

EXCELCHEM
Environmental Labs

1135 W Sunset Boulevard
Suite A
Rocklin, CA 95765
Phone# 916-543-4445
Fax# 916-543-4449



ELAP Certificate No. : 2119

15 November 2013

Jeff Huggins

RWQC Central Valley

11020 Sun Center Dr. #200

Rancho Cordova, CA 95670

RE: Walker Mine

Work order number:1311042

Enclosed are the results of analyses for samples received by the laboratory on 11/06/13 10:32. All Quality Control results are within acceptable limits except where noted as a case narrative. If you have any questions concerning this report, please feel free to contact the laboratory.

Sincerely,

John Somers, Lab Director

Excelchem Environmental Labs

RWQC Central Valley
11020 Sun Center Dr. #200
Rancho Cordova, CA 95670

Project: Walker Mine
Project Number: [none]
Project Manager: Jeff Huggins

Date Reported:
11/15/13 10:47

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
WM-30	1311042-01	Water	11/05/13 11:15	11/06/13 10:32
WM-1	1311042-02	Water	11/05/13 12:00	11/06/13 10:32
WM-3	1311042-03	Water	11/05/13 12:25	11/06/13 10:32
WM-19	1311042-04	Water	11/05/13 12:20	11/06/13 10:32
WM-4	1311042-05	Water	11/05/13 12:30	11/06/13 10:32
WM-9	1311042-06	Water	11/05/13 12:40	11/06/13 10:32
WM-12	1311042-07	Water	11/05/13 13:08	11/06/13 10:32
WM-13	1311042-08	Water	11/05/13 13:20	11/06/13 10:32
WM-17	1311042-09	Water	11/05/13 13:30	11/06/13 10:32
WM-5	1311042-10	Water	11/05/13 14:05	11/06/13 10:32
WM-7b	1311042-11	Water	11/05/13 14:20	11/06/13 10:32
WM-7c	1311042-12	Water	11/05/13 14:25	11/06/13 10:32
WM-7a	1311042-13	Water	11/05/13 14:45	11/06/13 10:32
WM-2	1311042-14	Water	11/05/13 12:05	11/06/13 10:32

Excelchem Environmental Lab.



Laboratory Representative

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Excelchem Environmental Labs

RWQC Central Valley
11020 Sun Center Dr. #200
Rancho Cordova, CA 95670

Project: Walker Mine
Project Number: [none]
Project Manager: Jeff Huggins

Date Reported:
11/15/13 10:47

WM-30 1311042-01 (Water)

Analyte	Result	Reporting Limit	MDL	Units	DF	Batch	Date Prepared	Date Analyzed	Method	Notes
Ion Chromatography										
Chloride	0.6	0.5	0.04	mg/L	1	AWK0088	11/07/13	11/07/13	EPA 300.0	
Wet Chemistry										
Bicarbonate Alkalinity	ND	5.00	2.37	mg/L	1	AWK0105	11/13/13	11/13/13	SM2320B	
Carbonate Alkalinity	ND	5.00	2.37	"	1	"	"	"	"	
Hydroxide Alkalinity	ND	5.00	2.37	"	1	"	"	"	"	
Total Alkalinity	ND	5.00	2.37	"	1	"	"	"	"	
Specific Conductance (EC)	386	5.00	1.09	uS/cm	1	AWK0056	11/07/13	11/07/13	EPA 120.1	
pH	4.40	0.100	0.100	pH Units	1	AWK0055	11/07/13	11/07/13	SM 4500-H+ B	Field
Total Dissolved Solids	264	15.0	7.68	mg/L	1	AWK0098	11/08/13	11/13/13	SM 2540C	
Total Hardness	508	5.00	2.86	"	1	AWK0100	11/13/13	11/13/13	SM2340B	
Total Recoverable Metals										
Aluminum	3340	50.0	24.5	ug/l	1	AWK0083	11/07/13	11/12/13	EPA 200.7	
Arsenic	ND	5.0	1.0	"	1	"	"	"	"	
Cadmium	10.4	5.0	0.1	"	1	"	"	"	"	
Calcium	35300	100	79.0	"	1	"	"	"	"	
Copper	10800	5.0	0.8	"	1	"	"	"	"	
Iron	761	20.0	11.5	"	1	"	"	"	"	
Magnesium	5610	50.0	15.6	"	1	"	"	"	"	
Potassium	2180	200	46.8	"	1	"	"	"	"	
Sodium	2640	200	120	"	1	"	"	"	"	
Zinc	748	10.0	0.3	"	1	"	"	"	"	
Dissolved Metals										
Dissolved Aluminum	3070	50.0	24.5	ug/l	1	AWK0102	11/12/13	11/13/13	EPA 200.7	
Dissolved Arsenic	ND	5.0	1.0	"	1	"	"	"	"	
Dissolved Cadmium	9.5	5.0	0.1	"	1	"	"	"	"	
Dissolved Copper	10200	5.0	0.8	"	1	"	"	"	"	
Dissolved Iron	202	20.0	11.5	"	1	"	"	"	"	
Dissolved Zinc	719	10.0	0.3	"	1	"	"	"	"	

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Laboratory Representative

Excelchem Environmental Labs

RWQC Central Valley
11020 Sun Center Dr. #200
Rancho Cordova, CA 95670

Project: Walker Mine
Project Number: [none]
Project Manager: Jeff Huggins

Date Reported:
11/15/13 10:47

WM-30 1311042-01RE1 (Water)

Analyte	Result	Reporting Limit	MDL	Units	DF	Batch	Date Prepared	Date Analyzed	Method	Notes
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Ion Chromatography

Sulfate as SO4	181	5.0	0.7	mg/L	10	AWK0088	11/07/13	11/07/13	EPA 300.0	
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RWQC Central Valley 11020 Sun Center Dr. #200 Rancho Cordova, CA 95670	Project: Walker Mine Project Number: [none] Project Manager: Jeff Huggins	Date Reported: 11/15/13 10:47
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WM-1 1311042-02 (Water)

Analyte	Result	Reporting Limit	MDL	Units	DF	Batch	Date Prepared	Date Analyzed	Method	Notes
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Ion Chromatography

Chloride	0.7	0.5	0.04	mg/L	1	AWK0088	11/07/13	11/07/13	EPA 300.0	
Sulfate as SO4	1.2	0.5	0.07	"	1	"	"	"	"	

Wet Chemistry

Bicarbonate Alkalinity	64.0	5.00	2.37	mg/L	1	AWK0105	11/13/13	11/13/13	SM2320B	
Carbonate Alkalinity	ND	5.00	2.37	"	1	"	"	"	"	
Hydroxide Alkalinity	ND	5.00	2.37	"	1	"	"	"	"	
Total Alkalinity	64.0	5.00	2.37	"	1	"	"	"	"	
Specific Conductance (EC)	118	5.00	1.09	uS/cm	1	AWK0056	11/07/13	11/07/13	EPA 120.1	
pH	7.58	0.100	0.100	pH Units	1	AWK0055	11/07/13	11/07/13	SM 4500-H+ B	Field
Total Dissolved Solids	107	15.0	7.68	mg/L	1	AWK0098	11/08/13	11/13/13	SM 2540C	
Total Hardness	64.0	5.00	2.86	"	1	AWK0100	11/13/13	11/13/13	SM2340B	

