SOUTHWEST RESEARCH INSTITUTE®

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CHEMISTRY AND CHEMICAL ENGINEERING DIVISION
DEPARTMENT OF ANALYTICAL AND ENVIRONMENTAL CHEMISTRY

March 20, 2018

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

Attn: Ms. Karen Waters-Husted

Subject:

SAF No:	W18-001
SDG Number:	626218
SwRI Project Number:	20859.01.00X
SwRI Task Order Number:	180110-3, 180115-7, 180118-6
SwRI Sample Receipt Number:	60981, 61005, 61022
Samples Received:	01.10.2018, 01.15.2018, 01.18.2018
Fraction:	SW846 Method 8290A, and SW846 Method 9012

Dear Ms. Waters-Husted:

Attached is the revised data package, which includes the updated report forms, which have been modified to have the "CONC" column populated. 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

PROBLEM AND DISCREPANCY (P&D) REPORT

P&D Number:	PD18-0147
Rev. Number:	0
Laboratory:	SWRI
SDG Number:	SWRI626218
Date Initiated:	02/21/2018

SAMPLE EVENT INFORMATION

SAF NUM(S): W18-001

SAMPLING INFORMATION

NUMBER OF SAMPLES: 5

SAMPLE MATRIX: WATER

ISSUE BACKGROUND

CLASS: Data Issues

TYPE: Missing sample data

DESCRIPTION: The result forms are not reporting a numerical value in the Conc column in the hard copy. The EDD is not loaded yet.

RESOLUTION

PROPOSED RESOLUTION: Please correct the issue and resubmit the hard copy and electronic copy data packages

FINAL RESOLUTION:

SUBMITTED BY:

MEDLEY, HA 02/21/2018

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CHEMISTRY AND CHEMICAL ENGINEERING DIVISION
DEPARTMENT OF ANALYTICAL AND ENVIRONMENTAL CHEMISTRY

NELAP ACCREDITED LABORATORY

NSF Registered to ISO 9001

February 08, 2018

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

Attn: Ms. Karen Waters-Husted

Subject:	SAF No:	W18-001
	SDG Number:	626218
	SwRI Project Number:	20859.01.00X
	SwRI Task Order Number:	180110-3, 180115-7, 180118-6
	SwRI Sample Receipt Number:	60981, 61005, 61022
	Samples Received:	01.10.2018, 01.15.2018, 01.18.2018
	Fraction:	SW846 Method 8290A, and SW846 Method 9012

Dear Ms. Waters-Husted:

Please find the enclosed results for the fourteen (14) 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 ROJECT#: 20859.01.00X
SwRI TASK ORDER: 180110-3, 180115-7, 180118-6
SwRI SRR: 60981, 61005, 61022
SDG: 626218
CASE: W18-001
VTSR: 01/10/18, 01/15/18, 01/18/18

CHAIN-OF-CUSTODY & SAMPLE RECEIPT PAPERWORK

Total Page Count: 010001-
SW846 Method
Fraction: 8290A+ Pages: 010095
SW846 Method 9012

CH2MHill Plateau Remediation Company	86 LBS. CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 010002	C.O.C. # W18-001-147 Page 1 of 1

Collector:	Jeff Tucksen CHPRC	Contact/Requester:	Karen Waters-Husted	Telephone No.:	509-376-4650
SAF No.:	W18-001	Sampling Origin:	Hanford Site	Purchase Order/Charge Code:	300071
Project Title:	RCRA, JANUARY 2018	Logbook No.:	HNF-N-506 97-39	Ice Chest No.:	GWS-518
Shipped To (Lab):	Southwest Research Institute	Method of Shipment	Commercial Carrier	Bill of Lading/Air Bill No.:	7711 7395 3947
Protocol	RCRA	Priority:	30 Days	Offsite Property No.:	89931

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
B3FTL3	N	W	1-8-18	1338	4x1-L aG	8290_DIOXINS_GCMS: COMMON	30/45 Days	Cool <=6C

CHPRC
SRR # 60981
SDG # 626218

SwRI Prjct # 20859.01.00X
TO: 180110-3

SWRI

Relinquished By:	Received By:
Jeff Tucksen CHPRC — Print First and Last Name; Signature; JAN 08 2018 1455 Date/Time	SSU-1 — Print First and Last Name; Signature; JAN 08 2018 1455 Date/Time
SSU-1 — Print First and Last Name; Signature; JAN 09 2018 1000 Date/Time	Lesly Wall /CHPRC — Print First and Last Name; Lesly Wall Signature; JAN 09 2018 1000 Date/Time
Lesly Wall /CHPRC — Print First and Last Name; Lesly Wall Signature; JAN 09 2018 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; 01-10-2018 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 010003	C.O.C. # W18-001-148 Page 1 of 1

Collector:	Jeff Tucksen CHPRC	Contact/Requester:	Karen Waters-Husted	Telephone No.:	509-376-4650
SAF No.:	W18-001	Sampling Origin:	Hanford Site	Purchase Order/Charge Code:	300071
Project Title:	RCRA, JANUARY 2018	Logbook No.:	HNF-N-506-97-39	Ice Chest No.:	GWS-518
Shipped To (Lab):	Southwest Research Institute	Method of Shipment	Commercial Carrier	Bill of Lading/Air Bill No.:	771173953947
Protocol	RCRA	Priority:	30 Days	Offsite Property No.:	8931

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
B3FTL4	N	W	1-8-18	1338	4x1-L aG	8290_DIOXINS_GCMS: COMMON	30/45 Days	Cool <=6C

CHPRC
SRR # 60981
SDG # 626218

SwRI Prjct # 20859.01.00X
TO: 180110-3

Relinquished By: CHPRC	JAN 08 2018 1435	Received By: SSU-1	JAN 08 2018 1435	Matrix *	
Print First and Last Name / Signature / Date/Time		Print First and Last Name / Signature / Date/Time		S = Soil	DS = Drum Solids
Relinquished By: SSU-1	JAN 09 2018 1000	Received By: Lesly Wall /CHPRC	JAN 09 2018 1000	SE = Sediment	DL = Drum Liquid
Print First and Last Name / Signature / Date/Time		Print First and Last Name / Signature / Date/Time		SO = Solid	T = Tissue
Relinquished By: Lesly Wall /CHPRC	JAN 09 2018 1400	Received By: FEDEX		SL = Sludge	WI = Wipe
Print First and Last Name / Signature / Date/Time		Print First and Last Name / Signature / Date/Time		W = Water	L = Liquid
Relinquished By: FEDEX		Received By: David Garcia	01-10-2018 08:45	O = Oil	V = Vegetation
Print First and Last Name / Signature / Date/Time		Print First and Last Name / Signature / Date/Time		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 010004

C.O.C. # W18-001-155

Collector:	Daniel Klug CHPRC	Contact/Requester:	Karen Waters-Husted	Telephone No.:	509-376-4650
SAF No.:	W18-001	Sampling Origin:	Hanford Site	Purchase Order/Charge Code:	300071
Project Title:	RCRA, JANUARY 2018	Logbook No.:	HNF-N-506 - 95/74	Ice Chest No.:	GWS-518
Shipped To (Lab):	Southwest Research Institute	Method of Shipment	Commercial Carrier	Bill of Lading/Air Bill No.:	771173953947
Protocol	RCRA	Priority:	30 Days	Offsite Property No.:	8931

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
B3FR86	N	W	JAN 08 2018	1109	1x250-mL aG	9012_CYANIDE (TOTAL): COMMON	14 Days	NaOH to pH >=12 / Cool <=6C
B3FR86	N	W	/	/	4x1-L aG	8290_DIOXINS_GCMS: COMMON	30/45 Days	Cool <=6C

CHPRC
SRR # 60981
SDG # 626218

SwRI Prjct # 20859.01.00X
TO: 180110-3

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	JAN 08 2018 1135	Roger Reyes Jr. /CHPRC		JAN 08 2018 1135
		JAN 08 2018 1245	SSU-1		JAN 08 2018 1245
SSU-1		JAN 09 2018 1000	Lesly Wall /CHPRC	Lesly Wall	JAN 09 2018 1000
Lesly Wall /CHPRC	Lesly Wall	JAN 09 2018 1400	FEDEX		

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

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

010005

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST (continued)

C.O.C. No. W18-001-155

Page 2 of 2

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
	FEDEX			David Garcia	David Garcia		01-10-2018 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 010006

C.O.C. # W18-001-374

Collector:	Jeff Tucksen CHPRC	Contact/Requester:	Karen Waters-Husted	Telephone No.:	509-376-4650
SAF No.:	W18-001	Sampling Origin:	Hanford Site	Purchase Order/Charge Code:	300071
Project Title:	RCRA, JANUARY 2018	Logbook No.:	HNF-N-506 -97-39	Ice Chest No.:	GWS-518
Shipped To (Lab):	Southwest Research Institute	Method of Shipment	Commercial Carrier	Bill of Lading/Air Bill No.:	7711 7395 3947
Protocol	RCRA	Priority:	30 Days	Offsite Property No.:	8981

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
B3FY73	N	W	1-8-18	1200	1x250-mL aG	9012_CYANIDE (TOTAL): COMMON	14 Days	NaOH to pH >=12 / Cool <=6C

CHPRC
SRR # 60981
SDG # 626218

SwRI Prjct # 20859.01.00X
TO: 180110-3

Relinquished By	Print First and Last Name	Signature	Date/Time	Received By	Print First and Last Name	Signature	Date/Time
Jeff Tucksen CHPRC			JAN 0 8 2018 1235	Christina Aguilar /CHPRC			JAN 0 8 2018 1235
Christina Aguilar /CHPRC			JAN 0 8 2018 1305	SSU-1			JAN 0 8 2018 1305
SSU-1			JAN 0 9 2018 1000	Lesly Wall /CHPRC			JAN 0 9 2018 1000
Lesly Wall /CHPRC			JAN 0 9 2018 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:

010007

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST (continued)

C.O.C. No. W18-001-374

Page 2 of 2

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
	FEDEX			David Garcia		David Garcia	01-10-2018 08:05
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
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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 010008

C.O.C. # W18-001-383

AW 1/8/18

Collector:	Daniel Klug CHPRC	Contact/Requester:	Karen Waters-Husted	Telephone No.:	509-376-4650
SAF No.:	W18-001	Sampling Origin:	Hanford Site	Purchase Order/Charge Code:	300071
Project Title:	RCRA, JANUARY 2018	Logbook No.:	HNF-N-506 ~95/74	Ice Chest No.:	GWS-518
Shipped To (Lab):	Southwest Research Institute	Method of Shipment	Commercial Carrier	Bill of Lading/Air Bill No.:	771173953947
Protocol	RCRA	Priority:	30 Days	Offsite Property No.:	8931

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
B3FYD2	N	W	JAN 0 8 2018	1211	1x250-mL aG	9012_CYANIDE (TOTAL): COMMON	14 Days	NaOH to pH >=12 / Cool <=6C

CHPRC
SRR # 60981
SDG # 626218

SwRI Prjct # 20859.01.00X
TO: 180110-3

SwRI

Relinquished By:	Print First and Last Name	Signature	Date/Time
Daniel Klug CHPRC	D. Klug		JAN 0 8 2018 1230
Christina Aguilar /CHPRC	Cm Aguilar		JAN 0 8 2018 1305
SSU-1	SSU-1		JAN 0 9 2018 1000
Lesly Wall /CHPRC	Lesly Wall		JAN 0 9 2018 1400

Received By:	Print First and Last Name	Signature	Date/Time
Christina Aguilar /CHPRC	Cm Aguilar		JAN 0 8 2018 1230
SSU-1	SSU-1		JAN 0 8 2018 1305
Lesly Wall /CHPRC	Lesly Wall		JAN 0 9 2018 1000
FEDEX	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:

010009

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST (continued)

C.O.C. No. W18-001-383

Page 2 of 2

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
	FEDEX						
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
							01/02/2018 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

A-6003-962 (03/05)

CH2MHill Plateau Remediation Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

010010

C.O.C. # W18-001-006

Collector:	Jeff Tucksen CHPRC	Contact/Requester:	Karen Waters-Husted	Telephone No.:	509-376-4650
SAF No.:	W18-001	Sampling Origin:	Hanford Site	Purchase Order/Charge Code:	300071
Project Title:	RCRA, JANUARY 2018	Logbook No.:	HNF-N-506-92-40	Ice Chest No.:	CWS-623
Shipped To (Lab):	Southwest Research Institute	Method of Shipment	Commercial Carrier	Bill of Lading/Air Bill No.:	771199035575
Protocol	RCRA	Priority:	30 Days	Offsite Property No.:	5947

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
B3FR78	N	W	JAN 09 2018	0925	1x250-mL aG	9012_CYANIDE (TOTAL): COMMON	14 Days	NaOH to pH >=12 / Cool <=6C

CHPRC
SRR # 61005

SDG # 626218

SwRI Prjct # 20859.01.00X
TO: 180115-7

Relinquished By	Print First and Last Name	Signature	Date/Time	Received By	Print First and Last Name	Signature	Date/Time
Jeff Tucksen CHPRC			JAN 09 2018 0955	Christina Aguilar /CHPRC			JAN 09 2018 0955
Christina Aguilar /CHPRC			JAN 09 2018 1050	SSU-1			JAN 09 2018 1050
SSU-1			JAN 11 2018 0800	Lesly Wall /CHPRC			JAN 11 2018 0800
Lesly Wall /CHPRC			JAN 11 2018 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:

010011

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST (continued)

C.O.C. No. W18-001-006

Page 2 of 2

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
	FED EX				David Garcia	David Garcia	01-15-2018 09:00
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
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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 010012

C.O.C. # W18-001-151

Page 1 of 1

Collector:	TIM CALLAWAY CHPRC	Contact/Requester:	Karen Waters-Husted	Telephone No.:	509-376-4650
SAF No.:	W18-001	Sampling Origin:	Hanford Site	Purchase Order/Charge Code:	300071
Project Title:	RCRA, JANUARY 2018	Logbook No.:	HNF-N-506 - 97/41	Ice Chest No.:	GWS-623
Shipped To (Lab):	Southwest Research Institute	Method of Shipment	Commercial Carrier	Bill of Lading/Air Bill No.:	771199035575
Protocol	RCRA	Priority:	30 Days	Offsite Property No.:	8947

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
B3FTN4	N	W	JAN 11 2018	1040	4x1-L aG	8290_DIOXINS_GCMS: COMMON	30/45 Days	Cool <=6C

CHPRC
SRR # 61005
SDG # 626218

SwRI Prjct # 20859.01.00X
TO: 180115-7

SwRI

Relinquished By:	Received By:
TIM CALLAWAY CHPRC — Print First and Last Name; Signature; JAN 11 2018 1110 — Date/Time	Christina Aguila /CHPRC — Print First and Last Name; Signature; JAN 11 2018 1110 — Date/Time
Christina Aguilar /CHPRC — Print First and Last Name; Signature; JAN 11 2018 1400 — Date/Time	FEDEX — Print First and Last Name; Signature; Date/Time
FEDEX — Print First and Last Name; Signature; Date/Time	D. RAMIREZ — Print First and Last Name; Signature; 01/15/2018 0900 — Date/Time
Relinquished By: — Print First and Last Name; Signature; Date/Time	David Garcia David Garcia 01-15-2018 09:00 — 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

010013

C.O.C. # W18-001-153

Page 1 of 1

Collector:	Daniel Klug CHPRC	Contact/Requester:	Karen Waters-Husted	Telephone No.:	509-376-4650
SAF No.:	W18-001	Sampling Origin:	Hanford Site	Purchase Order/Charge Code:	300071
Project Title:	RCRA, JANUARY 2018	Logbook No.:	HNF-N-506 -95/74	Ice Chest No.:	6035-623
Shipped To (Lab):	Southwest Research Institute	Method of Shipment	Commercial Carrier	Bill of Lading/Air Bill No.:	771799035575
Protocol	RCRA	Priority:	30 Days	Offsite Property No.:	8947

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
B3FR75	N	W	JAN 0 8 2018	1325	4x1-L aG	8290_DIOXINS_GCMS: COMMON	30/45 Days	Cool <=6C

CHPRC
SRR # 61005

SDG # 626218

SwRI Prjct # 20859.01.00X
TO: 180115-7

SwRI

Relinquished By:	Received By:
Daniel Klug CHPRC — D. Klug — JAN 0 8 2018 1415	SSU-1 — JAN 0 8 2018 1415
SSU-1 — JAN 09 2018 0800 (11 Rec. 1/11/18)	Lesly Wall /CHPRC — JAN 09 2018 0800 (11 Rec. 1/11/18)
Lesly Wall /CHPRC — JAN 09 2018 1400 (11 Rec. 1/11/18)	FEDEX
FED EX	David Garcia — 01-15-2018 09:00

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 12/13/2017

FSR ID = FSR55541

A-6004-842 (REV 3)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 010014	C.O.C. # W18-001-378 Page 1 of 1

