

December 12, 2017

SOUTHWEST RESEARCH INSTITUTE®

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CHEMISTRY AND CHEMICAL ENGINEERING DIVISION
DEPARTMENT OF ANALYTICAL AND ENVIRONMENTAL CHEMISTRY



Registered to
ISO 9001:2008

December 12, 2017

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

Attn: Ms. Karen Waters-Husted

Subject: SAF No: W18-011, I18-001, S18-011
SDG Number: 623536
SwRI Project Number: 20859.01.00X
SwRI Task Order Number: 171108-4, 171113-4, 171114-4
SwRI Sample Receipt Number: 60727, 60737, 60751
Samples Received: 11.08.2017, 11.10.2017, 11.14.2017
Fraction: Various Cyanide Analyses



Dear Ms. Waters-Husted:

Please find the enclosed results for the twenty (20) overall water samples received on the above referenced date. If you should have any questions, please do not hesitate to call me at (210) 522-3242, or at radonna.spies@swri.org.

Sincerely,

Radonna Spies
Principal Scientist

APPROVED:

Michael J. Dammann
Director

RPS: mg
Encl



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

SOUTHWEST RESEARCH INSTITUTE
CLIENT: CH2M Hill Plateau Remediation Company
SwRI PROJECT#: 20859.01.00X
SwRI TASK ORDER: 171108-4, 171113-4, 171114-4
SwRI SRR: 60727, 60737, 60751
SDG: 623536
CASE: W18-011, I18-001, S18-011
VTSR: 11.08.2017, 11.10.2017, 11.14.2017

CHAIN-OF-CUSTODY & SAMPLE RECEIPT PAPERWORK

Total Page Count: 010001-
Fraction: cyanide Report Pages: 010001-
010119.

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 010002

C.O.C. #
W18-011-253

Page 1 of 1

Collector: IVAN SCHAEFFER CHPRC	Contact/Requester: Karen Waters-Husted	Telephone No.: 509-376-4650
SAF No.: W18-011	Sampling Origin: Hanford Site	Purchase Order/Charge Code: 300071
Project Title: RCRA, NOVEMBER 2017	Logbook No.: HNF-N-506 96145	Ice Chest No.: 6WS-393
Shipped To (Lab): Southwest Research Institute	Method of Shipment: Commercial Carrier	Bill of Lading/Air Bill No.: 770687693523
Protocol: RCRA	Priority: 30 Days	Offsite Property No.: 868D

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

SPECIAL INSTRUCTIONS
 SPECIAL HANDLING:
 Low Volume Wells. Do not use for QC.

Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B3DJT0	Y	W	NOV 06 2017	1444	1x500-mL aG	9012_CN (AMENABLE): COMMON; 9012_CYANIDE (TOTAL): COMMON; 9014_CN (FREE): COMMON	14 Days	NaOH to pH >=12 / Cool <=6C
B3F9K4	N	W			1x500-mL aG	9012_CN (AMENABLE): COMMON; 9012_CYANIDE (TOTAL): COMMON; 9014_CN (FREE): COMMON	14 Days	NaOH to pH >=12 / Cool <=6C

CHPRC
 SRR # 60727
 SDG # 623536

SwRI Prjct # 20859.01.00X
 TO: 171108-4


Relinquished By: IVAN SCHAEFFER CHPRC Signature: <i>Ivan Schaeffer</i> Date/Time: NOV 06 2017 1520	Received By: SSU-1 Signature: <i>[Signature]</i> Date/Time: NOV 06 2017 1520	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	
Relinquished By: SSU-1 Signature: <i>[Signature]</i> Date/Time: NOV 07 2017 0750	Received By: Curt Hoffman CHPRC Signature: <i>[Signature]</i> Date/Time: NOV 07 2017 0750		
Relinquished By: Curt Hoffman CHPRC Signature: <i>[Signature]</i> Date/Time: NOV 07 2017 1400	Received By: FEDEX Signature: <i>[Signature]</i> Date/Time: <i>[Signature]</i>		
Relinquished By: FEDEX Signature: <i>[Signature]</i> Date/Time: <i>[Signature]</i>	Received By: Daniel Garcia Signature: <i>[Signature]</i> Date/Time: 11-08-2017 08:45		
FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process):	Disposed By:	Date/Time:

6465

December 12, 2017
CH2MHill Plateau
Remediation Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST **010003**

C.O.C.#
W18-011-239

Page 1 of 1

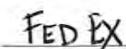
Collector: IVAN SCHAEFFER CHPRC	Contact/Requester: Karen Waters-Husted	Telephone No.: 509-376-4650
SAF No.: W18-011	Sampling Origin: Hanford Site	Purchase Order/Charge Code: 300071
Project Title: RCRA, NOVEMBER 2017	Logbook No.: HNF-N-506 96/45	Ice Chest No.: 6-WS-393
Shipped To (Lab): Southwest Research Institute	Method of Shipment: Commercial Carrier	Bill of Lading/Air Bill No.: 170687693523
Protocol: RCRA	Priority: 30 Days	Offsite Property No.: 8680

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

SPECIAL INSTRUCTIONS
 N/A

Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B3F9H1	Y	W	NOV 06 2017	1000	1x500-mL aG	9012_CN (AMENABLE): COMMON; 9012_CYANIDE (TOTAL): COMMON; 9014_CN (FREE): COMMON	14 Days	NaOH to pH >=12 / Cool <=6C
B3F9H2	N	W			1x500-mL aG	9012_CN (AMENABLE): COMMON; 9012_CYANIDE (TOTAL): COMMON; 9014_CN (FREE): COMMON	14 Days	NaOH to pH >=12 / Cool <=6C

CHPRC SRR # 60727
 SDG # 623536
 SwRI Prjct # 20859.01.00X
 TO: 171108-4
 SWRI

Relinquished By: IVAN SCHAEFFER CHPRC Print First and Last Name	<i>Ivan Schaeffer</i> Signature	NOV 06 2017 Date/Time	1100 Date/Time	Received By: SSU-1 Print First and Last Name	<i>SSU-1</i> Signature	NOV 06 2017 Date/Time	1100 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
Relinquished By: SSU-1 Print First and Last Name	<i>SSU-1</i> Signature	NOV 07 2017 Date/Time	0750 Date/Time	Received By: Curt Hoffman CHPRC Print First and Last Name	<i>Curt Hoffman</i> Signature	NOV 07 2017 Date/Time	0750 Date/Time	
Relinquished By: Curt Hoffman CHPRC Print First and Last Name	<i>Curt Hoffman</i> Signature	NOV 07 2017 Date/Time	1400 Date/Time	Received By:  Print First and Last Name	<i>FEDEX</i> Signature			
Relinquished By:  Print First and Last Name	<i>FEDEX</i> Signature			Received By: David Garcia Print First and Last Name	<i>David Garcia</i> Signature	10-08-2017 Date/Time	08:45 Date/Time	

FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process):	Disposed By:	Date/Time:
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CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 010004

C.O.C.#
W18-011-240

Page 1 of 1

Collector: IVAN SCHAEFFER CHPRC	Contact/Requester: Karen Waters-Husted	Telephone No.: 509-376-4650
SAF No.: W18-011	Sampling Origin: Hanford Site	Purchase Order/Charge Code: 300071
Project Title: RCRA, NOVEMBER 2017	Logbook No.: HNF-N-506 <i>96145</i>	Ice Chest No.: <i>645-393</i>
Shipped To (Lab): Southwest Research Institute	Method of Shipment: Commercial Carrier	Bill of Lading/Air Bill No.: <i>770687693523</i>
Protocol: RCRA	Priority: 30 Days	Offsite Property No.: <i>868D</i>

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
B3F9H3	Y	W	NOV 06 2017	<i>0900</i>	1x500-mL aG	9012_CN (AMENABLE): COMMON; 9012_CYANIDE (TOTAL): COMMON; 9014_CN (FREE): COMMON	14 Days	NaOH to pH >=12 / Cool <=6C
B3F9H4	N	W			1x500-mL aG	9012_CN (AMENABLE): COMMON; 9012_CYANIDE (TOTAL): COMMON; 9014_CN (FREE): COMMON	14 Days	NaOH to pH >=12 / Cool <=6C

CHPRC SRR # 60727
 SDG # 623536
 SwRI Proj # 20859.01.00X
 TO: 171108-4
SWRI

Relinquished By: <i>Ivan Schaeffer</i> CHPRC Print First and Last Name Signature Date/Time: NOV 06 2017 1100	Received By: <i>SSU-1</i> Signature Date/Time: NOV 06 2017 1100	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	
Relinquished By: <i>SSU-1</i> Signature Date/Time: NOV 07 2017 0750	Received By: <i>Curt Hoffman</i> CHPRC Signature Date/Time: NOV 07 2017 0750		
Relinquished By: <i>Curt Hoffman</i> CHPRC Signature Date/Time: NOV 07 2017 1400	Received By: FEDEX Signature Date/Time:		
Relinquished By: FEDEX Signature Date/Time:	Received By: <i>Daniel Garcia</i> Signature Date/Time: 11-08-2017 08:45		
FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process):	Disposed By:	Date/Time:

Collector: IVAN SCHAEFFER CHPRC	Contact/Requester: Karen Waters-Husted	Telephone No.: 509-376-4650
SAF No.: W18-011	Sampling Origin: Hanford Site	Purchase Order/Charge Code: 300071
Project Title: RCRA, NOVEMBER 2017	Logbook No.: HNF-N-506 <i>66/45</i>	Ice Chest No.: <i>6WS-393</i>
Shipped To (Lab): Southwest Research Institute	Method of Shipment: Commercial Carrier	Bill of Lading/Air Bill No.: <i>770687693523</i>
Protocol: RCRA	Priority: 30 Days	Offsite Property No.: <i>268D</i>

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
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Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B3F9J6	Y	W	NOV 06 2017	<i>0936</i>	1x500-mL aG	9012_CN (AMENABLE): COMMON; 9012_CYANIDE (TOTAL): COMMON; 9014_CN (FREE): COMMON	14 Days	NaOH to pH >=12 / Cool <=6C
B3F9J7	N	W			1x500-mL aG	9012_CN (AMENABLE): COMMON; 9012_CYANIDE (TOTAL): COMMON; 9014_CN (FREE): COMMON	14 Days	NaOH to pH >=12 / Cool <=6C

CHPRC
 SRR # 60727
 SDG # 623536

SwRI Project # 20859.01.00X
 TO: 171108-4

SWRI

Relinquished By: <i>Drew Schaeffer</i> CHPRC Print First and Last Name	<i>NOV 06 2017 1100</i> Signature Date/Time	Received By: SSU-1 Print First and Last Name	<i>NOV 06 2017 1100</i> 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
Relinquished By: SSU-1 Print First and Last Name	<i>NOV 07 2017 0750</i> Signature Date/Time	Received By: <i>Curt Hoffman</i> CHPRC Print First and Last Name	<i>NOV 07 2017 0750</i> Signature Date/Time	
Relinquished By: <i>Curt Hoffman</i> CHPRC Print First and Last Name	<i>NOV 07 2017 1400</i> Signature Date/Time	Received By: FEDEx Print First and Last Name	Signature Date/Time	
Relinquished By: FEDEx Print First and Last Name	Signature Date/Time	Received By: <i>David Garcia</i> Print First and Last Name	<i>11-08-2017 08:45</i> Signature Date/Time	
FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process):		Disposed By:	Date/Time:

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST **010006**

C.O.C.#
I18-001-043

Page 1 of 1

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

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

SPECIAL INSTRUCTIONS
 N/A

CHPRC SRR # 60737
 SDG # 623536

SwRI Prjct # 20859.01.00X
 TO: 171113-4

SwRI

Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B3DCX5	N	W	11-7-17	0900	1x250-mL aG	9060_TOC: COMMON	28 Days	HCl or H2SO4 to pH <2 / Cool <=6C
B3DCX4	N	W	11-7-17	0900	1x250-mL aG	9060_TOC: COMMON	28 Days	HCl or H2SO4 to pH <2 / Cool <=6C
B3DCX3	N	W	11-7-17	0900	1x250-mL aG	9060_TOC: COMMON	28 Days	HCl or H2SO4 to pH <2 / Cool <=6C
B3DCX2	N	W	11-7-17	0900	1x250-mL aG	9060_TOC: COMMON	28 Days	HCl or H2SO4 to pH <2 / Cool <=6C

Relinquished By: KATHY TURNER CHPRC Signature: <i>Kathy Turner</i> Date/Time: NOV 07 2017 1600	Received By: SSU-1 Signature: <i>[Signature]</i> Date/Time: NOV 07 2017 1630	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
Relinquished By: SSU-1 Signature: <i>[Signature]</i> Date/Time: NOV 08 2017 1030	Received By: Lesly Wall CHPRC Signature: <i>Lesly Wall</i> Date/Time: NOV 08 2017 1030	
Relinquished By: Lesly Wall CHPRC Signature: <i>Lesly Wall</i> Date/Time: NOV 08 2017 1400	Received By: FEDEX Signature: <i>[Signature]</i> Date/Time: <i>[Signature]</i>	
Relinquished By: FEDEX Signature: <i>[Signature]</i> Date/Time: <i>[Signature]</i>	Received By: Daniel Garcia Signature: <i>Daniel Garcia</i> Date/Time: 11-10-2017 09:25	

FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process):	Disposed By:	Date/Time:
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CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 010007

C.O.C.#
S18-011-907
 Page 1 of 1

Collector: Ed Kauer CHPRC	Contact/Requester: Karen Waters-Husted	Telephone No.: 509-376-4650
SAF No.: S18-011	Sampling Origin: Hanford Site	Purchase Order/Charge Code: 300071
Project Title: SURV, NOVEMBER 2017	Logbook No.: HNF-N-506-96-47	Ice Chest No.: 605-678
Shipped To (Lab): Southwest Research Institute	Method of Shipment: Commercial Carrier	Bill of Lading/Air Bill No.: 770700859204
Protocol: SURV	Priority: 30 Days	Offsite Property No.: 8694

POSSIBLE SAMPLE HAZARDS/REMARK
 ** ** Contains Radioactive Material at concentrations that are not 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
B3FDJ4	N	W	NOV 07 2017	0915	1x500-mL aG	9014_CN (FREE): COMMON; 9012_CYANIDE (TOTAL): COMMON	14 Days	NaOH to pH =>12 / Cool <=6C

CHPRC
 SRR # 60737
 SDG # 623536

SwRI Prjct # 20859.01.00X
 TO: 171113-4

SWRI

Relinquished By: <i>Ed Kauer</i> CHPRC Print First and Last Name Signature Date/Time	NOV 07 2017 0930	Received By: SSU-1 Signature Date/Time	11-7-17-0930	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
Relinquished By: SSU-1 Print First and Last Name Signature Date/Time	NOV 08 2017 1030	Received By: Lesly Wall CHPRC Print First and Last Name Signature Date/Time	NOV 08 2017 1030	
Relinquished By: Lesly Wall CHPRC Print First and Last Name Signature Date/Time	NOV 08 2017 1400	Received By: FEDEX Print First and Last Name Signature Date/Time		
Relinquished By: FEDEX Print First and Last Name Signature Date/Time		Received By: David Garcia Print First and Last Name Signature Date/Time	11-10-2017 09:25	

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

C.O.C.#
S18-011-913

010008

Page 1 of 1

Collector: Ed Kauer CHPRC	Contact/Requester: Karen Waters-Husted	Telephone No.: 509-376-4650
SAF No.: S18-011	Sampling Origin: Hanford Site	Purchase Order/Charge Code: 300071
Project Title: SURV, NOVEMBER 2017	Logbook No.: HNF-N-506 - 96-47	Ice Chest No.: 6605-678
Shipped To (Lab): Southwest Research Institute	Method of Shipment: Commercial Carrier	Bill of Lading/Air Bill No.: 7707 00859204
Protocol: SURV	Priority: 30 Days	Offsite Property No.: 0694

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
B3FDJ8	N	W	NOV 07 2017	0620	1x500-mL aG	9014_CN (FREE): COMMON; 9012_CYANIDE (TOTAL): COMMON	14 Days	NaOH to pH >=12 / Cool <=6C

CHPRC
 SRR # 60737
 SDG # 623536

SwRI Prjct # 20859.01.00X
 TO: 171113-4

SWRI

Relinquished By: Ed Kauer CHPRC Signature: [Signature] Date/Time: NOV 07 2017 0930	Received By: SSU-1 Signature: [Signature] Date/Time: 11-7-17 0930	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
Relinquished By: SSU-1 Signature: [Signature] Date/Time: NOV 08 2017 1030	Received By: Lesly Wall CHPRC Signature: [Signature] Date/Time: NOV 08 2017 1030	
Relinquished By: Lesly Wall CHPRC Signature: [Signature] Date/Time: NOV 08 2017 1400	Received By: FEDEX Signature: [Signature] Date/Time: [Signature]	
Relinquished By: FEDEX Signature: [Signature] Date/Time: [Signature]	Received By: Daniel Garcia Signature: [Signature] Date/Time: 11-10-2017 09:25	

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

C.O.C. #
W18-011-068

010009

Page 1 of 2

RW 11/10/17

Collector: Malcom Chunn CHPRC	Contact/Requester: Karen Waters-Husted	Telephone No.: 509-376-4650
SAF No.: W18-011	Sampling Origin: Hanford Site	Purchase Order/Charge Code: 300071
Project Title: RCRA, NOVEMBER 2017	Logbook No.: HNF-N-506 <i>96152</i>	Ice Chest No.: <i>GWS-399</i>
Shipped To (Lab): Southwest Research Institute	Method of Shipment: Commercial Carrier	Bill of Lading/Air Bill No.: <i>770733601180</i>
Protocol: RCRA	Priority: 30 Days	Offsite Property No.: <i>8726</i>

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
B3DJ87	N	W	NOV 10 2017	0909	1x500-mL aG	9012_CN (AMENABLE): COMMON; 9012_CYANIDE (TOTAL): COMMON; 9014_CN (FREE): COMMON	14 Days	NaOH to pH >=12 / Cool <=6C
B3DJ91	Y	W	NOV 10 2017	0909	1x500-mL aG	9012_CN (AMENABLE): COMMON; 9012_CYANIDE (TOTAL): COMMON; 9014_CN (FREE): COMMON	14 Days	NaOH to pH >=12 / Cool <=6C

CHPRC
 SRR # 60751
 SDG # 623536

SwRI Prjct # 20859.01.00X
 TO: 171114-4
SWRI

Relinquished By: <i>M.R. Chunn</i> Malcom Chunn CHPRC Print First and Last Name	<i>NOV 10 2017</i> Date/Time	<i>0950</i> Signature	Received By: <i>Lesly Wall</i> Lesly Wall CHPRC Print First and Last Name	<i>NOV 10 2017</i> Date/Time	<i>0950</i> Signature	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
Relinquished By: <i>Lesly Wall</i> Lesly Wall CHPRC Print First and Last Name	<i>NOV 10 2017</i> Date/Time	<i>1100</i> Signature	Received By: SSU-1 Print First and Last Name	<i>NOV 10 2017</i> Date/Time	<i>1100</i> Signature	
Relinquished By: SSU-1 Print First and Last Name	<i>NOV 13 2017</i> Date/Time	<i>0918</i> Signature	Received By: <i>Frank Hall</i> Frank Hall CHPRC Print First and Last Name	<i>NOV 13 2017</i> Date/Time	<i>0918</i> Signature	
Relinquished By: <i>Frank Hall</i> Frank Hall CHPRC Print First and Last Name	<i>NOV 13 2017</i> Date/Time	<i>1100</i> Signature	Received By: FEDEX Print First and Last Name	 Date/Time	 Signature	

