



EBERLINE SERVICES

AUGUST 7, 2009

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August 7, 2009

Mr. Michael Neely
CH2M Hill Plateau Remediation Company
P.O. Box 1600
Mail Stop – B6-06
Richland, WA 99352

Reference: **P.O. #33677**
Eberline Analytical R9-07-139-7864, SDG H4027

Dear Mr. Neely:

Enclosed is a data report for three water samples designated under SAF No. R09-018 received at Eberline Analytical on July 31, 2009. The samples were analyzed according to the accompanying chain-of-custody documents.

Please call if you have any questions concerning this report.

Sincerely,

N. Joseph Verville
Client Services Manager

NJV/ljb

Enclosure: Data Package

1.0 GENERAL

CH2M Hill Plateau Remediation Company (CHPRC) Sample Delivery Group H4027 was composed of three water samples designated under SAF No. R09-018 with a Project Designation of: ARRA 200-CW-3 – QCSampling.

The samples were received as stated on the chain-of-custody document. Any discrepancies are noted on the Eberline Analytical Sample Receipt Checklist.

2.0 ANALYSIS NOTES

2.1 Tritium Analysis

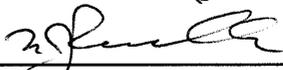
The results for both the original and duplicate analyses were less than their respective MDA's, therefore no RPD is calculated, and there is no associated control limit. No problems were encountered during the course of the analyses.

2.2 Nickel-63 Analysis

The results for both the original and duplicate analyses were less than their respective MDA's, therefore no RPD is calculated, and there is no associated control limit. No problems were encountered during the course of the analyses.

3.0 Case Narrative Certification Statement

"I 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 obtained in this hard copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature."



N. Joseph Verville
Client Services Manager

8/7/09

Date

SDG 7864
 Contact N. Joseph Verville

Client CHPRC
 Contract No. 33677
 Case no SDG_H4027

S U M M A R Y D A T A S E C T I O N

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UB

Prepared by _____

N. Joseph Verville

Reviewed by _____

Lab id <u>EBRLNE</u>
Protocol <u>CHPRC</u>
Version <u>Ver 1.0</u>
Form <u>DVD-TOC</u>
Version <u>3.06</u>
Report date <u>08/06/09</u>

SDG 7864

Contact N. Joseph Verville

REPORT GUIDE

Client CHPRC

Contract No. 33677

Case no SDG_H4027

ABOUT THE DATA SUMMARY SECTION

The Data Summary Section of a Data Package has all data, in several useful orders, necessary for first level, routine review of the data package for a Sample Delivery Group (SDG). This section follows the Data Package Narrative, which has an overview of the data package and a discussion of special problems. It is followed by the Raw Data Section, which has full details.

The Data Summary Section has several groups of reports:

SAMPLE SUMMARIES

The Sample and QC Summary Reports show all samples, including QC samples, reported in one SDG. These reports cross-reference client and lab sample identifiers.

PREPARATION BATCH SUMMARY

The Preparation Batch Summary Report shows all preparation batches (lab groupings reflecting how work was organized) relevant to the reported SDG with information necessary to check the completeness and consistency of the SDG.

WORK SUMMARY

The Work Summary Report shows all samples and work done on them relevant to the reported SDG.

METHOD BLANKS

The Method Blank Reports, one for each Method Blank relevant to the SDG, show all results and primary supporting information for the blanks.

LAB CONTROL SAMPLES

The Lab Control Sample Reports, one for each Lab Control Sample relevant to the SDG, show all results, recoveries and primary supporting information for these QC samples.

REPORT GUIDES

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SUMMARY DATA SECTION

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Lab id EBRLNE

Protocol CHPRC

Version Ver 1.0

Form DVD-RG

Version 3.06

Report date 08/06/09

SDG 7864
 Contact N. Joseph Verville

GUIDE, cont.

Client CHPRC
 Contract No. 33677
 Case no SDG_H4027

ABOUT THE DATA SUMMARY SECTION

DUPLICATES

The Duplicate Reports, one for each Duplicate and Original sample pair relevant to the SDG, show all results, differences and primary supporting information for these QC samples.

MATRIX SPIKES

The Matrix Spike Reports, one for each Spiked and Original sample pair relevant to the SDG, show all results, recoveries and primary supporting information for these QC samples.

DATA SHEETS

The Data Sheet Reports, one for each client sample in the SDG, show all results and primary supporting information for these samples.

METHOD SUMMARIES

The Method Summary Reports, one for each test used in the SDG, show all results, QC and method performance data for one analyte on one or two pages. (A test is a short code for the method used to do certain work to the client's specification.)

REPORT GUIDES

The Report Guides, one for each of the above groups of reports, have documentation on how to read the associated reports.

REPORT GUIDES

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SUMMARY DATA SECTION

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Lab id EBRLNE
 Protocol CHPRC
 Version Ver 1.0
 Form DVD-RG
 Version 3.06
 Report date 08/06/09

EBERLINE SERVICES, 2009 RICHMOND

SAMPLE DELIVERY GROUP H4027

SDG 7864

Contact N. Joseph Verville

LAB SAMPLE SUMMARY

Client CHPRC

Contract No. 33677

Case no SDG H4027

LAB SAMPLE ID	CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	SAF NO	CHAIN OF CUSTODY	COLLECTED
R907139-01	B210Y7	UPR-200-N1;C7474;EB	WATER		R09-018	R09-018-036	07/21/09 09:15
R907139-02	B21101	UPR-200-N1;C7475;FB	WATER		R09-018	R09-018-056	07/22/09 12:30
R907139-03	B21CC5	UPR-N-1,C7493;I-002TB	WATER		R09-018	R09-018-062	07/23/09 11:00
R907139-04	Lab Control Sample		WATER		R09-018		
R907139-05	Method Blank		WATER		R09-018		
R907139-06	Duplicate (R907139-01)	UPR-200-N1;C7474;EB	WATER		R09-018		07/21/09 09:15
R907139-07	Spike (R907139-03)	UPR-N-1,C7493;I-002TB	WATER		R09-018		07/23/09 11:00
R907139-08	Duplicate (R907139-03)	UPR-N-1,C7493;I-002TB	WATER		R09-018		07/23/09 11:00

LAB SUMMARY

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SUMMARY DATA SECTION

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Lab id <u>EBRLNE</u>
Protocol <u>CHPRC</u>
Version <u>Ver 1.0</u>
Form <u>DVD-LS</u>
Version <u>3.06</u>
Report date <u>08/06/09</u>

SDG 7864
 Contact N. Joseph Verville

QC SUMMARY

Client CHPRC
 Contract No. 33677
 Case no SDG H4027

QC BATCH	CHAIN OF CUSTODY	CLIENT SAMPLE ID	MATRIX	% SOLIDS	SAMPLE AMOUNT	BASIS AMOUNT	DAYS SINCE RECEIVED	LAB COLL	LAB SAMPLE ID	DEPARTMENT SAMPLE ID
7864	R09-018-036	B210Y7	WATER		1.0 L		07/31/09 10	R907139-01		7864-001
	R09-018-056	B21101	WATER		1.0 L		07/31/09 9	R907139-02		7864-002
	R09-018-062	B21CC5	WATER		1.0 L		07/31/09 8	R907139-03		7864-003
		Method Blank	WATER					R907139-05		7864-005
		Lab Control Sample	WATER					R907139-04		7864-004
		Duplicate (R907139-01)	WATER		1.0 L		07/31/09 10	R907139-06		7864-006
		Duplicate (R907139-03)	WATER		1.0 L		07/31/09 8	R907139-08		7864-008
		Spike (R907139-03)	WATER		1.0 L		07/31/09 8	R907139-07		7864-007