Collector:	Larry Rosano /CHPRC	Contact/Requester:	Karen Waters-Husted	Telephone No.:	509-376-4650
SAF No.:	W18-001	Sampling Origin:	Hanford Site	Purchase Order/Charge Code:	300071
Project Title:	RCRA, JANUARY 2018	Logbook No.:	HNF-N-506 ~98/25	Ice Chest No.:	605-623
Shipped To (Lab):	Southwest Research Institute	Method of Shipment	Commercial Carrier	Bill of Lading/Air Bill No.:	771199035575
Protocol	RCRA	Priority:	30 Days	Offsite Property No.:	8947

LBS 63

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
B3FYC8	N	W	1-11-18	1035 ~~0900~~	1x250-mL aG	9012_CYANIDE (TOTAL): COMMON	14 Days	NaOH to pH >=12 / Cool <=6C

1-11-18

CHPRC
SRR # 61005
SDG # 626218

SwRI Prjct # 20859.01.00X
TO: 180115-7

SwRI

Relinquished By	Received By	
Larry Rosano /CHPRC — Print First and Last Name; Larry Rosano — Signature; JAN 11 2018 1055 — Date/Time	Christina Aguilar /CHPRC — Print First and Last Name; Cm — Signature; JAN 11 2018 1055 — Date/Time	Matrix *
Relinquished By: Christina Aguilar /CHPRC — Print First and Last Name; Cm — Signature; JAN 11 2018 1400 — Date/Time	Received By: FEDEX — Print First and Last Name; Signature; Date/Time	S = Soil; SE = Sediment; SO = Solid; SL = Sludge; W = Water; O = Oil; A = Air; DS = Drum Solids; DL = Drum Liquid; T = Tissue; WI = Wipe; L = Liquid; V = Vegetation; X = Other
Relinquished By: FEDEX — Print First and Last Name; Signature; Date/Time	Received By: D Ramirez — Print First and Last Name; D Ramirez — Signature; 01/15/2018 0900 — Date/Time	
Relinquished By: — Print First and Last Name; Signature; Date/Time	Received By: David Garcia — Print First and Last Name; David Garcia — Signature; 01-15-2018 0900 — Date/Time	

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

010015

C.O.C. # W18-001-328

Page 1 of 1

Collector:	IVAN SCHAEFFER CHPRC	**Contact/Requester:**	Karen Waters-Husted	**Telephone No.:**	509-376-4650
SAF No.:	W18-001	**Sampling Origin:**	Hanford Site	**Purchase Order/Charge Code:**	300071
Project Title:	RCRA, JANUARY 2018	**Logbook No.:**	HNF-N-506 - 96181	**Ice Chest No.:**	GWS-594
Shipped To (Lab):	Southwest Research Institute	**Method of Shipment**	Commercial Carrier	**Bill of Lading/Air Bill No.:**	771240050315
Protocol	RCRA	**Priority:**	30 Days	**Offsite Property No.:**	8971

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
B3FXL8	N	W	1-16-18	1201	1x250-mL aG	9012_CYANIDE (TOTAL): COMMON	14 Days	NaOH to pH >=12 / Cool <=6C

CHPRC
SRR # 61022

SDG # 626218

SwRI Prjct # 20859.01.00X
TO: 180118-6

Relinquished By:	Received By:
IVAN SCHAEFFER CHPRC — Signature — JAN 16 2018 1345	SSU-1 — JAN 16 2018 1345
SSU-1 — JAN 17 2018 0730	Lesly Wall /CHPRC — JAN 17 2018 0730
Lesly Wall /CHPRC — JAN 17 2018 1400	FEDEX
FEDEX	David Garcia — 01-18-2018 09:00

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 010016

C.O.C. # W18-001-335

Collector: IVAN SCHAEFFER CHPRC	**Contact/Requester:** Karen Waters-Husted	**Telephone No.:** 509-376-4650 KW 1/17/18
SAF No.: W18-001	**Sampling Origin:** Hanford Site	**Purchase Order/Charge Code:** 300071
Project Title: RCRA, JANUARY 2018	**Logbook No.:** HNF-N-506 -96181	**Ice Chest No.:** 6W5-594
Shipped To (Lab): Southwest Research Institute	**Method of Shipment** Commercial Carrier	**Bill of Lading/Air Bill No.:** 771240050315
Protocol RCRA	**Priority:** 30 Days	**Offsite Property No.:** 8971

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
B3FXM9	N	W	1-16-18	1015	1x250-mL aG	9012_CYANIDE (TOTAL): COMMON	14 Days	NaOH to pH >=12 / Cool <=6C

CHPRC
SRR # 61022

SDG # 626218

SwRI Prjct # 20859.01.00X
TO: 180118-6

SwRI

Relinquished By	Print First and Last Name	Signature	Date/Time	Received By	Print First and Last Name	Signature	Date/Time
	IVAN SCHAEFFER CHPRC	Ivan Schaeffer	JAN 16 2018 1047		Troy Bacon CHPRC	Troy L. Bacon	JAN 16 2018 1047
	Troy Bacon CHPRC	Troy L. Bacon	JAN 16 2018 1325		SSU-1		JAN 16 2018 1325
	SSU-1		JAN 17 2018 0730		Lesly Wall /CHPRC	Lesly Wall	JAN 17 2018 0730
	Lesly Wall /CHPRC	Lesly Wall	JAN 17 2018 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:

010017

C.O.C. No. W18-001-335

Page 2 of 2

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST (continued)

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
	FED EX			David Garcia	David Garcia	01-18-2018	09:00
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 010018	C.O.C. # W18-001-344 Page 1 of 1

Collector:	Dan Woehle CHPRC	Contact/Requester:	Karen Waters-Husted	Telephone No.:	509-376-4650
SAF No.:	W18-001	Sampling Origin:	Hanford Site	Purchase Order/Charge Code:	300071
Project Title:	RCRA, JANUARY 2018	Logbook No.:	HNF-N-506 - 95181	Ice Chest No.:	6005-594
Shipped To (Lab):	Southwest Research Institute	Method of Shipment	Commercial Carrier	Bill of Lading/Air Bill No.:	771240050315
Protocol	RCRA	Priority:	30 Days	Offsite Property No.:	8971

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
B3FXP7	N	W	JAN 17 2018	0903	1x250-mL aG	9012_CYANIDE (TOTAL): COMMON	14 Days	NaOH to pH >=12 / Cool <=6C

CHPRC
SRR # 61022

SDG # 626218

SwRI Prjct # 20859.01.00X
TO: 180118-6

SWRI

Relinquished By:	Received By:
Dan Woehle CHPRC — Dan Woehle — JAN 17 2018 1035 (Print First and Last Name / Signature / Date/Time)	Troy Bacon CHPRC — Troy L. Bacon — JAN 17 2018 1035 (Print First and Last Name / Signature / Date/Time)
Troy Bacon CHPRC — Troy L. Bacon — JAN 17 2018 1400 (Print First and Last Name / Signature / Date/Time)	FEDEX (Print First and Last Name / Signature / Date/Time)
FED EX (Print First and Last Name / Signature / Date/Time)	D Ramirez — 01/18/2018 0900 (Print First and Last Name / Signature / Date/Time)
(Print First and Last Name / Signature / Date/Time)	~~David Garcia — 01-18-2018 09:00~~ (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

TE DLM 1/18/18

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 43lbs	C.O.C. # W18-001-352 Page 1 of 1

Collector:	IVAN SCHAEFFER CHPRC	Contact/Requester:	Karen Waters-Husted	Telephone No.:	509-376-4650
SAF No.:	W18-001	Sampling Origin:	Hanford Site	Purchase Order/Charge Code:	300071
Project Title:	RCRA, JANUARY 2018	Logbook No.:	HNF-N-506-96182	Ice Chest No.:	605-594
Shipped To (Lab):	Southwest Research Institute	Method of Shipment	Commercial Carrier	Bill of Lading/Air Bill No.:	7712 4005 0315
Protocol	RCRA	Priority:	30 Days	Offsite Property No.:	89171

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
B3FXV2	N	W	1-17-18	0845	1x250-mL aG	9012_CYANIDE (TOTAL): COMMON	14 Days	NaOH to pH >=12 / Cool <=6C

CHPRC
SRR # 61022
SDG # 626218

SwRI Prjct # 20859.01.00X
TO: 180118-6

SwRI

Relinquished By:	Received By:
IVAN SCHAEFFER CHPRC — Print First and Last Name; Signature; JAN 17 2018 1020 — Date/Time	Troy Bacon CHPRC — Print First and Last Name; Signature; JAN 17 2018 1020 — Date/Time
Troy Bacon CHPRC — Print First and Last Name; Signature; JAN 17 2018 1400 — Date/Time	FEDEX — Print First and Last Name; Signature; Date/Time
FED EX — Print First and Last Name; Signature; Date/Time	DRAMIREZ — Print First and Last Name; Signature; 01/18/2018 0900 — Date/Time
Relinquished By: — Print First and Last Name; Signature; Date/Time	~~David Garcia~~ — Print First and Last Name; Signature; ~~01-18-2018 09:00~~ — 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

TE 01/18/18

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

010020

C.O.C. # W18-001-381

Page 1 of 1

Collector:	Larry Rosane /CHPRC	Contact/Requester:	Karen Waters-Husted	Telephone No.:	509-376-4650
SAF No.:	W18-001	Sampling Origin:	Hanford Site	Purchase Order/Charge Code:	300071
Project Title:	RCRA, JANUARY 2018	Logbook No.:	HNF-N-506 98/95	Ice Chest No.:	GWS-715
Shipped To (Lab):	Southwest Research Institute	Method of Shipment	Commercial Carrier	Bill of Lading/Air Bill No.:	7712 2743 1541
Protocol	RCRA	Priority:	30 Days	Offsite Property No.:	8961

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
B3FYD0	N	W	1-11-18	1215	1x250-mL aG	9012_CYANIDE (TOTAL): COMMON	14 Days	NaOH to pH >=12 / Cool <=6C

CHPRC
SRR # 61022

SDG # 626218

SwRI Prjct # 20859.01.00X
TO: 180118-6

SwRI

Relinquished By	Print First and Last Name	Signature	Date/Time	Received By	Print First and Last Name	Signature	Date/Time
Larry Rosane /CHPRC	Larry Rosane	Larry Rosane	JAN 11 2018 1345	SSU-1	SSU-1		JAN 11 2018 1345
SSU-1	SSU-1		JAN 16 2018 0900	Lesly Wall /CHPRC	Lesly Wall	Lesly Wall	JAN 16 2018 0900
Lesly Wall /CHPRC	Lesly Wall	Lesly Wall	JAN 16 2018 1400	FEDEX	FEDEX		
FED EX	FED EX			David Garcia	David Garcia	David Garcia	01-18-2018 09:00

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:

Southwest Research Institute

Laboratory Task Order

TO #: 180110-3 Revision: 3

Project(s): 20859.01.00X
Manager(s): SPIES, RADONNA
To Client: 02/08/18

SDG: 626218
VTSR: 01/10/18
SAF: W18-001

SRR #'s: 60981
Client(s): CH2M Hill Plateau Remediation Company

Instructions

CH2MHill Plateau Remediation Company. 300071
SAF No. W18-001

SDG 626218 is open until 01/24/18

30-day TAT.
CURRENTLY, FINAL DATA/HARDCOPY IS DUE TO THE CLIENT ON 02/09/2018.

13 overall samples (23 containers) were received on 01/10/2018.
OUT of the 13 samples, ONLY the 5 samples under W18-001, which require Dioxin and Cyanide, are listed here.

Sample Analysis REQUIRED
8290_DIOXINS_GCMS
9012 _ 57-12-5 Cyanide (Total)

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 01/11/18: Task Order revised to add 8290 extraction code.
REVISION 2, DRmz 01/15/18: Task Order revised to indicate additional samples were received on 01/15/18, which have been grouped with 626218, located in Task Order # 180115-7, SRR 61005.
REVISION 3, DRmz 01/18/18: Task Order revised to indicate additional samples were received on 01/18/18, which have been grouped with 626218, located in Task Order # 180118-6, SRR 61022.

Documents Related to this task order: 235767[COC for SRR 60981], 235768[Paperwork for SRR 60981]

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

Test: CN_9012
Section: WETCHEM
Holding: 14 days from CED
Cyanide by Method 9012 (Automated) Cnt: 3

System ID	Type	Cont	Matrix	Customer ID	CED	Method Date
626218		1-9012	Water	B3FR86	08 Jan 18	22 Jan 18
626221		1	Water	B3FY73	08 Jan 18	22 Jan 18
626222		1	Water	B3FYD2	08 Jan 18	22 Jan 18

Test: D8290A
Section: DIOXIN
Holding: 45 days from E8290
ANALYSIS FOR METHOD 8290A Cnt: 3

System ID	Type	Cont	Matrix	Customer ID	N/A	Method Date
626218		2-8290	Water	B3FR86	30 Jan 18	16 Mar 18
626218		3-8290	Water	B3FR86	30 Jan 18	16 Mar 18
626218		4-8290	Water	B3FR86	30 Jan 18	16 Mar 18
626218		5-8290	Water	B3FR86	30 Jan 18	16 Mar 18
626219		1	Water	B3FTL3	30 Jan 18	16 Mar 18
626219		2	Water	B3FTL3	30 Jan 18	16 Mar 18
626219		3	Water	B3FTL3	30 Jan 18	16 Mar 18

Southwest Research Institute

Laboratory Task Order

TO #: 180110-3 Revision: 3

Project(s): 20859.01.00X
Manager(s): SPIES, RADONNA
To Client: 02/08/18

SDG: 626218
VTSR: 01/10/18
SAF: W18-001

SRR #'s: 60981
Client(s): CH2M Hill Plateau Remediation Company

System ID	Type	Cont	Matrix	Customer ID	N/A	Method Date
626219		4	Water	B3FTL3	30 Jan 18	16 Mar 18
626220		1	Water	B3FTL4	30 Jan 18	16 Mar 18
626220		2	Water	B3FTL4	30 Jan 18	16 Mar 18
626220		3	Water	B3FTL4	30 Jan 18	16 Mar 18
626220		4	Water	B3FTL4	30 Jan 18	16 Mar 18

Test: E8290
Section: EXTLAB

Holding: 30 days from CED

EXTRACTION BY METHOD 8290

Cnt: 3

System ID	Type	Cont	Matrix	Customer ID	CED	Method Date
626218		2-8290	Water	B3FR86	08 Jan 18	07 Feb 18
626218		3-8290	Water	B3FR86	08 Jan 18	07 Feb 18
626218		4-8290	Water	B3FR86	08 Jan 18	07 Feb 18
626218		5-8290	Water	B3FR86	08 Jan 18	07 Feb 18
626219		1	Water	B3FTL3	08 Jan 18	07 Feb 18
626219		2	Water	B3FTL3	08 Jan 18	07 Feb 18
626219		3	Water	B3FTL3	08 Jan 18	07 Feb 18
626219		4	Water	B3FTL3	08 Jan 18	07 Feb 18
626220		1	Water	B3FTL4	08 Jan 18	07 Feb 18
626220		2	Water	B3FTL4	08 Jan 18	07 Feb 18
626220		3	Water	B3FTL4	08 Jan 18	07 Feb 18
626220		4	Water	B3FTL4	08 Jan 18	07 Feb 18

Southwest Research Institute

Laboratory Task Order

TO #: 180115-7 Revision: 1

Project(s): 20859.01.00X
Manager(s): SPIES, RADONNA
To Client: 02/08/18

SDG: 626218
VTSR: 01/15/18
SAF: W18-001

SRR #'s: 61005
Client(s): CH2M Hill Plateau Remediation Company

Instructions

CH2MHill Plateau Remediation Company. 300071
SAF No. W18-001

SDG 626218 is open until 01/24/18

GROUPED _ with samples in SDG 626218, located in Task Order # 180110-3, SRR 60981.

30-day TAT.
CURRENTLY, FINAL DATA/HARDCOPY IS DUE TO THE CLIENT ON 02/09/2018.

4 overall samples (10 containers) were received on 01/15/2018, which are ALL listed here.

DELIVERY NOTE _ The cooler was shipped out on 01/11/18 (Thursday) for intended delivery on 01/12/18 (Friday). Due to a delay with FED EX, the cooler was finally delivered to SwRI on 01/15/18 (Monday).

Sample Analysis REQUIRED
8290_DIOXINS_GCMS
9012 _ 57-12-5 Cyanide (Total)

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 01/18/18: Task Order revised to indicate additional samples were received on 01/18/18, which have been grouped with 626218, located in Task Order # 180118-6, SRR 61022.

