



3440 South 700 West  
Salt Lake City, UT 84119

Phone: (801) 263-8686, Toll Free: (888) 263-8686, Fax: (801) 263-8687  
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross  
Laboratory Director

Jose Rocha  
QA Officer

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

RE: Gold King Mine Spill

Dear Lenora Sullivan:

Lab Set ID: 1508316

American West Analytical Laboratories received sample(s) on 8/17/2015 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.

8/19/2015: This is a revision to a partial report issued 8/18/2015. Pages 1, 3, and 17-32 have been revised. All pages have been updated for pagination.

8/24/2015: Pages 1, 3, 4, 8, 9, 13, and 14 have been revised to update collection times.

Thank You,

Approved by: \_\_\_\_\_  
Laboratory Director or designee



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## INORGANIC ANALYTICAL REPORT

**Client:** Utah Division of Water Quality  
**Project:** Gold King Mine Spill  
**Lab Sample ID:** 1508316-001  
**Client Sample ID:** San Juan R @ US 160  
**Collection Date:** 8/16/2015 915h  
**Received Date:** 8/17/2015 1528h

**Contact:** Lenora Sullivan

### 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	8/17/2015 1641h	8/18/2015 152h	E200.7	0.0237	0.100	<b>9.50</b>	<sup>2</sup>
Antimony	7440-36-0	mg/L	8/17/2015 1641h	8/18/2015 301h	E200.8	0.0000366	0.00200	0.000837	JB <sup>1</sup>
Arsenic	7440-38-2	mg/L	8/17/2015 1641h	8/18/2015 301h	E200.8	0.0000920	0.00200	<b>0.00489</b>	
Barium	7440-39-3	mg/L	8/17/2015 1641h	8/18/2015 301h	E200.8	0.000538	0.00200	<b>0.358</b>	
Beryllium	7440-41-7	mg/L	8/17/2015 1641h	8/18/2015 301h	E200.8	0.0000288	0.00200	0.000940	J
Cadmium	7440-43-9	mg/L	8/17/2015 1641h	8/18/2015 301h	E200.8	0.000193	0.000500	0.000302	J
Calcium	7440-70-2	mg/L	8/17/2015 1641h	8/18/2015 057h	E200.7	0.401	10.0	<b>78.0</b>	
Chromium	7440-47-3	mg/L	8/17/2015 1641h	8/18/2015 301h	E200.8	0.00154	0.00200	<b>0.00621</b>	
Cobalt	7440-48-4	mg/L	8/17/2015 1641h	8/18/2015 301h	E200.8	0.0000434	0.00400	<b>0.00569</b>	
Copper	7440-50-8	mg/L	8/17/2015 1641h	8/18/2015 301h	E200.8	0.000692	0.00200	<b>0.0149</b>	
Iron	7439-89-6	mg/L	8/17/2015 1641h	8/18/2015 152h	E200.7	0.0767	0.100	<b>10.0</b>	<sup>2</sup>
Lead	7439-92-1	mg/L	8/17/2015 1641h	8/18/2015 301h	E200.8	0.000264	0.00200	<b>0.0158</b>	
Magnesium	7439-95-4	mg/L	8/17/2015 1641h	8/18/2015 152h	E200.7	0.0294	1.00	<b>13.3</b>	
Manganese	7439-96-5	mg/L	8/17/2015 1641h	8/18/2015 301h	E200.8	0.00153	0.00200	<b>0.338</b>	
Mercury	7439-97-6	mg/L	8/17/2015 1800h	8/18/2015 807h	E245.1	0.00000892	0.000150	0.0000283	J
Molybdenum	7439-98-7	mg/L	8/17/2015 1641h	8/18/2015 301h	E200.8	0.000206	0.00200	0.00123	J
Nickel	7440-02-0	mg/L	8/17/2015 1641h	8/18/2015 301h	E200.8	0.000754	0.00200	<b>0.0103</b>	
Potassium	7440-09-7	mg/L	8/17/2015 1641h	8/18/2015 152h	E200.7	0.247	1.00	<b>5.78</b>	
Selenium	7782-49-2	mg/L	8/17/2015 1641h	8/18/2015 301h	E200.8	0.0000634	0.00200	0.000859	J
Silver	7440-22-4	mg/L	8/17/2015 1641h	8/18/2015 301h	E200.8	0.0000244	0.00200	0.000345	J
Sodium	7440-23-5	mg/L	8/17/2015 1641h	8/18/2015 152h	E200.7	0.0330	1.00	<b>31.2</b>	<sup>1</sup>
Thallium	7440-28-0	mg/L	8/17/2015 1641h	8/18/2015 301h	E200.8	0.0000242	0.00200	0.000232	J
Vanadium	7440-62-2	mg/L	8/17/2015 1641h	8/18/2015 301h	E200.8	0.000438	0.00440	<b>0.0161</b>	
Zinc	7440-66-6	mg/L	8/17/2015 1641h	8/18/2015 301h	E200.8	0.00476	0.00500	<b>0.215</b>	

<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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Laboratory Director

Jose Rocha  
QA Officer

## INORGANIC ANALYTICAL REPORT

**Client:** Utah Division of Water Quality

**Contact:** Lenora Sullivan

**Project:** Gold King Mine Spill

**Lab Sample ID:** 1508316-003

**Client Sample ID:** San Juan River @ Montezuma Ck

**Collection Date:** 8/16/2015 1002h

**Received Date:** 8/17/2015 1528h

### 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	8/17/2015 1641h	8/18/2015 201h	E200.7	0.0237	0.100	<b>13.6</b>	
Antimony	7440-36-0	mg/L	8/17/2015 1641h	8/18/2015 330h	E200.8	0.0000366	0.00200	0.000232	JB
Arsenic	7440-38-2	mg/L	8/17/2015 1641h	8/18/2015 330h	E200.8	0.0000920	0.00200	<b>0.00556</b>	
Barium	7440-39-3	mg/L	8/17/2015 1641h	8/18/2015 330h	E200.8	0.000538	0.00200	<b>0.517</b>	
Beryllium	7440-41-7	mg/L	8/17/2015 1641h	8/18/2015 330h	E200.8	0.0000288	0.00200	0.00115	J
Cadmium	7440-43-9	mg/L	8/17/2015 1641h	8/18/2015 330h	E200.8	0.000193	0.000500	0.000305	J
Calcium	7440-70-2	mg/L	8/17/2015 1641h	8/18/2015 115h	E200.7	0.401	10.0	<b>78.8</b>	
Chromium	7440-47-3	mg/L	8/17/2015 1641h	8/18/2015 330h	E200.8	0.00154	0.00200	<b>0.00756</b>	
Cobalt	7440-48-4	mg/L	8/17/2015 1641h	8/18/2015 330h	E200.8	0.0000434	0.00400	<b>0.00712</b>	
Copper	7440-50-8	mg/L	8/17/2015 1641h	8/18/2015 330h	E200.8	0.000692	0.00200	<b>0.0211</b>	
Iron	7439-89-6	mg/L	8/17/2015 1641h	8/18/2015 201h	E200.7	0.0767	0.100	<b>13.2</b>	
Lead	7439-92-1	mg/L	8/17/2015 1641h	8/18/2015 330h	E200.8	0.000264	0.00200	<b>0.0195</b>	
Magnesium	7439-95-4	mg/L	8/17/2015 1641h	8/18/2015 201h	E200.7	0.0294	1.00	<b>14.6</b>	
Manganese	7439-96-5	mg/L	8/17/2015 1641h	8/18/2015 330h	E200.8	0.00153	0.00200	<b>0.435</b>	
Mercury	7439-97-6	mg/L	8/17/2015 1800h	8/18/2015 801h	E245.1	0.0000892	0.000150	0.0000333	J
Molybdenum	7439-98-7	mg/L	8/17/2015 1641h	8/18/2015 330h	E200.8	0.000206	0.00200	0.00104	J
Nickel	7440-02-0	mg/L	8/17/2015 1641h	8/18/2015 330h	E200.8	0.000754	0.00200	<b>0.0101</b>	
Potassium	7440-09-7	mg/L	8/17/2015 1641h	8/18/2015 201h	E200.7	0.247	1.00	<b>7.25</b>	
Selenium	7782-49-2	mg/L	8/17/2015 1641h	8/18/2015 330h	E200.8	0.0000634	0.00200	0.000851	J
Silver	7440-22-4	mg/L	8/17/2015 1641h	8/18/2015 330h	E200.8	0.0000244	0.00200	0.000158	J
Sodium	7440-23-5	mg/L	8/17/2015 1641h	8/18/2015 201h	E200.7	0.0330	1.00	<b>39.3</b>	
Thallium	7440-28-0	mg/L	8/17/2015 1641h	8/18/2015 330h	E200.8	0.0000242	0.00200	0.000219	J
Vanadium	7440-62-2	mg/L	8/17/2015 1641h	8/18/2015 330h	E200.8	0.000438	0.00440	<b>0.0216</b>	
Zinc	7440-66-6	mg/L	8/17/2015 1641h	8/18/2015 330h	E200.8	0.00476	0.00500	<b>0.238</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).

Reissue of a previously generated report. The collection time has been revised. Information herein supersedes that of the previously issued reports.



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## INORGANIC ANALYTICAL REPORT

**Client:** Utah Division of Water Quality

**Contact:** Lenora Sullivan

**Project:** Gold King Mine Spill

**Lab Sample ID:** 1508316-004

**Client Sample ID:** San Juan R @ Mexican Hat

**Collection Date:** 8/16/2015 1158h

**Received Date:** 8/17/2015 1528h

### 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	8/17/2015 1641h	8/18/2015 203h	E200.7	0.0237	0.100	<b>34.3</b>	
Antimony	7440-36-0	mg/L	8/17/2015 1641h	8/18/2015 334h	E200.8	0.0000366	0.00200	0.000180	JB
Arsenic	7440-38-2	mg/L	8/17/2015 1641h	8/18/2015 334h	E200.8	0.0000920	0.00200	<b>0.00996</b>	
Barium	7440-39-3	mg/L	8/17/2015 1641h	8/18/2015 334h	E200.8	0.000538	0.00200	<b>0.892</b>	
Beryllium	7440-41-7	mg/L	8/17/2015 1641h	8/18/2015 334h	E200.8	0.0000288	0.00200	<b>0.00287</b>	
Cadmium	7440-43-9	mg/L	8/17/2015 1641h	8/18/2015 334h	E200.8	0.000193	0.000500	<b>0.000600</b>	
Calcium	7440-70-2	mg/L	8/17/2015 1641h	8/18/2015 117h	E200.7	0.401	10.0	<b>111</b>	
Chromium	7440-47-3	mg/L	8/17/2015 1641h	8/18/2015 334h	E200.8	0.00154	0.00200	<b>0.0171</b>	
Cobalt	7440-48-4	mg/L	8/17/2015 1641h	8/18/2015 334h	E200.8	0.0000434	0.00400	<b>0.0163</b>	
Copper	7440-50-8	mg/L	8/17/2015 1641h	8/18/2015 334h	E200.8	0.000692	0.00200	<b>0.0402</b>	
Iron	7439-89-6	mg/L	8/17/2015 1641h	8/18/2015 203h	E200.7	0.0767	0.100	<b>25.6</b>	
Lead	7439-92-1	mg/L	8/17/2015 1641h	8/18/2015 334h	E200.8	0.000264	0.00200	<b>0.0394</b>	
Magnesium	7439-95-4	mg/L	8/17/2015 1641h	8/18/2015 203h	E200.7	0.0294	1.00	<b>22.6</b>	
Manganese	7439-96-5	mg/L	8/17/2015 1641h	8/18/2015 334h	E200.8	0.00153	0.00200	<b>0.976</b>	
Mercury	7439-97-6	mg/L	8/17/2015 1800h	8/18/2015 814h	E245.1	0.00000892	0.000150	0.0000767	J
Molybdenum	7439-98-7	mg/L	8/17/2015 1641h	8/18/2015 334h	E200.8	0.000206	0.00200	0.000785	J
Nickel	7440-02-0	mg/L	8/17/2015 1641h	8/18/2015 334h	E200.8	0.000754	0.00200	<b>0.0240</b>	
Potassium	7440-09-7	mg/L	8/17/2015 1641h	8/18/2015 203h	E200.7	0.247	1.00	<b>10.6</b>	
Selenium	7782-49-2	mg/L	8/17/2015 1641h	8/18/2015 334h	E200.8	0.0000634	0.00200	0.000970	J
Silver	7440-22-4	mg/L	8/17/2015 1641h	8/18/2015 334h	E200.8	0.0000244	0.00200	0.000186	J
Sodium	7440-23-5	mg/L	8/17/2015 1641h	8/18/2015 203h	E200.7	0.0330	1.00	<b>47.6</b>	
Thallium	7440-28-0	mg/L	8/17/2015 1641h	8/18/2015 334h	E200.8	0.0000242	0.00200	0.000415	J
Vanadium	7440-62-2	mg/L	8/17/2015 1641h	8/18/2015 334h	E200.8	0.000438	0.00440	<b>0.0405</b>	
Zinc	7440-66-6	mg/L	8/17/2015 1641h	8/18/2015 334h	E200.8	0.00476	0.00500	<b>0.294</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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Laboratory Director

