

SOUTHWEST RESEARCH INSTITUTE®

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CHEMISTRY AND CHEMICAL ENGINEERING DIVISION
DEPARTMENT OF ANALYTICAL AND ENVIRONMENTAL CHEMISTRY

December 18, 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, S18-011
	SDG Number:	623683
	SwRI Project Number:	20859.01.00X
	SwRI Task Order Number:	171114-6, 171116-9, 171121-5, 171122-2
	SwRI Sample Receipt Number:	60751, 60773, 60794, 60800
	Samples Received	11-14-2017, 11-16-2017, 11-21-2017, 11-22-17
	Fraction:	Sw-846 Method 9012 & 9014 Cyanides

Dear Ms. Waters-Husted:

Please find the enclosed results for the eight-teen (18) 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

010001

SOUTHWEST RESEARCH INSTITUTE
CLIENT: CH2M Hill Plateau Remediation Company
SwRI PROJECT#: 20859.01.00X
SwRI TASK ORDER: 171114-6, 171116-9, 171121-5,
171122-2
SwRI SRR: 60751, 60773, 60794, 60800
SDG: 623683
CASE: W18-011, S18-011
VTSR: 11-14-2017, 11-16-2017, 11-21-2017, 11-22-2017

CHAIN-OF-CUSTODY & SAMPLE RECEIPT PAPERWORK

Total Page Count:	
Fraction: cyanides	Pages: 010001
Report	010172

CH2M Hill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 010002	C.O.C.# W18-011-238 Page 1 of 1
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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 96/53	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
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Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B3F9F3	N	W	NOV 10 2017	1201	1x500-mL aG	9012_CN (AMENABLE): COMMON; 9012_CYANIDE (TOTAL): COMMON; 9014_CN (FREE): COMMON	14 Days	NaOH to pH >=12 / Cool <=6C
B3F9F2	Y	W	NOV 10 2017	1201	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 # 623683

SwRI

SwRI Prjct # 20859.01.00X
 TO: 171114-6

Relinquished By: <u>M.R. Chunn</u> Print First and Last Name Signature Date/Time NOV 10 2017 1250	Received By: <u>SSU-1</u> Print First and Last Name Signature Date/Time NOV 10 2017 1250	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: <u>SSU-1</u> Print First and Last Name Signature Date/Time NOV 13 2017 1428	Received By: <u>Frank Hall</u> Print First and Last Name Signature Date/Time NOV 13 2017 1428			
Relinquished By: <u>Frank Hall</u> Print First and Last Name Signature Date/Time NOV 13 2017 1428	Received By: <u>FEDEX</u> Print First and Last Name Signature Date/Time			
Relinquished By: <u>FED EX</u> Print First and Last Name Signature Date/Time	Received By: <u>David Garcia</u> Print First and Last Name Signature Date/Time 11-14-2017 08:40			
FINAL SAMPLE DISPOSITION		Disposal Method (e.g., Return to customer, per lab procedure, used in process):	Disposed By:	Date/Time:

CH2M Hill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		C.O.C.# W18-011-247
		010003		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 96/52	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
B3F9J3	Y	W	NOV 10 2017	0806	1x500-mL aG	9012_CN (AMENABLE): COMMON; 9012_CYANIDE (TOTAL): COMMON; 9014_CN (FREE): COMMON	14 Days	NaOH to pH >=12 / Cool <=6C
B3F9J4	N	W	NOV 10 2017	0806	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 # 623683
 SwRI Project # 20859.01.00X
 TO: 171114-6
 SWRI

Relinquished By: Malcom Chunn CHPRC M.R. Chunn Signature	NOV 10 2017 Date/Time	0950 Time	Received By: Lesly Wall CHPRC Lesly Wall Signature	NOV 10 2017 Date/Time	0950 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 Signature	NOV 10 2017 Date/Time	1100 Time	Received By: SSU-1 Signature	NOV 10 2017 Date/Time	1100 Time	
Relinquished By: SSU-1 Signature	NOV 13 2017 Date/Time	0918 Time	Received By: Frank Hall CHPRC Frank Hall Signature	NOV 13 2017 Date/Time	0918 Time	
Relinquished By: Frank Hall CHPRC Frank Hall Signature	NOV 13 2017 Date/Time	1450 Time	Received By: FEDEX 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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CH2MHill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		C.O.C.# W18-011-243
		010005		Page 1 of 1
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>96153</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
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Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B3F9H7	N	W	NOV 10 2017	1113	1x500-mL aG	9012_CN (AMENABLE): COMMON; 9012_CYANIDE (TOTAL): COMMON; 9014_CN (FREE): COMMON	14 Days	NaOH to pH >=12 / Cool <=6C
B3DHY2	Y	W	NOV 10 2017	1113	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 # 623683

SwRI Prjct # 20859.01.00X
TC: 171114-6
SWRI

Relinquished By: <i>M.R. Chunn</i> Malcom Chunn CHPRC Print First and Last Name	<i>NOV 10 2017</i> Signature	<i>1250</i> Date/Time	Received By: SSU-1 Print First and Last Name	<i>NOV 10 2017</i> Signature	<i>1250</i> 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 13 2017</i> Signature	<i>0918</i> Date/Time	Received By: <i>Frank Hall</i> CHPRC Print First and Last Name	<i>NOV 13 2017</i> Signature	<i>0918</i> Date/Time	
Relinquished By: <i>Frank Hall</i> CHPRC Print First and Last Name	<i>NOV 13 2017</i> Signature	<i>1450</i> Date/Time	Received By: FEDEX Print First and Last Name	<i>NOV 13 2017</i> Signature	<i>0840</i> Date/Time	
Relinquished By: FEDEX Print First and Last Name	<i>NOV 13 2017</i> Signature	<i>0840</i> Date/Time	Received By: <i>David Garcia</i> Print First and Last Name	<i>NOV 14 2017</i> Signature	<i>0840</i> Date/Time	
FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process):				Disposed By:	Date/Time:

CH2M Hill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 10006		C.O.C.# W18-011-248
				Page 1 of 2
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.: 77073360180	
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
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Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B3F9J5	N	W	NOV 10 2017	0840	1x500-mL aG	9012_CN (AMENABLE): COMMON; 9012_CYANIDE (TOTAL): COMMON; 9014_CN (FREE): COMMON	14 Days	NaOH to pH >=12 / Cool <=6C
B3DJ97	Y	W	NOV 10 2017	0840	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 # 623683
 SwRI Prjct # 20859.01.00X
 TC: 171114-6
 SwRI

Relinquished By: Malcom Chunn Signature: M.R.Ch Date/Time: NOV 10 2017 0950	Received By: Lesly Wall Signature: Lesly Wall Date/Time: NOV 10 2017 0950	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 Signature: Lesly Wall Date/Time: NOV 10 2017 1100	Received By: SSU-1 Signature: SSU-1 Date/Time: NOV 10 2017 1100		
Relinquished By: SSU-1 Signature: SSU-1 Date/Time: NOV 13 2017 0918	Received By: Frank Hall Signature: Frank Hall Date/Time: NOV 13 2017 0918		
Relinquished By: Frank Hall Signature: Frank Hall Date/Time: NOV 13 2017 1400	Received By: FEDEX Signature: FEDEX Date/Time: FEDEX		
FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process):	Disposed By:	Date/Time:

CH2M Hill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 010008	C.O.C. # S18-011-872
Page 1 of 1		

Collector: Juan Aguilar /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 - 94180	Ice Chest No.: GWS-399
Shipped To (Lab): Southwest Research Institute	Method of Shipment: Commercial Carrier	Bill of Lading/Air Bill No.: 770733601180
Protocol: SURV	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
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Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B3FD97	N	W	11-10-17	1325	1x500-mL aG	9014_CN (FREE): COMMON; 9012_CYANIDE (TOTAL): COMMON	14 Days	NaOH to pH >=12 / Cool <=6C

CHPRC SRR # 60751
SDG # 623683

SWRI

SwRI Prjct # 20859.01.00X
TO: 171114-6

Relinquished By: <u>Juan Aguilar /CHPRC</u> Print First and Last Name Signature Date/Time	Received By: <u>SSU-1</u> 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: <u>SSU-1</u> Print First and Last Name Signature Date/Time	Received By: <u>Frank Hall /CHPRC</u> Print First and Last Name Signature Date/Time		
Relinquished By: <u>Frank Hall /CHPRC</u> Print First and Last Name Signature Date/Time	Received By: <u>FEDEX</u> Print First and Last Name Signature Date/Time		
Relinquished By: <u>FED EX</u> Print First and Last Name Signature Date/Time	Received By: <u>David Garcia /CHPRC</u> 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:

CH2M Hill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		C.O.C.# W18-011-251
				Page 1 of 2
Collector: Juan Aguilar ICHPRC	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-506-94/82	Ice Chest No.: 6WS-657		
Shipped To (Lab): Southwest Research Institute	Method of Shipment: Commercial Carrier	Bill of Lading/Air Bill No.: 770757195095		
Protocol: RCRA	Priority: 30 Days	Offsite Property No.: 8748		

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 Low Volume Wells. Do not use for QC.
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Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B3DJN0	Y	W	11-13-17	1200	1x500-mL aG	9012_CN (AMENABLE): COMMON; 9012_CYANIDE (TOTAL): COMMON; 9014_CN (FREE): COMMON	14 Days	NaOH to pH >=12 / Cool <=6C
B3FCP8	N	W	11-13-17	1200	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 # 60773
 SDG # 623683
 SwRI Prjct # 20859.01.00X
 TO: 171116-9
SwRI

Relinquished By: Juan Aguilar ICHPRC Signature: <i>[Signature]</i> Date/Time: NOV 13 2017 1500	Received By: Christina Aguilar ICHPRC Signature: <i>[Signature]</i> Date/Time: NOV 13 2017 1500	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: Christina Aguilar ICHPRC Signature: <i>[Signature]</i> Date/Time: NOV 13 2017 1515	Received By: SSU-1 Signature: <i>[Signature]</i> Date/Time: NOV 13 2017 1515	
Relinquished By: SSU-1 Signature: <i>[Signature]</i> Date/Time: NOV 15 2017 0910	Received By: Jeff Lucas ICHPRC Signature: <i>[Signature]</i> Date/Time: NOV 15 2017 0910	
Relinquished By: Jeff Lucas ICHPRC Signature: <i>[Signature]</i> Date/Time: NOV 15 2017 1400	Received By: FEDEX Signature: <i>[Signature]</i> 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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CH2M Hill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		C.O.C.# W18-011-255
				Page 1 of <i>22</i>
Collector: Juan Aguilar ICHPRC	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-506-94183	Ice Chest No.: <i>655-657</i>		
Shipped To (Lab): Southwest Research Institute	Method of Shipment: Commercial Carrier	Bill of Lading/Air Bill No.: 770757195095		
Protocol: RCRA	Priority: 30 Days	Offsite Property No.: 8748		

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
B3F9K8	N	W	11-14-17	0814	1x500-mL aG	9012_CN (AMENABLE): COMMON; 9012_CYANIDE (TOTAL): COMMON; 9014_CN (FREE): COMMON	14 Days	NaOH to pH >=12 / Cool <=6C
B3DJK1	Y	W	11-14-17	0814	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 # 60773
 SDG # 623683

SwRI Project # 20859.01.00X
 TO: 171116-9

SWRI

Relinquished By: Juan Aguilar ICHPRC Print First and Last Name: Juan Aguilar Signature: <i>[Signature]</i> Date/Time: NOV 14 2017 0900	Received By: Lesly Wall ICHPRC Print First and Last Name: Lesly Wall Signature: <i>[Signature]</i> Date/Time: NOV 14 2017 0900	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 ICHPRC Print First and Last Name: Lesly Wall Signature: <i>[Signature]</i> Date/Time: NOV 14 2017 1230	Received By: SSU-1 Print First and Last Name: SSU-1 Signature: <i>[Signature]</i> Date/Time: NOV 14 2017 1230		
Relinquished By: SSU-1 Print First and Last Name: SSU-1 Signature: <i>[Signature]</i> Date/Time: NOV 15 2017 0910	Received By: Jeff Lucas ICHPRC Print First and Last Name: Jeff Lucas Signature: <i>[Signature]</i> Date/Time: NOV 15 2017 0910		
Relinquished By: Jeff Lucas ICHPRC Print First and Last Name: Jeff Lucas Signature: <i>[Signature]</i> Date/Time: NOV 15 2017 1400	Received By: FEDEX Print First and Last Name: FEDEX Signature: <i>[Signature]</i> Date/Time:		
FINAL SAMPLE DISPOSITION Disposal Method (e.g., Return to customer, per lab procedure, used in process):		Disposed By:	Date/Time:

CH2M Hill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 010013		C.O.C.# W18-011-256
				Page 1 of 12
Collector: Juan Aguilar ICHPRC	Contact/Requester: Karen Waters-Husted		Telephone No.: 509-376-4650 20.11/14/17	
SAF No.: W18-011	Sampling Origin: Hanford Site		Purchase Order/Charge Code: 300071	
Project Title: RCRA, NOVEMBER 2017	Logbook No.: HNF-N-506-9483		Ice Chest No.: 6-45-657	
Shipped To (Lab): Southwest Research Institute	Method of Shipment: Commercial Carrier		Bill of Lading/Air Bill No.: 770757195095	
Protocol: RCRA	Priority: 30 Days		Offsite Property No.: 8748	

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
B3F9L0	N	W	11-14-17	0700	1x500-mL aG	9012_CN (AMENABLE): COMMON; 9012_CYANIDE (TOTAL): COMMON; 9014_CN (FREE): COMMON	14 Days	NaOH to pH >=12 / Cool <=6C
B3DJK0	Y	W	11-14-17	0700	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 # 60773
 SDG # 623683
 SwRI Prjct # 20859.01.00X
 TO: 171116-9
SwRI

Relinquished By: Juan Aguilar ICHPRC Signature: <i>[Signature]</i> Date/Time: NOV 14 2017 0900	Received By: Lesty Wall ICHPRC Signature: <i>[Signature]</i> Date/Time: NOV 14 2017 0900	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: Lesty Wall ICHPRC Signature: <i>[Signature]</i> Date/Time: NOV 14 2017 1230	Received By: SSU-1 Signature: _____ Date/Time: NOV 14 2017 1230	
Relinquished By: SSU-1 Signature: _____ Date/Time: NOV 15 2017 0910	Received By: Jeff Lucas ICHPRC Signature: <i>[Signature]</i> Date/Time: NOV 15 2017 0910	
Relinquished By: Jeff Lucas ICHPRC Signature: <i>[Signature]</i> Date/Time: NOV 15 2017 1400	Received By: FEDEX Signature: _____ 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 (continued)

010014

C.O.C. No. W18-011-256

Page 2 of 2

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
		FEDEX		David Garcia	David Garcia		11/16/2017 08:35
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time

CH2M Hill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 010015		C.O.C.# W18-011-258
				Page 1 of 1
Collector: Juan Aguilar JCHPRC	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-506-94184		Ice Chest No.: 6WS-389	
Shipped To (Lab): Southwest Research Institute	Method of Shipment: Commercial Carrier		Bill of Lading/Air Bill No.: 770790690431	
Protocol: RCRA	Priority: 30 Days		Offsite Property No.: 8766	

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
 Low Volume Wells. Do not use for QC.

Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B3F9L3	Y	W	11-16-17	1202	1x500-mL aG	9012_CN (AMENABLE): COMMON; 9012_CYANIDE (TOTAL): COMMON; 9014_CN (FREE): COMMON	14 Days	NaOH to pH >=12 / Cool <=6C
B3F9L4	N	W	11-16-17	1202	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 # 60794

SwRI Prjct # 20859.01.00X
 TO: 171121-5

SDG # 623683

SWRI

Relinquished By: Juan Aguilar JCHPRC Signature: <i>[Signature]</i> Date/Time: NOV 16 2017 1224	Received By: SSU-1 Signature: <i>[Signature]</i> Date/Time: NOV 16 2017 1224	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 20 2017 0830	Received By: Curt Hoffman CHPRC Signature: <i>[Signature]</i> Date/Time: NOV 20 2017 0830		
Relinquished By: Curt Hoffman CHPRC Signature: <i>[Signature]</i> Date/Time: NOV 20 2017 1400	Received By: FEDEX Signature: <i>[Signature]</i> Date/Time:		
Relinquished By: FEDEX Signature: <i>[Signature]</i> Date/Time:	Received By: SWRI / RAMINEZ Signature: <i>[Signature]</i> Date/Time: 11/21/2017 0815		
FINAL SAMPLE DISPOSITION Disposal Method (e.g., Return to customer, per lab procedure, used in process):		Disposed By:	Date/Time:

CH2M Hill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			C.O.C. # 010016 18-011-890	Page 1 of 1		
Collector: Larry Rosane 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 98/2		Ice Chest No.: GWS-596				
Shipped To (Lab): Southwest Research Institute		Method of Shipment: Commercial Carrier		Bill of Lading/Air Bill No.: 770802431191				
Protocol: SURV		Priority: 30 Days		Offsite Property No.: 8772				
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
B3FDF7	N	W	11-20-17	1106	1x500-mL aG	9014_CN (FREE): COMMON; 9012_CYANIDE (TOTAL): COMMON	14 Days	NaOH to pH >=12 / Cool <=6C

CHPRC SRR # 60800
 SDG # 623683
 SwRI Prjct # 20859.01.00X
 TO: 171122-2
 SWRI

Relinquished By: Larry Rosane CHPRC Signature: <i>Larry Rosane</i> Date/Time: NOV 20 2017 1135			Received By: SSU-1 Signature: _____ Date/Time: NOV 20 2017 1135			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: _____ Date/Time: NOV 21 2017 0845			Received By: MIKE ESPARZA CHPRC Signature: <i>Mike Esparza</i> Date/Time: NOV 21 2017 0845						
Relinquished By: MIKE ESPARZA CHPRC Signature: <i>Mike Esparza</i> Date/Time: NOV 21 2017 1400			Received By: FEDEX Signature: _____ Date/Time: _____						
Relinquished By: FED EX Signature: _____ Date/Time: _____			Received By: SwRI / Ramirez Signature: <i>[Signature]</i> Date/Time: 11/23/2017 0840						
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 #: 171114-6 Revision: 3

Project(s): 20859.01.00X
 Manager(s): SPIES, RADONNA
 To Client: 12/13/17
 Client(s): CH2M Hill Plateau Remediation Company

SDG: 623683
 VTSR: 11/14/17
 SAF: W18-011 S18-011

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

Instructions

CH2MHill Plateau Remediation Company. 300071
 SAF No. W18-011
 SAF No. S18-011

SDG 623683 is open until 11/28/17

30-day TAT.

