	LA-505-411	U	< 4.00	ug/L			1.00	4.0		08/06/08
Copper	7440-50-8	LA-505-411	U	< 6.00	ug/L			1.00	6.0		08/06/08
Vanadium	7440-62-2	LA-505-411	U	< 12.0	ug/L			1.00	12		08/06/08
Zinc	7440-66-6	LA-505-411	U	< 9.00	ug/L			1.00	9.0		08/06/08
Calcium	7440-70-2	LA-505-411		3.25e+04	ug/L			1.00	73		08/06/08
Strontium	7440-24-6	LA-505-411		123	ug/L			1.00	4.0		08/06/08
Beryllium	7440-41-7	LA-505-411	U	< 4.00	ug/L			1.00	4.0		08/06/08

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)
D - Analyte was identified at a secondary dilution factor(inorg)
U - Analyzed for but not detected above limiting criteria.

D - Analyte was identified at a secondary dilution factor
U - Analyzed for but not detected above limiting criteria(inorg)
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: G08-006
Sample # W08P003101
Client ID: B1VK15 GPP-PNNL WSCF TRENT **Matrix:** WATER

Group #: WSCF20081273
Department: Inorganic
Sampled: 06/25/08
Received: 06/25/08

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	DU	< 0.0420	mg/L			2.00	0.042		06/26/08
Chloride	16887-00-6	LA-533-410	D	1.76	mg/L			2.00	0.22		06/26/08
Nitrogen in Nitrite	NO2-N	LA-533-410	DU	< 0.0198	mg/L			2.00	0.020		06/26/08
Nitrogen in Nitrate	NO3-N	LA-533-410	D	3.25	mg/L			2.00	0.072		06/26/08
Phosphate (P) by IC	PO4-P	LA-533-410	DU	< 0.0640	mg/L			2.00	0.064		06/26/08
Sulfate	14808-79-8	LA-533-410	D	15.3	mg/L			2.00	0.15		06/26/08
ICP Metals Analysis, Grd H20 P Prep											**07/29/08**
ICP Metals Analysis, Grd H20 P											
Iron	7439-89-6	LA-505-411	U	< 25.0	ug/L			1.00	25		08/06/08
Magnesium	7439-95-4	LA-505-411		5.24e+03	ug/L			1.00	50		08/06/08
Manganese	7439-96-5	LA-505-411	U	< 4.00	ug/L			1.00	4.0		08/06/08
Nickel	7440-02-0	LA-505-411	U	< 4.00	ug/L			1.00	4.0		08/06/08
Potassium	7440-09-7	LA-505-411		1.54e+03	ug/L			1.00	1.7e+02		08/06/08
Silver	7440-22-4	LA-505-411	U	< 5.00	ug/L			1.00	5.0		08/06/08
Sodium	7440-23-5	LA-505-411		6.14e+03	ug/L			1.00	51		08/06/08
Antimony	7440-36-0	LA-505-411	U	< 56.0	ug/L			1.00	56		08/06/08
Barium	7440-39-3	LA-505-411		33.4	ug/L			1.00	4.0		08/06/08
Cadmium	7440-43-9	LA-505-411	U	< 4.00	ug/L			1.00	4.0		08/06/08
Chromium	7440-47-3	LA-505-411	U	< 13.0	ug/L			1.00	13		08/06/08
Cobalt	7440-48-4	LA-505-411	U	< 4.00	ug/L			1.00	4.0		08/06/08
Copper	7440-50-8	LA-505-411	U	< 6.00	ug/L			1.00	6.0		08/06/08
Vanadium	7440-62-2	LA-505-411	U	< 12.0	ug/L			1.00	12		08/06/08
Zinc	7440-66-6	LA-505-411	U	< 9.00	ug/L			1.00	9.0		08/06/08
Calcium	7440-70-2	LA-505-411		3.35e+04	ug/L			1.00	73		08/06/08

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)
D - Analyte was identified at a secondary dilution factor(inorg)
U - Analyzed for but not detected above limiting criteria.

D - Analyte was identified at a secondary dilution factor
U - Analyzed for but not detected above limiting criteria(inorg)
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: G08-006
Sample # W08P003101
Client ID: B1VK15 GPP-PNNL WSCF TRENT **Matrix:** WATER

Group #: WSCF20081273
Department: Inorganic
Sampled: 06/25/08
Received: 06/25/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Strontium	7440-24-6	LA-505-411		127	ug/L			1.00	4.0		08/06/08
Beryllium	7440-41-7	LA-505-411	U	< 4.00	ug/L			1.00	4.0		08/06/08
Total Alkalinity as mg/L CaCO3											
Total Alkalinity as mg/L CaCO3	ALKALINITY	LA-531-411		79.0	mg/L			1.00	1.0		07/02/08

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)
D - Analyte was identified at a secondary dilution factor(inorg)
U - Analyzed for but not detected above limiting criteria.

D - Analyte was identified at a secondary dilution factor
U - Analyzed for but not detected above limiting criteria(inorg)
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: G08-006
Sample # W08P003102
Client ID: B1VJY5 GPP-PNNL WSCF TRENT **Matrix:** WATER

Group #: WSCF20081273
Department: Inorganic
Sampled: 06/25/08
Received: 06/25/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
ICP Metals Analysis, Grd H20 P Prep											**07/29/08**
ICP Metals Analysis, Grd H20 P											
Iron	7439-89-6	LA-505-411	U	< 25.0	ug/L			1.00	25		08/06/08
Magnesium	7439-95-4	LA-505-411		4.11e+03	ug/L			1.00	50		08/06/08
Manganese	7439-96-5	LA-505-411	U	< 4.00	ug/L			1.00	4.0		08/06/08
Nickel	7440-02-0	LA-505-411	U	< 4.00	ug/L			1.00	4.0		08/06/08
Potassium	7440-09-7	LA-505-411		1.36e+03	ug/L			1.00	1.7e+02		08/06/08
Silver	7440-22-4	LA-505-411	U	< 5.00	ug/L			1.00	5.0		08/06/08
Sodium	7440-23-5	LA-505-411		3.63e+03	ug/L			1.00	51		08/06/08
Antimony	7440-36-0	LA-505-411	U	< 56.0	ug/L			1.00	56		08/06/08
Barium	7440-39-3	LA-505-411		33.6	ug/L			1.00	4.0		08/06/08
Cadmium	7440-43-9	LA-505-411	U	< 4.00	ug/L			1.00	4.0		08/06/08
Chromium	7440-47-3	LA-505-411	U	< 13.0	ug/L			1.00	13		08/06/08
Cobalt	7440-48-4	LA-505-411	U	< 4.00	ug/L			1.00	4.0		08/06/08
Copper	7440-50-8	LA-505-411	U	< 6.00	ug/L			1.00	6.0		08/06/08
Vanadium	7440-62-2	LA-505-411	U	< 12.0	ug/L			1.00	12		08/06/08
Zinc	7440-66-6	LA-505-411	U	< 9.00	ug/L			1.00	9.0		08/06/08
Calcium	7440-70-2	LA-505-411		2.36e+04	ug/L			1.00	73		08/06/08
Strontium	7440-24-6	LA-505-411		95.6	ug/L			1.00	4.0		08/06/08
Beryllium	7440-41-7	LA-505-411	U	< 4.00	ug/L			1.00	4.0		08/06/08

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)
D - Analyte was identified at a secondary dilution factor(inorg)
U - Analyzed for but not detected above limiting criteria.

D - Analyte was identified at a secondary dilution factor
U - Analyzed for but not detected above limiting criteria(inorg)
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: G08-006
Sample # W08P003103
Client ID: B1VJY6 GPP-PNNL WSCF TRENT **Matrix:** WATER

Group #: WSCF20081273
Department: Inorganic
Sampled: 06/25/08
Received: 06/25/08

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	0.0643	mg/L			2.00	0.042		06/26/08
Chloride	16887-00-6	LA-533-410	D	1.57	mg/L			2.00	0.22		06/26/08
Nitrogen in Nitrite	NO2-N	LA-533-410	DU	< 0.0198	mg/L			2.00	0.020		06/26/08
Nitrogen in Nitrate	NO3-N	LA-533-410	D	0.842	mg/L			2.00	0.072		06/26/08
Phosphate (P) by IC	PO4-P	LA-533-410	DU	< 0.0640	mg/L			2.00	0.064		06/26/08
Sulfate	14808-79-8	LA-533-410	D	9.54	mg/L			2.00	0.15		06/26/08
ICP Metals Analysis, Grd H20 P Prep											**07/29/08**
ICP Metals Analysis, Grd H20 P											
Iron	7439-89-6	LA-505-411	U	< 25.0	ug/L			1.00	25		08/06/08
Magnesium	7439-95-4	LA-505-411		4.23e+03	ug/L			1.00	50		08/06/08
Manganese	7439-96-5	LA-505-411	U	< 4.00	ug/L			1.00	4.0		08/06/08
Nickel	7440-02-0	LA-505-411		4.40	ug/L			1.00	4.0		08/06/08
Potassium	7440-09-7	LA-505-411		1.45e+03	ug/L			1.00	1.7e+02		08/06/08
Silver	7440-22-4	LA-505-411		12.2	ug/L			1.00	5.0		08/06/08
Sodium	7440-23-5	LA-505-411		3.69e+03	ug/L			1.00	51		08/06/08
Antimony	7440-36-0	LA-505-411	U	< 56.0	ug/L			1.00	56		08/06/08
Barium	7440-39-3	LA-505-411		34.8	ug/L			1.00	4.0		08/06/08
Cadmium	7440-43-9	LA-505-411	U	< 4.00	ug/L			1.00	4.0		08/06/08
Chromium	7440-47-3	LA-505-411	U	< 13.0	ug/L			1.00	13		08/06/08
Cobalt	7440-48-4	LA-505-411	U	< 4.00	ug/L			1.00	4.0		08/06/08
Copper	7440-50-8	LA-505-411	U	< 6.00	ug/L			1.00	6.0		08/06/08
Vanadium	7440-62-2	LA-505-411	U	< 12.0	ug/L			1.00	12		08/06/08
Zinc	7440-66-6	LA-505-411	U	< 9.00	ug/L			1.00	9.0		08/06/08
Calcium	7440-70-2	LA-505-411		2.43e+04	ug/L			1.00	73		08/06/08

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)
D - Analyte was identified at a secondary dilution factor(inorg)
U - Analyzed for but not detected above limiting criteria.

D - Analyte was identified at a secondary dilution factor
U - Analyzed for but not detected above limiting criteria(inorg)
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: G08-006
Sample # W08P003103
Client ID: B1VJY6 GPP-PNNL TRENT WSCF
Matrix: WATER

Group #: WSCF20081273
Department: Inorganic
Sampled: 06/25/08
Received: 06/25/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Strontium	7440-24-6	LA-505-411		98.2	ug/L			1.00	4.0		08/06/08
Beryllium	7440-41-7	LA-505-411	U	< 4.00	ug/L			1.00	4.0		08/06/08
Total Alkalinity as mg/L CaCO3											
Total Alkalinity as mg/L CaCO3	ALKALINITY	LA-531-411		64.0	mg/L			1.00	1.0		07/02/08

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)
D - Analyte was identified at a secondary dilution factor(inorg)
U - Analyzed for but not detected above limiting criteria.

D - Analyte was identified at a secondary dilution factor
U - Analyzed for but not detected above limiting criteria(inorg)
U - Analyzed for but not detected above limiting criteria.(org)

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

Report WGPP/ver. 5.2
GPAP

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: S08-006
Sample # W08P003104
Client ID: B1VM45 GPP-PNNL WSCF TRENT **Matrix:** WATER

Group #: WSCF20081273
Department: Inorganic
Sampled: 06/25/08
Received: 06/25/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
ICP Metals Analysis, Grd H20 P Prep											**07/29/08**
ICP Metals Analysis, Grd H20 P											
Iron	7439-89-6	LA-505-411	U	< 25.0	ug/L			1.00	25		08/06/08
Magnesium	7439-95-4	LA-505-411		1.84e+04	ug/L			1.00	50		08/06/08
Manganese	7439-96-5	LA-505-411	U	< 4.00	ug/L			1.00	4.0		08/06/08
Nickel	7440-02-0	LA-505-411	U	< 4.00	ug/L			1.00	4.0		08/06/08
Potassium	7440-09-7	LA-505-411		8.66e+03	ug/L			1.00	1.7e+02		08/06/08
Silver	7440-22-4	LA-505-411		6.50	ug/L			1.00	5.0		08/06/08
Sodium	7440-23-5	LA-505-411		2.94e+04	ug/L			1.00	51		08/06/08
Antimony	7440-36-0	LA-505-411	U	< 56.0	ug/L			1.00	56		08/06/08
Barium	7440-39-3	LA-505-411		66.2	ug/L			1.00	4.0		08/06/08
Cadmium	7440-43-9	LA-505-411	U	< 4.00	ug/L			1.00	4.0		08/06/08
Chromium	7440-47-3	LA-505-411	U	< 13.0	ug/L			1.00	13		08/06/08
Cobalt	7440-48-4	LA-505-411	U	< 4.00	ug/L			1.00	4.0		08/06/08
Copper	7440-50-8	LA-505-411	U	< 6.00	ug/L			1.00	6.0		08/06/08
Vanadium	7440-62-2	LA-505-411		14.7	ug/L			1.00	12		08/06/08
Zinc	7440-66-6	LA-505-411	U	< 9.00	ug/L			1.00	9.0		08/06/08
Calcium	7440-70-2	LA-505-411		6.11e+04	ug/L			1.00	73		08/06/08
Strontium	7440-24-6	LA-505-411		327	ug/L			1.00	4.0		08/06/08
Beryllium	7440-41-7	LA-505-411	U	< 4.00	ug/L			1.00	4.0		08/06/08

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)
D - Analyte was identified at a secondary dilution factor(inorg)
U - Analyzed for but not detected above limiting criteria.