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

C.O.C.#
W18-011-081

010011

Page 1 of 2

Collector: Daniel Klug CHPRC	Contact/Requester: Karen Waters-Husted	Telephone No.: 509-376-4650
SAF No.: W18-011	Sampling Origin: Hanford Site	Purchase Order/Charge Code: 300071
Project Title: RCRA, NOVEMBER 2017	Logbook No.: HNF-N-506 97/24	Ice Chest No.: GWS-399
Shipped To (Lab): Southwest Research Institute	Method of Shipment: Commercial Carrier	Bill of Lading/Air Bill No.: 770733601180
Protocol: RCRA	Priority: 30 Days	Offsite Property No.: 8726

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
B3DJ48	Y	W	NOV 09 2017	1240	1x500-mL aG	9012_CN (AMENABLE): COMMON; 9012_CYANIDE (TOTAL): COMMON; 9014_CN (FREE): COMMON	14 Days	NaOH to pH >=12 / Cool <=6C
B3DJ45	N	W	NOV 09 2017	1240	1x500-mL aG	9012_CN (AMENABLE): COMMON; 9012_CYANIDE (TOTAL): COMMON; 9014_CN (FREE): COMMON	14 Days	NaOH to pH >=12 / Cool <=6C

CHPRC SRR # 60751
 SDG # 623536
 SwRI Project # 20859.01.00X
 TO: 171114-4
 SWRI

Relinquished By: Daniel Klug CHPRC Signature: [Signature] Date/Time: NOV 09 2017 1315	Received By: SSU-1 Signature: [Signature] Date/Time: NOV 09 2017 1315	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
Relinquished By: SSU-1 Signature: [Signature] Date/Time: NOV 13 2017 0918	Received By: Frank Hall CHPRC Signature: [Signature] Date/Time: NOV 13 2017 0918	
Relinquished By: Frank Hall CHPRC Signature: [Signature] Date/Time: NOV 13 2017 1400	Received By: FEDEX Signature: [Signature] Date/Time: [Signature]	
Relinquished By: FEDEX Signature: [Signature] Date/Time: [Signature]	Received By: Daniel Klug CHPRC Signature: [Signature] Date/Time: NOV 14 2017 05:40	

FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process):	Disposed By:	Date/Time:
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CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST **010012**

C.O.C. #
W18-011-067

Page 1 of 12

Collector: Malcom Chunn CHPRC	Contact/Requester: Karen Waters-Husted	Telephone No.: 509-376-4650
SAF No.: W18-011	Sampling Origin: Hanford Site	Purchase Order/Charge Code: 300071
Project Title: RCRA, NOVEMBER 2017	Logbook No.: HNF-N-506 96152	Ice Chest No.: GWS-399
Shipped To (Lab): Southwest Research Institute	Method of Shipment: Commercial Carrier	Bill of Lading/Air Bill No.: 770733601180
Protocol: RCRA	Priority: 30 Days	Offsite Property No.: 8726

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
B3DJ81	N	W	NOV 10 2017	0942	1x500-mL aG	9012_CN (AMENABLE): COMMON; 9012_CYANIDE (TOTAL): COMMON; 9014_CN (FREE): COMMON	14 Days	NaOH to pH >=12 / Cool <=6C
B3DJ85	Y	W	NOV 10 2017	0942	1x500-mL aG	9012_CN (AMENABLE): COMMON; 9012_CYANIDE (TOTAL): COMMON; 9014_CN (FREE): COMMON	14 Days	NaOH to pH >=12 / Cool <=6C

CHPRC
 SRR # 60751
 SDG # 623536

SwRI Prjct # 20859.01.00X
 TO: 171114-4

SWRI

Relinquished By: Malcom Chunn CHPRC M. R. C. NOV 10 2017 0950 Print First and Last Name Signature Date/Time	Received By: Lesly Wall CHPRC Lesly Wall NOV 10 2017 0950 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	
Relinquished By: Lesly Wall CHPRC Lesly Wall NOV 10 2017 1100 Print First and Last Name Signature Date/Time	Received By: SSU-1 NOV 10 2017 1100 Print First and Last Name Signature Date/Time		
Relinquished By: SSU-1 NOV 13 2017 0918 Print First and Last Name Signature Date/Time	Received By: Frank Hall CHPRC Frank Hall NOV 13 2017 0918 Print First and Last Name Signature Date/Time		
Relinquished By: Frank Hall CHPRC Frank Hall NOV 13 2017 1460 Print First and Last Name Signature Date/Time	Received By: FEDEX NOV 13 2017 Print First and Last Name Signature Date/Time		
FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process):	Disposed By:	Date/Time:

Southwest Research Institute

Laboratory Task Order

TO #: 171108-4 Revision: 2

SDG: 623536
 VTSR: 11/08/17
 SAF: W18-011

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

Project(s): 20859.01.00X
 Manager(s): SPIES, RADONNA
 To Client: 12/07/17

Instructions

CH2MHill Plateau Remediation Company. 300071
 SAF No. W18-011

SDG 623536 is open until 11/21/17

30-day TAT.

CURRENTLY, FINAL DATA/HARDCOPY IS DUE TO THE CLIENT ON 12/08/2017.

12 overall samples (12 containers) were received on 11/08/2017.
 OUT of the 12 samples, ONLY the 8 samples that require Cn, are listed here.

Sample Analysis REQUIRED
 9012 _ 57-12-5 Cyanide (Total)
 9012 _ CATC Cyanide (Amenable)
 9014 _ FREE-CN Cyanide (Free)

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

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

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

REVISION 1, DRmz 11/13/17: Task Order revised to indicate additional samples were received on 11/10/17, which have been grouped with SDG 623536, located in Task Order # 171113-4, SRR 60737.
 REVISION 2, DRmz 11/14/17: Task Order revised to indicate additional samples were received on 11/14/17, which have been grouped with SDG 623536, located in Task Order # 171114-4, SRR 60751.
 SDG is now CLOSED.

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

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

Test: AMENCN_9012
 Section: WETCHEM

Holding: 14 days from CED

Amenable Cyanide by SW846 9012

Cnt: 8

System ID	Type	Cont	Matrix	Customer ID	CED	Method Date
623536		1	Water	B3DJT0	06 Nov 17	20 Nov 17
623541		1	Water	B3F9H1	06 Nov 17	20 Nov 17
623542		1	Water	B3F9H2	06 Nov 17	20 Nov 17
623543		1	Water	B3F9H3	06 Nov 17	20 Nov 17
623544		1	Water	B3F9H4	06 Nov 17	20 Nov 17
623545		1	Water	B3F9J6	06 Nov 17	20 Nov 17
623546		1	Water	B3F9J7	06 Nov 17	20 Nov 17
623547		1	Water	B3F9K4	06 Nov 17	20 Nov 17

Test: CN_9012
 Section: WETCHEM

Holding: 14 days from CED

Cyanide by Method 9012 (Automated)

Cnt: 8

System ID	Type	Cont	Matrix	Customer ID	CED	Method Date
623536		1	Water	B3DJT0	06 Nov 17	20 Nov 17
623541		1	Water	B3F9H1	06 Nov 17	20 Nov 17



Southwest Research Institute

Laboratory Task Order

TO #: 171108-4 Revision: 2

Project(s): 20859.01.00X
 Manager(s): SPIES, RADONNA
 To Client: 12/07/17

SDG: 623536
 VTSR: 11/08/17
 SAF: W18-011

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

System ID	Type	Cont	Matrix	Customer ID	GED	Method Date
623542		1	Water	B3F9H2	06 Nov 17	20 Nov 17
623543		1	Water	B3F9H3	06 Nov 17	20 Nov 17
623544		1	Water	B3F9H4	06 Nov 17	20 Nov 17
623545		1	Water	B3F9J6	06 Nov 17	20 Nov 17
623546		1	Water	B3F9J7	06 Nov 17	20 Nov 17
623547		1	Water	B3F9K4	06 Nov 17	20 Nov 17

Test: CN_9014
 Section: WETCHEM

Holding: 14 days from CED

Total Cyanide by SW846 9014

Cnt: 8

System ID	Type	Cont	Matrix	Customer ID	GED	Method Date
623536		1	Water	B3DJT0	06 Nov 17	20 Nov 17
623541		1	Water	B3F9H1	06 Nov 17	20 Nov 17
623542		1	Water	B3F9H2	06 Nov 17	20 Nov 17
623543		1	Water	B3F9H3	06 Nov 17	20 Nov 17
623544		1	Water	B3F9H4	06 Nov 17	20 Nov 17
623545		1	Water	B3F9J6	06 Nov 17	20 Nov 17
623546		1	Water	B3F9J7	06 Nov 17	20 Nov 17
623547		1	Water	B3F9K4	06 Nov 17	20 Nov 17



Sample Receipt

Southwest Research Institute

Sample Receipt Number: 60727

VTSR: 11/08/17

Time: 08:45:00

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

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

Notes

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

Fed Ex Tracking #(s):
 7706 8769 3523

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

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

Ice Chest No:
 GWS-393

Test requirements located on the applicable Task Order.

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

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

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

Containers: 12

Samples: 12

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

Thermometer: 021056
 Temperature: 0.9

60727 CH2M Hill Plateau Remediation

Southwest Research Institute
Traffic Report

Sample Custodian Signature: David Garcia



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

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

Custody Seal #(s): N/A

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

SAMPLE LOG-IN SHEET

Lab Name Southwest Research Institute			Page 1 of 1		
Received By (Print Name) DAVID GARCIA			Log-in Date 11/08/2017		
Received By (Signature) <i>David Garcia</i>					
Case Number CHPRC		Sample Delivery Group No. N/A		SAS Number N/A	
Remarks: 20859.01.00X		Corresponding		Remarks: Condition of Sample Shipment, etc	
	EPA Sample #	Sample Tag #	Assigned Lab #		
1. Custody Seal(s)	<u>Present</u> / Absent* <u>Intact</u> / Broken	B3DJT0	N/A	623536	Intact
2. Custody Seal Nos.	N/A	B3F659	N/A	623537	Intact
		B3F990	N/A	623538	Intact
3. Chain-of Custody Records	<u>Present</u> / Absent*	B3F999	N/A	623539	Intact
4. Traffic Reports or Packing Lists	<u>Present</u> / Absent*	B3F9B5	N/A	623540	Intact
5. Airbill	Airbill / Sticker <u>Present</u> / Absent*	B3F9H1	N/A	623541	Intact
		B3F9H2	N/A	623542	Intact
6. Airbill No.	7706 8769 3523	B3F9H3	N/A	623543	Intact
		B3F9H4	N/A	623544	Intact
7. Sample Tags	Present / <u>Absent</u> N/A	B3F9J6	N/A	623545	Intact
Sample Tag Numbers	Listed / <u>Not</u> listed on Chain of Custody	B3F9J7	N/A	623546	Intact
		B3F9K4	N/A	623547	Intact
8. Sample Condition	<u>Intact</u> / Broken* / Leaking				
9. Cooler Temperature	0.9C				
10. Does Information on custody records, traffic reports, and sample tags agree?	<u>Yes</u> / No*				
11. Date Received at Lab	11/08/2017				
12. Time Received	08:45:00				
Sample Transfer					
Fraction	<i>Inorg</i>	Fraction			
Area #	<i>2.13</i>	Area #			
By	DAVID GARCIA	By			
On	11/08/2017	On			

* Contact SMO and attach record of resolution

Reviewed By <i>David Garcia</i>	Logbook No. Sample Receipt (60727)
Date 11.8.17	Logbook Page No. 9998 <i>Sec 1, 2 of 2</i>

Southwest Research Institute

Laboratory Task Order

TO #: 171113-4 Revision: 1

Project(s): 20859.01.00X
 Manager(s): SPIES, RADONNA
 To Client: 12/07/17
 Client(s): CH2M Hill Plateau Remediation Company

SDG: 623536
 VTSR: 11/10/17
 SAF: I18-001 S18-011

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

Instructions

CH2MHill Plateau Remediation Company. 300071
 SAF No. I18-001
 SAF No. S18-011

SDG 623536 is open until 11/21/17

GROUPED _ with samples in SDG 623536, located in Task Order # 171108-4, SRR 60727.

30-day TAT.

CURRENTLY, FINAL DATA/HARDCOPY IS DUE TO THE CLIENT ON 12/08/2017.

21 overall samples (21 containers) were received on 11/10/2017.

OUT of the 21 samples, ONLY the 4 TOC samples and 2 Cn samples are listed here.

Sample Analysis REQUIRED

- 9012 _ 57-12-5 Cyanide (Total)
- 9012 _ CATC Cyanide (Amenable)
- 9014 _ FREE-CN Cyanide (Free)
- 9060_TOC

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

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

Electronic copies of all sample receipt information, COCs, priority data packages, final data packages, corrected/revise data packages, closure reports, status reports, invoices, etc. shall be sent to: mailto:CPP_Sample_Management@rl.gov
 REVISION 1, DRmz 11/14/17: Task Order revised to indicate additional samples were received on 11/14/17, which have been grouped with SDG 623536, located in Task Order # 171114-4, SRR 60751. SDG is now CLOSED.

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

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

Test: AMENCN_9012
 Section: WETCHEM

Holding: 14 days from CED

Amenable Cyanide by SW846 9012

Cnt: 2

System ID	Type	Cont	Matrix	Customer ID	CED	Method Date
623619		1	Water	B3FDJ4	07 Nov 17	21 Nov 17
623620		1	Water	B3FDJ8	07 Nov 17	21 Nov 17

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
623619		1	Water	B3FDJ4	07 Nov 17	21 Nov 17
623620		1	Water	B3FDJ8	07 Nov 17	21 Nov 17

Test: CN_9014
 Section: WETCHEM

Holding: 14 days from CED

Total Cyanide by SW846 9014

Cnt: 2

System ID	Type	Cont	Matrix	Customer ID	CED	Method Date
623619		1	Water	B3FDJ4	07 Nov 17	21 Nov 17



December 12, 2017

010020

Southwest Research Institute

Laboratory Task Order

TO #: 171113-4 Revision: 1

Project(s): 20859.01.00X
Manager(s): SPIES, RADONNA
To Client: 12/07/17

SDG: 623536
VTSR: 11/10/17
SAF: 118-001 S18-011

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

System ID	Type	Cont	Matrix	Customer ID	GED	Method Date
623620		1	Water	B3FDJ8	07 Nov 17	21 Nov 17

Test: TOC_9060
Section: WETCHEM

Holding: 28 days from CED

TOC by 9060

Cnt: 4

System ID	Type	Cont	Matrix	Customer ID	GED	Method Date
623603		1	Water	B3DCX2	07 Nov 17	05 Dec 17
623604		1	Water	B3DCX3	07 Nov 17	05 Dec 17
623605		1	Water	B3DCX4	07 Nov 17	05 Dec 17
623606		1	Water	B3DCX5	07 Nov 17	05 Dec 17



Sample Receipt

Southwest Research Institute

VTSR: 11/10/17

Time: 09:25:00

Project: 20859.01.00X

Sample Receipt Number: 60737

Revision: 1

Manager: SPIES, RADONNA

Case #: CHPRC

This Receipt was Revised 11/13/2017

Logged in by: DXGARCIA

Client: CH2M Hill Plateau Remediation Company

Creation Date: 11/10/17

Notes

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

Fed Ex Tracking #(s):
7707 0085 9204

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

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

Ice Chest No:
GWS-678

Test requirements located on the applicable Task Order.

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

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

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

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

Containers: 21

Samples: 21

60737 CH2M Hill Plateau Remediation

December 12, 2017

010022

Sample Receipt

Southwest Research Institute

VTSR: 11/10/17

Time: 09:25:00

Project: 20859.01.00X

Sample Receipt Number: 60737

Revision: 1

Manager: SPIES, RADONNA

Case #: CHPRC

Logged in by: DXGARCIA

Client: CH2M Hill Plateau Remediation Company

This Receipt was Revised 11/13/2017

Creation Date: 11/10/17

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

Thermometer: 021056
Temperature: 1.9

60737 CH2M Hill Plateau Remediation

Southwest Research Institute
Traffic Report

Sample Custodian Signature: DRM for Rev 1



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

Client: CH2M Hill Plateau Remediation Company
Project: 20859.01.00X
Case: CHPRC/SDG: SEE TO
Sample Receipt: 60737
Airbill: 7707 0085 9204

Custody Seal #(s): N/A

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

SAMPLE LOG-IN SHEET

Lab Name Southwest Research Institute		Page 1 of 1	
Received By (Print Name) DAVID GARCIA		Log-in Date 11/10/2017	
Received By (Signature) <i>Dr. Garcia</i>			
Case Number CHPRC	Sample Delivery Group No. SEE TO	SAS Number N/A	
Remarks: 20859.01.00X		Remarks: Condition of Sample Shipment, etc	
	EPA Sample #	Sample Tag #	Assigned Lab #
1. Custody Seal(s)	<input checked="" type="radio"/> Present / Absent* <input checked="" type="radio"/> Intact / Broken	B3DCW9	N/A
2. Custody Seal Nos.	N/A	B3DCX0	N/A
		B3DCX1	N/A
3. Chain-of-Custody Records	<input checked="" type="radio"/> Present / Absent*	B3DCX2	N/A
4. Traffic Reports or Packing Lists	<input checked="" type="radio"/> Present / Absent*	B3DCX3	N/A
5. Airbill	Airbill/Sticker <input checked="" type="radio"/> Present / Absent*	B3DCX4	N/A
		B3DCX5	N/A
6. Airbill No.	7707 0085 9204	B3DCX6	N/A
		B3DCX7	N/A
7. Sample Tags	Present / Absent* N/A	B3DCX8	N/A
Sample Tag Numbers	Listed / Not listed on Chain of Custody N/A	B3DCX9	N/A
8. Sample Condition	<input checked="" type="radio"/> Intact / Broken* / Leaking	B3DCY0	N/A
9. Cooler Temperature	1.9C	B3DCY1	N/A
10. Does Information on custody records, traffic reports, and sample tags agree?	<input checked="" type="radio"/> Yes / No*	B3DCY2	N/A
		B3DCY3	N/A
11. Date Received at Lab	11/10/2017	B3DCY4	N/A
		B3DCY5	N/A
12. Time Received	09:25:00	B3DCY6	N/A
		B3DCY7	N/A
Sample Transfer		B3FDJ4	N/A
Fraction Inorb	Fraction	B3FDJ8	N/A
Area # R13	Area #		
By DAVID GARCIA	By		
On 11/10/2017	On		

* Contact SMC and attach record of resolution

Reviewed By <i>David Garcia</i>	Logbook No. Sample Receipt (60737)
Date 11.13.17	Logbook Page No. 10000 SEC 1 of 2

Southwest Research Institute

Laboratory Task Order

TO #: 171114-4 Revision: 0

Project(s): 20859.01.00X
 Manager(s): SPIES, RADONNA
 To Client: 12/07/17
 Client(s): CH2M Hill Plateau Remediation Company

SDG: 623536
 VTSR: 11/14/17
 SAF: W18-011

SRR #s: 60751
 Client(s): CH2M Hill Plateau Remediation Company

Instructions

CH2MHill Plateau Remediation Company. 300071
 SAF No. W18-011

SDG 623536 is open until 11/21/17

GROUPED _ with samples in SDG 623536, located in Task Order # 171108-4, SRR 60727; Task Order # 171113-4, SRR 60737.

