

RECEIVED DECEMBER 1, 2008

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Telephone 373-7495  
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**FLUOR**®

M4W41-SLF-08-1266

November 25, 2008

**RECEIVED**  
APR 02 2009  
**EDMC**

Mr. M. A. Neely, Manager  
Analytical Services  
CH2M HILL Plateau Remediation Contract  
1933 Jadwin MSIN B6-06  
Richland, WA 99352

Dear Mike:

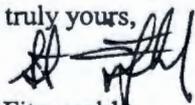
FINAL RESULTS FOR SAMPLE DELIVERY GROUP WSCF20082278

- Reference:
- (1) Memorandum of Agreement #MOA-FH-CHPRC-2008, Rev. 0, for the Performance & Payment of Services, dated October 1, 2008
  - (2) HNF-SD-CD-QAPP-017, Rev. 9, Waste Sampling & Characterization Facility Quality Assurance Plan

This letter contains the following attachments for sample delivery group WSCF20082278:

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

Very truly yours,



S. L. Fitzgerald  
WSCF Analytical Lab

SLF/grf

Attachments 4

cc:	w/Attachments			
	T. F. Dale	S3-30	J. E. Trechter	S3-30
	A. J. Kopriva	S3-30	S. J. Trent	B6-06
	H. K. Meznarich	S3-30	File/LB	
	P. D. Mix	S3-30		

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ATTACHMENT 1

**COVER SHEET**

Consisting of 2 pages  
Including cover page

# WSCF SAF NUMBER CROSS REFERENCE

Group#: WSCF20082278  
Data Deliverable Date: 24-nov-2008  
Data Deliverable: Cover Sheet

SAF#	Sample ID	WSCF#	Matrix
I09-005	B1XHL2	W08P005029	WATER
	B1XHN9	W08P005026	WATER
	B1XHT8	W08P005037	WATER
	B1XJ73	W08P005025	WATER
	B1XJ76	W08P005027	WATER
	B1XJD8	W08P005038	WATER
	B1XK30	W08P005030	WATER
	B1XK31	W08P005031	WATER
	B1XK32	W08P005032	WATER
	B1XK33	W08P005033	WATER
	B1XK34	W08P005034	WATER
	B1XK35	W08P005035	WATER
	B1XK37	W08P005036	WATER
	I09-009	B1XLW0	W08P005028
B1XLW3		W08P005024	WATER
B1XLW5		W08P005023	WATER

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ATTACHMENT 2

**NARRATIVE**

Consisting of 2 pages  
Including cover page

### **Introduction**

Sixteen (16) groundwater samples were received at the WSCF Laboratory on November 20, 2008. Samples were analyzed for the analytes indicated on the attached copy of the chain of custody (COC) form in accordance with the *Memorandum of Agreement (MOA-FH-CHPRC-2008, Rev.0)*, 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*, page 9, for a complete listing of approved analytical methods.

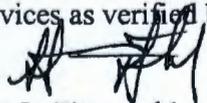
### **Inorganic Comments**

**Hexavalent Chromium** – The hold time requirement for this analysis was met. A Duplicate, Matrix Spike, Matrix Spike Duplicate, Blank and Laboratory Control Sample were analyzed with this delivery group. See pages 26 through 27 for QC details. Analytical Note(s):

- Sample results were D flagged if dilutions were required.
- Duplicates, Matrix Spikes and Matrix Spike Duplicates were analyzed on samples B1XLY7 (SDG# 20082275); and, B1XJ73 and B1XLW5 (SDG# 20082278).

All QC controls are within the established limits.

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



Scot L. Fitzgerald  
WSCF Analytical Laboratory Manager



Pauline D. Mix  
WSCF Client Services

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ATTACHMENT 3

**ANALYTICAL RESULTS**

Consisting of 22 pages  
Including cover page

**WSCF**  
**ANALYTICAL RESULTS REPORT**

for

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

**Attention: Steve Trent E6-35**

Analytical:

*S. Fitzgerald 11/25/08*

Client Services:

*P.D. Miller 11/25/2008*

*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) 531-8004. Information designation of this report is the responsibility of the customer.