D - Analyte was identified at a secondary dilution factor
U - Analyzed for but not detected above limiting criteria(inorg)
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: S08-006
Sample # W08P003105
Client ID: B1VM46 GPP-PNNL WSCF TRENT **Matrix:** WATER

Group #: WSCF20081273
Department: Inorganic
Sampled: 06/25/08
Received: 06/25/08

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	0.376	mg/L			2.00	0.042		06/26/08
Chloride	16887-00-6	LA-533-410	D	16.0	mg/L			2.00	0.22		06/26/08
Nitrogen in Nitrite	NO2-N	LA-533-410	DU	< 0.0198	mg/L			2.00	0.020		06/26/08
Nitrogen in Nitrate	NO3-N	LA-533-410	D	11.7	mg/L			10.00	0.36		06/26/08
Sulfate	14808-79-8	LA-533-410	D	101	mg/L			10.00	0.77		06/26/08
ICP Metals Analysis, Grd H20 P Prep											**07/29/08**
ICP Metals Analysis, Grd H20 P											
Iron	7439-89-6	LA-505-411		120	ug/L			1.00	25		08/06/08
Magnesium	7439-95-4	LA-505-411		1.86e+04	ug/L			1.00	50		08/06/08
Manganese	7439-96-5	LA-505-411	U	< 4.00	ug/L			1.00	4.0		08/06/08
Nickel	7440-02-0	LA-505-411	U	< 4.00	ug/L			1.00	4.0		08/06/08
Potassium	7440-09-7	LA-505-411		8.70e+03	ug/L			1.00	1.7e+02		08/06/08
Silver	7440-22-4	LA-505-411	U	< 5.00	ug/L			1.00	5.0		08/06/08
Sodium	7440-23-5	LA-505-411		2.96e+04	ug/L			1.00	51		08/06/08
Antimony	7440-36-0	LA-505-411	U	< 56.0	ug/L			1.00	56		08/06/08
Barium	7440-39-3	LA-505-411		66.5	ug/L			1.00	4.0		08/06/08
Cadmium	7440-43-9	LA-505-411	U	< 4.00	ug/L			1.00	4.0		08/06/08
Chromium	7440-47-3	LA-505-411	U	< 13.0	ug/L			1.00	13		08/06/08
Cobalt	7440-48-4	LA-505-411	U	< 4.00	ug/L			1.00	4.0		08/06/08
Copper	7440-50-8	LA-505-411	U	< 6.00	ug/L			1.00	6.0		08/06/08
Vanadium	7440-62-2	LA-505-411		13.7	ug/L			1.00	12		08/06/08
Zinc	7440-66-6	LA-505-411	U	< 9.00	ug/L			1.00	9.0		08/06/08
Calcium	7440-70-2	LA-505-411		6.16e+04	ug/L			1.00	73		08/06/08
Strontium	7440-24-6	LA-505-411		331	ug/L			1.00	4.0		08/06/08

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)
D - Analyte was identified at a secondary dilution factor(inorg)
U - Analyzed for but not detected above limiting criteria.

D - Analyte was identified at a secondary dilution factor
U - Analyzed for but not detected above limiting criteria(inorg)
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: S08-006
Sample # W08P003105
Client ID: B1VM46 GPP-PNNL WSCF TRENT **Matrix:** WATER

Group #: WSCF20081273
Department: Inorganic
Sampled: 06/25/08
Received: 06/25/08

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		08/06/08
Total Alkalinity as mg/L CaCO3											
Total Alkalinity as mg/L CaCO3	ALKALINITY	LA-531-411		120	mg/L			1.00	1.0		07/02/08

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)
D - Analyte was identified at a secondary dilution factor(inorg)
U - Analyzed for but not detected above limiting criteria.

D - Analyte was identified at a secondary dilution factor
U - Analyzed for but not detected above limiting criteria(inorg)
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: G08-006
Sample # W08P003106
Client ID: B1VK10 GPP-PNNL WSCF TRENT **Matrix:** WATER

Group #: WSCF20081273
Department: Inorganic
Sampled: 06/25/08
Received: 06/25/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
ICP Metals Analysis, Grd H20 P Prep											**07/29/08**
ICP Metals Analysis, Grd H20 P											
Iron	7439-89-6	LA-505-411	U	< 25.0	ug/L			1.00	25		08/06/08
Magnesium	7439-95-4	LA-505-411		4.13e+03	ug/L			1.00	50		08/06/08
Manganese	7439-96-5	LA-505-411		4.30	ug/L			1.00	4.0		08/06/08
Nickel	7440-02-0	LA-505-411	U	< 4.00	ug/L			1.00	4.0		08/06/08
Potassium	7440-09-7	LA-505-411		1.19e+03	ug/L			1.00	1.7e+02		08/06/08
Silver	7440-22-4	LA-505-411	U	< 5.00	ug/L			1.00	5.0		08/06/08
Sodium	7440-23-5	LA-505-411		3.03e+03	ug/L			1.00	51		08/06/08
Antimony	7440-36-0	LA-505-411	U	< 56.0	ug/L			1.00	56		08/06/08
Barium	7440-39-3	LA-505-411		17.6	ug/L			1.00	4.0		08/06/08
Cadmium	7440-43-9	LA-505-411	U	< 4.00	ug/L			1.00	4.0		08/06/08
Chromium	7440-47-3	LA-505-411	U	< 13.0	ug/L			1.00	13		08/06/08
Cobalt	7440-48-4	LA-505-411	U	< 4.00	ug/L			1.00	4.0		08/06/08
Copper	7440-50-8	LA-505-411	U	< 6.00	ug/L			1.00	6.0		08/06/08
Vanadium	7440-62-2	LA-505-411	U	< 12.0	ug/L			1.00	12		08/06/08
Zinc	7440-66-6	LA-505-411	U	< 9.00	ug/L			1.00	9.0		08/06/08
Calcium	7440-70-2	LA-505-411		2.02e+04	ug/L			1.00	73		08/06/08
Strontium	7440-24-6	LA-505-411		87.4	ug/L			1.00	4.0		08/06/08
Beryllium	7440-41-7	LA-505-411	U	< 4.00	ug/L			1.00	4.0		08/06/08

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)
D - Analyte was identified at a secondary dilution factor(inorg)
U - Analyzed for but not detected above limiting criteria.

D - Analyte was identified at a secondary dilution factor
U - Analyzed for but not detected above limiting criteria(inorg)
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: G08-006
Sample # W08P003107
Client ID: B1VK11 GPP-PNNL WSCF TRENT **Matrix:** WATER

Group #: WSCF20081273
Department: Inorganic
Sampled: 06/25/08
Received: 06/25/08

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	DU	< 0.0420	mg/L			2.00	0.042		06/26/08
Chloride	16887-00-6	LA-533-410	D	0.872	mg/L			2.00	0.22		06/26/08
Nitrogen in Nitrite	NO2-N	LA-533-410	DU	< 0.0198	mg/L			2.00	0.020		06/26/08
Nitrogen in Nitrate	NO3-N	LA-533-410	D	0.290	mg/L			2.00	0.072		06/26/08
Phosphate (P) by IC	PO4-P	LA-533-410	DU	< 0.0640	mg/L			2.00	0.064		06/26/08
Sulfate	14808-79-8	LA-533-410	D	6.81	mg/L			2.00	0.15		06/26/08
ICP Metals Analysis, Grd H20 P Prep											**07/29/08**
ICP Metals Analysis, Grd H20 P											
Iron	7439-89-6	LA-505-411	U	< 25.0	ug/L			1.00	25		08/06/08
Magnesium	7439-95-4	LA-505-411		4.16e+03	ug/L			1.00	50		08/06/08
Manganese	7439-96-5	LA-505-411	U	< 4.00	ug/L			1.00	4.0		08/06/08
Nickel	7440-02-0	LA-505-411	U	< 4.00	ug/L			1.00	4.0		08/06/08
Potassium	7440-09-7	LA-505-411		1.19e+03	ug/L			1.00	1.7e+02		08/06/08
Silver	7440-22-4	LA-505-411	U	< 5.00	ug/L			1.00	5.0		08/06/08
Sodium	7440-23-5	LA-505-411		3.00e+03	ug/L			1.00	51		08/06/08
Antimony	7440-36-0	LA-505-411	U	< 56.0	ug/L			1.00	56		08/06/08
Barium	7440-39-3	LA-505-411		17.4	ug/L			1.00	4.0		08/06/08
Cadmium	7440-43-9	LA-505-411	U	< 4.00	ug/L			1.00	4.0		08/06/08
Chromium	7440-47-3	LA-505-411	U	< 13.0	ug/L			1.00	13		08/06/08
Cobalt	7440-48-4	LA-505-411	U	< 4.00	ug/L			1.00	4.0		08/06/08
Copper	7440-50-8	LA-505-411	U	< 6.00	ug/L			1.00	6.0		08/06/08
Vanadium	7440-62-2	LA-505-411	U	< 12.0	ug/L			1.00	12		08/06/08
Zinc	7440-66-6	LA-505-411	U	< 9.00	ug/L			1.00	9.0		08/06/08
Calcium	7440-70-2	LA-505-411		2.07e+04	ug/L			1.00	73		08/06/08

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)
D - Analyte was identified at a secondary dilution factor(inorg)
U - Analyzed for but not detected above limiting criteria.

D - Analyte was identified at a secondary dilution factor
U - Analyzed for but not detected above limiting criteria(inorg)
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: G08-006
Sample # W08P003107
Client ID: B1VK11 GPP-PNNL WSCF TRENT **Matrix:** WATER

Group #: WSCF20081273
Department: Inorganic
Sampled: 06/25/08
Received: 06/25/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Strontium	7440-24-6	LA-505-411		88.6	ug/L			1.00	4.0		08/06/08
Beryllium	7440-41-7	LA-505-411	U	< 4.00	ug/L			1.00	4.0		08/06/08
Total Alkalinity as mg/L CaCO3											
Total Alkalinity as mg/L CaCO3	ALKALINITY	LA-531-411		56.0	mg/L			1.00	1.0		07/02/08
Total organic carbon											
Total organic carbon	TOC	LA-344-406		1.18	mg/L			1.00	0.30		07/23/08

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)
D - Analyte was identified at a secondary dilution factor(inorg)
U - Analyzed for but not detected above limiting criteria.

D - Analyte was identified at a secondary dilution factor
U - Analyzed for but not detected above limiting criteria(inorg)
U - Analyzed for but not detected above limiting criteria.(org)

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

Report WGPP/ver. 5.2
GPAP

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: S08-006
Sample # W08P003108
Client ID: B1VLL7 GPP-PNNL WSCF TRENT **Matrix:** WATER

Group #: WSCF20081273
Department: Inorganic
Sampled: 06/25/08
Received: 06/25/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
ICP Metals Analysis, Grd H20 P Prep											**07/29/08**
ICP Metals Analysis, Grd H20 P											
Iron	7439-89-6	LA-505-411		26.7	ug/L			1.00	25		08/06/08
Magnesium	7439-95-4	LA-505-411		1.06e+04	ug/L			1.00	50		08/06/08
Manganese	7439-96-5	LA-505-411		5.30	ug/L			1.00	4.0		08/06/08
Nickel	7440-02-0	LA-505-411	U	< 4.00	ug/L			1.00	4.0		08/06/08
Potassium	7440-09-7	LA-505-411		8.76e+03	ug/L			1.00	1.7e+02		08/06/08
Silver	7440-22-4	LA-505-411	U	< 5.00	ug/L			1.00	5.0		08/06/08
Sodium	7440-23-5	LA-505-411		1.79e+04	ug/L			1.00	51		08/06/08
Antimony	7440-36-0	LA-505-411	U	< 56.0	ug/L			1.00	56		08/06/08
Barium	7440-39-3	LA-505-411		94.4	ug/L			1.00	4.0		08/06/08
Cadmium	7440-43-9	LA-505-411	U	< 4.00	ug/L			1.00	4.0		08/06/08
Chromium	7440-47-3	LA-505-411	U	< 13.0	ug/L			1.00	13		08/06/08
Cobalt	7440-48-4	LA-505-411	U	< 4.00	ug/L			1.00	4.0		08/06/08
Copper	7440-50-8	LA-505-411	U	< 6.00	ug/L			1.00	6.0		08/06/08
Vanadium	7440-62-2	LA-505-411	U	< 12.0	ug/L			1.00	12		08/06/08
Zinc	7440-66-6	LA-505-411	U	< 9.00	ug/L			1.00	9.0		08/06/08
Calcium	7440-70-2	LA-505-411		3.64e+04	ug/L			1.00	73		08/06/08
Strontium	7440-24-6	LA-505-411		277	ug/L			1.00	4.0		08/06/08
Beryllium	7440-41-7	LA-505-411	U	< 4.00	ug/L			1.00	4.0		08/06/08

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)
D - Analyte was identified at a secondary dilution factor(inorg)
U - Analyzed for but not detected above limiting criteria.