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QA Officer

## INORGANIC ANALYTICAL REPORT

**Client:** Utah Division of Water Quality

**Contact:** Lenora Sullivan

**Project:** Gold King Mine Spill

**Lab Sample ID:** 1508316-005

**Client Sample ID:** SJR @ Clay Hills

**Collection Date:** 8/16/2015 1446h

**Received Date:** 8/17/2015 1528h

### 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	8/17/2015 1641h	8/18/2015 119h	E200.7	0.237	1.00	<b>91.0</b>	
Antimony	7440-36-0	mg/L	8/17/2015 1641h	8/18/2015 337h	E200.8	0.0000366	0.00200	0.000175	JB
Arsenic	7440-38-2	mg/L	8/17/2015 1641h	8/18/2015 337h	E200.8	0.0000920	0.00200	<b>0.0220</b>	
Barium	7440-39-3	mg/L	8/17/2015 1641h	8/18/2015 357h	E200.8	0.00269	0.0100	<b>2.25</b>	
Beryllium	7440-41-7	mg/L	8/17/2015 1641h	8/18/2015 337h	E200.8	0.0000288	0.00200	<b>0.00819</b>	
Cadmium	7440-43-9	mg/L	8/17/2015 1641h	8/18/2015 337h	E200.8	0.000193	0.000500	<b>0.00152</b>	
Calcium	7440-70-2	mg/L	8/17/2015 1641h	8/18/2015 119h	E200.7	0.401	10.0	<b>253</b>	
Chromium	7440-47-3	mg/L	8/17/2015 1641h	8/18/2015 337h	E200.8	0.00154	0.00200	<b>0.0405</b>	
Cobalt	7440-48-4	mg/L	8/17/2015 1641h	8/18/2015 337h	E200.8	0.0000434	0.00400	<b>0.0454</b>	
Copper	7440-50-8	mg/L	8/17/2015 1641h	8/18/2015 337h	E200.8	0.000692	0.00200	<b>0.104</b>	
Iron	7439-89-6	mg/L	8/17/2015 1641h	8/18/2015 119h	E200.7	0.767	1.00	<b>64.5</b>	
Lead	7439-92-1	mg/L	8/17/2015 1641h	8/18/2015 337h	E200.8	0.000264	0.00200	<b>0.105</b>	
Magnesium	7439-95-4	mg/L	8/17/2015 1641h	8/18/2015 213h	E200.7	0.0294	1.00	<b>53.5</b>	
Manganese	7439-96-5	mg/L	8/17/2015 1641h	8/18/2015 357h	E200.8	0.00764	0.0100	<b>2.85</b>	
Mercury	7439-97-6	mg/L	8/17/2015 1800h	8/18/2015 816h	E245.1	0.00000892	0.000150	<b>0.000228</b>	
Molybdenum	7439-98-7	mg/L	8/17/2015 1641h	8/18/2015 337h	E200.8	0.000206	0.00200	0.000623	J
Nickel	7440-02-0	mg/L	8/17/2015 1641h	8/18/2015 337h	E200.8	0.000754	0.00200	<b>0.0658</b>	
Potassium	7440-09-7	mg/L	8/17/2015 1641h	8/18/2015 213h	E200.7	0.247	1.00	<b>19.5</b>	
Selenium	7782-49-2	mg/L	8/17/2015 1641h	8/18/2015 337h	E200.8	0.0000634	0.00200	0.00188	J
Silver	7440-22-4	mg/L	8/17/2015 1641h	8/18/2015 337h	E200.8	0.0000244	0.00200	0.000482	J
Sodium	7440-23-5	mg/L	8/17/2015 1641h	8/18/2015 119h	E200.7	0.330	10.0	<b>63.3</b>	
Thallium	7440-28-0	mg/L	8/17/2015 1641h	8/18/2015 337h	E200.8	0.0000242	0.00200	0.00112	J
Vanadium	7440-62-2	mg/L	8/17/2015 1641h	8/18/2015 337h	E200.8	0.000438	0.00440	<b>0.0898</b>	
Zinc	7440-66-6	mg/L	8/17/2015 1641h	8/18/2015 337h	E200.8	0.00476	0.00500	<b>0.477</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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QA Officer

## INORGANIC ANALYTICAL REPORT

**Client:** Utah Division of Water Quality  
**Project:** Gold King Mine Spill  
**Lab Sample ID:** 1508316-001  
**Client Sample ID:** San Juan R @ US 160  
**Collection Date:** 8/16/2015 915h  
**Received Date:** 8/17/2015 1528h

**Contact:** Lenora Sullivan

### Analytical Results

### DISSOLVED METALS

Compound	CAS	Units	Date Prepared	Date Analyzed	Method Used	MDL	Reporting Limit	Analytical Result	Qual
Aluminum	7429-90-5	mg/L	8/18/2015 1520h	8/19/2015 937h	E200.7	0.0237	0.100	0.0544	J <sup>A</sup>
Antimony	7440-36-0	mg/L	8/18/2015 1520h	8/19/2015 1150h	E200.8	0.0000366	0.00200	0.00112	J <sup>A</sup> B
Arsenic	7440-38-2	mg/L	8/18/2015 1520h	8/19/2015 1150h	E200.8	0.0000920	0.00200	0.000880	J <sup>A</sup>
Barium	7440-39-3	mg/L	8/18/2015 1520h	8/19/2015 1150h	E200.8	0.000538	0.00200	<b>0.179</b>	^
Beryllium	7440-41-7	mg/L	8/18/2015 1520h	8/19/2015 1150h	E200.8	0.0000288	0.00200	0.0000410	J <sup>A</sup>
Cadmium	7440-43-9	mg/L	8/18/2015 1520h	8/19/2015 1150h	E200.8	0.000193	0.000500	< 0.000500	U <sup>A</sup>
Calcium	7440-70-2	mg/L	8/18/2015 1520h	8/19/2015 937h	E200.7	0.0401	1.00	<b>53.9</b>	^
Chromium	7440-47-3	mg/L	8/18/2015 1520h	8/19/2015 1150h	E200.8	0.00154	0.00200	< 0.00200	U <sup>A</sup>
Cobalt	7440-48-4	mg/L	8/18/2015 1520h	8/19/2015 1150h	E200.8	0.0000434	0.00400	< 0.00400	U <sup>A</sup>
Copper	7440-50-8	mg/L	8/18/2015 1520h	8/19/2015 1150h	E200.8	0.000692	0.00200	<b>0.00291</b>	^
Iron	7439-89-6	mg/L	8/18/2015 1520h	8/19/2015 937h	E200.7	0.0767	0.100	< 0.100	U <sup>A</sup>
Lead	7439-92-1	mg/L	8/18/2015 1520h	8/19/2015 1150h	E200.8	0.000264	0.00200	< 0.00200	U <sup>A</sup>
Magnesium	7439-95-4	mg/L	8/18/2015 1520h	8/19/2015 937h	E200.7	0.0294	1.00	<b>8.18</b>	^
Manganese	7439-96-5	mg/L	8/18/2015 1520h	8/19/2015 1150h	E200.8	0.00153	0.00200	< 0.00200	U <sup>A</sup>
Mercury	7439-97-6	mg/L	8/17/2015 1800h	8/18/2015 824h	E245.1	0.00000892	0.000150	< 0.000150	U
Molybdenum	7439-98-7	mg/L	8/18/2015 1520h	8/19/2015 1150h	E200.8	0.000206	0.00200	0.00172	J <sup>A</sup>
Nickel	7440-02-0	mg/L	8/18/2015 1520h	8/19/2015 1150h	E200.8	0.000754	0.00200	< 0.00200	U <sup>A</sup>
Potassium	7440-09-7	mg/L	8/18/2015 1520h	8/19/2015 937h	E200.7	0.247	1.00	<b>2.54</b>	^
Selenium	7782-49-2	mg/L	8/18/2015 1520h	8/19/2015 1150h	E200.8	0.0000634	0.00200	0.000595	J <sup>A</sup>
Silver	7440-22-4	mg/L	8/18/2015 1520h	8/19/2015 1150h	E200.8	0.0000244	0.00200	0.000186	J <sup>A</sup> B
Sodium	7440-23-5	mg/L	8/18/2015 1520h	8/19/2015 937h	E200.7	0.0330	1.00	<b>26.1</b>	^
Thallium	7440-28-0	mg/L	8/18/2015 1520h	8/19/2015 1150h	E200.8	0.0000242	0.00200	< 0.00200	U <sup>A</sup>
Vanadium	7440-62-2	mg/L	8/18/2015 1520h	8/19/2015 1150h	E200.8	0.000438	0.00440	0.00192	J <sup>A</sup>
Zinc	7440-66-6	mg/L	8/18/2015 1520h	8/19/2015 1150h	E200.8	0.00476	0.00500	<b>0.0126</b>	^

<sup>A</sup> - Reissue of a previously generated report. Information has been added, updated, or revised. Information herein supersedes that of the previously issued reports.

<sup>B</sup> - This analyte was also detected in the method blank below the PQL.

<sup>J</sup> - Estimated value between the MDL and the reporting limit (PQL).

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



3440 South 700 West  
Salt Lake City, UT 84119

Phone: (801) 263-8686, Toll Free: (888) 263-8686, Fax: (801) 263-8687  
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross  
Laboratory Director

Jose Rocha  
QA Officer

## INORGANIC ANALYTICAL REPORT

**Client:** Utah Division of Water Quality  
**Project:** Gold King Mine Spill  
**Lab Sample ID:** 1508316-002  
**Client Sample ID:** San Juan R @ Sand Island  
**Collection Date:** 8/16/2015 1106h  
**Received Date:** 8/17/2015 1528h

**Contact:** Lenora Sullivan

### Analytical Results

### DISSOLVED METALS

Compound	CAS	Units	Date Prepared	Date Analyzed	Method Used	MDL	Reporting Limit	Analytical Result	Qual
Aluminum	7429-90-5	mg/L	8/17/2015 1641h	8/18/2015 130h	E200.7	0.0237	0.100	<b>0.290</b>	
Antimony	7440-36-0	mg/L	8/17/2015 1641h	8/18/2015 202h	E200.8	0.0000366	0.00200	0.000425	J
Arsenic	7440-38-2	mg/L	8/17/2015 1641h	8/18/2015 202h	E200.8	0.0000920	0.00200	0.00123	J
Barium	7440-39-3	mg/L	8/17/2015 1641h	8/18/2015 202h	E200.8	0.000538	0.00200	<b>0.149</b>	
Beryllium	7440-41-7	mg/L	8/17/2015 1641h	8/18/2015 202h	E200.8	0.0000288	0.00200	0.0000361	J
Cadmium	7440-43-9	mg/L	8/17/2015 1641h	8/18/2015 202h	E200.8	0.000193	0.000500	< 0.000500	U
Calcium	7440-70-2	mg/L	8/17/2015 1641h	8/18/2015 316h	E200.7	0.401	10.0	<b>55.8</b>	
Chromium	7440-47-3	mg/L	8/17/2015 1641h	8/18/2015 202h	E200.8	0.00154	0.00200	< 0.00200	U
Cobalt	7440-48-4	mg/L	8/17/2015 1641h	8/18/2015 202h	E200.8	0.0000434	0.00400	0.000146	J
Copper	7440-50-8	mg/L	8/17/2015 1641h	8/18/2015 202h	E200.8	0.000692	0.00200	<b>0.00389</b>	
Iron	7439-89-6	mg/L	8/17/2015 1641h	8/18/2015 130h	E200.7	0.0767	0.100	<b>0.202</b>	
Lead	7439-92-1	mg/L	8/17/2015 1641h	8/18/2015 202h	E200.8	0.000264	0.00200	< 0.00200	U
Magnesium	7439-95-4	mg/L	8/17/2015 1641h	8/18/2015 130h	E200.7	0.0294	1.00	<b>10.2</b>	B
Manganese	7439-96-5	mg/L	8/17/2015 1641h	8/18/2015 202h	E200.8	0.00153	0.00200	<b>0.00394</b>	
Mercury	7439-97-6	mg/L	8/17/2015 1800h	8/18/2015 833h	E245.1	0.00000892	0.000150	< 0.000150	U
Molybdenum	7439-98-7	mg/L	8/17/2015 1641h	8/18/2015 202h	E200.8	0.000206	0.00200	0.00195	J
Nickel	7440-02-0	mg/L	8/17/2015 1641h	8/18/2015 202h	E200.8	0.000754	0.00200	< 0.00200	U
Potassium	7440-09-7	mg/L	8/17/2015 1641h	8/18/2015 130h	E200.7	0.247	1.00	<b>2.91</b>	
Selenium	7782-49-2	mg/L	8/17/2015 1641h	8/18/2015 202h	E200.8	0.0000634	0.00200	0.000707	J
Silver	7440-22-4	mg/L	8/17/2015 1641h	8/18/2015 202h	E200.8	0.0000244	0.00200	0.0000426	J
Sodium	7440-23-5	mg/L	8/17/2015 1641h	8/18/2015 130h	E200.7	0.0330	1.00	<b>36.3</b>	
Thallium	7440-28-0	mg/L	8/17/2015 1641h	8/18/2015 202h	E200.8	0.0000242	0.00200	< 0.00200	U
Vanadium	7440-62-2	mg/L	8/17/2015 1641h	8/18/2015 202h	E200.8	0.000438	0.00440	0.00204	J
Zinc	7440-66-6	mg/L	8/17/2015 1641h	8/18/2015 202h	E200.8	0.00476	0.00500	<b>0.0105</b>	

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Kyle F. Gross  
Laboratory Director

Jose Rocha  
QA Officer

## INORGANIC ANALYTICAL REPORT

**Client:** Utah Division of Water Quality

**Contact:** Lenora Sullivan

**Project:** Gold King Mine Spill

**Lab Sample ID:** 1508316-003

**Client Sample ID:** San Juan River @ Montezuma Ck

**Collection Date:** 8/16/2015 1002h

**Received Date:** 8/17/2015 1528h

### Analytical Results

### DISSOLVED METALS

Compound	CAS	Units	Date Prepared	Date Analyzed	Method Used	MDL	Reporting Limit	Analytical Result	Qual
Aluminum	7429-90-5	mg/L	8/17/2015 1641h	8/18/2015 146h	E200.7	0.0237	0.100	0.0618	J
Antimony	7440-36-0	mg/L	8/17/2015 1641h	8/18/2015 219h	E200.8	0.0000366	0.00200	0.000835	J
Arsenic	7440-38-2	mg/L	8/17/2015 1641h	8/18/2015 219h	E200.8	0.0000920	0.00200	0.00117	J
Barium	7440-39-3	mg/L	8/17/2015 1641h	8/18/2015 219h	E200.8	0.000538	0.00200	<b>0.145</b>	
Beryllium	7440-41-7	mg/L	8/17/2015 1641h	8/18/2015 219h	E200.8	0.0000288	0.00200	0.0000638	J
Cadmium	7440-43-9	mg/L	8/17/2015 1641h	8/18/2015 219h	E200.8	0.000193	0.000500	< 0.000500	U
Calcium	7440-70-2	mg/L	8/17/2015 1641h	8/18/2015 146h	E200.7	0.0401	1.00	<b>57.5</b>	
Chromium	7440-47-3	mg/L	8/17/2015 1641h	8/18/2015 219h	E200.8	0.00154	0.00200	< 0.00200	U
Cobalt	7440-48-4	mg/L	8/17/2015 1641h	8/18/2015 219h	E200.8	0.0000434	0.00400	0.0000920	J
Copper	7440-50-8	mg/L	8/17/2015 1641h	8/18/2015 219h	E200.8	0.000692	0.00200	<b>0.00301</b>	
Iron	7439-89-6	mg/L	8/17/2015 1641h	8/18/2015 146h	E200.7	0.0767	0.100	< 0.100	U
Lead	7439-92-1	mg/L	8/17/2015 1641h	8/18/2015 219h	E200.8	0.000264	0.00200	< 0.00200	U
Magnesium	7439-95-4	mg/L	8/17/2015 1641h	8/18/2015 146h	E200.7	0.0294	1.00	<b>9.36</b>	B
Manganese	7439-96-5	mg/L	8/17/2015 1641h	8/18/2015 219h	E200.8	0.00153	0.00200	< 0.00200	U
Mercury	7439-97-6	mg/L	8/17/2015 1800h	8/18/2015 835h	E245.1	0.00000892	0.000150	< 0.000150	U
Molybdenum	7439-98-7	mg/L	8/17/2015 1641h	8/18/2015 219h	E200.8	0.000206	0.00200	0.00199	J
Nickel	7440-02-0	mg/L	8/17/2015 1641h	8/18/2015 219h	E200.8	0.000754	0.00200	< 0.00200	U
Potassium	7440-09-7	mg/L	8/17/2015 1641h	8/18/2015 146h	E200.7	0.247	1.00	<b>2.96</b>	
Selenium	7782-49-2	mg/L	8/17/2015 1641h	8/18/2015 219h	E200.8	0.0000634	0.00200	0.000667	J
Silver	7440-22-4	mg/L	8/17/2015 1641h	8/18/2015 219h	E200.8	0.0000244	0.00200	0.000283	J
Sodium	7440-23-5	mg/L	8/17/2015 1641h	8/18/2015 146h	E200.7	0.0330	1.00	<b>30.3</b>	
Thallium	7440-28-0	mg/L	8/17/2015 1641h	8/18/2015 219h	E200.8	0.0000242	0.00200	0.0000527	J
Vanadium	7440-62-2	mg/L	8/17/2015 1641h	8/18/2015 219h	E200.8	0.000438	0.00440	0.00216	J
Zinc	7440-66-6	mg/L	8/17/2015 1641h	8/18/2015 219h	E200.8	0.00476	0.00500	<b>0.00978</b>	

