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3440 South 700 West
Salt Lake City, UT 84119

CASE NARRATIVE
CHAIN-OF-CUSTODIES

SECTION 2.

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e-mail: awal@awal-labs.com

ANALYTICAL REPORTS

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web: www.awal-labs.com

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Kyle F. Gross
Laboratory Director

INSTRUMENT QC SUMMARIES

Jose Rocha
QA Officer

SECTION 5.

LOGBOOKS, RUNLOGS AND RAW DATA PER
ANALYSIS

Assembled by:

Reviewed by:

**Melissa
Connolly**
Digitally signed by Melissa
Connolly
DN: cn=Melissa Connolly,
o=American West Analytical
Laboratories, ou,
email=melissa@awal-labs.com,
c=US
Date: 2015.12.15 12:25:47 -07'00'

**Kyle F.
Gross**
Digitally signed
by Kyle F. Gross
Date: 2015.12.15
14:35:51 -07'00'



SECTION 1.

- ❑ CASE NARRATIVE
- ❑ AWAL CHAIN-OF-CUSTODY
- ❑ CLIENT CHAIN-OF-CUSTODY

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer



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e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

Jim Harris
Utah Division of Water Quality
PO Box 144870
SLC, UT 84114
TEL: (801) 538-6329

RE: Gold King Mine Spill / 01255.1.016.03

Dear Jim Harris:

Lab Set ID: 1511116

American West Analytical Laboratories received sample(s) on 11/6/2015 for the analyses presented in the following report.

American West Analytical Laboratories (AWAL) is accredited by The National Environmental Laboratory Accreditation Program (NELAP) in Utah and Texas; and is state accredited in Colorado, Idaho, New Mexico, Wyoming, and Missouri.

All analyses were performed in accordance to the NELAP protocols unless noted otherwise. Accreditation scope documents are available upon request. If you have any questions or concerns regarding this report please feel free to call.

The abbreviation "Surr" found in organic reports indicates a surrogate compound that is intentionally added by the laboratory to determine sample injection, extraction, and/or purging efficiency. The "Reporting Limit" found on the report is equivalent to the practical quantitation limit (PQL). This is the minimum concentration that can be reported by the method referenced and the sample matrix. The reporting limit must not be confused with any regulatory limit. Analytical results are reported to three significant figures for quality control and calculation purposes.

This is a revision to a report originally issued 12/3/2015. Pages 1, 3, 8-9, 12, 49, 64, and 76-77 have been revised. The flags and footnotes on samples 1511116-002, 1511116-002A5X, and 1511118-002A5X have been updated. The Case Narrative has been updated.

Thank You,

Kyle F. Gross Digitally signed
by Kyle F. Gross
Date:
2015.12.15
14:36:19 -07'00'

Approved by:

Laboratory Director or designee

American West Analytical Laboratories

REVISED: 11-9-15

Samples 2, 3, and 4 taken off hold. -DB

D

WORK ORDER SUMMARY

Work Order: **1511116** Page 1 of 2
 Due Date: 11/20/2015

Client: Utah Division of Water Quality

Client ID: UTD200

Contact: Jim Harris

Project: Gold King Mine Spill / 01255.1-016.03

QC Level: III+ MDL

Comments: QC 3+ MDL. Include EDD. CC: Brad Martin W/Techlaw. Email to tenoras@utah.gov. 11-9-15 - Samples 2, 3 & 4 taken off hold.;

WO Type: Standard

Sample ID	Client Sample ID	Collected Date	Received Date	Test Code	Matrix	Sel	Storage
1511116-001A	GK01-ST-01	10/22/2015 1200h	11/6/2015 1030h		Aqueous	<input type="checkbox"/>	DF-Hold
1511116-002A	GK01-ST-02	10/23/2015 0000h	11/6/2015 1030h	200.7-W 6 SEL Analytes: AL CA FE MG K NA	Aqueous	<input checked="" type="checkbox"/>	DF-Metals
				200.7-W-PR		<input type="checkbox"/>	DF-Metals
				200.8-W 17 SEL Analytes: SB AS BA BE CD CR CO CU PB MN MO NI SE AG TL V ZN		<input checked="" type="checkbox"/>	DF-Metals
				200.8-W-PR		<input type="checkbox"/>	DF-Metals
				HG-DW-245.1		<input type="checkbox"/>	DF-Metals
				HG-DW-PR		<input type="checkbox"/>	DF-Metals
1511116-003A	GK01-ST-03	10/23/2015 1200h	11/6/2015 1030h	200.7-W 6 SEL Analytes: AL CA FE MG K NA	Aqueous	<input checked="" type="checkbox"/>	DF-Metals
				200.7-W-PR		<input type="checkbox"/>	DF-Metals
				200.8-W 17 SEL Analytes: SB AS BA BE CD CR CO CU PB MN MO NI SE AG TL V ZN		<input checked="" type="checkbox"/>	DF-Metals
				200.8-W-PR		<input type="checkbox"/>	DF-Metals
				HG-DW-245.1		<input type="checkbox"/>	DF-Metals
				HG-DW-PR		<input type="checkbox"/>	DF-Metals
1511116-004A	GK01-ST-04	10/24/2015 0000h	11/6/2015 1030h	200.7-W 6 SEL Analytes: AL CA FE MG K NA	Aqueous	<input checked="" type="checkbox"/>	DF-Metals
				200.7-W-PR		<input type="checkbox"/>	DF-Metals
				200.8-W 17 SEL Analytes: SB AS BA BE CD CR CO CU PB MN MO NI SE AG TL V ZN		<input checked="" type="checkbox"/>	DF-Metals
				200.8-W-PR		<input type="checkbox"/>	DF-Metals
				HG-DW-245.1		<input type="checkbox"/>	DF-Metals
				HG-DW-PR		<input type="checkbox"/>	DF-Metals
1511116-005A	GK01-ST-05	10/24/2015 1200h	11/6/2015 1030h		Aqueous	<input type="checkbox"/>	DF-Hold
1511116-006A	GK01-ST-06	10/25/2015 0000h	11/6/2015 1030h		Aqueous	<input type="checkbox"/>	DF-Hold

Printed: 11/25/2015

FOR LABORATORY USE ONLY (fill out on page 1):

%M RT CN TAT QC

HOK_ _ _ _ _ HOK_ _ _ _ _ HOK_ _ _ _ _

COC Emailed_ _ _ _ _

WORK ORDER SUMMARY

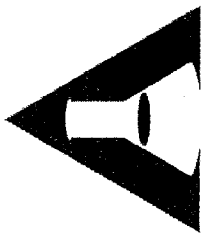
Client: Utah Division of Water Quality

Work Order: 1511116

Page 2 of 2

Due Date: 11/20/2015

Sample ID	Client Sample ID	Collected Date	Received Date	Test Code	Matrix	Sel	Storage
1511116-007A	GK01-ST-07	10/25/2015 1200h	11/6/2015 1030h		Aqueous	<input type="checkbox"/>	DF-Hold
1511116-008A	GK01-ST-08	10/26/2015 0000h	11/6/2015 1030h		Aqueous	<input type="checkbox"/>	DF-Hold
1511116-009A	GK01-ST-09	10/26/2015 1200h	11/6/2015 1030h		Aqueous	<input type="checkbox"/>	DF-Hold
1511116-010A	GK01-ST-10	10/27/2015 0000h	11/6/2015 1030h		Aqueous	<input type="checkbox"/>	DF-Hold
1511116-011A	GK01-ST-11	10/27/2015 1200h	11/6/2015 1030h		Aqueous	<input type="checkbox"/>	DF-Hold
1511116-012A	GK01-ST-12	10/28/2015 0000h	11/6/2015 1030h		Aqueous	<input type="checkbox"/>	DF-Hold
1511116-013A	GK01-ST-13	10/28/2015 1200h	11/6/2015 1030h		Aqueous	<input type="checkbox"/>	DF-Hold
1511116-014A	GK01-ST-14	10/29/2015 0000h	11/6/2015 1030h		Aqueous	<input type="checkbox"/>	DF-Hold
1511116-015A	GK01-ST-15	10/29/2015 1200h	11/6/2015 1030h		Aqueous	<input type="checkbox"/>	DF-Hold
1511116-016A	GK01-ST-16	10/30/2015 0000h	11/6/2015 1030h		Aqueous	<input type="checkbox"/>	DF-Hold
1511116-017A	GK01-ST-17	10/30/2015 1200h	11/6/2015 1030h		Aqueous	<input type="checkbox"/>	DF-Hold
1511116-018A	GK01-ST-18	10/31/2015 0000h	11/6/2015 1030h		Aqueous	<input type="checkbox"/>	DF-Hold