D - Analyte was identified at a secondary dilution factor
U - Analyzed for but not detected above limiting criteria(inorg)
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: S08-006
Sample # W08P003109
Client ID: B1VLL8 GPP-PNNL WSCF TRENT **Matrix:** WATER

Group #: WSCF20081273
Department: Inorganic
Sampled: 06/25/08
Received: 06/25/08

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	0.0543	mg/L			2.00	0.042		06/26/08
Chloride	16887-00-6	LA-533-410	D	8.53	mg/L			2.00	0.22		06/26/08
Nitrogen in Nitrite	NO2-N	LA-533-410	BD	0.0383	mg/L			2.00	0.020		06/26/08
Nitrogen in Nitrate	NO3-N	LA-533-410	D	9.09	mg/L			2.00	0.072		06/26/08
Sulfate	14808-79-8	LA-533-410	D	15.3	mg/L			2.00	0.15		06/26/08
Cyanide											
Cyanide	57-12-5	LA-695-402		31.3	ug/L			1.00	4.0		06/30/08
ICP Metals Analysis, Grd H20 P Prep											**07/29/08**
ICP Metals Analysis, Grd H20 P											
Iron	7439-89-6	LA-505-411		148	ug/L			1.00	25		08/06/08
Magnesium	7439-95-4	LA-505-411		1.08e+04	ug/L			1.00	50		08/06/08
Manganese	7439-96-5	LA-505-411	U	< 4.00	ug/L			1.00	4.0		08/06/08
Nickel	7440-02-0	LA-505-411	U	< 4.00	ug/L			1.00	4.0		08/06/08
Potassium	7440-09-7	LA-505-411		9.09e+03	ug/L			1.00	1.7e+02		08/06/08
Silver	7440-22-4	LA-505-411	U	< 5.00	ug/L			1.00	5.0		08/06/08
Sodium	7440-23-5	LA-505-411		1.87e+04	ug/L			1.00	51		08/06/08
Antimony	7440-36-0	LA-505-411	U	< 56.0	ug/L			1.00	56		08/06/08
Barium	7440-39-3	LA-505-411		98.2	ug/L			1.00	4.0		08/06/08
Cadmium	7440-43-9	LA-505-411	U	< 4.00	ug/L			1.00	4.0		08/06/08
Chromium	7440-47-3	LA-505-411	U	< 13.0	ug/L			1.00	13		08/06/08
Cobalt	7440-48-4	LA-505-411	U	< 4.00	ug/L			1.00	4.0		08/06/08
Copper	7440-50-8	LA-505-411	U	< 6.00	ug/L			1.00	6.0		08/06/08
Vanadium	7440-62-2	LA-505-411	U	< 12.0	ug/L			1.00	12		08/06/08
Zinc	7440-66-6	LA-505-411	U	< 9.00	ug/L			1.00	9.0		08/06/08

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)
D - Analyte was identified at a secondary dilution factor(inorg)
U - Analyzed for but not detected above limiting criteria.

D - Analyte was identified at a secondary dilution factor
U - Analyzed for but not detected above limiting criteria(inorg)
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: S08-006
Sample # W08P003109
Client ID: B1VLL8 GPP-PNNL TRENT WSCF **Matrix:** WATER

Group #: WSCF20081273
Department: Inorganic
Sampled: 06/25/08
Received: 06/25/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Calcium	7440-70-2	LA-505-411		3.68e+04	ug/L			1.00	73		08/06/08
Strontium	7440-24-6	LA-505-411		285	ug/L			1.00	4.0		08/06/08
Beryllium	7440-41-7	LA-505-411	U	< 4.00	ug/L			1.00	4.0		08/06/08
ICP-200.8 MS All possible meta Prep											**07/10/08**
ICP-200.8 MS All possible meta											
Uranium	7440-61-1	LA-505-412		3.20	ug/L			1.00	0.0500		07/14/08
Total Alkalinity as mg/L CaCO3											
Total Alkalinity as mg/L CaCO3	ALKALINITY	LA-531-411		110	mg/L			1.00	1.0		07/02/08

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)
D - Analyte was identified at a secondary dilution factor(inorg)
U - Analyzed for but not detected above limiting criteria.

D - Analyte was identified at a secondary dilution factor
U - Analyzed for but not detected above limiting criteria(inorg)
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: S08-006
Sample # W08P003110
Client ID: B1VLN4 GPP-PNNL WSCF TRENT **Matrix:** WATER

Group #: WSCF20081273
Department: Inorganic
Sampled: 06/25/08
Received: 06/25/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
ICP Metals Analysis, Grd H20 P Prep											**07/29/08**
ICP Metals Analysis, Grd H20 P											
Iron	7439-89-6	LA-505-411	U	< 25.0	ug/L			1.00	25		08/06/08
Magnesium	7439-95-4	LA-505-411		7.92e+03	ug/L			1.00	50		08/06/08
Manganese	7439-96-5	LA-505-411		31.8	ug/L			1.00	4.0		08/06/08
Nickel	7440-02-0	LA-505-411	U	< 4.00	ug/L			1.00	4.0		08/06/08
Potassium	7440-09-7	LA-505-411		7.83e+03	ug/L			1.00	1.7e+02		08/06/08
Silver	7440-22-4	LA-505-411	U	< 5.00	ug/L			1.00	5.0		08/06/08
Sodium	7440-23-5	LA-505-411		1.19e+04	ug/L			1.00	51		08/06/08
Antimony	7440-36-0	LA-505-411	U	< 56.0	ug/L			1.00	56		08/06/08
Barium	7440-39-3	LA-505-411		65.0	ug/L			1.00	4.0		08/06/08
Cadmium	7440-43-9	LA-505-411	U	< 4.00	ug/L			1.00	4.0		08/06/08
Chromium	7440-47-3	LA-505-411	U	< 13.0	ug/L			1.00	13		08/06/08
Cobalt	7440-48-4	LA-505-411	U	< 4.00	ug/L			1.00	4.0		08/06/08
Copper	7440-50-8	LA-505-411	U	< 6.00	ug/L			1.00	6.0		08/06/08
Vanadium	7440-62-2	LA-505-411	U	< 12.0	ug/L			1.00	12		08/06/08
Zinc	7440-66-6	LA-505-411	U	< 9.00	ug/L			1.00	9.0		08/06/08
Calcium	7440-70-2	LA-505-411		3.06e+04	ug/L			1.00	73		08/06/08
Strontium	7440-24-6	LA-505-411		234	ug/L			1.00	4.0		08/06/08
Beryllium	7440-41-7	LA-505-411	U	< 4.00	ug/L			1.00	4.0		08/06/08

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)
D - Analyte was identified at a secondary dilution factor(inorg)
U - Analyzed for but not detected above limiting criteria.

D - Analyte was identified at a secondary dilution factor
U - Analyzed for but not detected above limiting criteria(inorg)
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: S08-006
Sample # W08P003111
Client ID: B1VLN5 GPP-PNNL WSCF TRENT **Matrix:** WATER

Group #: WSCF20081273
Department: Inorganic
Sampled: 06/25/08
Received: 06/25/08

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	0.132	mg/L			2.00	0.042		06/26/08
Chloride	16887-00-6	LA-533-410	D	3.29	mg/L			2.00	0.22		06/26/08
Nitrogen in Nitrite	NO2-N	LA-533-410	DU	< 0.0198	mg/L			2.00	0.020		06/26/08
Nitrogen in Nitrate	NO3-N	LA-533-410	DU	< 0.0720	mg/L			2.00	0.072		06/26/08
Sulfate	14808-79-8	LA-533-410	D	32.0	mg/L			2.00	0.15		06/26/08
Cyanide											
Cyanide	57-12-5	LA-695-402	U	< 4.00	ug/L			1.00	4.0		06/30/08
ICP Metals Analysis, Grd H20 P Prep											**07/29/08**
ICP Metals Analysis, Grd H20 P											
Iron	7439-89-6	LA-505-411		27.0	ug/L			1.00	25		08/06/08
Magnesium	7439-95-4	LA-505-411		7.96e+03	ug/L			1.00	50		08/06/08
Manganese	7439-96-5	LA-505-411		32.6	ug/L			1.00	4.0		08/06/08
Nickel	7440-02-0	LA-505-411	U	< 4.00	ug/L			1.00	4.0		08/06/08
Potassium	7440-09-7	LA-505-411		7.86e+03	ug/L			1.00	1.7e+02		08/06/08
Silver	7440-22-4	LA-505-411	U	< 5.00	ug/L			1.00	5.0		08/06/08
Sodium	7440-23-5	LA-505-411		1.18e+04	ug/L			1.00	51		08/06/08
Antimony	7440-36-0	LA-505-411	U	< 56.0	ug/L			1.00	56		08/06/08
Barium	7440-39-3	LA-505-411		65.2	ug/L			1.00	4.0		08/06/08
Cadmium	7440-43-9	LA-505-411	U	< 4.00	ug/L			1.00	4.0		08/06/08
Chromium	7440-47-3	LA-505-411	U	< 13.0	ug/L			1.00	13		08/06/08
Cobalt	7440-48-4	LA-505-411	U	< 4.00	ug/L			1.00	4.0		08/06/08
Copper	7440-50-8	LA-505-411	U	< 6.00	ug/L			1.00	6.0		08/06/08
Vanadium	7440-62-2	LA-505-411	U	< 12.0	ug/L			1.00	12		08/06/08
Zinc	7440-66-6	LA-505-411	U	< 9.00	ug/L			1.00	9.0		08/06/08

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)
D - Analyte was identified at a secondary dilution factor(inorg)
U - Analyzed for but not detected above limiting criteria.
D - Analyte was identified at a secondary dilution factor
U - Analyzed for but not detected above limiting criteria(inorg)
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: S08-006
Sample # W08P003111
Client ID: B1VLN5 GPP-PNNL WSCF TRENT **Matrix:** WATER

Group #: WSCF20081273
Department: Inorganic
Sampled: 06/25/08
Received: 06/25/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Calcium	7440-70-2	LA-505-411		3.09e+04	ug/L			1.00	73		08/06/08
Strontium	7440-24-6	LA-505-411		235	ug/L			1.00	4.0		08/06/08
Beryllium	7440-41-7	LA-505-411	U	< 4.00	ug/L			1.00	4.0		08/06/08
ICP-200.8 MS All possible meta Prep											**07/10/08**
ICP-200.8 MS All possible meta											
Uranium	7440-61-1	LA-505-412		5.10	ug/L			1.00	0.0500		07/14/08
Total Alkalinity as mg/L CaCO3											
Total Alkalinity as mg/L CaCO3	ALKALINITY	LA-531-411		97.0	mg/L			1.00	1.0		07/02/08

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)
D - Analyte was identified at a secondary dilution factor(inorg)
U - Analyzed for but not detected above limiting criteria.

D - Analyte was identified at a secondary dilution factor
U - Analyzed for but not detected above limiting criteria(inorg)
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: Inorganic

SDG Number: WSCF20081273
Matrix: WATER
Test: Anions by Ion Chromatography

Sample Date: 06/25/08
Receive Date:06/25/08

Lab ID: W08P003107
BATCH QC ASSOCIATED WITH SAMPLE

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
DUP	Chloride	16887-00-6	0.9928		RPD			12.933	20.000		06/26/08
DUP	Fluoride	16984-48-8	<4.2e-2		RPD			n/a	20.000	U	06/26/08
DUP	Nitrogen in Nitrite	NO2-N	<1.98e-2		RPD			n/a	20.000	U	06/26/08
DUP	Nitrogen in Nitrate	NO3-N	0.2959		RPD			2.083	20.000		06/26/08
DUP	Phosphate (P) by IC	PO4-P	<6.4e-2		RPD			n/a	20.000	U	06/26/08
DUP	Sulfate	14808-79-8	6.7987		RPD			0.203	20.000		06/26/08
MS	Chloride	16887-00-6	0.96595	97.080	% Recov	80.000	120.000				06/26/08
MS	Fluoride	16984-48-8	0.47175	95.690	% Recov	80.000	120.000				06/26/08
MS	Nitrogen in Nitrite	NO2-N	0.4712	95.772	% Recov	80.000	120.000				06/26/08
MS	Nitrogen in Nitrate	NO3-N	0.44505	99.787	% Recov	80.000	120.000				06/26/08
MS	Phosphate (P) by IC	PO4-P	0.81505	85.167	% Recov	80.000	120.000				06/26/08
MS	Sulfate	14808-79-8	1.89355	96.610	% Recov	80.000	120.000				06/26/08
MSD	Chloride	16887-00-6	0.95805	96.286	% Recov	80.000	120.000				06/26/08
MSD	Fluoride	16984-48-8	0.47415	96.176	% Recov	80.000	120.000				06/26/08
MSD	Nitrogen in Nitrite	NO2-N	0.4683	95.183	% Recov	80.000	120.000				06/26/08
MSD	Nitrogen in Nitrate	NO3-N	0.4414	98.969	% Recov	80.000	120.000				06/26/08
MSD	Phosphate (P) by IC	PO4-P	0.80665	84.289	% Recov	80.000	120.000				06/26/08
MSD	Sulfate	14808-79-8	1.8517	94.474	% Recov	80.000	120.000				06/26/08
SPK-RPD	Chloride	16887-00-6	96.286		RPD			0.821	20.000		06/26/08
SPK-RPD	Fluoride	16984-48-8	96.176		RPD			0.507	20.000		06/26/08
SPK-RPD	Nitrogen in Nitrite	NO2-N	95.183		RPD			0.617	20.000		06/26/08
SPK-RPD	Nitrogen in Nitrate	NO3-N	98.969		RPD			0.823	20.000		06/26/08
SPK-RPD	Phosphate (P) by IC	PO4-P	84.289		RPD			1.036	20.000		06/26/08
SPK-RPD	Sulfate	14808-79-8	94.474		RPD			2.236	20.000		06/26/08

