



3440 South 700 West
Salt Lake City, UT 84119

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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 - San Juan River Sampling

Dear Lenora Sullivan:

Lab Set ID: 1508189

American West Analytical Laboratories received sample(s) on 8/11/2015 for the analyses presented in the following report.

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

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

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

Thank You,

Approved by: _____
Laboratory Director or designee



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Jose Rocha
QA Officer

INORGANIC ANALYTICAL REPORT

Client: Utah Division of Water Quality **Contact:** Lenora Sullivan
Project: Gold King Mine - San Juan River Sampling
Lab Sample ID: 1508189-001
Client Sample ID: San Juan R at Mexican Hat US163 Xing (4953000)
Collection Date: 8/10/2015 1153h
Received Date: 8/11/2015 1320h

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	8/11/2015 1442h	8/12/2015 921h	E200.7	0.237	1.00	90.8	²
Antimony	7440-36-0	mg/L	8/11/2015 1442h	8/12/2015	E200.8	0.0000366	0.00200	0.000171	J ¹ B
Arsenic	7440-38-2	mg/L	8/11/2015 1442h	8/12/2015	E200.8	0.0000920	0.00200	0.0206	
Barium	7440-39-3	mg/L	8/11/2015 1442h	8/12/2015 1010h	E200.8	0.00269	0.0100	2.30	²
Beryllium	7440-41-7	mg/L	8/11/2015 1442h	8/12/2015	E200.8	0.0000288	0.00200	0.00761	
Cadmium	7440-43-9	mg/L	8/11/2015 1442h	8/12/2015	E200.8	0.000193	0.000500	0.00153	
Calcium	7440-70-2	mg/L	8/11/2015 1442h	8/12/2015 921h	E200.7	0.401	10.0	314	²
Chromium	7440-47-3	mg/L	8/11/2015 1442h	8/12/2015	E200.8	0.00154	0.00200	0.0431	
Cobalt	7440-48-4	mg/L	8/11/2015 1442h	8/12/2015	E200.8	0.0000434	0.00400	0.0402	
Copper	7440-50-8	mg/L	8/11/2015 1442h	8/12/2015	E200.8	0.000692	0.00200	0.0728	
Iron	7439-89-6	mg/L	8/11/2015 1442h	8/12/2015 1049h	E200.7	0.0767	0.100	43.4	²
Lead	7439-92-1	mg/L	8/11/2015 1442h	8/12/2015	E200.8	0.000264	0.00200	0.0821	
Magnesium	7439-95-4	mg/L	8/11/2015 1442h	8/12/2015 921h	E200.7	0.294	10.0	57.0	
Manganese	7439-96-5	mg/L	8/11/2015 1442h	8/12/2015 1010h	E200.8	0.00764	0.0100	3.23	²
Mercury	7439-97-6	mg/L	8/11/2015 1620h	8/12/2015 841h	E245.1	0.0000892	0.000150	0.000142	J
Molybdenum	7439-98-7	mg/L	8/11/2015 1442h	8/12/2015	E200.8	0.000206	0.00200	0.000650	J ¹
Nickel	7440-02-0	mg/L	8/11/2015 1442h	8/12/2015	E200.8	0.000754	0.00200	0.0709	
Potassium	7440-09-7	mg/L	8/11/2015 1442h	8/12/2015 1049h	E200.7	0.247	1.00	19.7	
Selenium	7782-49-2	mg/L	8/11/2015 1442h	8/12/2015	E200.8	0.0000634	0.00200	0.00137	J ¹
Silver	7440-22-4	mg/L	8/11/2015 1442h	8/12/2015	E200.8	0.0000244	0.00200	0.000401	JB
Sodium	7440-23-5	mg/L	8/11/2015 1442h	8/12/2015 921h	E200.7	0.330	10.0	46.1	¹
Thallium	7440-28-0	mg/L	8/11/2015 1442h	8/12/2015	E200.8	0.0000242	0.00200	0.000616	J
Vanadium	7440-62-2	mg/L	8/11/2015 1442h	8/12/2015	E200.8	0.000438	0.00440	0.0800	
Zinc	7440-66-6	mg/L	8/11/2015 1442h	8/12/2015	E200.8	0.00476	0.00500	0.843	

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

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

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

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



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Laboratory Director

Jose Rocha
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INORGANIC ANALYTICAL REPORT

Client: Utah Division of Water Quality **Contact:** Lenora Sullivan
Project: Gold King Mine - San Juan River Sampling
Lab Sample ID: 1508189-002
Client Sample ID: San Juan R at Sand Island (4953250)
Collection Date: 8/10/2015 1115h
Received Date: 8/11/2015 1320h

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	8/11/2015 1442h	8/12/2015 932h	E200.7	0.237	1.00	27.0	
Antimony	7440-36-0	mg/L	8/11/2015 1442h	8/12/2015 010h	E200.8	0.0000366	0.00200	0.000300	JB
Arsenic	7440-38-2	mg/L	8/11/2015 1442h	8/12/2015 010h	E200.8	0.0000920	0.00200	0.0132	
Barium	7440-39-3	mg/L	8/11/2015 1442h	8/12/2015 010h	E200.8	0.000538	0.00200	1.53	
Beryllium	7440-41-7	mg/L	8/11/2015 1442h	8/12/2015 010h	E200.8	0.0000288	0.00200	0.00230	
Cadmium	7440-43-9	mg/L	8/11/2015 1442h	8/12/2015 010h	E200.8	0.000193	0.000500	0.000788	
Calcium	7440-70-2	mg/L	8/11/2015 1442h	8/12/2015 932h	E200.7	0.401	10.0	104	
Chromium	7440-47-3	mg/L	8/11/2015 1442h	8/12/2015 010h	E200.8	0.00154	0.00200	0.0159	
Cobalt	7440-48-4	mg/L	8/11/2015 1442h	8/12/2015 010h	E200.8	0.0000434	0.00400	0.0156	
Copper	7440-50-8	mg/L	8/11/2015 1442h	8/12/2015 010h	E200.8	0.000692	0.00200	0.0600	
Iron	7439-89-6	mg/L	8/11/2015 1442h	8/12/2015 1102h	E200.7	0.0767	0.100	28.5	
Lead	7439-92-1	mg/L	8/11/2015 1442h	8/12/2015 010h	E200.8	0.000264	0.00200	0.140	
Magnesium	7439-95-4	mg/L	8/11/2015 1442h	8/12/2015 1102h	E200.7	0.0294	1.00	21.2	
Manganese	7439-96-5	mg/L	8/11/2015 1442h	8/12/2015 010h	E200.8	0.00153	0.00200	1.09	
Mercury	7439-97-6	mg/L	8/11/2015 1620h	8/12/2015 843h	E245.1	0.00000892	0.000150	0.0000650	J
Molybdenum	7439-98-7	mg/L	8/11/2015 1442h	8/12/2015 010h	E200.8	0.000206	0.00200	0.00135	J
Nickel	7440-02-0	mg/L	8/11/2015 1442h	8/12/2015 010h	E200.8	0.000754	0.00200	0.0221	
Potassium	7440-09-7	mg/L	8/11/2015 1442h	8/12/2015 1102h	E200.7	0.247	1.00	7.83	
Selenium	7782-49-2	mg/L	8/11/2015 1442h	8/12/2015 010h	E200.8	0.0000634	0.00200	0.000996	J
Silver	7440-22-4	mg/L	8/11/2015 1442h	8/12/2015 010h	E200.8	0.0000244	0.00200	0.00122	JB
Sodium	7440-23-5	mg/L	8/11/2015 1442h	8/12/2015 1102h	E200.7	0.0330	1.00	30.9	
Thallium	7440-28-0	mg/L	8/11/2015 1442h	8/12/2015 010h	E200.8	0.0000242	0.00200	0.000259	J
Vanadium	7440-62-2	mg/L	8/11/2015 1442h	8/12/2015 010h	E200.8	0.000438	0.00440	0.0443	
Zinc	7440-66-6	mg/L	8/11/2015 1442h	8/12/2015 010h	E200.8	0.00476	0.00500	0.664	

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 **Contact:** Lenora Sullivan
Project: Gold King Mine - San Juan River Sampling
Lab Sample ID: 1508189-003
Client Sample ID: San Juan River at Town of Montezuma (4953990)
Collection Date: 8/10/2015 1013h
Received Date: 8/11/2015 1320h

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	8/11/2015 1442h	8/12/2015 934h	E200.7	0.237	1.00	32.3	
Antimony	7440-36-0	mg/L	8/11/2015 1442h	8/12/2015 013h	E200.8	0.0000366	0.00200	0.000216	JB
Arsenic	7440-38-2	mg/L	8/11/2015 1442h	8/12/2015 013h	E200.8	0.0000920	0.00200	0.0115	
Barium	7440-39-3	mg/L	8/11/2015 1442h	8/12/2015 013h	E200.8	0.000538	0.00200	1.96	
Beryllium	7440-41-7	mg/L	8/11/2015 1442h	8/12/2015 013h	E200.8	0.0000288	0.00200	0.00272	
Cadmium	7440-43-9	mg/L	8/11/2015 1442h	8/12/2015 013h	E200.8	0.000193	0.000500	0.000707	
Calcium	7440-70-2	mg/L	8/11/2015 1442h	8/12/2015 934h	E200.7	0.401	10.0	93.7	
Chromium	7440-47-3	mg/L	8/11/2015 1442h	8/12/2015 013h	E200.8	0.00154	0.00200	0.0173	
Cobalt	7440-48-4	mg/L	8/11/2015 1442h	8/12/2015 013h	E200.8	0.0000434	0.00400	0.0183	
Copper	7440-50-8	mg/L	8/11/2015 1442h	8/12/2015 013h	E200.8	0.000692	0.00200	0.0564	
Iron	7439-89-6	mg/L	8/11/2015 1442h	8/12/2015 1105h	E200.7	0.0767	0.100	29.7	
Lead	7439-92-1	mg/L	8/11/2015 1442h	8/12/2015 013h	E200.8	0.000264	0.00200	0.0793	
Magnesium	7439-95-4	mg/L	8/11/2015 1442h	8/12/2015 1105h	E200.7	0.0294	1.00	20.1	
Manganese	7439-96-5	mg/L	8/11/2015 1442h	8/12/2015 013h	E200.8	0.00153	0.00200	1.13	
Mercury	7439-97-6	mg/L	8/11/2015 1620h	8/12/2015 835h	E245.1	0.00000892	0.000150	0.0000717	J
Molybdenum	7439-98-7	mg/L	8/11/2015 1442h	8/12/2015 013h	E200.8	0.000206	0.00200	0.000834	J
Nickel	7440-02-0	mg/L	8/11/2015 1442h	8/12/2015 013h	E200.8	0.000754	0.00200	0.0235	
Potassium	7440-09-7	mg/L	8/11/2015 1442h	8/12/2015 1105h	E200.7	0.247	1.00	7.45	
Selenium	7782-49-2	mg/L	8/11/2015 1442h	8/12/2015 013h	E200.8	0.0000634	0.00200	0.000901	J
Silver	7440-22-4	mg/L	8/11/2015 1442h	8/12/2015 013h	E200.8	0.0000244	0.00200	0.000519	JB
Sodium	7440-23-5	mg/L	8/11/2015 1442h	8/12/2015 1105h	E200.7	0.0330	1.00	34.6	
Thallium	7440-28-0	mg/L	8/11/2015 1442h	8/12/2015 013h	E200.8	0.0000242	0.00200	0.000283	J
Vanadium	7440-62-2	mg/L	8/11/2015 1442h	8/12/2015 013h	E200.8	0.000438	0.00440	0.0438	
Zinc	7440-66-6	mg/L	8/11/2015 1442h	8/12/2015 013h	E200.8	0.00476	0.00500	0.821	

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 - San Juan River Sampling
Lab Sample ID: 1508189-004
Client Sample ID: San Juan R at US160 Xing in CO (4954000)
Collection Date: 8/10/2015 911h
Received Date: 8/11/2015 1320h

