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CHEMISTRY AND CHEMICAL ENGINEERING DIVISION
DEPARTMENT OF ANALYTICAL AND ENVIRONMENTAL CHEMISTRY

December 29, 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:	S18-011, I18-001
	SDG Number:	623256
	SwRI Project Number:	20859.01.00X
	SwRI Task Order Number:	171031-3, 171101-4, 171108-5, 171113-2
	SwRI Sample Receipt Number:	60680, 60687, 60727, 60737
	Samples Received	10.31.2017, 11.01.2017, 11.08.2017, 11.10.2017
	Fraction:	Various Radchem Analyses

Dear Ms. Waters-Husted:

Please find the enclosed results for the nineteen (19) 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,

Judy Flemer a for

Radonna Spies
Principal Scientist

APPROVED:

for Michael J. Dardmann
Director

RPS: jz
Encl

010001

SOUTHWEST RESEARCH INSTITUTE
CLIENT: CH2M Hill Plateau Remediation Company
SwRI PROJECT#: 20859.01.00X
SwRI TASK ORDER: 171031-3, 171101-4, 171108-5, 171113-2
SwRI SRR: 60680, 60687, 60727, 60737
SDG: 623256
VTSR: 10.31.2017, 11.1.2017, 11.8.2017, 11.10.2017

Chain-of-Custody
&
Sample Receipt Paperwork

Total Page Count: 010001-
Fraction: Rad Pages: 010070

CH2MHill Plateau Remediation Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

010002

C.O.C. # S18-011-412

Page 1 of 1

Collector:	Frank Hall /CHPRC	Contact/Requester:	Karen Waters-Husted	Telephone No.:	509-376-4650
SAF No.:	S18-011	Sampling Origin:	Hanford Site	Purchase Order/Charge Code:	300071
Project Title:	SURV, NOVEMBER 2017	Logbook No.:	HNF-N-506 -97/15	Ice Chest No.:	GWS-392
Shipped To (Lab):	Southwest Research Institute	Method of Shipment	Commercial Carrier	Bill of Lading/Air Bill No.:	770620428155
Protocol	SURV	Priority:	30 Days	Offsite Property No.:	8631

POSSIBLE SAMPLE HAZARDS/REMARK

** ** 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

Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B3F4X1	N	W	10/29/17	1545	1x1-L G/P	SRISO_SEP_PRECIP_GPC: COMMON	6 Months	HNO3 to pH <2
B3F4X1	N	W	↓	↓	1x1-L G/P	UISO_IE_PRECIP_AEA: COMMON	6 Months	HNO3 to pH <2

CHPRC
SRR # 60680
SDG # 623256

SwRI Prjct # 20859.01.00X
TO: 171031-3

SwRI

Relinquished By	Print First and Last Name	Signature	Date/Time	Received By	Print First and Last Name	Signature	Date/Time
Frank Hall /CHPRC			OCT 2 9 2017 1625	SSU-1			OCT 2 9 2017 1625
SSU#1			OCT 3 0 2017 1030	Lesly Wall /CHPRC			OCT 3 0 2017 1030
Lesly Wall /CHPRC			OCT 3 0 2017 1400	FEDEX			
FEDEX				David Garcia			10-31-2017 08:30

Matrix *

S = Soil	DS = Drum Solids
SE = Sediment	DL = Drum Liquid
SO = Solid	T = Tissue
SL = Sludge	WI = Wipe
W = Water	L = Liquid
O = Oil	V = Vegetation
A = Air	X = Other

FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process):	Disposed By:	Date/Time:

Printed On 10/3/2017 FSR ID = FSR51939 A-6004-842 (REV 3)

CH2MHill Plateau Remediation Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 010003

C.O.C. # S18-011-028

Page 1 of 1

Collector: Daniel Klug CHPRC	**Contact/Requester:** Karen Waters-Husted	**Telephone No.:** 509-376-4650
SAF No.: S18-011	**Sampling Origin:** Hanford Site	**Purchase Order/Charge Code:** 300071
Project Title: SURV, NOVEMBER 2017	**Logbook No.:** HNF-N-506 -96 Pg.40	**Ice Chest No.:** GWS-392
Shipped To (Lab): Southwest Research Institute	**Method of Shipment** Commercial Carrier	**Bill of Lading/Air Bill No.:** 7706204281 55
Protocol SURV	**Priority:** 30 Days	**Offsite Property No.:** 86037

POSSIBLE SAMPLE HAZARDS/REMARK
** ** 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

Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B3F5C5	N	W	10/30/17	0915	1x1-L G/P	UISO_IE_PRECIP_AEA: COMMON	6 Months	HNO3 to pH <2

CHPRC
SRR # 60680
SDG # 623256

SwRI Prjct # 20859.01.00X
TO: 171031-3

SwRI

Relinquished By: Print First and Last Name / Signature / Date/Time	Received By: Print First and Last Name / Signature / Date/Time
Daniel Klug CHPRC — D. Klug — OCT 30 2017 1000	Dan Woehle CHPRC — OCT 30 2017 1000
Dan Woehle CHPRC — OCT 30 2017 1400	FEDEX
FEDEX	DLmz for DG — 10/31/2017 0830
	~~David Garcia David Garcia 10-31-2017 08:30~~

Matrix *

S = Soil	DS = Drum Solids
SE = Sediment	DL = Drum Liquid
SO = Solid	T = Tissue
SL = Sludge	WI = Wipe
W = Water	L = Liquid
O = Oil	V = Vegetation
A = Air	X = Other

10/31/17

FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process):	Disposed By:	Date/Time:

Printed On 10/26/2017 FSR ID = FSR51888 A-6004-842 (REV 3)

CH2MHill Plateau Remediation Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 010004

C.O.C. # S18-011-403

Page 1 of 1

Collector:	Frank Hall /CHPRC	Contact/Requester:	Karen Waters-Husted	Telephone No.:	509-376-4650
SAF No.:	S18-011	Sampling Origin:	Hanford Site	Purchase Order/Charge Code:	300071
Project Title:	SURV, NOVEMBER 2017	Logbook No.:	HNF-N-506 -917/14	Ice Chest No.:	GWS-392
Shipped To (Lab):	Southwest Research Institute	Method of Shipment	Commercial Carrier	Bill of Lading/Air Bill No.:	7706204281 55
Protocol	SURV	Priority:	30 Days	Offsite Property No.:	8631

POSSIBLE SAMPLE HAZARDS/REMARK

** ** 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

Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B3F624	N	W	10/29/17	1435	1x1-L G/P	SRISO_SEP_PRECIP_GPC: COMMON	6 Months	HNO3 to pH <2

CHPRC
SRR # 60680
SDG # 623256

SwRI Project # 20859.01.00X
TO: 171031-3

SwRI

Relinquished By:	Received By:
Frank Hall /CHPRC — OCT 2 9 2017 1624 (Print First and Last Name / Signature / Date/Time)	SSU-1 — OCT 2 9 2017 1624 (Print First and Last Name / Signature / Date/Time)
SSU #1 — OCT 3 0 2017 1030 (Print First and Last Name / Signature / Date/Time)	Lesly Wall /CHPRC — OCT 3 0 2017 1030 (Print First and Last Name / Signature / Date/Time)
Lesly Wall /CHPRC — OCT 3 0 2017 1400 (Print First and Last Name / Signature / Date/Time)	FEDEX (Print First and Last Name / Signature / Date/Time)
FEDEX (Print First and Last Name / Signature / Date/Time)	David Garcia — 10-31-2017 08:30 (Print First and Last Name / Signature / Date/Time)

Matrix *

S = Soil	DS = Drum Solids
SE = Sediment	DL = Drum Liquid
SO = Solid	T = Tissue
SL = Sludge	WI = Wipe
W = Water	L = Liquid
O = Oil	V = Vegetation
A = Air	X = Other

FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process):	Disposed By:	Date/Time:

Printed On 10/2/2017 FSR ID = FSR51889 A-6004-842 (REV 3)

CH2MHill Plateau Remediation Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 010005

C.O.C. # S18-011-549

Page 1 of 1

Collector: Jeff Tucksen CHPRC	**Contact/Requester:** Karen Waters-Husted	**Telephone No.:** 509-376-4650
SAF No.: S18-011	**Sampling Origin:** Hanford Site	**Purchase Order/Charge Code:** 300071
Project Title: SURV, NOVEMBER 2017	**Logbook No.:** HNF-N-506 94/71	**Ice Chest No.:** GWS -392
Shipped To (Lab): Southwest Research Institute	**Method of Shipment** Commercial Carrier	**Bill of Lading/Air Bill No.:** 7706204281555
Protocol SURV	**Priority:** 30 Days	**Offsite Property No.:** 8631

POSSIBLE SAMPLE HAZARDS/REMARK
** ** 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

Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B3F8J3	N	W	OCT 30 2017	0909	4x1-L G/P	GAMMA_GS: COMMON; GAMMA_GS: GW 01	6 Months	HNO3 to pH <2

CHPRC
SRR # 60680
SDG # 623256

SwRI Prjct # 20859.01.00X
TO: 171031-3

SwRI

Relinquished By:	Signature	Date/Time	Received By:	Signature	Date/Time
Jeff Tucksen CHPRC		OCT 30 2017 0925	Dan Woehle CHPRC		OCT 30 2017 0925
Dan Woehle CHPRC		OCT 30 2017 1400	FEDEX		
FEDEX			David Garcia	Daniel Larson	10-31-2017 08:30

Matrix *
S = Soil, DS = Drum Solids, SE = Sediment, DL = Drum Liquid, SO = Solid, T = Tissue, SL = Sludge, WI = Wipe, W = Water, L = Liquid, O = Oil, V = Vegetation, A = Air, X = Other

FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process):	Disposed By:	Date/Time:

Printed On 10/9/2017 FSR ID = FSR52035 A-6004-842 (REV 3)

CH2MHill Plateau Remediation Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 010006

C.O.C. # S18-011-698

Page 1 of 1

Collector:	Frank Hall /CHPRC	Contact/Requester:	Karen Waters-Husted	Telephone No.:	509-376-4650
SAF No.:	S18-011	Sampling Origin:	Hanford Site	Purchase Order/Charge Code:	300071
Project Title:	SURV, NOVEMBER 2017	Logbook No.:	HNF-N-506 - 97/15	Ice Chest No.:	GWS-392
Shipped To (Lab):	Southwest Research Institute	Method of Shipment	Commercial Carrier	Bill of Lading/Air Bill No.:	770620428155
Protocol	SURV	Priority:	30 Days	Offsite Property No.:	86631

POSSIBLE SAMPLE HAZARDS/REMARK

** ** 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

Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B3F989	N	W	10/29/17	1344	1x1-L G/P	SRISO_SEP_PRECIP_GPC: COMMON	6 Months	HNO3 to pH <2

CHPRC
SRR # 60680
SDG # 623256

SwRI Prjct # 20859.01.00X
TO: 171031-3

SwRI

Relinquished By	Print First and Last Name	Signature	Date/Time	Received By	Print First and Last Name	Signature	Date/Time
Frank Hall /CHPRC			OCT 2 9 2017 1625	SSU-1			OCT 2 9 2017 1625
SSU#1			OCT 3 0 2017 1030	Lesly Wall /CHPRC			OCT 3 0 2017 1030
Lesly Wall /CHPRC			OCT 3 0 2017 1400	FEDEX			
FED EX				David Garcia			10-31-2017 08:30

Matrix *

S = Soil	DS = Drum Solids
SE = Sediment	DL = Drum Liquid
SO = Solid	T = Tissue
SL = Sludge	WI = Wipe
W = Water	L = Liquid
O = Oil	V = Vegetation
A = Air	X = Other

FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process):	Disposed By:	Date/Time:

Printed On 9/26/2017 FSR ID = FSR51386 A-6004-842 (REV 3)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 010007	C.O.C. # S18-011-764 Page 1 of 1

Collector:	Daniel Klug CHPRC	**Contact/Requester:**	Karen Waters-Husted	**Telephone No.:**	509-376-4650
SAF No.:	S18-011	**Sampling Origin:**	Hanford Site	**Purchase Order/Charge Code:**	300071
Project Title:	SURV, NOVEMBER 2017	**Logbook No.:**	HNF-N-506-96/39	**Ice Chest No.:**	GWS-392
Shipped To (Lab):	Southwest Research Institute	**Method of Shipment**	Commercial Carrier	**Bill of Lading/Air Bill No.:**	7710620428155
Protocol	SURV	**Priority:**	30 Days	**Offsite Property No.:**	86031

POSSIBLE SAMPLE HAZARDS/REMARK
** ** 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

Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B3F9N9	N	W	10/26/17	1021	4x1-L G/P	GAMMA_GS: COMMON; GAMMA_GS: GW 01	6 Months	HNO3 to pH <2
B3F9N9	N	W			1x500-mL G/P	C14_LSC: COMMON	6 Months	None

CHPRC
SRR # 60680
SDG # 623256
SwRI Prjct # 20859.01.00X
TO: 171031-3
SwRI

Relinquished By:	Received By:
Daniel Klug CHPRC — Print First and Last Name; Signature; OCT 29 2017 1520 — Date/Time	SSU-1 — Print First and Last Name; Signature; OCT 29 2017 1520 — Date/Time
SSU#1 — Print First and Last Name; Signature; OCT 30 2017 1030 — Date/Time	Lesly Wall /CHPRC — Print First and Last Name; Signature; OCT 30 2017 1030 — Date/Time
Lesly Wall /CHPRC — Print First and Last Name; Signature; OCT 30 2017 1400 — Date/Time	FEDEX — Print First and Last Name; Signature; Date/Time
FEDEX — Print First and Last Name; Signature; Date/Time	David Garcia — Print First and Last Name; Signature; 10-31-2017 08:30 — Date/Time

Matrix *

S = Soil	DS = Drum Solids
SE = Sediment	DL = Drum Liquid
SO = Solid	T = Tissue
SL = Sludge	WI = Wipe
W = Water	L = Liquid
O = Oil	V = Vegetation
A = Air	X = Other

FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process):	Disposed By:	Date/Time:

Printed On 10/12/2017 FSR ID = FSR52326 A-6004-842 (REV 3)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 010008	C.O.C. # S18-011-765 Page 1 of 1

Collector:	Daniel Klug CHPRC	**Contact/Requester:**	Karen Waters-Husted	**Telephone No.:**	509-376-4650
SAF No.:	S18-011	**Sampling Origin:**	Hanford Site	**Purchase Order/Charge Code:**	300071
Project Title:	SURV, NOVEMBER 2017	**Logbook No.:**	HNF-N-506 46/34	**Ice Chest No.:**	6005-392
Shipped To (Lab):	Southwest Research Institute	**Method of Shipment**	Commercial Carrier	**Bill of Lading/Air Bill No.:**	7706 2042 8155
Protocol	SURV	**Priority:**	30 Days	**Offsite Property No.:**	8631