30-day TAT.
 CURRENTLY, FINAL DATA/HARDCOPY IS DUE TO THE CLIENT ON 12/08/2017.

18 overall samples (18 containers) were received on 11/14/2017.
 OUT of the 18 samples, ONLY 6 Cn samples are listed here. SDG now contains 20 samples

Sample Analysis REQUIRED
 9012 _ 57-12-5 Cyanide (Total)
 9012 _ CATC Cyanide (Amenable)
 9014 _ FREE-CN Cyanide (Free)

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: 232796[COC for SRR 60751], 232797[Paperwork for SRR 60751]

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

Test: AMENCN_9012
 Section: WETCHEM

Holding: 14 days from CED
Amenable Cyanide by SW846 9012

Cnt: 6

System ID	Type	Cont	Matrix	Customer ID	CED	Method Date
623684		1	Water	B3DJ45	09 Nov 17	23 Nov 17
623685		1	Water	B3DJ48	09 Nov 17	23 Nov 17
623686		1	Water	B3DJ81	10 Nov 17	24 Nov 17
623687		1	Water	B3DJ85	10 Nov 17	24 Nov 17
623688		1	Water	B3DJ87	10 Nov 17	24 Nov 17
623689		1	Water	B3DJ91	10 Nov 17	24 Nov 17

Test: CN_9012
 Section: WETCHEM

Holding: 14 days from CED
Cyanide by Method 9012 (Automated)

Cnt: 6

System ID	Type	Cont	Matrix	Customer ID	CED	Method Date
623684		1	Water	B3DJ45	09 Nov 17	23 Nov 17
623685		1	Water	B3DJ48	09 Nov 17	23 Nov 17
623686		1	Water	B3DJ81	10 Nov 17	24 Nov 17
623687		1	Water	B3DJ85	10 Nov 17	24 Nov 17
623688		1	Water	B3DJ87	10 Nov 17	24 Nov 17
623689		1	Water	B3DJ91	10 Nov 17	24 Nov 17



December 12, 2017

010026

Southwest Research Institute

Laboratory Task Order

TO #: 171114-4 Revision: 0

Project(s): 20859.01.00X
Manager(s): SPIES, RADONNA
To Client: 12/07/17

SDG: 623536
VTSR: 11/14/17
SAF: W18-011

SRR #'s: 60751
Client(s): CH2M Hill Plateau Remediation Company

Test: CN_9014
Section: WETCHEM

Holding: 14 days from CED

Total Cyanide by SW846 9014

Cnt: 6

System ID	Type	Cont	Matrix	Customer ID	CED	Method Date
623684		1	Water	B3DJ45	09 Nov 17	23 Nov 17
623685		1	Water	B3DJ48	09 Nov 17	23 Nov 17
623686		1	Water	B3DJ81	10 Nov 17	24 Nov 17
623687		1	Water	B3DJ85	10 Nov 17	24 Nov 17
623688		1	Water	B3DJ87	10 Nov 17	24 Nov 17
623689		1	Water	B3DJ91	10 Nov 17	24 Nov 17



Sample Receipt

Southwest Research Institute

VTSR: 11/14/17

Time: 08:40:00

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

Sample Receipt Number: 60751

Manager: SPIES, RADONNA
 Logged in by: DXGARCIA
 Creation Date: 11/14/17

Notes

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

Fed Ex Tracking #(s):
 7707 3360 1180

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-399

Test requirements located on the applicable Task Order.

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

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

System ID	Customer ID	CED	Matrix	Containers	Special Reqs.
623683	B3DHY2	11/10/17	Water	1	
623684	B3DJ45	11/09/17	Water	1	
623685	B3DJ48	11/09/17	Water	1	
623686	B3DJ81	11/10/17	Water	1	
623687	B3DJ85	11/10/17	Water	1	
623688	B3DJ87	11/10/17	Water	1	
623689	B3DJ91	11/10/17	Water	1	
623690	B3DJ97	11/10/17	Water	1	
623691	B3F551	11/09/17	Water	1	
623692	B3F5V9	11/09/17	Water	1	
623693	B3F603	11/08/17	Water	1	
623694	B3F9F2	11/10/17	Water	1	
623695	B3F9F3	11/10/17	Water	1	
623696	B3F9H7	11/10/17	Water	1	
623697	B3F9J3	11/10/17	Water	1	
623698	B3F9J4	11/10/17	Water	1	
623699	B3F9J5	11/10/17	Water	1	
623700	B3FD97	11/10/17	Water	1	

Containers: 18

Samples: 18

60751 CH2M Hill Plateau Remediation

December 12, 2017

010028

Sample Receipt

Southwest Research Institute

VTSR: 11/14/17

Time: 08:40:00

Project: 20859.01.00X

Sample Receipt Number: 60751

Manager: SPIES, RADONNA

Case #: CHPRC

Logged in by: DXGARCIA

Client: CH2M Hill Plateau Remediation Company

Creation Date: 11/14/17

These documents are associated with this receipt: 232797[Paperwork for SRR 60751], 232796[COC for SRR 60751]

Thermometer: 021056
Temperature: 1.9

60751 CH2M Hill Plateau Remediation

Southwest Research Institute

Traffic Report

Sample Custodian Signature:




- 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 TO*

Sample Receipt: 60751

Airbill: 7707 3360 1180

Custody Seal #(s): N/A

Date Received	Time Received	COC Record	SMO Sample #	Corresponding		Traffic Rpt, Tags, COC Agree	Sample Condition
				Sample Tag #	SwRI #		
11/14/17	08:40:00	W18-011-243	B3DHY2	N/A	623683	YES	Intact
11/14/17	08:40:00	W18-011-081	B3DJ45	N/A	623684	YES	Intact
11/14/17	08:40:00	W18-011-081	B3DJ48	N/A	623685	YES	Intact
11/14/17	08:40:00	W18-011-067	B3DJ81	N/A	623686	YES	Intact
11/14/17	08:40:00	W18-011-067	B3DJ85	N/A	623687	YES	Intact
11/14/17	08:40:00	W18-011-068	B3DJ87	N/A	623688	YES	Intact
11/14/17	08:40:00	W18-011-068	B3DJ91	N/A	623689	YES	Intact
11/14/17	08:40:00	W18-011-248	B3DJ97	N/A	623690	YES	Intact
11/14/17	08:40:00	S18-011-596	B3F551	N/A	623691	YES	Intact
11/14/17	08:40:00	S18-011-754	B3F5V9	N/A	623692	YES	Intact
11/14/17	08:40:00	S18-011-752	B3F603	N/A	623693	YES	Intact
11/14/17	08:40:00	W18-011-238	B3F9F2	N/A	623694	YES	Intact
11/14/17	08:40:00	W18-011-238	B3F9F3	N/A	623695	YES	Intact
11/14/17	08:40:00	W18-011-243	B3F9H7	N/A	623696	YES	Intact
11/14/17	08:40:00	W18-011-247	B3F9J3	N/A	623697	YES	Intact
11/14/17	08:40:00	W18-011-247	B3F9J4	N/A	623698	YES	Intact
11/14/17	08:40:00	W18-011-248	B3F9J5	N/A	623699	YES	Intact
11/14/17	08:40:00	S18-011-872	B3FD97	N/A	623700	YES	Intact

SAMPLE LOG-IN SHEET

Lab Name Southwest Research Institute		Page 1 of 1			
Received By (Print Name) DAVID GARCIA		Log-in Date 11/14/2017			
Received By (Signature) <i>David Garcia</i>					
Case Number CHPRC	Sample Delivery Group No. N/A		SAS Number N/A		
Remarks: 20859.01.00X		Remarks: Condition of Sample Shipment, etc			
	EPA Sample #	Corresponding Sample Tag #	Assigned Lab #		
1. Custody Seal(s)	<input checked="" type="checkbox"/> Present / <input type="checkbox"/> Absent* <input checked="" type="checkbox"/> Intact / <input type="checkbox"/> Broken	B3DHY2	N/A	623683	Intact
2. Custody Seal Nos.	N/A	B3DJ45	N/A	623684	Intact
		B3DJ48	N/A	623685	Intact
3. Chain-of Custody Records	<input checked="" type="checkbox"/> Present / <input type="checkbox"/> Absent*	B3DJ81	N/A	623686	Intact
4. Traffic Reports or Packing Lists	<input checked="" type="checkbox"/> Present / <input type="checkbox"/> Absent*	B3DJ85	N/A	623687	Intact
5. Airbill	Airbill/Sticker <input checked="" type="checkbox"/> Present / <input type="checkbox"/> Absent*	B3DJ87	N/A	623688	Intact
		B3DJ91	N/A	623689	Intact
6. Airbill No.	7707 3360 1180	B3DJ97	N/A	623690	Intact
7. Sample Tags	Present / <input type="checkbox"/> Absent* N/A	B3F551	N/A	623691	Intact
Sample Tag Numbers	Listed / <input type="checkbox"/> Not listed on Chain of Custody N/A	B3F5V9	N/A	623692	Intact
		B3F603	N/A	623693	Intact
8. Sample Condition	<input checked="" type="checkbox"/> Intact / <input type="checkbox"/> Broken* / <input type="checkbox"/> Leaking	B3F9F2	N/A	623694	Intact
9. Cooler Temperature	1.9C	B3F9F3	N/A	623695	Intact
10. Does Information on custody records, traffic reports, and sample tags agree?	<input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No*	B3F9H7	N/A	623696	Intact
		B3F9J3	N/A	623697	Intact
11. Date Received at Lab	11/14/2017	B3F9J4	N/A	623698	Intact
		B3F9J5	N/A	623699	Intact
12. Time Received	08:40:00	B3FD97	N/A	623700	Intact
Sample Transfer					
Fraction	Fraction				
Area #	Area #				
By	By				
On	On				

* Contact SMO and attach record of resolution

Reviewed By <i>David Garcia</i>	Logbook No. Sample Receipt (60751)
Date 11.15.17	Logbook Page No. 10004 Sec 1, 2014

SOUTHWEST RESEARCH INSTITUTE
CLIENT: CH2M Hill Plateau Remediation Company
SwRI PROJECT#: 20859.01.00X
SwRI TASK ORDER: 171108-4, 171113-4, 171114-4
SwRI SRR: 60727, 60737, 60751
SDG: 623536
CASE: W18-011, I18-001, S18-011
VTSR: 11.08.2017, 11.10.2017, 11.14.2017

Case Narrative

December 12, 2017

CLIENT: CH2M Hill Plateau Remediation Company**SDG: 623536****SwRI Project Number: 20859.01.00X****SwRI Sample Receipt Number: 60727, 60737, 60751****Page#: 1**

SwRI CASE NARRATIVE

1. Twenty (20) samples were received for Various Cyanide Analyses:

SwRI ID	Customer ID	Matrix
623536	B3DJT0	Water
623541	B3F9H1	Water
623542	B3F9H2	Water
623543	B3F9H3	Water
623544	B3F9H4	Water
623545	B3F9J6	Water
623546	B3F9J7	Water
623547	B3F9K4	Water
623603	B3DCX2	Water
623604	B3DCX3	Water
623605	B3DCX4	Water
623606	B3DCX5	Water
623619	B3FDJ4	Water
623620	B3FDJ8	Water
623684	B3DJ45	Water
623685	B3DJ48	Water
623686	B3DJ81	Water
623687	B3DJ85	Water
623688	B3DJ87	Water
623689	B3DJ91	Water

December 12, 2017

Client: CH2M Hill Plateau Remediation Company**SDG: 623536****SwRI Project Number: 20859.01.00X****SwRI Task Order Number(s): 171108-4, 171113-4, 171114-4****WETCHEM ANALYSIS**

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

Total Cyanide – SW-846 Method 9012

Amenable Cyanide – SW-846 Method 9012

Free Cyanide – SW-846 Method 9014

Total Organic Carbon (TOC) – SW-846 Method 9060A

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. 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 with the exception of total cyanide (SwRI #623684), with a matrix spike recovery of 71.6%. A post digestion spike was performed for the total cyanide sample with a 97.3% recovery. Note, sample #623685 had a free cyanide concentration higher than the calculated total cyanide, which could be due to matrix interference.

TOC:

The applicable samples were analyzed for TOC according to SwRI TAP 01-0406-159 on the Phoenix 8000 TOC analyzer. The calibration range was limited to 0.2 – 10 mg/L for linearity purposes. The samples were analyzed in quadruplicate with both the average and range being reported. A sample spike and spike duplicate was performed on sample 623603. All ICB's and CCB's were less than the reporting limit. All ICV's and CCV's were within 90-110% recovery. The ICB was used as the procedure blank and the ICV was used as the LCS. The spike duplicates had an RPD of less than 20%. All matrix spike recoveries were within their specified criteria.

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



Principal Scientist


Date

SOUTHWEST RESEARCH INSTITUTE
CLIENT: CH2M Hill Plateau Remediation Company
SwRI ROJECT#: 20859.01.00X
SwRI TASK ORDER: 171108-4, 171113-4, 171114-4
SwRI SRR: 60727, 60737, 60751
SDG: 623536
CASE: W18-011, I18-001, S18-011
VTSR: 11.08.2017, 11.10.2017, 11.14.2017

CYANIDE

Sample Results

December 12, 2017

SOUTHWEST RESEARCH INSTITUTE
WetChem Report
Cover Page

010035

Client: CH2M Hill Plateau Remediation Company
Task Order: 171113-4, 171114-4, 171108-4

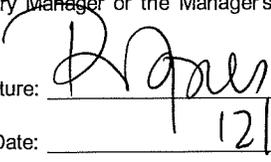
SDG: 623536
SRR: 60737, 60751, 60727

Case: CHPRC
Project: 20859.01.00X

Client Sample ID	Lab Sample ID
B3DCX2	623603
B3DCX3	623604
B3DCX4	623605
B3DCX5	623606
B3DJ45	623684
B3DJ45D	623684D
B3DJ48	623685
B3DJ81	623686
B3DJ85	623687
B3DJ87	623688
B3DJ91	623689
B3DJT0	623536
B3DJT0D	623536D
B3F9H1	623541
B3F9H2	623542
B3F9H3	623543
B3F9H4	623544
B3F9J6	623545
B3F9J7	623546
B3F9K4	623547
B3FDJ4	623619
B3FDJ8	623620

Comments:

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and the electronic data submitted has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: 

Name: Radonna Spies

Date: 12/11/17

Title: Principal Scientist

December 12, 2017

SOUTHWEST RESEARCH INSTITUTE 010036 Client Sample ID
WetChem Report - Form I
Certificate of Analysis

B3DCX2

Type: Unknown

Client: CH2M Hill Plateau Remediation Company
Task Order: 171113-4, 171114-4, 171108-4
Lab ID: 623603
Result Units: mg/L

SDG: 623536
SRR: 60727
Matrix: Water
% Solids: NA

Case: CHPRC
Project: 20859.01.00X
Receipt Date: 11/10/2017
Collection Date: 11/07/2017

CAS No.	Analyte	Result	Qual	M	RL	DF	Prep Batch	Analysis Date/Time
NA	TOC	1.16		Pnx	0.200	1	NA	11/15/2017 17:57

Range: 1.14 - 1.18 mg/L

Data Reporting Qualifiers (Qual)	Columns	Instruments/Methods (M)
U - Result is less than the SwRI Reporting Limit (RL) N - Matrix spike and/or matrix spike duplicate criteria was not met 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	RL - SwRI Reporting Limit DF - Dilution Factor M - Instrument	KNO - Konelab/Cyanide 9012 Pnx - Phoenix 8000 TOC analyzer/TOC 9060 KNO - Konelab/Cyanide 9014 NA - Not Applicable/Amenable Cyanide

Form I-IN

December 12, 2017

SOUTHWEST RESEARCH INSTITUTE 010037 Client Sample ID
 WetChem Report - Form I
 Certificate of Analysis

B3DCX3

Type: Unknown

Client: CH2M Hill Plateau Remediation Company
 Task Order: 171113-4, 171114-4, 171108-4
 Lab ID: 623604
 Result Units: mg/L

SDG: 623536
 SRR: 60727
 Matrix: Water
 % Solids: NA

Case: CHPRC
 Project: 20859.01.00X
 Receipt Date: 11/10/2017
 Collection Date: 11/07/2017

CAS No.	Analyte	Result	Qual	M	RL	DF	Prep Batch	Analysis Date/Time
NA	TOC	1.13		Pnx	0.200	1	NA	11/15/2017 18:51

Range: 1.10 - 1.15 mg/L

Data Reporting Qualifiers (Qual)	Columns	Instruments/Methods (M)
U - Result is less than the SwRI Reporting Limit (RL) N - Matrix spike and/or matrix spike duplicate criteria was not met 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	RL - SwRI Reporting Limit DF - Dilution Factor M - Instrument	KNO - Konelab/Cyanide 9012 Pnx - Phoenix 8000 TOC analyzer/TOC 9060 KNO - Konelab/Cyanide 9014 NA - Not Applicable/Amenable Cyanide

Form I-IN

December 12, 2017

B3DCX4

Certificate of Analysis

Type: Unknown

Client: CH2M Hill Plateau Remediation Company
Task Order: 171113-4, 171114-4, 171108-4
Lab ID: 623605
Result Units: mg/L

SDG: 623536
SRR: 60727
Matrix: Water
% Solids: NA

Case: CHPRC
Project: 20859.01.00X
Receipt Date: 11/10/2017
Collection Date: 11/07/2017

CAS No.	Analyte	Result	Qual	M	RL	DF	Prep Batch	Analysis Date/Time
NA	TOC	1.15		Pnx	0.200	1	NA	11/15/2017 19:18

Range: 1.11 - 1.17 mg/L

Data Reporting Qualifiers (Qual)	Columns	Instruments/Methods (M)
U - Result is less than the SwRI Reporting Limit (RL) N - Matrix spike and/or matrix spike duplicate criteria was not met 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	RL - SwRI Reporting Limit DF - Dilution Factor M - Instrument	KNO - Konelab/Cyanide 9012 Pnx - Phoenix 8000 TOC analyzer/TOC 9060 KNO - Konelab/Cyanide 9014 NA - Not Applicable/Amenable Cyanide

December 12, 2017

SOUTHWEST RESEARCH INSTITUTE 010039 Client Sample ID
WetChem Report - Form I
Certificate of Analysis

B3DCX5

Type: Unknown

Client: CH2M Hill Plateau Remediation Company
Task Order: 171113-4, 171114-4, 171108-4
Lab ID: 623606
Result Units: mg/L

SDG: 623536
SRR: 60727
Matrix: Water
% Solids: NA

Case: CHPRC
Project: 20859.01.00X
Receipt Date: 11/10/2017
Collection Date: 11/07/2017

CAS No.	Analyte	Result	Qual	M	RL	DF	Prep Batch	Analysis Date/Time
NA	TOC	1.11		Pnx	0.200	1	NA	11/15/2017 19:44

Range: 1.11 - 1.12 mg/L

Data Reporting Qualifiers (Qual)	Columns	Instruments/Methods (M)
U - Result is less than the SwRI Reporting Limit (RL) N - Matrix spike and/or matrix spike duplicate criteria was not met 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	RL - SwRI Reporting Limit DF - Dilution Factor M - Instrument	KNO - Konelab/Cyanide 9012 Pnx - Phoenix 8000 TOC analyzer/TOC 9060 KNO - Konelab/Cyanide 9014 NA - Not Applicable/Amenable Cyanide