Documents Related to this task order: 236010[COC for SRR 61005], 236011[Paperwork for SRR 61005]

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

Test: CN_9012
Section: WETCHEM
Holding: 14 days from CED
Cyanide by Method 9012 (Automated)
Cnt: 2

System ID	Type	Cont	Matrix	Customer ID	CED	Method Date
626354		1	Water	B3FR78	09 Jan 18	23 Jan 18
626356		1	Water	B3FYC8	11 Jan 18	25 Jan 18

Test: D8290A
Section: DIOXIN
Holding: 45 days from E8290W
ANALYSIS FOR METHOD 8290A
Cnt: 2

System ID	Type	Cont	Matrix	Customer ID	N/A	Method Date
626353		1	Water	B3FR75	30 Jan 18	16 Mar 18
626353		2	Water	B3FR75	30 Jan 18	16 Mar 18
626353		3	Water	B3FR75	30 Jan 18	16 Mar 18
626353		4	Water	B3FR75	30 Jan 18	16 Mar 18
626355		1	Water	B3FTN4	30 Jan 18	16 Mar 18
626355		2	Water	B3FTN4	30 Jan 18	16 Mar 18
626355		3	Water	B3FTN4	30 Jan 18	16 Mar 18
626355		4	Water	B3FTN4	30 Jan 18	16 Mar 18

Southwest Research Institute

Laboratory Task Order

TO #: 180115-7 Revision: 1

Project(s): 20859.01.00X
Manager(s): SPIES, RADONNA
To Client: 02/08/18

SDG: 626218
VTSR: 01/15/18
SAF: W18-001

SRR #'s: 61005
Client(s): CH2M Hill Plateau Remediation Company

Test: E8290W
Section: EXTLAB

Holding: 30 days from CED

EXTRACTION FOR METHOD 8290

Cnt: 2

System ID	Type	Cont	Matrix	Customer ID	CED	Method Date
626353		1	Water	B3FR75	08 Jan 18	07 Feb 18
626353		2	Water	B3FR75	08 Jan 18	07 Feb 18
626353		3	Water	B3FR75	08 Jan 18	07 Feb 18
626353		4	Water	B3FR75	08 Jan 18	07 Feb 18
626355		1	Water	B3FTN4	11 Jan 18	10 Feb 18
626355		2	Water	B3FTN4	11 Jan 18	10 Feb 18
626355		3	Water	B3FTN4	11 Jan 18	10 Feb 18
626355		4	Water	B3FTN4	11 Jan 18	10 Feb 18

Southwest Research Institute

Laboratory Task Order

TO #: 180118-6 Revision: 0

Project(s): 20859.01.00X
Manager(s): SPIES, RADONNA
To Client: 02/08/18

SDG: 626218
VTSR: 01/18/18
SAF: W18-001

SRR #'s: 61022
Client(s): CH2M Hill Plateau Remediation Company

Instructions

CH2MHill Plateau Remediation Company. 300071
SAF No. W18-001

SDG 626218 is open until 01/24/18

GROUPED _ with samples in SDG 626218, located in Task Order # 180110-3, SRR 60981; Task Order # 180115-7, SRR 61005.

30-day TAT.
CURRENTLY, FINAL DATA/HARDCOPY IS DUE TO THE CLIENT ON 02/09/2018.

10 overall samples (13 containers) were received on 01/18/2018.
OUT of the 10 samples, ONLY the 5 that require Cyanide are ALL listed here.

DELIVERY NOTE _ The cooler GWS-715 (7712 2743 1541) was shipped out on 01/16/18 (Tuesday) for intended delivery on 01/17/18 (Wednesday). Due to a delay with FED EX, the cooler was finally delivered to SwRI on 01/18/18 (Thursday).

Sample Analysis REQUIRED
9012 _ 57-12-5 Cyanide (Total)

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: 236210[COC for SRR 61022], 236212[Paperwork for SRR 61022]

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

Test: CN_9012
Section: WETCHEM

Holding: 14 days from CED

Cyanide by Method 9012 (Automated) Cnt: 5

System ID	Type	Cont	Matrix	Customer ID	CED	Method Date
626488		1	Water	B3FXL8	16 Jan 18	30 Jan 18
626491		1	Water	B3FXM9	16 Jan 18	30 Jan 18
626492		1	Water	B3FXP7	17 Jan 18	31 Jan 18
626493		1	Water	B3FXV2	17 Jan 18	31 Jan 18
626494		1	Water	B3FYD0	11 Jan 18	25 Jan 18

Sample Receipt

Southwest Research Institute

Sample Receipt Number: 60981

VTSR: 01/10/18

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: 01/10/18

Notes

Samples were received intact.

Fed Ex Tracking #(s):
7711 7395 3947- 2.0°C (wet ice)
7711 6269 1986- 20.5° (no ice)

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

Ice Chest No:
GWS-518
GWS-706

Test requirements located on the applicable Task Order.

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

ALL SAMPLE CONTAINERS / APPLICABLE ITEMS WERE RECEIVED OK.

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

System ID	Customer ID	CED	Matrix	Containers	Special Reqs.
626211	B3FBB4	01/04/18	Solid	1	
626212	B3FBB8	01/04/18	Solid	1	
626210	B3FBC6	01/04/18	Solid	1	
626213	B3FBD0	01/04/18	Solid	1	
626214	B3FBD4	01/04/18	Solid	1	
626215	B3FBD8	01/04/18	Solid	1	
626216	B3FBF6	01/04/18	Solid	1	
626217	B3FBH0	01/04/18	Solid	1	
626218	B3FR86	01/08/18	Water	5	
626219	B3FTL3	01/08/18	Water	4	
626220	B3FTL4	01/08/18	Water	4	
626221	B3FY73	01/08/18	Water	1	
626222	B3FYD2	01/08/18	Water	1	

Containers: 23 **Samples: 13**

These documents are associated with this receipt: 235767[COC for SRR 60981], 235768[Paperwork for SRR 60981]

Thermometer: SEE NOTES
Temperature: note

60981 CH2M Hill Plateau Remediatio

Sample Receipt

Southwest Research Institute

Sample Receipt Number: 61005

VTSR: 01/15/18

Time: 09:00:00

Project: 20859.01.00X
Case #: W18-001
Client: CH2M Hill Plateau Remediation Company

Manager: SPIES, RADONNA
Logged in by: DXGARCIA
Creation Date: 01/15/18

Notes

Samples were received intact.

Fed Ex Tracking #(s):
7711 9903 5575- 1.2°C (wet ice)

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

Ice Chest No:
GWS-623

Test requirements located on the applicable Task Order.

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

ALL SAMPLE CONTAINERS / APPLICABLE ITEMS WERE RECEIVED OK.

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

System ID	Customer ID	CED	Matrix	Containers	Special Reqs.
626353	B3FR75	01/08/18	Water	4	
626354	B3FR78	01/09/18	Water	1	
626355	B3FTN4	01/11/18	Water	4	
626356	B3FYC8	01/11/18	Water	1	

Containers: 10 **Samples: 4**

These documents are associated with this receipt: 236010[COC for SRR 61005], 236011[Paperwork for SRR 61005]

Thermometer: 021056
Temperature: 1.2

61005 CH2M Hill Plateau Remediatio

Sample Receipt

Southwest Research Institute

Sample Receipt Number: 61022

VTSR: 01/18/18

Time: 09:00:00

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

Manager: SPIES, RADONNA
Logged in by: DXGARCIA
Creation Date: 01/18/18

61022 CH2M Hill Plateau Remediatio

Notes

Samples were received intact.

Fed Ex Tracking #(s):
7712 4005 0315_ 1.9°C (wet ice)
7712 2743 1541_ 0.8°C (wet ice)

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-715
GWS-594

Test requirements located on the applicable Task Order.

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

ALL SAMPLE CONTAINERS / APPLICABLE ITEMS WERE RECEIVED OK.

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

System ID	Customer ID	CED	Matrix	Containers	Special Reqs.
626485	B3FXK1	01/16/18	Water	2	
626486	B3FXL1	01/16/18	Water	2	
626487	B3FXL2	01/15/18	Water	2	
626488	B3FXL8	01/16/18	Water	1	
626489	B3FXM7	01/16/18	Water	1	
626490	B3FXM8	01/16/18	Water	1	
626491	B3FXM9	01/16/18	Water	1	
626492	B3FXP7	01/17/18	Water	1	
626493	B3FXV2	01/17/18	Water	1	
626494	B3FYD0	01/11/18	Water	1	

Containers: 13 **Samples: 10**

These documents are associated with this receipt: 236210[COC for SRR 61022], 236212[Paperwork for SRR 61022]

Thermometer: 021056
Temperature: Note

010029

Southwest Research Institute
Traffic Report

Sample Custodian Signature: Daniel Garcia

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

Client: CH2M Hill Plateau Remediation Company
Project: 20859.01.00X
Case: CHPRC / SDG: See TO
Sample Receipt: 60981
Airbill: 771162691986,771173953947

Custody Seal #(s): N/A

Date Received	Time Received	COC Record	SMO Sample #	Corresponding		Traffic Rpt, Tags, COC Agree	Sample Condition
				Sample Tag #	SwRI #		
01/10/18	08:45:00	F17-067-016	B3FBC6	N/A	626210	YES	Intact
01/10/18	08:45:00	F17-067-004	B3FBB4	N/A	626211	YES	Intact
01/10/18	08:45:00	F17-067-008	B3FBB8	N/A	626212	YES	Intact
01/10/18	08:45:00	F17-067-020	B3FBD0	N/A	626213	YES	Intact
01/10/18	08:45:00	F17-067-024	B3FBD4	N/A	626214	YES	Intact
01/10/18	08:45:00	F17-067-028	B3FBD8	N/A	626215	YES	Intact
01/10/18	08:45:00	F17-067-036	B3FBF6	N/A	626216	YES	Intact
01/10/18	08:45:00	F17-067-040	B3FBH0	N/A	626217	YES	Intact
01/10/18	08:45:00	W18-001-155	B3FR86	N/A	626218	YES	Intact
01/10/18	08:45:00	W18-001-147	B3FTL3	N/A	626219	YES	Intact
01/10/18	08:45:00	W18-001-148	B3FTL4	N/A	626220	YES	Intact
01/10/18	08:45:00	W18-001-374	B3FY73	N/A	626221	YES	Intact
01/10/18	08:45:00	W18-001-383	B3FYD2	N/A	626222	YES	Intact

Southwest Research Institute

Traffic Report

Sample Custodian Signature: David Zavira

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: W18-001 / SDG: SEE TO

Sample Receipt: 61005

Airbill: 7711 9903 5575

Custody Seal #(s): N/A

Date Received	Time Received	COC Record	SMO Sample #	Corresponding		Traffic Rpt, Tags, COC Agree	Sample Condition
				Sample Tag #	SwRI #		
01/15/18	09:00:00	W18-001-153	B3FR75	N/A	626353	YES	Intact
01/15/18	09:00:00	W18-001-006	B3FR78	N/A	626354	YES	Intact
01/15/18	09:00:00	W18-001-151	B3FTN4	N/A	626355	YES	Intact
01/15/18	09:00:00	W18-001-378	B3FYC8	N/A	626356	YES	Intact

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Southwest Research Institute
Traffic Report

Sample Custodian Signature: David Zoni

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: 61022
Airbill: 771227431541,771240050315

Custody Seal #(s): N/A

Date Received	Time Received	COC Record	SMO Sample #	Corresponding		Traffic Rpt, Tags, COC Agree	Sample Condition
				Sample Tag #	SwRI #		
01/18/18	09:00:00	I18-004-152	B3FXK1	N/A	626485	YES	Intact
01/18/18	09:00:00	I18-004-154	B3FXL1	N/A	626486	YES	Intact
01/18/18	09:00:00	S18-001-344	B3FXL2	N/A	626487	YES	Intact
01/18/18	09:00:00	W18-001-328	B3FXL8	N/A	626488	YES	Intact
01/18/18	09:00:00	S18-001-350	B3FXM7	N/A	626489	YES	Intact
01/18/18	09:00:00	S18-001-349	B3FXM8	N/A	626490	YES	Intact
01/18/18	09:00:00	W18-001-335	B3FXM9	N/A	626491	YES	Intact
01/18/18	09:00:00	W18-001-344	B3FXP7	N/A	626492	YES	Intact
01/18/18	09:00:00	W18-001-352	B3FXV2	N/A	626493	YES	Intact
01/18/18	09:00:00	W18-001-381	B3FYD0	N/A	626494	YES	Intact

010032

SAMPLE LOG-IN SHEET

Lab Name: Southwest Research Institute	Page 1 of 1
Received By (Print Name): DAVID GARCIA	Log-in Date: 01/10/2018
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.	771162691986,771173953947
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	noteC
10	Does Information on custody records, traffic reports, and sample tags agree?	Yes/No*
11.	Date Received at Lab	01/10/2018
12.	Time Received	08:45:00

EPA Sample #	Corresponding Sample Tag #	Corresponding Assigned Lab #	Remarks: Condition of Sample Shipment, etc
B3FBC6	N/A	626210	Intact
B3FBB4	N/A	626211	Intact
B3FBB8	N/A	626212	Intact
B3FBD0	N/A	626213	Intact
B3FBD4	N/A	626214	Intact
B3FBD8	N/A	626215	Intact
B3FBF6	N/A	626216	Intact
B3FBH0	N/A	626217	Intact
B3FR86	N/A	626218	Intact
B3FTL3	N/A	626219	Intact
B3FTL4	N/A	626220	Intact
B3FY73	N/A	626221	Intact
B3FYD2	N/A	626222	Intact

Sample Transfer

Fraction: ORG, INORG	Fraction
Area #: VARIOUS	Area #
By: DAVID GARCIA	By
On: 01/10/2018	On

* Contact SMO and attach record of resolution

Reviewed By: [signature]	Logbook No.: Sample Receipt (60981)
Date: 1.11.18	Logbook Page No.: 10061 Sec 1, 2 of 3

FORM DC-1 OLMO4.2

010033

SAMPLE LOG-IN SHEET

Lab Name: Southwest Research Institute	Page 1 of 1
Received By (Print Name): DAVID GARCIA	Log-in Date: 01/15/2018
Received By (Signature): David Garcia	
Case Number: W18-001	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.	7711 9903 5575
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	1.2C
10.	Does Information on custody records, traffic reports, and sample tags agree?	Yes/No*
11.	Date Received at Lab	01/15/2018
12.	Time Received	09:00:00

EPA Sample #	Corresponding Sample Tag #	Corresponding Assigned Lab #	Remarks: Condition of Sample Shipment, etc
B3FR75	N/A	626353	Intact
B3FR78	N/A	626354	Intact
B3FTN4	N/A	626355	Intact
B3FYC8	N/A	626356	Intact

Sample Transfer

Fraction: ORG, INORG	Fraction:
Area #: R.40 R.13	Area #:
By: DAVID GARCIA	By:
On: 01/15/2018	On:

* Contact SMO and attach record of resolution

Reviewed By: [signature]	Logbook No.: Sample Receipt (61005)
Date: 1.15.18	Logbook Page No.: 10066 Sec 1 of 3

FORM DC-1 OLMO4.2

010034

SAMPLE LOG-IN SHEET

Lab Name: Southwest Research Institute	Page 1 of 1
Received By (Print Name): DAVID GARCIA	Log-in Date: 01/18/2018
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.	771227431541,771240050315
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	NoteC
10.	Does Information on custody records, traffic reports, and sample tags agree?	Yes/No*
11.	Date Received at Lab	01/18/2018
12.	Time Received	09:00:00

EPA Sample #	Corresponding Sample Tag #	Corresponding Assigned Lab #	Remarks: Condition of Sample Shipment, etc
B3FXK1	N/A	626485	Intact
B3FXL1	N/A	626486	Intact
B3FXL2	N/A	626487	Intact
B3FXL8	N/A	626488	Intact
B3FXM7	N/A	626489	Intact
B3FXM8	N/A	626490	Intact
B3FXM9	N/A	626491	Intact
B3FXP7	N/A	626492	Intact
B3FXV2	N/A	626493	Intact
B3FYD0	N/A	626494	Intact

Sample Transfer

Fraction: InOrg	Fraction:
Area #: R.13	Area #:
By: DAVID GARCIA	By:
On: 01/18/2018	On:

* Contact SMO and attach record of resolution

Reviewed By: [signature]	Logbook No.: Sample Receipt (61022)
Date: 1.18.18	Logbook Page No.: 10069 Sec 3 of 6

FORM DC-1 OLMO4.2

010035

SOUTHWEST RESEARCH INSTITUTE
CLIENT: CH2M Hill Plateau Remediation Company
SwRI ROJECT#: 20859.01.00X
SwRI TASK ORDER: 180110-3, 180115-7, 180118-6
SwRI SRR: 60981, 61005, 61022
SDG: 626218
CASE: W18-001
VTSR: 01/10/18, 01/15/18, 01/18/18

pH Report

SwRI

pH Preservation Report

Sample Receipt: 60981

Customer: CH2M Hill Plateau Remediation

Project: 20859.01.00X

Case: CHPRC

Received: 01/10/2018

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
626210 1	B3FBC6										
626211 1	B3FBB4										
626212 1	B3FBB8										
626213 1	B3FBD0										
626214 1	B3FBD4										
626215 1	B3FBD8										
626216 1	B3FBF6										
626217 1	B3FBH0										
626218 1	B3FR86	9012	>=12								
626218 2	B3FR86	8290									
626218 3	B3FR86	8290									
626218 4	B3FR86	8290									
626218 5	B3FR86	8290									
626219 1	B3FTL3										
626219 2	B3FTL3										
626219 3	B3FTL3										
626219 4	B3FTL3										
626220 1	B3FTL4										
626220 2	B3FTL4										
626220 3	B3FTL4										
626220 4	B3FTL4										
626221 1	B3FY73		>=12								
626222 1	B3FYD2		>=12								

