

PO Box 650 S3-30
Richland, WA 99352



December 29, 2010

Michael Neely
CH2M-HILL PRC
PO Box 1600
Richland, WA 99352

RDR R-7022 RB 1-6-11
R-7023

Dear Michael Neely,

FINAL RESULT FOR SAMPLE DELIVERY GROUP WSCF103186

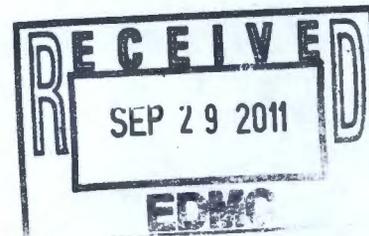
Reference: (1) SOW, Mod 2, #36587, Release 3
(2) HNF-SD-CD-QAPP-017, current version, Waste Sampling & Characterization Facility Quality Assurance Plan

This letter contains the following information for sample delivery group WSCF103186

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

Very truly yours,

Electronically signed by Carolyn Watkins
For Lab Manager
WSCF Analytical Lab
(509) 373-7495



Attachments 4

CC: w/Attachments

File/LB

ATTACHMENT 1

COVER SHEET

Consisting of 2 pages
Including cover page

WSCF SAF Number Cross Reference

Group # WSCF103186
Data Deliverable Date 09/15/10

SAF #	Sample ID	Sample #	Matrix	Sampled	Received
W10-009-208	B27B61	103186001	WATER	08/31/10	08/31/10
I10-046	B27DF0	103186002	WATER	09/16/10	09/16/10

ATTACHMENT 2

NARRATIVE

Consisting of 3 pages
Including cover page

Introduction RDR R-7022; R-7023

Two (2) groundwater samples were selected for reanalysis at the WSCF Laboratory. The samples were selected from WSCF102336 (B27B61 in 101103WSCF-R7022) and WSCF102557 (B27DF0 in 101103WSCF-R7023). The samples were analyzed for the analytes indicated on the attached copy of the RDR form in accordance with the *Statement of Work (SOW), Modification No. 2 to Agreement 36587, Release 3, "FH WSCF ANALYTICAL SERVICES FOR GROUNDWATER."*

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 RDR and sample receipt documentation are included as Attachment 4.

It should be noted that the attached chain of custody was not stamped "ICED" by the WSCF Laboratory Sample Custodian during sample receiving. However, based on procedure LO-090-403 form "NOTICE OF IMPROPER SAMPLE SUBMITTAL" was not submitted and was not stamped "NOT ICED". No anomaly was noted during sample receipt.

The following generic data qualifiers (i.e., B, D, U and J) may be applicable to this report, as appropriate

- **B** – Sample results with a concentration greater than the MDL but less than the PQL are B flagged (applies to inorganic and wet chemical analyses), as appropriate.
- **D** – Sample results are D flagged if dilution(s) were required, as appropriate.
- **J** – Sample results with a concentration greater than the MDL but less than the PQL are J flagged (applies to organic analyses), as appropriate.
- **U** – Analyzed for but not detected above limiting criteria. Relative Percent Difference (RPD) values associated with an analyte qualified with a "U" are not applicable.

Analytical Methodology for Requested Analyses

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

Radiochemistry Comments

Rad Chem – The hold time requirement for this analysis was met. A Duplicate, Matrix Spike (Matrix Spikes apply only to Technetium), Blank and Laboratory Control Sample were analyzed with this delivery group. Analytical Note(s):

- Tracers are used to determine chemical yield. RPD is monitored in sample duplicate and is not required for tracer recovery per SOW.

- Technetium-99:
 - Batch QC 170636 analyzed on sample# B27X49 (103155004)
 - The result for sample B27B61 (103186002) determined the concentration of Technetium-99 to be 5900 pCi/L, whereas Technetium-99 was originally undetected in this sample. A qualified Rad Chemist has reviewed the raw data and is unable to explain the difference.

All applicable QC controls are within the established limits.

- Strontium-89/90:
 - Batch QC 170641 analyzed on sample# B27DF0 (103186002)
 - Duplicate sample is flagged for poor reproducibility. A qualified scientist has reviewed the batch and, finding all other QC to be acceptable, the batch has been approved.
 - The result for sample B27DF0 (103186002) determined the concentration of Strontium-89/90 to be 5.8 pCi/L, whereas the original determination for this sample was approximately twice as high (130 pCi/L). A qualified Rad Chemist has reviewed the raw data and is unable to explain the difference.

All other applicable QC controls are within the established limits.

We certify that this data package is in compliance with the SOW, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this data package has been authorized by the Analytical Laboratory Manager (or designee) and the Client Services representative as verified by electronic signatures shown on the WSCF ANALYTICAL RESULTS REPORT.

