SOUTHWEST RESEARCH INSTITUTE®

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CHEMISTRY AND CHEMICAL ENGINEERING DIVISION
DEPARTMENT OF ANALYTICAL AND ENVIRONMENTAL CHEMISTRY

July 17, 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:	W17-006
	SDG Number:	616725
	SwRI Project Number:	20859.01.00X
	SwRI Task Order Number:	170616-9, 170620-7
	SwRI Sample Receipt Number:	59890, 59901
	Samples Received:	06.16.2017, 06.20.2017
	Fraction:	SW846 Method 8290A

Dear Ms. Waters-Husted:

Please find the enclosed results for the eleven (11) overall water samples received on the above referenced date. If you should have any questions, please do not hesitate to contact me at (210) 522-3242, or at radonna.spies@swri.org.

Sincerely,

Radonna Spies
Principal Scientist

APPROVED:

Michael J. Dammann
Director

RPS: jz
Encl

SOUTHWEST RESEARCH INSTITUTE
CLIENT: CH2M Hill Plateau Remediation Company
SwRI PROJECT#: 20859.01.00X
SwRI TASK ORDER: 170616-9, 170620-7
SwRI SRR: 59890, 59901
SDG: 616725
VTSR: 06.16.2017, 06.20.2017

CHAIN-OF-CUSTODY
&
SAMPLE RECEIPT PAPERWORK

Total Page Count: 010001-
Fraction: 8290A Pages: 010055

CH2MHill Plateau Remediation Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # 010002
W17-006-172

Collector	Juan Aguilar /CHPRC	**Contact/Requester**	Karen Waters-Husted	**Telephone No.**	509-376-4650
SAF No.	W17-006	**Sampling Origin**	Hanford Site	**Purchase Order/Charge Code**	300071
Project Title	RCRA, JUNE 2017	**Logbook No.**	HNF-N-506 92/93	**Ice Chest No.**	GOS-428
Shipped To (Lab)	Southwest Research Institute	**Method of Shipment**	Commercial Carrier	**Bill of Lading/Air Bill No.**	7794 1538 1362
Protocol	RCRA	**Priority:**	30 Days **PRIORITY**	**Offsite Property No.**	8051

POSSIBLE SAMPLE HAZARDS/REMARKS

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

SPECIAL INSTRUCTIONS **Hold Time** Total Activity Exemption: Yes ☑ No ☐

N/A

Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B39XN6	N	W	6-15-17	1212	4x1-L aG	8290_DIOXINS_GCMS: COMMON	30/45 Days	Cool <=6C

CHPRC
SRR # 59890

SDG # 616725

SwRI Prjct # 20859.01.00X
TO: 170616-9

SwRI

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Juan Aguilar /CHPRC			JUN 15 2017 1245	Lesly Wall /CHPRC		Lesly Wall	JUN 15 2017 1245
Lesly Wall /CHPRC		Lesly Wall	JUN 15 2017 1400	FEDEX			
FEDEX				DAVID GARCIA		David Garcia	06/16/2017 08:30

Matrix *

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

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

PRINTED ON 5/15/2017 **FSR ID = FSR34761** A-6004-842 (REV 2)

07/17/2017 98 LBS REV.0

CH2MHill Plateau Remediation Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # 010003
W17-006-174

Collector	Juan Aguilar /CHPRC	Contact/Requester	Karen Waters-Husted	Telephone No.	509-376-4650
SAF No.	W17-006	Sampling Origin	Hanford Site	Purchase Order/Charge Code	300071
Project Title	RCRA, JUNE 2017	Logbook No.	HNF-N-506 92 / 93	Ice Chest No.	GWS-588
Shipped To (Lab)	Southwest Research Institute	Method of Shipment	Commercial Carrier	Bill of Lading/Air Bill No.	779413688042
Protocol	RCRA	Priority:	30 Days PRIORITY	Offsite Property No.	8048

POSSIBLE SAMPLE HAZARDS/REMARKS

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

SPECIAL INSTRUCTIONS **Hold Time** Total Activity Exemption: Yes ☑ No ☐

N/A

Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B39XN8	N	W	6-15-17	1103	4x1-L aG	8290_DIOXINS_GCMS: COMMON	30/45 Days	Cool <=6C

CHPRC
SRR # 59890
SDG # 616725

SwRI Prjct # 20859.01.00X
TO: 170616-9

SWRI

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Juan Aguilar /CHPRC			JUN 15 2017 1145	Lesly Wall /CHPRC		Lesly Wall	JUN 15 2017 1145
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Lesly Wall /CHPRC		Lesly Wall	JUN 15 2017 1400	FEDEX			
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
FEDEX				David Garcia	DAVID GARCIA	David Garcia	06-16-2017 08:30
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time

Matrix *

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

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

PRINTED ON 5/15/2017 FSR ID = FSR8642 A-6004-842 (REV 2)

CH2MHill Plateau Remediation Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # 010004
W17-006-176

Collector	Juan Aguilar /CHPRC	**Contact/Requester**	Karen Waters-Husted	**Telephone No.**	509-376-4650
SAF No.	W17-006	**Sampling Origin**	Hanford Site	**Purchase Order/Charge Code**	300071
Project Title	RCRA, JUNE 2017	**Logbook No.**	HNF-N-506 92 / 93	**Ice Chest No.**	GWS-588
Shipped To (Lab)	Southwest Research Institute	**Method of Shipment**	Commercial Carrier	**Bill of Lading/Air Bill No.**	779413688042
Protocol	RCRA	**Priority:**	30 Days **PRIORITY**	**Offsite Property No.**	8048

POSSIBLE SAMPLE HAZARDS/REMARKS

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

SPECIAL INSTRUCTIONS **Hold Time** Total Activity Exemption: Yes ☑ No ☐

N/A

Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B39XP0	N	W	6-15-17	0845	4x1-L aG	8290_DIOXINS_GCMS: COMMON	30/45 Days	Cool <=6C

CHPRC
SRR # 59890

SDG # 616725

SwRI Prjct # 20859.01.00X
TO: 170616-9

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Juan Aguilar /CHPRC			JUN 15 2017 1045	Curt Hoffman CHPRC			JUN 15 2017 1045
Curt Hoffman CHPRC			JUN 15 2017 1400	FEDEX			
FED EX				David Garcia			06-16-2017 08:30

Matrix *

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

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

PRINTED ON 5/23/2017 **FSR ID = FSR25971** A-6004-842 (REV 2)

CH2MHill Plateau Remediation Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # 010005
W17-006-177

Collector	Juan Aguilar /CHPRC	**Contact/Requester**	Karen Waters-Husted	**Telephone No.**	509-376-4650
SAF No.	W17-006	**Sampling Origin**	Hanford Site	**Purchase Order/Charge Code**	300071
Project Title	RCRA, JUNE 2017	**Logbook No.**	HNF-N-506 92/93	**Ice Chest No.**	GWS-588
Shipped To (Lab)	Southwest Research Institute	**Method of Shipment**	Commercial Carrier	**Bill of Lading/Air Bill No.**	779413688042
Protocol	RCRA	**Priority:**	30 Days **PRIORITY**	**Offsite Property No.**	8048

POSSIBLE SAMPLE HAZARDS/REMARKS

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

SPECIAL INSTRUCTIONS **Hold Time** Total Activity Exemption: Yes ☑ No ☐

N/A

Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B39XP1	N	W	6-15-17	0948	4x1-L aG	8290_DIOXINS_GCMS: COMMON	30/45 Days	Cool <=6C

CHPRC
SRR # 59890

SDG # 616725

SwRI Prjct # 20859.01.00X
TO: 170616-9

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Juan Aguilar /CHPRC			JUN 15 2017 1045	Curt Hoffman CHPRC			JUN 15 2017 1045
Curt Hoffman CHPRC			JUN 15 2017 1400			FEDEX	
FED EX				David Garcia	DAVID GARCIA		06-16-2017 05:30

Matrix *

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

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

PRINTED ON 5/15/2017 FSR ID = FSR37529 A-6004-842 (REV 2)

CH2MHill Plateau Remediation Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # 010006
W17-006-178

Collector	Juan Aguilar /CHPRC	**Contact/Requester**	Karen Waters-Husted	**Telephone No.**	509-376-4650
SAF No.	W17-006	**Sampling Origin**	Hanford Site	**Purchase Order/Charge Code**	300071
Project Title	RCRA, JUNE 2017	**Logbook No.**	HNF-N-506 92 / 93	**Ice Chest No.**	GWS-588
Shipped To (Lab)	Southwest Research Institute	**Method of Shipment**	Commercial Carrier	**Bill of Lading/Air Bill No.**	779413688042
Protocol	RCRA	**Priority:**	30 Days **PRIORITY**	**Offsite Property No.**	8048

POSSIBLE SAMPLE HAZARDS/REMARKS

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

SPECIAL INSTRUCTIONS **Hold Time** Total Activity Exemption: Yes ☑ No ☐

N/A

Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B39XP2	N	W	6-15-17	0800	4x1-L aG	8290_DIOXINS_GCMS: COMMON	30/45 Days	Cool <=6C

CHPRC
SRR # 59890

SDG # 616725

SwRI Prjct # 20859.01.00X
TO: 170616-9

SwRI

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Juan Aguilar /CHPRC			JUN 15 2017 0830	Troy Bacon CHPRC		Troy L. Bacon	JUN 15 2017 0830
Troy Bacon CHPRC		Troy L. Bacon	JUN 15 2017 1400	FEDEX			
FED EX				DAVID GARCIA		David Garcia	06-16-2017 0830

Matrix *

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

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

PRINTED ON 5/15/2017 **FSR ID = FSR45132** A-6004-842 (REV 2)

07/17/2017 59lbs REV.0

CH2MHill Plateau Remediation Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # 010007
W17-006-185

Collector	Juan Aguilar /CHPRC	**Contact/Requester**	Karen Waters-Husted	**Telephone No.**	509-376-4650
SAF No.	W17-006	**Sampling Origin**	Hanford Site	**Purchase Order/Charge Code**	300071
Project Title	RCRA, JUNE 2017	**Logbook No.**	HNF-N-506 92 / 93	**Ice Chest No.**	GWS-428
Shipped To (Lab)	Southwest Research Institute	**Method of Shipment**	Commercial Carrier	**Bill of Lading/Air Bill No.**	7794 1538 1362
Protocol	RCRA	**Priority:**	30 Days **PRIORITY**	**Offsite Property No.**	8057

POSSIBLE SAMPLE HAZARDS/REMARKS

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

SPECIAL INSTRUCTIONS **Hold Time** Total Activity Exemption: Yes ☑ No ☐

N/A

Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B39XP9	N	W	6-15-17	1300	4x1-L aG	8290_DIOXINS_GCMS: COMMON	30/45 Days	Cool <=6C

CHPRC
SRR # 59890

SDG # 616725

SwRI Prjct # 20859.01.00X
TO: 170616-9

SwRI

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Juan Aguilar /CHPRC		JUN 1 5 2017	1332	Curt Hoffman CHPRC		JUN 1 5 2017	1332
Curt Hoffman CHPRC		JUN 1 5 2017	1400	FEDEX			
FED EX				David Larson DANZO - 749CZA			06-16-2017 08:30

Matrix *

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

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

PRINTED ON 5/15/2017 **FSR ID = FSR45136** A-6004-842 (REV 2)

CH2MHill Plateau Remediation Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # 010008
W17-006-180
Page 1 of 2 TLB 6-19-17

Collector	Malcom Chunn CHPRC	Contact/Requester	Karen Waters-Husted	Telephone No.	509-376-4650
SAF No.	W17-006	Sampling Origin	Hanford Site	Purchase Order/Charge Code	300071
Project Title	RCRA, JUNE 2017	Logbook No.	HNF-N-506 92 / 94	Ice Chest No.	GWS-587
Shipped To (Lab)	Southwest Research Institute	Method of Shipment	Commercial Carrier	Bill of Lading/Air Bill No.	7794 3564 0557
Protocol	RCRA	Priority:	30 Days PRIORITY	Offsite Property No.	8063

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

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

Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B39XP4	N	W	6-16-17	1131	4x1-L aG	8290_DIOXINS_GCMS: COMMON	30/45 Days	Cool <=6C

CHPRC
SRR # 59901

SDG # 616725

SwRI Prjct # 20859.01.00X
TO: 170620-7

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Malcom Chunn CHPRC	MC		JUN 16 2017 1150	Kevin Patterson CHPRC			JUN 16 2017 1150
Kevin Patterson CHPRC			JUN 16 2017 1220	SSU-1			JUN 16 2017 1220
SSU-1			JUN 19 2017 0800	Troy Bacon CHPRC	Troy L. Bacon		JUN 19 2017 0800
Troy Bacon CHPRC	Troy L. Bacon		JUN 19 2017 1400	FEDEX			

Matrix *

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

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

PRINTED ON 5/15/2017 FSR ID = FSR41880 A-6004-842 (REV 2)

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST (continued)

C.O.C. No. W17-006-180

Page 2 of 2

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
	FED EX				David Garcia	David Garcia	062017 08:30
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
Relinquished By	Print	Sign	Date/Time	Received By			Date/Time
Relinquished By	Print	Sign	Date/Time	Received By			Date/Time

CHPRC
SRR # 59901

SDG # 616725

SwRI Prjct # 20859.01.00X
TO: 170620-7

SwRI

\-6003-962 (03/05)

CH2MHill Plateau Remediation Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # 010010
W17-006-182

Collector	Malcom Chunn CHPRC	Contact/Requester	Karen Waters-Husted	Telephone No.	509-376-4650
SAF No.	W17-006	Sampling Origin	Hanford Site	Purchase Order/Charge Code	300071
Project Title	RCRA, JUNE 2017	Logbook No.	HNF-N-506 92 / 94	Ice Chest No.	GWS-587
Shipped To (Lab)	Southwest Research Institute	Method of Shipment	Commercial Carrier	Bill of Lading/Air Bill No.	7794 3564 0557
Protocol	RCRA	Priority:	30 Days **PRIORITY**	Offsite Property No.	8063