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Client: State of Utah/TechLaw, Inc.
 Address: 195 N, 1950 West
SLC, UT 84119
 Contact: Jim H (UT), Brad M (TLL)
 Phone #: 801-536-4360 cell #: 630-693-5407
 Email:
 Project Name: Gold King Mine Spill
 Project #: 01255.1.016.03
 PO #:
 Sampler Name: TechLaw

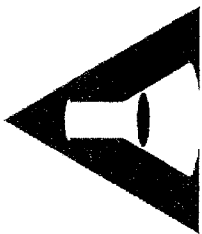
CHAIN OF CUSTODY

All analysis will be conducted using NELAP accredited methods and all data will be reported using AWAL's standard analysis lists and reporting limits (PQL) unless specifically requested otherwise on this Chain of Custody and/or attached documentation.

QC Level:	Turn Around Time:	Laboratory Use Only	
1 2 2+ 3 3+ (4)	1 2 3 4 5 (Sinc)	1 Shipped: hand delivered	2 Ambient Chilled
		3 Temperature	4 Received Broken/Leaking (improperly Sealed)
		5 Properly Preserved	6 Received Within Holding Times
		Samples Were: <u>FedEx</u> 1 Shipped: hand delivered 2 Ambient Chilled 3 Temperature <u>3.6</u> °C 4 Received Broken/Leaking (improperly Sealed) <u>Y</u> 5 Properly Preserved <u>Y</u> <u>11/15/15</u> <u>broken</u> 6 Received Within Holding Times <u>N</u>	
		COC Tape Was: 1 Present on Outer Packaging <u>Y</u> 2 Unbroken on Outer Packaging <u>Y</u> 3 Present on Sample <u>Y</u> 4 Unbroken on Sample <u>Y</u> Discrepancies Between Sample Labels and COC Record? <u>Y</u>	
		Unless other arrangements have been made, signed reports will be emailed by 5:00 pm on the day they are due. <input checked="" type="checkbox"/> Report down to the MDL <input type="checkbox"/> Lab Filter for: <input type="checkbox"/> Field Filtered For: For Compliance With: <input type="checkbox"/> NELAP <input type="checkbox"/> RCRA <input type="checkbox"/> SDWA <input type="checkbox"/> ELAP / A2LA <input type="checkbox"/> NLLAP <input type="checkbox"/> Non-Compliance <input type="checkbox"/> Other: Known Hazards & Sample Comments * * *	

Relinquished By:	Date:	Time:	Signature
Michael Anderson	11/5/15	12:00	MICHAEL ANDERSON
Denise Brown	11/6/15	10:50	DENISE BROWN

AWAL Lab Sample Set # 1511110
 Page 4 of 7



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Client: State of Utah/TechLaw, Inc.
 Address: 195 N, 1950 West
 Contact: SLC, UT 84119
Jim H (UT), Brad M (TL)
 Phone #: 801-536-4360 cell #: 630-693-5407
 Email:
 Project Name: Gold King Mine Spill
 Project #: 01255.1.016.03
 PO #:
 Sampler Name: TechLaw

CHAIN OF CUSTODY

All analyses will be conducted using NELAP accredited methods and all data will be reported using AWAL's standard analysis lists and reporting limits (PQL) unless specifically requested otherwise on this Chain of Custody and/or attached documentation.

QC Level:	Turn Around Time:					Laboratory Use Only
	1	2	3	3+	4	
1					5:00 pm	Report down to the MDL <input checked="" type="checkbox"/> Include EDD: <input type="checkbox"/> Lab Filler for: <input type="checkbox"/> Field Filled For: For Compliance With: <input type="checkbox"/> NELAP <input type="checkbox"/> RORA <input type="checkbox"/> CWA <input type="checkbox"/> SDWA <input type="checkbox"/> ELAP / #2LA <input type="checkbox"/> NLLAP <input type="checkbox"/> Non-Compliance <input type="checkbox"/> Other: Known Hazards & Sample Comments 1 2 3 4 5 6 7 8 9 10 11 12

AWAL Lab Sample Set # 1511116
 Page 2 of 2

QC Level: 1
 Turn Around Time: 5:00 pm
 Laboratory Use Only: RedEx
 Samples Were: Shipped and delivered
Ambient (Cooled)
 Temperature: 3.6
 Received Broken/Leaking (Improperly Sealed): 0
 Property Preserved: 0
 Checked at bench: 0
 Received Within Holding Times: Y
 COC Tapa Was:
 1 Present on Outer Package: Y
 2 Unbroken on Outer Package: Y
 3 Present on Sample: Y
 4 Unbroken on Sample: Y
 Discrepancies Between Sample Labels and COC Record? Y

# of Containers	Sample Matrix	Date Sampled	Time Sampled	Received by Signature	Print Name
1	TOTAL METALS	10/28/15	12:00	<i>Denise Brown</i>	Denise Brown
1	TOTAL METALS	10/29/15	00:00	<i>Denise Brown</i>	Denise Brown
1	TOTAL METALS	10/29/15	12:00	<i>Denise Brown</i>	Denise Brown
1	TOTAL METALS	10/30/15	00:00	<i>Denise Brown</i>	Denise Brown
1	TOTAL METALS	10/30/15	12:00	<i>Denise Brown</i>	Denise Brown
1	TOTAL METALS	10/31/15	00:00	<i>Denise Brown</i>	Denise Brown
1	TOTAL METALS	11/5/15	12:00	<i>Michael Anderson</i>	Michael Anderson

Special Instructions: Hold for analysis

Date: 11/5/15 Time: 12:00
 Received by: *Michael Anderson* Signature: *Michael Anderson* Print Name: MICHAEL ANDERSON
 Date: 11/5/15 Time: 10:30
 Received by: *Denise Brown* Signature: *Denise Brown* Print Name: DENISE BROWN



Revised Inorganic Case Narrative

Client: Utah Division of Water Quality
Contact: Jim Harris
Project: Gold King Mine Spill / 01255.1.016.03
Lab Set ID: 1511116

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Kyle F. Gross
 Laboratory Director

Jose Rocha
 QA Officer

Sample Receipt Information:

Date of Receipt: 11/6/2015
Date of Collection: 10/22-10/31/2015
Date of Analyses Request: 11/9/2015
Sample Condition: Intact
C-O-C Discrepancies: None

Holding Time and Preservation Requirements: The analysis and preparation of all samples were performed within the method holding times.

Preparation and Analysis Requirements: The samples were analyzed following the methods stated on the analytical reports.

Analytical QC Requirements: All instrument calibration and calibration check requirements were met. All internal standard recoveries met method criterion.

Batch QC Requirements: MB, LCS, MS, MSD, RPD, PDS, SD:

Method Blanks (MBs): No target analytes were detected above the reporting limits, indicating that the procedure was free from contamination. Silver on sample MB-40180 was observed between the MDL and reporting limit.