Total Recoverable Metals


Aluminum	ND	50.0	24.5	ug/l	1	AWK0083	11/07/13	11/12/13	EPA 200.7	
Arsenic	10.1	5.0	1.0	"	1	"	"	"	"	
Cadmium	0.3	5.0	0.1	"	1	"	"	"	"	J
Calcium	12500	100	79.0	"	1	"	"	"	"	
Copper	84.0	5.0	0.8	"	1	"	"	"	"	
Iron	51.0	20.0	11.5	"	1	"	"	"	"	
Magnesium	4370	50.0	15.6	"	1	"	"	"	"	
Potassium	983	200	46.8	"	1	"	"	"	"	
Sodium	4760	200	120	"	1	"	"	"	"	
Zinc	14.8	10.0	0.3	"	1	"	"	"	"	

Dissolved Metals

Dissolved Aluminum	ND	50.0	24.5	ug/l	1	AWK0102	11/12/13	11/13/13	EPA 200.7	
Dissolved Arsenic	8.5	5.0	1.0	"	1	"	"	"	"	
Dissolved Cadmium	0.4	5.0	0.1	"	1	"	"	"	"	J
Dissolved Copper	98.2	5.0	0.8	"	1	"	"	"	"	
Dissolved Iron	62.2	20.0	11.5	"	1	"	"	"	"	
Dissolved Zinc	19.7	10.0	0.3	"	1	"	"	"	"	

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WM-3 1311042-03 (Water)

Analyte	Result	Reporting Limit	MDL	Units	DF	Batch	Date Prepared	Date Analyzed	Method	Notes
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Ion Chromatography

Chloride	0.7	0.5	0.04	mg/L	1	AWK0088	11/07/13	11/07/13	EPA 300.0	
Sulfate as SO4	0.9	0.5	0.07	"	1	"	"	"	"	

Wet Chemistry

Bicarbonate Alkalinity	78.0	5.00	2.37	mg/L	1	AWK0105	11/13/13	11/13/13	SM2320B	
Carbonate Alkalinity	ND	5.00	2.37	"	1	"	"	"	"	
Hydroxide Alkalinity	ND	5.00	2.37	"	1	"	"	"	"	
Total Alkalinity	78.0	5.00	2.37	"	1	"	"	"	"	
Specific Conductance (EC)	140	5.00	1.09	uS/cm	1	AWK0056	11/07/13	11/07/13	EPA 120.1	
pH	7.75	0.100	0.100	pH Units	1	AWK0055	11/07/13	11/07/13	SM 4500-H+ B	Field
Total Dissolved Solids	90.0	15.0	7.68	mg/L	1	AWK0099	11/08/13	11/13/13	SM 2540C	
Total Hardness	74.0	5.00	2.86	"	1	AWK0100	11/13/13	11/13/13	SM2340B	

Total Recoverable Metals

Aluminum	79.6	50.0	24.5	ug/l	1	AWK0083	11/07/13	11/12/13	EPA 200.7	
Arsenic	ND	5.0	1.0	"	1	"	"	"	"	
Cadmium	0.2	5.0	0.1	"	1	"	"	"	"	J
Calcium	15400	100	79.0	"	1	"	"	"	"	
Copper	6.5	5.0	0.8	"	1	"	"	"	"	
Iron	612	20.0	11.5	"	1	"	"	"	"	
Magnesium	7000	50.0	15.6	"	1	"	"	"	"	
Potassium	1020	200	46.8	"	1	"	"	"	"	
Sodium	3070	200	120	"	1	"	"	"	"	
Zinc	7.7	10.0	0.3	"	1	"	"	"	"	J

Dissolved Metals

Dissolved Aluminum	ND	50.0	24.5	ug/l	1	AWK0102	11/12/13	11/13/13	EPA 200.7	
Dissolved Arsenic	ND	5.0	1.0	"	1	"	"	"	"	
Dissolved Cadmium	0.3	5.0	0.1	"	1	"	"	"	"	J
Dissolved Copper	11.0	5.0	0.8	"	1	"	"	"	"	
Dissolved Iron	184	20.0	11.5	"	1	"	"	"	"	
Dissolved Zinc	4.8	10.0	0.3	"	1	"	"	"	"	J

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RWQC Central Valley 11020 Sun Center Dr. #200 Rancho Cordova, CA 95670	Project: Walker Mine Project Number: [none] Project Manager: Jeff Huggins	Date Reported: 11/15/13 10:47
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**WM-19
1311042-04 (Water)**

Analyte	Result	Reporting Limit	MDL	Units	DF	Batch	Date Prepared	Date Analyzed	Method	Notes
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Ion Chromatography

Chloride	0.8	0.5	0.04	mg/L	1	AWK0088	11/07/13	11/07/13	EPA 300.0	
Sulfate as SO4	28.3	0.5	0.07	"	1	"	"	"	"	

Wet Chemistry

Bicarbonate Alkalinity	62.0	5.00	2.37	mg/L	1	AWK0105	11/13/13	11/13/13	SM2320B	
Carbonate Alkalinity	ND	5.00	2.37	"	1	"	"	"	"	
Hydroxide Alkalinity	ND	5.00	2.37	"	1	"	"	"	"	
Total Alkalinity	62.0	5.00	2.37	"	1	"	"	"	"	
Specific Conductance (EC)	173	5.00	1.09	uS/cm	1	AWK0056	11/07/13	11/07/13	EPA 120.1	
pH	7.73	0.100	0.100	pH Units	1	AWK0055	11/07/13	11/07/13	SM 4500-H+ B	Field
Total Dissolved Solids	111	15.0	7.68	mg/L	1	AWK0099	11/08/13	11/13/13	SM 2540C	
Total Hardness	106	5.00	2.86	"	1	AWK0100	11/13/13	11/13/13	SM2340B	


Total Recoverable Metals

Aluminum	71.0	50.0	24.5	ug/l	1	AWK0083	11/07/13	11/12/13	EPA 200.7	
Arsenic	ND	5.0	1.0	"	1	"	"	"	"	
Cadmium	0.4	5.0	0.1	"	1	"	"	"	"	J
Calcium	19400	100	79.0	"	1	"	"	"	"	
Copper	190	5.0	0.8	"	1	"	"	"	"	
Iron	230	20.0	11.5	"	1	"	"	"	"	
Magnesium	5190	50.0	15.6	"	1	"	"	"	"	
Potassium	1980	200	46.8	"	1	"	"	"	"	
Sodium	6210	200	120	"	1	"	"	"	"	
Zinc	26.9	10.0	0.3	"	1	"	"	"	"	

Dissolved Metals

Dissolved Aluminum	ND	50.0	24.5	ug/l	1	AWK0102	11/12/13	11/13/13	EPA 200.7	
Dissolved Arsenic	ND	5.0	1.0	"	1	"	"	"	"	
Dissolved Cadmium	0.3	5.0	0.1	"	1	"	"	"	"	J
Dissolved Copper	223	5.0	0.8	"	1	"	"	"	"	
Dissolved Iron	50.6	20.0	11.5	"	1	"	"	"	"	
Dissolved Zinc	18.0	10.0	0.3	"	1	"	"	"	"	

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RWQC Central Valley 11020 Sun Center Dr. #200 Rancho Cordova, CA 95670	Project: Walker Mine Project Number: [none] Project Manager: Jeff Huggins	Date Reported: 11/15/13 10:47
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**WM-4
1311042-05 (Water)**

