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LABORATORY IDENTIFICATION NUMBER: 1510563

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3440 South 700 West  
Salt Lake City, UT 84119

CASE NARRATIVE  
CHAIN-OF-CUSTODIES

### SECTION 2.

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ANALYTICAL REPORTS

### SECTION 3.

web: [www.awal-labs.com](http://www.awal-labs.com)

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Kyle F. Gross  
Laboratory Director

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Jose Rocha  
QA Officer

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ANALYSIS

Assembled by:

Reviewed by:

<b>Melissa Connolly</b>	Digitally signed by Melissa Connolly DN: cn=Melissa Connolly, o=American West Analytical Laboratories, ou, email=melissa@awa-labs.com, c=US Date: 2015.11.30 17:03:22 -07'00'	<b>Kyle F. Gross</b>	Digitally signed by Kyle F. Gross Date: 2015.11.30 17:43:17 -07'00'
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## SECTION 1.

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

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Salt Lake City, UT 84119

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Laboratory Director

Jose Rocha  
QA Officer



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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: 1510563

American West Analytical Laboratories received sample(s) on 10/27/2015 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.

Thank You,

**Kyle F. Gross**  
Digitally signed  
by Kyle F. Gross  
Date:  
2015.11.30  
17:43:49 -07'00'

Approved by:

Laboratory Director or designee

# American West Analytical Laboratories

**REVISED:** 10/28/2015

D

Samples 6,7,13,14,15,16,17,18, and 21 taken off hold per Brad. -EH

## WORK ORDER SUMMARY

Work Order: **1510563** Page 1 of 3

**Client:** Utah Division of Water Quality

Due Date: 11/11/2015

**Client ID:** UTD200

**Contact:** Jim Harris

**Project:** Gold King Mine Spill / 01255.1.016.03

**QC Level:** III+ MDL **WO Type:** Standard

**Comments:** Email to lenoras@utah.gov. / CC Brad Martin QC 3+ / 10-28-15 proceed with analysis for Samples #6, 7, 13,14,15,16,17,18 & #21, per Brad. Footnote report, pH, TSS, & TDS received outside of hold. Include EDD;

Sample ID	Client Sample ID	Collected Date	Received Date	Test Code	Matrix	Sel	Storage
1510563-001A	GK04-ST-07	10/12/2015 1200h	10/27/2015 1520h		Aqueous	<input type="checkbox"/>	DF-Hold
1510563-002A	GK04-ST-08	10/13/2015 0000h	10/27/2015 1520h		Aqueous	<input type="checkbox"/>	DF-Hold
1510563-003A	GK04-ST-09	10/13/2015 1200h	10/27/2015 1520h		Aqueous	<input type="checkbox"/>	DF-Hold
1510563-004A	GK04-ST-10	10/14/2015 0000h	10/27/2015 1520h		Aqueous	<input type="checkbox"/>	DF-Hold
1510563-005A	GK04-ST-11	10/14/2015 1200h	10/27/2015 1520h		Aqueous	<input type="checkbox"/>	DF-Hold
1510563-006A	GK04-ST-12	10/15/2015 0000h	10/27/2015 1520h	300.0-W 2 SEL Analytes: CL SO4	Aqueous	<input checked="" type="checkbox"/>	DF-WC
				3005A-ICPMIS-PR		<input type="checkbox"/>	DF-WC
				ALK-W-2320B		<input checked="" type="checkbox"/>	DF-WC
				3 SEL Analytes: ALK ALKB ALKC			
				COND-W-2510B		<input type="checkbox"/>	DF-WC
				HARD-2340B		<input type="checkbox"/>	DF-WC
				NO2/NO3-W-353.2		<input type="checkbox"/>	DF-WC
				PH-4500H-B		<input type="checkbox"/>	DF-WC
				P04-W-4500PF		<input type="checkbox"/>	DF-WC
				P04-W-PR		<input type="checkbox"/>	DF-WC
				TDS-W-2540C		<input type="checkbox"/>	DF-WC
				TSS-W-2540D		<input type="checkbox"/>	DF-WC
1510563-007A	GK04-ST-13	10/15/2015 1200h	10/27/2015 1520h	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
1510563-008A	GK04-ST-14	10/16/2015 0000h	10/27/2015 1520h		Aqueous	<input type="checkbox"/>	DF-Hold

Printed: 11/25/2015

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

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# WORK ORDER SUMMARY

Client: Utah Division of Water Quality

Work Order: **1510563**

Page 2 of 3

Due Date: 11/11/2015

Sample ID	Client Sample ID	Collected Date	Received Date	Test Code	Matrix	Sel	Storage
1510563-009A	GK04-ST-15	10/16/2015 1200h	10/27/2015 1520h		Aqueous	<input type="checkbox"/>	DF-Hold
1510563-010A	GK04-ST-16	10/17/2015 0000h	10/27/2015 1520h		Aqueous	<input type="checkbox"/>	DF-Hold
1510563-011A	GK04-ST-17	10/17/2015 1200h	10/27/2015 1520h		Aqueous	<input type="checkbox"/>	DF-Hold
1510563-012A	GK04-ST-18	10/18/2015 0000h	10/27/2015 1520h		Aqueous	<input type="checkbox"/>	DF-Hold
1510563-013A	GK04-ST-19	10/18/2015 1200h	10/27/2015 1520h	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		<input checked="" type="checkbox"/>	DF-Metals
				17 SEL Analytes: SB AS BA BE CD CR CO CU PB MN MO NI SE AG TL V ZN			
				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
1510563-014A	GK04-ST-20	10/19/2015 0000h	10/27/2015 1520h	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		<input checked="" type="checkbox"/>	DF-Metals
				17 SEL Analytes: SB AS BA BE CD CR CO CU PB MN MO NI SE AG TL V ZN			
				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
1510563-015A	GK04-ST-21	10/19/2015 1200h	10/27/2015 1520h	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		<input checked="" type="checkbox"/>	DF-Metals
				17 SEL Analytes: SB AS BA BE CD CR CO CU PB MN MO NI SE AG TL V ZN			
				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
1510563-016A	GK04-ST-22	10/20/2015 0000h	10/27/2015 1520h	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		<input checked="" type="checkbox"/>	DF-Metals
				17 SEL Analytes: SB AS BA BE CD CR CO CU PB MN MO NI SE AG TL V ZN			
				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

Printed: 11/25/2015

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# WORK ORDER SUMMARY

Client: Utah Division of Water Quality

Work Order: **1510563**

Page 3 of 3

Due Date: 11/11/2015

Sample ID	Client Sample ID	Collected Date	Received Date	Test Code	Matrix	Sel	Storage
1510563-016A	GK04-ST-22	10/20/2015 0000h	10/27/2015 1520h	HG-DW-245.1	Aqueous	<input type="checkbox"/>	DF-Metals
1510563-017A	GK04-ST-23	10/20/2015 1200h	10/27/2015 1520h	HG-DW-PR 200.7-W 6 SEL Analytes: AL CA FE MG K NA 200.7-W-PR 200.8-W 200.8-W	Aqueous	<input checked="" type="checkbox"/>	DF-Metals
				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 HG-DW-245.1 HG-DW-PR		<input type="checkbox"/>	DF-Metals
				200.7-W 6 SEL Analytes: AL CA FE MG K NA		<input checked="" type="checkbox"/>	DF-Metals
1510563-018A	GK04-ST-24	10/21/2015 0000h	10/27/2015 1520h	200.7-W 200.7-W-PR 200.8-W	Aqueous	<input type="checkbox"/>	DF-Metals
				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 HG-DW-245.1 HG-DW-PR		<input type="checkbox"/>	DF-Metals
				200.7-W 2 SEL Analytes: CL SO4		<input type="checkbox"/>	DF-Metals
1510563-019A	GK05-ST-01	10/10/2015 1200h	10/27/2015 1520h	300.0-W 300.0-W-PR	Aqueous	<input type="checkbox"/>	DF-Hold
1510563-020A	GK05-ST-02	10/11/2015 0000h	10/27/2015 1520h	300.0-W 300.0-W-PR	Aqueous	<input type="checkbox"/>	DF-Hold
1510563-021A	GK05-ST-03	10/11/2015 1200h	10/27/2015 1520h	300.0-W 300.0-W-PR	Aqueous	<input checked="" type="checkbox"/>	DF-WC
				2 SEL Analytes: CL SO4		<input type="checkbox"/>	DF-WC
				300.0-W-PR ALK-W-2320B 3 SEL Analytes: ALK ALKB ALKC		<input checked="" type="checkbox"/>	DF-WC
				COND-W-2510B HARD-2340B NO2/NO3-W-353.2 PH-4500H+B PO4-W-4500PF PO4-W-PR TDS-W-2540C TSS-W-2540D		<input type="checkbox"/>	DF-WC
				200.7-W-PR 200.8-W 200.8-W-PR HG-DW-245.1 HG-DW-PR		<input type="checkbox"/>	DF-WC
1510563-022A	GK05-ST-04	10/12/2015 0000h	10/27/2015 1520h	300.0-W 300.0-W-PR	Aqueous	<input type="checkbox"/>	DF-Hold

Printed: 11/25/2015

FOR LABORATORY USE ONLY [fill out on page 1]:

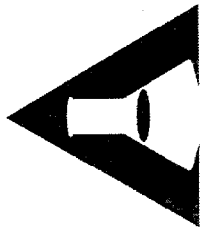
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Client: State of UT / Techlaw Inc  
 Address: 195 N. 1950 West  
SUC, UT, 84119  
 Contact: Jim H (SOVT) Brad M (TLI)  
 Phone #: 801 536 4860 Cell #: 630 677 5407  
 Email:  
 Project Name: Gold King Mine Spill  
 Project #: 0255-1506-03  
 PO #:  
 Sampler Name: Techlaw Inc.

**CHAIN OF CUSTODY**

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

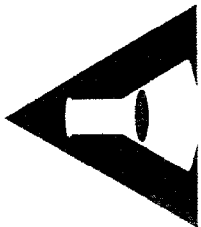
1510 563  
 AWAL Lab Sample S# #  
 Page 1 of 2

QC Level:	Turn Around Time:	Unless other arrangements have been made, eight reports will be emailed by 5:00 pm on the day they are due.	Laboratory Use Only		
				1	2
1			Samples Were: 1 Shipped <input checked="" type="checkbox"/> (and prepared) 2 Ambient or <input checked="" type="checkbox"/> <u>6.4</u> °C 3 Temperature 4 Received Broken/Leaking (Improperly Sealed) <input checked="" type="checkbox"/> 5 Properly Preserved <input checked="" type="checkbox"/> Checked at <u>batch</u> 6 Received Within <u>24 hrs</u> <input checked="" type="checkbox"/> 7 <u>PH 7.55 &amp; 10.5</u> <u>rec: outside of batch</u> CDC Tests Was: 1 Present on Outer Package: <input checked="" type="checkbox"/> 2 Unbroken on Outer Package: <input checked="" type="checkbox"/> 3 Present on Sample: <input checked="" type="checkbox"/> 4 Unbroken on Sample: <input checked="" type="checkbox"/> Discrepancies Between Sample Labels and CDC Record? <input checked="" type="checkbox"/>		
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					

Sample Matrix	# of Containers	QC Level	Turn Around Time	Special Instructions
	2	1	5:00 pm	
	1	2		
	1	3		
	1	4		
	1	5		
	1	6		
	1	7		
	1	8		
	1	9		
	1	10		
	1	11		
	1	12		

Special Instructions:  
Hold for analysis  
\*10/28/15 Samples 6, 7, 13, 14  
15, 16, 17, 18, 21 taken off  
hold

Relinquished by:	Date:	Received by:	Date:
Signature: <u>Paul Young</u>	Time: <u>12:00</u>	Signature: <u>Yesenia Aguilar</u>	Time: <u>15:20</u>
Print Name: <u>Paul Young</u>	Date: <u>10/22/15</u>	Print Name: <u>Yesenia Aguilar</u>	Date: <u>10/22/15</u>
Relinquished by:	Date:	Received by:	Date:
Signature:	Time:	Signature:	Time:
Relinquished by:	Date:	Received by:	Date:
Signature:	Time:	Signature:	Time:
Relinquished by:	Date:	Received by:	Date:
Signature:	Time:	Signature:	Time:



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Client: SOUT / TLI
Address: 195 N. 1950 West
Contact: SLC, UT. 84119
Phone #: 801 536 4360 Cell #: 680 6A7 5407
Project Name: GKMS
Project #: 0255.1.016.03
PO #:
Sampler Name: TLI

CHAIN OF CUSTODY

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

1510563

AWAL Lab Sample Set #
Page 2 of 2

QC Level, Turn Around Time, Laboratory Use Only, Samples Were, For Compliance With, Known Hazards & Sample Comments, Special Instructions

Table with columns: Sample ID, Date Sampled, Time Sampled, # of Containers, Sample Matrix, Total Metals, etc.