ATTACHMENT 3

ANALYTICAL RESULTS

Consisting of 9 pages
Including cover page

WSCF ANALYTICAL RESULTS REPORT

For

CH2M Hill Plateau Remediation

PO Box 1600
Richland, WA 99352

Attention: Michael Neely

Contract # MOA-FH-CHPRC-2008
Group # WSCF103186
Report Date December 29, 2010

Analytical: Electronically signed by Carolyn Watkins

Client Services: Electronically signed by Richard Barker

Solid samples results that have a 'Percent Solid' test are reported on a "dry weight basis", except results of TCLP, Percent Solid, and Total Activity. If no 'Percent Solid' test is reported then the results are reported on an "as received" basis.

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.

Batch QC List

Attention Michael Neely
Department Radiochemistry

Group # WSCF103186

QC Batch	Analytical Batch	S#	Type	Sample #	Client Sample#	Original	Test
170636	170670	1	BLANK	43081	BLANK		TC99 by Liquid Scintillation
170636	170670	2	LCS	43082	LCS		TC99 by Liquid Scintillation
170636	170670	3	SAMPLE	103186001	B27B61		TC99 by Liquid Scintillation
170636	170670	4	DUP	43083	B27X49(103155004DUP)	103155004	TC99 by Liquid Scintillation
170636	170670	5	MS	43084	B27X49(103155004MS)	103155004	TC99 by Liquid Scintillation
170641	172485	1	BLANK	43092	BLANK		Strontium 89/90 (GPC/GEA)
170641	172485	2	LCS	43093	LCS		Strontium 89/90 (GPC/GEA)
170641	172485	3	DUP	43094	B27DF0(103186002DUP)	103186002	Strontium 89/90 (GPC/GEA)
170641	172485	4	SAMPLE	103186002	B27DF0		Strontium 89/90 (GPC/GEA)

Method Reference

Attention Michael Neely
Department Radiochemistry

Group # WSCF103186

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, industry methods or HEIS 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 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-220-406	Strontium-89 and 90 in Aqueous Samples by SR-SPEC Separation
HEIS	SRTOT_SEP_PRECIP_GPC Strontium 89/90, by Sr-Spec Sep.
LA-508-421	Operation of the Tri-Carb Model 2500TR Liquid Scintillation Analyzer
HEIS	ALPHA_LSC A/B Liquid Scintillation
HEIS	BETA_LSC A/B Liquid Scintillation
HEIS	TC99_3MDSK_LSC TC99 by Liquid Scintillation
HEIS	TRITIUM_EIE_LSC Tritium, by Eichrome ion exchange, LSC

Note: A complete list of WSCF analytical procedures and reference regulatory or industry methods is available online at <http://www7.rl.gov/rapidweb/AS-DOL/index.cfm>

WSCF Analytical Results Report

Attention Michael Neely
 Department Radiochemistry

Group # WSCF103186

Sample # 103186001
 SAF# W10-009-208
 Sample ID B27B61

Matrix WATER
 Sampled 08/31/10
 Received 08/31/10

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
Tc-99										12/03/10
TRI-CARB LSC										
Technetium-99	14133-76-7	LA-508-421		5900	1200	pCi/L	1	6.1		12/06/10

MDL = Minimum Detection
 RQ = Result Qualifier
 TP Err = Total Propagated
 DF = Dilution Factor
 + - Indicates more than nine qualifier

B - Analyte was detected in both the BLANK and SAMPLE
 U - Analyzed for but not detected above limiting criteria.
 N - Spike Recovery is Outside Control Limits.
 X,Y or Z - See comment detail and/or narrative.

WSCF Analytical Results Report

Attention Michael Neely
 Department Radiochemistry

Group # WSCF103186

Sample # 103186002
 SAF# 110-046
 Sample ID B27DF0

Matrix WATER
 Sampled 09/16/10
 Received 09/16/10

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
SR-89/90										12/17/10
Strontium-89/90	SR-RAD	LA-220-406		5.8	4.4	pCi/L	1	1.8		12/20/10

MDL = Minimum Detection
 RQ = Result Qualifier
 TP Err = Total Propagated
 DF = Dilution Factor
 + - Indicates more than nine qualifier

B - Analyte was detected in both the BLANK and SAMPLE
 U - Analyzed for but not detected above limiting criteria.
 N - Spike Recovery is Outside Control Limits.
 X, Y or Z - See comment detail and/or narrative.