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20081273
Matrix: WATER
Test: Anions by Ion Chromatography

Sample Date: 06/26/08
Receive Date:06/26/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W08P003143											
BATCH QC ASSOCIATED WITH SAMPLE											
DUP	Chloride	16887-00-6	<0.22		RPD			n/a	20.000	U	06/26/08
DUP	Fluoride	16984-48-8	<4.2e-2		RPD			n/a	20.000	U	06/26/08
DUP	Nitrogen in Nitrite	NO2-N	<1.98e-2		RPD			n/a	20.000	U	06/26/08
DUP	Nitrogen in Nitrate	NO3-N	<7.2e-2		RPD			n/a	20.000	U	06/26/08
DUP	Sulfate	14808-79-8	<0.154		RPD			n/a	20.000	U	06/26/08
MS	Chloride	16887-00-6	0.9089	91.347	% Recov	80.000	120.000				06/26/08
MS	Fluoride	16984-48-8	0.43655	88.550	% Recov	80.000	120.000				06/26/08
MS	Nitrogen in Nitrite	NO2-N	0.47395	96.331	% Recov	80.000	120.000				06/26/08
MS	Nitrogen in Nitrate	NO3-N	0.44105	98.890	% Recov	80.000	120.000				06/26/08
MS	Sulfate	14808-79-8	1.80485	92.084	% Recov	80.000	120.000				06/26/08
MSD	Chloride	16887-00-6	0.9023	90.683	% Recov	80.000	120.000				06/26/08
MSD	Fluoride	16984-48-8	0.4323	87.688	% Recov	80.000	120.000				06/26/08
MSD	Nitrogen in Nitrite	NO2-N	0.46465	94.441	% Recov	80.000	120.000				06/26/08
MSD	Nitrogen in Nitrate	NO3-N	0.4337	97.242	% Recov	80.000	120.000				06/26/08
MSD	Sulfate	14808-79-8	1.82275	92.997	% Recov	80.000	120.000				06/26/08
SPK-RPD	Chloride	16887-00-6	90.683		RPD			0.730	20.000		06/26/08
SPK-RPD	Fluoride	16984-48-8	87.688		RPD			0.978	20.000		06/26/08
SPK-RPD	Nitrogen in Nitrite	NO2-N	94.441		RPD			1.981	20.000		06/26/08
SPK-RPD	Nitrogen in Nitrate	NO3-N	97.242		RPD			1.681	20.000		06/26/08
SPK-RPD	Sulfate	14808-79-8	92.997		RPD			0.987	20.000		06/26/08
BATCH QC											
BLANK	Chloride	16887-00-6	<0.11	n/a	mg/L	0.000	0.030			U	06/26/08
BLANK	Chloride	16887-00-6	<0.11	n/a	mg/L	0.000	0.030			U	06/26/08
BLANK	Chloride	16887-00-6	<0.11	n/a	mg/L	0.000	0.030			U	06/26/08
BLANK	Fluoride	16984-48-8	<2.1e-2	n/a	mg/L	0.000	0.030			U	06/26/08
BLANK	Fluoride	16984-48-8	<2.1e-2	n/a	mg/L	0.000	0.030			U	06/26/08

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20081273
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	Fluoride	16984-48-8	<2.1e-2	n/a	mg/L	0.000	0.030			U	06/26/08
BLANK	Nitrogen in Nitrite	NO2-N	<9.9e-3	n/a	mg/L	0.000	0.020			U	06/26/08
BLANK	Nitrogen in Nitrite	NO2-N	<9.9e-3	n/a	mg/L	0.000	0.020			U	06/26/08
BLANK	Nitrogen in Nitrite	NO2-N	<9.9e-3	n/a	mg/L	0.000	0.020			U	06/26/08
BLANK	Nitrogen in Nitrate	NO3-N	<3.6e-2	n/a	mg/L	0.000	0.040			U	06/26/08
BLANK	Nitrogen in Nitrate	NO3-N	<3.6e-2	n/a	mg/L	0.000	0.040			U	06/26/08
BLANK	Nitrogen in Nitrate	NO3-N	<3.6e-2	n/a	mg/L	0.000	0.040			U	06/26/08
BLANK	Phosphate (P) by IC	PO4-P	<3.2e-2	n/a	mg/L	0.000	0.200			U	06/26/08
BLANK	Phosphate (P) by IC	PO4-P	<3.2e-2	n/a	mg/L	0.000	0.200			U	06/26/08
BLANK	Phosphate (P) by IC	PO4-P	<3.2e-2	n/a	mg/L	0.000	0.200			U	06/26/08
BLANK	Sulfate	14808-79-8	<7.7e-2	n/a	mg/L	0.000	0.200			U	06/26/08
BLANK	Sulfate	14808-79-8	<7.7e-2	n/a	mg/L	0.000	0.200			U	06/26/08
BLANK	Sulfate	14808-79-8	<7.7e-2	n/a	mg/L	0.000	0.200			U	06/26/08
LCS	Chloride	16887-00-6	189.6618	94.359	% Recov	80.000	120.000				06/26/08
LCS	Chloride	16887-00-6	195.5387	97.283	% Recov	80.000	120.000				06/26/08
LCS	Fluoride	16984-48-8	98.8757	99.273	% Recov	80.000	120.000				06/26/08
LCS	Fluoride	16984-48-8	102.6829	103.095	% Recov	80.000	120.000				06/26/08
LCS	Nitrogen in Nitrite	NO2-N	94.9374	95.510	% Recov	80.000	120.000				06/26/08
LCS	Nitrogen in Nitrite	NO2-N	99.6812	100.283	% Recov	80.000	120.000				06/26/08
LCS	Nitrogen in Nitrate	NO3-N	90.2636	100.182	% Recov	80.000	120.000				06/26/08
LCS	Nitrogen in Nitrate	NO3-N	91.9024	102.000	% Recov	80.000	120.000				06/26/08
LCS	Phosphate (P) by IC	PO4-P	189.4017	97.933	% Recov	80.000	120.000				06/26/08
LCS	Phosphate (P) by IC	PO4-P	185.2325	95.777	% Recov	80.000	120.000				06/26/08
LCS	Sulfate	14808-79-8	374.5702	94.588	% Recov	80.000	120.000				06/26/08
LCS	Sulfate	14808-79-8	382.1547	96.504	% Recov	80.000	120.000				06/26/08

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20081273
Matrix: WATER
Test: Cyanide by Midi/Spectrophotom

Sample Date: 06/24/08
Receive Date:06/24/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W08GR01833											
BATCH QC ASSOCIATED WITH SAMPLE											
MS	Cyanide by Midi/Spectrophotom	57-12-5	40.1	100.250	% Recov	75.000	125.000				06/30/08
MSD	Cyanide by Midi/Spectrophotom	57-12-5	41.2	103.000	% Recov	75.000	125.000				06/30/08
SPK-RPD	Cyanide by Midi/Spectrophotom	57-12-5	103.000		RPD			2.706	20.000		06/30/08
BATCH QC											
BLANK	Cyanide by Midi/Spectrophotom	57-12-5	< 4	n/a	ug/L	-4.000	4.000			U	06/30/08
LCS	Cyanide by Midi/Spectrophotom	57-12-5	50	100.000	% Recov	85.000	115.000				06/30/08

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20081273
Matrix: WATER
Test: ICP Metals Analysis, Grd H20 P

Sample Date: 06/23/08
Receive Date:06/23/08

Lab ID: W08P003032
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	1008	100.800	% Recov	75.000	125.000				08/06/08
MS	Barium	7440-39-3	511.1	102.220	% Recov	75.000	125.000				08/06/08
MS	Beryllium	7440-41-7	526	105.200	% Recov	75.000	125.000				08/06/08
MS	Calcium	7440-70-2	8100	810.000	% Recov	75.000	125.000			•	08/06/08
MS	Cadmium	7440-43-9	1012	101.200	% Recov	75.000	125.000				08/06/08
MS	Cobalt	7440-48-4	990.5	99.050	% Recov	75.000	125.000				08/06/08
MS	Chromium	7440-47-3	976.5	97.650	% Recov	75.000	125.000				08/06/08
MS	Copper	7440-50-8	995.7	99.570	% Recov	75.000	125.000				08/06/08
MS	Iron	7439-89-6	1007.3	100.730	% Recov	75.000	125.000				08/06/08
MS	Potassium	7440-09-7	10789	107.890	% Recov	75.000	125.000				08/06/08
MS	Magnesium	7439-95-4	2040	204.000	% Recov	75.000	125.000			•	08/06/08
MS	Manganese	7439-96-5	1007	100.700	% Recov	75.000	125.000				08/06/08
MS	Sodium	7440-23-5	2000	200.000	% Recov	75.000	125.000			•	08/06/08
MS	Nickel	7440-02-0	982.4	98.240	% Recov	75.000	125.000				08/06/08
MS	Antimony	7440-36-0	1014	101.400	% Recov	75.000	125.000				08/06/08
MS	Strontium	7440-24-6	539.3	107.860	% Recov	75.000	125.000				08/06/08
MS	Vanadium	7440-62-2	991.4	99.140	% Recov	75.000	125.000				08/06/08
MS	Zinc	7440-66-6	1009	100.900	% Recov	75.000	125.000				08/06/08
MSD	Silver	7440-22-4	1012	101.200	% Recov	75.000	125.000				08/06/08
MSD	Barium	7440-39-3	510.4	102.080	% Recov	75.000	125.000				08/06/08
MSD	Beryllium	7440-41-7	526.1	105.220	% Recov	75.000	125.000				08/06/08
MSD	Calcium	7440-70-2	4500	450.000	% Recov	75.000	125.000			•	08/06/08
MSD	Cadmium	7440-43-9	1014	101.400	% Recov	75.000	125.000				08/06/08
MSD	Cobalt	7440-48-4	992.9	99.290	% Recov	75.000	125.000				08/06/08
MSD	Chromium	7440-47-3	986.9	98.690	% Recov	75.000	125.000				08/06/08
MSD	Copper	7440-50-8	1004	100.400	% Recov	75.000	125.000				08/06/08

WSCF ANALYTICAL LABORATORY QC REPORT

Department: **Inorganic**

SDG Number: WSCF20081273
Matrix: WATER
Test: ICP Metals Analysis, Grd H20 P

Sample Date: 06/23/08
Receive Date:06/23/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
MSD	Iron	7439-89-6	1006.3	100.630	% Recov	75.000	125.000				08/06/08
MSD	Potassium	7440-09-7	10619	106.190	% Recov	75.000	125.000				08/06/08
MSD	Magnesium	7439-95-4	1450	145.000	% Recov	75.000	125.000			•	08/06/08
MSD	Manganese	7439-96-5	1010	101.000	% Recov	75.000	125.000				08/06/08
MSD	Sodium	7440-23-5	1430	143.000	% Recov	75.000	125.000			•	08/06/08
MSD	Nickel	7440-02-0	983.8	98.380	% Recov	75.000	125.000				08/06/08
MSD	Antimony	7440-36-0	1027	102.700	% Recov	75.000	125.000				08/06/08
MSD	Strontium	7440-24-6	530.9	106.180	% Recov	75.000	125.000				08/06/08
MSD	Vanadium	7440-62-2	999	99.900	% Recov	75.000	125.000				08/06/08
MSD	Zinc	7440-66-6	1010	101.000	% Recov	75.000	125.000				08/06/08
SPK-RPD	Silver	7440-22-4	101.200		RPD			0.396	20.000		08/06/08
SPK-RPD	Barium	7440-39-3	102.080		RPD			0.137	20.000		08/06/08
SPK-RPD	Beryllium	7440-41-7	105.220		RPD			0.019	20.000		08/06/08
SPK-RPD	Calcium	7440-70-2	450.000		RPD			57.143	20.000	•	08/06/08
SPK-RPD	Cadmium	7440-43-9	101.400		RPD			0.197	20.000		08/06/08
SPK-RPD	Cobalt	7440-48-4	99.290		RPD			0.242	20.000		08/06/08
SPK-RPD	Chromium	7440-47-3	98.690		RPD			1.059	20.000		08/06/08
SPK-RPD	Copper	7440-50-8	100.400		RPD			0.830	20.000		08/06/08
SPK-RPD	Iron	7439-89-6	100.630		RPD			0.099	20.000		08/06/08
SPK-RPD	Potassium	7440-09-7	106.190		RPD			1.588	20.000		08/06/08
SPK-RPD	Magnesium	7439-95-4	145.000		RPD			33.811	20.000	•	08/06/08
SPK-RPD	Manganese	7439-96-5	101.000		RPD			0.297	20.000		08/06/08
SPK-RPD	Sodium	7440-23-5	143.000		RPD			33.236	20.000	•	08/06/08
SPK-RPD	Nickel	7440-02-0	98.380		RPD			0.142	20.000		08/06/08
SPK-RPD	Antimony	7440-36-0	102.700		RPD			1.274	20.000		08/06/08
SPK-RPD	Strontium	7440-24-6	106.180		RPD			1.570	20.000		08/06/08
SPK-RPD	Vanadium	7440-62-2	99.900		RPD			0.764	20.000		08/06/08
SPK-RPD	Zinc	7440-66-6	101.000		RPD			0.099	20.000		08/06/08