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	8/11/2015 1442h	8/12/2015 936h	E200.7	0.237	1.00	39.9	
Antimony	7440-36-0	mg/L	8/11/2015 1442h	8/12/2015 026h	E200.8	0.0000366	0.00200	0.000163	JB
Arsenic	7440-38-2	mg/L	8/11/2015 1442h	8/12/2015 026h	E200.8	0.0000920	0.00200	0.0110	
Barium	7440-39-3	mg/L	8/11/2015 1442h	8/12/2015 026h	E200.8	0.000538	0.00200	1.73	
Beryllium	7440-41-7	mg/L	8/11/2015 1442h	8/12/2015 026h	E200.8	0.0000288	0.00200	0.00397	
Cadmium	7440-43-9	mg/L	8/11/2015 1442h	8/12/2015 026h	E200.8	0.000193	0.000500	0.00115	
Calcium	7440-70-2	mg/L	8/11/2015 1442h	8/12/2015 936h	E200.7	0.401	10.0	90.8	
Chromium	7440-47-3	mg/L	8/11/2015 1442h	8/12/2015 026h	E200.8	0.00154	0.00200	0.0210	
Cobalt	7440-48-4	mg/L	8/11/2015 1442h	8/12/2015 026h	E200.8	0.0000434	0.00400	0.0248	
Copper	7440-50-8	mg/L	8/11/2015 1442h	8/12/2015 026h	E200.8	0.000692	0.00200	0.0696	
Iron	7439-89-6	mg/L	8/11/2015 1442h	8/12/2015 1107h	E200.7	0.0767	0.100	35.4	
Lead	7439-92-1	mg/L	8/11/2015 1442h	8/12/2015 026h	E200.8	0.000264	0.00200	0.0735	
Magnesium	7439-95-4	mg/L	8/11/2015 1442h	8/12/2015 1107h	E200.7	0.0294	1.00	20.2	
Manganese	7439-96-5	mg/L	8/11/2015 1442h	8/12/2015 026h	E200.8	0.00153	0.00200	1.45	
Mercury	7439-97-6	mg/L	8/11/2015 1620h	8/12/2015 845h	E245.1	0.00000892	0.000150	0.000115	J
Molybdenum	7439-98-7	mg/L	8/11/2015 1442h	8/12/2015 026h	E200.8	0.000206	0.00200	0.000527	J
Nickel	7440-02-0	mg/L	8/11/2015 1442h	8/12/2015 026h	E200.8	0.000754	0.00200	0.0297	
Potassium	7440-09-7	mg/L	8/11/2015 1442h	8/12/2015 1107h	E200.7	0.247	1.00	8.24	
Selenium	7782-49-2	mg/L	8/11/2015 1442h	8/12/2015 026h	E200.8	0.0000634	0.00200	0.000939	J
Silver	7440-22-4	mg/L	8/11/2015 1442h	8/12/2015 026h	E200.8	0.0000244	0.00200	0.000494	JB
Sodium	7440-23-5	mg/L	8/11/2015 1442h	8/12/2015 1107h	E200.7	0.0330	1.00	36.6	
Thallium	7440-28-0	mg/L	8/11/2015 1442h	8/12/2015 026h	E200.8	0.0000242	0.00200	0.000385	J
Vanadium	7440-62-2	mg/L	8/11/2015 1442h	8/12/2015 026h	E200.8	0.000438	0.00440	0.0482	
Zinc	7440-66-6	mg/L	8/11/2015 1442h	8/12/2015 026h	E200.8	0.00476	0.00500	0.668	

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

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INORGANIC ANALYTICAL REPORT

Client: Utah Division of Water Quality **Contact:** Lenora Sullivan
Project: Gold King Mine - San Juan River Sampling
Lab Sample ID: 1508189-001
Client Sample ID: San Juan R at Mexican Hat US163 Xing (4953000)
Collection Date: 8/10/2015 1153h
Received Date: 8/11/2015 1320h

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	8/11/2015 1442h	8/12/2015 1125h	E200.7	0.0237	0.100	0.325	
Antimony	7440-36-0	mg/L	8/11/2015 1442h	8/11/2015 2232h	E200.8	0.0000366	0.00200	0.000376	JB
Arsenic	7440-38-2	mg/L	8/11/2015 1442h	8/11/2015 2232h	E200.8	0.0000920	0.00200	0.00194	J
Barium	7440-39-3	mg/L	8/11/2015 1442h	8/11/2015 2232h	E200.8	0.000538	0.00200	0.299	
Beryllium	7440-41-7	mg/L	8/11/2015 1442h	8/11/2015 2232h	E200.8	0.0000288	0.00200	< 0.00200	U
Cadmium	7440-43-9	mg/L	8/11/2015 1442h	8/11/2015 2232h	E200.8	0.000193	0.000500	< 0.000500	U
Calcium	7440-70-2	mg/L	8/11/2015 1442h	8/12/2015 1125h	E200.7	0.0401	1.00	44.6	
Chromium	7440-47-3	mg/L	8/11/2015 1442h	8/11/2015 2232h	E200.8	0.00154	0.00200	< 0.00200	U
Cobalt	7440-48-4	mg/L	8/11/2015 1442h	8/11/2015 2232h	E200.8	0.0000434	0.00400	0.000102	J
Copper	7440-50-8	mg/L	8/11/2015 1442h	8/11/2015 2232h	E200.8	0.000692	0.00200	0.00295	
Iron	7439-89-6	mg/L	8/11/2015 1442h	8/12/2015 1125h	E200.7	0.0767	0.100	0.140	
Lead	7439-92-1	mg/L	8/11/2015 1442h	8/11/2015 2232h	E200.8	0.000264	0.00200	0.000315	J
Magnesium	7439-95-4	mg/L	8/11/2015 1442h	8/12/2015 1125h	E200.7	0.0294	1.00	7.84	
Manganese	7439-96-5	mg/L	8/11/2015 1442h	8/11/2015 2232h	E200.8	0.00153	0.00200	0.00255	
Mercury	7439-97-6	mg/L	8/11/2015 1620h	8/12/2015 922h	E245.1	0.00000892	0.000150	< 0.000150	U
Molybdenum	7439-98-7	mg/L	8/11/2015 1442h	8/11/2015 2232h	E200.8	0.000206	0.00200	0.00243	
Nickel	7440-02-0	mg/L	8/11/2015 1442h	8/11/2015 2232h	E200.8	0.000754	0.00200	< 0.00200	U
Potassium	7440-09-7	mg/L	8/11/2015 1442h	8/12/2015 1125h	E200.7	0.247	1.00	3.41	
Selenium	7782-49-2	mg/L	8/11/2015 1442h	8/11/2015 2232h	E200.8	0.0000634	0.00200	0.000606	J
Silver	7440-22-4	mg/L	8/11/2015 1442h	8/11/2015 2232h	E200.8	0.0000244	0.00200	0.0000297	J
Sodium	7440-23-5	mg/L	8/11/2015 1442h	8/12/2015 1125h	E200.7	0.0330	1.00	43.6	
Thallium	7440-28-0	mg/L	8/11/2015 1442h	8/11/2015 2232h	E200.8	0.0000242	0.00200	< 0.00200	U
Vanadium	7440-62-2	mg/L	8/11/2015 1442h	8/11/2015 2232h	E200.8	0.000438	0.00440	0.00759	
Zinc	7440-66-6	mg/L	8/11/2015 1442h	8/11/2015 2232h	E200.8	0.00476	0.00500	0.0176	

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

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

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

INORGANIC ANALYTICAL REPORT

Client: Utah Division of Water Quality **Contact:** Lenora Sullivan
Project: Gold King Mine - San Juan River Sampling
Lab Sample ID: 1508189-002
Client Sample ID: San Juan R at Sand Island (4953250)
Collection Date: 8/10/2015 1115h
Received Date: 8/11/2015 1320h

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	8/11/2015 1442h	8/12/2015 1131h	E200.7	0.0237	0.100	0.124	
Antimony	7440-36-0	mg/L	8/11/2015 1442h	8/11/2015 2241h	E200.8	0.0000366	0.00200	0.00124	JB
Arsenic	7440-38-2	mg/L	8/11/2015 1442h	8/11/2015 2241h	E200.8	0.0000920	0.00200	0.000878	J
Barium	7440-39-3	mg/L	8/11/2015 1442h	8/11/2015 2241h	E200.8	0.000538	0.00200	0.192	
Beryllium	7440-41-7	mg/L	8/11/2015 1442h	8/11/2015 2241h	E200.8	0.0000288	0.00200	< 0.00200	U
Cadmium	7440-43-9	mg/L	8/11/2015 1442h	8/11/2015 2241h	E200.8	0.000193	0.000500	< 0.000500	U
Calcium	7440-70-2	mg/L	8/11/2015 1442h	8/12/2015 1131h	E200.7	0.0401	1.00	53.2	
Chromium	7440-47-3	mg/L	8/11/2015 1442h	8/11/2015 2241h	E200.8	0.00154	0.00200	< 0.00200	U
Cobalt	7440-48-4	mg/L	8/11/2015 1442h	8/11/2015 2241h	E200.8	0.0000434	0.00400	0.0000685	J
Copper	7440-50-8	mg/L	8/11/2015 1442h	8/11/2015 2241h	E200.8	0.000692	0.00200	0.00207	
Iron	7439-89-6	mg/L	8/11/2015 1442h	8/12/2015 1131h	E200.7	0.0767	0.100	< 0.100	U
Lead	7439-92-1	mg/L	8/11/2015 1442h	8/11/2015 2241h	E200.8	0.000264	0.00200	0.000287	J
Magnesium	7439-95-4	mg/L	8/11/2015 1442h	8/12/2015 1131h	E200.7	0.0294	1.00	8.40	
Manganese	7439-96-5	mg/L	8/11/2015 1442h	8/11/2015 2241h	E200.8	0.00153	0.00200	< 0.00200	U
Mercury	7439-97-6	mg/L	8/11/2015 1620h	8/12/2015 924h	E245.1	0.00000892	0.000150	< 0.000150	U
Molybdenum	7439-98-7	mg/L	8/11/2015 1442h	8/11/2015 2241h	E200.8	0.000206	0.00200	0.00238	
Nickel	7440-02-0	mg/L	8/11/2015 1442h	8/11/2015 2241h	E200.8	0.000754	0.00200	< 0.00200	U
Potassium	7440-09-7	mg/L	8/11/2015 1442h	8/12/2015 1131h	E200.7	0.247	1.00	2.86	
Selenium	7782-49-2	mg/L	8/11/2015 1442h	8/11/2015 2241h	E200.8	0.0000634	0.00200	0.000692	J
Silver	7440-22-4	mg/L	8/11/2015 1442h	8/11/2015 2241h	E200.8	0.0000244	0.00200	0.000252	J
Sodium	7440-23-5	mg/L	8/11/2015 1442h	8/12/2015 1131h	E200.7	0.0330	1.00	28.4	
Thallium	7440-28-0	mg/L	8/11/2015 1442h	8/11/2015 2241h	E200.8	0.0000242	0.00200	< 0.00200	U
Vanadium	7440-62-2	mg/L	8/11/2015 1442h	8/11/2015 2241h	E200.8	0.000438	0.00440	0.00175	J
Zinc	7440-66-6	mg/L	8/11/2015 1442h	8/11/2015 2241h	E200.8	0.00476	0.00500	0.0137	

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

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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 - San Juan River Sampling
Lab Sample ID: 1508189-003
Client Sample ID: San Juan River at Town of Montezuma (4953990)
Collection Date: 8/10/2015 1013h
Received Date: 8/11/2015 1320h

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	8/11/2015 1442h	8/12/2015 1133h	E200.7	0.0237	0.100	0.218	
Antimony	7440-36-0	mg/L	8/11/2015 1442h	8/11/2015 2245h	E200.8	0.0000366	0.00200	0.000660	JB
Arsenic	7440-38-2	mg/L	8/11/2015 1442h	8/11/2015 2245h	E200.8	0.0000920	0.00200	0.000941	J
Barium	7440-39-3	mg/L	8/11/2015 1442h	8/11/2015 2245h	E200.8	0.000538	0.00200	0.262	
Beryllium	7440-41-7	mg/L	8/11/2015 1442h	8/11/2015 2245h	E200.8	0.0000288	0.00200	< 0.00200	U
Cadmium	7440-43-9	mg/L	8/11/2015 1442h	8/11/2015 2245h	E200.8	0.000193	0.000500	< 0.000500	U
Calcium	7440-70-2	mg/L	8/11/2015 1442h	8/12/2015 1133h	E200.7	0.0401	1.00	49.8	
Chromium	7440-47-3	mg/L	8/11/2015 1442h	8/11/2015 2245h	E200.8	0.00154	0.00200	< 0.00200	U
Cobalt	7440-48-4	mg/L	8/11/2015 1442h	8/11/2015 2245h	E200.8	0.0000434	0.00400	0.0000764	J
Copper	7440-50-8	mg/L	8/11/2015 1442h	8/11/2015 2245h	E200.8	0.000692	0.00200	0.00324	
Iron	7439-89-6	mg/L	8/11/2015 1442h	8/12/2015 1133h	E200.7	0.0767	0.100	0.144	
Lead	7439-92-1	mg/L	8/11/2015 1442h	8/11/2015 2245h	E200.8	0.000264	0.00200	0.000461	J
Magnesium	7439-95-4	mg/L	8/11/2015 1442h	8/12/2015 1133h	E200.7	0.0294	1.00	7.70	
Manganese	7439-96-5	mg/L	8/11/2015 1442h	8/11/2015 2245h	E200.8	0.00153	0.00200	0.00322	
Mercury	7439-97-6	mg/L	8/11/2015 1620h	8/12/2015 926h	E245.1	0.00000892	0.000150	< 0.000150	U
Molybdenum	7439-98-7	mg/L	8/11/2015 1442h	8/11/2015 2245h	E200.8	0.000206	0.00200	0.00203	
Nickel	7440-02-0	mg/L	8/11/2015 1442h	8/11/2015 2245h	E200.8	0.000754	0.00200	< 0.00200	U
Potassium	7440-09-7	mg/L	8/11/2015 1442h	8/12/2015 1133h	E200.7	0.247	1.00	2.69	
Selenium	7782-49-2	mg/L	8/11/2015 1442h	8/11/2015 2245h	E200.8	0.0000634	0.00200	0.000567	J
Silver	7440-22-4	mg/L	8/11/2015 1442h	8/11/2015 2245h	E200.8	0.0000244	0.00200	0.0000529	J
Sodium	7440-23-5	mg/L	8/11/2015 1442h	8/12/2015 1133h	E200.7	0.0330	1.00	32.1	
Thallium	7440-28-0	mg/L	8/11/2015 1442h	8/11/2015 2245h	E200.8	0.0000242	0.00200	< 0.00200	U
Vanadium	7440-62-2	mg/L	8/11/2015 1442h	8/11/2015 2245h	E200.8	0.000438	0.00440	0.00213	J
Zinc	7440-66-6	mg/L	8/11/2015 1442h	8/11/2015 2245h	E200.8	0.00476	0.00500	0.0173	

B - This analyte was also detected in the method blank below the 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 - San Juan River Sampling
Lab Sample ID: 1508189-004
Client Sample ID: San Juan R at US160 Xing in CO (4954000)
Collection Date: 8/10/2015 911h
Received Date: 8/11/2015 1320h