POSSIBLE SAMPLE HAZARDS/REMARK
** ** 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

Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B3F9P0	N	W	10/26/17	1021	4x1-L G/P	GAMMA_GS: COMMON; GAMMA_GS: GW 01	6 Months	HNO3 to pH <2
B3F9P0	N	W			1x500-mL G/P	C14_LSC: COMMON	6 Months	None

CHPRC
SRR # 60680
SDG # 623256

SwRI Prjct # 20859.01.00X
TO: 171031-3

SwRI

Relinquished By:	Received By:
Daniel Klug CHPRC — D. Klug — OCT 2 9 2017 1520 (Print First and Last Name / Signature / Date/Time)	SSU-1 — OCT 2 9 2017 1520 (Print First and Last Name / Signature / Date/Time)
SSU#1 — OCT 3 0 2017 1030 (Print First and Last Name / Signature / Date/Time)	Lesly Wall /CHPRC — Lesly Wall — OCT 3 0 2017 1030 (Print First and Last Name / Signature / Date/Time)
Lesly Wall /CHPRC — Lesly Wall — OCT 3 0 2017 1400 (Print First and Last Name / Signature / Date/Time)	FEDEX (Print First and Last Name / Signature / Date/Time)
FEDEX (Print First and Last Name / Signature / Date/Time)	David Garcia — David Garcia — 10-3-2017 08:30 (Print First and Last Name / Signature / Date/Time)

Matrix *

S = Soil	DS = Drum Solids
SE = Sediment	DL = Drum Liquid
SO = Solid	T = Tissue
SL = Sludge	WI = Wipe
W = Water	L = Liquid
O = Oil	V = Vegetation
A = Air	X = Other

FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process):	Disposed By:	Date/Time:

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 010009	C.O.C. # S18-011-035 Page 1 of 1

Collector:	Daniel Klug CHPRC	**Contact/Requester:**	Karen Waters-Husted	**Telephone No.:**	509-376-4650.
SAF No.:	S18-011	**Sampling Origin:**	Hanford Site	**Purchase Order/Charge Code:**	300071 @ 10-31-17
Project Title:	SURV, NOVEMBER 2017	**Logbook No.:**	HNF-N-506 -96 pg 40	**Ice Chest No.:**	GWS-~~340~~ 689
Shipped To (Lab):	Southwest Research Institute	**Method of Shipment**	Commercial Carrier	**Bill of Lading/Air Bill No.:**	7706311022224
Protocol	SURV	**Priority:**	30 Days	**Offsite Property No.:**	8659

POSSIBLE SAMPLE HAZARDS/REMARK
** ** 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

Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B3F6M3	N	W	10/30/17	1035	1x1-L G/P	UISO_IE_PRECIP_AEA: COMMON	6 Months	HNO3 to pH <2

CHPRC
SRR # 60687
SDG # 623256

SwRI Prjct # 20859.01.00X
TO: 171101-4

SwRI

Relinquished By:	Received By:
Daniel Klug CHPRC — D. Klug — OCT 30 2017 1347 (Print First and Last Name / Signature / Date/Time)	SSU-1 — OCT 30 2017 1347 (Print First and Last Name / Signature / Date/Time)
SSU #1 — OCT 31 2017 0830 (Print First and Last Name / Signature / Date/Time)	Lesly Wall /CHPRC — Lesly Wall — OCT 31 2017 0830 (Print First and Last Name / Signature / Date/Time)
Lesly Wall /CHPRC — Lesly Wall — OCT 31 2017 1400 (Print First and Last Name / Signature / Date/Time)	FEDEX (Print First and Last Name / Signature / Date/Time)
FEDEX (Print First and Last Name / Signature / Date/Time)	David Garcia — David Garcia — 11-01-2017 08:30 (Print First and Last Name / Signature / Date/Time)

Matrix *

S = Soil	DS = Drum Solids
SE = Sediment	DL = Drum Liquid
SO = Solid	T = Tissue
SL = Sludge	WI = Wipe
W = Water	L = Liquid
O = Oil	V = Vegetation
A = Air	X = Other

FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process):	Disposed By:	Date/Time:

19 16

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 010010	C.O.C. # S18-011-739 Page 1 of 1

Collector:	Jeff Tucksen CHPRC	Contact/Requester:	Karen Waters-Husted	Telephone No.:	509-376-4650
SAF No.:	S18-011	Sampling Origin:	Hanford Site	Purchase Order/Charge Code:	300071 10-31-17
Project Title:	SURV, NOVEMBER 2017	Logbook No.:	HNF-N-506 94/71	Ice Chest No.:	GWS-~~396~~ 689
Shipped To (Lab):	Southwest Research Institute	Method of Shipment	Commercial Carrier	Bill of Lading/Air Bill No.:	7706 3110 2224
Protocol	SURV	Priority:	30 Days	Offsite Property No.:	8659

POSSIBLE SAMPLE HAZARDS/REMARK
** ** 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

Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B3F8H3	N	W	OCT 30 2017	0952	1x1-L G/P	UISO_IE_PRECIP_AEA: COMMON	6 Months	HNO3 to pH <2
B3F8H3	N	W			4x1-L G/P	GAMMA_GS: COMMON; GAMMA_GS: GW 01	6 Months	HNO3 to pH <2

CHPRC
SRR # 60687
SDG # 623256

SwRI Prjct # 20859.01.00X
TO: 171101-4

SwRI

Relinquished By:	Signature	Date/Time	Received By:	Signature	Date/Time
Jeff Tucksen CHPRC		OCT 30 2017 1221	SSU-1		OCT 30 2017 1221
SSU#1		OCT 31 2017 0830	Lesly Wall /CHPRC	Lesly Wall	OCT 31 2017 0830
Lesly Wall /CHPRC	Lesly Wall	OCT 31 2017 1400	FEDEX		
FEDEX			David Garcia	David Garcia	11-01-2017 0830

Matrix *

S = Soil	DS = Drum Solids
SE = Sediment	DL = Drum Liquid
SO = Solid	T = Tissue
SL = Sludge	WI = Wipe
W = Water	L = Liquid
O = Oil	V = Vegetation
A = Air	X = Other

FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process):	Disposed By:	Date/Time:

Printed On 10/9/2017 FSR ID = FSR52034 A-6004-842 (REV 3)

CH2MHill Plateau Remediation Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 010011

C.O.C. # S18-011-721

Page 1 of 2 11-07-17

Collector:	Daniel Klug CHPRC	Contact/Requester:	Karen Waters-Husted	Telephone No.:	509-376-4650
SAF No.:	S18-011	Sampling Origin:	Hanford Site	Purchase Order/Charge Code:	300071
Project Title:	SURV, NOVEMBER 2017	Logbook No.:	HNF-N-506 97/21	Ice Chest No.:	GWS-393
Shipped To (Lab):	Southwest Research Institute	Method of Shipment	Commercial Carrier	Bill of Lading/Air Bill No.:	770687693523
Protocol	SURV	Priority:	30 Days	Offsite Property No.:	868D

POSSIBLE SAMPLE HAZARDS/REMARK
** ** 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

Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B3F659	N	W	NOV 06 2017	12/6	1x1-L G/P	SRISO_SEP_PRECIP_GPC: COMMON	6 Months	HNO3 to pH <2

CHPRC
SRR # 60727
SDG # 623256

SwRI Prjct # 20859.01.00X
TO: 171108-5

SwRI

Relinquished By	Print First and Last Name	Signature	Date/Time	Received By	Print First and Last Name	Signature	Date/Time
Daniel Klug CHPRC	D. Klug		NOV 06 2017 1230	Chris Fulton CHPRC			NOV 06 2017 1230
Chris Fulton CHPRC			NOV 06 2017 1340	SSU-1			NOV 06 2017 1340
SSU-1			NOV 07 2017 0750	Curt Hoffman CHPRC			NOV 07 2017 0750
Curt Hoffman CHPRC			NOV 07 2017 1400	FEDEX			

Matrix *

S = Soil	DS = Drum Solids
SE = Sediment	DL = Drum Liquid
SO = Solid	T = Tissue
SL = Sludge	WI = Wipe
W = Water	L = Liquid
O = Oil	V = Vegetation
A = Air	X = Other

FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process):	Disposed By:	Date/Time:

Printed On 10/4/2017 FSR ID = FSR51996 A-6004-842 (REV 3)

010012

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST (continued)

C.O.C. No. 518-011-721

Page 2 of 2

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
	FEDEX			David Garcia		David Garcia	11-08-2017 0845
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time

A-6003-962 (03/05)

CH2MHill Plateau Remediation Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 010013

C.O.C. # S18-011-699

Page 1 of 1

Collector: Jeff Tucksen CHPRC	Contact/Requester: Karen Waters-Husted	Telephone No.: 509-376-4650
SAF No.: S18-011	Sampling Origin: Hanford Site	Purchase Order/Charge Code: 300071
Project Title: SURV, NOVEMBER 2017	Logbook No.: HNF-N-506 94 176	Ice Chest No.: GWS-393
Shipped To (Lab): Southwest Research Institute	Method of Shipment Commercial Carrier	Bill of Lading/Air Bill No.: 770687693523
Protocol SURV	Priority: 30 Days	Offsite Property No.: 868D

POSSIBLE SAMPLE HAZARDS/REMARK
** ** 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

Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B3F990	N	W	NOV 02 2017	1110	1x1-L G/P	SRISO_SEP_PRECIP_GPC: COMMON	6 Months	HNO3 to pH <2

CHPRC
SRR # 60727
SDG # 623256

SwRI Prjct # 20859.01.00X
TO: 171108-5

SwRI

Relinquished By	Received By
Jeff Tucksen CHPRC — NOV 02 2017 1253 (Print First and Last Name / Signature / Date/Time)	Received By: SSU-1 — NOV 02 2017 1253 (Print First and Last Name / Signature / Date/Time)
Relinquished By: SSU-1 — NOV 07 2017 0750 (Print First and Last Name / Signature / Date/Time)	Received By: Curt Hoffman CHPRC — NOV 07 2017 0750 (Print First and Last Name / Signature / Date/Time)
Relinquished By: Curt Hoffman CHPRC — NOV 07 2017 1400 (Print First and Last Name / Signature / Date/Time)	Received By: FEDEX (Print First and Last Name / Signature / Date/Time)
Relinquished By: FED EX (Print First and Last Name / Signature / Date/Time)	Received By: David Garcia — 11-08-2017 08:45 (Print First and Last Name / Signature / Date/Time)

Matrix *

S = Soil	DS = Drum Solids
SE = Sediment	DL = Drum Liquid
SO = Solid	T = Tissue
SL = Sludge	WI = Wipe
W = Water	L = Liquid
O = Oil	V = Vegetation
A = Air	X = Other

FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process):	Disposed By:	Date/Time:

Printed On 10/3/2017 FSR ID = FSR51942 A-6004-842 (REV 3)

CH2MHill Plateau Remediation Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 010014

C.O.C. # S18-011-710

Page 1 of ~~1~~ 2

Collector: Jeff Tucksen CHPRC	**Contact/Requester:** Karen Waters-Husted	**Telephone No.:** 509-376-4650 9211-217
SAF No.: S18-011	**Sampling Origin:** Hanford Site	**Purchase Order/Charge Code:** 300071
Project Title: SURV, NOVEMBER 2017	**Logbook No.:** HNF-N-506 94/76	**Ice Chest No.:** 6 WS-393
Shipped To (Lab): Southwest Research Institute	**Method of Shipment** Commercial Carrier	**Bill of Lading/Air Bill No.:** 770687693523
Protocol SURV	**Priority:** 30 Days	**Offsite Property No.:** 8680

POSSIBLE SAMPLE HAZARDS/REMARK
** ** 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

Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B3F999	N	W	NOV 0 2 2017	1030	1x1-L G/P	SRISO_SEP_PRECIP_GPC: COMMON	6 Months	HNO3 to pH <2

CHPRC
SRR # 60727
SDG # 623256

SwRI Prjct # 20859.01.00X
TO: 171108-5

SwRI

Relinquished By	Print First and Last Name	Signature	Date/Time	Received By	Print First and Last Name	Signature	Date/Time
Jeff Tucksen CHPRC			NOV 0 2 2017 1047	Janelle Zunker CHPRC			NOV 0 2 2017 1047
Janelle Zunker CHPRC			NOV 0 2 2017 1130	SSU-1			NOV 0 2 2017 1130
SSU-1			NOV 0 7 2017 0975	Curt Hoffman CHPRC			NOV 0 7 2017 0750
Curt Hoffman CHPRC			NOV 0 7 2017 1400	FEDEX			

Matrix *

S = Soil	DS = Drum Solids
SE = Sediment	DL = Drum Liquid
SO = Solid	T = Tissue
SL = Sludge	WI = Wipe
W = Water	L = Liquid
O = Oil	V = Vegetation
A = Air	X = Other

FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process):	Disposed By:	Date/Time:

Printed On 10/4/2017 FSR ID = FSR51952 A-6004-842 (REV 3)

010015

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST (continued)

C.O.C. No. 318-011-710

Page 2 of 2

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
		FED EX			David Garcia	David Garcia	11-08-2017 08:45
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time

A-6003-962 (03/05)

CH2MHill Plateau Remediation Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 010016

C.O.C. # S18-011-719

Page 1 of 1

Collector:	Chris Fulton CHPRC	Contact/Requester:	Karen Waters-Husted	Telephone No.:	509-376-4650
SAF No.:	S18-011	Sampling Origin:	Hanford Site	Purchase Order/Charge Code:	300071
Project Title:	SURV, NOVEMBER 2017	Logbook No.:	HNF-N-506 - 9644	Ice Chest No.:	GWS-393
Shipped To (Lab):	Southwest Research Institute	Method of Shipment	Commercial Carrier	Bill of Lading/Air Bill No.:	770687693523
Protocol	SURV	Priority:	30 Days	Offsite Property No.:	8680

POSSIBLE SAMPLE HAZARDS/REMARK
** ** 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

Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B3F9B5	N	W	NOV 03 2017	1330	1x1-L G/P	SRISO_SEP_PRECIP_GPC: COMMON	6 Months	HNO3 to pH <2