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20081273
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	08/06/08
BLANK	Barium	7440-39-3	<4	n/a	ug/L					U	08/06/08
BLANK	Beryllium	7440-41-7	<4	n/a	ug/L					U	08/06/08
BLANK	Calcium	7440-70-2	<73	n/a	ug/L					U	08/06/08
BLANK	Cadmium	7440-43-9	<4	n/a	ug/L					U	08/06/08
BLANK	Cobalt	7440-48-4	<4	n/a	ug/L					U	08/06/08
BLANK	Chromium	7440-47-3	<13	n/a	ug/L					U	08/06/08
BLANK	Copper	7440-50-8	<6	n/a	ug/L					U	08/06/08
BLANK	Iron	7439-89-6	<25	n/a	ug/L					U	08/06/08
BLANK	Potassium	7440-09-7	<170	n/a	ug/L					U	08/06/08
BLANK	Magnesium	7439-95-4	<50	n/a	ug/L					U	08/06/08
BLANK	Manganese	7439-96-5	<4	n/a	ug/L					U	08/06/08
BLANK	Sodium	7440-23-5	<51	n/a	ug/L					U	08/06/08
BLANK	Nickel	7440-02-0	<4	n/a	ug/L					U	08/06/08
BLANK	Antimony	7440-36-0	<56	n/a	ug/L					U	08/06/08
BLANK	Strontium	7440-24-6	<4	n/a	ug/L					U	08/06/08
BLANK	Vanadium	7440-62-2	<12	n/a	ug/L					U	08/06/08
BLANK	Zinc	7440-66-6	<9	n/a	ug/L					U	08/06/08
LCS	Silver	7440-22-4	996.4	99.640	% Recov	80.000	120.000				08/06/08
LCS	Barium	7440-39-3	487.2	97.440	% Recov	80.000	120.000				08/06/08
LCS	Beryllium	7440-41-7	528	105.600	% Recov	80.000	120.000				08/06/08
LCS	Calcium	7440-70-2	1074	107.400	% Recov	80.000	120.000				08/06/08
LCS	Cadmium	7440-43-9	1023	102.300	% Recov	80.000	120.000				08/06/08
LCS	Cobalt	7440-48-4	1028	102.800	% Recov	80.000	120.000				08/06/08
LCS	Chromium	7440-47-3	990.5	99.050	% Recov	80.000	120.000				08/06/08
LCS	Copper	7440-50-8	1009	100.900	% Recov	80.000	120.000				08/06/08
LCS	Iron	7439-89-6	987.8	98.780	% Recov	80.000	120.000				08/06/08
LCS	Potassium	7440-09-7	10370	103.700	% Recov	80.000	120.000				08/06/08

WSCF ANALYTICAL LABORATORY QC REPORT

Department: **Inorganic**

SDG Number: WSCF20081273
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	982.5	98.250	% Recov	80.000	120.000				08/06/08
LCS	Manganese	7439-96-5	1007	100.700	% Recov	80.000	120.000				08/06/08
LCS	Sodium	7440-23-5	1013	101.300	% Recov	80.000	120.000				08/06/08
LCS	Nickel	7440-02-0	1025	102.500	% Recov	80.000	120.000				08/06/08
LCS	Antimony	7440-36-0	1046	104.600	% Recov	80.000	120.000				08/06/08
LCS	Strontium	7440-24-6	501.3	100.260	% Recov	80.000	120.000				08/06/08
LCS	Vanadium	7440-62-2	984	98.400	% Recov	80.000	120.000				08/06/08
LCS	Zinc	7440-66-6	1016	101.600	% Recov	80.000	120.000				08/06/08

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20081273
Matrix: WATER
Test: ICP-200.8 MS All possible meta

Sample Date: 06/26/08
Receive Date:06/26/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W08P003118											
BATCH QC ASSOCIATED WITH SAMPLE											
MS	Uranium	7440-61-1	45.532	113.830	% Recov	70.000	130.000				07/14/08
MSD	Uranium	7440-61-1	46.022	115.055	% Recov	70.000	130.000				07/14/08
SPK-RPD	Uranium	7440-61-1	115.055		RPD			1.070	20.000		07/14/08
Lab ID: W08P003120											
BATCH QC ASSOCIATED WITH SAMPLE											
MS	Uranium	7440-61-1	43.02	107.550	% Recov	70.000	130.000				07/14/08
MSD	Uranium	7440-61-1	43.34	108.350	% Recov	70.000	130.000				07/14/08
SPK-RPD	Uranium	7440-61-1	108.350		RPD			0.741	20.000		07/14/08
BATCH QC											
BLANK	Uranium	7440-61-1	<5e-2	n/a	ug/L					U	07/14/08
LCS	Uranium	7440-61-1	42.53	106.325	% Recov	85.000	115.000				07/14/08

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20081273
Matrix: WATER
Test: Total Alkalinity as mg/L CaCO3

Sample Date: 06/20/08
Receive Date:06/20/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W08P002897											
BATCH QC ASSOCIATED WITH SAMPLE											
DUP	Total Alkalinity as mg/L CaCO3	ALKALINITY	96.11		RPD			0.605	20.000		07/02/08
Lab ID: W08P003018											
BATCH QC ASSOCIATED WITH SAMPLE											
DUP	Total Alkalinity as mg/L CaCO3	ALKALINITY	96.46		RPD			0.073	20.000		07/02/08
BATCH QC											
LCS	Total Alkalinity as mg/L CaCO3	ALKALINITY	120.9	105.130	%Recove	80.000	120.000				07/02/08
LCS	Total Alkalinity as mg/L CaCO3	ALKALINITY	117.5	102.174	%Recove	80.000	120.000				07/02/08
LCS	Total Alkalinity as mg/L CaCO3	ALKALINITY	115.0	100.000	%Recove	80.000	120.000				07/02/08
LCS	Total Alkalinity as mg/L CaCO3	ALKALINITY	115.3	100.261	%Recove	80.000	120.000				07/02/08
LCS	Total Alkalinity as mg/L CaCO3	ALKALINITY	114.6	99.652	%Recove	80.000	120.000				07/02/08

WSCF ANALYTICAL LABORATORY QC REPORT

Department: **Inorganic**

SDG Number: WSCF20081273
Matrix: WATER
Test: Total Organic Carbon

Sample Date: 06/24/08
Receive Date:06/24/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W08P003056											
BATCH QC ASSOCIATED WITH SAMPLE											
MS	Total Organic Carbon	TOC	4.125	103.125	% Recov	75.000	125.000				07/23/08
MSD	Total Organic Carbon	TOC	4.148	103.700	% Recov	75.000	125.000				07/23/08
SPK-RPD	Total Organic Carbon	TOC	103.700		RPD			0.556	20.000		07/24/08
Lab ID: W08P003135											
BATCH QC ASSOCIATED WITH SAMPLE											
MS	Total Organic Carbon	TOC	4.243	106.075	% Recov	75.000	125.000				07/23/08
MSD	Total Organic Carbon	TOC	4.207	105.175	% Recov	75.000	125.000				07/23/08
SPK-RPD	Total Organic Carbon	TOC	105.175		RPD			0.852	20.000		07/24/08
BATCH QC											
BLANK	Total Organic Carbon	TOC	<0.045	n/a	mg/L	0.000	300.000			U	07/23/08
METHSPIKE	Total Organic Carbon	TOC	2.094	104.700	% Recov	80.000	120.000				07/23/08
SPK-RSD	Total Organic Carbon	TOC	1.376	1.376	% RSD	0.000	20.000				07/23/08

WSCF
ANALYTICAL COMMENT REPORT

Attention: Steve Trent E6-35

Group #: WSCF20081273
Department: Inorganic

Sample #	Client ID	Lab Area	Test	Comment
		VALGROUP		W08P003085, W08P003097, W08P003098, W08P003099, W08P003101 W08P003103, W08P003105, W08P003107, W08P003109, W08P003111 Gross beta duplicate is flagged for poor RPD. Since all the other QC checks came out fine, this batch has been approved. lmh Tc99 matrix spike recovery is slightly low. Since all the other QC checks came out fine, this batch has been approved. lmh ICP-AES: No zirconium present in the LCS standard. Magnesium, calcium, and sodium sample results exceed spiking level by a factor of 4 so spike recoveries are not valid. Check standard is used to ensure sodium, calcium, and magnesium 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

This report may not be reproduced, except in its entirety without the written approval of the WSCF Laboratory.

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: G08-006
Sample # W08P003107
Client ID: B1VK11 GPP-PNNL WSCF TRENT **Matrix:** WATER

Group #: WSCF20081273
Department: Organic
Sampled: 06/25/08
Received: 06/25/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
NWTPH-D TPH Diesel Range (Wa) Prep											**06/26/08**
NWTPH-D TPH Diesel Range (Wa)											
Total Pet. Hydrocarbons Diesel	TPHDIESEL	LA-523-493	U	< 72.0	ug/L			1.00	72		07/08/08
Kerosene	TPHKEROSENE	LA-523-493	U	< 72.0	ug/L			1.00	72		07/08/08

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)
D - Analyte was identified at a secondary dilution factor(inorg)
U - Analyzed for but not detected above limiting criteria.

D - Analyte was identified at a secondary dilution factor
U - Analyzed for but not detected above limiting criteria(inorg)
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: WSCF20081273
Matrix: WATER
Test: NWTPH-D TPH Diesel Range (Wa)

Sample Date: 06/23/08
Receive Date:06/23/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W08P003035											
BATCH QC ASSOCIATED WITH SAMPLE											
MS	ortho-Terphenyl Surr	84-15-1	427.81	89.000	% Recov	70.000	130.000				07/08/08
MS	Total Pet. Hydrocarbons Diesel	TPHDIESEL	2174.4	90.500	% Recov	75.000	125.000				07/08/08
MSD	ortho-Terphenyl Surr	84-15-1	436.63	105.000	% Recov	70.000	130.000				07/08/08
MSD	Total Pet. Hydrocarbons Diesel	TPHDIESEL	2166.3	104.000	% Recov	75.000	125.000				07/08/08
SPK-RPD	ortho-Terphenyl Surr	84-15-1	105.000		RPD			16.495	20.000		07/08/08
SPK-RPD	Total Pet. Hydrocarbons Diesel	TPHDIESEL	104.000		RPD			13.882	20.000		07/08/08
Lab ID: W08P003107											
BATCH QC ASSOCIATED WITH SAMPLE											
SURR	ortho-Terphenyl Surr	84-15-1	445.56	92.700	% Recov	70.000	130.000				07/08/08
BATCH QC											
BLANK	Kerosene	TPHKEROSENE	< 75	n/a	ug/L					U	07/08/08
BLANK	ortho-Terphenyl Surr	84-15-1	473.35	94.700	% Recov	70.000	130.000				07/08/08
BLANK	Total Pet. Hydrocarbons Diesel	TPHDIESEL	< 75	n/a	ug/L					U	07/08/08
LCS	ortho-Terphenyl Surr	84-15-1	480.40	96.100	% Recov	70.000	130.000				07/08/08
LCS	Total Pet. Hydrocarbons Diesel	TPHDIESEL	2300.0	92.000	% Recov	80.000	120.000				07/08/08

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: S08-006
Sample # W08P003085
Client ID: B1VLC9 GPP-PNNL WSCF TRENT **Matrix:** WATER

Group #: WSCF20081273
Department: Radiochemistry
Sampled: 06/25/08
Received: 06/25/08

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	1.40	pCi/L	+-1.37	pCi/L	1.00	2.1		07/15/08
Gross Alpha/Gross Beta (AB32)											
Gross beta	12587-47-2	LA-508-415		12.0	pCi/L	+-2.76	pCi/L	1.00	3.2		07/09/08

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)
D - Analyte was identified at a secondary dilution factor(inorg)
U - Analyzed for but not detected above limiting criteria.

D - Analyte was identified at a secondary dilution factor
U - Analyzed for but not detected above limiting criteria(inorg)
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: S08-006
Sample # W08P003097
Client ID: B1VLD1 GPP-PNNL WSCF TRENT **Matrix:** WATER

Group #: WSCF20081273
Department: Radiochemistry
Sampled: 06/25/08
Received: 06/25/08

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	2.60	pCi/L	+-1.92	pCi/L	1.00	2.7		07/15/08
Gross Alpha/Gross Beta (AB32)											
Gross beta	12587-47-2	LA-508-415		8.70	pCi/L	+-3.04	pCi/L	1.00	4.2		07/09/08

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)
D - Analyte was identified at a secondary dilution factor(inorg)
U - Analyzed for but not detected above limiting criteria.

