

SOUTHWEST RESEARCH INSTITUTE®

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CHEMISTRY AND CHEMICAL ENGINEERING DIVISION
DEPARTMENT OF ANALYTICAL AND ENVIRONMENTAL CHEMISTRY

June 26, 2017

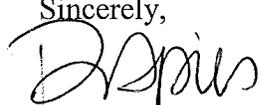
CH2M Hill Plateau Remediation Company
2420 Stevens Center Place
Mail Stop H8-41
Richland, WA 99352

Attn: Ms. Karen Waters-Husted

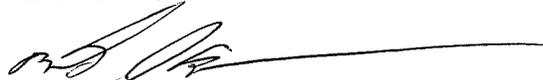
Subject:	SAF No:	S17-005, I17-006
	SDG Number:	615621
	SwRI Project Number:	20859.01.00X
	SwRI Task Order Number:	170518-4, 170522-5, 170524-2
	SwRI Sample Receipt Number:	59736, 59750, 59768
	Samples Received:	05.18.2017, 05.22.2017, 05.24.2017
	Fraction:	Radiological Analysis

Dear Ms. Waters-Husted:

Please find the enclosed results for the eight (08) overall water samples received on the above referenced date. If you should have any questions, please do not hesitate to call me at (210) 522-3242, or at radonna.spies@swri.org.

Sincerely,

 Radonna Spies
 Principal Scientist

APPROVED:



Michael J. Dammann
Director

RPS: jz
Encl



Benefiting government, industry and the public through innovative science and technology

SOUTHWEST RESEARCH INSTITUTE**CLIENT: CH2M Hill Plateau Remediation Company****SwRI PROJECT#: 20859.01.00X****SwRI TASK ORDER: 170518-4, 170522-5,
170524-2****SwRI SRR: 59736, 59750, 59768****SDG: 615621****VTSR: 05.18.2017, 05.22.2017, 05.24.2017****CHAIN-OF-CUSTODY
&
SAMPLE RECEIPT PAPERWORK**

Total Page Count:	010001
Fraction:	Rad
Pages:	010035

06/26/2017

010002 REV.0

CH2M Hill Plateau Remediation Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C.# S17-005-430

Page 1 of 1

Collector Roy Shepard ICHPRC	Contact/Requester Karen Waters-Husted	Telephone No. 509-376-4650
SAF No. S17-005	Sampling Origin Hanford Site	Purchase Order/Charge Code 300071
Project Title SURV, MAY 2017	Logbook No. HNF-N-506 <u>92/75</u>	Ice Chest No. <u>GWS-476</u>
Shipped To (Lab) Southwest Research Institute	Method of Shipment Commercial Carrier	Bill of Lading/Air Bill No. <u>7791 1609 2217</u>
Protocol SURV	Priority: 30 Days PRIORITY	Offsite Property No. <u>9251717-111-17919</u>

POSSIBLE SAMPLE HAZARDS/REMARKS *** Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1	SPECIAL INSTRUCTIONS N/A	Hold Time	Total Activity Exemption: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
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Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B39HP4	N	W	<u>5/17/17</u>	<u>0838</u>	1x250-mL P	906.0 TRITIUM_LSC: COMMON	6 Months	None
B39HP4	N	W	<u>↓</u>	<u>↓</u>	1x1-L G/P	SRISO_SEP_PRECIP_GPC: COMMON	6 Months	HNO3 to pH <2

CHPRC SRR # 59736 SDG # 615621
 SwRI Prjct # 20859.01.00X
 TO: 170518-4

Relinquished By Roy Shepard ICHPRC	Date/Time <u>MAY 17 2017 1045</u>	Received By Janelle Zunker CHPRC	Date/Time <u>MAY 17 2017 1045</u>	Matrix * S = Soil DS = Drum Solids SE = Sediment DL = Drum Liquids SO = Solid T = Tissue SL = Sludge WI = Wipe W = Water L = Liquid O = Oil V = Vegetation A = Air X = Other
Relinquished By Janelle Zunker CHPRC	Date/Time <u>MAY 17 2017 1400</u>	Received By FEDEX	Date/Time	
Relinquished By FEDEX	Date/Time <u>MAY 18 2017 0830</u>	Received By Steven Douglas	Date/Time <u>MAY 18 2017 0830 AM</u>	
Relinquished By	Date/Time	Received By	Date/Time	
FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)		Disposed By	Date/Time

8165

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 1 of 1

Collector Juan Aguilar /CHPRC	Contact/Requester Karen Waters-Husted	Telephone No. 509-376-4650
SAF No. S17-005	Sampling Origin Hanford Site	Purchase Order/Charge Code 300071
Project Title SURV, MAY 2017	Logbook No. HNF-N-506 88 / 53	Ice Chest No. GWS476
Shipped To (Lab) Southwest Research Institute	Method of Shipment Commercial Carrier	Bill of Lading/Air Bill No. 7791 6609 2217
Protocol SURV	Priority: 30 Days PRIORITY	Offsite Property No. 7919

POSSIBLE SAMPLE HAZARDS/REMARKS
 *** Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1

SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes No
 Low Volume Wells. Do not use for QC.

Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B39HP5	N	W	5-17-17	1035	1x60-mL P	906.0_TRITIUM_LSC: COMMON	6 Months	None

CHPRC SRR # 59736
 SwRI Prjct # 20859.01.00X
 TO: 170518-4
 SDG # 615621

Relinquished By Juan Aguilar /CHPRC	Print 	Sign	Date/Time MAY 17 2017 1145	Received By Janelle Zunker CHPRC	Print 	Sign	Date/Time MAY 17 2017 1145	Matrix * S = Soil DS = Drum Solids SE = Sediment DL = Drum Liquids SO = Solid T = Tissue SL = Sludge WI = Wipe W = Water L = Liquid O = Oil V = Vegetation A = Air X = Other
Relinquished By Janelle Zunker CHPRC			Date/Time MAY 17 2017 1400	Received By			Date/Time	
Relinquished By FedEx			Date/Time MAY 18 2017 0830	Received By Steven Douglas			Date/Time MAY 18 2017 0830AM	
Relinquished By			Date/Time	Received By			Date/Time	
FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)			Disposed By			Date/Time	

06/26/2017

010004 REV.0

CH2M Hill Plateau Remediation Company

5/1/15

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C.#

S17-005-284

Page 1 of 1

Collector Lesly Wall CHPRC	Contact/Requester Karen Waters-Husted	Telephone No. 509-376-4650
SAF No. S17-005	Sampling Origin Hanford Site	Purchase Order/Charge Code 300071
Project Title SURV, MAY 2017	Logbook No. HNF-N-506 <u>92 77</u>	Ice Chest No. <u>GWS-654</u>
Shipped To (Lab) Southwest Research Institute	Method of Shipment Commercial Carrier	Bill of Lading/Air Bill No. <u>7791 7594 6274</u>
Protocol SURV	Priority: 30 Days PRIORITY	Offsite Property No. <u>7923</u>

POSSIBLE SAMPLE HAZARDS/REMARKS *** Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1	SPECIAL INSTRUCTIONS N/A	Hold Time	Total Activity Exemption: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
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Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B39C74	N	W	<u>5/18/17</u>	<u>0937</u>	1x250-mL P	906.0_TRITIUM_LSC: COMMON	6 Months	None