Form I-IN

December 12, 2017

B3DJ45

Certificate of Analysis

Type: Unknown

Client: CH2M Hill Plateau Remediation Company
Task Order: 171113-4, 171114-4, 171108-4
Lab ID: 623684
Result Units: mg/L

SDG: 623536
SRR: 60727
Matrix: Water
% Solids: NA

Case: CHPRC
Project: 20859.01.00X
Receipt Date: 11/14/2017
Collection Date: 11/09/2017

CAS No.	Analyte	Result	Qual	M	RL	DF	Prep Batch	Analysis Date/Time
	Amenable Cyanide	0.0108		NA	0.00500	1	20171204-P001	11/17/2017 17:09
57-12-5	Free Cyanide	0.00500	U	KNO	0.00500	1	NA	11/17/2017 14:07
57-12-5	Total Cyanide	0.0108	N	KNO	0.00500	1	20171204-P001	11/17/2017 12:54

Data Reporting Qualifiers (Qual)	Columns	Instruments/Methods (M)
U - Result is less than the SwRI Reporting Limit (RL) N - Matrix spike and/or matrix spike duplicate criteria was not met 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	RL - SwRI Reporting Limit DF - Dilution Factor M - Instrument	KNO - Konelab/Cyanide 9012 Pnx - Phoenix 8000 TOC analyzer/TOC 9060 KNO - Konelab/Cyanide 9014 NA - Not Applicable/Amenable Cyanide

December 12, 2017

SOUTHWEST RESEARCH INSTITUTE 010041 Client Sample ID
WetChem Report - Form I
Certificate of Analysis

B3DJ48

Type: Unknown

Client: CH2M Hill Plateau Remediation Company
Task Order: 171113-4, 171114-4, 171108-4
Lab ID: 623685
Result Units: mg/L

SDG: 623536
SRR: 60727
Matrix: Water
% Solids: NA

Case: CHPRC
Project: 20859.01.00X
Receipt Date: 11/14/2017
Collection Date: 11/09/2017

CAS No.	Analyte	Result	Qual	M	RL	DF	Prep Batch	Analysis Date/Time
	Amenable Cyanide	0.0112		NA	0.00500	1	20171204-P001	11/17/2017 12:18
57-12-5	Free Cyanide	0.0573		KNO	0.00500	1	NA	11/17/2017 14:07
57-12-5	Total Cyanide	0.0112	N	KNO	0.00500	1	20171204-P001	11/17/2017 14:07

Data Reporting Qualifiers (Qual)	Columns	Instruments/Methods (M)
U - Result is less than the SwRI Reporting Limit (RL) N - Matrix spike and/or matrix spike duplicate criteria was not met 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	RL - SwRI Reporting Limit DF - Dilution Factor M - Instrument	KNO - Konelab/Cyanide 9012 Pnx - Phoenix 8000 TOC analyzer/TOC 9060 KNO - Konelab/Cyanide 9014 NA - Not Applicable/Amenable Cyanide

Form I-IN

December 12, 2017

B3DJ81

Certificate of Analysis

Type: Unknown

Client: CH2M Hill Plateau Remediation Company
Task Order: 171113-4, 171114-4, 171108-4
Lab ID: 623686
Result Units: mg/L

SDG: 623536
SRR: 60727
Matrix: Water
% Solids: NA

Case: CHPRC
Project: 20859.01.00X
Receipt Date: 11/14/2017
Collection Date: 11/10/2017

CAS No.	Analyte	Result	Qual	M	RL	DF	Prep Batch	Analysis Date/Time
	Amenable Cyanide	0.0254		NA	0.00500	1	20171204-P001	11/17/2017 12:18
57-12-5	Free Cyanide	0.00500	U	KNO	0.00500	1	NA	11/17/2017 14:07
57-12-5	Total Cyanide	0.0254	N	KNO	0.00500	1	20171204-P001	11/17/2017 14:07

Data Reporting Qualifiers (Qual)	Columns	Instruments/Methods (M)
U - Result is less than the SwRI Reporting Limit (RL) N - Matrix spike and/or matrix spike duplicate criteria was not met 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	RL - SwRI Reporting Limit DF - Dilution Factor M - Instrument	KNO - Konelab/Cyanide 9012 Pnx - Phoenix 8000 TOC analyzer/TOC 9060 KNO - Konelab/Cyanide 9014 NA - Not Applicable/Amenable Cyanide

December 12, 2017

SOUTHWEST RESEARCH INSTITUTE 010043 Client Sample ID
 WetChem Report - Form I
 Certificate of Analysis

B3DJ85

Type: Unknown

Client: CH2M Hill Plateau Remediation Company
 Task Order: 171113-4, 171114-4, 171108-4
 Lab ID: 623687
 Result Units: mg/L

SDG: 623536
 SRR: 60727
 Matrix: Water
 % Solids: NA

Case: CHPRC
 Project: 20859.01.00X
 Receipt Date: 11/14/2017
 Collection Date: 11/10/2017

CAS No.	Analyte	Result	Qual	M	RL	DF	Prep Batch	Analysis Date/Time
	Amenable Cyanide	0.0246		NA	0.00500	1	20171204-P001	11/17/2017 12:18
57-12-5	Free Cyanide	0.00500	U	KNO	0.00500	1	NA	11/17/2017 14:07
57-12-5	Total Cyanide	0.0246	N	KNO	0.00500	1	20171204-P001	11/17/2017 14:07

Data Reporting Qualifiers (Qual)	Columns	Instruments/Methods (M)
U - Result is less than the SwRI Reporting Limit (RL) N - Matrix spike and/or matrix spike duplicate criteria was not met 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	RL - SwRI Reporting Limit DF - Dilution Factor M - Instrument	KNO - Konelab/Cyanide 9012 Pnx - Phoenix 8000 TOC analyzer/TOC 9060 KNO - Konelab/Cyanide 9014 NA - Not Applicable/Amenable Cyanide

Form I-IN

December 12, 2017

SOUTHWEST RESEARCH INSTITUTE 010044 Client Sample ID
 WetChem Report - Form I B3DJ87
 Certificate of Analysis **Type: Unknown**

Client: CH2M Hill Plateau Remediation Company
 Task Order: 171113-4, 171114-4, 171108-4
 Lab ID: 623688
 Result Units: mg/L

SDG: 623536
 SRR: 60727
 Matrix: Water
 % Solids: NA

Case: CHPRC
 Project: 20859.01.00X
 Receipt Date: 11/14/2017
 Collection Date: 11/10/2017

CAS No.	Analyte	Result	Qual	M	RL	DF	Prep Batch	Analysis Date/Time
	Amenable Cyanide	0.00617		NA	0.00500	1	20171204-P001	11/17/2017 12:18
57-12-5	Free Cyanide	0.00500	U	KNO	0.00500	1	NA	11/17/2017 15:19
57-12-5	Total Cyanide	0.00617	N	KNO	0.00500	1	20171204-P001	11/17/2017 14:07

Data Reporting Qualifiers (Qual)	Columns	Instruments/Methods (M)
U - Result is less than the SwRI Reporting Limit (RL) N - Matrix spike and/or matrix spike duplicate criteria was not met 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	RL - SwRI Reporting Limit DF - Dilution Factor M - Instrument	KNO - Konelab/Cyanide 9012 Pnx - Phoenix 8000 TOC analyzer/TOC 9060 KNO - Konelab/Cyanide 9014 NA - Not Applicable/Amenable Cyanide

Form I-IN

December 12, 2017

B3DJ91

Certificate of Analysis

Type: Unknown

Client: CH2M Hill Plateau Remediation Company
Task Order: 171113-4, 171114-4, 171108-4
Lab ID: 623689
Result Units: mg/L

SDG: 623536
SRR: 60727
Matrix: Water
% Solids: NA

Case: CHPRC
Project: 20859.01.00X
Receipt Date: 11/14/2017
Collection Date: 11/10/2017

CAS No.	Analyte	Result	Qual	M	RL	DF	Prep Batch	Analysis Date/Time
	Amenable Cyanide	0.00614		NA	0.00500	1	20171204-P001	11/17/2017 12:18
57-12-5	Free Cyanide	0.00500	U	KNO	0.00500	1	NA	11/17/2017 15:19
57-12-5	Total Cyanide	0.00614	N	KNO	0.00500	1	20171204-P001	11/17/2017 14:07

Data Reporting Qualifiers (Qual)	Columns	Instruments/Methods (M)
U - Result is less than the SwRI Reporting Limit (RL) N - Matrix spike and/or matrix spike duplicate criteria was not met 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	RL - SwRI Reporting Limit DF - Dilution Factor M - Instrument	KNO - Konelab/Cyanide 9012 Pnx - Phoenix 8000 TOC analyzer/TOC 9060 KNO - Konelab/Cyanide 9014 NA - Not Applicable/Amenable Cyanide

December 12, 2017

SOUTHWEST RESEARCH INSTITUTE 010046 Client Sample ID
 WetChem Report - Form I
 Certificate of Analysis

B3DJT0

Type: Unknown

Client: CH2M Hill Plateau Remediation Company
 Task Order: 171113-4, 171114-4, 171108-4
 Lab ID: 623536
 Result Units: mg/L

SDG: 623536
 SRR: 60727
 Matrix: Water
 % Solids: NA

Case: CHPRC
 Project: 20859.01.00X
 Receipt Date: 11/08/2017
 Collection Date: 11/06/2017

CAS No.	Analyte	Result	Qual	M	RL	DF	Prep Batch	Analysis Date/Time
	Amenable Cyanide	0.00500	U	NA	0.00500	1	20171130-P002	11/17/2017 12:18
57-12-5	Free Cyanide	0.00500	U	KNO	0.00500	1	20171130-P002	11/16/2017 14:56
57-12-5	Total Cyanide	0.00500	U	KNO	0.00500	1	20171130-P002	11/16/2017 13:38

Data Reporting Qualifiers (Qual)	Columns	Instruments/Methods (M)
U - Result is less than the SwRI Reporting Limit (RL) N - Matrix spike and/or matrix spike duplicate criteria was not met 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	RL - SwRI Reporting Limit DF - Dilution Factor M - Instrument	KNO - Konelab/Cyanide 9012 Pnx - Phoenix 8000 TOC analyzer/TOC 9060 KNO - Konelab/Cyanide 9014 NA - Not Applicable/Amenable Cyanide

Form I-IN

December 12, 2017

SOUTHWEST RESEARCH INSTITUTE 010047 Client Sample ID
 WetChem Report - Form I
 Certificate of Analysis

B3F9H1

Type: Unknown

Client: CH2M Hill Plateau Remediation Company
 Task Order: 171113-4, 171114-4, 171108-4
 Lab ID: 623541
 Result Units: mg/L

SDG: 623536
 SRR: 60727
 Matrix: Water
 % Solids: NA

Case: CHPRC
 Project: 20859.01.00X
 Receipt Date: 11/08/2017
 Collection Date: 11/06/2017

CAS No.	Analyte	Result	Qual	M	RL	DF	Prep Batch	Analysis Date/Time
	Amenable Cyanide	0.295		NA	0.00500	1	20171130-P002	11/17/2017 12:18
57-12-5	Free Cyanide	0.00500	U	KNO	0.00500	1	NA	11/16/2017 14:17
57-12-5	Total Cyanide	0.295		KNO	0.00500	1	20171130-P002	11/16/2017 13:38

Data Reporting Qualifiers (Qual)	Columns	Instruments/Methods (M)
U - Result is less than the SwRI Reporting Limit (RL) N - Matrix spike and/or matrix spike duplicate criteria was not met 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	RL - SwRI Reporting Limit DF - Dilution Factor M - Instrument	KNO - Konelab/Cyanide 9012 Pnx - Phoenix 8000 TOC analyzer/TOC 9060 KNO - Konelab/Cyanide 9014 NA - Not Applicable/Amenable Cyanide

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December 12, 2017

SOUTHWEST RESEARCH INSTITUTE 010048 Client Sample ID
 WetChem Report - Form I B3F9H2
 Certificate of Analysis **Type: Unknown**

Client: CH2M Hill Plateau Remediation Company
 Task Order: 171113-4, 171114-4, 171108-4
 Lab ID: 623542
 Result Units: mg/L

SDG: 623536
 SRR: 60727
 Matrix: Water
 % Solids: NA

Case: CHPRC
 Project: 20859.01.00X
 Receipt Date: 11/08/2017
 Collection Date: 11/06/2017

CAS No.	Analyte	Result	Qual	M	RL	DF	Prep Batch	Analysis Date/Time
	Amenable Cyanide	0.0200		NA	0.00500	1	20171130-P002	11/17/2017 12:18
57-12-5	Free Cyanide	0.00500	U	KNO	0.00500	1	NA	11/16/2017 14:17
57-12-5	Total Cyanide	0.286		KNO	0.00500	1	20171130-P002	11/16/2017 13:38

Data Reporting Qualifiers (Qual)	Columns	Instruments/Methods (M)
U - Result is less than the SwRI Reporting Limit (RL) N - Matrix spike and/or matrix spike duplicate criteria was not met 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	RL - SwRI Reporting Limit DF - Dilution Factor M - Instrument	KNO - Konelab/Cyanide 9012 Pnx - Phoenix 8000 TOC analyzer/TOC 9060 KNO - Konelab/Cyanide 9014 NA - Not Applicable/Amenable Cyanide

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December 12, 2017

SOUTHWEST RESEARCH INSTITUTE 010049 Client Sample ID
 WetChem Report - Form I
 Certificate of Analysis

B3F9H3

Type: Unknown

Client: CH2M Hill Plateau Remediation Company
 Task Order: 171113-4, 171114-4, 171108-4
 Lab ID: 623543
 Result Units: mg/L

SDG: 623536
 SRR: 60727
 Matrix: Water
 % Solids: NA

Case: CHPRC
 Project: 20859.01.00X
 Receipt Date: 11/08/2017
 Collection Date: 11/06/2017

CAS No.	Analyte	Result	Qual	M	RL	DF	Prep Batch	Analysis Date/Time
	Amenable Cyanide	0.00500	U	NA	0.00500	1	20171130-P002	11/17/2017 12:18
57-12-5	Free Cyanide	0.00500	U	KNO	0.00500	1	NA	11/16/2017 14:17
57-12-5	Total Cyanide	0.00500	U	KNO	0.00500	1	20171130-P002	11/16/2017 14:17

Data Reporting Qualifiers (Qual)	Columns	Instruments/Methods (M)
U - Result is less than the SwRI Reporting Limit (RL) N - Matrix spike and/or matrix spike duplicate criteria was not met 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	RL - SwRI Reporting Limit DF - Dilution Factor M - Instrument	KNO - Konelab/Cyanide 9012 Pnx - Phoenix 8000 TOC analyzer/TOC 9060 KNO - Konelab/Cyanide 9014 NA - Not Applicable/Amenable Cyanide

December 12, 2017

SOUTHWEST RESEARCH INSTITUTE 010050 Client Sample ID
 WetChem Report - Form I
 Certificate of Analysis

B3F9H4

Type: Unknown

Client: CH2M Hill Plateau Remediation Company
 Task Order: 171113-4, 171114-4, 171108-4
 Lab ID: 623544
 Result Units: mg/L

SDG: 623536
 SRR: 60727
 Matrix: Water
 % Solids: NA

Case: CHPRC
 Project: 20859.01.00X
 Receipt Date: 11/08/2017
 Collection Date: 11/06/2017

CAS No.	Analyte	Result	Qual	M	RL	DF	Prep Batch	Analysis Date/Time
	Amenable Cyanide	0.00500	U	NA	0.00500	1	20171130-P002	11/17/2017 12:18
57-12-5	Free Cyanide	0.00500	U	KNO	0.00500	1	NA	11/16/2017 14:17
57-12-5	Total Cyanide	0.00500	U	KNO	0.00500	1	20171130-P002	11/16/2017 14:17

Data Reporting Qualifiers (Qual)	Columns	Instruments/Methods (M)
U - Result is less than the SwRI Reporting Limit (RL) N - Matrix spike and/or matrix spike duplicate criteria was not met 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	RL - SwRI Reporting Limit DF - Dilution Factor M - Instrument	KNO - Konelab/Cyanide 9012 Pnx - Phoenix 8000 TOC analyzer/TOC 9060 KNO - Konelab/Cyanide 9014 NA - Not Applicable/Amenable Cyanide

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December 12, 2017

SOUTHWEST RESEARCH INSTITUTE 010051 Client Sample ID
 WetChem Report - Form I
 Certificate of Analysis

B3F9J6

Type: Unknown

Client: CH2M Hill Plateau Remediation Company
 Task Order: 171113-4, 171114-4, 171108-4
 Lab ID: 623545
 Result Units: mg/L

SDG: 623536
 SRR: 60727
 Matrix: Water
 % Solids: NA

Case: CHPRC
 Project: 20859.01.00X
 Receipt Date: 11/08/2017
 Collection Date: 11/06/2017

CAS No.	Analyte	Result	Qual	M	RL	DF	Prep Batch	Analysis Date/Time
	Amenable Cyanide	0.0131		NA	0.00500	1	20171130-P002	11/17/2017 12:18
57-12-5	Free Cyanide	0.00500	U	KNO	0.00500	1	NA	11/16/2017 14:17
57-12-5	Total Cyanide	0.0131		KNO	0.00500	1	20171130-P002	11/16/2017 14:17

Data Reporting Qualifiers (Qual)	Columns	Instruments/Methods (M)
U - Result is less than the SwRI Reporting Limit (RL) N - Matrix spike and/or matrix spike duplicate criteria was not met 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	RL - SwRI Reporting Limit DF - Dilution Factor M - Instrument	KNO - Konelab/Cyanide 9012 Pnx - Phoenix 8000 TOC analyzer/TOC 9060 KNO - Konelab/Cyanide 9014 NA - Not Applicable/Amenable Cyanide

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December 12, 2017

SOUTHWEST RESEARCH INSTITUTE 010052 Client Sample ID
 WetChem Report - Form I B3F9J7
 Certificate of Analysis **Type: Unknown**

Client: CH2M Hill Plateau Remediation Company
 Task Order: 171113-4, 171114-4, 171108-4
 Lab ID: 623546
 Result Units: mg/L

SDG: 623536
 SRR: 60727
 Matrix: Water
 % Solids: NA

Case: CHPRC
 Project: 20859.01.00X
 Receipt Date: 11/08/2017
 Collection Date: 11/06/2017

CAS No.	Analyte	Result	Qual	M	RL	DF	Prep Batch	Analysis Date/Time
	Amenable Cyanide	0.0136		NA	0.00500	1	20171130-P002	11/17/2017 12:54
57-12-5	Free Cyanide	0.00500	U	KNO	0.00500	1	NA	11/16/2017 14:56
57-12-5	Total Cyanide	0.0136		KNO	0.00500	1	20171130-P002	11/16/2017 14:17

Data Reporting Qualifiers (Qual)	Columns	Instruments/Methods (M)
U - Result is less than the SwRI Reporting Limit (RL) N - Matrix spike and/or matrix spike duplicate criteria was not met 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	RL - SwRI Reporting Limit DF - Dilution Factor M - Instrument	KNO - Konelab/Cyanide 9012 Pnx - Phoenix 8000 TOC analyzer/TOC 9060 KNO - Konelab/Cyanide 9014 NA - Not Applicable/Amenable Cyanide