Analyte	Result	Reporting Limit	MDL	Units	DF	Batch	Date Prepared	Date Analyzed	Method	Notes
Ion Chromatography										
Chloride	0.7	0.5	0.04	mg/L	1	AWK0088	11/07/13	11/07/13	EPA 300.0	
Sulfate as SO4	1.6	0.5	0.07	"	1	"	"	"	"	
Wet Chemistry										
Bicarbonate Alkalinity	78.0	5.00	2.37	mg/L	1	AWK0105	11/13/13	11/13/13	SM2320B	
Carbonate Alkalinity	ND	5.00	2.37	"	1	"	"	"	"	
Hydroxide Alkalinity	ND	5.00	2.37	"	1	"	"	"	"	
Total Alkalinity	78.0	5.00	2.37	"	1	"	"	"	"	
Specific Conductance (EC)	139	5.00	1.09	uS/cm	1	AWK0056	11/07/13	11/07/13	EPA 120.1	
pH	7.78	0.100	0.100	pH Units	1	AWK0055	11/07/13	11/07/13	SM 4500-H+ B	Field
Total Dissolved Solids	93.0	15.0	7.68	mg/L	1	AWK0099	11/08/13	11/13/13	SM 2540C	
Total Hardness	82.0	5.00	2.86	"	1	AWK0100	11/13/13	11/13/13	SM2340B	
Total Recoverable Metals										
Aluminum	ND	50.0	24.5	ug/l	1	AWK0083	11/07/13	11/12/13	EPA 200.7	
Arsenic	ND	5.0	1.0	"	1	"	"	"	"	
Cadmium	0.3	5.0	0.1	"	1	"	"	"	"	J
Calcium	15000	100	79.0	"	1	"	"	"	"	
Copper	8.6	5.0	0.8	"	1	"	"	"	"	
Iron	218	20.0	11.5	"	1	"	"	"	"	
Magnesium	6460	50.0	15.6	"	1	"	"	"	"	
Potassium	1100	200	46.8	"	1	"	"	"	"	
Sodium	3180	200	120	"	1	"	"	"	"	
Zinc	10.2	10.0	0.3	"	1	"	"	"	"	
Dissolved Metals										
Dissolved Aluminum	ND	50.0	24.5	ug/l	1	AWK0102	11/12/13	11/13/13	EPA 200.7	
Dissolved Arsenic	ND	5.0	1.0	"	1	"	"	"	"	
Dissolved Cadmium	0.2	5.0	0.1	"	1	"	"	"	"	J
Dissolved Copper	11.3	5.0	0.8	"	1	"	"	"	"	
Dissolved Iron	135	20.0	11.5	"	1	"	"	"	"	
Dissolved Zinc	6.3	10.0	0.3	"	1	"	"	"	"	J

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RWQC Central Valley
11020 Sun Center Dr. #200
Rancho Cordova, CA 95670

Project: Walker Mine
Project Number: [none]
Project Manager: Jeff Huggins

Date Reported:
11/15/13 10:47

WM-9 1311042-06 (Water)

Analyte	Result	Reporting Limit	MDL	Units	DF	Batch	Date Prepared	Date Analyzed	Method	Notes
Ion Chromatography										
Chloride	0.8	0.5	0.04	mg/L	1	AWK0088	11/07/13	11/07/13	EPA 300.0	
Sulfate as SO4	10.8	0.5	0.07	"	1	"	"	"	"	
Wet Chemistry										
Bicarbonate Alkalinity	78.0	5.00	2.37	mg/L	1	AWK0105	11/13/13	11/13/13	SM2320B	
Carbonate Alkalinity	ND	5.00	2.37	"	1	"	"	"	"	
Hydroxide Alkalinity	ND	5.00	2.37	"	1	"	"	"	"	
Total Alkalinity	78.0	5.00	2.37	"	1	"	"	"	"	
Specific Conductance (EC)	166	5.00	1.09	uS/cm	1	AWK0056	11/07/13	11/07/13	EPA 120.1	
pH	7.81	0.100	0.100	pH Units	1	AWK0055	11/07/13	11/07/13	SM 4500-H+ B	Field
Total Dissolved Solids	114	15.0	7.68	mg/L	1	AWK0099	11/08/13	11/13/13	SM 2540C	
Total Hardness	88.0	5.00	2.86	"	1	AWK0100	11/13/13	11/13/13	SM2340B	
Total Recoverable Metals										
Aluminum	ND	50.0	24.5	ug/l	1	AWK0083	11/07/13	11/12/13	EPA 200.7	
Arsenic	ND	5.0	1.0	"	1	"	"	"	"	
Cadmium	0.2	5.0	0.1	"	1	"	"	"	"	J
Calcium	20200	100	79.0	"	1	"	"	"	"	
Copper	3.7	5.0	0.8	"	1	"	"	"	"	J
Iron	588	20.0	11.5	"	1	"	"	"	"	
Magnesium	5420	50.0	15.6	"	1	"	"	"	"	
Potassium	1800	200	46.8	"	1	"	"	"	"	
Sodium	4420	200	120	"	1	"	"	"	"	
Zinc	10.6	10.0	0.3	"	1	"	"	"	"	
Dissolved Metals										
Dissolved Aluminum	ND	50.0	24.5	ug/l	1	AWK0102	11/12/13	11/13/13	EPA 200.7	
Dissolved Arsenic	ND	5.0	1.0	"	1	"	"	"	"	
Dissolved Cadmium	0.2	5.0	0.1	"	1	"	"	"	"	J
Dissolved Copper	14.6	5.0	0.8	"	1	"	"	"	"	
Dissolved Iron	314	20.0	11.5	"	1	"	"	"	"	
Dissolved Zinc	6.4	10.0	0.3	"	1	"	"	"	"	J

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**WM-12
1311042-07 (Water)**

Analyte	Result	Reporting Limit	MDL	Units	DF	Batch	Date Prepared	Date Analyzed	Method	Notes
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Ion Chromatography

Chloride	0.4	0.5	0.04	mg/L	1	AWK0088	11/07/13	11/07/13	EPA 300.0	J
Sulfate as SO4	0.3	0.5	0.07	"	1	"	"	"	"	J

Wet Chemistry

Bicarbonate Alkalinity	16.0	5.00	2.37	mg/L	1	AWK0105	11/13/13	11/13/13	SM2320B	
Carbonate Alkalinity	ND	5.00	2.37	"	1	"	"	"	"	
Hydroxide Alkalinity	ND	5.00	2.37	"	1	"	"	"	"	
Total Alkalinity	16.0	5.00	2.37	"	1	"	"	"	"	
Specific Conductance (EC)	21.5	5.00	1.09	uS/cm	1	AWK0056	11/07/13	11/07/13	EPA 120.1	
pH	6.76	0.100	0.100	pH Units	1	AWK0055	11/07/13	11/07/13	SM 4500-H+ B	Field
Total Dissolved Solids	31.0	15.0	7.68	mg/L	1	AWK0099	11/08/13	11/13/13	SM 2540C	
Total Hardness	22.0	5.00	2.86	"	1	AWK0100	11/13/13	11/13/13	SM2340B	


Total Recoverable Metals

Aluminum	51.6	50.0	24.5	ug/l	1	AWK0083	11/07/13	11/12/13	EPA 200.7	
Arsenic	ND	5.0	1.0	"	1	"	"	"	"	
Cadmium	0.1	5.0	0.1	"	1	"	"	"	"	J
Calcium	2140	100	79.0	"	1	"	"	"	"	
Copper	3.4	5.0	0.8	"	1	"	"	"	"	J
Iron	31.2	20.0	11.5	"	1	"	"	"	"	
Magnesium	837	50.0	15.6	"	1	"	"	"	"	
Potassium	256	200	46.8	"	1	"	"	"	"	
Sodium	1000	200	120	"	1	"	"	"	"	
Zinc	8.4	10.0	0.3	"	1	"	"	"	"	J