Lab id EBRLNE
 Protocol CHPRC
 Version Ver 1.0
 Form DVD-QS
 Version 3.06
 Report date 08/06/09

SDG 7864
 Contact N. Joseph Verville

PREP BATCH SUMMARY

Client CHPRC
 Contract No. 33677
 Case no SDG H4027

TEST	MATRIX	METHOD	PREPARATION ERROR		PLANCHETS ANALYZED				QUALI-	
			BATCH	2σ %	CLIENT	MORE	RE BLANK	LCS		DUP/ORIG MS/ORIG
Liquid Scintillation Counting										
H	WATER	Tritium in Water	7211-177	10.0	1		1	1	1/1	1/1 X
NI_L	WATER	Nickel-63 in Liquid	7211-177	11.2	2		1	1	1/1	

Blank, LCS, Duplicate and Spike planchets are those in the same preparation batch as some Client sample.

PREP BATCH SUMMARY

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SAMPLE DELIVERY GROUP H4027

SDG 7864
 Contact N. Joseph Verville

LAB WORK SUMMARY

Client CHPRC
 Contract No. 33677
 Case no. SDG H4027

LAB SAMPLE	CLIENT SAMPLE ID				SUF-					
COLLECTED	LOCATION	MATRIX			FIX	ANALYZED	REVIEWED	BY	METHOD	
RECEIVED	CUSTODY	SAF No	PLANCHET	TEST						
R907139-01	B210Y7		7864-001	NI_L		08/05/09	08/05/09	BW	Nickel-63 in Liquid	
07/21/09	UPR-200-N1;C7474;EB	WATER								
07/31/09	R09-018-036	R09-018								
R907139-02	B21101		7864-002	NI_L		08/05/09	08/05/09	BW	Nickel-63 in Liquid	
07/22/09	UPR-200-N1;C7475;FB	WATER								
07/31/09	R09-018-056	R09-018								
R907139-03	B21CC5		7864-003	H		08/03/09	08/06/09	BW	Tritium in Water	
07/23/09	UPR-N-1,C7493;I-002TB	WATER								
07/31/09	R09-018-062	R09-018								
R907139-04	Lab Control Sample		7864-004	H		08/03/09	08/06/09	BW	Tritium in Water	
		WATER	7864-004	NI_L		08/05/09	08/05/09	BW	Nickel-63 in Liquid	
		R09-018								
R907139-05	Method Blank		7864-005	H		08/03/09	08/06/09	BW	Tritium in Water	
		WATER	7864-005	NI_L		08/05/09	08/05/09	BW	Nickel-63 in Liquid	
		R09-018								
R907139-06	Duplicate (R907139-01)		7864-006	NI_L		08/05/09	08/05/09	BW	Nickel-63 in Liquid	
07/21/09	UPR-200-N1;C7474;EB	WATER								
07/31/09		R09-018								
R907139-07	Spike (R907139-03)		7864-007	H		08/03/09	08/06/09	BW	Tritium in Water	
07/23/09	UPR-N-1,C7493;I-002TB	WATER								
07/31/09		R09-018								
R907139-08	Duplicate (R907139-03)		7864-008	H		08/03/09	08/06/09	BW	Tritium in Water	
07/23/09	UPR-N-1,C7493;I-002TB	WATER								
07/31/09		R09-018								

WORK SUMMARY

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SUMMARY DATA SECTION

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Lab id EBRLNE
 Protocol CHPRC
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 Form DVD-LWS
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SDG 7864

Contact N. Joseph Verville

WORK SUMMARY, cont.

Client CHPRC

Contract No. 33677

Case no SDG H4027

COUNTS OF TESTS BY SAMPLE TYPE

TEST	SAF No	METHOD	REFERENCE	CLIENT	MORE	RE	BLANK	LCS	DUP SPIKE	TOTAL
H	R09-018	Tritium in Water	906.0_H3_LSC	1			1	1	1	5
NI_L	R09-018	Nickel-63 in Liquid	NI63_LSC	2			1	1	1	5
TOTALS				3			2	2	2	10

WORK SUMMARY

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SUMMARY DATA SECTION

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Lab id EBRLNE

Protocol CHPRC

Version Ver 1.0

Form DVD-LWS

Version 3.06

Report date 08/06/09

7864-005

Method Blank

METHOD BLANK

SDG <u>7864</u>	Client/Case no <u>CHPRC</u>	<u>SDG_H4027</u>
Contact <u>N. Joseph Verville</u>	Contract No. <u>33677</u>	
Lab sample id <u>R907139-05</u>	Client sample id <u>Method Blank</u>	
Dept sample id <u>7864-005</u>	Material/Matrix <u>WATER</u>	
	SAF No <u>R09-018</u>	

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI- FIERS	TEST
Tritium	10028-17-8	-37.4	94	161	400	U	H
Nickel 63	13981-37-8	-1.47	1.7	2.99	15.0	U	NI_L

ARRA 200-CW-3 - QC Sampling

QC-BLANK #70501

METHOD BLANKS

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Form <u>DVD-DS</u>
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Report date <u>08/06/09</u>

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SAMPLE DELIVERY GROUP H4027

7864-004

Lab Control Sample

LAB CONTROL SAMPLE

SDG <u>7864</u>	Client/Case no <u>CHPRC</u> <u>SDG H4027</u>
Contact <u>N. Joseph Verville</u>	Contract No. <u>33677</u>
Lab sample id <u>R907139-04</u>	Client sample id <u>Lab Control Sample</u>
Dept sample id <u>7864-004</u>	Material/Matrix <u>WATER</u>
	SAF No <u>R09-018</u>

ANALYTE	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI- FIERS TEST	ADDED pCi/L	2σ ERR pCi/L	REC %	3σ LMES (TOTAL)	PROTOCOL LIMITS
Tritium	2350	150	162	400	H	2430	97	97	82-118	80-120
Nickel 63	237	6.0	3.01	15.0	NI_L	262	10	90	83-117	80-120

ARRA 200-CW-3 - QC Sampling

QC-LCS #70500

LAB CONTROL SAMPLES

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SUMMARY DATA SECTION

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Lab id <u>EBRLNE</u>
Protocol <u>CHPRC</u>
Version <u>Ver 1.0</u>
Form <u>DVD-LCS</u>
Version <u>3.06</u>
Report date <u>08/06/09</u>

EBERLINE SERVICES, RICHMOND

SAMPLE DELIVERY GROUP H4027

7864-006

B210Y7

DUPLICATE

SDG 7864

Client/Case no CHPRC SDG H4027

Contact N. Joseph Verville

Contract No. 33677

DUPLICATE

ORIGINAL

Lab sample id R907139-06

Lab sample id R907139-01

Client sample id B210Y7

Dept sample id 7864-006

Dept sample id 7864-001

Location/Matrix UPR-200-N1;C7474;EB WATER

Received 07/31/09

Collected/Volume 07/21/09 09:15 1.0 L

Custody/SAF No R09-018-036 R09-018

ANALYTE	DUPLICATE pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI- FIERS	TEST	ORIGINAL pCi/L	2σ ERR (COUNT)	MDA pCi/L	QUALI- FIERS	RPD %	2σ TOT	PROT LIMIT
Nickel 63	-1.28	1.7	3.02	15.0	U	NI_L	-0.980	1.7	2.99	U	-		