December 12, 2017

B3F9K4

Certificate of Analysis

Type: Unknown

Client: CH2M Hill Plateau Remediation Company
Task Order: 171113-4, 171114-4, 171108-4
Lab ID: 623547
Result Units: mg/L

SDG: 623536
SRR: 60727
Matrix: Water
% Solids: NA

Case: CHPRC
Project: 20859.01.00X
Receipt Date: 11/08/2017
Collection Date: 11/06/2017

CAS No.	Analyte	Result	Qual	M	RL	DF	Prep Batch	Analysis Date/Time
	Amenable Cyanide	0.00500	U	NA	0.00500	1	20171130-P002	11/17/2017 12:18
57-12-5	Free Cyanide	0.00500	U	KNO	0.00500	1	NA	11/16/2017 14:56
57-12-5	Total Cyanide	0.00500	U	KNO	0.00500	1	20171130-P002	11/17/2017 12:54

Data Reporting Qualifiers (Qual)	Columns	Instruments/Methods (M)
U - Result is less than the SwRI Reporting Limit (RL) N - Matrix spike and/or matrix spike duplicate criteria was not met 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	RL - SwRI Reporting Limit DF - Dilution Factor M - Instrument	KNO - Konelab/Cyanide 9012 Pnx - Phoenix 8000 TOC analyzer/TOC 9060 KNO - Konelab/Cyanide 9014 NA - Not Applicable/Amenable Cyanide

December 12, 2017

SOUTHWEST RESEARCH INSTITUTE 010054 Client Sample ID
 WetChem Report - Form I
 Certificate of Analysis

B3FDJ4

Type: Unknown

Client: CH2M Hill Plateau Remediation Company
 Task Order: 171113-4, 171114-4, 171108-4
 Lab ID: 623619
 Result Units: mg/L

SDG: 623536
 SRR: 60727
 Matrix: Water
 % Solids: NA

Case: CHPRC
 Project: 20859.01.00X
 Receipt Date: 11/10/2017
 Collection Date: 11/07/2017

CAS No.	Analyte	Result	Qual	M	RL	DF	Prep Batch	Analysis Date/Time
	Amenable Cyanide	0.00997		NA	0.00500	1	20171204-P001	11/17/2017 17:09
57-12-5	Free Cyanide	0.00500	U	KNO	0.00500	1	NA	11/17/2017 15:19
57-12-5	Total Cyanide	0.00997	N	KNO	0.00500	1	20171204-P001	11/17/2017 14:07

Data Reporting Qualifiers (Qual)	Columns	Instruments/Methods (M)
U - Result is less than the SwRI Reporting Limit (RL) N - Matrix spike and/or matrix spike duplicate criteria was not met 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	RL - SwRI Reporting Limit DF - Dilution Factor M - Instrument	KNO - Konelab/Cyanide 9012 Pnx - Phoenix 8000 TOC analyzer/TOC 9060 KNO - Konelab/Cyanide 9014 NA - Not Applicable/Amenable Cyanide

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December 12, 2017

SOUTHWEST RESEARCH INSTITUTE 010055 Client Sample ID
 WetChem Report - Form I
 Certificate of Analysis

B3FDJ8

Type: Unknown

Client: CH2M Hill Plateau Remediation Company
 Task Order: 171113-4, 171114-4, 171108-4
 Lab ID: 623620
 Result Units: mg/L

SDG: 623536
 SRR: 60727
 Matrix: Water
 % Solids: NA

Case: CHPRC
 Project: 20859.01.00X
 Receipt Date: 11/10/2017
 Collection Date: 11/07/2017

CAS No.	Analyte	Result	Qual	M	RL	DF	Prep Batch	Analysis Date/Time
	Amenable Cyanide	0.247		NA	0.00500	1	20171204-P001	11/17/2017 17:35
57-12-5	Free Cyanide	0.00884		KNO	0.00500	1	NA	11/17/2017 15:19
57-12-5	Total Cyanide	0.247	N	KNO	0.00500	1	20171204-P001	11/17/2017 17:35

Data Reporting Qualifiers (Qual)	Columns	Instruments/Methods (M)
U - Result is less than the SwRI Reporting Limit (RL) N - Matrix spike and/or matrix spike duplicate criteria was not met 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	RL - SwRI Reporting Limit DF - Dilution Factor M - Instrument	KNO - Konelab/Cyanide 9012 Pnx - Phoenix 8000 TOC analyzer/TOC 9060 KNO - Konelab/Cyanide 9014 NA - Not Applicable/Amenable Cyanide

December 12, 2017

SOUTHWEST RESEARCH INSTITUTE 010056

SwRI ID

WetChem Report - Form I

PB17L16PB2

Certificate of Analysis

Type: Blank

Client: CH2M Hill Plateau Remediation Company
 Task Order: 171113-4, 171114-4, 171108-4
 Lab ID: PB17L16PB2
 Result Units: mg/L

SDG: 623536
 SRR: 60727
 Matrix: Water
 % Solids: NA

Case: CHPRC
 Project: 20859.01.00X
 Receipt Date: NA
 Collection Date: NA

CAS No.	Analyte	Result	Qual	M	RL	DF	Prep Batch	Analysis Date/Time
	Amenable Cyanide	0.00500	U	NA	0.00500	1	20171130-P002	11/17/2017 12:18

Data Reporting Qualifiers (Qual)	Columns	Instruments/Methods (M)
U - Result is less than the SwRI Reporting Limit (RL) N - Matrix spike and/or matrix spike duplicate criteria was not met 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	RL - SwRI Reporting Limit DF - Dilution Factor M - Instrument	KNO - Konelab/Cyanide 9012 Pnx - Phoenix 8000 TOC analyzer/TOC 9060 KNO - Konelab/Cyanide 9014 NA - Not Applicable/Amenable Cyanide

Form I-IN

December 12, 2017

SOUTHWEST RESEARCH INSTITUTE 010057

SwRI ID

WetChem Report - Form I

PB17L16PB1

Certificate of Analysis

Type: Blank

Client: CH2M Hill Plateau Remediation Company
 Task Order: 171113-4, 171114-4, 171108-4
 Lab ID: PB17L16PB1
 Result Units: mg/L

SDG: 623536
 SRR: 60727
 Matrix: Water
 % Solids: NA

Case: CHPRC
 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	20171130-P002	11/16/2017 13:38

Data Reporting Qualifiers (Qual)	Columns	Instruments/Methods (M)
U - Result is less than the SwRI Reporting Limit (RL) N - Matrix spike and/or matrix spike duplicate criteria was not met 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	RL - SwRI Reporting Limit DF - Dilution Factor M - Instrument	KNO - Konelab/Cyanide 9012 Pnx - Phoenix 8000 TOC analyzer/TOC 9060 KNO - Konelab/Cyanide 9014 NA - Not Applicable/Amenable Cyanide

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December 12, 2017

SOUTHWEST RESEARCH INSTITUTE 010058

SwRI ID

WetChem Report - Form I

PB17L30PB2

Certificate of Analysis

Type: Blank

Client: CH2M Hill Plateau Remediation Company
Task Order: 171113-4, 171114-4, 171108-4
Lab ID: PB17L30PB2
Result Units: mg/L

SDG: 623536
SRR: 60727
Matrix: Water
% Solids: NA

Case: CHPRC
Project: 20859.01.00X
Receipt Date: NA
Collection Date: NA

Table with 9 columns: CAS No., Analyte, Result, Qual, M, RL, DF, Prep Batch, Analysis Date/Time. Row 1: Amenable Cyanide, 0.00500, NA, 0.00500, 1, 20171204-P001, 11/17/2017 17:09

Table with 3 columns: Data Reporting Qualifiers (Qual), Columns, Instruments/Methods (M). Contains definitions for RL, DF, M, KNO, Pnx, and NA.

December 12, 2017

SOUTHWEST RESEARCH INSTITUTE 010059

SwRI ID

WetChem Report - Form I

PB17L30PB1

Certificate of Analysis

Type: Blank

Client: CH2M Hill Plateau Remediation Company
Task Order: 171113-4, 171114-4, 171108-4
Lab ID: PB17L30PB1
Result Units: mg/L

SDG: 623536
SRR: 60727
Matrix: Water
% Solids: NA

Case: CHPRC
Project: 20859.01.00X
Receipt Date: NA
Collection Date: NA

Table with 9 columns: CAS No., Analyte, Result, Qual, M, RL, DF, Prep Batch, Analysis Date/Time. Row 1: 57-12-5, Total Cyanide, 0.00500, U, KNO, 0.00500, 1, 20171204-P001, 11/17/2017 12:54

Table with 3 columns: Data Reporting Qualifiers (Qual), Columns, Instruments/Methods (M). Contains definitions for U, N, X, E, D, * and abbreviations for RL, DF, M, KNO, Pnx, KNO, NA.

December 12, 2017

SOUTHWEST RESEARCH INSTITUTE 010060

SwRI ID

WetChem Report - Form I

CN-ICB

Certificate of Analysis

Type: ICB/Blank

Client: CH2M Hill Plateau Remediation Company
Task Order: 171113-4, 171114-4, 171108-4
Lab ID: CN-ICB
Result Units: mg/L

SDG: 623536
SRR: 60727
Matrix: Water
% Solids: NA

Case: CHPRC
Project: 20859.01.00X
Receipt Date: NA
Collection Date: NA

Table with 9 columns: CAS No., Analyte, Result, Qual, M, RL, DF, Prep Batch, Analysis Date/Time. Contains two rows of data for Free Cyanide analysis.

Table with 3 columns: Data Reporting Qualifiers (Qual), Columns, Instruments/Methods (M). Provides definitions for various codes and methods used in the report.

December 12, 2017

SOUTHWEST RESEARCH INSTITUTE 010061

SwRI ID

WetChem Report - Form I

ICB

Certificate of Analysis

Type: ICB/Blank

Client: CH2M Hill Plateau Remediation Company
 Task Order: 171113-4, 171114-4, 171108-4
 Lab ID: ICB
 Result Units: mg/L

SDG: 623536
 SRR: 60727
 Matrix: Water
 % Solids: NA

Case: CHPRC
 Project: 20859.01.00X
 Receipt Date: NA
 Collection Date: NA

CAS No.	Analyte	Result	Qual	M	RL	DF	Prep Batch	Analysis Date/Time
NA	TOC	0.200	U	Pnx	0.200	1	NA	11/15/2017 16:51

Data Reporting Qualifiers (Qual)	Columns	Instruments/Methods (M)
U - Result is less than the SwRI Reporting Limit (RL) N - Matrix spike and/or matrix spike duplicate criteria was not met 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	RL - SwRI Reporting Limit DF - Dilution Factor M - Instrument	KNO - Konelab/Cyanide 9012 Pnx - Phoenix 8000 TOC analyzer/TOC 9060 KNO - Konelab/Cyanide 9014 NA - Not Applicable/Amenable Cyanide

Form I-IN

December 12, 2017

SOUTHWEST RESEARCH INSTITUTE 010062
WetChem Report - Form IIA

Initial and Continuing Calibration Verification

Client: CH2M Hill Plateau Remediation Company
Task Order: 171108-4, 171113-4, 171114-4
Result Units: mg/L
Associated Analytical Batches: 20171130-A006

SDG: 623536
SRR: 60727
Initial Calibration Source: See Raw Data
Continuing Calibration Source: See Raw Data

Case: CHPRC
Project: 20859.01.00X

Analyte	Initial Calibration Verification				Continuing Calibration Verification						
	True	Found	%Rec	Limit	True	Found1	%Rec	Found2	%Rec	Limit	M
Total Cyanide	0.581	0.591	101.7%	90%-110%	0.581	0.595	102.4%	0.627	107.9%	90%-110%	KNO

Instruments/Methods (M)
KNO - Konelab/Cyanide 9012 Pnx - Phoenix 8000 TOC analyzer/TOC 9060 KNO - Konelab/Cyanide 9014 NA - Not Applicable/Amenable Cyanide

Form IIA-IN

December 12, 2017

SOUTHWEST RESEARCH INSTITUTE 010063
WetChem Report - Form IIA

Initial and Continuing Calibration Verification

Client: CH2M Hill Plateau Remediation Company
Task Order: 171108-4, 171113-4, 171114-4
Result Units: mg/L
Associated Analytical Batches: 20171130-A006

SDG: 623536
SRR: 60727
Initial Calibration Source: See Raw Data
Continuing Calibration Source: See Raw Data

Case: CHPRC
Project: 20859.01.00X

Continuing Calibration Verification					
Analyte	True	Found3	%Rec	Limit	M
Total Cyanide	0.581	0.596	102.6%	90%-110%	KNO

Instruments/Methods (M)
KNO - Konelab/Cyanide 9012
Pnx - Phoenix 8000 TOC analyzer/TOC 9060
KNO - Konelab/Cyanide 9014
NA - Not Applicable/Amenable Cyanide

Form IIA-IN

December 12, 2017

SOUTHWEST RESEARCH INSTITUTE 010064
WetChem Report - Form IIA

Initial and Continuing Calibration Verification

Client: CH2M Hill Plateau Remediation Company
Task Order: 171108-4, 171113-4, 171114-4
Result Units: mg/L
Associated Analytical Batches: 20171204-A002

SDG: 623536
SRR: 60727
Initial Calibration Source: Ultra Scientific
Continuing Calibration Source: Ultra Scientific

Case: CHPRC
Project: 20859.01.00X

Analyte	Initial Calibration Verification				Continuing Calibration Verification						
	True	Found	%Rec	Limit	True	Found1	%Rec	Found2	%Rec	Limit	M
TOC	25.0	25.4	101.6%	90%-110%	25.0	25.8	103.2%	25.1	100.4%	90%-110%	Pnx

Instruments/Methods (M)
KNO - Konelab/Cyanide 9012 Pnx - Phoenix 8000 TOC analyzer/TOC 9060 KNO - Konelab/Cyanide 9014 NA - Not Applicable/Amenable Cyanide

Form IIA-IN

December 12, 2017

SOUTHWEST RESEARCH INSTITUTE 010065
WetChem Report - Form IIA

Initial and Continuing Calibration Verification

Client: CH2M Hill Plateau Remediation Company
Task Order: 171108-4, 171113-4, 171114-4
Result Units: mg/L
Associated Analytical Batches: 20171204-A002

SDG: 623536
SRR: 60727
Initial Calibration Source: Ultra Scientific
Continuing Calibration Source: Ultra Scientific

Case: CHPRC
Project: 20859.01.00X

Continuing Calibration Verification							
Analyte	True	Found3	%Rec	Found4	%Rec	Limit	M
TOC	25.0	24.5	98.0%	24.6	98.4%	90%-110%	Pnx

Instruments/Methods (M)
KNO - Konelab/Cyanide 9012
Pnx - Phoenix 8000 TOC analyzer/TOC 9060
KNO - Konelab/Cyanide 9014
NA - Not Applicable/Amenable Cyanide

Form IIA-IN

December 12, 2017

SOUTHWEST RESEARCH INSTITUTE 010066
WetChem Report - Form IIA

Initial and Continuing Calibration Verification

Client: CH2M Hill Plateau Remediation Company
Task Order: 171108-4, 171113-4, 171114-4
Result Units: mg/L
Associated Analytical Batches: 20171204-A003

SDG: 623536
SRR: 60727
Initial Calibration Source: See Raw Data
Continuing Calibration Source: See Raw Data

Case: CHPRC
Project: 20859.01.00X

Analyte	Initial Calibration Verification				Continuing Calibration Verification						
	True	Found	%Rec	Limit	True	Found1	%Rec	Found2	%Rec	Limit	M
Free Cyanide	0.581	0.591	101.7%	90%-110%	0.581	0.595	102.4%	0.627	107.9%	90%-110%	KNO

Instruments/Methods (M)
KNO - Konelab/Cyanide 9012
Pnx - Phoenix 8000 TOC analyzer/TOC 9060
KNO - Konelab/Cyanide 9014
NA - Not Applicable/Amenable Cyanide

Form IIA-IN

December 12, 2017

SOUTHWEST RESEARCH INSTITUTE 010067
WetChem Report - Form IIA

Initial and Continuing Calibration Verification

Client: CH2M Hill Plateau Remediation Company
Task Order: 171108-4, 171113-4, 171114-4
Result Units: mg/L
Associated Analytical Batches: 20171204-A003

SDG: 623536
SRR: 60727
Initial Calibration Source: See Raw Data
Continuing Calibration Source: See Raw Data

Case: CHPRC
Project: 20859.01.00X

Continuing Calibration Verification					
Analyte	True	Found3	%Rec	Limit	M
Free Cyanide	0.581	0.596	102.6%	90%-110%	KNO

Instruments/Methods (M)
KNO - Konelab/Cyanide 9012
Pnx - Phoenix 8000 TOC analyzer/TOC 9060
KNO - Konelab/Cyanide 9014
NA - Not Applicable/Amenable Cyanide

Form IIA-IN

December 12, 2017

SOUTHWEST RESEARCH INSTITUTE 010068
WetChem Report - Form IIA

Initial and Continuing Calibration Verification

Client: CH2M Hill Plateau Remediation Company
Task Order: 171108-4, 171113-4, 171114-4
Result Units: mg/L
Associated Analytical Batches: 20171204-A004

SDG: 623536
SRR: 60727
Initial Calibration Source: See Raw Data
Continuing Calibration Source: See Raw Data

Case: CHPRC
Project: 20859.01.00X

Analyte	Initial Calibration Verification				Continuing Calibration Verification						
	True	Found	%Rec	Limit	True	Found1	%Rec	Found2	%Rec	Limit	M
Total Cyanide	0.581	0.602	103.6%	90%-110%	0.581	0.597	102.8%	0.587	101.0%	90%-110%	KNO

Instruments/Methods (M)
KNO - Konelab/Cyanide 9012 Pnx - Phoenix 8000 TOC analyzer/TOC 9060 KNO - Konelab/Cyanide 9014 NA - Not Applicable/Amenable Cyanide

Form IIA-IN

December 12, 2017

SOUTHWEST RESEARCH INSTITUTE 010069
WetChem Report - Form IIA

Initial and Continuing Calibration Verification

Client: CH2M Hill Plateau Remediation Company
Task Order: 171108-4, 171113-4, 171114-4
Result Units: mg/L
Associated Analytical Batches: 20171204-A004

SDG: 623536
SRR: 60727
Initial Calibration Source: See Raw Data
Continuing Calibration Source: See Raw Data

Case: CHPRC
Project: 20859.01.00X

Continuing Calibration Verification

Analyte	True	Found3	%Rec	Found4	%Rec	Found5	%Rec	Found6	%Rec	Limit	M
Total Cyanide	0.581	0.588	101.2%	0.568	97.8%	0.620	106.7%	0.573	98.6%	90%-110%	KNO

Instruments/Methods (M)

KNO - Konelab/Cyanide 9012
Pnx - Phoenix 8000 TOC analyzer/TOC 9060
KNO - Konelab/Cyanide 9014
NA - Not Applicable/Amenable Cyanide

Form IIA-IN

December 12, 2017

SOUTHWEST RESEARCH INSTITUTE 010070
WetChem Report - Form IIA

Initial and Continuing Calibration Verification

Client: CH2M Hill Plateau Remediation Company
Task Order: 171108-4, 171113-4, 171114-4
Result Units: mg/L
Associated Analytical Batches: 20171204-A005