Relinquished by, Received by, Signature, Date, Time, Special Instructions



## Elona Hayward

---

**From:** Rebekah Winkler  
**Sent:** Wednesday, October 28, 2015 6:40 AM  
**To:** Elona Hayward  
**Subject:** FW: TechLaw - Gold King Mine samples - samples received 10/27/15  
**Attachments:** Utah COCs 10-23-15.pdf

Take off hold/add analysis for TechLaw's samples received yesterday.

---

**From:** Martin, Bradley [<mailto:BMartin@TechLawInc.com>]  
**Sent:** Wednesday, October 28, 2015 6:29 AM  
**To:** Rebekah Winkler  
**Subject:** TechLaw - Gold King Mine samples - samples received 10/27/15

Hi Rebekah – For the samples received yesterday I would like the following analyzed for total metals:

GK01-ST-13 10/15/15 1200 ✓  
GK02-ST-13 10/15/15 1200  
GK02-ST-20 10/19/15 0000  
GK02-ST-21 10/19/15 1200  
GK02-ST-22 10/20/15 0000  
GK02-ST-23 10/20/15 1200  
GK02-ST-24 10/21/15 0000  
GK03-ST-13 10/15/15 1200  
GK03-ST-20 10/19/15 0000  
GK03-ST-21 10/19/15 1200  
GK03-ST-22 10/20/15 0000  
GK03-ST-23 10/20/15 1200  
GK03-ST-24 10/21/15 0000  
GK04-ST-13 10/15/15 1200  
GK04-ST-19 10/18/15 1200  
GK04-ST-20 10/19/15 0000  
GK04-ST-21 10/19/15 1200  
GK04-ST-22 10/20/15 0000  
GK04-ST-23 10/20/15 1200  
GK04-ST-24 10/21/15 0000

Also, can we sample the following samples for the nutrient list below (I realize several of the holding time may have expired – it's the nature of this particular sampling method)

GK01-ST-12 10/15/15 0000  
GK02-ST-12 10/15/15 0000  
GK03-ST-12 10/15/15 0000  
GK04-ST-12 10/15/15 0000  
GK05-ST-03 10/11/15 1200

Hardness	2340B
Conductivity	SM2510B
Alkalinity	SM2320B
Anions (Carbonate, Bicarbonate, Sulfate and Chloride)	300.0

Nitrate/Nitrite 353.2  
Phosphorus, total 4500-PF

TDS SM2540C  
TSS SM2540D  
pH 9040C

Thanks, Brad

Bradley K. Martin, P.E.  
*TechLaw, Inc.*  
55 West Monroe Street, Suite 3450  
Chicago, IL 60603  
T 312.345.8960  
M 630.697.5407  
[bmartin@techlawinc.com](mailto:bmartin@techlawinc.com)  
[www.techlawinc.com](http://www.techlawinc.com)



## Inorganic Case Narrative

**Client:** Utah Division of Water Quality  
**Contact:** Jim Harris  
**Project:** Gold King Mine Spill / 01255.016.03  
**Lab Set ID:** 1510563

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Kyle F. Gross  
Laboratory Director

Jose Rocha  
QA Officer

### Sample Receipt Information:

**Date of Receipt:** 10/27/2015  
**Date of Collection:** 10/10-10/21/2015  
**Date of Analyses Request:** 10/28/2015  
**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, with the following exceptions: the analyses for test codes PH-4500H+B, TDS-W-2540C, and TSS-W-2540D and sample 1510563-021A for test code ALK-W-2320B were received outside of the holding time. All samples were properly preserved.

**Preparation and Analysis Requirements:** The samples were analyzed following the methods stated on the analytical reports. The requested method of 9040C is equivalent to the reported method of SM4500-H+B for pH analysis. The laboratory reported method SM4500-H+B as it is a method applicable to the CWA (Clean Water Act).

**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, DUP, PDS, SD:

**Method Blanks (MBs):** No target analytes were detected above the reporting limits, indicating that the procedure was free from contamination. Sodium on sample MB-40016 and Lead on sample MB-40017 were 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
1510563-007A	Aluminum	MS/MSD	High analyte concentration
1510563-007A	Antimony	MS/MSD	Sample matrix interference
1510563-007A	Arsenic	MSD	Sample matrix interference
1510563-007A	Barium	MS/MSD/RPD	Sample matrix interference or sample non-homogeneity



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web: [www.awal-labs.com](http://www.awal-labs.com)

Kyle F. Gross  
Laboratory Director

Jose Rocha  
QA Officer

1510563-007A	Calcium	MS	High analyte concentration
1510563-007A	Iron	MS/MSD	High analyte concentration
1510563-007A	Magnesium	MS	High analyte concentration
1510563-007A	Manganese	MS/MSD/RPD	High analyte concentration
1510563-007A	Molybdenum	MS/MSD	Sample matrix interference
1510563-007A	Selenium	MS/MSD	Sample matrix interference
1510561-018A	Phosphate	MS	Sample matrix interference
1510563-021A	Phosphate	MS/MSD/RPD	High analyte concentration
1510566-012A	Phosphate	MS/MSD/RPD	Sample matrix interference or sample non-homogeneity
1510580-001A	Aluminum	MS/MSD	High analyte concentration
1510580-001A	Antimony	MS/MSD	Sample matrix interference
1510580-001A	Iron	MS	High analyte concentration
1510580-001A	Molybdenum	MS/MSD	Sample matrix interference

**Duplicate (DUP):** The parameters that require a duplicate analysis had RPDs within the control limits, with the following exceptions: the RPDs were outside of the control limits on samples 1510561-018A and 1510566-012A and Total Dissolved Solids and Total Suspended Solids due to suspected sample non-homogeneity or matrix interference.

**Post Digestion Spike (PDS):** The PDS percent recoveries were within the control limits, with the following exceptions: the PDS percent recoveries for Aluminum, Calcium, and Iron on 1510563-007A and for Aluminum, Calcium, Iron, Potassium, and Sodium on 1510580-001A 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 RPDs for Antimony, Cadmium, Molybdenum, Selenium, and Silver on sample 1510580-001A were outside of the control limits due to low analyte concentration. The analyte concentrations for Antimony, Molybdenum, Selenium, Silver, and Thallium were too low for serial dilution evaluation.

**Corrective Action:** None required.



# SAMPLE SUMMARY

**Client:** Utah Division of Water Quality      **Contact:** Jim Harris  
**Project:** Gold King Mine Spill / 01255.1.016.03  
**Lab Set ID:** 1510563  
**Date Received:** 10/27/2015 1520h

	<u>Lab Sample ID</u>	<u>Client Sample ID</u>	<u>Date Collected</u>	<u>Matrix</u>	<u>Analysis</u>
3440 South 700 West Salt Lake City, UT 84119  Phone: (801) 263-8686 Toll Free: (888) 263-8686 Fax: (801) 263-8687 e-mail: <a href="mailto:awal@awal-labs.com">awal@awal-labs.com</a> web: <a href="http://www.awal-labs.com">www.awal-labs.com</a>	1510563-006A	GK04-ST-12	10/15/2015 000h	Aqueous	Nitrite/Nitrate (as N), E353.2
	1510563-006A	GK04-ST-12	10/15/2015 000h	Aqueous	TSS
	1510563-006A	GK04-ST-12	10/15/2015 000h	Aqueous	Total Dissolved Solids, A2540C
	1510563-006A	GK04-ST-12	10/15/2015 000h	Aqueous	pH
	1510563-006A	GK04-ST-12	10/15/2015 000h	Aqueous	Conductivity (Specific Conductance)
Kyle F. Gross Laboratory Director  Jose Rocha QA Officer	1510563-006A	GK04-ST-12	10/15/2015 000h	Aqueous	Alkalinity/ Bicarbonate/ Carbonate, A2320B
	1510563-006A	GK04-ST-12	10/15/2015 000h	Aqueous	Anions, E300.0
	1510563-006A	GK04-ST-12	10/15/2015 000h	Aqueous	Hardness
	1510563-006A	GK04-ST-12	10/15/2015 000h	Aqueous	Total Phosphate, Aqueous
	1510563-007A	GK04-ST-13	10/15/2015 1200h	Aqueous	ICPMS Metals, Total
	1510563-007A	GK04-ST-13	10/15/2015 1200h	Aqueous	Mercury, Drinking Water
	1510563-007A	GK04-ST-13	10/15/2015 1200h	Aqueous	ICP Metals, Total
	1510563-013A	GK04-ST-19	10/18/2015 1200h	Aqueous	Mercury, Drinking Water
	1510563-013A	GK04-ST-19	10/18/2015 1200h	Aqueous	ICP Metals, Total
	1510563-013A	GK04-ST-19	10/18/2015 1200h	Aqueous	ICPMS Metals, Total
	1510563-014A	GK04-ST-20	10/19/2015 000h	Aqueous	Mercury, Drinking Water
	1510563-014A	GK04-ST-20	10/19/2015 000h	Aqueous	ICP Metals, Total
	1510563-014A	GK04-ST-20	10/19/2015 000h	Aqueous	ICPMS Metals, Total
	1510563-015A	GK04-ST-21	10/19/2015 1200h	Aqueous	ICPMS Metals, Total
	1510563-015A	GK04-ST-21	10/19/2015 1200h	Aqueous	Mercury, Drinking Water
	1510563-015A	GK04-ST-21	10/19/2015 1200h	Aqueous	ICP Metals, Total
	1510563-016A	GK04-ST-22	10/20/2015 001h	Aqueous	Mercury, Drinking Water
	1510563-016A	GK04-ST-22	10/20/2015 001h	Aqueous	ICP Metals, Total
	1510563-016A	GK04-ST-22	10/20/2015 001h	Aqueous	ICPMS Metals, Total
	1510563-017A	GK04-ST-23	10/20/2015 1200h	Aqueous	Mercury, Drinking Water
	1510563-017A	GK04-ST-23	10/20/2015 1200h	Aqueous	ICP Metals, Total
1510563-017A	GK04-ST-23	10/20/2015 1200h	Aqueous	ICPMS Metals, Total	
1510563-018A	GK04-ST-24	10/21/2015 000h	Aqueous	ICP Metals, Total	
1510563-018A	GK04-ST-24	10/21/2015 000h	Aqueous	ICPMS Metals, Total	
1510563-018A	GK04-ST-24	10/21/2015 000h	Aqueous	Mercury, Drinking Water	
1510563-021A	GK05-ST-03	10/11/2015 1200h	Aqueous	Nitrite/Nitrate (as N), E353.2	
1510563-021A	GK05-ST-03	10/11/2015 1200h	Aqueous	Total Phosphate, Aqueous	
1510563-021A	GK05-ST-03	10/11/2015 1200h	Aqueous	TSS	
1510563-021A	GK05-ST-03	10/11/2015 1200h	Aqueous	Total Dissolved Solids, A2540C	

All analyses applicable to the CWA, SDWA, and RCRA are performed in accordance to NELAP 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.