ARRA 200-CW-3 - QC Sampling

QC-DUP#1 70502

DUPLICATES

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SUMMARY DATA SECTION

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Lab id EBRLNE
 Protocol CHPRC
 Version Ver 1.0
 Form DVD-DUP
 Version 3.06
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7864-008

B21CC5

DUPLICATE

SDG <u>7864</u>	Client/Case no <u>CHPRC</u>	<u>SDG H4027</u>
Contact <u>N. Joseph Verville</u>	Contract No. <u>33677</u>	
DUPLICATE	ORIGINAL	
Lab sample id <u>R907139-08</u>	Lab sample id <u>R907139-03</u>	Client sample id <u>B21CC5</u>
Dept sample id <u>7864-008</u>	Dept sample id <u>7864-003</u>	Location/Matrix <u>UPR-N-1,C7493;I-002TB</u> <u>WATER</u>
	Received <u>07/31/09</u>	Collected/Volume <u>07/23/09 11:00</u> <u>1.0 L</u>
		Custody/SAF No <u>R09-018-062</u> <u>R09-018</u>

ANALYTE	DUPLICATE pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI- FIERS	TEST	ORIGINAL pCi/L	2σ ERR (COUNT)	MDA pCi/L	QUALI- FIERS	RPD %	2σ TOT	PROT LIMIT
Tritium	-74.6	93	161	400	U	H	-65.5	93	162	U	-		

ARRA 200-CW-3 - QC Sampling

QC-DUP#3 70507

DUPLICATES

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SUMMARY DATA SECTION

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Lab id <u>EBRLNE</u>
Protocol <u>CHPRC</u>
Version <u>Ver 1.0</u>
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Report date <u>08/06/09</u>

MATRIX SPIKE

SDG <u>7864</u>	Client/Case no <u>CHPRC</u>	<u>SDG H4027</u>
Contact <u>N. Joseph Verville</u>	Contract No. <u>33677</u>	
MATRIX SPIKE	ORIGINAL	
Lab sample id <u>R907139-07</u>	Lab sample id <u>R907139-03</u>	Client sample id <u>B21CC5</u>
Dept sample id <u>7864-007</u>	Dept sample id <u>7864-003</u>	Location/Matrix <u>UPR-N-1,C7493;I-002TB</u>
	Received <u>07/31/09</u>	<u>WATER</u>
		Collected/Volume <u>07/23/09 11:00</u>
		<u>1.0 L</u>
		Custody/SAF No <u>R09-018-062</u>
		<u>R09-018</u>

ANALYTE	SPIKE pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI- FIERS	TEST	ADDED pCi/L	2σ ERR pCi/L	ORIGINAL pCi/L	2σ ERR (COUNT)	REC 3σ % (TOTAL)	LMTS (TOTAL)	PROTOCOL LIMITS
Tritium	14200	310	162	400	X	H	14700	590	-65.5	93	97	84-116	60-140

ARRA 200-CW-3 - QC Sampling

QC-MS#3 70503

MATRIX SPIKES

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SUMMARY DATA SECTION

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Lab id <u>EBRLNE</u>
Protocol <u>CHPRC</u>
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Form <u>DVD-MS</u>
Version <u>3.06</u>
Report date <u>08/06/09</u>

AUGUST 7 2009
 EBERLINE SERVICE RICHMOND
 SAMPLE DELIVERY GROUP H4027

7864-001

B210Y7

DATA SHEET

SDG <u>7864</u>	Client/Case no <u>CHPRC</u>	SDG <u>H4027</u>
Contact <u>N. Joseph Verville</u>	Contract <u>No. 33677</u>	
Lab sample id <u>R907139-01</u>	Client sample id <u>B210Y7</u>	
Dept sample id <u>7864-001</u>	Location/Matrix <u>UPR-200-N1;C7474;EB</u>	<u>WATER</u>
Received <u>07/31/09</u>	Collected/Volume <u>07/21/09 09:15</u>	<u>1.0 L</u>
	Custody/SAF No <u>R09-018-036</u>	<u>R09-018</u>

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI- FIERS	TEST
Nickel 63	13981-37-8	-0.980	1.7	2.99	15.0	U	NI_L

ARRA 200-CW-3 - QC Sampling

DATA SHEETS

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SUMMARY DATA SECTION

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Lab id <u>EBRLNE</u>
Protocol <u>CHPRC</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>08/06/09</u>

AUGUST 7 2008
 EBERLINE SERVICE RICHMOND
 SAMPLE DELIVERY GROUP H4027

7864-002

B21101

DATA SHEET

SDG <u>7864</u>	Client/Case no <u>CHPRC</u>	SDG <u>H4027</u>
Contact <u>N. Joseph Verville</u>	Contract <u>No. 33677</u>	
Lab sample id <u>R907139-02</u>	Client sample id <u>B21101</u>	
Dept sample id <u>7864-002</u>	Location/Matrix <u>UPR-200-N1;C7475;FB</u>	<u>WATER</u>
Received <u>07/31/09</u>	Collected/Volume <u>07/22/09 12:30</u>	<u>1.0 L</u>
	Custody/SAF No <u>R09-018-056</u>	<u>R09-018</u>

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI- FIERS	TEST
Nickel 63	13981-37-8	-0.561	1.7	2.99	15.0	U	NI_L

ARRA 200-CW-3 - QC Sampling

Lab id <u>EBRLNE</u>
Protocol <u>CHPRC</u>
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Report date <u>08/06/09</u>

AUGUST 7 2008
 EBERLINE SERVICE RICHMOND
 SAMPLE DELIVERY GROUP H4027

7864-003

B21CC5

DATA SHEET

SDG <u>7864</u>	Client/Case no <u>CHPRC</u>	SDG <u>H4027</u>
Contact <u>N. Joseph Verville</u>	Contract <u>No. 33677</u>	
Lab sample id <u>R907139-03</u>	Client sample id <u>B21CC5</u>	
Dept sample id <u>7864-003</u>	Location/Matrix <u>UPR-N-1,C7493;I-002TB</u>	<u>WATER</u>
Received <u>07/31/09</u>	Collected/Volume <u>07/23/09 11:00</u>	<u>1.0 L</u>
	Custody/SAF No <u>R09-018-062</u>	<u>R09-018</u>

ANALYTE	CAS NO	RESULT pCi/L	2 σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI- FIERS	TEST
Tritium	10028-17-8	-65.5	93	162	400	U	H

ARRA 200-CW-3 - QC Sampling

Lab id <u>EBRLNE</u>
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SAMPLE DELIVERY GROUP H4027

Test H Matrix WATER
 SDG 7864
 Contact N. Joseph Verville

Client CHPRC
 Contract No. 33677
 Contract SDG H4027

LAB METHOD SUMMARY

TRITIUM IN WATER
 LIQUID SCINTILLATION COUNTING

RESULTS

LAB	RAW	SUF-			
SAMPLE ID	TEST FIX	PLANCHET	CLIENT SAMPLE ID	Tritium	
Preparation batch 7211-177					
R907139-03		7864-003	B21CC5	U	
R907139-04		7864-004	Lab Control Sample	ok	
R907139-05		7864-005	Method Blank	U	
R907139-07		7864-007	Spike (R907139-03)	ok	X
R907139-08		7864-008	Duplicate (R907139-03)	-	U