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	8/11/2015 1442h	8/12/2015 1143h	E200.7	0.0237	0.100	0.172	
Antimony	7440-36-0	mg/L	8/11/2015 1442h	8/11/2015 2248h	E200.8	0.0000366	0.00200	0.000458	JB
Arsenic	7440-38-2	mg/L	8/11/2015 1442h	8/11/2015 2248h	E200.8	0.0000920	0.00200	0.000994	J
Barium	7440-39-3	mg/L	8/11/2015 1442h	8/11/2015 2248h	E200.8	0.000538	0.00200	0.233	
Beryllium	7440-41-7	mg/L	8/11/2015 1442h	8/11/2015 2248h	E200.8	0.0000288	0.00200	< 0.00200	U
Cadmium	7440-43-9	mg/L	8/11/2015 1442h	8/11/2015 2248h	E200.8	0.000193	0.000500	< 0.000500	U
Calcium	7440-70-2	mg/L	8/11/2015 1442h	8/12/2015 1143h	E200.7	0.0401	1.00	44.6	
Chromium	7440-47-3	mg/L	8/11/2015 1442h	8/11/2015 2248h	E200.8	0.00154	0.00200	< 0.00200	U
Cobalt	7440-48-4	mg/L	8/11/2015 1442h	8/11/2015 2248h	E200.8	0.0000434	0.00400	0.0000673	J
Copper	7440-50-8	mg/L	8/11/2015 1442h	8/11/2015 2248h	E200.8	0.000692	0.00200	0.00321	
Iron	7439-89-6	mg/L	8/11/2015 1442h	8/12/2015 1143h	E200.7	0.0767	0.100	0.103	
Lead	7439-92-1	mg/L	8/11/2015 1442h	8/11/2015 2248h	E200.8	0.000264	0.00200	0.000391	J
Magnesium	7439-95-4	mg/L	8/11/2015 1442h	8/12/2015 1143h	E200.7	0.0294	1.00	6.01	
Manganese	7439-96-5	mg/L	8/11/2015 1442h	8/11/2015 2248h	E200.8	0.00153	0.00200	0.00164	J
Mercury	7439-97-6	mg/L	8/11/2015 1620h	8/12/2015 912h	E245.1	0.00000892	0.000150	< 0.000150	U
Molybdenum	7439-98-7	mg/L	8/11/2015 1442h	8/11/2015 2248h	E200.8	0.000206	0.00200	0.00203	
Nickel	7440-02-0	mg/L	8/11/2015 1442h	8/11/2015 2248h	E200.8	0.000754	0.00200	< 0.00200	U
Potassium	7440-09-7	mg/L	8/11/2015 1442h	8/12/2015 1143h	E200.7	0.247	1.00	2.51	
Selenium	7782-49-2	mg/L	8/11/2015 1442h	8/11/2015 2248h	E200.8	0.0000634	0.00200	0.000582	J
Silver	7440-22-4	mg/L	8/11/2015 1442h	8/11/2015 2248h	E200.8	0.0000244	0.00200	< 0.00200	U
Sodium	7440-23-5	mg/L	8/11/2015 1442h	8/12/2015 1143h	E200.7	0.0330	1.00	34.1	
Thallium	7440-28-0	mg/L	8/11/2015 1442h	8/11/2015 2248h	E200.8	0.0000242	0.00200	< 0.00200	U
Vanadium	7440-62-2	mg/L	8/11/2015 1442h	8/11/2015 2248h	E200.8	0.000438	0.00440	0.00174	J
Zinc	7440-66-6	mg/L	8/11/2015 1442h	8/11/2015 2248h	E200.8	0.00476	0.00500	0.0197	

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

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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 - San Juan River Sampling
Lab Sample ID: 1508189-001
Client Sample ID: San Juan R at Mexican Hat US163 Xing (4953000)
Collection Date: 8/10/2015 1153h
Received Date: 8/11/2015 1320h

Analytical Results

Compound	CAS	Units	Date Prepared	Date Analyzed	Method Used	MDL	Reporting Limit	Analytical Result	Qual
Alkalinity (as CaCO ₃)		mg/L		8/12/2015 638h	SM2320B	1.86	10.0	115	
Bicarbonate (as CaCO ₃)		mg/L		8/12/2015 638h	SM2320B	1.86	10.0	115	
Carbonate (as CaCO ₃)		mg/L		8/12/2015 638h	SM2320B	1.86	10.0	< 10.0	U
Chloride	16887-00-6	mg/L		8/12/2015 2029h	E300.0	0.0751	1.00	10.3	
Conductivity		µmhos/cm		8/12/2015 612h	SM2510B	0.436	2.00	564	B1
Hardness (as CaCO ₃)		mg/L		8/12/2015 1333h	SM2340B	10.0	10.0	1,020	
Hardness, Dissolved (as CaCO ₃)		mg/L		8/12/2015 1333h	SM2340B	10.0	10.0	144	
Nitrate/Nitrite (as N)	7727-37-9	mg/L		8/11/2015 1748h	E353.2	0.0833	0.100	0.338	§B1
pH @ 25° C		pH Units		8/11/2015 2006h	SM4500-H+B	1.00	1.00	8.23	H
Sulfate	14808-79-8	mg/L		8/12/2015 1938h	E300.0	2.11	75.0	126	
Total Dissolved Solids		mg/L		8/11/2015 1420h	SM2540C	30.6	50.0	590	@
Total Suspended Solids	TSS	mg/L		8/11/2015 1430h	SM2540D	70.8	75.0	8,030	

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

§ - QC limits are set with an accuracy of two significant figures, therefore the recovery rounds to an acceptable value within the control limits.

B1 - 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.

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



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Jose Rocha
QA Officer

INORGANIC ANALYTICAL REPORT

Client: Utah Division of Water Quality **Contact:** Lenora Sullivan
Project: Gold King Mine - San Juan River Sampling
Lab Sample ID: 1508189-002
Client Sample ID: San Juan R at Sand Island (4953250)
Collection Date: 8/10/2015 1115h
Received Date: 8/11/2015 1320h

Analytical Results

Compound	CAS	Units	Date Prepared	Date Analyzed	Method Used	MDL	Reporting Limit	Analytical Result	Qual
Alkalinity (as CaCO3)		mg/L		8/12/2015 638h	SM2320B	1.86	10.0	99.7	
Bicarbonate (as CaCO3)		mg/L		8/12/2015 638h	SM2320B	1.86	10.0	99.7	
Carbonate (as CaCO3)		mg/L		8/12/2015 638h	SM2320B	1.86	10.0	< 10.0	U
Chloride	16887-00-6	mg/L		8/12/2015 2046h	E300.0	0.0751	1.00	9.80	
Conductivity		µmhos/cm		8/12/2015 612h	SM2510B	0.436	2.00	518	B1
Hardness (as CaCO3)		mg/L		8/12/2015 1333h	SM2340B	10.0	10.0	348	
Hardness, Dissolved (as CaCO3)		mg/L		8/12/2015 1333h	SM2340B	10.0	10.0	167	
Nitrate/Nitrite (as N)	7727-37-9	mg/L		8/11/2015 1755h	E353.2	0.0833	0.100	0.243	B1
pH @ 25° C		pH Units		8/11/2015 2006h	SM4500-H+B	1.00	1.00	8.25	H
Sulfate	14808-79-8	mg/L		8/12/2015 2046h	E300.0	0.211	7.50	124	
Total Dissolved Solids		mg/L		8/12/2015 1420h	SM2540C	30.6	50.0	370	
Total Suspended Solids	TSS	mg/L		8/11/2015 1430h	SM2540D	70.8	75.0	2,370	@

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

B1 - 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.

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INORGANIC ANALYTICAL REPORT

Client: Utah Division of Water Quality **Contact:** Lenora Sullivan
Project: Gold King Mine - San Juan River Sampling
Lab Sample ID: 1508189-003
Client Sample ID: San Juan River at Town of Montezuma (4953990)
Collection Date: 8/10/2015 1013h
Received Date: 8/11/2015 1320h

Analytical Results

Compound	CAS	Units	Date Prepared	Date Analyzed	Method Used	MDL	Reporting Limit	Analytical Result	Qual
Alkalinity (as CaCO ₃)		mg/L		8/12/2015 638h	SM2320B	1.86	10.0	103	
Bicarbonate (as CaCO ₃)		mg/L		8/12/2015 638h	SM2320B	1.86	10.0	103	
Carbonate (as CaCO ₃)		mg/L		8/12/2015 638h	SM2320B	1.86	10.0	< 10.0	U
Chloride	16887-00-6	mg/L		8/12/2015 2103h	E300.0	0.0751	1.00	10.0	
Conductivity		µmhos/cm		8/12/2015 612h	SM2510B	0.436	2.00	521	B1
Hardness (as CaCO ₃)		mg/L		8/12/2015 1333h	SM2340B	10.0	10.0	317	
Hardness, Dissolved (as CaCO ₃)		mg/L		8/12/2015 1333h	SM2340B	10.0	10.0	156	
Nitrate/Nitrite (as N)	7727-37-9	mg/L		8/11/2015 1756h	E353.2	0.0833	0.100	0.326	B1
pH @ 25° C		pH Units		8/11/2015 2006h	SM4500-H+B	1.00	1.00	8.25	H
Sulfate	14808-79-8	mg/L		8/12/2015 2103h	E300.0	0.211	7.50	115	
Total Dissolved Solids		mg/L		8/11/2015 1420h	SM2540C	30.6	50.0	610	
Total Suspended Solids	TSS	mg/L		8/11/2015 1430h	SM2540D	70.8	75.0	2,810	

B1 - The method blank was acceptable, as the method blank result is less than 10% of the lowest reported sample concentration.

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INORGANIC ANALYTICAL REPORT

Client: Utah Division of Water Quality **Contact:** Lenora Sullivan
Project: Gold King Mine - San Juan River Sampling
Lab Sample ID: 1508189-004
Client Sample ID: San Juan R at US160 Xing in CO (4954000)
Collection Date: 8/10/2015 911h
Received Date: 8/11/2015 1320h

Analytical Results

Compound	CAS	Units	Date Prepared	Date Analyzed	Method Used	MDL	Reporting Limit	Analytical Result	Qual
Alkalinity (as CaCO3)		mg/L		8/12/2015 638h	SM2320B	1.86	10.0	105	
Bicarbonate (as CaCO3)		mg/L		8/12/2015 638h	SM2320B	1.86	10.0	105	
Carbonate (as CaCO3)		mg/L		8/12/2015 638h	SM2320B	1.86	10.0	< 10.0	U
Chloride	16887-00-6	mg/L		8/12/2015 2120h	E300.0	0.0751	1.00	9.02	
Conductivity		µmhos/cm		8/12/2015 612h	SM2510B	0.436	2.00	492	B1
Hardness (as CaCO3)		mg/L		8/12/2015 1333h	SM2340B	10.0	10.0	310	
Hardness, Dissolved (as CaCO3)		mg/L		8/12/2015 1333h	SM2340B	10.0	10.0	136	
Nitrate/Nitrite (as N)	7727-37-9	mg/L		8/11/2015 1758h	E353.2	0.0833	0.100	0.332	B1
pH @ 25° C		pH Units		8/11/2015 2006h	SM4500-H+B	1.00	1.00	8.15	H
Sulfate	14808-79-8	mg/L		8/12/2015 2120h	E300.0	0.211	7.50	99.7	
Total Dissolved Solids		mg/L		8/11/2015 1420h	SM2540C	30.6	50.0	380	
Total Suspended Solids	TSS	mg/L		8/11/2015 1430h	SM2540D	70.8	75.0	4,140	

B1 - 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.