POSSIBLE SAMPLE HAZARDS/REMARKS

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

SPECIAL INSTRUCTIONS **Hold Time** Total Activity Exemption: Yes ☑ No ☐

N/A

Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B39XP6	N	W	6-16-17	1328	4x1-L aG	8290_DIOXINS_GCMS: COMMON	30/45 Days	Cool <=6C

CHPRC
SRR # 59901

SDG # 616725

SwRI Prjct # 20859.01.00X
TO: 170620-7

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Malcom Chunn CHPRC		MRC	JUN 16 2017 1410	SSU-1			JUN 16 2017 1410
SSU-1			JUN 19 2017 0900	Troy Bacon CHPRC		Troy L. Bacon	JUN 19 2017 0800
Troy Bacon CHPRC		Troy L. Bacon	JUN 19 2017 1400	FEDEX			
FED EX				David Garcia		David Garcia	06-20-17 0830

Matrix *

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

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

PRINTED ON 5/15/2017 FSR ID = FSR4424 A-6004-842 (REV 2)

CH2MHill Plateau Remediation Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # 010011
W17-006-183

Collector	Malcom Chunn CHPRC	**Contact/Requester**	Karen Waters-Husted	**Telephone No.**	509-376-4650
SAF No.	W17-006	**Sampling Origin**	Hanford Site	**Purchase Order/Charge Code**	300071
Project Title	RCRA, JUNE 2017	**Logbook No.**	HNF-N-506 92 194	**Ice Chest No.**	GWS-587
Shipped To (Lab)	Southwest Research Institute	**Method of Shipment**	Commercial Carrier	**Bill of Lading/Air Bill No.**	7794 3564 0557
Protocol	RCRA	**Priority:**	30 Days **PRIORITY**	**Offsite Property No.**	8063

POSSIBLE SAMPLE HAZARDS/REMARKS

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

SPECIAL INSTRUCTIONS **Hold Time** Total Activity Exemption: Yes ☑ No ☐

N/A

Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B39XP7	N	W	6-16-17	1232	4x1-L aG	8290_DIOXINS_GCMS: COMMON	30/45 Days	Cool <=6C

CHPRC
SRR # 59901

SDG # 616725

SwRI Prjct # 20859.01.00X
TO: 170620-7

SwRI

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
	Malcom Chunn CHPRC	MC	JUN 16 2017 1410	SSU-1			JUN 16 2017 1410
SSU-1			JUN 19 2017 0800		Troy Bacon CHPRC	Troy L. Bacon	JUN 19 2017 0800
	Troy Bacon CHPRC	Troy L. Bacon	JUN 19 2017 1400	FEDEX			
FED EX				David Garcia		David Garcia	06-20-17 08:30

Matrix *

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

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

PRINTED ON 5/15/2017 **FSR ID = FSR37532** A-6004-842 (REV 2)

07/17/2017 92100 REV.0

CH2MHill Plateau Remediation Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # 010012
W17-006-187

 TCB 6-19-17

Collector	Malcom Chunn CHPRC	Contact/Requester	Karen Waters-Husted	Telephone No.	509-376-4650
SAF No.	W17-006	Sampling Origin	Hanford Site	Purchase Order/Charge Code	300071
Project Title	RCRA, JUNE 2017	Logbook No.	HNF-N-506 92 / 94	Ice Chest No.	GWS- 587
Shipped To (Lab)	Southwest Research Institute	Method of Shipment	Commercial Carrier	Bill of Lading/Air Bill No.	7794 3564 0557
Protocol	RCRA	Priority:	30 Days **PRIORITY**	Offsite Property No.	8063

POSSIBLE SAMPLE HAZARDS/REMARKS

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

SPECIAL INSTRUCTIONS **Hold Time** Total Activity Exemption: Yes ☑ No ☐

N/A

Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B39XR1	N	W	6-16-17	0936	4x1-L aG	8290_DIOXINS_GCMS: COMMON	30/45 Days	Cool <=6C

CHPRC
SRR # 59901

SDG # 616725

SwRI Prjct # 20859.01.00X
TO: 170620-7

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Malcom Chunn CHPRC	MRC		JUN 16 2017 1015	Kevin Patterson CHPRC			JUN 16 2017 1015
Kevin Patterson CHPRC			JUN 16 2017 1045	SSU-1			JUN 16 2017 1045
SSU-1			JUN 19 2017 0800	Troy Bacon CHPRC		Troy L. Bacon	JUN 19 2017 0800
Troy Bacon CHPRC		Troy L. Bacon	JUN 19 2017 1400	FEDEX			

Matrix *

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

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

PRINTED ON 5/15/2017 FSR ID = FSR44756 A-6004-842 (REV 2)

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST (continued)

C.O.C. No. W17-006-187

Page 2 of 2

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
	FED EX				David Garcia	David Garcia	06-20-17 08:30
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
Relinquished By	Print	Sign	Date/Time	Received B			Date/Time
Relinquished By	Print	Sign	Date/Time	Received E			Date/Time

CHPRC
SRR # 59901

SDG # 616725

SwRI Prjct # 20859.01.00X
TO: 170620-7

SwRI

A-6003-962 (03/05)

CH2MHill Plateau Remediation Company

57165

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # 010014
W17-006-189

Collector	Malcom Chunn CHPRC	Contact/Requester	Karen Waters-Husted	Telephone No.	509-376-4650
SAF No.	W17-006	Sampling Origin	Hanford Site	Purchase Order/Charge Code	300071
Project Title	RCRA, JUNE 2017	Logbook No.	HNF-N-506 92/94	Ice Chest No.	GWS-562
Shipped To (Lab)	Southwest Research Institute	Method of Shipment	Commercial Carrier	Bill of Lading/Air Bill No.	7794 3564 0947
Protocol	RCRA	Priority:	30 Days **PRIORITY**	Offsite Property No.	80163

POSSIBLE SAMPLE HAZARDS/REMARKS

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

SPECIAL INSTRUCTIONS **Hold Time** Total Activity Exemption: Yes ☑ No ☐

N/A

Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B39XR3	N	W	6-16-17	0831	4x1-L aG	8290_DIOXINS_GCMS: COMMON	30/45 Days	Cool <=6C

CHPRC
SRR # 59901

SDG # 616725

SwRI Prjct # 20859.01.00X
TO: 170620-7

SwRI

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Malcom Chunn CHPRC	MR	CL	JUN 16 2017 0850	Curt Hoffman CHPRC			JUN 16 2017 0850
SSU-1			JUN 16 2017 0917	Troy Bacon CHPRC	Troy L. Bacon		JUN 19 2017 0800
Troy Bacon CHPRC	Troy L. Bacon		JUN 19 2017 1400	FEDEX			
FED EX				David Garcia	David Garcia		06-20-17 08:30

Matrix *

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

FINAL SAMPLE DISPOSITION

Disposal Method (e.g., Return to customer, per lab procedure, used in process)

Disposed By

Date/Time

PRINTED ON 5/15/2017

FSR ID = FSR35231

A-6004-842 (REV 2)

Southwest Research Institute

Laboratory Task Order

TO #: 170616-9 Revision: 2

Project(s): 20859.01.00X
Manager(s): SPIES, RADONNA
To Client: 07/15/17

SDG: 616725
VTSR: 06/16/17
SAF: W17-006

SRR #'s: 59890
Client(s): CH2M Hill Plateau Remediation Company

Instructions

CH2MHill Plateau Remediation Company. 300071
SAF No. W17-006

SDG 616725 is open until _ 06/30/2017

30-day TAT.
FINAL DATA/HARDCOPY IS DUE TO THE CLIENT ON 07/17/2017.

6 overall samples (24 containers) were received on 06/16/2017, which are ALL listed here.

Sample Analysis REQUIRED
8290_DIOXINS_GCMS

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 06/16/17: Task Order revised to correct the SDG under the Instructions.
REVISION 2, DRmz 06/20/17: Task Order revised to indicate additional samples were received on 06/20/17, which have been grouped with SDG 616725, located in Task Order # 170620-7, SRR 59901.

Documents Related to this task order: 223735[COC for SRR 59890], 223736[Paperwork for SRR 59890]

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

Test: D8290A
Section: DIOXIN

Holding: 45 days from E8290W

ANALYSIS FOR METHOD 8290A

Cnt: 6

System ID	Type	Cont	Matrix	Customer ID	N/A	Method Date
616725		1	Water	B39XN6	10 Jul 17	24 Aug 17
616725		2	Water	B39XN6	10 Jul 17	24 Aug 17
616725		3	Water	B39XN6	10 Jul 17	24 Aug 17
616725		4	Water	B39XN6	10 Jul 17	24 Aug 17
616726		1	Water	B39XN8	10 Jul 17	24 Aug 17
616726		2	Water	B39XN8	10 Jul 17	24 Aug 17
616726		3	Water	B39XN8	10 Jul 17	24 Aug 17
616726		4	Water	B39XN8	10 Jul 17	24 Aug 17
616727		1	Water	B39XP0	10 Jul 17	24 Aug 17
616727		2	Water	B39XP0	10 Jul 17	24 Aug 17
616727		3	Water	B39XP0	10 Jul 17	24 Aug 17
616727		4	Water	B39XP0	10 Jul 17	24 Aug 17
616728		1	Water	B39XP1	10 Jul 17	24 Aug 17
616728		2	Water	B39XP1	10 Jul 17	24 Aug 17
616728		3	Water	B39XP1	10 Jul 17	24 Aug 17
616728		4	Water	B39XP1	10 Jul 17	24 Aug 17
616729		1	Water	B39XP2	10 Jul 17	24 Aug 17
616729		2	Water	B39XP2	10 Jul 17	24 Aug 17
616729		3	Water	B39XP2	10 Jul 17	24 Aug 17
616729		4	Water	B39XP2	10 Jul 17	24 Aug 17

Southwest Research Institute

Laboratory Task Order

TO #: 170616-9 Revision: 2

Project(s): 20859.01.00X
Manager(s): SPIES, RADONNA
To Client: 07/15/17

SDG: 616725
VTSR: 06/16/17
SAF: W17-006

SRR #'s: 59890
Client(s): CH2M Hill Plateau Remediation Company

System ID	Type	Cont	Matrix	Customer ID	N/A	Method Date
616730		1	Water	B39XP9	10 Jul 17	24 Aug 17
616730		2	Water	B39XP9	10 Jul 17	24 Aug 17
616730		3	Water	B39XP9	10 Jul 17	24 Aug 17
616730		4	Water	B39XP9	10 Jul 17	24 Aug 17

Test: E8290W
Section: EXTLAB

Holding: 30 days from CED

EXTRACTION FOR METHOD 8290

Cnt: 6

System ID	Type	Cont	Matrix	Customer ID	CED	Method Date
616725		1	Water	B39XN6	15 Jun 17	15 Jul 17
616725		2	Water	B39XN6	15 Jun 17	15 Jul 17
616725		3	Water	B39XN6	15 Jun 17	15 Jul 17
616725		4	Water	B39XN6	15 Jun 17	15 Jul 17
616726		1	Water	B39XN8	15 Jun 17	15 Jul 17
616726		2	Water	B39XN8	15 Jun 17	15 Jul 17
616726		3	Water	B39XN8	15 Jun 17	15 Jul 17
616726		4	Water	B39XN8	15 Jun 17	15 Jul 17
616727		1	Water	B39XP0	15 Jun 17	15 Jul 17
616727		2	Water	B39XP0	15 Jun 17	15 Jul 17
616727		3	Water	B39XP0	15 Jun 17	15 Jul 17
616727		4	Water	B39XP0	15 Jun 17	15 Jul 17
616728		1	Water	B39XP1	15 Jun 17	15 Jul 17
616728		2	Water	B39XP1	15 Jun 17	15 Jul 17
616728		3	Water	B39XP1	15 Jun 17	15 Jul 17
616728		4	Water	B39XP1	15 Jun 17	15 Jul 17
616729		1	Water	B39XP2	15 Jun 17	15 Jul 17
616729		2	Water	B39XP2	15 Jun 17	15 Jul 17
616729		3	Water	B39XP2	15 Jun 17	15 Jul 17
616729		4	Water	B39XP2	15 Jun 17	15 Jul 17
616730		1	Water	B39XP9	15 Jun 17	15 Jul 17
616730		2	Water	B39XP9	15 Jun 17	15 Jul 17
616730		3	Water	B39XP9	15 Jun 17	15 Jul 17
616730		4	Water	B39XP9	15 Jun 17	15 Jul 17

Southwest Research Institute

Laboratory Task Order

TO #: 170620-7 Revision: 0

Project(s): 20859.01.00X
Manager(s): SPIES, RADONNA
To Client: 07/15/17

SDG: 616725
VTSR: 06/20/17
SAF: W17-006

SRR #'s: 59901
Client(s): CH2M Hill Plateau Remediation Company

Instructions

CH2MHill Plateau Remediation Company. 300071
SAF No. W17-006

SDG 616725 is open until _ 06/30/2017

GROUPED _ with samples in SDG 616725, located in Task Order # 170616-9, SRR 59890.

30-day TAT.
FINAL DATA/HARDCOPY IS DUE TO THE CLIENT ON 07/17/2017.

7 overall samples (23 containers) were received on 06/20/2017.
OUT of the 7 samples, ONLY the 5 samples that require Dioxins, are listed here.