D - Analyte was identified at a secondary dilution factor
U - Analyzed for but not detected above limiting criteria(inorg)
U - Analyzed for but not detected above limiting criteria.(org)

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

Report WGPP/ver. 5.2
GPAP

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: S08-006
Sample # W08P003098
Client ID: B1VLD3 GPP-PNNL WSCF TRENT **Matrix:** WATER

Group #: WSCF20081273
Department: Radiochemistry
Sampled: 06/25/08
Received: 06/25/08

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	0.630	pCi/L	+-1.03	pCi/L	1.00	1.8		07/15/08
Gross Alpha/Gross Beta (AB32)											
Gross beta	12587-47-2	LA-508-415		5.10	pCi/L	+-1.89	pCi/L	1.00	2.6		07/09/08

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)
D - Analyte was identified at a secondary dilution factor(inorg)
U - Analyzed for but not detected above limiting criteria.

D - Analyte was identified at a secondary dilution factor
U - Analyzed for but not detected above limiting criteria(inorg)
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: S08-006
Sample # W08P003099
Client ID: B1VLD5 GPP-PNNL WSCF TRENT **Matrix:** WATER

Group #: WSCF20081273
Department: Radiochemistry
Sampled: 06/25/08
Received: 06/25/08

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	0.760	pCi/L	+-1.25	pCi/L	1.00	2.1		07/15/08
Gross Alpha/Gross Beta (AB32)											
Gross beta	12587-47-2	LA-508-415		4.10	pCi/L	+-2.13	pCi/L	1.00	3.2		07/09/08

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)
D - Analyte was identified at a secondary dilution factor(inorg)
U - Analyzed for but not detected above limiting criteria.

D - Analyte was identified at a secondary dilution factor
U - Analyzed for but not detected above limiting criteria(inorg)
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: G08-006
Sample # W08P003101
Client ID: B1VK15 GPP-PNNL WSCF TRENT **Matrix:** WATER

Group #: WSCF20081273
Department: Radiochemistry
Sampled: 06/25/08
Received: 06/25/08

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	0.330	pCi/L	+-0.634	pCi/L	1.00	1.1		07/15/08
Gross Alpha/Gross Beta (AB32)											
Gross beta	12587-47-2	LA-508-415		2.90e+03	pCi/L	+-290	pCi/L	1.00	1.6		07/09/08
Strontium 89/90											
Strontium-89/90	SR-RAD	LA-508-415		1.30e+03	pCi/L	+-156	pCi/L	1.00	1.0		07/03/08
Sr-85 Tracer by Beta Counting	SR85	LA-508-415		83.6	Percent			1.00	0.0		07/03/08
Tritium by Liq Sct column prep											
Tritium	10028-17-8	LA-508-421		510	pCi/L	+-184	pCi/L	1.00	2.2e+02		07/03/08

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)
D - Analyte was identified at a secondary dilution factor(inorg)
U - Analyzed for but not detected above limiting criteria.

D - Analyte was identified at a secondary dilution factor
U - Analyzed for but not detected above limiting criteria(inorg)
U - Analyzed for but not detected above limiting criteria.(org)

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

Report WGPP/ver. 5.2
GPAP

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: G08-006
Sample # W08P003103
Client ID: B1VJY6 GPP-PNNL WSCF TRENT **Matrix:** WATER

Group #: WSCF20081273
Department: Radiochemistry
Sampled: 06/25/08
Received: 06/25/08

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	-0.200	pCi/L	+-0.520	pCi/L	1.00	1.1		07/15/08
Gross Alpha/Gross Beta (AB32)											
Gross beta	12587-47-2	LA-508-415		490	pCi/L	+-49.0	pCi/L	1.00	1.6		07/09/08
Strontium 89/90											
Strontium-89/90	SR-RAD	LA-508-415		330	pCi/L	+-36.3	pCi/L	1.00	0.97		07/03/08
Sr-85 Tracer by Beta Counting	SR85	LA-508-415		87.9	Percent			1.00	0.0		07/03/08
Tritium by Liq Sct column prep											
Tritium	10028-17-8	LA-508-421	U	130	pCi/L	+-208	pCi/L	1.00	2.2e+02		07/03/08

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)
D - Analyte was identified at a secondary dilution factor(inorg)
U - Analyzed for but not detected above limiting criteria.

D - Analyte was identified at a secondary dilution factor
U - Analyzed for but not detected above limiting criteria(inorg)
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: S08-006
Sample # W08P003105
Client ID: B1VM46 GPP-PNNL WSCF TRENT **Matrix:** WATER

Group #: WSCF20081273
Department: Radiochemistry
Sampled: 06/25/08
Received: 06/25/08

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		5.20	pCi/L	+-2.39	pCi/L	1.00	2.8		07/15/08
Gross Alpha/Gross Beta (AB32)											
Gross beta	12587-47-2	LA-508-415		400	pCi/L	+-40.0	pCi/L	1.00	4.3		07/09/08
Strontium 89/90											
Strontium-89/90	SR-RAD	LA-508-415		180	pCi/L	+-21.6	pCi/L	1.00	1.1		07/03/08
Sr-85 Tracer by Beta Counting	SR85	LA-508-415		80.0	Percent			1.00	0.0		07/03/08
TC99 by Liquid Scin.											
Tc-99 by Liquid Scin.	14133-76-7	LA-508-421		43.0	pCi/L	+-9.46	pCi/L	1.00	5.8		07/07/08
Tritium by Liq Sct column prep											
Tritium	10028-17-8	LA-508-421		7.30e+03	pCi/L	+-1.46e+03	pCi/L	1.00	2.2e+02		07/03/08

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)
D - Analyte was identified at a secondary dilution factor(inorg)
U - Analyzed for but not detected above limiting criteria.

D - Analyte was identified at a secondary dilution factor
U - Analyzed for but not detected above limiting criteria(inorg)
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: G08-006
Sample # W08P003107
Client ID: B1VK11 GPP-PNNL WSCF TRENT **Matrix:** WATER

Group #: WSCF20081273
Department: Radiochemistry
Sampled: 06/25/08
Received: 06/25/08

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	0.0800	pCi/L	+-0.697	pCi/L	1.00	1.3		07/15/08
Gross Alpha/Gross Beta (AB32)											
Gross beta	12587-47-2	LA-508-415		3.80	pCi/L	+-1.25	pCi/L	1.00	1.7		07/09/08
Strontium 89/90											
Strontium-89/90	SR-RAD	LA-508-415	U	-1.10	pCi/L	+-2.46	pCi/L	1.00	1.1		07/03/08
Sr-85 Tracer by Beta Counting	SR85	LA-508-415		76.1	Percent			1.00	0.0		07/03/08
Tritium by Liq Sct column prep											
Tritium	10028-17-8	LA-508-421	U	-6.80	pCi/L	+-20.5	pCi/L	1.00	2.2e+02		07/03/08

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)
D - Analyte was identified at a secondary dilution factor(inorg)
U - Analyzed for but not detected above limiting criteria.

D - Analyte was identified at a secondary dilution factor
U - Analyzed for but not detected above limiting criteria(inorg)
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: S08-006
Sample # W08P003109
Client ID: B1VLL8 GPP-PNNL WSCF TRENT **Matrix:** WATER

Group #: WSCF20081273
Department: Radiochemistry
Sampled: 06/25/08
Received: 06/25/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Gamma Energy Analysis-grd H2O											
Antimony-125	14234-35-6	LA-508-481	U	-3.71	pCi/L	+-12.1	pCi/L	1.00	20		07/07/08
Cobalt-60	10198-40-0	LA-508-481	U	4.27	pCi/L	+-4.41	pCi/L	1.00	8.4		07/07/08
Cesium-134	13967-70-9	LA-508-481	U	-0.483	pCi/L	+-4.28	pCi/L	1.00	7.5		07/07/08
Cesium-137	10045-97-3	LA-508-481	U	-3.18	pCi/L	+-4.15	pCi/L	1.00	6.9		07/07/08
Europium-152	14683-23-9	LA-508-481	U	-6.94	pCi/L	+-11.7	pCi/L	1.00	19		07/07/08
Europium-154	15585-10-1	LA-508-481	U	-0.810	pCi/L	+-8.10	pCi/L	1.00	20		07/07/08
Europium-155	14391-16-3	LA-508-481	U	8.91	pCi/L	+-13.7	pCi/L	1.00	24		07/07/08
Potassium-40	13966-00-2	LA-508-481	U	-1.17	pCi/L	+-11.7	pCi/L	1.00	1.3e+02		07/07/08
Ruthenium-106	13967-48-1	LA-508-481	U	-0.126	pCi/L	+-1.26	pCi/L	1.00	65		07/07/08
Be-7 by GEA	13966-02-4	LA-508-481	U	-0.370	pCi/L	+-0.370	pCi/L	1.00	61		07/07/08
Gross Alpha on Alpha Plateau											
Gross alpha on alpha plateau	12587-46-1	LA-508-415	U	1.00	pCi/L	+-1.10	pCi/L	1.00	1.7		07/15/08
Gross Alpha/Gross Beta (AB32)											
Gross beta	12587-47-2	LA-508-415		690	pCi/L	+-69.0	pCi/L	1.00	2.6		07/09/08
TC99 by Liquid Scin.											
Tc-99 by Liquid Scin.	14133-76-7	LA-508-421		1.30e+03	pCi/L	+-260	pCi/L	1.00	5.8		07/07/08
Tritium by Liq Sct column prep											
Tritium	10028-17-8	LA-508-421	U	140	pCi/L	+-160	pCi/L	1.00	2.2e+02		07/03/08

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)
D - Analyte was identified at a secondary dilution factor(inorg)
U - Analyzed for but not detected above limiting criteria.

D - Analyte was identified at a secondary dilution factor
U - Analyzed for but not detected above limiting criteria(inorg)
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: S08-006
Sample # W08P003111
Client ID: B1VLN5 GPP-PNNL WSCF TRENT **Matrix:** WATER

Group #: WSCF20081273
Department: Radiochemistry
Sampled: 06/25/08
Received: 06/25/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Gamma Energy Analysis-grd H2O											
Antimony-125	14234-35-6	LA-508-481	U	5.54	pCi/L	+-17.0	pCi/L	1.00	30		07/07/08
Cobalt-60	10198-40-0	LA-508-481	U	-2.05	pCi/L	+-9.57	pCi/L	1.00	11		07/07/08
Cesium-134	13967-70-9	LA-508-481	U	-8.72	pCi/L	+-8.72	pCi/L	1.00	11		07/07/08
Cesium-137	10045-97-3	LA-508-481	U	2.92	pCi/L	+-7.64	pCi/L	1.00	11		07/07/08
Europium-152	14683-23-9	LA-508-481	U	0.750	pCi/L	+-7.50	pCi/L	1.00	32		07/07/08
Europium-154	15585-10-1	LA-508-481	U	-17.2	pCi/L	+-18.8	pCi/L	1.00	30		07/07/08
Europium-155	14391-16-3	LA-508-481	U	8.57	pCi/L	+-22.6	pCi/L	1.00	38		07/07/08
Potassium-40	13966-00-2	LA-508-481	U	-59.4	pCi/L	+-105	pCi/L	1.00	1.6e+02		07/07/08
Ruthenium-106	13967-48-1	LA-508-481	U	-27.5	pCi/L	+-58.4	pCi/L	1.00	97		07/07/08
Be-7 by GEA	13966-02-4	LA-508-481	U	-30.0	pCi/L	+-30.0	pCi/L	1.00	83		07/07/08
Gross Alpha on Alpha Plateau											
Gross alpha on alpha plateau	12587-46-1	LA-508-415		1.90	pCi/L	+-1.01	pCi/L	1.00	1.2		07/15/08
Gross Alpha/Gross Beta (AB32)											
Gross beta	12587-47-2	LA-508-415		4.60	pCi/L	+-1.52	pCi/L	1.00	2.1		07/09/08
Tritium by Liq Sct column prep											
Tritium	10028-17-8	LA-508-421	U	93.0	pCi/L	+-223	pCi/L	1.00	2.2e+02		07/03/08

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)
D - Analyte was identified at a secondary dilution factor(inorg)
U - Analyzed for but not detected above limiting criteria.