Report#: WSCF20082278  
Report Date: 24-nov-2008  
Report WGPP/ver. 5.2  
GPAP

Page 1

Department: Inorganic

## W13q Worklist/Batch/QC Report for Group# WSCF20082278

WL#	S#	Batch	QC#	Tray Type	Sample#	Test
38593	2	39014	43519	BLANK		Hexavalent chromium
38593	17	39014	43519	BLANK		Hexavalent chromium
38593	30	39014	43519	BLANK		Hexavalent chromium
38593	3	39014	43519	LCS		Hexavalent chromium
38593	5	39014	43519	DUP	W08P004986	Hexavalent chromium
38593	6	39014	43519	MS	W08P004986	Hexavalent chromium
38593	7	39014	43519	MSD	W08P004986	Hexavalent chromium
38593	7	39014	43519	SPK-RPD	W08P004986	Hexavalent chromium
38593	25	39014	43519	DUP	W08P005025	Hexavalent chromium
38593	26	39014	43519	MS	W08P005025	Hexavalent chromium
38593	27	39014	43519	MSD	W08P005025	Hexavalent chromium
38593	24	39014	43519	SAMPLE	W08P005025	Hexavalent chromium
38593	27	39014	43519	SPK-RPD	W08P005025	Hexavalent chromium
38593	28	39014	43519	SAMPLE	W08P005035	Hexavalent chromium
38593	29	39014	43519	SAMPLE	W08P005038	Hexavalent chromium
38606	2	39027	43534	BLANK		Hexavalent chromium
38606	16	39027	43534	BLANK		Hexavalent chromium
38606	22	39027	43534	BLANK		Hexavalent chromium
38606	3	39027	43534	LCS		Hexavalent chromium
38606	5	39027	43534	DUP	W08P005023	Hexavalent chromium
38606	6	39027	43534	MS	W08P005023	Hexavalent chromium
38606	7	39027	43534	MSD	W08P005023	Hexavalent chromium
38606	4	39027	43534	SAMPLE	W08P005023	Hexavalent chromium
38606	7	39027	43534	SPK-RPD	W08P005023	Hexavalent chromium
38606	8	39027	43534	SAMPLE	W08P005024	Hexavalent chromium
38606	9	39027	43534	SAMPLE	W08P005026	Hexavalent chromium
38606	10	39027	43534	SAMPLE	W08P005027	Hexavalent chromium
38606	11	39027	43534	SAMPLE	W08P005028	Hexavalent chromium
38606	12	39027	43534	SAMPLE	W08P005029	Hexavalent chromium
38606	13	39027	43534	SAMPLE	W08P005030	Hexavalent chromium
38606	14	39027	43534	SAMPLE	W08P005031	Hexavalent chromium
38606	15	39027	43534	SAMPLE	W08P005032	Hexavalent chromium
38606	17	39027	43534	SAMPLE	W08P005033	Hexavalent chromium
38606	18	39027	43534	SAMPLE	W08P005034	Hexavalent chromium
38606	19	39027	43534	SAMPLE	W08P005036	Hexavalent chromium
38606	21	39027	43534	SAMPLE	W08P005037	Hexavalent chromium

# WSCF METHOD REFERENCES REPORT

Department: Inorganic

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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.

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<b>LA-265-403</b>	<b>LA-265-403: Hexavalent Chromium analysis by Spectrophotometer</b>
<b>EPA SW-846 7196A</b>	<b>HEXAVALENT CHROMIUM</b>
<b>HEIS 7196_CR6</b>	<b>Hexavalent Chromium</b>

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

Report Date: 24-nov-2008  
Report#: WSCF20082278  
Report WGPPM/5.2

# WSCF ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35  
**SAF Number:** I09-009  
**Sample #** W08P005023  
**Client ID:** B1XLW5

**PNNL-GPP**  
**WSCF**

**Matrix:** WATER

**Group #:** WSCF20082278  
**Department:** Inorganic  
**Sampled:** 11/20/08  
**Received:** 11/20/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
<b>Hexavalent Chromium</b>											
Hexavalent Chromium	18540-29-9	LA-265-403	D	2.07	mg/L			9.30	0.019		11/21/08