CURRENTLY, FINAL DATA/HARDCOPY IS DUE TO THE CLIENT ON 12/14/2017.

18 overall samples (18 containers) were received on 11/14/2017.
 OUT of the 18 samples, ONLY 9 Cn samples are listed here.

NOTE _ per COC, Sample B3FD97 only requires Cn 9014 and Cn 9012, no Amenable.

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 11/16/17: Task Order revised to indicate additional samples were received on 11/16/17, which have been grouped with SDG 623683, located in Task Order # 171116-9, SRR 60773.
 REVISION 2, DRmz 11/21/17: Task Order revised to indicate additional samples were received on 11/21/17, which have been grouped with SDG 623683, located in Task Order # 171121-5, SRR 60794.
 REVISION 3, DRmz 11/21/17: Task Order revised to indicate additional samples were received on 11/22/17, which have been grouped with SDG 623683, located in Task Order # 171122-2, SRR 60800.
 SDG is now CLOSED.

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: 8

System ID	Type	Cont	Matrix	Customer ID	CED	Method Date
623683		1	Water	B3DHY2	10 Nov 17	24 Nov 17
623690		1	Water	B3DJ97	10 Nov 17	24 Nov 17
623694		1	Water	B3F9F2	10 Nov 17	24 Nov 17
623695		1	Water	B3F9F3	10 Nov 17	24 Nov 17
623696		1	Water	B3F9H7	10 Nov 17	24 Nov 17
623697		1	Water	B3F9J3	10 Nov 17	24 Nov 17
623698		1	Water	B3F9J4	10 Nov 17	24 Nov 17
623699		1	Water	B3F9J5	10 Nov 17	24 Nov 17

Test: CN_9012
 Section: WETCHEM

Holding: 14 days from CED

Cyanide by Method 9012 (Automated)

Cnt: 9

System ID	Type	Cont	Matrix	Customer ID	CED	Method Date
623683		1	Water	B3DHY2	10 Nov 17	24 Nov 17



Southwest Research Institute

Laboratory Task Order

TO #: 171114-6 Revision: 3

Project(s): 20859.01.00X
 Manager(s): SPIES, RADONNA
 To Client: 12/13/17
 Client(s): CH2M Hill Plateau Remediation Company

SDG: 623683
 VTSR: 11/14/17
 SAF: W18-011 S18-011

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

System ID	Type	Cont	Matrix	Customer ID	CED	Method Date
623690		1	Water	B3DJ97	10 Nov 17	24 Nov 17
623694		1	Water	B3F9F2	10 Nov 17	24 Nov 17
623695		1	Water	B3F9F3	10 Nov 17	24 Nov 17
623696		1	Water	B3F9H7	10 Nov 17	24 Nov 17
623697		1	Water	B3F9J3	10 Nov 17	24 Nov 17
623698		1	Water	B3F9J4	10 Nov 17	24 Nov 17
623699		1	Water	B3F9J5	10 Nov 17	24 Nov 17
623700		1	Water	B3FD97	10 Nov 17	24 Nov 17

Test: CN_9014
 Section: WETCHEM

Holding: 14 days from CED

Total Cyanide by SW846 9014

Cnt: 9

System ID	Type	Cont	Matrix	Customer ID	CED	Method Date
623683		1	Water	B3DHY2	10 Nov 17	24 Nov 17
623690		1	Water	B3DJ97	10 Nov 17	24 Nov 17
623694		1	Water	B3F9F2	10 Nov 17	24 Nov 17
623695		1	Water	B3F9F3	10 Nov 17	24 Nov 17
623696		1	Water	B3F9H7	10 Nov 17	24 Nov 17
623697		1	Water	B3F9J3	10 Nov 17	24 Nov 17
623698		1	Water	B3F9J4	10 Nov 17	24 Nov 17
623699		1	Water	B3F9J5	10 Nov 17	24 Nov 17
623700		1	Water	B3FD97	10 Nov 17	24 Nov 17



Sample Receipt

Southwest Research Institute

Sample Receipt Number: 60751

VTSR: 11/14/17

Time: 08:40:00

Project: 20859.01.00X

Case #: CHPRC

Client: CH2M Hill Plateau Remediation Company

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 Regs.
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

Sample Receipt

Southwest Research Institute

Sample Receipt Number: 60751

VTSR: 11/14/17

Time: 08:40:00

Project: 20859.01.00X

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:

David Harris



- 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="radio"/> Present / <input type="radio"/> Absent* <input checked="" type="radio"/> Intact / <input type="radio"/> Broken	B3DHY2	N/A
2. Custody Seal Nos.	N/A	B3DJ45	N/A
		B3DJ48	N/A
3. Chain-of Custody Records	<input checked="" type="radio"/> Present / <input type="radio"/> Absent*	B3DJ81	N/A
4. Traffic Reports or Packing Lists	<input checked="" type="radio"/> Present / <input type="radio"/> Absent*	B3DJ85	N/A
5. Airbill	Airbill/Sticker <input checked="" type="radio"/> Present / <input type="radio"/> Absent*	B3DJ87	N/A
6. Airbill No.	7707 3360 1180	B3DJ91	N/A
		B3DJ97	N/A
7. Sample Tags	Present <input checked="" type="radio"/> Absent <input type="radio"/> N/A	B3F551	N/A
Sample Tag Numbers	Listed <input checked="" type="radio"/> Not listed on Chain of Custody <input type="radio"/> N/A	B3F5V9	N/A
		B3F603	N/A
8. Sample Condition	<input checked="" type="radio"/> Intact / <input type="radio"/> Broken* / <input type="radio"/> Leaking	B3F9F2	N/A
9. Cooler Temperature	1.9C	B3F9F3	N/A
10. Does Information on custody records, traffic reports, and sample tags agree?	<input checked="" type="radio"/> Yes / <input type="radio"/> No*	B3F9H7	N/A
		B3F9J3	N/A
11. Date Received at Lab	11/14/2017	B3F9J4	N/A
		B3F9J5	N/A
12. Time Received	08:40:00	B3FD97	N/A
Sample Transfer			
Fraction	Fraction		
Area #	Area #		
By	By		
On	On		

* Contact SMO and attach record of resolution

Reviewed By <i>Bill Reynolds</i>	Logbook No. Sample Receipt (60751)
Date 11.15.17	Logbook Page No. 10004 Sec 1, 2 of 4

Southwest Research Institute

Laboratory Task Order

TO #: 171116-9 Revision: 2

Project(s): 20859.01.00X
 Manager(s): SPIES, RADONNA
 To Client: 12/13/17
 Client(s): CH2M Hill Plateau Remediation Company

SDG: 623683
 VTSR: 11/16/17
 SAF: W18-011

SRR #s: 60773
 Client(s): CH2M Hill Plateau Remediation Company

Instructions

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

SDG 623683 is open until 11/28/17

GROUPED _ with samples in SDG 623683, located in Task Order # 171114-6, SRR 60751.

30-day TAT.

CURRENTLY, FINAL DATA/HARDCOPY IS DUE TO THE CLIENT ON 12/14/2017.

9 overall samples (12 containers) were received on 11/16/2017.

OUT of the 9 samples, ONLY 6 samples that required 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 11/21/17: Task Order revised to indicate additional samples were received on 11/21/17, which have been grouped with SDG 623683, located in Task Order # 171121-5, SRR 60794.

REVISION 2, DRmz 11/21/17: Task Order revised to indicate additional samples were received on 11/22/17, which have been grouped with SDG 623683, located in Task Order # 171122-2, SRR 60800.

SDG is now CLOSED.

Documents Related to this task order: 232950[COC for SRR 60773], 232963[Paperwork for SRR 60773]

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
623813		1	Water	B3DJK0	14 Nov 17	28 Nov 17
623814		1	Water	B3DJK1	14 Nov 17	28 Nov 17
623815		1	Water	B3DJN0	13 Nov 17	27 Nov 17
623817		1	Water	B3F9K8	14 Nov 17	28 Nov 17
623818		1	Water	B3F9L0	14 Nov 17	28 Nov 17
623819		1	Water	B3FCP8	13 Nov 17	27 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
623813		1	Water	B3DJK0	14 Nov 17	28 Nov 17
623814		1	Water	B3DJK1	14 Nov 17	28 Nov 17
623815		1	Water	B3DJN0	13 Nov 17	27 Nov 17



Southwest Research Institute

Laboratory Task Order

TO #: 171116-9 Revision: 2

Project(s): 20859.01.00X
 Manager(s): SPIES, RADONNA
 To Client: 12/13/17
 Client(s): CH2M Hill Plateau Remediation Company

SDG: 623683
 VTSR: 11/16/17
 SAF: W18-011

SRR #s: 60773

System ID	Type	Cont	Matrix	Customer ID	CED	Method Date
623817		1	Water	B3F9K8	14 Nov 17	28 Nov 17
623818		1	Water	B3F9L0	14 Nov 17	28 Nov 17
623819		1	Water	B3FCP8	13 Nov 17	27 Nov 17

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
623813		1	Water	B3DJK0	14 Nov 17	28 Nov 17
623814		1	Water	B3DJK1	14 Nov 17	28 Nov 17
623815		1	Water	B3DJN0	13 Nov 17	27 Nov 17
623817		1	Water	B3F9K8	14 Nov 17	28 Nov 17
623818		1	Water	B3F9L0	14 Nov 17	28 Nov 17
623819		1	Water	B3FCP8	13 Nov 17	27 Nov 17



Sample Receipt

Southwest Research Institute

VTSR: 11/16/17

Time: 08:35:00

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

Sample Receipt Number: 60773
Revision: 1
This Receipt was Revised 11/17/2017

Manager: SPIES, RADONNA
Logged in by: DXGARCIA
Creation Date: 11/16/17

Notes

Samples were received intact- 2.0°C (wet ice)

Fed Ex Tracking #(s):
7707 5719 5095

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-657

Test requirements located on Task Order.

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

ALL SAMPLE CONTAINERS / APPLICABLE ITEMS WERE RECEIVED OK.

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

System ID	Customer ID	CED	Matrix	Containers	Special Reqs.
623813	B3DJK0	11/14/17	Water	1	
623814	B3DJK1	11/14/17	Water	1	
623815	B3DJN0	11/13/17	Water	1	
623816	B3F998	11/13/17	Water	1	
623817	B3F9K8	11/14/17	Water	1	
623818	B3F9L0	11/14/17	Water	1	
623819	B3FCP8	11/13/17	Water	1	
623820	B3FCV3	11/14/17	Water	4	
623821	B3FLP8	10/31/17	Other Solid	1	

Containers: 12

Samples: 9

These documents are associated with this receipt: 232950[COC for SRR 60773], 232963[Paperwork for SRR 60773]

Thermometer: 021056
Temperature: 2.0

60773 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
Sample Tag Numbers Not on COC
- 4. SMO Forms Present

Client: CH2M Hill Plateau Remediation Company
Project: 20859.01.00X
Case: CHPRC / SDG: _____
Sample Receipt: 60773
Airbill: 7707 5719 5095

Custody Seal #(s): N/A

Date Received	Time Received	COC Record	SMO Sample #	Corresponding		Traffic Rpt, Tags, COC Agree	Sample Condition
				Sample Tag #	SwRI #		
11/16/17	08:35:00	W18-011-256	B3DJK0	N/A	623813	YES	Intact
11/16/17	08:35:00	W18-011-255	B3DJK1	N/A	623814	YES	Intact
11/16/17	08:35:00	W18-011-251	B3DJN0	N/A	623815	YES	Intact
11/16/17	08:35:00	S18-011-709	B3F998	N/A	623816	YES	Intact
11/16/17	08:35:00	W18-011-255	B3F9K8	N/A	623817	YES	Intact
11/16/17	08:35:00	W18-011-256	B3F9L0	N/A	623818	YES	Intact
11/16/17	08:35:00	W18-011-251	B3FCP8	N/A	623819	YES	Intact
11/16/17	08:35:00	518-011-803	B3FCV3	N/A	623820	YES	Intact
11/16/17	08:35:00	F17-048-020	B3FLP8	N/A	623821	YES	Intact

SAMPLE LOG-IN SHEET

Lab Name Southwest Research Institute			Page 1 of 1	
Received By (Print Name) DAVID GARCIA			Log-in Date 11/16/2017	
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		
		EPA Sample #	Sample Tag #	Assigned Lab #
1. Custody Seal(s)	<input checked="" type="radio"/> Present / Absent* <input checked="" type="radio"/> Intact / Broken	B3DJK0	N/A	623813
2. Custody Seal Nos.	N/A	B3DJK1	N/A	623814
		B3DJN0	N/A	623815
3. Chain-of Custody Records	<input checked="" type="radio"/> Present / Absent*	B3F998	N/A	623816
4. Traffic Reports or Packing Lists	<input checked="" type="radio"/> Present / Absent*	B3F9K8	N/A	623817
5. Airbill	Airbill / Sticker <input checked="" type="radio"/> Present / Absent*	B3F9L0	N/A	623818
6. Airbill No.	7707 5719 5095	B3FCP8	N/A	623819
		B3FCV3	N/A	623820
7. Sample Tags	Present <input checked="" type="radio"/> Absent	B3FLP8	N/A	623821
Sample Tag Numbers	Listed <input checked="" type="radio"/> Not listed on Chain of Custody			
8. Sample Condition	<input checked="" type="radio"/> Intact / Broken* / Leaking			
9. Cooler Temperature	2.0C			
10. Does Information on custody records, traffic reports, and sample tags agree?	<input checked="" type="radio"/> Yes / No*			
11. Date Received at Lab	11/16/2017			
12. Time Received	08:35:00			
Sample Transfer				
Fraction	<i>Inorg</i>	Fraction		
Area #	<i>R-13</i>	Area #		
By	DAVID GARCIA	By		
On	11/16/2017	On		

* Contact SMO and attach record of resolution

Reviewed By <i>David Garcia</i>	Logbook No.	Sample Receipt (60773)
Date 11.17.17	Logbook Page No.	10006 Sec 2 of 5

Southwest Research Institute

Laboratory Task Order

TO #: 171121-5 Revision: 1

Project(s): 20859.01.00X
 Manager(s): SPIES, RADONNA
 To Client: 12/13/17

SDG: 623683
 VTSR: 11/21/17
 SAF: W18-011

SRR #s: 60794
 Client(s): CH2M Hill Plateau Remediation Company

Instructions

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

SDG 623683 is open until 11/28/17

GROUPED _ with samples in SDG 623683, located in Task Order # 171114-6, SRR 60751; Task Order # 171116-9, SRR 60773.

30-day TAT.
 CURRENTLY, FINAL DATA/HARDCOPY IS DUE TO THE CLIENT ON 12/14/2017.

9 overall samples (17 containers) were received on 11/21/2017.
 OUT of the 9 samples, ONLY 2 samples that required 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 11/21/17: Task Order revised to indicate additional samples were received on 11/22/17, which have been grouped with SDG 623683, located in Task Order # 171122-2, SRR 60800. SDG is now CLOSED.

Documents Related to this task order: 233189[COC for SRR 60794], 233190[Paperwork for SRR 60794]

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
624013		1	W	B3F9L3	16 Nov 17	30 Nov 17
624014		1	W	B3F9L4	16 Nov 17	30 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
624013		1	W	B3F9L3	16 Nov 17	30 Nov 17
624014		1	W	B3F9L4	16 Nov 17	30 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
624013		1	W	B3F9L3	16 Nov 17	30 Nov 17



Southwest Research Institute

Laboratory Task Order

TO #: 171121-5 Revision: 1

Project(s): 20859.01.00X
Manager(s): SPIES, RADONNA
To Client: 12/13/17

SDG: 623683
VTSR: 11/21/17
SAF: W18-011

SRR #s: 60794

Client(s): CH2M Hill Plateau Remediation Company

System ID	Type	Cont	Matrix	Customer ID	CED	Method Date
624014		1	W	B3F9L4	16 Nov 17	30 Nov 17



Sample Receipt

Southwest Research Institute

VTSR: 11/21/17

Time: 08:15:00

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

Sample Receipt Number: 60794

Manager: SPIES, RADONNA
Logged in by: DRAMIREZ
Creation Date: 11/21/17

Notes

Samples were received intact.

Fed Ex tracking #:
7707 9069 0431 _ 0.9°C (wet ice)

Ice Chest No:
GWS-389

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

pH Test Paper 0.0 to 13.0
Lot - 230016 _ Inventory # 83485
Exp: 10/30/2019

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

Test requirements located on Task Order.