**Client:** Utah Division of Water Quality  
**Project:** Gold King Mine Spill / 01255.1.016.03  
**Lab Set ID:** 1510563  
**Date Received:** 10/27/2015 1520h

**Contact:** Jim Harris

Lab Sample ID	Client Sample ID	Date Collected	Matrix	Analysis
1510563-021A	GK05-ST-03	10/11/2015 1200h	Aqueous	pH
1510563-021A	GK05-ST-03	10/11/2015 1200h	Aqueous	Conductivity (Specific Conductance)
1510563-021A	GK05-ST-03	10/11/2015 1200h	Aqueous	Alkalinity/ Bicarbonate/ Carbonate, A2320B
1510563-021A	GK05-ST-03	10/11/2015 1200h	Aqueous	Anions, E300.0
1510563-021A	GK05-ST-03	10/11/2015 1200h	Aqueous	Hardness

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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:** 1510563-007  
**Client Sample ID:** GK04-ST-13  
**Collection Date:** 10/15/2015 1200h  
**Received Date:** 10/27/2015 1520h

### 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	10/30/2015 1208h	11/9/2015 1313h	E200.7	0.0237	0.100	<b>34.4</b>	<sup>2</sup> §
Antimony	7440-36-0	mg/L	10/30/2015 1208h	11/4/2015 2011h	E200.8	0.0000366	0.00200	0.000771	JS <sup>1</sup>
Arsenic	7440-38-2	mg/L	10/30/2015 1208h	11/4/2015 2011h	E200.8	0.0000920	0.00200	<b>0.00994</b>	<sup>1</sup>
Barium	7440-39-3	mg/L	10/30/2015 1208h	11/4/2015 2011h	E200.8	0.000538	0.00200	<b>0.751</b>	<sup>1</sup> @
Beryllium	7440-41-7	mg/L	10/30/2015 1208h	11/4/2015 2011h	E200.8	0.0000288	0.00200	<b>0.00255</b>	
Cadmium	7440-43-9	mg/L	10/30/2015 1208h	11/4/2015 2011h	E200.8	0.000193	0.000500	<b>0.00101</b>	
Calcium	7440-70-2	mg/L	10/30/2015 1208h	11/9/2015 1023h	E200.7	0.401	10.0	<b>181</b>	<sup>2</sup> §
Chromium	7440-47-3	mg/L	10/30/2015 1208h	11/4/2015 2011h	E200.8	0.00154	0.00200	<b>0.0226</b>	
Cobalt	7440-48-4	mg/L	10/30/2015 1208h	11/4/2015 2011h	E200.8	0.0000434	0.00400	<b>0.0223</b>	
Copper	7440-50-8	mg/L	10/30/2015 1208h	11/4/2015 2011h	E200.8	0.000692	0.00200	<b>0.0595</b>	
Iron	7439-89-6	mg/L	10/30/2015 1208h	11/9/2015 1023h	E200.7	0.767	1.00	<b>38.1</b>	<sup>2</sup> §
Lead	7439-92-1	mg/L	10/30/2015 1208h	11/5/2015 1509h	E200.8	0.000264	0.00200	<b>0.0440</b>	B
Magnesium	7439-95-4	mg/L	10/30/2015 1208h	11/9/2015 1023h	E200.7	0.294	10.0	<b>31.1</b>	<sup>2</sup>
Manganese	7439-96-5	mg/L	10/30/2015 1208h	11/4/2015 2011h	E200.8	0.00153	0.00200	<b>1.28</b>	<sup>2</sup>
Mercury	7439-97-6	mg/L	11/3/2015 1710h	11/4/2015 1155h	E245.1	0.0000892	0.000150	0.000147	J
Molybdenum	7439-98-7	mg/L	10/30/2015 1208h	11/4/2015 2011h	E200.8	0.000206	0.00200	0.000922	JS <sup>1</sup>
Nickel	7440-02-0	mg/L	10/30/2015 1208h	11/4/2015 2011h	E200.8	0.000754	0.00200	<b>0.0737</b>	
Potassium	7440-09-7	mg/L	10/30/2015 1208h	11/9/2015 1313h	E200.7	0.247	1.00	<b>9.22</b>	§
Selenium	7782-49-2	mg/L	10/30/2015 1208h	11/4/2015 2011h	E200.8	0.0000634	0.00200	0.000976	JS <sup>1</sup>
Silver	7440-22-4	mg/L	10/30/2015 1208h	11/4/2015 2011h	E200.8	0.0000244	0.00200	0.000365	JS
Sodium	7440-23-5	mg/L	10/30/2015 1208h	11/9/2015 1023h	E200.7	0.330	10.0	<b>41.4</b>	B
Thallium	7440-28-0	mg/L	10/30/2015 1208h	11/4/2015 2011h	E200.8	0.0000242	0.00200	0.000683	JS
Vanadium	7440-62-2	mg/L	10/30/2015 1208h	11/4/2015 2011h	E200.8	0.000438	0.00440	<b>0.0497</b>	
Zinc	7440-66-6	mg/L	10/30/2015 1208h	11/4/2015 2011h	E200.8	0.00476	0.00500	<b>0.176</b>	

§ - Sample concentration too low for serial dilution evaluation.

@ - High RPD due to suspected sample non-homogeneity or matrix interference.

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

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

<sup>2</sup> - 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).





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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:** 1510563-013  
**Client Sample ID:** GK04-ST-19  
**Collection Date:** 10/18/2015 1200h  
**Received Date:** 10/27/2015 1520h

### 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	10/30/2015 1208h	11/9/2015 1326h	E200.7	0.0237	0.100	<b>39.0</b>	
Antimony	7440-36-0	mg/L	10/30/2015 1208h	11/4/2015 2027h	E200.8	0.0000366	0.00200	0.000260	J
Arsenic	7440-38-2	mg/L	10/30/2015 1208h	11/4/2015 2027h	E200.8	0.0000920	0.00200	<b>0.0103</b>	
Barium	7440-39-3	mg/L	10/30/2015 1208h	11/4/2015 2027h	E200.8	0.000538	0.00200	<b>0.971</b>	
Beryllium	7440-41-7	mg/L	10/30/2015 1208h	11/4/2015 2027h	E200.8	0.0000288	0.00200	<b>0.00288</b>	
Cadmium	7440-43-9	mg/L	10/30/2015 1208h	11/4/2015 2027h	E200.8	0.000193	0.000500	<b>0.00123</b>	
Calcium	7440-70-2	mg/L	10/30/2015 1208h	11/9/2015 1035h	E200.7	0.401	10.0	<b>212</b>	
Chromium	7440-47-3	mg/L	10/30/2015 1208h	11/4/2015 2027h	E200.8	0.00154	0.00200	<b>0.0274</b>	
Cobalt	7440-48-4	mg/L	10/30/2015 1208h	11/4/2015 2027h	E200.8	0.0000434	0.00400	<b>0.0278</b>	
Copper	7440-50-8	mg/L	10/30/2015 1208h	11/4/2015 2027h	E200.8	0.000692	0.00200	<b>0.0653</b>	
Iron	7439-89-6	mg/L	10/30/2015 1208h	11/9/2015 1035h	E200.7	0.767	1.00	<b>44.2</b>	
Lead	7439-92-1	mg/L	10/30/2015 1208h	11/5/2015 1537h	E200.8	0.000264	0.00200	<b>0.0507</b>	B
Magnesium	7439-95-4	mg/L	10/30/2015 1208h	11/9/2015 1035h	E200.7	0.294	10.0	<b>40.9</b>	
Manganese	7439-96-5	mg/L	10/30/2015 1208h	11/4/2015 2027h	E200.8	0.00153	0.00200	<b>1.66</b>	
Mercury	7439-97-6	mg/L	11/3/2015 1710h	11/4/2015 1200h	E245.1	0.0000892	0.000150	0.000100	J
Molybdenum	7439-98-7	mg/L	10/30/2015 1208h	11/4/2015 2027h	E200.8	0.000206	0.00200	0.000974	J
Nickel	7440-02-0	mg/L	10/30/2015 1208h	11/4/2015 2027h	E200.8	0.000754	0.00200	<b>0.0444</b>	
Potassium	7440-09-7	mg/L	10/30/2015 1208h	11/9/2015 1326h	E200.7	0.247	1.00	<b>10.3</b>	
Selenium	7782-49-2	mg/L	10/30/2015 1208h	11/4/2015 2027h	E200.8	0.0000634	0.00200	0.000992	J
Silver	7440-22-4	mg/L	10/30/2015 1208h	11/4/2015 2027h	E200.8	0.0000244	0.00200	0.000375	J
Sodium	7440-23-5	mg/L	10/30/2015 1208h	11/9/2015 1035h	E200.7	0.330	10.0	<b>46.7</b>	B
Thallium	7440-28-0	mg/L	10/30/2015 1208h	11/4/2015 2027h	E200.8	0.0000242	0.00200	0.000870	J
Vanadium	7440-62-2	mg/L	10/30/2015 1208h	11/4/2015 2027h	E200.8	0.000438	0.00440	<b>0.0572</b>	
Zinc	7440-66-6	mg/L	10/30/2015 1208h	11/4/2015 2027h	E200.8	0.00476	0.00500	<b>0.197</b>	

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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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:** 1510563-014  
**Client Sample ID:** GK04-ST-20  
**Collection Date:** 10/19/2015 000h  
**Received Date:** 10/27/2015 1520h

### 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	10/30/2015 1208h	11/9/2015 1329h	E200.7	0.0237	0.100	<b>23.9</b>	
Antimony	7440-36-0	mg/L	10/30/2015 1208h	11/4/2015 2030h	E200.8	0.0000366	0.00200	0.000257	J
Arsenic	7440-38-2	mg/L	10/30/2015 1208h	11/4/2015 2030h	E200.8	0.0000920	0.00200	<b>0.00735</b>	
Barium	7440-39-3	mg/L	10/30/2015 1208h	11/4/2015 2030h	E200.8	0.000538	0.00200	<b>0.533</b>	
Beryllium	7440-41-7	mg/L	10/30/2015 1208h	11/4/2015 2030h	E200.8	0.0000288	0.00200	0.00156	J
Cadmium	7440-43-9	mg/L	10/30/2015 1208h	11/4/2015 2030h	E200.8	0.000193	0.000500	<b>0.000640</b>	
Calcium	7440-70-2	mg/L	10/30/2015 1208h	11/9/2015 1038h	E200.7	0.401	10.0	<b>131</b>	
Chromium	7440-47-3	mg/L	10/30/2015 1208h	11/4/2015 2030h	E200.8	0.00154	0.00200	<b>0.0168</b>	
Cobalt	7440-48-4	mg/L	10/30/2015 1208h	11/4/2015 2030h	E200.8	0.0000434	0.00400	<b>0.0146</b>	
Copper	7440-50-8	mg/L	10/30/2015 1208h	11/4/2015 2030h	E200.8	0.000692	0.00200	<b>0.0391</b>	
Iron	7439-89-6	mg/L	10/30/2015 1208h	11/9/2015 1329h	E200.7	0.0767	0.100	<b>25.0</b>	
Lead	7439-92-1	mg/L	10/30/2015 1208h	11/5/2015 1540h	E200.8	0.000264	0.00200	<b>0.0256</b>	B
Magnesium	7439-95-4	mg/L	10/30/2015 1208h	11/9/2015 1329h	E200.7	0.0294	1.00	<b>24.8</b>	
Manganese	7439-96-5	mg/L	10/30/2015 1208h	11/4/2015 2030h	E200.8	0.00153	0.00200	<b>0.866</b>	
Mercury	7439-97-6	mg/L	11/3/2015 1710h	11/4/2015 1202h	E245.1	0.0000892	0.000150	0.0000683	J
Molybdenum	7439-98-7	mg/L	10/30/2015 1208h	11/4/2015 2030h	E200.8	0.000206	0.00200	0.00106	J
Nickel	7440-02-0	mg/L	10/30/2015 1208h	11/4/2015 2030h	E200.8	0.000754	0.00200	<b>0.0241</b>	
Potassium	7440-09-7	mg/L	10/30/2015 1208h	11/9/2015 1329h	E200.7	0.247	1.00	<b>7.70</b>	
Selenium	7782-49-2	mg/L	10/30/2015 1208h	11/4/2015 2030h	E200.8	0.0000634	0.00200	0.000924	J
Silver	7440-22-4	mg/L	10/30/2015 1208h	11/4/2015 2030h	E200.8	0.0000244	0.00200	0.000244	J
Sodium	7440-23-5	mg/L	10/30/2015 1208h	11/9/2015 1038h	E200.7	0.330	10.0	<b>44.0</b>	B
Thallium	7440-28-0	mg/L	10/30/2015 1208h	11/4/2015 2030h	E200.8	0.0000242	0.00200	0.000465	J
Vanadium	7440-62-2	mg/L	10/30/2015 1208h	11/4/2015 2030h	E200.8	0.000438	0.00440	<b>0.0373</b>	
Zinc	7440-66-6	mg/L	10/30/2015 1208h	11/4/2015 2030h	E200.8	0.00476	0.00500	<b>0.109</b>	