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

D - Analyte was identified at a secondary dilution factor(inorg)

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

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

*Report WGPP/ver. 5.2*  
*GPAP*

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# WSCF ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35

SAF Number: I09-009

Sample # W08P005024

Client ID: B1XLW3 PNNL-GPP

WSCF

Matrix: WATER

Group #: WSCF20082278

Department: Inorganic

Sampled: 11/20/08

Received: 11/20/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
<b>Hexavalent Chromium</b>											
Hexavalent Chromium	18540-29-9	LA-265-403	D	2.00	mg/L			9.30	0.019		11/21/08

**MDL=Minimum Detection Limit**

D - Analyte was identified at a secondary dilution factor(inorg)

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

**RQ=Result Qualifier**

**TP Err=Total Propagated Error**

**DF=Dilution Factor**

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

Report WGPP/ver. 5.2

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# WSCF ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35

**SAF Number:** I09-005

**Sample #** W08P005025

**Client ID:** B1XJ73 PNNL-GPP  
WSCF

**Matrix:** WATER

**Group #:** WSCF20082278

**Department:** Inorganic

**Sampled:** 11/20/08

**Received:** 11/20/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
<b>Hexavalent Chromium</b>											
Hexavalent Chromium	18540-29-9	LA-285-403		0.0747	mg/L			1.00	2.0e-03		11/20/08

**MDL=Minimum Detection Limit**

D - Analyte was identified at a secondary dilution factor(inorg)

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

**RQ=Result Qualifier**

**TP Err=Total Propagated Error**

**DF=Dilution Factor**

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

Report WGPP/ver. 5.2

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# WSCF ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35  
**SAF Number:** I09-005  
**Sample #** W08P005026  
**Client ID:** B1XHN9

PNNL-GPP  
 WSCF

**Matrix:** WATER

**Group #:** WSCF20082278  
**Department:** Inorganic  
**Sampled:** 11/20/08  
**Received:** 11/20/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Hexavalent Chromium	18540-29-9	LA-265-403		7.70e-03	mg/L			1.00	2.0e-03		11/21/08

**MDL = Minimum Detection Limit**

**RQ = Result Qualifier**

**TP Err = Total Propagated Error**

**DF = Dilution Factor**

D - Analyte was identified at a secondary dilution factor(inorg)

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

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

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GPAP

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# WSCF

## ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35

**SAF Number:** I09-005

**Sample #** W08P005027

**Client ID:** B1XJ76 PNNL-GPP  
WSCF

**Matrix:** WATER

**Group #:** WSCF20082278

**Department:** Inorganic

**Sampled:** 11/20/08

**Received:** 11/20/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
<b>Hexavalent Chromium</b>											
Hexavalent Chromium	18540-29-9	LA-265-403		0.0104	mg/L			1.00	2.0e-03		11/21/08

**MDL=Minimum Detection Limit**

D - Analyte was identified at a secondary dilution factor(inorg)

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

**RQ=Result Qualifier**

**TP Err=Total Propagated Error**

**DF=Dilution Factor**

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

Report WGPP/ver. 5.2

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# WSCF ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35  
**SAF Number:** I09-009  
**Sample #** W08P005028  
**Client ID:** B1XLW0 PNNL-GPP  
 WSCF

**Matrix:** WATER

**Group #:** WSCF20082278  
**Department:** Inorganic  
**Sampled:** 11/20/08  
**Received:** 11/20/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
<b>Hexavalent Chromium</b>											
Hexavalent Chromium	18540-29-9	LA-265-403		3.80e-03	mg/L			1.00	2.0e-03		11/21/08

**MDL = Minimum Detection Limit**

D - Analyte was identified at a secondary dilution factor(inorg)

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

**RQ = Result Qualifier**

**TP Err = Total Propagated Error**

**DF = Dilution Factor**

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

Report WGPP/ver. 5.2

GPAP

# WSCF

## ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35  
**SAF Number:** I09-005  
**Sample #** W08P005029  
**Client ID:** B1XHL2 PNNL-GPP  
 WSCF