Background CPM: <130cpm
Container Wipe CPM: <130cpm
Total CPM: <130

System ID	Customer ID	CED	Matrix	Containers	Special Reqs.
624006	B3F5X6	11/16/17	W	1	
624007	B3F7H1	11/17/17	W	5	
624008	B3F7H2	11/17/17	W	5	
624009	B3F7J1	11/17/17	W	1	
624010	B3F7W6	11/16/17	W	1	
624011	B3F7W7	11/16/17	W	1	
624012	B3F9B2	11/16/17	W	1	
624013	B3F9L3	11/16/17	W	1	
624014	B3F9L4	11/16/17	W	1	

Containers: 17

Samples: 9

These documents are associated with this receipt: 233189[COC for SRR 60794], 233190[Paperwork for SRR 60794]

Thermometer: 021056
Temperature: 0.9

60794 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: 208S9.01.00X

Case: CHPRC / SDG: SEE TO

Sample Receipt: 60794

Airbill: 7707 9069 0431

Custody Seal #(s):

Date Received	Time Received	COC Record	SMO Sample #	Corresponding		Traffic Rpt, Tags, COC Agree	Sample Condition
				Sample Tag #	SwRI #		
11/21/17	08:15:00	S18-011-292	B3F5X6	N/A	624006	YES	Intact
11/21/17	08:15:00	S18-011-731	B3F7H1	N/A	624007	YES	Intact
11/21/17	08:15:00	S18-011-732	B3F7H2	N/A	624008	YES	Intact
11/21/17	08:15:00	S18-011-036	B3F7J1	N/A	624009	YES	Intact
11/21/17	08:15:00	S18-011-702	B3F7W6	N/A	624010	YES	Intact
11/21/17	08:15:00	S18-011-701	B3F7W7	N/A	624011	YES	Intact
11/21/17	08:15:00	S18-011-713	B3F9B2	N/A	624012	YES	Intact
11/21/17	08:15:00	W18-011-258	B3F9L3	N/A	624013	YES	Intact
11/21/17	08:15:00	W18-011-258	B3F9L4	N/A	624014	YES	Intact

SAMPLE LOG-IN SHEET

Lab Name Southwest Research Institute			Page 1 of 1			
Received By (Print Name) DANNY RAMIREZ			Log-in Date 11/21/2017			
Received By (Signature) <i>[Signature]</i>						
Case Number CHPRC		Sample Delivery Group No. SEE TO		SAS Number N/A		
Remarks: 20859.01.00X						
		EPA Sample #		Corresponding		
		Sample Tag #		Assigned Lab #		
				Remarks: Condition of Sample Shipment, etc		
1.	Custody Seal(s)	<input checked="" type="radio"/> Present / Absent* <input checked="" type="radio"/> Intact / Broken	B3F5X6	N/A	624006	Intact
2.	Custody Seal Nos.	N/A	B3F7H1	N/A	624007	Intact
			B3F7H2	N/A	624008	Intact
3.	Chain-of Custody Records	<input checked="" type="radio"/> Present / Absent*	B3F7J1	N/A	624009	Intact
4.	Traffic Reports or Packing Lists	<input checked="" type="radio"/> Present / Absent*	B3F7W6	N/A	624010	Intact
5.	Airbill	Airbill / Sticker <input checked="" type="radio"/> Present / Absent*	B3F7W7	N/A	624011	Intact
6.	Airbill No.	7707 9069 0431	B3F9B2	N/A	624012	Intact
			B3F9L3	N/A	624013	Intact
7.	Sample Tags	Present <input checked="" type="radio"/> Absent N/A	B3F9L4	N/A	624014	Intact
	Sample Tag Numbers	Listed <input checked="" type="radio"/> Not listed on Chain of Custody				
8.	Sample Condition	<input checked="" type="radio"/> Intact / Broken* / Leaking				
9.	Cooler Temperature	0.9C				
10.	Does Information on custody records, traffic reports, and sample tags agree?	<input checked="" type="radio"/> Yes / No*				
11.	Date Received at Lab	11/21/2017				
12.	Time Received	08:15:00				
Sample Transfer						
Fraction Inorb		Fraction				
Area # R.12		Area #				
By DANNY RAMIREZ		By				
On 11/21/2017		On				

* Contact SMO and attach record of resolution

Reviewed By <i>[Signature]</i>	Logbook No. Sample Receipt (60794)
Date 11.21.17	Logbook Page No. 10011 Sec 2, 30K3

Southwest Research Institute

Laboratory Task Order

TO #: 171122-2 Revision: 0

Project(s): 20859.01.00X
Manager(s): SPIES, RADONNA
To Client: 12/13/17
Client(s): CH2M Hill Plateau Remediation Company

SDG: 623683
VTSR: 11/22/17
SAF: S18-011

SRR #s: 60800
Client(s): CH2M Hill Plateau Remediation Company

Instructions

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

SDG 623683 is open until 11/28/17

GROUPED _ with samples in SDG 623683, located in Task Order # 171114-6, SRR 60751; Task Order # 171116-9, SRR 60773; Task Order # 171121-5, SRR 60794.

30-day TAT.

CURRENTLY, FINAL DATA/HARDCOPY IS DUE TO THE CLIENT ON 12/14/2017.

2 overall samples (6 containers) were received on 11/22/2017.
OUT of the 2 samples, ONLY the 1 sample that requires Cn is listed here.

Sample Analysis REQUIRED

9012 _ 57-12-5 Cyanide (Total)
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: 233263[COC for SRR 60800], 233264[Paperwork for SRR 60800]

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

Test: CN_9012

Holding: 14 days from CED

Section: WETCHEM

Cyanide by Method 9012 (Automated)

Cnt: 1

System ID	Type	Cont	Matrix	Customer ID	CED	Method Date
624042		1	Water	B3FDF7	20 Nov 17	04 Dec 17

Test: CN_9014

Holding: 14 days from CED

Section: WETCHEM

Total Cyanide by SW846 9014

Cnt: 1

System ID	Type	Cont	Matrix	Customer ID	CED	Method Date
624042		1	Water	B3FDF7	20 Nov 17	04 Dec 17



Sample Receipt

Southwest Research Institute

Sample Receipt Number: 60800

VTSR: 11/22/17

Time: 08:40:00

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

Manager: SPIES, RADONNA
Logged in by: DRAMIREZ
Creation Date: 11/22/17

Notes

Samples were received intact.

Fed Ex tracking #:
7708 0243 1191 _ 1.9°C (wet ice)

Ice Chest No:
GWS-596

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

pH Test Paper 0.0 to 13.0
Lot - 230016 _ Inventory # 83485
Exp: 10/30/2019

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

Test requirements located on Task Order.

Backaround CPM: <130cpm
Container Wipe CPM: <130cpm
Total CPM: <130

System ID	Customer ID	CED	Matrix	Containers	Special Regs.
624041	B3F9J9	11/20/17	Water	5	
624042	B3FDF7	11/20/17	Water	1	

Containers: 6

Samples: 2

These documents are associated with this receipt: 233263[COC for SRR 60800], 233264[Paperwork for SRR 60800]

Thermometer: 021056
Temperature: 1.9

60800 CH2M Hill Plateau Remediation

Southwest Research Institute

Traffic Report

Sample Custodian Signature: DPVZ



- 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: 60800

Airbill: 7708 0243 1191

Custody Seal #(s): n/a

Date Received	Time Received	COC Record	SMO Sample #	Corresponding		Traffic Rpt, Tags, COC Agree	Sample Condition
				Sample Tag #	SwRI #		
11/22/17	08:40:00	I18-002-493	B3F9J9	N/A	624041	YES	Intact
11/22/17	08:40:00	S18-011-890	B3FDF7	N/A	624042	YES	Intact

SAMPLE LOG-IN SHEET

Lab Name Southwest Research Institute			Page 1 of 1		
Received By (Print Name) DANNY RAMIREZ			Log-in Date 11/22/2017		
Received By (Signature) <i>DR</i>					
Case Number CHPRC		Sample Delivery Group No. SEE TO		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)	Present /Absent* Intact /Broken	B3F9J9	N/A	624041	Intact
2. Custody Seal Nos.	N/A	B3FDF7	N/A	624042	Intact
3. Chain-of Custody Records	Present /Absent*				
4. Traffic Reports or Packing Lists	Present /Absent*				
5. Airbill	Airbill/Sticker Present /Absent*				
6. Airbill No.	7708 0243 1191				
7. Sample Tags	Present/ Absent N/A				
Sample Tag Numbers	Listed/ Not listed on Chain of Custody				
8. Sample Condition	Intact /Broken*/Leaking				
9. Cooler Temperature	1.9C				
10. Does Information on custody records, traffic reports, and sample tags agree?	Yes /No*				
11. Date Received at Lab	11/22/2017				
12. Time Received	08:40:00				
Sample Transfer					
Fraction INDB7	Fraction				
Area # R12	Area #				
By DANNY RAMIREZ	By				
On 11/22/2017	On				

* Contact SMO and attach record of resolution

Reviewed By <i>Danny Ramirez</i>	Logbook No. Sample Receipt (60800)
Date 11.22.17	Logbook Page No. 10012 Sec 1 of 1

SOUTHWEST RESEARCH INSTITUTE
CLIENT: CH2M Hill Plateau Remediation Company
SwRI PROJECT#: 20859.01.00X
SwRI TASK ORDER: 171114-6, 171116-9, 171121-5,
171122-2
SwRI SRR: 60751, 60773, 60794, 60800
SDG: 623683
CASE: W18-011, S18-011
VTSR: 11-14-2017, 11-16-2017, 11-21-2017, 11-22-2017

pH Report

SwRI

pH Preservation Report

Sample Receipt: 60751

Customer: CH2M Hill Plateau Remediation

Project: 20859.01.00X

Case: CHPRC

Received: 11/14/2017

Samples Logged in by: DXGARCIA

SwRI #	Customer ID	Container ID	Initial pH	Login			Lab					
				Adjustment	Final pH	Paper Lot	Adjustment	Final pH	Paper lot	Adjusted	Lab Staff ID	
623683 1	B3DHY2		>=12									
623684 1	B3DJ45		>=12									
623685 1	B3DJ48		>=12									
623686 1	B3DJ81		>=12									
623687 1	B3DJ85		>=12									
623688 1	B3DJ87		>=12									
623689 1	B3DJ91		>=12									
623690 1	B3DJ97		>=12									
623691 1	B3F551		<2									
623692 1	B3F5V9		<2									
623693 1	B3F603		<2									
623694 1	B3F9F2		>=12									
623695 1	B3F9F3		>=12									
623696 1	B3F9H7		>=12									
623697 1	B3F9J3		>=12									
623698 1	B3F9J4		>=12									
623699 1	B3F9J5		>=12									
623700 1	B3FD97		>=12									

SwRI

pH Preservation Report

Sample Receipt: 60773

Customer: CH2M Hill Plateau Remediation

Project: 20859.01.00X

Case: CHPRC

Received: 11/16/2017

Samples Logged in by: DXGARCIA

SwRI #	Customer ID	Container ID	Initial pH	Login			Lab				
				Adjustment	Final pH	Paper Lot	Adjustment	Final pH	Paper lot	Adjusted	Lab Staff ID
623813 1	B3DJK0		>=12								
623814 1	B3DJK1		>=12								
623815 1	B3DJN0		>=12								
623816 1	B3F998		<2								
623817 1	B3F9K8		>=12								
623818 1	B3F9L0		>=12								
623819 1	B3FCP8		>=12								
623820 1	B3FCV3	UI50	<2								
623820 2	B3FCV3	GAMMA	<2								
623820 3	B3FCV3	GAMMA	<2								
623820 4	B3FCV3	C14									
623821 1	B3FLP8										

SwRI

pH Preservation Report

• Sample Receipt: 60794

Customer: CH2M Hill Plateau Remediation

Project: 20859.01.00X

Case: CHPRC

Received: 11/21/2017

Samples Logged in by: DRAMIREZ

SwRI #	Customer ID	Container ID	Initial pH	Login			Lab					
				Adjustment	Final pH	Paper Lot	Adjustment	Final pH	Paper lot	Adjusted	Lab Staff ID	
624006 1	B3F5X6		<2									
624007 1	B3F7H1	Sr	<2									
624007 2	B3F7H1	G	<2									
624007 3	B3F7H1	G	<2									
624007 4	B3F7H1	G	<2									
624007 5	B3F7H1	G	<2									
624008 1	B3F7H2	Sr	<2									
624008 2	B3F7H2	G	<2									
624008 3	B3F7H2	G	<2									
624008 4	B3F7H2	G	<2									
624008 5	B3F7H2	G	<2									
624009 1	B3F7J1		<2									
624010 1	B3F7W6		<2									
624011 1	B3F7W7		<2									
624012 1	B3F9B2		<2									
624013 1	B3F9L3		>12									
624014 1	B3F9L4		>12									

SwRI

pH Preservation Report

Sample Receipt: 60800

Customer: CH2M Hill Plateau Remediation

Project: 20859.01.00X

Case: CHPRC

Received: 11/22/2017

Samples Logged in by: DRAMIREZ

SwRI #	Customer ID	Container ID	Initial pH	Login			Lab				
				Adjustment	Final pH	Paper Lot	Adjustment	Final pH	Paper lot	Adjusted	Lab Staff ID
624041 1	B3F9J9	U	<2								
624041 2	B3F9J9	G	<2								
624041 3	B3F9J9	G	<2								
624041 4	B3F9J9	G	<2								
624041 5	B3F9J9	G	<2								
624042 1	B3FDF7		>12								

SOUTHWEST RESEARCH INSTITUTE
CLIENT: CH2M Hill Plateau Remediation Company
SwRI PROJECT#: 20859.01.00X
SwRI TASK ORDER: 171114-6, 171116-9, 171121-5,
171122-2
SwRI SRR: 60751, 60773, 60794, 60800
SDG: 623683
CASE: W18-011, S18-011
VTSR: 11-14-2017, 11-16-2017, 11-21-2017, 11-22-2017

Case Narrative

CLIENT: CH2M Hill Plateau Remediation Company

SDG: 623683

SwRI Project Number: 20859.01.00X

SwRI Sample Receipt Number: 60751, 60773, 60794, 60800

Page#: 1

SwRI CASE NARRATIVE

1. Eight-teen (18) samples were received for Sw-846 Method 9012 & 9014 Cyanides Analyses:

SwRI ID	Customer ID	Matrix
623683	B3DHY2	Water
623690	B3DJ97	Water
623694	B3F9F2	Water
623695	B3F9F3	Water
623696	B3F9H7	Water
623697	B3F9J3	Water
623698	B3F9J4	Water
623699	B3F9J5	Water
623700	B3FD97	Water
623813	B3DJK0	Water
623814	B3DJK1	Water
623815	B3DJN0	Water
623817	B3F9K8	Water
623818	B3F9L0	Water
623819	B3FCP8	Water
624013	B3F9L3	W
624014	B3F9L4	W
624042	B3FDF7	Water

Client: CH2M Hill Plateau Remediation Company

SDG: 623683

SwRI Project Number: 20859.01.00X

SwRI Task Order Number(s): 171114-6, 171116-9, 171121-5, 171122-2

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

Holding Times:

All holding times were met with the exception of sample SwRI #623700. Sample #623700 was inadvertently overlooked by analyst due to its exclusion from amenable cyanide. Sample #623700 was analyzed 7-days out of holding time.

Cyanide:

All PBs, ICB's and CCB's were less than the reporting limit. All LCSWs were within 80-120% recovery and all ICV's and CCV's were within 90-110% recovery. The method states 90-110% recovery criteria for LCSH and LCSL; all were within their specified criteria with the exception of LCS17M01CS3 with an 89.0% recovery and LCS17L20JH3 with an 87.4% recovery. All LLCs were within 50-150% recovery and all duplicates were less than 20% recovery. If the method did not specify MS recovery criteria, then 75-125% was used. All matrix spike recoveries were within their specified criteria. Note that the duplicate sample of 623815 was below detection limit for amenable cyanide.

“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

12/15/17

Date

SOUTHWEST RESEARCH INSTITUTE
CLIENT: CH2M Hill Plateau Remediation Company
SwRI PROJECT#: 20859.01.00X
SwRI TASK ORDER: 171114-6, 171116-9, 171121-5,
171122-2
SwRI SRR: 60751, 60773, 60794, 60800
SDG: 623683
CASE: W18-011, S18-011
VTSR: 11-14-2017, 11-16-2017, 11-21-2017, 11-22-2017

SW-846 Method 9012 & 9014 Analyses

SOUTHWEST RESEARCH INSTITUTE
CLIENT: CH2M Hill Plateau Remediation Company
SwRI ROJECT#: 20859.01.00X
SwRI TASK ORDER: 171114-6, 171116-9, 171121-5,
171122-2
SwRI SRR: 60751, 60773, 60794, 60800
SDG: 623683
CASE: W18-011, S18-011
VTSR: 11-14-2017, 11-16-2017, 11-21-2017, 11-22-2017

SW-846 Method 9012 & 9014

Results

SOUTHWEST RESEARCH INSTITUTE
WetChem Report
Cover Page

Client: CH2M Hill Plateau Remediation Company
Task Order: 171114-6, 171116-9, 171121-5,
171122-2

SDG: 623683
SRR: 60751, 60773, 60794, 60800

Case: CHPRC
Project: 20859.01.00X

Client Sample ID	Lab Sample ID
B3DHY2	623683
B3DHY2D	623683D
B3DJ97	623690
B3DJK0	623813
B3DJK1	623814
B3DJN0	623815
B3DJN0D	623815D
B3F9F2	623694
B3F9F3	623695
B3F9H7	623696
B3F9J3	623697
B3F9J4	623698
B3F9J5	623699
B3F9K8	623817
B3F9L0	623818
B3F9L3	624013
B3F9L4	624014
B3FCP8	623819
B3FD97	623700
B3FDF7	624042

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: 
Date: 12/15/17

Name: Radonna Spies
Title: Principal Scientist

Certificate of Analysis

Type: Unknown

Client: CH2M Hill Plateau Remediation Company SDG: 623683
 Task Order: 171114-6 SRR: 60751
 Lab ID: 623683 Matrix: Water
 Result Units: mg/L % 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	0.0287		NA	0.00500	1	20171212-P003	11/20/2017 17:37
57-12-5	Free Cyanide	0.00500	U	KNO	0.00500	1	NA	11/20/2017 16:31
57-12-5	Total Cyanide	0.0287		KNO	0.00500	1	20171212-P003	11/20/2017 17:08

Data Reporting Qualifiers (Qual)	Columns	Instruments/Methods (M)
U - Result is less than the SwRI Reporting Limit (RL)	RL - SwRI Reporting Limit	KNO - Konelab/Cyanide 9012
N - Matrix spike and/or matrix spike duplicate criteria was not met	DF - Dilution Factor	KNO - Konelab/Cyanide 9014
X - Analytical spike criteria was not met	M - Instrument	NA - Not Applicable/Amenable Cyanide
E - Result is estimated due to interferences		
D - Result is reported from a dilution		
* - Duplicate criteria was not met		

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SOUTHWEST RESEARCH INSTITUTE 010049 Client Sample ID

