

# SOUTHWEST RESEARCH INSTITUTE®

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CHEMISTRY AND CHEMICAL ENGINEERING DIVISION  
DEPARTMENT OF ANALYTICAL AND ENVIRONMENTAL CHEMISTRY



March 09, 2018

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

Attn: Ms. Karen Waters-Husted

Subject:	SAF No:	S18-002, W18-002
	SDG Number:	627168
	SwRI Project Number:	20859.01.00X
	SwRI Task Order Number:	180209-7, 180214-5, 180215-3, 180216-3
	SwRI Sample Receipt Number:	61137, 61178, 61187, 61202
	Samples Received:	02.08.18, 02.14.18, 02.15.18, 02.16.18
	Fraction:	Cyanide Analyses

Dear Ms. Waters-Husted:

Please find the enclosed results for the eighteen (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](mailto:radonna.spies@swri.org).

Sincerely,

  
FOR Radonna Spies  
Principal Scientist

APPROVED:



Michael J. Dammann  
Director

RPS: jz  
Encl



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

**SOUTHWEST RESEARCH INSTITUTE**  
**CLIENT: CH2M Hill Plateau Remediation Company**  
**SwRI PROJECT#: 20859.01.00X**  
**SwRI TASK ORDER: 180209-7, 180214-5, 180215-3,**  
**180216-3**  
**SwRI SRR: 61137, 61178, 61187, 61202**  
**SDG: 627168**  
**VTSR: 02.08.18, 02.14.18, 02.15.18, 02.16.18**

# Chain-of-Custody & Sample Receipt Paperwork

Total Page Count: 010001-  
SWRI  
Fraction: Method Pages: 010115  
9012 & 9014

3/9/2018

010002

REV.0

<b>CH2M Hill Plateau Remediation Company</b>	<b>CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST</b>	C.O.C.# <b>S18-002-254</b>  Page 1 of 1
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<b>Collector:</b> KATHY TURNER CHPRC	<b>Contact/Requester:</b> Karen Waters-Husted	<b>Telephone No.:</b> 509-376-4650
<b>SAF No.:</b> S18-002	<b>Sampling Origin:</b> Hanford Site	<b>Purchase Order/Charge Code:</b> 300071
<b>Project Title:</b> Sitewide Surv, February 2018	<b>Logbook No.:</b> HNF-N-506-96/92	<b>Ice Chest No.:</b> 605-702
<b>Shipped To (Lab):</b> Southwest Research Institute	<b>Method of Shipment:</b> Commercial Carrier	<b>Bill of Lading/Air Bill No.:</b> 771438819602
<b>Protocol:</b> SURV	<b>Priority:</b> 30 Days	<b>Offsite Property No.:</b> 9035

**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
B3H5X5	N	W	FEB 07 2018	1054	1x500-mL aG	9014_CN (FREE): COMMON; 9012_CYANIDE (TOTAL): COMMON	14 Days	NaOH to pH- >=12 / Cool <=6C

CHPRC  
 SRR # 61137  
 SDG # 627168

SwRI Prjct # 20859.01.00X  
 TC: 180209-7

SWRI

Relinquished By: KATHY TURNER CHPRC <i>Kathy Turner</i> Print First and Last Name      Signature      Date/Time: FEB 07 2018 1205	Received By: Janelle Zunker CHPRC <i>Janelle Zunker</i> Print First and Last Name      Signature      Date/Time: FEB 07 2018 1205	<b>Matrix *</b> 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: Janelle Zunker CHPRC <i>Janelle Zunker</i> Print First and Last Name      Signature      Date/Time: FEB 07 2018 1400	Received By: FEDEX Print First and Last Name      Signature      Date/Time:	
Relinquished By: FEDEX Print First and Last Name      Signature      Date/Time:	Received By: David Garcia David Garcia Print First and Last Name      Signature      Date/Time: 0208-2018 06:30	
Relinquished By:	Received By:	
<b>FINAL SAMPLE DISPOSITION</b> Disposal Method (e.g., Return to customer, per lab procedure, used in process):		Disposed By:      Date/Time:

<b>CH2M Hill Plateau Remediation Company</b>	<b>CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST</b>	C.O.C.# <b>S18-002-257</b>  Page 1 of 1
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<b>Collector:</b> KATHY TURNER CHPRC	<b>Contact/Requester:</b> Karen Waters-Husted	<b>Telephone No.:</b> 509-376-4650
<b>SAF No.:</b> S18-002	<b>Sampling Origin:</b> Hanford Site	<b>Purchase Order/Charge Code:</b> 300071
<b>Project Title:</b> Sitewide Surv, February 2018	<b>Logbook No.:</b> HNF-N-506-86/82	<b>Ice Chest No.:</b> 605-702
<b>Shipped To (Lab):</b> Southwest Research Institute	<b>Method of Shipment:</b> Commercial Carrier	<b>Bill of Lading/Air Bill No.:</b> 7714 288/9602
<b>Protocol:</b> SURV	<b>Priority:</b> 30 Days	<b>Offsite Property No.:</b> 9035

<b>POSSIBLE SAMPLE HAZARDS/REMARK</b> ** ** 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	<b>SPECIAL INSTRUCTIONS</b> N/A
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Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B3H613	N	W	FEB 07 2018	0921	1x500-mL aG	9014_CN (FREE): COMMON; 9012_CYANIDE (TOTAL): COMMON	14 Days	NaOH to pH >=12 / Cool <=6C

CHPRC  
 SRR # 61137  
  
 SDG # 627168

SWRI

SwRI Prjct # 20859.01.00X  
 TO: 180209-7

Relinquished By: <b>KATHY TURNER</b> CHPRC <i>Kathy Turner</i> Print First and Last Name      Signature      Date/Time: FEB 07 2018 1010	Received By: <b>Lesly Wall</b> CHPRC <i>Lesly Wall</i> Print First and Last Name      Signature      Date/Time: FEB 07 2018 1010	<b>Matrix *</b> 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: <b>Lesly Wall</b> CHPRC <i>Lesly Wall</i> Print First and Last Name      Signature      Date/Time: FEB 07 2018 1400	Received By: <b>FEDEX</b> Print First and Last Name      Signature      Date/Time:	
Relinquished By: <b>FED EX</b> Print First and Last Name      Signature      Date/Time:	Received By: <b>David Garcia</b> David Garcia Print First and Last Name      Signature      Date/Time: 02-08-2018 08:30	
Relinquished By: _____ Print First and Last Name      Signature      Date/Time:	Received By: _____ Print First and Last Name      Signature      Date/Time:	
<b>FINAL SAMPLE DISPOSITION</b> Disposal Method (e.g., Return to customer, per lab procedure, used in process):		Disposed By: _____      Date/Time: _____

3/9/2018

010004

REV.0

CH2M Hill Plateau  
Remediation Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C.#  
S18-002-621

Page 1 of 1

<b>Collector:</b> KATHY TURNER CHPRC	<b>Contact/Requester:</b> Karen Waters-Husted	<b>Telephone No.:</b> 509-376-4650
<b>SAF No.:</b> S18-002	<b>Sampling Origin:</b> Hanford Site	<b>Purchase Order/Charge Code:</b> 300071
<b>Project Title:</b> Sitewide Surv, February 2018	<b>Logbook No.:</b> HNF-N-506 - 86/82	<b>Ice Chest No.:</b> 605-702
<b>Shipped To (Lab):</b> Southwest Research Institute	<b>Method of Shipment:</b> Commercial Carrier	<b>Bill of Lading/Air Bill No.:</b> 77142881 9602
<b>Protocol:</b> SURV	<b>Priority:</b> 30 Days	<b>Offsite Property No.:</b> 9035

**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
B3H870	N	W	FEB 07 2018	0808	1x500-mL aG.	9014_CN (FREE): COMMON; 9012_CYANIDE (TOTAL): COMMON	14 Days	NaOH to pH >=12 / Cool <=6C

CHPRC  
SRR # 61137  
SDG # 627168

SwRI Prjct # 20859.01.00X  
TO: 180209-7

SwRI

Relinquished By: KATHY TURNER CHPRC Signature: <i>Kathy Turner</i> Date/Time: FEB 07 2018 1010	Received By: Lesly Wall CHPRC Signature: <i>Lesly Wall</i> Date/Time: FEB 07 2018 1010	<b>Matrix *</b> 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 Signature: <i>Lesly Wall</i> Date/Time: FEB 07 2018 1400	Received By: FEDEX Signature: _____ Date/Time: _____		
Relinquished By: FEDEX Signature: _____ Date/Time: _____	Received By: David Garcia Signature: <i>David Garcia</i> Date/Time: 02-08-2018 08:30		
Relinquished By: _____ Signature: _____ Date/Time: _____	Received By: _____ Signature: _____ Date/Time: _____		
<b>FINAL SAMPLE DISPOSITION</b>	Disposal Method (e.g., Return to customer, per lab procedure, used in process):	Disposed By:	Date/Time:

<b>CH2MHill Plateau Remediation Company</b>	<b>CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST</b>	C.O.C. # <b>S18-002-626</b>  Page 1 of 1
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<b>Collector:</b> KATHY TURNER CHPRC	<b>Contact/Requester:</b> Karen Waters-Husted	<b>Telephone No.:</b> 509-376-4650
<b>SAF No.:</b> S18-002	<b>Sampling Origin:</b> Hanford Site	<b>Purchase Order/Charge Code:</b> 300071
<b>Project Title:</b> Sitewide Surv, February 2018	<b>Logbook No.:</b> HNF-N-506 96/92	<b>Ice Chest No.:</b> GWS-702
<b>Shipped To (Lab):</b> Southwest Research Institute	<b>Method of Shipment:</b> Commercial Carrier	<b>Bill of Lading/Air Bill No.:</b> 771428819602
<b>Protocol:</b> SURV	<b>Priority:</b> 30 Days	<b>Offsite Property No.:</b> 9035

<b>POSSIBLE SAMPLE HAZARDS/REMARK</b> ** ** 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	<b>SPECIAL INSTRUCTIONS</b> N/A
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Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B3H876	N	W	FEB 07 2018	1128	1x500-mL aG	9014_CN (FREE): COMMON; 9012_CYANIDE (TOTAL): COMMON	14 Days	NaOH to pH >=12 / Cool <=6C

CHPRC  
 SRR # 61137  
 SDG # 627168

SwRI Prjct # 20859.01.00X  
 TO: 180209-7  
SWRI

Relinquished By: KATHY TURNER CHPRC <i>Kathy Turner</i> FEB 07 2018 Print First and Last Name Signature Date/Time	Received By: Janelle Zunker CHPRC <i>Janelle Zunker</i> FEB 07 2018 Print First and Last Name Signature Date/Time	<b>Matrix *</b> 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: Janelle Zunker CHPRC <i>Janelle Zunker</i> FEB 07 2018 Print First and Last Name Signature Date/Time	Received By: FEDEX Print First and Last Name Signature Date/Time	
Relinquished By: FEDEX Print First and Last Name Signature Date/Time	Received By: David Garcia <i>David Garcia</i> 02-08-2018 08:30 Print First and Last Name Signature Date/Time	
Relinquished By: _____ Print First and Last Name Signature Date/Time	Received By: _____ Print First and Last Name Signature Date/Time	
<b>FINAL SAMPLE DISPOSITION</b> Disposal Method (e.g., Return to customer, per lab procedure, used in process):		Disposed By: _____ Date/Time: _____

3/9/2018

010006

REV.0

<b>CH2MHill Plateau Remediation Company</b>	<b>CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST</b>	C.O.C.# <b>W18-002-173</b>  Page 1 of 1
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<b>Collector:</b> Daniel Klug CHPRC	<b>Contact/Requester:</b> Karen Waters-Husted	<b>Telephone No.:</b> 509-376-4650
<b>SAF No.:</b> W18-002	<b>Sampling Origin:</b> Hanford Site	<b>Purchase Order/Charge Code:</b> 300071
<b>Project Title:</b> RCRA; February 2018	<b>Logbook No.:</b> HNF-N-506 <i>98/39</i>	<b>Ice Chest No.:</b> <i>8025-646</i>
<b>Shipped To (Lab):</b> Southwest Research Institute	<b>Method of Shipment:</b> Commercial Carrier	<b>Bill of Lading/Air Bill No.:</b> <i>7714 8416 6539</i>
<b>Protocol:</b> RCRA	<b>Priority:</b> 30 Days	<b>Offsite Property No.:</b> <i>9058</i>

<b>POSSIBLE SAMPLE HAZARDS/REMARK</b> ** ** 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	<b>SPECIAL INSTRUCTIONS</b> N/A
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Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B3H323	Y	W	FEB 14 2018	<i>0938</i>	1x500-mL aG	9014_CN (FREE): COMMON; 9012_CYANIDE (TOTAL): COMMON; 9012_CN (AMENABLE): COMMON	14 Days	NaOH to pH >=12 / Cool <=6C
B3H875	N	W			1x500-mL aG	9014_CN (FREE): COMMON; 9012_CYANIDE (TOTAL): COMMON; 9012_CN (AMENABLE): COMMON	14 Days	NaOH to pH >=12 / Cool <=6C

CHPRC SRR # 61187  
 SDG # 627168

SwRI Prjct # 20859.01.00X  
 TO: 180215-3

SwRI

Relinquished By: Daniel Klug CHPRC <i>D. Klug</i> Print First and Last Name Signature	Received By: Troy Bacon CHPRC <i>Troy L. Bacon</i> Print First and Last Name Signature	FEB 14 2018 <i>1050</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: Troy Bacon CHPRC <i>Troy L. Bacon</i> Print First and Last Name Signature	Received By: FEDEX Print First and Last Name Signature	FEB 14 2018 <i>1400</i> Date/Time	
Relinquished By: FED EX Print First and Last Name Signature	Received By: David Garcia <i>David Garcia</i> Print First and Last Name Signature	FEB 15 2018 <i>09:25</i> Date/Time	
Relinquished By: Print First and Last Name Signature	Received By: Print First and Last Name Signature	Date/Time	

<b>FINAL SAMPLE DISPOSITION</b>	Disposal Method (e.g., Return to customer, per lab procedure, used in process):	Disposed By:	Date/Time:
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3/9/2018

010007

REV.0

<b>CH2M Hill Plateau Remediation Company</b>	<i>20 LBS</i>	<b>CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST</b>	C.O.C.# <b>W18-002-174</b> Page 1 of 1
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<b>Collector:</b> Daniel Klug CHPRC	<b>Contact/Requester:</b> Karen Waters-Husted	<b>Telephone No.:</b> 509-376-4650
<b>SAF No.:</b> W18-002	<b>Sampling Origin:</b> Hanford Site	<b>Purchase Order/Charge Code:</b> 300071
<b>Project Title:</b> RCRA, February 2018	<b>Logbook No.:</b> HNF-N-506 <i>98/39</i>	<b>Ice Chest No.:</b> <i>605-646</i>
<b>Shipped To (Lab):</b> Southwest Research Institute	<b>Method of Shipment:</b> Commercial Carrier	<b>Bill of Lading/Air Bill No.:</b> <i>771484166539</i>
<b>Protocol:</b> RCRA	<b>Priority:</b> 30 Days	<b>Offsite Property No.:</b> <i>9058</i>

<b>POSSIBLE SAMPLE HAZARDS/REMARK</b> ** ** 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	<b>SPECIAL INSTRUCTIONS</b> N/A
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Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B3H886	N	W	FEB 14 2018	<i>1029</i>	1x500-mL aG	9014_CN (FREE): COMMON; 9012_CYANIDE (TOTAL): COMMON; 9012_CN (AMENABLE): COMMON	14 Days	NaOH to pH >=12 / Cool <=6C
B3H885	<i>Y</i>	W	<i>1</i>	<i>1</i>	1x500-mL aG	9014_CN (FREE): COMMON; 9012_CYANIDE (TOTAL): COMMON; 9012_CN (AMENABLE): COMMON	14 Days	NaOH to pH >=12 / Cool <=6C

CHPRC  
 SRR # 61187  
 SDG # 627168

SwRI

SwRI Prjct # 20859.01.00X  
 TO: 180215-3

<b>Relinquished By:</b> Daniel Klug CHPRC <i>D.Klug</i> Print First and Last Name      Signature	<b>Received By:</b> Troy Bacon CHPRC <i>Troy L. Bacon</i> Print First and Last Name      Signature	<b>Matrix *</b> 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
<b>Relinquished By:</b> Troy Bacon CHPRC <i>Troy L. Bacon</i> Print First and Last Name      Signature	<b>Received By:</b> FEDEX Print First and Last Name      Signature	
<b>Relinquished By:</b> FEDEX Print First and Last Name      Signature	<b>Received By:</b> David Garcia <i>David Garcia</i> Print First and Last Name      Signature	
<b>Relinquished By:</b> Print First and Last Name      Signature	<b>Received By:</b> Print First and Last Name      Signature	
<b>FINAL SAMPLE DISPOSITION</b> Disposal Method (e.g., Return to customer, per lab procedure, used in process):		<b>Disposed By:</b> Date/Time:

<b>CH2MHill Plateau Remediation Company</b>	<b>CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST</b>	C.O.C.# <b>W18-002-064</b>  Page 1 of 1
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<b>Collector:</b> Daniel Klug CHPRC	<b>Contact/Requester:</b> Karen Waters-Husted	<b>Telephone No.:</b> 509-376-4650
<b>SAF No.:</b> W18-002	<b>Sampling Origin:</b> Hanford Site	<b>Purchase Order/Charge Code:</b> 300071
<b>Project Title:</b> RCRA, February 2018	<b>Logbook No.:</b> HNF-N-506 <b>48/38</b>	<b>Ice Chest No.:</b> <b>605-726</b>
<b>Shipped To (Lab):</b> Southwest Research Institute	<b>Method of Shipment:</b> Commercial Carrier	<b>Bill of Lading/Air Bill No.:</b> <b>7714-7342-9052</b>
<b>Protocol:</b> RCRA	<b>Priority:</b> 30 Days	<b>Offsite Property No.:</b> <b>9052</b>