**Matrix:** WATER

**Group #:** WSCF20082278  
**Department:** Inorganic  
**Sampled:** 11/20/08  
**Received:** 11/20/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
<b>Hexavalent Chromium</b>											
Hexavalent Chromium	18540-29-9	LA-265-403		2.50e-03	mg/L			1.00	2.0e-03		11/21/08

**MDL=Minimum Detection Limit**

**RQ=Result Qualifier**

**TP Err=Total Propagated Error**

**DF=Dilution Factor**

D - Analyte was identified at a secondary dilution factor(inorg)

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

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Report WGPP/ver. 5.2

GPAP

# WSCF

## ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35

**SAF Number:** I09-005

**Sample #** W08P005030

**Client ID:** B1XK30 PNNL-GPP  
WSCF

**Matrix:** WATER

**Group #:** WSCF20082278

**Department:** Inorganic

**Sampled:** 11/20/08

**Received:** 11/20/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
<b>Hexavalent Chromium</b>											
Hexavalent Chromium	18540-29-9	LA-265-403		0.0196	mg/L			1.00	2.0e-03		11/21/08

**MDL=Minimum Detection Limit**

**RQ=Result Qualifier**

**TP Err=Total Propagated Error**

**DF=Dilution Factor**

D - Analyte was identified at a secondary dilution factor(inorg)

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

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Report WGPP/ver. 5.2

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# WSCF ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35

SAF Number: I09-005

Sample # W08P005031

Client ID: B1XK31 PNNL-GPP  
WSCF

Matrix: WATER

Group #: WSCF20082278

Department: Inorganic

Sampled: 11/20/08

Received: 11/20/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
<b>Hexavalent Chromium</b>											
Hexavalent Chromium	18540-29-9	LA-265-403		0.0183	mg/L			1.00	2.0e-03		11/21/08

**MDL=Minimum Detection Limit**

D - Analyte was identified at a secondary dilution factor(inorg)

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

**RQ=Result Qualifier**

**TP Err=Total Propagated Error**

**DF=Dilution Factor**

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

Report WGPP/ver. 5.2

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# WSCF ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35  
**SAF Number:** I09-005  
**Sample #** W08P005032  
**Client ID:** B1XK32 PNNL-GPP  
 WSCF

**Matrix:** WATER

**Group #:** WSCF20082278  
**Department:** Inorganic  
**Sampled:** 11/20/08  
**Received:** 11/20/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
<b>Hexavalent Chromium</b>											
Hexavalent Chromium	18540-29-9	LA-265-403		0.0473	mg/L			1.00	2.0e-03		11/21/08

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

D - Analyte was identified at a secondary dilution factor(inorg)

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

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

Report WGPP/ver. 5.2  
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# WSCF ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35  
**SAF Number:** I09-005  
**Sample #** W08P005033  
**Client ID:** B1XK33

**PNNL-GPP**  
**WSCF**

**Matrix:** WATER

**Group #:** WSCF20082278  
**Department:** Inorganic  
**Sampled:** 11/20/08  
**Received:** 11/20/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
<b>Hexavalent Chromium</b>											
Hexavalent Chromium	18540-29-9	LA-265-403		0.0486	mg/L			1.00	2.0e-03		11/21/08

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

D - Analyte was identified at a secondary dilution factor(inorg)

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

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Report WGPP/ver. 5.2  
 GPAP

# WSCF ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35

SAF Number: I09-005

Sample # W08P005034

Client ID: B1XK34 PNNL-GPP  
WSCF

Matrix: WATER

Group #: WSCF20082278

Department: Inorganic

Sampled: 11/20/08

Received: 11/20/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
<b>Hexavalent Chromium</b>											
Hexavalent Chromium	18540-29-9	LA-265-403		0.0711	mg/L			1.00	2.0e-03		11/21/08

**MDL=Minimum Detection Limit**

D - Analyte was identified at a secondary dilution factor(inorg)