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



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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: Utah Division of Water Quality

Contact: Lenora Sullivan

Lab Set ID: 1508189

Dept: ME

Project: Gold King Mine - San Juan River Sampling

QC Type: LCS

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: LCS-38483													
Date Analyzed:		08/12/2015 1022h											
Test Code:		200.7-DIS											
Date Prepared:		08/11/2015 1442h											
Aluminum	1.01	mg/L	E200.7	0.0237	0.100	1.000	0	101	85 - 115				
Calcium	9.89	mg/L	E200.7	0.0401	1.00	10.00	0	98.9	85 - 115				
Iron	0.967	mg/L	E200.7	0.0767	0.100	1.000	0	96.7	85 - 115				
Magnesium	9.98	mg/L	E200.7	0.0294	1.00	10.00	0	99.8	85 - 115				
Potassium	10.1	mg/L	E200.7	0.247	1.00	10.00	0	101	85 - 115				
Sodium	9.75	mg/L	E200.7	0.0330	1.00	10.00	0	97.5	85 - 115				
Lab Sample ID: LCS-38481													
Date Analyzed:		08/12/2015 854h											
Test Code:		200.7-W											
Date Prepared:		08/11/2015 1442h											
Aluminum	0.960	mg/L	E200.7	0.0237	0.100	1.000	0	96.0	85 - 115				
Calcium	9.42	mg/L	E200.7	0.0401	1.00	10.00	0	94.2	85 - 115				
Magnesium	9.83	mg/L	E200.7	0.0294	1.00	10.00	0	98.3	85 - 115				
Potassium	9.75	mg/L	E200.7	0.247	1.00	10.00	0	97.5	85 - 115				
Sodium	9.39	mg/L	E200.7	0.0330	1.00	10.00	0	93.9	85 - 115				
Lab Sample ID: LCS-38481													
Date Analyzed:		08/12/2015 1144h											
Test Code:		200.7-W											
Date Prepared:		08/11/2015 1442h											
Iron	0.887	mg/L	E200.7	0.0767	0.100	1.000	0	88.7	85 - 115				
Lab Sample ID: LCS-38484													
Date Analyzed:		08/11/2015 2152h											
Test Code:		200.8-DIS											
Date Prepared:		08/11/2015 1442h											
Arsenic	0.205	mg/L	E200.8	0.0000920	0.00200	0.2000	0	103	85 - 115				
Barium	0.191	mg/L	E200.8	0.000538	0.00200	0.2000	0	95.6	85 - 115				
Beryllium	0.206	mg/L	E200.8	0.0000288	0.00200	0.2000	0	103	85 - 115				
Cadmium	0.192	mg/L	E200.8	0.000193	0.000500	0.2000	0	96.0	85 - 115				
Chromium	0.208	mg/L	E200.8	0.00154	0.00200	0.2000	0	104	85 - 115				
Cobalt	0.197	mg/L	E200.8	0.0000434	0.00400	0.2000	0	98.4	85 - 115				
Copper	0.200	mg/L	E200.8	0.000692	0.00200	0.2000	0	100	85 - 115				
Lead	0.188	mg/L	E200.8	0.000264	0.00200	0.2000	0	94.0	85 - 115				
Manganese	0.199	mg/L	E200.8	0.00153	0.00200	0.2000	0	99.5	85 - 115				



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QC SUMMARY REPORT

Client: Utah Division of Water Quality

Contact: Lenora Sullivan

Lab Set ID: 1508189

Dept: ME

Project: Gold King Mine - San Juan River Sampling

QC Type: LCS

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: LCS-38484													
Date Analyzed:		08/11/2015 2152h											
Test Code:		200.8-DIS											
Date Prepared:		08/11/2015 1442h											
Molybdenum	0.196	mg/L	E200.8	0.000206	0.00200	0.2000	0	97.8	85 - 115				
Nickel	0.197	mg/L	E200.8	0.000754	0.00200	0.2000	0	98.4	85 - 115				
Selenium	0.192	mg/L	E200.8	0.0000634	0.00200	0.2000	0	96.1	85 - 115				
Silver	0.188	mg/L	E200.8	0.0000244	0.00200	0.2000	0	93.8	85 - 115				
Thallium	0.185	mg/L	E200.8	0.0000242	0.00200	0.2000	0	92.6	85 - 115				
Vanadium	0.203	mg/L	E200.8	0.000438	0.00440	0.2000	0	101	85 - 115				
Zinc	1.01	mg/L	E200.8	0.00476	0.00500	1.000	0	101	85 - 115				
Lab Sample ID: LCS-38484													
Date Analyzed:		08/12/2015 954h											
Test Code:		200.8-DIS											
Date Prepared:		08/11/2015 1442h											
Antimony	0.174	mg/L	E200.8	0.0000366	0.00200	0.2000	0	87.0	85 - 115				
Lab Sample ID: LCS-38482													
Date Analyzed:		08/11/2015 2304h											
Test Code:		200.8-W											
Date Prepared:		08/11/2015 1442h											
Arsenic	0.202	mg/L	E200.8	0.0000920	0.00200	0.2000	0	101	85 - 115				
Barium	0.191	mg/L	E200.8	0.000538	0.00200	0.2000	0	95.7	85 - 115				
Beryllium	0.205	mg/L	E200.8	0.0000288	0.00200	0.2000	0	103	85 - 115				
Cadmium	0.193	mg/L	E200.8	0.000193	0.000500	0.2000	0	96.7	85 - 115				
Chromium	0.206	mg/L	E200.8	0.00154	0.00200	0.2000	0	103	85 - 115				
Cobalt	0.198	mg/L	E200.8	0.0000434	0.00400	0.2000	0	98.9	85 - 115				
Copper	0.201	mg/L	E200.8	0.000692	0.00200	0.2000	0	101	85 - 115				
Lead	0.189	mg/L	E200.8	0.000264	0.00200	0.2000	0	94.4	85 - 115				
Manganese	0.199	mg/L	E200.8	0.00153	0.00200	0.2000	0	99.5	85 - 115				
Molybdenum	0.196	mg/L	E200.8	0.000206	0.00200	0.2000	0	98.2	85 - 115				
Nickel	0.198	mg/L	E200.8	0.000754	0.00200	0.2000	0	99.0	85 - 115				
Selenium	0.193	mg/L	E200.8	0.0000634	0.00200	0.2000	0	96.6	85 - 115				
Silver	0.188	mg/L	E200.8	0.0000244	0.00200	0.2000	0	94.1	85 - 115				
Thallium	0.187	mg/L	E200.8	0.0000242	0.00200	0.2000	0	93.4	85 - 115				
Vanadium	0.202	mg/L	E200.8	0.000438	0.00440	0.2000	0	101	85 - 115				
Zinc	1.01	mg/L	E200.8	0.00476	0.00500	1.000	0	101	85 - 115				



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QC SUMMARY REPORT

Client: Utah Division of Water Quality

Lab Set ID: 1508189

Project: Gold King Mine - San Juan River Sampling

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
Lab Sample ID: LCS-38482	Date Analyzed:	08/12/2015	957h										
Test Code:	200.8-W	Date Prepared:	08/11/2015	1442h									
Antimony	0.175	mg/L	E200.8	0.0000366	0.00200	0.2000	0	87.3	85 - 115				
Lab Sample ID: LCS-38493	Date Analyzed:	08/12/2015	811h										
Test Code:	HG-DW-245.1	Date Prepared:	08/11/2015	1620h									
Mercury	0.00345	mg/L	E245.1	0.00000892	0.000150	0.003330	0	104	85 - 115				
Lab Sample ID: LCS-38492	Date Analyzed:	08/12/2015	850h										
Test Code:	HG-DW-DIS-245.1	Date Prepared:	08/11/2015	1620h									
Mercury	0.00347	mg/L	E245.1	0.00000892	0.000150	0.003330	0	104	85 - 115				



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QC SUMMARY REPORT

Client: Utah Division of Water Quality

Contact: Lenora Sullivan

Lab Set ID: 1508189

Dept: ME

Project: Gold King Mine - San Juan River Sampling

QC Type: MBLK

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: MB-38483													
Date Analyzed:		08/12/2015 1020h											
Test Code:		200.7-DIS											
Date Prepared:		08/11/2015 1442h											
Aluminum	< 0.100	mg/L	E200.7	0.0237	0.100								U
Calcium	< 1.00	mg/L	E200.7	0.0401	1.00								U
Iron	< 0.100	mg/L	E200.7	0.0767	0.100								U
Magnesium	< 1.00	mg/L	E200.7	0.0294	1.00								U
Potassium	< 1.00	mg/L	E200.7	0.247	1.00								U
Sodium	< 1.00	mg/L	E200.7	0.0330	1.00								U
Lab Sample ID: MB-38481													
Date Analyzed:		08/12/2015 851h											
Test Code:		200.7-W											
Date Prepared:		08/11/2015 1442h											
Aluminum	< 0.100	mg/L	E200.7	0.0237	0.100								U
Calcium	< 1.00	mg/L	E200.7	0.0401	1.00								U
Magnesium	< 1.00	mg/L	E200.7	0.0294	1.00								U
Potassium	< 1.00	mg/L	E200.7	0.247	1.00								U
Sodium	< 1.00	mg/L	E200.7	0.0330	1.00								U
Lab Sample ID: MB-38481													
Date Analyzed:		08/12/2015 1142h											
Test Code:		200.7-W											
Date Prepared:		08/11/2015 1442h											
Iron	< 0.100	mg/L	E200.7	0.0767	0.100								U
Lab Sample ID: MB-38484													
Date Analyzed:		08/11/2015 2149h											
Test Code:		200.8-DIS											
Date Prepared:		08/11/2015 1442h											
Antimony	0.0000427	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



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QC SUMMARY REPORT

Client: Utah Division of Water Quality

Contact: Lenora Sullivan

Lab Set ID: 1508189

Dept: ME

Project: Gold King Mine - San Juan River Sampling

QC Type: MBLK

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: MB-38484	Date Analyzed:	08/11/2015	2149h										
Test Code:	200.8-DIS	Date Prepared:	08/11/2015	1442h									
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
Lab Sample ID: MB-38482	Date Analyzed:	08/11/2015	2301h										
Test Code:	200.8-W	Date Prepared:	08/11/2015	1442h									
Antimony	0.000121	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	0.0000303	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



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QC SUMMARY REPORT

Client: Utah Division of Water Quality
Lab Set ID: 1508189
Project: Gold King Mine - San Juan River Sampling

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
Lab Sample ID: MB-38493	Date Analyzed:	08/12/2015	809h										
Test Code: HG-DW-245.1	Date Prepared:	08/11/2015	1620h										
Mercury	< 0.000150	mg/L	E245.1	0.00000892	0.000150								U
Lab Sample ID: MB-38492	Date Analyzed:	08/12/2015	849h										
Test Code: HG-DW-DIS-245.1	Date Prepared:	08/11/2015	1620h										
Mercury	< 0.000150	mg/L	E245.1	0.00000892	0.000150								U

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

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

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



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QC SUMMARY REPORT

Client: Utah Division of Water Quality

Lab Set ID: 1508189

Project: Gold King Mine - San Juan River Sampling

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
Lab Sample ID: 1508188-002CMS		Date Analyzed:	08/12/2015 1116h										
Test Code: 200.7-DIS		Date Prepared:	08/11/2015 1442h										
Aluminum	1.14	mg/L	E200.7	0.0237	0.100	1.000	0.108	103	70 - 130				
Iron	1.01	mg/L	E200.7	0.0767	0.100	1.000	0	101	70 - 130				
Magnesium	17.9	mg/L	E200.7	0.0294	1.00	10.00	7.83	101	70 - 130				
Potassium	12.8	mg/L	E200.7	0.247	1.00	10.00	2.67	102	70 - 130				
Sodium	41.1	mg/L	E200.7	0.0330	1.00	10.00	30.6	105	70 - 130				
Lab Sample ID: 1508189-001CMS		Date Analyzed:	08/12/2015 1127h										
Test Code: 200.7-DIS		Date Prepared:	08/11/2015 1442h										
Aluminum	1.42	mg/L	E200.7	0.0237	0.100	1.000	0.325	110	70 - 130				
Calcium	54.4	mg/L	E200.7	0.0401	1.00	10.00	44.6	98.1	70 - 130				
Iron	1.11	mg/L	E200.7	0.0767	0.100	1.000	0.14	97.2	70 - 130				
Magnesium	18.0	mg/L	E200.7	0.0294	1.00	10.00	7.84	101	70 - 130				
Potassium	13.5	mg/L	E200.7	0.247	1.00	10.00	3.41	101	70 - 130				
Sodium	54.0	mg/L	E200.7	0.0330	1.00	10.00	43.6	105	70 - 130				
Lab Sample ID: 1508188-002CMS		Date Analyzed:	08/12/2015 1033h										
Test Code: 200.7-DIS		Date Prepared:	08/11/2015 1442h										
Calcium	58.6	mg/L	E200.7	0.401	10.0	10.00	48.4	102	70 - 130				
Lab Sample ID: 1508188-002BMS		Date Analyzed:	08/12/2015 905h										
Test Code: 200.7-W		Date Prepared:	08/11/2015 1442h										
Aluminum	32.6	mg/L	E200.7	0.237	1.00	1.000	28.7	395	70 - 130				2
Calcium	110	mg/L	E200.7	0.401	10.0	10.00	99.9	106	70 - 130				
Lab Sample ID: 1508189-001BMS		Date Analyzed:	08/12/2015 927h										
Test Code: 200.7-W		Date Prepared:	08/11/2015 1442h										
Aluminum	94.2	mg/L	E200.7	0.237	1.00	1.000	90.8	337	70 - 130				2
Calcium	314	mg/L	E200.7	0.401	10.0	10.00	314	0.926	70 - 130				2
Magnesium	65.7	mg/L	E200.7	0.294	10.0	10.00	57	87.2	70 - 130				
Sodium	52.9	mg/L	E200.7	0.330	10.0	10.00	46.1	67.9	70 - 130				1



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QC SUMMARY REPORT

Client: Utah Division of Water Quality
Lab Set ID: 1508189
Project: Gold King Mine - San Juan River Sampling