Laboratory Control Sample (LCSs): All LCS recoveries were within control limits, indicating that the preparation and analysis were in control.

Matrix Spike / Matrix Spike Duplicate (MS/MSD): All percent recoveries and RPDs (Relative Percent Differences) were inside established limits, with the following exceptions:

Sample ID	Analyte	QC	Explanation
1511116-002A	Aluminum	MS/MSD	High analyte concentration
1511116-002A	Antimony	MS/MSD	Sample matrix interference
1511116-002A	Barium	MS	Sample matrix interference
1511116-002A	Calcium	MS/MSD	High analyte concentration
1511116-002A	Iron	MS/MSD	High analyte concentration
1511116-002A	Magnesium	MS	High analyte concentration
1511116-002A	Molybdenum	MS/MSD	Sample matrix interference
1511116-002A	Sodium	MS	High analyte concentration
1511118-002A	Aluminum	MS/MSD	High analyte concentration
1511118-002A	Antimony	MS/MSD	Sample matrix interference



1511118-002A	Barium	MS/MSD	High analyte concentration
1511118-002A	Iron	MS/MSD	High analyte concentration
1511118-002A	Magnesium	MS/MSD	High analyte concentration
1511118-002A	Manganese	MS/MSD	High analyte concentration
1511118-002A	Molybdenum	MS/MSD	Sample matrix interference
1511118-002A	Selenium	MS/MSD	Sample matrix interference
1511118-002A	Sodium	MS/MSD	High analyte concentration
1511118-002A	Thallium	MS	Sample matrix interference

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Post Digestion Spike (PDS): The PDS percent recoveries were within the control limits, with the following exceptions: the PDS percent recoveries for Aluminum, Calcium, Magnesium, and Sodium on sample 1511116-002APDS were outside of the control limits due to sample matrix interference.

Serial Dilution (SD): The serial dilution RPDs were within the control limits, with the following exceptions: The analyte concentrations for Antimony, Molybdenum, Silver, and Thallium on sample 1511116-002A5X and for Antimony, Beryllium, Molybdenum, and Silver on sample 1511118-002A5X were too low for serial dilution evaluation. The RPDs for Arsenic, Chromium, Cobalt, Copper, Vanadium, and Zinc on sample 1511116-002A5X and for Vanadium on sample 1511118-002A5X were outside of the control limits due to sample matrix interference.

Corrective Action: None required.

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer



SAMPLE SUMMARY

Client: Utah Division of Water Quality **Contact:** Jim Harris
Project: Gold King Mine Spill / 01255.1.016.03
Lab Set ID: 1511116
Date Received: 11/6/2015 1030h

	Lab Sample ID	Client Sample ID	Date Collected	Matrix	Analysis
3440 South 700 West	1511116-002A	GK01-ST-02	10/23/2015 000h	Aqueous	Mercury, Drinking Water
Salt Lake City, UT 84119	1511116-002A	GK01-ST-02	10/23/2015 000h	Aqueous	ICPMS Metals, Total
	1511116-002A	GK01-ST-02	10/23/2015 000h	Aqueous	ICP Metals, Total
	1511116-003A	GK01-ST-03	10/23/2015 1200h	Aqueous	Mercury, Drinking Water
Phone: (801) 263-8686	1511116-003A	GK01-ST-03	10/23/2015 1200h	Aqueous	ICPMS Metals, Total
Toll Free: (888) 263-8686	1511116-003A	GK01-ST-03	10/23/2015 1200h	Aqueous	ICP Metals, Total
Fax: (801) 263-8687	1511116-004A	GK01-ST-04	10/24/2015 000h	Aqueous	Mercury, Drinking Water
e-mail: awal@awal-labs.com	1511116-004A	GK01-ST-04	10/24/2015 000h	Aqueous	ICPMS Metals, Total
	1511116-004A	GK01-ST-04	10/24/2015 000h	Aqueous	ICP Metals, Total

web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer



SECTION 2.

□ ANALYTICAL REPORTS

- The contract required detection limits (CRDL's) were met.
- There is an analytical report for each sample on the chain-of-custody.
- The results and dates on the analytical reports match the raw data.
- The information on the header of the analytical reports including the field ID's, the sample dates, and the received date match the chain-of-custody.

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

INORGANIC ANALYTICAL REPORT

Client: Utah Division of Water Quality **Contact:** Jim Harris
Project: Gold King Mine Spill / 01255.1.016.03
Lab Sample ID: 1511116-002
Client Sample ID: GK01-ST-02
Collection Date: 10/23/2015 000h
Received Date: 11/6/2015 1030h

Analytical Results

TOTAL METALS

Compound	CAS	Units	Date Prepared	Date Analyzed	Method Used	MDL	Reporting Limit	Analytical Result	Qual
Aluminum	7429-90-5	mg/L	11/10/2015 1345h	11/19/2015 1119h	E200.7	0.237	1.00	38.1	² §
Antimony	7440-36-0	mg/L	11/10/2015 1345h	11/11/2015 2132h	E200.8	0.0000366	0.00200	0.000873	J ¹ §
Arsenic	7440-38-2	mg/L	11/10/2015 1345h	11/11/2015 2132h	E200.8	0.0000920	0.00200	0.0113	□
Barium	7440-39-3	mg/L	11/10/2015 1345h	11/11/2015 2132h	E200.8	0.000538	0.00200	1.23	¹
Beryllium	7440-41-7	mg/L	11/10/2015 1345h	11/13/2015 1721h	E200.8	0.0000288	0.00200	0.00286	
Cadmium	7440-43-9	mg/L	11/10/2015 1345h	11/11/2015 2132h	E200.8	0.000193	0.000500	0.00119	
Calcium	7440-70-2	mg/L	11/10/2015 1345h	11/19/2015 1119h	E200.7	0.401	10.0	260	² §
Chromium	7440-47-3	mg/L	11/10/2015 1345h	11/11/2015 2132h	E200.8	0.00154	0.00200	0.0208	□
Cobalt	7440-48-4	mg/L	11/10/2015 1345h	11/11/2015 2132h	E200.8	0.0000434	0.00400	0.0177	□
Copper	7440-50-8	mg/L	11/10/2015 1345h	11/11/2015 2132h	E200.8	0.000692	0.00200	0.0298	□
Iron	7439-89-6	mg/L	11/10/2015 1345h	11/19/2015 1313h	E200.7	0.0767	0.100	20.8	²
Lead	7439-92-1	mg/L	11/10/2015 1345h	11/11/2015 2132h	E200.8	0.000264	0.00200	0.0370	
Magnesium	7439-95-4	mg/L	11/10/2015 1345h	11/19/2015 1119h	E200.7	0.294	10.0	53.4	² §
Manganese	7439-96-5	mg/L	11/10/2015 1345h	11/13/2015 1721h	E200.8	0.00153	0.00200	1.30	¹
Mercury	7439-97-6	mg/L	11/11/2015 1500h	11/12/2015 1147h	E245.1	0.00000892	0.000150	0.000720	
Molybdenum	7439-98-7	mg/L	11/10/2015 1345h	11/11/2015 2132h	E200.8	0.000206	0.00200	0.00132	J ¹ §
Nickel	7440-02-0	mg/L	11/10/2015 1345h	11/11/2015 2132h	E200.8	0.000754	0.00200	0.0381	
Potassium	7440-09-7	mg/L	11/10/2015 1345h	11/19/2015 1313h	E200.7	0.247	1.00	12.4	
Selenium	7782-49-2	mg/L	11/10/2015 1345h	11/11/2015 2132h	E200.8	0.0000634	0.00200	0.00262	
Silver	7440-22-4	mg/L	11/10/2015 1345h	11/11/2015 2132h	E200.8	0.0000244	0.00200	0.000264	J ¹ §
Sodium	7440-23-5	mg/L	11/10/2015 1345h	11/19/2015 1119h	E200.7	0.330	10.0	71.0	² §
Thallium	7440-28-0	mg/L	11/10/2015 1345h	11/11/2015 2132h	E200.8	0.0000242	0.00200	0.000377	J ¹ §
Vanadium	7440-62-2	mg/L	11/10/2015 1345h	11/19/2015 1127h	E200.8	0.000438	0.00440	0.0472	□
Zinc	7440-66-6	mg/L	11/10/2015 1345h	11/11/2015 2132h	E200.8	0.00476	0.00500	0.113	□

§ - Sample concentration too low for serial dilution evaluation.