Dissolved Metals

Dissolved Aluminum	37.1	50.0	24.5	ug/l	1	AWK0102	11/12/13	11/13/13	EPA 200.7	J
Dissolved Arsenic	ND	5.0	1.0	"	1	"	"	"	"	
Dissolved Cadmium	0.1	5.0	0.1	"	1	"	"	"	"	J
Dissolved Copper	5.1	5.0	0.8	"	1	"	"	"	"	
Dissolved Iron	57.2	20.0	11.5	"	1	"	"	"	"	
Dissolved Zinc	3.6	10.0	0.3	"	1	"	"	"	"	J

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RWQC Central Valley 11020 Sun Center Dr. #200 Rancho Cordova, CA 95670	Project: Walker Mine Project Number: [none] Project Manager: Jeff Huggins	Date Reported: 11/15/13 10:47
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**WM-13
1311042-08 (Water)**

Analyte	Result	Reporting Limit	MDL	Units	DF	Batch	Date Prepared	Date Analyzed	Method	Notes
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Ion Chromatography

Chloride	0.5	0.5	0.04	mg/L	1	AWK0088	11/07/13	11/07/13	EPA 300.0	
Sulfate as SO4	0.2	0.5	0.07	"	1	"	"	"	"	J

Wet Chemistry

Bicarbonate Alkalinity	78.0	5.00	2.37	mg/L	1	AWK0105	11/13/13	11/13/13	SM2320B	
Carbonate Alkalinity	ND	5.00	2.37	"	1	"	"	"	"	
Hydroxide Alkalinity	ND	5.00	2.37	"	1	"	"	"	"	
Total Alkalinity	78.0	5.00	2.37	"	1	"	"	"	"	
Specific Conductance (EC)	140	5.00	1.09	uS/cm	1	AWK0056	11/07/13	11/07/13	EPA 120.1	
pH	7.54	0.100	0.100	pH Units	1	AWK0055	11/07/13	11/07/13	SM 4500-H+ B	Field
Total Dissolved Solids	103	15.0	7.68	mg/L	1	AWK0099	11/08/13	11/13/13	SM 2540C	
Total Hardness	72.0	5.00	2.86	"	1	AWK0100	11/13/13	11/13/13	SM2340B	


Total Recoverable Metals

Aluminum	ND	50.0	24.5	ug/l	1	AWK0083	11/07/13	11/12/13	EPA 200.7	
Arsenic	ND	5.0	1.0	"	1	"	"	"	"	
Cadmium	0.2	5.0	0.1	"	1	"	"	"	"	J
Calcium	16200	100	79.0	"	1	"	"	"	"	
Copper	ND	5.0	0.8	"	1	"	"	"	"	
Iron	55.3	20.0	11.5	"	1	"	"	"	"	
Magnesium	6760	50.0	15.6	"	1	"	"	"	"	
Potassium	605	200	46.8	"	1	"	"	"	"	
Sodium	2950	200	120	"	1	"	"	"	"	
Zinc	20.7	10.0	0.3	"	1	"	"	"	"	

Dissolved Metals

Dissolved Aluminum	ND	50.0	24.5	ug/l	1	AWK0102	11/12/13	11/13/13	EPA 200.7	
Dissolved Arsenic	ND	5.0	1.0	"	1	"	"	"	"	
Dissolved Cadmium	0.2	5.0	0.1	"	1	"	"	"	"	J
Dissolved Copper	14.9	5.0	0.8	"	1	"	"	"	"	
Dissolved Iron	58.9	20.0	11.5	"	1	"	"	"	"	
Dissolved Zinc	19.7	10.0	0.3	"	1	"	"	"	"	

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RWQC Central Valley
11020 Sun Center Dr. #200
Rancho Cordova, CA 95670

Project: Walker Mine
Project Number: [none]
Project Manager: Jeff Huggins

Date Reported:
11/15/13 10:47

WM-17 1311042-09 (Water)

Analyte	Result	Reporting Limit	MDL	Units	DF	Batch	Date Prepared	Date Analyzed	Method	Notes
Ion Chromatography										
Chloride	0.6	0.5	0.04	mg/L	1	AWK0088	11/07/13	11/07/13	EPA 300.0	
Sulfate as SO4	0.6	0.5	0.07	"	1	"	"	"	"	
Wet Chemistry										
Bicarbonate Alkalinity	86.0	5.00	2.37	mg/L	1	AWK0105	11/13/13	11/13/13	SM2320B	
Carbonate Alkalinity	ND	5.00	2.37	"	1	"	"	"	"	
Hydroxide Alkalinity	ND	5.00	2.37	"	1	"	"	"	"	
Total Alkalinity	86.0	5.00	2.37	"	1	"	"	"	"	
Specific Conductance (EC)	158	5.00	1.09	uS/cm	1	AWK0056	11/07/13	11/07/13	EPA 120.1	
pH	7.91	0.100	0.100	pH Units	1	AWK0055	11/07/13	11/07/13	SM 4500-H+ B	Field
Total Dissolved Solids	104	15.0	7.68	mg/L	1	AWK0099	11/08/13	11/13/13	SM 2540C	
Total Hardness	84.0	5.00	2.86	"	1	AWK0100	11/13/13	11/13/13	SM2340B	
Total Recoverable Metals										
Aluminum	ND	50.0	24.5	ug/l	1	AWK0083	11/07/13	11/12/13	EPA 200.7	
Arsenic	ND	5.0	1.0	"	1	"	"	"	"	
Cadmium	0.2	5.0	0.1	"	1	"	"	"	"	J
Calcium	18700	100	79.0	"	1	"	"	"	"	
Copper	ND	5.0	0.8	"	1	"	"	"	"	
Iron	20.9	20.0	11.5	"	1	"	"	"	"	
Magnesium	7500	50.0	15.6	"	1	"	"	"	"	
Potassium	1680	200	46.8	"	1	"	"	"	"	
Sodium	3550	200	120	"	1	"	"	"	"	
Zinc	4.4	10.0	0.3	"	1	"	"	"	"	J
Dissolved Metals										
Dissolved Aluminum	ND	50.0	24.5	ug/l	1	AWK0102	11/12/13	11/13/13	EPA 200.7	
Dissolved Arsenic	ND	5.0	1.0	"	1	"	"	"	"	
Dissolved Cadmium	0.3	5.0	0.1	"	1	"	"	"	"	J
Dissolved Copper	3.2	5.0	0.8	"	1	"	"	"	"	J
Dissolved Iron	28.8	20.0	11.5	"	1	"	"	"	"	
Dissolved Zinc	2.8	10.0	0.3	"	1	"	"	"	"	J

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WM-5 1311042-10 (Water)

Analyte	Result	Reporting Limit	MDL	Units	DF	Batch	Date Prepared	Date Analyzed	Method	Notes
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Ion Chromatography

Chloride	0.7	0.5	0.04	mg/L	1	AWK0088	11/07/13	11/07/13	EPA 300.0	
Sulfate as SO4	0.2	0.5	0.07	"	1	"	"	"	"	J