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
Lab Sample ID: 1508188-002BMS													
Date Analyzed:	08/12/2015 1039h												
Test Code:	200.7-W												
Date Prepared:	08/11/2015 1442h												
Iron	27.7	mg/L	E200.7	0.0767	0.100	1.000	27.7	-2.87	70 - 130				2
Magnesium	28.5	mg/L	E200.7	0.0294	1.00	10.00	20.4	81.1	70 - 130				
Potassium	17.0	mg/L	E200.7	0.247	1.00	10.00	7.29	97.6	70 - 130				
Sodium	43.4	mg/L	E200.7	0.0330	1.00	10.00	33.2	102	70 - 130				
Lab Sample ID: 1508189-001BMS													
Date Analyzed:	08/12/2015 1051h												
Test Code:	200.7-W												
Date Prepared:	08/11/2015 1442h												
Iron	42.9	mg/L	E200.7	0.0767	0.100	1.000	43.4	-48.1	70 - 130				2
Potassium	29.5	mg/L	E200.7	0.247	1.00	10.00	19.7	97.6	70 - 130				
Lab Sample ID: 1508188-002CMS													
Date Analyzed:	08/11/2015 2209h												
Test Code:	200.8-DIS												
Date Prepared:	08/11/2015 1442h												
Antimony	0.169	mg/L	E200.8	0.0000366	0.00200	0.2000	0.000574	84.1	75 - 125				
Arsenic	0.205	mg/L	E200.8	0.0000920	0.00200	0.2000	0.00107	102	75 - 125				
Barium	0.371	mg/L	E200.8	0.000538	0.00200	0.2000	0.184	93.7	75 - 125				
Beryllium	0.202	mg/L	E200.8	0.0000288	0.00200	0.2000	0	101	75 - 125				
Cadmium	0.190	mg/L	E200.8	0.000193	0.000500	0.2000	0	95.2	75 - 125				
Chromium	0.203	mg/L	E200.8	0.00154	0.00200	0.2000	0	102	75 - 125				
Cobalt	0.193	mg/L	E200.8	0.0000434	0.00400	0.2000	0.0000556	96.7	75 - 125				
Copper	0.200	mg/L	E200.8	0.000692	0.00200	0.2000	0.00196	99.0	75 - 125				
Lead	0.186	mg/L	E200.8	0.000264	0.00200	0.2000	0.000315	92.8	75 - 125				
Manganese	0.197	mg/L	E200.8	0.00153	0.00200	0.2000	0	98.5	75 - 125				
Molybdenum	0.198	mg/L	E200.8	0.000206	0.00200	0.2000	0.00226	98.0	75 - 125				
Nickel	0.193	mg/L	E200.8	0.000754	0.00200	0.2000	0	96.5	75 - 125				
Selenium	0.189	mg/L	E200.8	0.0000634	0.00200	0.2000	0.000526	94.3	75 - 125				
Silver	0.185	mg/L	E200.8	0.0000244	0.00200	0.2000	0	92.5	75 - 125				
Thallium	0.183	mg/L	E200.8	0.0000242	0.00200	0.2000	0	91.5	75 - 125				
Vanadium	0.202	mg/L	E200.8	0.000438	0.00440	0.2000	0.00189	100	75 - 125				
Zinc	1.01	mg/L	E200.8	0.00476	0.00500	1.000	0.0132	99.7	75 - 125				



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Kyle F. Gross
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Jose Rocha
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QC SUMMARY REPORT

Client: Utah Division of Water Quality
Lab Set ID: 1508189
Project: Gold King Mine - San Juan River Sampling

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
Lab Sample ID: 1508189-001CMS		Date Analyzed:	08/11/2015 2235h										
Test Code: 200.8-DIS		Date Prepared:	08/11/2015 1442h										
Antimony	0.171	mg/L	E200.8	0.0000366	0.00200	0.2000	0.000376	85.2	75 - 125				
Arsenic	0.205	mg/L	E200.8	0.0000920	0.00200	0.2000	0.00194	102	75 - 125				
Barium	0.489	mg/L	E200.8	0.000538	0.00200	0.2000	0.299	94.8	75 - 125				
Beryllium	0.203	mg/L	E200.8	0.0000288	0.00200	0.2000	0	102	75 - 125				
Cadmium	0.191	mg/L	E200.8	0.000193	0.000500	0.2000	0	95.3	75 - 125				
Chromium	0.203	mg/L	E200.8	0.00154	0.00200	0.2000	0	102	75 - 125				
Cobalt	0.196	mg/L	E200.8	0.0000434	0.00400	0.2000	0.000102	98.1	75 - 125				
Copper	0.201	mg/L	E200.8	0.000692	0.00200	0.2000	0.00295	98.8	75 - 125				
Lead	0.187	mg/L	E200.8	0.000264	0.00200	0.2000	0.000315	93.2	75 - 125				
Manganese	0.200	mg/L	E200.8	0.00153	0.00200	0.2000	0.00255	98.7	75 - 125				
Molybdenum	0.198	mg/L	E200.8	0.000206	0.00200	0.2000	0.00243	97.8	75 - 125				
Nickel	0.194	mg/L	E200.8	0.000754	0.00200	0.2000	0	96.9	75 - 125				
Selenium	0.191	mg/L	E200.8	0.0000634	0.00200	0.2000	0.000606	95.2	75 - 125				
Silver	0.184	mg/L	E200.8	0.0000244	0.00200	0.2000	0.0000297	91.8	75 - 125				
Thallium	0.183	mg/L	E200.8	0.0000242	0.00200	0.2000	0	91.7	75 - 125				
Vanadium	0.209	mg/L	E200.8	0.000438	0.00440	0.2000	0.00759	101	75 - 125				
Zinc	1.03	mg/L	E200.8	0.00476	0.00500	1.000	0.0176	101	75 - 125				
Lab Sample ID: 1508188-002BMS		Date Analyzed:	08/11/2015 2347h										
Test Code: 200.8-W		Date Prepared:	08/11/2015 1442h										
Antimony	0.0218	mg/L	E200.8	0.0000366	0.00200	0.2000	0.000293	10.8	75 - 125				1
Arsenic	0.191	mg/L	E200.8	0.0000920	0.00200	0.2000	0.0107	90.3	75 - 125				
Barium	1.92	mg/L	E200.8	0.000538	0.00200	0.2000	0.726	598	75 - 125				1
Beryllium	0.198	mg/L	E200.8	0.0000288	0.00200	0.2000	0.00261	97.9	75 - 125				
Cadmium	0.192	mg/L	E200.8	0.000193	0.000500	0.2000	0.000713	95.6	75 - 125				
Chromium	0.214	mg/L	E200.8	0.00154	0.00200	0.2000	0.0161	98.8	75 - 125				
Cobalt	0.206	mg/L	E200.8	0.0000434	0.00400	0.2000	0.0173	94.6	75 - 125				
Copper	0.241	mg/L	E200.8	0.000692	0.00200	0.2000	0.0547	92.9	75 - 125				
Lead	0.267	mg/L	E200.8	0.000264	0.00200	0.2000	0.0847	91.1	75 - 125				



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QC SUMMARY REPORT

Client: Utah Division of Water Quality
Lab Set ID: 1508189
Project: Gold King Mine - San Juan River Sampling

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
Lab Sample ID: 1508188-002BMS													
Date Analyzed:		08/11/2015 2347h											
Test Code:		200.8-W											
Date Prepared:		08/11/2015 1442h											
Manganese	1.34	mg/L	E200.8	0.00153	0.00200	0.2000	1.17	81.2	75 - 125				
Molybdenum	0.132	mg/L	E200.8	0.000206	0.00200	0.2000	0.000876	65.6	75 - 125				1
Nickel	0.213	mg/L	E200.8	0.000754	0.00200	0.2000	0.0223	95.4	75 - 125				
Selenium	0.170	mg/L	E200.8	0.0000634	0.00200	0.2000	0.000894	84.4	75 - 125				
Silver	0.185	mg/L	E200.8	0.0000244	0.00200	0.2000	0.000527	92.1	75 - 125				
Thallium	0.173	mg/L	E200.8	0.0000242	0.00200	0.2000	0.000245	86.2	75 - 125				
Vanadium	0.230	mg/L	E200.8	0.000438	0.00440	0.2000	0.0409	94.4	75 - 125				
Zinc	1.72	mg/L	E200.8	0.00476	0.00500	1.000	0.96	76.1	75 - 125				
Lab Sample ID: 1508189-001BMS													
Date Analyzed:		08/12/2015 003h											
Test Code:		200.8-W											
Date Prepared:		08/11/2015 1442h											
Antimony	0.00408	mg/L	E200.8	0.0000366	0.00200	0.2000	0.000171	1.96	75 - 125				1
Arsenic	0.189	mg/L	E200.8	0.0000920	0.00200	0.2000	0.0206	84.1	75 - 125				
Beryllium	0.196	mg/L	E200.8	0.0000288	0.00200	0.2000	0.00761	94.4	75 - 125				
Cadmium	0.192	mg/L	E200.8	0.000193	0.000500	0.2000	0.00153	95.4	75 - 125				
Chromium	0.237	mg/L	E200.8	0.00154	0.00200	0.2000	0.0431	97.0	75 - 125				
Cobalt	0.226	mg/L	E200.8	0.0000434	0.00400	0.2000	0.0402	92.8	75 - 125				
Copper	0.235	mg/L	E200.8	0.000692	0.00200	0.2000	0.0728	81.2	75 - 125				
Lead	0.262	mg/L	E200.8	0.000264	0.00200	0.2000	0.0821	89.9	75 - 125				
Molybdenum	0.0526	mg/L	E200.8	0.000206	0.00200	0.2000	0.00065	26.0	75 - 125				1
Nickel	0.256	mg/L	E200.8	0.000754	0.00200	0.2000	0.0709	92.7	75 - 125				
Selenium	0.156	mg/L	E200.8	0.0000634	0.00200	0.2000	0.00137	77.6	75 - 125				
Silver	0.184	mg/L	E200.8	0.0000244	0.00200	0.2000	0.000401	91.6	75 - 125				
Thallium	0.156	mg/L	E200.8	0.0000242	0.00200	0.2000	0.000616	77.7	75 - 125				
Vanadium	0.236	mg/L	E200.8	0.000438	0.00440	0.2000	0.08	78.0	75 - 125				
Zinc	1.62	mg/L	E200.8	0.00476	0.00500	1.000	0.843	78.0	75 - 125				
Lab Sample ID: 1508189-001BMS													
Date Analyzed:		08/12/2015 1013h											
Test Code:		200.8-W											
Date Prepared:		08/11/2015 1442h											
Barium	2.28	mg/L	E200.8	0.00269	0.0100	0.2000	2.3	-10.8	75 - 125				2



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QC SUMMARY REPORT

Client: Utah Division of Water Quality

Lab Set ID: 1508189

Project: Gold King Mine - San Juan River Sampling

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
Lab Sample ID: 1508189-001BMS	Date Analyzed:	08/12/2015	1013h										
Test Code:	200.8-W	Date Prepared:	08/11/2015	1442h									
Manganese	3.24	mg/L	E200.8	0.00764	0.0100	0.2000	3.23	3.63	75 - 125				2
Lab Sample ID: 1508188-004BMS	Date Analyzed:	08/12/2015	821h										
Test Code:	HG-DW-245.1	Date Prepared:	08/11/2015	1620h									
Mercury	0.00355	mg/L	E245.1	0.00000892	0.000150	0.003330	0.000117	103	80 - 120				
Lab Sample ID: 1508189-003BMS	Date Analyzed:	08/12/2015	837h										
Test Code:	HG-DW-245.1	Date Prepared:	08/11/2015	1620h									
Mercury	0.00353	mg/L	E245.1	0.00000892	0.000150	0.003330	0.0000717	104	80 - 120				
Lab Sample ID: 1508188-001CMS	Date Analyzed:	08/12/2015	902h										
Test Code:	HG-DW-DIS-245.1	Date Prepared:	08/11/2015	1620h									
Mercury	0.00345	mg/L	E245.1	0.00000892	0.000150	0.003330	0	104	85 - 115				
Lab Sample ID: 1508189-004CMS	Date Analyzed:	08/12/2015	918h										
Test Code:	HG-DW-DIS-245.1	Date Prepared:	08/11/2015	1620h									
Mercury	0.00358	mg/L	E245.1	0.00000892	0.000150	0.003330	0	108	85 - 115				

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

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



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QC SUMMARY REPORT

Client: Utah Division of Water Quality
Lab Set ID: 1508189
Project: Gold King Mine - San Juan River Sampling

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
Lab Sample ID: 1508188-002CMSD													
Date Analyzed:	08/12/2015 1118h												
Test Code:	200.7-DIS												
Date Prepared:	08/11/2015 1442h												
Aluminum	1.14	mg/L	E200.7	0.0237	0.100	1.000	0.108	103	70 - 130	1.14	0.313	20	
Iron	1.02	mg/L	E200.7	0.0767	0.100	1.000	0	102	70 - 130	1.01	1.16	20	
Magnesium	18.1	mg/L	E200.7	0.0294	1.00	10.00	7.83	103	70 - 130	17.9	1.16	20	
Potassium	12.8	mg/L	E200.7	0.247	1.00	10.00	2.67	101	70 - 130	12.8	0.208	20	
Sodium	41.0	mg/L	E200.7	0.0330	1.00	10.00	30.6	104	70 - 130	41.1	0.257	20	
Lab Sample ID: 1508189-001CMSD													
Date Analyzed:	08/12/2015 1129h												
Test Code:	200.7-DIS												
Date Prepared:	08/11/2015 1442h												
Aluminum	1.42	mg/L	E200.7	0.0237	0.100	1.000	0.325	110	70 - 130	1.42	0.0835	20	
Calcium	53.9	mg/L	E200.7	0.0401	1.00	10.00	44.6	93.1	70 - 130	54.4	0.924	20	
Iron	1.10	mg/L	E200.7	0.0767	0.100	1.000	0.14	95.6	70 - 130	1.11	1.50	20	
Magnesium	18.0	mg/L	E200.7	0.0294	1.00	10.00	7.84	101	70 - 130	18	0.109	20	
Potassium	13.5	mg/L	E200.7	0.247	1.00	10.00	3.41	101	70 - 130	13.5	0.226	20	
Sodium	54.0	mg/L	E200.7	0.0330	1.00	10.00	43.6	105	70 - 130	54	0.00402	20	
Lab Sample ID: 1508188-002CMSD													
Date Analyzed:	08/12/2015 1046h												
Test Code:	200.7-DIS												
Date Prepared:	08/11/2015 1442h												
Calcium	60.6	mg/L	E200.7	0.401	10.0	10.00	48.4	122	70 - 130	58.6	3.44	20	
Lab Sample ID: 1508188-002BMSD													
Date Analyzed:	08/12/2015 907h												
Test Code:	200.7-W												
Date Prepared:	08/11/2015 1442h												
Aluminum	38.2	mg/L	E200.7	0.237	1.00	1.000	28.7	950	70 - 130	32.6	15.7	20	2
Calcium	111	mg/L	E200.7	0.401	10.0	10.00	99.9	107	70 - 130	110	0.0794	20	
Lab Sample ID: 1508189-001BMSD													
Date Analyzed:	08/12/2015 929h												
Test Code:	200.7-W												
Date Prepared:	08/11/2015 1442h												
Aluminum	91.0	mg/L	E200.7	0.237	1.00	1.000	90.8	23.3	70 - 130	94.2	3.39	20	2
Calcium	315	mg/L	E200.7	0.401	10.0	10.00	314	13.6	70 - 130	314	0.402	20	2
Magnesium	65.2	mg/L	E200.7	0.294	10.0	10.00	57	82.0	70 - 130	65.7	0.798	20	
Sodium	52.7	mg/L	E200.7	0.330	10.0	10.00	46.1	66.3	70 - 130	52.9	0.303	20	1