**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  
**B/L# 7714 7342 3559**

Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B3H352	N	W	FEB 13 2018	0800	1x500-mL aG	9014_CN (FREE): COMMON; 9012_CYANIDE (TOTAL): COMMON; 9012_CN (AMENABLE): COMMON	14 Days	NaOH to pH >=12 / Cool <=6C
B3H360	Y	W			1x500-mL aG	9014_CN (FREE): COMMON; 9012_CYANIDE (TOTAL): COMMON; 9012_CN (AMENABLE): COMMON	14 Days	NaOH to pH >=12 / Cool <=6C

CHPRC SRR # 61178  
 SDG # 627168  
 SwRI Prjct # 20859.01.00X  
 TO: 180214-5  
SWRI

Relinquished By: Daniel Klug Print First and Last Name: <b>D. Klug</b> Signature: <i>[Signature]</i> Date/Time: FEB 13 2018 1105	Received By: Roger Friesz Jr. Print First and Last Name: <b>Roger Friesz Jr.</b> Signature: <i>[Signature]</i> Date/Time: FEB 13 2018 1105	<b>Matrix *</b> 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: Roger Friesz Jr. Print First and Last Name: <b>Roger Friesz Jr.</b> Signature: <i>[Signature]</i> Date/Time: FEB 13 2018 1400	Received By: FEDEX Print First and Last Name: <b>FEDEX</b> Signature: <i>[Signature]</i> Date/Time:	
Relinquished By: FED EX Print First and Last Name: <b>FED EX</b> Signature: <i>[Signature]</i> Date/Time:	Received By: Daniel Garcia Print First and Last Name: <b>Daniel Garcia</b> Signature: <i>[Signature]</i> Date/Time: 02-14-2018 08:50	
Relinquished By: Print First and Last Name: <i>[Signature]</i> Date/Time:	Received By: Print First and Last Name: <i>[Signature]</i> Date/Time:	

<b>FINAL SAMPLE DISPOSITION</b>	Disposal Method (e.g., Return to customer, per lab procedure, used in process):	Disposed By:	Date/Time:
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3/9/2018

010009

REV.0

CH2M Hill Plateau Remediation Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C.# W18-002-065

Page 1 of 1

<b>Collector:</b> Daniel Klug CHPRC	<b>Contact/Requester:</b> Karen Waters-Husted	<b>Telephone No.:</b> 509-376-4650
<b>SAF No.:</b> W18-002	<b>Sampling Origin:</b> Hanford Site	<b>Purchase Order/Charge Code:</b> 300071
<b>Project Title:</b> RCRA, February 2018	<b>Logbook No.:</b> HNF-N-506 98/38	<b>Ice Chest No.:</b> 6205-726
<b>Shipped To (Lab):</b> Southwest Research Institute	<b>Method of Shipment:</b> Commercial Carrier	<b>Bill of Lading/Air Bill No.:</b> 7749325794
<b>Protocol:</b> RCRA	<b>Priority:</b> 30 Days	<b>Offsite Property No.:</b> 9052

**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  
 B/L # 7114 7342 3559

Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B3H353	N	W	FEB 13 2018	0923	1x500-mL aG	9014_CN (FREE): COMMON; 9012_CYANIDE (TOTAL): COMMON; 9012_CN (AMENABLE): COMMON	14 Days	NaOH to pH >=12 / Cool <=6C
B3H361	Y	W			1x500-mL aG	9014_CN (FREE): COMMON; 9012_CYANIDE (TOTAL): COMMON; 9012_CN (AMENABLE): COMMON	14 Days	NaOH to pH >=12 / Cool <=6C

CHPRC SRR # 61178  
 SDG # 627168  
 SwRI Prjct # 20859.01.00X  
 TO: 180214-5  
 SWRI

Relinquished By: D. Klug CHPRC Print First and Last Name	FEB 13 2018 Signature	1105 Date/Time	Received By: Roger Friesz Jr. CHPRC Print First and Last Name	FEB 13 2018 Signature	1105 Date/Time	<b>Matrix *</b> 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: Roger Friesz Jr. CHPRC Print First and Last Name	FEB 13 2018 Signature	1400 Date/Time	Received By: FEDEX Print First and Last Name	Signature	Date/Time	
Relinquished By: FEDEX Print First and Last Name	Signature	Date/Time	Received By: David Garcia Print First and Last Name	Signature	02-14-2018 08:50 Date/Time	
Relinquished By: Print First and Last Name	Signature	Date/Time	Received By: Print First and Last Name	Signature	Date/Time	

<b>FINAL SAMPLE DISPOSITION</b>	Disposal Method (e.g., Return to customer, per lab procedure, used in process):	Disposed By:	Date/Time:
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3/9/2018

010010

REV.0

CH2M Hill Plateau  
Remediation Company

44115

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C.#  
W18-002-068

Page 1 of 1

<b>Collector:</b> Daniel Klug CHPRC	<b>Contact/Requester:</b> Karen Waters-Husted	<b>Telephone No.:</b> 509-376-4650
<b>SAF No.:</b> W18-002	<b>Sampling Origin:</b> Hanford Site	<b>Purchase Order/Charge Code:</b> 300071
<b>Project Title:</b> RCRA, February 2018	<b>Logbook No.:</b> HNF-N-506 98/38	<b>Ice Chest No.:</b> GWS-726
<b>Shipped To (Lab):</b> Southwest Research Institute	<b>Method of Shipment:</b> Commercial Carrier	<b>Bill of Lading/Air Bill No.:</b> 7714 735296 28-18
<b>Protocol:</b> RCRA	<b>Priority:</b> 30 Days	<b>Offsite Property No.:</b> 9052

**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  
 B/L # 7714 7342 3559

Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B3H369	N	W	FEB 13 2018	1015	1x500-mL aG	9014_CN (FREE): COMMON; 9012_CYANIDE (TOTAL): COMMON; 9012_CN (AMENABLE): COMMON	14 Days	NaOH to pH >=12 / Cool <=6C
B3H373	Y	W			1x500-mL aG	9014_CN (FREE): COMMON; 9012_CYANIDE (TOTAL): COMMON; 9012_CN (AMENABLE): COMMON	14 Days	NaOH to pH >=12 / Cool <=6C

CHPRC SRR # 61178  
 SDG # 627168  
 SwRI Prjet # 20859.01.00X  
 TO: 180214-5

Relinquished By: Daniel Klug CHPRC Signature: [Signature] Date/Time: FEB 13 2018 1105	Received By: Roger Friesz Jr. CHPRC Signature: [Signature] Date/Time: FEB 13 2018 1105	<b>Matrix *</b> 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: Roger Friesz Jr. CHPRC Signature: [Signature] Date/Time: FEB 13 2018 1400	Received By: FEDEX Signature: [Signature] Date/Time: [Signature]		
Relinquished By: FED EX Signature: [Signature] Date/Time: [Signature]	Received By: David Garcia Signature: [Signature] Date/Time: 02-14-2018 08:50		
Relinquished By: [Signature] Date/Time: [Signature]	Received By: [Signature] Date/Time: [Signature]		
<b>FINAL SAMPLE DISPOSITION</b>	Disposal Method (e.g., Return to customer, per lab procedure, used in process):	Disposed By:	Date/Time:

3/9/2018

010011

REV.0

<b>CH2M Hill Plateau Remediation Company</b>	19/165	<b>CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST</b>	C.O.C.# <b>W18-002-059</b>  Page 1 of 1
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<b>Collector:</b> Juan Aguilar ICHPRC	<b>Contact/Requester:</b> Karen Waters-Husted	<b>Telephone No.:</b> 509-376-4650
<b>SAF No.:</b> W18-002	<b>Sampling Origin:</b> Hanford Site	<b>Purchase Order/Charge Code:</b> 300071
<b>Project Title:</b> RCRA, February 2018	<b>Logbook No.:</b> HNF-N-506-98/40	<b>Ice Chest No.:</b> 6205-636
<b>Shipped To (Lab):</b> Southwest Research Institute	<b>Method of Shipment:</b> Commercial Carrier	<b>Bill of Lading/Air Bill No.:</b> 771495270931
<b>Protocol:</b> RCRA	<b>Priority:</b> 30 Days	<b>Offsite Property No.:</b> 9066

<b>POSSIBLE SAMPLE HAZARDS/REMARK</b> ** ** 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	<b>SPECIAL INSTRUCTIONS</b> N/A
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Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B3H3D4	N	W	2-15-18	1042	1x500-mL aG	9014_CN (FREE): COMMON; 9012_CYANIDE (TOTAL): COMMON; 9012_CN (AMENABLE): COMMON	14 Days	NaOH to pH >=12 / Cool <=6C
B3H3F0	Y	W	2-15-18	1042	1x500-mL aG	9014_CN (FREE): COMMON; 9012_CYANIDE (TOTAL): COMMON; 9012_CN (AMENABLE): COMMON	14 Days	NaOH to pH >=12 / Cool <=6C

CHPRC SRR # 61202  
 SDG # 627168  
 SwRI Prjct # 20859.01.00X  
 TO: 180216-3  
 SWRI

Relinquished By: Juan Aguilar ICHPRC <i>[Signature]</i> FEB 15 2018 11:25 Print First and Last Name Signature Date/Time	Received By: Troy Bacon CHPRC <i>[Signature]</i> FEB 15 2018 11:25 Print First and Last Name Signature Date/Time	<b>Matrix *</b> 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: Troy Bacon CHPRC <i>[Signature]</i> FEB 15 2018 14:00 Print First and Last Name Signature Date/Time	Received By: FEDEX Print First and Last Name Signature Date/Time		
Relinquished By: FED EX Print First and Last Name Signature Date/Time	Received By: David Garcia <i>[Signature]</i> 02-16-2018 08:30 Print First and Last Name Signature Date/Time		
Relinquished By: Print First and Last Name Signature Date/Time	Received By: Print First and Last Name Signature Date/Time		
<b>FINAL SAMPLE DISPOSITION</b> Disposal Method (e.g., Return to customer, per lab procedure, used in process):		Disposed By:	Date/Time:

3/9/2018

010012

REV.0

<b>CH2M Hill Plateau Remediation Company</b>	<b>CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST</b>	C.O.C.# <b>W18-002-058</b>  Page 1 of 1
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<b>Collector:</b> <del>Juan Aguilar</del> /CHPRC	<b>Contact/Requester:</b> Karen Waters-Husted	<b>Telephone No.:</b> 509-376-4650
<b>SAF No.:</b> W18-002	<b>Sampling Origin:</b> Hanford Site	<b>Purchase Order/Charge Code:</b> 300071
<b>Project Title:</b> RCRA, February 2018	<b>Logbook No.:</b> HNF-N-506 - 98140	<b>Ice Chest No.:</b> GWS-636
<b>Shipped To (Lab):</b> Southwest Research Institute	<b>Method of Shipment:</b> Commercial Carrier	<b>Bill of Lading/Air Bill No.:</b> 77149527053
<b>Protocol:</b> RCRA	<b>Priority:</b> 30 Days	<b>Offsite Property No.:</b> 90106

<b>POSSIBLE SAMPLE HAZARDS/REMARK</b> ** ** 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	<b>SPECIAL INSTRUCTIONS</b> N/A
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Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B3H3D9	Y	W	2-15-18	0815	1x500-mL aG	9014_CN (FREE): COMMON; 9012_CYANIDE (TOTAL): COMMON; 9012_CN (AMENABLE): COMMON	14 Days	NaOH to pH >=12 / Cool <=6C
B3H3D3	N	W	2-15-18	0815	1x500-mL aG	9014_CN (FREE): COMMON; 9012_CYANIDE (TOTAL): COMMON; 9012_CN (AMENABLE): COMMON	14 Days	NaOH to pH >=12 / Cool <=6C

CHPRC  
SRR # 61202  
SDG # 627168

SwRI Prjct # 20859.01.00X  
TO: 180216-3

SWRI

Relinquished By: <i>Juan Aguilar</i> /CHPRC Print First and Last Name      Signature      Date/Time: FEB 15 2018 1125	Received By: <i>Troy Bacon</i> CHPRC Print First and Last Name      Signature      Date/Time: FEB 15 2018 1125	<b>Matrix *</b> S = Soil      DS = Drum Solids SE = Sediment      DL = Drum Liquid SO = Solid      T = Tissue SL = Sludge      WI = Wipe W = Water      L = Liquid O = Oil      V = Vegetation A = Air      X = Other
Relinquished By: <i>Troy L. Bacon</i> CHPRC Print First and Last Name      Signature      Date/Time: FEB 15 2018 1400	Received By: <b>FEDEX</b> Print First and Last Name      Signature      Date/Time	
Relinquished By: <i>Fed Ex</i> Print First and Last Name      Signature      Date/Time	Received By: <i>David Garcia</i> Print First and Last Name      Signature      Date/Time: 02-16-2018 08:30	
Relinquished By: _____ Print First and Last Name      Signature      Date/Time	Received By: _____ Print First and Last Name      Signature      Date/Time	

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

# Laboratory Task Order

TO #: 180209-7 Revision: 3

Project(s): 20859.01.00X  
 Manager(s): SPIES, RADONNA  
 To Client: 03/09/18  
 Client(s): CH2M Hill Plateau Remediation Company

SDG: 627168  
 VTSR: 02/08/18  
 SAF: S18-002

SRR #'s: 61137  
 Client(s): CH2M Hill Plateau Remediation Company

## Instructions

CH2M Hill Plateau Remediation Company, 300071  
 SAF No. S18-002

SDG 627168 is open until 02/22/18

30-day TAT.

CURRENTLY, FINAL DATA/HARDCOPY IS DUE TO THE CLIENT ON 03/10/2018.

4 overall samples (4 containers) were received on 02/08/2018, which are ALL listed here.

Sample Analysis REQUIRED

9014 \_ FREE-CN Cyanide (Free)

9012 \_ 57-12-5 Cyanide (Total)

DATA DELIVERABLE \_ Summary (Narrative / Results only)

REQUESTER \_ Karen Waters-Husted

ATTACHMENT C - QC Requirements for Chemical and Radiochemical Analysis

Section 7.2.2 Sample Data Packages

Section 7.2.3 Hard Copy Deliverable format

Section 7.2.4 Final Data Package Requirements

Section 8.8 CHPRC Electronic Address

Electronic copies of all sample receipt information, COCs, priority data packages, final data packages, corrected/revised data packages, closure reports, status reports, invoices, etc. shall be sent to: [mailto:CPP\\_Sample\\_Management@rl.gov](mailto:CPP_Sample_Management@rl.gov)

REVISION 1, DRmz 02/14/18: Task Order revised to indicate additional samples were received on 02/14/18, which have been grouped with SDG 627168, located in Task Order # 180214-5, SRR 61178.

REVISION 2, DRmz 02/15/18: Task Order revised to indicate additional samples were received on 02/15/18, which have been grouped with SDG 627168, located in Task Order # 180215-3, SRR 61187.

REVISION 3, DRmz 02/16/18: Task Order revised to indicate additional samples were received on 02/16/18, which have been grouped with SDG 627168, located in Task Order # 180216-3, SRR 61202.

Documents Related to this task order: 237586[COC for SRR 61137], 237587[Paperwork for SRR 61137]

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

Test: CN\_9012

Holding: 14 days from CED

Section: WETCHEM

Cyanide by Method 9012 (Automated)

Cnt: 4

System ID	Type	Cont	Matrix	Customer ID	CED	Method Date
627168		1	Water	B3H5X5	07 Feb 18	21 Feb 18
627169		1	Water	B3H613	07 Feb 18	21 Feb 18
627170		1	Water	B3H870	07 Feb 18	21 Feb 18
627171		1	Water	B3H876	07 Feb 18	21 Feb 18

Test: CN\_9014

Holding: 14 days from CED

Section: WETCHEM

Total Cyanide by SW846 9014

Cnt: 4

System ID	Type	Cont	Matrix	Customer ID	CED	Method Date
627168		1	Water	B3H5X5	07 Feb 18	21 Feb 18
627169		1	Water	B3H613	07 Feb 18	21 Feb 18
627170		1	Water	B3H870	07 Feb 18	21 Feb 18
627171		1	Water	B3H876	07 Feb 18	21 Feb 18



Southwest Research Institute

# Laboratory Task Order

TO #: 180214-5 Revision: 2

SDG: 627168  
 VTSR: 02/14/18  
 SAF: W18-002

SRR #'s: 61178  
 Client(s): CH2M Hill Plateau Remediation Company

Project(s): 20859.01.00X  
 Manager(s): SPIES, RADONNA  
 To Client: 03/09/18

## Instructions

CH2MHill Plateau Remediation Company. 300071  
 SAF No. W18-002

SDG 627168 is open until 02/22/18

GROUPED \_ with samples in SDG 627168, located in Task Order # 180209-7, SRR 61137.

30-day TAT.

CURRENTLY, FINAL DATA/HARDCOPY IS DUE TO THE CLIENT ON 03/10/2018.

6 overall samples (6 containers) were received on 02/14/2018, which are ALL listed here.

Sample Analysis REQUIRED

9012 \_ CATC Cyanide (Amenable)

9014 \_ FREE-CN Cyanide (Free)

9012 \_ 57-12-5 Cyanide (Total)

DATA DELIVERABLE \_ Summary (Narrative / Results only)

REQUESTER \_ Karen Waters-Husted

ATTACHMENT C - QC Requirements for Chemical and Radiochemical Analysis

Section 7.2.2 Sample Data Packages

Section 7.2.3 Hard Copy Deliverable format

Section 7.2.4 Final Data Package Requirements

Section 8.8 CHPRC Electronic Address

Electronic copies of all sample receipt information, COCs, priority data packages, final data packages, corrected/revised data packages, closure reports, status reports, invoices, etc. shall be sent to: [mailto:CPP\\_Sample\\_Management@rl.gov](mailto:CPP_Sample_Management@rl.gov)

REVISION 1, DRmz 02/15/18: Task Order revised to indicate additional samples were received on 02/15/18, which have been grouped with SDG 627168, located in Task Order # 180215-3, SRR 61187.

REVISION 2, DRmz 02/16/18: Task Order revised to indicate additional samples were received on 02/16/18, which have been grouped with SDG 627168, located in Task Order # 180216-3, SRR 61202.