Sample Analysis REQUIRED
8290_DIOXINS_GCMS

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: 223928[COC for SRR 59901], 223929[Paperwork for SRR 59901]

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

Test: D8290A
Section: DIOXIN

Holding: 45 days from E8290W

ANALYSIS FOR METHOD 8290

Cnt: 5

System ID	Type	Cont	Matrix	Customer ID	N/A	Method Date
616797		1	Water	B39XP4	10 Jul 17	24 Aug 17
616797		2	Water	B39XP4	10 Jul 17	24 Aug 17
616797		3	Water	B39XP4	10 Jul 17	24 Aug 17
616797		4	Water	B39XP4	10 Jul 17	24 Aug 17
616798		1	Water	B39XP6	10 Jul 17	24 Aug 17
616798		2	Water	B39XP6	10 Jul 17	24 Aug 17
616798		3	Water	B39XP6	10 Jul 17	24 Aug 17
616798		4	Water	B39XP6	10 Jul 17	24 Aug 17
616799		1	Water	B39XP7	10 Jul 17	24 Aug 17
616799		2	Water	B39XP7	10 Jul 17	24 Aug 17
616799		3	Water	B39XP7	10 Jul 17	24 Aug 17
616799		4	Water	B39XP7	10 Jul 17	24 Aug 17
616800		1	Water	B39XR1	10 Jul 17	24 Aug 17
616800		2	Water	B39XR1	10 Jul 17	24 Aug 17
616800		3	Water	B39XR1	10 Jul 17	24 Aug 17
616800		4	Water	B39XR1	10 Jul 17	24 Aug 17
616801		1	Water	B39XR3	10 Jul 17	24 Aug 17
616801		2	Water	B39XR3	10 Jul 17	24 Aug 17
616801		3	Water	B39XR3	10 Jul 17	24 Aug 17
616801		4	Water	B39XR3	10 Jul 17	24 Aug 17

Southwest Research Institute

Laboratory Task Order

TO #: 170620-7 Revision: 0

Project(s): 20859.01.00X
Manager(s): SPIES, RADONNA
To Client: 07/15/17

SDG: 616725
VTSR: 06/20/17
SAF: W17-006

SRR #'s: 59901
Client(s): CH2M Hill Plateau Remediation Company

Test: E8290W
Section: EXTLAB

Holding: 30 days from CED

EXTRACTION FOR METHOD 8290

Cnt: 5

System ID	Type	Cont	Matrix	Customer ID	CED	Method Date
616797		1	Water	B39XP4	16 Jun 17	16 Jul 17
616797		2	Water	B39XP4	16 Jun 17	16 Jul 17
616797		3	Water	B39XP4	16 Jun 17	16 Jul 17
616797		4	Water	B39XP4	16 Jun 17	16 Jul 17
616798		1	Water	B39XP6	16 Jun 17	16 Jul 17
616798		2	Water	B39XP6	16 Jun 17	16 Jul 17
616798		3	Water	B39XP6	16 Jun 17	16 Jul 17
616798		4	Water	B39XP6	16 Jun 17	16 Jul 17
616799		1	Water	B39XP7	16 Jun 17	16 Jul 17
616799		2	Water	B39XP7	16 Jun 17	16 Jul 17
616799		3	Water	B39XP7	16 Jun 17	16 Jul 17
616799		4	Water	B39XP7	16 Jun 17	16 Jul 17
616800		1	Water	B39XR1	16 Jun 17	16 Jul 17
616800		2	Water	B39XR1	16 Jun 17	16 Jul 17
616800		3	Water	B39XR1	16 Jun 17	16 Jul 17
616800		4	Water	B39XR1	16 Jun 17	16 Jul 17
616801		1	Water	B39XR3	16 Jun 17	16 Jul 17
616801		2	Water	B39XR3	16 Jun 17	16 Jul 17
616801		3	Water	B39XR3	16 Jun 17	16 Jul 17
616801		4	Water	B39XR3	16 Jun 17	16 Jul 17

Sample Receipt

Southwest Research Institute

Sample Receipt Number: 59890
Revision: 1

This Receipt was Revised 06/16/2017

VTSR: 06/16/17

Time: 08:30:00

Project: 20859.01.00X
Case #: W17-006
Client: CH2M Hill Plateau Remediation Company

Manager: SPIES, RADONNA
Logged in by: DXGARCIA
Creation Date: 06/16/17

Notes

Samples were received intact.

Fed Ex Tracking #(s):
7794 1538 1362 - 0.9°C (wet ice)
7794 1368 8042 - 0.9°C (wet ice)

Ice Chest No.:
GWS-428
GWS-588

Test requirements located on the applicable Task Order.

See chain-of-custody as part of the SRR system for more information.
REVISION 1, DRmz 06/16/17: SRR revised to update the temp in the Notes.

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

System ID	Customer ID	CED	Matrix	Containers	Special Reqs.
616725	B39XN6	06/15/17	Water	4	
616726	B39XN8	06/15/17	Water	4	
616727	B39XP0	06/15/17	Water	4	
616728	B39XP1	06/15/17	Water	4	
616729	B39XP2	06/15/17	Water	4	
616730	B39XP9	06/15/17	Water	4	

Containers: 24 **Samples: 6**

These documents are associated with this receipt: 223735[COC for SRR 59890], 223736[Paperwork for SRR 59890]

Thermometer: 021055
Temperature: 0.9

Page Printed: 07/17/2017 11:09
ver: (4/10/2017)

59890 CH2M Hill Plateau Remediatio

Sample Receipt

Southwest Research Institute

Project: 20859.01.00X
Case #: W17-006
Client: CH2M Hill Plateau Remediation Company

Sample Receipt Number: 59901
Revision: 1

This Receipt was Revised 07/17/2017

VTSR: 06/20/17

Time: 08:30:00

Manager: SPIES, RADONNA
Logged in by: DXGARCIA
Creation Date: 06/20/17

Notes

Samples were received intact.

Fed Ex Tracking #(s):
779435640557,779435640947 - 2.0°C (wet ice)

Ice Chest No.:
GWS-562
GWS-587

Test requirements located on the applicable Task Order.

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

REVISION, 1. Corrected thermometer number to 021055.

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

System ID	Customer ID	CED	Matrix	Containers	Special Reqs.
616796	B39XL1	06/16/17	Water	1	
616797	B39XP4	06/16/17	Water	4	
616798	B39XP6	06/16/17	Water	4	
616799	B39XP7	06/16/17	Water	4	
616800	B39XR1	06/16/17	Water	4	
616801	B39XR3	06/16/17	Water	4	
616802	B39YY8	06/16/17	Water	2	

Containers: 23 **Samples: 7**

These documents are associated with this receipt: 223928[COC for SRR 59901], 223929[Paperwork for SRR 59901]

Thermometer: 021055
Temperature: 2.0

59901 CH2M Hill Plateau Remediatio

Southwest Research Institute

Traffic Report

Sample Custodian Signature: David Lanier

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

N/A

Client: CH2M Hill Plateau Remediation Company

Project: 20859.01.00X

Case: W17-006 / SDG: SEE TO

Sample Receipt: 59890

Airbill: 779415381362,779413688042

Custody Seal #(s): N/A

Date Received	Time Received	COC Record	SMO Sample #	Corresponding		Traffic Rpt, Tags, COC Agree	Sample Condition
				Sample Tag #	SwRI #		
06/16/17	08:30:00	W17-006-172	B39XN6	N/A	616725	YES	Intact
06/16/17	08:30:00	W17-006-174	B39XN8	N/A	616726	YES	Intact
06/16/17	08:30:00	W17-006-176	B39XP0	N/A	616727	YES	Intact
06/16/17	08:30:00	W17-006-177	B39XP1	N/A	616728	YES	Intact
06/16/17	08:30:00	W17-006-178	B39XP2	N/A	616729	YES	Intact
06/16/17	08:30:00	W17-006-185	B39XP9	N/A	616730	YES	Intact

Southwest Research Institute

Traffic Report

Sample Custodian Signature: David Rand

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 — Not Present

Client: CH2M Hill Plateau Remediation Company

Project: 20859.01.00X

Case: W17-006 / SDG: SEE T.O.

Sample Receipt: 59901

Airbill: 779435640557,779435640947

Custody Seal #(s): N/A

Date Received	Time Received	COC Record	SMO Sample #	Corresponding		Traffic Rpt, Tags, COC Agree	Sample Condition
				Sample Tag #	SwRI #		
06/20/17	08:30:00	S17-006-581	B39XL1	N/A	616796	YES	Intact
06/20/17	08:30:00	W17-006-180	B39XP4	N/A	616797	YES	Intact
06/20/17	08:30:00	W17-006-182	B39XP6	N/A	616798	YES	Intact
06/20/17	08:30:00	W17-006-183	B39XP7	N/A	616799	YES	Intact
06/20/17	08:30:00	W17-006-187	B39XR1	N/A	616800	YES	Intact
06/20/17	08:30:00	W17-006-189	B39XR3	N/A	616801	YES	Intact
06/20/17	08:30:00	S17-006-581	B39YY8	N/A	616802	YES	Intact

SAMPLE LOG-IN SHEET

Lab Name: Southwest Research Institute	Page 1 of 1
Received By (Print Name): DAVID GARCIA	Log-in Date: 06/16/2017
Received By (Signature): David Garcia	
Case Number: W17-006	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.	779415381362,779413688042
7.	Sample Tags	Present/Absent*
	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	06/16/2017
12.	Time Received	08:30:00

N/A

EPA Sample #	Corresponding Sample Tag #	Corresponding Assigned Lab #	Remarks: Condition of Sample Shipment, etc
B39XN6	N/A	616725	Intact
B39XN8	N/A	616726	Intact
B39XP0	N/A	616727	Intact
B39XP1	N/A	616728	Intact
B39XP2	N/A	616729	Intact
B39XP9	N/A	616730	Intact

Sample Transfer

Fraction: ORG	Fraction:
Area #: R-40	Area #:
By: DAVID GARCIA	By:
On: 06/16/2017	On:

* Contact SMO and attach record of resolution

Reviewed By: [signature]	Logbook No.: Sample Receipt (59890)
Date: 6.16.17	Logbook Page No.: 9853 SEC 1 of 2

FORM DC-1

OLMO4.2

SAMPLE LOG-IN SHEET

Lab Name: Southwest Research Institute	Page 1 of 1
Received By (Print Name): DAVID GARCIA	Log-in Date: 06/20/2017
Received By (Signature): David Garcia	
Case Number: W17-006	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.	779435640557,779435640947
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	2.0C
10.	Does Information on custody records, traffic reports, and sample tags agree?	Yes/No*
11.	Date Received at Lab	06/20/2017
12.	Time Received	08:30:00

EPA Sample #	Corresponding Sample Tag #	Corresponding Assigned Lab #	Remarks: Condition of Sample Shipment, etc
B39XL1	N/A	616796	Intact
B39XP4	N/A	616797	Intact
B39XP6	N/A	616798	Intact
B39XP7	N/A	616799	Intact
B39XR1	N/A	616800	Intact
B39XR3	N/A	616801	Intact
B39YY8	N/A	616802	Intact

Sample Transfer

Fraction: Inorg, ORS	Fraction
Area #: R.13, R.40	Area #
By: DAVID GARCIA	By
On: 06/20/2017	On

* Contact SMO and attach record of resolution

Reviewed By	[signature]	Logbook No.	Sample Receipt (59901)
Date	7-17-17	Logbook Page No.	9857

FORM DC-1

OLMO4.2

SOUTHWEST RESEARCH INSTITUTE
CLIENT: CH2M Hill Plateau Remediation Company
SwRI PROJECT#: 20859.01.00X
SwRI TASK ORDER: 170616-9, 170620-7
SwRI SRR: 59890, 59901
SDG: 616725
VTSR: 06.16.2017, 06.20.2017

SW846 METHOD 8290A

Case Narrative

CLIENT: CH2M Hill Plateau Remediation Company
SDG: 616725
SwRI Project Number: 20859.01.00X
SwRI Sample Receipt Number: 59890, 59901
Page#: 1

SwRI CASE NARRATIVE

1. Eleven (11) samples were received for SW846 Method 8290A:

SwRI ID	Customer ID	Matrix
616725	B39XN6	Water
616726	B39XN8	Water
616727	B39XP0	Water
616728	B39XP1	Water
616729	B39XP2	Water
616730	B39XP9	Water
616797	B39XP4	Water
616798	B39XP6	Water
616799	B39XP7	Water
616800	B39XR1	Water
616801	B39XR3	Water

Client: CH2M Hill Plateau Remediation Company
SDG: 616725
SwRI Project Number: 20859.01.00X
SwRI Task Order Number: 170616-9, 170620-7

DIOXIN ANALYSIS

Eleven water samples were analyzed for target and total chlorinated dibenzo-p-dioxins and dibenzofurans according to EPA Method 8290A – "Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by High Resolution Gas Chromatography / High Resolution Mass Spectrometry" and SwRI TAP-01-0403-014. The instrument used was a Micromass Autospec M series high-resolution gas chromatograph/high-resolution mass spectrometer (HRGC / HRMS), operated at 10,000 resolution power throughout the analysis. The analytical column used was a Agilent DB-5 (60 m, 0.32 mm ID, 0.25 µm film thickness).

The samples were extracted within 30 days of CED and analyzed within 45 days of extraction.

The samples were reported on an as-received basis in the method units of pg/L.

The initial calibration met the QC requirement of ≤ 20 % relative standard deviation (RSD) for unlabeled standards and ≤ 20 % RSD for labeled standards. The calibration verification standard met the Quality Control (QC) criteria of ≤ 20 % for native target compounds and ≤ 30 % for internal standards. Sample quantitations are based on the mean RRF from the corresponding ICAL. The CRQLs were based on concentrations of 0.500 pg/µL, 1.25 pg/µL, and 2.50 pg/µL for tetra-, penta- through hepta-, and octa-substituted compounds, respectively. Note that the ^{37}Cl-2,3,7,8-TCDD cleanup standard is not present in the CS3, CS1, or CS0.5 level standard. This compound is used as a diagnostic tool by the laboratory and is not required by the method. The absence of the compound in the specified standards has no impact on the data, and it is not reported on the Form I.

The analytical sequences met the chromatographic resolution QC criteria of ≤ 25 % for 2,3,7,8-TCDD and its closest eluting isomer, as well as the beginning and ending mass resolution checks.