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QC SUMMARY REPORT

Client: Utah Division of Water Quality
Lab Set ID: 1508189
Project: Gold King Mine - San Juan River Sampling

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
Lab Sample ID: 1508188-002BMSD		Date Analyzed:	08/12/2015 1042h										
Test Code: 200.7-W		Date Prepared:	08/11/2015 1442h										
Iron	31.7	mg/L	E200.7	0.0767	0.100	1.000	27.7	397	70 - 130	27.7	13.5	20	2
Magnesium	29.9	mg/L	E200.7	0.0294	1.00	10.00	20.4	94.9	70 - 130	28.5	4.72	20	
Potassium	17.8	mg/L	E200.7	0.247	1.00	10.00	7.29	105	70 - 130	17	4.21	20	
Sodium	44.1	mg/L	E200.7	0.0330	1.00	10.00	33.2	109	70 - 130	43.4	1.65	20	
Lab Sample ID: 1508189-001BMSD		Date Analyzed:	08/12/2015 1100h										
Test Code: 200.7-W		Date Prepared:	08/11/2015 1442h										
Iron	40.2	mg/L	E200.7	0.0767	0.100	1.000	43.4	-319	70 - 130	42.9	6.53	20	2
Potassium	28.4	mg/L	E200.7	0.247	1.00	10.00	19.7	86.6	70 - 130	29.5	3.79	20	
Lab Sample ID: 1508188-002CMSD		Date Analyzed:	08/11/2015 2212h										
Test Code: 200.8-DIS		Date Prepared:	08/11/2015 1442h										
Antimony	0.173	mg/L	E200.8	0.0000366	0.00200	0.2000	0.000574	86.0	75 - 125	0.169	2.23	20	
Arsenic	0.216	mg/L	E200.8	0.0000920	0.00200	0.2000	0.00107	107	75 - 125	0.205	5.21	20	
Barium	0.376	mg/L	E200.8	0.000538	0.00200	0.2000	0.184	96.2	75 - 125	0.371	1.36	20	
Beryllium	0.205	mg/L	E200.8	0.0000288	0.00200	0.2000	0	102	75 - 125	0.202	1.40	20	
Cadmium	0.192	mg/L	E200.8	0.000193	0.000500	0.2000	0	95.9	75 - 125	0.19	0.816	20	
Chromium	0.216	mg/L	E200.8	0.00154	0.00200	0.2000	0	108	75 - 125	0.203	5.89	20	
Cobalt	0.206	mg/L	E200.8	0.0000434	0.00400	0.2000	0.0000556	103	75 - 125	0.193	6.23	20	
Copper	0.212	mg/L	E200.8	0.000692	0.00200	0.2000	0.00196	105	75 - 125	0.2	5.84	20	
Lead	0.188	mg/L	E200.8	0.000264	0.00200	0.2000	0.000315	93.6	75 - 125	0.186	0.855	20	
Manganese	0.210	mg/L	E200.8	0.00153	0.00200	0.2000	0	105	75 - 125	0.197	6.62	20	
Molybdenum	0.200	mg/L	E200.8	0.000206	0.00200	0.2000	0.00226	99.0	75 - 125	0.198	1.03	20	
Nickel	0.206	mg/L	E200.8	0.000754	0.00200	0.2000	0	103	75 - 125	0.193	6.35	20	
Selenium	0.194	mg/L	E200.8	0.0000634	0.00200	0.2000	0.000526	96.8	75 - 125	0.189	2.58	20	
Silver	0.186	mg/L	E200.8	0.0000244	0.00200	0.2000	0	93.0	75 - 125	0.185	0.464	20	
Thallium	0.186	mg/L	E200.8	0.0000242	0.00200	0.2000	0	92.8	75 - 125	0.183	1.40	20	
Vanadium	0.215	mg/L	E200.8	0.000438	0.00440	0.2000	0.00189	107	75 - 125	0.202	6.24	20	
Zinc	1.08	mg/L	E200.8	0.00476	0.00500	1.000	0.0132	107	75 - 125	1.01	7.09	20	



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QC SUMMARY REPORT

Client: Utah Division of Water Quality
Lab Set ID: 1508189
Project: Gold King Mine - San Juan River Sampling

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
Lab Sample ID: 1508189-001CMSD		Date Analyzed:	08/11/2015 2238h										
Test Code: 200.8-DIS		Date Prepared:	08/11/2015 1442h										
Antimony	0.170	mg/L	E200.8	0.0000366	0.00200	0.2000	0.000376	85.1	75 - 125	0.171	0.175	20	
Arsenic	0.205	mg/L	E200.8	0.0000920	0.00200	0.2000	0.00194	101	75 - 125	0.205	0.0836	20	
Barium	0.485	mg/L	E200.8	0.000538	0.00200	0.2000	0.299	92.9	75 - 125	0.489	0.798	20	
Beryllium	0.199	mg/L	E200.8	0.0000288	0.00200	0.2000	0	99.7	75 - 125	0.203	1.99	20	
Cadmium	0.188	mg/L	E200.8	0.000193	0.000500	0.2000	0	94.1	75 - 125	0.191	1.29	20	
Chromium	0.202	mg/L	E200.8	0.00154	0.00200	0.2000	0	101	75 - 125	0.203	0.495	20	
Cobalt	0.193	mg/L	E200.8	0.0000434	0.00400	0.2000	0.000102	96.6	75 - 125	0.196	1.53	20	
Copper	0.200	mg/L	E200.8	0.000692	0.00200	0.2000	0.00295	98.6	75 - 125	0.201	0.180	20	
Lead	0.183	mg/L	E200.8	0.000264	0.00200	0.2000	0.000315	91.6	75 - 125	0.187	1.81	20	
Manganese	0.196	mg/L	E200.8	0.00153	0.00200	0.2000	0.00255	96.7	75 - 125	0.2	2.09	20	
Molybdenum	0.196	mg/L	E200.8	0.000206	0.00200	0.2000	0.00243	96.8	75 - 125	0.198	1.02	20	
Nickel	0.192	mg/L	E200.8	0.000754	0.00200	0.2000	0	96.1	75 - 125	0.194	0.894	20	
Selenium	0.189	mg/L	E200.8	0.0000634	0.00200	0.2000	0.000606	94.3	75 - 125	0.191	1.00	20	
Silver	0.183	mg/L	E200.8	0.0000244	0.00200	0.2000	0.0000297	91.3	75 - 125	0.184	0.578	20	
Thallium	0.181	mg/L	E200.8	0.0000242	0.00200	0.2000	0	90.6	75 - 125	0.183	1.21	20	
Vanadium	0.207	mg/L	E200.8	0.000438	0.00440	0.2000	0.00759	99.6	75 - 125	0.209	0.915	20	
Zinc	1.01	mg/L	E200.8	0.00476	0.00500	1.000	0.0176	99.6	75 - 125	1.03	1.21	20	
Lab Sample ID: 1508188-002BMSD		Date Analyzed:	08/11/2015 2350h										
Test Code: 200.8-W		Date Prepared:	08/11/2015 1442h										
Antimony	0.0189	mg/L	E200.8	0.0000366	0.00200	0.2000	0.000293	9.32	75 - 125	0.0218	14.3	20	1
Arsenic	0.192	mg/L	E200.8	0.0000920	0.00200	0.2000	0.0107	90.7	75 - 125	0.191	0.410	20	
Barium	1.98	mg/L	E200.8	0.000538	0.00200	0.2000	0.726	625	75 - 125	1.92	2.79	20	1
Beryllium	0.198	mg/L	E200.8	0.0000288	0.00200	0.2000	0.00261	97.8	75 - 125	0.198	0.125	20	
Cadmium	0.192	mg/L	E200.8	0.000193	0.000500	0.2000	0.000713	95.8	75 - 125	0.192	0.245	20	
Chromium	0.215	mg/L	E200.8	0.00154	0.00200	0.2000	0.0161	99.7	75 - 125	0.214	0.772	20	
Cobalt	0.208	mg/L	E200.8	0.0000434	0.00400	0.2000	0.0173	95.3	75 - 125	0.206	0.720	20	
Copper	0.246	mg/L	E200.8	0.000692	0.00200	0.2000	0.0547	95.6	75 - 125	0.241	2.19	20	
Lead	0.273	mg/L	E200.8	0.000264	0.00200	0.2000	0.0847	93.9	75 - 125	0.267	2.05	20	



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QC SUMMARY REPORT

Client: Utah Division of Water Quality
Lab Set ID: 1508189
Project: Gold King Mine - San Juan River Sampling

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
Lab Sample ID: 1508188-002BMSD													
Date Analyzed:		08/11/2015 2350h											
Test Code:		200.8-W											
Date Prepared:		08/11/2015 1442h											
Manganese	1.38	mg/L	E200.8	0.00153	0.00200	0.2000	1.17	102	75 - 125	1.34	3.05	20	
Molybdenum	0.121	mg/L	E200.8	0.000206	0.00200	0.2000	0.000876	59.9	75 - 125	0.132	8.96	20	1
Nickel	0.214	mg/L	E200.8	0.000754	0.00200	0.2000	0.0223	95.9	75 - 125	0.213	0.463	20	
Selenium	0.172	mg/L	E200.8	0.0000634	0.00200	0.2000	0.000894	85.8	75 - 125	0.17	1.57	20	
Silver	0.185	mg/L	E200.8	0.0000244	0.00200	0.2000	0.000527	92.4	75 - 125	0.185	0.268	20	
Thallium	0.174	mg/L	E200.8	0.0000242	0.00200	0.2000	0.000245	87.1	75 - 125	0.173	1.02	20	
Vanadium	0.233	mg/L	E200.8	0.000438	0.00440	0.2000	0.0409	96.2	75 - 125	0.23	1.62	20	
Zinc	1.73	mg/L	E200.8	0.00476	0.00500	1.000	0.96	76.6	75 - 125	1.72	0.291	20	
Lab Sample ID: 1508189-001BMSD													
Date Analyzed:		08/12/2015 006h											
Test Code:		200.8-W											
Date Prepared:		08/11/2015 1442h											
Antimony	0.00394	mg/L	E200.8	0.0000366	0.00200	0.2000	0.000171	1.88	75 - 125	0.00408	3.59	20	1
Arsenic	0.186	mg/L	E200.8	0.0000920	0.00200	0.2000	0.0206	82.6	75 - 125	0.189	1.67	20	
Beryllium	0.196	mg/L	E200.8	0.0000288	0.00200	0.2000	0.00761	94.0	75 - 125	0.196	0.395	20	
Cadmium	0.191	mg/L	E200.8	0.000193	0.000500	0.2000	0.00153	94.6	75 - 125	0.192	0.880	20	
Chromium	0.232	mg/L	E200.8	0.00154	0.00200	0.2000	0.0431	94.4	75 - 125	0.237	2.24	20	
Cobalt	0.222	mg/L	E200.8	0.0000434	0.00400	0.2000	0.0402	91.0	75 - 125	0.226	1.62	20	
Copper	0.227	mg/L	E200.8	0.000692	0.00200	0.2000	0.0728	77.2	75 - 125	0.235	3.41	20	
Lead	0.260	mg/L	E200.8	0.000264	0.00200	0.2000	0.0821	89.1	75 - 125	0.262	0.609	20	
Molybdenum	0.0521	mg/L	E200.8	0.000206	0.00200	0.2000	0.00065	25.7	75 - 125	0.0526	1.10	20	1
Nickel	0.253	mg/L	E200.8	0.000754	0.00200	0.2000	0.0709	91.2	75 - 125	0.256	1.16	20	
Selenium	0.151	mg/L	E200.8	0.0000634	0.00200	0.2000	0.00137	74.8	75 - 125	0.156	3.62	20	1
Silver	0.182	mg/L	E200.8	0.0000244	0.00200	0.2000	0.000401	91.0	75 - 125	0.184	0.629	20	
Thallium	0.152	mg/L	E200.8	0.0000242	0.00200	0.2000	0.000616	75.8	75 - 125	0.156	2.48	20	
Vanadium	0.230	mg/L	E200.8	0.000438	0.00440	0.2000	0.08	74.9	75 - 125	0.236	2.70	20	1
Zinc	1.70	mg/L	E200.8	0.00476	0.00500	1.000	0.843	85.8	75 - 125	1.62	4.71	20	
Lab Sample ID: 1508189-001BMSD													
Date Analyzed:		08/12/2015 1017h											
Test Code:		200.8-W											
Date Prepared:		08/11/2015 1442h											
Barium	2.51	mg/L	E200.8	0.00269	0.0100	0.2000	2.3	102	75 - 125	2.28	9.45	20	2



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QC SUMMARY REPORT

Client: Utah Division of Water Quality
Lab Set ID: 1508189
Project: Gold King Mine - San Juan River Sampling