SwRI

pH Preservation Report

Sample Receipt: 61005

Customer: CH2M Hill Plateau Remediation

Project: 20859.01.00X

Case: W18-001

Received: 01/15/2018

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
626353 1	B3FR75										
626353 2	B3FR75										
626353 3	B3FR75										
626353 4	B3FR75										
626354 1	B3FR78		>=12								
626355 1	B3FTN4										
626355 2	B3FTN4										
626355 3	B3FTN4										
626355 4	B3FTN4										
626356 1	B3FYC8		>=12								

SwRI

pH Preservation Report

Sample Receipt: 61022

Customer: CH2M Hill Plateau Remediation

Project: 20859.01.00X

Case: CHPRC

Received: 01/18/2018

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
626485 1	B3FXK1	TRITIUM									
626485 2	B3FXK1	SEP	<2								
626486 1	B3FXL1	TRITIUM									
626486 2	B3FXL1	SEP	<2								
626487 1	B3FXL2	SEP	<2								
626487 2	B3FXL2	TRITIUM									
626488 1	B3FXL8		>=12								
626489 1	B3FXM7										
626490 1	B3FXM8										
626491 1	B3FXM9		>=12								
626492 1	B3FXP7		>=12								
626493 1	B3FXV2		>=12								
626494 1	B3FYD0		>=12								

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SOUTHWEST RESEARCH INSTITUTE
CLIENT: CH2M Hill Plateau Remediation Company
SwRI ROJECT#: 20859.01.00X
SwRI TASK ORDER: 180110-3, 180115-7, 180118-6
SwRI SRR: 60981, 61005, 61022
SDG: 626218
CASE: W18-001
VTSR: 01/10/18, 01/15/18, 01/18/18

Case Narrative

CLIENT: CH2M Hill Plateau Remediation Company
SDG: 626218
SwRI Project Number: 20859.01.00X
SwRI Sample Receipt Number: 60981, 61005, 61022
Page#: 1

SwRI CASE NARRATIVE

1. Fourteen (14) samples were received for SW846 Method 8290A/SW846 Method 9012:

SwRI ID	Customer ID	Matrix
626218	B3FR86	Water
626219	B3FTL3	Water
626220	B3FTL4	Water
626221	B3FY73	Water
626222	B3FYD2	Water
626353	B3FR75	Water
626354	B3FR78	Water
626355	B3FTN4	Water
626356	B3FYC8	Water
626488	B3FXL8	Water
626491	B3FXM9	Water
626492	B3FXP7	Water
626493	B3FXV2	Water
626494	B3FYD0	Water

Client: CH2M Hill Plateau Remediation Company
SDG: 626218
SwRI Project Number: 20859.01.00X
SwRI Task Order Number(s): 180110-3, 180115-7, 180118-6

WETCHEM ANALYSIS

The following analyses were performed for this sample delivery group (SDG):

Total Cyanide – SW-846 Method 9012

Holding Times:

All holding times were met.

Cyanide:

All PBs, ICB's and CCB's were less than the reporting limit. All LCSWs were within 80-120% recovery and all ICV's and CCV's were within 90-110% recovery. The method states 90-110% recovery criteria for LCSH and LCSL; all were within their specified criteria with the exception of LCS18A21CS3 with a 114% recovery. All LLCs were within 50-150% recovery and all duplicates were less than 20% recovery. If the method did not specify MS recovery criteria, then 75-125% was used. All matrix spike recoveries were within their specified criteria.

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Principal Scientist **Date** 2/7/18

Client: CH2M Hill Plateau Remediation Company
SDG: 626218
SwRI Project Number: 20859.01.00X
SwRI Task Order Number: 180110-3, 180115-7

DIOXIN ANALYSIS

Five water samples were analyzed for target and total chlorinated dibenzo-p-dioxins and dibenzofurans according to EPA Method 8290A – "Polychlorinated Dibenzo-p-Dioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High Resolution Gas Chromatography / High Resolution Mass Spectrometry (HRGC/HRMS)" 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 Phenomenex ZB-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 standards 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 one or more of the calibration standards. 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.

Injection logbook 17-0402-008 page 88 contains information blacked out in the interest of client confidentiality.

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

Client: CH2M Hill Plateau Remediation Company
SDG: 626218
SwRI Project Number: 20859.01.00X
SwRI Task Order Number: 180110-3, 180115-7

$^{13}C_{12}$-1234678-HpCDF	125 pg/µL
$^{13}C_{12}$-OCDD	250 pg/µL

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 40 µL of solution by adding 10 µL of recovery standard mixture and 30 µL of nonane. The addition of nonane prior to injection does not constitute a physical dilution of the sample and only serves to help minimize potential matrix effects in the extract. 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 effective 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.

Client: CH2M Hill Plateau Remediation Company
SDG: 626218
SwRI Project Number: 20859.01.00X
SwRI Task Order Number: 180110-3, 180115-7

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).

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 method blank contained the following target analytes: 1,2,3,4,7,8-HxCDF, 1,2,3,6,7,8-HxCDF, 1,2,3,4,7,8,9-HpCDF, 1,2,3,4,6,7,8-HpCDD, OCDF and OCDD. All detected levels were below the method CRQL. The detected levels for the Hexa and Hepta substituted isomers stated above were < ½ of the LOQ (0.625 pg/uL). The detected levels for OCDD and OCDF were > ½ the LOQ (1.25 pg/uL). Since the samples associated with this method blank contained no detected target analytes> ½ of the LOQ, the SDG was deemed valid and no additional corrective action was deemed necessary.

Client: CH2M Hill Plateau Remediation Company
SDG: 626218
SwRI Project Number: 20859.01.00X
SwRI Task Order Number: 180110-3, 180115-7

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 at the same level of chlorination. These values have also been included in the electronic deliverable. This modification was made at the request of the client.

Spike recoveries for the MS and MSD were within the DOE QSM 8290 water QC limits for all analytes. The relative percent difference (RPD) between the MS and MSD was within the QC limit of 20% for all analytes.

Spike recoveries for the LCS were within the DOE QSM 8290 water QC limits for all analytes.

Sample Calculations:

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

Sample: LCS_29JAN18
Lab ID: 626918
Analyte: 2,3,7,8-TCDD
Response$_{(NAT)}$: 7.872e4
Response$_{(IS)}$: 2.689e5

Native RRF: 1.234
IS Conc.: 50.0 pg/µL
Sample Weight/Vol: 1.00 L
Extract Vol: 10 µL
Percent Dry: N/A

$$Conc(pg/\mu L) = \frac{(Area_{Nat})(Conc_{IS})}{(Area_{IS})(RRF_{Nat})} = \frac{(7.872e4)(50.0)}{(2.689e5)(1.234)} = 11.9 pg/\mu L$$

$$Conc(pg/L) = \frac{(Conc_{pg/\mu L})(Vol_{Ext})}{(SampleVol)} = \frac{(11.9 pg/\mu L)(10 \mu L)}{(1.00 L)} = 119 pg/L$$

010046

Client: CH2M Hill Plateau Remediation Company
SDG: 626218
SwRI Project Number: 20859.01.00X
SwRI Task Order Number: 180110-3, 180115-7

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Manager **Date** 2/8/18

010047

SOUTHWEST RESEARCH INSTITUTE
CLIENT: CH2M Hill Plateau Remediation Company
SwRI ROJECT#: 20859.01.00X
SwRI TASK ORDER: 180110-3, 180115-7, 180118-6
SwRI SRR: 60981, 61005, 61022
SDG: 626218
CASE: W18-001
VTSR: 01/10/18, 01/15/18, 01/18/18

Total Cyanide
Results

SOUTHWEST RESEARCH INSTITUTE 010048

WetChem Report

Cover Page

Client: CH2M Hill Plateau Remediation Company
Task Order: 180115-7, 180110-3, 180118-6

SDG: 626218
SRR: 61005, 60981, 61022

Case: W18-001, CHPRC
Project: 20859.01.00X

Client Sample ID	Lab Sample ID
B3FR78	626354
B3FR86	626218
B3FR86D	626218D
B3FXL8	626488
B3FXM9	626491
B3FXP7	626492
B3FXV2	626493
B3FY73	626221
B3FYC8	626356
B3FYD0	626494
B3FYD2	626222

Comments:

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Signature: RSpies

Date: 2/7/18

Name: Radonna Spies

Title: Principal Scientist

SOUTHWEST RESEARCH INSTITUTE **010049** **Client Sample ID**

WetChem Report - Form I

Certificate of Analysis

B3FR78

Type: Unknown

Client: CH2M Hill Plateau Remediation Company
Task Order: 180115-7
Lab ID: 626354
Result Units: mg/L

SDG: 626218
SRR: 61005
Matrix: Water
% Solids: NA

Case: CHPRC, W18-001
Project: 20859.01.00X
Receipt Date: 01/15/2018
Collection Date: 01/09/2018

CAS No.	Analyte	Result	Qual	M	RL	DF	Prep Batch	Analysis Date/Time
57-12-5	Total Cyanide	0.00500	U	KNO	0.00500	1	20180125-P007	01/19/2018 16:45

Data Reporting Qualifiers (Qual)	*Columns*	*Instruments/Methods (M)*
U - Result is less than the SwRI Reporting Limit (RL)	RL - SwRI Reporting Limit	KNO - Konelab/Cyanide 9012
N - Matrix spike and/or matrix spike duplicate criteria was not met	DF - Dilution Factor	NA - Not Applicable
X - Analytical spike criteria was not met	M - Instrument	
E - Result is estimated due to interferences		
D - Result is reported from a dilution		
* - Duplicate criteria was not met		

Form I-IN

SOUTHWEST RESEARCH INSTITUTE **010050** **Client Sample ID**

WetChem Report - Form I

Certificate of Analysis

B3FR86

Type: Unknown

Client: CH2M Hill Plateau Remediation Company
Task Order: 180110-3
Lab ID: 626218
Result Units: mg/L

SDG: 626218
SRR: 60981
Matrix: Water
% Solids: NA

Case: CHPRC, W18-001
Project: 20859.01.00X
Receipt Date: 01/10/2018
Collection Date: 01/08/2018

CAS No.	Analyte	Result	Qual	M	RL	DF	Prep Batch	Analysis Date/Time
57-12-5	Total Cyanide	0.00500	U	KNO	0.00500	1	20180125-P007	01/19/2018 16:14

Data Reporting Qualifiers (Qual)	*Columns*	*Instruments/Methods (M)*
U - Result is less than the SwRI Reporting Limit (RL)	RL - SwRI Reporting Limit	KNO - Konelab/Cyanide 9012
N - Matrix spike and/or matrix spike duplicate criteria was not met	DF - Dilution Factor	NA - Not Applicable
X - Analytical spike criteria was not met	M - Instrument	
E - Result is estimated due to interferences		
D - Result is reported from a dilution		
* - Duplicate criteria was not met		

Form I-IN

SOUTHWEST RESEARCH INSTITUTE **010051** **Client Sample ID**

WetChem Report - Form I

Certificate of Analysis

B3FXL8

Type: Unknown

Client: CH2M Hill Plateau Remediation Company
Task Order: 180118-6
Lab ID: 626488
Result Units: mg/L

SDG: 626218
SRR: 61022
Matrix: Water
% Solids: NA

Case: CHPRC, W18-001
Project: 20859.01.00X
Receipt Date: 01/18/2018
Collection Date: 01/16/2018

CAS No.	Analyte	Result	Qual	M	RL	DF	Prep Batch	Analysis Date/Time
57-12-5	Total Cyanide	0.00500	U	KNO	0.00500	1	20180125-P007	01/19/2018 16:45

Data Reporting Qualifiers (Qual)	*Columns*	*Instruments/Methods (M)*
U - Result is less than the SwRI Reporting Limit (RL)	RL - SwRI Reporting Limit	KNO - Konelab/Cyanide 9012
N - Matrix spike and/or matrix spike duplicate criteria was not met	DF - Dilution Factor	NA - Not Applicable
X - Analytical spike criteria was not met	M - Instrument	
E - Result is estimated due to interferences		
D - Result is reported from a dilution		
* - Duplicate criteria was not met		

Form I-IN

SOUTHWEST RESEARCH INSTITUTE **010052** **Client Sample ID**

WetChem Report - Form I

Certificate of Analysis

B3FXM9

Type: Unknown

Client: CH2M Hill Plateau Remediation Company
Task Order: 180118-6
Lab ID: 626491
Result Units: mg/L

SDG: 626218
SRR: 61022
Matrix: Water
% Solids: NA

Case: CHPRC, W18-001
Project: 20859.01.00X
Receipt Date: 01/18/2018
Collection Date: 01/16/2018

CAS No.	Analyte	Result	Qual	M	RL	DF	Prep Batch	Analysis Date/Time
57-12-5	Total Cyanide	0.00500	U	KNO	0.00500	1	20180125-P007	01/19/2018 16:45

Data Reporting Qualifiers (Qual)	*Columns*	*Instruments/Methods (M)*
U - Result is less than the SwRI Reporting Limit (RL)	RL - SwRI Reporting Limit	KNO - Konelab/Cyanide 9012
N - Matrix spike and/or matrix spike duplicate criteria was not met	DF - Dilution Factor	NA - Not Applicable
X - Analytical spike criteria was not met	M - Instrument	
E - Result is estimated due to interferences		
D - Result is reported from a dilution		
* - Duplicate criteria was not met		

Form I-IN

SOUTHWEST RESEARCH INSTITUTE **010053** **Client Sample ID**

WetChem Report - Form I

Certificate of Analysis

B3FXP7

Type: Unknown

Client: CH2M Hill Plateau Remediation Company
Task Order: 180118-6
Lab ID: 626492
Result Units: mg/L

SDG: 626218
SRR: 61022
Matrix: Water
% Solids: NA

Case: CHPRC, W18-001
Project: 20859.01.00X
Receipt Date: 01/18/2018
Collection Date: 01/17/2018

CAS No.	Analyte	Result	Qual	M	RL	DF	Prep Batch	Analysis Date/Time
57-12-5	Total Cyanide	0.00500	U	KNO	0.00500	1	20180125-P007	01/19/2018 16:45

Data Reporting Qualifiers (Qual)	*Columns*	*Instruments/Methods (M)*
U - Result is less than the SwRI Reporting Limit (RL)	RL - SwRI Reporting Limit	KNO - Konelab/Cyanide 9012
N - Matrix spike and/or matrix spike duplicate criteria was not met	DF - Dilution Factor	NA - Not Applicable
X - Analytical spike criteria was not met	M - Instrument	
E - Result is estimated due to interferences		
D - Result is reported from a dilution		
* - Duplicate criteria was not met		

Form I-IN

SOUTHWEST RESEARCH INSTITUTE **010054** **Client Sample ID**

WetChem Report - Form I

Certificate of Analysis

B3FXV2

Type: Unknown

Client: CH2M Hill Plateau Remediation Company
Task Order: 180118-6
Lab ID: 626493
Result Units: mg/L

SDG: 626218
SRR: 61022
Matrix: Water
% Solids: NA

Case: CHPRC, W18-001
Project: 20859.01.00X
Receipt Date: 01/18/2018
Collection Date: 01/17/2018

CAS No.	Analyte	Result	Qual	M	RL	DF	Prep Batch	Analysis Date/Time
57-12-5	Total Cyanide	0.00500	U	KNO	0.00500	1	20180125-P007	01/19/2018 16:45

Data Reporting Qualifiers (Qual)	*Columns*	*Instruments/Methods (M)*
U - Result is less than the SwRI Reporting Limit (RL)	RL - SwRI Reporting Limit	KNO - Konelab/Cyanide 9012
N - Matrix spike and/or matrix spike duplicate criteria was not met	DF - Dilution Factor	NA - Not Applicable
X - Analytical spike criteria was not met	M - Instrument	
E - Result is estimated due to interferences		
D - Result is reported from a dilution		
* - Duplicate criteria was not met		

Form I-IN

SOUTHWEST RESEARCH INSTITUTE **010055** **Client Sample ID**

WetChem Report - Form I

Certificate of Analysis

B3FY73

Type: Unknown

Client: CH2M Hill Plateau Remediation Company
Task Order: 180110-3
Lab ID: 626221
Result Units: mg/L

SDG: 626218
SRR: 60981
Matrix: Water
% Solids: NA

Case: CHPRC, W18-001
Project: 20859.01.00X
Receipt Date: 01/10/2018
Collection Date: 01/08/2018