WetChem Report - Form I

B3DJ97

Certificate of Analysis

Type: Unknown

Client: CH2M Hill Plateau Remediation Company SDG: 623683
 Task Order: 171114-6 SRR: 60751
 Lab ID: 623690 Matrix: Water
 Result Units: mg/L % 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	0.00500	U	NA	0.00500	1	20171212-P003	11/20/2017 17:37
57-12-5	Free Cyanide	0.00500	U	KNO	0.00500	1	NA	11/20/2017 18:34
57-12-5	Total Cyanide	0.00500	U	KNO	0.00500	1	20171212-P003	11/20/2017 16:03

Data Reporting Qualifiers (Qual)	Columns	Instruments/Methods (M)
U - Result is less than the SwRI Reporting Limit (RL)	RL - SwRI Reporting Limit	KNO - Konelab/Cyanide 9012
N - Matrix spike and/or matrix spike duplicate criteria was not met	DF - Dilution Factor	KNO - Konelab/Cyanide 9014
X - Analytical spike criteria was not met	M - Instrument	NA - Not Applicable/Amenable Cyanide
E - Result is estimated due to interferences		
D - Result is reported from a dilution		
* - Duplicate criteria was not met		

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SOUTHWEST RESEARCH INSTITUTE 010050 Client Sample ID

WetChem Report - Form I

B3DJK0

Certificate of Analysis

Type: Unknown

Client: CH2M Hill Plateau Remediation Company SDG: 623683
 Task Order: 171116-9 SRR: 60773
 Lab ID: 623813 Matrix: Water
 Result Units: mg/L % Solids: NA

Case: CHPRC
 Project: 20859.01.00X
 Receipt Date: 11/16/2017
 Collection Date: 11/14/2017

CAS No.	Analyte	Result	Qual	M	RL	DF	Prep Batch	Analysis Date/Time
	Amenable Cyanide	0.00500	U	NA	0.00500	1	20171212-P007	11/28/2017 16:37
57-12-5	Free Cyanide	0.00500	U	KNO	0.00500	1	NA	11/28/2017 16:37
57-12-5	Total Cyanide	0.00500	U	KNO	0.00500	1	20171212-P007	11/28/2017 16:08

Data Reporting Qualifiers (Qual)	Columns	Instruments/Methods (M)
U - Result is less than the SwRI Reporting Limit (RL)	RL - SwRI Reporting Limit	KNO - Konelab/Cyanide 9012
N - Matrix spike and/or matrix spike duplicate criteria was not met	DF - Dilution Factor	KNO - Konelab/Cyanide 9014
X - Analytical spike criteria was not met	M - Instrument	NA - Not Applicable/Amenable Cyanide
E - Result is estimated due to interferences		
D - Result is reported from a dilution		
* - Duplicate criteria was not met		

Form I-IN

Certificate of Analysis

Type: Unknown

Client: CH2M Hill Plateau Remediation Company SDG: 623683
 Task Order: 171116-9 SRR: 60773
 Lab ID: 623814 Matrix: Water
 Result Units: mg/L % Solids: NA

Case: CHPRC
 Project: 20859.01.00X
 Receipt Date: 11/16/2017
 Collection Date: 11/14/2017

CAS No.	Analyte	Result	Qual	M	RL	DF	Prep Batch	Analysis Date/Time
	Amenable Cyanide	0.173		NA	0.00500	1	20171212-P007	11/28/2017 16:37
57-12-5	Free Cyanide	0.00500	U	KNO	0.00500	1	NA	11/28/2017 16:37
57-12-5	Total Cyanide	0.173		KNO	0.00500	1	20171212-P007	11/28/2017 16:08

Data Reporting Qualifiers (Qual)	Columns	Instruments/Methods (M)
U - Result is less than the SwRI Reporting Limit (RL)	RL - SwRI Reporting Limit	KNO - Konelab/Cyanide 9012
N - Matrix spike and/or matrix spike duplicate criteria was not met	DF - Dilution Factor	KNO - Konelab/Cyanide 9014
X - Analytical spike criteria was not met	M - Instrument	NA - Not Applicable/Amenable Cyanide
E - Result is estimated due to interferences		
D - Result is reported from a dilution		
* - Duplicate criteria was not met		

Form I-IN

Certificate of Analysis

Type: Unknown

Client: CH2M Hill Plateau Remediation Company SDG: 623683
 Task Order: 171116-9 SRR: 60773
 Lab ID: 623815 Matrix: Water
 Result Units: mg/L % Solids: NA

Case: CHPRC
 Project: 20859.01.00X
 Receipt Date: 11/16/2017
 Collection Date: 11/13/2017

CAS No.	Analyte	Result	Qual	M	RL	DF	Prep Batch	Analysis Date/Time
	Amenable Cyanide	0.166	D	KNO	0.00500	2	20171212-P006	11/27/2017 17:29
57-12-5	Free Cyanide	0.0660		KNO	0.00500	1	NA	11/27/2017 18:02
57-12-5	Total Cyanide	0.519	D	KNO	0.0100	2	20171212-P006	11/27/2017 18:02

Data Reporting Qualifiers (Qual)	Columns	Instruments/Methods (M)
U - Result is less than the SwRI Reporting Limit (RL)	RL - SwRI Reporting Limit	KNO - Konelab/Cyanide 9012
N - Matrix spike and/or matrix spike duplicate criteria was not met	DF - Dilution Factor	KNO - Konelab/Cyanide 9014
X - Analytical spike criteria was not met	M - Instrument	NA - Not Applicable/Amenable Cyanide
E - Result is estimated due to interferences		
D - Result is reported from a dilution		
* - Duplicate criteria was not met		

Form I-IN

Certificate of Analysis

Type: Unknown

Client: CH2M Hill Plateau Remediation Company SDG: 623683
 Task Order: 171114-6 SRR: 60751
 Lab ID: 623694 Matrix: Water
 Result Units: mg/L % 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	0.166		NA	0.00500	1	20171212-P003	11/20/2017 17:37
57-12-5	Free Cyanide	0.00500	U	KNO	0.00500	1	NA	11/20/2017 16:31
57-12-5	Total Cyanide	0.166		KNO	0.00500	1	20171212-P003	11/20/2017 16:03

Data Reporting Qualifiers (Qual)	Columns	Instruments/Methods (M)
U - Result is less than the SwRI Reporting Limit (RL)	RL - SwRI Reporting Limit	KNO - Konelab/Cyanide 9012
N - Matrix spike and/or matrix spike duplicate criteria was not met	DF - Dilution Factor	KNO - Konelab/Cyanide 9014
X - Analytical spike criteria was not met	M - Instrument	NA - Not Applicable/Amenable Cyanide
E - Result is estimated due to interferences		
D - Result is reported from a dilution		
* - Duplicate criteria was not met		

Form I-IN

Certificate of Analysis

Type: Unknown

Client: CH2M Hill Plateau Remediation Company SDG: 623683
 Task Order: 171114-6 SRR: 60751
 Lab ID: 623695 Matrix: Water
 Result Units: mg/L % 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	0.114		NA	0.00500	1	20171212-P003	11/20/2017 17:37
57-12-5	Free Cyanide	0.00500	U	KNO	0.00500	1	NA	11/20/2017 18:34
57-12-5	Total Cyanide	0.151		KNO	0.00500	1	20171212-P003	11/20/2017 16:31

Data Reporting Qualifiers (Qual)	Columns	Instruments/Methods (M)
U - Result is less than the SwRI Reporting Limit (RL)	RL - SwRI Reporting Limit	KNO - Konelab/Cyanide 9012
N - Matrix spike and/or matrix spike duplicate criteria was not met	DF - Dilution Factor	KNO - Konelab/Cyanide 9014
X - Analytical spike criteria was not met	M - Instrument	NA - Not Applicable/Amenable Cyanide
E - Result is estimated due to interferences		
D - Result is reported from a dilution		
* - Duplicate criteria was not met		

Form I-IN

Certificate of Analysis

Type: Unknown

Client: CH2M Hill Plateau Remediation Company SDG: 623683
 Task Order: 171114-6 SRR: 60751
 Lab ID: 623696 Matrix: Water
 Result Units: mg/L % 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	0.0259		NA	0.00500	1	20171212-P003	11/20/2017 17:37
57-12-5	Free Cyanide	0.00500	U	KNO	0.00500	1	NA	11/20/2017 18:34
57-12-5	Total Cyanide	0.0259		KNO	0.00500	1	20171212-P003	11/20/2017 16:31

Data Reporting Qualifiers (Qual)	Columns	Instruments/Methods (M)
U - Result is less than the SwRI Reporting Limit (RL)	RL - SwRI Reporting Limit	KNO - Konelab/Cyanide 9012
N - Matrix spike and/or matrix spike duplicate criteria was not met	DF - Dilution Factor	KNO - Konelab/Cyanide 9014
X - Analytical spike criteria was not met	M - Instrument	NA - Not Applicable/Amenable Cyanide
E - Result is estimated due to interferences		
D - Result is reported from a dilution		
* - Duplicate criteria was not met		

Form I-IN

12/18/2017

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SOUTHWEST RESEARCH INSTITUTE 010056 Client Sample ID
WetChem Report - Form I

B3F9J3

Certificate of Analysis

Type: Unknown

Client: CH2M Hill Plateau Remediation Company SDG: 623683
Task Order: 171114-6 SRR: 60751
Lab ID: 623697 Matrix: Water
Result Units: mg/L % 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	0.00500	U	NA	0.00500	1	20171212-P003	11/20/2017 17:37
57-12-5	Free Cyanide	0.00500	U	KNO	0.00500	1	NA	11/20/2017 16:31
57-12-5	Total Cyanide	0.00500	U	KNO	0.00500	1	20171212-P003	11/20/2017 16:31

Data Reporting Qualifiers (Qual)	Columns	Instruments/Methods (M)
U - Result is less than the SwRI Reporting Limit (RL)	RL - SwRI Reporting Limit	KNO - Konelab/Cyanide 9012
N - Matrix spike and/or matrix spike duplicate criteria was not met	DF - Dilution Factor	KNO - Konelab/Cyanide 9014
X - Analytical spike criteria was not met	M - Instrument	NA - Not Applicable/Amenable Cyanide
E - Result is estimated due to interferences		
D - Result is reported from a dilution		
* - Duplicate criteria was not met		

Form I-IN

12/18/2017

REV.0

SOUTHWEST RESEARCH INSTITUTE 010057 Client Sample ID

WetChem Report - Form I

B3F9J4

Certificate of Analysis

Type: Unknown

Client: CH2M Hill Plateau Remediation Company SDG: 623683
 Task Order: 171114-6 SRR: 60751
 Lab ID: 623698 Matrix: Water
 Result Units: mg/L % 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	0.00500	U	NA	0.00500	1	20171212-P003	11/20/2017 17:37
57-12-5	Free Cyanide	0.00500	U	KNO	0.00500	1	NA	11/20/2017 17:08
57-12-5	Total Cyanide	0.00500	U	KNO	0.00500	1	20171212-P003	11/20/2017 16:31

Data Reporting Qualifiers (Qual)	Columns	Instruments/Methods (M)
U - Result is less than the SwRI Reporting Limit (RL)	RL - SwRI Reporting Limit	KNO - Konelab/Cyanide 9012
N - Matrix spike and/or matrix spike duplicate criteria was not met	DF - Dilution Factor	KNO - Konelab/Cyanide 9014
X - Analytical spike criteria was not met	M - Instrument	NA - Not Applicable/Amenable Cyanide
E - Result is estimated due to interferences		
D - Result is reported from a dilution		
* - Duplicate criteria was not met		

Form I-IN

Certificate of Analysis

Type: Unknown

Client: CH2M Hill Plateau Remediation Company SDG: 623683
 Task Order: 171114-6 SRR: 60751
 Lab ID: 623699 Matrix: Water
 Result Units: mg/L % 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	0.0722		NA	0.00500	1	20171212-P003	11/20/2017 17:08
57-12-5	Free Cyanide	0.00500	U	KNO	0.00500	1	NA	11/20/2017 18:34
57-12-5	Total Cyanide	0.00722		KNO	0.00500	1	20171212-P003	11/20/2017 18:08

Data Reporting Qualifiers (Qual)	Columns	Instruments/Methods (M)
U - Result is less than the SwRI Reporting Limit (RL)	RL - SwRI Reporting Limit	KNO - Konelab/Cyanide 9012
N - Matrix spike and/or matrix spike duplicate criteria was not met	DF - Dilution Factor	KNO - Konelab/Cyanide 9014
X - Analytical spike criteria was not met	M - Instrument	NA - Not Applicable/Amenable Cyanide
E - Result is estimated due to interferences		
D - Result is reported from a dilution		
* - Duplicate criteria was not met		

Form I-IN

Certificate of Analysis

Type: Unknown

Client: CH2M Hill Plateau Remediation Company SDG: 623683
 Task Order: 171116-9 SRR: 60773
 Lab ID: 623817 Matrix: Water
 Result Units: mg/L % Solids: NA

Case: CHPRC
 Project: 20859.01.00X
 Receipt Date: 11/16/2017
 Collection Date: 11/14/2017

CAS No.	Analyte	Result	Qual	M	RL	DF	Prep Batch	Analysis Date/Time
	Amenable Cyanide	0.173		NA	0.00500	1	20171212-P007	11/28/2017 16:37
57-12-5	Free Cyanide	0.00557		KNO	0.00500	1	NA	11/28/2017 16:37
57-12-5	Total Cyanide	0.173		KNO	0.00500	1	20171212-P007	11/28/2017 16:08

Data Reporting Qualifiers (Qual)	Columns	Instruments/Methods (M)
U - Result is less than the SwRI Reporting Limit (RL)	RL - SwRI Reporting Limit	KNO - Konelab/Cyanide 9012
N - Matrix spike and/or matrix spike duplicate criteria was not met	DF - Dilution Factor	KNO - Konelab/Cyanide 9014
X - Analytical spike criteria was not met	M - Instrument	NA - Not Applicable/Amenable Cyanide
E - Result is estimated due to interferences		
D - Result is reported from a dilution		
* - Duplicate criteria was not met		

Form I-IN

Certificate of Analysis

Type: Unknown

Client: CH2M Hill Plateau Remediation Company SDG: 623683
 Task Order: 171116-9 SRR: 60773
 Lab ID: 623818 Matrix: Water
 Result Units: mg/L % Solids: NA

Case: CHPRC
 Project: 20859.01.00X
 Receipt Date: 11/16/2017
 Collection Date: 11/14/2017

CAS No.	Analyte	Result	Qual	M	RL	DF	Prep Batch	Analysis Date/Time
	Amenable Cyanide	0.00500	U	NA	0.00500	1	20171212-P007	11/28/2017 16:37
57-12-5	Free Cyanide	0.00500	U	KNO	0.00500	1	NA	11/28/2017 16:37
57-12-5	Total Cyanide	0.00500	U	KNO	0.00500	1	20171212-P007	11/28/2017 16:08

Data Reporting Qualifiers (Qual)	Columns	Instruments/Methods (M)
U - Result is less than the SwRI Reporting Limit (RL)	RL - SwRI Reporting Limit	KNO - Konelab/Cyanide 9012
N - Matrix spike and/or matrix spike duplicate criteria was not met	DF - Dilution Factor	KNO - Konelab/Cyanide 9014
X - Analytical spike criteria was not met	M - Instrument	NA - Not Applicable/Amenable Cyanide
E - Result is estimated due to interferences		
D - Result is reported from a dilution		
* - Duplicate criteria was not met		

12/18/2017

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SOUTHWEST RESEARCH INSTITUTE 010061 Client Sample ID
WetChem Report - Form I

B3F9L3

Certificate of Analysis

Type: Unknown

Client: CH2M Hill Plateau Remediation Company SDG: 623683
Task Order: 171121-5 SRR: 60794
Lab ID: 624013 Matrix: Water
Result Units: mg/L % Solids: NA

Case: CHPRC
Project: 20859.01.00X
Receipt Date: 11/21/2017
Collection Date: 11/16/2017

CAS No.	Analyte	Result	Qual	M	RL	DF	Prep Batch	Analysis Date/Time
	Amenable Cyanide	0.348		NA	0.00500	1	20171212-P008	11/29/2017 16:24
57-12-5	Free Cyanide	0.00505		KNO	0.00500	1	20171212-P008	11/29/2017 17:28
57-12-5	Total Cyanide	0.348		KNO	0.00500	1	20171212-P008	11/29/2017 16:24

Data Reporting Qualifiers (Qual)	Columns	Instruments/Methods (M)
U - Result is less than the SwRI Reporting Limit (RL)	RL - SwRI Reporting Limit	KNO - Konelab/Cyanide 9012
N - Matrix spike and/or matrix spike duplicate criteria was not met	DF - Dilution Factor	KNO - Konelab/Cyanide 9014
X - Analytical spike criteria was not met	M - Instrument	NA - Not Applicable/Amenable Cyanide
E - Result is estimated due to interferences		
D - Result is reported from a dilution		
* - Duplicate criteria was not met		

Form I-IN

Certificate of Analysis

Type: Unknown

Client: CH2M Hill Plateau Remediation Company SDG: 623683
 Task Order: 171121-5 SRR: 60794
 Lab ID: 624014 Matrix: Water
 Result Units: mg/L % Solids: NA

Case: CHPRC
 Project: 20859.01.00X
 Receipt Date: 11/21/2017
 Collection Date: 11/16/2017

CAS No.	Analyte	Result	Qual	M	RL	DF	Prep Batch	Analysis Date/Time
	Amenable Cyanide	0.0840		NA	0.00500	1	20171212-P008	11/29/2017 16:53
57-12-5	Free Cyanide	0.00500	U	KNO	0.00500	1	20171212-P008	11/29/2017 17:28
57-12-5	Total Cyanide	0.371		KNO	0.00500	1	20171212-P008	11/29/2017 16:24

Data Reporting Qualifiers (Qual)	Columns	Instruments/Methods (M)
U - Result is less than the SwRI Reporting Limit (RL)	RL - SwRI Reporting Limit	KNO - Konelab/Cyanide 9012
N - Matrix spike and/or matrix spike duplicate criteria was not met	DF - Dilution Factor	KNO - Konelab/Cyanide 9014
X - Analytical spike criteria was not met	M - Instrument	NA - Not Applicable/Amenable Cyanide
E - Result is estimated due to interferences		
D - Result is reported from a dilution		
* - Duplicate criteria was not met		