Documents Related to this task order: 237949[COC for SRR 61178], 237950[Paperwork for SRR 61178]

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
627631		1	Water	B3H352	13 Feb 18	27 Feb 18
627632		1	Water	B3H353	13 Feb 18	27 Feb 18
627633		1	Water	B3H360	13 Feb 18	27 Feb 18
627634		1	Water	B3H361	13 Feb 18	27 Feb 18
627635		1	Water	B3H369	13 Feb 18	27 Feb 18
627636		1	Water	B3H373	13 Feb 18	27 Feb 18

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
627631		1	Water	B3H352	13 Feb 18	27 Feb 18
627632		1	Water	B3H353	13 Feb 18	27 Feb 18
627633		1	Water	B3H360	13 Feb 18	27 Feb 18
627634		1	Water	B3H361	13 Feb 18	27 Feb 18



Southwest Research Institute

# Laboratory Task Order

TO #: 180214-5 Revision: 2

Project(s): 20859.01.00X  
 Manager(s): SPIES, RADONNA  
 To Client: 03/09/18

SDG: 627168  
 VTSR: 02/14/18  
 SAF: W18-002

SRR #s: 61178  
 Client(s): CH2M Hill Plateau Remediation Company

System ID	Type	Cont	Matrix	Customer ID	CED	Method Date
627635		1	Water	B3H369	13 Feb 18	27 Feb 18
627636		1	Water	B3H373	13 Feb 18	27 Feb 18

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
627631		1	Water	B3H352	13 Feb 18	27 Feb 18
627632		1	Water	B3H353	13 Feb 18	27 Feb 18
627633		1	Water	B3H360	13 Feb 18	27 Feb 18
627634		1	Water	B3H361	13 Feb 18	27 Feb 18
627635		1	Water	B3H369	13 Feb 18	27 Feb 18
627636		1	Water	B3H373	13 Feb 18	27 Feb 18



Southwest Research Institute

# Laboratory Task Order

TO #: 180215-3 Revision: 1

Project(s): 20859.01.00X  
 Manager(s): SPIES, RADONNA  
 To Client: 03/09/18  
 Client(s): CH2M Hill Plateau Remediation Company

SDG: 627168  
 VTSR: 02/15/18  
 SAF: W18-002

SRR #'s: 61187  
 Client(s): CH2M Hill Plateau Remediation Company

## Instructions

CH2MHill Plateau Remediation Company, 300071  
 SAF No. W18-002

SDG 627168 is open until 02/22/18

GROUPED \_ with samples in SDG 627168, located in Task Order # 180209-7, SRR 61137; Task Order # 180214-5, SRR 61178.

30-day TAT.

CURRENTLY, FINAL DATA/HARDCOPY IS DUE TO THE CLIENT ON 03/10/2018.

4 overall samples (4 containers) were received on 02/15/2018, which are ALL listed here.

Sample Analysis REQUIRED

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

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

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

Electronic copies of all sample receipt information, COCs, priority data packages, final data packages, corrected/revised data packages, closure reports, status reports, invoices, etc. shall be sent to: [mailto:CPP\\_Sample\\_Management@rl.gov](mailto:CPP_Sample_Management@rl.gov)

REVISION 1, DRmz 02/16/18: Task Order revised to indicate additional samples were received on 02/16/18, which have been grouped with SDG 627168, located in Task Order # 180216-3, SRR 61202.

Documents Related to this task order: 238058[COC for SRR 61187], 238059[Paperwork for SRR 61187]

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

Test: AMENCN\_9012  
 Section: WETCHEM

Holding: 14 days from CED  
 Amenable Cyanide by SW846 9012

Cnt: 4

System ID	Type	Cont	Matrix	Customer ID	CED	Method Date
627670		1	Water	B3H323	14 Feb 18	28 Feb 18
627671		1	Water	B3H875	14 Feb 18	28 Feb 18
627672		1	Water	B3H885	14 Feb 18	28 Feb 18
627673		1	Water	B3H886	14 Feb 18	28 Feb 18

Test: CN\_9012  
 Section: WETCHEM

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

Cnt: 4

System ID	Type	Cont	Matrix	Customer ID	CED	Method Date
627670		1	Water	B3H323	14 Feb 18	28 Feb 18
627671		1	Water	B3H875	14 Feb 18	28 Feb 18
627672		1	Water	B3H885	14 Feb 18	28 Feb 18
627673		1	Water	B3H886	14 Feb 18	28 Feb 18

Test: CN\_9014  
 Section: WETCHEM

Holding: 14 days from CED  
 Total Cyanide by SW846 9014

Cnt: 4

System ID	Type	Cont	Matrix	Customer ID	CED	Method Date
627670		1	Water	B3H323	14 Feb 18	28 Feb 18



Southwest Research Institute

# Laboratory Task Order

TO #: 180215-3 Revision: 1

Project(s): 20859.01.00X  
Manager(s): SPIES, RADONNA  
To Client: 03/09/18

SDG: 627168  
VTSR: 02/15/18  
SAF: W18-002

SRR #s: 61187  
Client(s): CH2M Hill Plateau Remediation Company

System ID	Type	Cont	Matrix	Customer ID	CED	Method Date
627671		1	Water	B3H875	14 Feb 18	28 Feb 18
627672		1	Water	B3H885	14 Feb 18	28 Feb 18
627673		1	Water	B3H886	14 Feb 18	28 Feb 18



Southwest Research Institute

# Laboratory Task Order

TO #: 180216-3 Revision: 0

SDG: 627168  
 VTSR: 02/16/18  
 SAF: W18-002

SRR #'s: 61202  
 Client(s): CH2M Hill Plateau Remediation Company

Project(s): 20859.01.00X  
 Manager(s): SPIES, RADONNA  
 To Client: 03/09/18

## Instructions

CH2MHill Plateau Remediation Company. 300071  
 SAF No. W18-002

SDG 627168 is open until 02/22/18

GROUPED \_ with samples in SDG 627168, located in Task Order # 180209-7, SRR 61137; Task Order # 180214-5, SRR 61178; Task Order # 180215-3, SRR 61187.

30-day TAT.

FINAL DATA/HARDCOPY IS DUE TO THE CLIENT ON 03/10/2018.

4 overall samples (4 containers) were received on 02/16/2018, which are ALL listed here.

Sample Analysis REQUIRED

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

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

ATTACHMENT C - QC Requirements for Chemical and Radiochemical Analysis

- Section 7.2.2 Sample Data Packages
- Section 7.2.3 Hard Copy Deliverable format
- Section 7.2.4 Final Data Package Requirements
- Section 8.8 CHPRC Electronic Address

Electronic copies of all sample receipt information, COCs, priority data packages, final data packages, corrected/revised data packages, closure reports, status reports, invoices, etc. shall be sent to: [mailto:CPP\\_Sample\\_Management@rl.gov](mailto:CPP_Sample_Management@rl.gov)

Documents Related to this task order: 238151[COC for SRR 61202], 238152[Paperwork for SRR 61202]

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

Test: AMENCN\_9012  
 Section: WETCHEM

Holding: 14 days from CED

Amenable Cyanide by SW846 9012

Cnt: 4

System ID	Type	Cont	Matrix	Customer ID	CED	Method Date
627754		1	Water	B3H3D3	15 Feb 18	01 Mar 18
627755		1	Water	B3H3D4	15 Feb 18	01 Mar 18
627756		1	Water	B3H3D9	15 Feb 18	01 Mar 18
627757		1	Water	B3H3F0	15 Feb 18	01 Mar 18

Test: CN\_9012  
 Section: WETCHEM

Holding: 14 days from CED

Cyanide by Method 9012 (Automated)

Cnt: 4

System ID	Type	Cont	Matrix	Customer ID	CED	Method Date
627754		1	Water	B3H3D3	15 Feb 18	01 Mar 18
627755		1	Water	B3H3D4	15 Feb 18	01 Mar 18
627756		1	Water	B3H3D9	15 Feb 18	01 Mar 18
627757		1	Water	B3H3F0	15 Feb 18	01 Mar 18

Test: CN\_9014  
 Section: WETCHEM

Holding: 14 days from CED

Total Cyanide by SW846 9014

Cnt: 4

System ID	Type	Cont	Matrix	Customer ID	CED	Method Date
627754		1	Water	B3H3D3	15 Feb 18	01 Mar 18



Southwest Research Institute

# Laboratory Task Order

TO #: 180216-3 Revision: 0

Project(s): 20859.01.00X  
Manager(s): SPIES, RADONNA  
To Client: 03/09/18

SDG: 627168  
VTSR: 02/16/18  
SAF: W18-002

SRR #'s: 61202  
Client(s): CH2M Hill Plateau Remediation Company

System ID	Type	Cont	Matrix	Customer ID	CED	Method Date
627755		1	Water	B3H3D4	15 Feb 18	01 Mar 18
627756		1	Water	B3H3D9	15 Feb 18	01 Mar 18
627757		1	Water	B3H3F0	15 Feb 18	01 Mar 18



### Sample Receipt

Southwest Research Institute

VTSR: 02/08/18

Time: 08:30:00

Project: 20859.01.00X

Sample Receipt Number: 61137

Manager: SPIES, RADONNA

Case #: S18-002

Logged in by: DXGARCIA

Client: CH2M Hill Plateau Remediation Company

Creation Date: 02/08/18

#### Notes

Samples were received intact,

Fed Ex Tracking #(s):

7714 2881 9602\_ 1.4°C (wet ice)

pH Test Paper 0.0- 13.0

Lot - 230016

Exp: 10/30/2019

Ice Chest No.:

GWS-702

Test requirements located on the applicable Task Order.

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

ALL SAMPLE CONTAINERS / APPLICABLE ITEMS WERE RECEIVED OK.

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

System ID	Customer ID	CED	Matrix	Containers	Special Reqs.
627168	B3H5X5	02/07/18	Water	1	
627169	B3H613	02/07/18	Water	1	
627170	B3H870	02/07/18	Water	1	
627171	B3H876	02/07/18	Water	1	

Containers: 4

Samples: 4

These documents are associated with this receipt: 237586[COC for SRR 61137], 237587[Paperwork for SRR 61137]

Thermometer: 021056 Temperature: 1.4
---

61137 CH2M Hill Plateau Remediation

### Sample Receipt

Southwest Research Institute

VTSR: 02/15/18

Time: 09:25:00

Project: 20859.01.00X

Sample Receipt Number: 61187

Manager: SPIES, RADONNA

Case #: W18-002

Logged in by: DXGARCIA

Client: CH2M Hill Plateau Remediation Company

Creation Date: 02/15/18

#### Notes

Samples were received intact,

Fed Ex Tracking #(s):

7714 8416 6539 9602\_ 2.2°C (wet ice)

pH Test Paper 0.0- 13.0

Lot - 230016

Exp: 10/30/2019

Ice Chest No.:

GWS-646

Test requirements located on the applicable Task Order.

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

ALL SAMPLE CONTAINERS / APPLICABLE ITEMS WERE RECEIVED OK

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

System ID	Customer ID	CED	Matrix	Containers	Special Reqs.
627670	B3H323	02/14/18	Water	1	
627671	B3H875	02/14/18	Water	1	
627672	B3H885	02/14/18	Water	1	
627673	B3H886	02/14/18	Water	1	

Containers: 4

Samples: 4

These documents are associated with this receipt: 238058[COC for SRR 61187], 238059[Paperwork for SRR 61187]

Thermometer: 021056 Temperature: 2.2
---

61187 CH2M Hill Plateau Remediation

### Sample Receipt

Southwest Research Institute

VTSR: 02/14/18

Time: 08:50:00

Project: 20859.01.00X  
Case #: W18-002  
Client: CH2M Hill Plateau Remediation Company

Sample Receipt Number: 61178  
Revision: 1

*This Receipt was Revised 03/09/2018*

Manager: SPIES, RADONNA  
Logged in by: DXGARCIA  
Creation Date: 02/14/18

#### Notes

Samples were received intact.

Fed Ex Tracking #(s):  
7714 7342 3559 \_ 0.9°C (wet ice)

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

Ice Chest No.:  
GWS-726

Test requirements located on the applicable Task Order.

See chain-of-custody as part of the SRR system for more information.  
REVISION 1, DRmz 03/09/18: SRR revised to correct the FED EX number under the Notes.

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

System ID	Customer ID	CED	Matrix	Containers	Special Reqs.
627631	B3H352	02/13/18	Water	1	
627632	B3H353	02/13/18	Water	1	
627633	B3H360	02/13/18	Water	1	
627634	B3H361	02/13/18	Water	1	
627635	B3H369	02/13/18	Water	1	
627636	B3H373	02/13/18	Water	1	

Containers: 6

Samples: 6

These documents are associated with this receipt: 237949[COC for SRR 61178], 237950[Paperwork for SRR 61178]

Thermometer: 021056  
Temperature: 0.9

61178 CH2M Hill Plateau Remediation

### Sample Receipt

Southwest Research Institute

VTSR: 02/16/18

Time: 08:30:00

Project: 20859.01.00X

Sample Receipt Number: 61202

Manager: SPIES, RADONNA

Case #: W18-002

Logged in by: DXGARCIA

Client: CH2M Hill Plateau Remediation Company

Creation Date: 02/16/18

#### Notes

Samples were received intact,

Fed Ex Tracking #(s):

7714 9527 0531\_ 2.2°C (wet ice)

pH Test Paper 0.0- 13.0

Lot - 230016

Exp: 10/30/2019

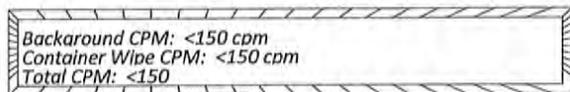
Ice Chest No.:

GWS-636

Test requirements located on the applicable Task Order.

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

ALL SAMPLE CONTAINERS / APPLICABLE ITEMS WERE RECEIVED OK



System ID	Customer ID	CED	Matrix	Containers	Special Reqs.
627754	B3H3D3	02/15/18	Water	1	
627755	B3H3D4	02/15/18	Water	1	
627756	B3H3D9	02/15/18	Water	1	
627757	B3H3F0	02/15/18	Water	1	

Containers: 4

Samples: 4

These documents are associated with this receipt: 238151[COC for SRR 61202], 238152[Paperwork for SRR 61202]

Thermometer: 021056  
Temperature: 2.2

61202 CH2M Hill Plateau Remediation

Southwest Research Institute

Traffic Report

Sample Custodian Signature: David Gorin



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

Client: CH2M Hill Plateau Remediation Company

Project: 20859.01.00X

Case: S18-002 / SDG: See T.O.

Sample Receipt: 61137

Airbill: 7714 2881 9602

Custody Seal #(s): N/A

Date Received	Time Received	COC Record	SMO Sample #	Corresponding		Traffic Rpt, Tags, COC Agree	Sample Condition
				Sample Tag #	SwRI #		
02/08/18	08:30:00	S18-002-254	B3H5X5	N/A	627168	YES	Intact
02/08/18	08:30:00	S18-002-257	B3H613	N/A	627169	YES	Intact
02/08/18	08:30:00	S18-002-621	B3H870	N/A	627170	YES	Intact
02/08/18	08:30:00	S18-002-626	B3H876	N/A	627171	YES	Intact

Southwest Research Institute  
Traffic Report

Sample Custodian Signature: David Garman



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

Client: CH2M Hill Plateau Remediation Company  
 Project: 20859.01.00X  
 Case: W18-002 / SDG: SEE TO  
 Sample Receipt: 61187  
 Airbill: 7714 8416 6539

Custody Seal #(s): N/A

Date Received	Time Received	COC Record	SMO Sample #	Corresponding		Traffic Rpt, Tags, COC Agree	Sample Condition
				Sample Tag #	SwRI #		
02/15/18	09:25:00	W18-002-173	B3H323	N/A	627670	YES	Intact
02/15/18	09:25:00	W18-002-173	B3H875	N/A	627671	YES	Intact
02/15/18	09:25:00	W18-002-174	B3H885	N/A	627672	YES	Intact
02/15/18	09:25:00	W18-002-174	B3H886	N/A	627673	YES	Intact

Southwest Research Institute

Traffic Report

Sample Custodian Signature: David Harwin



- 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: W18-002 / SDG: SEE TO

Sample Receipt: 61178

Airbill: 7714 7342 3559

Custody Seal #(s): N/A

Date Received	Time Received	COC Record	SMO Sample #	Corresponding		Traffic Rpt, Tags, COC Agree	Sample Condition
				Sample Tag #	SwRI #		
02/14/18	08:50:00	W18-002-064	B3H352	N/A	627631	YES	Intact
02/14/18	08:50:00	W18-002-065	B3H353	N/A	627632	YES	Intact
02/14/18	08:50:00	W18-002-064	B3H360	N/A	627633	YES	Intact
02/14/18	08:50:00	W18-002-065	B3H361	N/A	627634	YES	Intact
02/14/18	08:50:00	W18-002-068	B3H369	N/A	627635	YES	Intact
02/14/18	08:50:00	W18-002-068	B3H373	N/A	627636	YES	Intact

Southwest Research Institute

Traffic Report

Sample Custodian Signature: David Horin



- 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: W18-002 / SDG: See T.O.  
 Sample Receipt: 61202  
 Airbill: 7714 9527 0531

Custody Seal #(s): N/A

Date Received	Time Received	COC Record	SMO Sample #	Corresponding		Traffic Rpt, Tags, COC Agree	Sample Condition
				Sample Tag #	SwRI #		
02/16/18	08:30:00	W18-002-058	B3H3D3	N/A	627754	YES	Intact
02/16/18	08:30:00	W18-002-059	B3H3D4	N/A	627755	YES	Intact
02/16/18	08:30:00	W18-002-058	B3H3D9	N/A	627756	YES	Intact
02/16/18	08:30:00	W18-002-059	B3H3F0	N/A	627757	YES	Intact