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3440 South 700 West

Salt Lake City, UT 84119

Phone: (801) 263-8686, Toll Free: (888) 263-8686, Fax: (801) 263-8687

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

Kyle F. Gross  
Laboratory Director

Jose Rocha  
QA Officer

## INORGANIC ANALYTICAL REPORT

**Client:** Utah Division of Water Quality

**Contact:** Lenora Sullivan

**Project:** Gold King Mine Spill

**Lab Sample ID:** 1508316-004

**Client Sample ID:** San Juan R @ Mexican Hat

**Collection Date:** 8/16/2015 1158h

**Received Date:** 8/17/2015 1528h

### Analytical Results

### DISSOLVED METALS

Compound	CAS	Units	Date Prepared	Date Analyzed	Method Used	MDL	Reporting Limit	Analytical Result	Qual
Aluminum	7429-90-5	mg/L	8/17/2015 1641h	8/18/2015 148h	E200.7	0.0237	0.100	0.0843	J
Antimony	7440-36-0	mg/L	8/17/2015 1641h	8/18/2015 222h	E200.8	0.0000366	0.00200	0.000447	J
Arsenic	7440-38-2	mg/L	8/17/2015 1641h	8/18/2015 222h	E200.8	0.0000920	0.00200	0.00135	J
Barium	7440-39-3	mg/L	8/17/2015 1641h	8/18/2015 222h	E200.8	0.000538	0.00200	<b>0.194</b>	
Beryllium	7440-41-7	mg/L	8/17/2015 1641h	8/18/2015 222h	E200.8	0.0000288	0.00200	0.0000300	J
Cadmium	7440-43-9	mg/L	8/17/2015 1641h	8/18/2015 222h	E200.8	0.000193	0.000500	< 0.000500	U
Calcium	7440-70-2	mg/L	8/17/2015 1641h	8/18/2015 148h	E200.7	0.0401	1.00	<b>57.7</b>	
Chromium	7440-47-3	mg/L	8/17/2015 1641h	8/18/2015 222h	E200.8	0.00154	0.00200	< 0.00200	U
Cobalt	7440-48-4	mg/L	8/17/2015 1641h	8/18/2015 222h	E200.8	0.0000434	0.00400	0.000120	J
Copper	7440-50-8	mg/L	8/17/2015 1641h	8/18/2015 222h	E200.8	0.000692	0.00200	<b>0.00392</b>	
Iron	7439-89-6	mg/L	8/17/2015 1641h	8/18/2015 148h	E200.7	0.0767	0.100	< 0.100	U
Lead	7439-92-1	mg/L	8/17/2015 1641h	8/18/2015 222h	E200.8	0.000264	0.00200	< 0.00200	U
Magnesium	7439-95-4	mg/L	8/17/2015 1641h	8/18/2015 148h	E200.7	0.0294	1.00	<b>8.96</b>	B
Manganese	7439-96-5	mg/L	8/17/2015 1641h	8/18/2015 222h	E200.8	0.00153	0.00200	< 0.00200	U
Mercury	7439-97-6	mg/L	8/17/2015 1800h	8/18/2015 837h	E245.1	0.00000892	0.000150	< 0.000150	U
Molybdenum	7439-98-7	mg/L	8/17/2015 1641h	8/18/2015 222h	E200.8	0.000206	0.00200	<b>0.00231</b>	
Nickel	7440-02-0	mg/L	8/17/2015 1641h	8/18/2015 222h	E200.8	0.000754	0.00200	< 0.00200	U
Potassium	7440-09-7	mg/L	8/17/2015 1641h	8/18/2015 148h	E200.7	0.247	1.00	<b>3.50</b>	
Selenium	7782-49-2	mg/L	8/17/2015 1641h	8/18/2015 222h	E200.8	0.0000634	0.00200	0.000836	J
Silver	7440-22-4	mg/L	8/17/2015 1641h	8/18/2015 222h	E200.8	0.0000244	0.00200	0.0000298	J
Sodium	7440-23-5	mg/L	8/17/2015 1641h	8/18/2015 148h	E200.7	0.0330	1.00	<b>40.2</b>	
Thallium	7440-28-0	mg/L	8/17/2015 1641h	8/18/2015 222h	E200.8	0.0000242	0.00200	< 0.00200	U
Vanadium	7440-62-2	mg/L	8/17/2015 1641h	8/18/2015 222h	E200.8	0.000438	0.00440	0.00331	J
Zinc	7440-66-6	mg/L	8/17/2015 1641h	8/18/2015 222h	E200.8	0.00476	0.00500	<b>0.0138</b>	

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3440 South 700 West

Salt Lake City, UT 84119

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Kyle F. Gross  
Laboratory Director

Jose Rocha  
QA Officer

## INORGANIC ANALYTICAL REPORT

**Client:** Utah Division of Water Quality

**Contact:** Lenora Sullivan

**Project:** Gold King Mine Spill

**Lab Sample ID:** 1508316-005

**Client Sample ID:** SJR @ Clay Hills

**Collection Date:** 8/16/2015 1446h

**Received Date:** 8/17/2015 1528h

### Analytical Results

### DISSOLVED METALS

Compound	CAS	Units	Date Prepared	Date Analyzed	Method Used	MDL	Reporting Limit	Analytical Result	Qual
Aluminum	7429-90-5	mg/L	8/17/2015 1641h	8/18/2015 150h	E200.7	0.0237	0.100	<b>0.925</b>	
Antimony	7440-36-0	mg/L	8/17/2015 1641h	8/18/2015 238h	E200.8	0.0000366	0.00200	0.000250	J
Arsenic	7440-38-2	mg/L	8/17/2015 1641h	8/18/2015 238h	E200.8	0.0000920	0.00200	0.00171	J
Barium	7440-39-3	mg/L	8/17/2015 1641h	8/18/2015 238h	E200.8	0.000538	0.00200	<b>0.319</b>	
Beryllium	7440-41-7	mg/L	8/17/2015 1641h	8/18/2015 238h	E200.8	0.0000288	0.00200	0.0000479	J
Cadmium	7440-43-9	mg/L	8/17/2015 1641h	8/18/2015 238h	E200.8	0.000193	0.000500	< 0.000500	U
Calcium	7440-70-2	mg/L	8/17/2015 1641h	8/18/2015 150h	E200.7	0.0401	1.00	<b>52.7</b>	
Chromium	7440-47-3	mg/L	8/17/2015 1641h	8/18/2015 238h	E200.8	0.00154	0.00200	< 0.00200	U
Cobalt	7440-48-4	mg/L	8/17/2015 1641h	8/18/2015 238h	E200.8	0.0000434	0.00400	0.000314	J
Copper	7440-50-8	mg/L	8/17/2015 1641h	8/18/2015 238h	E200.8	0.000692	0.00200	<b>0.00526</b>	
Iron	7439-89-6	mg/L	8/17/2015 1641h	8/18/2015 150h	E200.7	0.0767	0.100	<b>0.490</b>	
Lead	7439-92-1	mg/L	8/17/2015 1641h	8/18/2015 238h	E200.8	0.000264	0.00200	0.000458	J
Magnesium	7439-95-4	mg/L	8/17/2015 1641h	8/18/2015 150h	E200.7	0.0294	1.00	<b>9.48</b>	B
Manganese	7439-96-5	mg/L	8/17/2015 1641h	8/18/2015 238h	E200.8	0.00153	0.00200	<b>0.00963</b>	
Mercury	7439-97-6	mg/L	8/17/2015 1800h	8/18/2015 839h	E245.1	0.00000892	0.000150	< 0.000150	U
Molybdenum	7439-98-7	mg/L	8/17/2015 1641h	8/18/2015 238h	E200.8	0.000206	0.00200	<b>0.00278</b>	
Nickel	7440-02-0	mg/L	8/17/2015 1641h	8/18/2015 238h	E200.8	0.000754	0.00200	0.000835	J
Potassium	7440-09-7	mg/L	8/17/2015 1641h	8/18/2015 150h	E200.7	0.247	1.00	<b>4.17</b>	
Selenium	7782-49-2	mg/L	8/17/2015 1641h	8/18/2015 238h	E200.8	0.0000634	0.00200	0.000911	J
Silver	7440-22-4	mg/L	8/17/2015 1641h	8/18/2015 238h	E200.8	0.0000244	0.00200	< 0.00200	U
Sodium	7440-23-5	mg/L	8/17/2015 1641h	8/18/2015 322h	E200.7	0.330	10.0	<b>58.2</b>	
Thallium	7440-28-0	mg/L	8/17/2015 1641h	8/18/2015 238h	E200.8	0.0000242	0.00200	< 0.00200	U
Vanadium	7440-62-2	mg/L	8/17/2015 1641h	8/18/2015 238h	E200.8	0.000438	0.00440	<b>0.00571</b>	
Zinc	7440-66-6	mg/L	8/17/2015 1641h	8/18/2015 238h	E200.8	0.00476	0.00500	<b>0.0206</b>	

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Kyle F. Gross  
Laboratory Director

Jose Rocha  
QA Officer

## INORGANIC ANALYTICAL REPORT

**Client:** Utah Division of Water Quality **Contact:** Lenora Sullivan  
**Project:** Gold King Mine Spill  
**Lab Sample ID:** 1508316-002  
**Client Sample ID:** San Juan R @ Sand Island  
**Collection Date:** 8/16/2015 1106h  
**Received Date:** 8/17/2015 1528h

### Analytical Results

Compound	CAS	Units	Date Prepared	Date Analyzed	Method Used	MDL	Reporting Limit	Analytical Result	Qual
Alkalinity (as CaCO3)		mg/L		8/18/2015 604h	SM2320B	1.86	10.0	<b>110</b>	
Bicarbonate (as CaCO3)		mg/L		8/18/2015 604h	SM2320B	1.86	10.0	<b>110</b>	
Carbonate (as CaCO3)		mg/L		8/18/2015 604h	SM2320B	1.86	10.0	< 10.0	U
Chloride	16887-00-6	mg/L		8/21/2015 1853h	E300.0	0.0751	1.00	<b>16.5</b>	
Conductivity		µmhos/cm		8/18/2015 542h	SM2510B	0.436	2.00	<b>615</b>	
Hardness (as CaCO3)		mg/L		8/18/2015 404h	SM2340B	10.0	10.0	<b>292</b>	
Hardness, Dissolved (as CaCO3)		mg/L		8/18/2015 404h	SM2340B	10.0	10.0	<b>181</b>	
Nitrate/Nitrite (as N)	7727-37-9	mg/L		8/17/2015 2129h	E353.2	0.00833	0.0100	<b>0.493</b>	B
pH @ 25° C		pH Units		8/17/2015 2119h	SM4500-H+B	1.00	1.00	<b>8.32</b>	H
Phosphate, Total (as P)	7723-14-0	mg/L	8/18/2015 720h	8/18/2015 1405h	SM4500-P-F	0.0212	0.0500	<b>0.366</b>	
Sulfate	14808-79-8	mg/L		8/19/2015 101h	E300.0	0.211	7.50	<b>136</b>	
Total Dissolved Solids		mg/L		8/17/2015 1540h	SM2540C	30.6	50.0	<b>1,020</b>	
Total Suspended Solids	TSS	mg/L		8/17/2015 1700h	SM2540D	70.8	75.0	<b>1,500</b>	

*B - The method blank was acceptable, as the method blank result is less than 10% of the lowest reported sample concentration.*

*H - Sample was received outside of the holding time.*

*Reissue of a previously generated report. The collection time has been revised. Information herein supersedes that of the previously issued reports.*

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



3440 South 700 West

Salt Lake City, UT 84119

Phone: (801) 263-8686, Toll Free: (888) 263-8686, Fax: (801) 263-8687

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

Kyle F. Gross  
Laboratory Director

Jose Rocha  
QA Officer

## INORGANIC ANALYTICAL REPORT

**Client:** Utah Division of Water Quality

**Contact:** Lenora Sullivan

**Project:** Gold King Mine Spill

**Lab Sample ID:** 1508316-003

**Client Sample ID:** San Juan River @ Montezuma Ck

**Collection Date:** 8/16/2015 1002h

**Received Date:** 8/17/2015 1528h

### 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		8/18/2015 604h	SM2320B	1.86	10.0	<b>112</b>	
Bicarbonate (as CaCO <sub>3</sub> )		mg/L		8/18/2015 604h	SM2320B	1.86	10.0	<b>112</b>	
Carbonate (as CaCO <sub>3</sub> )		mg/L		8/18/2015 604h	SM2320B	1.86	10.0	< 10.0	U
Chloride	16887-00-6	mg/L		8/21/2015 1910h	E300.0	0.0751	1.00	<b>16.4</b>	
Conductivity		µmhos/cm		8/18/2015 542h	SM2510B	0.436	2.00	<b>597</b>	
Hardness (as CaCO <sub>3</sub> )		mg/L		8/18/2015 404h	SM2340B	10.0	10.0	<b>257</b>	
Hardness, Dissolved (as CaCO <sub>3</sub> )		mg/L		8/18/2015 404h	SM2340B	10.0	10.0	<b>182</b>	
Nitrate/Nitrite (as N)	7727-37-9	mg/L		8/17/2015 2130h	E353.2	0.00833	0.0100	<b>0.375</b>	B
pH @ 25° C		pH Units		8/17/2015 2119h	SM4500-H+B	1.00	1.00	<b>8.18</b>	H
Phosphate, Total (as P)	7723-14-0	mg/L	8/18/2015 720h	8/18/2015 1405h	SM4500-P-F	0.0212	0.0500	<b>0.243</b>	
Sulfate	14808-79-8	mg/L		8/19/2015 122h	E300.0	0.211	7.50	<b>128</b>	
Total Dissolved Solids		mg/L		8/17/2015 1540h	SM2540C	30.6	50.0	<b>1,170</b>	
Total Suspended Solids	TSS	mg/L		8/17/2015 1700h	SM2540D	35.4	37.5	<b>880</b>	