Wet Chemistry

Bicarbonate Alkalinity	62.0	5.00	2.37	mg/L	1	AWK0105	11/13/13	11/13/13	SM2320B	
Carbonate Alkalinity	ND	5.00	2.37	"	1	"	"	"	"	
Hydroxide Alkalinity	ND	5.00	2.37	"	1	"	"	"	"	
Total Alkalinity	62.0	5.00	2.37	"	1	"	"	"	"	
Specific Conductance (EC)	112	5.00	1.09	uS/cm	1	AWK0056	11/07/13	11/07/13	EPA 120.1	
pH	7.53	0.100	0.100	pH Units	1	AWK0055	11/07/13	11/07/13	SM 4500-H+ B	Field
Total Dissolved Solids	65.0	15.0	7.68	mg/L	1	AWK0099	11/08/13	11/13/13	SM 2540C	
Total Hardness	56.0	5.00	2.86	"	1	AWK0100	11/13/13	11/13/13	SM2340B	


Total Recoverable Metals

Aluminum	ND	50.0	24.5	ug/l	1	AWK0083	11/07/13	11/12/13	EPA 200.7	
Arsenic	ND	5.0	1.0	"	1	"	"	"	"	
Cadmium	0.2	5.0	0.1	"	1	"	"	"	"	J
Calcium	12400	100	79.0	"	1	"	"	"	"	
Copper	0.8	5.0	0.8	"	1	"	"	"	"	J
Iron	208	20.0	11.5	"	1	"	"	"	"	
Magnesium	4110	50.0	15.6	"	1	"	"	"	"	
Potassium	1600	200	46.8	"	1	"	"	"	"	
Sodium	4040	200	120	"	1	"	"	"	"	
Zinc	7.9	10.0	0.3	"	1	"	"	"	"	J

Dissolved Metals

Dissolved Aluminum	ND	50.0	24.5	ug/l	1	AWK0102	11/12/13	11/13/13	EPA 200.7	
Dissolved Arsenic	ND	5.0	1.0	"	1	"	"	"	"	
Dissolved Cadmium	0.2	5.0	0.1	"	1	"	"	"	"	J
Dissolved Copper	2.9	5.0	0.8	"	1	"	"	"	"	J
Dissolved Iron	110	20.0	11.5	"	1	"	"	"	"	
Dissolved Zinc	3.5	10.0	0.3	"	1	"	"	"	"	J

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RWQC Central Valley
11020 Sun Center Dr. #200
Rancho Cordova, CA 95670

Project: Walker Mine
Project Number: [none]
Project Manager: Jeff Huggins

Date Reported:
11/15/13 10:47

WM-7b 1311042-11 (Water)

Analyte	Result	Reporting Limit	MDL	Units	DF	Batch	Date Prepared	Date Analyzed	Method	Notes
Ion Chromatography										
Chloride	0.7	0.5	0.04	mg/L	1	AWK0088	11/07/13	11/07/13	EPA 300.0	
Sulfate as SO4	1.8	0.5	0.07	"	1	"	"	"	"	
Wet Chemistry										
Bicarbonate Alkalinity	74.0	5.00	2.37	mg/L	1	AWK0105	11/13/13	11/13/13	SM2320B	
Carbonate Alkalinity	ND	5.00	2.37	"	1	"	"	"	"	
Hydroxide Alkalinity	ND	5.00	2.37	"	1	"	"	"	"	
Total Alkalinity	74.0	5.00	2.37	"	1	"	"	"	"	
Specific Conductance (EC)	138	5.00	1.09	uS/cm	1	AWK0056	11/07/13	11/07/13	EPA 120.1	
pH	8.04	0.100	0.100	pH Units	1	AWK0055	11/07/13	11/07/13	SM 4500-H+ B	Field
Total Dissolved Solids	82.0	15.0	7.68	mg/L	1	AWK0099	11/08/13	11/13/13	SM 2540C	
Total Hardness	78.0	5.00	2.86	"	1	AWK0100	11/13/13	11/13/13	SM2340B	
Total Recoverable Metals										
Aluminum	ND	50.0	24.5	ug/l	1	AWK0083	11/07/13	11/12/13	EPA 200.7	
Arsenic	ND	5.0	1.0	"	1	"	"	"	"	
Cadmium	0.1	5.0	0.1	"	1	"	"	"	"	J
Calcium	14900	100	79.0	"	1	"	"	"	"	
Copper	10.1	5.0	0.8	"	1	"	"	"	"	
Iron	261	20.0	11.5	"	1	"	"	"	"	
Magnesium	5790	50.0	15.6	"	1	"	"	"	"	
Potassium	1130	200	46.8	"	1	"	"	"	"	
Sodium	3420	200	120	"	1	"	"	"	"	
Zinc	4.3	10.0	0.3	"	1	"	"	"	"	J
Dissolved Metals										
Dissolved Aluminum	ND	50.0	24.5	ug/l	1	AWK0102	11/12/13	11/13/13	EPA 200.7	
Dissolved Arsenic	ND	5.0	1.0	"	1	"	"	"	"	
Dissolved Cadmium	0.2	5.0	0.1	"	1	"	"	"	"	J
Dissolved Copper	9.4	5.0	0.8	"	1	"	"	"	"	
Dissolved Iron	180	20.0	11.5	"	1	"	"	"	"	
Dissolved Zinc	2.7	10.0	0.3	"	1	"	"	"	"	J

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WM-7c 1311042-12 (Water)

Analyte	Result	Reporting Limit	MDL	Units	DF	Batch	Date Prepared	Date Analyzed	Method	Notes
Ion Chromatography										
Chloride	0.8	0.5	0.04	mg/L	1	AWK0088	11/07/13	11/07/13	EPA 300.0	
Sulfate as SO4	12.4	0.5	0.07	"	1	"	"	"	"	
Wet Chemistry										
Bicarbonate Alkalinity	80.0	5.00	2.37	mg/L	1	AWK0105	11/13/13	11/13/13	SM2320B	
Carbonate Alkalinity	ND	5.00	2.37	"	1	"	"	"	"	
Hydroxide Alkalinity	ND	5.00	2.37	"	1	"	"	"	"	
Total Alkalinity	80.0	5.00	2.37	"	1	"	"	"	"	
Specific Conductance (EC)	170	5.00	1.09	uS/cm	1	AWK0056	11/07/13	11/07/13	EPA 120.1	
pH	7.38	0.100	0.100	pH Units	1	AWK0055	11/07/13	11/07/13	SM 4500-H+ B	Field
Total Dissolved Solids	102	15.0	7.68	mg/L	1	AWK0099	11/08/13	11/13/13	SM 2540C	
Total Hardness	94.0	5.00	2.86	"	1	AWK0100	11/13/13	11/13/13	SM2340B	
Total Recoverable Metals										
Aluminum	ND	50.0	24.5	ug/l	1	AWK0083	11/07/13	11/12/13	EPA 200.7	
Arsenic	ND	5.0	1.0	"	1	"	"	"	"	
Cadmium	0.2	5.0	0.1	"	1	"	"	"	"	J
Calcium	20900	100	79.0	"	1	"	"	"	"	
Copper	ND	5.0	0.8	"	1	"	"	"	"	
Iron	1300	20.0	11.5	"	1	"	"	"	"	
Magnesium	4990	50.0	15.6	"	1	"	"	"	"	
Potassium	2100	200	46.8	"	1	"	"	"	"	
Sodium	4960	200	120	"	1	"	"	"	"	
Zinc	19.3	10.0	0.3	"	1	"	"	"	"	
Dissolved Metals										
Dissolved Aluminum	ND	50.0	24.5	ug/l	1	AWK0102	11/12/13	11/13/13	EPA 200.7	
Dissolved Arsenic	ND	5.0	1.0	"	1	"	"	"	"	
Dissolved Cadmium	0.2	5.0	0.1	"	1	"	"	"	"	J
Dissolved Copper	3.4	5.0	0.8	"	1	"	"	"	"	J
Dissolved Iron	510	20.0	11.5	"	1	"	"	"	"	
Dissolved Zinc	4.1	10.0	0.3	"	1	"	"	"	"	J