SAMPLE LOG-IN SHEET

Lab Name Southwest Research Institute		Page 1 of 1	
Received By (Print Name) DAVID GARCIA		Log-in Date 02/08/2018	
Received By (Signature) <i>David Garcia</i>			
Case Number S18-002	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)	<del>Present</del> Absent* Intact/Broken	B3H5X5	N/A
		B3H613	N/A
2. Custody Seal Nos.	N/A	B3H870	N/A
		B3H876	N/A
3. Chain-of Custody Records	<del>Present</del> Absent*		
4. Traffic Reports or Packing Lists	<del>Present</del> Absent*		
5. Airbill	Airbill/Sticker <del>Present</del> Absent*		
6. Airbill No.	7714 2881 9602		
7. Sample Tags	Present <del>Absent</del> N/A		
Sample Tag Numbers	Listed <del>Not</del> listed on Chain of Custody		
8. Sample Condition	<del>Intact</del> Broken*/Leaking		
9. Cooler Temperature	1.4C		
10. Does Information on custody records, traffic reports, and sample tags agree?	<del>Yes</del> No*		
11. Date Received at Lab	02/08/2018		
12. Time Received	08:30:00		
Sample Transfer			
Fraction INORG	Fraction		
Area # R.13	Area #		
By DAVID GARCIA	By		
On 02/08/2018	On		

\* Contact SMO and attach record of resolution

Reviewed By <i>David Garcia</i>	Logbook No. Sample Receipt (61137)
Date 2.8.18	Logbook Page No. 10090 Sec 1054

SAMPLE LOG-IN SHEET

Lab Name Southwest Research Institute		Page 1 of 1			
Received By (Print Name) David Garcia		Log-in Date 02/15/2018			
Received By (Signature) <i>David Garcia</i>					
Case Number W18-002	Sample Delivery Group No. N/A		SAS Number N/A		
Remarks: 20859.01.00X		Remarks: Condition of Sample Shipment, etc			
		Corresponding			
	EPA Sample #	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	B3H323	N/A	627670	Intact
2. Custody Seal Nos.	N/A	B3H875	N/A	627671	Intact
		B3H885	N/A	627672	Intact
3. Chain-of Custody Records	<input checked="" type="radio"/> Present / <input type="radio"/> Absent*	B3H886	N/A	627673	Intact
4. Traffic Reports or Packing Lists	<input checked="" type="radio"/> Present / <input type="radio"/> Absent*				
5. Airbill	Airbill/Sticker <input checked="" type="radio"/> Present / <input type="radio"/> Absent*				
6. Airbill No.	7714 8416 6539				
7. Sample Tags	Present / <input checked="" type="radio"/> Absent* N/A				
Sample Tag Numbers	Listed / <input checked="" type="radio"/> Not listed on Chain of Custody				
8. Sample Condition	<input checked="" type="radio"/> Intact / <input type="radio"/> Broken* / <input type="radio"/> Leaking				
9. Cooler Temperature	2.2C				
10. Does Information on custody records, traffic reports, and sample tags agree?	<input checked="" type="radio"/> Yes / <input type="radio"/> No*				
11. Date Received at Lab	02/15/2018				
12. Time Received	09:25:00				
Sample Transfer					
Fraction	<i>Inorg</i>	Fraction			
Area #	<i>R.13</i>	Area #			
By	David Garcia	By			
On	02/15/2018	On			

\* Contact SMO and attach record of resolution

Reviewed By <i>Antony</i>	Logbook No.	Sample Receipt (61187)
Date <i>2.15.18</i>	Logbook Page No. ✓	10097 <i>Sec 2 of 4</i>

SAMPLE LOG-IN SHEET

Lab Name Southwest Research Institute		Page 1 of 1	
Received By (Print Name) David Garcia		Log-in Date 02/16/2018	
Received By (Signature) <i>David Garcia</i>			
Case Number W18-002	Sample Delivery Group No. N/A	SAS Number N/A	
Remarks: 20859.01.00X		Remarks: Condition of Sample Shipment, etc	
	EPA Sample #	Sample Tag #	Assigned Lab #
1. Custody Seal(s)	<input checked="" type="checkbox"/> Present / <input type="checkbox"/> Absent* <input checked="" type="checkbox"/> Intact / <input type="checkbox"/> Broken	B3H3D3	N/A
2. Custody Seal Nos.	N/A	B3H3D4	N/A
		B3H3D9	N/A
3. Chain-of Custody Records	<input checked="" type="checkbox"/> Present / <input type="checkbox"/> Absent*	B3H3F0	N/A
4. Traffic Reports or Packing Lists	<input checked="" type="checkbox"/> Present / <input type="checkbox"/> Absent*		
5. Airbill	Airbill/Sticker <input checked="" type="checkbox"/> Present / <input type="checkbox"/> Absent*		
6. Airbill No.	7714 9527 0531		
7. Sample Tags	Present <input checked="" type="checkbox"/> Absent* N/A		
Sample Tag Numbers	Listed <input checked="" type="checkbox"/> Not listed on Chain of Custody		
8. Sample Condition	<input checked="" type="checkbox"/> Intact / <input type="checkbox"/> Broken* / <input type="checkbox"/> Leaking		
9. Cooler Temperature	2.2C		
10. Does Information on custody records, traffic reports, and sample tags agree?	<input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No*		
11. Date Received at Lab	02/16/2018		
12. Time Received	08:30:00		
Sample Transfer			
Fraction OINORG	Fraction		
Area # R.13	Area #		
By David Garcia	By		
On 02/16/2018	On		

\* Contact SMO and attach record of resolution

Reviewed By <i>Keith Regnell</i>	Logbook No.	Sample Receipt (61202)
Date 2.16.18	Logbook Page No. <input checked="" type="checkbox"/> 10098	Sec 1 of 3

SAMPLE LOG-IN SHEET

Lab Name Southwest Research Institute		Page 1 of 1	
Received By (Print Name) David Garcia		Log-in Date 02/14/2018	
Received By (Signature) <i>David Garcia</i>			
Case Number W18-002	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 / Absent* <input checked="" type="radio"/> Intact / Broken	B3H352	N/A	627631
2. Custody Seal Nos. N/A	B3H353	N/A	627632
	B3H360	N/A	627633
3. Chain-of Custody Records <input checked="" type="radio"/> Present / Absent*	B3H361	N/A	627634
4. Traffic Reports or Packing Lists <input checked="" type="radio"/> Present / Absent*	B3H369	N/A	627635
5. Airbill <input checked="" type="radio"/> Airbill / Sticker Present / Absent*	B3H373	N/A	627636
6. Airbill No. 7714 7342 3559			
7. Sample Tags Present <input checked="" type="radio"/> Absent N/A			
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 02/14/2018			
12. Time Received 08:50:00			
Sample Transfer			
Fraction Inorg	Fraction		
Area # R.13	Area #		
By David Garcia	By		
On 02/14/2018	On		

\* Contact SMO and attach record of resolution

Reviewed By <i>Ant Reynolds</i>	Logbook No. Sample Receipt (61178)
Date 2.14.18	Logbook Page No. 10096 Sec 10F2

**SOUTHWEST RESEARCH INSTITUTE****CLIENT: CH2M Hill Plateau Remediation Company****SwRI PROJECT#: 20859.01.00X****SwRI TASK ORDER: 180209-7, 180214-5, 180215-3,  
180216-3****SwRI SRR: 61137, 61178, 61187, 61202****SDG: 627168****VTSR: 02.08.18, 02.14.18, 02.15.18, 02.16.18**

## Case Narrative

**CLIENT: CH2M Hill Plateau Remediation Company**

**SDG: 627168**

**SwRI Project Number: 20859.01.00X**

**SwRI Sample Receipt Number: 61137, 61178, 61187, 61202**

**Page#: 1**

SwRI CASE NARRATIVE

1. Eighteen (18) samples were received for SW-846 Method 9012 and 9014:

SwRI ID	Customer ID	Matrix
627168	B3H5X5	Water
627169	B3H613	Water
627170	B3H870	Water
627171	B3H876	Water
627631	B3H352	Water
627632	B3H353	Water
627633	B3H360	Water
627634	B3H361	Water
627635	B3H369	Water
627636	B3H373	Water
627670	B3H323	Water
627671	B3H875	Water
627672	B3H885	Water
627673	B3H886	Water
627754	B3H3D3	Water
627755	B3H3D4	Water
627756	B3H3D9	Water
627757	B3H3F0	Water

**Client: CH2M Hill Plateau Remediation Company**

**SDG: 627168**

**SwRI Project Number: 20859.01.00X**

**SwRI Task Order Number(s): 180209-7, 180214-5, 180215-3, 180216-3**

### **WETCHEM ANALYSIS**

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

Total Cyanide – SW-846 Method 9012

Free Cyanide – SW-846 Method 9014

Amenable Cyanide – SW-846 Method 9012

### **Holding Times:**

All holding times were met.

### **Cyanide:**

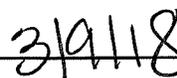
All PBs, ICB's and CCB's were less than the reporting limit. All LCSWs were within 80-120% recovery and all ICV's and CCV's were within 90-110% recovery. The method states 90-110% recovery criteria for LCSH and LCSL; all were within their specified criteria. All LLCs were within 50-150% recovery and all duplicates were less than 20% recovery with the exception of total cyanide #627168 with an RPD of 22.2%. Although the RPD was not within the required criteria, a control limit of +/- the reporting limit should be used for samples less than five times the reporting limit. If the method did not specify MS recovery criteria, then 75-125% was used. All matrix spike recoveries were within their specified criteria.

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



Principal Scientist

Date



**SOUTHWEST RESEARCH INSTITUTE****CLIENT: CH2M Hill Plateau Remediation Company****SwRI PROJECT#: 20859.01.00X****SwRI TASK ORDER: 180209-7, 180214-5, 180215-3,  
180216-3****SwRI SRR: 61137, 61178, 61187, 61202****SDG: 627168****VTSR: 02.08.18, 02.14.18, 02.15.18, 02.16.18**

# pH Report

SwRI

pH Preservation Report

Sample Receipt: 61137

Customer: CH2M Hill Plateau Remediation

Project: 20859.01.00X

Case: S18-002

Received: 02/08/2018

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
627168 1	B3H5X5		>=12								
627169 1	B3H613		>=12								
627170 1	B3H870		>=12								
627171 1	B3H876		>=12								

SwRI

pH Preservation Report

Sample Receipt: 61178

Customer: CH2M Hill Plateau Remediation

Project: 20859.01.00X

Case: W18-002

Received: 02/14/2018

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
627631 1	B3H352		>=12								
627632 1	B3H353		>=12								
627633 1	B3H360		>=12								
627634 1	B3H361		>=12								
627635 1	B3H369		>=12								
627636 1	B3H373		>=12								

SwRI

pH Preservation Report

Sample Receipt: 61187

Customer: CH2M Hill Plateau Remediation

Project: 20859.01.00X

Case: W18-002

Received: 02/15/2018

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
627670 1	B3H323		>=12								
627671 1	B3H875		>=12								
627672 1	B3H885		>=12								
627673 1	B3H886		>=12								

SwRI

pH Preservation Report

Sample Receipt: 61202

Customer: CH2M Hill Plateau Remediation

Project: 20859.01.00X

Case: W18-002

Received: 02/16/2018

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
627754 1	B3H3D3		>=12								
627755 1	B3H3D4		>=12								
627756 1	B3H3D9		>=12								
627757 1	B3H3F0		>=12								

**SOUTHWEST RESEARCH INSTITUTE****CLIENT: CH2M Hill Plateau Remediation Company****SwRI PROJECT#: 20859.01.00X****SwRI TASK ORDER: 180209-7, 180214-5, 180215-3,  
180216-3****SwRI SRR: 61137, 61178, 61187, 61202****SDG: 627168****VTSR: 02.08.18, 02.14.18, 02.15.18, 02.16.18****SW-846 Method 9012 & 9014  
Results**

SOUTHWEST RESEARCH INSTITUTE  
WetChem Report  
Cover Page

Client: CH2M Hill Plateau Remediation Company  
Task Order: 180215-3, 180214-5, 180216-3,  
180209-7

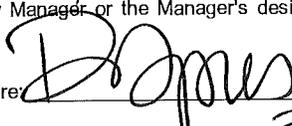
SDG: 627168  
SRR: 61187, 61178, 61202, 61137

Case: W18-002, S18-002  
Project: 20859.01.00X

Client Sample ID	Lab Sample ID
B3H323	627670
B3H323D	627670D
B3H352	627631
B3H352D	627631D
B3H353	627632
B3H360	627633
B3H361	627634
B3H369	627635
B3H373	627636
B3H3D3	627754
B3H3D3D	627754D
B3H3D4	627755
B3H3D9	627756
B3H3F0	627757
B3H5X5	627168
B3H5X5D	627168D
B3H613	627169
B3H870	627170
B3H875	627671
B3H876	627171
B3H885	627672
B3H886	627673

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: 3/9/18

Name: Radonna Spies

Title: Principal Scientist

Cover Page

3/9/2018  
**SOUTHWEST RESEARCH INSTITUTE**  
 WetChem Report - Form I  
 Certificate of Analysis

**010042** REV 0  
 Client Sample ID  
**B3H323**

**Type: Unknown**

Client: CH2M Hill Plateau Remediation Company  
 Task Order: 180215-3  
 Lab ID: 627670  
 Result Units: mg/L

SDG: 627168  
 SRR: 61187  
 Matrix: Water  
 % Solids: NA

Case: W18-002  
 Project: 20859.01.00X  
 Receipt Date: 02/15/2018  
 Collection Date: 02/14/2018

CAS No.	Analyte	Result	Qual	M	RL	DF	Prep Batch	Analysis Date/Time
	Amenable Cyanide	0.196		KNO	0.00500	1	NA	02/21/2018 12:30
57-12-5	Free Cyanide	0.00500	U	KNO	0.00500	1	NA	02/21/2018 14:52
57-12-5	Total Cyanide	0.196		KNO	0.00500	1	20180222-P001	02/21/2018 12:18

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	KNO - Konelab/Amenable Cyanide
E - Result is estimated due to interferences		NA - Not Applicable
D - Result is reported from a dilution		
* - Duplicate criteria was not met		

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**010043** REV 0  
 Client Sample ID  
B3H352

**Type: Unknown**

Client: CH2M Hill Plateau Remediation Company  
 Task Order: 180214-5  
 Lab ID: 627631  
 Result Units: mg/L

SDG: 627168  
 SRR: 61178  
 Matrix: Water  
 % Solids: NA

Case: W18-002  
 Project: 20859.01.00X  
 Receipt Date: 02/14/2018  
 Collection Date: 02/13/2018

CAS No.	Analyte	Result	Qual	M	RL	DF	Prep Batch	Analysis Date/Time
	Amenable Cyanide	0.00500	U	KNO	0.00500	1	NA	02/21/2018 12:30
57-12-5	Free Cyanide	0.00500	U	KNO	0.00500	1	NA	02/21/2018 14:19
57-12-5	Total Cyanide	0.00500	U	KNO	0.00500	1	20180222-P001	02/21/2018 12:18

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

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**010044** REV 0  
 Client Sample ID  
**B3H353**

**Type: Unknown**

Client: CH2M Hill Plateau Remediation Company  
 Task Order: 180214-5  
 Lab ID: 627632  
 Result Units: mg/L

SDG: 627168  
 SRR: 61178  
 Matrix: Water  
 % Solids: NA

Case: W18-002  
 Project: 20859.01.00X  
 Receipt Date: 02/14/2018  
 Collection Date: 02/13/2018

CAS No.	Analyte	Result	Qual	M	RL	DF	Prep Batch	Analysis Date/Time
	Amenable Cyanide	0.0752		KNO	0.00500	1	NA	02/21/2018 12:30
57-12-5	Free Cyanide	0.00899		KNO	0.00500	1	NA	02/21/2018 14:19
57-12-5	Total Cyanide	0.889	D	KNO	0.0500	10	20180222-P001	02/21/2018 12:55

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 KNO - Konelab/Amenable Cyanide NA - Not Applicable

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**010045** REV 0  
 Client Sample ID  
**B3H360**

**Type: Unknown**

Client: CH2M Hill Plateau Remediation Company  
 Task Order: 180214-5  
 Lab ID: 627633  
 Result Units: mg/L

SDG: 627168  
 SRR: 61178  
 Matrix: Water  
 % Solids: NA

Case: W18-002  
 Project: 20859.01.00X  
 Receipt Date: 02/14/2018  
 Collection Date: 02/13/2018

CAS No.	Analyte	Result	Qual	M	RL	DF	Prep Batch	Analysis Date/Time
	Amenable Cyanide	0.00500	U	KNO	0.00500	1	NA	02/21/2018 12:30
57-12-5	Free Cyanide	0.00500	U	KNO	0.00500	1	NA	02/21/2018 14:52
57-12-5	Total Cyanide	0.00500	U	KNO	0.00500	1	20180222-P001	02/21/2018 12:18

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

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**010046** REV 0  
 Client Sample ID  
**B3H361**

**Type: Unknown**

Client: CH2M Hill Plateau Remediation Company  
 Task Order: 180214-5  
 Lab ID: 627634  
 Result Units: mg/L

SDG: 627168  
 SRR: 61178  
 Matrix: Water  
 % Solids: NA

Case: W18-002  
 Project: 20859.01.00X  
 Receipt Date: 02/14/2018  
 Collection Date: 02/13/2018

CAS No.	Analyte	Result	Qual	M	RL	DF	Prep Batch	Analysis Date/Time
	Amenable Cyanide	0.105	D	KNO	0.0500	10	NA	02/21/2018 12:30
57-12-5	Free Cyanide	0.00842		KNO	0.00500	1	NA	02/21/2018 14:52
57-12-5	Total Cyanide	0.876	D	KNO	0.0500	10	20180222-P001	02/21/2018 12:55

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	KNO - Konelab/Amenable Cyanide
E - Result is estimated due to interferences		NA - Not Applicable
D - Result is reported from a dilution		
* - Duplicate criteria was not met		

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**010047** REV 0  
 Client Sample ID  
**B3H369**

**Type: Unknown**

Client: CH2M Hill Plateau Remediation Company  
 Task Order: 180214-5  
 Lab ID: 627635  
 Result Units: mg/L