Nominal values and limits from method RDLs (pCi/L) 400
 ARRA 200-CW-3 - QC Sampling

METHOD PERFORMANCE

LAB	RAW	SUF-	MDA	ALIQ	PREP	DILU-	YIELD	EFF	COUNT	FWHM	DRIFT	DAYS	ANAL-		
SAMPLE ID	TEST FIX	CLIENT SAMPLE ID	pCi/L	L	FAC	TION	%	%	min	keV	KeV	HELD	PREPARED	YZED	DETECTOR
Preparation batch 7211-177 2σ prep error 10.0 % Reference Lab Notebook No. 7211 pg.177															
R907139-03		B21CC5	162	0.0100			100		150			11	08/03/09	08/03	LSC-005
R907139-04		Lab Control Sample	162	0.100			10		150				08/03/09	08/03	LSC-005
R907139-05		Method Blank	161	0.100			10		150				08/03/09	08/03	LSC-005
R907139-07		Spike (R907139-03)	162	0.0500			20		150			11	08/03/09	08/03	LSC-005
R907139-08		Duplicate (R907139-03)	161	0.0100			100		150			11	08/03/09	08/03	LSC-005

Nominal values and limits from method 400 0.0100 25 180

PROCEDURES REFERENCE 906.0_H3_LSC
 CP-210 Tritium in Water Samples by Distillation, rev 8

AVERAGES ± 2 SD MDA 162 ± 1.10
 FOR 5 SAMPLES YIELD 48 ± 95

METHOD SUMMARIES

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SUMMARY DATA SECTION

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Lab id EBRLNE
 Protocol CHPRC
 Version Ver 1.0
 Form DVD-LMS
 Version 3.06
 Report date 08/06/09

EBERLINE SERVICES, INC. RICHMOND

SAMPLE DELIVERY GROUP H4027

Test NI L Matrix WATER
 SDG 7864
 Contact N. Joseph Verville

LAB METHOD SUMMARY

NICKEL-63 IN LIQUID

LIQUID SCINTILLATION COUNTING

Client CHPRC
 Contract No. 33677
 Contract SDG H4027

RESULTS

LAB RAW SUF-
 SAMPLE ID TEST FIX PLANCHET CLIENT SAMPLE ID Nickel 63

Preparation batch 7211-177

R907139-01	7864-001	B210Y7	U
R907139-02	7864-002	B21101	U
R907139-04	7864-004	Lab Control Sample	ok
R907139-05	7864-005	Method Blank	U
R907139-06	7864-006	Duplicate (R907139-01)	- U

Nominal values and limits from method RDLs (pCi/L) 15.0
 ARRA 200-CW-3 - QC Sampling

METHOD PERFORMANCE

LAB RAW SUF- MDA ALIQ PREP DILU- YIELD EFF COUNT FWHM DRIFT DAYS ANAL-
 SAMPLE ID TEST FIX CLIENT SAMPLE ID pCi/L L FAC TION % % min keV KeV HELD PREPARED YZED DETECTOR

Preparation batch 7211-177 2σ prep error 11.2 % Reference Lab Notebook No. 7211 pg.177

R907139-01	B210Y7	2.99	0.500	97	50	15	08/04/09	08/05	LSC-004
R907139-02	B21101	2.99	0.500	97	50	14	08/04/09	08/05	LSC-004
R907139-04	Lab Control Sample	3.01	0.500	96	50		08/04/09	08/05	LSC-004
R907139-05	Method Blank	2.99	0.500	97	50		08/04/09	08/05	LSC-004
R907139-06	Duplicate (R907139-01)	3.02	0.500	95	50	15	08/04/09	08/05	LSC-004

Nominal values and limits from method 15.0 0.500 40-110 50 180

PROCEDURES REFERENCE NI63_LSC
 SPP-040 Environmental Water Dissolution, rev 2
 CP-280 Nickel-63 Purification, rev 5

AVERAGES ± 2 SD MDA 3.00 ± 0.028
 FOR 5 SAMPLES YIELD 96 ± 2

METHOD SUMMARIES

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SUMMARY DATA SECTION

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Lab id EBRLNE
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 Form DVD-LMS
 Version 3.06
 Report date 08/06/09

SDG 7864
Contact N. Joseph Verville

R E P O R T G U I D E

Client CHPRC
Contract No. 33677
Case no SDG_H4027

S A M P L E S U M M A R Y

The Sample and QC Summary Reports show all samples, including QC samples, reported in one Sample Delivery Group (SDG).

The Sample Summary Report fully identifies client samples and gives the corresponding lab sample identification. The QC Summary Report shows at the sample level how the lab organized the samples into batches and generated QC samples. The Preparation Batch and Method Summary Reports show this at the analysis level.

The following notes apply to these reports:

- * LAB SAMPLE ID is the lab's primary identification for a sample.
- * DEPARTMENT SAMPLE ID is an alternate lab id, for example one assigned by a radiochemistry department in a lab.
- * CLIENT SAMPLE ID is the client's primary identification for a sample. It includes any sample preparation done by the client that is necessary to identify the sample.
- * QC BATCH is a lab assigned code that groups samples to be processed and QCed together. These samples should have similar matrices.

QC BATCH is not necessarily the same as SDG, which reflects samples received and reported together.

- * All Lab Control Samples, Method Blanks, Duplicates and Matrix Spikes are shown that QC any of the samples. Due to possible reanalyses, not all results for all these QC samples may be relevant to the SDG. The Lab Control Sample, Method Blank, Duplicate, Matrix Spike and Method Summary Reports detail these relationships.

REPORT GUIDES

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SUMMARY DATA SECTION

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Lab id EBRLNE
Protocol CHPRC
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 08/06/09

SDG 7864
Contact N. Joseph Verville

REPORT GUIDE

Client CHPRC
Contract No. 33677
Case no SDG H4027

PREPARATION BATCH SUMMARY

The Preparation Batch Summary Report shows all preparation batches in one Sample Delivery Group (SDG) with information necessary to check the completeness and consistency of the SDG.

The following notes apply to this report:

- * The preparation batches are shown in the same order as the Method Summary Reports are printed.
- * Only analyses of planchets relevant to the SDG are included.
- * Each preparation batch should have at least one Method Blank and LCS in it to validate client sample results.
- * The QUALIFIERS shown are all qualifiers other than U, J, B, L and H that occur on any analysis in the preparation batch. The Method Summary Report has these qualifiers on a per sample basis.

These qualifiers should be reviewed as follows:

- X Some data has been manually entered or modified. Transcription errors are possible.
- P One or more results are 'preliminary'. The data is not ready for final reporting.
- 2 There were two or more results for one analyte on one planchet imported at one time. The results in DVD may not be the same as on the raw data sheets.

Other lab defined qualifiers may occur. In general, these should be addressed in the SDG narrative.

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Protocol CHPRC
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 08/06/09

SDG 7864
Contact N. Joseph Verville

REPORT GUIDE

Client CHPRC
Contract No. 33677
Case no SDG H4027

WORK SUMMARY

The Work Summary Report shows all samples, including QC samples, and all relevant analyses in one Sample Delivery Group (SDG). This report is often useful as supporting documentation for an invoice.