D - Analyte was identified at a secondary dilution factor
U - Analyzed for but not detected above limiting criteria(inorg)
U - Analyzed for but not detected above limiting criteria.(org)

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

Report WGPP/ver. 5.2
GPAP

WSCF ANALYTICAL LABORATORY QC REPORT

Department: **Radiochemistry**

SDG Number: WSCF20081273
Matrix: WATER
Test: Gamma Energy Analysis-grd H2O

Sample Date: 06/25/08
Receive Date:06/25/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W08P003109											
BATCH QC ASSOCIATED WITH SAMPLE											
DUP	Cobalt-60	10198-40-0	U6.798		RPD			n/a	20.000		07/07/08
DUP	Cesium-134	13967-70-9	U1.145		RPD			n/a	20.000		07/07/08
DUP	Cesium-137	10045-97-3	U2.009		RPD			n/a	20.000		07/07/08
DUP	Europium-152	14683-23-9	U-2.481		RPD			n/a	20.000		07/07/08
DUP	Europium-154	15585-10-1	U2.576		RPD			n/a	20.000		07/07/08
DUP	Europium-155	14391-16-3	U-8.138		RPD			n/a	20.000		07/07/08
DUP	Potassium-40	13966-00-2	U-26.63		RPD			n/a	20.000		07/07/08
DUP	Ruthenium-106	13967-48-1	U-5.966		RPD			n/a	20.000		07/07/08
DUP	Antimony-125	14234-35-6	U-13.1		RPD			n/a	20.000		07/07/08
BATCH QC											
BLANK	Cobalt-60	10198-40-0	U1.399	n/a	pCi/L	-10.000	1000.000				07/07/08
BLANK	Cesium-134	13967-70-9	U2.039	n/a	pCi/L	-10.000	1000.000				07/07/08
BLANK	Cesium-137	10045-97-3	U-1.576	n/a	pCi/L	-10.000	1000.000				07/07/08
BLANK	Europium-152	14683-23-9	U-12.68	n/a	pCi/L	-10.000	1000.000				07/07/08
BLANK	Europium-154	15585-10-1	U6.229	n/a	pCi/L	-10.000	1000.000				07/07/08
BLANK	Europium-155	14391-16-3	U-3.352	n/a	pCi/L	-10.000	1000.000				07/07/08
BLANK	Potassium-40	13966-00-2	U-55.32	n/a	pCi/L	-10.000	1000.000				07/07/08
BLANK	Ruthenium-106	13967-48-1	U-25.23	n/a	pCi/L	-10.000	1000.000				07/07/08
BLANK	Antimony-125	14234-35-6	U2.52	n/a	pCi/L	-10.000	1000.000				07/07/08
LCS	Cobalt-60	10198-40-0	10120	101.811	% Recov	80.000	120.000				07/07/08
LCS	Cesium-137	10045-97-3	6297	104.255	% Recov	80.000	120.000				07/07/08

WSCF ANALYTICAL LABORATORY QC REPORT

Department: **Radiochemistry**

SDG Number: WSCF20081273
Matrix: WATER
Test: Gross Alpha on Alpha Plateau

Sample Date: 06/22/08
Receive Date:06/23/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W08P002925											
BATCH QC ASSOCIATED WITH SAMPLE											
DUP	Gross alpha on alpha plateau	12587-46-1	1.4E+01		RPD			24.000	20.000 *		07/15/08
BATCH QC											
BLANK	Gross alpha on alpha plateau	12587-46-1-ap	U-9.0E-02	n/a	pCi/L	-100.000	100.000				07/15/08
LCS	Gross alpha on alpha plateau	12587-46-1-ap	36.8	94.992	% Recov	80.000	120.000				07/15/08

WSCF ANALYTICAL LABORATORY QC REPORT

Department: **Radiochemistry**

SDG Number: WSCF20081273
Matrix: WATER
Test: Gross Alpha/Gross Beta (AB32)

Sample Date: 06/22/08
Receive Date:06/23/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W08P002925											
BATCH QC ASSOCIATED WITH SAMPLE											
DUP	Gross beta	12587-47-2	9.5E+01		RPD			46.753	20.000 *		07/09/08
BATCH QC											
BLANK	Gross beta	12587-47-2	U6.6E-01	n/a	pCi/L	-10.000	10.000				07/09/08
LCS	Gross beta	12587-47-2	126	112.299	% Recov	80.000	120.000				07/09/08

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Radiochemistry

SDG Number: WSCF20081273
Matrix: WATER
Test: Strontium 89/90

Sample Date: 06/22/08
Receive Date:06/23/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W08P002925											
BATCH QC ASSOCIATED WITH SAMPLE											
DUP	Sr-85 Tracer by Beta Counting	SR85	101.5	101.500	% Recov	30.000	105.000				07/03/08
DUP	Strontium-89/90	SR-RAD	U-3.8		RPD			n/a	20.000		07/03/08
Lab ID: W08P003101											
BATCH QC ASSOCIATED WITH SAMPLE											
SURR	Sr-85 Tracer by Beta Counting	SR85	83.6	83.600	% Recov	30.000	105.000				07/03/08
Lab ID: W08P003103											
BATCH QC ASSOCIATED WITH SAMPLE											
SURR	Sr-85 Tracer by Beta Counting	SR85	87.9	87.900	% Recov	30.000	105.000				07/03/08
Lab ID: W08P003105											
BATCH QC ASSOCIATED WITH SAMPLE											
SURR	Sr-85 Tracer by Beta Counting	SR85	80.0	80.000	% Recov	30.000	105.000				07/03/08
Lab ID: W08P003107											
BATCH QC ASSOCIATED WITH SAMPLE											
SURR	Sr-85 Tracer by Beta Counting	SR85	76.1	76.100	% Recov	30.000	105.000				07/03/08
BATCH QC											
BLANK	Sr-85 Tracer by Beta Counting	SR85	92.1	92.100	% Recov	30.000	105.000				07/03/08
BLANK	Strontium-89/90	10098-97-2	U-1.4	n/a	pCi/L	-10.000	100.000				07/03/08
LCS	Sr-85 Tracer by Beta Counting	SR85	87.8	87.800	% Recov	30.000	105.000				07/03/08
LCS	Strontium-89/90	10098-97-2	155	109.386	% Recov	80.000	120.000				07/03/08

WSCF ANALYTICAL LABORATORY QC REPORT

Department: **Radiochemistry**

SDG Number: WSCF20081273
Matrix: WATER
Test: TC99 by Liquid Scin.

Sample Date: 06/26/08
Receive Date:06/26/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W08P003130											
BATCH QC ASSOCIATED WITH SAMPLE											
DUP	Tc-99 by Liquid Scin.	14133-76-7	2.6E+03		RPD			3.922	20.000		07/07/08
MS	Tc-99 by Liquid Scin.	14133-76-7	530.9	70.575	% Recov	75.000	125.000			•	07/07/08
BATCH QC											
BLANK	Tc-99 by Liquid Scin.	14133-76-7	U-0.8	n/a	pCi/L	-10.000	10.000				07/07/08
LCS	Tc-99 by Liquid Scin.	14133-76-7	203.8	108.347	% Recov	80.000	120.000				07/07/08

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Radiochemistry

SDG Number: WSCF20081273
Matrix: WATER
Test: Tritium by Liq Sct column prep

Sample Date: 06/22/08
Receive Date:06/23/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W08P002927											
BATCH QC ASSOCIATED WITH SAMPLE											
DUP	Tritium	10028-17-8	1.2E+04		RPD			0.000	20.000		07/03/08
MS	Tritium	10028-17-8	22200	85.953	% Recov	75.000	125.000				07/03/08
BATCH QC											
BLANK	Tritium	10028-17-8	U-3.8E+01	n/a	pCi/L	-10.000	1000.000				07/03/08
LCS	Tritium	10028-17-8	3090.	90.256	% Recov	80.000	120.000				07/03/08

WSCF
ANALYTICAL COMMENT REPORT

Attention: Steve Trent E6-35

Group #: WSCF20081273
Department: Radiochemistry

Sample #	Client ID	Lab Area	Test	Comment
		VALGROUP		W08P003085, W08P003097, W08P003098, W08P003099, W08P003101 W08P003103, W08P003105, W08P003107, W08P003109, W08P003111 Gross beta duplicate is flagged for poor RPD. Since all the other QC checks came out fine, this batch has been approved. lmh Tc99 matrix spike recovery is slightly low. Since all the other QC checks came out fine, this batch has been approved. lmh ICP-AES: No zirconium present in the LCS standard. Magnesium, calcium, and sodium sample results exceed spiking level by a factor of 4 so spike recoveries are not valid. Check standard is used to ensure sodium, calcium, and magnesium 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

This report may not be reproduced, except in its entirety without the written approval of the WSCF Laboratory.

M4W41-SLF-08-809

ATTACHMENT 4

SAMPLE RECEIPT INFORMATION

Consisting of 13 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
V.3
8/7/08

ACKNOWLEDGMENT OF SAMPLES RECEIVED

GPAP

Richland, WA 99352
Attn: Steve Trent E6-35

Customer Code: PNNL-GPP
PO#: 122543
Group#: 20081273

The following samples were received from you on 06/25/08. 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
W08P003085	B1VLC9	GPP-PNNL TRENT @AB-32 @ALPHA @IC-30	Water	06/25/0
W08P003097	B1VLD1	GPP-PNNL TRENT @AB-32 @ALPHA	Water	06/25/0
W08P003098	B1VLD3	GPP-PNNL TRENT @AB-32 @ALPHA	Water	06/25/0
W08P003099	B1VLD5	GPP-PNNL TRENT @AB-32 @ALPHA	Water	06/25/0
W08P003100	B1VK14	GPP-PNNL TRENT @GPP6010	Water	06/25/0
W08P003101	B1VK15	GPP-PNNL TRENT @AB-32 @ALPHA @GPP6010 @H3-33 @IC-30 @SR89_90 ALKALI	Water	06/25/0
W08P003102	B1VJY5	GPP-PNNL TRENT @GPP6010	Water	06/25/0
W08P003103	B1VJY6	GPP-PNNL TRENT @AB-32 @ALPHA @GPP6010 @H3-33 @IC-30 @SR89_90 ALKALI	Water	06/25/0
W08P003104	B1VM45	GPP-PNNL TRENT @GPP6010	Water	06/25/0
W08P003105	B1VM46	GPP-PNNL TRENT @AB-32 @ALPHA @GPP6010 @H3-33 @IC-30 @SR89_90 @TC99-30 ALKALI	Water	06/25/0
W08P003106	B1VK10	GPP-PNNL TRENT @GPP6010	Water	06/25/0
W08P003107	B1VK11	GPP-PNNL TRENT @AB-32 @ALPHA @GPP6010 @H3-33 @IC-30 @SR89_90 @TPHD-WA ALKALI TOC-30	Water	06/25/0
W08P003108	B1VLL7	GPP-PNNL TRENT @GPP6010	Water	06/25/0

GPAP

Richland, WA 99352
Attn: Steve Trent E6-35

Customer Code: PNNL-GPP
PO#: 122543
Group#: 20081273

Sample#	Sample Id	Tests Scheduled	Matrix				Sample Date
W08P003109	B1VLL8	GPP-PNNL	TRENT	Water			06/25/08
		@2008	@AB-32	@ALPHA	@GEA-GPP	@GPP6010	
		@H3-33	@IC-30	@TC99-30	ALKALI	CN-02	
W08P003110	B1VLN4	GPP-PNNL	TRENT	Water			06/25/08
		@GPP6010					
W08P003111	B1VLN5	GPP-PNNL	TRENT	Water			06/25/08
		@2008	@AB-32	@ALPHA	@GEA-GPP	@GPP6010	
		@H3-33	@IC-30	ALKALI	CN-02		

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
@GEA-GPP	Gamma Energy Analysis-grd H2O
@GPP6010	ICP Metals Analysis, Grd H20 P
@H3-33	Tritium by Liq Sct column prep
@IC-30	Anions by Ion Chromatography
@SR89_90	Strontium 89/90
@TC99-30	TC99 by Liquid Scin.
@TPHD-WA	NWTPH-D TPH Diesel Range (Wa)
ALKALI	Total Alkalinity as mg/L CaCO3
CN-02	Cyanide by Midi/Spectrophotom
TOC-30	Total Organic Carbon

FLUOR HANFORD

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

S08-006-2

Collector R. A. Shepard	**Contact/Requester** Steve Trent	**Telephone No.** 509-373-5869 **MSIN** **FAX**
SAF No. S08-006	**Sampling Origin** Hanford Site	**Purchase Order/Charge Code**
Project Title SURV, JUNE 2008	HAHF-N-506-12	**Ice Chest No.** **Temp.**
Shipped To (Lab) Waste Sampling & Characterization	**Method of Shipment** Govt. Vehicle	**Bill of Lading/Air Bill No.**
Protocol SURV 20081273	**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
B1VLC9	W0 8F023085	W	6-25-08	1054	1x500-mL G/P	ALPHABETA_GPC: Alpha discrete + Beta (2); ALPHABETA_GPC: Alpha discrete + Beta (2)	HNO3 to pH <2
B1VLC9		W	↓	↓	1x500-mL P	300.0_ANIONS_IC: List-1 (5)	Cool~4C

ICED

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
R. A. Shepard			JUN 25 2008 13:30	Victor Bins			JUN 25 2008 13:30
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

S08-006-4

Collector Scott E. Hamaker	**Contact/Requester** Steve Trent	**Telephone No.** 509-373-5869 **MSIN** **FAX**
SAF No. S08-006	**Sampling Origin** Hanford Site	**Purchase Order/Charge Code**
Project Title SURV JUNE 2008	HWF-N-50L-17	**Ice Chest No.** OWS-027 **Temp.**
Shipped To (Lab) Waste Sampling & Characterization	**Method of Shipment** Govt. Vehicle	**Bill of Lading/Air Bill No.**
Protocol SURV	**Priority:** 45 Days	**Offsite Property No.**

POSSIBLE SAMPLE HAZARDS/REMARKS
" "

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
B1VLD1	W0S8F003097	W	6-25-08	1138	1x500-mL G/P	ALPHABETA_GPC: Alpha discrete + Beta (2); ALPHABETA_GPC: Alpha discrete + Beta (2)	HNO3 to pH <2

ICED

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Scott E. Hamaker	Scott Hamaker		JUN 25 2008 1500	CA Hudson			JUN 25 2008 1500
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

S08-006-6

Collector Scott E. Hamaker	Contact/Requester Steve Trent	Telephone No. 509-373-5869 MSIN FAX
SAF No. S08-006	Sampling Origin Hanford Site	Purchase Order/Charge Code
Project Title SURV JUNE 2008	HNF-N-506-17	Ice Chest No. AWS-079 Temp.
Shipped To (Lab) Waste Sampling & Characterization	Method of Shipment Govt. Vehicle	Bill of Lading/Air Bill No.
Protocol SURV	Priority: 45 Days	Offsite Property No.