SDG: 623536
SRR: 60727
Initial Calibration Source: See Raw Data
Continuing Calibration Source: See Raw Data

Case: CHPRC
Project: 20859.01.00X

Analyte	Initial Calibration Verification				Continuing Calibration Verification						
	True	Found	%Rec	Limit	True	Found1	%Rec	Found2	%Rec	Limit	M
Free Cyanide	0.581	0.602	103.6%	90%-110%	0.581	0.597	102.8%	0.587	101.0%	90%-110%	KNO

Instruments/Methods (M)
KNO - Konelab/Cyanide 9012 Pnx - Phoenix 8000 TOC analyzer/TOC 9060 KNO - Konelab/Cyanide 9014 NA - Not Applicable/Amenable Cyanide

Form IIA-IN

December 12, 2017

SOUTHWEST RESEARCH INSTITUTE 010071
WetChem Report - Form IIA

Initial and Continuing Calibration Verification

Client: CH2M Hill Plateau Remediation Company
Task Order: 171108-4, 171113-4, 171114-4
Result Units: mg/L
Associated Analytical Batches: 20171204-A005

SDG: 623536
SRR: 60727
Initial Calibration Source: See Raw Data
Continuing Calibration Source: See Raw Data

Case: CHPRC
Project: 20859.01.00X

Continuing Calibration Verification

Analyte	True	Found3	%Rec	Found4	%Rec	Found5	%Rec	Found6	%Rec	Limit	M
Free Cyanide	0.581	0.588	101.2%	0.568	97.8%	0.620	106.7%	0.573	98.6%	90%-110%	KNO

Instruments/Methods (M)

KNO - Konelab/Cyanide 9012
Pnx - Phoenix 8000 TOC analyzer/TOC 9060
KNO - Konelab/Cyanide 9014
NA - Not Applicable/Amenable Cyanide

Form IIA-IN

December 12, 2017

SOUTHWEST RESEARCH INSTITUTE 010072

WetChem Report - Form IIB

Low Level Check Standard

Client: CH2M Hill Plateau Remediation Company

SDG: 623536

Case: CHPRC

Task Order: 171108-4, 171113-4, 171114-4

SRR: 60727, 60737, 60751

Project: 20859.01.00X

Result Units: mg/L

Associated Analytical Batch: 20171130-A006

LLC Standards					
Analyte	True	Found1	%Rec	Limit	M
Total Cyanide	0.00500	0.00301	60.2%	50%-150%	KNO

Instruments/Methods (M)
KNO - Konelab/Cyanide 9012
Pnx - Phoenix 8000 TOC analyzer/TOC 9060
KNO - Konelab/Cyanide 9014
NA - Not Applicable/Amenable Cyanide

Form IIB-IN

December 12, 2017

SOUTHWEST RESEARCH INSTITUTE 010073

WetChem Report - Form IIB

Low Level Check Standard

Client: CH2M Hill Plateau Remediation Company

SDG: 623536

Case: CHPRC

Task Order: 171108-4, 171113-4, 171114-4

SRR: 60727, 60737, 60751

Project: 20859.01.00X

Result Units: mg/L

Associated Analytical Batch: 20171204-A003

LLC Standards					
Analyte	True	Found1	%Rec	Limit	M
Free Cyanide	0.00500	0.00301	60.2%	50%-150%	KNO

Instruments/Methods (M)
KNO - Konelab/Cyanide 9012
Pnx - Phoenix 8000 TOC analyzer/TOC 9060
KNO - Konelab/Cyanide 9014
NA - Not Applicable/Amenable Cyanide

Form IIB-IN

December 12, 2017

SOUTHWEST RESEARCH INSTITUTE 010074

WetChem Report - Form IIB

Low Level Check Standard

Client: CH2M Hill Plateau Remediation Company

SDG: 623536

Case: CHPRC

Task Order: 171108-4, 171113-4, 171114-4

SRR: 60727, 60737, 60751

Project: 20859.01.00X

Result Units: mg/L

Associated Analytical Batch: 20171204-A004

LLC Standards					
Analyte	True	Found1	%Rec	Limit	M
Total Cyanide	0.00500	0.00487	97.4%	50%-150%	KNO

Instruments/Methods (M)
KNO - Konelab/Cyanide 9012
Pnx - Phoenix 8000 TOC analyzer/TOC 9060
KNO - Konelab/Cyanide 9014
NA - Not Applicable/Amenable Cyanide

Form IIB-IN

December 12, 2017

SOUTHWEST RESEARCH INSTITUTE 010075

WetChem Report - Form IIB

Low Level Check Standard

Client: CH2M Hill Plateau Remediation Company

SDG: 623536

Case: CHPRC

Task Order: 171108-4, 171113-4, 171114-4

SRR: 60727, 60737, 60751

Project: 20859.01.00X

Result Units: mg/L

Associated Analytical Batch: 20171204-A005

LLC Standards					
Analyte	True	Found1	%Rec	Limit	M
Free Cyanide	0.00500	0.00487	97.4%	50%-150%	KNO

Instruments/Methods (M)
KNO - Konelab/Cyanide 9012
Pnx - Phoenix 8000 TOC analyzer/TOC 9060
KNO - Konelab/Cyanide 9014
NA - Not Applicable/Amenable Cyanide

Form IIB-IN

December 12, 2017

SOUTHWEST RESEARCH INSTITUTE 010076
WetChem Report - Form III

Blanks

Client: CH2M Hill Plateau Remediation Company
Task Order: 171108-4, 171113-4, 171114-4
Preparation Blank Result Units: mg/L
Initial/Continuing Blank Result Units: mg/L

SDG: 623536
SRR: 60727, 60737, 60751
Preparation Blank Matrix: Water
Associated Prep Batches: 20171130-P002

Case: CHPRC
Project: 20859.01.00X
Associated Analytical Batches: 20171130-A006

Analyte	Preparation Blank		Initial Calibration Blank		Continuing Calibration Blank						M
	Result	Qual	Found	Qual	Found1	Qual	Found2	Qual	Found3	Qual	
Total Cyanide	0.00500	U	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) N - Matrix spike and/or matrix spike duplicate criteria was not met 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	KNO - Konelab/Cyanide 9012 Pnx - Phoenix 8000 TOC analyzer/TOC 9060 KNO - Konelab/Cyanide 9014 NA - Not Applicable/Amenable Cyanide

December 12, 2017

SOUTHWEST RESEARCH INSTITUTE 010077
WetChem Report - Form III

Blanks

Client: CH2M Hill Plateau Remediation Company
Task Order: 171108-4, 171113-4, 171114-4
Preparation Blank Result Units: mg/L
Initial/Continuing Blank Result Units: mg/L

SDG: 623536
SRR: 60727, 60737, 60751
Preparation Blank Matrix: Water
Associated Prep Batches: NA

Case: CHPRC
Project: 20859.01.00X
Associated Analytical Batches: 20171204-A002

Analyte	Preparation Blank		Initial Calibration Blank		Continuing Calibration Blank								M
	Result	Qual	Found	Qual	Found1	Qual	Found2	Qual	Found3	Qual	Found4	Qual	
TOC	0.200	U	0.200	U	0.200	U	0.200	U	0.200	U	0.200	U	Pnx

Data Reporting Qualifiers (Qual)	Instruments/Methods (M)
U - Result is less than the SwRI Reporting Limit (RL) N - Matrix spike and/or matrix spike duplicate criteria was not met 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	KNO - Konelab/Cyanide 9012 Pnx - Phoenix 8000 TOC analyzer/TOC 9060 KNO - Konelab/Cyanide 9014 NA - Not Applicable/Amenable Cyanide

December 12, 2017

SOUTHWEST RESEARCH INSTITUTE 010078
WetChem Report - Form III

Blanks

Client: CH2M Hill Plateau Remediation Company
Task Order: 171108-4, 171113-4, 171114-4
Preparation Blank Result Units: mg/L
Initial/Continuing Blank Result Units: mg/L

SDG: 623536
SRR: 60727, 60737, 60751
Preparation Blank Matrix: Water
Associated Prep Batches: 20171130-P002

Case: CHPRC
Project: 20859.01.00X
Associated Analytical Batches: 20171204-A003

Analyte	Preparation Blank		Initial Calibration Blank		Continuing Calibration Blank						M
	Result	Qual	Found	Qual	Found1	Qual	Found2	Qual	Found3	Qual	
Free Cyanide	0.00500	U	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) N - Matrix spike and/or matrix spike duplicate criteria was not met 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	KNO - Konelab/Cyanide 9012 Pnx - Phoenix 8000 TOC analyzer/TOC 9060 KNO - Konelab/Cyanide 9014 NA - Not Applicable/Amenable Cyanide

December 12, 2017

SOUTHWEST RESEARCH INSTITUTE 010079
WetChem Report - Form III

Blanks

Client: CH2M Hill Plateau Remediation Company
Task Order: 171108-4, 171113-4, 171114-4
Preparation Blank Result Units: mg/L
Initial/Continuing Blank Result Units: mg/L

SDG: 623536
SRR: 60727, 60737, 60751
Preparation Blank Matrix: Water
Associated Prep Batches: 20171204-P001
20171130-P002

Case: CHPRC
Project: 20859.01.00X
Associated Analytical Batches: 20171204-A004

Analyte	Preparation Blank		Initial Calibration Blank		Continuing Calibration Blank										M
	Result	Qual	Found	Qual	Found1	Qual	Found2	Qual	Found3	Qual	Found4	Qual	Found5	Qual	
Total Cyanide	0.00500	U	0.00500	U	0.00500	U	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) N - Matrix spike and/or matrix spike duplicate criteria was not met 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	KNO - Konelab/Cyanide 9012 Pnx - Phoenix 8000 TOC analyzer/TOC 9060 KNO - Konelab/Cyanide 9014 NA - Not Applicable/Amenable Cyanide

December 12, 2017

SOUTHWEST RESEARCH INSTITUTE 010080
WetChem Report - Form III

Blanks

Client: CH2M Hill Plateau Remediation Company
Task Order: 171108-4, 171113-4, 171114-4
Preparation Blank Result Units: mg/L
Initial/Continuing Blank Result Units: mg/L

SDG: 623536
SRR: 60727, 60737, 60751
Preparation Blank Matrix: Water
Associated Prep Batches: 20171204-P001
20171130-P002

Case: CHPRC
Project: 20859.01.00X
Associated Analytical Batches: 20171204-A004

Continuing Calibration Blank			
Analyte	Found6	Qual	M
Total Cyanide	0.00500	U	KNO

Data Reporting Qualifiers (Qual)	Instruments/Methods (M)
U - Result is less than the SwRI Reporting Limit (RL) N - Matrix spike and/or matrix spike duplicate criteria was not met 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	KNO - Konelab/Cyanide 9012 Pnx - Phoenix 8000 TOC analyzer/TOC 9060 KNO - Konelab/Cyanide 9014 NA - Not Applicable/Amenable Cyanide

December 12, 2017

SOUTHWEST RESEARCH INSTITUTE 010081
WetChem Report - Form III

Blanks

Client: CH2M Hill Plateau Remediation Company
Task Order: 171108-4, 171113-4, 171114-4
Preparation Blank Result Units: mg/L
Initial/Continuing Blank Result Units: mg/L

SDG: 623536
SRR: 60727, 60737, 60751
Preparation Blank Matrix: Water
Associated Prep Batches: 20171204-P001
20171130-P002

Case: CHPRC
Project: 20859.01.00X
Associated Analytical Batches: 20171204-A005

Analyte	Preparation Blank		Initial Calibration Blank		Continuing Calibration Blank										M
	Result	Qual	Found	Qual	Found1	Qual	Found2	Qual	Found3	Qual	Found4	Qual	Found5	Qual	
Free Cyanide	0.00500	U	0.00500	U	0.00500	U	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) N - Matrix spike and/or matrix spike duplicate criteria was not met 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	KNO - Konelab/Cyanide 9012 Pnx - Phoenix 8000 TOC analyzer/TOC 9060 KNO - Konelab/Cyanide 9014 NA - Not Applicable/Amenable Cyanide

December 12, 2017

SOUTHWEST RESEARCH INSTITUTE 010082
WetChem Report - Form III

Blanks

Client: CH2M Hill Plateau Remediation Company
Task Order: 171108-4, 171113-4, 171114-4
Preparation Blank Result Units: mg/L
Initial/Continuing Blank Result Units: mg/L

SDG: 623536
SRR: 60727, 60737, 60751
Preparation Blank Matrix: Water
Associated Prep Batches: 20171204-P001
20171130-P002

Case: CHPRC
Project: 20859.01.00X
Associated Analytical Batches: 20171204-A005

Continuing Calibration Blank			
Analyte	Found6	Qual	M
Free Cyanide	0.00500	U	KNO

Data Reporting Qualifiers (Qual)	Instruments/Methods (M)
U - Result is less than the SwRI Reporting Limit (RL) N - Matrix spike and/or matrix spike duplicate criteria was not met 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	KNO - Konelab/Cyanide 9012 Pnx - Phoenix 8000 TOC analyzer/TOC 9060 KNO - Konelab/Cyanide 9014 NA - Not Applicable/Amenable Cyanide

December 12, 2017

SOUTHWEST RESEARCH INSTITUTE 010083
WetChem Report - Form III

Blanks

Client: CH2M Hill Plateau Remediation Company
Task Order: 171108-4, 171113-4, 171114-4
Preparation Blank Result Units: mg/L
Initial/Continuing Blank Result Units: mg/L

SDG: 623536
SRR: 60727, 60737, 60751
Preparation Blank Matrix: Water
Associated Prep Batches: 20171130-P002
20171204-P001

Case: CHPRC
Project: 20859.01.00X
Associated Analytical Batches: 20171204-A006

Analyte	Preparation Blank		Initial Calibration Blank		Continuing Calibration Blank		M
	Result	Qual	Found	Qual	Found1	Qual	
Amenable Cyanide	0.00500 0.00500	U	-	-	-	-	

Data Reporting Qualifiers (Qual)	Instruments/Methods (M)
U - Result is less than the SwRI Reporting Limit (RL) N - Matrix spike and/or matrix spike duplicate criteria was not met 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	KNO - Konelab/Cyanide 9012 Pnx - Phoenix 8000 TOC analyzer/TOC 9060 KNO - Konelab/Cyanide 9014 NA - Not Applicable/Amenable Cyanide

December 12, 2017

B3DJT0MS/MSD

Matrix Spike/Matrix Spike Duplicate Sample Recovery

Client: CH2M Hill Plateau Remediation Company
Task Order: 171108-4, 171113-4, 171114-4
Lab ID: 623536S
Result Units: mg/L

SDG: 623536
SRR: 60727, 60737, 60751
Matrix: Water
% Solids: NA

Case: CHPRC
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	0.0401	0.0500	80.2%	-	-	-	-	75%-125%	-	KNO	

Data Reporting Qualifiers (Qual)	Columns	Instruments/Methods (M)
U - Result is less than the SwRI Reporting Limit (RL) N - Matrix spike and/or matrix spike duplicate criteria was not met 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	M - Instrument MS - Matrix Spike MSD - Matrix Spike Duplicate Q - Qualifier RPD - Relative Percent Difference	KNO - Konelab/Cyanide 9012 Pnx - Phoenix 8000 TOC analyzer/TOC 9060 KNO - Konelab/Cyanide 9014 NA - Not Applicable/Amenable Cyanide

December 12, 2017

B3DCX2MS/MSD

Matrix Spike/Matrix Spike Duplicate Sample Recovery

Client: CH2M Hill Plateau Remediation Company
 Task Order: 171108-4, 171113-4, 171114-4
 Lab ID: 623603MS, 623603MSD
 Result Units: mg/L

SDG: 623536
 SRR: 60727, 60737, 60751
 Matrix: Water
 % Solids: NA

Case: CHPRC
 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
TOC	1.16		2.23	1.00	107.0%	2.14	1.00	98.0%	8.8%	80%-120%	20%	Pnx	

Data Reporting Qualifiers (Qual)	Columns	Instruments/Methods (M)
U - Result is less than the SwRI Reporting Limit (RL) N - Matrix spike and/or matrix spike duplicate criteria was not met 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	M - Instrument MS - Matrix Spike MSD - Matrix Spike Duplicate Q - Qualifier RPD - Relative Percent Difference	KNO - Konelab/Cyanide 9012 Pnx - Phoenix 8000 TOC analyzer/TOC 9060 KNO - Konelab/Cyanide 9014 NA - Not Applicable/Amenable Cyanide

Form VA-IN

December 12, 2017

B3DJ45MS/MSD

Matrix Spike/Matrix Spike Duplicate Sample Recovery

Client: CH2M Hill Plateau Remediation Company
Task Order: 171108-4, 171113-4, 171114-4
Lab ID: 623684S
Result Units: mg/L

SDG: 623536
SRR: 60727, 60737, 60751
Matrix: Water
% Solids: NA

Case: CHPRC
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	0.0108	N	0.0466	0.0500	71.6%	-	-	-	-	75%-125%	-	KNO	

Data Reporting Qualifiers (Qual)	Columns	Instruments/Methods (M)
U - Result is less than the SwRI Reporting Limit (RL) N - Matrix spike and/or matrix spike duplicate criteria was not met 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	M - Instrument MS - Matrix Spike MSD - Matrix Spike Duplicate Q - Qualifier RPD - Relative Percent Difference	KNO - Konelab/Cyanide 9012 Pnx - Phoenix 8000 TOC analyzer/TOC 9060 KNO - Konelab/Cyanide 9014 NA - Not Applicable/Amenable Cyanide

December 12, 2017

B3DJT0AS

Post-Digestion Spike Sample Recovery

Client: CH2M Hill Plateau Remediation Company
 Task Order: 171108-4
 Lab ID: 623536AS-F
 Result Units: mg/L

SDG: 623536
 SRR: 60727, 60737, 60751
 Matrix: Water
 % Solids: NA

Case: CHPRC
 Project: 20859.01.00X

Analyte	Parent Sample Result	Qual	Spiked Sample Result	Qual	Spike Added	%Rec.	Control Limit	M	Q	DF	Prep Batch	Analysis Date/Time	Note
Amenable Cyanide	-		-		-	-	-	NA		-		-	
Free Cyanide	0.00500	U	0.229		0.250	91.6%	80%-120%	KNO		1	20171130-P002	11/16/2017 14:56	
TOC	-		-		-	-	-	NA		-		-	
Total Cyanide	-		-		-	-	-	NA		-		-	

Data Reporting Qualifiers (Qual)	Columns	Instruments/Methods (M)
U - Result is less than the SwRI Reporting Limit (RL) N - Matrix spike and/or matrix spike duplicate criteria was not met 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	M - Instrument MS - Matrix Spike MSD - Matrix Spike Duplicate Q - Qualifier RPD - Relative Percent Difference	KNO - Konelab/Cyanide 9012 Pnx - Phoenix 8000 TOC analyzer/TOC 9060 KNO - Konelab/Cyanide 9014 NA - Not Applicable/Amenable Cyanide

Form VB-IN

December 12, 2017

B3DJ45AS

Post-Digestion Spike Sample Recovery

Client: CH2M Hill Plateau Remediation Company
 Task Order: 171108-4, 171114-4, 171113-4
 Lab ID: 623684AS
 Result Units: mg/L