The following notes apply to this report:

- * TEST is a code for the method used to measure associated analytes. Results and related information for each analyte are on the Data Sheet Report. In special cases, a test code used in the summary data section is not the same as in associated raw data. In this case, both codes are shown on the Work Summary.
- * SUFFIX is the lab's code to distinguish multiple analyses (recounts, reworks, reanalyses) of a fraction of the sample. The suffix indicates which result is being reported. An empty suffix normally identifies the first attempt to analyze the sample.
- * The LAB SAMPLE ID, TEST and SUFFIX uniquely identify all supporting data for a result. The Method Summary Report for each TEST has method performance data, such as yield, for each lab sample id and suffix and procedures used in the method.
- * PLANCHET is an alternate lab identifier for work done for one test. It, combined with the TEST and SUFFIX, may be the best link to raw data.
- * For QC samples, only analyses that directly QC some regular sample are shown. The Lab Control Sample, Method Blank, Duplicate, Matrix Spike and Method Summary Reports detail these relationships.
- * The SAS (Special Analytical Services) Number is a client or lab assigned code that reflects special processing for samples, such as rapid turn around. Counts of tests done are lists by SAS number since it is likely to affect prices.

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SDG 7864
 Contact N. Joseph Verville

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Client CHPRC
 Contract No. 33677
 Case no SDG H4027

DATA SHEET

The Data Sheet Report shows all results and primary supporting information for one client sample or Method Blank. This report corresponds to both the CLP Inorganics and Organics Data Sheet.

The following notes apply to this report:

- * TEST is a code for the method used to measure an analyte. If the TEST is empty, no data is available; the analyte was not analyzed for.
- * The LAB SAMPLE ID and TEST uniquely identify work within the Summary Data Section of a Data Package. The Work Summary and Method Summary Reports further identify raw data that underlies this work.

The Method Summary Report for each TEST has method performance data, such as yield, for each Lab Sample ID and a list of procedures used in the method.

- * ERRORS can be labeled TOTAL or COUNT. TOTAL implies a preparation (non-counting method) error has been added, as square root of sum of squares, to the counting error denoted by COUNT. The preparation errors, which may vary by preparation batch, are shown on the Method Summary Report.
- * A RESULT can be 'N.R.' (Not Reported). This means the lab did this work but chooses not to report it now, possibly because it was reported at another time.
- * When reporting a Method Blank, a RESULT can be 'N.A.' (Not Applicable). This means there is no reported client sample work in the same preparation batch as the Blank's result. This is likely to occur when the Method Blank is associated with reanalyses of selected work for a few samples in the SDG.

The following qualifiers are defined by the DVD system:

U The RESULT is less than the MDA (Minimum Detectable Activity).

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Lab id EBRLNE
 Protocol CHPRC
 Version Ver 1.0
 Form DVD-RG
 Version 3.06
 Report date 08/06/09

SDG 7864
 Contact N. Joseph Verville

GUIDE, cont.

Client CHPRC
 Contract No. 33677
 Case no SDG_H4027

DATA SHEET

If the MDA is blank, the ERROR is used as the limit.

- J The RESULT is less than the RDL (Required Detection Limit) and no U qualifier is assigned.
 - B A Method Blank associated with this sample had a result without a U flag and, after correcting for possibly different aliquots, that result is greater than or equal to the MDA for this sample.
- Normally, B is not assigned if U is. When method blank subtraction is shown on this report, B flags are assigned based on the unsubtracted values while U's are assigned based on the subtracted ones. Both flags can be assigned in this case.
- For each sample result, all Method Blank results in the same preparation batch are compared. The Method Summary Report documents this and other QC relationships.
- L Some Lab Control Sample that QC's this sample had a low recovery. The lab can disable assignment of this qualifier.
 - H Similar to 'L' except the recovery was high.
 - P The RESULT is 'preliminary'.
 - X Some data necessary to compute the RESULT, ERROR or MDA was manually entered or modified.
 - 2 There were two or more results available for this analyte. The reported result may not be the same as in the raw data.

Other qualifiers are lab defined. Definitions should be in the SDG narrative.

The following values are underlined to indicate possible problems:

- * An MDA is underlined if it is bigger than its RDL.

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 Protocol CHPRC
 Version Ver 1.0
 Form DVD-RG
 Version 3.06
 Report date 08/06/09

AUGUST 7, 2009

SAMPLE DELIVERY GROUP H4027

SDG 7864
 Contact N. Joseph Verville

GUIDE, cont.

Client CHPRC
 Contract No. 33677
 Case no SDG H4027

DATA SHEET

- * An ERROR is underlined if the 1.645 sigma counting error is bigger than both the MDA and the RESULT, implying that the MDA may not be a good estimate of the 'real' minimum detectable activity.
- * A negative RESULT is underlined if it is less than the negative of its 2 sigma counting ERROR.
- * When reporting a Method Blank, a RESULT is underlined if greater than its MDA. If the MDA is blank, the 2 sigma counting error is used in the comparison.

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 Contact N. Joseph Verville

REPORT GUIDE

Client CHPRC
 Contract No. 33677
 Case no SDG_H4027

LAB CONTROL SAMPLE

The Lab Control Sample Report shows all results, recoveries and primary supporting information for one Lab Control Sample.

The following notes apply to this report:

- * All fields in common with the Data Sheet Report have similar usage. Refer to its Report Guide for details.
- * An amount ADDED is the lab's value for the actual amount spiked into this sample with its ERROR an estimate of the error of this amount.

An amount added is underlined if its ratio to the corresponding RDL is outside protocol specified limits.

- * REC (Recovery) is RESULT divided by ADDED expressed as a percent.

- * The first, computed limits for the recovery reflect:

1. The error of RESULT, including that introduced by rounding the result prior to printing.

If the limits are labeled (TOTAL), they include preparation error in the result. If labeled (COUNT), they do not.

2. The error of ADDED.

3. A lab specified, per analyte bias. The bias changes the center of the computed limits.

- * The second limits are protocol defined upper and lower QC limits for the recovery.
- * The recovery is underlined if it is outside either of these ranges.

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SUMMARY DATA SECTION

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 Protocol CHPRC
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SDG 7864
 Contact N. Joseph Verville

REPORT GUIDE

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 Contract No. 33677
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DUPLICATE

The Duplicate Report shows all results, differences and primary supporting information for one Duplicate and associated Original sample.

The following notes apply to this report:

- * All fields in common with the Data Sheet Report have similar usage. This applies both to the Duplicate and Original sample data. Refer to the Data Sheet Report Guide for details.

If the Duplicate has data for a TEST and the lab did not do this test to the Original, the Original's RESULTS are underlined.

- * The RPD (Relative Percent Difference) is the absolute value of the difference of the RESULTS divided by their average expressed as a percent.

If both RESULTS are less than their MDAs, no RPD is computed and a '-' is printed.

For an analyte, if the lab did work for both samples but has data for only one, the MDA from the sample with data is used as the other's result in the RPD.

- * The first, computed limit is the sum, as square root of sum of squares, of the errors of the results divided by the average result as a percent, hence the relative error of the difference rather than the error of the relative difference. The errors include those introduced by rounding the RESULTS prior to printing.

If this limit is labeled TOT, it includes the preparation error in the RESULTS. If labeled CNT, it does not.