CHPRC
SRR # 59750
SDG # 615621

SwRI Prjct # 20859.01.00X
TO: 170522-5

SWRI

Relinquished By Lesly Wall CHPRC	Print <i>Lesly Wall</i>	Sign <i>Lesly Wall</i>	Date/Time MAY 18 2017 1020	Received By Janelle Zunker CHPRC	Print <i>J Zunker</i>	Sign <i>J Zunker</i>	Date/Time 1020	Matrix * S = Soil DS = Drum Solids SE = Sediment DL = Drum Liquids SO = Solid T = Tissue SL = Sludge WI = Wipe W = Water L = Liquid O = Oil V = Vegetation A = Air X = Other
Relinquished By Janelle Zunker CHPRC	Print <i>J Zunker</i>	Sign <i>J Zunker</i>	Date/Time MAY 18 2017 1400	Received By	Print	Sign	Date/Time	
Relinquished By FED EX	Print	Sign	Date/Time 05 22 2017 0830	Received By David Harmon	Print <i>David Harmon</i>	Sign <i>David Harmon</i>	Date/Time 05/22/17 / 08:30 AM	
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time	
FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)			Disposed By			Date/Time	

06/26/2017

010005 REV.0

CH2M Hill Plateau Remediation Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C.#
I17-006-206

Page 1 of 1

Collector <i>Roy Shepard CHPRC</i>	Contact/Requester Karen Waters-Husted	Telephone No. 509-376-4650
SAF No. I17-006	Sampling Origin Hanford Site	Purchase Order/Charge Code 300071
Project Title 100KR4, May 2017	Logbook No. HNF-N-506 <u>92 / 76</u>	Ice Chest No. <u>6WS-654</u>
Shipped To (Lab) Southwest Research Institute	Method of Shipment Commercial Carrier	Bill of Lading/Air Bill No. <u>7791 7596 6274</u>
Protocol CERCLA	Priority: 30 Days PRIORITY	Offsite Property No. <u>7923</u>

POSSIBLE SAMPLE HAZARDS/REMARKS
 *** Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1

SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes No
 N/A

Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B39HP9	N	W	5/17/17	1507	1x250-mL P	906.0_TRITIUM_LSC: COMMON	6 Months	None

CHPRC SRR # 59750 SDG # 615621
 SwRI Prjct # 20859.01.00X
 TO: 170522-5
 SwRI

Relinquished By <i>Roy Shepard CHPRC</i>	Date/Time MAY 17 2017 1545	Received By SSU-1	Date/Time MAY 17 2017 1545	Matrix * S = Soil DS = Drum Solids SE = Sediment DL = Drum Liquids SO = Solid T = Tissue SL = Sludge WI = Wipe W = Water L = Liquid O = Oil V = Vegetation A = Air X = Other
Relinquished By SSU-1	Date/Time MAY 18 2017 0700	Received By <i>Janelle Zunker CHPRC</i>	Date/Time MAY 18 2017 0700	
Relinquished By <i>Janelle Zunker CHPRC</i>	Date/Time MAY 18 2017 1400	Received By FEDEX	Date/Time	
Relinquished By FED EX	Date/Time 05 22 2017 0830	Received By <i>David Garcia David Aaron</i>	Date/Time 05-22-2017 / 08:30 AM	
FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)		Disposed By	Date/Time

06/26/2017

010006 REV.0

CH2MHill Plateau Remediation Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. #

I17-006-192

Page 1 of 1

Collector <i>Roger Friesz Jr.</i> /CHPRC	Contact/Requester Karen Waters-Husted	Telephone No. 509-376-4650
SAF No. I17-006	Sampling Origin Hanford Site	Purchase Order/Charge Code 300071
Project Title 100KR4, May 2017	Logbook No. HNF-N-506 <i>92/79</i>	Ice Chest No. <i>6WS-560</i>
Shipped To (Lab) Southwest Research Institute	Method of Shipment Commercial Carrier	Bill of Lading/Air Bill No. <i>77918927630</i>
Protocol CERCLA	Priority: 30 Days PRIORITY	Offsite Property No. <i>7929</i>

POSSIBLE SAMPLE HAZARDS/REMARKS
 *** Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1

SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes No
 N/A

Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B39FX2	N	W	<i>5/19/17</i>	<i>1118</i>	1x1-L G/P	SRISO_SEP_PRECIP_GPC: COMMON	6 Months	HNO3 to pH <2
B39FX2	N	W	<i>5/19/17</i>	<i>1118</i>	1x250-mL P	906.0_TRITIUM_LSC: COMMON	6 Months	None

CHPRC
 SRR # 59750
 SDG # 615621
 SwRI Prjct # 20859.01.00X
 TO: 170522-5
 SWRI

Relinquished By <i>Roger Friesz Jr.</i> /CHPRC	Print <i>[Signature]</i>	Sign <i>[Signature]</i>	Date/Time MAY 19 2017 <i>1245</i>	Received By Janelle Zunker CHPRC	Print <i>[Signature]</i>	Sign <i>[Signature]</i>	Date/Time MAY 19 2017 <i>1245</i>	Matrix * S = Soil DS = Drum Solids SE = Sediment DL = Drum Liquids SO = Solid T = Tissue SL = Sludge WI = Wipe W = Water L = Liquid O = Oil V = Vegetation A = Air X = Other
Relinquished By Janelle Zunker CHPRC	<i>[Signature]</i>		Date/Time MAY 19 2017 <i>1400</i>	Received By FEDEX				
Relinquished By FED EX			Date/Time 05 22 2017 <i>0830</i>	Received By <i>David Garcia</i> David Garcia			Date/Time 05-22-2017/08:30 AM	
Relinquished By			Date/Time	Received By			Date/Time	
FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)			Disposed By			Date/Time	

06/26/2017

010007 REV.0

CH2MHill Plateau Remediation Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. #

I17-006-205

Page 1 of 1

Collector <i>Roger Friesz Jr.</i> /CHPRC	Contact/Requester Karen Waters-Husted	Telephone No. 509-376-4650
SAF No. I17-006	Sampling Origin Hanford Site	Purchase Order/Charge Code 300071
Project Title 100KR4, May 2017	Logbook No. HNF-N-506 <u>92 / 79</u>	Ice Chest No. <u>GWS-560</u>
Shipped To (Lab) Southwest Research Institute	Method of Shipment Commercial Carrier	Bill of Lading/Air Bill No. <u>7791 8927 6310</u>
Protocol CERCLA	Priority: 30 Days PRIORITY	Offsite Property No. <u>7929</u>

POSSIBLE SAMPLE HAZARDS/REMARKS *** Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1	SPECIAL INSTRUCTIONS N/A	Hold Time Total Activity Exemption: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
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Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B39HP8	N	W	<u>5/19/17</u>	<u>1203</u>	1x1-L G/P	SRISO_SEP_PRECIP_GPC: COMMON	6 Months	HNO3 to pH <2