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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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:** 1510563-015  
**Client Sample ID:** GK04-ST-21  
**Collection Date:** 10/19/2015 1200h  
**Received Date:** 10/27/2015 1520h

### 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	10/30/2015 1208h	11/9/2015 1040h	E200.7	0.237	1.00	<b>166</b>	
Antimony	7440-36-0	mg/L	10/30/2015 1208h	11/4/2015 2033h	E200.8	0.0000366	0.00200	0.000227	J
Arsenic	7440-38-2	mg/L	10/30/2015 1208h	11/4/2015 2033h	E200.8	0.0000920	0.00200	<b>0.0314</b>	
Barium	7440-39-3	mg/L	10/30/2015 1208h	11/5/2015 1547h	E200.8	0.00269	0.0100	<b>2.12</b>	
Beryllium	7440-41-7	mg/L	10/30/2015 1208h	11/5/2015 1547h	E200.8	0.000144	0.0100	<b>0.0155</b>	
Cadmium	7440-43-9	mg/L	10/30/2015 1208h	11/4/2015 2033h	E200.8	0.000193	0.000500	<b>0.00596</b>	
Calcium	7440-70-2	mg/L	10/30/2015 1208h	11/9/2015 1132h	E200.7	0.802	20.0	<b>737</b>	
Chromium	7440-47-3	mg/L	10/30/2015 1208h	11/4/2015 2033h	E200.8	0.00154	0.00200	<b>0.0889</b>	
Cobalt	7440-48-4	mg/L	10/30/2015 1208h	11/4/2015 2033h	E200.8	0.0000434	0.00400	<b>0.104</b>	
Copper	7440-50-8	mg/L	10/30/2015 1208h	11/4/2015 2033h	E200.8	0.000692	0.00200	<b>0.201</b>	
Iron	7439-89-6	mg/L	10/30/2015 1208h	11/9/2015 1040h	E200.7	0.767	1.00	<b>163</b>	
Lead	7439-92-1	mg/L	10/30/2015 1208h	11/5/2015 1547h	E200.8	0.00132	0.0100	<b>0.181</b>	B
Magnesium	7439-95-4	mg/L	10/30/2015 1208h	11/9/2015 1040h	E200.7	0.294	10.0	<b>124</b>	
Manganese	7439-96-5	mg/L	10/30/2015 1208h	11/5/2015 1547h	E200.8	0.00764	0.0100	<b>8.11</b>	
Mercury	7439-97-6	mg/L	11/3/2015 1710h	11/4/2015 1207h	E245.1	0.00000892	0.000150	<b>0.000915</b>	
Molybdenum	7439-98-7	mg/L	10/30/2015 1208h	11/4/2015 2033h	E200.8	0.000206	0.00200	0.00142	J
Nickel	7440-02-0	mg/L	10/30/2015 1208h	11/4/2015 2033h	E200.8	0.000754	0.00200	<b>0.168</b>	
Potassium	7440-09-7	mg/L	10/30/2015 1208h	11/9/2015 1040h	E200.7	2.47	10.0	<b>32.4</b>	
Selenium	7782-49-2	mg/L	10/30/2015 1208h	11/4/2015 2033h	E200.8	0.0000634	0.00200	<b>0.00235</b>	
Silver	7440-22-4	mg/L	10/30/2015 1208h	11/4/2015 2033h	E200.8	0.0000244	0.00200	0.00129	J
Sodium	7440-23-5	mg/L	10/30/2015 1208h	11/9/2015 1040h	E200.7	0.330	10.0	<b>185</b>	B
Thallium	7440-28-0	mg/L	10/30/2015 1208h	11/4/2015 2033h	E200.8	0.0000242	0.00200	<b>0.00259</b>	
Vanadium	7440-62-2	mg/L	10/30/2015 1208h	11/4/2015 2033h	E200.8	0.000438	0.00440	<b>0.149</b>	
Zinc	7440-66-6	mg/L	10/30/2015 1208h	11/4/2015 2033h	E200.8	0.00476	0.00500	<b>0.742</b>	

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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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:** 1510563-018  
**Client Sample ID:** GK04-ST-24  
**Collection Date:** 10/21/2015 000h  
**Received Date:** 10/27/2015 1520h

### 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	10/30/2015 1208h	11/9/2015 1055h	E200.7	0.237	1.00	<b>230</b>	
Antimony	7440-36-0	mg/L	10/30/2015 1208h	11/4/2015 2052h	E200.8	0.0000366	0.00200	0.000435	J
Arsenic	7440-38-2	mg/L	10/30/2015 1208h	11/4/2015 2052h	E200.8	0.0000920	0.00200	<b>0.0339</b>	
Barium	7440-39-3	mg/L	10/30/2015 1208h	11/5/2015 1650h	E200.8	0.00269	0.0100	<b>3.36</b>	
Beryllium	7440-41-7	mg/L	10/30/2015 1208h	11/5/2015 1650h	E200.8	0.000144	0.0100	<b>0.0395</b>	
Cadmium	7440-43-9	mg/L	10/30/2015 1208h	11/4/2015 2052h	E200.8	0.000193	0.000500	<b>0.0201</b>	
Calcium	7440-70-2	mg/L	10/30/2015 1208h	11/9/2015 1140h	E200.7	4.01	100	<b>2,040</b>	
Chromium	7440-47-3	mg/L	10/30/2015 1208h	11/4/2015 2052h	E200.8	0.00154	0.00200	<b>0.104</b>	
Cobalt	7440-48-4	mg/L	10/30/2015 1208h	11/4/2015 2052h	E200.8	0.0000434	0.00400	<b>0.212</b>	
Copper	7440-50-8	mg/L	10/30/2015 1208h	11/4/2015 2052h	E200.8	0.000692	0.00200	<b>0.296</b>	
Iron	7439-89-6	mg/L	10/30/2015 1208h	11/9/2015 1055h	E200.7	0.767	1.00	<b>114</b>	
Lead	7439-92-1	mg/L	10/30/2015 1208h	11/4/2015 2052h	E200.8	0.000264	0.00200	<b>0.355</b>	B
Magnesium	7439-95-4	mg/L	10/30/2015 1208h	11/9/2015 1055h	E200.7	0.294	10.0	<b>323</b>	
Manganese	7439-96-5	mg/L	10/30/2015 1208h	11/5/2015 1615h	E200.8	0.0382	0.0500	<b>20.4</b>	
Mercury	7439-97-6	mg/L	11/3/2015 1710h	11/4/2015 1213h	E245.1	0.0000892	0.000150	<b>0.00162</b>	
Molybdenum	7439-98-7	mg/L	10/30/2015 1208h	11/4/2015 2052h	E200.8	0.000206	0.00200	0.000411	J
Nickel	7440-02-0	mg/L	10/30/2015 1208h	11/4/2015 2052h	E200.8	0.000754	0.00200	<b>0.375</b>	
Potassium	7440-09-7	mg/L	10/30/2015 1208h	11/9/2015 1055h	E200.7	2.47	10.0	<b>38.0</b>	
Selenium	7782-49-2	mg/L	10/30/2015 1208h	11/4/2015 2052h	E200.8	0.0000634	0.00200	<b>0.00390</b>	
Silver	7440-22-4	mg/L	10/30/2015 1208h	11/4/2015 2052h	E200.8	0.0000244	0.00200	<b>0.00429</b>	
Sodium	7440-23-5	mg/L	10/30/2015 1208h	11/9/2015 1055h	E200.7	0.330	10.0	<b>103</b>	B
Thallium	7440-28-0	mg/L	10/30/2015 1208h	11/4/2015 2052h	E200.8	0.0000242	0.00200	0.00162	J
Vanadium	7440-62-2	mg/L	10/30/2015 1208h	11/4/2015 2052h	E200.8	0.000438	0.00440	<b>0.0763</b>	
Zinc	7440-66-6	mg/L	10/30/2015 1208h	11/4/2015 2052h	E200.8	0.00476	0.00500	<b>1.25</b>	

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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:** 1510563-006  
**Client Sample ID:** GK04-ST-12  
**Collection Date:** 10/15/2015 000h  
**Received Date:** 10/27/2015 1520h

### Analytical Results

Compound	CAS	Units	Date Prepared	Date Analyzed	Method Used	MDL	Reporting Limit	Analytical Result	Qual
Alkalinity (as CaCO <sub>3</sub> )		mg/L		10/29/2015 824h	SM2320B	1.86	10.0	<b>110</b>	
Bicarbonate (as CaCO <sub>3</sub> )		mg/L		10/29/2015 824h	SM2320B	1.86	10.0	<b>110</b>	
Carbonate (as CaCO <sub>3</sub> )		mg/L		10/29/2015 824h	SM2320B	1.86	10.0	< 10.0	U
Chloride	16887-00-6	mg/L		10/29/2015 2309h	E300.0	0.0751	1.00	<b>14.7</b>	
Conductivity		µmhos/cm		10/29/2015 750h	SM2510B	0.436	2.00	<b>927</b>	
Hardness (as CaCO <sub>3</sub> )		mg/L		11/6/2015 1333h	SM2340B	10.0	10.0	<b>674</b>	
Nitrate/Nitrite (as N)	7727-37-9	mg/L		11/6/2015 2046h	E353.2	0.833	1.00	<b>46.4</b>	
pH @ 25° C		pH Units		10/28/2015 1814h	SM4500-H+B	1.00	1.00	<b>7.50</b>	H
Phosphate, Total (as P)	7723-14-0	mg/L	11/2/2015 1400h	11/2/2015 1707h	SM4500-P-F	0.0212	0.0500	<b>2.84</b>	
Sulfate	14808-79-8	mg/L		10/29/2015 2145h	E300.0	2.11	75.0	<b>141</b>	
Total Dissolved Solids		mg/L		10/29/2015 1110h	SM2540C	61.3	100	<b>660</b>	H
Total Suspended Solids	TSS	mg/L		10/29/2015 1430h	SM2540D	28.3	30.0	<b>5,140</b>	H

H - Sample was received outside of the holding time.