SDG: 623536
 SRR: 60727, 60737, 60751
 Matrix: Water
 % Solids: NA

Case: CHPRC
 Project: 20859.01.00X

Analyte	Parent Sample Result	Qual	Spiked Sample Result	Qual	Spike Added	%Rec.	Control Limit	M	Q	DF	Prep Batch	Analysis Date/Time	Note
Amenable Cyanide	-		-		-	-	-	NA		-		-	
Free Cyanide	0.00500	U	0.242		0.250	96.8%	80%-120%	KNO		1	NA	11/17/2017 18:21	
TOC	-		-		-	-	-	NA		-		-	
Total Cyanide	0.0108	N	0.254	N	0.250	97.3%	80%-120%	KNO		1	20171204-P001	11/17/2017 18:21	

Data Reporting Qualifiers (Qual)	Columns	Instruments/Methods (M)
U - Result is less than the SwRI Reporting Limit (RL) N - Matrix spike and/or matrix spike duplicate criteria was not met 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	M - Instrument MS - Matrix Spike MSD - Matrix Spike Duplicate Q - Qualifier RPD - Relative Percent Difference	KNO - Konelab/Cyanide 9012 Pnx - Phoenix 8000 TOC analyzer/TOC 9060 KNO - Konelab/Cyanide 9014 NA - Not Applicable/Amenable Cyanide

Form VB-IN

December 12, 2017

B3DJT0D

Duplicates

Client: CH2M Hill Plateau Remediation Company
Task Order: 171108-4, 171113-4, 171114-4
Lab ID: 623536D
Result Units: mg/L

SDG: 623536
SRR: 60727, 60737, 60751
Matrix: Water
% Solids: NA

Case: CHPRC
Project: 20859.01.00X

Analyte	Parent Sample Result	Qual	Duplicate Result	Qual	RPD	RPD Limit	Control Limit	M	Note
Amenable Cyanide	0.00500	U	0.00500	U	0.00%	20%	-	NA	#
Free Cyanide	0.00500	U	0.00500	U	0.00%	20%	-	KNO	#
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) N - Matrix spike and/or matrix spike duplicate criteria was not met 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	M - Instrument RPD - Relative Percent Difference	KNO - Konelab/Cyanide 9012 Pnx - Phoenix 8000 TOC analyzer/TOC 9060 KNO - Konelab/Cyanide 9014 NA - Not Applicable/Amenable Cyanide

Form VI-IN

December 12, 2017

B3DJ45D

Duplicates

Client: CH2M Hill Plateau Remediation Company
Task Order: 171108-4, 171113-4, 171114-4
Lab ID: 623684D
Result Units: mg/L

SDG: 623536
SRR: 60727, 60737, 60751
Matrix: Water
% Solids: NA

Case: CHPRC
Project: 20859.01.00X

Analyte	Parent Sample Result	Qual	Duplicate Result	Qual	RPD	RPD Limit	Control Limit	M	Note
Amenable Cyanide	0.0108		0.0108		0.00%	20%	0.00500	NA	
Free Cyanide	0.00500	U	0.00500	U	0.00%	20%	-	KNO	#
Total Cyanide	0.0108	N	0.0108	N	0.00%	20%	0.00500	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) N - Matrix spike and/or matrix spike duplicate criteria was not met 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	M - Instrument RPD - Relative Percent Difference	KNO - Konelab/Cyanide 9012 Pnx - Phoenix 8000 TOC analyzer/TOC 9060 KNO - Konelab/Cyanide 9014 NA - Not Applicable/Amenable Cyanide

Form VI-IN

December 12, 2017

SOUTHWEST RESEARCH INSTITUTE 010091

SwRI ID

WetChem Report - Form VII

LCS17L16CS1

Laboratory Control Sample

Client: CH2M Hill Plateau Remediation Company
Task Order: 171108-4, 171113-4, 171114-4
Lab ID: LCS17L16CS1
Result Units: mg/L

SDG: 623536
SRR: 60727, 60737, 60751
Matrix: Water
Associated Prep Batches: 20171130-P002

Case: CHPRC
Project: 20859.01.00X
LCS Source: ERA

Analyte	True	Found	Qual	%Rec.	Limit	M	Analysis Date/Time
Total Cyanide	0.581	0.555	D	95.5%	85%-115%	KNO	11/16/2017 13:38

Instruments/Methods (M)
KNO - Konelab/Cyanide 9012
Pnx - Phoenix 8000 TOC analyzer/TOC 9060
KNO - Konelab/Cyanide 9014
NA - Not Applicable/Amenable Cyanide

Form VII-IN

December 12, 2017

SOUTHWEST RESEARCH INSTITUTE 010092

SwRI ID

WetChem Report - Form VII

LCS17L16CS3

Laboratory Control Sample

Client: CH2M Hill Plateau Remediation Company
Task Order: 171108-4, 171113-4, 171114-4
Lab ID: LCS17L16CS3
Result Units: mg/L

SDG: 623536
SRR: 60727, 60737, 60751
Matrix: Water
Associated Prep Batches: 20171130-P002

Case: CHPRC
Project: 20859.01.00X
LCS Source:

Analyte	True	Found	Qual	%Rec.	Limit	M	Analysis Date/Time
Total Cyanide	0.0500	0.0466		93.2%	90%-110%	KNO	11/16/2017 13:38

Instruments/Methods (M)
KNO - Konelab/Cyanide 9012
Pnx - Phoenix 8000 TOC analyzer/TOC 9060
KNO - Konelab/Cyanide 9014
NA - Not Applicable/Amenable Cyanide

Form VII-IN

December 12, 2017

SOUTHWEST RESEARCH INSTITUTE 010093

SwRI ID

WetChem Report - Form VII

LCS17L16CS2

Laboratory Control Sample

Client: CH2M Hill Plateau Remediation Company
Task Order: 171108-4, 171113-4, 171114-4
Lab ID: LCS17L16CS2
Result Units: mg/L

SDG: 623536
SRR: 60727, 60737, 60751
Matrix: Water
Associated Prep Batches: 20171130-P002

Case: CHPRC
Project: 20859.01.00X
LCS Source:

Analyte	True	Found	Qual	%Rec.	Limit	M	Analysis Date/Time
Total Cyanide	0.500	0.487		97.4%	90%-110%	KNO	11/16/2017 16:38

Instruments/Methods (M)
KNO - Konelab/Cyanide 9012 Pnx - Phoenix 8000 TOC analyzer/TOC 9060 KNO - Konelab/Cyanide 9014 NA - Not Applicable/Amenable Cyanide

Form VII-IN

December 12, 2017

SOUTHWEST RESEARCH INSTITUTE 010094

SwRI ID

WetChem Report - Form VII

ICV

Laboratory Control Sample

Client: CH2M Hill Plateau Remediation Company
Task Order: 171108-4, 171113-4, 171114-4
Lab ID: ICV
Result Units: mg/L

SDG: 623536
SRR: 60727, 60737, 60751
Matrix: Water
Associated Prep Batches: NA

Case: CHPRC
Project: 20859.01.00X
LCS Source: Ultra Scientific

Analyte	True	Found	Qual	%Rec.	Limit	M	Analysis Date/Time
TOC	25.0	25.4	D	101.6%	90%-110%	Pnx	11/15/2017 16:45

Instruments/Methods (M)
KNO - Konelab/Cyanide 9012
Pnx - Phoenix 8000 TOC analyzer/TOC 9060
KNO - Konelab/Cyanide 9014
NA - Not Applicable/Amenable Cyanide

Form VII-IN

December 12, 2017

SOUTHWEST RESEARCH INSTITUTE 010095

SwRI ID

WetChem Report - Form VII

CN-ICV1

Laboratory Control Sample

Client: CH2M Hill Plateau Remediation Company
Task Order: 171108-4, 171113-4, 171114-4
Lab ID: CN-ICV1
Result Units: mg/L

SDG: 623536
SRR: 60727, 60737, 60751
Matrix: Water
Associated Prep Batches: 20171130-P002

Case: CHPRC
Project: 20859.01.00X
LCS Source: ERA

Analyte	True	Found	Qual	%Rec.	Limit	M	Analysis Date/Time
Free Cyanide	0.581	0.591	D	101.7%	85%-115%	KNO	11/16/2017 13:38

Instruments/Methods (M)
KNO - Konelab/Cyanide 9012 Pnx - Phoenix 8000 TOC analyzer/TOC 9060 KNO - Konelab/Cyanide 9014 NA - Not Applicable/Amenable Cyanide

Form VII-IN

December 12, 2017

SOUTHWEST RESEARCH INSTITUTE 010096

SwRI ID

WetChem Report - Form VII

LCS17L30CS1

Laboratory Control Sample

Client: CH2M Hill Plateau Remediation Company
Task Order: 171108-4, 171113-4, 171114-4
Lab ID: LCS17L30CS1
Result Units: mg/L

SDG: 623536
SRR: 60727, 60737, 60751
Matrix: Water
Associated Prep Batches: 20171204-P001

Case: CHPRC
Project: 20859.01.00X
LCS Source: ERA

Analyte	True	Found	Qual	%Rec.	Limit	M	Analysis Date/Time
Total Cyanide	0.581	0.578	D	99.5%	85%-115%	KNO	11/17/2017 12:54

Instruments/Methods (M)
KNO - Konelab/Cyanide 9012
Pnx - Phoenix 8000 TOC analyzer/TOC 9060
KNO - Konelab/Cyanide 9014
NA - Not Applicable/Amenable Cyanide

Form VII-IN

December 12, 2017

SOUTHWEST RESEARCH INSTITUTE 010097

SwRI ID

WetChem Report - Form VII

LCS17L30CS2

Laboratory Control Sample

Client: CH2M Hill Plateau Remediation Company
Task Order: 171108-4, 171113-4, 171114-4
Lab ID: LCS17L30CS2
Result Units: mg/L

SDG: 623536
SRR: 60727, 60737, 60751
Matrix: Water
Associated Prep Batches: 20171204-P001

Case: CHPRC
Project: 20859.01.00X
LCS Source:

Analyte	True	Found	Qual	%Rec.	Limit	M	Analysis Date/Time
Total Cyanide	0.500	0.454		90.8%	85%-115%	KNO	11/17/2017 12:54

Instruments/Methods (M)
KNO - Konelab/Cyanide 9012
Pnx - Phoenix 8000 TOC analyzer/TOC 9060
KNO - Konelab/Cyanide 9014
NA - Not Applicable/Amenable Cyanide

Form VII-IN

December 12, 2017

SOUTHWEST RESEARCH INSTITUTE 010098

SwRI ID

WetChem Report - Form VII

LCS17L30CS3

Laboratory Control Sample

Client: CH2M Hill Plateau Remediation Company
Task Order: 171108-4, 171113-4, 171114-4
Lab ID: LCS17L30CS3
Result Units: mg/L

SDG: 623536
SRR: 60727, 60737, 60751
Matrix: Water
Associated Prep Batches: 20171204-P001

Case: CHPRC
Project: 20859.01.00X
LCS Source:

Analyte	True	Found	Qual	%Rec.	Limit	M	Analysis Date/Time
Total Cyanide	0.0500	0.0483		96.6%	85%-115%	KNO	11/17/2017 17:36

Instruments/Methods (M)
KNO - Konelab/Cyanide 9012
Pnx - Phoenix 8000 TOC analyzer/TOC 9060
KNO - Konelab/Cyanide 9014
NA - Not Applicable/Amenable Cyanide

Form VII-IN

December 12, 2017

SOUTHWEST RESEARCH INSTITUTE 010099

SwRI ID

WetChem Report - Form VII

CN-ICV

Laboratory Control Sample

Client: CH2M Hill Plateau Remediation Company
Task Order: 171108-4, 171113-4, 171114-4
Lab ID: CN-ICV
Result Units: mg/L

SDG: 623536
SRR: 60727, 60737, 60751
Matrix: Water
Associated Prep Batches: 20171204-P001

Case: CHPRC
Project: 20859.01.00X
LCS Source: ERA

Analyte	True	Found	Qual	%Rec.	Limit	M	Analysis Date/Time
Free Cyanide	0.581	0.602	D	103.6%	85%-115%	KNO	11/17/2017 12:18

Instruments/Methods (M)
KNO - Konelab/Cyanide 9012
Pnx - Phoenix 8000 TOC analyzer/TOC 9060
KNO - Konelab/Cyanide 9014
NA - Not Applicable/Amenable Cyanide

Form VII-IN

December 12, 2017

SOUTHWEST RESEARCH INSTITUTE 010100
WetChem Report - Form IX

Detection Limits

Client: CH2M Hill Plateau Remediation Company
Task Order: 171108-4,171113-4,171114-4
Result Units: mg/L

SDG: 623536
SRR: 60727, 60737, 60751
Instrument: Konelab

Case: CHPRC
Project: 20859.01.00X
Date: 01/09/2014

Analyte	Wavelength	RL
Free Cyanide	575 nm	0.00500
Total Cyanide	575 nm	0.00500

Columns
RL - SwRI Reporting Limit

December 12, 2017

SOUTHWEST RESEARCH INSTITUTE 010101

WetChem Report - Form IX

Detection Limits

Client: CH2M Hill Plateau Remediation Company
Task Order: 171108-4,171113-4,171114-4
Result Units: mg/L

SDG: 623536
SRR: 60727, 60737, 60751
Instrument: Phoenix 8000 TOC analyzer

Case: CHPRC
Project: 20859.01.00X

Analyte	Wavelength	RL
TOC	NA	0.200

Columns
RL - SwRI Reporting Limit

December 12, 2017

SOUTHWEST RESEARCH INSTITUTE 010102
WetChem Report - Form IX

Detection Limits

Client: CH2M Hill Plateau Remediation Company
Task Order: 171108-4,171113-4,171114-4
Result Units: mg/L

SDG: 623536
SRR: 60727, 60737, 60751
Instrument: Konelab

Case: CHPRC
Project: 20859.01.00X

Analyte	RL
Amenable Cyanide	0.00500

Columns
RL - SwRI Reporting Limit

December 12, 2017

SOUTHWEST RESEARCH INSTITUTE 010103

WetChem Report - Form XII

Analysis Run Log

Client: CH2M Hill Plateau Remediation Company
 Task Order: 171113-4, 171108-4, 171114-4
 Analytical Batch: 20171204-A002
 Analysis Method: TOC 9060

SDG: 623536
 SRR: 60727, 60737, 60751
 Instrument: Phoenix 8000 TOC analyzer

Case: CHPRC
 Project: 20859.01.00X
 Start Date: 11/15/2017
 End Date: 11/15/2017

Lab Sample ID	Client Sample ID	Time	DF	A	T	T
				C	O	C
				N	N	N
ICV	NA	16:45	10			X
ICB	NA	16:51	1			X
Z	Z	16:58	1			
Z	Z	17:04	1			
Z	Z	17:11	1			
CCV	CCV	17:18	10			X
CCB	CCB	17:25	1			X
DOC1	DOC1	17:31	1			
DOC2	DOC2	17:37	1			
DOC3	DOC3	17:44	1			
DOC4	DOC4	17:50	1			
623603	B3DCX2	17:57	1			X
623603MS	B3DCX2MS	18:25	1			X
623603MSD	B3DCX2MSD	18:31	1			X
CCV2	CCV2	18:38	10			X
CCB2	CCB2	18:44	1			X
623604	B3DCX3	18:51	1			X
623605	B3DCX4	19:18	1			X
623606	B3DCX5	19:44	1			X
CCV3	CCV3	19:58	10			X
CCB3	CCB3	20:04	1			X
CCV4	CCV4	20:24	10			X
CCB4	CCB4	20:31	1			X

December 12, 2017

SOUTHWEST RESEARCH INSTITUTE 010104

WetChem Report - Form XII

Analysis Run Log

Client: CH2M Hill Plateau Remediation Company
 Task Order: 171113-4, 171108-4, 171114-4
 Analytical Batch: 20171130-A006
 Analysis Method: Cyanide 9012

SDG: 623536
 SRR: 60727, 60737, 60751
 Instrument: Konelab

Case: CHPRC
 Project: 20859.01.00X
 Start Date: 11/16/2017
 End Date: 11/16/2017

Lab Sample ID	Client Sample ID	Time	DF	A	T	T	C	C	O	C	N	N	N	C	N
CN-0	CN-0	13:09	1												X
CN-0.005	CN-0.005	13:09	1												X
CN-0.01	CN-0.01	13:09	1												X
CN-0.05	CN-0.05	13:09	1												X
CN-0.1	CN-0.1	13:09	1												X
CN-0.25	CN-0.25	13:09	1												X
CN-0.5	CN-0.5	13:09	1												X
CN-ICV	CN-ICV	13:38	2												X
CN-ICB	CN-ICB	13:38	1												X
CN-LLC	NA	13:38	1												X
PB17L16PB1	NA	13:38	1												X
LCS17L16CS1	NA	13:38	2												X
LCS17L16CS2	NA	13:38	1												
LCS17L16CS3	NA	13:38	1												X
623536	B3DJT0	13:38	1												X
623536D	B3DJT0D	13:38	1												X
623536S	B3DJT0MS	13:38	1												X
623541	B3F9H1	13:38	1												X
623542	B3F9H2	13:38	1												X
CN-CCV	CN-CCV	14:17	2												X
CN-CCB	CN-CCB	14:17	1												X
623543	B3F9H3	14:17	1												X
623544	B3F9H4	14:17	1												X
623545	B3F9J6	14:17	1												X
623546	B3F9J7	14:17	1												X
Z	Z	14:17	1												
Z	Z	14:17	1												
Z	Z	14:17	1												
Z	Z	14:17	1												
Z	Z	14:17	1												
Z	Z	14:17	1												
CN-CCV2	CN-CCV2	14:56	2												X
CN-CCB2	CN-CCB2	14:56	1												X
Z	Z	14:56	1												
Z	Z	14:56	1												
Z	Z	14:56	1												
Z	Z	14:56	1												
Z	Z	14:56	1												
Z	Z	14:56	1												
Z	Z	14:56	1												
Z	Z	14:56	1												
LCS17L16CS2	NA	16:38	1												X
CN-CCV3	CN-CCV3	17:15	2												X
CN-CCB3	CN-CCB3	17:15	1												X

December 12, 2017

SOUTHWEST RESEARCH INSTITUTE 010105

WetChem Report - Form XII

Analysis Run Log

Client: CH2M Hill Plateau Remediation Company
 Task Order: 171113-4, 171108-4, 171114-4
 Analytical Batch: 20171204-A003
 Analysis Method: Cyanide 9014