CHPRC
SRR # 60727
SDG # 623256

SwRI Prjct # 20859.01.00X
TO: 171108-5

SwRI

Relinquished By:	Received By:
Chris Fulton CHPRC — Print First and Last Name; Signature; NOV 03 2017 1440 — Date/Time	SSU-1 — Print First and Last Name; Signature; NOV 03 2017 1440 — Date/Time
SSU-1 — Print First and Last Name; Signature; NOV 07 2017 0750 — Date/Time	Curt Hoffman CHPRC — Print First and Last Name; Signature; NOV 07 2017 0750 — Date/Time
Curt Hoffman CHPRC — Print First and Last Name; Signature; NOV 07 2017 1400 — Date/Time	FEDEX — Print First and Last Name; Signature; Date/Time
FED EX — Print First and Last Name; Signature; Date/Time	David Garcia — Print First and Last Name; David Garcia — Signature; 11-08-2017 08:45 — Date/Time

Matrix *

S = Soil	DS = Drum Solids
SE = Sediment	DL = Drum Liquid
SO = Solid	T = Tissue
SL = Sludge	WI = Wipe
W = Water	L = Liquid
O = Oil	V = Vegetation
A = Air	X = Other

FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process):	Disposed By:	Date/Time:

CH2MHill Plateau Remediation Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 010017

C.O.C.# I18-001-050

Page 1 of 1

Collector: KATHY TURNER CHPRC	**Contact/Requester:** WATERS-HUSTED, K	**Telephone No.:** 376-4650
SAF No.: I18-001	**Sampling Origin:** Hanford Site	**Purchase Order/Charge Code:** 300071
Project Title: GW Background Study, October 2	**Logbook No.:** HNF-N-506 94178	**Ice Chest No.:** GW5-678
Shipped To (Lab): Southwest Research Institute	**Method of Shipment** Commercial Carrier	**Bill of Lading/Air Bill No.:** 770700859204
Protocol SURV	**Priority:** 30 Days	**Offsite Property No.:** 8694

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

SPECIAL INSTRUCTIONS
N/A

Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B3DCY2	N	W	11-7-17	0900	1x1-L P	PUISO_IE_PRECIP_AEA: COMMON	180 Days	HNO3 to pH <2

CHPRC
SRR # 60737
SDG # 623256

SwRI Prjct # 20859.01.00X
TO: 171113-2

SwRI

Relinquished By (Print First and Last Name)	Signature	Date/Time	Received By (Print First and Last Name)	Signature	Date/Time
KATHY TURNER CHPRC	Kathy Turner	NOV 0 7 2017 1220	SSU-1		NOV 0 7 2017 1220
SSU-1		NOV 0 8 2017 1030	Lesly Wall /CHPRC	Lesly Wall	NOV 0 8 2017 1030
Lesly Wall /CHPRC	Lesly Wall	NOV 0 8 2017 1400	FEDEX		
FED EX			David Garcia	David Garcia	11-10-2017 09:25

Matrix *

S = Soil	DS = Drum Solids
SE = Sediment	DL = Drum Liquid
SO = Solid	T = Tissue
SL = Sludge	WI = Wipe
W = Water	L = Liquid
O = Oil	V = Vegetation
A = Air	X = Other

FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process):	Disposed By:	Date/Time:

Printed On 9/18/2017 FSR ID = FSR51198 A-6004-842 (REV 3)

CH2MHill Plateau Remediation Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 010018

C.O.C. # I18-001-051

Page 1 of 1

Collector: KATHY TURNER CHPRC	Contact/Requester: WATERS-HUSTED, K	Telephone No.: 376-4650
SAF No.: I18-001	Sampling Origin: Hanford Site	Purchase Order/Charge Code: 300071
Project Title: GW Background Study, October 2	Logbook No.: HNF-N-506 94178	Ice Chest No.: 6605-678
Shipped To (Lab): Southwest Research Institute	Method of Shipment Commercial Carrier	Bill of Lading/Air Bill No.: 770700859204
Protocol SURV	Priority: 30 Days	Offsite Property No.: 86694

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

SPECIAL INSTRUCTIONS
N/A

Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B3DCY3	N	W	11-7-17	0900	1x1-L P	PUISO_IE_PRECIP_AEA: COMMON	180 Days	HNO3 to pH <2

CHPRC
SRR # 60737
SDG # 623256

SwRI Prjct # 20859.01.00X
TO: 171113-2

SwRI

Relinquished By	Print First and Last Name	Signature	Date/Time	Received By	Print First and Last Name	Signature	Date/Time
KATHY TURNER CHPRC		Kathy Turner	NOV 0 7 2017 1220	SSU-1			NOV 0 7 2017 1220
SSU-1			NOV 0 8 2017 1030	Lesly Wall /CHPRC		Lesly Wall	NOV 0 8 2017 1030
Lesly Wall /CHPRC		Lesly Wall	NOV 0 8 2017 1400	FEDEX			
FEDEX				David Garcia		David Garcia	11-10-2017 09:25

Matrix *

S = Soil	DS = Drum Solids
SE = Sediment	DL = Drum Liquid
SO = Solid	T = Tissue
SL = Sludge	WI = Wipe
W = Water	L = Liquid
O = Oil	V = Vegetation
A = Air	X = Other

FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process):	Disposed By:	Date/Time:

CH2MHill Plateau Remediation Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 010019

C.O.C. # I18-001-052

Page 1 of 1

Collector:	KATHY TURNER CHPRC	Contact/Requester:	WATERS-HUSTED, K	Telephone No.:	376-4650
SAF No.:	I18-001	Sampling Origin:	Hanford Site	Purchase Order/Charge Code:	300071
Project Title:	GW Background Study, October 2	Logbook No.:	HNF-N-506 94 178	Ice Chest No.:	GWS-678
Shipped To (Lab):	Southwest Research Institute	Method of Shipment	Commercial Carrier	Bill of Lading/Air Bill No.:	7707008592 04
Protocol	SURV	Priority:	30 Days	Offsite Property No.:	8694

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

SPECIAL INSTRUCTIONS
N/A

Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B3DCY4	N	W	11-7-17	0900	1x1-L P	PUISO_IE_PRECIP_AEA: COMMON	180 Days	HNO3 to pH <2

CHPRC
SRR # 60737
SDG # 623256

SwRI Prjct # 20859.01.00X
TO: 171113-2

SwRI

Relinquished By	Print First and Last Name	Signature	Date/Time	Received By	Print First and Last Name	Signature	Date/Time
KATHY TURNER	CHPRC	Kathy Turner	NOV 0 7 2017 1520	SSU-1			NOV 0 7 2017 1520
SSU-1			NOV 0 8 2017 1030	Lesly Wall	/CHPRC	Lesly Wall	NOV 0 8 2017 1030
Lesly Wall	/CHPRC	Lesly Wall	NOV 0 8 2017 1400	FEDEX			
FEDEX				David Garcia		David Garcia	11-10-2017 09:25

Matrix *

S = Soil	DS = Drum Solids
SE = Sediment	DL = Drum Liquid
SO = Solid	T = Tissue
SL = Sludge	WI = Wipe
W = Water	L = Liquid
O = Oil	V = Vegetation
A = Air	X = Other

FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process):	Disposed By:	Date/Time:

Printed On 9/18/2017 FSR ID = FSR51198 A-6004-842 (REV 3)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 010020	C.O.C. # I18-001-053 Page 1 of 1

Collector: KATHY TURNER CHPRC	**Contact/Requester:** WATERS-HUSTED, K	**Telephone No.:** 376-4650
SAF No.: I18-001	**Sampling Origin:** Hanford Site	**Purchase Order/Charge Code:** 300071
Project Title: GW Background Study, October 2	**Logbook No.:** HNF-N-506 94178	**Ice Chest No.:** GWS-678
Shipped To (Lab): Southwest Research Institute	**Method of Shipment** Commercial Carrier	**Bill of Lading/Air Bill No.:** 770700859204
Protocol SURV	**Priority:** 30 Days	**Offsite Property No.:** 86694

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

SPECIAL INSTRUCTIONS
N/A

Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B3DCY5	N	W	11-7-17	0900	1x1-L G/P	SRISO_SEP_PRECIP_GPC: COMMON	6 Months	HNO3 to pH <2

CHPRC
SRR # 60737
SDG # 623256
SwRI Prjct # 20859.01.00X
TO: 171113-2

Relinquished By	Received By
KATHY TURNER CHPRC — Print First and Last Name; Signature; NOV 07 2017 1220 — Date/Time	SSU-1 — Print First and Last Name; Signature; NOV 07 2017 1220 — Date/Time
Lesly Wall /CHPRC — Print First and Last Name; Signature; SSU-1 NOV 08 2017 1030 — Date/Time	Lesly Wall /CHPRC — Print First and Last Name; Signature; NOV 08 2017 1030 — Date/Time
Lesly Wall /CHPRC — Print First and Last Name; Signature; NOV 08 2017 1400 — Date/Time	FEDEX — Print First and Last Name; Signature; Date/Time
FEDEX — Print First and Last Name; Signature; Date/Time	Daniel Garcia — Print First and Last Name; Signature; 11-10-2017 09:25 — Date/Time

Matrix *
S = Soil, DS = Drum Solids
SE = Sediment, DL = Drum Liquid
SO = Solid, T = Tissue
SL = Sludge, WI = Wipe
W = Water, L = Liquid
O = Oil, V = Vegetation
A = Air, X = Other

FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process):	Disposed By:	Date/Time:

Printed On 9/18/2017 FSR ID = FSR51198 A-6004-842 (REV 3)

CH2MHill Plateau Remediation Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 010021

C.O.C. # I18-001-054

Page 1 of 1

Collector: KATHY TURNER CHPRC	**Contact/Requester:** WATERS-HUSTED, K	**Telephone No.:** 376-4650
SAF No.: I18-001	**Sampling Origin:** Hanford Site	**Purchase Order/Charge Code:** 300071
Project Title: GW Background Study, October 2	**Logbook No.:** HNF-N-506 94/78	**Ice Chest No.:** GWS-678
Shipped To (Lab): Southwest Research Institute	**Method of Shipment** Commercial Carrier	**Bill of Lading/Air Bill No.:** 7707008592304
Protocol SURV	**Priority:** 30 Days	**Offsite Property No.:** 8694

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

SPECIAL INSTRUCTIONS
N/A

Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B3DCY6	N	W	11-7-17	0900	1x1-L G/P	SRISO_SEP_PRECIP_GPC: COMMON	6 Months	HNO3 to pH <2

CHPRC
SRR # 60737
SDG # 623256

SwRI Prjct # 20859.01.00X
TO: 171113-2

SwRI

Relinquished By	Received By
KATHY TURNER CHPRC — Kathy Turner — NOV 07 2017 1520	SSU-1 — NOV 07 2017 1520
SSU-1 — NOV 08 2017 1030	Lesly Wall /CHPRC — Lesly Wall — NOV 08 2017 1030
Lesly Wall /CHPRC — Lesly Wall — NOV 08 2017 1400	FEDEX
FED EX	David Garcia — David Garcia — 11-10-2017 05:25

Matrix *

S = Soil	DS = Drum Solids
SE = Sediment	DL = Drum Liquid
SO = Solid	T = Tissue
SL = Sludge	WI = Wipe
W = Water	L = Liquid
O = Oil	V = Vegetation
A = Air	X = Other

FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process):	Disposed By:	Date/Time:

Printed On 9/18/2017 FSR ID = FSR51198 A-6004-842 (REV 3)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 010022	C.O.C. # I18-001-055 Page 1 of 1

Collector: KATHY TURNER CHPRC	**Contact/Requester:** WATERS-HUSTED, K	**Telephone No.:** 376-4650
SAF No.: I18-001	**Sampling Origin:** Hanford Site	**Purchase Order/Charge Code:** 300071
Project Title: GW Background Study, October 2	**Logbook No.:** HNF-N-506 94/78	**Ice Chest No.:** GWS-678
Shipped To (Lab): Southwest Research Institute	**Method of Shipment** Commercial Carrier	**Bill of Lading/Air Bill No.:** 7707008 5 9204
Protocol SURV	**Priority:** 30 Days	**Offsite Property No.:** 8694

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

SPECIAL INSTRUCTIONS
N/A

Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B3DCY7	N	W	11-7-17	0900	1x1-L G/P	SRISO_SEP_PRECIP_GPC: COMMON	6 Months	HNO3 to pH <2

CHPRC
SRR # 60737
SDG # 623256

SwRI Prjct # 20859.01.00X
TO: 171113-2

Relinquished By	Signature	Date/Time	Received By	Signature	Date/Time
KATHY TURNER CHPRC	Kathy Turner	NOV 0 7 2017 1220	SSU-1		NOV 0 7 2017 1220
SSU-1		NOV 0 8 2017 1030	Lesly Wall /CHPRC	Lesly Wall	NOV 0 8 2017 1030
Lesly Wall /CHPRC	Lesly Wall	NOV 0 8 2017 1400	FEDEX		
FEDEX			David Garcia	David Garcia	11-10-2017 09:25

Matrix *

S = Soil	DS = Drum Solids
SE = Sediment	DL = Drum Liquid
SO = Solid	T = Tissue
SL = Sludge	WI = Wipe
W = Water	L = Liquid
O = Oil	V = Vegetation
A = Air	X = Other

FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process):	Disposed By:	Date/Time:

Printed On 9/18/2017 FSR ID = FSR51198 A-6004-842 (REV 3)

010023

Southwest Research Institute

Laboratory Task Order

TO #: 171031-3 Revision: 3

Project(s): 20859.01.00X
Manager(s): SPIES, RADONNA
To Client: 11/29/17

SDG: 623256
VTSR: 10/31/17
SAF: S18-011

SRR #'s: 60680
Client(s): CH2M Hill Plateau Remediation Company

Instructions

```
CH2MHill Plateau Remediation Company.  300071
  SAF No. S18-011

  SDG 623256 is open until 11/14/17

  30-day TAT.
  CURRENTLY, FINAL DATA/HARDCOPY IS DUE TO THE CLIENT ON 11/30/2017.

  8 overall samples (20 containers) were received on 10/31/2017.
  OUT of the 8 samples, ONLY the 7 samples which require RAD, are listed here.

Sample Analysis REQUIRED
SRISO_SEP_PRECIP_GPC: COMMON
 Strontium-90
UISO_IE_PRECIP_AEA: COMMON
 U-233/234 Uranium-233/234, U-235/236 Uranium-235, U-238 Uranium-238
GAMMA_GS: COMMON
 Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155
GAMMA_GS: GW 01
 Antimony-125, Cesium-134, Potassium-40

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 11/01/17:  Task Order revised to indicate additional samples were received on
11/01/17, which have been grouped with SDG 623256, located in Task Order # 171101-4, SRR 60687.
REVISION 2, DRmz 11/08/17:  Task Order revised to indicate additional samples were received on
11/08/17, which have been grouped with SDG 623256, located in Task Order # 171108-5, SRR 60727.
REVISION 3, DRmz 11/13/17:  Task Order revised to indicate additional samples were received on
11/10/17, which have been grouped with SDG 623256, located in Task Order # 171113-2, SRR 60737.
SDG is CLOSED.
```