*B - The method blank was acceptable, as the method blank result is less than 10% of the lowest reported sample concentration.*

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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:** 1508316  
**Project:** Gold King Mine Spill

**Contact:** Lenora Sullivan  
**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-38630</b>													
Date Analyzed:		08/18/2015 124h											
Test Code:		200.7-DIS											
Date Prepared:		08/17/2015 1641h											
Aluminum	0.994	mg/L	E200.7	0.0237	0.100	1.000	0	99.4	85 - 115				
Calcium	9.65	mg/L	E200.7	0.0401	1.00	10.00	0	96.5	85 - 115				
Iron	0.960	mg/L	E200.7	0.0767	0.100	1.000	0	96.0	85 - 115				
Magnesium	9.83	mg/L	E200.7	0.0294	1.00	10.00	0	98.3	85 - 115				
Potassium	9.87	mg/L	E200.7	0.247	1.00	10.00	0	98.7	85 - 115				
Sodium	9.73	mg/L	E200.7	0.0330	1.00	10.00	0	97.3	85 - 115				
<b>Lab Sample ID: LCS-38686</b>													
Date Analyzed:		08/19/2015 912h											
Test Code:		200.7-DIS											
Date Prepared:		08/18/2015 1520h											
Aluminum	0.964	mg/L	E200.7	0.0237	0.100	1.000	0	96.4	85 - 115				^
Calcium	9.29	mg/L	E200.7	0.0401	1.00	10.00	0	92.9	85 - 115				^
Iron	0.929	mg/L	E200.7	0.0767	0.100	1.000	0	92.9	85 - 115				^
Magnesium	9.52	mg/L	E200.7	0.0294	1.00	10.00	0	95.2	85 - 115				^
Potassium	9.70	mg/L	E200.7	0.247	1.00	10.00	0	97.0	85 - 115				^
Sodium	9.37	mg/L	E200.7	0.0330	1.00	10.00	0	93.7	85 - 115				^
<b>Lab Sample ID: LCS-38632</b>													
Date Analyzed:		08/18/2015 052h											
Test Code:		200.7-W											
Date Prepared:		08/17/2015 1641h											
Aluminum	0.965	mg/L	E200.7	0.0237	0.100	1.000	0	96.5	85 - 115				
Calcium	9.60	mg/L	E200.7	0.0401	1.00	10.00	0	96.0	85 - 115				
Iron	0.950	mg/L	E200.7	0.0767	0.100	1.000	0	95.0	85 - 115				
Magnesium	9.74	mg/L	E200.7	0.0294	1.00	10.00	0	97.4	85 - 115				
Potassium	9.66	mg/L	E200.7	0.247	1.00	10.00	0	96.6	85 - 115				
Sodium	9.54	mg/L	E200.7	0.0330	1.00	10.00	0	95.4	85 - 115				
<b>Lab Sample ID: LCS-38631</b>													
Date Analyzed:		08/18/2015 258h											
Test Code:		200.8-DIS											
Date Prepared:		08/17/2015 1641h											
Antimony	0.192	mg/L	E200.8	0.0000366	0.00200	0.2000	0	96.2	85 - 115				
Arsenic	0.216	mg/L	E200.8	0.0000920	0.00200	0.2000	0	108	85 - 115				



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Jose Rocha  
QA Officer

## QC SUMMARY REPORT

**Client:** Utah Division of Water Quality  
**Lab Set ID:** 1508316  
**Project:** Gold King Mine Spill

**Contact:** Lenora Sullivan  
**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-38631</b>		Date Analyzed:	08/18/2015 258h										
Test Code: 200.8-DIS		Date Prepared:	08/17/2015 1641h										
Barium	0.202	mg/L	E200.8	0.000538	0.00200	0.2000	0	101	85 - 115				
Beryllium	0.209	mg/L	E200.8	0.0000288	0.00200	0.2000	0	104	85 - 115				
Cadmium	0.203	mg/L	E200.8	0.000193	0.000500	0.2000	0	101	85 - 115				
Chromium	0.200	mg/L	E200.8	0.00154	0.00200	0.2000	0	99.8	85 - 115				
Cobalt	0.198	mg/L	E200.8	0.0000434	0.00400	0.2000	0	99.1	85 - 115				
Copper	0.204	mg/L	E200.8	0.000692	0.00200	0.2000	0	102	85 - 115				
Lead	0.200	mg/L	E200.8	0.000264	0.00200	0.2000	0	99.9	85 - 115				
Manganese	0.203	mg/L	E200.8	0.00153	0.00200	0.2000	0	101	85 - 115				
Molybdenum	0.204	mg/L	E200.8	0.000206	0.00200	0.2000	0	102	85 - 115				
Nickel	0.197	mg/L	E200.8	0.000754	0.00200	0.2000	0	98.7	85 - 115				
Selenium	0.213	mg/L	E200.8	0.0000634	0.00200	0.2000	0	107	85 - 115				
Silver	0.200	mg/L	E200.8	0.0000244	0.00200	0.2000	0	99.9	85 - 115				
Thallium	0.197	mg/L	E200.8	0.0000242	0.00200	0.2000	0	98.5	85 - 115				
Vanadium	0.201	mg/L	E200.8	0.000438	0.00440	0.2000	0	101	85 - 115				
Zinc	1.04	mg/L	E200.8	0.00476	0.00500	1.000	0	104	85 - 115				
<b>Lab Sample ID: LCS-38678</b>		Date Analyzed:	08/19/2015 1147h										
Test Code: 200.8-DIS		Date Prepared:	08/18/2015 1520h										
Arsenic	0.206	mg/L	E200.8	0.0000920	0.00200	0.2000	0	103	85 - 115				^
Barium	0.190	mg/L	E200.8	0.000538	0.00200	0.2000	0	95.0	85 - 115				^
Beryllium	0.202	mg/L	E200.8	0.0000288	0.00200	0.2000	0	101	85 - 115				^
Cadmium	0.192	mg/L	E200.8	0.000193	0.000500	0.2000	0	96.1	85 - 115				^
Chromium	0.192	mg/L	E200.8	0.00154	0.00200	0.2000	0	96.0	85 - 115				^
Cobalt	0.189	mg/L	E200.8	0.0000434	0.00400	0.2000	0	94.4	85 - 115				^
Copper	0.193	mg/L	E200.8	0.000692	0.00200	0.2000	0	96.5	85 - 115				^
Lead	0.191	mg/L	E200.8	0.000264	0.00200	0.2000	0	95.5	85 - 115				^
Manganese	0.193	mg/L	E200.8	0.00153	0.00200	0.2000	0	96.7	85 - 115				^
Molybdenum	0.193	mg/L	E200.8	0.000206	0.00200	0.2000	0	96.4	85 - 115				^
Nickel	0.188	mg/L	E200.8	0.000754	0.00200	0.2000	0	93.9	85 - 115				^



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Jose Rocha  
QA Officer

## QC SUMMARY REPORT

**Client:** Utah Division of Water Quality  
**Lab Set ID:** 1508316  
**Project:** Gold King Mine Spill

**Contact:** Lenora Sullivan  
**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-38678</b>		Date Analyzed:	08/19/2015 1147h										
Test Code: 200.8-DIS		Date Prepared:	08/18/2015 1520h										
Selenium	0.202	mg/L	E200.8	0.0000634	0.00200	0.2000	0	101	85 - 115				^
Silver	0.191	mg/L	E200.8	0.0000244	0.00200	0.2000	0	95.3	85 - 115				^
Thallium	0.186	mg/L	E200.8	0.0000242	0.00200	0.2000	0	93.1	85 - 115				^
Vanadium	0.194	mg/L	E200.8	0.000438	0.00440	0.2000	0	96.8	85 - 115				^
Zinc	0.996	mg/L	E200.8	0.00476	0.00500	1.000	0	99.6	85 - 115				^
<b>Lab Sample ID: LCS-38678</b>		Date Analyzed:	08/19/2015 1242h										
Test Code: 200.8-DIS		Date Prepared:	08/18/2015 1520h										
Antimony	0.179	mg/L	E200.8	0.0000366	0.00200	0.2000	0	89.6	85 - 115				^
<b>Lab Sample ID: LCS-38633</b>		Date Analyzed:	08/18/2015 254h										
Test Code: 200.8-W		Date Prepared:	08/17/2015 1641h										
Antimony	0.184	mg/L	E200.8	0.0000366	0.00200	0.2000	0	92.1	85 - 115				
Arsenic	0.216	mg/L	E200.8	0.0000920	0.00200	0.2000	0	108	85 - 115				
Barium	0.195	mg/L	E200.8	0.000538	0.00200	0.2000	0	97.4	85 - 115				
Beryllium	0.207	mg/L	E200.8	0.0000288	0.00200	0.2000	0	104	85 - 115				
Cadmium	0.199	mg/L	E200.8	0.000193	0.000500	0.2000	0	99.5	85 - 115				
Chromium	0.189	mg/L	E200.8	0.00154	0.00200	0.2000	0	94.7	85 - 115				
Cobalt	0.191	mg/L	E200.8	0.0000434	0.00400	0.2000	0	95.3	85 - 115				
Copper	0.194	mg/L	E200.8	0.000692	0.00200	0.2000	0	97.2	85 - 115				
Lead	0.192	mg/L	E200.8	0.000264	0.00200	0.2000	0	96.0	85 - 115				
Manganese	0.191	mg/L	E200.8	0.00153	0.00200	0.2000	0	95.3	85 - 115				
Molybdenum	0.192	mg/L	E200.8	0.000206	0.00200	0.2000	0	95.8	85 - 115				
Nickel	0.190	mg/L	E200.8	0.000754	0.00200	0.2000	0	94.9	85 - 115				
Selenium	0.225	mg/L	E200.8	0.0000634	0.00200	0.2000	0	112	85 - 115				
Silver	0.185	mg/L	E200.8	0.0000244	0.00200	0.2000	0	92.6	85 - 115				
Thallium	0.189	mg/L	E200.8	0.0000242	0.00200	0.2000	0	94.6	85 - 115				
Vanadium	0.194	mg/L	E200.8	0.000438	0.00440	0.2000	0	96.8	85 - 115				
Zinc	1.05	mg/L	E200.8	0.00476	0.00500	1.000	0	105	85 - 115				



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Salt Lake City, UT 84119

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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:** 1508316  
**Project:** Gold King Mine Spill

**Contact:** Lenora Sullivan  
**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-38639	Date Analyzed:	08/18/2015	756h										
Test Code: HG-DW-245.1	Date Prepared:	08/17/2015	1800h										
Mercury	0.00342	mg/L	E245.1	0.00000892	0.000150	0.003330	0	103	85 - 115				
<b>Lab Sample ID:</b> LCS-38638	Date Analyzed:	08/18/2015	819h										
Test Code: HG-DW-DIS-245.1	Date Prepared:	08/17/2015	1800h										
Mercury	0.00357	mg/L	E245.1	0.00000892	0.000150	0.003330	0	107	85 - 115				

^ - 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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## QC SUMMARY REPORT

**Client:** Utah Division of Water Quality  
**Lab Set ID:** 1508316  
**Project:** Gold King Mine Spill

**Contact:** Lenora Sullivan  
**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-38630</b>													
Date Analyzed:		08/18/2015 121h											
Test Code:		200.7-DIS											
Date Prepared:		08/17/2015 1641h											
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	0.0420	mg/L	E200.7	0.0294	1.00								JB
Potassium	< 1.00	mg/L	E200.7	0.247	1.00								U
Sodium	< 1.00	mg/L	E200.7	0.0330	1.00								U
<b>Lab Sample ID: MB-38686</b>													
Date Analyzed:		08/19/2015 909h											
Test Code:		200.7-DIS											
Date Prepared:		08/18/2015 1520h											
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^
<b>Lab Sample ID: MB-38632</b>													
Date Analyzed:		08/18/2015 050h											
Test Code:		200.7-W											
Date Prepared:		08/17/2015 1641h											
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
<b>Lab Sample ID: MB-38631</b>													
Date Analyzed:		08/18/2015 153h											
Test Code:		200.8-DIS											
Date Prepared:		08/17/2015 1641h											
Antimony	< 0.00200	mg/L	E200.8	0.0000366	0.00200								U
Arsenic	< 0.00200	mg/L	E200.8	0.0000920	0.00200								U



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## QC SUMMARY REPORT

**Client:** Utah Division of Water Quality  
**Lab Set ID:** 1508316  
**Project:** Gold King Mine Spill

**Contact:** Lenora Sullivan  
**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-38631</b>													
Date Analyzed:		08/18/2015 153h											
Test Code:		200.8-DIS											
Date Prepared:		08/17/2015 1641h											
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	< 0.00200	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-38678</b>													
Date Analyzed:		08/19/2015 1144h											
Test Code:		200.8-DIS											
Date Prepared:		08/18/2015 1520h											
Antimony	0.0000456	mg/L	E200.8	0.0000366	0.00200								JB^
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^



3440 South 700 West  
Salt Lake City, UT 84119

Phone: (801) 263-8686, Toll Free: (888) 263-8686, Fax: (801) 263-8687  
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross  
Laboratory Director

Jose Rocha  
QA Officer

## QC SUMMARY REPORT

**Client:** Utah Division of Water Quality  
**Lab Set ID:** 1508316  
**Project:** Gold King Mine Spill

**Contact:** Lenora Sullivan  
**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-38678	Date Analyzed:	08/19/2015	1144h										
Test Code:	200.8-DIS	Date Prepared:	08/18/2015	1520h									
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	0.0000447	mg/L	E200.8	0.0000244	0.00200								JB^
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:</b> MB-38633	Date Analyzed:	08/18/2015	251h										
Test Code:	200.8-W	Date Prepared:	08/17/2015	1641h									
Antimony	0.000215	mg/L	E200.8	0.0000366	0.00200								JB
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	< 0.00200	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