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



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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:** 1510563-021  
**Client Sample ID:** GK05-ST-03  
**Collection Date:** 10/11/2015 1200h  
**Received Date:** 10/27/2015 1520h

### Analytical Results

Compound	CAS	Units	Date Prepared	Date Analyzed	Method Used	MDL	Reporting Limit	Analytical Result	Qual
Alkalinity (as CaCO3)		mg/L		10/29/2015 824h	SM2320B	1.86	10.0	<b>201</b>	H
Bicarbonate (as CaCO3)		mg/L		10/29/2015 824h	SM2320B	1.86	10.0	<b>201</b>	H
Carbonate (as CaCO3)		mg/L		10/29/2015 824h	SM2320B	1.86	10.0	< 10.0	UH
Chloride	16887-00-6	mg/L		10/29/2015 2326h	E300.0	0.0751	1.00	<b>17.4</b>	
Conductivity		µmhos/cm		10/29/2015 750h	SM2510B	0.436	2.00	<b>1,060</b>	
Hardness (as CaCO3)		mg/L		11/6/2015 1333h	SM2340B	10.0	10.0	<b>4,600</b>	
Nitrate/Nitrite (as N)	7727-37-9	mg/L		11/6/2015 2055h	E353.2	0.833	1.00	<b>18.6</b>	
pH @ 25° C		pH Units		10/28/2015 1814h	SM4500-H+B	1.00	1.00	<b>7.52</b>	H
Phosphate, Total (as P)	7723-14-0	mg/L	11/2/2015 1400h	11/2/2015 1745h	SM4500-P-F	0.212	0.500	<b>11.5</b>	<sup>2</sup>
Sulfate	14808-79-8	mg/L		10/29/2015 2236h	E300.0	2.11	75.0	<b>243</b>	
Total Dissolved Solids		mg/L		10/29/2015 1110h	SM2540C	61.3	100	<b>1,000</b>	H
Total Suspended Solids	TSS	mg/L		10/29/2015 1430h	SM2540D	142	150	<b>59,300</b>	H

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

H - Sample was received outside of the holding time.

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





## 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

QA Officer

## QC SUMMARY REPORT

**Client:** Utah Division of Water Quality

**Lab Set ID:** 1510563

**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
<b>Lab Sample ID: LCS-40016</b>													
Date Analyzed: 11/09/2015 1020h													
Test Code: 200.7-W													
Date Prepared: 10/30/2015 1208h													
Aluminum	0.954	mg/L	E200.7	0.0237	0.100	1.000	0	95.4	85 - 115				
Calcium	9.92	mg/L	E200.7	0.0401	1.00	10.00	0	99.2	85 - 115				
Iron	0.934	mg/L	E200.7	0.0767	0.100	1.000	0	93.4	85 - 115				
Magnesium	9.97	mg/L	E200.7	0.0294	1.00	10.00	0	99.7	85 - 115				
Potassium	9.64	mg/L	E200.7	0.247	1.00	10.00	0	96.4	85 - 115				
Sodium	9.91	mg/L	E200.7	0.0330	1.00	10.00	0	99.1	85 - 115				
<b>Lab Sample ID: LCS-40017</b>													
Date Analyzed: 11/04/2015 2008h													
Test Code: 200.8-W													
Date Prepared: 10/30/2015 1208h													
Antimony	0.178	mg/L	E200.8	0.0000366	0.00200	0.2000	0	89.0	85 - 115				
Arsenic	0.186	mg/L	E200.8	0.0000920	0.00200	0.2000	0	93.1	85 - 115				
Barium	0.186	mg/L	E200.8	0.000538	0.00200	0.2000	0	92.9	85 - 115				
Beryllium	0.201	mg/L	E200.8	0.0000288	0.00200	0.2000	0	100	85 - 115				
Cadmium	0.190	mg/L	E200.8	0.000193	0.000500	0.2000	0	94.8	85 - 115				
Chromium	0.191	mg/L	E200.8	0.00154	0.00200	0.2000	0	95.3	85 - 115				
Cobalt	0.188	mg/L	E200.8	0.0000434	0.00400	0.2000	0	94.1	85 - 115				
Copper	0.193	mg/L	E200.8	0.000692	0.00200	0.2000	0	96.4	85 - 115				
Manganese	0.192	mg/L	E200.8	0.00153	0.00200	0.2000	0	95.8	85 - 115				
Molybdenum	0.189	mg/L	E200.8	0.000206	0.00200	0.2000	0	94.7	85 - 115				
Nickel	0.188	mg/L	E200.8	0.000754	0.00200	0.2000	0	94.0	85 - 115				
Selenium	0.184	mg/L	E200.8	0.0000634	0.00200	0.2000	0	91.8	85 - 115				
Silver	0.186	mg/L	E200.8	0.0000244	0.00200	0.2000	0	93.1	85 - 115				
Thallium	0.185	mg/L	E200.8	0.0000242	0.00200	0.2000	0	92.4	85 - 115				
Vanadium	0.190	mg/L	E200.8	0.000438	0.00440	0.2000	0	94.9	85 - 115				
Zinc	0.941	mg/L	E200.8	0.00476	0.00500	1.000	0	94.1	85 - 115				
<b>Lab Sample ID: LCS-40017</b>													
Date Analyzed: 11/05/2015 1506h													
Test Code: 200.8-W													
Date Prepared: 10/30/2015 1208h													
Lead	0.188	mg/L	E200.8	0.000264	0.00200	0.2000	0	94.1	85 - 115				

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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Laboratory Director

Jose Rocha  
QA Officer

## QC SUMMARY REPORT

**Client:** Utah Division of Water Quality

**Lab Set ID:** 1510563

**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
<b>Lab Sample ID:</b> LCS-40063	Date Analyzed:	11/04/2015	1149h										
Test Code: HG-DW-245.1	Date Prepared:	11/03/2015	1710h										
Mercury	0.00344	mg/L	E245.1	0.00000892	0.000150	0.003330	0	103	85 - 115				

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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## QC SUMMARY REPORT

**Client:** Utah Division of Water Quality

**Lab Set ID:** 1510563

**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
<b>Lab Sample ID: MB-40016</b>													
Date Analyzed: 11/09/2015 1018h													
Test Code: 200.7-W													
Date Prepared: 10/30/2015 1208h													
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	0.130	mg/L	E200.7	0.0330	1.00								JB
<b>Lab Sample ID: MB-40017</b>													
Date Analyzed: 11/04/2015 2005h													
Test Code: 200.8-W													
Date Prepared: 10/30/2015 1208h													
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
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	< 0.00200	mg/L	E200.8	0.0000244	0.00200								U
Thallium	< 0.00200	mg/L	E200.8	0.0000242	0.00200								U
Vanadium	< 0.00440	mg/L	E200.8	0.000438	0.00440								U
Zinc	< 0.00500	mg/L	E200.8	0.00476	0.00500								U
<b>Lab Sample ID: MB-40017</b>													
Date Analyzed: 11/05/2015 1503h													
Test Code: 200.8-W													
Date Prepared: 10/30/2015 1208h													
Lead	0.000326	mg/L	E200.8	0.000264	0.00200								JB

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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:** 1510563

**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
<b>Lab Sample ID:</b> MB-40063	Date Analyzed:	11/04/2015	1148h										
Test Code: HG-DW-245.1	Date Prepared:	11/03/2015	1710h										
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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Kyle F. Gross  
 Laboratory Director

Jose Rocha  
 QA Officer

## QC SUMMARY REPORT

**Client:** Utah Division of Water Quality  
**Lab Set ID:** 1510563  
**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
<b>Lab Sample ID: 1510563-007AMS</b>													
Date Analyzed:	11/09/2015 1030h												
Test Code:	200.7-W												
Date Prepared:	10/30/2015 1208h												
Calcium	210	mg/L	E200.7	0.401	10.0	10.00	181	300	70 - 130				2
Iron	46.6	mg/L	E200.7	0.767	1.00	1.000	38.1	847	70 - 130				2
Magnesium	48.0	mg/L	E200.7	0.294	10.0	10.00	31.1	168	70 - 130				2
Sodium	51.6	mg/L	E200.7	0.330	10.0	10.00	41.4	103	70 - 130				
<b>Lab Sample ID: 1510580-001AMS</b>													
Date Analyzed:	11/09/2015 1105h												
Test Code:	200.7-W												
Date Prepared:	10/30/2015 1208h												
Aluminum	58.4	mg/L	E200.7	0.237	1.00	1.000	45.8	1,260	70 - 130				2
Calcium	156	mg/L	E200.7	0.401	10.0	10.00	149	71.0	70 - 130				
Iron	44.5	mg/L	E200.7	0.767	1.00	1.000	42.5	200	70 - 130				2
Magnesium	44.6	mg/L	E200.7	0.294	10.0	10.00	34.3	103	70 - 130				
Sodium	53.1	mg/L	E200.7	0.330	10.0	10.00	44.8	83.5	70 - 130				
<b>Lab Sample ID: 1510563-007AMS</b>													
Date Analyzed:	11/09/2015 1321h												
Test Code:	200.7-W												
Date Prepared:	10/30/2015 1208h												
Aluminum	45.5	mg/L	E200.7	0.0237	0.100	1.000	34.4	1,100	70 - 130				2
Potassium	19.5	mg/L	E200.7	0.247	1.00	10.00	9.22	103	70 - 130				
<b>Lab Sample ID: 1510580-001AMS</b>													
Date Analyzed:	11/09/2015 1350h												
Test Code:	200.7-W												
Date Prepared:	10/30/2015 1208h												
Potassium	19.6	mg/L	E200.7	0.247	1.00	10.00	9.46	101	70 - 130				
<b>Lab Sample ID: 1510563-007AMS</b>													
Date Analyzed:	11/04/2015 2020h												
Test Code:	200.8-W												
Date Prepared:	10/30/2015 1208h												
Antimony	0.0220	mg/L	E200.8	0.0000366	0.00200	0.2000	0.000771	10.6	75 - 125				1
Arsenic	0.168	mg/L	E200.8	0.0000920	0.00200	0.2000	0.00994	79.2	75 - 125				
Barium	1.09	mg/L	E200.8	0.000538	0.00200	0.2000	0.751	170	75 - 125				1
Beryllium	0.175	mg/L	E200.8	0.0000288	0.00200	0.2000	0.00255	86.2	75 - 125				
Cadmium	0.193	mg/L	E200.8	0.000193	0.000500	0.2000	0.00101	96.2	75 - 125				
Chromium	0.214	mg/L	E200.8	0.00154	0.00200	0.2000	0.0226	95.9	75 - 125				