SDG: 623536
 SRR: 60727, 60737, 60751
 Instrument: Konelab

Case: CHPRC
 Project: 20859.01.00X
 Start Date: 11/16/2017
 End Date: 11/16/2017

Lab Sample ID	Client Sample ID	Time	DF	A	T	T	C	O	C	N
				N	N	N	N	N	N	N
CN-0	CN-0	13:09	1	X						
CN-0.005	CN-0.005	13:09	1	X						
CN-0.01	CN-0.01	13:09	1	X						
CN-0.05	CN-0.05	13:09	1	X						
CN-0.1	CN-0.1	13:09	1	X						
CN-0.25	CN-0.25	13:09	1	X						
CN-0.5	CN-0.5	13:09	1	X						
CN-ICV1	NA	13:38	2	X						
CN-ICB	NA	13:38	1	X						
CN-LLC	NA	13:38	1	X						
PB17L16PB1	NA	13:38	1							
LCS17L16CS1	NA	13:38	2							
LCS17L16CS2	NA	13:38	1							
LCS17L16CS3	NA	13:38	1							
Z	Z	13:38	1							
Z	Z	13:38	1							
Z	Z	13:38	1							
Z	Z	13:38	1							
Z	Z	13:38	1							
CN-CCV	CN-CCV	14:17	2	X						
CN-CCB	CN-CCB	14:17	1	X						
Z	Z	14:17	1							
Z	Z	14:17	1							
Z	Z	14:17	1							
Z	Z	14:17	1							
Z	Z	14:17	1							
623541-F	B3F9H1	14:17	1	X						
623542-F	B3F9H2	14:17	1	X						
623543-F	B3F9H3	14:17	1	X						
623544-F	B3F9H4	14:17	1	X						
623545-F	B3F9J6	14:17	1	X						
CN-CCV2	CN-CCV2	14:56	2	X						
CN-CCB2	CN-CCB2	14:56	1	X						
623546-F	B3F9J7	14:56	1	X						
623547-F	B3F9K4	14:56	1	X						
623536D-F	B3DJT0D	14:56	1	X						
623536AS-F	B3DJT0AS	14:56	1	X						
Z	Z	14:56	1							
Z	Z	14:56	1							
Z	Z	14:56	1							
623536-F R	B3DJT0	14:56	1	X						
LCS17L16CS2	NA	16:38	1							
CN-CCV3	CN-CCV3	17:15	2	X						
CN-CCB3	CN-CCB3	17:15	1	X						

December 12, 2017

SOUTHWEST RESEARCH INSTITUTE 010106

WetChem Report - Form XII

Analysis Run Log

Client: CH2M Hill Plateau Remediation Company
 Task Order: 171113-4, 171108-4, 171114-4
 Analytical Batch: 20171204-A005
 Analysis Method: Cyanide 9014

SDG: 623536
 SRR: 60727, 60737, 60751
 Instrument: Konelab

Case: CHPRC
 Project: 20859.01.00X
 Start Date: 11/17/2017
 End Date: 11/17/2017

Lab Sample ID	Client Sample ID	Time	DF	AT	TT	CC	OC	NN	NC	NC
CN-0	CN-0	11:56	1	X						
CN-0.005	CN-0.005	11:56	1	X						
CN-0.01	CN-0.01	11:56	1	X						
CN-0.05	CN-0.05	11:56	1	X						
CN-0.1	CN-0.1	11:56	1	X						
CN-0.25	CN-0.25	11:56	1	X						
CN-0.5	CN-0.5	11:56	1	X						
CN-ICV	NA	12:18	2	X						
CN-ICB	NA	12:18	1	X						
CN-LLC	NA	12:18	1	X						
PB17L16PB2	NA	12:18	1							
Z	Z	12:18	1							
Z	Z	12:18	1							
Z	Z	12:18	1							
Z	Z	12:18	1							
Z	Z	12:18	1							
Z	Z	12:18	1							
Z	Z	12:18	1							
Z	Z	12:18	1							
CN-CCV	CN-CCV	12:54	2	X						
CN-CCB	CN-CCB	12:54	1	X						
Z	Z	12:54	1							
Z	Z	12:54	1							
Z	Z	12:54	1							
PB17L30PB1	NA	12:54	1							
LCS17L30CS1	NA	12:54	2							
LCS17L30CS2	NA	12:54	1							
LCS17L30CS3	NA	12:54	1							
Z	Z	12:54	1							
Z	Z	12:54	1							
Z	Z	12:54	1							
CN-CCV2	CN-CCV2	14:07	2	X						
CN-CCB2	CN-CCB2	14:07	1	X						
Z	Z	14:07	1							
Z	Z	14:07	1							
Z	Z	14:07	1							
Z	Z	14:07	1							
Z	Z	14:07	1							
Z	Z	14:07	1							
623684-F	B3DJ45	14:07	1	X						
623685-F	B3DJ48	14:07	1	X						
623686-F	B3DJ81	14:07	1	X						
623687-F	B3DJ85	14:07	1	X						
CN-CCV3	CN-CCV3	15:19	2	X						
CN-CCB3	CN-CCB3	15:19	1	X						
623688-F	B3DJ87	15:19	1	X						
623689-F	B3DJ91	15:19	1	X						
623619-F	B3FDJ4	15:19	1	X						
623620-F	B3FDJ8	15:19	1	X						
623684D-F	B3DJ45D	15:19	1	X						
Z	Z	15:19	1							
PB17L30PB2	NA	17:09	1							
Z	Z	17:09	1							
Z	Z	17:09	1							
Z	Z	17:09	1							
CN-CCV4	CN-CCV4	17:09	2	X						

December 12, 2017

SOUTHWEST RESEARCH INSTITUTE 010107
WetChem Report - Form XII

Analysis Run Log

Client: CH2M Hill Plateau Remediation Company
Task Order: 171113-4, 171108-4, 171114-4
Analytical Batch: 20171204-A005
Analysis Method: Cyanide 9014

SDG: 623536
SRR: 60727, 60737, 60751
Instrument: Konelab

Case: CHPRC
Project: 20859.01.00X
Start Date: 11/17/2017
End Date: 11/17/2017

Lab Sample ID	Client Sample ID	Time	DF	A	T	T	T
				C	C	O	C
				N	N	N	C
CN-CCB4	CN-CCB4	17:35	1		X		
Z	Z	17:35	1				
Z	Z	17:35	1				
Z	Z	17:35	1				
Z	Z	17:35	1				
Z	Z	17:35	1				
Z	Z	17:35	1				
Z	Z	17:35	1				
Z	Z	17:35	1				
LCS17L30CS3	NA	17:36	1				
CN-CCV5	CN-CCV5	17:57	2		X		
CN-CCB5	CN-CCB5	17:57	1		X		
Z	Z	18:21	1				
Z	Z	18:21	1				
Z	Z	18:21	1				
PB17L30PB2	NA	18:21	1				
Z	Z	18:21	1				
Z	Z	18:21	1				
623684F-AS	B3DJ45AS	18:21	1		X		
CN-CCV6	CN-CCV6	18:21	2		X		
CN-CCB6	CN-CCB6	18:21	1		X		

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SOUTHWEST RESEARCH INSTITUTE 010108

WetChem Report - Form XII

Analysis Run Log

Client: CH2M Hill Plateau Remediation Company
 Task Order: 171113-4, 171108-4, 171114-4
 Analytical Batch: 20171204-A004
 Analysis Method: Cyanide 9012

SDG: 623536
 SRR: 60727, 60737, 60751
 Instrument: Konelab

Case: CHPRC
 Project: 20859.01.00X
 Start Date: 11/17/2017
 End Date: 11/17/2017

Lab Sample ID	Client Sample ID	Time	DF	A	T	T	C	C	O	C	N	N	N	C	N
CN-0	CN-0	11:56	1												X
CN-0.005	CN-0.005	11:56	1												X
CN-0.01	CN-0.01	11:56	1												X
CN-0.05	CN-0.05	11:56	1												X
CN-0.1	CN-0.1	11:56	1												X
CN-0.25	CN-0.25	11:56	1												X
CN-0.5	CN-0.5	11:56	1												X
CN-ICV	CN-ICV	12:18	2												X
CN-ICB	CN-ICB	12:18	1												X
CN-LLC	NA	12:18	1												X
PB17L16PB2	NA	12:18	1												
Z	Z	12:18	1												
Z	Z	12:18	1												
Z	Z	12:18	1												
Z	Z	12:18	1												
Z	Z	12:18	1												
Z	Z	12:18	1												
Z	Z	12:18	1												
Z	Z	12:18	1												
CN-CCV	CN-CCV	12:54	2												X
CN-CCB	CN-CCB	12:54	1												X
Z	Z	12:54	1												
Z	Z	12:54	1												
623547	B3F9K4	12:54	1												X
PB17L30PB1	NA	12:54	1												X
LCS17L30CS1	NA	12:54	2												X
LCS17L30CS2	NA	12:54	1												X
LCS17L30CS3	NA	12:54	1												
623684	B3DJ45	12:54	1												X
623684D	B3DJ45D	12:54	1												X
623684S	B3DJ45MS	12:54	1												X
CN-CCV2	CN-CCV2	14:07	2												X
CN-CCB2	CN-CCB2	14:07	1												X
623685	B3DJ48	14:07	1												X
623686	B3DJ81	14:07	1												X
623687	B3DJ85	14:07	1												X
623688	B3DJ87	14:07	1												X
623689	B3DJ91	14:07	1												X
623619	B3FDJ4	14:07	1												X
Z	Z	14:07	1												
Z	Z	14:07	1												
Z	Z	14:07	1												
Z	Z	14:07	1												
CN-CCV3	CN-CCV3	15:19	2												X
CN-CCB3	CN-CCB3	15:19	1												X
Z	Z	15:19	1												
Z	Z	15:19	1												
Z	Z	15:19	1												
Z	Z	15:19	1												
Z	Z	15:19	1												
Z	Z	15:19	1												
Z	Z	15:19	1												
PB17L30PB2	NA	17:09	1												
Z	Z	17:09	1												
Z	Z	17:09	1												
Z	Z	17:09	1												
CN-CCV4	CN-CCV4	17:09	2												X

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SOUTHWEST RESEARCH INSTITUTE 010109
WetChem Report - Form XII

Analysis Run Log

Client: CH2M Hill Plateau Remediation Company
Task Order: 171113-4, 171108-4, 171114-4
Analytical Batch: 20171204-A004
Analysis Method: Cyanide 9012

SDG: 623536
SRR: 60727, 60737, 60751
Instrument: Konelab

Case: CHPRC
Project: 20859.01.00X
Start Date: 11/17/2017
End Date: 11/17/2017

Lab Sample ID	Client Sample ID	Time	DF	A	T	T	T
				C	C	O	C
				N	N	C	N
CN-CCB4	CN-CCB4	17:35	1				X
Z	Z	17:35	1				
Z	Z	17:35	1				
Z	Z	17:35	1				
Z	Z	17:35	1				
Z	Z	17:35	1				
Z	Z	17:35	1				
Z	Z	17:35	1				
623620	B3FDJ8	17:35	1				X
LCS17L30CS3	NA	17:36	1				X
CN-CCV5	CN-CCV5	17:57	2				X
CN-CCB5	CN-CCB5	17:57	1				X
Z	Z	18:21	1				
Z	Z	18:21	1				
623684AS	B3DJ45AS	18:21	1				X
PB17L30PB2	NA	18:21	1				
Z	Z	18:21	1				
Z	Z	18:21	1				
Z	Z	18:21	1				
CN-CCV6	CN-CCV6	18:21	2				X
CN-CCB6	CN-CCB6	18:21	1				X

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SOUTHWEST RESEARCH INSTITUTE 010110

WetChem Report - Form XII

Analysis Run Log

Client: CH2M Hill Plateau Remediation Company
Task Order: 171113-4, 171108-4, 171114-4
Analytical Batch: 20171204-A006
Analysis Method: Amenable Cyanide

SDG: 623536
SRR: 60727, 60737, 60751
Instrument:

Case: CHPRC
Project: 20859.01.00X
Start Date: 11/17/2017
End Date: 11/30/2017

Lab Sample ID	Client Sample ID	Time	DF	A	T	T	C	O	C	N
				N	N	N	C	C	N	N
PB17L16PB2	NA	12:18	1	X						
623536	B3DJT0	12:18	1	X						
623536D	B3DJT0D	12:18	1	X						
623541	B3F9H1	12:18	1	X						
623542	B3F9H2	12:18	1	X						
623543	B3F9H3	12:18	1	X						
623544	B3F9H4	12:18	1	X						
623545	B3F9J6	12:18	1	X						
623547	B3F9K4	12:18	1	X						
623684D	B3DJ45D	12:18	1	X						
623685	B3DJ48	12:18	1	X						
623686	B3DJ81	12:18	1	X						
623687	B3DJ85	12:18	1	X						
623688	B3DJ87	12:18	1	X						
623689	B3DJ91	12:18	1	X						
623546	B3F9J7	12:54	1	X						
623619	B3FDJ4	17:09	1	X						
623684	B3DJ45	17:09	1	X						
PB17L30PB2	NA	17:09	1	X						
623620	B3FDJ8	17:35	1	X						

December 12, 2017

SOUTHWEST RESEARCH INSTITUTE 010111

WetChem Report - Form XVIII

Preparation/Digestion Summary

Client: CH2M Hill Plateau Remediation Company
Task Order: 171108-4, 171113-4, 171114-4

SDG: 623536
SRR: 60727, 60737, 60751

Case: CHPRC
Project: 20859.01.00X

Prep Batch	Method	Preparation Date
20171130-P002	CN prep	11/16/2017
20171204-P001	CN prep	11/17/2017

Southwest Research Institute
San Antonio, Texas 78228

Batch: 20171130-P002 (Ver. 2)
Status: COMPLETED

Client(s): CH2M Hill Plateau Remediation Company
 Task Order(s): 171108-4
 SDG(s): 623536
 Project(s): 20859.01.00X
 Method(s): CN prep (TAP: 01-0406-134)
 Matrix(s): Water
 Reagent(s): (CN) 2.5M MgCl2 #49-02-WCS14, (CN) 0.25N NaOH #66-01-WCS14, (CN) H2SO4 #87672, Calcium Hypochlorite #16-01-WCS14, Sodium Arsenite #20-02-WCS14
 Pipette(s): 5000-12, 1000-1, 200-2
 Heating Device: MIDI-STIL Temperature (C): 125C
 Time In: 11/16/2017 09:30:00 Time Out: NA

Sample Identification	Client Identification	Initial Volume (mL)	Final Volume (mL)
PB17L16PB1	NA	50	50
LCS17L16CS1 ①	NA	50	50
LCS17L16CS2 ②	NA	50	50
LCS17L16CS3 ③	NA	50	50
623536	B3DJT0	50	50
623536D	B3DJT0	50	50
623536S ③	B3DJT0	50	50
623541	B3F9H1	50	50
623542	B3F9H2	50	50
623543	B3F9H3	50	50
623544	B3F9H4	50	50
623545	B3F9J6	50	50
623546	B3F9J7	50	50
623547	B3F9K4	50	50
PB17L16PB2	NA	50	50
623536-CL	B3DJT0	50	50
623536D-CL	B3DJT0	50	50
623536S-CL	B3DJT0	50	50
623541-CL	B3F9H1	50	50
623542-CL	B3F9H2	50	50
623543-CL	B3F9H3	50	50
623544-CL	B3F9H4	50	50
623545-CL	B3F9J6	50	50
623546-CL	B3F9J7	50	50
623547-CL	B3F9K4	50	50

Prepared by: HERRERA, JUDY
 Reviewed by: MOKEN, JAMES
 Disposal Int/Date/Loc: _____

Date: 11/16/2017
 Date: _____

December 12, 2017

Digestion Log

010113

Southwest Research Institute
San Antonio, Texas 78228

Batch: 20171130-P002 (Ver. 2)
Status: COMPLETED

Client(s): <u>CH2M Hill Plateau Remediation Company</u>
Task Order(s): <u>171108-4</u>
SDG(s): <u>623536</u>
Project(s): <u>20859.01.00X</u>
Method(s): <u>CN prep (TAP: 01-0406-134)</u>
Matrix(s): <u>Water</u>
Reagent(s): <u>(CN) 2.5M MgCl2 #49-02-WCS14, (CN) 0.25N NaOH #66-01-WCS14, (CN) H2SO4 #87672, Calcium Hypochlorite #16-01-WCS14, Sodium Arsenite #20-02-WCS14</u>
Pipette(s): <u>5000-12, 1000-1, 200-2</u>
Heating Device: <u>MIDI-STIL</u> Temperature (C): <u>125C</u>
Time In: <u>11/16/2017 09:30:00</u> Time Out: <u>NA</u>

Sample Identification	Client Identification	Initial Volume (mL)	Final Volume (mL)
①	spiked 50 mL of Cl# 91846 Total Cyanide (Lot# P249-502, Source: ERA, Exp: 07/31/2018)		
②	spiked 0.250 mL of 11-02-WCS14 (Lot# 83333, Source: ERA, Exp: 02/01/2018)		
③	spiked 0.025 mL of 11-02-WCS14 (Lot# 83333, Source: ERA, Exp: 02/01/2018)		

Comments:
KI #84983
Lead Acetate #85205
pH #208515

Amenable Start: 10:45 Stop: 11:45

All samples were negative on the KI and Lead Acetate test strips
All samples had a pH above 12

Prepared by: HERRERA, JUDY

Date: 11/16/2017

Reviewed by: MOKEN, JAMES

Date: _____

Disposal Int/Date/Loc: _____

Southwest Research Institute
San Antonio, Texas 78228

Batch: 20171204-P001 (Ver. 3)
Status: DISPOSED

Client(s): <u>CH2M Hill Plateau Remediation Company</u>
Task Order(s): <u>171113-4, 171114-4</u>
SDG(s): <u>623536</u>
Project(s): <u>20859.01.00X</u>
Method(s): <u>CN prep (TAP: 01-0406-134)</u>
Matrix(s): <u>Water</u>
Reagent(s): <u>(CN) 2.5M MgCl2 #49-02-WCS14, (CN) 0.25N NaOH #69-01-WCS14, (CN) H2SO4 #87672, Calcium Hypochlorite #16-01-WCS14, Sodium Arsenite #20-02-WCS14</u>
Pipette(s): <u>5000-12, 1000-1, 200-2</u>
Heating Device: <u>MIDI-STIL</u> Temperature (C): <u>125C</u>
Time In: <u>11/17/2017 09:30:00</u> Time Out: <u>NA</u>

Sample Identification	Client Identification	Initial Volume (mL)	Final Volume (mL)
PB17L30PB1	NA	50	50
LCS17L30CS1 ①	NA	50	50
LCS17L30CS2 ②	NA	50	50
LCS17L30CS3 ③	NA	50	50
623619	B3FDJ4	50	50
623684	B3DJ45	50	50
623684D	B3DJ45	50	50
623684S ③	B3DJ45	50	50
623685	B3DJ48	50	50
623686	B3DJ81	50	50
623687	B3DJ85	50	50
623688	B3DJ87	50	50
623689	B3DJ91	50	50
623620	B3FDJ8	50	50
PB17L30PB2	NA	50	50
623619-CL	B3FDJ4	50	50
623620-CL	B3FDJ8	50	50
623684-CL	B3DJ45	50	50
623684D-CL	B3DJ45	50	50
623684S-CL ③	B3DJ45	50	50
623685-CL	B3DJ48	50	50
623686-CL	B3DJ81	50	50
623687-CL	B3DJ85	50	50
623688-CL	B3DJ87	50	50
623689-CL	B3DJ91	50	50

- ① spiked 50 mL of Cl# 91846 Total Cyanide (Lot# P249-502, Source: ERA, Exp: 07/31/2018)
- ② spiked 0.250 mL of 11-02-WCS14 (Lot# 83333, Source: ERA, Exp: 02/01/2018)
- ③ spiked 0.025 mL of 11-02-WCS14 (Lot# 83333, Source: ERA, Exp: 02/01/2018)

Comments: NA



Prepared by: HERRERA, JUDY
 Reviewed by: MOKEN, JAMES
 Disposal Int/Date/Loc: JM / 12/06/2017 / NA - Consumed

Date: 11/17/2017
 Date: 12/06/2017