□ - Serial dilution RPD indicates matrix interference.

§ - Post digestion spike (PDS) recovery indicates matrix interference.

¹ - Matrix spike recovery indicates matrix interference. The method is in control as indicated by the LCS.

² - Analyte concentration is too high for accurate matrix spike recovery and/or RPD.

B - This analyte was also detected in the method blank below the PQL.

J - Estimated value between the MDL and the reporting limit (PQL).

Reissue of a previously generated report. Information has been added, updated, or revised. Information herein supersedes that of the previously issued reports.



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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

INORGANIC ANALYTICAL REPORT

Client: Utah Division of Water Quality **Contact:** Jim Harris
Project: Gold King Mine Spill / 01255.1.016.03
Lab Sample ID: 1511116-003
Client Sample ID: GK01-ST-03
Collection Date: 10/23/2015 1200h
Received Date: 11/6/2015 1030h

Analytical Results

TOTAL METALS

Compound	CAS	Units	Date Prepared	Date Analyzed	Method Used	MDL	Reporting Limit	Analytical Result	Qual
Aluminum	7429-90-5	mg/L	11/10/2015 1345h	11/19/2015 1129h	E200.7	0.237	1.00	74.7	
Antimony	7440-36-0	mg/L	11/10/2015 1345h	11/11/2015 2148h	E200.8	0.0000366	0.00200	0.000150	J
Arsenic	7440-38-2	mg/L	11/10/2015 1345h	11/11/2015 2148h	E200.8	0.0000920	0.00200	0.0178	
Barium	7440-39-3	mg/L	11/10/2015 1345h	11/13/2015 1846h	E200.8	0.00269	0.0100	2.27	
Beryllium	7440-41-7	mg/L	11/10/2015 1345h	11/17/2015 1223h	E200.8	0.0000288	0.00200	0.00620	
Cadmium	7440-43-9	mg/L	11/10/2015 1345h	11/11/2015 2148h	E200.8	0.000193	0.000500	0.00156	
Calcium	7440-70-2	mg/L	11/10/2015 1345h	11/19/2015 1129h	E200.7	0.401	10.0	317	
Chromium	7440-47-3	mg/L	11/10/2015 1345h	11/11/2015 2148h	E200.8	0.00154	0.00200	0.0324	
Cobalt	7440-48-4	mg/L	11/10/2015 1345h	11/11/2015 2148h	E200.8	0.0000434	0.00400	0.0330	
Copper	7440-50-8	mg/L	11/10/2015 1345h	11/11/2015 2148h	E200.8	0.000692	0.00200	0.0462	
Iron	7439-89-6	mg/L	11/10/2015 1345h	11/19/2015 1324h	E200.7	0.0767	0.100	29.4	
Lead	7439-92-1	mg/L	11/10/2015 1345h	11/11/2015 2148h	E200.8	0.000264	0.00200	0.0678	
Magnesium	7439-95-4	mg/L	11/10/2015 1345h	11/19/2015 1129h	E200.7	0.294	10.0	77.3	
Manganese	7439-96-5	mg/L	11/10/2015 1345h	11/13/2015 1846h	E200.8	0.00764	0.0100	2.76	
Mercury	7439-97-6	mg/L	11/11/2015 1500h	11/12/2015 1153h	E245.1	0.0000892	0.000150	0.000335	
Molybdenum	7439-98-7	mg/L	11/10/2015 1345h	11/11/2015 2148h	E200.8	0.000206	0.00200	0.000834	J
Nickel	7440-02-0	mg/L	11/10/2015 1345h	11/11/2015 2148h	E200.8	0.000754	0.00200	0.0627	
Potassium	7440-09-7	mg/L	11/10/2015 1345h	11/19/2015 1324h	E200.7	0.247	1.00	17.8	
Selenium	7782-49-2	mg/L	11/10/2015 1345h	11/11/2015 2148h	E200.8	0.0000634	0.00200	0.00168	J
Silver	7440-22-4	mg/L	11/10/2015 1345h	11/11/2015 2148h	E200.8	0.0000244	0.00200	0.000414	JB
Sodium	7440-23-5	mg/L	11/10/2015 1345h	11/19/2015 1129h	E200.7	0.330	10.0	74.1	
Thallium	7440-28-0	mg/L	11/10/2015 1345h	11/11/2015 2148h	E200.8	0.0000242	0.00200	0.000462	J
Vanadium	7440-62-2	mg/L	11/10/2015 1345h	11/17/2015 1223h	E200.8	0.000438	0.00440	0.0611	
Zinc	7440-66-6	mg/L	11/10/2015 1345h	11/11/2015 2148h	E200.8	0.00476	0.00500	0.169	

B - This analyte was also detected in the method blank below the PQL.

J - Estimated value between the MDL and the reporting limit (PQL).



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Jose Rocha
QA Officer

INORGANIC ANALYTICAL REPORT

Client: Utah Division of Water Quality **Contact:** Jim Harris
Project: Gold King Mine Spill / 01255.1.016.03
Lab Sample ID: 1511116-004
Client Sample ID: GK01-ST-04
Collection Date: 10/24/2015 000h
Received Date: 11/6/2015 1030h

Analytical Results

TOTAL METALS

Compound	CAS	Units	Date Prepared	Date Analyzed	Method Used	MDL	Reporting Limit	Analytical Result	Qual
Aluminum	7429-90-5	mg/L	11/10/2015 1345h	11/19/2015 1131h	E200.7	0.237	1.00	118	
Antimony	7440-36-0	mg/L	11/10/2015 1345h	11/11/2015 2200h	E200.8	0.0000366	0.00200	0.000146	J
Arsenic	7440-38-2	mg/L	11/10/2015 1345h	11/11/2015 2200h	E200.8	0.0000920	0.00200	0.0259	
Barium	7440-39-3	mg/L	11/10/2015 1345h	11/13/2015 1849h	E200.8	0.00269	0.0100	3.85	
Beryllium	7440-41-7	mg/L	11/10/2015 1345h	11/17/2015 1226h	E200.8	0.0000288	0.00200	0.0127	
Cadmium	7440-43-9	mg/L	11/10/2015 1345h	11/11/2015 2200h	E200.8	0.000193	0.000500	0.00247	
Calcium	7440-70-2	mg/L	11/10/2015 1345h	11/19/2015 1131h	E200.7	0.401	10.0	405	
Chromium	7440-47-3	mg/L	11/10/2015 1345h	11/11/2015 2200h	E200.8	0.00154	0.00200	0.0440	
Cobalt	7440-48-4	mg/L	11/10/2015 1345h	11/11/2015 2200h	E200.8	0.0000434	0.00400	0.0553	
Copper	7440-50-8	mg/L	11/10/2015 1345h	11/11/2015 2200h	E200.8	0.000692	0.00200	0.0810	
Iron	7439-89-6	mg/L	11/10/2015 1345h	11/19/2015 1131h	E200.7	0.767	1.00	50.4	
Lead	7439-92-1	mg/L	11/10/2015 1345h	11/11/2015 2200h	E200.8	0.000264	0.00200	0.130	
Magnesium	7439-95-4	mg/L	11/10/2015 1345h	11/19/2015 1131h	E200.7	0.294	10.0	87.7	
Manganese	7439-96-5	mg/L	11/10/2015 1345h	11/13/2015 1849h	E200.8	0.00764	0.0100	4.61	
Mercury	7439-97-6	mg/L	11/11/2015 1500h	11/12/2015 1155h	E245.1	0.0000892	0.000150	0.000393	
Molybdenum	7439-98-7	mg/L	11/10/2015 1345h	11/11/2015 2200h	E200.8	0.000206	0.00200	0.000415	J
Nickel	7440-02-0	mg/L	11/10/2015 1345h	11/11/2015 2200h	E200.8	0.000754	0.00200	0.0914	
Potassium	7440-09-7	mg/L	11/10/2015 1345h	11/19/2015 1326h	E200.7	0.247	1.00	24.2	
Selenium	7782-49-2	mg/L	11/10/2015 1345h	11/11/2015 2200h	E200.8	0.0000634	0.00200	0.00162	J
Silver	7440-22-4	mg/L	11/10/2015 1345h	11/11/2015 2200h	E200.8	0.0000244	0.00200	0.000774	JB
Sodium	7440-23-5	mg/L	11/10/2015 1345h	11/19/2015 1131h	E200.7	0.330	10.0	82.9	
Thallium	7440-28-0	mg/L	11/10/2015 1345h	11/11/2015 2200h	E200.8	0.0000242	0.00200	0.000654	J
Vanadium	7440-62-2	mg/L	11/10/2015 1345h	11/11/2015 2200h	E200.8	0.000438	0.00440	0.0797	
Zinc	7440-66-6	mg/L	11/10/2015 1345h	11/11/2015 2200h	E200.8	0.00476	0.00500	0.240	