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Kyle F. Gross

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QA Officer

## QC SUMMARY REPORT

**Client:** Utah Division of Water Quality

**Lab Set ID:** 1510563

**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
<b>Lab Sample ID: 1510563-007AMS</b>													
Date Analyzed:		11/04/2015 2020h											
Test Code:		200.8-W											
Date Prepared:		10/30/2015 1208h											
Cobalt	0.211	mg/L	E200.8	0.0000434	0.00400	0.2000	0.0223	94.1	75 - 125				
Copper	0.256	mg/L	E200.8	0.000692	0.00200	0.2000	0.0595	98.5	75 - 125				
Manganese	1.81	mg/L	E200.8	0.00153	0.00200	0.2000	1.28	263	75 - 125				2
Molybdenum	0.114	mg/L	E200.8	0.000206	0.00200	0.2000	0.000922	56.4	75 - 125				1
Nickel	0.281	mg/L	E200.8	0.000754	0.00200	0.2000	0.0737	104	75 - 125				
Selenium	0.148	mg/L	E200.8	0.0000634	0.00200	0.2000	0.000976	73.3	75 - 125				1
Silver	0.186	mg/L	E200.8	0.0000244	0.00200	0.2000	0.000365	92.6	75 - 125				
Thallium	0.180	mg/L	E200.8	0.0000242	0.00200	0.2000	0.000683	89.4	75 - 125				
Vanadium	0.241	mg/L	E200.8	0.000438	0.00440	0.2000	0.0497	95.8	75 - 125				
Zinc	1.11	mg/L	E200.8	0.00476	0.00500	1.000	0.176	93.6	75 - 125				
<b>Lab Sample ID: 1510580-001AMS</b>													
Date Analyzed:		11/04/2015 2105h											
Test Code:		200.8-W											
Date Prepared:		10/30/2015 1208h											
Antimony	0.0151	mg/L	E200.8	0.0000366	0.00200	0.2000	0.000105	7.50	75 - 125				1
Arsenic	0.186	mg/L	E200.8	0.0000920	0.00200	0.2000	0.0105	87.6	75 - 125				
Barium	0.940	mg/L	E200.8	0.000538	0.00200	0.2000	0.771	84.9	75 - 125				
Beryllium	0.165	mg/L	E200.8	0.0000288	0.00200	0.2000	0.00266	81.2	75 - 125				
Cadmium	0.195	mg/L	E200.8	0.000193	0.000500	0.2000	0.000785	96.9	75 - 125				
Chromium	0.209	mg/L	E200.8	0.00154	0.00200	0.2000	0.0249	92.0	75 - 125				
Cobalt	0.200	mg/L	E200.8	0.0000434	0.00400	0.2000	0.0213	89.3	75 - 125				
Copper	0.234	mg/L	E200.8	0.000692	0.00200	0.2000	0.0549	89.8	75 - 125				
Lead	0.228	mg/L	E200.8	0.000264	0.00200	0.2000	0.0393	94.6	75 - 125				
Manganese	1.29	mg/L	E200.8	0.00153	0.00200	0.2000	1.12	82.8	75 - 125				
Molybdenum	0.128	mg/L	E200.8	0.000206	0.00200	0.2000	0.000593	63.7	75 - 125				1
Nickel	0.212	mg/L	E200.8	0.000754	0.00200	0.2000	0.0307	90.6	75 - 125				
Selenium	0.171	mg/L	E200.8	0.0000634	0.00200	0.2000	0.000909	84.9	75 - 125				
Silver	0.184	mg/L	E200.8	0.0000244	0.00200	0.2000	0.000226	92.0	75 - 125				
Thallium	0.184	mg/L	E200.8	0.0000242	0.00200	0.2000	0.000565	91.9	75 - 125				
Vanadium	0.239	mg/L	E200.8	0.000438	0.00440	0.2000	0.0535	92.8	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:** 1510563

**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
<b>Lab Sample ID:</b> 1510580-001AMS	Date Analyzed:	11/04/2015	2105h										
Test Code:	200.8-W	Date Prepared:	10/30/2015	1208h									
Zinc	1.04	mg/L	E200.8	0.00476	0.00500	1.000	0.14	90.4	75 - 125				
<b>Lab Sample ID:</b> 1510563-007AMS	Date Analyzed:	11/05/2015	1531h										
Test Code:	200.8-W	Date Prepared:	10/30/2015	1208h									
Lead	0.239	mg/L	E200.8	0.000264	0.00200	0.2000	0.044	97.7	75 - 125				
<b>Lab Sample ID:</b> 1510563-007AMS	Date Analyzed:	11/04/2015	1157h										
Test Code:	HG-DW-245.1	Date Prepared:	11/03/2015	1710h									
Mercury	0.00376	mg/L	E245.1	0.00000892	0.000150	0.003330	0.000147	109	80 - 120				
<b>Lab Sample ID:</b> 1510566-013AMS	Date Analyzed:	11/04/2015	1216h										
Test Code:	HG-DW-245.1	Date Prepared:	11/03/2015	1710h									
Mercury	0.00357	mg/L	E245.1	0.00000892	0.000150	0.003330	0.000165	102	80 - 120				
<b>Lab Sample ID:</b> 1510567-013AMS	Date Analyzed:	11/04/2015	1221h										
Test Code:	HG-DW-245.1	Date Prepared:	11/03/2015	1710h									
Mercury	0.00345	mg/L	E245.1	0.00000892	0.000150	0.003330	0.0000133	103	80 - 120				
<b>Lab Sample ID:</b> 1510580-003AMS	Date Analyzed:	11/04/2015	1230h										
Test Code:	HG-DW-245.1	Date Prepared:	11/03/2015	1710h									
Mercury	0.00347	mg/L	E245.1	0.00000892	0.000150	0.003330	0.0000717	102	80 - 120				

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

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





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QA Officer

## QC SUMMARY REPORT

**Client:** Utah Division of Water Quality

**Lab Set ID:** 1510563

**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
<b>Lab Sample ID: 1510563-007AMSD</b>													
Date Analyzed:	11/09/2015 1033h												
Test Code:	200.7-W												
Date Prepared:	10/30/2015 1208h												
Calcium	192	mg/L	E200.7	0.401	10.0	10.00	181	120	70 - 130	210	8.95	20	
Iron	39.5	mg/L	E200.7	0.767	1.00	1.000	38.1	141	70 - 130	46.6	16.4	20	<sup>2</sup>
Magnesium	41.4	mg/L	E200.7	0.294	10.0	10.00	31.1	103	70 - 130	48	14.7	20	
Sodium	51.0	mg/L	E200.7	0.330	10.0	10.00	41.4	96.4	70 - 130	51.6	1.25	20	
<b>Lab Sample ID: 1510580-001AMSD</b>													
Date Analyzed:	11/09/2015 1108h												
Test Code:	200.7-W												
Date Prepared:	10/30/2015 1208h												
Aluminum	56.5	mg/L	E200.7	0.237	1.00	1.000	45.8	1,060	70 - 130	58.4	3.39	20	<sup>2</sup>
Calcium	158	mg/L	E200.7	0.401	10.0	10.00	149	87.4	70 - 130	156	1.04	20	
Iron	43.8	mg/L	E200.7	0.767	1.00	1.000	42.5	122	70 - 130	44.5	1.75	20	
Magnesium	45.2	mg/L	E200.7	0.294	10.0	10.00	34.3	109	70 - 130	44.6	1.34	20	
Sodium	54.0	mg/L	E200.7	0.330	10.0	10.00	44.8	91.8	70 - 130	53.1	1.55	20	
<b>Lab Sample ID: 1510563-007AMSD</b>													
Date Analyzed:	11/09/2015 1324h												
Test Code:	200.7-W												
Date Prepared:	10/30/2015 1208h												
Aluminum	38.8	mg/L	E200.7	0.0237	0.100	1.000	34.4	436	70 - 130	45.5	15.8	20	<sup>2</sup>
Potassium	17.6	mg/L	E200.7	0.247	1.00	10.00	9.22	84.1	70 - 130	19.5	10.2	20	
<b>Lab Sample ID: 1510580-001AMSD</b>													
Date Analyzed:	11/09/2015 1353h												
Test Code:	200.7-W												
Date Prepared:	10/30/2015 1208h												
Potassium	19.3	mg/L	E200.7	0.247	1.00	10.00	9.46	98.3	70 - 130	19.6	1.44	20	
<b>Lab Sample ID: 1510563-007AMSD</b>													
Date Analyzed:	11/04/2015 2024h												
Test Code:	200.8-W												
Date Prepared:	10/30/2015 1208h												
Antimony	0.0252	mg/L	E200.8	0.0000366	0.00200	0.2000	0.000771	12.2	75 - 125	0.022	13.4	20	<sup>1</sup>
Arsenic	0.156	mg/L	E200.8	0.0000920	0.00200	0.2000	0.00994	72.9	75 - 125	0.168	7.78	20	<sup>1</sup>
Barium	0.835	mg/L	E200.8	0.000538	0.00200	0.2000	0.751	42.1	75 - 125	1.09	26.5	20	<sup>1</sup> @
Beryllium	0.158	mg/L	E200.8	0.0000288	0.00200	0.2000	0.00255	77.8	75 - 125	0.175	10.0	20	
Cadmium	0.171	mg/L	E200.8	0.000193	0.000500	0.2000	0.00101	85.0	75 - 125	0.193	12.3	20	
Chromium	0.188	mg/L	E200.8	0.00154	0.00200	0.2000	0.0226	82.9	75 - 125	0.214	12.9	20	

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## QC SUMMARY REPORT

**Client:** Utah Division of Water Quality

**Lab Set ID:** 1510563

**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
<b>Lab Sample ID: 1510563-007AMSD</b>		Date Analyzed:	11/04/2015 2024h										
Test Code: 200.8-W		Date Prepared:	10/30/2015 1208h										
Cobalt	0.184	mg/L	E200.8	0.0000434	0.00400	0.2000	0.0223	80.6	75 - 125	0.211	13.7	20	
Copper	0.216	mg/L	E200.8	0.000692	0.00200	0.2000	0.0595	78.4	75 - 125	0.256	17.0	20	
Manganese	1.33	mg/L	E200.8	0.00153	0.00200	0.2000	1.28	21.9	75 - 125	1.81	30.8	20	2
Molybdenum	0.113	mg/L	E200.8	0.000206	0.00200	0.2000	0.000922	56.0	75 - 125	0.114	0.676	20	1
Nickel	0.231	mg/L	E200.8	0.000754	0.00200	0.2000	0.0737	78.4	75 - 125	0.281	19.8	20	
Selenium	0.140	mg/L	E200.8	0.0000634	0.00200	0.2000	0.000976	69.6	75 - 125	0.148	5.18	20	1
Silver	0.167	mg/L	E200.8	0.0000244	0.00200	0.2000	0.000365	83.5	75 - 125	0.186	10.4	20	
Thallium	0.162	mg/L	E200.8	0.0000242	0.00200	0.2000	0.000683	80.8	75 - 125	0.18	10.1	20	
Vanadium	0.210	mg/L	E200.8	0.000438	0.00440	0.2000	0.0497	80.0	75 - 125	0.241	14.1	20	
Zinc	0.966	mg/L	E200.8	0.00476	0.00500	1.000	0.176	79.0	75 - 125	1.11	14.0	20	
<b>Lab Sample ID: 1510580-001AMSD</b>		Date Analyzed:	11/04/2015 2108h										
Test Code: 200.8-W		Date Prepared:	10/30/2015 1208h										
Antimony	0.0148	mg/L	E200.8	0.0000366	0.00200	0.2000	0.000105	7.37	75 - 125	0.0151	1.80	20	1
Arsenic	0.191	mg/L	E200.8	0.0000920	0.00200	0.2000	0.0105	90.4	75 - 125	0.186	2.96	20	
Barium	0.958	mg/L	E200.8	0.000538	0.00200	0.2000	0.771	93.6	75 - 125	0.94	1.83	20	
Beryllium	0.170	mg/L	E200.8	0.0000288	0.00200	0.2000	0.00266	83.8	75 - 125	0.165	3.14	20	
Cadmium	0.200	mg/L	E200.8	0.000193	0.000500	0.2000	0.000785	99.4	75 - 125	0.195	2.62	20	
Chromium	0.216	mg/L	E200.8	0.00154	0.00200	0.2000	0.0249	95.8	75 - 125	0.209	3.54	20	
Cobalt	0.208	mg/L	E200.8	0.0000434	0.00400	0.2000	0.0213	93.1	75 - 125	0.2	3.81	20	
Copper	0.243	mg/L	E200.8	0.000692	0.00200	0.2000	0.0549	94.2	75 - 125	0.234	3.73	20	
Lead	0.234	mg/L	E200.8	0.000264	0.00200	0.2000	0.0393	97.5	75 - 125	0.228	2.52	20	
Manganese	1.32	mg/L	E200.8	0.00153	0.00200	0.2000	1.12	102	75 - 125	1.29	2.88	20	
Molybdenum	0.134	mg/L	E200.8	0.000206	0.00200	0.2000	0.000593	66.7	75 - 125	0.128	4.59	20	1
Nickel	0.219	mg/L	E200.8	0.000754	0.00200	0.2000	0.0307	94.1	75 - 125	0.212	3.34	20	
Selenium	0.176	mg/L	E200.8	0.0000634	0.00200	0.2000	0.000909	87.6	75 - 125	0.171	3.08	20	
Silver	0.187	mg/L	E200.8	0.0000244	0.00200	0.2000	0.000226	93.5	75 - 125	0.184	1.54	20	
Thallium	0.188	mg/L	E200.8	0.0000242	0.00200	0.2000	0.000565	93.6	75 - 125	0.184	1.80	20	
Vanadium	0.245	mg/L	E200.8	0.000438	0.00440	0.2000	0.0535	95.6	75 - 125	0.239	2.34	20	