CHPRC
SRR # 59750
SDG # 615621

SwRI Prjct # 20859.01.00X
TO: 170522-5



Relinquished By <i>Roger Friesz Jr.</i> /CHPRC	Print <i>[Signature]</i>	Sign <i>[Signature]</i>	Date/Time MAY 19 2017 1245	Received By Janelle Zunker CHPRC	Print <i>[Signature]</i>	Sign <i>[Signature]</i>	Date/Time MAY 19 2017 1245	Matrix * S = Soil DS = Drum Solids SE = Sediment DL = Drum Liquids SO = Solid T = Tissue SL = Sludge WI = Wipe W = Water L = Liquid O = Oil V = Vegetation A = Air X = Other
Relinquished By Janelle Zunker CHPRC	<i>[Signature]</i>		Date/Time MAY 19 2017 1400	Received By			Date/Time	
Relinquished By FED EX			Date/Time 05 22 2017 0830	Received By David Garcia			Date/Time 05 22 2017 10530	
Relinquished By			Date/Time	Received By			Date/Time	
FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)			Disposed By			Date/Time	

06/26/2017

010008 REV.0

CH2MHill Plateau Remediation Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C.# S17-005-296
Page 1 of 1

Collector Ed Kauer /CHPRC	Contact/Requester Karen Waters-Husted	Telephone No. 509-376-4650
SAF No. S17-005	Sampling Origin Hanford Site	Purchase Order/Charge Code 300071
Project Title SURV, MAY 2017	Logbook No. HNF-N-506 <u>921 80</u>	Ice Chest No. <u>WHE WCH-11-084</u>
Shipped To (Lab) Southwest Research Institute	Method of Shipment Commercial Carrier	Bill of Lading/Air Bill No. <u>7792 1093 7630</u>
Protocol SURV	Priority: 30 Days PRIORITY	Offsite Property No. <u>7939</u>

POSSIBLE SAMPLE HAZARDS/REMARKS *** Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1	SPECIAL INSTRUCTIONS N/A	Hold Time	Total Activity Exemption: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
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Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B39CF1	N	W	<u>5-23-17</u>	<u>1100</u>	1x1-L G/P	SRISO_SEP_PRECIP_GPC: COMMON	6 Months	HNO3 to pH <2

CHPRC SwRI Prjct # 20859.01.00X
SRR # 59768 TO: 170524-2
SDG # 615621

SWRI

Relinquished By Ed Kauer /CHPRC	Print <i>[Signature]</i>	Sign	Date/Time MAY 23 2017 1110	Received By Janelle Zunker /CHPRC	Print <i>[Signature]</i>	Sign	Date/Time MAY 23 2017 1110	Matrix * S = Soil DS = Drum Solids SE = Sediment DL = Drum Liquids SO = Solid T = Tissue SL = Sludge WI = Wipe W = Water L = Liquid O = Oil V = Vegetation A = Air X = Other
Relinquished By Janelle Zunker /CHPRC	<i>[Signature]</i>		Date/Time MAY 23 2017 1400	Received By FEDEX			Date/Time	
Relinquished By FedEx			Date/Time MAY 24 2017 0930	Received By Steven Douglas /FedEx	<i>[Signature]</i>		Date/Time MAY 24 2017 0930am	
Relinquished By			Date/Time	Received By			Date/Time	
FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)			Disposed By			Date/Time	

06/26/2017

8/165

CH2M Hill Plateau Remediation Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C.#
S17-005-413

Page 1 of 1

Collector Dan Woehle CHPRC	Contact/Requester Karen Waters-Husted	Telephone No. 509-376-4650
SAF No. S17-005	Sampling Origin Hanford Site	Purchase Order/Charge Code 300071
Project Title SURV, MAY 2017	Logbook No. HNF-N-506 <u>88/60</u>	Ice Chest No. <u>WCH-11-086</u>
Shipped To (Lab) Southwest Research Institute	Method of Shipment Commercial Carrier	Bill of Lading/Air Bill No. <u>7792 1093 7630</u>
Protocol SURV	Priority: 30 Days PRIORITY	Offsite Property No. <u>7939</u>

POSSIBLE SAMPLE HAZARDS/REMARKS *** Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1	SPECIAL INSTRUCTIONS N/A	Hold Time Total Activity Exemption: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
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Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B39HM1	N	W	<u>5/23/17</u>	<u>1100</u>	1x1-L G/P	SRISO_SEP_PRECIP_GPC: COMMON	6 Months	HNO3 to pH <2

CHPRC SRR # 59768
 SDG # 615621
 SwRI Prjct # 20859.01.00X
 TO: 170524-2

Relinquished By Dan Woehle CHPRC	Print MAY 23 2017	Sign <i>[Signature]</i>	Date/Time 1245	Received By Janelle Zunker CHPRC	Print MAY 23 2017	Sign <i>[Signature]</i>	Date/Time 1245	Matrix * S = Soil DS = Drum Solids SE = Sediment DL = Drum Liquids SO = Solid T = Tissue SL = Sludge WI = Wipe W = Water L = Liquid O = Oil V = Vegetation A = Air X = Other
Relinquished By Janelle Zunker CHPRC	Print MAY 23 2017	Sign <i>[Signature]</i>	Date/Time 1400	Received By	Print FEDEX	Sign	Date/Time	
Relinquished By Steven Douglas	Print MAY 24 2017	Sign <i>[Signature]</i>	Date/Time 0830	Received By Steven Douglas	Print MAY 24 2017	Sign <i>[Signature]</i>	Date/Time 0930 AM	
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time	
FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)			Disposed By			Date/Time	

Southwest Research Institute

Laboratory Task Order

TO #: 170518-4 Revision: 2

Project(s): 20859.01.00X
 Manager(s): SPIES, RADONNA
 To Client: 06/16/17

SDG: 615621
 VTSR: 05/18/17
 SAF: S17-005

SRR #'s: 59736
 Client(s): CH2M Hill Plateau Remediation Company

Instructions

CH2MHill Plateau Remediation Company.
 SAF No. S17-005

SDG 615621 is open until _ 06/01/2017

30-day TAT.

FINAL DATA/HARDCOPY IS DUE TO THE CLIENT ON 06/17/2017.

2 overall samples (3 containers) were received on 05/18/2017, which are ALL listed here.

Sample Analysis REQUIRED

Tritium _ 700 pCi/L; Tritium (Midlevel) 30
 Strontium-90

DATA DELIVERABLE _ Summary (Narrative / Results only)
 REQUESTER _ Karen Waters-Husted

ATTACHMENT C - QC Requirements for Chemical and Radiochemical Analysis

Section 7.2.2 Sample Data Packages

Section 7.2.3 Hard Copy Deliverable format

Section 7.2.4 Final Data Package Requirements

Section 8.8 CHPRC Electronic Address

Electronic copies of all sample receipt information, COCs, priority data packages, final data packages, corrected/revised data packages, closure reports, status reports, invoices, etc. shall be sent to: mailto:CPP_Sample_Management@rl.gov

REVISION 1, DRmz 05/24/17: Task Order revised to indicate additional samples were received on 05/24/17, which have been grouped with SDG 615621, located in Task Order # 170524-2, SRR 59768.

REVISION 2, DRmz 05/31/17: Task Order revised to indicate additional samples were received on 05/30/17, which have been grouped with SDG 615621, located in Task Order # 170531-3, SRR 59793.