B - This analyte was also detected in the method blank below the PQL.

J - Estimated value between the MDL and the reporting limit (PQL).



SECTION 3.

❑ BATCH QC REPORTS

❑ METHOD BLANK (MB) REPORTS

- ❑ Raw data matches method blank reports.
- ❑ Any results greater than the contract required detection limit are flagged.

❑ LABORATORY CONTROL SAMPLE (LCS) REPORTS

- ❑ Raw data matches LCS reports.
- ❑ Any results outside the control limits are flagged.

❑ MATRIX SPIKE / MATRIX SPIKE DUPLICATE (MS/MSD) REPORTS

- ❑ Raw data matches MS/MSD reports.
- ❑ Any results outside the control limits are flagged and qualified.

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Jose Rocha
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QC SUMMARY REPORT

Client: Utah Division of Water Quality
Lab Set ID: 1511116
Project: Gold King Mine Spill / 01255.1.016.03

Contact: Jim Harris
Dept: ME
QC Type: LCS

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: LCS-40179		Date Analyzed:	11/19/2015 1117h										
Test Code: 200.7-W		Date Prepared:	11/10/2015 1345h										
Aluminum	0.951	mg/L	E200.7	0.0237	0.100	1.000	0	95.1	85 - 115				
Calcium	9.05	mg/L	E200.7	0.0401	1.00	10.00	0	90.5	85 - 115				
Iron	0.969	mg/L	E200.7	0.0767	0.100	1.000	0	96.9	85 - 115				
Magnesium	9.39	mg/L	E200.7	0.0294	1.00	10.00	0	93.9	85 - 115				
Potassium	9.27	mg/L	E200.7	0.247	1.00	10.00	0	92.7	85 - 115				
Sodium	9.49	mg/L	E200.7	0.0330	1.00	10.00	0	94.9	85 - 115				
Lab Sample ID: LCS-40180		Date Analyzed:	11/11/2015 2129h										
Test Code: 200.8-W		Date Prepared:	11/10/2015 1345h										
Antimony	0.177	mg/L	E200.8	0.0000366	0.00200	0.2000	0	88.6	85 - 115				
Arsenic	0.208	mg/L	E200.8	0.0000920	0.00200	0.2000	0	104	85 - 115				
Barium	0.207	mg/L	E200.8	0.000538	0.00200	0.2000	0	103	85 - 115				
Beryllium	0.203	mg/L	E200.8	0.0000288	0.00200	0.2000	0	101	85 - 115				
Cadmium	0.200	mg/L	E200.8	0.000193	0.000500	0.2000	0	100	85 - 115				
Chromium	0.199	mg/L	E200.8	0.00154	0.00200	0.2000	0	99.5	85 - 115				
Cobalt	0.195	mg/L	E200.8	0.0000434	0.00400	0.2000	0	97.6	85 - 115				
Copper	0.195	mg/L	E200.8	0.000692	0.00200	0.2000	0	97.3	85 - 115				
Lead	0.199	mg/L	E200.8	0.000264	0.00200	0.2000	0	99.6	85 - 115				
Manganese	0.196	mg/L	E200.8	0.00153	0.00200	0.2000	0	97.9	85 - 115				
Molybdenum	0.202	mg/L	E200.8	0.000206	0.00200	0.2000	0	101	85 - 115				
Nickel	0.193	mg/L	E200.8	0.000754	0.00200	0.2000	0	96.5	85 - 115				
Selenium	0.198	mg/L	E200.8	0.0000634	0.00200	0.2000	0	98.9	85 - 115				
Silver	0.200	mg/L	E200.8	0.0000244	0.00200	0.2000	0	100	85 - 115				
Thallium	0.193	mg/L	E200.8	0.0000242	0.00200	0.2000	0	96.6	85 - 115				
Zinc	1.01	mg/L	E200.8	0.00476	0.00500	1.000	0	101	85 - 115				

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Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: Utah Division of Water Quality
Lab Set ID: 1511116
Project: Gold King Mine Spill / 01255.1.016.03

Contact: Jim Harris
Dept: ME
QC Type: LCS

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: LCS-40180	Date Analyzed:	11/13/2015	1718h										
Test Code:	200.8-W	Date Prepared:	11/10/2015	1345h									
Beryllium	0.207	mg/L	E200.8	0.0000288	0.00200	0.2000	0	104	85 - 115				
Lab Sample ID: LCS-40180	Date Analyzed:	11/19/2015	1124h										
Test Code:	200.8-W	Date Prepared:	11/10/2015	1345h									
Vanadium	0.204	mg/L	E200.8	0.000438	0.00440	0.2000	0	102	85 - 115				
Lab Sample ID: LCS-40220	Date Analyzed:	11/12/2015	1142h										
Test Code:	HG-DW-245.1	Date Prepared:	11/11/2015	1500h									
Mercury	0.00338	mg/L	E245.1	0.00000892	0.000150	0.003330	0	102	85 - 115				

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QC SUMMARY REPORT

Client: Utah Division of Water Quality
Lab Set ID: 1511116
Project: Gold King Mine Spill / 01255.1.016.03