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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:** 1510563

**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
<b>Lab Sample ID:</b> 1510580-001AMSD	Date Analyzed:	11/04/2015	2108h										
Test Code:	200.8-W	Date Prepared:	10/30/2015	1208h									
Zinc	1.08	mg/L	E200.8	0.00476	0.00500	1.000	0.14	93.8	75 - 125	1.04	3.20	20	
<b>Lab Sample ID:</b> 1510563-007AMSD	Date Analyzed:	11/05/2015	1534h										
Test Code:	200.8-W	Date Prepared:	10/30/2015	1208h									
Lead	0.215	mg/L	E200.8	0.000264	0.00200	0.2000	0.044	85.4	75 - 125	0.239	10.8	20	
<b>Lab Sample ID:</b> 1510563-007AMSD	Date Analyzed:	11/04/2015	1158h										
Test Code:	HG-DW-245.1	Date Prepared:	11/03/2015	1710h									
Mercury	0.00378	mg/L	E245.1	0.00000892	0.000150	0.003330	0.000147	109	80 - 120	0.00376	0.574	20	
<b>Lab Sample ID:</b> 1510566-013AMSD	Date Analyzed:	11/04/2015	1218h										
Test Code:	HG-DW-245.1	Date Prepared:	11/03/2015	1710h									
Mercury	0.00351	mg/L	E245.1	0.00000892	0.000150	0.003330	0.000165	101	80 - 120	0.00357	1.69	20	
<b>Lab Sample ID:</b> 1510567-013AMSD	Date Analyzed:	11/04/2015	1223h										
Test Code:	HG-DW-245.1	Date Prepared:	11/03/2015	1710h									
Mercury	0.00338	mg/L	E245.1	0.00000892	0.000150	0.003330	0.0000133	101	80 - 120	0.00345	1.90	20	
<b>Lab Sample ID:</b> 1510580-003AMSD	Date Analyzed:	11/04/2015	1232h										
Test Code:	HG-DW-245.1	Date Prepared:	11/03/2015	1710h									
Mercury	0.00366	mg/L	E245.1	0.00000892	0.000150	0.003330	0.0000717	108	80 - 120	0.00347	5.24	20	

@ - High RPD due to suspected sample non-homogeneity or matrix interference.

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

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



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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:** 1510563

**Project:** Gold King Mine Spill / 01255.1.016.03

**Contact:** Jim Harris

**Dept:** WC

**QC Type:** DUP

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
<b>Lab Sample ID:</b> 1510561-018ADUP	Date Analyzed: 10/29/2015 750h												
Test Code:	COND-W-2510B												
Conductivity	899	µmhos/cm	SM2510B	0.436	2.00					898	0.111	5	
<b>Lab Sample ID:</b> 1510563-006ADUP	Date Analyzed: 10/29/2015 750h												
Test Code:	COND-W-2510B												
Conductivity	925	µmhos/cm	SM2510B	0.436	2.00					927	0.216	5	
<b>Lab Sample ID:</b> 1510566-012ADUP	Date Analyzed: 10/29/2015 750h												
Test Code:	COND-W-2510B												
Conductivity	909	µmhos/cm	SM2510B	0.436	2.00					907	0.220	5	
<b>Lab Sample ID:</b> 1510567-012ADUP	Date Analyzed: 10/29/2015 750h												
Test Code:	COND-W-2510B												
Conductivity	890	µmhos/cm	SM2510B	0.436	2.00					891	0.112	5	
<b>Lab Sample ID:</b> 1510561-018ADUP	Date Analyzed: 10/28/2015 1814h												
Test Code:	PH-4500H+B												
pH @ 25° C	6.99	pH Units	SM4500-H+B	1.00	1.00					7.04	0.713	5	H
<b>Lab Sample ID:</b> 1510563-006ADUP	Date Analyzed: 10/28/2015 1814h												
Test Code:	PH-4500H+B												
pH @ 25° C	7.47	pH Units	SM4500-H+B	1.00	1.00					7.5	0.401	5	H
<b>Lab Sample ID:</b> 1510563-021ADUP	Date Analyzed: 10/28/2015 1814h												
Test Code:	PH-4500H+B												
pH @ 25° C	7.53	pH Units	SM4500-H+B	1.00	1.00					7.52	0.133	5	H
<b>Lab Sample ID:</b> 1510566-012ADUP	Date Analyzed: 10/28/2015 1814h												
Test Code:	PH-4500H+B												
pH @ 25° C	7.40	pH Units	SM4500-H+B	1.00	1.00					7.39	0.135	5	H

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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:** 1510563  
**Project:** Gold King Mine Spill / 01255.1.016.03

**Contact:** Jim Harris  
**Dept:** WC  
**QC Type:** DUP

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
<b>Lab Sample ID: 1510567-012ADUP</b> Date Analyzed: 10/28/2015 1814h													
Test Code: PH-4500H+B													
pH @ 25° C	7.49	pH Units	SM4500-H+B	1.00	1.00					7.45	0.535	5	H
<b>Lab Sample ID: 1510561-018ADUP</b> Date Analyzed: 10/29/2015 1110h													
Test Code: TDS-W-2540C													
Total Dissolved Solids	600	mg/L	SM2540C	61.3	100					700	15.4	5	H@
<b>Lab Sample ID: 1510563-021ADUP</b> Date Analyzed: 10/29/2015 1110h													
Test Code: TDS-W-2540C													
Total Dissolved Solids	980	mg/L	SM2540C	61.3	100					1000	2.02	5	H
<b>Lab Sample ID: 1510566-012ADUP</b> Date Analyzed: 10/29/2015 1110h													
Test Code: TDS-W-2540C													
Total Dissolved Solids	680	mg/L	SM2540C	61.3	100					900	27.8	5	H@
<b>Lab Sample ID: 1510567-012ADUP</b> Date Analyzed: 10/29/2015 1110h													
Test Code: TDS-W-2540C													
Total Dissolved Solids	780	mg/L	SM2540C	61.3	100					760	2.60	5	H
<b>Lab Sample ID: 1510561-018ADUP</b> Date Analyzed: 10/29/2015 1430h													
Test Code: TSS-W-2540D													
Total Suspended Solids	918	mg/L	SM2540D	14.2	15.0					1020	10.1	5	H@
<b>Lab Sample ID: 1510563-021ADUP</b> Date Analyzed: 10/29/2015 1430h													
Test Code: TSS-W-2540D													
Total Suspended Solids	58,100	mg/L	SM2540D	142	150					59300	2.04	5	H
<b>Lab Sample ID: 1510566-012ADUP</b> Date Analyzed: 10/29/2015 1430h													
Test Code: TSS-W-2540D													
Total Suspended Solids	16,100	mg/L	SM2540D	47.2	50.0					14500	10.6	5	H@

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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:** 1510563

**Project:** Gold King Mine Spill / 01255.1.016.03

**Contact:** Jim Harris

**Dept:** WC

**QC Type:** DUP

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
<b>Lab Sample ID: 1510567-012ADUP</b>													
Date Analyzed: 10/29/2015 1430h													
Test Code: TSS-W-2540D													
Total Suspended Solids	1,840	mg/L	SM2540D	35.4	37.5					1930	4.79	5	H
<b>Lab Sample ID: 1510580-001CDUP</b>													
Date Analyzed: 10/29/2015 1430h													
Test Code: TSS-W-2540D													
Total Suspended Solids	2,960	mg/L	SM2540D	70.8	75.0					2820	4.84	5	

@ - High RPD due to suspected sample non-homogeneity or matrix interference.

H - Sample was received outside of the holding time.



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## QC SUMMARY REPORT

**Client:** Utah Division of Water Quality

**Lab Set ID:** 1510563

**Project:** Gold King Mine Spill / 01255.1.016.03

**Contact:** Jim Harris

**Dept:** WC

**QC Type:** LCS

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
<b>Lab Sample ID: LCS-R84575</b>													
Date Analyzed: 10/29/2015 1319h													
Test Code: 300.0-W													
Chloride	4.87	mg/L	E300.0	0.00751	0.100	5.000	0	97.4	90 - 110				
Sulfate	4.94	mg/L	E300.0	0.0211	0.750	5.000	0	98.8	90 - 110				
<b>Lab Sample ID: LCS-R84502</b>													
Date Analyzed: 10/29/2015 824h													
Test Code: ALK-W-2320B													
Alkalinity (as CaCO3)	49,900	mg/L	SM2320B	1.86	10.0	50,000	0	99.7	90 - 110				
<b>Lab Sample ID: LCS-R84497</b>													
Date Analyzed: 10/29/2015 750h													
Test Code: COND-W-2510B													
Conductivity	995	µmhos/cm	SM2510B	0.436	2.00	1,000	0	99.5	98 - 102				
<b>Lab Sample ID: LCS-R84886</b>													
Date Analyzed: 11/06/2015 2036h													
Test Code: NO2/NO3-W-353.2													
Nitrate/Nitrite (as N)	1.02	mg/L	E353.2	0.00833	0.0100	1.000	0	102	90 - 110				
<b>Lab Sample ID: LCS-R84485</b>													
Date Analyzed: 10/28/2015 1814h													
Test Code: PH-4500H+B													
pH @ 25° C	8.91	pH Units	SM4500-H+B	1.00	1.00	9.000	0	99.0	98 - 102				
<b>Lab Sample ID: LCS-40037</b>													
Date Analyzed: 11/02/2015 1646h													
Test Code: PO4-W-4500PF													
Date Prepared: 11/02/2015 1400h													
Phosphate, Total (as P)	0.991	mg/L	SM4500-P-F	0.0212	0.0500	1.000	0	99.1	90 - 110				
<b>Lab Sample ID: LCS-R84570</b>													
Date Analyzed: 10/29/2015 1110h													
Test Code: TDS-W-2540C													
Total Dissolved Solids	186	mg/L	SM2540C	6.13	10.0	205.0	0	90.7	80 - 120				
<b>Lab Sample ID: LCS-R84566</b>													
Date Analyzed: 10/29/2015 1430h													
Test Code: TSS-W-2540D													
Total Suspended Solids	95.0	mg/L	SM2540D	2.83	3.00	100.0	0	95.0	80 - 120				