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

**RQ=Result Qualifier**

**TP Err=Total Propagated Error**

**DF=Dilution Factor**

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

Report WGPP/ver. 5.2

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# WSCF

## ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35

**SAF Number:** I09-005

**Sample #** W08P005035

**Client ID:** B1XK35 PNNL-GPP  
WSCF

**Matrix:** WATER

**Group #:** WSCF20082278

**Department:** Inorganic

**Sampled:** 11/20/08

**Received:** 11/20/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
<b>Hexavalent Chromium</b>											
Hexavalent Chromium	18540-29-9	LA-265-403	U	< 2.00e-03	mg/L			1.00	2.0e-03		11/20/08

**MDL=Minimum Detection Limit**

D - Analyte was identified at a secondary dilution factor(inorg)

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

**RQ=Result Qualifier**

**TP Err=Total Propagated Error**

**DF=Dilution Factor**

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

Report WGPP/ver. 5.2

GPAP

# WSCF ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35

SAF Number: I09-005

Sample # W08P005036

Client ID: B1XK37 PNNL-GPP  
WSCF

Matrix: WATER

Group #: WSCF20082278

Department: Inorganic

Sampled: 11/20/08

Received: 11/20/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
<b>Hexavalent Chromium</b>											
Hexavalent Chromium	18540-29-9	LA-265-403		0.215	mg/L			1.00	2.0e-03		11/21/08

**MDL=Minimum Detection Limit**

**RQ=Result Qualifier**

**TP Err=Total Propagated Error**

**DF=Dilution Factor**

D - Analyte was identified at a secondary dilution factor(inorg)

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

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+ - Indicates more than six qualifier symbols

Report WGPP/ver. 5.2

GPAP

# WSCF ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35

SAF Number: I09-005

Sample # W08P005037

Client ID: B1XHT8 PNNL-GPP  
WSCF

Matrix: WATER

Group #: WSCF20082278

Department: Inorganic

Sampled: 11/20/08

Received: 11/20/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
<b>Hexavalent Chromium</b>											
Hexavalent Chromium	18540-29-9	LA-265-403		0.157	mg/L			1.00	2.0e-03		11/21/08

**MDL = Minimum Detection Limit**

D - Analyte was identified at a secondary dilution factor (inorg)

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

**RQ = Result Qualifier**

**TP Err = Total Propagated Error**

**DF = Dilution Factor**

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

Report WGPP/ver. 5.2

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# WSCF ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35

SAF Number: 109-005

Sample # W08P005038

Client ID: B1XJD8 PNNL-GPP  
WSCF

Matrix: WATER

Group #: WSCF20082278

Department: Inorganic

Sampled: 11/20/08

Received: 11/20/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
<b>Hexavalent Chromium</b>											
Hexavalent Chromium	18540-29-9	LA-265-403		0.114	mg/L			1.00	2.0e-03		11/20/08

**MDL = Minimum Detection Limit**

**RQ = Result Qualifier**

**TP Err = Total Propagated Error**

**DF = Dilution Factor**

D - Analyte was identified at a secondary dilution factor(inorg)