Contact: Jim Harris
Dept: ME
QC Type: MBLK

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: MB-40179		Date Analyzed:	11/19/2015 1114h										
Test Code: 200.7-W		Date Prepared:	11/10/2015 1345h										
Aluminum	< 0.100	mg/L	E200.7	0.0237	0.100								U
Calcium	< 1.00	mg/L	E200.7	0.0401	1.00								U
Iron	< 0.100	mg/L	E200.7	0.0767	0.100								U
Magnesium	< 1.00	mg/L	E200.7	0.0294	1.00								U
Potassium	< 1.00	mg/L	E200.7	0.247	1.00								U
Sodium	< 1.00	mg/L	E200.7	0.0330	1.00								U
Lab Sample ID: MB-40180		Date Analyzed:	11/11/2015 2126h										
Test Code: 200.8-W		Date Prepared:	11/10/2015 1345h										
Antimony	< 0.00200	mg/L	E200.8	0.0000366	0.00200								U
Arsenic	< 0.00200	mg/L	E200.8	0.0000920	0.00200								U
Barium	< 0.00200	mg/L	E200.8	0.000538	0.00200								U
Beryllium	< 0.00200	mg/L	E200.8	0.0000288	0.00200								U
Cadmium	< 0.000500	mg/L	E200.8	0.000193	0.000500								U
Chromium	< 0.00200	mg/L	E200.8	0.00154	0.00200								U
Cobalt	< 0.00400	mg/L	E200.8	0.0000434	0.00400								U
Copper	< 0.00200	mg/L	E200.8	0.000692	0.00200								U
Lead	< 0.00200	mg/L	E200.8	0.000264	0.00200								U
Manganese	< 0.00200	mg/L	E200.8	0.00153	0.00200								U
Molybdenum	< 0.00200	mg/L	E200.8	0.000206	0.00200								U
Nickel	< 0.00200	mg/L	E200.8	0.000754	0.00200								U
Selenium	< 0.00200	mg/L	E200.8	0.0000634	0.00200								U
Silver	0.000160	mg/L	E200.8	0.0000244	0.00200								JB
Thallium	< 0.00200	mg/L	E200.8	0.0000242	0.00200								U
Zinc	< 0.00500	mg/L	E200.8	0.00476	0.00500								U

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QC SUMMARY REPORT

Client: Utah Division of Water Quality
Lab Set ID: 1511116
Project: Gold King Mine Spill / 01255.1.016.03

Contact: Jim Harris
Dept: ME
QC Type: MBLK

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: MB-40180	Date Analyzed:	11/13/2015	1715h										
Test Code:	200.8-W	Date Prepared:	11/10/2015	1345h									
Beryllium	< 0.00200	mg/L	E200.8	0.0000288	0.00200								U
Lab Sample ID: MB-40180	Date Analyzed:	11/19/2015	1120h										
Test Code:	200.8-W	Date Prepared:	11/10/2015	1345h									
Vanadium	< 0.00440	mg/L	E200.8	0.000438	0.00440								U
Lab Sample ID: MB-40220	Date Analyzed:	11/12/2015	1140h										
Test Code:	HG-DW-245.1	Date Prepared:	11/11/2015	1500h									
Mercury	< 0.000150	mg/L	E245.1	0.00000892	0.000150								U

B - This analyte was also detected in the method blank below the PQL.

J - Estimated value between the MDL and the reporting limit (PQL).

U - This flag indicates the compound was analyzed for but not detected above the MDL.

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QC SUMMARY REPORT

Client: Utah Division of Water Quality
Lab Set ID: 1511116
Project: Gold King Mine Spill / 01255.1.016.03

Contact: Jim Harris
Dept: ME
QC Type: MS

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: 1511116-002AMS													
Date Analyzed:		11/19/2015 1125h											
Test Code:		200.7-W											
Date Prepared:		11/10/2015 1345h											
Aluminum	40.8	mg/L	E200.7	0.237	1.00	1.000	38.1	267	70 - 130				2
Calcium	244	mg/L	E200.7	0.401	10.0	10.00	260	-158	70 - 130				2
Magnesium	59.8	mg/L	E200.7	0.294	10.0	10.00	53.4	64.4	70 - 130				2
Sodium	76.4	mg/L	E200.7	0.330	10.0	10.00	71	54.0	70 - 130				2
Lab Sample ID: 1511118-002AMS													
Date Analyzed:		11/19/2015 1202h											
Test Code:		200.7-W											
Date Prepared:		11/10/2015 1345h											
Aluminum	98.2	mg/L	E200.7	0.237	1.00	1.000	94.8	337	70 - 130				2
Iron	89.9	mg/L	E200.7	0.767	1.00	1.000	85.2	476	70 - 130				2
Magnesium	96.6	mg/L	E200.7	0.294	10.0	10.00	128	-319	70 - 130				2
Sodium	55.3	mg/L	E200.7	0.330	10.0	10.00	50.2	50.8	70 - 130				2
Lab Sample ID: 1511116-002AMS													
Date Analyzed:		11/19/2015 1319h											
Test Code:		200.7-W											
Date Prepared:		11/10/2015 1345h											
Iron	21.4	mg/L	E200.7	0.0767	0.100	1.000	20.8	66.4	70 - 130				2
Potassium	22.0	mg/L	E200.7	0.247	1.00	10.00	12.4	96.8	70 - 130				
Lab Sample ID: 1511118-002AMS													
Date Analyzed:		11/19/2015 1359h											
Test Code:		200.7-W											
Date Prepared:		11/10/2015 1345h											
Potassium	25.8	mg/L	E200.7	0.247	1.00	10.00	17.6	81.8	70 - 130				
Lab Sample ID: 1511116-002AMS													
Date Analyzed:		11/11/2015 2141h											
Test Code:		200.8-W											
Date Prepared:		11/10/2015 1345h											
Antimony	0.0329	mg/L	E200.8	0.0000366	0.00200	0.2000	0.000873	16.0	75 - 125				1
Arsenic	0.193	mg/L	E200.8	0.0000920	0.00200	0.2000	0.0113	91.0	75 - 125				
Barium	1.35	mg/L	E200.8	0.000538	0.00200	0.2000	1.23	61.2	75 - 125				1
Cadmium	0.193	mg/L	E200.8	0.000193	0.000500	0.2000	0.00119	96.1	75 - 125				
Chromium	0.202	mg/L	E200.8	0.00154	0.00200	0.2000	0.0208	90.4	75 - 125				
Cobalt	0.198	mg/L	E200.8	0.0000434	0.00400	0.2000	0.0177	90.0	75 - 125				

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: Utah Division of Water Quality
Lab Set ID: 1511116
Project: Gold King Mine Spill / 01255.1.016.03

Contact: Jim Harris
Dept: ME
QC Type: MS

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: 1511116-002AMS		Date Analyzed:	11/11/2015 2141h										
Test Code: 200.8-W		Date Prepared:	11/10/2015 1345h										
Copper	0.190	mg/L	E200.8	0.000692	0.00200	0.2000	0.0298	80.4	75 - 125				
Lead	0.220	mg/L	E200.8	0.000264	0.00200	0.2000	0.037	91.4	75 - 125				
Molybdenum	0.117	mg/L	E200.8	0.000206	0.00200	0.2000	0.00132	57.8	75 - 125				1
Nickel	0.214	mg/L	E200.8	0.000754	0.00200	0.2000	0.0381	88.1	75 - 125				
Selenium	0.157	mg/L	E200.8	0.0000634	0.00200	0.2000	0.00262	77.0	75 - 125				
Silver	0.190	mg/L	E200.8	0.0000244	0.00200	0.2000	0.000264	95.0	75 - 125				
Thallium	0.166	mg/L	E200.8	0.0000242	0.00200	0.2000	0.000377	82.7	75 - 125				
Zinc	1.02	mg/L	E200.8	0.00476	0.00500	1.000	0.113	91.0	75 - 125				
Lab Sample ID: 1511118-002AMS		Date Analyzed:	11/11/2015 2223h										
Test Code: 200.8-W		Date Prepared:	11/10/2015 1345h										
Antimony	0.00356	mg/L	E200.8	0.0000366	0.00200	0.2000	0.000132	1.71	75 - 125				1
Arsenic	0.160	mg/L	E200.8	0.0000920	0.00200	0.2000	0.0253	67.6	75 - 125				1
Cadmium	0.192	mg/L	E200.8	0.000193	0.000500	0.2000	0.00455	93.7	75 - 125				
Chromium	0.225	mg/L	E200.8	0.00154	0.00200	0.2000	0.0499	87.6	75 - 125				
Cobalt	0.231	mg/L	E200.8	0.0000434	0.00400	0.2000	0.0694	80.8	75 - 125				
Copper	0.284	mg/L	E200.8	0.000692	0.00200	0.2000	0.131	76.5	75 - 125				
Lead	0.311	mg/L	E200.8	0.000264	0.00200	0.2000	0.155	78.3	75 - 125				
Molybdenum	0.0468	mg/L	E200.8	0.000206	0.00200	0.2000	0.00164	22.6	75 - 125				1
Nickel	0.265	mg/L	E200.8	0.000754	0.00200	0.2000	0.108	78.7	75 - 125				
Selenium	0.113	mg/L	E200.8	0.0000634	0.00200	0.2000	0.0019	55.6	75 - 125				1
Silver	0.187	mg/L	E200.8	0.0000244	0.00200	0.2000	0.00112	93.1	75 - 125				
Thallium	0.148	mg/L	E200.8	0.0000242	0.00200	0.2000	0.000967	73.5	75 - 125				1
Vanadium	0.243	mg/L	E200.8	0.000438	0.00440	0.2000	0.0881	77.7	75 - 125				
Zinc	1.31	mg/L	E200.8	0.00476	0.00500	1.000	0.439	87.2	75 - 125				