SDG: 627168  
 SRR: 61178  
 Matrix: Water  
 % Solids: NA

Case: W18-002  
 Project: 20859.01.00X  
 Receipt Date: 02/14/2018  
 Collection Date: 02/13/2018

CAS No.	Analyte	Result	Qual	M	RL	DF	Prep Batch	Analysis Date/Time
	Amenable Cyanide	0.00500	U	KNO	0.00500	1	NA	02/21/2018 12:30
57-12-5	Free Cyanide	0.00500	U	KNO	0.00500	1	NA	02/21/2018 16:56
57-12-5	Total Cyanide	0.00728		KNO	0.00500	1	20180222-P001	02/21/2018 16:56

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	KNO - Konelab/Amenable Cyanide
E - Result is estimated due to interferences		NA - Not Applicable
D - Result is reported from a dilution		
* - Duplicate criteria was not met		

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**010048** REV 0  
 Client Sample ID  
**B3H373**

**Type: Unknown**

Client: CH2M Hill Plateau Remediation Company  
 Task Order: 180214-5  
 Lab ID: 627636  
 Result Units: mg/L

SDG: 627168  
 SRR: 61178  
 Matrix: Water  
 % Solids: NA

Case: W18-002  
 Project: 20859.01.00X  
 Receipt Date: 02/14/2018  
 Collection Date: 02/13/2018

CAS No.	Analyte	Result	Qual	M	RL	DF	Prep Batch	Analysis Date/Time
	Amenable Cyanide	0.00885		KNO	0.00500	1	NA	02/21/2018 12:30
57-12-5	Free Cyanide	0.00500	U	KNO	0.00500	1	NA	02/21/2018 14:52
57-12-5	Total Cyanide	0.00885		KNO	0.00500	1	20180222-P001	02/21/2018 12:18

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

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**010049** REV 0  
 Client Sample ID  
B3H3D3

**Type: Unknown**

Client: CH2M Hill Plateau Remediation Company  
 Task Order: 180216-3  
 Lab ID: 627754  
 Result Units: mg/L

SDG: 627168  
 SRR: 61202  
 Matrix: Water  
 % Solids: NA

Case: W18-002  
 Project: 20859.01.00X  
 Receipt Date: 02/16/2018  
 Collection Date: 02/15/2018

CAS No.	Analyte	Result	Qual	M	RL	DF	Prep Batch	Analysis Date/Time
	Amenable Cyanide	0.00500	U	NA	0.00500	1		02/28/2018 11:38
57-12-5	Free Cyanide	0.00500	U	KNO	0.00500	1	NA	02/21/2018 15:27
57-12-5	Total Cyanide	0.00500	U	KNO	0.00500	1	20180305-P002	02/28/2018 10:13

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 KNO - Konelab/Amenable Cyanide NA - Not Applicable

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**010050** Client Sample ID **REV 0**

**B3H3D4**

**Type: Unknown**

Client: CH2M Hill Plateau Remediation Company  
 Task Order: 180216-3  
 Lab ID: 627755  
 Result Units: mg/L

SDG: 627168  
 SRR: 61202  
 Matrix: Water  
 % Solids: NA

Case: W18-002  
 Project: 20859.01.00X  
 Receipt Date: 02/16/2018  
 Collection Date: 02/15/2018

CAS No.	Analyte	Result	Qual	M	RL	DF	Prep Batch	Analysis Date/Time
	Amenable Cyanide	0.00500	U	KNO	0.00500	1	NA	02/21/2018 12:30
57-12-5	Free Cyanide	0.00500	U	KNO	0.00500	1	NA	02/21/2018 15:27
57-12-5	Total Cyanide	0.00500	U	KNO	0.00500	1	20180305-P002	02/28/2018 10:13

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 KNO - Konelab/Amenable Cyanide NA - Not Applicable

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**010051** REV 0  
 Client Sample ID  
B3H3D9

**Type: Unknown**

Client: CH2M Hill Plateau Remediation Company  
 Task Order: 180216-3  
 Lab ID: 627756  
 Result Units: mg/L

SDG: 627168  
 SRR: 61202  
 Matrix: Water  
 % Solids: NA

Case: W18-002  
 Project: 20859.01.00X  
 Receipt Date: 02/16/2018  
 Collection Date: 02/15/2018

CAS No.	Analyte	Result	Qual	M	RL	DF	Prep Batch	Analysis Date/Time
	Amenable Cyanide	0.00500	U	KNO	0.00500	1	NA	02/21/2018 12:30
57-12-5	Free Cyanide	0.00500	U	KNO	0.00500	1	NA	02/21/2018 15:27
57-12-5	Total Cyanide	0.00500	U	KNO	0.00500	1	20180305-P002	02/28/2018 10:13

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 KNO - Konelab/Amenable Cyanide NA - Not Applicable

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**010052** REV 0  
 Client Sample ID  
**B3H3F0**

**Type: Unknown**

Client: CH2M Hill Plateau Remediation Company  
 Task Order: 180216-3  
 Lab ID: 627757  
 Result Units: mg/L

SDG: 627168  
 SRR: 61202  
 Matrix: Water  
 % Solids: NA

Case: W18-002  
 Project: 20859.01.00X  
 Receipt Date: 02/16/2018  
 Collection Date: 02/15/2018

CAS No.	Analyte	Result	Qual	M	RL	DF	Prep Batch	Analysis Date/Time
	Amenable Cyanide	0.00500	U	KNO	0.00500	1	NA	02/21/2018 12:30
57-12-5	Free Cyanide	0.00500	U	KNO	0.00500	1	NA	02/28/2018 14:57
57-12-5	Total Cyanide	0.00500	U	KNO	0.00500	1	20180305-P002	02/28/2018 10:13

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	KNO - Konelab/Amenable Cyanide
E - Result is estimated due to interferences		NA - Not Applicable
D - Result is reported from a dilution		
* - Duplicate criteria was not met		

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**010053** Client Sample ID **REV 0**

**B3H5X5**

**Type: Unknown**

Client: CH2M Hill Plateau Remediation Company  
 Task Order: 180209-7  
 Lab ID: 627168  
 Result Units: mg/L

SDG: 627168  
 SRR: 61137  
 Matrix: Water  
 % Solids: NA

Case: S18-002  
 Project: 20859.01.00X  
 Receipt Date: 02/08/2018  
 Collection Date: 02/07/2018

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	20180222-P001	02/21/2018 14:18
57-12-5	Total Cyanide	0.0168		KNO	0.00500	1	20180222-P001	02/21/2018 11:43

<b>Data Reporting Qualifiers (Qual)</b>	<b>Columns</b>	<b>Instruments/Methods (M)</b>
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 KNO - Konelab/Amenable Cyanide NA - Not Applicable

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**010054** REV 0  
 Client Sample ID  
**B3H613**

**Type: Unknown**

Client: CH2M Hill Plateau Remediation Company  
 Task Order: 180209-7  
 Lab ID: 627169  
 Result Units: mg/L

SDG: 627168  
 SRR: 61137  
 Matrix: Water  
 % Solids: NA

Case: S18-002  
 Project: 20859.01.00X  
 Receipt Date: 02/08/2018  
 Collection Date: 02/07/2018

CAS No.	Analyte	Result	Qual	M	RL	DF	Prep Batch	Analysis Date/Time
57-12-5	Free Cyanide	0.00509		KNO	0.00500	1	NA	02/21/2018 14:19
57-12-5	Total Cyanide	0.251		KNO	0.00500	1	20180222-P001	02/21/2018 11:43

<b>Data Reporting Qualifiers (Qual)</b>	<b>Columns</b>	<b>Instruments/Methods (M)</b>
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 KNO - Konelab/Amenable Cyanide NA - Not Applicable

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**010055** REV 0  
 Client Sample ID  
**B3H870**

**Type: Unknown**

Client: CH2M Hill Plateau Remediation Company  
 Task Order: 180209-7  
 Lab ID: 627170  
 Result Units: mg/L

SDG: 627168  
 SRR: 61137  
 Matrix: Water  
 % Solids: NA

Case: S18-002  
 Project: 20859.01.00X  
 Receipt Date: 02/08/2018  
 Collection Date: 02/07/2018

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	02/21/2018 14:19
57-12-5	Total Cyanide	0.0120		KNO	0.00500	1	20180222-P001	02/21/2018 11:43

<b>Data Reporting Qualifiers (Qual)</b>	<b>Columns</b>	<b>Instruments/Methods (M)</b>
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 KNO - Konelab/Amenable Cyanide NA - Not Applicable

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**010056** REV 0  
 Client Sample ID  
B3H875

**Type: Unknown**

Client: CH2M Hill Plateau Remediation Company  
 Task Order: 180215-3  
 Lab ID: 627671  
 Result Units: mg/L

SDG: 627168  
 SRR: 61187  
 Matrix: Water  
 % Solids: NA

Case: W18-002  
 Project: 20859.01.00X  
 Receipt Date: 02/15/2018  
 Collection Date: 02/14/2018

CAS No.	Analyte	Result	Qual	M	RL	DF	Prep Batch	Analysis Date/Time
	Amenable Cyanide	0.00500	U	KNO	0.00500	1	NA	02/21/2018 12:30
57-12-5	Free Cyanide	0.00500	U	KNO	0.00500	1	NA	02/21/2018 16:21
57-12-5	Total Cyanide	0.172		KNO	0.00500	1	20180222-P001	02/21/2018 12:18

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

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**010057** REV 0  
 Client Sample ID  
B3H876

**Type: Unknown**

Client: CH2M Hill Plateau Remediation Company  
 Task Order: 180209-7  
 Lab ID: 627171  
 Result Units: mg/L

SDG: 627168  
 SRR: 61137  
 Matrix: Water  
 % Solids: NA

Case: S18-002  
 Project: 20859.01.00X  
 Receipt Date: 02/08/2018  
 Collection Date: 02/07/2018

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	02/21/2018 14:19
57-12-5	Total Cyanide	0.179		KNO	0.00500	1	20180222-P001	02/21/2018 11:43

<b>Data Reporting Qualifiers (Qual)</b>	<b>Columns</b>	<b>Instruments/Methods (M)</b>
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 KNO - Konelab/Amenable Cyanide NA - Not Applicable

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**010058** REV 0  
 Client Sample ID  
B3H885

**Type: Unknown**

Client: CH2M Hill Plateau Remediation Company  
 Task Order: 180215-3  
 Lab ID: 627672  
 Result Units: mg/L

SDG: 627168  
 SRR: 61187  
 Matrix: Water  
 % Solids: NA

Case: W18-002  
 Project: 20859.01.00X  
 Receipt Date: 02/15/2018  
 Collection Date: 02/14/2018

CAS No.	Analyte	Result	Qual	M	RL	DF	Prep Batch	Analysis Date/Time
	Amenable Cyanide	0.00618		KNO	0.00500	1	NA	02/21/2018 12:30
57-12-5	Free Cyanide	0.00500	U	KNO	0.00500	1	NA	02/21/2018 15:27
57-12-5	Total Cyanide	0.00618		KNO	0.00500	1	20180222-P001	02/21/2018 12:55

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 KNO - Konelab/Amenable Cyanide NA - Not Applicable

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**010059** REV 0  
 Client Sample ID  
B3H886

**Type: Unknown**

Client: CH2M Hill Plateau Remediation Company  
 Task Order: 180215-3  
 Lab ID: 627673  
 Result Units: mg/L

SDG: 627168  
 SRR: 61187  
 Matrix: Water  
 % Solids: NA

Case: W18-002  
 Project: 20859.01.00X  
 Receipt Date: 02/15/2018  
 Collection Date: 02/14/2018

CAS No.	Analyte	Result	Qual	M	RL	DF	Prep Batch	Analysis Date/Time
	Amenable Cyanide	0.00506		KNO	0.00500	1	NA	02/21/2018 12:30
57-12-5	Free Cyanide	0.00500	U	KNO	0.00500	1	NA	02/21/2018 15:27
57-12-5	Total Cyanide	0.00506		KNO	0.00500	1	20180222-P001	02/21/2018 12:55

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 KNO - Konelab/Amenable Cyanide NA - Not Applicable

Form I-IN

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**SOUTHWEST RESEARCH INSTITUTE**  
 WetChem Report - Form I  
 Certificate of Analysis

**010060**

**REV 0**  
 SwRI ID

**PB18B20PB1**

**Type: Blank**

Client: CH2M Hill Plateau Remediation Company  
 Task Order: 180215-3 + 3 others  
 Lab ID: PB18B20PB1  
 Result Units: mg/L

SDG: 627168  
 SRR: 61137, 61178, 61187  
 Matrix: Water  
 % Solids: NA

Case: S18-002, W18-002  
 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	20180222-P001	02/21/2018 12:55

<b>Data Reporting Qualifiers (Qual)</b>	<b>Columns</b>	<b>Instruments/Methods (M)</b>
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 KNO - Konelab/Amenable Cyanide NA - Not Applicable

Form I-IN

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**SOUTHWEST RESEARCH INSTITUTE**  
 WetChem Report - Form I  
 Certificate of Analysis

**010061**

**REV 0**  
 SwRI ID

**PB18B28JH3**

**Type: Blank**

Client: CH2M Hill Plateau Remediation Company  
 Task Order: 180215-3 + 3 others  
 Lab ID: PB18B28JH3  
 Result Units: mg/L

SDG: 627168  
 SRR: 61137, 61178, 61187, 61202  
 Matrix: Water  
 % Solids: NA

Case: S18-002, W18-002  
 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	20180305-P002	02/28/2018 10:13

<b>Data Reporting Qualifiers (Qual)</b>	<b>Columns</b>	<b>Instruments/Methods (M)</b>
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 KNO - Konelab/Amenable Cyanide NA - Not Applicable

Form I-IN

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 WetChem Report - Form I  
 Certificate of Analysis

**010062**

**REV 0**  
 SwRI ID

**PB18C05JH1**

**Type: Blank**

Client: CH2M Hill Plateau Remediation Company  
 Task Order: 180215-3 + 3 others  
 Lab ID: PB18C05JH1  
 Result Units: mg/L

SDG: 627168  
 SRR: 61178, 61202  
 Matrix: Water  
 % Solids: NA

Case: W18-002  
 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	NA	02/21/2018 12:30

<b>Data Reporting Qualifiers (Qual)</b>	<b>Columns</b>	<b>Instruments/Methods (M)</b>
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 KNO - Konelab/Amenable Cyanide NA - Not Applicable

Form I-IN

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 WetChem Report - Form I  
 Certificate of Analysis

**010063**

**REV 0**  
 SwRI ID

**CN-ICB**

**Type: ICB/Blank**

Client: CH2M Hill Plateau Remediation Company  
 Task Order: 180215-3 + 3 others  
 Lab ID: CN-ICB  
 Result Units: mg/L

SDG: 627168  
 SRR: 61137, 61187, 61202  
 Matrix: Water  
 % Solids: NA

Case: S18-002, W18-002  
 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	02/21/2018 11:43
57-12-5	Free Cyanide	0.00500	U	KNO	0.00500	1	NA	02/28/2018 10:13

<b>Data Reporting Qualifiers (Qual)</b>	<b>Columns</b>	<b>Instruments/Methods (M)</b>
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	KNO - Konelab/Amenable Cyanide
E - Result is estimated due to interferences		NA - Not Applicable
D - Result is reported from a dilution		
* - Duplicate criteria was not met		

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**010064**  
 SWRI ID  
**PB18B28JH3**  
 Type: ICB/Blank

Client: CH2M Hill Plateau Remediation Company  
 Task Order: 180215-3 + 3 others  
 Lab ID: PB18B28JH3  
 Result Units: mg/L

SDG: 627168  
 SRR: 61202  
 Matrix: Water  
 % Solids: NA

Case: W18-002  
 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		02/28/2018 11:38

<b>Data Reporting Qualifiers (Qual)</b>	<b>Columns</b>	<b>Instruments/Methods (M)</b>
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 KNO - Konelab/Amenable Cyanide NA - Not Applicable

Form I-IN

*Initial and Continuing Calibration Verification*

Client: CH2M Hill Plateau Remediation Company  
 Task Order: 180209-7 + 3 others  
 Result Units: mg/L  
 Associated Analytical Batches: 20180222-A006

SDG: 627168  
 SRR: 61137, 61178, 61187, 61202  
 Initial Calibration Source: See Raw Data  
 Continuing Calibration Source: See Raw Data

Case: S18-002, W18-002  
 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	0.557	95.9%	90%-110%	0.581	0.554	95.4%	0.551	94.8%	90%-110%	KNO

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

Form IIA-IN

*Initial and Continuing Calibration Verification*

Client: CH2M Hill Plateau Remediation Company  
 Task Order: 180209-7 + 3 others  
 Result Units: mg/L  
 Associated Analytical Batches: 20180222-A006

SDG: 627168  
 SRR: 61137, 61178, 61187, 61202  
 Initial Calibration Source: See Raw Data  
 Continuing Calibration Source: See Raw Data

Case: S18-002, W18-002  
 Project: 20859.01.00X

Continuing Calibration Verification											
Analyte	True	Found3	%Rec	Found4	%Rec	Found5	%Rec	Found6	%Rec	Limit	M
Total Cyanide	0.581	0.574	98.8%	0.542	93.3%	0.564	97.1%	0.579	99.7%	90%-110%	KNO

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

Form IIA-IN

*Initial and Continuing Calibration Verification*

Client: CH2M Hill Plateau Remediation Company  
 Task Order: 180209-7 + 3 others  
 Result Units: mg/L  
 Associated Analytical Batches: 20180222-A006

SDG: 627168  
 SRR: 61137, 61178, 61187, 61202  
 Initial Calibration Source: See Raw Data  
 Continuing Calibration Source: See Raw Data

Case: S18-002, W18-002  
 Project: 20859.01.00X

Continuing Calibration Verification											
Analyte	True	Found7	%Rec	Found8	%Rec	Found9	%Rec	Found10	%Rec	Limit	M
Total Cyanide	0.581	0.576	99.1%	0.567	97.6%	0.586	100.9%	0.540	92.9%	90%-110%	KNO

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

Form IIA-IN

*Initial and Continuing Calibration Verification*

Client: CH2M Hill Plateau Remediation Company  
 Task Order: 180209-7 + 3 others  
 Result Units: mg/L  
 Associated Analytical Batches: 20180305-A001