Documents Related to this task order: 221721[COC for SRR 59736], 221722[Paperwork for SRR 59736]

Deliverables --> Hard Copy: no EDD: -YES- PDF: -YES-

Test: DIG-H3

Holding: 180 days from CED

Section: RADPREP

Digestion for H3

Cnt: 2

System ID	Type	Cont	Matrix	Customer ID	CED	Method Date
615621		1-Tritium	Water	B39HP4	17 May 17	13 Nov 17
615622		1-Tritium	Water	B39HP5	17 May 17	13 Nov 17

Test: GPC-Sr90_905.0

Holding: 180 days from CED

Section: RADCHEM

Strontium-90 by gas flow proportional counting EPA 905.0

Cnt: 1

System ID	Type	Cont	Matrix	Customer ID	CED	Method Date
615621		2-SRISO	Water	B39HP4	17 May 17	13 Nov 17

Test: LSC-H3_906

Holding: 180 days from CED

Section: RADCHEM

EPA Method 906 Tritium by liquid scintillation counting

Cnt: 2

System ID	Type	Cont	Matrix	Customer ID	CED	Method Date
615621		1-Tritium	Water	B39HP4	17 May 17	13 Nov 17
615622		1-Tritium	Water	B39HP5	17 May 17	13 Nov 17

Test: SEP-Sr90

Holding: 180 days from CED

Section: RADPREP

Separation for Sr90

Cnt: 1

System ID	Type	Cont	Matrix	Customer ID	CED	Method Date
615621		2-SRISO	Water	B39HP4	17 May 17	13 Nov 17



06/26/2017

010011 REV.0

Southwest Research Institute

Laboratory Task Order

TO #: 170518-4 Revision: 2

Project(s): 20859.01.00X
Manager(s): SPIES, RADONNA
To Client: 06/16/17

SDG: 615621
VTSR: 05/18/17
SAF: S17-005

SRR #'s: 59736
Client(s): CH2M Hill Plateau Remediation Company



Southwest Research Institute

Laboratory Task Order

TO #: 170522-5 Revision: 2

Project(s): 20859.01.00X
 Manager(s): SPIES, RADONNA
 To Client: 06/16/17

SDG: 615621
 VTSR: 05/22/17
 CASE: S17-005 I17-006

SRR #'s: 59750
 Client(s): CH2M Hill Plateau Remediation Company

Instructions

CH2MHill Plateau Remediation Company. 300071
 SAF No. S17-005
 SAF No. I17-006

SDG 615621 is open until _ 06/01/2017

GROUPED _ with samples in SDG 615621, located in Task Order # 170518-4, SRR 59736.

30-day TAT.
 FINAL DATA/HARDCOPY IS DUE TO THE CLIENT ON 06/17/2017.

8 overall samples (12 containers) were received on 05/22/2017.
 OUT of the 8 samples, only the 4 samples under SAF S17-005 & I17-006 are ALL listed here.

Sample Analysis REQUIRED
 906.0 Tritium_LSC: Common
 Tritium_700 pCi/L; Tritium (Midlevel) 30
 SRISO_SEP_PRECIP_GPC: Common
 Strontium-90

DATA DELIVERABLE _ Summary (Narrative / Results only)
 REQUESTER _ Karen Waters-Husted

ATTACHMENT C - QC Requirements for Chemical and Radiochemical Analysis
 Section 7.2.2 Sample Data Packages
 Section 7.2.3 Hard Copy Deliverable format
 Section 7.2.4 Final Data Package Requirements
 Section 8.8 CHPRC Electronic Address

Electronic copies of all sample receipt information, COCs, priority data packages, final data packages, corrected/revise data packages, closure reports, status reports, invoices, etc. shall be sent to: mailto:CPP_Sample_Management@rl.gov

REVISION 1, DRmz 05/24/17: Task Order revised to indicate additional samples were received on 05/24/17, which have been grouped with SDG 615621, located in Task Order # 170524-2, SRR 59768.
 REVISION 2, DRmz 05/31/17: Task Order revised to indicate additional samples were received on 05/30/17, which have been grouped with SDG 615621, located in Task Order # 170531-3, SRR 59793.

Documents Related to this task order: 221965[COC for SRR 59750], 221966[Paperwork for SRR 59750]

Deliverables --> Hard Copy: no EDD: -YES- PDF: -YES-

Test: DIG-H3 Holding: 180 days from CED

Section: RADPREP

Digestion for H3

Cnt: 3

System ID	Type	Cont	Matrix	Customer ID	CED	Method Date
615697		1	Water	B39C74	18 May 17	14 Nov 17
615698		2-TRITIUM	Water	B39FX2	19 May 17	15 Nov 17
615700		1	Water	B39HP9	17 May 17	13 Nov 17

Test: GPC-Sr90_905.0 Holding: 180 days from CED

Section: RADCHEM

Strontium-90 by gas flow proportional counting EPA 905.0

Cnt: 2

System ID	Type	Cont	Matrix	Customer ID	CED	Method Date
615698		1-SRISO	Water	B39FX2	19 May 17	15 Nov 17
615699		1	Water	B39HP8	19 May 17	15 Nov 17

Test: LSC-H3_906 Holding: 180 days from CED

Section: RADCHEM

EPA Method 906 Tritium by liquid scintillation counting

Cnt: 3

System ID	Type	Cont	Matrix	Customer ID	CED	Method Date
615697		1	Water	B39C74	18 May 17	14 Nov 17



Southwest Research Institute

Laboratory Task Order

TO #: 170522-5 Revision: 2

Project(s): 20859.01.00X
 Manager(s): SPIES, RADONNA
 To Client: 06/16/17

SDG: 615621
 VTSR: 05/22/17
 CASE: S17-005 117-006

SRR #'s: 59750
 Client(s): CH2M Hill Plateau Remediation Company

System ID	Type	Cont	Matrix	Customer ID	CED	Method Date
615698		2-TRITIUM	Water	B39FX2	19 May 17	15 Nov 17
615700		1	Water	B39HP9	17 May 17	13 Nov 17

Test: SEP-Sr90
 Section: RADPREP

Holding: 180 days from CED

Separation for Sr90

Cnt: 2

System ID	Type	Cont	Matrix	Customer ID	CED	Method Date
615698		1-SRISO	Water	B39FX2	19 May 17	15 Nov 17
615699		1	Water	B39HP8	19 May 17	15 Nov 17



Southwest Research Institute

Laboratory Task Order

TO #: 170524-2 Revision: 1

Project(s): 20859.01.00X
 Manager(s): SPIES, RADONNA
 To Client: 06/16/17

SDG: 615621
 VTSR: 05/24/17
 SAF: S17-005

SRR #'s: 59768
 Client(s): CH2M Hill Plateau Remediation Company

Instructions

CH2Mhill Plateau Remediation Company. 300071
 SAF No. S17-005

SDG 615621 is open until _ 06/01/2017

GROUPED _ with samples in SDG 615621, located in Task Order # 170518-4, SRR 59736; Task Order # 170522-5, SRR 59750.

30-day TAT.

FINAL DATA/HARDCOPY IS DUE TO THE CLIENT ON 06/17/2017.

2 overall samples (2 containers) were received on 05/24/2017, which are ALL listed here.