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## QC SUMMARY REPORT

**Client:** Utah Division of Water Quality  
**Lab Set ID:** 1508316  
**Project:** Gold King Mine Spill

**Contact:** Lenora Sullivan  
**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-38639	Date Analyzed:	08/18/2015	754h										
Test Code:	HG-DW-245.1	Date Prepared:	08/17/2015	1800h									
Mercury	< 0.000150	mg/L	E245.1	0.00000892	0.000150								U
<b>Lab Sample ID:</b> MB-38638	Date Analyzed:	08/18/2015	817h										
Test Code:	HG-DW-DIS-245.1	Date Prepared:	08/17/2015	1800h									
Mercury	< 0.000150	mg/L	E245.1	0.00000892	0.000150								U

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

*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:** 1508316  
**Project:** Gold King Mine Spill

**Contact:** Lenora Sullivan  
**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: 1508316-002CMS</b>													
Date Analyzed:	08/18/2015 134h												
Test Code:	200.7-DIS												
Date Prepared:	08/17/2015 1641h												
Aluminum	1.26	mg/L	E200.7	0.0237	0.100	1.000	0.29	96.5	70 - 130				
Iron	1.09	mg/L	E200.7	0.0767	0.100	1.000	0.202	88.9	70 - 130				
Magnesium	20.0	mg/L	E200.7	0.0294	1.00	10.00	10.2	97.9	70 - 130				
Potassium	12.8	mg/L	E200.7	0.247	1.00	10.00	2.91	98.6	70 - 130				
Sodium	46.8	mg/L	E200.7	0.0330	1.00	10.00	36.3	105	70 - 130				
<b>Lab Sample ID: 1508316-002CMS</b>													
Date Analyzed:	08/18/2015 318h												
Test Code:	200.7-DIS												
Date Prepared:	08/17/2015 1641h												
Calcium	65.5	mg/L	E200.7	0.401	10.0	10.00	55.8	97.6	70 - 130				
<b>Lab Sample ID: 1508316-001CMS</b>													
Date Analyzed:	08/19/2015 921h												
Test Code:	200.7-DIS												
Date Prepared:	08/18/2015 1520h												
Aluminum	9.70	mg/L	E200.7	0.237	1.00	10.00	0.0544	96.5	70 - 130				^
Calcium	148	mg/L	E200.7	0.401	10.0	100.0	53.9	94.1	70 - 130				^
Iron	9.23	mg/L	E200.7	0.767	1.00	10.00	0	92.3	70 - 130				^
Magnesium	104	mg/L	E200.7	0.294	10.0	100.0	8.18	95.8	70 - 130				^
Potassium	98.0	mg/L	E200.7	2.47	10.0	100.0	2.54	95.5	70 - 130				^
Sodium	120	mg/L	E200.7	0.330	10.0	100.0	26.1	93.9	70 - 130				^
<b>Lab Sample ID: 1508316-001BMS</b>													
Date Analyzed:	08/18/2015 101h												
Test Code:	200.7-W												
Date Prepared:	08/17/2015 1641h												
Calcium	87.1	mg/L	E200.7	0.401	10.0	10.00	78	90.8	70 - 130				
<b>Lab Sample ID: 1508316-001BMS</b>													
Date Analyzed:	08/18/2015 155h												
Test Code:	200.7-W												
Date Prepared:	08/17/2015 1641h												
Aluminum	15.4	mg/L	E200.7	0.0237	0.100	1.000	9.5	586	70 - 130				2
Iron	12.7	mg/L	E200.7	0.0767	0.100	1.000	10	264	70 - 130				2
Magnesium	24.1	mg/L	E200.7	0.0294	1.00	10.00	13.3	108	70 - 130				
Potassium	16.8	mg/L	E200.7	0.247	1.00	10.00	5.78	110	70 - 130				
Sodium	44.9	mg/L	E200.7	0.0330	1.00	10.00	31.2	138	70 - 130				1



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## QC SUMMARY REPORT

**Client:** Utah Division of Water Quality  
**Lab Set ID:** 1508316  
**Project:** Gold King Mine Spill

**Contact:** Lenora Sullivan  
**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: 1508316-002CMS</b>		Date Analyzed:	08/18/2015 212h										
Test Code: 200.8-DIS		Date Prepared:	08/17/2015 1641h										
Antimony	0.196	mg/L	E200.8	0.0000366	0.00200	0.2000	0.000425	97.7	75 - 125				
Arsenic	0.218	mg/L	E200.8	0.0000920	0.00200	0.2000	0.00123	108	75 - 125				
Barium	0.351	mg/L	E200.8	0.000538	0.00200	0.2000	0.149	101	75 - 125				
Beryllium	0.208	mg/L	E200.8	0.0000288	0.00200	0.2000	0.0000361	104	75 - 125				
Cadmium	0.202	mg/L	E200.8	0.000193	0.000500	0.2000	0	101	75 - 125				
Chromium	0.199	mg/L	E200.8	0.00154	0.00200	0.2000	0	99.4	75 - 125				
Cobalt	0.196	mg/L	E200.8	0.0000434	0.00400	0.2000	0.000146	98.1	75 - 125				
Copper	0.204	mg/L	E200.8	0.000692	0.00200	0.2000	0.00389	99.8	75 - 125				
Lead	0.198	mg/L	E200.8	0.000264	0.00200	0.2000	0	99.1	75 - 125				
Manganese	0.202	mg/L	E200.8	0.00153	0.00200	0.2000	0.00394	99.0	75 - 125				
Molybdenum	0.206	mg/L	E200.8	0.000206	0.00200	0.2000	0.00195	102	75 - 125				
Nickel	0.195	mg/L	E200.8	0.000754	0.00200	0.2000	0	97.3	75 - 125				
Selenium	0.214	mg/L	E200.8	0.0000634	0.00200	0.2000	0.000707	107	75 - 125				
Silver	0.200	mg/L	E200.8	0.0000244	0.00200	0.2000	0.0000426	99.8	75 - 125				
Thallium	0.195	mg/L	E200.8	0.0000242	0.00200	0.2000	0	97.4	75 - 125				
Vanadium	0.203	mg/L	E200.8	0.000438	0.00440	0.2000	0.00204	100	75 - 125				
Zinc	1.05	mg/L	E200.8	0.00476	0.00500	1.000	0.0105	104	75 - 125				
<b>Lab Sample ID: 1508316-001CMS</b>		Date Analyzed:	08/19/2015 1200h										
Test Code: 200.8-DIS		Date Prepared:	08/18/2015 1520h										
Antimony	1.72	mg/L	E200.8	0.000366	0.0200	2.000	0.00112	86.2	75 - 125				^
Arsenic	2.08	mg/L	E200.8	0.000920	0.0200	2.000	0.00088	104	75 - 125				^
Barium	2.10	mg/L	E200.8	0.00538	0.0200	2.000	0.179	95.9	75 - 125				^
Beryllium	2.03	mg/L	E200.8	0.000288	0.0200	2.000	0.000041	102	75 - 125				^
Cadmium	1.95	mg/L	E200.8	0.00193	0.00500	2.000	0	97.5	75 - 125				^
Chromium	1.94	mg/L	E200.8	0.0154	0.0200	2.000	0	96.8	75 - 125				^
Cobalt	1.93	mg/L	E200.8	0.000434	0.0400	2.000	0	96.4	75 - 125				^
Copper	1.95	mg/L	E200.8	0.00692	0.0200	2.000	0.00291	97.5	75 - 125				^
Lead	1.94	mg/L	E200.8	0.00264	0.0200	2.000	0	96.9	75 - 125				^



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Kyle F. Gross  
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## QC SUMMARY REPORT

**Client:** Utah Division of Water Quality  
**Lab Set ID:** 1508316  
**Project:** Gold King Mine Spill

**Contact:** Lenora Sullivan  
**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: 1508316-001CMS</b>		Date Analyzed:	08/19/2015 1200h										
Test Code: 200.8-DIS		Date Prepared:	08/18/2015 1520h										
Manganese	1.98	mg/L	E200.8	0.0153	0.0200	2.000	0	98.8	75 - 125				^
Molybdenum	1.94	mg/L	E200.8	0.00206	0.0200	2.000	0.00172	96.8	75 - 125				^
Nickel	1.92	mg/L	E200.8	0.00754	0.0200	2.000	0	96.0	75 - 125				^
Selenium	2.07	mg/L	E200.8	0.000634	0.0200	2.000	0.000595	103	75 - 125				^
Silver	1.90	mg/L	E200.8	0.000244	0.0200	2.000	0.000186	95.0	75 - 125				^
Thallium	1.89	mg/L	E200.8	0.000242	0.0200	2.000	0	94.6	75 - 125				^
Vanadium	1.98	mg/L	E200.8	0.00438	0.0440	2.000	0.00192	98.8	75 - 125				^
Zinc	10.1	mg/L	E200.8	0.0476	0.0500	10.00	0.0126	101	75 - 125				^
<b>Lab Sample ID: 1508316-001BMS</b>		Date Analyzed:	08/18/2015 321h										
Test Code: 200.8-W		Date Prepared:	08/17/2015 1641h										
Antimony	0.0946	mg/L	E200.8	0.0000366	0.00200	0.2000	0.000837	46.9	75 - 125				1
Arsenic	0.209	mg/L	E200.8	0.0000920	0.00200	0.2000	0.00489	102	75 - 125				
Barium	0.637	mg/L	E200.8	0.000538	0.00200	0.2000	0.358	140	75 - 125				1
Beryllium	0.206	mg/L	E200.8	0.0000288	0.00200	0.2000	0.00094	102	75 - 125				
Cadmium	0.200	mg/L	E200.8	0.000193	0.000500	0.2000	0.000302	99.9	75 - 125				
Chromium	0.198	mg/L	E200.8	0.00154	0.00200	0.2000	0.00621	96.1	75 - 125				
Cobalt	0.196	mg/L	E200.8	0.0000434	0.00400	0.2000	0.00569	95.3	75 - 125				
Copper	0.207	mg/L	E200.8	0.000692	0.00200	0.2000	0.0149	96.0	75 - 125				
Lead	0.209	mg/L	E200.8	0.000264	0.00200	0.2000	0.0158	96.5	75 - 125				
Manganese	0.547	mg/L	E200.8	0.00153	0.00200	0.2000	0.338	104	75 - 125				
Molybdenum	0.158	mg/L	E200.8	0.000206	0.00200	0.2000	0.00123	78.6	75 - 125				
Nickel	0.203	mg/L	E200.8	0.000754	0.00200	0.2000	0.0103	96.2	75 - 125				
Selenium	0.207	mg/L	E200.8	0.0000634	0.00200	0.2000	0.000859	103	75 - 125				
Silver	0.187	mg/L	E200.8	0.0000244	0.00200	0.2000	0.000345	93.2	75 - 125				
Thallium	0.187	mg/L	E200.8	0.0000242	0.00200	0.2000	0.000232	93.5	75 - 125				
Vanadium	0.212	mg/L	E200.8	0.000438	0.00440	0.2000	0.0161	98.1	75 - 125				
Zinc	1.31	mg/L	E200.8	0.00476	0.00500	1.000	0.215	110	75 - 125				



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## QC SUMMARY REPORT

**Client:** Utah Division of Water Quality  
**Lab Set ID:** 1508316  
**Project:** Gold King Mine Spill

**Contact:** Lenora Sullivan  
**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> 1508316-003BMS	Date Analyzed:	08/18/2015	803h										
Test Code:	HG-DW-245.1	Date Prepared:	08/17/2015	1800h									
Mercury	0.00314	mg/L	E245.1	0.00000892	0.000150	0.003330	0.0000333	93.3	80 - 120				
<b>Lab Sample ID:</b> 1508316-001CMS	Date Analyzed:	08/18/2015	826h										
Test Code:	HG-DW-DIS-245.1	Date Prepared:	08/17/2015	1800h									
Mercury	0.00348	mg/L	E245.1	0.00000892	0.000150	0.003330	0	105	85 - 115				

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

<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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## QC SUMMARY REPORT

**Client:** Utah Division of Water Quality  
**Lab Set ID:** 1508316  
**Project:** Gold King Mine Spill

**Contact:** Lenora Sullivan  
**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: 1508316-002CMSD</b>													
Date Analyzed:	08/18/2015 144h												
Test Code:	200.7-DIS												
Date Prepared:	08/17/2015 1641h												
Aluminum	1.23	mg/L	E200.7	0.0237	0.100	1.000	0.29	94.2	70 - 130	1.26	1.81	20	
Iron	1.09	mg/L	E200.7	0.0767	0.100	1.000	0.202	88.7	70 - 130	1.09	0.234	20	
Magnesium	19.9	mg/L	E200.7	0.0294	1.00	10.00	10.2	97.0	70 - 130	20	0.461	20	
Potassium	12.7	mg/L	E200.7	0.247	1.00	10.00	2.91	98.0	70 - 130	12.8	0.483	20	
Sodium	46.1	mg/L	E200.7	0.0330	1.00	10.00	36.3	98.0	70 - 130	46.8	1.45	20	
<b>Lab Sample ID: 1508316-002CMSD</b>													
Date Analyzed:	08/18/2015 320h												
Test Code:	200.7-DIS												
Date Prepared:	08/17/2015 1641h												
Calcium	63.9	mg/L	E200.7	0.401	10.0	10.00	55.8	81.3	70 - 130	65.5	2.52	20	
<b>Lab Sample ID: 1508316-001CMSD</b>													
Date Analyzed:	08/19/2015 923h												
Test Code:	200.7-DIS												
Date Prepared:	08/18/2015 1520h												
Aluminum	9.54	mg/L	E200.7	0.237	1.00	10.00	0.0544	94.9	70 - 130	9.7	1.66	20	^
Calcium	146	mg/L	E200.7	0.401	10.0	100.0	53.9	92.1	70 - 130	148	1.36	20	^
Iron	9.14	mg/L	E200.7	0.767	1.00	10.00	0	91.4	70 - 130	9.23	0.980	20	^
Magnesium	102	mg/L	E200.7	0.294	10.0	100.0	8.18	93.8	70 - 130	104	1.94	20	^
Potassium	97.2	mg/L	E200.7	2.47	10.0	100.0	2.54	94.7	70 - 130	98	0.820	20	^
Sodium	118	mg/L	E200.7	0.330	10.0	100.0	26.1	91.9	70 - 130	120	1.68	20	^
<b>Lab Sample ID: 1508316-001BMSD</b>													
Date Analyzed:	08/18/2015 103h												
Test Code:	200.7-W												
Date Prepared:	08/17/2015 1641h												
Calcium	89.0	mg/L	E200.7	0.401	10.0	10.00	78	110	70 - 130	87.1	2.21	20	
<b>Lab Sample ID: 1508316-001BMSD</b>													
Date Analyzed:	08/18/2015 157h												
Test Code:	200.7-W												
Date Prepared:	08/17/2015 1641h												
Aluminum	16.1	mg/L	E200.7	0.0237	0.100	1.000	9.5	659	70 - 130	15.4	4.61	20	2
Iron	13.2	mg/L	E200.7	0.0767	0.100	1.000	10	317	70 - 130	12.7	4.11	20	2
Magnesium	24.3	mg/L	E200.7	0.0294	1.00	10.00	13.3	111	70 - 130	24.1	0.888	20	
Potassium	15.1	mg/L	E200.7	0.247	1.00	10.00	5.78	93.7	70 - 130	16.8	10.4	20	
Sodium	38.4	mg/L	E200.7	0.0330	1.00	10.00	31.2	72.9	70 - 130	44.9	15.6	20	