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

\* - 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: **Inorganic**

SDG Number: WSCF20082278  
 Matrix: WATER  
 Test: Hexavalent chromium

Sample Date: 11/20/08  
 Receive Date: 11/20/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
<b>Lab ID: W08P004986</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
DUP	Hexavalent chromium	18540-29-9	0.1779		RPD			0.000	15.000		11/20/08
MS	Hexavalent chromium	18540-29-9	0.0550	102.996	% Recov	85.000	115.000				11/20/08
MSD	Hexavalent chromium	18540-29-9	0.0536	100.375	% Recov	85.000	115.000				11/20/08
SPK-RPD	Hexavalent chromium	18540-29-9	100.375		RPD			2.578	20.000		11/20/08
<b>Lab ID: W08P005025</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
DUP	Hexavalent chromium	18540-29-9	0.0747		RPD			0.000	15.000		11/20/08
MS	Hexavalent chromium	18540-29-9	0.0550	102.996	% Recov	85.000	115.000				11/20/08
MSD	Hexavalent chromium	18540-29-9	0.0550	102.996	% Recov	85.000	115.000				11/20/08
SPK-RPD	Hexavalent chromium	18540-29-9	102.996		RPD			0.000	20.000		11/20/08
<b>BATCH QC</b>											
BLANK	Hexavalent chromium	18540-29-9	<0.002	n/a	mg/L	0.000	2.000			U	11/20/08
BLANK	Hexavalent chromium	18540-29-9	<0.002	n/a	mg/L	0.000	2.000			U	11/20/08
BLANK	Hexavalent chromium	18540-29-9	<0.002	n/a	mg/L	0.000	2.000			U	11/20/08
LCS	Hexavalent chromium	18540-29-9	0.0506	100.797	% Recov	80.000	120.000				11/20/08
<b>Lab ID: W08P005023</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
DUP	Hexavalent chromium	18540-29-9	2.0846		RPD			0.592	15.000		11/21/08
MS	Hexavalent chromium	18540-29-9	0.0488	91.386	% Recov	85.000	115.000				11/21/08
MSD	Hexavalent chromium	18540-29-9	0.0488	91.386	% Recov	85.000	115.000				11/21/08
SPK-RPD	Hexavalent chromium	18540-29-9	91.386		RPD			0.000	20.000		11/21/08

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: **Inorganic**

SDG Number: WSCF20082278  
 Matrix: WATER  
 Test: Hexavalent chromium

Sample Date:  
 Receive Date:

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
<b>BATCH QC</b>											
BLANK	Hexavalent chromium	18540-29-9	<0.002	n/a	mg/L	0.000	2.000			U	11/21/08
BLANK	Hexavalent chromium	18540-29-9	<0.002	n/a	mg/L	0.000	2.000			U	11/21/08
BLANK	Hexavalent chromium	18540-29-9	<0.002	n/a	mg/L	0.000	2.000			U	11/21/08
LCS	Hexavalent chromium	18540-29-9	0.0528	104.781	% Recov	80.000	120.000				11/21/08

M4W41-SLF-08-1266

ATTACHMENT 4

**SAMPLE RECEIPT INFORMATION**

Consisting of 19 pages  
Including cover page

Waste Sampling and Characterization Facility

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

File

ACKNOWLEDGMENT OF SAMPLES RECEIVED

11/24/08

*td*



GPAP

Richland, WA 99352  
Attn: Steve Trent E6-35

Customer Code: PNNL-GPP  
PO#: 122543  
Group#: 20082278

The following samples were received from you on 11/20/08. 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
W08P005023	B1XLW5	PNNL-GPP CR+6	Water	11/20/08
W08P005024	B1XLW3	PNNL-GPP CR+6	Water	11/20/08
W08P005025	B1XJ73	PNNL-GPP CR+6	Water	11/20/08
W08P005026	B1XHN9	PNNL-GPP CR+6	Water	11/20/08
W08P005027	B1XJ76	PNNL-GPP CR+6	Water	11/20/08
W08P005028	B1XLW0	PNNL-GPP CR+6	Water	11/20/08
W08P005029	B1XHL2	PNNL-GPP CR+6	Water	11/20/08
W08P005030	B1XK30	PNNL-GPP CR+6	Water	11/20/08
W08P005031	B1XK31	PNNL-GPP CR+6	Water	11/20/08
W08P005032	B1XK32	PNNL-GPP CR+6	Water	11/20/08
W08P005033	B1XK33	PNNL-GPP CR+6	Water	11/20/08
W08P005034	B1XK34	PNNL-GPP CR+6	Water	11/20/08
W08P005035	B1XK35	PNNL-GPP CR+6	Water	11/20/08
W08P005036	B1XK37	PNNL-GPP CR+6	Water	11/20/08
W08P005037	B1XHT8	PNNL-GPP CR+6	Water	11/20/08

GPAP

Richland, WA 99352  
Attn: Steve Trent E6-35

Customer Code: PNNL-GPP  
PO#: 122543  
Group#: 20082278

Sample#	Sample Id	Tests Scheduled	Matrix	Sample Date
W08P005038	B1XJD8	PNNL-GPP CR+6	Water	11/20/08

Test Acronym Description

Test Acronym	Description
CR+6	Hexavalent chromium