Sample Analysis REQUIRED
 SRISO_SEP_PRECIP_GPC: Common
 Strontium-90

DATA DELIVERABLE _ Summary (Narrative / Results only)
 REQUESTER _ Karen Waters-Husted

ATTACHMENT C - QC Requirements for Chemical and Radiochemical Analysis
 Section 7.2.2 Sample Data Packages
 Section 7.2.3 Hard Copy Deliverable format
 Section 7.2.4 Final Data Package Requirements
 Section 8.8 CHPRC Electronic Address

Electronic copies of all sample receipt information, COCs, priority data packages, final data packages, corrected/revised data packages, closure reports, status reports, invoices, etc. shall be sent to: mailto:CPP_Sample_Management@rl.gov

REVISION 1, DRmz 05/31/17: Task Order revised to indicate additional samples were received on 05/30/17, which have been grouped with SDG 615621, located in Task Order # 170531-3, SRR 59793.

Documents Related to this task order: 222143[COC for SRR 59768], 222145[Paperwork for SRR 59768]

Deliverables --> Hard Copy: no EDD: -YES- PDF: -YES-

Test: GPC-Sr90_905.0
 Section: RADCHEM

Holding: 180 days from CED

Strontium-90 by gas flow proportional counting EPA 905.0

Cnt: 2

System ID	Type	Cont	Matrix	Customer ID	CED	Method Date
615811		1	Water	B39CF1	23 May 17	19 Nov 17
615812		1	Water	B39HM1	23 May 17	19 Nov 17

Test: SEP-Sr90
 Section: RADPREP

Holding: 180 days from CED

Separation for Sr90

Cnt: 2

System ID	Type	Cont	Matrix	Customer ID	CED	Method Date
615811		1	Water	B39CF1	23 May 17	19 Nov 17
615812		1	Water	B39HM1	23 May 17	19 Nov 17



Sample Receipt

Southwest Research Institute

VTSR: 05/18/17

Time: 08:30:00

Project: 20859.01.00X

Sample Receipt Number: 59736

Manager: SPIES, RADONNA

Case #: S17-005

Logged in by: SDOUGLAS

Client: CH2M Hill Plateau Remediation Company

Creation Date: 05/18/17

Notes

Samples were received intact.

Fed Ex Tracking #(s):
779166092217 - 18.0 °C (no ice)

pH Test Paper 0.0 to 3.0
lot - 230315
Exp: 10/30/2018

Ice Chest No.:
GWS-476

Test requirements located on the applicable Task Order.

See chain-of-custody as part of the SRR system for more information.

Background CPM: <150 cpm
Container Wipe CPM: <150 cpm
Total CPM: <150

System ID	Customer ID	CED	Matrix	Containers	Special Reqs.
615621	B39HP4	05/17/17	Water	2	
615622	B39HP5	05/17/17	Water	1	

Containers: 3

Samples: 2

These documents are associated with this receipt: 221721[COC for SRR 59736], 221722[Paperwork for SRR 59736]

Thermometer: 021056
Temperature: 18.0

59736 CH2M Hill Plateau Remediation

Sample Receipt

Southwest Research Institute

VTSR: 05/22/17

Time: 08:30:00

Project: 20859.01.00X
Case #: CHPRC
Client: CH2M Hill Plateau Remediation Company

Sample Receipt Number: 59750
Revision: 2

This Receipt was Revised 06/26/2017

Manager: SPIES, RADONNA
Logged in by: DXGARCIA
Creation Date: 05/22/17

Notes

Samples were received intact.

Fed Ex Tracking #(s):

779175966274 - 18.0 °C (no ice)

779189276310 - 1.1 °c (wet ice)

NOTE _ Samples were scheduled for delivery on 05/20/17 (Saturday) but FED EX did not deliver the coolers until 05/22/17 (Monday).

pH Test Paper 0.0 to 3.0

lot - 230315

Exp: 10/30/2018

Ice Chest No.:

GWS-560

GWS-654

Test requirements located on the applicable Task Order.

See chain-of-custody as part of the SRR system for more information.

REVISION 1, DRmz 05/22/17: SRR revised to add a note regarding cooler delivery.

REVISION 2, Corrected COC # S17-005-284 on sample id 615697.

Background CPM: <150 cpm
Container Wipe CPM: <150 cpm
Total CPM: <150

System ID	Customer ID	CED	Matrix	Containers	Special Reqs.
615697	B39C74	05/18/17	Water	1	
615698	B39FX2	05/19/17	Water	2	
615699	B39HP8	05/19/17	Water	1	
615700	B39HP9	05/17/17	Water	1	
615701	B39HW9	05/17/17	Soil	4	
615702	B39KR5	05/19/17	Water	1	
615703	B39KV1	05/19/17	Water	1	
615704	B39KX6	05/19/17	Water	1	

Containers: 12

Samples: 8

These documents are associated with this receipt: 221965[COC for SRR 59750], 221966[Paperwork for SRR 59750]

Thermometer: 021055
Temperature: 1.1

59750 CH2M Hill Plateau Remediation

Sample Receipt

Southwest Research Institute

Sample Receipt Number: 59768

VTSR: 05/24/17

Time: 08:30:00

Project: 20859.01.00X

Case #: S17-005

Client: CH2M Hill Plateau Remediation Company

Manager: SPIES, RADONNA

Logged in by: SDOUGLAS

Creation Date: 05/24/17

Notes

Samples were received intact.

Fed Ex Tracking #(s):
779210937630 - 18.2 °C (no ice)

pH Test Paper 0.0 to 3.0
lot - 230315
Exp: 10/30/2018

Ice Chest No.:
WCH-11-086

Test requirements located on the applicable Task Order.

See chain-of-custody as part of the SRR system for more information.

Background CPM: <150 cpm
Container Wipe CPM: <150 cpm
Total CPM: <150

System ID	Customer ID	CED	Matrix	Containers	Special Reqs.
615811	B39CF1	05/23/17	Water	1	
615812	B39HM1	05/23/17	Water	1	

Containers: 2

Samples: 2

These documents are associated with this receipt: 222145[Paperwork for SRR 59768], 222143[COC for SRR 59768]

Thermometer: 021056
Temperature: 18.2

59768 CH2M Hill Plateau Remediation

Southwest Research Institute
Traffic Report



Sample Custodian Signature: *[Signature]*

- 1. Custody Seal Present
- 2. Chain of Custody Present
- 3. Sample Tags Not Present
Sample Tag Numbers Not on COC *N/A*
- 4. SMO Forms Present

Client: CH2M Hill Plateau Remediation Company
 Project: 20859.01.00X
 Case: S17-005 / SDG: *SEE T.O.*
 Sample Receipt: 59736
 Airbill: 779166092217

Custody Seal #(s): N/A

Date Received	Time Received	COC Record	SMO Sample #	Corresponding		Traffic Rpt, Tags, COC Agree	Sample Condition
				Sample Tag #	SwRI #		
05/18/17	08:30:00	S17-005-430	B39HP4	N/A	615621	YES	Intact
05/18/17	08:30:00	S17-005-431	B39HP5	N/A	615622	YES	Intact

Southwest Research Institute
Traffic Report

Sample Custodian Signature:

David Garcia



- 1. Custody Seal Present
- 2. Chain of Custody Present
- 3. Sample Tags Not Present
Sample Tag Numbers Not on COC *N/A*
- 4. SMO Forms Present

Client: CH2M Hill Plateau Remediation Company
Project: 20859.01.00X
Case: CHPRC / SDG: SEE TO
Sample Receipt: 59750
Airbill: 779189276310,779175966274

Custody Seal #(s): N/A

Date Received	Time Received	COC Record	SMO Sample #	Corresponding		Traffic Rpt, Tags, COC Agree	Sample Condition
				Sample Tag #	SwRI #		
05/22/17	08:30:00	S17-005-284	B39C74	N/A	615697	YES	Intact
05/22/17	08:30:00	I17-006-192	B39FX2	N/A	615698	YES	Intact
05/22/17	08:30:00	I17-006-205	B39HP8	N/A	615699	YES	Intact
05/22/17	08:30:00	I17-006-206	B39HP9	N/A	615700	YES	Intact
05/22/17	08:30:00	F16-037-077	B39HW9	N/A	615701	YES	Intact
05/22/17	08:30:00	F16-046-872	B39KR5	N/A	615702	YES	Intact
05/22/17	08:30:00	F16-046-892	B39KV1	N/A	615703	YES	Intact
05/22/17	08:30:00	F16-046-920	B39KX6	N/A	615704	YES	Intact

Southwest Research Institute
Traffic Report

Sample Custodian Signature: _____



- 1. Custody Seal Present
- 2. Chain of Custody Present
- 3. Sample Tags Not Present
Sample Tag Numbers Not on COC *n/a*
- 4. SMO Forms Present

Client: CH2M Hill Plateau Remediation Company
 Project: 20859.01.00X
 Case: S17-005 / SDG: See TO
 Sample Receipt: 59768
 Airbill: 779210937630

Custody Seal #(s): N/A

Date Received	Time Received	COC Record	SMO Sample #	Corresponding		Traffic Rpt, Tags, COC Agree	Sample Condition
				Sample Tag #	SwRI #		
05/24/17	08:30:00	S17-005-296	B39CF1	N/A	615811	YES	Intact
05/24/17	08:30:00	S17-005-413	B39HM1	N/A	615812	YES	Intact

SAMPLE LOG-IN SHEET

Lab Name Southwest Research Institute		Page 1 of 1	
Received By (Print Name) STEVEN DOUGLAS		Log-in Date 05/18/2017	
Received By (Signature) <i>[Signature]</i>			
Case Number S17-005	Sample Delivery Group No. N/A	SAS Number N/A	
Remarks: 20859.01.00X			
	EPA Sample #	Corresponding Sample Tag #	Assigned Lab #
1. Custody Seal(s)	<input checked="" type="radio"/> Present / <input type="radio"/> Absent* <input type="radio"/> Intact / <input type="radio"/> Broken	B39HP4	N/A
2. Custody Seal Nos.	N/A	B39HP5	N/A
3. Chain-of-Custody Records	<input checked="" type="radio"/> Present / <input type="radio"/> Absent*		
4. Traffic Reports or Packing Lists	<input checked="" type="radio"/> Present / <input type="radio"/> Absent*		
5. Airbill	Airbill / Sticker <input checked="" type="radio"/> Present / <input type="radio"/> Absent*		
6. Airbill No.	779166092217		
7. Sample Tags	Present / <input checked="" type="radio"/> Absent		
Sample Tag Numbers	Listed / <input checked="" type="radio"/> Not listed on Chain of Custody		
8. Sample Condition	<input checked="" type="radio"/> Intact / <input type="radio"/> Broken* / <input type="radio"/> Leaking		
9. Cooler Temperature	18.0C		
10. Does Information on custody records, traffic reports, and sample tags agree?	<input checked="" type="radio"/> Yes / <input type="radio"/> No*		
11. Date Received at Lab	05/18/2017		
12. Time Received	08:30:00		
Sample Transfer			
Fraction N/A	Fraction		
Area # R.13	Area #		
By STEVEN DOUGLAS	By		
On 05/18/2017	On		

* Contact SMO and attach record of resolution

Reviewed By <i>[Signature]</i>	Logbook No.	Sample Receipt (59736)
Date 5.18.17	Logbook Page No.	9824 Sec 1, 2002

SAMPLE LOG-IN SHEET

Lab Name Southwest Research Institute		Page 1 of 1	
Received By (Print Name) DAVID GARCIA		Log-in Date 05/22/2017	
Received By (Signature) <i>David Garcia</i>			
Case Number CHPRC	Sample Delivery Group No. N/A	SAS Number N/A	
Remarks: 20859.01.00X		Remarks: Condition of Sample Shipment, etc	
	EPA Sample #	Sample Tag #	Assigned Lab #
1. Custody Seal(s)	Present Absent* Intact/Broken	B39C74	N/A
		B39FX2	N/A
2. Custody Seal Nos.	N/A	B39HP8	N/A
		B39HP9	N/A
3. Chain-of Custody Records	Present Absent*	B39HW9	N/A
4. Traffic Reports or Packing Lists	Present Absent*	B39KR5	N/A
5. Airbill	Airbill/Sticker Present Absent*	B39KV1	N/A
6. Airbill No.	779189276310, 779175966274	B39KX6	N/A
7. Sample Tags	Present Absent		
Sample Tag Numbers	Listed/Not listed on Chain of Custody		
8. Sample Condition	Intact /Broken*/Leaking		
9. Cooler Temperature	1.1C		
10. Does information on custody records, traffic reports, and sample tags agree?	Yes No*		
11. Date Received at Lab	05/22/2017		
12. Time Received	08:30:00		
Sample Transfer			
Fraction INDRY	Fraction		
Area # R-13	Area #		
By DAVID GARCIA	By		
On 05/22/2017	On		

* Contact SMO and attach record of resolution

Reviewed By <i>Joseph Benato</i>	Logbook No.	Sample Receipt (59750)
Date 6.26.17	Logbook Page No.	9828

SAMPLE LOG-IN SHEET

Lab Name Southwest Research Institute			Page 1 of 1		
Received By (Print Name) STEVEN DOUGLAS			Log-in Date 05/24/2017		
Received By (Signature) <i>Steve Douglas</i>					
Case Number S17-005		Sample Delivery Group No. N/A		SAS Number N/A	
Remarks: 20859.01.00X					
		Corresponding		Remarks: Condition of Sample Shipment, etc	
	EPA Sample #	Sample Tag #	Assigned Lab #		
1. Custody Seal(s)	<input checked="" type="radio"/> Present / <input type="radio"/> Absent* <input checked="" type="radio"/> Intact / <input type="radio"/> Broken	B39CF1	N/A	615811	Intact
2. Custody Seal Nos.	N/A	B39HM1	N/A	615812	Intact
3. Chain-of Custody Records	<input checked="" type="radio"/> Present / <input type="radio"/> Absent*				
4. Traffic Reports or Packing Lists	<input checked="" type="radio"/> Present / <input type="radio"/> Absent*				
5. Airbill	Airbill/Sticker <input checked="" type="radio"/> Present / <input type="radio"/> Absent*				
6. Airbill No.	779210937630				
7. Sample Tags	Present / <input checked="" type="radio"/> Absent				
Sample Tag Numbers	Listed / <input checked="" type="radio"/> Not listed on Chain of Custody				
8. Sample Condition	<input checked="" type="radio"/> Intact / <input type="radio"/> Broken* / <input type="radio"/> Leaking				
9. Cooler Temperature	18.2C				
10. Does Information on custody records, traffic reports, and sample tags agree?	<input checked="" type="radio"/> Yes / <input type="radio"/> No*				
11. Date Received at Lab	05/24/2017				
12. Time Received	08:30:00				
Sample Transfer					
Fraction	Fraction				
Area #	Area #				
By	By				
On	On				