Documents Related to this task order: 231953[COC for SRR 60680], 231954[Paperwork for SRR 60680]

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

Test: ALPHA-U_SWRI
Section: RADCHEM
Holding: 180 days from CED
Alpha Spec Analysis for isotopic Uranium Cnt: 2

System ID	Type	Cont	Matrix	Customer ID	CED	Method Date
623256		2-UISO	Water	B3F4X1	29 Oct 17	27 Apr 18
623257		1	Water	B3F5C5	30 Oct 17	28 Apr 18

Test: DIG-C14
Section: RADPREP
Holding: 180 days from CED
Digestion for C14 Cnt: 2

System ID	Type	Cont	Matrix	Customer ID	CED	Method Date
623261		5-C14	Water	B3F9N9	29 Oct 17	27 Apr 18
623262		5-C14	Water	B3F9P0	29 Oct 17	27 Apr 18

010024

Southwest Research Institute

Laboratory Task Order

TO #: 171031-3 Revision: 3

Project(s): 20859.01.00X
Manager(s): SPIES, RADONNA
To Client: 11/29/17

SDG: 623256
VTSR: 10/31/17
SAF: S18-011

SRR #'s: 60680
Client(s): CH2M Hill Plateau Remediation Company

Test: DIG-PRECIP-U
Section: RADPREP
Holding: 180 days from CED
Digestion for U with Precip
Cnt: 2

System ID	Type	Cont	Matrix	Customer ID	CED	Method Date
623256		2-UISO	Water	B3F4X1	29 Oct 17	27 Apr 18
623257		1	Water	B3F5C5	30 Oct 17	28 Apr 18

Test: GAMMA-SWRI
Section: RADCHEM
Holding: 180 days from CED
Gamma Spec Analysis
Cnt: 3

System ID	Type	Cont	Matrix	Customer ID	CED	Method Date
623259		1	Water	B3F8J3	30 Oct 17	28 Apr 18
623259		2	Water	B3F8J3	30 Oct 17	28 Apr 18
623259		3	Water	B3F8J3	30 Oct 17	28 Apr 18
623259		4	Water	B3F8J3	30 Oct 17	28 Apr 18
623261		1-GAMMA	Water	B3F9N9	29 Oct 17	27 Apr 18
623261		2-GAMMA	Water	B3F9N9	29 Oct 17	27 Apr 18
623261		3-GAMMA	Water	B3F9N9	29 Oct 17	27 Apr 18
623261		4-GAMMA	Water	B3F9N9	29 Oct 17	27 Apr 18
623262		1-GAMMA	Water	B3F9P0	29 Oct 17	27 Apr 18
623262		2-GAMMA	Water	B3F9P0	29 Oct 17	27 Apr 18
623262		3-GAMMA	Water	B3F9P0	29 Oct 17	27 Apr 18
623262		4-GAMMA	Water	B3F9P0	29 Oct 17	27 Apr 18

Test: GPC-Sr90_905.0
Section: RADCHEM
Holding: 180 days from CED
Strontium-90 by gas flow proportional counting EPA 905.0
Cnt: 3

System ID	Type	Cont	Matrix	Customer ID	CED	Method Date
623256		1-SRISO	Water	B3F4X1	29 Oct 17	27 Apr 18
623258		1	Water	B3F624	29 Oct 17	27 Apr 18
623260		1	Water	B3F989	29 Oct 17	27 Apr 18

Test: LSC-C14_SWRI
Section: RADCHEM
Holding: 180 days from CED
Carbon-14 by liquid scintillation counting
Cnt: 2

System ID	Type	Cont	Matrix	Customer ID	CED	Method Date
623261		5-C14	Water	B3F9N9	29 Oct 17	27 Apr 18
623262		5-C14	Water	B3F9P0	29 Oct 17	27 Apr 18

Test: SEP-Sr90
Section: RADPREP
Holding: 180 days from CED
Separation for Sr90
Cnt: 3

System ID	Type	Cont	Matrix	Customer ID	CED	Method Date
623256		1-SRISO	Water	B3F4X1	29 Oct 17	27 Apr 18
623258		1	Water	B3F624	29 Oct 17	27 Apr 18
623260		1	Water	B3F989	29 Oct 17	27 Apr 18

Test: SEP-U
Section: RADPREP
Holding: 180 days from CED
Separation for U
Cnt: 2

System ID	Type	Cont	Matrix	Customer ID	CED	Method Date
623256		2-UISO	Water	B3F4X1	29 Oct 17	27 Apr 18

010025

Southwest Research Institute

Laboratory Task Order

TO #: 171031-3 Revision: 3

Project(s): 20859.01.00X
Manager(s): SPIES, RADONNA
To Client: 11/29/17

SDG: 623256
VTSR: 10/31/17
SAF: S18-011

SRR #'s: 60680
Client(s): CH2M Hill Plateau Remediation Company

System ID	Type	Cont	Matrix	Customer ID	CED	Method Date
623257		1	Water	B3F5C5	30 Oct 17	28 Apr 18

010026

Southwest Research Institute

Laboratory Task Order

TO #: 171101-4 Revision: 2

Project(s): 20859.01.00X
Manager(s): SPIES, RADONNA
To Client: 11/29/17

SDG: 623256
VTSR: 11/01/17
SAF: S18-011

SRR #'s: 60687
Client(s): CH2M Hill Plateau Remediation Company

Instructions

CH2MHill Plateau Remediation Company. 300071
SAF No. S18-011

SDG 623256 is open until 11/14/17

GROUPED _ with samples in SDG 623256, located in Task Order # 171031-3, SRR 60680.

30-day TAT.
CURRENTLY, FINAL DATA/HARDCOPY IS DUE TO THE CLIENT ON 11/30/2017.

2 overall samples (6 containers) were received on 11/01/2017, are listed here.

Sample Analysis REQUIRED
UISO_IE_PRECIP_AEA: COMMON
U-233/234 Uranium-233/234, U-235/236 Uranium-235, U-238 Uranium-238
GAMMA_GS: COMMON
Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155
GAMMA_GS: GW 01
Antimony-125, Cesium-134, Potassium-40

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 11/08/17: Task Order revised to indicate additional samples were received on 11/08/17, which have been grouped with SDG 623256, located in Task Order # 171108-5, SRR 60727.
REVISION 2, DRmz 11/13/17: Task Order revised to indicate additional samples were received on 11/10/17, which have been grouped with SDG 623256, located in Task Order # 171113-2, SRR 60737.
SDG is CLOSED.

Documents Related to this task order: 232014[COC for SRR 60687], 232015[Paperwork for SRR 60687]

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

Test: ALPHA-U_SWRI
Section: RADCHEM
Holding: 180 days from CED
Alpha Spec Analysis for isotopic Uranium
Cnt: 2

System ID	Type	Cont	Matrix	Customer ID	CED	Method Date
623316		1	Water	B3F6M3	30 Oct 17	28 Apr 18
623317		1-UISO	Water	B3F8H3	30 Oct 17	28 Apr 18

Test: DIG-PRECIP-U
Section: RADPREP
Holding: 180 days from CED
Digestion for U with Precip
Cnt: 2

System ID	Type	Cont	Matrix	Customer ID	CED	Method Date
623316		1	Water	B3F6M3	30 Oct 17	28 Apr 18
623317		1-UISO	Water	B3F8H3	30 Oct 17	28 Apr 18

Test: GAMMA-SWRI
Section: RADCHEM
Holding: 180 days from CED
Gamma Spec Analysis
Cnt: 1

System ID	Type	Cont	Matrix	Customer ID	CED	Method Date
623317		2-GAMMA	Water	B3F8H3	30 Oct 17	28 Apr 18

010027

Southwest Research Institute

Laboratory Task Order

TO #: 171101-4 Revision: 2

Project(s): 20859.01.00X
Manager(s): SPIES, RADONNA
To Client: 11/29/17

SDG: 623256
VTSR: 11/01/17
SAF: S18-011

SRR #'s: 60687
Client(s): CH2M Hill Plateau Remediation Company

System ID	Type	Cont	Matrix	Customer ID	CED	Method Date
623317		3-GAMMA	Water	B3F8H3	30 Oct 17	28 Apr 18
623317		4-GAMMA	Water	B3F8H3	30 Oct 17	28 Apr 18
623317		5-GAMMA	Water	B3F8H3	30 Oct 17	28 Apr 18

Test: SEP-U
Section: RADPREP

Holding: 180 days from CED

Separation for U

Cnt: 2

System ID	Type	Cont	Matrix	Customer ID	CED	Method Date
623316		1	Water	B3F6M3	30 Oct 17	28 Apr 18
623317		1-UISO	Water	B3F8H3	30 Oct 17	28 Apr 18

010028

Southwest Research Institute

Laboratory Task Order

TO #: 171108-5 Revision: 1

Project(s): 20859.01.00X
Manager(s): SPIES, RADONNA
To Client: 11/29/17

SDG: 623256
VTSR: 11/08/17
SAF: S18-011

SRR #'s: 60727
Client(s): CH2M Hill Plateau Remediation Company

Instructions

CH2MHill Plateau Remediation Company. 300071
SAF No. S18-011

SDG 623256 is open until 11/14/17

GROUPED _ with samples in SDG 623256, located in Task Order # 171031-3, SRR 60680; Task Order # 171101-4, SRR 60687.

30-day TAT.
CURRENTLY, FINAL DATA/HARDCOPY IS DUE TO THE CLIENT ON 11/30/2017.

12 overall samples (12 containers) were received on 11/08/2017.
OUT of the 12 samples, ONLY the 4 samples that require RAD, are 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 11/13/17: Task Order revised to indicate additional samples were received on 11/10/17, which have been grouped with SDG 623256, located in Task Order # 171113-2, SRR 60737. SDG is CLOSED.

Documents Related to this task order: 232458[COC for SRR 60727], 232459[Paperwork for SRR 60727]

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: 4

System ID	Type	Cont	Matrix	Customer ID	CED	Method Date
623537		1	Water	B3F659	06 Nov 17	05 May 18
623538		1	Water	B3F990	02 Nov 17	01 May 18
623539		1	Water	B3F999	02 Nov 17	01 May 18
623540		1	Water	B3F9B5	03 Nov 17	02 May 18

Test: SEP-Sr90
Section: RADPREP
Holding: 180 days from CED
Separation for Sr90
Cnt: 4

System ID	Type	Cont	Matrix	Customer ID	CED	Method Date
623537		1	Water	B3F659	06 Nov 17	05 May 18
623538		1	Water	B3F990	02 Nov 17	01 May 18
623539		1	Water	B3F999	02 Nov 17	01 May 18
623540		1	Water	B3F9B5	03 Nov 17	02 May 18

010029

Southwest Research Institute

Laboratory Task Order

TO #: 171113-2 Revision: 0

Project(s): 20859.01.00X
Manager(s): SPIES, RADONNA
To Client: 11/29/17

SDG: 623256
VTSR: 11/10/17
SAF: I18-001

SRR #'s: 60737
Client(s): CH2M Hill Plateau Remediation Company

Instructions

CH2MHill Plateau Remediation Company. 300071
SAF No. I18-001

SDG 623256 is open until 11/14/17

GROUPED _ with samples in SDG 623256, located in Task Order # 171031-3, SRR 60680; Task Order # 171101-4, SRR 60687; Task Order # 171108-5, SRR 60727.

30-day TAT.
CURRENTLY, FINAL DATA/HARDCOPY IS DUE TO THE CLIENT ON 11/30/2017.

21 overall samples (21 containers) were received on 11/10/2017.
OUT of the 21 samples, ONLY 6 samples that require RAD, are listed here.

Sample Analysis REQUIRED
SRISO_SEP_PRECIP_GPC: COMMON
Strontium-90
PUISO_IE_PRECIP_AEA
13981-16-3 Plutonium-238, PU-239/240 Plutonium-239/240

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

Documents Related to this task order: 232619[COC for SRR 60737], 232620[Paperwork for SRR 60737]

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

Test: ALPHA-PU_SWRI
Section: RADCHEM
Holding: 180 days from CED
Alpha Spec Analysis for isotopic Plutonium
Cnt: 3

System ID	Type	Cont	Matrix	Customer ID	CED	Method Date
623613		1	Water	B3DCY2	07 Nov 17	06 May 18
623614		1	Water	B3DCY3	07 Nov 17	06 May 18
623615		1	Water	B3DCY4	07 Nov 17	06 May 18

Test: DIG-PRECIP-Pu
Section: RADPREP
Holding: 180 days from CED
Digestion for Pu with Precip
Cnt: 3

System ID	Type	Cont	Matrix	Customer ID	CED	Method Date
623613		1	Water	B3DCY2	07 Nov 17	06 May 18
623614		1	Water	B3DCY3	07 Nov 17	06 May 18
623615		1	Water	B3DCY4	07 Nov 17	06 May 18

Test: GPC-Sr90_905.0
Section: RADCHEM
Holding: 180 days from CED
Strontium-90 by gas flow proportional counting EPA 905.0
Cnt: 3

System ID	Type	Cont	Matrix	Customer ID	CED	Method Date
623616		1	Water	B3DCY5	07 Nov 17	06 May 18

010030

Southwest Research Institute

Laboratory Task Order

TO #: 171113-2 Revision: 0

Project(s): 20859.01.00X
Manager(s): SPIES, RADONNA
To Client: 11/29/17

SDG: 623256
VTSR: 11/10/17
SAF: I18-001

SRR #'s: 60737
Client(s): CH2M Hill Plateau Remediation Company

System ID	Type	Cont	Matrix	Customer ID	CED	Method Date
623617		1	Water	B3DCY6	07 Nov 17	06 May 18
623618		1	Water	B3DCY7	07 Nov 17	06 May 18

Test: SEP-Pu
Section: RADPREP

Holding: 180 days from CED

Separation for Pu

Cnt: 3

System ID	Type	Cont	Matrix	Customer ID	CED	Method Date
623613		1	Water	B3DCY2	07 Nov 17	06 May 18
623614		1	Water	B3DCY3	07 Nov 17	06 May 18
623615		1	Water	B3DCY4	07 Nov 17	06 May 18

Test: SEP-Sr90
Section: RADPREP

Holding: 180 days from CED

Separation for Sr90

Cnt: 3

System ID	Type	Cont	Matrix	Customer ID	CED	Method Date
623616		1	Water	B3DCY5	07 Nov 17	06 May 18
623617		1	Water	B3DCY6	07 Nov 17	06 May 18
623618		1	Water	B3DCY7	07 Nov 17	06 May 18

010031

Sample Receipt

Southwest Research Institute

Sample Receipt Number: 60680

VTSR: 10/31/17

Time: 08:30:00

Project: 20859.01.00X
Case #: S18-011
Client: CH2M Hill Plateau Remediation Company

Manager: SPIES, RADONNA
Logged in by: DXGARCIA
Creation Date: 10/31/17

Notes

Samples were received intact- 1.9°C (wet ice)

Fed Ex Tracking #(s):
7705 8454 5527

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

Ice Chest No.:
GWS-392

Test requirements located on the applicable Task Order.