POSSIBLE SAMPLE HAZARDS/REMARKS
** **

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
B1VLD3	W08P003098	W	6-25-08	1020	1x500-mL G/P	ALPHABETA_GPC: Alpha discrete + Beta (2); ALPHABETA_GPC: Alpha discrete + Beta (2)	HNO3 to pH <2

ICED

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
	Scott E. Hamaker	Scott Hamaker	JUN 25 2008 1500	CM Hylton			JUN 25 2008 1500
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

S08-006-8

Collector: Roy Sickle	Contact/Requester: Steve Trent	Telephone No.: 509-373-5869 MSIN FAX
SAF No.: S08-006	Sampling Origin: Hanford Site	Purchase Order/Charge Code
Project Title: SURV JUNE 2008	HNF-N-506-15	Ice Chest No.: GN-1 Temp.
Shipped To (Lab): Waste Sampling & Characterization	Method of Shipment: Govt. Vehicle	Bill of Lading/Air Bill No.
Protocol: SURV	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
Site-Wide Generator Knowledge Information Form applies.

Total Activity Exemption: Yes ☑ No ☐

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B1VLD5	W08000364	W	06/25/08	1359	1x500-mL G/P	ALPHABETA_GPC: Alpha discrete + Beta (2); ALPHABETA_GPC: Alpha discrete + Beta (2)	HNO3 to pH <2

ICED

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Roy Sickle			1500 JUN 25 2008	CA Hucker			1500 JUN 25 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

G08-006-25

Collector: Scott E. Hamaker	Contact/Requester: Steve Trent	Telephone No.: 509-373-5869 MSIN FAX
SAF No.: G08-006	Sampling Origin: Hanford Site	Purchase Order/Charge Code
Project Title: 1NR2-RB, JUNE 2008	LWF-N-506.17 p. 5	Ice Chest No.: GW5-029 Temp.
Shipped To (Lab): Waste Sampling & Characterization	Method of Shipment: Govt. Vehicle	Bill of Lading/Air Bill No.
Protocol: SURV	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
100 Area Generator Knowledge Information Form applies.

Total Activity Exemption: Yes ☑ No ☐

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B1VK14.(F)	W0800300	W	6-25-08	1245	1x500-mL G/P	6010_METALS_ICP: List-3 (18)	HNO3 to pH <2
B1VK15	3101	W			1x500-mL G/P	6010_METALS_ICP: List-3 (18)	HNO3 to pH <2
B1VK15		W			1x250-mL G/P	2320_ALKALINITY: Alkalinity (1)	Cool~4C
B1VK15		W			1x500-mL P	300.0_ANIONS_IC:List-1+Phosphate (6)	Cool~4C
B1VK15		W			1x500-mL G/P	ALPHABETA_GPC: Alpha discrete + Beta (2); ALPHABETA_GPC: Alpha discrete + Beta (2)	HNO3 to pH <2
B1VK15		W			1x1-L G/P	Strontium-89,90 -- Total Sr	HNO3 to pH <2
B1VK15		W			1x250-mL G	TRITIUM_EIE_LSC: Tritium (1)	None

ICED

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
Scott E. Hamaker / Scott Hamaker	JUN 25 2008 1500	C A Hudson / C A Hudson	JUN 25 2008 1500
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

G08-006-3

Collector: Scott E. Hamaker	Contact/Requester: Steve Trent	Telephone No.: 509-372-3869 MSIN FAX
SAF No.: G08-006	Sampling Origin: Hanford Site	Purchase Order/Charge Code
Project Title: INR2-RB, JUNE 2008	HNF-N-506-17 p5	Ice Chest No.: Cooler 229 Temp.
Shipped To (Lab): Waste Sampling & Characterization	Method of Shipment: Govt. Vehicle	Bill of Lading/Air Bill No.
Protocol: SURV	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
100 Area Generator Knowledge Information Form applies.

Total Activity Exemption: Yes ☑ No ☐

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B1VJY5 (F)	W-8003102	W	6-25-08	1316	1x500-mL G/P	6010_METALS_ICP: List-3 (18)	HNO3 to pH <2
B1VJY6	3103	W			1x500-mL G/P	6010_METALS_ICP: List-3 (18)	HNO3 to pH <2
B1VJY6		W			1x250-mL G/P	2320_ALKALINITY: Alkalinity (1)	Cool~4C
B1VJY6		W			1x500-mL P	300.0_ANIONS_IC:List-1+Phosphate (6)	Cool~4C
B1VJY6		W			1x500-mL G/P	ALPHABETA_GPC: Alpha discrete + Beta (2); ALPHABETA_GPC: Alpha discrete + Beta (2)	HNO3 to pH <2
B1VJY6		W			1x1-L G/P	Strontium-89,90 -- Total Sr	HNO3 to pH <2
B1VJY6		W			1x250-mL G	TRITIUM_EIE_LSC: Tritium (1)	None

ICEL

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Scott E. Hamaker	Scott Hamaker		JUN 25 2008 1500	CA Hidon			JUN 25 2008 1500
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

S08-006-40

Collector KE Hamilton	Contact/Requester Steve Trent	Telephone No. 509-373-5869 MSIN FAX
SAF No. S08-006	Sampling Origin Hanford Site	Purchase Order/Charge Code
Project Title SURV JUNE 2008	HNF-N-506-16	Ice Chest No. GWS-010 Temp.
Shipped To (Lab) Waste Sampling & Characterization	Method of Shipment Govt. Vehicle	Bill of Lading/Air Bill No.
Protocol SURV	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
B1VM45 (F)	W0804003104	W	6/25/08	1136	1x500-mL G/P	6010_METALS_ICP: List-3 (18)	HNO3 to pH <2
B1VM46	3105	W			1x500-mL G/P	ALPHABETA_GPC: Alpha discrete + Beta (2); ALPHABETA_GPC: Alpha discrete + Beta (2)	HNO3 to pH <2
B1VM46		W			1x250-mL G	TRITIUM_EIE_LSC: Tritium (1)	None
B1VM46		W			1x500-mL P	300.0_ANIONS_IC: List-1 (5)	Cool~4C
B1VM46		W			1x500-mL G/P	6010_METALS_ICP: List-3 (18)	HNO3 to pH <2
B1VM46		W			1x250-mL G/P	2320_ALKALINITY: Alkalinity (1)	Cool~4C
B1VM46		W			1x1000-mL G/P	TC99_3MDSK_LSC: Tc-99 (1)	HCl to pH <2
B1VM46		W			1x1-L G/P	Strontium-89,90 -- Total Sr	HNO3 to pH <2

ICEL

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
KE Hamilton	Kevin E Hamilton		JUN 25 2008 1505	CA Hilton			JUN 25 2008 1505
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 Liqui	
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

G08-006-19

Collector Scott E. Hamaker	**Contact/Requester** Steve Trent	**Telephone No.** 509-373-5869 **MSIN** **FAX**
SAF No. G08-006	**Sampling Origin** Hanford Site	**Purchase Order/Charge Code**
Project Title INR2-RB, JUNE 2008	HNF-N-506-17	**Ice Chest No.** CR05-029 **Temp.**
Shipped To (Lab) Waste Sampling & Characterization	**Method of Shipment** Govt. Vehicle	**Bill of Lading/Air Bill No.**
Protocol SURV	**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 ☐
100 Area Generator Knowledge Information Form applies.

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B1VK10 (F)	W5P053106	W	6-25-08	1409	1x500-mL G/P	6010_METALS_ICP: List-3 (18)	HNO3 to pH <2
B1VK11	3107	W			1x500-mL G/P	6010_METALS_ICP: List-3 (18)	HNO3 to pH <2
B1VK11		W			1x250-mL G/P	2320_ALKALINITY: Alkalinity (1)	Cool~4C
B1VK11		W			1x500-mL P	300.0_ANIONS_IC:List-1+Phosphate (6)	Cool~4C
B1VK11		W			1x500-mL G/P	ALPHABETA_GPC: Alpha discrete + Beta (2); ALPHABETA_GPC: Alpha discrete + Beta (2)	HNO3 to pH <2
B1VK11		W			1x1-L G/P	Strontium-89,90 -- Total Sr	HNO3 to pH <2
B1VK11		W			1x250-mL G	TRITIUM_EIE_LSC: Tritium (1)	None
B1VK11		W			1x250-mL aGs*	9060_TOC: TOC (1)	HCl or H2SO4 to pH <2 Cool~4C
B1VK11		W			3x1000-mL aG	TPH-Diesel Range - WTPH-D	HCl to pH <2 Cool~4C

ICED

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Scott E. Hamaker		Scott Hamaker	JUN 25 2008 1507	CRHrdon		CRHrdon	JUN 25 2008 1500
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 Liqui
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

S08-006-136

Page 1 of 1

Collector KE Hamilton	**Contact/Requester** Steve Trent	**Telephone No.** 509-373-5869 **MSIN** **FAX**
SAF No. S08-006	**Sampling Origin** Hanford Site	**Purchase Order/Charge Code**
Project Title SURV JUNE 2008	HWF-N-506-16	**Ice Chest No.** GWS-010 **Temp.**
Shipped To (Lab) Waste Sampling & Characterization	**Method of Shipment** Govt. Vehicle	**Bill of Lading/Air Bill No.**
Protocol SURV	**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
B1VLL7 (F)	W3SPC3108	W	6-25-08	1305	1x500-mL G/P	6010_METALS_ICP: List-3 (18)	HNO3 to pH <2
B1VLL8	3109	W			1x500-mL G/P	ALPHABETA_GPC: Alpha discrete + Beta (2); ALPHABETA_GPC: Alpha discrete + Beta (2)	HNO3 to pH <2
B1VLL8		W			1x250-mL G	TRITIUM_EIE_LSC: Tritium (1)	None
B1VLL8		W			1x500-mL P	300.0_ANIONS_IC: List-1 (5)	Cool~4C
B1VLL8		W			1x500-mL G/P	200.8_METALS_ICPMS: Uranium (1)	HNO3 to pH <2
B1VLL8		W			1x500-mL G/P	6010_METALS_ICP: List-3 (18)	HNO3 to pH <2
B1VLL8		W			1x250-mL G/P	2320_ALKALINITY: Alkalinity (1)	Cool~4C
B1VLL8		W			1x500-mL G/P	GAMMA_GS: List-1 (10)	HNO3 to pH <2
B1VLL8		W			1x1000-mL G/P	TC99_3MDSK_LSC: Tc-99 (1)	HCl to pH <2
B1VLL8		W			1x250-mL G/P	335.2_CYANIDE: Cyanide (1)	NaOH to pH >= 12 Cool~4C

ICED

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
KE Hamilton	Ken Hamilton		JUN 25 2008 1505		Arthur Johnson		JUN 25 2008 1505
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

S08-006-162

Collector: KE Hamilton	Contact/Requester: Steve Trent	Telephone No.: 509-373-5869 MSIN FAX
SAF No.: S08-006	Sampling Origin: Hanford Site	Purchase Order/Charge Code
Project Title: SURV JUNE 2008	HWF-N-506.16	Ice Chest No.: 6w3-010 Temp.
Shipped To (Lab): Waste Sampling & Characterization	Method of Shipment: Govt. Vehicle	Bill of Lading/Air Bill No.
Protocol: SURV	Priority: 45 Days	Offsite Property No.

POSSIBLE SAMPLE HAZARDS/REMARKS
** **

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
B1VLN4 (F)	W08P0031	W	6-25-08	1423	1x500-mL G/P	6010_METALS_ICP: List-3 (18)	HNO3 to pH <2
B1VLN5	W08P0031	W			1x500-mL G/P	ALPHABETA_GPC: Alpha discrete + Beta (2); ALPHABETA_GPC: Alpha discrete + Beta (2)	HNO3 to pH <2
B1VLN5		W			1x250-mL G	TRITIUM_EIE_LSC: Tritium (1)	None
B1VLN5		W			1x500-mL P	300.0_ANIONS_IC: List-1 (5)	Cool~4C
B1VLN5		W			1x500-mL G/P	200.8_METALS_ICPMS: Uranium (1)	HNO3 to pH <2
B1VLN5		W			1x500-mL G/P	6010_METALS_ICP: List-3 (18)	HNO3 to pH <2
B1VLN5		W			1x250-mL G/P	2320_ALKALINITY: Alkalinity (1)	Cool~4C
B1VLN5		W			1x500-mL G/P	GAMMA_GS: List-1 (10)	HNO3 to pH <2
B1VLN5		W			1x250-mL G/P	335.2_CYANIDE: Cyanide (1)	NaOH to pH >= 12 Cool~4C

ICED

Relinquished By	Received By
Print: KE Hamilton Sign: [signature] Date/Time: JUN 25 2008 1505	Print: CA Hudson Sign: [signature] Date/Time: JUN 25 2008 1505
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