CAS No.	Analyte	Result	Qual	M	RL	DF	Prep Batch	Analysis Date/Time
57-12-5	Total Cyanide	0.00500	U	KNO	0.00500	1	20180125-P007	01/19/2018 16:14

Data Reporting Qualifiers (Qual)	*Columns*	*Instruments/Methods (M)*
U - Result is less than the SwRI Reporting Limit (RL)	RL - SwRI Reporting Limit	KNO - Konelab/Cyanide 9012
N - Matrix spike and/or matrix spike duplicate criteria was not met	DF - Dilution Factor	NA - Not Applicable
X - Analytical spike criteria was not met	M - Instrument	
E - Result is estimated due to interferences		
D - Result is reported from a dilution		
* - Duplicate criteria was not met		

Form I-IN

SOUTHWEST RESEARCH INSTITUTE **010056** **Client Sample ID**

WetChem Report - Form I

Certificate of Analysis

B3FYC8

Type: Unknown

Client: CH2M Hill Plateau Remediation Company
Task Order: 180115-7
Lab ID: 626356
Result Units: mg/L

SDG: 626218
SRR: 61005
Matrix: Water
% Solids: NA

Case: CHPRC, W18-001
Project: 20859.01.00X
Receipt Date: 01/15/2018
Collection Date: 01/11/2018

CAS No.	Analyte	Result	Qual	M	RL	DF	Prep Batch	Analysis Date/Time
57-12-5	Total Cyanide	0.00500	U	KNO	0.00500	1	20180125-P007	01/19/2018 16:45

Data Reporting Qualifiers (Qual)	*Columns*	*Instruments/Methods (M)*
U - Result is less than the SwRI Reporting Limit (RL)	RL - SwRI Reporting Limit	KNO - Konelab/Cyanide 9012
N - Matrix spike and/or matrix spike duplicate criteria was not met	DF - Dilution Factor	NA - Not Applicable
X - Analytical spike criteria was not met	M - Instrument	
E - Result is estimated due to interferences		
D - Result is reported from a dilution		
* - Duplicate criteria was not met		

Form I-IN

SOUTHWEST RESEARCH INSTITUTE **010057** **Client Sample ID**

WetChem Report - Form I

Certificate of Analysis

B3FYD0

Type: Unknown

Client: CH2M Hill Plateau Remediation Company
Task Order: 180118-6
Lab ID: 626494
Result Units: mg/L

SDG: 626218
SRR: 61022
Matrix: Water
% Solids: NA

Case: CHPRC, W18-001
Project: 20859.01.00X
Receipt Date: 01/18/2018
Collection Date: 01/11/2018

CAS No.	Analyte	Result	Qual	M	RL	DF	Prep Batch	Analysis Date/Time
57-12-5	Total Cyanide	0.00500	U	KNO	0.00500	1	20180125-P007	01/19/2018 16:45

Data Reporting Qualifiers (Qual)	*Columns*	*Instruments/Methods (M)*
U - Result is less than the SwRI Reporting Limit (RL)	RL - SwRI Reporting Limit	KNO - Konelab/Cyanide 9012
N - Matrix spike and/or matrix spike duplicate criteria was not met	DF - Dilution Factor	NA - Not Applicable
X - Analytical spike criteria was not met	M - Instrument	
E - Result is estimated due to interferences		
D - Result is reported from a dilution		
* - Duplicate criteria was not met		

Form I-IN

SOUTHWEST RESEARCH INSTITUTE **010058** **Client Sample ID**

WetChem Report - Form I

Certificate of Analysis

B3FYD2

Type: Unknown

Client: CH2M Hill Plateau Remediation Company
Task Order: 180110-3
Lab ID: 626222
Result Units: mg/L

SDG: 626218
SRR: 60981
Matrix: Water
% Solids: NA

Case: CHPRC, W18-001
Project: 20859.01.00X
Receipt Date: 01/10/2018
Collection Date: 01/08/2018

CAS No.	Analyte	Result	Qual	M	RL	DF	Prep Batch	Analysis Date/Time
57-12-5	Total Cyanide	0.00500	U	KNO	0.00500	1	20180125-P007	01/19/2018 16:14

Data Reporting Qualifiers (Qual)	*Columns*	*Instruments/Methods (M)*
U - Result is less than the SwRI Reporting Limit (RL)	RL - SwRI Reporting Limit	KNO - Konelab/Cyanide 9012
N - Matrix spike and/or matrix spike duplicate criteria was not met	DF - Dilution Factor	NA - Not Applicable
X - Analytical spike criteria was not met	M - Instrument	
E - Result is estimated due to interferences		
D - Result is reported from a dilution		
* - Duplicate criteria was not met		

Form I-IN

SOUTHWEST RESEARCH INSTITUTE 010059

SwRI ID

PB18A21PB1

Type: Blank

WetChem Report - Form I

Certificate of Analysis

Client: CH2M Hill Plateau Remediation Company
Task Order: 180115-7, 180110-3, 180118-6
Lab ID: PB18A21PB1
Result Units: mg/L

SDG: 626218
SRR: 60981, 61005, 61022
Matrix: Water
% Solids: NA

Case: CHPRC, W18-001
Project: 20859.01.00X
Receipt Date: NA
Collection Date: NA

CAS No.	Analyte	Result	Qual	M	RL	DF	Prep Batch	Analysis Date/Time
57-12-5	Total Cyanide	0.00500	U	KNO	0.00500	1	20180125-P007	01/19/2018 16:14

Data Reporting Qualifiers (Qual)	*Columns*	*Instruments/Methods (M)*
U - Result is less than the SwRI Reporting Limit (RL)	RL - SwRI Reporting Limit	KNO - Konelab/Cyanide 9012
N - Matrix spike and/or matrix spike duplicate criteria was not met	DF - Dilution Factor	NA - Not Applicable
X - Analytical spike criteria was not met	M - Instrument	
E - Result is estimated due to interferences		
D - Result is reported from a dilution		
* - Duplicate criteria was not met		

Form I-IN

SOUTHWEST RESEARCH INSTITUTE 010060

WetChem Report - Form IIA

Initial and Continuing Calibration Verification

Client: CH2M Hill Plateau Remediation Company
Task Order: 180110-3, 180115-7, 180118-6
Result Units: mg/L
Associated Analytical Batches: 20180125-A007

SDG: 626218
SRR: 60981, 61005, 61022
Initial Calibration Source: See Raw Data
Continuing Calibration Source: See Raw Data

Case: CHPRC, W18-001
Project: 20859.01.00X

	Initial Calibration Verification				Continuing Calibration Verification						
Analyte	True	Found	%Rec	Limit	True	Found1	%Rec	Found2	%Rec	Limit	M
Total Cyanide	0.581	0.578	99.5%	90%-110%	0.581	0.582	100.2%	0.551	94.8%	90%-110%	KNO

Instruments/Methods (M)
KNO - Konelab/Cyanide 9012
NA - Not Applicable

Form IIA-IN

SOUTHWEST RESEARCH INSTITUTE 010061

WetChem Report - Form IIB

Low Level Check Standard

Client: CH2M Hill Plateau Remediation Company
Task Order: 180110-3, 180115-7, 180118-6
Result Units: mg/L
Associated Analytical Batch: 20180125-A007

SDG: 626218
SRR: 60981, 61005, 61022

Case: CHPRC, W18-001
Project: 20859.01.00X

	LLC Standards				
Analyte	True	Found1	%Rec	Limit	M
Total Cyanide	0.00500	0.00374	74.8%	50%-150%	KNO

Instruments/Methods (M)
KNO - Konelab/Cyanide 9012
NA - Not Applicable

Form IIB-IN

SOUTHWEST RESEARCH INSTITUTE 010062

WetChem Report - Form III

Blanks

Client: CH2M Hill Plateau Remediation Company
Task Order: 180110-3, 180115-7, 180118-6
Preparation Blank Result Units: mg/L
Initial/Continuing Blank Result Units: mg/L

SDG: 626218
SRR: 60981, 61005, 61022
Preparation Blank Matrix: Water
Associated Prep Batches: 20180125-P007

Case: CHPRC, W18-001
Project: 20859.01.00X
Associated Analytical Batches: 20180125-A007

	Preparation Blank		Initial Calibration Blank		Continuing Calibration Blank				
Analyte	Result	Qual	Found	Qual	Found1	Qual	Found2	Qual	M
Total Cyanide	0.00500	U	0.00500	U	0.00500	U	0.00500	U	KNO

Data Reporting Qualifiers (Qual)	***Instruments/Methods (M)***
U - Result is less than the SwRI Reporting Limit (RL)	KNO - Konelab/Cyanide 9012
N - Matrix spike and/or matrix spike duplicate criteria was not met	NA - Not Applicable
X - Analytical spike criteria was not met	
E - Result is estimated due to interferences	
D - Result is reported from a dilution	
* - Duplicate criteria was not met	

Form III-IN

SOUTHWEST RESEARCH INSTITUTE

010063 **Client Sample ID**

B3FR86MS/MSD

WetChem Report - Form VA

Matrix Spike/Matrix Spike Duplicate Sample Recovery

Client: CH2M Hill Plateau Remediation Company
Task Order: 180110-3
Lab ID: 626218S
Result Units: mg/L

SDG: 626218
SRR: 60981
Matrix: Water
% Solids: NA

Case: CHPRC, W18-001
Project: 20859.01.00X

Analyte	Parent Sample Result	Qual	MS Result	MS Spike Added	MS %Rec	MSD Result	MSD Spike Added	MSD %Rec	%RPD	Control Limit %Rec	Control Limit %RPD	M	Note
Total Cyanide	0.00500	U	0.0464	0.0400	116.0%	-	-	-	-	75%-125%	-	KNO	

Data Reporting Qualifiers (Qual)	***Columns***	***Instruments/Methods (M)***
U - Result is less than the SwRI Reporting Limit (RL)	M - Instrument	KNO - Konelab/Cyanide 9012
N - Matrix spike and/or matrix spike duplicate criteria was not met	MS - Matrix Spike	NA - Not Applicable
X - Analytical spike criteria was not met	MSD - Matrix Spike Duplicate	
E - Result is estimated due to interferences	Q - Qualifier	
D - Result is reported from a dilution	RPD - Relative Percent Difference	
* - Duplicate criteria was not met		

Form VA-IN

SOUTHWEST RESEARCH INSTITUTE **010064** **Client Sample ID**

WetChem Report - Form VI

B3FR86D

Duplicates

Client: CH2M Hill Plateau Remediation Company
Task Order: 180110-3
Lab ID: 626218D-R
Result Units: mg/L

SDG: 626218
SRR: 60981
Matrix: Water
% Solids: NA

Case: CHPRC, W18-001
Project: 20859.01.00X

Analyte	Parent Sample Result	Qual	Duplicate Result	Qual	RPD	RPD Limit	Control Limit	M	Note
Total Cyanide	0.00500	U	0.00500	U	0.00%	20%	-	KNO	#

# indicates that both the parent and duplicate sample results are below the RL, therefore no RPD limit or control limit is applicable.

Data Reporting Qualifiers (Qual)	***Columns***	***Instruments/Method (M)***
U - Result is less than the SwRI Reporting Limit (RL)	M - Instrument	KNO - Konelab/Cyanide 9012
N - Matrix spike and/or matrix spike duplicate criteria was not met	RPD - Relative Percent Difference	NA - Not Applicable
X - Analytical spike criteria was not met		
E - Result is estimated due to interferences		
D - Result is reported from a dilution		
* - Duplicate criteria was not met		

Form VI-IN

SOUTHWEST RESEARCH INSTITUTE **010065**

WetChem Report - Form VII

Laboratory Control Sample

SwRI ID

LCS18A21CS1

Client: CH2M Hill Plateau Remediation Company
Task Order: 180110-3, 180115-7, 180118-6
Lab ID: LCS18A21CS1
Result Units: mg/L

SDG: 626218
SRR: 60981, 61005, 61022
Matrix: Water
Associated Prep Batches: 20180125-P007

Case: CHPRC, W18-001
Project: 20859.01.00X
LCS Source: ERA

Analyte	True	Found	Qual	%Rec.	Limit	M	Analysis Date/Time
Total Cyanide	0.581	0.562	D	96.7%	85%-115%	KNO	01/19/2018 16:14

Instruments/Methods (M)
KNO - Konelab/Cyanide 9012
NA - Not Applicable

Form VII-IN

SOUTHWEST RESEARCH INSTITUTE **010066**

WetChem Report - Form VII

Laboratory Control Sample

SwRI ID

LCS18A21CS2

Client: CH2M Hill Plateau Remediation Company
Task Order: 180110-3, 180115-7, 180118-6
Lab ID: LCS18A21CS2
Result Units: mg/L

SDG: 626218
SRR: 60981, 61005, 61022
Matrix: Water
Associated Prep Batches: 20180125-P007

Case: CHPRC, W18-001
Project: 20859.01.00X
LCS Source:

Analyte	True	Found	Qual	%Rec.	Limit	M	Analysis Date/Time
Total Cyanide	0.500	0.464		92.8%	90%-110%	KNO	01/19/2018 16:14

Instruments/Methods (M)
KNO - Konelab/Cyanide 9012
NA - Not Applicable

Form VII-IN

SOUTHWEST RESEARCH INSTITUTE 010067

SwRI ID

LCS18A21CS3

WetChem Report - Form VII

Laboratory Control Sample

Client: CH2M Hill Plateau Remediation Company
Task Order: 180110-3, 180115-7, 180118-6
Lab ID: LCS18A21CS3
Result Units: mg/L

SDG: 626218
SRR: 60981, 61005, 61022
Matrix: Water
Associated Prep Batches: 20180125-P007

Case: CHPRC, W18-001
Project: 20859.01.00X
LCS Source:

Analyte	True	Found	Qual	%Rec.	Limit	M	Analysis Date/Time
Total Cyanide	0.0500	0.0570		**114.0%**	90%-110%	KNO	01/19/2018 16:14

Instruments/Methods (M)
KNO - Konelab/Cyanide 9012
NA - Not Applicable

Form VII-IN

SOUTHWEST RESEARCH INSTITUTE
WetChem Report - Form IX

010068

Detection Limits

Client: CH2M Hill Plateau Remediation Company
Task Order: 180110-3,180115-7,180118-6
Result Units: mg/L

SDG: 626218
SRR: 60981, 61005, 61022
Instrument: Konelab

Case: CHPRC, W18-001
Project: 20859.01.00X
Date: 01/09/2014

Analyte	Wavelength	RL
Total Cyanide	575 nm	0.00500

Columns
RL - SwRI Reporting Limit

Form IX-IN

SOUTHWEST RESEARCH INSTITUTE

WetChem Report - Form XII **010069**

Analysis Run Log

Client: CH2M Hill Plateau Remediation Company
Task Order: 180110-3, 180115-7, 180118-6
Analytical Batch: 20180125-A007
Analysis Method: Cyanide 9012

SDG: 626218
SRR: 60981, 61005, 61022
Instrument: Konelab

Case: CHPRC, W18-001
Project: 20859.01.00X
Start Date: 01/19/2018
End Date: 01/19/2018

Lab Sample ID	Client Sample ID	Time	DF	TCN
CN-0	CN-0	15:46	1	X
CN-0.005	CN-0.005	15:46	1	X
CN-0.01	CN-0.01	15:46	1	X
CN-0.05	CN-0.05	15:46	1	X
CN-0.1	CN-0.1	15:46	1	X
CN-0.25	CN-0.25	15:46	1	X
CN-0.5	CN-0.5	15:46	1	X
CN-ICV	CN-ICV	16:14	2	X
CN-ICB	CN-ICB	16:14	1	X
CN-LLC	NA	16:14	1	X
PB18A21PB1	NA	16:14	1	X
LCS18A21CS1	NA	16:14	2	X
LCS18A21CS2	NA	16:14	1	X
LCS18A21CS3	NA	16:14	1	X
626218	B3FR86	16:14	1	X
Z	Z	16:14	1	
626218S	B3FR86MS	16:14	1	X
626221	B3FY73	16:14	1	X
626222	B3FYD2	16:14	1	X
CN-CCV	CN-CCV	16:45	2	X
CN-CCB	CN-CCB	16:45	1	X
626354	B3FR78	16:45	1	X
626356	B3FYC8	16:45	1	X
626488	B3FXL8	16:45	1	X
626491	B3FXM9	16:45	1	X
626492	B3FXP7	16:45	1	X
626493	B3FXV2	16:45	1	X
626494	B3FYD0	16:45	1	X
626218D-R	B3FR86D	16:45	1	X
LOD	NA	16:45	1	
CN-CCV2	CN-CCV2	17:13	2	X
CN-CCB2	CN-CCB2	17:13	1	X
LOQ1	NA	17:13	1	
LOQ2	NA	17:13	1	
LOQ3	NA	17:13	1	
LCS18A21SS1	NA	17:13	10	
LCS18A21CS4	NA	17:13	10	
LCS18A21CS6	NA	17:13	10	
CN-CCV3	CN-CCV3	17:13	2	
CN-CCB3	CN-CCB3	17:34	1	