12/18/2017

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SOUTHWEST RESEARCH INSTITUTE 010063 Client Sample ID

WetChem Report - Form I

B3FCP8

Certificate of Analysis

Type: Unknown

Client: CH2M Hill Plateau Remediation Company SDG: 623683
 Task Order: 171116-9 SRR: 60773
 Lab ID: 623819 Matrix: Water
 Result Units: mg/L % Solids: NA

Case: CHPRC
 Project: 20859.01.00X
 Receipt Date: 11/16/2017
 Collection Date: 11/13/2017

CAS No.	Analyte	Result	Qual	M	RL	DF	Prep Batch	Analysis Date/Time
	Amenable Cyanide	0.0191		KNO	0.00500	1	20171212-P006	11/27/2017 17:29
57-12-5	Free Cyanide	0.0619		KNO	0.00500	1	NA	11/27/2017 18:02
57-12-5	Total Cyanide	0.488		KNO	0.00500	1	20171212-P006	11/27/2017 17:00

Data Reporting Qualifiers (Qual)	Columns	Instruments/Methods (M)
U - Result is less than the SwRI Reporting Limit (RL)	RL - SwRI Reporting Limit	KNO - Konelab/Cyanide 9012
N - Matrix spike and/or matrix spike duplicate criteria was not met	DF - Dilution Factor	KNO - Konelab/Cyanide 9014
X - Analytical spike criteria was not met	M - Instrument	NA - Not Applicable/Amenable Cyanide
E - Result is estimated due to interferences		
D - Result is reported from a dilution		
* - Duplicate criteria was not met		

Form I-IN

Certificate of Analysis

Type: Unknown

Client: CH2M Hill Plateau Remediation Company SDG: 623683
 Task Order: 171114-6 SRR: 60751
 Lab ID: 623700 Matrix: Water
 Result Units: mg/L % 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
57-12-5	Free Cyanide	0.0659		KNO	0.00500	1	NA	12/01/2017 16:22
57-12-5	Total Cyanide	0.311		KNO	0.00500	1	20171212-P002	12/01/2017 16:22

Data Reporting Qualifiers (Qual)	Columns	Instruments/Methods (M)
U - Result is less than the SwRI Reporting Limit (RL)	RL - SwRI Reporting Limit	KNO - Konelab/Cyanide 9012
N - Matrix spike and/or matrix spike duplicate criteria was not met	DF - Dilution Factor	KNO - Konelab/Cyanide 9014
X - Analytical spike criteria was not met	M - Instrument	NA - Not Applicable/Amenable Cyanide
E - Result is estimated due to interferences		
D - Result is reported from a dilution		
* - Duplicate criteria was not met		

Form I-IN

12/18/2017

REV.0

SOUTHWEST RESEARCH INSTITUTE 010065 Client Sample ID

WetChem Report - Form I

B3FDF7

Certificate of Analysis

Type: Unknown

Client: CH2M Hill Plateau Remediation Company SDG: 623683
 Task Order: 171122-2 SRR: 60800
 Lab ID: 624042 Matrix: Water
 Result Units: mg/L % Solids: NA

Case: CHPRC
 Project: 20859.01.00X
 Receipt Date: 11/22/2017
 Collection Date: 11/20/2017

CAS No.	Analyte	Result	Qual	M	RL	DF	Prep Batch	Analysis Date/Time
57-12-5	Free Cyanide	0.00559		KNO	0.00500	1	20171212-P008	11/29/2017 17:28
57-12-5	Total Cyanide	0.445		KNO	0.00500	1	20171212-P008	11/29/2017 16:24

Data Reporting Qualifiers (Qual)	Columns	Instruments/Methods (M)
U - Result is less than the SwRI Reporting Limit (RL)	RL - SwRI Reporting Limit	KNO - Konelab/Cyanide 9012
N - Matrix spike and/or matrix spike duplicate criteria was not met	DF - Dilution Factor	KNO - Konelab/Cyanide 9014
X - Analytical spike criteria was not met	M - Instrument	NA - Not Applicable/Amenable Cyanide
E - Result is estimated due to interferences		
D - Result is reported from a dilution		
* - Duplicate criteria was not met		

Form I-IN

12/18/2017

REV.0

SOUTHWEST RESEARCH INSTITUTE 010066

SwRI ID

WetChem Report - Form I

PB17L20JH1

Certificate of Analysis

Type: Blank

Client: CH2M Hill Plateau Remediation Company
 Task Order: 171114-6 + 3 others
 Lab ID: PB17L20JH1
 Result Units: mg/L

SDG: 623683
 SRR: 60751, 60773, 60794, 60800
 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	20171212-P003	11/20/2017 16:03

Data Reporting Qualifiers (Qual)	Columns	Instruments/Methods (M)
U - Result is less than the SwRI Reporting Limit (RL)	RL - SwRI Reporting Limit	KNO - Konelab/Cyanide 9012
N - Matrix spike and/or matrix spike duplicate criteria was not met	DF - Dilution Factor	KNO - Konelab/Cyanide 9014
X - Analytical spike criteria was not met	M - Instrument	NA - Not Applicable/Amenable Cyanide
E - Result is estimated due to interferences		
D - Result is reported from a dilution		
* - Duplicate criteria was not met		

Form I-IN

SOUTHWEST RESEARCH INSTITUTE
WetChem Report - Form I
Certificate of Analysis

SwRI ID

PB17L20PB1

Type: Blank

Client: CH2M Hill Plateau Remediation Company
Task Order: 171114-6 + 3 others
Lab ID: PB17L20PB1
Result Units: mg/L

SDG: 623683
SRR: 60751, 60773, 60794, 60800
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	20171212-P003	11/20/2017 17:37

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 KNO - Konelab/Cyanide 9014 NA - Not Applicable/Amenable Cyanide

12/18/2017

REV.0

SOUTHWEST RESEARCH INSTITUTE 010068

SwRI ID

WetChem Report - Form I

PB17L27PB1

Certificate of Analysis

Type: Blank

Client: CH2M Hill Plateau Remediation Company
 Task Order: 171114-6 + 3 others
 Lab ID: PB17L27PB1
 Result Units: mg/L

SDG: 623683
 SRR: 60751, 60773, 60794, 60800
 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	20171212-P006	11/27/2017 17:00

Data Reporting Qualifiers (Qual)	Columns	Instruments/Methods (M)
U - Result is less than the SwRI Reporting Limit (RL)	RL - SwRI Reporting Limit	KNO - Konelab/Cyanide 9012
N - Matrix spike and/or matrix spike duplicate criteria was not met	DF - Dilution Factor	KNO - Konelab/Cyanide 9014
X - Analytical spike criteria was not met	M - Instrument	NA - Not Applicable/Amenable Cyanide
E - Result is estimated due to interferences		
D - Result is reported from a dilution		
* - Duplicate criteria was not met		

Form I-IN

12/18/2017

REV.0

SOUTHWEST RESEARCH INSTITUTE 010069

WetChem Report - Form I

SwRI ID

PB17L27PB2

Certificate of Analysis

Type: Blank

Client: CH2M Hill Plateau Remediation Company
 Task Order: 171114-6 + 3 others
 Lab ID: PB17L27PB2
 Result Units: mg/L

SDG: 623683
 SRR: 60751, 60773, 60794, 60800
 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	KNO	0.00500	1	20171212-P006	11/27/2017 17:29

Data Reporting Qualifiers (Qual)	Columns	Instruments/Methods (M)
U - Result is less than the SwRI Reporting Limit (RL)	RL - SwRI Reporting Limit	KNO - Konelab/Cyanide 9012
N - Matrix spike and/or matrix spike duplicate criteria was not met	DF - Dilution Factor	KNO - Konelab/Cyanide 9014
X - Analytical spike criteria was not met	M - Instrument	NA - Not Applicable/Amenable Cyanide
E - Result is estimated due to interferences		
D - Result is reported from a dilution		
* - Duplicate criteria was not met		

Form I-IN

12/18/2017

REV.0

SOUTHWEST RESEARCH INSTITUTE 010070

WetChem Report - Form I

SwRI ID

PB17L28PB1

Certificate of Analysis

Type: Blank

Client: CH2M Hill Plateau Remediation Company
 Task Order: 171114-6 + 3 others
 Lab ID: PB17L28PB1
 Result Units: mg/L

SDG: 623683
 SRR: 60751, 60773, 60794, 60800
 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	20171212-P007	11/28/2017 16:08

Data Reporting Qualifiers (Qual)	Columns	Instruments/Methods (M)
U - Result is less than the SwRI Reporting Limit (RL)	RL - SwRI Reporting Limit	KNO - Konelab/Cyanide 9012
N - Matrix spike and/or matrix spike duplicate criteria was not met	DF - Dilution Factor	KNO - Konelab/Cyanide 9014
X - Analytical spike criteria was not met	M - Instrument	NA - Not Applicable/Amenable Cyanide
E - Result is estimated due to interferences		
D - Result is reported from a dilution		
* - Duplicate criteria was not met		

Form I-IN

12/18/2017

REV.0

SOUTHWEST RESEARCH INSTITUTE 010071

SwRI ID

WetChem Report - Form I

PB17L28PB2

Certificate of Analysis

Type: Blank

Client: CH2M Hill Plateau Remediation Company
 Task Order: 171114-6 + 3 others
 Lab ID: PB17L28PB2
 Result Units: mg/L

SDG: 623683
 SRR: 60751, 60773, 60794, 60800
 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	20171212-P007	11/28/2017 16:37

Data Reporting Qualifiers (Qual)	Columns	Instruments/Methods (M)
U - Result is less than the SwRI Reporting Limit (RL)	RL - SwRI Reporting Limit	KNO - Konelab/Cyanide 9012
N - Matrix spike and/or matrix spike duplicate criteria was not met	DF - Dilution Factor	KNO - Konelab/Cyanide 9014
X - Analytical spike criteria was not met	M - Instrument	NA - Not Applicable/Amenable Cyanide
E - Result is estimated due to interferences		
D - Result is reported from a dilution		
* - Duplicate criteria was not met		

Form I-IN

12/18/2017

REV.0

SOUTHWEST RESEARCH INSTITUTE 010072

SwRI ID

WetChem Report - Form I

PB17L29PB3

Certificate of Analysis

Type: Blank

Client: CH2M Hill Plateau Remediation Company
 Task Order: 171114-6 + 3 others
 Lab ID: PB17L29PB3
 Result Units: mg/L

SDG: 623683
 SRR: 60751, 60773, 60794, 60800
 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	20171212-P008	11/29/2017 16:24

Data Reporting Qualifiers (Qual)	Columns	Instruments/Methods (M)
U - Result is less than the SwRI Reporting Limit (RL)	RL - SwRI Reporting Limit	KNO - Konelab/Cyanide 9012
N - Matrix spike and/or matrix spike duplicate criteria was not met	DF - Dilution Factor	KNO - Konelab/Cyanide 9014
X - Analytical spike criteria was not met	M - Instrument	NA - Not Applicable/Amenable Cyanide
E - Result is estimated due to interferences		
D - Result is reported from a dilution		
* - Duplicate criteria was not met		

Form I-IN

12/18/2017

REV.0

SOUTHWEST RESEARCH INSTITUTE 010073

WetChem Report - Form I

SwRI ID

PB17L29PB4

Certificate of Analysis

Type: Blank

Client: CH2M Hill Plateau Remediation Company
 Task Order: 171114-6 + 3 others
 Lab ID: PB17L29PB4
 Result Units: mg/L

SDG: 623683
 SRR: 60751, 60773, 60794, 60800
 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	20171212-P008	11/29/2017 16:24

Data Reporting Qualifiers (Qual)	Columns	Instruments/Methods (M)
U - Result is less than the SwRI Reporting Limit (RL)	RL - SwRI Reporting Limit	KNO - Konelab/Cyanide 9012
N - Matrix spike and/or matrix spike duplicate criteria was not met	DF - Dilution Factor	KNO - Konelab/Cyanide 9014
X - Analytical spike criteria was not met	M - Instrument	NA - Not Applicable/Amenable Cyanide
E - Result is estimated due to interferences		
D - Result is reported from a dilution		
* - Duplicate criteria was not met		

Form I-IN

12/18/2017

REV.0

SOUTHWEST RESEARCH INSTITUTE 010074

SwRI ID

WetChem Report - Form I

PB17M01PB1

Certificate of Analysis

Type: Blank

Client: CH2M Hill Plateau Remediation Company
 Task Order: 171114-6 + 3 others
 Lab ID: PB17M01PB1
 Result Units: mg/L

SDG: 623683
 SRR: 60751, 60773, 60794, 60800
 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	20171212-P002	12/01/2017 16:22

Data Reporting Qualifiers (Qual)	Columns	Instruments/Methods (M)
U - Result is less than the SwRI Reporting Limit (RL)	RL - SwRI Reporting Limit	KNO - Konelab/Cyanide 9012
N - Matrix spike and/or matrix spike duplicate criteria was not met	DF - Dilution Factor	KNO - Konelab/Cyanide 9014
X - Analytical spike criteria was not met	M - Instrument	NA - Not Applicable/Amenable Cyanide
E - Result is estimated due to interferences		
D - Result is reported from a dilution		
* - Duplicate criteria was not met		

Form I-IN

12/18/2017

REV.0

SOUTHWEST RESEARCH INSTITUTE 010075

WetChem Report - Form I

SwRI ID

CN-ICB

Certificate of Analysis

Type: ICB/Blank

Client: CH2M Hill Plateau Remediation Company
 Task Order: 171114-6 + 3 others
 Lab ID: CN-ICB
 Result Units: mg/L

SDG: 623683
 SRR: 60751, 60773, 60794, 60800
 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	Free Cyanide	0.00500	U	KNO	0.00500	1	NA	11/20/2017 16:03

Data Reporting Qualifiers (Qual)	Columns	Instruments/Methods (M)
U - Result is less than the SwRI Reporting Limit (RL)	RL - SwRI Reporting Limit	KNO - Konelab/Cyanide 9012
N - Matrix spike and/or matrix spike duplicate criteria was not met	DF - Dilution Factor	KNO - Konelab/Cyanide 9014
X - Analytical spike criteria was not met	M - Instrument	NA - Not Applicable/Amenable Cyanide
E - Result is estimated due to interferences		
D - Result is reported from a dilution		
* - Duplicate criteria was not met		

Form I-IN

12/18/2017

REV.0

SOUTHWEST RESEARCH INSTITUTE 010076

WetChem Report - Form I

SwRI ID

CN-ICB2

Certificate of Analysis

Type: ICB/Blank

Client: CH2M Hill Plateau Remediation Company
 Task Order: 171114-6 + 3 others
 Lab ID: CN-ICB2
 Result Units: mg/L

SDG: 623683
 SRR: 60751, 60773, 60794, 60800
 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	Free Cyanide	0.00500	U	KNO	0.00500	1	NA	11/27/2017 17:00

Data Reporting Qualifiers (Qual)	Columns	Instruments/Methods (M)
U - Result is less than the SwRI Reporting Limit (RL)	RL - SwRI Reporting Limit	KNO - Konelab/Cyanide 9012
N - Matrix spike and/or matrix spike duplicate criteria was not met	DF - Dilution Factor	KNO - Konelab/Cyanide 9014
X - Analytical spike criteria was not met	M - Instrument	NA - Not Applicable/Amenable Cyanide
E - Result is estimated due to interferences		
D - Result is reported from a dilution		
* - Duplicate criteria was not met		

Form I-IN

12/18/2017

REV.0

SOUTHWEST RESEARCH INSTITUTE 010077

WetChem Report - Form I

SwRI ID

CN-ICB5

Certificate of Analysis

Type: ICB/Blank

Client: CH2M Hill Plateau Remediation Company
 Task Order: 171114-6 + 3 others
 Lab ID: CN-ICB5
 Result Units: mg/L

SDG: 623683
 SRR: 60751, 60773, 60794, 60800
 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	Free Cyanide	0.00500	U	KNO	0.00500	1	NA	12/01/2017 16:22

Data Reporting Qualifiers (Qual)	Columns	Instruments/Methods (M)
U - Result is less than the SwRI Reporting Limit (RL)	RL - SwRI Reporting Limit	KNO - Konelab/Cyanide 9012
N - Matrix spike and/or matrix spike duplicate criteria was not met	DF - Dilution Factor	KNO - Konelab/Cyanide 9014
X - Analytical spike criteria was not met	M - Instrument	NA - Not Applicable/Amenable Cyanide
E - Result is estimated due to interferences		
D - Result is reported from a dilution		
* - Duplicate criteria was not met		

Form I-IN

12/18/2017

REV.0

SOUTHWEST RESEARCH INSTITUTE 010078

WetChem Report - Form I

SwRI ID

CN-ICB4

Certificate of Analysis

Type: ICB/Blank

Client: CH2M Hill Plateau Remediation Company
 Task Order: 171114-6 + 3 others
 Lab ID: CN-ICB4
 Result Units: mg/L

SDG: 623683
 SRR: 60751, 60773, 60794, 60800
 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	Free Cyanide	0.00500	U	KNO	0.00500	1	NA	11/29/2017 16:24

Data Reporting Qualifiers (Qual)	Columns	Instruments/Methods (M)
U - Result is less than the SwRI Reporting Limit (RL)	RL - SwRI Reporting Limit	KNO - Konelab/Cyanide 9012
N - Matrix spike and/or matrix spike duplicate criteria was not met	DF - Dilution Factor	KNO - Konelab/Cyanide 9014
X - Analytical spike criteria was not met	M - Instrument	NA - Not Applicable/Amenable Cyanide
E - Result is estimated due to interferences		
D - Result is reported from a dilution		
* - Duplicate criteria was not met		

Form I-IN

12/18/2017

REV.0

SOUTHWEST RESEARCH INSTITUTE 010079

WetChem Report - Form I

SwRI ID

CN-ICB3

Certificate of Analysis

Type: ICB/Blank

Client: CH2M Hill Plateau Remediation Company
 Task Order: 171114-6 + 3 others
 Lab ID: CN-ICB3
 Result Units: mg/L

SDG: 623683
 SRR: 60751, 60773, 60794, 60800
 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	Free Cyanide	0.00500	U	KNO	0.00500	1	NA	11/28/2017 16:08