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

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

System ID	Customer ID	CED	Matrix	Containers	Special Reqs.
623256	B3F4X1	10/29/17	Water	2	
623257	B3F5C5	10/30/17	Water	1	
623258	B3F624	10/29/17	Water	1	
623259	B3F8J3	10/30/17	Water	4	
623260	B3F989	10/29/17	Water	1	
623261	B3F9N9	10/29/17	Water	5	
623262	B3F9P0	10/29/17	Water	5	
623263	B3FDD8	10/29/17	Water	1	

Containers: 20 **Samples: 8**

These documents are associated with this receipt: 231953[COC for SRR 60680], 231954[Paperwork for SRR 60680]

Thermometer: 021056
Temperature: 1.9

60680 CH2M Hill Plateau Remediatio

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010032

Sample Receipt

Southwest Research Institute

Sample Receipt Number: 60687

VTSR: 11/01/17

Time: 08:30:00

Project: 20859.01.00X
Case #: S18-011
Client: CH2M Hill Plateau Remediation Company

Manager: SPIES, RADONNA
Logged in by: DXGARCIA
Creation Date: 11/01/17

Notes

Samples were received intact- 20.4°C (no ice)

Fed Ex Tracking #(s):
7706 3110 2224

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

Ice Chest No.:
GWS-689

Test requirements located on the applicable Task Order.

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

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

System ID	Customer ID	CED	Matrix	Containers	Special Reqs.
623316	B3F6M3	10/30/17	Water	1	
623317	B3F8H3	10/30/17	Water	5	

Containers: 6 **Samples:** 2

These documents are associated with this receipt: 232014[COC for SRR 60687], 232015[Paperwork for SRR 60687]

Thermometer: 021056
Temperature: 20.4

60687 CH2M Hill Plateau Remediatio

010033

Sample Receipt

Southwest Research Institute

Sample Receipt Number: 60727

VTSR: 11/08/17

Time: 08:45:00

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

Manager: SPIES, RADONNA
Logged in by: DXGARCIA
Creation Date: 11/08/17

60727 CH2M Hill Plateau Remediatio

Notes

Samples were received intact- 0.9°C (wet ice)

Fed Ex Tracking #(s):
7706 8769 3523

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

pH Test Paper 0.0- 13.0
Lot - 230016
Exp: 10/30/2019

Ice Chest No:
GWS-393

Test requirements located on the applicable Task Order.

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

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

System ID	Customer ID	CED	Matrix	Containers	Special Reqs.
623536	B3DJT0	11/06/17	Water	1	
623537	B3F659	11/06/17	Water	1	
623538	B3F990	11/02/17	Water	1	
623539	B3F999	11/02/17	Water	1	
623540	B3F9B5	11/03/17	Water	1	
623541	B3F9H1	11/06/17	Water	1	
623542	B3F9H2	11/06/17	Water	1	
623543	B3F9H3	11/06/17	Water	1	
623544	B3F9H4	11/06/17	Water	1	
623545	B3F9J6	11/06/17	Water	1	
623546	B3F9J7	11/06/17	Water	1	
623547	B3F9K4	11/06/17	Water	1	

Containers: 12 **Samples: 12**

These documents are associated with this receipt: 232458[COC for SRR 60727], 232459[Paperwork for SRR 60727]

Thermometer: 021056
Temperature: 0.9

010034

Sample Receipt

Southwest Research Institute

Sample Receipt Number: 60737
Revision: 1

VTSR: 11/10/17

Time: 09:25:00

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

This Receipt was Revised 11/13/2017

Manager: SPIES, RADONNA
Logged in by: DXGARCIA
Creation Date: 11/10/17

60737 CH2M Hill Plateau Remediatio

Notes

Samples were received intact - 1.9°C (wet ice)

Fed Ex Tracking #(s):
7707 0085 9204

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

pH Test Paper 0.0- 13.0
Lot - 230016
Exp: 10/30/2019

Ice Chest No:
GWS-678

Test requirements located on the applicable Task Order.

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

REVISION 1, DRmz 11/13/17: SRR revised to correct the client ID on Lab System 623618 from B3DCX7 to B3DCY7.

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

System ID	Customer ID	CED	Matrix	Containers	Special Reqs.
623600	B3DCW9	11/07/17	Water	1	
623601	B3DCX0	11/07/17	Water	1	
623602	B3DCX1	11/07/17	Water	1	
623603	B3DCX2	11/07/17	Water	1	
623604	B3DCX3	11/07/17	Water	1	
623605	B3DCX4	11/07/17	Water	1	
623606	B3DCX5	11/07/17	Water	1	
623607	B3DCX6	11/07/17	Water	1	
623608	B3DCX7	11/07/17	Water	1	
623609	B3DCX8	11/07/17	Water	1	
623610	B3DCX9	11/07/17	Water	1	
623611	B3DCY0	11/07/17	Water	1	
623612	B3DCY1	11/07/17	Water	1	
623613	B3DCY2	11/07/17	Water	1	
623614	B3DCY3	11/07/17	Water	1	
623615	B3DCY4	11/07/17	Water	1	
623616	B3DCY5	11/07/17	Water	1	
623617	B3DCY6	11/07/17	Water	1	
623618	B3DCY7	11/07/17	Water	1	
623619	B3FDJ4	11/07/17	Water	1	
623620	B3FDJ8	11/07/17	Water	1	

Containers: 21 **Samples: 21**

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ver: (4/10/2017)

010035

Sample Receipt

Southwest Research Institute

Sample Receipt Number: 60737
Revision: 1

This Receipt was Revised 11/13/2017

VTSR: 11/10/17

Time: 09:25:00

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

Manager: SPIES, RADONNA
Logged in by: DXGARCIA
Creation Date: 11/10/17

These documents are associated with this receipt: 232619[COC for SRR 60737], 232620[Paperwork for SRR 60737]

Thermometer: 021056
Temperature: 1.9

60737 CH2M Hill Plateau Remediatio

010036

Southwest Research Institute
Traffic Report

Sample Custodian Signature: David Gann

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

Client: CH2M Hill Plateau Remediation Company
Project: 20859.01.00X
Case: S18-011 / SDG: See T.O.
Sample Receipt: 60680
Airbill: 7706 2042 8155

Custody Seal #(s): N/A

Date Received	Time Received	COC Record	SMO Sample #	Corresponding		Traffic Rpt, Tags, COC Agree	Sample Condition
				Sample Tag #	SwRI #		
10/31/17	08:30:00	S18-011-412	B3F4X1	N/A	623256	YES	Intact
10/31/17	08:30:00	S18-011-028	B3F5C5	N/A	623257	YES	Intact
10/31/17	08:30:00	S18-011-403	B3F624	N/A	623258	YES	Intact
10/31/17	08:30:00	S18-011-549	B3F8J3	N/A	623259	YES	Intact
10/31/17	08:30:00	S18-011-698	B3F989	N/A	623260	YES	Intact
10/31/17	08:30:00	S18-011-764	B3F9N9	N/A	623261	YES	Intact
10/31/17	08:30:00	S18-011-765	B3F9P0	N/A	623262	YES	Intact
10/31/17	08:30:00	S18-011-882	B3FDD8	N/A	623263	YES	Intact

010037

Southwest Research Institute
Traffic Report

Sample Custodian Signature: David Garcia

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

Client: CH2M Hill Plateau Remediation Company
Project: 20859.01.00X
Case: S18-011 / SDG: See T.O.
Sample Receipt: 60687
Airbill: 7706 3110 2224

Custody Seal #(s): N/A

Date Received	Time Received	COC Record	SMO Sample #	Corresponding		Traffic Rpt, Tags, COC Agree	Sample Condition
				Sample Tag #	SwRI #		
11/01/17	08:30:00	S18-011-035	B3F6M3	N/A	623316	YES	Intact
11/01/17	08:30:00	S18-011-739	B3F8H3	N/A	623317	YES	Intact

010038

Southwest Research Institute
Traffic Report

Sample Custodian Signature: David Garcia

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

Client: CH2M Hill Plateau Remediation Company
Project: 20859.01.00X
Case: CHPRC / SDG: See T.O.
Sample Receipt: 60727
Airbill: 7706 8769 3523

Custody Seal #(s): N/A

Date Received	Time Received	COC Record	SMO Sample #	Corresponding		Traffic Rpt, Tags, COC Agree	Sample Condition
				Sample Tag #	SwRI #		
11/08/17	08:45:00	W18-011-253	B3DJT0	N/A	623536	YES	Intact
11/08/17	08:45:00	S18-011-721	B3F659	N/A	623537	YES	Intact
11/08/17	08:45:00	S18-011-699	B3F990	N/A	623538	YES	Intact
11/08/17	08:45:00	S18-011-710	B3F999	N/A	623539	YES	Intact
11/08/17	08:45:00	S18-011-719	B3F9B5	N/A	623540	YES	Intact
11/08/17	08:45:00	W18-011-239	B3F9H1	N/A	623541	YES	Intact
11/08/17	08:45:00	W18-011-239	B3F9H2	N/A	623542	YES	Intact
11/08/17	08:45:00	W18-011-240	B3F9H3	N/A	623543	YES	Intact
11/08/17	08:45:00	W18-011-240	B3F9H4	N/A	623544	YES	Intact
11/08/17	08:45:00	W18-011-249	B3F9J6	N/A	623545	YES	Intact
11/08/17	08:45:00	W18-011-249	B3F9J7	N/A	623546	YES	Intact
11/08/17	08:45:00	W18-011-253	B3F9K4	N/A	623547	YES	Intact

010039

Southwest Research Institute
Traffic Report

Sample Custodian Signature: DRmz for Rev 1

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: 60737
Airbill: 7707 0085 9204

Custody Seal #(s): N/A

Date Received	Time Received	COC Record	SMO Sample #	Corresponding		Traffic Rpt, Tags, COC Agree	Sample Condition
				Sample Tag #	SwRI #		
11/10/17	09:25:00	I18-001-040	B3DCW9	N/A	623600	YES	Intact
11/10/17	09:25:00	I18-001-041	B3DCX0	N/A	623601	YES	Intact
11/10/17	09:25:00	I18-001-042	B3DCX1	N/A	623602	YES	Intact
11/10/17	09:25:00	I18-001-043	B3DCX2	N/A	623603	YES	Intact
11/10/17	09:25:00	I18-001-043	B3DCX3	N/A	623604	YES	Intact
11/10/17	09:25:00	I18-001-043	B3DCX4	N/A	623605	YES	Intact
11/10/17	09:25:00	I18-001-043	B3DCX5	N/A	623606	YES	Intact
11/10/17	09:25:00	I18-001-044	B3DCX6	N/A	623607	YES	Intact
11/10/17	09:25:00	I18-001-045	B3DCX7	N/A	623608	YES	Intact
11/10/17	09:25:00	I18-001-046	B3DCX8	N/A	623609	YES	Intact
11/10/17	09:25:00	I18-001-047	B3DCX9	N/A	623610	YES	Intact
11/10/17	09:25:00	I18-001-048	B3DCY0	N/A	623611	YES	Intact
11/10/17	09:25:00	I18-001-049	B3DCY1	N/A	623612	YES	Intact
11/10/17	09:25:00	I18-001-050	B3DCY2	N/A	623613	YES	Intact
11/10/17	09:25:00	I18-001-051	B3DCY3	N/A	623614	YES	Intact
11/10/17	09:25:00	I18-001-052	B3DCY4	N/A	623615	YES	Intact
11/10/17	09:25:00	I18-001-053	B3DCY5	N/A	623616	YES	Intact
11/10/17	09:25:00	I18-001-054	B3DCY6	N/A	623617	YES	Intact
11/10/17	09:25:00	I18-001-055	B3DCY7	N/A	623618	YES	Intact
11/10/17	09:25:00	S18-011-907	B3FDJ4	N/A	623619	YES	Intact
11/10/17	09:25:00	S18-011-913	B3FDJ8	N/A	623620	YES	Intact

010040

SAMPLE LOG-IN SHEET

Lab Name: Southwest Research Institute	Page 1 of 1
Received By (Print Name): DAVID GARCIA	Log-in Date: 10/31/2017
Received By (Signature): David Garcia	
Case Number: S18-011	Sample Delivery Group No.: N/A
SAS Number: N/A	

Remarks: 20859.01.00X

1. Custody Seal(s): Present/Absent* Intact/Broken
2. Custody Seal Nos.: N/A
3. Chain-of Custody Records: Present/Absent*
4. Traffic Reports or Packing Lists: Present/Absent*
5. Airbill: Airbill/Sticker Present/Absent*
6. Airbill No.: 7706 2042 8155 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: 1.9C
10. Does Information on custody records, traffic reports, and sample tags agree? Yes/No*
11. Date Received at Lab: 10/31/2017
12. Time Received: 08:30:00

EPA Sample #	Corresponding Sample Tag #	Corresponding Assigned Lab #	Remarks: Condition of Sample Shipment, etc
B3F4X1	N/A	623256	Intact
B3F5C5	N/A	623257	Intact
B3F624	N/A	623258	Intact
B3F8J3	N/A	623259	Intact
B3F989	N/A	623260	Intact
B3F9N9	N/A	623261	Intact
B3F9P0	N/A	623262	Intact
B3FDD8	N/A	623263	Intact

Sample Transfer

Fraction: ORG.	Fraction
Area #: R-40	Area #
By: DAVID GARCIA	By
On: 10/31/2017	On

* Contact SMO and attach record of resolution

Reviewed By: Stat Cagnell	Logbook No.: Sample Receipt (60680)
Date: 10.31.17	Logbook Page No.: 9990 See 1,2 of 2

FORM DC-1 OLMO4.2

010041

SAMPLE LOG-IN SHEET

Lab Name: Southwest Research Institute	Page 1 of 1
Received By (Print Name): DAVID GARCIA	Log-in Date: 11/01/2017
Received By (Signature): [signature] for David Garcia	
Case Number: S18-011	Sample Delivery Group No.: SEE TO
SAS Number: N/A	

Remarks: 20859.01.00X

1.	Custody Seal(s)	Present/Absent* Intact/Broken
2.	Custody Seal Nos.	N/A
3.	Chain-of Custody Records	Present/Absent*
4.	Traffic Reports or Packing Lists	Present/Absent*
5.	Airbill	Airbill/Sticker Present/Absent*
6.	Airbill No.	7706 3110 2224
7.	Sample Tags	Present/Absent
	Sample Tag Numbers	Listed/Not listed on Chain of Custody N/A
8.	Sample Condition	Intact/Broken*/Leaking
9.	Cooler Temperature	20.4C
10.	Does Information on custody records, traffic reports, and sample tags agree?	Yes/No*
11.	Date Received at Lab	11/01/2017
12.	Time Received	08:30:00