3440 South 700 West  
Salt Lake City, UT 84119

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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:** 1508316  
**Project:** Gold King Mine Spill

**Contact:** Lenora Sullivan  
**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: 1508316-002CMSD</b>		Date Analyzed:	08/18/2015 215h										
Test Code: 200.8-DIS		Date Prepared:	08/17/2015 1641h										
Antimony	0.197	mg/L	E200.8	0.0000366	0.00200	0.2000	0.000425	98.4	75 - 125	0.196	0.760	20	
Arsenic	0.224	mg/L	E200.8	0.0000920	0.00200	0.2000	0.00123	112	75 - 125	0.218	2.74	20	
Barium	0.358	mg/L	E200.8	0.000538	0.00200	0.2000	0.149	104	75 - 125	0.351	1.77	20	
Beryllium	0.213	mg/L	E200.8	0.0000288	0.00200	0.2000	0.0000361	106	75 - 125	0.208	2.15	20	
Cadmium	0.204	mg/L	E200.8	0.000193	0.000500	0.2000	0	102	75 - 125	0.202	1.29	20	
Chromium	0.202	mg/L	E200.8	0.00154	0.00200	0.2000	0	101	75 - 125	0.199	1.46	20	
Cobalt	0.201	mg/L	E200.8	0.0000434	0.00400	0.2000	0.000146	100	75 - 125	0.196	2.31	20	
Copper	0.209	mg/L	E200.8	0.000692	0.00200	0.2000	0.00389	102	75 - 125	0.204	2.61	20	
Lead	0.202	mg/L	E200.8	0.000264	0.00200	0.2000	0	101	75 - 125	0.198	1.62	20	
Manganese	0.206	mg/L	E200.8	0.00153	0.00200	0.2000	0.00394	101	75 - 125	0.202	2.10	20	
Molybdenum	0.208	mg/L	E200.8	0.000206	0.00200	0.2000	0.00195	103	75 - 125	0.206	0.966	20	
Nickel	0.199	mg/L	E200.8	0.000754	0.00200	0.2000	0	99.5	75 - 125	0.195	2.32	20	
Selenium	0.215	mg/L	E200.8	0.0000634	0.00200	0.2000	0.000707	107	75 - 125	0.214	0.430	20	
Silver	0.201	mg/L	E200.8	0.0000244	0.00200	0.2000	0.0000426	101	75 - 125	0.2	0.758	20	
Thallium	0.197	mg/L	E200.8	0.0000242	0.00200	0.2000	0	98.5	75 - 125	0.195	1.16	20	
Vanadium	0.208	mg/L	E200.8	0.000438	0.00440	0.2000	0.00204	103	75 - 125	0.203	2.71	20	
Zinc	1.08	mg/L	E200.8	0.00476	0.00500	1.000	0.0105	106	75 - 125	1.05	2.18	20	
<b>Lab Sample ID: 1508316-001CMSD</b>		Date Analyzed:	08/19/2015 1203h										
Test Code: 200.8-DIS		Date Prepared:	08/18/2015 1520h										
Antimony	1.73	mg/L	E200.8	0.000366	0.0200	2.000	0.00112	86.3	75 - 125	1.72	0.195	20	^
Arsenic	2.08	mg/L	E200.8	0.000920	0.0200	2.000	0.00088	104	75 - 125	2.08	0.362	20	^
Barium	2.09	mg/L	E200.8	0.00538	0.0200	2.000	0.179	95.3	75 - 125	2.1	0.570	20	^
Beryllium	2.04	mg/L	E200.8	0.000288	0.0200	2.000	0.000041	102	75 - 125	2.03	0.209	20	^
Cadmium	1.94	mg/L	E200.8	0.00193	0.00500	2.000	0	97.0	75 - 125	1.95	0.517	20	^
Chromium	1.93	mg/L	E200.8	0.0154	0.0200	2.000	0	96.4	75 - 125	1.94	0.357	20	^
Cobalt	1.91	mg/L	E200.8	0.000434	0.0400	2.000	0	95.3	75 - 125	1.93	1.13	20	^
Copper	1.95	mg/L	E200.8	0.00692	0.0200	2.000	0.00291	97.5	75 - 125	1.95	0.0293	20	^
Lead	1.93	mg/L	E200.8	0.00264	0.0200	2.000	0	96.5	75 - 125	1.94	0.392	20	^



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## QC SUMMARY REPORT

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**Lab Set ID:** 1508316  
**Project:** Gold King Mine Spill

**Contact:** Lenora Sullivan  
**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: 1508316-001CMSD</b>													
Date Analyzed:		08/19/2015 1203h											
Test Code:		200.8-DIS											
Date Prepared:		08/18/2015 1520h											
Manganese	1.97	mg/L	E200.8	0.0153	0.0200	2.000	0	98.6	75 - 125	1.98	0.256	20	^
Molybdenum	1.95	mg/L	E200.8	0.00206	0.0200	2.000	0.00172	97.2	75 - 125	1.94	0.368	20	^
Nickel	1.91	mg/L	E200.8	0.00754	0.0200	2.000	0	95.4	75 - 125	1.92	0.623	20	^
Selenium	2.04	mg/L	E200.8	0.000634	0.0200	2.000	0.000595	102	75 - 125	2.07	1.23	20	^
Silver	1.91	mg/L	E200.8	0.000244	0.0200	2.000	0.000186	95.4	75 - 125	1.9	0.394	20	^
Thallium	1.88	mg/L	E200.8	0.000242	0.0200	2.000	0	94.1	75 - 125	1.89	0.500	20	^
Vanadium	1.95	mg/L	E200.8	0.00438	0.0440	2.000	0.00192	97.6	75 - 125	1.98	1.15	20	^
Zinc	10.1	mg/L	E200.8	0.0476	0.0500	10.00	0.0126	101	75 - 125	10.1	0.324	20	^
<b>Lab Sample ID: 1508316-001BMSD</b>													
Date Analyzed:		08/18/2015 324h											
Test Code:		200.8-W											
Date Prepared:		08/17/2015 1641h											
Antimony	0.0962	mg/L	E200.8	0.0000366	0.00200	0.2000	0.000837	47.7	75 - 125	0.0946	1.62	20	1
Arsenic	0.209	mg/L	E200.8	0.0000920	0.00200	0.2000	0.00489	102	75 - 125	0.209	0.172	20	
Barium	0.527	mg/L	E200.8	0.000538	0.00200	0.2000	0.358	84.5	75 - 125	0.637	18.9	20	
Beryllium	0.205	mg/L	E200.8	0.0000288	0.00200	0.2000	0.00094	102	75 - 125	0.206	0.158	20	
Cadmium	0.200	mg/L	E200.8	0.000193	0.000500	0.2000	0.000302	99.7	75 - 125	0.2	0.252	20	
Chromium	0.202	mg/L	E200.8	0.00154	0.00200	0.2000	0.00621	97.8	75 - 125	0.198	1.72	20	
Cobalt	0.197	mg/L	E200.8	0.0000434	0.00400	0.2000	0.00569	95.7	75 - 125	0.196	0.369	20	
Copper	0.211	mg/L	E200.8	0.000692	0.00200	0.2000	0.0149	97.8	75 - 125	0.207	1.74	20	
Lead	0.211	mg/L	E200.8	0.000264	0.00200	0.2000	0.0158	97.8	75 - 125	0.209	1.26	20	
Manganese	0.555	mg/L	E200.8	0.00153	0.00200	0.2000	0.338	108	75 - 125	0.547	1.34	20	
Molybdenum	0.161	mg/L	E200.8	0.000206	0.00200	0.2000	0.00123	80.0	75 - 125	0.158	1.74	20	
Nickel	0.205	mg/L	E200.8	0.000754	0.00200	0.2000	0.0103	97.3	75 - 125	0.203	0.992	20	
Selenium	0.206	mg/L	E200.8	0.0000634	0.00200	0.2000	0.000859	103	75 - 125	0.207	0.607	20	
Silver	0.190	mg/L	E200.8	0.0000244	0.00200	0.2000	0.000345	94.9	75 - 125	0.187	1.80	20	
Thallium	0.189	mg/L	E200.8	0.0000242	0.00200	0.2000	0.000232	94.6	75 - 125	0.187	1.18	20	
Vanadium	0.215	mg/L	E200.8	0.000438	0.00440	0.2000	0.0161	99.7	75 - 125	0.212	1.43	20	
Zinc	1.20	mg/L	E200.8	0.00476	0.00500	1.000	0.215	98.3	75 - 125	1.31	9.11	20	



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## QC SUMMARY REPORT

**Client:** Utah Division of Water Quality  
**Lab Set ID:** 1508316  
**Project:** Gold King Mine Spill

**Contact:** Lenora Sullivan  
**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> 1508316-003BMSD	Date Analyzed:	08/18/2015	805h										
Test Code:	HG-DW-245.1	Date Prepared:	08/17/2015	1800h									
Mercury	0.00337	mg/L	E245.1	0.00000892	0.000150	0.003330	0.0000333	100	80 - 120	0.00314	7.12	20	
<b>Lab Sample ID:</b> 1508316-001CMSD	Date Analyzed:	08/18/2015	828h										
Test Code:	HG-DW-DIS-245.1	Date Prepared:	08/17/2015	1800h									
Mercury	0.00342	mg/L	E245.1	0.00000892	0.000150	0.003330	0	103	85 - 115	0.00348	1.79	20	

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

<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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## QC SUMMARY REPORT

**Client:** Utah Division of Water Quality  
**Lab Set ID:** 1508316  
**Project:** Gold King Mine Spill

**Contact:** Lenora Sullivan  
**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: 1508316-001ADUP</b> Date Analyzed: 08/18/2015 542h													
Test Code: COND-W-2510B													
Conductivity	532	µmhos/cm	SM2510B	0.436	2.00					534	0.375	5	
<b>Lab Sample ID: 1508324-001ADUP</b> Date Analyzed: 08/18/2015 542h													
Test Code: COND-W-2510B													
Conductivity	627	µmhos/cm	SM2510B	0.436	2.00					625	0.319	5	
<b>Lab Sample ID: 1508316-005ADUP</b> Date Analyzed: 08/17/2015 2119h													
Test Code: PH-4500H+B													
pH @ 25° C	8.19	pH Units	SM4500-H+B	1.00	1.00					8.13	0.735	5	H
<b>Lab Sample ID: 1508316-002ADUP</b> Date Analyzed: 08/17/2015 1540h													
Test Code: TDS-W-2540C													
Total Dissolved Solids	1,000	mg/L	SM2540C	30.6	50.0					1020	1.98	5	
<b>Lab Sample ID: 1508316-002ADUP</b> Date Analyzed: 08/17/2015 1700h													
Test Code: TSS-W-2540D													
Total Suspended Solids	1,440	mg/L	SM2540D	70.8	75.0					1500	4.08	5	

*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:** 1508316  
**Project:** Gold King Mine Spill

**Contact:** Lenora Sullivan  
**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-R81926</b> Date Analyzed: 08/18/2015 2122h													
Test Code: 300.0-W													
Sulfate	4.62	mg/L	E300.0	0.0211	0.750	5.000	0	92.5	90 - 110				
<b>Lab Sample ID: LCS-R82027</b> Date Analyzed: 08/21/2015 1745h													
Test Code: 300.0-W													
Chloride	4.97	mg/L	E300.0	0.00751	0.100	5.000	0	99.5	90 - 110				
<b>Lab Sample ID: LCS-R81790</b> Date Analyzed: 08/18/2015 604h													
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-R81789</b> Date Analyzed: 08/18/2015 542h													
Test Code: COND-W-2510B													
Conductivity	996	µmhos/cm	SM2510B	0.436	2.00	1,000	0	99.6	98 - 102				
<b>Lab Sample ID: LCS</b> Date Analyzed: 08/17/2015 2123h													
Test Code: NO2/NO3-W-353.2													
Nitrate/Nitrite (as N)	0.998	mg/L	E353.2	0.00833	0.0100	1.000	0	99.8	90 - 110				
<b>Lab Sample ID: LCS-R81770</b> Date Analyzed: 08/17/2015 2119h													
Test Code: PH-4500H+B													
pH @ 25° C	9.01	pH Units	SM4500-H+B	1.00	1.00	9.000	0	100	98 - 102				
<b>Lab Sample ID: LCS-38648</b> Date Analyzed: 08/18/2015 1402h													
Test Code: PO4-W-4500PF Date Prepared: 08/18/2015 720h													
Phosphate, Total (as P)	0.900	mg/L	SM4500-P-F	0.0212	0.0500	1.000	0	90.0	90 - 110				
<b>Lab Sample ID: LCS-R81802</b> Date Analyzed: 08/17/2015 1540h													
Test Code: TDS-W-2540C													
Total Dissolved Solids	180	mg/L	SM2540C	6.13	10.0	205.0	0	87.8	80 - 120				



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## QC SUMMARY REPORT

**Client:** Utah Division of Water Quality  
**Lab Set ID:** 1508316  
**Project:** Gold King Mine Spill

**Contact:** Lenora Sullivan  
**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:</b> LCS-R81797	Date Analyzed: 08/17/2015 1700h												
Test Code: TSS-W-2540D													
Total Suspended Solids	96.0	mg/L	SM2540D	2.83	3.00	100.0	0	96.0	80 - 120				