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: Utah Division of Water Quality
Lab Set ID: 1511116
Project: Gold King Mine Spill / 01255.1.016.03

Contact: Jim Harris
Dept: ME
QC Type: MS

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: 1511116-002AMS Test Code: 200.8-W	Date Analyzed: 11/13/2015 1730h Date Prepared: 11/10/2015 1345h												
Beryllium	0.192	mg/L	E200.8	0.0000288	0.00200	0.2000	0.00286	94.5	75 - 125				
Lab Sample ID: 1511118-002AMS Test Code: 200.8-W	Date Analyzed: 11/13/2015 1821h Date Prepared: 11/10/2015 1345h												
Beryllium	0.176	mg/L	E200.8	0.0000288	0.00200	0.2000	0.0106	82.7	75 - 125				
Lab Sample ID: 1511118-002AMS Test Code: 200.8-W	Date Analyzed: 11/13/2015 1933h Date Prepared: 11/10/2015 1345h												
Barium	2.87	mg/L	E200.8	0.00269	0.0100	0.2000	3.3	-215	75 - 125				2
Manganese	4.49	mg/L	E200.8	0.00764	0.0100	0.2000	6.35	-933	75 - 125				2
Lab Sample ID: 1511116-002AMS Test Code: 200.8-W	Date Analyzed: 11/17/2015 1207h Date Prepared: 11/10/2015 1345h												
Manganese	1.41	mg/L	E200.8	0.00764	0.0100	0.2000	1.3	58.6	75 - 125				1
Lab Sample ID: 1511116-002AMS Test Code: 200.8-W	Date Analyzed: 11/19/2015 1136h Date Prepared: 11/10/2015 1345h												
Vanadium	0.237	mg/L	E200.8	0.000438	0.00440	0.2000	0.0472	94.8	75 - 125				
Lab Sample ID: 1511116-002AMS Test Code: HG-DW-245.1	Date Analyzed: 11/12/2015 1149h Date Prepared: 11/11/2015 1500h												
Mercury	0.00432	mg/L	E245.1	0.00000892	0.000150	0.003330	0.00072	108	80 - 120				
Lab Sample ID: 1511117-003AMS Test Code: HG-DW-245.1	Date Analyzed: 11/12/2015 1202h Date Prepared: 11/11/2015 1500h												
Mercury	0.00402	mg/L	E245.1	0.00000892	0.000150	0.003330	0.000642	101	80 - 120				
Lab Sample ID: 1511118-002AMS Test Code: HG-DW-245.1	Date Analyzed: 11/12/2015 1211h Date Prepared: 11/11/2015 1500h												
Mercury	0.00402	mg/L	E245.1	0.00000892	0.000150	0.003330	0.000387	109	80 - 120				

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QC SUMMARY REPORT

Client: Utah Division of Water Quality
Lab Set ID: 1511116
Project: Gold King Mine Spill / 01255.1.016.03

Contact: Jim Harris
Dept: ME
QC Type: MS

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: 1511119-007AMS	Date Analyzed:	11/12/2015	1228h										
Test Code: HG-DW-245.1	Date Prepared:	11/11/2015	1500h										
Mercury	0.00378	mg/L	E245.1	0.00000892	0.000150	0.003330	0.000267	105	80 - 120				

¹ - Matrix spike recovery indicates matrix interference. The method is in control as indicated by the LCS.

² - Analyte concentration is too high for accurate matrix spike recovery and/or RPD.

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QC SUMMARY REPORT

Client: Utah Division of Water Quality
Lab Set ID: 1511116
Project: Gold King Mine Spill / 01255.1.016.03

Contact: Jim Harris
Dept: ME
QC Type: MSD

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: 1511116-002AMSD Date Analyzed: 11/19/2015 1127h													
Test Code: 200.7-W Date Prepared: 11/10/2015 1345h													
Aluminum	46.5	mg/L	E200.7	0.237	1.00	1.000	38.1	842	70 - 130	40.8	13.2	20	2
Calcium	261	mg/L	E200.7	0.401	10.0	10.00	260	10.3	70 - 130	244	6.65	20	2
Magnesium	64.3	mg/L	E200.7	0.294	10.0	10.00	53.4	109	70 - 130	59.8	7.19	20	
Sodium	80.2	mg/L	E200.7	0.330	10.0	10.00	71	92.3	70 - 130	76.4	4.89	20	
Lab Sample ID: 1511118-002AMSD Date Analyzed: 11/19/2015 1221h													
Test Code: 200.7-W Date Prepared: 11/10/2015 1345h													
Aluminum	105	mg/L	E200.7	0.237	1.00	1.000	94.8	967	70 - 130	98.2	6.21	20	2
Iron	96.0	mg/L	E200.7	0.767	1.00	1.000	85.2	1,080	70 - 130	89.9	6.52	20	2
Magnesium	100	mg/L	E200.7	0.294	10.0	10.00	128	-280	70 - 130	96.6	3.88	20	2
Sodium	55.9	mg/L	E200.7	0.330	10.0	10.00	50.2	57.0	70 - 130	55.3	1.10	20	2
Lab Sample ID: 1511116-002AMSD Date Analyzed: 11/19/2015 1321h													
Test Code: 200.7-W Date Prepared: 11/10/2015 1345h													
Iron	23.6	mg/L	E200.7	0.0767	0.100	1.000	20.8	285	70 - 130	21.4	9.69	20	2
Potassium	23.1	mg/L	E200.7	0.247	1.00	10.00	12.4	107	70 - 130	22	4.52	20	
Lab Sample ID: 1511118-002AMSD Date Analyzed: 11/19/2015 1401h													
Test Code: 200.7-W Date Prepared: 11/10/2015 1345h													
Potassium	27.5	mg/L	E200.7	0.247	1.00	10.00	17.6	98.9	70 - 130	25.8	6.41	20	
Lab Sample ID: 1511116-002AMSD Date Analyzed: 11/11/2015 2145h													
Test Code: 200.8-W Date Prepared: 11/10/2015 1345h													
Antimony	0.0318	mg/L	E200.8	0.0000366	0.00200	0.2000	0.000873	15.5	75 - 125	0.0329	3.47	20	1
Arsenic	0.208	mg/L	E200.8	0.0000920	0.00200	0.2000	0.0113	98.3	75 - 125	0.193	7.30	20	
Barium	1.43	mg/L	E200.8	0.000538	0.00200	0.2000	1.23	102	75 - 125	1.35	5.81	20	
Cadmium	0.200	mg/L	E200.8	0.000193	0.000500	0.2000	0.00119	99.6	75 - 125	0.193	3.54	20	
Chromium	0.221	mg/L	E200.8	0.00154	0.00200	0.2000	0.0208	100	75 - 125	0.202	9.24	20	
Cobalt	0.211	mg/L	E200.8	0.0000434	0.00400	0.2000	0.0177	96.9	75 - 125	0.198	6.68	20	