The samples, extraction blank, matrix spike (MS), matrix spike duplicate (MSD), and laboratory control sample (LCS) were spiked with 10 µL of carbon-13 labeled internal standard mixture at the beginning of extraction. This internal standard mixture contained:

$^{13}C_{12}$-2378-TCDD	50 pg/µL
$^{13}C_{12}$-2378-TCDF	50 pg/µL
$^{13}C_{12}$-12378-PeCDD	50 pg/µL
$^{13}C_{12}$-12378-PeCDF	50 pg/µL
$^{13}C_{12}$-123678-HxCDD	125 pg/µL
$^{13}C_{12}$-123478-HxCDF	125 pg/µL
$^{13}C_{12}$-1234678-HpCDD	125 pg/µL
$^{13}C_{12}$-1234678-HpCDF	125 pg/µL
$^{13}C_{12}$-OCDD	250 pg/µL

Client: CH2M Hill Plateau Remediation Company
SDG: 616725
SwRI Project Number: 20859.01.00X
SwRI Task Order Number: 170616-9, 170620-7

The MS, MSD, and LCS were spiked with 10 µL of the following matrix spiking solution:

2,3,7,8-TCDD	10 pg/µL
1,2,3,7,8-PeCDD	25 pg/µL
1,2,3,4,7,8-HxCDD	25 pg/µL
1,2,3,6,7,8-HxCDD	25 pg/µL
1,2,3,7,8,9-HxCDD	25 pg/µL
1,2,3,4,6,7,8-HpCDD	25 pg/µL
OCDD	50 pg/µL
2,3,7,8-TCDF	10 pg/µL
1,2,3,7,8-PeCDF	25 pg/µL
2,3,4,7,8-PeCDF	25 pg/µL
1,2,3,4,7,8-HxCDF	25 pg/µL
1,2,3,6,7,8-HxCDF	25 pg/µL
1,2,3,7,8,9-HxCDF	25 pg/µL
2,3,4,6,7,8-HxCDF	25 pg/µL
1,2,3,4,6,7,8-HpCDF	25 pg/µL
1,2,3,4,7,8,9-HpCDF	25 pg/µL
OCDF	50 pg/µL

The sample extracts were spiked with 25 µL of cleanup standard containing ^{37}Cl-2,3,7,8-TCDD at 4.0 pg/µL prior to putting them through a series of clean-up processes, which included H_2SO_4 wash, silica gel column chromatography, alumina column chromatography, and, if necessary, activated carbon on silica column chromatography. The final sample extract residues were reconstituted into 10 µL of solution by adding 10 µL of recovery standard mixture. The recovery standard mixture contains $^{13}C_{12}$-1234-TCDD at 50 pg/µL. One (1) µL of each well-mixed final sample extract was then injected into HRGC/HRMS.

The total pg concentration of a particular PCDD/PCDF in a sample can be obtained simply by multiplying the pg/µL value in the "Amount" column of the quantitation summary by 10 (the final extract volume). The concentration values in pg/L can be obtained by dividing this total pg value with sample volume (L).

Three types of detection limits are reported.

a. CRQL (derived from CLP's contract required quantitation limits). CRQL was calculated based on the concentration of the lowest point calibration standard, final extract volume, sample size, and % dry weight (if applicable).

Client: CH2M Hill Plateau Remediation Company
SDG: 616725
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b. EMPC (Estimated Maximum Possible Concentration). EMPC was reported when signals of both ions of a target PCDD/PCDF were detected with everything meeting identification criteria except the isotope ratio. The EMPC was calculated the same way a positive result was calculated.

c. An EDL (Estimated Detection Limit) was calculated when no signals for the monitored ions were detected for a target PCDD/PCDF. EDL was calculated based on noise level at the retention time of the target PCDD/PCDF, peak height of the C-13 labeled internal standard, RRF of the target PCDD/PCDF, final extract volume, sample size, and % dry weight (if applicable). Note that the calculated detection limit on the data system has only two decimal places, and noise levels below 0.01 will register a zero EDL.

CRQL will be reported for every target PCDD/PCDF of every sample. EMPC or EDL will be reported only for target PCDD/PCDF not meeting isotope ratio (EMPC) or simply not found (EDL).

Possible qualifiers:

U Target compound not detected.
J Target compound found at the concentration below the calibration range.
E Target compound found at the concentration above the calibration range.
D Target compound concentration reported based on dilution analysis that brought the concentration within calibration range.
B Target compound was detected in the associated blank.

The blank was free of target analytes above the CRQL. OCDD was detected below the CRQL, resulting in a "B" flag associated with this compound in the samples. The detection is most likely due to minor carryover and the high sensitivity of the instrument. As the detection was below the CRQL, no further corrective action was deemed necessary.

The internal standards were within the QC limits of 40-135% for all samples and QC.

Analysis Reports were modified to include CRQL values for total PCDD's and PCDF's that were not detected. These values are based on a single congener-based detection. This modification was made at the request of the client.

Spike recoveries for the MS and MSD were within the QC limits of 60-140% for all analytes. The

Client: CH2M Hill Plateau Remediation Company
SDG: 616725
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relative percent difference (RPD) between the MS and MSD was within the QC limit of 20% for all analytes except for OCDF at 28.4 %. This occurrence may be due to unknown interferences present in the sample matrix. Since the LCS was within control limits, no additional corrective action was deemed necessary.

Spike recoveries for the LCS were within the QC limits of 60-140% for all analytes.

Sample Calculations:

Positive result (or EMPC) calculation
(minor differences to the Form I are due to rounding)

Sample: LCS_07JUL17
Lab ID: 617435
Analyte: 2,3,7,8-TCDD
Response$_{(NAT)}$: 6.029e4
Response$_{(IS)}$: 2.645e5

Native RRF: 1.082
IS Conc.: 50.0 pg/µL
Sample Weight/Vol: 1.00 L
Extract Vol: 10 µL
Percent Dry: N/A

$$Conc(pg/\mu L) = \frac{(Area_{Nat})(Conc_{IS})}{(Area_{IS})(RRF_{Nat})} = \frac{(6.029e4)(50.0)}{(2.645e5)(1.082)} = 10.5\,pg/\mu L$$

$$Conc(pg/L) = \frac{(Conc_{pg/\mu L})(Vol_{Ext})}{(SampleVol)} = \frac{(10.5\,pg/\mu L)(10\,\mu L)}{(1.00\,L)} = 105\,pg/L$$

"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."

Manager

7/13/17
Date

SOUTHWEST RESEARCH INSTITUTE
CLIENT: CH2M Hill Plateau Remediation Company
SwRI PROJECT#: 20859.01.00X
SwRI TASK ORDER: 170616-9, 170620-7
SwRI SRR: 59890, 59901
SDG: 616725
VTSR: 06.16.2017, 06.20.2017

SW846 METHOD 8290A
Results

Southwest Research Institute

Method 8290A Blank Summary

Blank ID: BLANK_07JUL17
Lab Sample ID: 617434
Client: CH2M Hill Plateau Remediation Company
Matrix: Water

Project: 20859.01.00X
CASE #: W17-006
SDG: 616725
Analyzed: 11-Jul-17 12:32:37

This method blank applies to the following samples, MS, and MSD's

Client Sample ID	Lab Sample ID	Date Analyzed	File ID
B39XN6	616725	7/11/2017	M07117M1_03
B39XN8	616726	7/11/2017	M07117M1_04
B39XP0	616727	7/11/2017	M07117M1_05
B39XP1	616728	7/11/2017	M07117M1_06
B39XP2	616729	7/11/2017	M07117M1_07
B39XP9	616730	7/11/2017	M07117M1_08
LCS_07JUL17	617435	7/11/2017	M07117M1_09
B39XP4	616797	7/12/2017	M07117M2_02
B39XP6	616798	7/12/2017	M07117M2_03
B39XP7	616799	7/12/2017	M07117M2_04
B39XR1	616800	7/12/2017	M07117M2_05
B39XR3	616801	7/12/2017	M07117M2_06
B39XR3 MS	616801 MS	7/12/2017	M07117M2_07
B39XR3 MSD	616801 MSD	7/12/2017	M07117M2_08

Southwest Research Institute

Method 8290A PCDD/PCDF Analysis Report

Sample ID: B39XN6

Client ID: CH2M Hill Plateau Remediat
Project: 20859.01.00X
Case: W17-006
Date Received: 6/16/2017
SDG: 616725
Date Extracted: 7/7/2017
Matrix: Water
Date Analyzed: 7/11/2017
Sample Wt/Vol: 1.02 L
Concentration Unit: pg/L

Lab Sample ID: 616725
Lab File Name: M07117M1_03
Final Extraction Vol: 10 uL
Dilution Factor: 1.0
Split Factor: 1.0
Percent Dry: N/A

CAS No.	ANALYTE	CONC	Q	EMPC	EDL	CRQL	RATIO	RT
1746-01-6	2,3,7,8-TCDD		U		0.713	4.90		
40321-76-4	1,2,3,7,8-PeCDD		U		0.810	12.3		
39227-28-6	1,2,3,4,7,8-HxCDD		U		2.79	12.3		
57653-85-7	1,2,3,6,7,8-HxCDD		U		1.92	12.3		
19408-74-3	1,2,3,7,8,9-HxCDD		U		2.21	12.3		
35822-46-9	1,2,3,4,6,7,8-HpCDD		U		1.22	12.3		
3268-87-9	OCDD	28.1	B			24.5	1.01	50.22
51207-31-9	2,3,7,8-TCDF		U		0.743	4.90		
57117-41-6	1,2,3,7,8-PeCDF		U		1.15	12.3		
57117-31-4	2,3,4,7,8-PeCDF		U		1.21	12.3		
70648-26-9	1,2,3,4,7,8-HxCDF		U		1.43	12.3		
57117-44-9	1,2,3,6,7,8-HxCDF		U		1.25	12.3		
72918-21-9	1,2,3,7,8,9-HxCDF		U		1.66	12.3		
60851-34-5	2,3,4,6,7,8-HxCDF		U		1.57	12.3		
67562-39-4	1,2,3,4,6,7,8-HpCDF		U		0.552	12.3		
55673-89-7	1,2,3,4,7,8,9-HpCDF		U		0.724	12.3		
39001-02-0	OCDF		U		0.772	24.5		

Total Dioxin	CONC	Q	Total Dibenzofuran	CONC	Q
Total Tetra-Dioxins	4.90*	U	Total Tetra-Furans	4.90*	U
Total Penta-Dioxins	12.3*	U	Total Penta-Furans	12.3*	U
Total Hexa-Dioxins	12.3*	U	Total Hexa-Furans	12.3*	U
Total Hepta-Dioxins	12.3*	U	Total Hepta-Furans	12.3*	U

* - Indicates single congener-based CRQL

Internal Standard % Recovery

13C-2,3,7,8-TCDD	80.1	13C-1,2,3,4,7,8-HxCDF	114	13C-1,2,3,7,8-PeCDF	76.0
13C-1,2,3,6,7,8-HxCDD	101	13C-1,2,3,7,8-PeCDD	80.9	13C-1,2,3,4,6,7,8-HpCDF	103
13C-2,3,7,8-TCDF	80.3	13C-1,2,3,4,6,7,8-HpCDD	103	13C-OCDD	82.7

Southwest Research Institute

Method 8290A PCDD/PCDF Analysis Report

Sample ID: B39XN8

Client ID: CH2M Hill Plateau Remediat
Project: 20859.01.00X
Case: W17-006
Date Received: 6/16/2017
SDG: 616725
Date Extracted: 7/7/2017
Matrix: Water
Date Analyzed: 7/11/2017
Sample Wt/Vol: 1.05 L
Concentration Unit: pg/L

Lab Sample ID: 616726
Lab File Name: M07117M1_04
Final Extraction Vol: 10 uL
Dilution Factor: 1.0
Split Factor: 1.0
Percent Dry: N/A

CAS No.	ANALYTE	CONC	Q	EMPC	EDL	CRQL	RATIO	RT
1746-01-6	2,3,7,8-TCDD		U		1.28	4.76		
40321-76-4	1,2,3,7,8-PeCDD		U		0.940	11.9		
39227-28-6	1,2,3,4,7,8-HxCDD		U		1.07	11.9		
57653-85-7	1,2,3,6,7,8-HxCDD		U		0.739	11.9		
19408-74-3	1,2,3,7,8,9-HxCDD		U		0.852	11.9		
35822-46-9	1,2,3,4,6,7,8-HpCDD	11.1	J			11.9	1.14	47.51
3268-87-9	OCDD	111	B			23.8	0.925	50.23
51207-31-9	2,3,7,8-TCDF		U		0.920	4.76		
57117-41-6	1,2,3,7,8-PeCDF		U		1.09	11.9		
57117-31-4	2,3,4,7,8-PeCDF		U		1.14	11.9		
70648-26-9	1,2,3,4,7,8-HxCDF		U		1.01	11.9		
57117-44-9	1,2,3,6,7,8-HxCDF		U		0.884	11.9		
72918-21-9	1,2,3,7,8,9-HxCDF		U		1.18	11.9		
60851-34-5	2,3,4,6,7,8-HxCDF		U		1.11	11.9		
67562-39-4	1,2,3,4,6,7,8-HpCDF		U		0.827	11.9		
55673-89-7	1,2,3,4,7,8,9-HpCDF		U		1.08	11.9		
39001-02-0	OCDF	12.8	J			23.8	0.831	50.31

Total Dioxin	CONC	Q	Total Dibenzofuran	CONC	Q
Total Tetra-Dioxins	4.76*	U	Total Tetra-Furans	4.76*	U
Total Penta-Dioxins	11.9*	U	Total Penta-Furans	11.9*	U
Total Hexa-Dioxins	11.9*	U	Total Hexa-Furans	11.9*	U
Total Hepta-Dioxins	11.1	J	Total Hepta-Furans	11.9*	U

* - Indicates single congener-based CRQL

Internal Standard % Recovery

13C-2,3,7,8-TCDD	61.4	13C-1,2,3,4,7,8-HxCDF	113	13C-1,2,3,7,8-PeCDF	79.0
13C-1,2,3,6,7,8-HxCDD	98.5	13C-1,2,3,7,8-PeCDD	91.0	13C-1,2,3,4,6,7,8-HpCDF	105
13C-2,3,7,8-TCDF	74.4	13C-1,2,3,4,6,7,8-HpCDD	107	13C-OCDD	90.0

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Method 8290A PCDD/PCDF Analysis Report