SDG: 627168  
 SRR: 61137, 61178, 61187, 61202  
 Initial Calibration Source: See Raw Data  
 Continuing Calibration Source: See Raw Data

Case: S18-002, W18-002  
 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	0.557	95.9%	90%-110%	0.581	0.554	95.4%	0.551	94.8%	90%-110%	KNO

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

Form IIA-IN

*Initial and Continuing Calibration Verification*

Client: CH2M Hill Plateau Remediation Company  
 Task Order: 180209-7 + 3 others  
 Result Units: mg/L  
 Associated Analytical Batches: 20180305-A001

SDG: 627168  
 SRR: 61137, 61178, 61187, 61202  
 Initial Calibration Source: See Raw Data  
 Continuing Calibration Source: See Raw Data

Case: S18-002, W18-002  
 Project: 20859.01.00X

Continuing Calibration Verification											
Analyte	True	Found3	%Rec	Found4	%Rec	Found5	%Rec	Found6	%Rec	Limit	M
Free Cyanide	0.581	0.574	98.8%	0.542	93.3%	0.564	97.1%	0.579	99.7%	90%-110%	KNO

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

Form IIA-IN

*Initial and Continuing Calibration Verification*

Client: CH2M Hill Plateau Remediation Company  
 Task Order: 180209-7 + 3 others  
 Result Units: mg/L  
 Associated Analytical Batches: 20180305-A001

SDG: 627168  
 SRR: 61137, 61178, 61187, 61202  
 Initial Calibration Source: See Raw Data  
 Continuing Calibration Source: See Raw Data

Case: S18-002, W18-002  
 Project: 20859.01.00X

Continuing Calibration Verification											
Analyte	True	Found7	%Rec	Found8	%Rec	Found9	%Rec	Found10	%Rec	Limit	M
Free Cyanide	0.581	0.576	99.1%	0.567	97.6%	0.586	100.9%	0.540	92.9%	90%-110%	KNO

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

Form IIA-IN

*Initial and Continuing Calibration Verification*

Client: CH2M Hill Plateau Remediation Company  
 Task Order: 180209-7 + 3 others  
 Result Units: mg/L  
 Associated Analytical Batches: 20180305-A003

SDG: 627168  
 SRR: 61137, 61178, 61187, 61202  
 Initial Calibration Source: See Raw Data  
 Continuing Calibration Source: See Raw Data

Case: S18-002, W18-002  
 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	0.543	93.5%	90%-110%	0.581	0.546	94.0%	0.562	96.7%	90%-110%	KNO

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

Form IIA-IN

*Initial and Continuing Calibration Verification*

Client: CH2M Hill Plateau Remediation Company  
 Task Order: 180209-7 + 3 others  
 Result Units: mg/L  
 Associated Analytical Batches: 20180305-A003

SDG: 627168  
 SRR: 61137, 61178, 61187, 61202  
 Initial Calibration Source: See Raw Data  
 Continuing Calibration Source: See Raw Data

Case: S18-002, W18-002  
 Project: 20859.01.00X

Continuing Calibration Verification					
Analyte	True	Found3	%Rec	Limit	M
Total Cyanide	0.581	0.550	94.7%	90%-110%	KNO

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

Form IIA-IN

*Initial and Continuing Calibration Verification*

Client: CH2M Hill Plateau Remediation Company  
 Task Order: 180209-7 + 3 others  
 Result Units: mg/L  
 Associated Analytical Batches: 20180305-A004

SDG: 627168  
 SRR: 61137, 61178, 61187, 61202  
 Initial Calibration Source: See Raw Data  
 Continuing Calibration Source: See Raw Data

Case: S18-002, W18-002  
 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	0.543	93.5%	90%-110%	0.581	0.546	94.0%	0.562	96.7%	90%-110%	KNO

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

Form IIA-IN

*Initial and Continuing Calibration Verification*

Client: CH2M Hill Plateau Remediation Company  
Task Order: 180209-7 + 3 others  
Result Units: mg/L  
Associated Analytical Batches: 20180305-A004

SDG: 627168  
SRR: 61137, 61178, 61187, 61202  
Initial Calibration Source: See Raw Data  
Continuing Calibration Source: See Raw Data

Case: S18-002, W18-002  
Project: 20859.01.00X

Continuing Calibration Verification					
Analyte	True	Found3	%Rec	Limit	M
Free Cyanide	0.581	0.550	94.7%	90%-110%	KNO

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

Form IIA-IN

3/9/2018  
**SOUTHWEST RESEARCH INSTITUTE**  
 WetChem Report - Form III  
*Blanks*

**010075**

**REV.0**

Client: CH2M Hill Plateau Remediation Company  
 Task Order: 180209-7 + 3 others  
 Preparation Blank Result Units: mg/L  
 Initial/Continuing Blank Result Units: mg/L

SDG: 627168  
 SRR: 61137, 61178, 61187, 61202  
 Preparation Blank Matrix: Water  
 Associated Prep Batches: NA

Case: S18-002, W18-002  
 Project: 20859.01.00X  
 Associated Analytical Batches: 20180305-A005

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

<b>Data Reporting Qualifiers (Qual)</b>	<b>Instruments/Methods (M)</b>
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 KNO - Konelab/Amenable Cyanide NA - Not Applicable

3/9/2018  
**SOUTHWEST RESEARCH INSTITUTE**  
WetChem Report - Form IIB  
*Low Level Check Standard*

**010076**

**REV.0**

Client: CH2M Hill Plateau Remediation Company  
Task Order: 180209-7 + 3 others  
Result Units: mg/L  
Associated Analytical Batch: 20180222-A006

SDG: 627168  
SRR: 61137, 61178, 61187, 61202

Case: S18-002, W18-002  
Project: 20859.01.00X

LLC Standards					
Analyte	True	Found1	%Rec	Limit	M

Total Cyanide	0.00500	0.00612	122.4%	50%-150%	KNO
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<b><i>Instruments/Methods (M)</i></b>
KNO - Konelab/Cyanide 9012
KNO - Konelab/Cyanide 9014
KNO - Konelab/Amenable Cyanide
NA - Not Applicable

Form IIB-IN

Client: CH2M Hill Plateau Remediation Company  
 Task Order: 180209-7 + 3 others  
 Result Units: mg/L  
 Associated Analytical Batch: 20180305-A001

SDG: 627168  
 SRR: 61137, 61178, 61187, 61202

Case: S18-002, W18-002  
 Project: 20859.01.00X

LLC Standards					
Analyte	True	Found1	%Rec	Limit	M

Free Cyanide	0.00500	0.00612	122.4%	50%-150%	KNO
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<b><i>Instruments/Methods (M)</i></b>
KNO - Konelab/Cyanide 9012
KNO - Konelab/Cyanide 9014
KNO - Konelab/Amenable Cyanide
NA - Not Applicable

Form IIB-IN

3/9/2018  
**SOUTHWEST RESEARCH INSTITUTE**  
 WetChem Report - Form IIB  
*Low Level Check Standard*

**010078**

**REV.0**

Client: CH2M Hill Plateau Remediation Company  
 Task Order: 180209-7 + 3 others  
 Result Units: mg/L  
 Associated Analytical Batch: 20180305-A003

SDG: 627168  
 SRR: 61137, 61178, 61187, 61202

Case: S18-002, W18-002  
 Project: 20859.01.00X

LLC Standards					
Analyte	True	Found1	%Rec	Limit	M

Total Cyanide	0.00500	0.00595	119.0%	50%-150%	KNO
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<b><i>Instruments/Methods (M)</i></b>
KNO - Konelab/Cyanide 9012
KNO - Konelab/Cyanide 9014
KNO - Konelab/Amenable Cyanide
NA - Not Applicable

Form IIB-IN

3/9/2018  
**SOUTHWEST RESEARCH INSTITUTE**  
 WetChem Report - Form IIB  
*Low Level Check Standard*

**010079**

**REV.0**

Client: CH2M Hill Plateau Remediation Company  
 Task Order: 180209-7 + 3 others  
 Result Units: mg/L  
 Associated Analytical Batch: 20180305-A004

SDG: 627168  
 SRR: 61137, 61178, 61187, 61202

Case: S18-002, W18-002  
 Project: 20859.01.00X

LLC Standards					
Analyte	True	Found1	%Rec	Limit	M
Free Cyanide	0.00500	0.00595	119.0%	50%-150%	KNO

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

Form IIB-IN

*Blanks*

Client: CH2M Hill Plateau Remediation Company  
 Task Order: 180209-7 + 3 others  
 Preparation Blank Result Units: mg/L  
 Initial/Continuing Blank Result Units: mg/L

SDG: 627168  
 SRR: 61137, 61178, 61187, 61202  
 Preparation Blank Matrix: Water  
 Associated Prep Batches: 20180222-P001

Case: S18-002, W18-002  
 Project: 20859.01.00X  
 Associated Analytical Batches: 20180222-A006

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

<b>Data Reporting Qualifiers (Qual)</b>	<b>Instruments/Methods (M)</b>
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 KNO - Konelab/Amenable Cyanide NA - Not Applicable

*Blanks*

Client: CH2M Hill Plateau Remediation Company  
 Task Order: 180209-7 + 3 others  
 Preparation Blank Result Units: mg/L  
 Initial/Continuing Blank Result Units: mg/L

SDG: 627168  
 SRR: 61137, 61178, 61187, 61202  
 Preparation Blank Matrix: Water  
 Associated Prep Batches: 20180222-P001

Case: S18-002, W18-002  
 Project: 20859.01.00X  
 Associated Analytical Batches: 20180222-A006

Continuing  
Calibration Blank

Analyte	Found6	Qual	Found7	Qual	Found8	Qual	Found9	Qual	Found10	Qual	M
Total Cyanide	0.00500	U	KNO								

<b>Data Reporting Qualifiers (Qual)</b>	<b>Instruments/Methods (M)</b>
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 KNO - Konelab/Amenable Cyanide NA - Not Applicable

*Blanks*

Client: CH2M Hill Plateau Remediation Company  
 Task Order: 180209-7 + 3 others  
 Preparation Blank Result Units: mg/L  
 Initial/Continuing Blank Result Units: mg/L

SDG: 627168  
 SRR: 61137, 61178, 61187, 61202  
 Preparation Blank Matrix: Water  
 Associated Prep Batches: 20180222-P001

Case: S18-002, W18-002  
 Project: 20859.01.00X  
 Associated Analytical Batches: 20180305-A001

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

<b>Data Reporting Qualifiers (Qual)</b>	<b>Instruments/Methods (M)</b>
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 KNO - Konelab/Amenable Cyanide NA - Not Applicable

*Blanks*

Client: CH2M Hill Plateau Remediation Company  
 Task Order: 180209-7 + 3 others  
 Preparation Blank Result Units: mg/L  
 Initial/Continuing Blank Result Units: mg/L

SDG: 627168  
 SRR: 61137, 61178, 61187, 61202  
 Preparation Blank Matrix: Water  
 Associated Prep Batches: 20180222-P001

Case: S18-002, W18-002  
 Project: 20859.01.00X  
 Associated Analytical Batches: 20180305-A001

Continuing  
Calibration Blank

Analyte	Found6	Qual	Found7	Qual	Found8	Qual	Found9	Qual	Found10	Qual	M
Free Cyanide	0.00500	U	KNO								

<b>Data Reporting Qualifiers (Qual)</b>	<b>Instruments/Methods (M)</b>
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 KNO - Konelab/Amenable Cyanide NA - Not Applicable

*Blanks*

Client: CH2M Hill Plateau Remediation Company  
 Task Order: 180209-7 + 3 others  
 Preparation Blank Result Units: mg/L  
 Initial/Continuing Blank Result Units: mg/L

SDG: 627168  
 SRR: 61137, 61178, 61187, 61202  
 Preparation Blank Matrix: Water  
 Associated Prep Batches: NA

Case: S18-002, W18-002  
 Project: 20859.01.00X  
 Associated Analytical Batches: 20180305-A002

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

<b>Data Reporting Qualifiers (Qual)</b>	<b>Instruments/Methods (M)</b>
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 KNO - Konelab/Amenable Cyanide NA - Not Applicable

*Blanks*

Client: CH2M Hill Plateau Remediation Company  
 Task Order: 180209-7 + 3 others  
 Preparation Blank Result Units: mg/L  
 Initial/Continuing Blank Result Units: mg/L

SDG: 627168  
 SRR: 61137, 61178, 61187, 61202  
 Preparation Blank Matrix: Water  
 Associated Prep Batches: 20180305-P002

Case: S18-002, W18-002  
 Project: 20859.01.00X  
 Associated Analytical Batches: 20180305-A003

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

<b>Data Reporting Qualifiers (Qual)</b>	<b>Instruments/Methods (M)</b>
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 KNO - Konelab/Amenable Cyanide NA - Not Applicable

*Blanks*

Client: CH2M Hill Plateau Remediation Company  
 Task Order: 180209-7 + 3 others  
 Preparation Blank Result Units: mg/L  
 Initial/Continuing Blank Result Units: mg/L

SDG: 627168  
 SRR: 61137, 61178, 61187, 61202  
 Preparation Blank Matrix: Water  
 Associated Prep Batches: 20180305-P002

Case: S18-002, W18-002  
 Project: 20859.01.00X  
 Associated Analytical Batches: 20180305-A004

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

<b>Data Reporting Qualifiers (Qual)</b>	<b>Instruments/Methods (M)</b>
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 KNO - Konelab/Amenable Cyanide NA - Not Applicable

*Matrix Spike/Matrix Spike Duplicate Sample Recovery*

Client: CH2M Hill Plateau Remediation Company    SDG: 627168  
 Task Order: 180209-7    SRR: 61137  
 Lab ID: 627168S    Matrix: Water  
 Result Units: mg/L    % Solids: NA

Case: S18-002, W18-002  
 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	0.0168		0.0582	0.0400	103.5%	-	-	-	-	75%-125%	-	KNO	

<b>Data Reporting Qualifiers (Qual)</b>	<b>Columns</b>	<b>Instruments/Methods (M)</b>
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 KNO - Konelab/Amenable Cyanide NA - Not Applicable

*Matrix Spike/Matrix Spike Duplicate Sample Recovery*

Client: CH2M Hill Plateau Remediation Company    SDG: 627168  
 Task Order: 180215-3    SRR: 61187  
 Lab ID: 627670S    Matrix: Water  
 Result Units: mg/L    % Solids: NA

Case: S18-002, W18-002  
 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	0.196		0.232	0.0400	90.0%	-	-	-	-	75%-125%	-	KNO	#

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

<b>Data Reporting Qualifiers (Qual)</b>	<b>Columns</b>	<b>Instruments/Methods (M)</b>
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 KNO - Konelab/Amenable Cyanide NA - Not Applicable

*Post-Digestion Spike Sample Recovery*

Client: CH2M Hill Plateau Remediation Company  
 Task Order: 180209-7  
 Lab ID: 627168AS-F  
 Result Units: mg/L

SDG: 627168  
 SRR: 61137  
 Matrix: Water  
 % Solids: NA

Case: S18-002, W18-002  
 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	0.005	U	0.0266		0.025	106.4%	80%-120%	KNO		1	20180222-P001	02/21/2018 14:18	
Total Cyanide	-		-		-	-	-	NA		-		-	

<b>Data Reporting Qualifiers (Qual)</b>	<b>Columns</b>	<b>Instruments/Methods (M)</b>
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 KNO - Konelab/Amenable Cyanide NA - Not Applicable

Form VB-IN

*Post-Digestion Spike Sample Recovery*

Client: CH2M Hill Plateau Remediation Company  
 Task Order: 180215-3  
 Lab ID: 627670AS-F  
 Result Units: mg/L

SDG: 627168  
 SRR: 61187  
 Matrix: Water  
 % Solids: NA

Case: S18-002, W18-002  
 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	0.005	U	0.0212		0.025	84.8%	80%-120%	KNO		1	NA	02/21/2018 15:27	
Total Cyanide	-		-		-	-	-	NA		-		-	

<b>Data Reporting Qualifiers (Qual)</b>	<b>Columns</b>	<b>Instruments/Methods (M)</b>
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 KNO - Konelab/Amenable Cyanide NA - Not Applicable

Form VB-IN

*Duplicates*

Client: CH2M Hill Plateau Remediation Company  
 Task Order: 180209-7  
 Lab ID: 627168D-F  
 Result Units: mg/L

SDG: 627168  
 SRR: 61137  
 Matrix: Water  
 % Solids: NA

Case: S18-002, W18-002  
 Project: 20859.01.00X

Analyte	Parent Sample Result	Qual	Duplicate Result	Qual	RPD	RPD Limit	Control Limit	M	Note
Free Cyanide	0.00500	U	0.00500	U	0.00%	20%	-	KNO	#
Total Cyanide	0.0168		0.0210		22.2%	20%	0.00500	KNO	

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

<b>Data Reporting Qualifiers (Qual)</b>	<b>Columns</b>	<b>Instruments/Method (M)</b>
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 KNO - Konelab/Amenable Cyanide NA - Not Applicable

Form VI-IN

*Duplicates*

Client: CH2M Hill Plateau Remediation Company  
 Task Order: 180214-5  
 Lab ID: 627631D  
 Result Units: mg/L

SDG: 627168  
 SRR: 61178  
 Matrix: Water  
 % Solids: NA

Case: S18-002, W18-002  
 Project: 20859.01.00X

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

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

<b>Data Reporting Qualifiers (Qual)</b>	<b>Columns</b>	<b>Instruments/Method (M)</b>
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 KNO - Konelab/Amenable Cyanide NA - Not Applicable

Form VI-IN

*Duplicates*

Client: CH2M Hill Plateau Remediation Company  
 Task Order: 180215-3  
 Lab ID: 627670D-F  
 Result Units: mg/L

SDG: 627168  
 SRR: 61187  
 Matrix: Water  
 % Solids: NA

Case: S18-002, W18-002  
 Project: 20859.01.00X

Analyte	Parent Sample Result	Qual	Duplicate Result	Qual	RPD	RPD Limit	Control Limit	M	Note
Free Cyanide	0.00500	U	0.00500	U	0.00%	20%	-	KNO	#
Total Cyanide	0.196		0.192		2.06%	20%	-	KNO	