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**WM-7a
1311042-13 (Water)**

Analyte	Result	Reporting Limit	MDL	Units	DF	Batch	Date Prepared	Date Analyzed	Method	Notes
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Ion Chromatography

Chloride	0.7	0.5	0.04	mg/L	1	AWK0088	11/07/13	11/07/13	EPA 300.0	
Sulfate as SO4	1.7	0.5	0.07	"	1	"	"	"	"	

Wet Chemistry

Bicarbonate Alkalinity	74.0	5.00	2.37	mg/L	1	AWK0105	11/13/13	11/13/13	SM2320B	
Carbonate Alkalinity	ND	5.00	2.37	"	1	"	"	"	"	
Hydroxide Alkalinity	ND	5.00	2.37	"	1	"	"	"	"	
Total Alkalinity	74.0	5.00	2.37	"	1	"	"	"	"	
Specific Conductance (EC)	140	5.00	1.09	uS/cm	1	AWK0056	11/07/13	11/07/13	EPA 120.1	
pH	7.99	0.100	0.100	pH Units	1	AWK0055	11/07/13	11/07/13	SM 4500-H+ B	Field
Total Dissolved Solids	92.0	15.0	7.68	mg/L	1	AWK0099	11/08/13	11/13/13	SM 2540C	
Total Hardness	80.0	5.00	2.86	"	1	AWK0100	11/13/13	11/13/13	SM2340B	


Total Recoverable Metals

Aluminum	ND	50.0	24.5	ug/l	1	AWK0083	11/07/13	11/12/13	EPA 200.7	
Arsenic	ND	5.0	1.0	"	1	"	"	"	"	
Cadmium	0.2	5.0	0.1	"	1	"	"	"	"	J
Calcium	15200	100	79.0	"	1	"	"	"	"	
Copper	11.6	5.0	0.8	"	1	"	"	"	"	
Iron	380	20.0	11.5	"	1	"	"	"	"	
Magnesium	6510	50.0	15.6	"	1	"	"	"	"	
Potassium	1020	200	46.8	"	1	"	"	"	"	
Sodium	3420	200	120	"	1	"	"	"	"	
Zinc	6.5	10.0	0.3	"	1	"	"	"	"	J

Dissolved Metals

Dissolved Aluminum	ND	50.0	24.5	ug/l	1	AWK0102	11/12/13	11/13/13	EPA 200.7	
Dissolved Arsenic	ND	5.0	1.0	"	1	"	"	"	"	
Dissolved Cadmium	0.2	5.0	0.1	"	1	"	"	"	"	J
Dissolved Copper	10.2	5.0	0.8	"	1	"	"	"	"	
Dissolved Iron	267	20.0	11.5	"	1	"	"	"	"	
Dissolved Zinc	2.7	10.0	0.3	"	1	"	"	"	"	J

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**WM-2
1311042-14 (Water)**

Analyte	Result	Reporting Limit	MDL	Units	DF	Batch	Date Prepared	Date Analyzed	Method	Notes
Ion Chromatography										
Chloride	0.6	0.5	0.04	mg/L	1	AWK0088	11/07/13	11/07/13	EPA 300.0	
Sulfate as SO4	0.2	0.5	0.07	"	1	"	"	"	"	J
Wet Chemistry										
Bicarbonate Alkalinity	86.0	5.00	2.37	mg/L	1	AWK0105	11/13/13	11/13/13	SM2320B	
Carbonate Alkalinity	ND	5.00	2.37	"	1	"	"	"	"	
Hydroxide Alkalinity	ND	5.00	2.37	"	1	"	"	"	"	
Total Alkalinity	86.0	5.00	2.37	"	1	"	"	"	"	
Specific Conductance (EC)	149	5.00	1.09	uS/cm	1	AWK0056	11/07/13	11/07/13	EPA 120.1	
pH	7.84	0.100	0.100	pH Units	1	AWK0055	11/07/13	11/07/13	SM 4500-H+ B	Field
Total Dissolved Solids	80.0	15.0	7.68	mg/L	1	AWK0099	11/08/13	11/13/13	SM 2540C	
Total Hardness	88.0	5.00	2.86	"	1	AWK0100	11/13/13	11/13/13	SM2340B	
Total Recoverable Metals										
Aluminum	37.0	50.0	24.5	ug/l	1	AWK0083	11/07/13	11/12/13	EPA 200.7	J
Arsenic	ND	5.0	1.0	"	1	"	"	"	"	
Cadmium	0.3	5.0	0.1	"	1	"	"	"	"	J
Calcium	16400	100	79.0	"	1	"	"	"	"	
Copper	1.6	5.0	0.8	"	1	"	"	"	"	J
Iron	70.5	20.0	11.5	"	1	"	"	"	"	
Magnesium	7960	50.0	15.6	"	1	"	"	"	"	
Potassium	1040	200	46.8	"	1	"	"	"	"	
Sodium	2890	200	120	"	1	"	"	"	"	
Zinc	1.3	10.0	0.3	"	1	"	"	"	"	J
Dissolved Metals										
Dissolved Aluminum	ND	50.0	24.5	ug/l	1	AWK0102	11/12/13	11/13/13	EPA 200.7	
Dissolved Arsenic	1.9	5.0	1.0	"	1	"	"	"	"	J
Dissolved Cadmium	0.3	5.0	0.1	"	1	"	"	"	"	J
Dissolved Copper	2.5	5.0	0.8	"	1	"	"	"	"	J
Dissolved Iron	39.9	20.0	11.5	"	1	"	"	"	"	
Dissolved Zinc	1.8	10.0	0.3	"	1	"	"	"	"	J

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Laboratory Representative

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Excelchem Environmental Labs

RWQC Central Valley
11020 Sun Center Dr. #200
Rancho Cordova, CA 95670

Project: Walker Mine
Project Number: [none]
Project Manager: Jeff Huggins

Date Reported:
11/15/13 10:47

Ion Chromatography - Quality Control

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch AWK0088 - EPA 300.0

Blank (AWK0088-BLK1)

Prepared & Analyzed: 11/07/13

Chloride	ND	0.5	0.04	mg/L						
Sulfate as SO4	ND	0.5	0.07	"						

LCS (AWK0088-BS1)

Prepared & Analyzed: 11/07/13

Chloride	10.0	0.5	0.04	mg/L	10.0	100	90-110			
Sulfate as SO4	10.2	0.5	0.07	"	10.0	102	80-120			

LCS Dup (AWK0088-BSD1)

Prepared & Analyzed: 11/07/13

Chloride	10.0	0.5	0.04	mg/L	10.0	99.7	90-110	0.610	20	
Sulfate as SO4	10.2	0.5	0.07	"	10.0	102	80-120	0.00	20	

Duplicate (AWK0088-DUP1)