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## QC SUMMARY REPORT

**Client:** Utah Division of Water Quality  
**Lab Set ID:** 1508316  
**Project:** Gold King Mine Spill

**Contact:** Lenora Sullivan  
**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:</b> MB-R81926	Date Analyzed:	08/18/2015	2100h										
Test Code:	300.0-W												
Sulfate	< 0.750	mg/L	E300.0	0.0211	0.750								U
<b>Lab Sample ID:</b> MB-R82027	Date Analyzed:	08/21/2015	1728h										
Test Code:	300.0-W												
Chloride	< 0.100	mg/L	E300.0	0.00751	0.100								U
<b>Lab Sample ID:</b> MB-R81790	Date Analyzed:	08/18/2015	604h										
Test Code:	ALK-W-2320B												
Alkalinity (as CaCO <sub>3</sub> )	< 10.0	mg/L	SM2320B	1.86	10.0								U
Bicarbonate (as CaCO <sub>3</sub> )	< 10.0	mg/L	SM2320B	1.86	10.0								U
Carbonate (as CaCO <sub>3</sub> )	< 10.0	mg/L	SM2320B	1.86	10.0								U
<b>Lab Sample ID:</b> MB-R81789	Date Analyzed:	08/18/2015	542h										
Test Code:	COND-W-2510B												
Conductivity	< 2.00	µmhos/cm	SM2510B	0.436	2.00								U
<b>Lab Sample ID:</b> MB	Date Analyzed:	08/17/2015	2122h										
Test Code:	NO2/NO3-W-353.2												
Nitrate/Nitrite (as N)	0.0171	mg/L	E353.2	0.00833	0.0100								B
<b>Lab Sample ID:</b> MB-38648	Date Analyzed:	08/18/2015	1401h										
Test Code:	PO4-W-4500PF	Date Prepared:	08/18/2015 720h										
Phosphate, Total (as P)	< 0.0500	mg/L	SM4500-P-F	0.0212	0.0500								U
<b>Lab Sample ID:</b> MB-R81802	Date Analyzed:	08/17/2015	1540h										
Test Code:	TDS-W-2540C												
Total Dissolved Solids	< 10.0	mg/L	SM2540C	6.13	10.0								U



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**Project:** Gold King Mine Spill

**Contact:** Lenora Sullivan  
**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:</b> MB-R81797	Date Analyzed: 08/17/2015 1700h												
Test Code: TSS-W-2540D													
Total Suspended Solids	< 3.00	mg/L	SM2540D	2.83	3.00								U

*B - The method blank was acceptable, as the method blank result is less than 10% of the lowest reported sample concentration.*

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



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## QC SUMMARY REPORT

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**Project:** Gold King Mine Spill

**Contact:** Lenora Sullivan  
**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: 1508316-001AMS</b> Date Analyzed: 08/19/2015 017h													
Test Code: 300.0-W													
Sulfate	170	mg/L	E300.0	0.211	7.50	50.00	118	103	90 - 110				
<b>Lab Sample ID: 1508324-001AMS</b> Date Analyzed: 08/19/2015 333h													
Test Code: 300.0-W													
Sulfate	192	mg/L	E300.0	0.211	7.50	50.00	142	100	90 - 110				
<b>Lab Sample ID: 1508316-001AMS</b> Date Analyzed: 08/21/2015 1819h													
Test Code: 300.0-W													
Chloride	63.4	mg/L	E300.0	0.0751	1.00	50.00	13.8	99.2	90 - 110				
<b>Lab Sample ID: 1508324-001AMS</b> Date Analyzed: 08/21/2015 2051h													
Test Code: 300.0-W													
Chloride	61.9	mg/L	E300.0	0.0751	1.00	50.00	12.8	98.3	90 - 110				
<b>Lab Sample ID: 1508316-001AMS</b> Date Analyzed: 08/18/2015 604h													
Test Code: ALK-W-2320B													
Alkalinity (as CaCO <sub>3</sub> )	208	mg/L	SM2320B	1.86	10.0	100.0	110	98.0	80 - 120				
<b>Lab Sample ID: 1508324-001AMS</b> Date Analyzed: 08/18/2015 604h													
Test Code: ALK-W-2320B													
Alkalinity (as CaCO <sub>3</sub> )	208	mg/L	SM2320B	1.86	10.0	100.0	108	99.7	80 - 120				
<b>Lab Sample ID: 1508316-001AMS</b> Date Analyzed: 08/17/2015 2126h													
Test Code: NO2/NO3-W-353.2													
Nitrate/Nitrite (as N)	5.39	mg/L	E353.2	0.0417	0.0500	5.000	0.344	101	90 - 110				
<b>Lab Sample ID: 1508316-001DMS</b> Date Analyzed: 08/18/2015 1403h													
Test Code: PO4-W-4500PF Date Prepared: 08/18/2015 720h													
Phosphate, Total (as P)	1.21	mg/L	SM4500-P-F	0.0212	0.0500	1.000	0.198	101	90 - 110				



3440 South 700 West  
Salt Lake City, UT 84119

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

Kyle F. Gross  
Laboratory Director

Jose Rocha  
QA Officer

## QC SUMMARY REPORT

**Client:** Utah Division of Water Quality  
**Lab Set ID:** 1508316  
**Project:** Gold King Mine Spill

**Contact:** Lenora Sullivan  
**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:</b> 1508324-001DMS	Date Analyzed:	08/18/2015 1412h											
Test Code: PO4-W-4500PF	Date Prepared:	08/18/2015 720h											
Phosphate, Total (as P)	1.52	mg/L	SM4500-P-F	0.0212	0.0500	1.000	0.446	108	90 - 110				



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## QC SUMMARY REPORT

**Client:** Utah Division of Water Quality  
**Lab Set ID:** 1508316  
**Project:** Gold King Mine Spill

**Contact:** Lenora Sullivan  
**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> 1508316-001AMSD <b>Test Code:</b> 300.0-W	Date Analyzed:	08/19/2015 039h											
Sulfate	168	mg/L	E300.0	0.211	7.50	50.00	118	100	90 - 110	170	0.918	20	
<b>Lab Sample ID:</b> 1508324-001AMSD <b>Test Code:</b> 300.0-W	Date Analyzed:	08/19/2015 355h											
Sulfate	192	mg/L	E300.0	0.211	7.50	50.00	142	99.8	90 - 110	192	0.176	20	
<b>Lab Sample ID:</b> 1508316-001AMSD <b>Test Code:</b> 300.0-W	Date Analyzed:	08/21/2015 1836h											
Chloride	63.3	mg/L	E300.0	0.0751	1.00	50.00	13.8	99.0	90 - 110	63.4	0.189	20	
<b>Lab Sample ID:</b> 1508324-001AMSD <b>Test Code:</b> 300.0-W	Date Analyzed:	08/21/2015 2107h											
Chloride	62.1	mg/L	E300.0	0.0751	1.00	50.00	12.8	98.7	90 - 110	61.9	0.361	20	
<b>Lab Sample ID:</b> 1508316-001AMSD <b>Test Code:</b> ALK-W-2320B	Date Analyzed:	08/18/2015 604h											
Alkalinity (as CaCO <sub>3</sub> )	210	mg/L	SM2320B	1.86	10.0	100.0	110	99.7	80 - 120	208	0.814	10	
<b>Lab Sample ID:</b> 1508324-001AMSD <b>Test Code:</b> ALK-W-2320B	Date Analyzed:	08/18/2015 604h											
Alkalinity (as CaCO <sub>3</sub> )	206	mg/L	SM2320B	1.86	10.0	100.0	108	98.0	80 - 120	208	0.821	10	
<b>Lab Sample ID:</b> 1508316-001AMSD <b>Test Code:</b> NO2/NO3-W-353.2	Date Analyzed:	08/17/2015 2127h											
Nitrate/Nitrite (as N)	5.43	mg/L	E353.2	0.0417	0.0500	5.000	0.344	102	90 - 110	5.39	0.721	10	
<b>Lab Sample ID:</b> 1508316-001DMSD <b>Test Code:</b> PO4-W-4500PF	Date Analyzed:	08/18/2015 1404h											
	Date Prepared:	08/18/2015 720h											
Phosphate, Total (as P)	1.21	mg/L	SM4500-P-F	0.0212	0.0500	1.000	0.198	101	90 - 110	1.21	0.496	10	



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## QC SUMMARY REPORT

**Client:** Utah Division of Water Quality  
**Lab Set ID:** 1508316  
**Project:** Gold King Mine Spill

**Contact:** Lenora Sullivan  
**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> 1508324-001DMSD	Date Analyzed:	08/18/2015	1413h										
Test Code: PO4-W-4500PF	Date Prepared:	08/18/2015	720h										
Phosphate, Total (as P)	1.57	mg/L	SM4500-P-F	0.0212	0.0500	1.000	0.446	113	90 - 110	1.53	3.16	10	<sup>1</sup>

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

**WORK ORDER Summary**

Work Order: **1508316** Page 1 of 5

**Client:** Utah Division of Water Quality

Due Date: 8/18/2015

**Client ID:** UTD200

**Contact:** Lenora Sullivan

**Project:** Gold King Mine Spill

**QC Level:** II+ MDL

WO Type: Standard

**Comments:** Next Day Rush. QC2+. Dissolved metals were field filtered. Evaluated down to the MDL. Include EDD. CC: Jim Harris and Trisha Johnson;

Sample ID	Client Sample ID	Collected Date	Received Date	Test Code	Matrix	Sel	Storage
1508316-001A	San Juan R @ US 160	8/16/2015 0915h	8/17/2015 1528h	300.0-W	Aqueous	<input checked="" type="checkbox"/>	df - wc
				<i>2 SEL Analytes: CL SO4</i>			
				ALK-W-2320B		<input checked="" type="checkbox"/>	df - wc
				<i>3 SEL Analytes: ALK ALKB ALKC</i>			
				COND-W-2510B		<input type="checkbox"/>	df - wc
				NO2/NO3-W-353.2		<input type="checkbox"/>	df - wc
				PH-4500H+B		<input type="checkbox"/>	df - wc
1508316-001B				TDS-W-2540C		<input type="checkbox"/>	df - wc
				TSS-W-2540D		<input type="checkbox"/>	df - wc
				200.7-W		<input checked="" type="checkbox"/>	df - total metals
				<i>6 SEL Analytes: AL CA FE MG K NA</i>			
				200.7-W-PR		<input type="checkbox"/>	df - total metals
				200.8-W		<input checked="" type="checkbox"/>	df - total metals
				<i>17 SEL Analytes: SB AS BA BE CD CR CO CU PB MN MO NI SE AG TL V ZN</i>			
				200.8-W-PR		<input type="checkbox"/>	df - total metals
				HARD-2340B		<input type="checkbox"/>	df - total metals
				HG-DW-245.1		<input type="checkbox"/>	df - total metals
1508316-001C				HG-DW-PR		<input type="checkbox"/>	df - total metals
				200.7-DIS		<input checked="" type="checkbox"/>	df - dis metals
				<i>6 SEL Analytes: AL CA FE MG K NA</i>			
				200.7-DIS-PR		<input type="checkbox"/>	df - dis metals
				200.8-DIS		<input checked="" type="checkbox"/>	df - dis metals
				<i>17 SEL Analytes: SB AS BA BE CD CR CO CU PB MN MO NI SE AG TL V ZN</i>			
				200.8-DIS-PR		<input type="checkbox"/>	df - dis metals
1508316-001D				HARD-2340B		<input checked="" type="checkbox"/>	df - dis metals
				<i>1 SEL Analytes: HARD</i>			
				HG-DW-DIS-245.1		<input type="checkbox"/>	df - dis metals
				HG-DW-DIS-PR		<input type="checkbox"/>	df - dis metals
				PO4-W-4500PF		<input type="checkbox"/>	df -po4, no2/no3

# WORK ORDER Summary

Work Order: **1508316** Page 2 of 5

Client: Utah Division of Water Quality

Due Date: 8/18/2015

Sample ID	Client Sample ID	Collected Date	Received Date	Test Code	Matrix	Sel	Storage	
1508316-001D	San Juan R @ US 160	8/16/2015 0915h	8/17/2015 1528h	PO4-W-PR	Aqueous	<input type="checkbox"/>	df -po4, no2/no3	1
1508316-002A	San Juan R @ Sand Island	8/16/2015 1106h	8/17/2015 1528h	300.0-W	Aqueous	<input checked="" type="checkbox"/>	df - wc	1
				<i>2 SEL Analytes: CL SO4</i>				
				ALK-W-2320B		<input checked="" type="checkbox"/>	df - wc	
				<i>3 SEL Analytes: ALK ALKB ALKC</i>				
				COND-W-2510B		<input type="checkbox"/>	df - wc	
				NO2/NO3-W-353.2		<input type="checkbox"/>	df - wc	
				PH-4500H+B		<input type="checkbox"/>	df - wc	
				TDS-W-2540C		<input type="checkbox"/>	df - wc	
				TSS-W-2540D		<input type="checkbox"/>	df - wc	
1508316-002B				200.7-W		<input checked="" type="checkbox"/>	df - total metals	
				<i>6 SEL Analytes: AL CA FE MG K NA</i>				
				200.7-W-PR		<input type="checkbox"/>	df - total metals	
				200.8-W		<input checked="" type="checkbox"/>	df - total metals	
				<i>17 SEL Analytes: SB AS BA BE CD CR CO CU PB MN MO NI SE AG TL V ZN</i>				
				200.8-W-PR		<input type="checkbox"/>	df - total metals	
				HARD-2340B		<input type="checkbox"/>	df - total metals	
				HG-DW-245.1		<input type="checkbox"/>	df - total metals	
				HG-DW-PR		<input type="checkbox"/>	df - total metals	
1508316-002C				200.7-DIS		<input checked="" type="checkbox"/>	df - dis metals	
				<i>6 SEL Analytes: AL CA FE MG K NA</i>				
				200.7-DIS-PR		<input type="checkbox"/>	df - dis metals	
				200.8-DIS		<input checked="" type="checkbox"/>	df - dis metals	
				<i>17 SEL Analytes: SB AS BA BE CD CR CO CU PB MN MO NI SE AG TL V ZN</i>				
				200.8-DIS-PR		<input type="checkbox"/>	df - dis metals	
				HARD-2340B		<input checked="" type="checkbox"/>	df - dis metals	
				<i>1 SEL Analytes: HARD</i>				
				HG-DW-DIS-245.1		<input type="checkbox"/>	df - dis metals	
				HG-DW-DIS-PR		<input type="checkbox"/>	df - dis metals	
1508316-002D				PO4-W-4500PF		<input type="checkbox"/>	df -po4, no2/no3	
				PO4-W-PR		<input type="checkbox"/>	df -po4, no2/no3	
1508316-003A	San Juan River @ Montezuma Ck	8/16/2015 1002h	8/17/2015 1528h	300.0-W	Aqueous	<input checked="" type="checkbox"/>	df - wc	1
				<i>2 SEL Analytes: CL SO4</i>				
				ALK-W-2320B		<input checked="" type="checkbox"/>	df - wc	
				<i>3 SEL Analytes: ALK ALKB ALKC</i>				
				COND-W-2510B		<input type="checkbox"/>	df - wc	