Sample ID: B39XP0

Client ID: CH2M Hill Plateau Remediat
Project: 20859.01.00X
Case: W17-006
Date Received: 6/16/2017
SDG: 616725
Date Extracted: 7/7/2017
Matrix: Water
Date Analyzed: 7/11/2017
Sample Wt/Vol: 1.02 L
Concentration Unit: pg/L

Lab Sample ID: 616727
Lab File Name: M07117M1_05
Final Extraction Vol: 10 uL
Dilution Factor: 1.0
Split Factor: 1.0
Percent Dry: N/A

CAS No.	ANALYTE	CONC	Q	EMPC	EDL	CRQL	RATIO	RT
1746-01-6	2,3,7,8-TCDD		U		1.17	4.90		
40321-76-4	1,2,3,7,8-PeCDD		U		0.796	12.3		
39227-28-6	1,2,3,4,7,8-HxCDD		U		0.958	12.3		
57653-85-7	1,2,3,6,7,8-HxCDD		U		0.659	12.3		
19408-74-3	1,2,3,7,8,9-HxCDD		U		0.760	12.3		
35822-46-9	1,2,3,4,6,7,8-HpCDD		U		0.848	12.3		
3268-87-9	OCDD	10.6	JB			24.5	0.904	50.23
51207-31-9	2,3,7,8-TCDF		U		1.62	4.90		
57117-41-6	1,2,3,7,8-PeCDF		U		1.09	12.3		
57117-31-4	2,3,4,7,8-PeCDF		U		1.15	12.3		
70648-26-9	1,2,3,4,7,8-HxCDF		U		0.510	12.3		
57117-44-9	1,2,3,6,7,8-HxCDF		U		0.444	12.3		
72918-21-9	1,2,3,7,8,9-HxCDF		U		0.592	12.3		
60851-34-5	2,3,4,6,7,8-HxCDF		U		0.558	12.3		
67562-39-4	1,2,3,4,6,7,8-HpCDF		U		0.628	12.3		
55673-89-7	1,2,3,4,7,8,9-HpCDF		U		0.822	12.3		
39001-02-0	OCDF		U		0.741	24.5		

Total Dioxin	CONC	Q	Total Dibenzofuran	CONC	Q
Total Tetra-Dioxins	4.90*	U	Total Tetra-Furans	4.90*	U
Total Penta-Dioxins	12.3*	U	Total Penta-Furans	12.3*	U
Total Hexa-Dioxins	12.3*	U	Total Hexa-Furans	12.3*	U
Total Hepta-Dioxins	12.3*	U	Total Hepta-Furans	12.3*	U

* - Indicates single congener-based CRQL

Internal Standard % Recovery

13C-2,3,7,8-TCDD	84.8	13C-1,2,3,4,7,8-HxCDF	122	13C-1,2,3,7,8-PeCDF	92.4
13C-1,2,3,6,7,8-HxCDD	99.7	13C-1,2,3,7,8-PeCDD	95.2	13C-1,2,3,4,6,7,8-HpCDF	115
13C-2,3,7,8-TCDF	86.9	13C-1,2,3,4,6,7,8-HpCDD	106	13C-OCDD	87.5

Southwest Research Institute

Method 8290A PCDD/PCDF Analysis Report

Sample ID: B39XP1

Client ID: CH2M Hill Plateau Remediat
Project: 20859.01.00X
Case: W17-006
Date Received: 6/16/2017
SDG: 616725
Date Extracted: 7/7/2017
Matrix: Water
Date Analyzed: 7/11/2017
Sample Wt/Vol: 1.04 L
Concentration Unit: pg/L

Lab Sample ID: 616728
Lab File Name: M07117M1_06
Final Extraction Vol: 10 uL
Dilution Factor: 1.0
Split Factor: 1.0
Percent Dry: N/A

CAS No.	ANALYTE	CONC	Q	EMPC	EDL	CRQL	RATIO	RT
1746-01-6	2,3,7,8-TCDD		U		0.849	4.81		
40321-76-4	1,2,3,7,8-PeCDD		U		0.973	12.0		
39227-28-6	1,2,3,4,7,8-HxCDD		U		1.40	12.0		
57653-85-7	1,2,3,6,7,8-HxCDD		U		0.964	12.0		
19408-74-3	1,2,3,7,8,9-HxCDD		U		1.11	12.0		
35822-46-9	1,2,3,4,6,7,8-HpCDD		U		0.423	12.0		
3268-87-9	OCDD	10.7	JB			24.0	0.828	50.25
51207-31-9	2,3,7,8-TCDF		U		0.676	4.81		
57117-41-6	1,2,3,7,8-PeCDF		U		0.928	12.0		
57117-31-4	2,3,4,7,8-PeCDF		U		0.975	12.0		
70648-26-9	1,2,3,4,7,8-HxCDF		U		0.683	12.0		
57117-44-9	1,2,3,6,7,8-HxCDF		U		0.595	12.0		
72918-21-9	1,2,3,7,8,9-HxCDF		U		0.793	12.0		
60851-34-5	2,3,4,6,7,8-HxCDF		U		0.747	12.0		
67562-39-4	1,2,3,4,6,7,8-HpCDF		U		0.512	12.0		
55673-89-7	1,2,3,4,7,8,9-HpCDF		U		0.671	12.0		
39001-02-0	OCDF		U		1.16	24.0		

Total Dioxin	CONC	Q	Total Dibenzofuran	CONC	Q
Total Tetra-Dioxins	4.81*	U	Total Tetra-Furans	4.81*	U
Total Penta-Dioxins	12.0*	U	Total Penta-Furans	12.0*	U
Total Hexa-Dioxins	12.0*	U	Total Hexa-Furans	12.0*	U
Total Hepta-Dioxins	12.0*	U	Total Hepta-Furans	12.0*	U

* - Indicates single congener-based CRQL

Internal Standard % Recovery

13C-2,3,7,8-TCDD	72.5	13C-1,2,3,4,7,8-HxCDF	115	13C-1,2,3,7,8-PeCDF	71.0
13C-1,2,3,6,7,8-HxCDD	99.2	13C-1,2,3,7,8-PeCDD	77.8	13C-1,2,3,4,6,7,8-HpCDF	108
13C-2,3,7,8-TCDF	69.4	13C-1,2,3,4,6,7,8-HpCDD	109	13C-OCDD	83.0

Southwest Research Institute

Method 8290A PCDD/PCDF Analysis Report

Sample ID: B39XP2

Client ID: CH2M Hill Plateau Remediat
Project: 20859.01.00X
Case: W17-006
Date Received: 6/16/2017
SDG: 616725
Date Extracted: 7/7/2017
Matrix: Water
Date Analyzed: 7/11/2017
Sample Wt/Vol: 1.06 L
Concentration Unit: pg/L

Lab Sample ID: 616729
Lab File Name: M07117M1_07
Final Extraction Vol: 10 uL
Dilution Factor: 1.0
Split Factor: 1.0
Percent Dry: N/A

CAS No.	ANALYTE	CONC	Q	EMPC	EDL	CRQL	RATIO	RT
1746-01-6	2,3,7,8-TCDD		U		0.971	4.72		
40321-76-4	1,2,3,7,8-PeCDD		U		0.676	11.8		
39227-28-6	1,2,3,4,7,8-HxCDD		U		1.08	11.8		
57653-85-7	1,2,3,6,7,8-HxCDD		U		0.741	11.8		
19408-74-3	1,2,3,7,8,9-HxCDD		U		0.855	11.8		
35822-46-9	1,2,3,4,6,7,8-HpCDD		U		0.551	11.8		
3268-87-9	OCDD		U		0.735	23.6		
51207-31-9	2,3,7,8-TCDF		U		0.822	4.72		
57117-41-6	1,2,3,7,8-PeCDF		U		0.839	11.8		
57117-31-4	2,3,4,7,8-PeCDF		U		0.881	11.8		
70648-26-9	1,2,3,4,7,8-HxCDF		U		0.714	11.8		
57117-44-9	1,2,3,6,7,8-HxCDF		U		0.622	11.8		
72918-21-9	1,2,3,7,8,9-HxCDF		U		0.828	11.8		
60851-34-5	2,3,4,6,7,8-HxCDF		U		0.781	11.8		
67562-39-4	1,2,3,4,6,7,8-HpCDF		U		0.906	11.8		
55673-89-7	1,2,3,4,7,8,9-HpCDF		U		1.19	11.8		
39001-02-0	OCDF		U		1.07	23.6		

Total Dioxin	CONC	Q	Total Dibenzofuran	CONC	Q
Total Tetra-Dioxins	4.72*	U	Total Tetra-Furans	4.72*	U
Total Penta-Dioxins	11.8*	U	Total Penta-Furans	11.8*	U
Total Hexa-Dioxins	11.8*	U	Total Hexa-Furans	11.8*	U
Total Hepta-Dioxins	11.8*	U	Total Hepta-Furans	11.8*	U

* - Indicates single congener-based CRQL

Internal Standard % Recovery

13C-2,3,7,8-TCDD	80.8	13C-1,2,3,4,7,8-HxCDF	107	13C-1,2,3,7,8-PeCDF	76.9
13C-1,2,3,6,7,8-HxCDD	97.7	13C-1,2,3,7,8-PeCDD	71.1	13C-1,2,3,4,6,7,8-HpCDF	109
13C-2,3,7,8-TCDF	76.9	13C-1,2,3,4,6,7,8-HpCDD	98.7	13C-OCDD	83.1

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Method 8290A PCDD/PCDF Analysis Report

Sample ID: B39XP9

Client ID: CH2M Hill Plateau Remediat
Project: 20859.01.00X
Case: W17-006
Date Received: 6/16/2017
SDG: 616725
Date Extracted: 7/7/2017
Matrix: Water
Date Analyzed: 7/11/2017
Sample Wt/Vol: 1.03 L
Concentration Unit: pg/L

Lab Sample ID: 616730
Lab File Name: M07117M1_08
Final Extraction Vol: 10 uL
Dilution Factor: 1.0
Split Factor: 1.0
Percent Dry: N/A

CAS No.	ANALYTE	CONC	Q	EMPC	EDL	CRQL	RATIO	RT
1746-01-6	2,3,7,8-TCDD		U		1.92	4.85		
40321-76-4	1,2,3,7,8-PeCDD		U		0.916	12.1		
39227-28-6	1,2,3,4,7,8-HxCDD		U		1.70	12.1		
57653-85-7	1,2,3,6,7,8-HxCDD		U		1.17	12.1		
19408-74-3	1,2,3,7,8,9-HxCDD		U		1.35	12.1		
35822-46-9	1,2,3,4,6,7,8-HpCDD		U		0.571	12.1		
3268-87-9	OCDD	15.9	JB			24.3	1.01	50.23
51207-31-9	2,3,7,8-TCDF		U		0.645	4.85		
57117-41-6	1,2,3,7,8-PeCDF		U		0.748	12.1		
57117-31-4	2,3,4,7,8-PeCDF		U		0.785	12.1		
70648-26-9	1,2,3,4,7,8-HxCDF		U		0.444	12.1		
57117-44-9	1,2,3,6,7,8-HxCDF		U		0.387	12.1		
72918-21-9	1,2,3,7,8,9-HxCDF		U		0.515	12.1		
60851-34-5	2,3,4,6,7,8-HxCDF		U		0.486	12.1		
67562-39-4	1,2,3,4,6,7,8-HpCDF		U		0.716	12.1		
55673-89-7	1,2,3,4,7,8,9-HpCDF		U		0.939	12.1		
39001-02-0	OCDF		U		0.608	24.3		

Total Dioxin	CONC	Q	Total Dibenzofuran	CONC	Q
Total Tetra-Dioxins	4.85*	U	Total Tetra-Furans	4.85*	U
Total Penta-Dioxins	12.1*	U	Total Penta-Furans	12.1*	U
Total Hexa-Dioxins	12.1*	U	Total Hexa-Furans	12.1*	U
Total Hepta-Dioxins	12.1*	U	Total Hepta-Furans	12.1*	U

* - Indicates single congener-based CRQL

Internal Standard % Recovery

13C-2,3,7,8-TCDD	81.2	13C-1,2,3,4,7,8-HxCDF	113	13C-1,2,3,7,8-PeCDF	81.0
13C-1,2,3,6,7,8-HxCDD	99.8	13C-1,2,3,7,8-PeCDD	84.2	13C-1,2,3,4,6,7,8-HpCDF	110
13C-2,3,7,8-TCDF	72.8	13C-1,2,3,4,6,7,8-HpCDD	108	13C-OCDD	85.1

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Method 8290A PCDD/PCDF Analysis Report

Sample ID: B39XP4

Client ID: CH2M Hill Plateau Remediat
Project: 20859.01.00X
Case: W17-006
Date Received: 6/20/2017
SDG: 616725
Date Extracted: 7/7/2017
Matrix: Water
Date Analyzed: 7/12/2017
Sample Wt/Vol: 1.05 L
Concentration Unit: pg/L

Lab Sample ID: 616797
Lab File Name: M07117M2_02
Final Extraction Vol: 10 uL
Dilution Factor: 1.0
Split Factor: 1.0
Percent Dry: N/A

CAS No.	ANALYTE	CONC	Q	EMPC	EDL	CRQL	RATIO	RT
1746-01-6	2,3,7,8-TCDD		U		1.42	4.76		
40321-76-4	1,2,3,7,8-PeCDD		U		0.790	11.9		
39227-28-6	1,2,3,4,7,8-HxCDD		U		1.64	11.9		
57653-85-7	1,2,3,6,7,8-HxCDD		U		1.13	11.9		
19408-74-3	1,2,3,7,8,9-HxCDD		U		1.30	11.9		
35822-46-9	1,2,3,4,6,7,8-HpCDD		U		1.56	11.9		
3268-87-9	OCDD		U		1.08	23.8		
51207-31-9	2,3,7,8-TCDF		U		1.93	4.76		
57117-41-6	1,2,3,7,8-PeCDF		U		1.59	11.9		
57117-31-4	2,3,4,7,8-PeCDF		U		1.67	11.9		
70648-26-9	1,2,3,4,7,8-HxCDF		U		0.788	11.9		
57117-44-9	1,2,3,6,7,8-HxCDF		U		0.686	11.9		
72918-21-9	1,2,3,7,8,9-HxCDF		U		0.914	11.9		
60851-34-5	2,3,4,6,7,8-HxCDF		U		0.862	11.9		
67562-39-4	1,2,3,4,6,7,8-HpCDF		U		0.730	11.9		
55673-89-7	1,2,3,4,7,8,9-HpCDF		U		0.957	11.9		
39001-02-0	OCDF		U		1.64	23.8		