SOUTHWEST RESEARCH INSTITUTE
WetChem Report - Form XVIII **010070**

Preparation/Digestion Summary

Client: CH2M Hill Plateau Remediation Company
Task Order: 180110-3, 180115-7, 180118-6

SDG: 626218
SRR: 60981, 61005, 61022

Case: CHPRC, W18-001
Project: 20859.01.00X

Prep Batch	Method	Preparation Date
20180125-P007	CN prep	01/21/9018

Digestion Log 010071

Southwest Research Institute
San Antonio, Texas 78228

Batch: 20180125-P007 (Ver. 1)
Status: APPROVED

Client(s): CH2M Hill Plateau Remediation Company
Task Order(s): 180110-3, 180115-7, 180118-6
SDG(s): 626218
Project(s): 20859.01.00X
Method(s): CN prep (TAP: 01-0406-134)
Matrix(s): Water
Reagent(s): (CN) Releasing #104-01-WCS14, (CN) 0.25N NaOH #104-02-WCS14, (CN) 1M NaOH #83-01-WCS14
Pipette(s): 5000-12, 1000-1, 200-H
Heating Device: MIDI-STIL Temperature (C): 125C
Time In: 01/21/9018 10:19:00 Time Out: NA

Sample Identification	Client Identification	Initial Volume (mL)	Final Volume (mL)
PB18A21PB1	NA	6	6
LCS18A21CS1 ①	NA	6	6
LCS18A21CS2 ②	NA	6	6
LCS18A21CS3 ③	NA	6	6
626218	B3FR86	6	6
626218D	B3FR86	6	6
626218S ④	B3FR86	6	6
626221	B3FY73	6	6
626222	B3FYD2	6	6
626354	B3FR78	6	6
626356	B3FYC8	6	6
626488	B3FXL8	6	6
626491	B3FXM9	6	6
626492	B3FXP7	6	6
626493	B3FXV2	6	6
626494	B3FYD0	6	6
LCS18A21SS1 ⑤	NA	0.4966 (g)	5
LCS18A21CS4 ⑥	NA	0.5605 (g)	5
LCS18A21CS6 ⑦	NA	0.5525 (g)	5
LOD	NA	6	6
LOQ1	NA	6	6
LOQ2	NA	6	6
LOQ3	NA	6	6

Prepared by: HERRERA, JUDY Date: 01/21/9018

Reviewed by: MOKEN, JAMES Date: 02/06/2018

Disposal Int/Date/Loc: _____

Digestion Log 010072

Southwest Research Institute
San Antonio, Texas 78228

Batch: 20180125-P007 (Ver. 1)
Status: APPROVED

Client(s): CH2M Hill Plateau Remediation Company
Task Order(s): 180110-3, 180115-7, 180118-6
SDG(s): 626218
Project(s): 20859.01.00X
Method(s): CN prep (TAP: 01-0406-134)
Matrix(s): Water
Reagent(s): (CN) Releasing #104-01-WCS14, (CN) 0.25N NaOH #104-02-WCS14, (CN) 1M NaOH #83-01-WCS14
Pipette(s): 5000-12, 1000-1, 200-H
Heating Device: MIDI-STIL Temperature (C): 125C
Time In: 01/21/9018 10:19:00 Time Out: NA

Sample Identification	Client Identification	Initial Volume (mL)	Final Volume (mL)

① spiked 6 mL of CI# 91846 LCSW (Lot# P249-502, Source: ERA, Exp: 07/31/2018)
② spiked 6 mL of LCSH (Lot# 100-02-WCS14, Source: ERA, Exp:)
③ spiked 6 mL of LCSL (Lot# 100-02-WCS14, Source: ERA, Exp:)
④ spiked 6 mL of Cyanide Spike (Lot# 100-02-WCS14, Source: ERA, Exp:)
⑤ spiked 0.4966 g of CI# 67469 Cyanide in Soil (Lot# D088-541, Source: ERA, Exp: 07/31/2018)
⑥ spiked 0.5605 g of CI# 67469 Cyanide in Soil (Lot# D088-541, Source: ERA, Exp: 07/31/2018)
⑦ spiked 0.5525 g of CI# 67469 Cyanide in Soil (Lot# D088-541, Source: ERA, Exp: 07/31/2018)

Comments:
All samples had a ph>12 (pH #62590)
All samples had negative lead acetate and KI test papers (Lead Acetate #85205, KI#85038)

Distillation Start: 10:32 Stop: 13:52
Distillation Start: 14:13 Stop: 14:22

Micro-Distill #023773
Timer #011550

Prepared by: HERRERA, JUDY Date: 01/21/9018

Reviewed by: MOKEN, JAMES Date: 02/06/2018

Disposal Int/Date/Loc: _____

010073

SOUTHWEST RESEARCH INSTITUTE
CLIENT: CH2M Hill Plateau Remediation Company
SwRI PROJECT#: 20859.01.00X
SwRI TASK ORDER: 180110-3, 180115-7
SwRI SRR: 60981, 61005
SDG: 626218
VTSR: 01.10.2018, 01.15.2018

SW846 METHOD 8290A
Results

Southwest Research Institute

Method 8290A Blank Summary

Blank ID: BLANK_29JAN18
Lab Sample ID: 626917
Client: CH2M Hill Plateau Remediation Company
Matrix: Water

Project: 20859.01.00X
CASE #: CHPRC
SDG: 626218
Analyzed: 02-Feb-18 13:06:39

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

Client Sample ID	Lab Sample ID	Date Analyzed	File ID
B3FR86	626218	2/2/2018	M02028M1_03
B3FTL3	626219	2/2/2018	M02028M1_04
B3FTL4	626220	2/2/2018	M02028M1_05
B3FR75	626353	2/2/2018	M02028M1_06
B3FTN4	626355	2/2/2018	M02028M1_07
LCS_29JAN18	626918	2/2/2018	M02028M1_08
B3FTN4 MS	626355 MS	2/3/2018	M02028M2_04
B3FTN4 MSD	626355 MSD	2/3/2018	M02028M2_05

010075 Rev.1

Southwest Research Institute

Method 8290A PCDD/PCDF Analysis Report

Sample ID: B3FR86

Client ID: CH2M Hill Plateau Remediat
Project: 20859.01.00X
Lab Sample ID: 626218
Case: CHPRC
Date Received: 1/10/2018
Lab File Name: M02028M1_03
SDG: 626218
Date Extracted: 1/29/2018
Final Extraction Vol: 10 uL
Matrix: Water
Date Analyzed: 2/2/2018
Dilution Factor: 1.0
Sample Wt/Vol: 1.05 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	4.76	U		1.35	4.76		
40321-76-4	1,2,3,7,8-PeCDD	11.9	U		0.786	11.9		
39227-28-6	1,2,3,4,7,8-HxCDD	11.9	U		0.882	11.9		
57653-85-7	1,2,3,6,7,8-HxCDD	11.9	U	0.840		11.9		
19408-74-3	1,2,3,7,8,9-HxCDD	11.9	U	1.03		11.9		
35822-46-9	1,2,3,4,6,7,8-HpCDD	11.9	U	1.34		11.9		
3268-87-9	OCDD	23.8	U	5.96		23.8		
51207-31-9	2,3,7,8-TCDF	4.76	U		0.943	4.76		
57117-41-6	1,2,3,7,8-PeCDF	11.9	U		0.634	11.9		
57117-31-4	2,3,4,7,8-PeCDF	11.9	U	0.754		11.9		
70648-26-9	1,2,3,4,7,8-HxCDF	11.9	U		0.577	11.9		
57117-44-9	1,2,3,6,7,8-HxCDF	11.9	U	0.497		11.9		
72918-21-9	1,2,3,7,8,9-HxCDF	11.9	U		0.658	11.9		
60851-34-5	2,3,4,6,7,8-HxCDF	11.9	U	0.589		11.9		
67562-39-4	1,2,3,4,6,7,8-HpCDF	11.9	U	2.21		11.9		
55673-89-7	1,2,3,4,7,8,9-HpCDF	11.9	U		0.467	11.9		
39001-02-0	OCDF	23.8	U	2.52		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

Internal Standard % Recovery

13C-2,3,7,8-TCDD	82.6	13C-1,2,3,4,7,8-HxCDF	125	13C-1,2,3,7,8-PeCDF	104
13C-1,2,3,6,7,8-HxCDD	113	13C-1,2,3,7,8-PeCDD	105	13C-1,2,3,4,6,7,8-HpCDF	122
13C-2,3,7,8-TCDF	99.3	13C-1,2,3,4,6,7,8-HpCDD	115	13C-OCDD	123

Clean-Up Standard % Recovery

37Cl-2,3,7,8-TCDD 87.0

jz 03/20/2018

010076 Rev.1

Southwest Research Institute

Method 8290A PCDD/PCDF Analysis Report

Sample ID: B3FTL3

Client ID: CH2M Hill Plateau Remediat
Project: 20859.01.00X
Lab Sample ID: 626219
Case: CHPRC
Date Received: 1/10/2018
Lab File Name: M02028M1_04
SDG: 626218
Date Extracted: 1/29/2018
Final Extraction Vol: 10 uL
Matrix: Water
Date Analyzed: 2/2/2018
Dilution Factor: 1.0
Sample Wt/Vol: 1.03 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	4.85	U		1.22	4.85		
40321-76-4	1,2,3,7,8-PeCDD	12.1	U		0.915	12.1		
39227-28-6	1,2,3,4,7,8-HxCDD	12.1	U		1.03	12.1		
57653-85-7	1,2,3,6,7,8-HxCDD	12.1	U		0.905	12.1		
19408-74-3	1,2,3,7,8,9-HxCDD	12.1	U		0.952	12.1		
35822-46-9	1,2,3,4,6,7,8-HpCDD	12.1	U		0.939	12.1		
3268-87-9	OCDD	24.3	U	3.62		24.3		
51207-31-9	2,3,7,8-TCDF	4.85	U		0.865	4.85		
57117-41-6	1,2,3,7,8-PeCDF	12.1	U		0.650	12.1		
57117-31-4	2,3,4,7,8-PeCDF	12.1	U		0.683	12.1		
70648-26-9	1,2,3,4,7,8-HxCDF	12.1	U		0.733	12.1		
57117-44-9	1,2,3,6,7,8-HxCDF	12.1	U		0.693	12.1		
72918-21-9	1,2,3,7,8,9-HxCDF	12.1	U		0.835	12.1		
60851-34-5	2,3,4,6,7,8-HxCDF	12.1	U		0.745	12.1		
67562-39-4	1,2,3,4,6,7,8-HpCDF	12.1	U		0.506	12.1		
55673-89-7	1,2,3,4,7,8,9-HpCDF	12.1	U		0.623	12.1		
39001-02-0	OCDF	24.3	U	1.96		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

Internal Standard % Recovery

13C-2,3,7,8-TCDD	82.4	13C-1,2,3,4,7,8-HxCDF	123	13C-1,2,3,7,8-PeCDF	97.2
13C-1,2,3,6,7,8-HxCDD	108	13C-1,2,3,7,8-PeCDD	102	13C-1,2,3,4,6,7,8-HpCDF	116
13C-2,3,7,8-TCDF	93.9	13C-1,2,3,4,6,7,8-HpCDD	118	13C-OCDD	113

Clean-Up Standard % Recovery

37Cl-2,3,7,8-TCDD 92.5

jz 03/20/2018

010077 Rev.1

Southwest Research Institute

Method 8290A PCDD/PCDF Analysis Report

Sample ID: B3FTL4

Client ID: CH2M Hill Plateau Remediat
Project: 20859.01.00X
Case: CHPRC
Date Received: 1/10/2018
SDG: 626218
Date Extracted: 1/29/2018
Matrix: Water
Date Analyzed: 2/2/2018
Sample Wt/Vol: 1.04 L
Concentration Unit: pg/L

Lab Sample ID: 626220
Lab File Name: M02028M1_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	4.81	U		1.26	4.81		
40321-76-4	1,2,3,7,8-PeCDD	12.0	U		0.930	12.0		
39227-28-6	1,2,3,4,7,8-HxCDD	12.0	U		0.973	12.0		
57653-85-7	1,2,3,6,7,8-HxCDD	12.0	U		0.852	12.0		
19408-74-3	1,2,3,7,8,9-HxCDD	12.0	U		0.896	12.0		
35822-46-9	1,2,3,4,6,7,8-HpCDD	12.0	U		0.573	12.0		
3268-87-9	OCDD	24.0	U	2.29		24.0		
51207-31-9	2,3,7,8-TCDF	4.81	U		0.774	4.81		
57117-41-6	1,2,3,7,8-PeCDF	12.0	U		0.580	12.0		
57117-31-4	2,3,4,7,8-PeCDF	12.0	U		0.609	12.0		
70648-26-9	1,2,3,4,7,8-HxCDF	12.0	U		0.683	12.0		
57117-44-9	1,2,3,6,7,8-HxCDF	12.0	U		0.646	12.0		
72918-21-9	1,2,3,7,8,9-HxCDF	12.0	U		0.778	12.0		
60851-34-5	2,3,4,6,7,8-HxCDF	12.0	U		0.694	12.0		
67562-39-4	1,2,3,4,6,7,8-HpCDF	12.0	U		0.436	12.0		
55673-89-7	1,2,3,4,7,8,9-HpCDF	12.0	U		0.537	12.0		
39001-02-0	OCDF	24.0	U	1.65		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

Internal Standard % Recovery

13C-2,3,7,8-TCDD	88.9	13C-1,2,3,4,7,8-HxCDF	123	13C-1,2,3,7,8-PeCDF	106
13C-1,2,3,6,7,8-HxCDD	111	13C-1,2,3,7,8-PeCDD	111	13C-1,2,3,4,6,7,8-HpCDF	124
13C-2,3,7,8-TCDF	103	13C-1,2,3,4,6,7,8-HpCDD	123	13C-OCDD	117

Clean-Up Standard % Recovery

37Cl-2,3,7,8-TCDD 87.6

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Method 8290A PCDD/PCDF Analysis Report

Sample ID: B3FR75

Client ID: CH2M Hill Plateau Remediat
Project: 20859.01.00X
Lab Sample ID: 626353
Case: CHPRC
Date Received: 1/15/2018
Lab File Name: M02028M1_06
SDG: 626218
Date Extracted: 1/29/2018
Final Extraction Vol: 10 uL
Matrix: Water
Date Analyzed: 2/2/2018
Dilution Factor: 1.0
Sample Wt/Vol: 1.01 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	4.95	U		1.04	4.95		
40321-76-4	1,2,3,7,8-PeCDD	12.4	U		0.930	12.4		
39227-28-6	1,2,3,4,7,8-HxCDD	12.4	U		0.961	12.4		
57653-85-7	1,2,3,6,7,8-HxCDD	12.4	U		0.841	12.4		
19408-74-3	1,2,3,7,8,9-HxCDD	12.4	U		0.885	12.4		
35822-46-9	1,2,3,4,6,7,8-HpCDD	12.4	U		0.701	12.4		
3268-87-9	OCDD	24.8	U	1.51		24.8		
51207-31-9	2,3,7,8-TCDF	4.95	U		0.780	4.95		
57117-41-6	1,2,3,7,8-PeCDF	12.4	U		0.731	12.4		
57117-31-4	2,3,4,7,8-PeCDF	12.4	U		0.767	12.4		
70648-26-9	1,2,3,4,7,8-HxCDF	12.4	U		0.623	12.4		
57117-44-9	1,2,3,6,7,8-HxCDF	12.4	U		0.590	12.4		
72918-21-9	1,2,3,7,8,9-HxCDF	12.4	U		0.710	12.4		
60851-34-5	2,3,4,6,7,8-HxCDF	12.4	U		0.633	12.4		
67562-39-4	1,2,3,4,6,7,8-HpCDF	12.4	U		0.508	12.4		
55673-89-7	1,2,3,4,7,8,9-HpCDF	12.4	U		0.626	12.4		
39001-02-0	OCDF	24.8	U	1.48		24.8		

Total Dioxin	CONC	Q	Total Dibenzofuran	CONC	Q
Total Tetra-Dioxins	4.95	U	Total Tetra-Furans	4.95	U
Total Penta-Dioxins	12.4	U	Total Penta-Furans	12.4	U
Total Hexa-Dioxins	12.4	U	Total Hexa-Furans	12.4	U
Total Hepta-Dioxins	12.4	U	Total Hepta-Furans	12.4	U

Internal Standard % Recovery

13C-2,3,7,8-TCDD	87.2	13C-1,2,3,4,7,8-HxCDF	116	13C-1,2,3,7,8-PeCDF	109
13C-1,2,3,6,7,8-HxCDD	105	13C-1,2,3,7,8-PeCDD	109	13C-1,2,3,4,6,7,8-HpCDF	120
13C-2,3,7,8-TCDF	105	13C-1,2,3,4,6,7,8-HpCDD	114	13C-OCDD	113

Clean-Up Standard % Recovery

37Cl-2,3,7,8-TCDD 95.4

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Method 8290A PCDD/PCDF Analysis Report