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QC SUMMARY REPORT

Client: Utah Division of Water Quality
Lab Set ID: 1511116
Project: Gold King Mine Spill / 01255.1.016.03

Contact: Jim Harris
Dept: ME
QC Type: MSD

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: 1511116-002AMSD		Date Analyzed:	11/11/2015 2145h										
Test Code: 200.8-W		Date Prepared:	11/10/2015 1345h										
Copper	0.208	mg/L	E200.8	0.000692	0.00200	0.2000	0.0298	89.3	75 - 125	0.19	8.93	20	
Lead	0.230	mg/L	E200.8	0.000264	0.00200	0.2000	0.037	96.4	75 - 125	0.22	4.48	20	
Molybdenum	0.118	mg/L	E200.8	0.000206	0.00200	0.2000	0.00132	58.6	75 - 125	0.117	1.40	20	1
Nickel	0.234	mg/L	E200.8	0.000754	0.00200	0.2000	0.0381	98.2	75 - 125	0.214	8.99	20	
Selenium	0.174	mg/L	E200.8	0.0000634	0.00200	0.2000	0.00262	85.5	75 - 125	0.157	10.4	20	
Silver	0.198	mg/L	E200.8	0.0000244	0.00200	0.2000	0.000264	98.7	75 - 125	0.19	3.83	20	
Thallium	0.174	mg/L	E200.8	0.0000242	0.00200	0.2000	0.000377	86.6	75 - 125	0.166	4.62	20	
Zinc	1.12	mg/L	E200.8	0.00476	0.00500	1.000	0.113	100	75 - 125	1.02	8.69	20	
Lab Sample ID: 1511118-002AMSD		Date Analyzed:	11/11/2015 2226h										
Test Code: 200.8-W		Date Prepared:	11/10/2015 1345h										
Antimony	0.00334	mg/L	E200.8	0.0000366	0.00200	0.2000	0.000132	1.60	75 - 125	0.00356	6.45	20	1
Arsenic	0.164	mg/L	E200.8	0.0000920	0.00200	0.2000	0.0253	69.5	75 - 125	0.16	2.38	20	1
Cadmium	0.201	mg/L	E200.8	0.000193	0.000500	0.2000	0.00455	98.3	75 - 125	0.192	4.75	20	
Chromium	0.241	mg/L	E200.8	0.00154	0.00200	0.2000	0.0499	95.6	75 - 125	0.225	6.93	20	
Cobalt	0.244	mg/L	E200.8	0.0000434	0.00400	0.2000	0.0694	87.5	75 - 125	0.231	5.61	20	
Copper	0.303	mg/L	E200.8	0.000692	0.00200	0.2000	0.131	85.7	75 - 125	0.284	6.30	20	
Lead	0.324	mg/L	E200.8	0.000264	0.00200	0.2000	0.155	84.9	75 - 125	0.311	4.12	20	
Molybdenum	0.0417	mg/L	E200.8	0.000206	0.00200	0.2000	0.00164	20.0	75 - 125	0.0468	11.4	20	1
Nickel	0.284	mg/L	E200.8	0.000754	0.00200	0.2000	0.108	87.8	75 - 125	0.265	6.60	20	
Selenium	0.120	mg/L	E200.8	0.0000634	0.00200	0.2000	0.0019	58.9	75 - 125	0.113	5.65	20	1
Silver	0.196	mg/L	E200.8	0.0000244	0.00200	0.2000	0.00112	97.5	75 - 125	0.187	4.54	20	
Thallium	0.155	mg/L	E200.8	0.0000242	0.00200	0.2000	0.000967	76.8	75 - 125	0.148	4.41	20	
Vanadium	0.258	mg/L	E200.8	0.000438	0.00440	0.2000	0.0881	85.0	75 - 125	0.243	5.86	20	
Zinc	1.38	mg/L	E200.8	0.00476	0.00500	1.000	0.439	94.6	75 - 125	1.31	5.49	20	

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Client: Utah Division of Water Quality
Lab Set ID: 1511116
Project: Gold King Mine Spill / 01255.1.016.03

Contact: Jim Harris
Dept: ME
QC Type: MSD

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: 1511116-002AMSD Test Code: 200.8-W	Date Analyzed: 11/13/2015 1734h Date Prepared: 11/10/2015 1345h												
Beryllium	0.190	mg/L	E200.8	0.0000288	0.00200	0.2000	0.00286	93.7	75 - 125	0.192	0.820	20	
Lab Sample ID: 1511118-002AMSD Test Code: 200.8-W	Date Analyzed: 11/13/2015 1824h Date Prepared: 11/10/2015 1345h												
Beryllium	0.180	mg/L	E200.8	0.0000288	0.00200	0.2000	0.0106	84.5	75 - 125	0.176	2.05	20	
Lab Sample ID: 1511118-002AMSD Test Code: 200.8-W	Date Analyzed: 11/13/2015 1936h Date Prepared: 11/10/2015 1345h												
Barium	2.99	mg/L	E200.8	0.00269	0.0100	0.2000	3.3	-158	75 - 125	2.87	3.84	20	2
Manganese	4.71	mg/L	E200.8	0.00764	0.0100	0.2000	6.35	-820	75 - 125	4.49	4.90	20	2
Lab Sample ID: 1511116-002AMSD Test Code: 200.8-W	Date Analyzed: 11/17/2015 1210h Date Prepared: 11/10/2015 1345h												
Manganese	1.49	mg/L	E200.8	0.00764	0.0100	0.2000	1.3	99.1	75 - 125	1.41	5.58	20	
Lab Sample ID: 1511116-002AMSD Test Code: 200.8-W	Date Analyzed: 11/19/2015 1139h Date Prepared: 11/10/2015 1345h												
Vanadium	0.236	mg/L	E200.8	0.000438	0.00440	0.2000	0.0472	94.6	75 - 125	0.237	0.168	20	
Lab Sample ID: 1511116-002AMSD Test Code: HG-DW-245.1	Date Analyzed: 11/12/2015 1151h Date Prepared: 11/11/2015 1500h												
Mercury	0.00417	mg/L	E245.1	0.0000892	0.000150	0.003330	0.00072	104	80 - 120	0.00432	3.34	20	
Lab Sample ID: 1511117-003AMSD Test Code: HG-DW-245.1	Date Analyzed: 11/12/2015 1204h Date Prepared: 11/11/2015 1500h												
Mercury	0.00392	mg/L	E245.1	0.0000892	0.000150	0.003330	0.000642	98.3	80 - 120	0.00402	2.56	20	
Lab Sample ID: 1511118-002AMSD Test Code: HG-DW-245.1	Date Analyzed: 11/12/2015 1212h Date Prepared: 11/11/2015 1500h												
Mercury	0.00382	mg/L	E245.1	0.0000892	0.000150	0.003330	0.000387	103	80 - 120	0.00402	5.23	20	

All analyses applicable to the CWA, SDWA, and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached COC. Confidential Business Information: This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.



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Kyle F. Gross
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Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: Utah Division of Water Quality
Lab Set ID: 1511116
Project: Gold King Mine Spill / 01255.1.016.03

Contact: Jim Harris
Dept: ME
QC Type: MSD

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: 1511119-007AMSD	Date Analyzed: 11/12/2015 1230h												
Test Code: HG-DW-245.1	Date Prepared: 11/11/2015 1500h												
Mercury	0.00368	mg/L	E245.1	0.00000892	0.000150	0.003330	0.000267	103	80 - 120	0.00378	2.46	20	

¹ - Matrix spike recovery indicates matrix interference. The method is in control as indicated by the LCS.

² - Analyte concentration is too high for accurate matrix spike recovery and/or RPD.

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