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
Lab Sample ID: 1508189-001BMSD	Date Analyzed:	08/12/2015	1017h										
Test Code:	200.8-W	Date Prepared:	08/11/2015	1442h									
Manganese	3.45	mg/L	E200.8	0.00764	0.0100	0.2000	3.23	111	75 - 125	3.24	6.39	20	²
Lab Sample ID: 1508188-004BMSD	Date Analyzed:	08/12/2015	823h										
Test Code:	HG-DW-245.1	Date Prepared:	08/11/2015	1620h									
Mercury	0.00355	mg/L	E245.1	0.00000892	0.000150	0.003330	0.000117	103	80 - 120	0.00355	0.0469	20	
Lab Sample ID: 1508189-003BMSD	Date Analyzed:	08/12/2015	839h										
Test Code:	HG-DW-245.1	Date Prepared:	08/11/2015	1620h									
Mercury	0.00355	mg/L	E245.1	0.00000892	0.000150	0.003330	0.0000717	104	80 - 120	0.00353	0.518	20	
Lab Sample ID: 1508188-001CMSD	Date Analyzed:	08/12/2015	904h										
Test Code:	HG-DW-DIS-245.1	Date Prepared:	08/11/2015	1620h									
Mercury	0.00353	mg/L	E245.1	0.00000892	0.000150	0.003330	0	106	85 - 115	0.00345	2.15	20	
Lab Sample ID: 1508189-004CMSD	Date Analyzed:	08/12/2015	920h										
Test Code:	HG-DW-DIS-245.1	Date Prepared:	08/11/2015	1620h									
Mercury	0.00342	mg/L	E245.1	0.00000892	0.000150	0.003330	0	103	85 - 115	0.00358	4.62	20	

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

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



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QC SUMMARY REPORT

Client: Utah Division of Water Quality
Lab Set ID: 1508189
Project: Gold King Mine - San Juan River Sampling

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
Lab Sample ID: 1508188-001ADUP Date Analyzed: 08/12/2015 612h													
Test Code: COND-W-2510B													
Conductivity	534	µmhos/cm	SM2510B	0.436	2.00					538	0.746	5	
Lab Sample ID: 1508189-001ADUP Date Analyzed: 08/12/2015 612h													
Test Code: COND-W-2510B													
Conductivity	562	µmhos/cm	SM2510B	0.436	2.00					564	0.355	5	
Lab Sample ID: 1508188-004ADUP Date Analyzed: 08/11/2015 2006h													
Test Code: PH-4500H+B													
pH @ 25° C	8.23	pH Units	SM4500-H+B	1.00	1.00					8.25	0.243	5	H
Lab Sample ID: 1508189-004ADUP Date Analyzed: 08/11/2015 2006h													
Test Code: PH-4500H+B													
pH @ 25° C	8.20	pH Units	SM4500-H+B	1.00	1.00					8.15	0.612	5	H
Lab Sample ID: 1508188-001ADUP Date Analyzed: 08/11/2015 1420h													
Test Code: TDS-W-2540C													
Total Dissolved Solids	560	mg/L	SM2540C	30.6	50.0					660	16.4	5	@
Lab Sample ID: 1508189-001ADUP Date Analyzed: 08/11/2015 1420h													
Test Code: TDS-W-2540C													
Total Dissolved Solids	690	mg/L	SM2540C	30.6	50.0					590	15.6	5	@
Lab Sample ID: 1508227-002ADUP Date Analyzed: 08/12/2015 1420h													
Test Code: TDS-W-2540C													
Total Dissolved Solids	360	mg/L	SM2540C	30.6	50.0					360	0	5	
Lab Sample ID: 1508228-002ADUP Date Analyzed: 08/12/2015 1420h													
Test Code: TDS-W-2540C													
Total Dissolved Solids	450	mg/L	SM2540C	30.6	50.0					390	14.3	5	@



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QC SUMMARY REPORT

Client: Utah Division of Water Quality

Lab Set ID: 1508189

Project: Gold King Mine - San Juan River Sampling

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
Lab Sample ID: 1508188-001ADUP	Date Analyzed: 08/11/2015 1430h												
Test Code:	TSS-W-2540D												
Total Suspended Solids	7,800	mg/L	SM2540D	70.8	75.0					7390	5.40	5	@
Lab Sample ID: 1508189-002ADUP	Date Analyzed: 08/11/2015 1430h												
Test Code:	TSS-W-2540D												
Total Suspended Solids	2,740	mg/L	SM2540D	70.8	75.0					2370	14.5	5	@

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

H - Sample was received outside of the holding time.



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QC SUMMARY REPORT

Client: Utah Division of Water Quality

Lab Set ID: 1508189

Project: Gold King Mine - San Juan River Sampling

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
Lab Sample ID: LCS-R81550													
Date Analyzed: 08/12/2015 1650h													
Test Code: 300.0-W													
Chloride	5.24	mg/L	E300.0	0.00751	0.100	5.000	0	105	90 - 110				
Sulfate	5.12	mg/L	E300.0	0.0211	0.750	5.000	0	102	90 - 110				
Lab Sample ID: LCS-R81500													
Date Analyzed: 08/12/2015 638h													
Test Code: ALK-W-2320B													
Alkalinity (as CaCO3)	50,700	mg/L	SM2320B	1.86	10.0	50,000	0	101	90 - 110				
Lab Sample ID: LCS-R81496													
Date Analyzed: 08/12/2015 612h													
Test Code: COND-W-2510B													
Conductivity	999	µmhos/cm	SM2510B	0.436	2.00	1,000	0	99.9	98 - 102				
Lab Sample ID: LCS NO3-81490													
Date Analyzed: 08/11/2015 1728h													
Test Code: NO2/NO3-W-353.2													
Nitrate/Nitrite (as N)	0.913	mg/L	E353.2	0.00833	0.0100	1.000	0	91.3	90 - 110				
Lab Sample ID: LCS-R81493													
Date Analyzed: 08/11/2015 2006h													
Test Code: PH-4500H+B													
pH @ 25° C	9.03	pH Units	SM4500-H+B	1.00	1.00	9.000	0	100	98 - 102				
Lab Sample ID: LCS-R81506													
Date Analyzed: 08/11/2015 1420h													
Test Code: TDS-W-2540C													
Total Dissolved Solids	198	mg/L	SM2540C	6.13	10.0	205.0	0	96.6	80 - 120				
Lab Sample ID: LCS-R81560													
Date Analyzed: 08/12/2015 1420h													
Test Code: TDS-W-2540C													
Total Dissolved Solids	216	mg/L	SM2540C	6.13	10.0	205.0	0	105	80 - 120				
Lab Sample ID: LCS-R81508													
Date Analyzed: 08/11/2015 1430h													
Test Code: TSS-W-2540D													
Total Suspended Solids	94.0	mg/L	SM2540D	2.83	3.00	100.0	0	94.0	80 - 120				



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QC SUMMARY REPORT

Client: Utah Division of Water Quality

Lab Set ID: 1508189

Project: Gold King Mine - San Juan River Sampling

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
Lab Sample ID: MB-R81550													
Date Analyzed: 08/12/2015 1633h													
Test Code: 300.0-W													
Chloride	< 0.100	mg/L	E300.0	0.00751	0.100								U
Sulfate	< 0.750	mg/L	E300.0	0.0211	0.750								U
Lab Sample ID: MB-R81500													
Date Analyzed: 08/12/2015 638h													
Test Code: ALK-W-2320B													
Alkalinity (as CaCO ₃)	< 10.0	mg/L	SM2320B	1.86	10.0								U
Bicarbonate (as CaCO ₃)	< 10.0	mg/L	SM2320B	1.86	10.0								U
Carbonate (as CaCO ₃)	< 10.0	mg/L	SM2320B	1.86	10.0								U
Lab Sample ID: MB-R81496													
Date Analyzed: 08/12/2015 612h													
Test Code: COND-W-2510B													
Conductivity	0.860	µmhos/cm	SM2510B	0.436	2.00								JB1
Lab Sample ID: MB-R81490													
Date Analyzed: 08/11/2015 1725h													
Test Code: NO2/NO3-W-353.2													
Nitrate/Nitrite (as N)	0.00874	mg/L	E353.2	0.00833	0.0100								JB1
Lab Sample ID: MB-R81506													
Date Analyzed: 08/11/2015 1420h													
Test Code: TDS-W-2540C													
Total Dissolved Solids	< 10.0	mg/L	SM2540C	6.13	10.0								U
Lab Sample ID: MB-R81560													
Date Analyzed: 08/12/2015 1420h													
Test Code: TDS-W-2540C													
Total Dissolved Solids	< 10.0	mg/L	SM2540C	6.13	10.0								U
Lab Sample ID: MB-R81508													
Date Analyzed: 08/11/2015 1430h													
Test Code: TSS-W-2540D													
Total Suspended Solids	< 3.00	mg/L	SM2540D	2.83	3.00								U

B1 - The method blank was acceptable, as the method blank result is less than 10% of the lowest reported sample concentration.

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: 1508189
Project: Gold King Mine - San Juan River Sampling

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
Lab Sample ID: 1508188-001AMS Date Analyzed: 08/12/2015 1724h													
Test Code: 300.0-W													
Chloride	538	mg/L	E300.0	0.751	10.0	500.0	10	106	90 - 110				
Sulfate	631	mg/L	E300.0	2.11	75.0	500.0	132	99.9	90 - 110				
Lab Sample ID: 1508189-001AMS Date Analyzed: 08/12/2015 1955h													
Test Code: 300.0-W													
Chloride	537	mg/L	E300.0	0.751	10.0	500.0	10.3	105	90 - 110				
Sulfate	624	mg/L	E300.0	2.11	75.0	500.0	126	99.4	90 - 110				
Lab Sample ID: 1508227-001AMS Date Analyzed: 08/13/2015 042h													
Test Code: 300.0-W													
Chloride	540	mg/L	E300.0	0.751	10.0	500.0	11.3	106	90 - 110				
Sulfate	621	mg/L	E300.0	2.11	75.0	500.0	129	98.3	90 - 110				
Lab Sample ID: 1508228-001AMS Date Analyzed: 08/13/2015 316h													
Test Code: 300.0-W													
Chloride	543	mg/L	E300.0	0.751	10.0	500.0	37	101	90 - 110				
Sulfate	625	mg/L	E300.0	2.11	75.0	500.0	117	102	90 - 110				
Lab Sample ID: 1508188-001AMS Date Analyzed: 08/12/2015 638h													
Test Code: ALK-W-2320B													
Alkalinity (as CaCO3)	204	mg/L	SM2320B	1.86	10.0	100.0	105	99.7	80 - 120				
Lab Sample ID: 1508189-001AMS Date Analyzed: 08/12/2015 638h													
Test Code: ALK-W-2320B													
Alkalinity (as CaCO3)	216	mg/L	SM2320B	1.86	10.0	100.0	115	101	80 - 120				
Lab Sample ID: 1508188-001AMS NO3 Date Analyzed: 08/11/2015 1733h													
Test Code: NO2/NO3-W-353.2													
Nitrate/Nitrite (as N)	9.99	mg/L	E353.2	0.0833	0.100	10.00	0.337	96.5	90 - 110				



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QC SUMMARY REPORT

Client: Utah Division of Water Quality
Lab Set ID: 1508189
Project: Gold King Mine - San Juan River Sampling

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
Lab Sample ID: 1508189-001AMS NO3													
Date Analyzed: 08/11/2015 1752h													
Test Code: NO2/NO3-W-353.2													
Nitrate/Nitrite (as N)	9.50	mg/L	E353.2	0.0833	0.100	10.00	0.338	91.7	90 - 110				



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: 1508189
Project: Gold King Mine - San Juan River Sampling

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
Lab Sample ID: 1508188-001AMSD Date Analyzed: 08/12/2015 1741h													
Test Code: 300.0-W													
Chloride	539	mg/L	E300.0	0.751	10.0	500.0	10	106	90 - 110	538	0.224	20	
Sulfate	634	mg/L	E300.0	2.11	75.0	500.0	132	100	90 - 110	631	0.429	20	
Lab Sample ID: 1508189-001AMSD Date Analyzed: 08/12/2015 2012h													
Test Code: 300.0-W													
Chloride	539	mg/L	E300.0	0.751	10.0	500.0	10.3	106	90 - 110	537	0.473	20	
Sulfate	622	mg/L	E300.0	2.11	75.0	500.0	126	99.1	90 - 110	624	0.231	20	
Lab Sample ID: 1508227-001AMSD Date Analyzed: 08/13/2015 059h													
Test Code: 300.0-W													
Chloride	541	mg/L	E300.0	0.751	10.0	500.0	11.3	106	90 - 110	540	0.0929	20	
Sulfate	610	mg/L	E300.0	2.11	75.0	500.0	129	96.1	90 - 110	621	1.76	20	
Lab Sample ID: 1508228-001AMSD Date Analyzed: 08/13/2015 333h													
Test Code: 300.0-W													
Chloride	538	mg/L	E300.0	0.751	10.0	500.0	37	100	90 - 110	543	0.939	20	
Sulfate	620	mg/L	E300.0	2.11	75.0	500.0	117	101	90 - 110	625	0.781	20	
Lab Sample ID: 1508188-001AMSD Date Analyzed: 08/12/2015 638h													
Test Code: ALK-W-2320B													
Alkalinity (as CaCO3)	206	mg/L	SM2320B	1.86	10.0	100.0	105	101	80 - 120	205	0.828	10	
Lab Sample ID: 1508189-001AMSD Date Analyzed: 08/12/2015 638h													
Test Code: ALK-W-2320B													
Alkalinity (as CaCO3)	215	mg/L	SM2320B	1.86	10.0	100.0	115	99.7	80 - 120	216	0.789	10	
Lab Sample ID: 1508188-001AMSD NO3 Date Analyzed: 08/11/2015 1735h													
Test Code: NO2/NO3-W-353.2													
Nitrate/Nitrite (as N)	9.96	mg/L	E353.2	0.0833	0.100	10.00	0.337	96.2	90 - 110	0	0	10	



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QC SUMMARY REPORT

Client: Utah Division of Water Quality

Lab Set ID: 1508189

Project: Gold King Mine - San Juan River Sampling

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
Lab Sample ID: 1508189-001AMSD NO3 Date Analyzed: 08/11/2015 1754h													
Test Code: NO2/NO3-W-353.2													
Nitrate/Nitrite (as N)	9.32	mg/L	E353.2	0.0833	0.100	10.00	0.338	89.8	90 - 110	0	0	10	§

§ - QC limits are set with an accuracy of two significant figures, therefore the recovery rounds to an acceptable value within the control limits.