Sample ID: B3FTN4

Client ID: CH2M Hill Plateau Remediat
Project: 20859.01.00X
Lab Sample ID: 626355
Case: CHPRC
Date Received: 1/15/2018
Lab File Name: M02028M1_07
SDG: 626218
Date Extracted: 1/29/2018
Final Extraction Vol: 10 uL
Matrix: Water
Date Analyzed: 2/2/2018
Dilution Factor: 1.0
Sample Wt/Vol: 1.04 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	4.81	U		0.997	4.81		
40321-76-4	1,2,3,7,8-PeCDD	12.0	U		0.696	12.0		
39227-28-6	1,2,3,4,7,8-HxCDD	12.0	U		1.30	12.0		
57653-85-7	1,2,3,6,7,8-HxCDD	12.0	U		1.14	12.0		
19408-74-3	1,2,3,7,8,9-HxCDD	12.0	U		1.19	12.0		
35822-46-9	1,2,3,4,6,7,8-HpCDD	12.0	U		0.467	12.0		
3268-87-9	OCDD	24.0	U	1.88		24.0		
51207-31-9	2,3,7,8-TCDF	4.81	U		0.789	4.81		
57117-41-6	1,2,3,7,8-PeCDF	12.0	U		0.607	12.0		
57117-31-4	2,3,4,7,8-PeCDF	12.0	U		0.637	12.0		
70648-26-9	1,2,3,4,7,8-HxCDF	12.0	U		0.547	12.0		
57117-44-9	1,2,3,6,7,8-HxCDF	12.0	U		0.518	12.0		
72918-21-9	1,2,3,7,8,9-HxCDF	12.0	U		0.624	12.0		
60851-34-5	2,3,4,6,7,8-HxCDF	12.0	U		0.556	12.0		
67562-39-4	1,2,3,4,6,7,8-HpCDF	12.0	U		0.486	12.0		
55673-89-7	1,2,3,4,7,8,9-HpCDF	12.0	U		0.600	12.0		
39001-02-0	OCDF	24.0	U		1.00	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

Internal Standard % Recovery

13C-2,3,7,8-TCDD	85.1	13C-1,2,3,4,7,8-HxCDF	121	13C-1,2,3,7,8-PeCDF	103
13C-1,2,3,6,7,8-HxCDD	107	13C-1,2,3,7,8-PeCDD	107	13C-1,2,3,4,6,7,8-HpCDF	115
13C-2,3,7,8-TCDF	100	13C-1,2,3,4,6,7,8-HpCDD	119	13C-OCDD	109

Clean-Up Standard % Recovery

37Cl-2,3,7,8-TCDD 87.6

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Method 8290A PCDD/PCDF Analysis Report

Sample ID: B3FTN4 MS

Client ID: CH2M Hill Plateau Remediat
Project: 20859.01.00X
Case: CHPRC
Date Received: 1/15/2018
SDG: 626218
Date Extracted: 1/29/2018
Matrix: Water
Date Analyzed: 2/3/2018
Sample Wt/Vol: 1.04 L
Concentration Unit: pg/L

Lab Sample ID: 626355 MS
Lab File Name: M02028M2_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	109				4.81	0.815	34.28
40321-76-4	1,2,3,7,8-PeCDD	260				12.0	1.60	41.38
39227-28-6	1,2,3,4,7,8-HxCDD	280				12.0	1.37	45.92
57653-85-7	1,2,3,6,7,8-HxCDD	284				12.0	1.35	46.02
19408-74-3	1,2,3,7,8,9-HxCDD	285				12.0	1.20	46.36
35822-46-9	1,2,3,4,6,7,8-HpCDD	244	B			12.0	1.10	49.34
3268-87-9	OCDD	508	B			24.0	0.901	52.06
51207-31-9	2,3,7,8-TCDF	97.3				4.81	0.712	33.12
57117-41-6	1,2,3,7,8-PeCDF	272				12.0	1.46	39.50
57117-31-4	2,3,4,7,8-PeCDF	283				12.0	1.71	40.78
70648-26-9	1,2,3,4,7,8-HxCDF	253	B			12.0	1.20	44.92
57117-44-9	1,2,3,6,7,8-HxCDF	266	B			12.0	1.15	45.06
72918-21-9	1,2,3,7,8,9-HxCDF	265				12.0	1.07	46.58
60851-34-5	2,3,4,6,7,8-HxCDF	253				12.0	1.22	45.73
67562-39-4	1,2,3,4,6,7,8-HpCDF	249				12.0	1.01	48.36
55673-89-7	1,2,3,4,7,8,9-HpCDF	243	B			12.0	1.06	49.69
39001-02-0	OCDF	531	B			24.0	0.897	52.17

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	84.7	13C-1,2,3,4,7,8-HxCDF	112	13C-1,2,3,7,8-PeCDF	94.9
13C-1,2,3,6,7,8-HxCDD	103	13C-1,2,3,7,8-PeCDD	98.0	13C-1,2,3,4,6,7,8-HpCDF	112
13C-2,3,7,8-TCDF	100	13C-1,2,3,4,6,7,8-HpCDD	109	13C-OCDD	102

Clean-Up Standard % Recovery

37Cl-2,3,7,8-TCDD 87.3

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Method 8290A PCDD/PCDF Analysis Report

Sample ID: B3FTN4 MSD

Client ID: CH2M Hill Plateau Remediat
Project: 20859.01.00X
Case: CHPRC
Date Received: 1/15/2018
SDG: 626218
Date Extracted: 1/29/2018
Matrix: Water
Date Analyzed: 2/3/2018
Sample Wt/Vol: 1.04 L
Concentration Unit: pg/L

Lab Sample ID: 626355 MSD
Lab File Name: M02028M2_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	103				4.81	0.834	34.27
40321-76-4	1,2,3,7,8-PeCDD	265				12.0	1.77	41.36
39227-28-6	1,2,3,4,7,8-HxCDD	295				12.0	1.23	45.89
57653-85-7	1,2,3,6,7,8-HxCDD	273				12.0	1.31	46.00
19408-74-3	1,2,3,7,8,9-HxCDD	264				12.0	1.20	46.35
35822-46-9	1,2,3,4,6,7,8-HpCDD	264	B			12.0	1.05	49.32
3268-87-9	OCDD	498	B			24.0	0.978	52.05
51207-31-9	2,3,7,8-TCDF	107				4.81	0.874	33.11
57117-41-6	1,2,3,7,8-PeCDF	281				12.0	1.52	39.49
57117-31-4	2,3,4,7,8-PeCDF	293				12.0	1.58	40.76
70648-26-9	1,2,3,4,7,8-HxCDF	272	B			12.0	1.26	44.91
57117-44-9	1,2,3,6,7,8-HxCDF	271	B			12.0	1.06	45.05
72918-21-9	1,2,3,7,8,9-HxCDF	263				12.0	1.08	46.56
60851-34-5	2,3,4,6,7,8-HxCDF	265				12.0	1.20	45.72
67562-39-4	1,2,3,4,6,7,8-HpCDF	261				12.0	1.02	48.35
55673-89-7	1,2,3,4,7,8,9-HpCDF	270	B			12.0	1.03	49.67
39001-02-0	OCDF	539	B			24.0	0.914	52.16

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	86.1	13C-1,2,3,4,7,8-HxCDF	116	13C-1,2,3,7,8-PeCDF	91.3
13C-1,2,3,6,7,8-HxCDD	111	13C-1,2,3,7,8-PeCDD	97.4	13C-1,2,3,4,6,7,8-HpCDF	115
13C-2,3,7,8-TCDF	88.3	13C-1,2,3,4,6,7,8-HpCDD	111	13C-OCDD	108

Clean-Up Standard % Recovery

37Cl-2,3,7,8-TCDD 80.3

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Matrix Spike Evaluation Form

Client ID: CH2M Hill Plateau Remedia Lab Sample ID: 626355 MS
Project: 20859.01.00X
Case: CHPRC
Sample ID: B3FTN4 MS
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	109	109	113	71 - 125
1,2,3,7,8-PeCDD	240	0	260	260	108	76 - 121
1,2,3,4,7,8-HxCDD	240	0	280	280	117	80 - 126
1,2,3,6,7,8-HxCDD	240	0	284	284	118	78 - 134
1,2,3,7,8,9-HxCDD	240	0	285	285	119	76 - 137
1,2,3,4,6,7,8-HpCDD	240	0	244	244	102	79 - 122
OCDD	481	0	508	508	106	81 - 135
2,3,7,8-TCDF	96.2	0	97.3	97.3	101	72 - 138
1,2,3,7,8-PeCDF	240	0	272	272	113	82 - 130
2,3,4,7,8-PeCDF	240	0	283	283	118	77 - 129
1,2,3,4,7,8-HxCDF	240	0	253	253	105	80 - 130
1,2,3,6,7,8-HxCDF	240	0	266	266	111	79 - 131
1,2,3,7,8,9-HxCDF	240	0	265	265	110	83 - 130
2,3,4,6,7,8-HxCDF	240	0	253	253	105	81 - 130
1,2,3,4,6,7,8-HpCDF	240	0	249	249	104	81 - 130
1,2,3,4,7,8,9-HpCDF	240	0	243	243	101	77 - 128
OCDF	481	0	531	531	110	66 - 150

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Matrix Spike Evaluation Form

Client ID: CH2M Hill Plateau Remedia Lab Sample ID: 626355 MSD Project: 20859.01.00X
Case: CHPRC Sample ID: B3FTN4 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	103	103	107	71 - 125
1,2,3,7,8-PeCDD	240	0	265	265	110	76 - 121
1,2,3,4,7,8-HxCDD	240	0	295	295	123	80 - 126
1,2,3,6,7,8-HxCDD	240	0	273	273	114	78 - 134
1,2,3,7,8,9-HxCDD	240	0	264	264	110	76 - 137
1,2,3,4,6,7,8-HpCDD	240	0	264	264	110	79 - 122
OCDD	481	0	498	498	104	81 - 135
2,3,7,8-TCDF	96.2	0	107	107	111	72 - 138
1,2,3,7,8-PeCDF	240	0	281	281	117	82 - 130
2,3,4,7,8-PeCDF	240	0	293	293	122	77 - 129
1,2,3,4,7,8-HxCDF	240	0	272	272	113	80 - 130
1,2,3,6,7,8-HxCDF	240	0	271	271	113	79 - 131
1,2,3,7,8,9-HxCDF	240	0	263	263	110	83 - 130
2,3,4,6,7,8-HxCDF	240	0	265	265	110	81 - 130
1,2,3,4,6,7,8-HpCDF	240	0	261	261	109	81 - 130
1,2,3,4,7,8,9-HpCDF	240	0	270	270	113	77 - 128
OCDF	481	0	539	539	112	66 - 150

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Duplicate Sample Evaluation

Client ID: CH2M Hill Plateau Remediation Compa
Lab Sample ID: 626355
Project: 20859.01.00X
Case: CHPRC
Sample ID: B3FTN4
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	107	5.45	20
40321-76-4	1,2,3,7,8-PeCDD	108	110	1.83	20
39227-28-6	1,2,3,4,7,8-HxCDD	117	123	5.00	20
57653-85-7	1,2,3,6,7,8-HxCDD	118	114	3.45	20
19408-74-3	1,2,3,7,8,9-HxCDD	119	110	7.86	20
35822-46-9	1,2,3,4,6,7,8-HpCDD	102	110	7.55	20
3268-87-9	OCDD	106	104	1.90	20
51207-31-9	2,3,7,8-TCDF	101	111	9.43	20
57117-41-6	1,2,3,7,8-PeCDF	113	117	3.48	20
57117-31-4	2,3,4,7,8-PeCDF	118	122	3.33	20
70648-26-9	1,2,3,4,7,8-HxCDF	105	113	7.34	20
57117-44-9	1,2,3,6,7,8-HxCDF	111	113	1.79	20
72918-21-9	1,2,3,7,8,9-HxCDF	110	110	0	20
60851-34-5	2,3,4,6,7,8-HxCDF	105	110	4.65	20
67562-39-4	1,2,3,4,6,7,8-HpCDF	104	109	4.69	20
55673-89-7	1,2,3,4,7,8,9-HpCDF	101	113	11.2	20
39001-02-0	OCDF	110	112	1.80	20

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Method 8290A PCDD/PCDF Analysis Report

Sample ID: BLANK_29JAN18

Client ID: CH2M Hill Plateau Remediat
Project: 20859.01.00X
Case: CHPRC
Date Received: N/A
SDG: 626218
Date Extracted: 1/29/2018
Matrix: Water
Date Analyzed: 2/2/2018
Sample Wt/Vol: 1.00 L
Concentration Unit: pg/L

Lab Sample ID: 626917
Lab File Name: M02028M1_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	5.00	U		1.36	5.00		
40321-76-4	1,2,3,7,8-PeCDD	12.5	U		1.25	12.5		
39227-28-6	1,2,3,4,7,8-HxCDD	12.5	U		1.38	12.5		
57653-85-7	1,2,3,6,7,8-HxCDD	12.5	U		1.21	12.5		
19408-74-3	1,2,3,7,8,9-HxCDD	12.5	U	1.97		12.5		
35822-46-9	1,2,3,4,6,7,8-HpCDD	4.17	J			12.5	0.954	49.32
3268-87-9	OCDD	23.6	J			25.0	1.01	52.05
51207-31-9	2,3,7,8-TCDF	5.00	U		1.04	5.00		
57117-41-6	1,2,3,7,8-PeCDF	12.5	U	2.47		12.5		
57117-31-4	2,3,4,7,8-PeCDF	12.5	U	2.98		12.5		
70648-26-9	1,2,3,4,7,8-HxCDF	3.04	J			12.5	1.09	44.89
57117-44-9	1,2,3,6,7,8-HxCDF	2.42	J			12.5	1.23	45.05
72918-21-9	1,2,3,7,8,9-HxCDF	12.5	U	1.03		12.5		
60851-34-5	2,3,4,6,7,8-HxCDF	12.5	U	1.88		12.5		
67562-39-4	1,2,3,4,6,7,8-HpCDF	12.5	U	5.60		12.5		
55673-89-7	1,2,3,4,7,8,9-HpCDF	3.64	J			12.5	0.955	49.69
39001-02-0	OCDF	15.0	J			25.0	0.979	52.17

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	5.46	J
Total Hepta-Dioxins	4.17	J	Total Hepta-Furans	3.64	J

Internal Standard % Recovery

13C-2,3,7,8-TCDD	88.6	13C-1,2,3,4,7,8-HxCDF	127	13C-1,2,3,7,8-PeCDF	105
13C-1,2,3,6,7,8-HxCDD	119	13C-1,2,3,7,8-PeCDD	109	13C-1,2,3,4,6,7,8-HpCDF	125
13C-2,3,7,8-TCDF	104	13C-1,2,3,4,6,7,8-HpCDD	121	13C-OCDD	116

Clean-Up Standard % Recovery

37Cl-2,3,7,8-TCDD 99.0

jz 03/20/2018

010086

Southwest Research Institute

Method 8290A PCDD/PCDF Analysis Report

Sample ID: LCS_29JAN18

Client ID: CH2M Hill Plateau Remediat
Project: 20859.01.00X
Lab Sample ID: 626918
Case: CHPRC
Date Received: N/A
Lab File Name: M02028M1_08
SDG: 626218
Date Extracted: 1/29/2018
Final Extraction Vol: 10 uL
Matrix: Water
Date Analyzed: 2/2/2018
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	119				5.00	0.851	34.27
40321-76-4	1,2,3,7,8-PeCDD	297				12.5	1.61	41.37
39227-28-6	1,2,3,4,7,8-HxCDD	309				12.5	1.23	45.91
57653-85-7	1,2,3,6,7,8-HxCDD	300				12.5	1.27	46.01
19408-74-3	1,2,3,7,8,9-HxCDD	302				12.5	1.41	46.35
35822-46-9	1,2,3,4,6,7,8-HpCDD	259	B			12.5	1.10	49.32
3268-87-9	OCDD	522	B			25.0	0.965	52.06
51207-31-9	2,3,7,8-TCDF	116				5.00	0.797	33.11
57117-41-6	1,2,3,7,8-PeCDF	306				12.5	1.60	39.49
57117-31-4	2,3,4,7,8-PeCDF	311				12.5	1.64	40.76
70648-26-9	1,2,3,4,7,8-HxCDF	291	B			12.5	1.13	44.92
57117-44-9	1,2,3,6,7,8-HxCDF	299	B			12.5	1.16	45.06
72918-21-9	1,2,3,7,8,9-HxCDF	269				12.5	1.11	46.57
60851-34-5	2,3,4,6,7,8-HxCDF	275				12.5	1.14	45.73
67562-39-4	1,2,3,4,6,7,8-HpCDF	264				12.5	1.01	48.35
55673-89-7	1,2,3,4,7,8,9-HpCDF	270	B			12.5	1.14	49.69
39001-02-0	OCDF	592	B			25.0	0.943	52.17