Quality Control Report

Attention Michael Neely
 Department Radiochemistry

Group # WSCF103186

QC Batch 170636 Test TC99 by Liquid Scintillation
 Associated Samples 103186001

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
BLANK										
			QC Sample #43081							
Technetium-99 LCS	14133-76-7		-2.3	pCi/L					U	12/06/10
			QC Sample #43082							
Technetium-99 DUP	14133-76-7		250	pCi/L	99.8	80 - 120				12/06/10
			QC Sample #43083							
			Original 103155004							
Technetium-99 MS	14133-76-7		-0.50	pCi/L			-172.60	20	* U	12/06/10
			QC Sample #43084							
			Original 103155004							
Technetium-99	14133-76-7		1000	pCi/L	101.6	75 - 125				12/06/10

Quality Control Report

Attention Michael Neely
 Department Radiochemistry

Group # WSCF103186

QC Batch 170641 Test Strontium 89/90 (GPC/GEA)
 Associated Samples 103186002

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
BLANK										
Strontium-89/90	SR-RAD		-1.5	pCi/L					U	12/20/10
LCS										
Strontium-89/90	SR-RAD		110	pCi/L	100.4	80 - 120				12/20/10
DUP										
Strontium-89/90	SR-RAD	5.8	12	pCi/L			69.70	20	* X	12/20/10
SAMPLE										
Strontium-85	13967-73-2				88.3	25 - 105				12/20/10
BLANK										
Strontium-85	13967-73-2				86.4	25 - 105				12/20/10
LCS										
Strontium-85	13967-73-2				84.9	25 - 105				12/20/10
DUP										
Strontium-85	13967-73-2				84.9	25 - 105	3.90			12/20/10

Analytical Comment Report

Attention: Michael Neely

Group #

WSCF103186

Quality Control Comments

Department Radiochemistry

43094

B27DF0(103186002DUP)

Analyte

Strontium-89/90 - Strontium 89/90 (GPC/GEA)

- [1] The dup is flagged for poor reproducibility (RPD). All other QC is acceptable so the scientist has reviewed and approved the batch. LMK

ATTACHMENT4

SAMPLE RECEIPT

Consisting of 4 pages
Including cover page

Sample Receipt

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

ACKNOWLEDGEMENT OF SAMPLES RECEIVED

WSCF Laboratory
PO Box 650 S3-30
Richland, WA 99352

ATTN: Michael Neely

Customer Code: CHPRC
PO #: 401647
Work Order #: 103186
Profile #: RERUN W10-009-208
Proj. Mgr.:
Phone:

The following samples were received from you on 8/31/2010 1:10:00 PM. 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	Matrix	Collected	Received
Tests scheduled				
103186001	B27B61	WATER	8/31/2010 09:59	8/31/2010 13:10
		TC99-W		
103186002	B27DF0	WATER	9/16/2010 11:55	9/16/2010 14:15
		SR89/90-W		

Test Acronym Description

Test Acronym	Description
SR89/90-W	Strontium 89/90 (GPC) (W)
TC99-W	Technetium-99 (W)

Sample Receipt

WELLS

RECHECK, RECOUNT, OR REANALYSIS ORDER

11/03/2010

Rerun

103186

12/17/10

HA

Waste Sampling & Characterization
600 AREA Hanford, MSIN S3-28
Richland, WA 99352

Order Number: 101103WSCF-R7022

Sample Delivery Group: WSCF102336

Sample(s):

Method Name: TC99_3MDSK_LSC

Sample #: B27B61

Sample Date: 8/31/10 9:59 am

SAF #: W10-009 WSCF

Lab Sample ID	RDR Action	Start Date	Action	TAT (Hardcopy/EDD)
102336013		11/3/2010 1:48 pm	RECOUNT REANALYZE	15 Days / 15 Days 103186001

Deliver Report Results to: CH2M Hill Plateau Remediation Company
P.O. Box 1600
Richland, WA 99352-1234
C/O Mr. Mike Neely

Thursday, December 02, 2010 7:16:12 PM

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Sample Receipt

Chain of Custody

RECHECK, RECOUNT, OR REANALYSIS ORDER

11/03/2010

Waste Sampling & Characterization
600 AREA Hanford, MSIN S3-28
Richland, WA 99352

Order Number: 101103WSCF-R7023

Sample Delivery Group: WSCF102577

Sample(s):

Method Name: SRTOT_SEP_PRECIP_GPC

Sample #:	B27DF0	Sample Date:	9/16/10 11:55 am	SAF #:	110-046	WSCF
Lab Sample ID	RDR Action	Start Date	Action	TAT (Hardcopy/EDD)		
102577009	11/3/2010	1:49 pm	RECOUNT REANALYZE	15 Days / 15 Days		103186002

Deliver Report Results to: CH2M Hill Plateau Remediation Company
P.O. Box 1600
Richland, WA 99352-1234
C/O Mr. Mike Neely

Thursday, December 02, 2010 7:18:12 PM

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