This value reported for this limit is at most 999.

- * The second limit for the RPD is the larger of:

1. A fixed percentage specified in the protocol.

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 Protocol CHPRC
 Version Ver 1.0
 Form DVD-RG
 Version 3.06
 Report date 08/06/09

SDG 7864
 Contact N. Joseph Verville

GUIDE, cont.

Client CHPRC
 Contract No. 33677
 Case no SDG H4027

DUPLICATE

2. A protocol factor (typically 2) times the average MDA as a percent of the average result. This limit applies when the results are close to the MDAs.

- * The RPD is underlined if it is greater than either limit.
- * If specified by the lab, the second limit column is replaced by the Difference Error Ratio (DER), which is the absolute value of the difference of the results divided by the quadratic sum of their one sigma errors, the same errors as used in the first limit.

Except for differences due to rounding, the DER is the same as the RPD divided by the first RPD limit with the limit scaled to 1 sigma.

- * The DER is underlined if it is greater than the sigma factor, typically 2 or 3, shown in the header for the first RPD limit.

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 Protocol CHPRC
 Version Ver 1.0
 Form DVD-RG
 Version 3.06
 Report date 08/06/09

SDG 7864
Contact N. Joseph Verville

REPORT GUIDE

Client CHPRC
Contract No. 33677
Case no SDG H4027

MATRIX SPIKE

The Matrix Spike Report shows all results, recoveries and primary supporting information for one Matrix Spike and associated Original sample.

The following notes apply to this report:

- * All fields in common with the Data Sheet Report have similar usage. This applies both to the Spiked and Original sample data. Refer to the Data Sheet Report Guide for details.

If the Spike has data for a TEST and the lab did not do this test to the Original, the Original's RESULTS are underlined.

- * An amount ADDED is the lab's value for the actual amount spiked into the Spike sample with its ERROR an estimate of the error of this amount.

An amount is underlined if its ratio to the corresponding RDL is outside protocol specified limits.

- * REC (Recovery) is the Spike RESULT minus the Original RESULT divided by ADDED expressed as a percent.

- * The first, computed limits for the recovery reflect:

1. The errors of the two RESULTS, including those introduced by rounding them prior to printing.

If the limits are labeled (TOTAL), they include preparation error in the result. If labeled (COUNT), they do not.

2. The error of ADDED.

3. A lab specified, per analyte bias. The bias changes the center of the computed limits.

- * The second limits are protocol defined upper and lower QC limits

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SUMMARY DATA SECTION

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SDG 7864
Contact N. Joseph Verville

GUIDE, cont.

Client CHPRC
Contract No. 33677
Case no SDG_H4027

MATRIX SPIKE

for the recovery.

These limits are left blank if the Original RESULT is more than a protocol defined factor (typically 4) times ADDED. This is a way of accounting for that when the spike is small compared to the amount in the original sample, the recovery is unreliable.

- * The recovery is underlined (out of spec) if it is outside either of these ranges.

REPORT GUIDES

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SUMMARY DATA SECTION

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Version 3.06
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Client CHPRC
 Contract No. 33677
 Case no SDG_H4027

REPORT GUIDE

METHOD SUMMARY

The Method Summary Report has two tables. One shows up to five results measured using one method. The other has performance data for the method. There is one report for each TEST, as used on the Data Sheet Report.

The following notes apply to this report:

- * Each table is subdivided into sections, one for each preparation batch. A preparation batch is a group of aliquots prepared at roughly the same time in one work area of the lab using the same method.

There should be Lab Control Sample and Method Blank results in each preparation batch since this close correspondence makes the QC meaningful. Depending on lab policy, Duplicates need not occur in each batch since they QC sample dependencies such as matrix effects.

- * The RAW TEST column shows the test code used in the raw data to identify a particular analysis if it is different than the test code in the header of the report. This occurs in special cases due to method specific details about how the lab labels work.

The Lab Sample or Planchet ID combined with the (Raw) Test Code and Suffix uniquely identify the raw data for each analysis.

- * If a result is less than both its MDA and RDL, it is replaced by just 'U' on this report. If it is greater than or equal to the RDL but less than the MDA, the result is shown with a 'U' flag.

The J and X flags are as on the data sheet.

- * Non-U results for Method Blanks are underlined to indicate possible contamination of other samples in the preparation batch. The Method Blank Report has supporting data.

- * Lab Control Sample and Matrix Spike results are shown as: ok, No data, LOW or HIGH, with the last two underlined. 'No data'

Lab id EBRLNE
 Protocol CHPRC
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SDG 7864
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GUIDE, cont.

Client CHPRC
 Contract No. 33677
 Case no SDG H4027

METHOD SUMMARY

means no amount ADDED was specified. 'LOW' and 'HIGH' correspond to when the recovery is underlined on the Lab Control Sample or Matrix Spike Report. See these reports for supporting data.

* Duplicate sample results are shown as: ok, No data, or OUT, with the last two underlined. 'No data' means there was no original sample data found for this duplicate. 'OUT' corresponds to when the RPD is underlined on the Duplicate Report. See this report for supporting data.

* If the MDA column is labeled 'MAX MDA', there was more than one result measured by the reported method and the MDA shown is the largest MDA. If not all these results have the same RDL, the MAX MDA reflects only those results with RDL equal to the smallest one.

MDAs are underlined if greater than the printed RDL.

* Aliquots are underlined if less than the nominal value specified for the method.

* Preparation factors are underlined if greater than the nominal value specified for the method.

* Dilution factors are underlined if greater than the nominal value specified for the method.

* Residues are underlined if outside the range specified for the method. Residues are not printed if yields are.

* Yields, which may be gravimetric, radiometric or some type of recovery depending on the method, are underlined if outside the range specified for the method.

* Efficiencies are underlined if outside the range specified for the method. Efficiencies are detector and geometry dependent so this test is only approximate.

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SUMMARY DATA SECTION

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Lab id EBRLNE
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GUIDE, cont.

Client CHPRC
 Contract No. 33677
 Case no SDG_H4027

METHOD SUMMARY

- * Count times are underlined if less than the nominal value specified for the method.
- * Resolutions (as FWHM; Full Width at Half Max) are underlined if greater than the method specified limit.
- * Tracer drifts are underlined if their absolute values are greater than the method specified limit. Tracer drifts are not printed if percent moistures are.
- * Days Held are underlined if greater than the holding time specified in the protocol.
- * Analysis dates are underlined if before their planchet's preparation date or, if a limit is specified, too far after it.

For some methods, ratios as percentages and error estimates for them are computed for pairs of results. A ratio column header like '1+3' means the ratio of the first result column and the third result column.

Ratios are not computed for Lab Control Sample, Method Blank or Matrix Spike results since their matrices are not necessarily similar to client samples'.

The error estimate for a ratio of results from one planchet reflects only counting errors since other errors should be correlated. For a ratio involving different planchets, if QC limits are computed based on total errors, the error for the ratio allows for the preparation errors for the planchets.

The ratio is underlined (out of spec) if the absolute value of its difference from the nominal value is greater than its error estimate. If no nominal value is specified, this test is not done.

For Gross Alpha or Gross Beta results, there may be a column showing the sum of other Alpha or Beta emitters. This sum includes all relevant

REPORT GUIDES

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SUMMARY DATA SECTION

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 Protocol CHPRC
 Version Ver 1.0
 Form DVD-RG
 Version 3.06
 Report date 08/06/09

AUGUST 7, 2009

SAMPLE DELIVERY GROUP H4027

SDG 7864
 Contact N. Joseph Verville

GUIDE, cont.