Total Dioxin	CONC	Q	Total Dibenzofuran	CONC	Q
Total Tetra-Dioxins	4.76*	U	Total Tetra-Furans	4.76*	U
Total Penta-Dioxins	11.9*	U	Total Penta-Furans	11.9*	U
Total Hexa-Dioxins	11.9*	U	Total Hexa-Furans	11.9*	U
Total Hepta-Dioxins	11.9*	U	Total Hepta-Furans	11.9*	U

* - Indicates single congener-based CRQL

Internal Standard % Recovery

13C-2,3,7,8-TCDD	84.5	13C-1,2,3,4,7,8-HxCDF	114	13C-1,2,3,7,8-PeCDF	75.5
13C-1,2,3,6,7,8-HxCDD	97.0	13C-1,2,3,7,8-PeCDD	80.7	13C-1,2,3,4,6,7,8-HpCDF	106
13C-2,3,7,8-TCDF	74.3	13C-1,2,3,4,6,7,8-HpCDD	101	13C-OCDD	78.9

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Method 8290A PCDD/PCDF Analysis Report

Sample ID: B39XP6

Client ID: CH2M Hill Plateau Remediat
Project: 20859.01.00X
Case: W17-006
Date Received: 6/20/2017
SDG: 616725
Date Extracted: 7/7/2017
Matrix: Water
Date Analyzed: 7/12/2017
Sample Wt/Vol: 1.06 L
Concentration Unit: pg/L

Lab Sample ID: 616798
Lab File Name: M07117M2_03
Final Extraction Vol: 10 uL
Dilution Factor: 1.0
Split Factor: 1.0
Percent Dry: N/A

CAS No.	ANALYTE	CONC	Q	EMPC	EDL	CRQL	RATIO	RT
1746-01-6	2,3,7,8-TCDD		U		1.23	4.72		
40321-76-4	1,2,3,7,8-PeCDD		U		1.20	11.8		
39227-28-6	1,2,3,4,7,8-HxCDD		U		1.49	11.8		
57653-85-7	1,2,3,6,7,8-HxCDD		U		1.03	11.8		
19408-74-3	1,2,3,7,8,9-HxCDD		U		1.19	11.8		
35822-46-9	1,2,3,4,6,7,8-HpCDD		U		0.664	11.8		
3268-87-9	OCDD		U		0.913	23.6		
51207-31-9	2,3,7,8-TCDF		U		1.61	4.72		
57117-41-6	1,2,3,7,8-PeCDF		U		0.741	11.8		
57117-31-4	2,3,4,7,8-PeCDF		U		0.778	11.8		
70648-26-9	1,2,3,4,7,8-HxCDF		U		0.811	11.8		
57117-44-9	1,2,3,6,7,8-HxCDF		U		0.706	11.8		
72918-21-9	1,2,3,7,8,9-HxCDF		U		0.941	11.8		
60851-34-5	2,3,4,6,7,8-HxCDF		U		0.887	11.8		
67562-39-4	1,2,3,4,6,7,8-HpCDF		U		0.554	11.8		
55673-89-7	1,2,3,4,7,8,9-HpCDF		U		0.727	11.8		
39001-02-0	OCDF		U		0.823	23.6		

Total Dioxin	CONC	Q	Total Dibenzofuran	CONC	Q
Total Tetra-Dioxins	4.72*	U	Total Tetra-Furans	4.72*	U
Total Penta-Dioxins	11.8*	U	Total Penta-Furans	11.8*	U
Total Hexa-Dioxins	11.8*	U	Total Hexa-Furans	11.8*	U
Total Hepta-Dioxins	11.8*	U	Total Hepta-Furans	11.8*	U

* - Indicates single congener-based CRQL

Internal Standard % Recovery

13C-2,3,7,8-TCDD	85.2	13C-1,2,3,4,7,8-HxCDF	118	13C-1,2,3,7,8-PeCDF	85.4
13C-1,2,3,6,7,8-HxCDD	94.2	13C-1,2,3,7,8-PeCDD	81.2	13C-1,2,3,4,6,7,8-HpCDF	108
13C-2,3,7,8-TCDF	77.8	13C-1,2,3,4,6,7,8-HpCDD	109	13C-OCDD	82.3

Southwest Research Institute

Method 8290A PCDD/PCDF Analysis Report

Sample ID: B39XP7

Client ID: CH2M Hill Plateau Remediat
Project: 20859.01.00X
Case: W17-006
Date Received: 6/20/2017
SDG: 616725
Date Extracted: 7/7/2017
Matrix: Water
Date Analyzed: 7/12/2017
Sample Wt/Vol: 1.05 L
Concentration Unit: pg/L

Lab Sample ID: 616799
Lab File Name: M07117M2_04
Final Extraction Vol: 10 uL
Dilution Factor: 1.0
Split Factor: 1.0
Percent Dry: N/A

CAS No.	ANALYTE	CONC	Q	EMPC	EDL	CRQL	RATIO	RT
1746-01-6	2,3,7,8-TCDD		U		1.50	4.76		
40321-76-4	1,2,3,7,8-PeCDD		U		1.65	11.9		
39227-28-6	1,2,3,4,7,8-HxCDD		U		1.45	11.9		
57653-85-7	1,2,3,6,7,8-HxCDD		U		1.00	11.9		
19408-74-3	1,2,3,7,8,9-HxCDD		U		1.15	11.9		
35822-46-9	1,2,3,4,6,7,8-HpCDD		U		0.877	11.9		
3268-87-9	OCDD	31.2	B			23.8	1.02	50.23
51207-31-9	2,3,7,8-TCDF		U		1.16	4.76		
57117-41-6	1,2,3,7,8-PeCDF		U		1.07	11.9		
57117-31-4	2,3,4,7,8-PeCDF		U		1.12	11.9		
70648-26-9	1,2,3,4,7,8-HxCDF		U		0.906	11.9		
57117-44-9	1,2,3,6,7,8-HxCDF		U		0.789	11.9		
72918-21-9	1,2,3,7,8,9-HxCDF		U		1.05	11.9		
60851-34-5	2,3,4,6,7,8-HxCDF		U		0.991	11.9		
67562-39-4	1,2,3,4,6,7,8-HpCDF		U		0.945	11.9		
55673-89-7	1,2,3,4,7,8,9-HpCDF		U		1.24	11.9		
39001-02-0	OCDF		U		0.763	23.8		

Total Dioxin	CONC	Q	Total Dibenzofuran	CONC	Q
Total Tetra-Dioxins	4.76*	U	Total Tetra-Furans	4.76*	U
Total Penta-Dioxins	11.9*	U	Total Penta-Furans	11.9*	U
Total Hexa-Dioxins	11.9*	U	Total Hexa-Furans	11.9*	U
Total Hepta-Dioxins	11.9*	U	Total Hepta-Furans	11.9*	U

* - Indicates single congener-based CRQL

Internal Standard % Recovery

13C-2,3,7,8-TCDD	83.3	13C-1,2,3,4,7,8-HxCDF	126	13C-1,2,3,7,8-PeCDF	85.7
13C-1,2,3,6,7,8-HxCDD	104	13C-1,2,3,7,8-PeCDD	84.3	13C-1,2,3,4,6,7,8-HpCDF	116
13C-2,3,7,8-TCDF	84.0	13C-1,2,3,4,6,7,8-HpCDD	116	13C-OCDD	95.7

Southwest Research Institute

Method 8290A PCDD/PCDF Analysis Report

Sample ID: B39XR1

Client ID: CH2M Hill Plateau Remediat
Project: 20859.01.00X
Case: W17-006
Date Received: 6/20/2017
SDG: 616725
Date Extracted: 7/7/2017
Matrix: Water
Date Analyzed: 7/12/2017
Sample Wt/Vol: 1.04 L
Concentration Unit: pg/L

Lab Sample ID: 616800
Lab File Name: M07117M2_05
Final Extraction Vol: 10 uL
Dilution Factor: 1.0
Split Factor: 1.0
Percent Dry: N/A

CAS No.	ANALYTE	CONC	Q	EMPC	EDL	CRQL	RATIO	RT
1746-01-6	2,3,7,8-TCDD		U		1.50	4.81		
40321-76-4	1,2,3,7,8-PeCDD		U		1.50	12.0		
39227-28-6	1,2,3,4,7,8-HxCDD		U		1.26	12.0		
57653-85-7	1,2,3,6,7,8-HxCDD		U		0.868	12.0		
19408-74-3	1,2,3,7,8,9-HxCDD		U		1.00	12.0		
35822-46-9	1,2,3,4,6,7,8-HpCDD		U		1.17	12.0		
3268-87-9	OCDD		U		0.617	24.0		
51207-31-9	2,3,7,8-TCDF		U		1.64	4.81		
57117-41-6	1,2,3,7,8-PeCDF		U		0.860	12.0		
57117-31-4	2,3,4,7,8-PeCDF		U		0.903	12.0		
70648-26-9	1,2,3,4,7,8-HxCDF		U		0.622	12.0		
57117-44-9	1,2,3,6,7,8-HxCDF		U		0.542	12.0		
72918-21-9	1,2,3,7,8,9-HxCDF		U		0.721	12.0		
60851-34-5	2,3,4,6,7,8-HxCDF		U		0.680	12.0		
67562-39-4	1,2,3,4,6,7,8-HpCDF		U		0.580	12.0		
55673-89-7	1,2,3,4,7,8,9-HpCDF		U		0.760	12.0		
39001-02-0	OCDF		U		0.903	24.0		

Total Dioxin	CONC	Q	Total Dibenzofuran	CONC	Q
Total Tetra-Dioxins	4.81*	U	Total Tetra-Furans	4.81*	U
Total Penta-Dioxins	12.0*	U	Total Penta-Furans	12.0*	U
Total Hexa-Dioxins	12.0*	U	Total Hexa-Furans	12.0*	U
Total Hepta-Dioxins	12.0*	U	Total Hepta-Furans	12.0*	U

* - Indicates single congener-based CRQL

Internal Standard % Recovery

13C-2,3,7,8-TCDD	76.1	13C-1,2,3,4,7,8-HxCDF	121	13C-1,2,3,7,8-PeCDF	79.3
13C-1,2,3,6,7,8-HxCDD	102	13C-1,2,3,7,8-PeCDD	75.8	13C-1,2,3,4,6,7,8-HpCDF	118
13C-2,3,7,8-TCDF	73.9	13C-1,2,3,4,6,7,8-HpCDD	108	13C-OCDD	90.5

Southwest Research Institute

Method 8290A PCDD/PCDF Analysis Report

Sample ID: B39XR3

Client ID: CH2M Hill Plateau Remediat
Project: 20859.01.00X
Case: W17-006
Date Received: 6/20/2017
SDG: 616725
Date Extracted: 7/7/2017
Matrix: Water
Date Analyzed: 7/12/2017
Sample Wt/Vol: 1.04 L
Concentration Unit: pg/L

Lab Sample ID: 616801
Lab File Name: M07117M2_06
Final Extraction Vol: 10 uL
Dilution Factor: 1.0
Split Factor: 1.0
Percent Dry: N/A

CAS No.	ANALYTE	CONC	Q	EMPC	EDL	CRQL	RATIO	RT
1746-01-6	2,3,7,8-TCDD		U		1.96	4.81		
40321-76-4	1,2,3,7,8-PeCDD		U		1.06	12.0		
39227-28-6	1,2,3,4,7,8-HxCDD		U		1.28	12.0		
57653-85-7	1,2,3,6,7,8-HxCDD		U		0.882	12.0		
19408-74-3	1,2,3,7,8,9-HxCDD		U		1.02	12.0		
35822-46-9	1,2,3,4,6,7,8-HpCDD		U		0.774	12.0		
3268-87-9	OCDD		U		0.843	24.0		
51207-31-9	2,3,7,8-TCDF		U		1.09	4.81		
57117-41-6	1,2,3,7,8-PeCDF		U		1.20	12.0		
57117-31-4	2,3,4,7,8-PeCDF		U		1.26	12.0		
70648-26-9	1,2,3,4,7,8-HxCDF		U		0.685	12.0		
57117-44-9	1,2,3,6,7,8-HxCDF		U		0.597	12.0		
72918-21-9	1,2,3,7,8,9-HxCDF		U		0.796	12.0		
60851-34-5	2,3,4,6,7,8-HxCDF		U		0.750	12.0		
67562-39-4	1,2,3,4,6,7,8-HpCDF		U		0.681	12.0		
55673-89-7	1,2,3,4,7,8,9-HpCDF		U		0.892	12.0		
39001-02-0	OCDF		U		0.792	24.0		

Total Dioxin	CONC	Q	Total Dibenzofuran	CONC	Q
Total Tetra-Dioxins	4.81*	U	Total Tetra-Furans	4.81*	U
Total Penta-Dioxins	12.0*	U	Total Penta-Furans	12.0*	U
Total Hexa-Dioxins	12.0*	U	Total Hexa-Furans	12.0*	U
Total Hepta-Dioxins	12.0*	U	Total Hepta-Furans	12.0*	U

* - Indicates single congener-based CRQL

Internal Standard % Recovery

13C-2,3,7,8-TCDD	76.8	13C-1,2,3,4,7,8-HxCDF	112	13C-1,2,3,7,8-PeCDF	70.8
13C-1,2,3,6,7,8-HxCDD	97.5	13C-1,2,3,7,8-PeCDD	80.0	13C-1,2,3,4,6,7,8-HpCDF	103
13C-2,3,7,8-TCDF	66.5	13C-1,2,3,4,6,7,8-HpCDD	103	13C-OCDD	85.9