EPA Sample #	Corresponding Sample Tag #	Corresponding Assigned Lab #	Remarks: Condition of Sample Shipment, etc
B3F6M3	N/A	623316	Intact
B3F8H3	N/A	623317	Intact

Sample Transfer

Fraction: ORG	Fraction
Area #: R-40	Area #
By: DAVID GARCIA	By
On: 11/01/2017	On

* Contact SMO and attach record of resolution

Reviewed By	[signature]	Logbook No.	Sample Receipt (60687)
Date	12.29.17	Logbook Page No.	9991

FORM DC-1

OLMO4.2

010042

SAMPLE LOG-IN SHEET

Lab Name: Southwest Research Institute	Page 1 of 1
Received By (Print Name): DAVID GARCIA	Log-in Date: 11/08/2017
Received By (Signature): David Garcia	
Case Number: CHPRC	Sample Delivery Group No.: N/A
SAS Number: N/A	

Remarks: 20859.01.00X

1.	Custody Seal(s)	Present/Absent* Intact/Broken
2.	Custody Seal Nos.	N/A
3.	Chain-of Custody Records	Present/Absent*
4.	Traffic Reports or Packing Lists	Present/Absent*
5.	Airbill	Airbill/Sticker Present/Absent*
6.	Airbill No.	7706 8769 3523
7.	Sample Tags	Present/Absent* N/A
	Sample Tag Numbers	Listed/Not listed on Chain of Custody
8.	Sample Condition	Intact/Broken*/ ~~Leaking~~
9.	Cooler Temperature	0.9C
10.	Does Information on custody records, traffic reports, and sample tags agree?	Yes/No*
11.	Date Received at Lab	11/08/2017
12.	Time Received	08:45:00

EPA Sample #	Corresponding Sample Tag #	Corresponding Assigned Lab #	Remarks: Condition of Sample Shipment, etc
B3DJT0	N/A	623536	Intact
B3F659	N/A	623537	Intact
B3F990	N/A	623538	Intact
B3F999	N/A	623539	Intact
B3F9B5	N/A	623540	Intact
B3F9H1	N/A	623541	Intact
B3F9H2	N/A	623542	Intact
B3F9H3	N/A	623543	Intact
B3F9H4	N/A	623544	Intact
B3F9J6	N/A	623545	Intact
B3F9J7	N/A	623546	Intact
B3F9K4	N/A	623547	Intact

Sample Transfer

Fraction: INORG	Fraction
Area #: D.13	Area #
By: DAVID GARCIA	By
On: 11/08/2017	On

* Contact SMO and attach record of resolution

Reviewed By: [signature]	Logbook No.: Sample Receipt (60727)
Date: 11.8.17	Logbook Page No.: 9998 Sec 1, 2 of 2

FORM DC-1 OLMO4.2

010043

SAMPLE LOG-IN SHEET

Lab Name: Southwest Research Institute	Page 1 of 1
Received By (Print Name): DAVID GARCIA	Log-in Date: 11/10/2017
Received By (Signature): DRuiz for Rev 1	
Case Number: CHPRC	Sample Delivery Group No.: SEE TO
	SAS Number: n/A

Remarks: 20859.01.00X

1. Custody Seal(s): Present/Absent* Intact/Broken
2. Custody Seal Nos.: N/A
3. Chain-of Custody Records: Present/Absent*
4. Traffic Reports or Packing Lists: Present/Absent*
5. Airbill: Airbill/Sticker Present/Absent*
6. Airbill No.: 7707 0085 9204
7. Sample Tags: Present/Absent* n/A
   Sample Tag Numbers: Listed/Not listed on Chain of Custody
8. Sample Condition: Intact/Broken*/Leaking
9. Cooler Temperature: 1.9C
10. Does Information on custody records, traffic reports, and sample tags agree?: Yes/No*
11. Date Received at Lab: 11/10/2017
12. Time Received: 09:25:00

EPA Sample #	Corresponding Sample Tag #	Corresponding Assigned Lab #	Remarks: Condition of Sample Shipment, etc
B3DCW9	N/A	623600	Intact
B3DCX0	N/A	623601	Intact
B3DCX1	N/A	623602	Intact
B3DCX2	N/A	623603	Intact
B3DCX3	N/A	623604	Intact
B3DCX4	N/A	623605	Intact
B3DCX5	N/A	623606	Intact
B3DCX6	N/A	623607	Intact
B3DCX7	N/A	623608	Intact
B3DCX8	N/A	623609	Intact
B3DCX9	N/A	623610	Intact
B3DCY0	N/A	623611	Intact
B3DCY1	N/A	623612	Intact
B3DCY2	N/A	623613	Intact
B3DCY3	N/A	623614	Intact
B3DCY4	N/A	623615	Intact
B3DCY5	N/A	623616	Intact
B3DCY6	N/A	623617	Intact
B3DCY7	N/A	623618	Intact
B3FDJ4	N/A	623619	Intact
B3FDJ8	N/A	623620	Intact

Sample Transfer

Fraction: Inorg	Fraction:
Area #: R13	Area #:
By: DAVID GARCIA	By:
On: 11/10/2017	On:

* Contact SMO and attach record of resolution

Reviewed By: [signature]	Logbook No.: Sample Receipt (60737)
Date: 11.13.17	Logbook Page No.: 10000 SEC 1 of 2

FORM DC-1 OLMO4.2

010044

SOUTHWEST RESEARCH INSTITUTE
CLIENT: CH2M Hill Plateau Remediation Company
SwRI PROJECT#: 20859.01.00X
SwRI TASK ORDER: 171031-3, 171101-4, 171108-5, 171113-2
SwRI SRR: 60680, 60687, 60727, 60737
SDG: 623256
VTSR: 10.31.2017, 11.1.2017, 11.8.2017, 11.10.2017

pH Report

SwRI

pH Preservation Report

010045

Sample Receipt: 60680

Customer: CH2M Hill Plateau Remediation

Project: 20859.01.00X

Case: S18-011

Received: 10/31/2017

Samples Logged in by: DXGARCIA

				Login			Lab				
SwRI #	Customer ID	Container ID	Initial pH	Adjustment	Final pH	Paper Lot	Adjustment	Final pH	Paper lot	Adjusted	Lab Staff ID
623256 1	B3F4X1	SRISO	<2								
623256 2	B3F4X1	UISO	<2								
623257 1	B3F5C5		<2								
623258 1	B3F624		<2								
623259 1	B3F8J3		<2								
623259 2	B3F8J3		<2								
623259 3	B3F8J3		<2								
623259 4	B3F8J3		<2								
623260 1	B3F989		<2								
623261 1	B3F9N9	GAMMA	<2								
623261 2	B3F9N9	GAMMA	<2								
623261 3	B3F9N9	GAMMA	<2								
623261 4	B3F9N9	GAMMA	<2								
623261 5	B3F9N9	C14									
623262 1	B3F9P0	GAMMA	<2								
623262 2	B3F9P0	GAMMA	<2								
623262 3	B3F9P0	GAMMA	<2								
623262 4	B3F9P0	GAMMA	<2								
623262 5	B3F9P0	C14									
623263 1	B3FDD8		>=12								

SwRI

pH Preservation Report

010046

Sample Receipt: 60687

Customer: CH2M Hill Plateau Remediation

Project: 20859.01.00X

Case: S18-011

Received: 11/01/2017

Samples Logged in by: DXGARCIA

				Login			Lab				
SwRI #	Customer ID	Container ID	Initial pH	Adjustment	Final pH	Paper Lot	Adjustment	Final pH	Paper lot	Adjusted	Lab Staff ID
623316 1	B3F6M3		<2								
623317 1	B3F8H3	UISO	<2								
623317 2	B3F8H3	GAMMA	<2								
623317 3	B3F8H3	GAMMA	<2								
623317 4	B3F8H3	GAMMA	<2								
623317 5	B3F8H3	GAMMA	<2								

SwRI

pH Preservation Report

010047

Sample Receipt: 60727

Customer: CH2M Hill Plateau Remediation

Project: 20859.01.00X

Case: CHPRC

Received: 11/08/2017

Samples Logged in by: DXGARCIA

				Login			Lab				
SwRI #	Customer ID	Container ID	Initial pH	Adjustment	Final pH	Paper Lot	Adjustment	Final pH	Paper lot	Adjusted	Lab Staff ID
623536 1	B3DJT0		>=12								
623537 1	B3F659		<2								
623538 1	B3F990		<2								
623539 1	B3F999		<2								
623540 1	B3F9B5		<2								
623541 1	B3F9H1		>=12								
623542 1	B3F9H2		>=12								
623543 1	B3F9H3		>=12								
623544 1	B3F9H4		>=12								
623545 1	B3F9J6		>=12								
623546 1	B3F9J7		>=12								
623547 1	B3F9K4		>=12								

SwRI

pH Preservation Report

010048

Sample Receipt: 60737

Customer: CH2M Hill Plateau Remediation

Project: 20859.01.00X

Case: CHPRC

Received: 11/10/2017

Samples Logged in by: DXGARCIA

				Login			Lab				
SwRI #	Customer ID	Container ID	Initial pH	Adjustment	Final pH	Paper Lot	Adjustment	Final pH	Paper lot	Adjusted	Lab Staff ID
623600 1	B3DCW9										
623601 1	B3DCX0										
623602 1	B3DCX1										
623603 1	B3DCX2		<2								
623604 1	B3DCX3		<2								
623605 1	B3DCX4		<2								
623606 1	B3DCX5		<2								
623607 1	B3DCX6		<2								
623608 1	B3DCX7		<2								
623609 1	B3DCX8		<2								
623610 1	B3DCX9										
623611 1	B3DCY0										
623612 1	B3DCY1										
623613 1	B3DCY2		<2								
623614 1	B3DCY3		<2								
623615 1	B3DCY4		<2								
623616 1	B3DCY5		<2								
623617 1	B3DCY6		<2								
623618 1	B3DCY7		<2								
623619 1	B3FDJ4		>=12								
623620 1	B3FDJ8		>=12								

010049

SOUTHWEST RESEARCH INSTITUTE
CLIENT: CH2M Hill Plateau Remediation Company
SwRI PROJECT#: 20859.01.00X
SwRI TASK ORDER: 171031-3, 171101-4, 171108-5, 171113-2
SwRI SRR: 60680, 60687, 60727, 60737
SDG: 623256
VTSR: 10.31.2017, 11.1.2017, 11.8.2017, 11.10.2017

Radchem Analyses
Case Narrative

010050

CLIENT: CH2M Hill Plateau Remediation Company
SDG: 623256
SwRI Project Number: 20859.01.00X
SwRI Sample Receipt Number: 60680, 60687, 60727, 60737
Page#: 1

SwRI CASE NARRATIVE

1. Nineteen (19) samples were received for Various Radchem Analyses:

SwRI ID	Customer ID	Matrix
623256	B3F4X1	Water
623257	B3F5C5	Water
623258	B3F624	Water
623259	B3F8J3	Water
623260	B3F989	Water
623261	B3F9N9	Water
623262	B3F9P0	Water
623316	B3F6M3	Water
623317	B3F8H3	Water
623537	B3F659	Water
623538	B3F990	Water
623539	B3F999	Water
623540	B3F9B5	Water
623613	B3DCY2	Water
623614	B3DCY3	Water
623615	B3DCY4	Water
623616	B3DCY5	Water
623617	B3DCY6	Water
623618	B3DCY7	Water

Client: CH2M Hill Plateau Remediation
SDG: 623256
SwRI Project Number: 20859.01.00X
SwRI Task Order Number: 171031-3, 171101-4, 171108-5, 171113-2

RADIOLOGICAL ANALYSIS

The sample SDG 623256 consisted of 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.

The samples were analyzed for the following:

Matrix	Analysis	Method
Water	Gamma Spectroscopy	Gamma Spectroscopy
Water	Total Radioactive Strontium	Gas Proportional Counting
Water	^{238}Plutonium, $^{239/240}$Plutonium	Alpha Spectroscopy
Water	$^{233/234}$U, $^{235/236}$U, ^{238}Uranium	Alpha Spectroscopy
Water	^{14}Carbon	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 calculated mass of the $^{235/236}$Uranium is an estimate. The specific activity of ^{235}Uranium was used to calculate the mass of the $^{235/236}$Uranium.

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.

^{238}Plutonium, $^{239/240}$Plutonium Preparation

A 100ml aliquot of the samples was used for plutonium analysis. The actinides were collected by precipitating the sample aliquot with diammonium hydrogen phosphate and calcium nitrate. The precipitates were brought to dryness and then nitrated once using nitric acid. The precipitates were then brought to a final volume of 10ml using a 3M nitric acid / 1M aluminum nitrate solution and filtered. A preparation blank, laboratory control sample, and a duplicate were prepared with the sample batch. Tracers and spikes were added prior to the precipitation of the samples.

Client: CH2M Hill Plateau Remediation
SDG: 623256
SwRI Project Number: 20859.01.00X
SwRI Task Order Number: 171031-3, 171101-4, 171108-5, 171113-2

$^{233/234}$Uranium, $^{235/236}$Uranium, ^{238}Uranium Preparation

A 100ml aliquot of each sample was used for uranium analysis. The actinides were collected by precipitating the sample aliquot with diammonium hydrogen phosphate and calcium nitrate. The precipitates were brought to dryness and then nitrated once using nitric acid. The precipitates were then brought to a final volume of 10ml using a 3M nitric acid / 1M aluminum nitrate solution and filtered. A preparation blank, laboratory control sample, and a duplicate were prepared with the sample batch. Tracers and spikes were added prior to the precipitation of the samples.

^{14}C Sample Preparation and Distillation

A 100ml aliquot of each sample was used for ^{14}Carbon analysis. A preparation blank, laboratory control sample, duplicate, and matrix spike were prepared with the sample batch. The samples were distilled in 500ml round bottom flasks with potassium permanganate and sulfuric acid. The resultant gas was scrubbed through a dilute sulfuric acid solution and collected in 10 milliliters of Carbosorb. Spikes were added prior to the distillation of the samples.

Gamma Spectroscopy

The daily gamma calibration blanks and check standards were within control limits. The gamma detector monthly background was within date.

For gamma spectroscopy, 2000ml of each sample was evaporated down to 500ml and counted in 500ml Marinelli beakers for one hour using a geometry that encompasses the detector. An empty 500ml Marinelli beaker was used for the preparation blank and the laboratory control sample was a calibrated source in a 500ml Marinelli beaker.