Client CHPRC
 Contract No. 33677
 Case no SDG H4027

METHOD SUMMARY

results in the DVD database, whether reported or not. Results in the sum are weighted by a particles/decay value specified by the lab for each relevant analyte. Results less than their MDA are not included. No sums are computed for Lab Control, Method Blank or Matrix Spike samples since their various planchets may not be physically related.

If a ratio of total isotopic to Gross Alpha or Beta is shown, the error for the ratio reflects both the error in the Gross result and the sum, as square root of sum of squares, of the errors in the isotopic results.

For total elemental uranium or thorium results, there may be a column showing the total weight computed from associated isotopic results. Ignoring results less than their MDAs, this is a weighted sum of the isotopic results. The weights depend on the molecular weight and half-life of each isotope so as to convert activities (decays) to weight (atoms).

If a ratio of total computed to measured elemental uranium or thorium is shown, the error for the ratio reflects the errors in all the measurements.

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SUMMARY DATA SECTION

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 Protocol CHPRC
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 Version 3.06
 Report date 08/06/09

COLLECTOR
 Fu Hon, Resour

COMPANY CONTACT
 CLINTON, R

TELEPHONE NO.
 372-1718

PROJECT COORDINATOR
 WIDRIG, DL

PRICE CODE
 7B

AIR QUALITY

METHOD OF SHIPMENT
 FEDERAL EXPRESS

DATA TURNAROUND
 7 Days / 15 Days

SAMPLING LOCATION
 UPR-200-N1; C7474; EB

PROJECT DESIGNATION
 ARRA 200-CW-3-QC Sampling

SAF NO.
 R09-018

COA
 301972ES10

ICE CHEST NO.
 GRR 03-021

FIELD LOGBOOK NO.
 ANF-N-507-9

ACTUAL SAMPLE DEPTH
 N/A

BILL OF LADING/AIR BILL NO.
 798 0657-9034 009

SHIPPED TO
 USEF 8860 7/23/09

SEE PTR
 7967-9885-3315 7-23-09

MATRIX*	PRESERVATION	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2
A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)	G/P	G/P	G/P	G/P	G/P	G/P	G/P	G/P	G/P
		1	1	1	1	1	1	1	1	1
		1000mL	1000mL	1000mL	1000mL	1000mL	1000mL	1000mL	1000mL	1000mL
		Nickel 63 (Nickel-63)	Americium-241/Curium-244 (Americium-241)	SEE ITEM (1) IN SPECIAL INSTRUCTIONS (Gross Alpha) (Gross Beta) (Gross beta)	SEE ITEM (2) IN SPECIAL INSTRUCTIONS (Thorium-232)	SEE ITEM (3) IN SPECIAL INSTRUCTIONS (Technetium-99)	SEE ITEM (4) IN SPECIAL INSTRUCTIONS (Tritium)			

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	SPECIAL HANDLING AND/OR STORAGE
B210Y7	WATER	7-21-09	0915	

CHAIN OF POSSESSION	SIGN/ PRINT NAMES	RECEIVED BY/STORING IN	DATE/TIME	RECEIVED BY/STORING IN	DATE/TIME	RECEIVED BY/STORING IN	DATE/TIME	RECEIVED BY/STORING IN	DATE/TIME	RECEIVED BY/STORING IN	DATE/TIME
CFu Hon		MO 413 SSU R2	7-21-09 1025	D. Parham	7-23-09	TA FAZIER	7-23-09 0730	D. Parham	7-23-09	P.F. WATKINS	0915
MO 413 SSU R2		RELINQUISHED BY/REMOVED FROM	7-23-09	RELINQUISHED BY/REMOVED FROM	7-23-09	RELINQUISHED BY/REMOVED FROM	7-23-09/0930	RELINQUISHED BY/REMOVED FROM	7-23-09	RELINQUISHED BY/REMOVED FROM	7-23-09
RELINQUISHED BY/REMOVED FROM		RELINQUISHED BY/REMOVED FROM	7-23-09	RELINQUISHED BY/REMOVED FROM	7-23-09	RELINQUISHED BY/REMOVED FROM	7-23-09	RELINQUISHED BY/REMOVED FROM	7-23-09	RELINQUISHED BY/REMOVED FROM	7-23-09
RELINQUISHED BY/REMOVED FROM		RELINQUISHED BY/REMOVED FROM	7-23-09	RELINQUISHED BY/REMOVED FROM	7-23-09	RELINQUISHED BY/REMOVED FROM	7-23-09	RELINQUISHED BY/REMOVED FROM	7-23-09	RELINQUISHED BY/REMOVED FROM	7-23-09
RELINQUISHED BY/REMOVED FROM		RELINQUISHED BY/REMOVED FROM	7-23-09	RELINQUISHED BY/REMOVED FROM	7-23-09	RELINQUISHED BY/REMOVED FROM	7-23-09	RELINQUISHED BY/REMOVED FROM	7-23-09	RELINQUISHED BY/REMOVED FROM	7-23-09
RELINQUISHED BY/REMOVED FROM		RELINQUISHED BY/REMOVED FROM	7-23-09	RELINQUISHED BY/REMOVED FROM	7-23-09	RELINQUISHED BY/REMOVED FROM	7-23-09	RELINQUISHED BY/REMOVED FROM	7-23-09	RELINQUISHED BY/REMOVED FROM	7-23-09

SPECIAL INSTRUCTIONS

** The 200 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF. ** The 200 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF.

** The laboratory is to achieve a detection limit of 30 pCi/L for tritium.

- (1) Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}
- (2) Isotopic Plutonium {Plutonium-238, Plutonium-239/240}
- (3) Isotopic Uranium {Uranium-233/234, Uranium-235, Uranium-238}
- (4) Strontium-89,90 -- Total Sr (Total beta radiostrontium)

ORIGINAL

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION <td>DISPOSAL METHOD <td>DISPOSED BY <td>DATE/TIME </td></td></td>	DISPOSAL METHOD <td>DISPOSED BY <td>DATE/TIME </td></td>	DISPOSED BY <td>DATE/TIME </td>	DATE/TIME

COLLECTOR
Rust / Rose

COMPANY CONTACT
CLINTON, R

PROJECT COORDINATOR
WDRIG, DL

PRICE CODE
7B

DATA TURNAROUND
7 Days / 15 Days

SAMPLING LOCATION
UPR-200-N1; C7475; FB

PROJECT DESIGNATION
ARRA 200-CW-3-QC Sampling

TELEPHONE NO.
372-1718

SAF NO.
R09-018

ICE CHEST NO.
N1A GRP-03-014

FIELD LOGBOOK NO.
HMF-N-507-9 P36

ACTUAL SAMPLE DEPTH
N1 K

SHIPPED TO
Eberline Services
Wusef 860 7/23/09

OFFSITE PROPERTY NO.
SEE PTR

COA
301972ES10

METHOD OF SHIPMENT
FEDERAL EXPRESS

BILL OF LADING/AIR BILL NO.
7969-9885-3375 07-23-09

MATRIX*	PRESERVATION	HNO3 to pH	HNO3 to pH	HNO3 to pH	HNO3 to pH	HNO3 to pH	HNO3 to pH	HNO3 to pH	HNO3 to pH	HNO3 to pH
A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	POSSIBLE SAMPLE HAZARDS/ REMARKS Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)	<2	<2	<2	<2	<2	<2	<2	<2	<2
		G/P	G/P	G/P	G/P	G/P	G/P	G/P	G/P	G/P
		1	1	1	1	1	1	1	1	1
		1000mL	1000mL	1000mL	1000mL	1000mL	1000mL	1000mL	1000mL	1000mL
		Nickel-63 (Nickel-63)	Americium-241/Curium-244 (Americium-241)	SEE ITEM (4) IN SPECIAL INSTRUCTIONS	Gross Alpha (Gross alpha) Gross Beta (Gross beta)	Isotopic Thorium (Thorium-232)	Technetium-99 (Technetium-99)	SEE ITEM (3) IN SPECIAL INSTRUCTIONS	SEE ITEM (4) IN SPECIAL INSTRUCTIONS	Tritium (Tritium)