WORK ORDER Summary

Work Order: **1508189**

Page 1 of 4

Client: Utah Division of Water Quality

Due Date: 8/12/2015

Client ID: UTD200

Contact: Lenora Sullivan

Project: Gold King Mine - San Juan River Sampling

QC Level: II+ MDL

WO Type: Standard

Comments: Next Day Rush; QC 2+. Flag any concentrations detected less than RL and at or greater than the MDL with a J flag. Include EDD. Samples for Dissolved Metals were field filtered. Cc: jamesharris@utah.gov.;

DB

Sample ID	Client Sample ID	Collected Date	Received Date	Test Code	Matrix	Sel Storage	
1508189-001A	San Juan R at Mexican Hat US163 Xing (4953000)	8/10/2015 1153h	8/11/2015 1320h	300.0-W	Aqueous	df - wc	1
				2 SEL Analytes: CL SO4			
				ALK-W-2320B		df - wc	
				3 SEL Analytes: ALK ALKB ALKC			
				COND-W-2510B		df - wc	
				NO2/NO3-W-353.2		df - wc	
				PH-4500H+B		df - wc	
				TDS-W-2540C		df - wc	
				TSS-W-2540D		df - wc	
1508189-001B				200.7-W		df - metals	
				7 SEL Analytes: AL CA FE MG K NA V			
				200.7-W-PR		df - metals	
				200.8-W		df - metals	
				16 SEL Analytes: SB AS BA BE CD CR CO CU PB MN MO NI SE AG TL ZN			
				200.8-W-PR		df - metals	
				HARD-2340B		df - metals	
				HG-DW-245.1		df - metals	
				HG-DW-PR		df - metals	
1508189-001C				200.7-DIS		df - dis met	
				7 SEL Analytes: AL CA FE MG K NA V			
				200.7-DIS-PR		df - dis met	
				200.8-DIS		df - dis met	
				16 SEL Analytes: SB AS BA BE CD CR CO CU PB MN MO NI SE AG TL ZN			
				200.8-DIS-PR		df - dis met	
				HARD-2340B		df - dis met	
				1 SEL Analytes: HARD			
				HG-DW-DIS-245.1		df - dis met	
				HG-DW-DIS-PR		df - dis met	

WORK ORDER Summary

Work Order: **1508189** Page 2 of 4

Client: Utah Division of Water Quality

Due Date: 8/12/2015

Sample ID	Client Sample ID	Collected Date	Received Date	Test Code	Matrix	Sel Storage				
1508189-002A	San Juan R at Sand Island (4953250)	8/10/2015 1115h	8/11/2015 1320h	300.0-W	Aqueous	df - wc				
				<i>2 SEL Analytes: CL SO4</i>						
				ALK-W-2320B		df - wc				
				<i>3 SEL Analytes: ALK ALKB ALKC</i>						
				COND-W-2510B		df - wc				
				NO2/NO3-W-353.2		df - wc				
				PH-4500H+B		df - wc				
				TDS-W-2540C		df - wc				
				TSS-W-2540D		df - wc				
				1508189-002B				200.7-W		df - metals
								<i>7 SEL Analytes: AL CA FE MG K NA V</i>		
								200.7-W-PR		df - metals
								200.8-W		df - metals
								<i>16 SEL Analytes: SB AS BA BE CD CR CO CU PB MN MO NI SE AG TL ZN</i>		
200.8-W-PR		df - metals								
HARD-2340B		df - metals								
HG-DW-245.1		df - metals								
HG-DW-PR		df - metals								
1508189-002C								200.7-DIS		df - dis met
								<i>7 SEL Analytes: AL CA FE MG K NA V</i>		
								200.7-DIS-PR		df - dis met
								200.8-DIS		df - dis met
								<i>16 SEL Analytes: SB AS BA BE CD CR CO CU PB MN MO NI SE AG TL ZN</i>		
				200.8-DIS-PR		df - dis met				
				HARD-2340B		df - dis met				
				<i>1 SEL Analytes: HARD</i>						
				HG-DW-DIS-245.1		df - dis met				
				HG-DW-DIS-PR		df - dis met				
				1508189-003A	San Juan River at Town of Montezuma (4953990)	8/10/2015 1013h	8/11/2015 1320h	300.0-W	Aqueous	df - wc
								<i>2 SEL Analytes: CL SO4</i>		
								ALK-W-2320B		df - wc
								<i>3 SEL Analytes: ALK ALKB ALKC</i>		
COND-W-2510B		df - wc								
NO2/NO3-W-353.2		df - wc								
PH-4500H+B		df - wc								
TDS-W-2540C		df - wc								

WORK ORDER Summary

Work Order: **1508189**

Page 3 of 4

Client: Utah Division of Water Quality

Due Date: 8/12/2015

Sample ID	Client Sample ID	Collected Date	Received Date	Test Code	Matrix	Sel Storage	
1508189-003A	San Juan River at Town of Montezuma (4953990)	8/10/2015 1013h	8/11/2015 1320h	TSS-W-2540D	Aqueous	df - wc	1
1508189-003B				200.7-W	df - metals		
				7 SEL Analytes: AL CA FE MG K NA V			
				200.7-W-PR	df - metals		
				200.8-W	df - metals		
				16 SEL Analytes: SB AS BA BE CD CR CO CU PB MN MO NI SE AG TL ZN			
				200.8-W-PR	df - metals		
				HARD-2340B	df - metals		
				HG-DW-245.1	df - metals		
				HG-DW-PR	df - metals		
				200.7-DIS	df - dis met		
				7 SEL Analytes: AL CA FE MG K NA V			
				200.7-DIS-PR	df - dis met		
				200.8-DIS	df - dis met		
16 SEL Analytes: SB AS BA BE CD CR CO CU PB MN MO NI SE AG TL ZN							
200.8-DIS-PR	df - dis met						
HARD-2340B	df - dis met						
1 SEL Analytes: HARD							
HG-DW-DIS-245.1	df - dis met						
HG-DW-DIS-PR	df - dis met						
1508189-004A	San Juan R at US160 Xing in CO (4954000)	8/10/2015 0911h	8/11/2015 1320h	300.0-W	Aqueous	df - wc	1
2 SEL Analytes: CL SO4							
ALK-W-2320B				df - wc			
3 SEL Analytes: ALK ALKB ALKC							
COND-W-2510B				df - wc			
NO2/NO3-W-353.2				df - wc			
PH-4500H+B				df - wc			
TDS-W-2540C				df - wc			
TSS-W-2540D				df - wc			
1508189-004B				200.7-W	df - metals		
	7 SEL Analytes: AL CA FE MG K NA V						
	200.7-W-PR	df - metals					
	200.8-W	df - metals					
	16 SEL Analytes: SB AS BA BE CD CR CO CU PB MN MO NI SE AG TL ZN						
200.8-W-PR	df - metals						

WORK ORDER Summary

Work Order: **1508189**

Page 4 of 4

Client: Utah Division of Water Quality

Due Date: 8/12/2015

Sample ID	Client Sample ID	Collected Date	Received Date	Test Code	Matrix	Sel Storage
1508189-004B	San Juan R at US160 Xing in CO (4954000)	8/10/2015 0911h	8/11/2015 1320h	HARD-2340B	Aqueous	df - metals 1
HG-DW-245.1				df - metals		
HG-DW-PR				df - metals		
1508189-004C				200.7-DIS		df - dis met
				<i>7 SEL Analytes: AL CA FE MG K NA V</i>		
				200.7-DIS-PR		df - dis met
				200.8-DIS		df - dis met
				<i>16 SEL Analytes: SB AS BA BE CD CR CO CU PB MN MO NI SE AG TL ZN</i>		
				200.8-DIS-PR		df - dis met
				HARD-2340B		df - dis met
<i>1 SEL Analytes: HARD</i>						
				HG-DW-DIS-245.1		df - dis met
				HG-DW-DIS-PR		df - dis met

American West Analytical Laboratories

Chain of Custody

Lab Sample Set # 1508189

Client: **Utah Division of Water Quality**
 Address: **PO Box 144870**
Salt Lake City, UT 84114-4870

Contact: **Lenora Sullivan**
 Phone: **801-536-4367**
 Fax: **801-536-4301**

Page 1 of 1

Project Name: **Gold King Mine - San Juan River Sampling**
 PO#:

Email: **lenoras@utah.gov**
jamesharris@utah.gov (please copy on results)

QC Level: 2+

TAT - ASAP

Sample ID:	Date Sampled	Time	# of Containers	Sample Matrix	Total Chemistry: pH, Alkalinity, Anions, TDS, TSS, Conductivity	Total TAL Metals + Mo + Hardness (200.7: Al, Ca, Fe, K, Mg, Na, 200.8: Sb, As, Ba, Be, Cd, Cr, Co, Cu, Pb, Mn, Mo, N, Ag, Se, Ti, V, Zn, 245.1: Hg)	Dissolved TAL Metals + Mo + Hardness (200.7: Al, Ca, Fe, K, Mg, Na, 200.8: Sb, As, Ba, Be, Cd, Cr, Co, Cu, Pb, Mn, Mo, N, Ag, Se, Ti, V, Zn, 245.1: Hg)	Comments	Laboratory Use Only
SAN JUAN R AT MEXICAN HAT US163 XING (4953000)	08/10/15	1153	3		X	X	X	Dissolved Metals samples have been field filtered. Samples collected from river monitoring following a mine waste dump release. Please flag any concentrations detected less than RL and at or greater than the MDL with a J qualifier. Please include EDD.	Samples Were: 1 Shipped <input checked="" type="checkbox"/> hand delivered 2 Ambient or Chilled 3 Temperature <u>0.4°C</u> 4 Received Broken/Leaking (Improperly Sealed) Y <input type="checkbox"/> N <input checked="" type="checkbox"/> 5 Properly Preserved Y <input checked="" type="checkbox"/> N <input type="checkbox"/> 6 Received Within Holding Times Y <input checked="" type="checkbox"/> N <input type="checkbox"/> COC Tape Was: 1 Present on Outer Package Y <input type="checkbox"/> N <input checked="" type="checkbox"/> NA 2 Unbroken on Outer Package Y <input type="checkbox"/> N <input checked="" type="checkbox"/> NA 3 Present on Sample Y <input type="checkbox"/> N <input checked="" type="checkbox"/> NA 4 Unbroken on Sample Y <input type="checkbox"/> N <input checked="" type="checkbox"/> NA Discrepancies Between Sample Labels and COC Records Y <input type="checkbox"/> N <input checked="" type="checkbox"/>
SAN JUAN R AT SAND ISLAND (4953250)	08/10/15	1115	3		X	X	X		
San Juan River at Town of Montezuma 4953990	08/10/15	1013	3		X	X	X		
SAN JUAN R AT US160 XING IN CO (4954000)	08/10/15	0911	3		X	X	X		

Special Instructions:

Relinquished by: Signature <u>Ben L. Brown</u>	Date: <u>08/10/2015</u>	Received by: Signature <u>Keith Garcia</u>	Date: <u>8/10/15</u>
Print Name <u>Ben Brown</u>	Time: <u>190</u>	Print Name <u>Keith Garcia</u>	Time: <u>1900</u>
Relinquished by: Signature <u>Keith Garcia</u>	Date: <u>8/11/15</u>	Received by: Signature <u>Denise Brown</u>	Date: <u>8/11/15</u>
Print Name <u>Keith Garcia</u>	Time: <u>1320</u>	Print Name <u>Denise Brown</u>	Time: <u>1320</u>

For Water Samples:

Total Chemistry: pH, Alkalinity, Anions, TDS, TSS, Conductivity

Total TAL Metals + Mo + Hardness (200.7: Al, Ca, Fe, K, Mg, Na, **200.8:** Sb, As, Ba, Be, Cd, Cr, Co, Cu, Pb, Mn, Mo, N, Ag, Se, Tl, V, Zn, **245.1:** Hg)

Dissolved TAL Metals + Mo + Hardness (200.7: Al, Ca, Fe, K, Mg, Na, **200.8:** Sb, As, Ba, Be, Cd, Cr, Co, Cu, Pb, Mn, Mo, N, Ag, Se, Tl, V, Zn, **245.1:** Hg)

For Soil Samples:

Same analytes, let AWAL pick methods.

Preservation Check Sheet

Sample Set Extension and pH

Analysis	Preservative	001	002	003	004														
Ammonia	pH <2 H ₂ SO ₄																		
COD	pH <2 H ₂ SO ₄																		
Cyanide	pH >12 NaOH																		
Metals	pH <2 HNO ₃	yes	yes	yes	yes														
NO ₂ & NO ₃	pH <2 H ₂ SO ₄																		
O & G	pH <2 HCL																		
Phenols	pH <2 H ₂ SO ₄																		
Sulfide	pH > 9NaOH, Zn Acetate																		
TKN	pH <2 H ₂ SO ₄																		
T PO ₄	pH <2 H ₂ SO ₄																		

- 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.