* Contact SMO and attach record of resolution

Reviewed By <i>Steve Douglas</i>	Logbook No.	Sample Receipt (59768)
Date 05.24.17	Logbook Page No.	9830 SEC 2 OF 3

SOUTHWEST RESEARCH INSTITUTE

CLIENT: CH2M Hill Plateau Remediation Company

SwRI PROJECT#: 20859.01.00X

**SwRI TASK ORDER: 170518-4, 170522-5,
170524-2**

SwRI SRR: 59736, 59750, 59768

SDG: 615621

VTSR: 05.18.2017, 05.22.2017, 05.24.2017

pH Report

SwRI

pH Preservation Report

Sample Receipt: 59736

Customer: CH2M Hill Plateau Remediation

Project: 20859.01.00X

Case: S17-005

Received: 05/18/2017

Samples Logged in by: SDOUGLAS

SwRI #	Customer ID	Container ID	Initial pH	Login			Lab					
				Adjustment	Final pH	Paper Lot	Adjustment	Final pH	Paper lot	Adjusted	Lab Staff ID	
615621 1	B39HP4	Tritium										
615621 2	B39HP4	SRISO	<2									
615622 1	B39HP5	Tritium										

SwRI

pH Preservation Report

Sample Receipt: 59750

Customer: CH2M Hill Plateau Remediation

Project: 20859.01.00X

Case: CHPRC

Received: 05/22/2017

Samples Logged in by: DXGARCIA

SwRI #	Customer ID	Container ID	Initial pH	Login			Lab					
				Adjustment	Final pH	Paper Lot	Adjustment	Final pH	Paper lot	Adjusted	Lab Staff ID	
615697 1	B39C74											
615698 1	B39FX2	SRISO	< 2									
615698 2	B39FX2	TRITIUM										
615699 1	B39HP8		< 2									
615700 1	B39HP9											
615701 1	B39HW9											
615701 2	B39HW9											
615701 3	B39HW9											
615701 4	B39HW9											
615702 1	B39KR5						Verified pH = 10	None	Lot# 208515	05/24/17	jeherrera	
615703 1	B39KV1						Verified pH = 10	None	Lot# 208515	05/24/17	jeherrera	
615704 1	B39KX6						Verified pH = 10	None	Lot# 208515	05/24/17	jeherrera	

SwRI

pH Preservation Report

Sample Receipt: 59768

Customer: CH2M Hill Plateau Remediation

Project: 20859.01.00X

Case: S17-005

Received: 05/24/2017

Samples Logged in by: SDOUGLAS

SwRI #	Customer ID	Container ID	Initial pH	Login			Lab					
				Adjustment	Final pH	Paper Lot	Adjustment	Final pH	Paper lot	Adjusted	Lab Staff ID	
615811 1	B39CF1		<2									
615812 1	B39HM1		<2									

SOUTHWEST RESEARCH INSTITUTE

CLIENT: CH2M Hill Plateau Remediation Company

SwRI PROJECT#: 20859.01.00X

**SwRI TASK ORDER: 170518-4, 170522-5,
170524-2**

SwRI SRR: 59736, 59750, 59768

SDG: 615621

VTSR: 05.18.2017, 05.22.2017, 05.24.2017

RADCHEM ANALYSIS

Case Narrative

CLIENT: CH2M Hill Plateau Remediation Company

SDG: 615621

SwRI Project Number: 20859.01.00X

SwRI Sample Receipt Number: 59736, 59750, 59768

Page#: 1

SwRI CASE NARRATIVE

1. Eight (08) samples were received for Radiological Analysis:

SwRI ID	Customer ID	Matrix
615621	B39HP4	Water
615622	B39HP5	Water
615697	B39C74	Water
615698	B39FX2	Water
615699	B39HP8	Water
615700	B39HP9	Water
615811	B39CF1	Water
615812	B39HM1	Water

Client: CH2M Hill Plateau Remediation
SDG: 615621
SwRI Project Number: 20859.01.00X
SwRI Task Order Number: 170518-4, 170522-5, 170524-2

RADIOLOGICAL ANALYSIS

The sample SDG 615621 consisted of eight water samples received for radiological analysis. The water samples for radiological analysis were reported on an "as received" basis. The recommended sample holding time of six months was met. Only five of the eight were analyzed for total radioactive strontium. Only five of the eight were analyzed for tritium.

The samples were analyzed for the following:

Matrix	Analysis	Method
Water	Total Radioactive Strontium	Gas Proportional Counting
Water	Tritium	Liquid Scintillation Spectroscopy

A coverage factor of $k=2$ was applied to the TPU of all analytes. TPU was calculated using 1 sigma error.

The duplicate error ratios are calculated using 1 sigma TPU with a coverage factor of $k=1$.

The reported MDAs are sample-specific.

Total Radioactive Strontium Sample Preparation

A 250ml aliquot of each sample and a duplicate of one sample were used for total radioactive strontium. The samples were digested with nitric acid. A preparation blank, laboratory control sample, and a duplicate were digested with the samples. After digesting to dryness, the samples were dissolved and brought to a final volume of 10ml using an 8M nitric acid solution. Carriers and spikes were added prior to the digestion of the samples.

Gas Flow Proportional Counting

Daily instrument checks were within control limits and the weekly four hour background was within date and control limits.

Total Radioactive Strontium

A small portion of the digestion was taken for Sr carrier recovery determination, by ICP, prior to separation. The remaining portion of the digestate was separated using resins and then eluted from the resin, with another small portion taken for post-separation Sr carrier recovery determination by ICP. The elute was evaporated on tarred stainless steel planchets. After flaming and weighing the planchets, they were placed on the Gas Proportional Counter (GPC) for analysis.

For beta GPC analysis, daily instrument checks were within control limits. The weekly four hour background was within date and control limits.

Client: CH2M Hill Plateau Remediation
SDG: 615621
SwRI Project Number: 20859.01.00X
SwRI Task Order Number: 170518-4, 170522-5, 170524-2

For Sr carrier recovery, all ICP instrument QC criteria were met. The percent recoveries were within 90-110% for the initial and continuing calibration verifications. Strontium was not detected above the laboratory's reporting limit in the initial and continuing calibration blanks.

Results for stable Sr carrier were within the control limits of 40-110%. The result for the preparation blank was less than the MDA and the RL. The result for the laboratory control sample was within the control limits of 80-120% recovery. SwRI sample ID 615621 was analyzed as a duplicate; however, the RPD was greater than 20%. The activity of the sample and duplicate were less than their respective MDAs.