Data Reporting Qualifiers (Qual)	Columns	Instruments/Methods (M)
U - Result is less than the SwRI Reporting Limit (RL)	RL - SwRI Reporting Limit	KNO - Konelab/Cyanide 9012
N - Matrix spike and/or matrix spike duplicate criteria was not met	DF - Dilution Factor	KNO - Konelab/Cyanide 9014
X - Analytical spike criteria was not met	M - Instrument	NA - Not Applicable/Amenable Cyanide
E - Result is estimated due to interferences		
D - Result is reported from a dilution		
* - Duplicate criteria was not met		

Form I-IN

SOUTHWEST RESEARCH INSTITUTE 010080

WetChem Report - Form IIA

Initial and Continuing Calibration Verification

Client: CH2M Hill Plateau Remediation Company
 Task Order: 171114-6 + 3 others
 Result Units: mg/L
 Associated Analytical Batches: 20171212-A003

SDG: 623683
 SRR: 60751, 60773, 60794, 60800
 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	0.589	101.4%	90%-110%	0.581	0.604	104.0%	0.577	99.3%	90%-110%	KNO

Instruments/Methods (M)
KNO - Konelab/Cyanide 9012
KNO - Konelab/Cyanide 9014
NA - Not Applicable/Amenable Cyanide

Form IIA-IN

SOUTHWEST RESEARCH INSTITUTE 010081

WetChem Report - Form IIA

Initial and Continuing Calibration Verification

Client: CH2M Hill Plateau Remediation Company
 Task Order: 171114-6 + 3 others
 Result Units: mg/L
 Associated Analytical Batches: 20171212-A004

SDG: 623683
 SRR: 60751, 60773, 60794, 60800
 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	0.569	97.9%	90%-110%	0.581	0.563	96.9%	0.545	93.8%	90%-110%	KNO

Instruments/Methods (M)
KNO - Konelab/Cyanide 9012
KNO - Konelab/Cyanide 9014
NA - Not Applicable/Amenable Cyanide

Form IIA-IN

SOUTHWEST RESEARCH INSTITUTE 010082

WetChem Report - Form IIA

Initial and Continuing Calibration Verification

Client: CH2M Hill Plateau Remediation Company
Task Order: 171114-6 + 3 others
Result Units: mg/L
Associated Analytical Batches: 20171212-A004

SDG: 623683
SRR: 60751, 60773, 60794, 60800
Initial Calibration Source: See Raw Data
Continuing Calibration Source: See Raw Data

Case: CHPRC
Project: 20859.01.00X

Table with 6 columns: Analyte, True, Found3, %Rec, Limit, M. Row 1: Total Cyanide, 0.581, 0.548, 94.3%, 90%-110%, KNO

Table with 1 column: Instruments/Methods (M). Rows: KNO - Konelab/Cyanide 9012, KNO - Konelab/Cyanide 9014, NA - Not Applicable/Amenable Cyanide

Form IIA-IN

SOUTHWEST RESEARCH INSTITUTE 010083
WetChem Report - Form IIA

Initial and Continuing Calibration Verification

Client: CH2M Hill Plateau Remediation Company
Task Order: 171114-6 + 3 others
Result Units: mg/L
Associated Analytical Batches: 20171212-A006

SDG: 623683
SRR: 60751, 60773, 60794, 60800
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	0.569	97.9%	90%-110%	0.581	0.563	96.9%	0.545	93.8%	90%-110%	KNO

Instruments/Methods (M)
KNO - Konelab/Cyanide 9012
KNO - Konelab/Cyanide 9014
NA - Not Applicable/Amenable Cyanide

Form IIA-IN

SOUTHWEST RESEARCH INSTITUTE 010084
WetChem Report - Form IIA

Initial and Continuing Calibration Verification

Client: CH2M Hill Plateau Remediation Company
Task Order: 171114-6 + 3 others
Result Units: mg/L
Associated Analytical Batches: 20171212-A006

SDG: 623683
SRR: 60751, 60773, 60794, 60800
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	0.548	94.3%	90%-110%	KNO

Instruments/Methods (M)
KNO - Konelab/Cyanide 9012
KNO - Konelab/Cyanide 9014
NA - Not Applicable/Amenable Cyanide

Form IIA-IN

SOUTHWEST RESEARCH INSTITUTE 010085

WetChem Report - Form IIA

Initial and Continuing Calibration Verification

Client: CH2M Hill Plateau Remediation Company
 Task Order: 171114-6 + 3 others
 Result Units: mg/L
 Associated Analytical Batches: 20171212-A009

SDG: 623683
 SRR: 60751, 60773, 60794, 60800
 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	0.587	101.0%	90%-110%	0.581	0.600	103.3%	0.575	99.0%	90%-110%	KNO

Instruments/Methods (M)
KNO - Konelab/Cyanide 9012
KNO - Konelab/Cyanide 9014
NA - Not Applicable/Amenable Cyanide

Form IIA-IN

SOUTHWEST RESEARCH INSTITUTE 010086

WetChem Report - Form IIA

Initial and Continuing Calibration Verification

Client: CH2M Hill Plateau Remediation Company
 Task Order: 171114-6 + 3 others
 Result Units: mg/L
 Associated Analytical Batches: 20171212-A009

SDG: 623683
 SRR: 60751, 60773, 60794, 60800
 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	0.583	100.3%	90%-110%	KNO

Instruments/Methods (M)
KNO - Konelab/Cyanide 9012
KNO - Konelab/Cyanide 9014
NA - Not Applicable/Amenable Cyanide

Form IIA-IN

SOUTHWEST RESEARCH INSTITUTE 010087
WetChem Report - Form IIA

Initial and Continuing Calibration Verification

Client: CH2M Hill Plateau Remediation Company
Task Order: 171114-6 + 3 others
Result Units: mg/L
Associated Analytical Batches: 20171212-A010

SDG: 623683
SRR: 60751, 60773, 60794, 60800
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	0.587	101.0%	90%-110%	0.581	0.600	103.3%	0.575	99.0%	90%-110%	KNO

Instruments/Methods (M)
KNO - Konelab/Cyanide 9012
KNO - Konelab/Cyanide 9014
NA - Not Applicable/Amenable Cyanide

Form IIA-IN

SOUTHWEST RESEARCH INSTITUTE 010088

WetChem Report - Form IIA

Initial and Continuing Calibration Verification

Client: CH2M Hill Plateau Remediation Company
 Task Order: 171114-6 + 3 others
 Result Units: mg/L
 Associated Analytical Batches: 20171212-A010

SDG: 623683
 SRR: 60751, 60773, 60794, 60800
 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	0.583	100.3%	90%-110%	KNO

Instruments/Methods (M)
KNO - Konelab/Cyanide 9012
KNO - Konelab/Cyanide 9014
NA - Not Applicable/Amenable Cyanide

Form IIA-IN

SOUTHWEST RESEARCH INSTITUTE 010089

WetChem Report - Form IIA

Initial and Continuing Calibration Verification

Client: CH2M Hill Plateau Remediation Company
 Task Order: 171114-6 + 3 others
 Result Units: mg/L
 Associated Analytical Batches: 20171212-A012

SDG: 623683
 SRR: 60751, 60773, 60794, 60800
 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	0.598	102.9%	90%-110%	0.581	0.564	97.1%	0.580	99.8%	90%-110%	KNO

Instruments/Methods (M)
KNO - Konelab/Cyanide 9012
KNO - Konelab/Cyanide 9014
NA - Not Applicable/Amenable Cyanide

Form IIA-IN

SOUTHWEST RESEARCH INSTITUTE 010090

WetChem Report - Form IIA

Initial and Continuing Calibration Verification

Client: CH2M Hill Plateau Remediation Company
 Task Order: 171114-6 + 3 others
 Result Units: mg/L
 Associated Analytical Batches: 20171212-A012

SDG: 623683
 SRR: 60751, 60773, 60794, 60800
 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	Limit	M
Total Cyanide	0.581	0.589	101.4%	0.623	107.2%	90%-110%	KNO

Instruments/Methods (M)
KNO - Konelab/Cyanide 9012
KNO - Konelab/Cyanide 9014
NA - Not Applicable/Amenable Cyanide

Form IIA-IN

SOUTHWEST RESEARCH INSTITUTE 010091
WetChem Report - Form IIA

Initial and Continuing Calibration Verification

Client: CH2M Hill Plateau Remediation Company
Task Order: 171114-6 + 3 others
Result Units: mg/L
Associated Analytical Batches: 20171212-A013

SDG: 623683
SRR: 60751, 60773, 60794, 60800
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	0.598	102.9%	90%-110%	0.581	0.564	97.1%	0.580	99.8%	90%-110%	KNO

Instruments/Methods (M)
KNO - Konelab/Cyanide 9012
KNO - Konelab/Cyanide 9014
NA - Not Applicable/Amenable Cyanide

Form IIA-IN

SOUTHWEST RESEARCH INSTITUTE 010092

WetChem Report - Form IIA

Initial and Continuing Calibration Verification

Client: CH2M Hill Plateau Remediation Company
 Task Order: 171114-6 + 3 others
 Result Units: mg/L
 Associated Analytical Batches: 20171212-A013

SDG: 623683
 SRR: 60751, 60773, 60794, 60800
 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	Limit	M
Free Cyanide	0.581	0.589	101.4%	0.623	107.2%	90%-110%	KNO

Instruments/Methods (M)
KNO - Konelab/Cyanide 9012
KNO - Konelab/Cyanide 9014
NA - Not Applicable/Amenable Cyanide

Form IIA-IN

SOUTHWEST RESEARCH INSTITUTE 010093

WetChem Report - Form IIA

Initial and Continuing Calibration Verification

Client: CH2M Hill Plateau Remediation Company
 Task Order: 171114-6 + 3 others
 Result Units: mg/L
 Associated Analytical Batches: 20171212-A016

SDG: 623683
 SRR: 60751, 60773, 60794, 60800
 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	0.587	101.0%	90%-110%	0.581	0.582	100.2%	0.598	102.9%	90%-110%	KNO

Instruments/Methods (M)
KNO - Konelab/Cyanide 9012
KNO - Konelab/Cyanide 9014
NA - Not Applicable/Amenable Cyanide

Form IIA-IN

SOUTHWEST RESEARCH INSTITUTE 010094

WetChem Report - Form IIA

Initial and Continuing Calibration Verification

Client: CH2M Hill Plateau Remediation Company
Task Order: 171114-6 + 3 others
Result Units: mg/L
Associated Analytical Batches: 20171212-A016

SDG: 623683
SRR: 60751, 60773, 60794, 60800
Initial Calibration Source: See Raw Data
Continuing Calibration Source: See Raw Data

Case: CHPRC
Project: 20859.01.00X

Table with 10 columns: Analyte, True, Found3, %Rec, Found4, %Rec, Found5, %Rec, Limit, M. Row 1: Total Cyanide, 0.581, 0.590, 101.6%, 0.592, 101.9%, 0.607, 104.5%, 90%-110%, KNO

Table with 1 column: Instruments/Methods (M). Rows: KNO - Konelab/Cyanide 9012, KNO - Konelab/Cyanide 9014, NA - Not Applicable/Amenable Cyanide

Form IIA-IN

SOUTHWEST RESEARCH INSTITUTE 010095

WetChem Report - Form IIA

Initial and Continuing Calibration Verification

Client: CH2M Hill Plateau Remediation Company
 Task Order: 171114-6 + 3 others
 Result Units: mg/L
 Associated Analytical Batches: 20171212-A017

SDG: 623683
 SRR: 60751, 60773, 60794, 60800
 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	0.587	101.0%	90%-110%	0.581	0.582	100.2%	0.598	102.9%	90%-110%	KNO

Instruments/Methods (M)
KNO - Konelab/Cyanide 9012
KNO - Konelab/Cyanide 9014
NA - Not Applicable/Amenable Cyanide

Form IIA-IN

SOUTHWEST RESEARCH INSTITUTE 010096

WetChem Report - Form IIA

Initial and Continuing Calibration Verification

Client: CH2M Hill Plateau Remediation Company
 Task Order: 171114-6 + 3 others
 Result Units: mg/L
 Associated Analytical Batches: 20171212-A017

SDG: 623683
 SRR: 60751, 60773, 60794, 60800
 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	0.590	101.6%	0.592	101.9%	0.607	104.5%	0.565	97.2%	90%-110%	KNO

Instruments/Methods (M)
KNO - Konelab/Cyanide 9012
KNO - Konelab/Cyanide 9014
NA - Not Applicable/Amenable Cyanide

Form IIA-IN

SOUTHWEST RESEARCH INSTITUTE 010097
WetChem Report - Form IIA

Initial and Continuing Calibration Verification

Client: CH2M Hill Plateau Remediation Company
Task Order: 171114-6 + 3 others
Result Units: mg/L
Associated Analytical Batches: 20171214-A001

SDG: 623683
SRR: 60751, 60773, 60794, 60800
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	Limit	M
Free Cyanide	0.581	0.589	101.4%	90%-110%	0.581	0.604	104.0%	90%-110%	KNO

Instruments/Methods (M)
KNO - Konelab/Cyanide 9012
KNO - Konelab/Cyanide 9014
NA - Not Applicable/Amenable Cyanide

Form IIA-IN

SOUTHWEST RESEARCH INSTITUTE 010098

WetChem Report - Form IIB

Low Level Check Standard

Client: CH2M Hill Plateau Remediation Company
 Task Order: 171114-6 + 3 others
 Result Units: mg/L
 Associated Analytical Batch: 20171212-A003

SDG: 623683
 SRR: 60751, 60773, 60794, 60800

Case: CHPRC
 Project: 20859.01.00X

LLC Standards					
Analyte	True	Found1	%Rec	Limit	M
Total Cyanide	0.00500	0.00533	106.6%	50%-150%	KNO

Instruments/Methods (M)
KNO - Konelab/Cyanide 9012
KNO - Konelab/Cyanide 9014
NA - Not Applicable/Amenable Cyanide

Form IIB-IN

SOUTHWEST RESEARCH INSTITUTE 010099

WetChem Report - Form IIB

Low Level Check Standard

Client: CH2M Hill Plateau Remediation Company

SDG: 623683

Case: CHPRC

Task Order: 171114-6 + 3 others

SRR: 60751, 60773, 60794, 60800

Project: 20859.01.00X

Result Units: mg/L

Associated Analytical Batch: 20171212-A004

LLC Standards					
Analyte	True	Found1	%Rec	Limit	M
Total Cyanide	0.00500	0.00563	112.6%	50%-150%	KNO

Instruments/Methods (M)
KNO - Konelab/Cyanide 9012
KNO - Konelab/Cyanide 9014
NA - Not Applicable/Amenable Cyanide

Form IIB-IN

SOUTHWEST RESEARCH INSTITUTE 010100

WetChem Report - Form IIB

Low Level Check Standard

Client: CH2M Hill Plateau Remediation Company

SDG: 623683

Case: CHPRC

Task Order: 171114-6 + 3 others

SRR: 60751, 60773, 60794, 60800

Project: 20859.01.00X

Result Units: mg/L

Associated Analytical Batch: 20171212-A006

LLC Standards					
Analyte	True	Found1	%Rec	Limit	M
Free Cyanide	0.00500	0.00563	112.6%	50%-150%	KNO

Instruments/Methods (M)
KNO - Konelab/Cyanide 9012
KNO - Konelab/Cyanide 9014
NA - Not Applicable/Amenable Cyanide

Form IIB-IN

SOUTHWEST RESEARCH INSTITUTE 010101

WetChem Report - Form IIB

Low Level Check Standard

Client: CH2M Hill Plateau Remediation Company

SDG: 623683

Case: CHPRC

Task Order: 171114-6 + 3 others

SRR: 60751, 60773, 60794, 60800

Project: 20859.01.00X

Result Units: mg/L

Associated Analytical Batch: 20171212-A009

LLC Standards					
Analyte	True	Found1	%Rec	Limit	M
Total Cyanide	0.00500	0.00450	90.0%	50%-150%	KNO

Instruments/Methods (M)
KNO - Konelab/Cyanide 9012
KNO - Konelab/Cyanide 9014
NA - Not Applicable/Amenable Cyanide

Form IIB-IN

12/18/2017

SOUTHWEST RESEARCH INSTITUTE 010102

WetChem Report - Form IIB

Low Level Check Standard

Client: CH2M Hill Plateau Remediation Company

SDG: 623683

Case: CHPRC

Task Order: 171114-6 + 3 others

SRR: 60751, 60773, 60794, 60800

Project: 20859.01.00X

Result Units: mg/L

Associated Analytical Batch: 20171212-A010

LLC Standards					
Analyte	True	Found1	%Rec	Limit	M
Free Cyanide	0.00500	0.00450	90.0%	50%-150%	KNO

Instruments/Methods (M)
KNO - Konelab/Cyanide 9012
KNO - Konelab/Cyanide 9014
NA - Not Applicable/Amenable Cyanide

Form IIB-IN

SOUTHWEST RESEARCH INSTITUTE 010103

WetChem Report - Form IIB

Low Level Check Standard

Client: CH2M Hill Plateau Remediation Company

SDG: 623683

Case: CHPRC

Task Order: 171114-6 + 3 others

SRR: 60751, 60773, 60794, 60800

Project: 20859.01.00X

Result Units: mg/L

Associated Analytical Batch: 20171212-A012

LLC Standards					
Analyte	True	Found1	%Rec	Limit	M
Total Cyanide	0.00500	0.00630	126.0%	50%-150%	KNO

Instruments/Methods (M)
KNO - Konelab/Cyanide 9012
KNO - Konelab/Cyanide 9014
NA - Not Applicable/Amenable Cyanide

Form IIB-IN

SOUTHWEST RESEARCH INSTITUTE 010104

WetChem Report - Form IIB

Low Level Check Standard

Client: CH2M Hill Plateau Remediation Company

SDG: 623683

Case: CHPRC

Task Order: 171114-6 + 3 others

SRR: 60751, 60773, 60794, 60800

Project: 20859.01.00X

Result Units: mg/L

Associated Analytical Batch: 20171212-A013

LLC Standards					
Analyte	True	Found1	%Rec	Limit	M
Free Cyanide	0.00500	0.00630	126.0%	50%-150%	KNO