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

<b>Data Reporting Qualifiers (Qual)</b>	<b>Columns</b>	<b>Instruments/Method (M)</b>
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 KNO - Konelab/Amenable Cyanide NA - Not Applicable

Form VI-IN

*Duplicates*

Client: CH2M Hill Plateau Remediation Company  
 Task Order: 180216-3  
 Lab ID: 627754D  
 Result Units: mg/L

SDG: 627168  
 SRR: 61202  
 Matrix: Water  
 % Solids: NA

Case: S18-002, W18-002  
 Project: 20859.01.00X

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

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

<b>Data Reporting Qualifiers (Qual)</b>	<b>Columns</b>	<b>Instruments/Method (M)</b>
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 KNO - Konelab/Amenable Cyanide NA - Not Applicable

Form VI-IN

3/9/2018  
**SOUTHWEST RESEARCH INSTITUTE**  
 WetChem Report - Form VII  
*Laboratory Control Sample*

**010095**  
 SWRI ID  
**LCS18B20CS2**

Client: CH2M Hill Plateau Remediation Company  
 Task Order: 180209-7 + 3 others  
 Lab ID: LCS18B20CS2  
 Result Units: mg/L

SDG: 627168  
 SRR: 61137, 61178, 61187, 61202  
 Matrix: Water  
 Associated Prep Batches: 20180222-P001

Case: S18-002, W18-002  
 Project: 20859.01.00X  
 LCS Source:

Analyte	True	Found	Qual	%Rec.	Limit	M	Analysis Date/Time
Total Cyanide	0.500	0.465		93.0%	90%-110%	KNO	02/21/2018 11:43

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

Form VII-IN

3/9/2018  
**SOUTHWEST RESEARCH INSTITUTE**  
 WetChem Report - Form VII  
*Laboratory Control Sample*

**010096** **REV 0**  
 SWRI ID  
**LCS18B20CS1**

Client: CH2M Hill Plateau Remediation Company  
 Task Order: 180209-7 + 3 others  
 Lab ID: LCS18B20CS1  
 Result Units: mg/L

SDG: 627168  
 SRR: 61137, 61178, 61187, 61202  
 Matrix: Water  
 Associated Prep Batches: 20180222-P001

Case: S18-002, W18-002  
 Project: 20859.01.00X  
 LCS Source: ERA

Analyte	True	Found	Qual	%Rec.	Limit	M	Analysis Date/Time
Total Cyanide	0.581	0.539	D	92.8%	85%-115%	KNO	02/21/2018 12:55

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

Form VII-IN

3/9/2018  
**SOUTHWEST RESEARCH INSTITUTE**  
 WetChem Report - Form VII  
*Laboratory Control Sample*

**010097**  
 SWRI ID  
**LCS18B20CS3**

Client: CH2M Hill Plateau Remediation Company  
 Task Order: 180209-7 + 3 others  
 Lab ID: LCS18B20CS3  
 Result Units: mg/L

SDG: 627168  
 SRR: 61137, 61178, 61187, 61202  
 Matrix: Water  
 Associated Prep Batches: 20180222-P001

Case: S18-002, W18-002  
 Project: 20859.01.00X  
 LCS Source:

Analyte	True	Found	Qual	%Rec.	Limit	M	Analysis Date/Time
Total Cyanide	0.0500	0.0519		103.8%	90%-110%	KNO	02/21/2018 12:55

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

Form VII-IN

3/9/2018  
**SOUTHWEST RESEARCH INSTITUTE**  
 WetChem Report - Form VII  
*Laboratory Control Sample*

**010098**  
 SWRI ID  
**REV 0**  
**CN-ICV**

Client: CH2M Hill Plateau Remediation Company  
 Task Order: 180209-7 + 3 others  
 Lab ID: CN-ICV  
 Result Units: mg/L

SDG: 627168  
 SRR: 61137, 61178, 61187, 61202  
 Matrix: Water  
 Associated Prep Batches: 20180222-P001

Case: S18-002, W18-002  
 Project: 20859.01.00X  
 LCS Source: ERA

Analyte	True	Found	Qual	%Rec.	Limit	M	Analysis Date/Time
Free Cyanide	0.581	0.557	D	95.9%	85%-115%	KNO	02/21/2018 11:43

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

Form VII-IN

3/9/2018  
**SOUTHWEST RESEARCH INSTITUTE**  
 WetChem Report - Form VII  
*Laboratory Control Sample*

**010099**  
 SWRI ID  
**LCS18B28JH3**

Client: CH2M Hill Plateau Remediation Company  
 Task Order: 180209-7 + 3 others  
 Lab ID: LCS18B28JH3  
 Result Units: mg/L

SDG: 627168  
 SRR: 61202, 61137, 61178, 61187  
 Matrix: Water  
 Associated Prep Batches: 20180305-P002

Case: S18-002, W18-002  
 Project: 20859.01.00X  
 LCS Source: ERA

Analyte	True	Found	Qual	%Rec.	Limit	M	Analysis Date/Time
Total Cyanide	0.581	0.572	D	98.5%	85%-115%	KNO	02/28/2018 10:13

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

Form VII-IN

3/9/2018  
**SOUTHWEST RESEARCH INSTITUTE**  
 WetChem Report - Form VII  
*Laboratory Control Sample*

**010100**  
 SWRI ID  
**LCS18B28JH4**

Client: CH2M Hill Plateau Remediation Company  
 Task Order: 180209-7 + 3 others  
 Lab ID: LCS18B28JH4  
 Result Units: mg/L

SDG: 627168  
 SRR: 61202, 61137, 61178, 61187  
 Matrix: Water  
 Associated Prep Batches: 20180305-P002

Case: S18-002, W18-002  
 Project: 20859.01.00X  
 LCS Source:

Analyte	True	Found	Qual	%Rec.	Limit	M	Analysis Date/Time
Total Cyanide	0.500	0.452		90.4%	90%-110%	KNO	02/28/2018 10:13

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

Form VII-IN

3/9/2018  
**SOUTHWEST RESEARCH INSTITUTE**  
 WetChem Report - Form VII  
*Laboratory Control Sample*

**010101**  
 SWRI ID  
**LCS18B28JH5**

Client: CH2M Hill Plateau Remediation Company  
 Task Order: 180209-7 + 3 others  
 Lab ID: LCS18B28JH5  
 Result Units: mg/L

SDG: 627168  
 SRR: 61202, 61137, 61178, 61187  
 Matrix: Water  
 Associated Prep Batches: 20180305-P002

Case: S18-002, W18-002  
 Project: 20859.01.00X  
 LCS Source:

Analyte	True	Found	Qual	%Rec.	Limit	M	Analysis Date/Time
Total Cyanide	0.0500	0.0513		102.6%	90%-110%	KNO	02/28/2018 10:13

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

Form VII-IN

3/9/2018  
**SOUTHWEST RESEARCH INSTITUTE**  
 WetChem Report - Form VII  
*Laboratory Control Sample*

**010102**  
 SWRI ID  
**REV 0**  
 CN-ICV[2]

Client: CH2M Hill Plateau Remediation Company  
 Task Order: 180209-7 + 3 others  
 Lab ID: CN-ICV[2]  
 Result Units: mg/L

SDG: 627168  
 SRR: 61202, 61137, 61178, 61187  
 Matrix: Water  
 Associated Prep Batches: 20180305-P002

Case: S18-002, W18-002  
 Project: 20859.01.00X  
 LCS Source: ERA

Analyte	True	Found	Qual	%Rec.	Limit	M	Analysis Date/Time
Free Cyanide	0.581	0.543	D	93.5%	85%-115%	KNO	02/28/2018 10:12

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

Form VII-IN

*Detection Limits*

Client: CH2M Hill Plateau Remediation Company  
Task Order: 180209-7 + 3 others  
Result Units: mg/L

SDG: 627168  
SRR: 61137, 61178, 61187, 61202  
Instrument: Konelab

Case: S18-002, W18-002  
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

<b>Columns</b>
RL - SwRI Reporting Limit

3/9/2018  
**SOUTHWEST RESEARCH INSTITUTE**  
 WetChem Report - Form XII  
 Analysis Run Log

**010104**

**REV.0**

Client: CH2M Hill Plateau Remediation Company  
 Task Order: 180209-7 + 3 others  
 Analytical Batch: 20180305-A001  
 Analysis Method: Cyanide 9014

SDG: 627168  
 SRR: 61137, 61178, 61187, 61202  
 Instrument: Konelab

Case: S18-002, W18-002  
 Project: 20859.01.00X  
 Start Date: 02/21/2018  
 End Date: 02/21/2018

Lab Sample ID	Client Sample ID	Time	DF	ATT CCN NNN	T C N
CN-0	CN-0	10:37	1	X	
CN-0.005	CN-0.005	10:37	1	X	
CN-0.01	CN-0.01	10:37	1	X	
CN-0.05	CN-0.05	10:37	1	X	
CN-0.1	CN-0.1	10:37	1	X	
CN-0.25	CN-0.25	10:37	1	X	
CN-0.5	CN-0.5	10:37	1	X	
CN-ICV	NA	11:43	2	X	
CN-ICB	NA	11:43	1	X	
CN-LLC	NA	11:43	1		
PB18B20PB1	NA	11:43	1		
LCS18B20CS2	NA	11:43	1		
LCS18B20CS3	NA	11:43	1		
Z	Z	11:43	1		
Z	Z	11:43	1		
Z	Z	11:43	1		
Z	Z	11:43	1		
Z	Z	11:43	1		
Z	Z	11:43	1		
CN-CCV	CN-CCV	12:18	2	X	
CN-CCB	CN-CCB	12:18	1	X	
Z	Z	12:18	1		
Z	Z	12:18	1		
Z	Z	12:18	1		
Z	Z	12:18	1		
Z	Z	12:18	1		
Z	Z	12:18	1		
Z	Z	12:18	1		
Z	Z	12:18	1		
Z	Z	12:18	1		
Z	Z	12:18	1		
CN-CCV2	CN-CCV2	12:55	2	X	
CN-CCB2	CN-CCB2	12:55	1	X	
PB18B20PB1	NA	12:55	1		
LCS18B20CS1	NA	12:55	2		
LCS18B20CS3	NA	12:55	1		
Z	Z	12:55	10		
Z	Z	12:55	10		
Z	Z	12:55	1		
Z	Z	12:55	1		
PB18B20PB2	NA	12:55	1		
Z	Z	12:55	1		
Z	Z	12:55	1		
CN-CCV3	CN-CCV3	13:24	2	X	
CN-CCB3	CN-CCB3	13:24	1	X	
Z	Z	13:24	1		
Z	Z	13:24	1		
Z	Z	13:24	1		
Z	Z	13:24	1		
Z	Z	13:24	1		
Z	Z	13:24	1		
Z	Z	13:24	1		
Z	Z	13:24	1		
Z	Z	13:24	1		
Z	Z	13:24	1		
CN-CCV4	CN-CCV4	14:18	2	X	

3/9/2018  
**SOUTHWEST RESEARCH INSTITUTE**  
WetChem Report - Form XII  
*Analysis Run Log*

**010105**

**REV.0**

Client: CH2M Hill Plateau Remediation Company  
Task Order: 180209-7 + 3 others  
Analytical Batch: 20180305-A001  
Analysis Method: Cyanide 9014

SDG: 627168  
SRR: 61137, 61178, 61187, 61202  
Instrument: Konelab

Case: S18-002, W18-002  
Project: 20859.01.00X  
Start Date: 02/21/2018  
End Date: 02/21/2018

Lab Sample ID	Client Sample ID	Time	DF	ATT CC NN	TT CC NN
CN-CCB4	CN-CCB4	14:18	1	X	
Z	Z	14:18	1		
Z	Z	14:18	1		
627168-F	B3H5X5	14:18	1	X	
627168AS-F	B3H5X5AS	14:18	1	X	
627168D-F	B3H5X5D	14:18	1	X	
627169-F	B3H613	14:19	1	X	
627170-F	B3H870	14:19	1	X	
627171-F	B3H876	14:19	1	X	
627631-F	B3H352	14:19	1	X	
627632-F	B3H353	14:19	1	X	
CN-CCV5	CN-CCV5	14:52	2	X	
CN-CCB5	CN-CCB5	14:52	1	X	
Z	Z	14:52	1		
Z	Z	14:52	1		
Z	Z	14:52	1		
Z	Z	14:52	1		
Z	Z	14:52	1		
627633-F	B3H360	14:52	1	X	
627634-F	B3H361	14:52	1	X	
Z	Z	14:52	1		
627636-F	B3H373	14:52	1	X	
627670-F	B3H323	14:52	1	X	
CN-CCV6	CN-CCV6	15:27	2	X	
CN-CCB6	CN-CCB6	15:27	1	X	
Z	Z	15:27	10		
Z	Z	15:27	10		
627670AS-F	B3H323AS	15:27	1	X	
Z	Z	15:27	1		
627672-F	B3H885	15:27	1	X	
627673-F	B3H886	15:27	1	X	
627754-F	B3H3D3	15:27	1	X	
627755-F	B3H3D4	15:27	1	X	
627756-F	B3H3D9	15:27	1	X	
Z	Z	15:27	1		
CN-CCV7	CN-CCV7	15:58	2	X	
CN-CCB7	CN-CCB7	15:58	1	X	
LLC-R	NA	15:58	1	X	
CN-CCV8	CN-CCV8	15:58	2	X	
CN-CCB8	CN-CCB8	15:58	1	X	
627671-F	B3H875	16:21	1	X	
CN-CCV9	CN-CCV9	16:21	2	X	
CN-CCB9	CN-CCB9	16:21	1	X	
Z	Z	16:56	1		
627670D-F	B3H323D	16:56	1	X	
Z	Z	16:56	1		
627635-F R	B3H369	16:56	1	X	
Z	Z	16:56	1		
CN-CCV10	CN-CCV10	16:56	2	X	
CN-CCB10	CN-CCB10	16:56	1	X	

3/9/2018  
**SOUTHWEST RESEARCH INSTITUTE**  
 WetChem Report - Form XII  
 Analysis Run Log

**010106**

**REV.0**

Client: CH2M Hill Plateau Remediation Company  
 Task Order: 180209-7 + 3 others  
 Analytical Batch: 20180222-A006  
 Analysis Method: Cyanide 9012

SDG: 627168  
 SRR: 61137, 61178, 61187, 61202  
 Instrument: Konelab

Case: S18-002, W18-002  
 Project: 20859.01.00X  
 Start Date: 02/21/2018  
 End Date: 02/21/2018

Lab Sample ID	Client Sample ID	Time	DF	AT	CC	TT
				CC	CC	TT
				NN	NN	NN
CN-0	CN-0	10:37	1			X
CN-0.005	CN-0.005	10:37	1			X
CN-0.01	CN-0.01	10:37	1			X
CN-0.05	CN-0.05	10:37	1			X
CN-0.1	CN-0.1	10:37	1			X
CN-0.25	CN-0.25	10:37	1			X
CN-0.5	CN-0.5	10:37	1			X
CN-ICV	CN-ICV	11:43	2			X
CN-ICB	CN-ICB	11:43	1			X
CN-LLC	NA	11:43	1			
PB18B20PB1	NA	11:43	1			
LCS18B20CS2	NA	11:43	1			X
LCS18B20CS3	NA	11:43	1			
627168	B3H5X5	11:43	1			X
627168D	B3H5X5D	11:43	1			X
627168S	B3H5X5MS	11:43	1			X
627169	B3H613	11:43	1			X
627170	B3H870	11:43	1			X
627171	B3H876	11:43	1			X
CN-CCV	CN-CCV	12:18	2			X
CN-CCB	CN-CCB	12:18	1			X
627631	B3H352	12:18	1			X
Z	Z	12:18	1			
627633	B3H360	12:18	1			X
Z	Z	12:18	1			
Z	Z	12:18	1			
627636	B3H373	12:18	1			X
627670	B3H323	12:18	1			X
627670D	B3H323D	12:18	1			X
627670S	B3H323MS	12:18	1			X
627671	B3H875	12:18	1			X
CN-CCV2	CN-CCV2	12:55	2			X
CN-CCB2	CN-CCB2	12:55	1			X
PB18B20PB1	NA	12:55	1			X
LCS18B20CS1	NA	12:55	2			X
LCS18B20CS3	NA	12:55	1			X
627632	B3H353	12:55	10			X
627634	B3H361	12:55	10			X
627672	B3H885	12:55	1			X
627673	B3H886	12:55	1			X
PB18B20PB2	NA	12:55	1			
Z	Z	12:55	1			
Z	Z	12:55	1			
CN-CCV3	CN-CCV3	13:24	2			X
CN-CCB3	CN-CCB3	13:24	1			X
Z	Z	13:24	1			
Z	Z	13:24	1			
Z	Z	13:24	1			
Z	Z	13:24	1			
Z	Z	13:24	1			
Z	Z	13:24	1			
Z	Z	13:24	1			
Z	Z	13:24	1			
Z	Z	13:24	1			
Z	Z	13:24	1			
CN-CCV4	CN-CCV4	14:18	2			X

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WetChem Report - Form XII  
*Analysis Run Log*

**010107**

**REV.0**

Client: CH2M Hill Plateau Remediation Company  
Task Order: 180209-7 + 3 others  
Analytical Batch: 20180222-A006  
Analysis Method: Cyanide 9012

SDG: 627168  
SRR: 61137, 61178, 61187, 61202  
Instrument: Konelab

Case: S18-002, W18-002  
Project: 20859.01.00X  
Start Date: 02/21/2018  
End Date: 02/21/2018