No analytes were detected in the preparation blank above the MDA with the exception of ^{154}Eu. ^{154}Eu was considered "non-detected." The non-detected blank results are from key-line analysis of the non-detected isotopes. The LCS results were within 80-120% recovery for the spiked analytes. SwRI laboratory sample ID 623259 was analyzed in duplicate and the RPDs were greater than 20% for all of the analytes. The activities for ^{40}K, ^{60}Co, ^{125}Sb, ^{134}Cs, ^{137}Cs, ^{152}Eu, ^{154}Eu, and ^{155}Eu for both the sample and the duplicate were less than five times their respective MDAs.

Client: CH2M Hill Plateau Remediation
SDG: 623256
SwRI Project Number: 20859.01.00X
SwRI Task Order Number: 171031-3, 171101-4, 171108-5, 171113-2

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.

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 623256 was analyzed in duplicate and the RPD was greater than 20%. The activities for both the sample and the duplicate were less than five times their respective MDA.

Alpha Spectroscopy (Pu, U)

For all alpha analysis, daily pulser checks were within control limits. The weekly secondary or monthly primary calibration check standards were within date and control limits. The monthly alpha detector background was within date.

^{238}Plutonium, $^{239/240}$Plutonium

^{242}Plutonium was used as a tracer to follow chemical separation efficiency and losses. All tracer FWHM were within the control limits of 100keV. All reported results for the tracers were within the control limits of 30-105%. The results for the preparation blank for both ^{238}Pu and $^{239/240}$Pu were less than the MDA and the RL. The result for the laboratory control sample for $^{239/240}$Pu was within the control limits of 80-120% recovery. SwRI sample ID 623615 was analyzed as a duplicate and the RPD for $^{239/240}$Pu was less than 20%, but the RPD for ^{238}Pu was greater than 20%. The activities of ^{238}Pu for both the sample and duplicate were less than five times their respective MDA.

Client: CH2M Hill Plateau Remediation
SDG: 623256
SwRI Project Number: 20859.01.00X
SwRI Task Order Number: 171031-3, 171101-4, 171108-5, 171113-2

$^{233/234}$Uranium, $^{235/236}$Uranium, ^{238}Uranium

^{232}Uranium was used as a tracer to follow chemical separation efficiency and losses. All tracer FWHM were within the control limits of 100keV. All results for the tracers were within the control limits of 30-110%. The preparation blank results for $^{233/234}$Uranium, $^{235/236}$Uranium, and ^{238}Uranium were less than the MDA and the RL. The results for the laboratory control sample were within the control limits of 80-120% recovery. SwRI sample ID 623256 was analyzed in duplicate and the RPD was less than 20% for $^{233/234}$Uranium. The RPD for $^{235/236}$Uranium and ^{238}Uranium were greater than 20%; however, both the sample and duplicate had activities less than five times their respective MDA for $^{235/236}$Uranium. The activities of both the sample and duplicate for ^{238}Uranium were greater than five times their respective MDA. The data was reviewed for accuracy in accordance with the out of limit RPD for ^{238}Uranium.

Liquid Scintillation Counting (^{14}C)

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.

^{14}Carbon

For all liquid scintillation analysis, the daily instrument performance checks were within the running statistical control limits.

The samples were counted on a liquid scintillation counter programmed to count only the ^{14}Carbon region of interest. Two backgrounds and two calibration standards were counted with the samples under constant quench conditions.

The preparation blank result was less than the MDA and the RL. The result for the laboratory control sample was outside the recovery control limits of 80-120%. A SIR was generated for the out of limit laboratory control sample. SwRI laboratory sample ID 623261 was analyzed in duplicate and the RPD was greater than 20%; however, both the sample and duplicate had activities less than five times their respective MDA. SwRI sample ID 623261 was also analyzed as a matrix spike. The matrix spike had a recovery within the control limits of 75-125%.

Note: Due to slight chemical differences between the ^{14}C calibration standards and the ^{14}C samples, the tSIEs (quench units) were greater than 10% in difference.

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Client: CH2M Hill Plateau Remediation
SDG: 623256
SwRI Project Number: 20859.01.00X
SwRI Task Order Number: 171031-3, 171101-4, 171108-5, 171113-2

"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."

Warren A. Naegeli
Research Scientist

12/28/17
Date

010056

SOUTHWEST RESEARCH INSTITUTE
CLIENT: CH2M Hill Plateau Remediation Company
SwRI PROJECT#: 20859.01.00X
SwRI TASK ORDER: 171031-3, 171101-4, 171108-5, 171113-2
SwRI SRR: 60680, 60687, 60727, 60737
SDG: 623256
VTSR: 10.31.2017, 11.1.2017, 11.8.2017, 11.10.2017

Sample Issue Resolution
SIR18-0155

010057

SAMPLE ISSUE RESOLUTION (SIR) REPORT

SIR Number: SIR18-0155
Rev. Number: 0
Date Initiated: 11/27/2017

SAMPLE EVENT INFORMATION

SAF NUM(S): S18-011, X18-006

LABORATORY: SWRI

SAMPLING INFORMATION

NUMBER OF SAMPLES: 3

SAMPLE NUMBERS: B3F9N9, B3F9P0, B3F9P9

SAMPLE MATRIX: WATER

SDG NUM(S): SWRI622456, SWRI623256

ISSUE BACKGROUND

CLASS: Laboratory Issue

TYPE: Quality Control Failure

DESCRIPTION: The LCS had a recovery of 65.3% for the carbon-14 analysis. The LCS limit is 80-120%. The Method Blank, Dup, and MS met criteria for both QC samples. Sample concentrations hovered above and below the MDA but all of them were less than the RL.

RESOLUTION

PROPOSED RESOLUTION: Initiate SIR, report results with 'o' flag and include comments in the case narrative.

FINAL RESOLUTION: Accept proposed resolution.

SUBMITTED BY:

SPIES, R — 11/22/2017

ACCEPTED BY:

NAGEL, SE — 11/27/2017

010058

SOUTHWEST RESEARCH INSTITUTE
CLIENT: CH2M Hill Plateau Remediation Company
SwRI PROJECT#: 20859.01.00X
SwRI TASK ORDER: 171031-3, 171101-4, 171108-5, 171113-2
SwRI SRR: 60680, 60687, 60727, 60737
SDG: 623256
VTSR: 10.31.2017, 11.1.2017, 11.8.2017, 11.10.2017

Radchem Analyses

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SOUTHWEST RESEARCH INSTITUTE
CLIENT: CH2M Hill Plateau Remediation Company
SwRI PROJECT#: 20859.01.00X
SwRI TASK ORDER: 171031-3, 171101-4, 171108-5, 171113-2
SwRI SRR: 60680, 60687, 60727, 60737
SDG: 623256
VTSR: 10.31.2017, 11.1.2017, 11.8.2017, 11.10.2017

Radchem Analyses
Sample Results

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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 #: 60680

Date Received: 10/31/17

SDG: 623256

Task Order #: 171031-3

SAF #: S18-011

CARBON-14								
Sample ID	Lab System ID	Analyte	Results (pCi/L)	Q	TPU (2s) (pCi/L)	MDA (pCi/L)	Counting Error (2s)	Date Analyzed
Prep Blank	pbwL13sd1	^{14}C	3.15E+00	U	1.20E+01	1.03E+01	6.19E+00	11/19/17
Lab Control	lcswL13sd1	^{14}C	3.34E+03		4.27E+02	1.03E+01	3.67E+01	11/19/17
True Value	-----	^{14}C	5.10E+03		-----	-----	-----	-----
Recovery	-----	^{14}C	65.3%		-----	-----	-----	-----
B3F9N9	623261	^{14}C	8.38E+00	U	1.28E+01	1.03E+01	6.35E+00	11/19/17
Duplicate result	623261D	^{14}C	4.03E+00	U	1.21E+01	1.03E+01	6.22E+00	11/19/17
RPD	-----	^{14}C	70.1%		-----	-----	-----	-----
Spike result	623261MS	^{14}C	4.71E+03		5.92E+02	1.03E+01	4.34E+01	11/19/17
True Value	-----	^{14}C	5.10E+03		-----	-----	-----	-----
Recovery	-----	^{14}C	92.1%		-----	-----	-----	-----
B3F9P0	623262	^{14}C	3.38E+00	U	1.20E+01	1.03E+01	6.20E+00	11/19/17

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

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SOUTHWEST RESEARCH INSTITUTE

ALPHA SPECTROMETRY ANALYSIS DATA SHEET

Lab Name: Southwest Research Institute

Client: CH2M Hill Plateau Remediation

Lab Code: SwRI

Project No.: 20859.01.00X

Matrix: Water

SRR #: 60737

Date Received: 11/10/17

SDG: 623256

Task Order #: 171113-2

SAF #: I18-001

PLUTONIUM-238, 239/240									
Sample ID	Lab System ID	Analyte	Results (pCi/L)	Q	TPU (2s) (pCi/L)	MDA (pCi/L)	Counting Error (2s)	^{242}Pu Tracer Rec.	Date Analyzed
Prep Blank	pbwL20sm1	^{238}Pu	-5.15E-02	U	1.26E-01	4.16E-01	1.26E-01	80.2%	11/27/17
	pbwL20sm1	$^{239/240}$Pu	-2.58E-02	U	7.30E-02	2.47E-01	7.29E-02	80.2%	11/27/17
Lab Control	lcswL20sm1	^{238}Pu	2.87E-02	U	1.52E-01	4.12E-01	1.52E-01	73.7%	11/27/17
	lcswL20sm1	$^{239/240}$Pu	1.08E+01		1.75E+00	2.19E-01	1.12E+00	73.7%	11/27/17
True Value	-----	^{238}Pu	-----		-----	-----	-----	-----	-----
	-----	$^{239/240}$Pu	1.00E+01		-----	-----	-----	-----	-----
Recovery	-----	^{238}Pu	-----		-----	-----	-----	-----	-----
	-----	$^{239/240}$Pu	108.2%		-----	-----	-----	-----	-----
B3DCY2	623613	^{238}Pu	5.48E-02	U	1.55E-01	3.95E-01	1.55E-01	75.8%	11/27/17
	623613	$^{239/240}$Pu	2.19E+01		3.14E+00	2.63E-01	1.55E+00	75.8%	11/27/17
B3DCY3	623614	^{238}Pu	-4.79E-02	U	1.18E-01	3.87E-01	1.17E-01	87.0%	11/27/17
	623614	$^{239/240}$Pu	2.21E+01		3.10E+00	2.30E-01	1.46E+00	87.0%	11/27/17
B3DCY4	623615	^{238}Pu	0.00E+00	U	1.43E-01	4.09E-01	1.43E-01	77.4%	11/27/17
	623615	$^{239/240}$Pu	2.48E+01		3.46E+00	1.94E-01	1.59E+00	77.4%	11/27/17
Duplicate result	623615D	^{238}Pu	-1.02E-01	U	1.25E-01	4.51E-01	1.25E-01	80.6%	11/27/17
	623615D	$^{239/240}$Pu	2.43E+01		3.40E+00	1.95E-01	1.57E+00	80.6%	11/27/17
RPD	-----	^{238}Pu	200%		-----	-----	-----	-----	-----
	-----	$^{239/240}$Pu	2.0%		-----	-----	-----	-----	-----

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

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SOUTHWEST RESEARCH INSTITUTE

ALPHA SPECTROMETRY ANALYSIS DATA SHEET

Lab Name: Southwest Research Institute

Client: CH2M Hill Plateau Remediation

Lab Code: SwRI

Project No.: 20859.01.00X

Matrix: Water

SRR #: 60680, 60687

Date Received: 10/31/17, 11/01/17

SDG: 623256

Task Order #: 171031-3, 171101-4

SAF #: S18-011

URANIUM-233/234, 235/236, 238									
Sample ID	Lab System ID	Analyte	Results (pCi/L)	Q	TPU (2s) (pCi/L)	MDA (pCi/L)	Counting Error (2s)	^{232}U Tracer Rec.	Date Analyzed
Prep Blank	pbwL20sm2	$^{233/234}U$	2.22E-02	U	6.28E-02	1.70E-01	6.27E-02	95.2%	12/04/17
	pbwL20sm2	$^{235/236}U$	2.76E-02	U	7.81E-02	2.11E-01	7.80E-02	95.2%	12/04/17
	pbwL20sm2	^{238}U	-4.43E-02	U	7.70E-02	2.73E-01	7.68E-02	95.2%	12/04/17
Lab Control	lcswL20sm2	$^{233/234}U$	1.04E+01		1.67E+00	2.19E-01	9.78E-01	90.5%	12/04/17
	lcswL20sm2	$^{235/236}U$	4.26E-01		2.41E-01	2.72E-01	2.34E-01	90.5%	12/04/17
	lcswL20sm2	^{238}U	9.41E+00		1.53E+00	1.75E-01	9.28E-01	90.5%	12/04/17
True Value	-----	$^{233/234}U$	1.01E+01		-----	-----	-----	-----	-----
	-----	$^{235/236}U$	-----		-----	-----	-----	-----	-----
	-----	^{238}U	1.00E+01		-----	-----	-----	-----	-----
Recovery	-----	$^{233/234}U$	103.4%		-----	-----	-----	-----	-----
	-----	$^{235/236}U$	-----		-----	-----	-----	-----	-----
	-----	^{238}U	94.0%		-----	-----	-----	-----	-----
B3F4X1	623256	$^{233/234}U$	1.47E+00		4.13E-01	1.73E-01	3.67E-01	92.8%	12/04/17
	623256	$^{235/236}U$	5.62E-02	U	9.75E-02	2.15E-01	9.73E-02	92.8%	12/04/17
	623256	^{238}U	9.71E-01		3.25E-01	1.73E-01	2.99E-01	92.8%	12/04/17
Duplicate result	623256D	$^{233/234}U$	1.51E+00		4.29E-01	2.23E-01	3.81E-01	85.6%	12/04/17
	623256D	$^{235/236}U$	2.03E-01	U	1.66E-01	2.22E-01	1.64E-01	85.6%	12/04/17
	623256D	^{238}U	1.28E+00		3.86E-01	1.78E-01	3.49E-01	85.6%	12/04/17
RPD	-----	$^{233/234}U$	3.1%		-----	-----	-----	-----	-----
	-----	$^{235/236}U$	113.2%		-----	-----	-----	-----	-----
	-----	^{238}U	27.6%		-----	-----	-----	-----	-----
B3F5C5	623257	$^{233/234}U$	1.64E+00		4.55E-01	2.30E-01	4.03E-01	84.7%	12/04/17
	623257	$^{235/236}U$	1.20E-01	U	1.47E-01	2.87E-01	1.47E-01	84.7%	12/04/17
	623257	^{238}U	1.15E+00		3.78E-01	2.96E-01	3.47E-01	84.7%	12/04/17
B3F6M3	623316	$^{233/234}U$	9.26E-01		3.30E-01	2.85E-01	3.07E-01	89.2%	12/04/17
	623316	$^{235/236}U$	5.76E-02	U	1.00E-01	2.20E-01	9.98E-02	89.2%	12/04/17
	623316	^{238}U	9.03E-01		3.15E-01	1.77E-01	2.93E-01	89.2%	12/04/17
B3F8H3	623317	$^{233/234}U$	5.68E+00		1.02E+00	2.13E-01	7.14E-01	94.8%	12/04/17
	623317	$^{235/236}U$	1.16E+00		3.93E-01	2.12E-01	3.63E-01	94.8%	12/04/17
	623317	^{238}U	5.06E+00		9.38E-01	1.70E-01	6.73E-01	94.8%	12/04/17