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	88.9	13C-1,2,3,4,7,8-HxCDF	124	13C-1,2,3,7,8-PeCDF	100
13C-1,2,3,6,7,8-HxCDD	107	13C-1,2,3,7,8-PeCDD	106	13C-1,2,3,4,6,7,8-HpCDF	123
13C-2,3,7,8-TCDF	96.0	13C-1,2,3,4,6,7,8-HpCDD	120	13C-OCDD	112

Clean-Up Standard % Recovery

37Cl-2,3,7,8-TCDD 93.6

Southwest Research Institute

Matrix Spike Evaluation Form

Client ID: CH2M Hill Plateau Remedia Lab Sample ID: 626918 Project: 20859.01.00X
Case: CHPRC Sample ID: LCS_29JAN18 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	119	119	119	71 - 125
1,2,3,7,8-PeCDD	250	0	297	297	119	76 - 121
1,2,3,4,7,8-HxCDD	250	0	309	309	124	80 - 126
1,2,3,6,7,8-HxCDD	250	0	300	300	120	78 - 134
1,2,3,7,8,9-HxCDD	250	0	302	302	121	76 - 137
1,2,3,4,6,7,8-HpCDD	250	4.17	259	255	102	79 - 122
OCDD	500	23.6	522	498	99.6	81 - 135
2,3,7,8-TCDF	100	0	116	116	116	72 - 138
1,2,3,7,8-PeCDF	250	0	306	306	122	82 - 130
2,3,4,7,8-PeCDF	250	0	311	311	124	77 - 129
1,2,3,4,7,8-HxCDF	250	3.04	291	288	115	80 - 130
1,2,3,6,7,8-HxCDF	250	2.42	299	297	119	79 - 131
1,2,3,7,8,9-HxCDF	250	0	269	269	108	83 - 130
2,3,4,6,7,8-HxCDF	250	0	275	275	110	81 - 130
1,2,3,4,6,7,8-HpCDF	250	0	264	264	106	81 - 130
1,2,3,4,7,8,9-HpCDF	250	3.64	270	266	106	77 - 128
OCDF	500	15.0	592	577	115	66 - 150

010088

SOUTHWEST RESEARCH INSTITUTE
CLIENT: CH2M Hill Plateau Remediation Company
SwRI PROJECT#: 20859.01.00X
SwRI TASK ORDER: 180110-3, 180115-7
SwRI SRR: 60981, 61005
SDG: 626218
VTSR: 01.10.2018, 01.15.2018

SW846 METHOD 8290A
Injection Log

86 TITLE ICAL PROJECT NO. 010089
BOOK NO.

2/5/18

INSTRUMENT ID: AutoSpec M BOOK NO: [17-0402-008] METHOD: 8290A/1613/23

COLUMN: ZB-5 60mX0.32mm id, 0.25µm film COLUMN FLOW: 1.3 mL/min
CTC AUTOSAMPLER TRAY TEMP: 25 deg C

TEMP-1: 120 deg C	TIME-2: 15 min	RATE-3 : 15deg/min	SOURCE TEMP : 275 deg C
TIME-1: 3.0 min	RATE-2: 3.0 deg/min	TEMP-4 : 320 deg C	INTERFACE TEMP : 270 deg C
RATE-1: 10deg/min	TEMP-3: 255 deg C	TIME-4 : 5 min	ELECTRON ENERGY: 40eV
TEMP-2: 215 deg C	TIME-3: 0 min	INJ TEMP: 275 deg C	SPLIT VALVE ON : 0.75 min

M02018C1 : INITIAL 10K RESOLVING POWER CHECK AT 5% BASELINE DEFINITION

FILENAME	Date	Time	SAMPLE TEXT
M02018M1_W1	01-Feb-18	17:29	WDM COLUMN PERFORMANCE STD (53544)
M02018M1_S1	01-Feb-18	18:23	ICAL: 8290 CS5 200 PG/UL (410-02-01-15)
M02018M1_S2	01-Feb-18	19:19	ICAL: 8290 CS4 40 PG/UL (410-03-01-15)
M02018M1_S3	01-Feb-18	20:15	ICAL: 8290 CS3 10 PG/UL (487-01-01-16)
M02018M1_S4	01-Feb-18	21:10	ICAL: 8290 CS2 2.5 PG/UL (410-04-01-15)
M02018M1_S5	01-Feb-18	22:06	ICAL: 8290 CS1 1.0 PG/UL (53422)
M02018M1_S6	01-Feb-18	23:02	ICAL: 8290 CS1A 0.5 PG/UL (59124)
M02018M1_S7	01-Feb-18	23:58	ICV: 8290 CS3 10 PG/UL (409-03-01-15)

SAVED AS M02018M1_8290A_ICAL, M02018M1_8290A_ICV IN C:\MASS/xx\ ~~NOMA~~ DIOXIN 2018.PRO
WRKST # 1

2/5/18 T.F.

M02018C2 : FINAL 10K RESOLVING POWER CHECK AT 5% BASELINE DEFINITION

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Work continued to Page

SIGNATURE DATE 2/1/18

DISCLOSED TO AND UNDERSTOOD BY DATE 2/6/18 WITNESS DATE

TITLE CH2M HILL PRC TO: 180110-3, 180115-7

PROJECT NO. 20859.01.00X

BOOK NO.

2/5/18

INSTRUMENT ID: AutoSpec M

BOOK NO: [17-0402-008]

METHOD: 8290A/1613/23

COLUMN: ZB-5 60mX0.32mm id, 0.25µm film

COLUMN FLOW: 1.3 mL/min

CTC AUTOSAMPLER TRAY TEMP: 25 deg C

TEMP-1: 120 deg C	TIME-2: 15 min	RATE-3 : 15deg/min	SOURCE TEMP : 275 deg C
TIME-1: 3.0 min	RATE-2: 3.0 deg/min	TEMP-4 : 320 deg C	INTERFACE TEMP : 270 deg C
RATE-1: 10deg/min	TEMP-3: 255 deg C	TIME-4 : 5 min	ELECTRON ENERGY: 40eV
TEMP-2: 215 deg C	TIME-3: 0 min	INJ TEMP: 275 deg C	SPLIT VALVE ON : 0.75 min

M02028C1 : INITIAL 10K RESOLVING POWER CHECK AT 5% BASELINE DEFINITION

FILENAME	Date	Time	SAMPLE TEXT
M02028M1_W1	02-Feb-18	10:20	WDM COLUMN PERFORMANCE STD (53544)
M02028M1_S1	02-Feb-18	11:15	VER: 8290 CS3 10 PG/UL (487-01-01-16)
M02028M1_01	02-Feb-18	12:10	INST BLK_02FEB18
M02028M1_02	02-Feb-18	13:06	CH2M: BLANK_29JAN18 SN:626917
M02028M1_03	02-Feb-18	14:02	CH2M: B3FR86 SN:626218
M02028M1_04	02-Feb-18	14:58	CH2M: B3FTL3 SN:626219
M02028M1_05	02-Feb-18	15:54	CH2M: B3FTL4 SN:626220
M02028M1_06	02-Feb-18	16:50	CH2M: B3FR75 SN:626353
M02028M1_07	02-Feb-18	17:45	CH2M: B3FTN4 SN:626355
M02028M1_08	02-Feb-18	18:41	CH2M: LCS_29JAN18 SN:626918
M02028M1_S2	02-Feb-18	20:33	VER: 8290 CS3 10 PG/UL (487-01-01-16)

SAVED AS M02028M1_8290A_SAMPS_VER in C:\MASS/XNX\ DIOXIN 2018.PRO
WRST #1

2/5/18
T.F.

M02028C2 : FINAL 10K RESOLVING POWER CHECK AT 5% BASELINE DEFINITION

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Work continued to Page

SIGNATURE Tom Jones DATE 2/5/18

DISCLOSED TO AND UNDERSTOOD BY Shantha Chandran DATE 2/6/18 WITNESS DATE

88 TITLE

PROJECT NO. 20859.01.00X
BOOK NO. 16988.01.10X

2/5/18

INSTRUMENT ID: AutoSpec M

BOOK NO: [17-0402-008]

METHOD: 8290A/1613/23

COLUMN: ZB-5 60mX0.32mm id, 0.25µm film

COLUMN FLOW: 1.3 mL/min

CTC AUTOSAMPLER TRAY TEMP: 25 deg C

TEMP-1: 120 deg C
TIME-1: 3.0 min
RATE-1: 10deg/min
TEMP-2: 215 deg C
TIME-2: 15 min
RATE-2: 3.0 deg/min
TEMP-3: 255 deg C
TIME-3: 0 min
RATE-3 : 15deg/min
TEMP-4 : 320 deg C
TIME-4 : 5 min
INJ TEMP: 275 deg C
SOURCE TEMP : 275 deg C
INTERFACE TEMP : 270 deg C
ELECTRON ENERGY: 40eV
SPLIT VALVE ON : 0.75 min

M02028C2 : INITIAL 10K RESOLVING POWER CHECK AT 5% BASELINE DEFINITION

FILENAME	Date	Time	SAMPLE TEXT
M02028M2_W1	02-Feb-18	21:31	WDM COLUMN PERFORMANCE STD (53544)
M02028M2_S1	02-Feb-18	22:25	VER: 8290 CS3 10 PG/UL (487-01-01-16)
M02028M2_01	02-Feb-18	23:21	[redacted] BLK_02FEB18
M02028M2_02	03-Feb-18	0:17	[redacted]1801230955B (100-F-358) SN:626776
M02028M2_03	03-Feb-18	1:13	[redacted]1801231350B (300-F-175) SN:626781
M02028M2_04	03-Feb-18	2:09	CH2M: B3FTN4 MS SN:626355 MS
M02028M2_05	03-Feb-18	3:05	CH2M: B3FTN4 MSD SN:626355 MSD
M02028M2_S2	03-Feb-18	4:01	VER: 8290 CS3 10 PG/UL (487-01-01-16)

2/6/18 TF

SAVED AS M02028M2_8290A_VER SAMPS in c:\MASSLYNX\DIOXIN 2018.PRO

WRKST # 1

2/5/18 TF.

M02028C3 : FINAL 10K RESOLVING POWER CHECK AT 5% BASELINE DEFINITION

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Work continued to Page

SIGNATURE

DATE 2/2/18

DISCLOSED TO AND UNDERSTOOD BY

DATE 2/6/18

WITNESS

DATE

010092

SOUTHWEST RESEARCH INSTITUTE
CLIENT: CH2M Hill Plateau Remediation Company
SwRI PROJECT#: 20859.01.00X
SwRI TASK ORDER: 180110-3, 180115-7
SwRI SRR: 60981, 61005
SDG: 626218
VTSR: 01.10.2018, 01.15.2018

SW846 METHOD 8290A
Extraction Form

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

SwRI Labs
Client: CH2M Hill Plateau Remediation Company
Project: 20859.01.00X
Case: CHPRC, W18-001

Sample Receipt: 60981, 61005
TO#'s: 180110-3, 180115-7

DATE EXTRACTED	01/29/18
ANALYSTS INVOLVED	Hamed Edrisi (SU,SW,EXT) Christina Menn (SP,EXT,BD,sp-cu,CU,QT,FV) Marina Lebron(SU,EXT,Conc,QT)
SURROGATE SOL. ID	517-01-01-17@50/125/250pg/uL
MTX SPK SOL. ID	439-01-01-15@10/25/50pg/uL
CLEAN UP STD ID	508-01-01-17@4.0pg/uL
EXTRACTS LOCATION	Tracked By LIMS(01/30/18 CM)
CHEMICAL,BRAND,&LOT#	Ozarka water ID:04-0402-003p24M5 Sodium Sulfate ID:04-0402-004P29H DCM Fisher Optima Lot#176740 Hexane Fisher Optima Lot#174498 Sulfuric Acid Fisher Lot#171338 Acidified Silica Gel ID:09-0402-004p197C MP N-Super I Alumina Lot#16(85218)

NOTES	Hamilton Co. Syringes: 25uL ID#621849(SURR) 25uL ID#621850(MS) *FV before clean pH paper ID: 83518
ADDITIONAL NOTES	WQCBLK(626917) and LCS (626918) are shared with page 35 of this book.
EMULSION	C= Centrifuged,W= Wired,T= Tilted
REFRENCE BOOK &PAGE	17-0402-025p51
TAP(S) USED	Extraction: 01-0402-015 Clean-up: 01-0402-125

	System ID	Type	Customer ID	PH	SAMPLE VOL	SURROGATE SOL VOL
1	626218		B3FR86	6.4	1050 mL	10 uL
2	626219		B3FTL3	6.4	1030 mL	10 uL
3	626220		B3FTL4	6.4	1040 mL	10 uL
4	626353		B3FR75	6.4	1010 mL	10 uL
5	626355		B3FTN4	6.4	1040 mL	10 uL
6	626355	MS	B3FTN4	6.4	1040 mL	10 uL
7	626355	MSD	B3FTN4	6.4	1040 mL	10 uL
8	626917		WQCBLK_29JAN18	6.4	1000 mL	10 uL
9	626918		LCS_29JAN18	6.4	1000 mL	10 uL

	System ID	Type	Customer ID	MTX SPK SOL VOL	FV HEX	CLEAN UP STD VOL
1	626218		B3FR86	0 uL	~4mL*	25 uL
2	626219		B3FTL3	0 uL	~4mL*	25 uL
3	626220		B3FTL4	0 uL	~4mL*	25 uL
4	626353		B3FR75	0 uL	~4mL*	25 uL
5	626355		B3FTN4	0 uL	~4mL*	25 uL
6	626355	MS	B3FTN4	10 uL	~4mL*	25 uL
7	626355	MSD	B3FTN4	10 uL	~4mL*	25 uL
8	626917		WQCBLK_29JAN18	0 uL	~4mL*	25 uL
9	626918		LCS_29JAN18	10 uL	~4mL*	25 uL

	System ID	Type	Customer ID	H2SO4 VOL (ML)	AL/SI 4.5"/4.5"	CHARCOAL YES/NO	EMULSION
1	626218		B3FR86	4	1	no	no
2	626219		B3FTL3	4	1	no	no
3	626220		B3FTL4	4	1	no	no
4	626353		B3FR75	4	1	no	no
5	626355		B3FTN4	4	1	no	no
6	626355	MS	B3FTN4	4	1	no	no
7	626355	MSD	B3FTN4	4	1	no	no
8	626917		WQCBLK_29JAN18	4	1	no	no
9	626918		LCS_29JAN18	4	1	no	no

Page created Jan 29 2018 10:56AM by mlebron
Book: EXTRACTION LAB, Volume: EXT-2018, Page: 34 (Section 1 of 2)
Approved by HAMED EDRISI on Feb 7 2018 11:06AM

Date Printed: 2/07/2018

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

SwRI Labs
Client: CH2M Hill Plateau Remediation Company
Project: 20859.01.00X
Case: CHPRC, W18-001

Sample Receipt: 60981, 61005
TO#'s: 180110-3, 180115-7

Extraction Flowchart:

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

└> FV Dryness for analysis

Page created Jan 29 2018 10:56AM by mlebron
Book: EXTRACTION LAB, Volume: EXT-2018, Page: 34 (Section 2 of 2)
Approved by HAMED EDRISI on Feb 7 2018 11:06AM

Date Printed: 2/07/2018

X38598

CH2M HILL PRC 8290A WATER

SwRI Labs
Client: CH2M Hill Plateau Remediation Company
Project: 20859.01.00X
Case: CHPRC, W18-001

Sample Receipt: 60981, 61005
TO#'s: 180110-3, 180115-7

SOLVENT (CI#):	Nonane (CI 67040)
RS SPIKE ID:	515-01-01-17
EXTRACT LOCATION:	FRZ 31 BOX 39 B11-C7

COMMENTS:

	System ID	Type	Customer ID	VOLUME RS	VOLUME SOLVENT	SPIKE DATE	SPIKE PERSON
1	626218		B3FR86	10.0 uL	30.0 uL	02/02/2018	TF
2	626219		B3FTL3	10.0 uL	30.0 uL	02/02/2018	TF
3	626220		B3FTL4	10.0 uL	30.0 uL	02/02/2018	TF
4	626353		B3FR75	10.0 uL	30.0 uL	02/02/2018	TF
5	626355		B3FTN4	10.0 uL	30.0 uL	02/02/2018	TF
6	626355	MS	B3FTN4	10.0 uL	30.0 uL	02/02/2018	TF
7	626355	MSD	B3FTN4	10.0 uL	30.0 uL	02/02/2018	TF
8	626917		WQCBLK_29JAN18	10.0 uL	30.0 uL	02/02/2018	TF
9	626918		LCS_29JAN18	10.0 uL	30.0 uL	02/02/2018	TF

Page created Feb 2 2018 11:37AM by TFarias
Book: BNA/DIOXIN, Volume: HRMS SPIKE LOG, Page: 561 (Section 1 of 1)
Approved by CHRIS GOURLEY on Feb 8 2018 10:03AM

Date Printed: 2/08/2018