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	SPECIAL HANDLING AND/OR STORAGE
B21101	003 WATER	7-22-09	12:50	

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	SIGN/PRINT NAMES
Steve R... 7-22-09 1346	7-22-09 1346	NO 413 SSU RA	7-22-09 1345	
MO 413 SSU R2	7-23-09	D. Parthen	7-23-09	
D. Parthen	7-23-09	Fed Ex	7-23-09	
MO 413 SSU R2	7-23-09	JA FNAZ	7-23-09 0930	
D. Parthen	7-23-09	D. Parthen	7-23-09 0955	
CH2M Hill	7-23-09	Fed Ex	7-23-09	
CH2M Hill	7-23-09	PF. MATR...	7-23-09 0915	

SPECIAL INSTRUCTIONS

** The 200 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF. ** The 200 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF.

- ** The laboratory is to achieve a detection limit of 30 pCi/L for tritium.
- (1) Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}
- (2) Isotopic Plutonium {Plutonium-238, Plutonium-239/240}
- (3) Isotopic Uranium {Uranium-233/234, Uranium-235, Uranium-238}
- (4) Strontium-89,90 -- Total Sr {Total beta radiostrontium}



TITLE DATE/TIME

DISPOSED BY DATE/TIME

LABORATORY SECTION RECEIVED BY
FINAL SAMPLE DISPOSITION DISPOSAL METHOD

COLLECTOR
Rest

SAMPLING LOCATION
UPR-N-1, C7493; I-002TB

ICE CHEST NO.
GRP-03-001

COMPANY CONTACT
CLINTON, R

TELEPHONE NO.
372-1718

PROJECT COORDINATOR
WIDRIG, DL

PRICE CODE
7C

DATA TURNAROUND
15 Days / 15 Days

PROJECT DESIGNATION
ARRA 200-CW-3 -QC Sampling

FIELD LOGBOOK NO.
H4027 (7864)

SAF NO.
R09-018

AIR QUALITY

METHOD OF SHIPMENT
GOVERNMENT VEHICLE

OFFSITE PROPERTY NO.
N/A

COA
301972ES10

BILL OF LADING / AIR BILL NO.
N/A

CHAIN OF CUSTODY / SAMPLE ANALYSIS REQUEST

COMPANY CONTACT
CLINTON, R

TELEPHONE NO.
372-1718

PROJECT COORDINATOR
WIDRIG, DL

PRICE CODE
7C

DATA TURNAROUND
15 Days / 15 Days

PROJECT DESIGNATION
ARRA 200-CW-3 -QC Sampling

FIELD LOGBOOK NO.
H4027 (7864)

SAF NO.
R09-018

AIR QUALITY

METHOD OF SHIPMENT
GOVERNMENT VEHICLE

OFFSITE PROPERTY NO.
N/A

COA
301972ES10

BILL OF LADING / AIR BILL NO.
N/A

PRESERVATION	TYPE OF CONTAINER	NO. OF CONTAINER(S)	VOLUME	SAMPLE ANALYSIS	SAMPLE DATE	SAMPLE TIME
None	G	1	250ml	Tritium - H3 (Tritium)	7-23-09	11:00

POSSIBLE SAMPLE HAZARDS/ REMARKS
Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

SPECIAL HANDLING AND/OR STORAGE

CHAIN OF POSSESSION

RELINQUISHED BY / REMOVED FROM	DATE/TIME	RECEIVED BY / STORED IN	DATE/TIME
Stew Rest (Location: W-1304) 1579	7-23-09 0800	SAV-RZ (Location: W-1304) 1579	7-23-09 1529
SS-C R2 (Location: W-1304) 1579	7-30-09 0800	CHPRC (Location: W-1304) 1579	7-30-09 0915
CHPRC (Location: W-1304) 1579	7-30-09 0915	Field Ex	7-30-09 0915
CHPRC (Location: W-1304) 1579	7-30-09 0915	P.F. Mathew (Location: W-1304) 1579	7-30-09 0915
RELINQUISHED BY / REMOVED FROM	DATE/TIME	RECEIVED BY / STORED IN	DATE/TIME
RELINQUISHED BY / REMOVED FROM	DATE/TIME	RECEIVED BY / STORED IN	DATE/TIME
RELINQUISHED BY / REMOVED FROM	DATE/TIME	RECEIVED BY / STORED IN	DATE/TIME

LABORATORY SECTION
B21CC5

FINAL SAMPLE DISPOSITION
RECEIVED BY / REMOVED FROM

AUGUST 7, 2009

SPECIAL INSTRUCTIONS

** The 200 Area S&GRP Characterization and Monitoring Sampling and Analysis GK1 applies to this SAF.



RICHMOND, CA LABORATORY
AUGUST 7, 2009
SAMPLE RECEIPT CHECKLIST

Client: CHPRC City MCKINND State WA

Date/Time received 07/21/09 0915 CoC No. R09-018-036,056,062

Container I.D. No. CHP07-021 Requested TAT (Days) 7 P.O. Received Yes [] No []

INSPECTION

1. Custody seals on shipping container intact? Yes No [] N/A []
2. Custody seals on shipping container dated & signed? Yes No [] N/A []
3. Custody seals on sample containers intact? Yes No [] N/A []
4. Custody seals on sample containers dated & signed? Yes No [] N/A []
5. Packing material is: Wet [] Dry
6. Number of samples in shipping container: 3 Sample Matrix W
7. Number of containers per sample: 1 (Or see CoC)
8. Samples are in correct container Yes No []
9. Paperwork agrees with samples? Yes No []
10. Samples have: Tape [] Hazard labels [] Rad labels [] Appropriate sample labels
11. Samples are: In good condition Leaking [] Broken Container [] Missing []
12. Samples are: Preserved Not preserved pH 1 / N/A Preservative HNO₃
13. Describe any anomalies: _____

14. Was P.M. notified of any anomalies? Yes [] No [] Date _____

15. Inspected by [Signature] Date: 07/31/09 Time: 1115

Customer Sample No.	Beta/Gamma cpm	Ion Chamber mR/hr	Wipe	Customer Sample No.	Beta/Gamma cpm	Ion Chamber mR/hr	wipe
ALL SAMPLES < 60							

Ion Chamber Ser. No. _____ Calibration date _____
 Alpha Meter Ser. No. _____ Calibration date _____
 Beta/Gamma Meter Ser. No. 99574 Calibration date 27 MAY 09