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

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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 #: 60680, 60727, 60737

Date Received: 10/31/17, 11/08/17, 11/10/17

SDG: 623256

Task Order #: 171031-3, 171108-5, 171113-2

SAF #: S18-011, I18-001

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	pbwL20sm3	^{90}Sr	1.50E-01	U	6.79E-01	1.27E+00	6.79E-01	98.7%	12/01/17
Lab Control	lcswL20sm3	^{90}Sr	1.34E+02		1.74E+01	1.26E+00	7.95E+00	99.1%	12/01/17
True Value	-----	^{90}Sr	1.51E+02		-----	-----	-----	-----	-----
Recovery	-----	^{90}Sr	89.3%		-----	-----	-----	-----	-----
B3F4X1	623256	^{90}Sr	-1.85E-01	U	5.68E-01	1.27E+00	5.68E-01	98.5%	12/01/17
Duplicate result	623256D	^{90}Sr	-1.81E-01	U	5.55E-01	1.24E+00	5.55E-01	100.8%	12/02/17
RPD	-----	^{90}Sr	*2.6%*		-----	-----	-----	-----	-----
B3F624	623258	^{90}Sr	-4.35E-02	U	5.97E-01	1.22E+00	5.97E-01	102.1%	12/02/17
B3F989	623260	^{90}Sr	2.22E-02	U	6.33E-01	1.27E+00	6.33E-01	98.8%	12/02/17
B3F659	623537	^{90}Sr	-4.42E-02	U	6.09E-01	1.25E+00	6.09E-01	100.0%	12/02/17
B3F990	623538	^{90}Sr	-2.60E-01	U	5.19E-01	1.24E+00	5.18E-01	101.1%	12/02/17
B3F999	623539	^{90}Sr	2.92E-01	U	7.41E-01	1.28E+00	7.40E-01	98.0%	12/02/17
B3F9B5	623540	^{90}Sr	-6.75E-02	U	6.02E-01	1.23E+00	6.02E-01	101.2%	12/02/17
B3DCY5	623616	^{90}Sr	1.94E+01		3.85E+00	1.28E+00	3.13E+00	97.7%	12/02/17
B3DCY6	623617	^{90}Sr	1.65E+01		3.46E+00	1.28E+00	2.89E+00	97.8%	12/02/17
B3DCY7	623618	^{90}Sr	1.86E+01		3.70E+00	1.23E+00	3.01E+00	101.4%	12/02/17

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

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SOUTHWEST RESEARCH INSTITUTE

SAMPLE ANALYSIS DATA SHEET

Lab Name: Southwest Research Institute

Client: CH2M Hill Plateau Remediation

Lab Code: SwRI

Project No.: 20859.01.00X

Matrix: Water

SRR #: 60680

Date Received: 10/31/17

SDG: 623256

Task Order #: 171031-3

SAF #: S18-011

GAMMA SPECTROMETRY

Sample ID	Lab System ID	Analyte	Results (pCi/L)	Q	TPU (2s) (pCi/L)	MDA (pCi/L)	Counting Error (2s)	Date Analyzed
B3F8J3	623259	^{40}K *	5.27E+01	U	4.58E+01	1.35E+02	4.58E+01	12/08/17
	623259	^{60}Co *	4.27E+00	U	3.97E+00	1.20E+01	3.97E+00	12/08/17
	623259	^{125}Sb *	-2.69E+00	U	1.14E+01	2.86E+01	1.14E+01	12/08/17
	623259	^{134}Cs *	-7.01E-01	U	4.60E+00	1.13E+01	4.60E+00	12/08/17
	623259	^{137}Cs *	-2.11E+00	U	4.33E+00	1.04E+01	4.33E+00	12/08/17
	623259	^{152}Eu *	3.96E+00	U	1.96E+01	2.96E+01	1.96E+01	12/08/17
	623259	^{154}Eu *	9.70E+00	U	2.64E+01	2.08E+01	2.64E+01	12/08/17
	623259	^{155}Eu *	-5.42E+00	U	1.28E+01	3.31E+01	1.28E+01	12/08/17

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

* - Isotope considered not-identified. Activity and TPU are taken from the isotopic Key-line.

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SOUTHWEST RESEARCH INSTITUTE

DUPLICATE SUMMARY

Lab Name: Southwest Research Institute

Client: CH2M Hill Plateau Remediation

Lab Code: SwRI

Project No.: 20859.01.00X

Matrix: Water

SRR #: 60680

Date Received: 10/31/17

SDG: 623256

Task Order #: 171031-3

SAF #: S18-011

GAMMA SPECTROMETRY

Sample ID	Lab System ID	Analyte	Results (pCi/L)	Q	TPU (2s) (pCi/L)	MDA (pCi/L)	Counting Error (2s)	RPD	Date Analyzed
B3F8J3	623259D	^{40}K *	-5.97E+00	U	4.11E+01	9.87E+01	4.11E+01	251%	12/08/17
	623259D	^{60}Co *	3.38E+00	U	4.01E+00	1.16E+01	4.01E+00	23.4%	12/08/17
	623259D	^{125}Sb *	1.11E+01	U	1.22E+01	3.27E+01	1.22E+01	329%	12/08/17
	623259D	^{134}Cs *	-1.52E+00	U	3.75E+00	9.06E+00	3.75E+00	74.0%	12/08/17
	623259D	^{137}Cs *	-1.01E+00	U	4.92E+00	1.21E+01	4.92E+00	70.3%	12/08/17
	623259D	^{152}Eu *	-1.49E+00	U	2.18E+01	2.69E+01	2.18E+01	440%	12/08/17
	623259D	^{154}Eu *	-1.11E+01	U	2.03E+01	2.08E+01	2.03E+01	2882%	12/08/17
	623259D	^{155}Eu *	-1.35E+01	U	1.31E+01	3.33E+01	1.31E+01	85.3%	12/08/17

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

* - Isotope considered not-identified. Activity and TPU are taken from the isotopic Key-line.

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010066

SOUTHWEST RESEARCH INSTITUTE

SAMPLE ANALYSIS DATA SHEET

Lab Name: Southwest Research Institute

Client: CH2M Hill Plateau Remediation

Lab Code: SwRI

Project No.: 20859.01.00X

Matrix: Water

SRR #: 60680

Date Received: 10/31/17

SDG: 623256

Task Order #: 171031-3

SAF #: S18-011

GAMMA SPECTROMETRY

Sample ID	Lab System ID	Analyte	Results (pCi/L)	Q	TPU (2s) (pCi/L)	MDA (pCi/L)	Counting Error (2s)	Date Analyzed
B3F9N9	623261	^{40}K *	1.29E+01	U	4.65E+01	1.20E+02	4.65E+01	12/08/17
	623261	^{60}Co *	-2.68E+00	U	4.74E+00	8.81E+00	4.74E+00	12/08/17
	623261	^{125}Sb *	4.73E+00	U	7.50E+00	2.08E+01	7.50E+00	12/08/17
	623261	^{134}Cs *	1.78E+00	U	3.49E+00	9.28E+00	3.49E+00	12/08/17
	623261	^{137}Cs *	2.89E+00	U	3.22E+00	9.23E+00	3.22E+00	12/08/17
	623261	^{152}Eu *	3.96E+00	U	1.44E+01	1.31E+01	1.44E+01	12/08/17
	623261	^{154}Eu *	1.34E+01		2.22E+01	9.35E+00	2.22E+01	12/08/17
	623261	^{155}Eu *	-3.67E+00	U	4.82E+00	1.24E+01	4.82E+00	12/08/17

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SOUTHWEST RESEARCH INSTITUTE

SAMPLE ANALYSIS DATA SHEET

Lab Name: Southwest Research Institute

Client: CH2M Hill Plateau Remediation

Lab Code: SwRI

Project No.: 20859.01.00X

Matrix: Water

SRR #: 60680

Date Received: 10/31/17

SDG: 623256

Task Order #: 171031-3

SAF #: S18-011

GAMMA SPECTROMETRY

Sample ID	Lab System ID	Analyte	Results (pCi/L)	Q	TPU (2s) (pCi/L)	MDA (pCi/L)	Counting Error (2s)	Date Analyzed
B3F9P0	623262	^{40}K *	3.18E+01	U	3.50E+01	1.06E+02	3.50E+01	12/09/17
	623262	^{60}Co *	-3.28E+00	U	4.24E+00	8.45E+00	4.24E+00	12/09/17
	623262	^{125}Sb *	4.53E+00	U	7.86E+00	2.16E+01	7.86E+00	12/09/17
	623262	^{134}Cs *	-3.16E+00	U	3.53E+00	8.06E+00	3.53E+00	12/09/17
	623262	^{137}Cs *	1.27E+00	U	3.44E+00	9.23E+00	3.44E+00	12/09/17
	623262	^{152}Eu *	4.95E+00	U	1.74E+01	1.27E+01	1.74E+01	12/09/17
	623262	^{154}Eu *	1.96E+01		2.05E+01	8.79E+00	2.05E+01	12/09/17
	623262	^{155}Eu *	-7.78E+00	U	4.88E+00	1.19E+01	4.88E+00	12/09/17

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

* - Isotope considered not-identified. Activity and TPU are taken from the isotopic Key-line.

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SOUTHWEST RESEARCH INSTITUTE

SAMPLE ANALYSIS DATA SHEET

Lab Name: Southwest Research Institute

Client: CH2M Hill Plateau Remediation

Lab Code: SwRI

Project No.: 20859.01.00X

Matrix: Water

SRR #: 60687

Date Received: 11/01/17

SDG: 623256

Task Order #: 171101-4

SAF #: S18-011

GAMMA SPECTROMETRY

Sample ID	Lab System ID	Analyte	Results (pCi/L)	Q	TPU (2s) (pCi/L)	MDA (pCi/L)	Counting Error (2s)	Date Analyzed
B3F8H3	623317	^{40}K *	3.98E+00	U	3.86E+01	9.87E+01	3.86E+01	12/09/17
	623317	^{60}Co *	1.99E-01	U	3.31E+00	8.59E+00	3.31E+00	12/09/17
	623317	^{125}Sb *	-4.41E+00	U	7.20E+00	1.76E+01	7.20E+00	12/09/17
	623317	^{134}Cs *	1.09E+00	U	3.03E+00	8.05E+00	3.03E+00	12/09/17
	623317	^{137}Cs *	-6.84E-01	U	3.15E+00	7.92E+00	3.15E+00	12/09/17
	623317	^{152}Eu *	4.46E+00	U	1.30E+01	1.41E+01	1.30E+01	12/09/17
	623317	^{154}Eu *	-1.04E+01	U	1.82E+01	9.10E+00	1.82E+01	12/09/17
	623317	^{155}Eu *	-6.05E+00	U	5.16E+00	1.30E+01	5.16E+00	12/09/17

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

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SOUTHWEST RESEARCH INSTITUTE

BLANK SUMMARY

Lab Name: Southwest Research Institute

Client: CH2M Hill Plateau Remediation

Lab Code: SwRI

Project No.: 20859.01.00X

Matrix: Water

SRR #: NA

Date Received: NA

SDG: 623256

Task Order #: 171031-3, 171101-4

GAMMA SPECTROMETRY								
Sample ID	Lab System ID	Analyte	Results (pCi/L)	Q	TPU (2s) (pCi/L)	MDA (pCi/L)	Counting Error (2s)	Date Analyzed
Prep Blank	pbwL20sm5	^{40}K *	5.07E+01	U	4.13E+01	1.26E+02	4.13E+01	12/08/17
	pbwL20sm5	^{60}Co *	1.08E+00	U	3.24E+00	8.97E+00	3.24E+00	12/08/17
	pbwL20sm5	^{125}Sb *	-2.32E+00	U	8.11E+00	2.05E+01	8.11E+00	12/08/17
	pbwL20sm5	^{134}Cs *	1.69E+00	U	3.19E+00	8.57E+00	3.19E+00	12/08/17
	pbwL20sm5	^{137}Cs *	2.93E-01	U	3.30E+00	8.59E+00	3.30E+00	12/08/17
	pbwL20sm5	^{152}Eu *	8.40E+00	U	1.93E+01	1.20E+01	1.93E+01	12/08/17
	pbwL20sm5	^{154}Eu *	1.10E+01		1.89E+01	8.20E+00	1.89E+01	12/08/17
	pbwL20sm5	^{155}Eu *	-4.21E+00	U	4.44E+00	1.13E+01	4.44E+00	12/08/17

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

* - Isotope considered not-identified. Activity and TPU are taken from the isotopic Key-line. NA - Not Applicable

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SOUTHWEST RESEARCH INSTITUTE

LABORATORY CONTROL SAMPLE

Lab Name: Southwest Research Institute

Client: CH2M Hill Plateau Remediation

Lab Code: SwRI

Project No.: 20859.01.00X

Matrix: Water

SRR #: NA

SRR #: NA

SDG: 623256

Task Order #: 171031-3, 171101-4

Date Analyzed: 12/08/17

GAMMA SPECTROMETRY									
Sample ID	Lab System ID	Analyte	Results (pCi/L)	Q	TPU (2s) (pCi/L)	MDA (pCi/L)	Counting Error (2s)	True Value (pCi/L)	% Rec
Lab Control	lcswL20sm6	^{60}Co *	2.16E+05		1.17E+04	5.73E+02	1.48E+03	2.16E+05	100.0%
	lcswL20sm6	^{137}Cs *	1.77E+05		1.19E+04	2.55E+02	5.00E+02	1.71E+05	103.3%
	lcswL20sm6	^{241}Am	7.75E+04		3.22E+03	2.67E+02	2.53E+02	7.70E+04	100.7%

Q - Data Qualifier. MDA - Minimum Detectable Activity. TPU - Total Propagated Uncertainty. NA - Not Applicable

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