Liquid Scintillation Counting

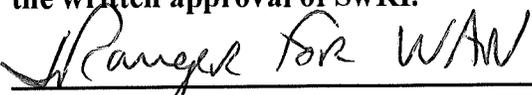
For all liquid scintillation analysis, the daily instrument performance checks were within the running statistical control limits. The sample vials were inspected prior to counting to ensure homogeneity of the scintillation fluid with the sample.

³H - Tritium

For ³Hydrogen analysis, a 40ml aliquot was distilled using sodium hydroxide and potassium permanganate with heat. 10ml of Ultima Gold LLT was added as the liquid scintillator and mixed 10ml of distillate prior to counting. The samples were counted on a liquid scintillation counter programmed to count only the ³Hydrogen region of interest. The liquid scintillation counter ³Hydrogen program was standardized using ³Hydrogen as the radioisotope to establish a specific efficiency quench curve.

The result for the preparation blank was less than the MDA and the RL. The result for the laboratory control sample was within the recovery control limits of 80-120%. SwRI sample ID 615621 was analyzed as a duplicate; however, the RPD was greater than 20%. The activity of the sample was less than its MDA but the activity of the duplicate was greater than its MDA. Both the sample and the duplicate had activities less than five times their MDA. SwRI sample ID 615621 was also analyzed as a matrix spike and matrix spike duplicate. Both the matrix spike and matrix spike duplicate were within the recovery limits of 75-125%.

"I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on diskette has been authorized by the laboratory manager or his/her designee, as verified by the following signature. This report shall not be reproduced except in full without the written approval of SwRI."



Research Scientist

06/22/17

Date

SOUTHWEST RESEARCH INSTITUTE

CLIENT: CH2M Hill Plateau Remediation Company

SwRI PROJECT#: 20859.01.00X

**SwRI TASK ORDER: 170518-4, 170522-5,
170524-2**

SwRI SRR: 59736, 59750, 59768

SDG: 615621

VTSR: 05.18.2017, 05.22.2017, 05.24.2017

RADCHEM ANALYSIS

SOUTHWEST RESEARCH INSTITUTE

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RADCHEM ANALYSIS

Sample Results

SOUTHWEST RESEARCH INSTITUTE

GAS FLOW PROPORTIONAL COUNTING DATA SHEET

Lab Name: Southwest Research Institute

Client: CH2M Hill Plateau Remediation

Lab Code: SwRI

Project No.: 20859.01.00X

Matrix: Water

SRR #: 59736, 59750, 59768

Date Received: 05/18/17, 05/22/17, 05/24/17

SDG: 615621

Task Order #: 170518-4, 170522-5, 170524-2

SAF #: S17-005, I17-006

STRONTIUM-90									
Sample ID	Lab System ID	Analyte	Results (pCi/L)	Q	TPU (2s) (pCi/L)	MDA (pCi/L)	Counting Error (2s)	Sr Tracer Rec.	Date Analyzed
Prep Blank	pbwe24wn1	⁹⁰ Sr	-1.33E-01	U	4.77E-01	1.05E+00	4.77E-01	93.5%	06/06/17
Lab Control	lcswe24wn1	⁹⁰ Sr	1.37E+02		1.77E+01	1.04E+00	7.93E+00	94.2%	06/06/17
True Value	-----	⁹⁰ Sr	1.52E+02		-----	-----	-----	-----	-----
Recovery	-----	⁹⁰ Sr	89.9%		-----	-----	-----	-----	-----
B39HP4	615621	⁹⁰ Sr	1.05E-01	U	5.43E-01	1.05E+00	5.43E-01	93.2%	06/06/17
Duplicate result	615621D	⁹⁰ Sr	3.27E-02	U	5.10E-01	1.02E+00	5.10E-01	95.7%	06/06/17
RPD	-----	⁹⁰ Sr	104.8%		-----	-----	-----	-----	-----
B39FX2	615698	⁹⁰ Sr	3.18E+01		5.38E+00	1.04E+00	3.93E+00	94.3%	06/06/17
B39HP8	615699	⁹⁰ Sr	4.35E-01	U	6.65E-01	1.03E+00	6.63E-01	94.6%	06/06/17
B39CF1	615811	⁹⁰ Sr	1.95E+01		3.82E+00	1.03E+00	3.09E+00	95.0%	06/06/17
B39HM1	615812	⁹⁰ Sr	4.32E+00		1.62E+00	1.05E+00	1.54E+00	92.9%	06/06/17

Q - Data Qualifier. U - Less than MDA. MDA - Minimum Detectable Activity. TPU - Total Propagated Uncertainty. MDAs are sample specific.

SOUTHWEST RESEARCH INSTITUTE

LIQUID SCINTILLATION COUNTING DATA SHEET

Lab Name: Southwest Research Institute

Client: CH2M Hill Plateau Remediation

Lab Code: SwRI

Project No.: 20859.01.00X

Matrix: Water

SRR #: 59736, 59750

Date Received: 05/18/17, 05/22/17

SDG: 615621

Task Order #: 170518-4, 170522-5

SAF #: S17-005, I17-006

TRITIUM								
Sample ID	Lab System ID	Analyte	Results (pCi/L)	Q	TPU (2s) (pCi/L)	MDA (pCi/L)	Counting Error (2s)	Date Analyzed
Prep Blank	pbe31jm1	³ H	-3.66E+01	U	1.13E+02	1.99E+02	1.12E+02	06/03/17
Lab Control	lcse31jm1	³ H	1.06E+04		1.28E+03	1.89E+02	3.48E+02	06/03/17
True Value	-----	³ H	1.16E+04		-----	-----	-----	-----
Recovery	-----	³ H	91.4%		-----	-----	-----	-----
B39HP4	615621	³ H	1.77E+02	U	1.17E+02	1.84E+02	1.15E+02	06/03/17
Duplicate result	615621D	³ H	2.33E+02		1.27E+02	1.98E+02	1.24E+02	06/03/17
RPD	-----	³ H	27.2%		-----	-----	-----	-----
Spike result	615621MS	³ H	1.19E+04		1.44E+03	2.02E+02	3.80E+02	06/03/17
True Value	-----	³ H	1.16E+04		-----	-----	-----	-----
Recovery	-----	³ H	101%		-----	-----	-----	-----
Spike Duplicate result	615621MSD	³ H	1.05E+04		1.27E+03	1.82E+02	3.39E+02	06/03/17
True Value	-----	³ H	1.16E+04		-----	-----	-----	-----
Recovery	-----	³ H	88.2%		-----	-----	-----	-----
RPD	-----	³ H	12.8%		-----	-----	-----	-----
B39HP5	615622	³ H	8.74E+03		1.06E+03	1.79E+02	3.10E+02	06/03/17
B39C74	615697	³ H	4.24E+03		5.44E+02	1.74E+02	2.25E+02	06/03/17
B39FX2	615698	³ H	9.44E+02		1.91E+02	2.05E+02	1.56E+02	06/03/17
B39HP9	615700	³ H	3.31E+03		4.45E+02	1.99E+02	2.21E+02	06/03/17

Q - Data Qualifier. U - Less than MDA. MDA - Minimum Detectable Activity. TPU - Total Propagated Uncertainty. MDAs are sample specific.