Instruments/Methods (M)
KNO - Konelab/Cyanide 9012
KNO - Konelab/Cyanide 9014
NA - Not Applicable/Amenable Cyanide

Form IIB-IN

SOUTHWEST RESEARCH INSTITUTE 010105

WetChem Report - Form IIB

Low Level Check Standard

Client: CH2M Hill Plateau Remediation Company

SDG: 623683

Case: CHPRC

Task Order: 171114-6 + 3 others

SRR: 60751, 60773, 60794, 60800

Project: 20859.01.00X

Result Units: mg/L

Associated Analytical Batch: 20171212-A016

LLC Standards					
Analyte	True	Found1	%Rec	Limit	M
Total Cyanide	0.00500	0.00405	81.0%	50%-150%	KNO

Instruments/Methods (M)
KNO - Konelab/Cyanide 9012
KNO - Konelab/Cyanide 9014
NA - Not Applicable/Amenable Cyanide

Form IIB-IN

SOUTHWEST RESEARCH INSTITUTE 010106

WetChem Report - Form IIB

Low Level Check Standard

Client: CH2M Hill Plateau Remediation Company

SDG: 623683

Case: CHPRC

Task Order: 171114-6 + 3 others

SRR: 60751, 60773, 60794, 60800

Project: 20859.01.00X

Result Units: mg/L

Associated Analytical Batch: 20171212-A017

LLC Standards					
Analyte	True	Found1	%Rec	Limit	M
Free Cyanide	0.00500	0.00405	81.0%	50%-150%	KNO

Instruments/Methods (M)
KNO - Konelab/Cyanide 9012
KNO - Konelab/Cyanide 9014
NA - Not Applicable/Amenable Cyanide

Form IIB-IN

SOUTHWEST RESEARCH INSTITUTE 010107

WetChem Report - Form IIB

Low Level Check Standard

Client: CH2M Hill Plateau Remediation Company

SDG: 623683

Case: CHPRC

Task Order: 171114-6 + 3 others

SRR: 60751, 60773, 60794, 60800

Project: 20859.01.00X

Result Units: mg/L

Associated Analytical Batch: 20171214-A001

LLC Standards					
Analyte	True	Found1	%Rec	Limit	M
Free Cyanide	0.00500	0.00533	106.6%	50%-150%	KNO

Instruments/Methods (M)
KNO - Konelab/Cyanide 9012
KNO - Konelab/Cyanide 9014
NA - Not Applicable/Amenable Cyanide

Form IIB-IN

SOUTHWEST RESEARCH INSTITUTE 010108
WetChem Report - Form III

Blanks

Client: CH2M Hill Plateau Remediation Company
Task Order: 171114-6 + 3 others
Preparation Blank Result Units: mg/L
Initial/Continuing Blank Result Units: mg/L

SDG: 623683
SRR: 60751, 60773, 60794, 60800
Preparation Blank Matrix: Water
Associated Prep Batches: 20171212-P002

Case: CHPRC
Project: 20859.01.00X
Associated Analytical Batches: 20171212-A003

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

Data Reporting Qualifiers (Qual)	Instruments/Methods (M)
U - Result is less than the SwRI Reporting Limit (RL) 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 KNO - Konelab/Cyanide 9014 NA - Not Applicable/Amenable Cyanide

SOUTHWEST RESEARCH INSTITUTE 010109
WetChem Report - Form III

Blanks

Client: CH2M Hill Plateau Remediation Company
Task Order: 171114-6 + 3 others
Preparation Blank Result Units: mg/L
Initial/Continuing Blank Result Units: mg/L

SDG: 623683
SRR: 60751, 60773, 60794, 60800
Preparation Blank Matrix: Water
Associated Prep Batches: 20171212-P006

Case: CHPRC
Project: 20859.01.00X
Associated Analytical Batches: 20171212-A004

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 KNO - Konelab/Cyanide 9014 NA - Not Applicable/Amenable Cyanide

SOUTHWEST RESEARCH INSTITUTE 010110
WetChem Report - Form III

Blanks

Client: CH2M Hill Plateau Remediation Company
Task Order: 171114-6 + 3 others
Preparation Blank Result Units: mg/L
Initial/Continuing Blank Result Units: mg/L

SDG: 623683
SRR: 60751, 60773, 60794, 60800
Preparation Blank Matrix: Water
Associated Prep Batches: 20171212-P006

Case: CHPRC
Project: 20859.01.00X
Associated Analytical Batches: 20171212-A006

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 KNO - Konelab/Cyanide 9014 NA - Not Applicable/Amenable Cyanide

SOUTHWEST RESEARCH INSTITUTE 010111
WetChem Report - Form III

Blanks

Client: CH2M Hill Plateau Remediation Company
Task Order: 171114-6 + 3 others
Preparation Blank Result Units: mg/L
Initial/Continuing Blank Result Units: mg/L

SDG: 623683
SRR: 60751, 60773, 60794, 60800
Preparation Blank Matrix: Water
Associated Prep Batches: 20171212-P006

Case: CHPRC
Project: 20859.01.00X
Associated Analytical Batches: 20171212-A008

Analyte	Preparation Blank		Initial Calibration Blank		Continuing Calibration Blank		M
	Result	Qual	Found	Qual	Found1	Qual	
Amenable 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 KNO - Konelab/Cyanide 9014 NA - Not Applicable/Amenable Cyanide

SOUTHWEST RESEARCH INSTITUTE 010112
WetChem Report - Form III

Blanks

Client: CH2M Hill Plateau Remediation Company
Task Order: 171114-6 + 3 others
Preparation Blank Result Units: mg/L
Initial/Continuing Blank Result Units: mg/L

SDG: 623683
SRR: 60751, 60773, 60794, 60800
Preparation Blank Matrix: Water
Associated Prep Batches: 20171212-P007

Case: CHPRC
Project: 20859.01.00X
Associated Analytical Batches: 20171212-A009

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 KNO - Konelab/Cyanide 9014 NA - Not Applicable/Amenable Cyanide

SOUTHWEST RESEARCH INSTITUTE 010113
WetChem Report - Form III

Blanks

Client: CH2M Hill Plateau Remediation Company
Task Order: 171114-6 + 3 others
Preparation Blank Result Units: mg/L
Initial/Continuing Blank Result Units: mg/L

SDG: 623683
SRR: 60751, 60773, 60794, 60800
Preparation Blank Matrix: Water
Associated Prep Batches: 20171212-P007

Case: CHPRC
Project: 20859.01.00X
Associated Analytical Batches: 20171212-A010

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 KNO - Konelab/Cyanide 9014 NA - Not Applicable/Amenable Cyanide

SOUTHWEST RESEARCH INSTITUTE 010114
WetChem Report - Form III

Blanks

Client: CH2M Hill Plateau Remediation Company
 Task Order: 171114-6 + 3 others
 Preparation Blank Result Units: mg/L
 Initial/Continuing Blank Result Units: mg/L

SDG: 623683
 SRR: 60751, 60773, 60794, 60800
 Preparation Blank Matrix: Water
 Associated Prep Batches: 20171212-P007

Case: CHPRC
 Project: 20859.01.00X
 Associated Analytical Batches: 20171212-A011

Analyte	Preparation Blank		Initial Calibration Blank		Continuing Calibration Blank		M
	Result	Qual	Found	Qual	Found1	Qual	
Amenable 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 KNO - Konelab/Cyanide 9014 NA - Not Applicable/Amenable Cyanide

Form III-IN

SOUTHWEST RESEARCH INSTITUTE 010115
WetChem Report - Form III

Blanks

Client: CH2M Hill Plateau Remediation Company
Task Order: 171114-6 + 3 others
Preparation Blank Result Units: mg/L
Initial/Continuing Blank Result Units: mg/L

SDG: 623683
SRR: 60751, 60773, 60794, 60800
Preparation Blank Matrix: Water
Associated Prep Batches: 20171212-P008

Case: CHPRC
Project: 20859.01.00X
Associated Analytical Batches: 20171212-A012

Analyte	Preparation Blank		Initial Calibration Blank		Continuing Calibration Blank								M
	Result	Qual	Found	Qual	Found1	Qual	Found2	Qual	Found3	Qual	Found4	Qual	
Total Cyanide	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 KNO - Konelab/Cyanide 9014 NA - Not Applicable/Amenable Cyanide

SOUTHWEST RESEARCH INSTITUTE 010116
WetChem Report - Form III

Blanks

Client: CH2M Hill Plateau Remediation Company
Task Order: 171114-6 + 3 others
Preparation Blank Result Units: mg/L
Initial/Continuing Blank Result Units: mg/L

SDG: 623683
SRR: 60751, 60773, 60794, 60800
Preparation Blank Matrix: Water
Associated Prep Batches: 20171212-P008

Case: CHPRC
Project: 20859.01.00X
Associated Analytical Batches: 20171212-A013

Analyte	Preparation Blank		Initial Calibration Blank		Continuing Calibration Blank								M
	Result	Qual	Found	Qual	Found1	Qual	Found2	Qual	Found3	Qual	Found4	Qual	
Free Cyanide	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 KNO - Konelab/Cyanide 9014 NA - Not Applicable/Amenable Cyanide

SOUTHWEST RESEARCH INSTITUTE 010117
WetChem Report - Form III

Blanks

Client: CH2M Hill Plateau Remediation Company
Task Order: 171114-6 + 3 others
Preparation Blank Result Units: mg/L
Initial/Continuing Blank Result Units: mg/L

SDG: 623683
SRR: 60751, 60773, 60794, 60800
Preparation Blank Matrix: Water
Associated Prep Batches: 20171212-P008

Case: CHPRC
Project: 20859.01.00X
Associated Analytical Batches: 20171212-A015

Analyte	Preparation Blank		Initial Calibration Blank		Continuing Calibration Blank		M
	Result	Qual	Found	Qual	Found1	Qual	
Amenable 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 KNO - Konelab/Cyanide 9014 NA - Not Applicable/Amenable Cyanide

SOUTHWEST RESEARCH INSTITUTE 010118
WetChem Report - Form III

Blanks

Client: CH2M Hill Plateau Remediation Company
Task Order: 171114-6 + 3 others
Preparation Blank Result Units: mg/L
Initial/Continuing Blank Result Units: mg/L

SDG: 623683
SRR: 60751, 60773, 60794, 60800
Preparation Blank Matrix: Water
Associated Prep Batches: 20171212-P003

Case: CHPRC
Project: 20859.01.00X
Associated Analytical Batches: 20171212-A016

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 KNO - Konelab/Cyanide 9014 NA - Not Applicable/Amenable Cyanide

SOUTHWEST RESEARCH INSTITUTE 010119
WetChem Report - Form III

Blanks

Client: CH2M Hill Plateau Remediation Company
Task Order: 171114-6 + 3 others
Preparation Blank Result Units: mg/L
Initial/Continuing Blank Result Units: mg/L

SDG: 623683
SRR: 60751, 60773, 60794, 60800
Preparation Blank Matrix: Water
Associated Prep Batches: 20171212-P003

Case: CHPRC
Project: 20859.01.00X
Associated Analytical Batches: 20171212-A017

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 KNO - Konelab/Cyanide 9014 NA - Not Applicable/Amenable Cyanide

SOUTHWEST RESEARCH INSTITUTE 010120

WetChem Report - Form III

Blanks

Client: CH2M Hill Plateau Remediation Company
 Task Order: 171114-6 + 3 others
 Preparation Blank Result Units: mg/L
 Initial/Continuing Blank Result Units: mg/L

SDG: 623683
 SRR: 60751, 60773, 60794, 60800
 Preparation Blank Matrix: Water
 Associated Prep Batches: 20171212-P003

Case: CHPRC
 Project: 20859.01.00X
 Associated Analytical Batches: 20171212-A017

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 KNO - Konelab/Cyanide 9014 NA - Not Applicable/Amenable Cyanide

SOUTHWEST RESEARCH INSTITUTE 010121
WetChem Report - Form III

Blanks

Client: CH2M Hill Plateau Remediation Company
 Task Order: 171114-6 + 3 others
 Preparation Blank Result Units: mg/L
 Initial/Continuing Blank Result Units: mg/L

SDG: 623683
 SRR: 60751, 60773, 60794, 60800
 Preparation Blank Matrix: Water
 Associated Prep Batches: 20171212-P003

Case: CHPRC
 Project: 20859.01.00X
 Associated Analytical Batches: 20171212-A018

Analyte	Preparation Blank		Initial Calibration Blank		Continuing Calibration Blank		M
	Result	Qual	Found	Qual	Found1	Qual	
Amenable 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 KNO - Konelab/Cyanide 9014 NA - Not Applicable/Amenable Cyanide

Form III-IN

SOUTHWEST RESEARCH INSTITUTE 010122
WetChem Report - Form III

Blanks

Client: CH2M Hill Plateau Remediation Company
 Task Order: 171114-6 + 3 others
 Preparation Blank Result Units: mg/L
 Initial/Continuing Blank Result Units: mg/L

SDG: 623683
 SRR: 60751, 60773, 60794, 60800
 Preparation Blank Matrix: Water
 Associated Prep Batches: 20171212-P002

Case: CHPRC
 Project: 20859.01.00X
 Associated Analytical Batches: 20171214-A001

Analyte	Preparation Blank		Initial Calibration Blank		Continuing Calibration Blank		M
	Result	Qual	Found	Qual	Found1	Qual	
Free Cyanide	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 KNO - Konelab/Cyanide 9014 NA - Not Applicable/Amenable Cyanide

Form III-IN

B3DJN0MS/MSD

Matrix Spike/Matrix Spike Duplicate Sample Recovery

Client: CH2M Hill Plateau Remediation Company SDG: 623683
Task Order: 171116-9 SRR: 60773
Lab ID: 623815S Matrix: Water
Result Units: mg/L % 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	0.519	D	0.561	0.0500	84.0%	-	-	-	-	75%-125%	-	KNO	#

Parent value exceeded 4 times the spike added, therefore MS/MSD %Recovery and %RPD are not required for evaluation.

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 KNO - Konelab/Cyanide 9014 NA - Not Applicable/Amenable Cyanide

SOUTHWEST RESEARCH INSTITUTE 010124 Client Sample ID
WetChem Report - Form VA

B3DHY2MS/MSD

Matrix Spike/Matrix Spike Duplicate Sample Recovery

Client: CH2M Hill Plateau Remediation Company SDG: 623683
Task Order: 171114-6 SRR: 60751
Lab ID: 623683S-R Matrix: Water
Result Units: mg/L % 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	0.0287		0.0824	0.0500	107.4%	-	-	-	-	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 KNO - Konelab/Cyanide 9014 NA - Not Applicable/Amenable Cyanide

Post-Digestion Spike Sample Recovery

Client: CH2M Hill Plateau Remediation Company
 Task Order: 171116-9
 Lab ID: 623815AS-F R
 Result Units: mg/L

SDG: 623683
 SRR: 60773
 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	0.0660		0.270		0.250	81.6%	80%-120%	KNO		1	NA	11/27/2017 18:02	
Total Cyanide	-		-		-	-	-	NA		-		-	

Data Reporting Qualifiers (Qual)	Columns	Instruments/Methods (M)
U - Result is less than the SwRI Reporting Limit (RL)	M - Instrument	KNO - Konelab/Cyanide 9012
N - Matrix spike and/or matrix spike duplicate criteria was not met	MS - Matrix Spike	KNO - Konelab/Cyanide 9014
X - Analytical spike criteria was not met	MSD - Matrix Spike Duplicate	NA - Not Applicable/Amenable Cyanide
E - Result is estimated due to interferences	Q - Qualifier	
D - Result is reported from a dilution	RPD - Relative Percent Difference	
* - Duplicate criteria was not met		

Post-Digestion Spike Sample Recovery

Client: CH2M Hill Plateau Remediation Company
 Task Order: 171114-6
 Lab ID: 623683AS-F
 Result Units: mg/L

SDG: 623683
 SRR: 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	0.231		0.250	92.4%	80%-120%	KNO		1	NA	11/20/2017 17:08	
Total Cyanide	-		-		-	-	-	NA		-		-	

Data Reporting Qualifiers (Qual)	Columns	Instruments/Methods (M)
U - Result is less than the SwRI Reporting Limit (RL)	M - Instrument	KNO - Konelab/Cyanide 9012
N - Matrix spike and/or matrix spike duplicate criteria was not met	MS - Matrix Spike	KNO - Konelab/Cyanide 9014
X - Analytical spike criteria was not met	MSD - Matrix Spike Duplicate	NA - Not Applicable/Amenable Cyanide
E - Result is estimated due to interferences	Q - Qualifier	
D - Result is reported from a dilution	RPD - Relative Percent Difference	
* - Duplicate criteria was not met		

Duplicates

Client: CH2M Hill Plateau Remediation Company
Task Order: 171116-9
Lab ID: 623815D
Result Units: mg/L

SDG: 623683
SRR: 60773
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	0.166	D	0.169	D	1.79%	20%	-	KNO	
Free Cyanide	0.0660		0.0654		0.913%	20%	-	KNO	
Total Cyanide	0.519	D	0.522	D	0.576%	20%	-	KNO	

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 KNO - Konelab/Cyanide 9014 NA - Not Applicable/Amenable Cyanide

Form VI-IN

Duplicates

Client: CH2M Hill Plateau Remediation Company SGD: 623683
 Task Order: 171114-6 SRR: 60751
 Lab ID: 623683D Matrix: Water
 Result Units: mg/L % 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	0.0287		0.0257		11.0%	-	-	NA	
Free Cyanide	0.00500	U	0.00500	U	0.00%	20%	-	KNO	#
Total Cyanide	0.0287		0.0257		11.0%	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 KNO - Konelab/Cyanide 9014 NA - Not Applicable/Amenable Cyanide

Form VI-IN

SOUTHWEST RESEARCH INSTITUTE 010129

SwRI ID

WetChem Report - Form VII

LCS17M01CS1

Laboratory Control Sample

Client: CH2M Hill Plateau Remediation Company
 Task Order: 171114-6 + 3 others
 Lab ID: LCS17M01CS1
 Result Units: mg/L