# WORK ORDER Summary

Work Order: **1508316** Page 3 of 5

Client: Utah Division of Water Quality

Due Date: 8/18/2015

Sample ID	Client Sample ID	Collected Date	Received Date	Test Code	Matrix	Sel	Storage		
1508316-003A	San Juan River @ Montezuma Ck	8/16/2015 1002h	8/17/2015 1528h	NO2/NO3-W-353.2	Aqueous	<input type="checkbox"/>	df - wc		
				PH-4500H+B		<input type="checkbox"/>	df - wc		
				TDS-W-2540C		<input type="checkbox"/>	df - wc		
				TSS-W-2540D		<input type="checkbox"/>	df - wc		
1508316-003B	San Juan River @ Montezuma Ck	8/16/2015 1002h	8/17/2015 1528h	200.7-W		<input checked="" type="checkbox"/>	df - total metals		
				<i>6 SEL Analytes: AL CA FE MG K NA</i>					
				200.7-W-PR		<input type="checkbox"/>	df - total metals		
				200.8-W		<input checked="" type="checkbox"/>	df - total metals		
				<i>17 SEL Analytes: SB AS BA BE CD CR CO CU PB MN MO NI SE AG TL V ZN</i>					
				200.8-W-PR		<input type="checkbox"/>	df - total metals		
				HARD-2340B		<input type="checkbox"/>	df - total metals		
				HG-DW-245.1		<input type="checkbox"/>	df - total metals		
				HG-DW-PR		<input type="checkbox"/>	df - total metals		
				200.7-DIS		<input checked="" type="checkbox"/>	df - dis metals		
1508316-003C	San Juan River @ Montezuma Ck	8/16/2015 1002h	8/17/2015 1528h	<i>6 SEL Analytes: AL CA FE MG K NA</i>					
				200.7-DIS-PR		<input type="checkbox"/>	df - dis metals		
				200.8-DIS		<input checked="" type="checkbox"/>	df - dis metals		
				<i>17 SEL Analytes: SB AS BA BE CD CR CO CU PB MN MO NI SE AG TL V ZN</i>					
				200.8-DIS-PR		<input type="checkbox"/>	df - dis metals		
				HARD-2340B		<input checked="" type="checkbox"/>	df - dis metals		
				<i>1 SEL Analytes: HARD</i>					
				HG-DW-DIS-245.1		<input type="checkbox"/>	df - dis metals		
				HG-DW-DIS-PR		<input type="checkbox"/>	df - dis metals		
				PO4-W-4500PF		<input type="checkbox"/>	df -po4, no2/no3		
PO4-W-PR		<input type="checkbox"/>	df -po4, no2/no3						
1508316-004A	San Juan R @ Mexican Hat	8/16/2015 1158h	8/17/2015 1528h	300.0-W	Aqueous	<input checked="" type="checkbox"/>	df - wc		
				<i>2 SEL Analytes: CL SO4</i>					
				ALK-W-2320B		<input checked="" type="checkbox"/>	df - wc		
				<i>3 SEL Analytes: ALK ALKB ALKC</i>					
				COND-W-2510B		<input type="checkbox"/>	df - wc		
				NO2/NO3-W-353.2		<input type="checkbox"/>	df - wc		
				PH-4500H+B		<input type="checkbox"/>	df - wc		
				TDS-W-2540C		<input type="checkbox"/>	df - wc		
				TSS-W-2540D		<input type="checkbox"/>	df - wc		
				200.7-W		<input checked="" type="checkbox"/>	df - total metals		
1508316-004B	San Juan R @ Mexican Hat	8/16/2015 1158h	8/17/2015 1528h	<i>6 SEL Analytes: AL CA FE MG K NA</i>					

# WORK ORDER Summary

Work Order: **1508316** Page 4 of 5

Client: Utah Division of Water Quality

Due Date: 8/18/2015

Sample ID	Client Sample ID	Collected Date	Received Date	Test Code	Matrix	Sel	Storage					
1508316-004B	San Juan R @ Mexican Hat	8/16/2015 1158h	8/17/2015 1528h	200.7-W-PR	Aqueous	<input type="checkbox"/>	df - total metals					
				200.8-W		<input checked="" type="checkbox"/>	df - total 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 - total metals					
				HARD-2340B		<input type="checkbox"/>	df - total metals					
				HG-DW-245.1		<input type="checkbox"/>	df - total metals					
				HG-DW-PR		<input type="checkbox"/>	df - total metals					
				200.7-DIS		<input checked="" type="checkbox"/>	df - dis metals					
				6 SEL Analytes: AL CA FE MG K NA								
				200.7-DIS-PR		<input type="checkbox"/>	df - dis metals					
1508316-004C				200.8-DIS		<input checked="" type="checkbox"/>	df - dis metals					
				17 SEL Analytes: SB AS BA BE CD CR CO CU PB MN MO NI SE AG TL V ZN								
				200.8-DIS-PR		<input type="checkbox"/>	df - dis metals					
				HARD-2340B		<input checked="" type="checkbox"/>	df - dis metals					
				1 SEL Analytes: HARD								
				HG-DW-DIS-245.1		<input type="checkbox"/>	df - dis metals					
				HG-DW-DIS-PR		<input type="checkbox"/>	df - dis metals					
				1508316-004D					PO4-W-4500PF		<input type="checkbox"/>	df -po4, no2/no3
									PO4-W-PR		<input type="checkbox"/>	df -po4, no2/no3
				1508316-005A		SJR @ Clay Hills	8/16/2015 1446h	8/17/2015 1528h	300.0-W	Aqueous	<input checked="" type="checkbox"/>	df - wc
2 SEL Analytes: CL SO4												
ALK-W-2320B	<input checked="" type="checkbox"/>	df - wc										
3 SEL Analytes: ALK ALKB ALKC												
COND-W-2510B	<input type="checkbox"/>	df - wc										
NO2/NO3-W-353.2	<input type="checkbox"/>	df - wc										
PH-4500H+B	<input type="checkbox"/>	df - wc										
TDS-W-2540C	<input type="checkbox"/>	df - wc										
TSS-W-2540D	<input type="checkbox"/>	df - wc										
1508316-005B					200.7-W						<input checked="" type="checkbox"/>	df - total metals
				6 SEL Analytes: AL CA FE MG K NA								
				200.7-W-PR	<input type="checkbox"/>	df - total metals						
				200.8-W	<input checked="" type="checkbox"/>	df - total 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 - total metals						
				HARD-2340B	<input type="checkbox"/>	df - total metals						
HG-DW-245.1	<input type="checkbox"/>	df - total metals										

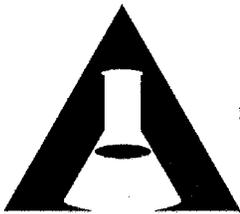
# WORK ORDER Summary

Work Order: **1508316** Page 5 of 5

Client: Utah Division of Water Quality

Due Date: 8/18/2015

Sample ID	Client Sample ID	Collected Date	Received Date	Test Code	Matrix	Sel	Storage	
1508316-005B	SJR @ Clay Hills	8/16/2015 1446h	8/17/2015 1528h	HG-DW-PR	Aqueous	<input type="checkbox"/>	df - total metals	
1508316-005C				200.7-DIS		<input checked="" type="checkbox"/>	df - dis metals	
				<i>6 SEL Analytes: AL CA FE MG K NA</i>				
				200.7-DIS-PR		<input type="checkbox"/>	df - dis metals	
				200.8-DIS		<input checked="" type="checkbox"/>	df - dis metals	
				<i>17 SEL Analytes: SB AS BA BE CD CR CO CU PB MN MO NI SE AG TL V ZN</i>				
				200.8-DIS-PR		<input type="checkbox"/>	df - dis metals	
				HARD-2340B		<input checked="" type="checkbox"/>	df - dis metals	
				<i>1 SEL Analytes: HARD</i>				
				HG-DW-DIS-245.1		<input type="checkbox"/>	df - dis metals	
1508316-005D				HG-DW-DIS-PR		<input type="checkbox"/>	df - dis metals	
				PO4-W-4500PF		<input type="checkbox"/>	df -po4, no2/no3	
				PO4-W-PR		<input type="checkbox"/>	df -po4, no2/no3	



**AMERICAN WEST  
ANALYTICAL LABORATORIES**

3440 S. 700 W. SALT LAKE CITY, UT 84119  
 PHONE # (801) 263-8686 TOLL FREE # (888) 263-8686  
 FAX # (801) 263-8687 EMAIL AWAL@AWAL-LABS.COM

WWW.AWAL-LABS.COM

**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 (PQL) UNLESS SPECIFICALLY REQUESTED OTHERWISE ON THIS CHAIN OF CUSTODY AND/OR ATTACHED DOCUMENTATION.

1508316

AWAL LAB SAMPLE SET #  
PAGE OF

CLIENT: DIVISION OF WATER QUALITY  
 ADDRESS: 195 N 1950 W  
 CONTACT: JAMES HARRIS  
 PHONE #: 801 536 4360 CELL #:  
 EMAIL: janora@utah.gov / jamesharris@utah.gov  
 PROJECT NAME: SULF KING MINE SPILL  
 PROJECT #:  
 PO #:  
 SAMPLER NAME:

QC LEVEL:	TURN AROUND TIME:					UNLESS OTHER ARRANGEMENTS HAVE BEEN MADE, SIGNED REPORTS WILL BE EMAILED BY 5:00 PM ON THE DAY THEY ARE DUE.	DUE DATE:		
	1	2	3	3+	0			2	3
						<input type="checkbox"/> REPORT DOWN TO THE MDL <input type="checkbox"/> INCLUDE EDD: <input type="checkbox"/> LAB FILTER FOR: <input type="checkbox"/> FIELD FILTERED FOR:	<b>LABORATORY USE ONLY</b> SAMPLES WERE: 1 SHIPPED OR HAND DELIVERED 2 AMBIENT OR CHILLED 3 TEMPERATURE <u>4.5</u> °C 4 RECEIVED BROKEN/LEAKING (IMPROPERLY SEALED) Y <u>N</u> 5 PROPERLY PRESERVED Y <u>N</u> CHECKED AT BENCH 6 RECEIVED WITHIN HOLDING TIMES Y <u>N</u>		
						<b>FOR COMPLIANCE WITH:</b> <input type="checkbox"/> NELAP <input type="checkbox"/> RCRA <input type="checkbox"/> CWA <input type="checkbox"/> SDWA <input type="checkbox"/> ELAP / A2LA <input type="checkbox"/> NLLAP <input type="checkbox"/> NON-COMPLIANCE <input type="checkbox"/> OTHER:			
						<b>KNOWN HAZARDS &amp; SAMPLE COMMENTS</b> Time corrections made 8/19/2015 via email, per Trisha Johnson -RW 1508315 -std	<b>COC TAPE WAS:</b> 1 PRESENT ON OUTER PACKAGE Y <u>N</u> NA 2 UNBROKEN ON OUTER PACKAGE Y <u>N</u> NA 3 PRESENT ON SAMPLE Y <u>N</u> NA 4 UNBROKEN ON SAMPLE Y <u>N</u> NA DISCREPANCIES BETWEEN SAMPLE LABELS AND COC RECORD? Y <u>N</u>		

SAMPLE ID:	DATE SAMPLED	TIME SAMPLED	# OF CONTAINERS	SAMPLE MATRIX	TOTAL METALS	FILTERED METALS	CHEMISTRY	NUTRIENT
1 4954000 - STR @ US 160	8/16	0915	4	W	X	X	X	X
2 4953990 - STR @ SAND IS.	" 11:06	<del>1002</del>	4	W	X	X	X	X
3 4953250 - STR @ MONTEZUMA CR	" 10:02	<del>1106</del>	4	W	X	X	X	X
4 4953000 - STR @ MEXICAN HAT	"	1158	4	W	X	X	X	X
5 STR @ CLAY HILLS	"	1446	4	W	X	X	X	X
6 STR @ MEXICAN HAT	8/15/15	1205	1	S	X			

RELINQUISHED BY: <u>[Signature]</u> SIGNATURE	DATE: <u>8/16/15</u> TIME: <u>1528</u>	RECEIVED BY: <u>[Signature]</u> SIGNATURE	DATE: <u>8/17/15</u> TIME: <u>1528</u>	SPECIAL INSTRUCTIONS: <u>Samples no field filtered</u>
PRINT NAME: <u>JAMES HARRIS</u>		PRINT NAME: <u>Elmer Harper</u>		
RELINQUISHED BY: _____ SIGNATURE	DATE: _____ TIME: _____	RECEIVED BY: _____ SIGNATURE	DATE: _____ TIME: _____	
PRINT NAME: _____		PRINT NAME: _____		
RELINQUISHED BY: _____ SIGNATURE	DATE: _____ TIME: _____	RECEIVED BY: _____ SIGNATURE	DATE: _____ TIME: _____	
PRINT NAME: _____		PRINT NAME: _____		

Preservation Check Sheet

Sample Set Extension and pH

Analysis	Preservative	1	2	3	4	5													
Ammonia	pH <2 H <sub>2</sub> SO <sub>4</sub>																		
COD	pH <2 H <sub>2</sub> SO <sub>4</sub>																		
Cyanide	pH >12 NaOH																		
Metals	pH <2 HNO <sub>3</sub>	Yes	Yes	Yes	Yes	Yes													
NO <sub>2</sub> & NO <sub>3</sub>	pH <2 H <sub>2</sub> SO <sub>4</sub>	Yes	Yes	Yes	Yes	Yes													
O & G	pH <2 HCL																		
Phenols	pH <2 H <sub>2</sub> SO <sub>4</sub>																		
Sulfide	pH > 9NaOH, Zn Acetate																		
TKN	pH <2 H <sub>2</sub> SO <sub>4</sub>																		
T PO <sub>4</sub>	pH <2 H <sub>2</sub> SO <sub>4</sub>	Yes	Yes	Yes	Yes	Yes													

- Procedure:
- 1) Pour a small amount of sample in the sample lid
  - 2) Pour sample from Lid gently over wide range pH paper
  - 3) **Do Not** dip the pH paper in the sample bottle or lid
  - 4) If sample is not preserved, properly list its extension and receiving pH in the appropriate column above
  - 5) Flag COC, notify client if requested
  - 6) Place client conversation on COC
  - 7) Samples may be adjusted

Frequency: All samples requiring preservation

- \* The sample required additional preservative upon receipt.
- + The sample was received unpreserved.
- ▲ The sample was received unpreserved and therefore preserved upon receipt.
- # The sample pH was unadjustable to a pH < 2 due to the sample matrix.
- The sample pH was unadjustable to a pH > \_\_\_\_ due to the sample matrix interference.