Lab Sample ID	Client Sample ID	Time	DF	A	T	C	C	C	N	N	N
CN-CCB4	CN-CCB4	14:18	1								X
Z	Z	14:18	1								
Z	Z	14:18	1								
Z	Z	14:18	1								
Z	Z	14:18	1								
Z	Z	14:18	1								
Z	Z	14:19	1								
Z	Z	14:19	1								
Z	Z	14:19	1								
Z	Z	14:19	1								
CN-CCV5	CN-CCV5	14:52	2								X
CN-CCB5	CN-CCB5	14:52	1								X
Z	Z	14:52	1								
Z	Z	14:52	1								
Z	Z	14:52	1								
Z	Z	14:52	1								
Z	Z	14:52	1								
Z	Z	14:52	1								
Z	Z	14:52	1								
Z	Z	14:52	1								
Z	Z	14:52	1								
CN-CCV6	CN-CCV6	15:27	2								X
CN-CCB6	CN-CCB6	15:27	1								X
Z	Z	15:27	10								
Z	Z	15:27	10								
Z	Z	15:27	1								
Z	Z	15:27	1								
Z	Z	15:27	1								
Z	Z	15:27	1								
Z	Z	15:27	1								
Z	Z	15:27	1								
Z	Z	15:27	1								
Z	Z	15:27	1								
CN-CCV7	CN-CCV7	15:58	2								X
CN-CCB7	CN-CCB7	15:58	1								X
LLC-R	NA	15:58	1								X
CN-CCV8	CN-CCV8	15:58	2								X
CN-CCB8	CN-CCB8	15:58	1								X
Z	Z	16:21	1								
CN-CCV9	CN-CCV9	16:21	2								X
CN-CCB9	CN-CCB9	16:21	1								X
Z	Z	16:56	1								
Z	Z	16:56	1								
627635-R	B3H369	16:56	1								X
Z	Z	16:56	1								
Z	Z	16:56	1								
CN-CCV10	CN-CCV10	16:56	2								X
CN-CCB10	CN-CCB10	16:56	1								X

3/9/2018  
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 WetChem Report - Form XII  
*Analysis Run Log*

**010108**

**REV.0**

Client: CH2M Hill Plateau Remediation Company  
 Task Order: 180209-7 + 3 others  
 Analytical Batch: 20180305-A002  
 Analysis Method: Amenable Cyanide

SDG: 627168  
 SRR: 61178, 61187, 61202, 61137  
 Instrument: Konelab

Case: S18-002, W18-002  
 Project: 20859.01.00X  
 Start Date: 02/21/2018  
 End Date: 02/21/2018

Lab Sample ID	Client Sample ID	Time	DF	A	T	T
				C	C	C
				N	N	N
PB18C05JH1	NA	12:30	1	X		
627631	B3H352	12:30	1	X		
627631D	B3H352D	12:30	1	X		
627632	B3H353	12:30	1	X		
627633	B3H360	12:30	1	X		
627634	B3H361	12:30	10	X		
627635	B3H369	12:30	1	X		
627636	B3H373	12:30	1	X		
627670	B3H323	12:30	1	X		
627671	B3H875	12:30	1	X		
627672	B3H885	12:30	1	X		
627673	B3H886	12:30	1	X		
Z	Z	12:30	1			
Z	Z	12:30	1			
627755	B3H3D4	12:30	1	X		
627756	B3H3D9	12:30	1	X		
627757	B3H3F0	12:30	1	X		

3/9/2018  
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WetChem Report - Form XII  
*Analysis Run Log*

**010109**

**REV.0**

Client: CH2M Hill Plateau Remediation Company  
Task Order: 180209-7 + 3 others  
Analytical Batch: 20180305-A004  
Analysis Method: Cyanide 9012

SDG: 627168  
SRR: 61202, 61231, 61137, 61178, 61187  
Instrument: Konelab

Case: S18-002, W18-002  
Project: 20859.01.00X  
Start Date: 02/28/2018  
End Date: 02/28/2018

Lab Sample ID	Client Sample ID	Time	DF	A	T	C	C	C	N	N	N
CN-0	CN-0	09:21	1		X						
CN-0.005	CN-0.005	09:21	1		X						
CN-0.01	CN-0.01	09:21	1		X						
CN-0.05	CN-0.05	09:21	1		X						
CN-0.1	CN-0.1	09:21	1		X						
CN-0.25	CN-0.25	09:21	1		X						
CN-0.5	CN-0.5	09:21	1		X						
CN-ICV	NA	10:12	2		X						
CN-ICB	NA	10:13	1		X						
CN-LLC	NA	10:13	1		X						
PB18B28JH3	NA	10:13	1								
LCS18B28JH3	NA	10:13	2								
LCS18B28JH4	NA	10:13	1								
LCS18B28JH5	NA	10:13	1								
Z	Z	10:13	1								
Z	Z	10:13	1								
Z	Z	10:13	1								
Z	Z	10:13	1								
PB18B28PB1	NA	10:13	1								
CN-CCV	CN-CCV	10:53	2		X						
CN-CCB	CN-CCB	10:53	1		X						
Z	Z	10:53	1								
Z	Z	10:53	1								
Z	Z	10:53	1								
Z	Z	10:53	1								
Z	Z	10:53	1								
Z	Z	10:53	1								
Z	Z	10:53	1								
Z	Z	10:53	1								
Z	Z	10:53	1								
CN-CCV2	CN-CCV2	11:46	2		X						
CN-CCB2	CN-CCB2	11:46	1		X						
Z	Z	11:46	1								
Z	Z	11:46	1								
Z	Z	11:46	1								
Z	Z	11:46	1								
Z	Z	11:46	1								
Z	Z	11:46	1								
CN-CCV3	CN-CCV3	12:08	2		X						
CN-CCB3	CN-CCB3	12:08	1		X						
Z	Z	13:29	1								
CN-CCV4	CN-CCV4	13:29	2								
CN-CCB4	CN-CCB4	13:29	1								
627757-F	B3H3F0	14:57	1		X						
CN-CCV5	CN-CCV5	14:57	2								
CN-CCB5	CN-CCB5	14:57	1								

*Analysis Run Log*

Client: CH2M Hill Plateau Remediation Company  
 Task Order: 180209-7 + 3 others  
 Analytical Batch: 20180305-A003  
 Analysis Method: Cyanide 9012

SDG: 627168  
 SRR: 61202, 61231, 61137, 61178, 61187  
 Instrument: Konelab

Case: S18-002, W18-002  
 Project: 20859.01.00X  
 Start Date: 02/28/2018  
 End Date: 02/28/2018

Lab Sample ID	Client Sample ID	Time	DF	A	T	C	C	T
				N	N	N	N	N
CN-0	CN-0	09:21	1					X
CN-0.005	CN-0.005	09:21	1					X
CN-0.01	CN-0.01	09:21	1					X
CN-0.05	CN-0.05	09:21	1					X
CN-0.1	CN-0.1	09:21	1					X
CN-0.25	CN-0.25	09:21	1					X
CN-0.5	CN-0.5	09:21	1					X
CN-ICV	CN-ICV	10:12	2					X
CN-ICB	CN-ICB	10:13	1					X
CN-LLC	NA	10:13	1					X
PB18B28JH3	NA	10:13	1					X
LCS18B28JH3	NA	10:13	2					X
LCS18B28JH4	NA	10:13	1					X
LCS18B28JH5	NA	10:13	1					X
627754	B3H3D3	10:13	1					X
627755	B3H3D4	10:13	1					X
627756	B3H3D9	10:13	1					X
627757	B3H3F0	10:13	1					X
PB18B28PB1	NA	10:13	1					
CN-CCV	CN-CCV	10:53	2					X
CN-CCB	CN-CCB	10:53	1					X
Z	Z	10:53	1					
Z	Z	10:53	1					
Z	Z	10:53	1					
Z	Z	10:53	1					
Z	Z	10:53	1					
Z	Z	10:53	1					
Z	Z	10:53	1					
Z	Z	10:53	1					
Z	Z	10:53	1					
CN-CCV2	CN-CCV2	11:46	2					X
CN-CCB2	CN-CCB2	11:46	1					X
Z	Z	11:46	1					
Z	Z	11:46	1					
Z	Z	11:46	1					
Z	Z	11:46	1					
Z	Z	11:46	1					
Z	Z	11:46	1					
CN-CCV3	CN-CCV3	12:08	2					X
CN-CCB3	CN-CCB3	12:08	1					X
Z	Z	13:29	1					
CN-CCV4	CN-CCV4	13:29	2					
CN-CCB4	CN-CCB4	13:29	1					
Z	Z	14:57	1					
CN-CCV5	CN-CCV5	14:57	2					
CN-CCB5	CN-CCB5	14:57	1					

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**SOUTHWEST RESEARCH INSTITUTE**  
 WetChem Report - Form XII  
*Analysis Run Log*

**010111**

**REV.0**

Client: CH2M Hill Plateau Remediation Company  
 Task Order: 180209-7 + 3 others  
 Analytical Batch: 20180305-A005  
 Analysis Method: Amenable Cyanide

SDG: 627168  
 SRR: 61202, 61137, 61178, 61187  
 Instrument: Konelab

Case: S18-002, W18-002  
 Project: 20859.01.00X  
 Start Date: 02/28/2018  
 End Date: 02/28/2018

Lab Sample ID	Client Sample ID	Time	DF	A	T
				C	C
				N	N
PB18B28JH3	NA	11:38	1	X	
627754	B3H3D3	11:38	1	X	
627754D	B3H3D3D	11:38	1	X	
627754S	B3H3D3MS	11:38	1	X	

3/9/2018  
SOUTHWEST RESEARCH INSTITUTE  
WetChem Report - Form XVIII  
*Preparation/Digestion Summary*

010112

REV.0

Client: CH2M Hill Plateau Remediation Company  
Task Order: 180209-7 + 3 others

SDG: 627168  
SRR: 61137, 61178, 61187, 61202

Case: S18-002, W18-002  
Project: 20859.01.00X

Prep Batch	Method	Preparation Date
20180222-P001	CN prep	02/20/2018
20180305-P002	CN prep	02/28/2018

3/9/2018  
**Digestion Log**

010113

REV.0

Southwest Research Institute  
San Antonio, Texas 78228

Batch: 20180222-P001 (Ver. 1)  
Status: CONSUMED

Client(s): CH2M Hill Plateau Remediation Company  
 Task Order(s): 180209-7, 180214-5, 180215-3, 180216-3  
 SDG(s): 627168  
 Project(s): 20859.01.00X  
 Method(s): CN prep (TAP: 01-0406-134)  
 Matrix(s): Water  
 Reagent(s): (CN) 1M NaOH #83-01-WCS14, (CN) 0.25N NaOH #128-01-WCS14, (CN) Releasing Reagent #104-01-WCS14  
 Pipette(s): 5000-11, 1000-3, 200-M  
 Heating Device: MIDI-STIL Temperature (C): 125C  
 Time In: 02/20/2018 12:16:51 Time Out: NA

Sample Identification	Client Identification	Initial Volume (mL)	Final Volume (mL)
PB18B20PB1	NA	6	6
LCS18B20CS1 ①	NA	6	6
LCS18B20CS2 ②	NA	6	6
LCS18B20CS3 ③	NA	6	6
627168	B3H5X5	6	6
627168D	B3H5X5	6	6
627168S ④	B3H5X5	6	6
627169	B3H613	6	6
627170	B3H870	6	6
627171	B3H876	6	6
627631	B3H352	6	6
627632	B3H353	6	6
627633	B3H360	6	6
627634	B3H361	6	6
627635	B3H369	6	6
627636	B3H373	6	6
627670	B3H323	6	6
627670D	B3H323	6	6
627670S ④	B3H323	6	6
627671	B3H875	6	6
627672	B3H885	6	6
627673	B3H886	6	6
PB18B20PB2	NA	6	6
627631-C	B3H352	6	6
627631D-C	B3H352	6	6
627631S-C ④	B3H352	6	6
627632-C	B3H353	6	6
627633-C	B3H360	6	6
627634-C	B3H361	6	6
627635-C	B3H369	6	6
627636-C	B3H373	6	6
627670-C	B3H323	6	6
627671-C	B3H875	6	6
627672-C	B3H885	6	6
627673-C	B3H886	6	6
627754-C	B3H3D3	6	6
627754D-C	B3H3D3	6	6
627754S-C ④	B3H3D3	6	6
627755-C	B3H3D4	6	6
627756-C	B3H3D9	6	6
627757-C	B3H3F0	6	6

Prepared by: HERRERA, JUDY

Date: 02/20/2018

Reviewed by: MOKEN, JAMES

Date: 03/07/2018

Disposal Int/Date/Loc: JM / 03/07/2018 / NA - Consumed

3/9/2018  
**Digestion Log**

**010114**

**REV.0**

Southwest Research Institute  
San Antonio, Texas 78228

Batch: 20180222-P001 (Ver. 1)  
Status: CONSUMED

Client(s): CH2M Hill Plateau Remediation Company  
Task Order(s): 180209-7, 180214-5, 180215-3, 180216-3  
SDG(s): 627168  
Project(s): 20859.01.00X  
Method(s): CN prep (TAP: 01-0406-134)  
Matrix(s): Water  
Reagent(s): (CN) 1M NaOH #83-01-WCS14, (CN) 0.25N NaOH #128-01-WCS14, (CN) Releasing Reagent #104-01-WCS14  
Pipette(s): 5000-11, 1000-3, 200-M  
Heating Device: MIDI-STIL Temperature (C): 125C  
Time In: 02/20/2018 12:16:51 Time Out: NA

<u>Sample Identification</u>	<u>Client Identification</u>	<u>Initial Volume (mL)</u>	<u>Final Volume (mL)</u>
① spiked 6 mL of Cl# 91846 LCSW (Lot# P249-502, Source: ERA, Exp: 07/31/2018)			
② spiked 6 mL of LCSH (Lot# 125-02-WCS14, Source: ERA, Exp: 10/31/2018)			
③ spiked 6 mL of LCSL (Lot# 125-02-WCS14, Source: ERA, Exp: 10/31/2018)			
④ spiked 6 mL of Cyanid Spike (125-02-WCS14) (Lot# 125-02-WCS14, Source: ERA, Exp: 10/31/2018)			

Comments:  
All samples had a pH > 12 (pH Lot# 206416 Exp. date 03/01/19)  
All samples had negative lead acetate and KI test papers (Lead Acetate #85205, KI#85038)

Distillation Start: 14:00 Stop: 14:30  
Distillation Start: 15:30 Stop: 16:00

Amenable Start: 12:30 Stop: 13:30

LCS18B20CS1 - 0.250mL #91846 to final volume 25mL with 0.25N NaOH. 6mL aliquot was taken from mix  
LCS18B20CS2 - 0.250mL of 100ppm CN #125-02-WCS14 to final volume 25mL with 0.25N NaOH. 6mL aliquot was taken from mix  
LCS18B20CS3 - 0.025mL of 100ppm CN #125-02-WCS14 to final volume 25mL with 0.25N NaOH. 6mL aliquot was taken from mix  
All sample matrix spikes - 0.020mL of 100ppm CN #125-02-WCS14 to final volume 25mL with sample. 6mL aliquot was taken from mix

Prepared by: HERRERA, JUDY

Date: 02/20/2018

Reviewed by: MOKEN, JAMES

Date: 03/07/2018

Disposal Int/Date/Loc: JM / 03/07/2018 / NA - Consumed

3/9/2018  
**Digestion Log**

**010115**      **REV.0**

Southwest Research Institute  
San Antonio, Texas 78228

Batch: 20180305-P002 (Ver. 1)  
Status: CONSUMED

Client(s): CH2M Hill Plateau Remediation Company  
 Task Order(s): 180216-3, 180222-2  
 SDG(s): 627168, 628100  
 Project(s): 20859.01.00X  
 Method(s): CN prep (TAP: 01-0406-134)  
 Matrix(s): Water  
 Reagent(s): (CN) 1M NaOH #83-01-WCS14, (CN) 0.25N NaOH #128-01-WCS14, (CN) Releasing Reagent #104-01-WCS14  
 Pipette(s): 5000-12, 1000-1, 200-H  
 Heating Device: MIDI-STIL    Temperature (C): 125C  
 Time In: 02/28/2018 10:53:58    Time Out: NA

Sample Identification	Client Identification	Initial Volume (mL)	Final Volume (mL)
PB18B28JH3	NA	6	6
LCS18B28JH3 ①	NA	6	6
LCS18B28JH4 ②	NA	6	6
LCS18B28JH5 ③	NA	6	6
627754	B3H3D3	6	6
627755	B3H3D4	6	6
627756	B3H3D9	6	6
627757	B3H3F0	6	6
628100	B3H5Y3	6	6
628100D	B3H5Y3	6	6
628100MS ④	B3H5Y3	6	6
628101	B3H6J9	6	6
PB18B28PB1	NA	6	6
627754-C	B3H3D3	6	6
627754D-C	B3H3D3	6	6
627754S-C ④	B3H3D3	6	6

- ① spiked 6 mL of Cl# 91846 Total Cyanide (Lot# P249-502, Source: ERA, Exp: 07/31/2018)
- ② spiked 6 mL of LCSH (Lot# 125-02-WCS14, Source: ERA, Exp: 10/31/2018)
- ③ spiked 6 mL of LCSL (Lot# 125-02-WCS14, Source: ERA, Exp: 10/31/2018)
- ④ spiked 6 mL of Cyanid Spike (125-02-WCS14) (Lot# 125-02-WCS14, Source: ERA, Exp: 10/31/2018)

Comments:  
 All samples had a pH > 12 (pH Lot# 206416    Exp. date 03/01/19)  
 All samples had negative lead acetate and KI test papers (Lead Acetate #85205, KI#85038)

Distillation Start: 14:00    Stop: 14:30

Amenable Start: 11:30    Stop: 12:30

LCS18B28JH3: 0.250 mL #91846 to final volume 50 ml with 0.25N NaOH  
 LCS18B28JH4: 0.250 mL #125-02-WCS14 to final volume 50 ml with 0.25N NaOH  
 LCS18B28JH5: 0.025 mL #125-02-WCS14 to final volume 50 ml with 0.25N NaOH

All spikes: 0.020 mL #125-02-WCS14 to final volume 50 mL with 0.25N NaOH

Prepared by: HERRERA, JUDY

Date: 02/28/2018

Reviewed by: MOKEN, JAMES

Date: 03/08/2018

Disposal Int/Date/Loc: JM / 03/08/2018 / NA - Consumed