Source: 1311042-12

Prepared: 11/07/13 Analyzed: 11/08/13

Chloride	0.8	0.5	0.04	mg/L		0.8		2.64	20	
Sulfate as SO4	12.5	0.5	0.07	"		12.4		1.17	20	

Matrix Spike (AWK0088-MS1)

Source: 1311042-12

Prepared: 11/07/13 Analyzed: 11/08/13

Chloride	9.9	0.5	0.04	mg/L	10.0	0.8	91.4	75-125		
Sulfate as SO4	21.6	0.5	0.07	"	10.0	12.4	91.6	75-125		

Matrix Spike Dup (AWK0088-MSD1)

Source: 1311042-12

Prepared: 11/07/13 Analyzed: 11/08/13

Chloride	9.9	0.5	0.04	mg/L	10.0	0.8	91.0	75-125	0.384	20
Sulfate as SO4	21.4	0.5	0.07	"	10.0	12.4	90.0	75-125	0.726	20

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Laboratory Representative

Excelchem Environmental Labs

RWQC Central Valley
11020 Sun Center Dr. #200
Rancho Cordova, CA 95670

Project: Walker Mine
Project Number: [none]
Project Manager: Jeff Huggins

Date Reported:
11/15/13 10:47

Wet Chemistry - Quality Control

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch AWK0055 - SM 4500-H+ B

Duplicate (AWK0055-DUP1)

Source: 1311042-14

Prepared & Analyzed: 11/07/13

pH	7.84	0.100	0.100	pH Units	7.84		0.00	20
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Batch AWK0056 - EPA 120.1

Duplicate (AWK0056-DUP1)

Source: 1311042-14

Prepared & Analyzed: 11/07/13

Specific Conductance (EC)	149	5.00	1.09	uS/cm	149		0.0670	20
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Batch AWK0098 - SM 2540C

Blank (AWK0098-BLK1)

Prepared: 11/08/13 Analyzed: 11/13/13

Total Dissolved Solids	ND	15.0	7.68	mg/L				
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Duplicate (AWK0098-DUP1)

Source: 1311042-02

Prepared: 11/08/13 Analyzed: 11/13/13

Total Dissolved Solids	109	15.0	7.68	mg/L	107		1.85	20
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Batch AWK0099 - SM 2540C

Blank (AWK0099-BLK1)

Prepared: 11/08/13 Analyzed: 11/13/13

Total Dissolved Solids	ND	15.0	7.68	mg/L				
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Duplicate (AWK0099-DUP1)

Source: 1311042-13

Prepared: 11/08/13 Analyzed: 11/13/13

Total Dissolved Solids	93.0	15.0	7.68	mg/L	92.0		1.08	20
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Batch AWK0100 - SM2340B

Blank (AWK0100-BLK1)

Prepared & Analyzed: 11/13/13

Total Hardness	ND	5.00	2.86	mg/L				
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Laboratory Representative

Excelchem Environmental Labs

RWQC Central Valley
11020 Sun Center Dr. #200
Rancho Cordova, CA 95670

Project: Walker Mine
Project Number: [none]
Project Manager: Jeff Huggins

Date Reported:
11/15/13 10:47

Wet Chemistry - Quality Control

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch AWK0100 - SM2340B											
LCS (AWK0100-BS1)					Prepared & Analyzed: 11/13/13						
Total Hardness	50.0	5.00	2.86	mg/L	50.0		100	80-120			
LCS Dup (AWK0100-BSD1)					Prepared & Analyzed: 11/13/13						
Total Hardness	50.0	5.00	2.86	mg/L	50.0		100	80-120	0.00	20	
Duplicate (AWK0100-DUP1)					Source: 1311042-12		Prepared & Analyzed: 11/13/13				
Total Hardness	90.0	5.00	2.86	mg/L		94.0			4.35	20	
Matrix Spike (AWK0100-MS1)					Source: 1311042-03		Prepared & Analyzed: 11/13/13				
Total Hardness	120	5.00	2.86	mg/L	50.0	74.0	92.0	75-125			
Matrix Spike Dup (AWK0100-MSD1)					Source: 1311042-03		Prepared & Analyzed: 11/13/13				
Total Hardness	118	5.00	2.86	mg/L	50.0	74.0	88.0	75-125	1.68	20	
Batch AWK0105 - SM2320B											
Blank (AWK0105-BLK1)					Prepared & Analyzed: 11/13/13						
Bicarbonate Alkalinity	4.00	5.00	2.37	mg/L							J
Carbonate Alkalinity	ND	5.00	2.37	"							
Hydroxide Alkalinity	ND	5.00	2.37	"							
Total Alkalinity	4.00	5.00	2.37	"							J
LCS (AWK0105-BS1)					Prepared & Analyzed: 11/13/13						
Total Alkalinity	104	5.00	2.37	mg/L	100		104	80-120			
LCS Dup (AWK0105-BSD1)					Prepared & Analyzed: 11/13/13						
Total Alkalinity	102	5.00	2.37	mg/L	100		102	80-120	1.94	20	

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Excelchem Environmental Labs

RWQC Central Valley
11020 Sun Center Dr. #200
Rancho Cordova, CA 95670

Project: Walker Mine
Project Number: [none]
Project Manager: Jeff Huggins

Date Reported:
11/15/13 10:47

Wet Chemistry - Quality Control

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch AWK0105 - SM2320B

Duplicate (AWK0105-DUP1)

Source: 1311042-03

Prepared & Analyzed: 11/13/13

Bicarbonate Alkalinity	78.0	5.00	2.37	mg/L		78.0			0.00	20	
Carbonate Alkalinity	ND	5.00	2.37	"		ND				20	
Hydroxide Alkalinity	ND	5.00	2.37	"		ND				20	
Total Alkalinity	78.0	5.00	2.37	"		78.0			0.00	20	

Matrix Spike (AWK0105-MS1)

Source: 1311042-03

Prepared & Analyzed: 11/13/13

Total Alkalinity	180	5.00	2.37	mg/L	100	78.0	102	80-120			
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Matrix Spike Dup (AWK0105-MSD1)

Source: 1311042-03

Prepared & Analyzed: 11/13/13

Total Alkalinity	178	5.00	2.37	mg/L	100	78.0	100	80-120	1.12	20	
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Laboratory Representative

Excelchem Environmental Labs

RWQC Central Valley
11020 Sun Center Dr. #200
Rancho Cordova, CA 95670

Project: Walker Mine
Project Number: [none]
Project Manager: Jeff Huggins

Date Reported:
11/15/13 10:47

Total Recoverable Metals - Quality Control

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch AWK0083 - EPA 200.7

Blank (AWK0083-BLK1)

Prepared: 11/07/13 Analyzed: 11/12/13

Aluminum	ND	50.0	24.5	ug/l							
Arsenic	ND	5.0	1.0	"							
Cadmium	0.100	5.0	0.1	"							J
Calcium	ND	100	79.0	"							
Copper	ND	5.0	0.8	"							
Iron	ND	20.0	11.5	"							
Magnesium	23.1	50.0	15.6	"							J
Potassium	ND	200	46.8	"							
Sodium	ND	200	120	"							
Zinc	0.700	10.0	0.3	"							J

Blank (AWK0083-BLK2)