Southwest Research Institute

Method 8290A PCDD/PCDF Analysis Report

Sample ID: B39XR3 MS

Client ID: CH2M Hill Plateau Remediat
Project: 20859.01.00X
Case: W17-006
Date Received: 6/20/2017
SDG: 616725
Date Extracted: 7/7/2017
Matrix: Water
Date Analyzed: 7/12/2017
Sample Wt/Vol: 1.03 L
Concentration Unit: pg/L

Lab Sample ID: 616801 MS
Lab File Name: M07117M2_07
Final Extraction Vol: 10 uL
Dilution Factor: 1.0
Split Factor: 1.0
Percent Dry: N/A

CAS No.	ANALYTE	CONC	Q	EMPC	EDL	CRQL	RATIO	RT
1746-01-6	2,3,7,8-TCDD	110				4.85	0.832	30.64
40321-76-4	1,2,3,7,8-PeCDD	249				12.1	1.63	38.21
39227-28-6	1,2,3,4,7,8-HxCDD	316				12.1	1.37	43.70
57653-85-7	1,2,3,6,7,8-HxCDD	263				12.1	1.17	43.82
19408-74-3	1,2,3,7,8,9-HxCDD	266				12.1	1.32	44.20
35822-46-9	1,2,3,4,6,7,8-HpCDD	244				12.1	1.02	47.51
3268-87-9	OCDD	482	B			24.3	0.855	50.23
51207-31-9	2,3,7,8-TCDF	108				4.85	0.786	29.38
57117-41-6	1,2,3,7,8-PeCDF	254				12.1	1.65	36.19
57117-31-4	2,3,4,7,8-PeCDF	270				12.1	1.49	37.56
70648-26-9	1,2,3,4,7,8-HxCDF	247				12.1	1.19	42.49
57117-44-9	1,2,3,6,7,8-HxCDF	241				12.1	1.19	42.65
72918-21-9	1,2,3,7,8,9-HxCDF	234				12.1	1.25	44.42
60851-34-5	2,3,4,6,7,8-HxCDF	259				12.1	1.11	43.48
67562-39-4	1,2,3,4,6,7,8-HpCDF	255				12.1	1.05	46.42
55673-89-7	1,2,3,4,7,8,9-HpCDF	251				12.1	1.13	47.88
39001-02-0	OCDF	325				24.3	0.975	50.31

Total Dioxin	CONC	Q	Total Dibenzofuran	CONC	Q
Total Tetra-Dioxins			Total Tetra-Furans		
Total Penta-Dioxins			Total Penta-Furans		
Total Hexa-Dioxins			Total Hexa-Furans		
Total Hepta-Dioxins			Total Hepta-Furans		

Internal Standard % Recovery

13C-2,3,7,8-TCDD	89.0	13C-1,2,3,4,7,8-HxCDF	113	13C-1,2,3,7,8-PeCDF	87.0
13C-1,2,3,6,7,8-HxCDD	95.1	13C-1,2,3,7,8-PeCDD	86.9	13C-1,2,3,4,6,7,8-HpCDF	103
13C-2,3,7,8-TCDF	83.6	13C-1,2,3,4,6,7,8-HpCDD	102	13C-OCDD	75.3

Southwest Research Institute

Method 8290A PCDD/PCDF Analysis Report

Sample ID: B39XR3 MSD

Client ID: CH2M Hill Plateau Remedial
Project: 20859.01.00X
Case: W17-006
Date Received: 6/20/2017
SDG: 616725
Date Extracted: 7/7/2017
Matrix: Water
Date Analyzed: 7/12/2017
Sample Wt/Vol: 1.04 L
Concentration Unit: pg/L

Lab Sample ID: 616801 MSD
Lab File Name: M07117M2_08
Final Extraction Vol: 10 uL
Dilution Factor: 1.0
Split Factor: 1.0
Percent Dry: N/A

CAS No.	ANALYTE	CONC	Q	EMPC	EDL	CRQL	RATIO	RT
1746-01-6	2,3,7,8-TCDD	107				4.81	0.724	30.64
40321-76-4	1,2,3,7,8-PeCDD	249				12.0	1.74	38.21
39227-28-6	1,2,3,4,7,8-HxCDD	319				12.0	1.28	43.68
57653-85-7	1,2,3,6,7,8-HxCDD	257				12.0	1.21	43.81
19408-74-3	1,2,3,7,8,9-HxCDD	271				12.0	1.22	44.19
35822-46-9	1,2,3,4,6,7,8-HpCDD	240				12.0	1.03	47.51
3268-87-9	OCDD	458	B			24.0	0.965	50.22
51207-31-9	2,3,7,8-TCDF	112				4.81	0.777	29.35
57117-41-6	1,2,3,7,8-PeCDF	260				12.0	1.55	36.19
57117-31-4	2,3,4,7,8-PeCDF	278				12.0	1.61	37.55
70648-26-9	1,2,3,4,7,8-HxCDF	236				12.0	1.22	42.48
57117-44-9	1,2,3,6,7,8-HxCDF	231				12.0	1.11	42.65
72918-21-9	1,2,3,7,8,9-HxCDF	221				12.0	1.18	44.41
60851-34-5	2,3,4,6,7,8-HxCDF	258				12.0	1.23	43.48
67562-39-4	1,2,3,4,6,7,8-HpCDF	237				12.0	1.06	46.42
55673-89-7	1,2,3,4,7,8,9-HpCDF	256				12.0	1.12	47.88
39001-02-0	OCDF	429				24.0	0.938	50.31

Total Dioxin	CONC	Q	Total Dibenzofuran	CONC	Q
Total Tetra-Dioxins			Total Tetra-Furans		
Total Penta-Dioxins			Total Penta-Furans		
Total Hexa-Dioxins			Total Hexa-Furans		
Total Hepta-Dioxins			Total Hepta-Furans		

Internal Standard % Recovery

13C-2,3,7,8-TCDD	75.9	13C-1,2,3,4,7,8-HxCDF	119	13C-1,2,3,7,8-PeCDF	74.9
13C-1,2,3,6,7,8-HxCDD	94.8	13C-1,2,3,7,8-PeCDD	80.8	13C-1,2,3,4,6,7,8-HpCDF	110
13C-2,3,7,8-TCDF	74.1	13C-1,2,3,4,6,7,8-HpCDD	104	13C-OCDD	85.7

Southwest Research Institute

Matrix Spike Evaluation Form

Client ID: CH2M Hill Plateau Remedia Lab Sample ID: 616801 MS Project: 20859.01.00X
Case: W17-006 Sample ID: B39XR3 MS Matrix: Water
Sample Wt/Vol: 1.03 L Final Extraction Vol: 10 uL Concentration Unit: pg/L

ANALYTE	Amount Added	Amount Unspiked Sample	Amount Detected	Amount Recovered	% Recovery	Target Recovery (Advisory)
2,3,7,8-TCDD	97.1	0	110	110	113	60 - 140
1,2,3,7,8-PeCDD	243	0	249	249	102	60 - 140
1,2,3,4,7,8-HxCDD	243	0	316	316	130	60 - 140
1,2,3,6,7,8-HxCDD	243	0	263	263	108	60 - 140
1,2,3,7,8,9-HxCDD	243	0	266	266	109	60 - 140
1,2,3,4,6,7,8-HpCDD	243	0	244	244	100	60 - 140
OCDD	485	0	482	482	99.4	60 - 140
2,3,7,8-TCDF	97.1	0	108	108	111	60 - 140
1,2,3,7,8-PeCDF	243	0	254	254	105	60 - 140
2,3,4,7,8-PeCDF	243	0	270	270	111	60 - 140
1,2,3,4,7,8-HxCDF	243	0	247	247	102	60 - 140
1,2,3,6,7,8-HxCDF	243	0	241	241	99.2	60 - 140
1,2,3,7,8,9-HxCDF	243	0	234	234	96.3	60 - 140
2,3,4,6,7,8-HxCDF	243	0	259	259	107	60 - 140
1,2,3,4,6,7,8-HpCDF	243	0	255	255	105	60 - 140
1,2,3,4,7,8,9-HpCDF	243	0	251	251	103	60 - 140
OCDF	485	0	325	325	67.0	60 - 140

Southwest Research Institute

Matrix Spike Evaluation Form

Client ID: CH2M Hill Plateau Remedia Lab Sample ID: 616801 MSD Project: 20859.01.00X
Case: W17-006 Sample ID: B39XR3 MSD Matrix: Water
Sample Wt/Vol: 1.04 L Final Extraction Vol: 10 uL Concentration Unit: pg/L

ANALYTE	Amount Added	Amount Unspiked Sample	Amount Detected	Amount Recovered	% Recovery	Target Recovery (Advisory)
2,3,7,8-TCDD	96.2	0	107	107	111	60 - 140
1,2,3,7,8-PeCDD	240	0	249	249	104	60 - 140
1,2,3,4,7,8-HxCDD	240	0	319	319	133	60 - 140
1,2,3,6,7,8-HxCDD	240	0	257	257	107	60 - 140
1,2,3,7,8,9-HxCDD	240	0	271	271	113	60 - 140
1,2,3,4,6,7,8-HpCDD	240	0	240	240	100	60 - 140
OCDD	481	0	458	458	95.2	60 - 140
2,3,7,8-TCDF	96.2	0	112	112	116	60 - 140
1,2,3,7,8-PeCDF	240	0	260	260	108	60 - 140
2,3,4,7,8-PeCDF	240	0	278	278	116	60 - 140
1,2,3,4,7,8-HxCDF	240	0	236	236	98.3	60 - 140
1,2,3,6,7,8-HxCDF	240	0	231	231	96.3	60 - 140
1,2,3,7,8,9-HxCDF	240	0	221	221	92.1	60 - 140
2,3,4,6,7,8-HxCDF	240	0	258	258	108	60 - 140
1,2,3,4,6,7,8-HpCDF	240	0	237	237	98.8	60 - 140
1,2,3,4,7,8,9-HpCDF	240	0	256	256	107	60 - 140
OCDF	481	0	429	429	89.2	60 - 140

Southwest Research Institute

Duplicate Sample Evaluation

Client ID: CH2M Hill Plateau Remediation Compa
Lab Sample ID: 616801
Project: 20859.01.00X
Case: W17-006
Sample ID: B39XR3
Matrix: Water
Sample Wt/Vol: 1.04 L
Final Extraction Vol: 10 uL
Concentration Unit: pg/L

CAS No.	ANALYTE	% Recovery from Sample (MS)	% Recovery from Sample (MSD)	RPD	QC RPD Limit
1746-01-6	2,3,7,8-TCDD	113	111	1.79	20
40321-76-4	1,2,3,7,8-PeCDD	102	104	1.94	20
39227-28-6	1,2,3,4,7,8-HxCDD	130	133	2.28	20
57653-85-7	1,2,3,6,7,8-HxCDD	108	107	0.930	20
19408-74-3	1,2,3,7,8,9-HxCDD	109	113	3.60	20
35822-46-9	1,2,3,4,6,7,8-HpCDD	100	100	0	20
3268-87-9	OCDD	99.4	95.2	4.32	20
51207-31-9	2,3,7,8-TCDF	111	116	4.41	20
57117-41-6	1,2,3,7,8-PeCDF	105	108	2.82	20
57117-31-4	2,3,4,7,8-PeCDF	111	116	4.41	20
70648-26-9	1,2,3,4,7,8-HxCDF	102	98.3	3.69	20
57117-44-9	1,2,3,6,7,8-HxCDF	99.2	96.3	2.97	20
72918-21-9	1,2,3,7,8,9-HxCDF	96.3	92.1	4.46	20
60851-34-5	2,3,4,6,7,8-HxCDF	107	108	0.930	20
67562-39-4	1,2,3,4,6,7,8-HpCDF	105	98.8	6.08	20
55673-89-7	1,2,3,4,7,8,9-HpCDF	103	107	3.81	20
39001-02-0	OCDF	67.0	89.2	28.4 *	20

Southwest Research Institute

Method 8290A PCDD/PCDF Analysis Report

Sample ID: BLANK_07JUL17

Client ID: CH2M Hill Plateau Remediat
Project: 20859.01.00X
Case: W17-006
Date Received: N/A
SDG: 616725
Date Extracted: 7/7/2017
Matrix: Water
Date Analyzed: 7/11/2017
Sample Wt/Vol: 1.00 L
Concentration Unit: pg/L

Lab Sample ID: 617434
Lab File Name: M07117M1_02
Final Extraction Vol: 10 uL
Dilution Factor: 1.0
Split Factor: 1.0
Percent Dry: N/A

CAS No.	ANALYTE	CONC	Q	EMPC	EDL	CRQL	RATIO	RT
1746-01-6	2,3,7,8-TCDD		U		1.22	5.00		
40321-76-4	1,2,3,7,8-PeCDD		U		1.26	12.5		
39227-28-6	1,2,3,4,7,8-HxCDD		U		1.55	12.5		
57653-85-7	1,2,3,6,7,8-HxCDD		U		1.06	12.5		
19408-74-3	1,2,3,7,8,9-HxCDD		U		1.23	12.5		
35822-46-9	1,2,3,4,6,7,8-HpCDD		U		1.16	12.5		
3268-87-9	OCDD	18.0	J			25.0	0.954	50.25
51207-31-9	2,3,7,8-TCDF		U		1.39	5.00		
57117-41-6	1,2,3,7,8-PeCDF		U		0.956	12.5		
57117-31-4	2,3,4,7,8-PeCDF		U		1.00	12.5		
70648-26-9	1,2,3,4,7,8-HxCDF		U		0.813	12.5		
57117-44-9	1,2,3,6,7,8-HxCDF		U		0.709	12.5		
72918-21-9	1,2,3,7,8,9-HxCDF		U		0.944	12.5		
60851-34-5	2,3,4,6,7,8-HxCDF		U		0.890	12.5		
67562-39-4	1,2,3,4,6,7,8-HpCDF		U		0.933	12.5		
55673-89-7	1,2,3,4,7,8,9-HpCDF		U		1.22	12.5		
39001-02-0	OCDF		U		1.04	25.0		