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## QC SUMMARY REPORT

**Client:** Utah Division of Water Quality

**Lab Set ID:** 1510563

**Project:** Gold King Mine Spill / 01255.1.016.03

**Contact:** Jim Harris

**Dept:** WC

**QC Type:** MBLK

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
<b>Lab Sample ID: MB-R84575</b>													
Date Analyzed: 10/29/2015 1303h													
Test Code: 300.0-W													
Chloride	< 0.100	mg/L	E300.0	0.00751	0.100								U
Sulfate	< 0.750	mg/L	E300.0	0.0211	0.750								U
<b>Lab Sample ID: MB-R84502</b>													
Date Analyzed: 10/29/2015 824h													
Test Code: ALK-W-2320B													
Alkalinity (as CaCO3)	< 10.0	mg/L	SM2320B	1.86	10.0								U
Bicarbonate (as CaCO3)	< 10.0	mg/L	SM2320B	1.86	10.0								U
Carbonate (as CaCO3)	< 10.0	mg/L	SM2320B	1.86	10.0								U
<b>Lab Sample ID: MB-R84497</b>													
Date Analyzed: 10/29/2015 750h													
Test Code: COND-W-2510B													
Conductivity	< 2.00	µmhos/cm	SM2510B	0.436	2.00								U
<b>Lab Sample ID: MB-R84886</b>													
Date Analyzed: 11/06/2015 2035h													
Test Code: NO2/NO3-W-353.2													
Nitrate/Nitrite (as N)	< 0.0100	mg/L	E353.2	0.00833	0.0100								U
<b>Lab Sample ID: MB-40037</b>													
Date Analyzed: 11/02/2015 1645h													
Test Code: PO4-W-4500PF													
Date Prepared: 11/02/2015 1400h													
Phosphate, Total (as P)	< 0.0500	mg/L	SM4500-P-F	0.0212	0.0500								U
<b>Lab Sample ID: MB-R84570</b>													
Date Analyzed: 10/29/2015 1110h													
Test Code: TDS-W-2540C													
Total Dissolved Solids	< 10.0	mg/L	SM2540C	6.13	10.0								U
<b>Lab Sample ID: MB-R84566</b>													
Date Analyzed: 10/29/2015 1430h													
Test Code: TSS-W-2540D													
Total Suspended Solids	< 3.00	mg/L	SM2540D	2.83	3.00								U

*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:** 1510563

**Project:** Gold King Mine Spill / 01255.1.016.03

**Contact:** Jim Harris

**Dept:** WC

**QC Type:** MS

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
<b>Lab Sample ID: 1510561-018AMS</b>													
Date Analyzed: 10/29/2015 2111h													
Test Code: 300.0-W													
Chloride	499	mg/L	E300.0	0.751	10.0	500.0	15.8	96.7	90 - 110				
Sulfate	697	mg/L	E300.0	2.11	75.0	500.0	207	98.1	90 - 110				
<b>Lab Sample ID: 1510563-006AMS</b>													
Date Analyzed: 10/29/2015 2202h													
Test Code: 300.0-W													
Chloride	496	mg/L	E300.0	0.751	10.0	500.0	14.7	96.4	90 - 110				
Sulfate	630	mg/L	E300.0	2.11	75.0	500.0	141	97.9	90 - 110				
<b>Lab Sample ID: 1510566-012AMS</b>													
Date Analyzed: 10/30/2015 033h													
Test Code: 300.0-W													
Chloride	498	mg/L	E300.0	0.751	10.0	500.0	18.6	95.8	90 - 110				
Sulfate	689	mg/L	E300.0	2.11	75.0	500.0	202	97.5	90 - 110				
<b>Lab Sample ID: 1510567-012AMS</b>													
Date Analyzed: 10/30/2015 124h													
Test Code: 300.0-W													
Chloride	502	mg/L	E300.0	0.751	10.0	500.0	17.6	96.9	90 - 110				
Sulfate	696	mg/L	E300.0	2.11	75.0	500.0	205	98.3	90 - 110				
<b>Lab Sample ID: 1510561-018AMS</b>													
Date Analyzed: 10/29/2015 824h													
Test Code: ALK-W-2320B													
Alkalinity (as CaCO3)	193	mg/L	SM2320B	1.86	10.0	100.0	94.6	98.1	80 - 120				
<b>Lab Sample ID: 1510563-006AMS</b>													
Date Analyzed: 10/29/2015 824h													
Test Code: ALK-W-2320B													
Alkalinity (as CaCO3)	208	mg/L	SM2320B	1.86	10.0	100.0	110	98.0	80 - 120				
<b>Lab Sample ID: 1510566-012AMS</b>													
Date Analyzed: 10/29/2015 824h													
Test Code: ALK-W-2320B													
Alkalinity (as CaCO3)	260	mg/L	SM2320B	1.86	10.0	100.0	156	105	80 - 120				

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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:** 1510563  
**Project:** Gold King Mine Spill / 01255.1.016.03

**Contact:** Jim Harris  
**Dept:** WC  
**QC Type:** MS

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
<b>Lab Sample ID: 1510567-012AMS</b>													
Date Analyzed: 10/29/2015 824h													
Test Code: ALK-W-2320B													
Alkalinity (as CaCO3)	189	mg/L	SM2320B	1.86	10.0	100.0	87.9	101	80 - 120				
<b>Lab Sample ID: 1510580-001CMS</b>													
Date Analyzed: 10/29/2015 824h													
Test Code: ALK-W-2320B													
Alkalinity (as CaCO3)	238	mg/L	SM2320B	1.86	10.0	100.0	137	101	80 - 120				
<b>Lab Sample ID: 1510563-021AMS</b>													
Date Analyzed: 11/06/2015 2057h													
Test Code: NO2/NO3-W-353.2													
Nitrate/Nitrite (as N)	122	mg/L	E353.2	0.833	1.00	100.0	18.6	103	90 - 110				
<b>Lab Sample ID: 1510561-018AMS</b>													
Date Analyzed: 11/02/2015 1705h													
Test Code: PO4-W-4500PF													
Date Prepared: 11/02/2015 1400h													
Phosphate, Total (as P)	1.54	mg/L	SM4500-P-F	0.0212	0.0500	1.000	0.67	86.7	90 - 110				1
<b>Lab Sample ID: 1510566-012AMS</b>													
Date Analyzed: 11/02/2015 1718h													
Test Code: PO4-W-4500PF													
Date Prepared: 11/02/2015 1400h													
Phosphate, Total (as P)	4.32	mg/L	SM4500-P-F	0.0212	0.0500	1.000	3.8	52.3	90 - 110				1
<b>Lab Sample ID: 1510567-012AMS</b>													
Date Analyzed: 11/02/2015 1724h													
Test Code: PO4-W-4500PF													
Date Prepared: 11/02/2015 1400h													
Phosphate, Total (as P)	1.46	mg/L	SM4500-P-F	0.0212	0.0500	1.000	0.545	92.0	90 - 110				
<b>Lab Sample ID: 1510563-021AMS</b>													
Date Analyzed: 11/02/2015 1746h													
Test Code: PO4-W-4500PF													
Date Prepared: 11/02/2015 1400h													
Phosphate, Total (as P)	12.9	mg/L	SM4500-P-F	0.212	0.500	1.000	11.5	138	90 - 110				2

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

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



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**Project:** Gold King Mine Spill / 01255.1.016.03

**Contact:** Jim Harris  
**Dept:** WC  
**QC Type:** MSD

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
<b>Lab Sample ID: 1510561-018AMSD</b> Date Analyzed: 10/29/2015 2128h													
Test Code: 300.0-W													
Chloride	495	mg/L	E300.0	0.751	10.0	500.0	15.8	95.9	90 - 110	499	0.765	20	
Sulfate	696	mg/L	E300.0	2.11	75.0	500.0	207	97.7	90 - 110	697	0.280	20	
<b>Lab Sample ID: 1510563-006AMSD</b> Date Analyzed: 10/29/2015 2219h													
Test Code: 300.0-W													
Chloride	496	mg/L	E300.0	0.751	10.0	500.0	14.7	96.4	90 - 110	496	0.00316	20	
Sulfate	629	mg/L	E300.0	2.11	75.0	500.0	141	97.6	90 - 110	630	0.265	20	
<b>Lab Sample ID: 1510566-012AMSD</b> Date Analyzed: 10/30/2015 050h													
Test Code: 300.0-W													
Chloride	497	mg/L	E300.0	0.751	10.0	500.0	18.6	95.7	90 - 110	498	0.164	20	
Sulfate	689	mg/L	E300.0	2.11	75.0	500.0	202	97.4	90 - 110	689	0.0439	20	
<b>Lab Sample ID: 1510567-012AMSD</b> Date Analyzed: 10/30/2015 141h													
Test Code: 300.0-W													
Chloride	497	mg/L	E300.0	0.751	10.0	500.0	17.6	95.8	90 - 110	502	1.08	20	
Sulfate	692	mg/L	E300.0	2.11	75.0	500.0	205	97.5	90 - 110	696	0.590	20	
<b>Lab Sample ID: 1510561-018AMSD</b> Date Analyzed: 10/29/2015 824h													
Test Code: ALK-W-2320B													
Alkalinity (as CaCO3)	196	mg/L	SM2320B	1.86	10.0	100.0	94.6	101	80 - 120	193	1.70	10	
<b>Lab Sample ID: 1510563-006AMSD</b> Date Analyzed: 10/29/2015 824h													
Test Code: ALK-W-2320B													
Alkalinity (as CaCO3)	213	mg/L	SM2320B	1.86	10.0	100.0	110	103	80 - 120	208	2.38	10	
<b>Lab Sample ID: 1510566-012AMSD</b> Date Analyzed: 10/29/2015 824h													
Test Code: ALK-W-2320B													
Alkalinity (as CaCO3)	257	mg/L	SM2320B	1.86	10.0	100.0	156	101	80 - 120	260	1.31	10	

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**Lab Set ID:** 1510563

**Project:** Gold King Mine Spill / 01255.1.016.03

**Contact:** Jim Harris

**Dept:** WC

**QC Type:** MSD

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
<b>Lab Sample ID:</b> 1510567-012AMSD	Date Analyzed:	10/29/2015	824h										
Test Code:	ALK-W-2320B												
Alkalinity (as CaCO <sub>3</sub> )	186	mg/L	SM2320B	1.86	10.0	100.0	87.9	98.0	80 - 120	189	1.81	10	
<b>Lab Sample ID:</b> 1510580-001CMSD	Date Analyzed:	10/29/2015	824h										
Test Code:	ALK-W-2320B												
Alkalinity (as CaCO <sub>3</sub> )	237	mg/L	SM2320B	1.86	10.0	100.0	137	99.7	80 - 120	238	0.716	10	
<b>Lab Sample ID:</b> 1510563-021AMSD	Date Analyzed:	11/06/2015	2058h										
Test Code:	NO2/NO3-W-353.2												
Nitrate/Nitrite (as N)	121	mg/L	E353.2	0.833	1.00	100.0	18.6	103	90 - 110	122	0.493	10	
<b>Lab Sample ID:</b> 1510561-018AMSD	Date Analyzed:	11/02/2015	1706h										
Test Code:	PO4-W-4500PF	Date Prepared:	11/02/2015 1400h										
Phosphate, Total (as P)	1.60	mg/L	SM4500-P-F	0.0212	0.0500	1.000	0.67	92.8	90 - 110	1.54	3.89	10	
<b>Lab Sample ID:</b> 1510566-012AMSD	Date Analyzed:	11/02/2015	1719h										
Test Code:	PO4-W-4500PF	Date Prepared:	11/02/2015 1400h										
Phosphate, Total (as P)	3.20	mg/L	SM4500-P-F	0.0212	0.0500	1.000	3.8	-60.1	90 - 110	4.33	29.9	10	<sup>1</sup> @
<b>Lab Sample ID:</b> 1510567-012AMSD	Date Analyzed:	11/02/2015	1724h										
Test Code:	PO4-W-4500PF	Date Prepared:	11/02/2015 1400h										
Phosphate, Total (as P)	1.52	mg/L	SM4500-P-F	0.0212	0.0500	1.000	0.545	97.3	90 - 110	1.47	3.55	10	
<b>Lab Sample ID:</b> 1510563-021AMSD	Date Analyzed:	11/02/2015	1746h										
Test Code:	PO4-W-4500PF	Date Prepared:	11/02/2015 1400h										
Phosphate, Total (as P)	11.6	mg/L	SM4500-P-F	0.212	0.500	1.000	11.5	14.0	90 - 110	12.9	10.1	10	<sup>2</sup>

@ - High RPD due to suspected sample non-homogeneity or matrix interference.

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

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