SDG: 623683
 SRR: 60751, 60773, 60794, 60800
 Matrix: Water
 Associated Prep Batches: 20171212-P002

Case: CHPRC
 Project: 20859.01.00X
 LCS Source: ERA

Analyte	True	Found	Qual	%Rec.	Limit	M	Analysis Date/Time
Total Cyanide	0.581	0.561	D	96.6%	85%-115%	KNO	12/01/2017 16:22

Instruments/Methods (M)
KNO - Konelab/Cyanide 9012
KNO - Konelab/Cyanide 9014
NA - Not Applicable/Amenable Cyanide

Form VII-IN

SOUTHWEST RESEARCH INSTITUTE 010130

SwRI ID

WetChem Report - Form VII

LCS17M01CS2

Laboratory Control Sample

Client: CH2M Hill Plateau Remediation Company
 Task Order: 171114-6 + 3 others
 Lab ID: LCS17M01CS2
 Result Units: mg/L

SDG: 623683
 SRR: 60751, 60773, 60794, 60800
 Matrix: Water
 Associated Prep Batches: 20171212-P002

Case: CHPRC
 Project: 20859.01.00X
 LCS Source:

Analyte	True	Found	Qual	%Rec.	Limit	M	Analysis Date/Time
Total Cyanide	0.500	0.466		93.2%	90%-110%	KNO	12/01/2017 16:22

Instruments/Methods (M)
KNO - Konelab/Cyanide 9012
KNO - Konelab/Cyanide 9014
NA - Not Applicable/Amenable Cyanide

Form VII-IN

SOUTHWEST RESEARCH INSTITUTE 010131

SwRI ID

WetChem Report - Form VII

LCS17M01CS3

Laboratory Control Sample

Client: CH2M Hill Plateau Remediation Company
 Task Order: 171114-6 + 3 others
 Lab ID: LCS17M01CS3
 Result Units: mg/L

SDG: 623683
 SRR: 60751, 60773, 60794, 60800
 Matrix: Water
 Associated Prep Batches: 20171212-P002

Case: CHPRC
 Project: 20859.01.00X
 LCS Source:

Analyte	True	Found	Qual	%Rec.	Limit	M	Analysis Date/Time
Total Cyanide	0.0500	0.0445		89.0%	90%-110%	KNO	12/01/2017 16:57

Instruments/Methods (M)
KNO - Konelab/Cyanide 9012
KNO - Konelab/Cyanide 9014
NA - Not Applicable/Amenable Cyanide

Form VII-IN

SOUTHWEST RESEARCH INSTITUTE 010132

SwRI ID

WetChem Report - Form VII

LCS17L27CS1

Laboratory Control Sample

Client: CH2M Hill Plateau Remediation Company
 Task Order: 171114-6 + 3 others
 Lab ID: LCS17L27CS1
 Result Units: mg/L

SDG: 623683
 SRR: 60751, 60773, 60794, 60800
 Matrix: Water
 Associated Prep Batches: 20171212-P006

Case: CHPRC
 Project: 20859.01.00X
 LCS Source: ERA

Analyte	True	Found	Qual	%Rec.	Limit	M	Analysis Date/Time
Total Cyanide	0.581	0.531	D	91.4%	85%-115%	KNO	11/27/2017 17:00

Instruments/Methods (M)
KNO - Konelab/Cyanide 9012
KNO - Konelab/Cyanide 9014
NA - Not Applicable/Amenable Cyanide

Form VII-IN

SOUTHWEST RESEARCH INSTITUTE 010133

SwRI ID

WetChem Report - Form VII

LCS17L27CS2

Laboratory Control Sample

Client: CH2M Hill Plateau Remediation Company
 Task Order: 171114-6 + 3 others
 Lab ID: LCS17L27CS2
 Result Units: mg/L

SDG: 623683
 SRR: 60751, 60773, 60794, 60800
 Matrix: Water
 Associated Prep Batches: 20171212-P006

Case: CHPRC
 Project: 20859.01.00X
 LCS Source:

Analyte	True	Found	Qual	%Rec.	Limit	M	Analysis Date/Time
Total Cyanide	0.500	0.452		90.4%	85%-115%	KNO	11/27/2017 17:00

Instruments/Methods (M)
KNO - Konelab/Cyanide 9012
KNO - Konelab/Cyanide 9014
NA - Not Applicable/Amenable Cyanide

Form VII-IN

SOUTHWEST RESEARCH INSTITUTE 010134

SwRI ID

WetChem Report - Form VII

LCS17L27CS3

Laboratory Control Sample

Client: CH2M Hill Plateau Remediation Company
 Task Order: 171114-6 + 3 others
 Lab ID: LCS17L27CS3
 Result Units: mg/L

SDG: 623683
 SRR: 60751, 60773, 60794, 60800
 Matrix: Water
 Associated Prep Batches: 20171212-P006

Case: CHPRC
 Project: 20859.01.00X
 LCS Source:

Analyte	True	Found	Qual	%Rec.	Limit	M	Analysis Date/Time
Total Cyanide	0.0500	0.0450		90.0%	85%-115%	KNO	11/27/2017 17:00

Instruments/Methods (M)
KNO - Konelab/Cyanide 9012
KNO - Konelab/Cyanide 9014
NA - Not Applicable/Amenable Cyanide

Form VII-IN

SOUTHWEST RESEARCH INSTITUTE 010135

WetChem Report - Form VII

SwRI ID

CN-ICV2

Laboratory Control Sample

Client: CH2M Hill Plateau Remediation Company
 Task Order: 171114-6 + 3 others
 Lab ID: CN-ICV2
 Result Units: mg/L

SDG: 623683
 SRR: 60751, 60773, 60794, 60800
 Matrix: Water
 Associated Prep Batches: 20171212-P006

Case: CHPRC
 Project: 20859.01.00X
 LCS Source: ERA

Analyte	True	Found	Qual	%Rec.	Limit	M	Analysis Date/Time
Free Cyanide	0.581	0.569	D	97.9%	85%-115%	KNO	11/27/2017 17:00

Instruments/Methods (M)
KNO - Konelab/Cyanide 9012
KNO - Konelab/Cyanide 9014
NA - Not Applicable/Amenable Cyanide

Form VII-IN

SOUTHWEST RESEARCH INSTITUTE 010136

SwRI ID

WetChem Report - Form VII

LCS17L28CS1

Laboratory Control Sample

Client: CH2M Hill Plateau Remediation Company
 Task Order: 171114-6 + 3 others
 Lab ID: LCS17L28CS1
 Result Units: mg/L

SDG: 623683
 SRR: 60751, 60773, 60794, 60800
 Matrix: Water
 Associated Prep Batches: 20171212-P007

Case: CHPRC
 Project: 20859.01.00X
 LCS Source: ERA

Analyte	True	Found	Qual	%Rec.	Limit	M	Analysis Date/Time
Total Cyanide	0.581	0.573	D	98.6%	85%-115%	KNO	11/28/2017 16:08

Instruments/Methods (M)
KNO - Konelab/Cyanide 9012
KNO - Konelab/Cyanide 9014
NA - Not Applicable/Amenable Cyanide

Form VII-IN

SOUTHWEST RESEARCH INSTITUTE 010137

SwRI ID

WetChem Report - Form VII

LCS17L28CS3

Laboratory Control Sample

Client: CH2M Hill Plateau Remediation Company
Task Order: 171114-6 + 3 others
Lab ID: LCS17L28CS3
Result Units: mg/L

SDG: 623683
SRR: 60751, 60773, 60794, 60800
Matrix: Water
Associated Prep Batches: 20171212-P007

Case: CHPRC
Project: 20859.01.00X
LCS Source:

Analyte	True	Found	Qual	%Rec.	Limit	M	Analysis Date/Time
Total Cyanide	0.0500	0.0451		90.2%	90%-110%	KNO	11/28/2017 16:08

Instruments/Methods (M)
KNO - Konelab/Cyanide 9012
KNO - Konelab/Cyanide 9014
NA - Not Applicable/Amenable Cyanide

Form VII-IN

SOUTHWEST RESEARCH INSTITUTE 010138

SwRI ID

WetChem Report - Form VII

LCS17L28CS2

Laboratory Control Sample

Client: CH2M Hill Plateau Remediation Company
 Task Order: 171114-6 + 3 others
 Lab ID: LCS17L28CS2
 Result Units: mg/L

SDG: 623683
 SRR: 60751, 60773, 60794, 60800
 Matrix: Water
 Associated Prep Batches: 20171212-P007

Case: CHPRC
 Project: 20859.01.00X
 LCS Source:

Analyte	True	Found	Qual	%Rec.	Limit	M	Analysis Date/Time
Total Cyanide	0.500	0.469		93.8%	90%-110%	KNO	11/28/2017 17:00

Instruments/Methods (M)
KNO - Konelab/Cyanide 9012
KNO - Konelab/Cyanide 9014
NA - Not Applicable/Amenable Cyanide

Form VII-IN

SOUTHWEST RESEARCH INSTITUTE 010139

WetChem Report - Form VII

SwRI ID

CN-ICV3

Laboratory Control Sample

Client: CH2M Hill Plateau Remediation Company
 Task Order: 171114-6 + 3 others
 Lab ID: CN-ICV3
 Result Units: mg/L

SDG: 623683
 SRR: 60751, 60773, 60794, 60800
 Matrix: Water
 Associated Prep Batches: 20171212-P007

Case: CHPRC
 Project: 20859.01.00X
 LCS Source: ERA

Analyte	True	Found	Qual	%Rec.	Limit	M	Analysis Date/Time
Free Cyanide	0.581	0.587	D	101.0%	85%-115%	KNO	11/28/2017 16:08

Instruments/Methods (M)
KNO - Konelab/Cyanide 9012
KNO - Konelab/Cyanide 9014
NA - Not Applicable/Amenable Cyanide

Form VII-IN

SOUTHWEST RESEARCH INSTITUTE 010140

SwRI ID

WetChem Report - Form VII

LCS17L29CS4

Laboratory Control Sample

Client: CH2M Hill Plateau Remediation Company
 Task Order: 171114-6 + 3 others
 Lab ID: LCS17L29CS4
 Result Units: mg/L

SDG: 623683
 SRR: 60751, 60773, 60794, 60800
 Matrix: Water
 Associated Prep Batches: 20171212-P008

Case: CHPRC
 Project: 20859.01.00X
 LCS Source: ERA

Analyte	True	Found	Qual	%Rec.	Limit	M	Analysis Date/Time
Total Cyanide	0.581	0.552	D	95.0%	85%-115%	KNO	11/29/2017 16:24

Instruments/Methods (M)
KNO - Konelab/Cyanide 9012
KNO - Konelab/Cyanide 9014
NA - Not Applicable/Amenable Cyanide

Form VII-IN

SOUTHWEST RESEARCH INSTITUTE 010141

SwRI ID

WetChem Report - Form VII

LCS17L29CS5

Laboratory Control Sample

Client: CH2M Hill Plateau Remediation Company
Task Order: 171114-6 + 3 others
Lab ID: LCS17L29CS5
Result Units: mg/L

SDG: 623683
SRR: 60751, 60773, 60794, 60800
Matrix: Water
Associated Prep Batches: 20171212-P008

Case: CHPRC
Project: 20859.01.00X
LCS Source:

Analyte	True	Found	Qual	%Rec.	Limit	M	Analysis Date/Time
Total Cyanide	0.500	0.458		91.6%	90%-110%	KNO	11/29/2017 16:24

Instruments/Methods (M)
KNO - Konelab/Cyanide 9012
KNO - Konelab/Cyanide 9014
NA - Not Applicable/Amenable Cyanide

Form VII-IN

SOUTHWEST RESEARCH INSTITUTE 010142

SwRI ID

WetChem Report - Form VII

LCS17L29CS6

Laboratory Control Sample

Client: CH2M Hill Plateau Remediation Company
Task Order: 171114-6 + 3 others
Lab ID: LCS17L29CS6
Result Units: mg/L

SDG: 623683
SRR: 60751, 60773, 60794, 60800
Matrix: Water
Associated Prep Batches: 20171212-P008

Case: CHPRC
Project: 20859.01.00X
LCS Source:

Analyte	True	Found	Qual	%Rec.	Limit	M	Analysis Date/Time
Total Cyanide	0.0500	0.0505		101.0%	90%-110%	KNO	11/29/2017 16:24

Instruments/Methods (M)
KNO - Konelab/Cyanide 9012
KNO - Konelab/Cyanide 9014
NA - Not Applicable/Amenable Cyanide

Form VII-IN

Laboratory Control Sample

Client: CH2M Hill Plateau Remediation Company
Task Order: 171114-6 + 3 others
Lab ID: CN-ICV4
Result Units: mg/L

SDG: 623683
SRR: 60751, 60773, 60794, 60800
Matrix: Water
Associated Prep Batches: 20171212-P008

Case: CHPRC
Project: 20859.01.00X
LCS Source: ERA

Analyte	True	Found	Qual	%Rec.	Limit	M	Analysis Date/Time
Free Cyanide	0.581	0.598	D	102.9%	85%-115%	KNO	11/29/2017 16:24

Instruments/Methods (M)
KNO - Konelab/Cyanide 9012
KNO - Konelab/Cyanide 9014
NA - Not Applicable/Amenable Cyanide

SOUTHWEST RESEARCH INSTITUTE 010144

SwRI ID

WetChem Report - Form VII

LCS17L20JH1

Laboratory Control Sample

Client: CH2M Hill Plateau Remediation Company
 Task Order: 171114-6 + 3 others
 Lab ID: LCS17L20JH1
 Result Units: mg/L

SDG: 623683
 SRR: 60751, 60773, 60794, 60800
 Matrix: Water
 Associated Prep Batches: 20171212-P003

Case: CHPRC
 Project: 20859.01.00X
 LCS Source: ERA

Analyte	True	Found	Qual	%Rec.	Limit	M	Analysis Date/Time
Total Cyanide	0.581	0.556	D	95.7%	85%-115%	KNO	11/20/2017 16:03

Instruments/Methods (M)
KNO - Konelab/Cyanide 9012
KNO - Konelab/Cyanide 9014
NA - Not Applicable/Amenable Cyanide

Form VII-IN

SOUTHWEST RESEARCH INSTITUTE 010145

SwRI ID

WetChem Report - Form VII

LCS17L20JH3

Laboratory Control Sample

Client: CH2M Hill Plateau Remediation Company
 Task Order: 171114-6 + 3 others
 Lab ID: LCS17L20JH3
 Result Units: mg/L

SDG: 623683
 SRR: 60751, 60773, 60794, 60800
 Matrix: Water
 Associated Prep Batches: 20171212-P003

Case: CHPRC
 Project: 20859.01.00X
 LCS Source:

Analyte	True	Found	Qual	%Rec.	Limit	M	Analysis Date/Time
Total Cyanide	0.500	0.437		87.4%	90%-110%	KNO	11/20/2017 17:08

Instruments/Methods (M)
KNO - Konelab/Cyanide 9012
KNO - Konelab/Cyanide 9014
NA - Not Applicable/Amenable Cyanide

Form VII-IN

12/18/2017

REV.0

SOUTHWEST RESEARCH INSTITUTE 010146

SwRI ID

WetChem Report - Form VII

LCS17L20CS1

Laboratory Control Sample

Client: CH2M Hill Plateau Remediation Company
Task Order: 171114-6 + 3 others
Lab ID: LCS17L20CS1
Result Units: mg/L

SDG: 623683
SRR: 60751, 60773, 60794, 60800
Matrix: Water
Associated Prep Batches: 20171212-P003

Case: CHPRC
Project: 20859.01.00X
LCS Source:

Analyte	True	Found	Qual	%Rec.	Limit	M	Analysis Date/Time
Total Cyanide	0.0500	0.0449		89.8%	90%-110%	KNO	11/20/2017 17:08

Instruments/Methods (M)
KNO - Konelab/Cyanide 9012
KNO - Konelab/Cyanide 9014
NA - Not Applicable/Amenable Cyanide

Form VII-IN

SOUTHWEST RESEARCH INSTITUTE 010147

WetChem Report - Form VII

SwRI ID

CN-ICV

Laboratory Control Sample

Client: CH2M Hill Plateau Remediation Company
Task Order: 171114-6 + 3 others
Lab ID: CN-ICV
Result Units: mg/L

SDG: 623683
SRR: 60751, 60773, 60794, 60800
Matrix: Water
Associated Prep Batches: 20171212-P003

Case: CHPRC
Project: 20859.01.00X
LCS Source: ERA

Analyte	True	Found	Qual	%Rec.	Limit	M	Analysis Date/Time
Free Cyanide	0.581	0.587	D	101.0%	85%-115%	KNO	11/20/2017 16:03

Instruments/Methods (M)
KNO - Konelab/Cyanide 9012
KNO - Konelab/Cyanide 9014
NA - Not Applicable/Amenable Cyanide

Form VII-IN

12/18/2017

REV.0

SOUTHWEST RESEARCH INSTITUTE 010148

WetChem Report - Form VII

SwRI ID

CN-ICV5

Laboratory Control Sample

Client: CH2M Hill Plateau Remediation Company
Task Order: 171114-6 + 3 others
LAB ID: CN-ICV5
Results: mg/L

SDG: 623683
SRR: 60751, 60773, 60794, 60800
Matrix: Water
Associated Prep Batches: 20171212-P003

Case: CHPRC
Project: 20859.01.00X
LCS Source: ERA

Analyte	True	Found	Qual	%Rec.	Limit	M	Analysis Date/Time
Free Cyanide	0.581	0.589	D	101.0%	85%-115%	KNO	12/01/2017 16:22

Instruments/Methods (M)

KNO - Konelab/Cyanide 9012
KNO - Konelab/Cyanide 9014
NA - Not Applicable/Amenable Cyanide

Form VII-IN

SOUTHWEST RESEARCH INSTITUTE 010149
WetChem Report - Form IX

Detection Limits

Client: CH2M Hill Plateau Remediation Company
Task Order: 171114-6 + 3 others
Result Units: mg/L

SDG: 623683
SRR: 60751, 60773, 60794, 60800
Instrument: Konelab

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

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

Columns
RL - SwRI Reporting Limit