Total Dioxin	CONC	Q	Total Dibenzofuran	CONC	Q
Total Tetra-Dioxins	5.00*	U	Total Tetra-Furans	5.00*	U
Total Penta-Dioxins	12.5*	U	Total Penta-Furans	12.5*	U
Total Hexa-Dioxins	12.5*	U	Total Hexa-Furans	12.5*	U
Total Hepta-Dioxins	12.5*	U	Total Hepta-Furans	12.5*	U

* - Indicates single congener-based CRQL

Internal Standard % Recovery

13C-2,3,7,8-TCDD	81.4	13C-1,2,3,4,7,8-HxCDF	127	13C-1,2,3,7,8-PeCDF	85.7
13C-1,2,3,6,7,8-HxCDD	109	13C-1,2,3,7,8-PeCDD	80.8	13C-1,2,3,4,6,7,8-HpCDF	116
13C-2,3,7,8-TCDF	83.1	13C-1,2,3,4,6,7,8-HpCDD	115	13C-OCDD	96.8

Southwest Research Institute

Method 8290A PCDD/PCDF Analysis Report

Sample ID: LCS_07JUL17

Client ID: CH2M Hill Plateau Remediat
Project: 20859.01.00X
Lab Sample ID: 617435
Case: W17-006
Date Received: N/A
Lab File Name: M07117M1_09
SDG: 616725
Date Extracted: 7/7/2017
Final Extraction Vol: 10 uL
Matrix: Water
Date Analyzed: 7/11/2017
Dilution Factor: 1.0
Sample Wt/Vol: 1.00 L
Concentration Unit: pg/L
Split Factor: 1.0
Percent Dry: N/A

CAS No.	ANALYTE	CONC	Q	EMPC	EDL	CRQL	RATIO	RT
1746-01-6	2,3,7,8-TCDD	105				5.00	0.832	30.64
40321-76-4	1,2,3,7,8-PeCDD	280				12.5	1.54	38.22
39227-28-6	1,2,3,4,7,8-HxCDD	328				12.5	1.22	43.70
57653-85-7	1,2,3,6,7,8-HxCDD	274				12.5	1.33	43.82
19408-74-3	1,2,3,7,8,9-HxCDD	298				12.5	1.23	44.21
35822-46-9	1,2,3,4,6,7,8-HpCDD	256				12.5	1.05	47.53
3268-87-9	OCDD	490	B			25.0	0.846	50.23
51207-31-9	2,3,7,8-TCDF	125				5.00	0.829	29.38
57117-41-6	1,2,3,7,8-PeCDF	291				12.5	1.53	36.20
57117-31-4	2,3,4,7,8-PeCDF	295				12.5	1.71	37.56
70648-26-9	1,2,3,4,7,8-HxCDF	254				12.5	1.16	42.50
57117-44-9	1,2,3,6,7,8-HxCDF	264				12.5	1.26	42.66
72918-21-9	1,2,3,7,8,9-HxCDF	263				12.5	1.28	44.42
60851-34-5	2,3,4,6,7,8-HxCDF	286				12.5	1.16	43.49
67562-39-4	1,2,3,4,6,7,8-HpCDF	264				12.5	1.07	46.43
55673-89-7	1,2,3,4,7,8,9-HpCDF	291				12.5	1.16	47.89
39001-02-0	OCDF	523				25.0	0.913	50.32

Total Dioxin	CONC	Q	Total Dibenzofuran	CONC	Q
Total Tetra-Dioxins			Total Tetra-Furans		
Total Penta-Dioxins			Total Penta-Furans		
Total Hexa-Dioxins			Total Hexa-Furans		
Total Hepta-Dioxins			Total Hepta-Furans		

Internal Standard % Recovery

13C-2,3,7,8-TCDD	90.6	13C-1,2,3,4,7,8-HxCDF	108	13C-1,2,3,7,8-PeCDF	76.1
13C-1,2,3,6,7,8-HxCDD	93.4	13C-1,2,3,7,8-PeCDD	76.5	13C-1,2,3,4,6,7,8-HpCDF	104
13C-2,3,7,8-TCDF	78.3	13C-1,2,3,4,6,7,8-HpCDD	103	13C-OCDD	82.5

Southwest Research Institute

Matrix Spike Evaluation Form

Client ID: CH2M Hill Plateau Remedia Lab Sample ID: 617435 Project: 20859.01.00X
Case: W17-006 Sample ID: LCS_07JUL17 Matrix: Water
Sample Wt/Vol: 1.00 L Final Extraction Vol: 10 uL Concentration Unit: pg/L

ANALYTE	Amount Added	Amount Unspiked Sample	Amount Detected	Amount Recovered	% Recovery	Target Recovery (Advisory)
2,3,7,8-TCDD	100	0	105	105	105	60 - 140
1,2,3,7,8-PeCDD	250	0	280	280	112	60 - 140
1,2,3,4,7,8-HxCDD	250	0	328	328	131	60 - 140
1,2,3,6,7,8-HxCDD	250	0	274	274	110	60 - 140
1,2,3,7,8,9-HxCDD	250	0	298	298	119	60 - 140
1,2,3,4,6,7,8-HpCDD	250	0	256	256	102	60 - 140
OCDD	500	18.0	490	472	94.4	60 - 140
2,3,7,8-TCDF	100	0	125	125	125	60 - 140
1,2,3,7,8-PeCDF	250	0	291	291	116	60 - 140
2,3,4,7,8-PeCDF	250	0	295	295	118	60 - 140
1,2,3,4,7,8-HxCDF	250	0	254	254	102	60 - 140
1,2,3,6,7,8-HxCDF	250	0	264	264	106	60 - 140
1,2,3,7,8,9-HxCDF	250	0	263	263	105	60 - 140
2,3,4,6,7,8-HxCDF	250	0	286	286	114	60 - 140
1,2,3,4,6,7,8-HpCDF	250	0	264	264	106	60 - 140
1,2,3,4,7,8,9-HpCDF	250	0	291	291	116	60 - 140
OCDF	500	0	523	523	105	60 - 140

SOUTHWEST RESEARCH INSTITUTE
CLIENT: CH2M Hill Plateau Remediation Company
SwRI PROJECT#: 20859.01.00X
SwRI TASK ORDER: 170616-9, 170620-7
SwRI SRR: 59890, 59901
SDG: 616725
VTSR: 06.16.2017, 06.20.2017

SW846 METHOD 8290A

Extraction Form

(E8290W) Dioxin Water Extraction By Sep-Funnel 3510C (CH2M)

SwRI Labs
Client: CH2M Hill Plateau Remediation Company
Project: 20859.01.00X
Case: W17-006

Sample Receipt: 59890, 59901
TO#'s: 170620-7, 170616-9

DATE EXTRACTED	07/07/17
ANALYSTS INVOLVED	Hamed Edrisi(SU,SW,EXT,sw-cu) Marina Lebron(SU,EXT,KD) Christina Menn(SU,SP,BD,sp-cu,CU,QT,FV) Ronald Douglas (EXT)
SURROGATE SOL. ID	491-01-01-17@50/125/250pg/uL
MTX SPK SOL. ID	439-01-01-15@10/25/50pg/uL
CLEAN UP STD ID	494-01-01-17@4.0pg/uL
EXTRACTS LOCATION	Tracked by LIMS (07/10/17 CM)
CHEMICAL,BRAND,&LOT#	Ozarka Water ID: 04-0402-003p23G5 Sodium Sulfate ID:04-0402-004P28E DCM Fisher Optima Lot#172285 Hexane Fisher Optima Lot#164453R Sulfuric Acid Fisher Lot#140020 Acidified Silica Gel ID:09-0402-004p162D MP N-Super I Alumina Lot#90

NOTES	Hamilton Co. Syringes: 25uL ID#462680(SURR) 25uL ID#462679(MS)
ADDITIONAL NOTES	pH paper ID:83519 Thermometer ID:G-076 *FV before clean-up
EMULSION	C= Centrifuged,W= Wired,T= Tilte
REFRENCE BOOK &PAGE	16-0402-033 p55
TAP(S) USED	Extraction: 01-0402-015 Clean-up: 01-0402-125

	System ID	Type	Customer ID	PH	SAMPLE VOL	SURROGATE SOL VOL
1	616725		B39XN6	6.4	1020 mL	10 uL
2	616726		B39XN8	6.4	1050 mL	10 uL
3	616727		B39XP0	6.0	1020 mL	10 uL
4	616728		B39XP1	6.0	1040 mL	10 uL
5	616729		B39XP2	6.0	1060 mL	10 uL
6	616730		B39XP9	6.4	1030 mL	10 uL
7	616797		B39XP4	6.4	1050 mL	10 uL
8	616798		B39XP6	6.4	1060 mL	10 uL
9	616799		B39XP7	6.4	1050 mL	10 uL
10	616800		B39XR1	6.4	1040 mL	10 uL
11	616801		B39XR3	6.4	1040 mL	10 uL
12	616801	MS	B39XR3	6.4	1030 mL	10 uL
13	616801	MSD	B39XR3	6.4	1040 mL	10 uL
14	617434		WQCBLK_07JUL17	6.4	1000 mL	10 uL
15	617435		LCS_07JUL17	6.4	1000 mL	10 uL

	System ID	Type	Customer ID	MTX SPK SOL VOL	FV HEX	CLEAN UP STD VOL
1	616725		B39XN6	0 uL	~4mL*	25 uL
2	616726		B39XN8	0 uL	~4mL*	25 uL
3	616727		B39XP0	0 uL	~4mL*	25 uL
4	616728		B39XP1	0 uL	~4mL*	25 uL
5	616729		B39XP2	0 uL	~4mL*	25 uL
6	616730		B39XP9	0 uL	~4mL*	25 uL
7	616797		B39XP4	0 uL	~4mL*	25 uL
8	616798		B39XP6	0 uL	~4mL*	25 uL
9	616799		B39XP7	0 uL	~4mL*	25 uL
10	616800		B39XR1	0 uL	~4mL*	25 uL
11	616801		B39XR3	0 uL	~4mL*	25 uL
12	616801	MS	B39XR3	10 uL	~4mL*	25 uL
13	616801	MSD	B39XR3	10 uL	~4mL*	25 uL
14	617434		WQCBLK_07JUL17	0 uL	~4mL*	25 uL
15	617435		LCS_07JUL17	10 uL	~4mL*	25 uL

System ID	Type	Customer ID	H2SO4 VOL (ML)	AL/SI 4.5"/4.5"	CHARCOAL YES/NO	EMULSION

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Approved by HAMED EDRISI on Jul 10 2017 4:45PM

Date Printed: 7/12/2017

ver (04/10/2017)

(E8290W) Dioxin Water Extraction By Sep-Funnel 3510C (CH2M)

SwRI Labs
Client: CH2M Hill Plateau Remediation Company
Project: 20859.01.00X
Case: W17-006

Sample Receipt: 59890, 59901
TO#'s: 170620-7, 170616-9

	System ID	Type	Customer ID	H2SO4 VOL (ML)	AL/SI 4.5"/4.5"	CHARCOAL YES/NO	EMULSION
1	616725		B39XN6	4	1	no	no
2	616726		B39XN8	4	1	no	no
3	616727		B39XP0	4	1	no	no
4	616728		B39XP1	4	1	no	no
5	616729		B39XP2	4	1	no	no
6	616730		B39XP9	4	1	no	no
7	616797		B39XP4	4	1	no	no
8	616798		B39XP6	4	1	no	no
9	616799		B39XP7	4	1	no	no
10	616800		B39XR1	4	1	no	no
11	616801		B39XR3	4	1	no	no
12	616801	MS	B39XR3	4	1	no	no
13	616801	MSD	B39XR3	4	1	no	no
14	617434		WQCBLK_07JUL17	4	1	no	no
15	617435		LCS_07JUL17	4	1	no	no

Extraction Flowchart:

XmL H2O —> ~4mL Hexane —> Dioxin Clean-up (AC/Si/AL)

└> FV Dryness for analysis

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ver (04/10/2017)

CH2M HILL PLATEAU REMEDIATION 8290A WATER

SwRI Labs
Client: CH2M Hill Plateau Remediation Company
Project: 20859.01.00X
Case: W17-006

Sample Receipt: 59890, 59901
TO#'s: 170616-9, 170620-7

SOLVENT (CI#):	NONANE CI 67040
RS SPIKE ID:	485-01-01-16
EXTRACT LOCATION:	FRZ 31 BOX 114 C8-D10

COMMENTS:

	System ID	Type	Customer ID	VOLUME RS	VOLUME SOLVENT	SPIKE DATE	SPIKE PERSON
1	616725		B39XN6	10.0 uL	30.0 uL	07/10/2017	TF
2	616726		B39XN8	10.0 uL	30.0 uL	07/10/2017	TF
3	616727		B39XP0	10.0 uL	30.0 uL	07/10/2017	TF
4	616728		B39XP1	10.0 uL	30.0 uL	07/10/2017	TF
5	616729		B39XP2	10.0 uL	30.0 uL	07/10/2017	TF
6	616730		B39XP9	10.0 uL	30.0 uL	07/10/2017	TF
7	616797		B39XP4	10.0 uL	30.0 uL	07/11/2017	TF
8	616798		B39XP6	10.0 uL	30.0 uL	07/11/2017	TF
9	616799		B39XP7	10.0 uL	30.0 uL	07/11/2017	TF
10	616800		B39XR1	10.0 uL	30.0 uL	07/11/2017	TF
11	616801		B39XR3	10.0 uL	30.0 uL	07/11/2017	TF
12	617434		WQCBLK_07JUL17	10.0 uL	30.0 uL	07/10/2017	TF
13	617435		LCS_07JUL17	10.0 uL	30.0 uL	07/10/2017	TF
14	616801	MS	B39XR3	10.0 uL	30.0 uL	07/10/2017	TF
15	616801	MSD	B39XR3	10.0 uL	30.0 uL	07/10/2017	TF

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