Prepared: 11/07/13 Analyzed: 11/12/13


Aluminum	ND	50.0	24.5	ug/l							
Arsenic	ND	5.0	1.0	"							
Cadmium	0.100	5.0	0.1	"							J
Calcium	ND	100	79.0	"							
Copper	ND	5.0	0.8	"							
Iron	ND	20.0	11.5	"							
Magnesium	19.8	50.0	15.6	"							J
Potassium	ND	200	46.8	"							
Sodium	ND	200	120	"							
Zinc	0.400	10.0	0.3	"							J

LCS (AWK0083-BS1)

Prepared: 11/07/13 Analyzed: 11/12/13

Aluminum	1020	50.0	24.5	ug/l	1000		102	85-115			
Arsenic	991	5.0	1.0	"	1000		99.1	85-115			
Cadmium	995	5.0	0.1	"	1000		99.5	85-115			
Calcium	1040	100	79.0	"	1000		104	85-115			
Copper	1030	5.0	0.8	"	1000		103	85-115			
Iron	1040	20.0	11.5	"	1000		104	85-115			
Magnesium	989	50.0	15.6	"	1000		98.9	85-115			
Potassium	10400	200	46.8	"	10000		104	85-115			
Sodium	1010	200	120	"	1000		101	85-115			
Zinc	988	10.0	0.3	"	1000		98.8	85-115			

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Laboratory Representative

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Excelchem Environmental Labs

RWQC Central Valley
11020 Sun Center Dr. #200
Rancho Cordova, CA 95670

Project: Walker Mine
Project Number: [none]
Project Manager: Jeff Huggins

Date Reported:
11/15/13 10:47

Total Recoverable Metals - Quality Control

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch AWK0083 - EPA 200.7

LCS (AWK0083-BS2)

Prepared: 11/07/13 Analyzed: 11/12/13

Aluminum	1000	50.0	24.5	ug/l	1000		100	85-115			
Arsenic	995	5.0	1.0	"	1000		99.5	85-115			
Cadmium	995	5.0	0.1	"	1000		99.5	85-115			
Calcium	1020	100	79.0	"	1000		102	85-115			
Copper	1040	5.0	0.8	"	1000		104	85-115			
Iron	1040	20.0	11.5	"	1000		104	85-115			
Magnesium	994	50.0	15.6	"	1000		99.4	85-115			
Potassium	10400	200	46.8	"	10000		104	85-115			
Sodium	1010	200	120	"	1000		101	85-115			
Zinc	984	10.0	0.3	"	1000		98.4	85-115			

LCS Dup (AWK0083-BSD1)

Prepared: 11/07/13 Analyzed: 11/12/13


Aluminum	1020	50.0	24.5	ug/l	1000		102	85-115	0.295	20	
Arsenic	1010	5.0	1.0	"	1000		101	85-115	1.58	20	
Cadmium	1010	5.0	0.1	"	1000		101	85-115	1.37	20	
Calcium	1040	100	79.0	"	1000		104	85-115	0.673	20	
Copper	1050	5.0	0.8	"	1000		105	85-115	1.35	20	
Iron	1050	20.0	11.5	"	1000		105	85-115	1.53	20	
Magnesium	986	50.0	15.6	"	1000		98.6	85-115	0.304	20	
Potassium	10400	200	46.8	"	10000		104	85-115	0.0960	20	
Sodium	1010	200	120	"	1000		101	85-115	0.0991	20	
Zinc	998	10.0	0.3	"	1000		99.8	85-115	1.07	20	

LCS Dup (AWK0083-BSD2)

Prepared: 11/07/13 Analyzed: 11/12/13

Aluminum	995	50.0	24.5	ug/l	1000		99.5	85-115	0.900	20	
Arsenic	1000	5.0	1.0	"	1000		100	85-115	0.481	20	
Cadmium	1010	5.0	0.1	"	1000		101	85-115	1.12	20	
Calcium	1050	100	79.0	"	1000		105	85-115	2.60	20	
Copper	1040	5.0	0.8	"	1000		104	85-115	0.289	20	
Iron	1030	20.0	11.5	"	1000		103	85-115	1.26	20	
Magnesium	993	50.0	15.6	"	1000		99.3	85-115	0.181	20	
Potassium	10400	200	46.8	"	10000		104	85-115	0.192	20	
Sodium	994	200	120	"	1000		99.4	85-115	1.84	20	
Zinc	996	10.0	0.3	"	1000		99.6	85-115	1.19	20	

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Excelchem Environmental Labs

RWQC Central Valley
11020 Sun Center Dr. #200
Rancho Cordova, CA 95670

Project: Walker Mine
Project Number: [none]
Project Manager: Jeff Huggins

Date Reported:
11/15/13 10:47

Total Recoverable Metals - Quality Control

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch AWK0083 - EPA 200.7

Matrix Spike (AWK0083-MS1)

Source: 1311042-01

Prepared: 11/07/13 Analyzed: 11/12/13

Aluminum	3980	50.0	24.5	ug/l	1000	3340	64.6	75-125			QL-01
Arsenic	1010	5.0	1.0	"	1000	ND	101	75-125			
Cadmium	1020	5.0	0.1	"	1000	10.4	101	75-125			
Calcium	35900	100	79.0	"	1000	35300	56.0	75-125			QL-01
Copper	11800	5.0	0.8	"	1000	10800	100	75-125			
Iron	1790	20.0	11.5	"	1000	761	103	75-125			
Magnesium	7360	50.0	15.6	"	1000	5610	175	75-125			QL-01
Potassium	13100	200	46.8	"	10000	2180	109	75-125			
Sodium	3730	200	120	"	1000	2640	109	75-125			
Zinc	1730	10.0	0.3	"	1000	748	97.8	75-125			

Matrix Spike (AWK0083-MS2)

Source: 1311042-14

Prepared: 11/07/13 Analyzed: 11/12/13

Aluminum	1070	50.0	24.5	ug/l	1000	37.0	103	75-125			
Arsenic	980	5.0	1.0	"	1000	ND	98.0	75-125			
Cadmium	981	5.0	0.1	"	1000	0.300	98.1	75-125			
Calcium	17300	100	79.0	"	1000	16400	91.0	75-125			
Copper	1010	5.0	0.8	"	1000	1.60	101	75-125			
Iron	1080	20.0	11.5	"	1000	70.5	101	75-125			
Magnesium	8850	50.0	15.6	"	1000	7960	89.0	75-125			
Potassium	11800	200	46.8	"	10000	1040	107	75-125			
Sodium	3960	200	120	"	1000	2890	107	75-125			
Zinc	973	10.0	0.3	"	1000	1.30	97.2	75-125			

Matrix Spike Dup (AWK0083-MSD1)

Source: 1311042-01

Prepared: 11/07/13 Analyzed: 11/12/13

Aluminum	4010	50.0	24.5	ug/l	1000	3340	67.7	75-125	0.776	25	QL-01
Arsenic	1010	5.0	1.0	"	1000	ND	101	75-125	0.199	25	
Cadmium	1020	5.0	0.1	"	1000	10.4	101	75-125	0.0980	25	
Calcium	36500	100	79.0	"	1000	35300	118	75-125	1.71	25	
Copper	11900	5.0	0.8	"	1000	10800	108	75-125	0.677	25	
Iron	1790	20.0	11.5	"	1000	761	103	75-125	0.167	25	
Magnesium	7480	50.0	15.6	"	1000	5610	186	75-125	1.52	25	QL-01
Potassium	13100	200	46.8	"	10000	2180	109	75-125	0.382	25	
Sodium	3740	200	120	"	1000	2640	110	75-125	0.375	25	
Zinc	1740	10.0	0.3	"	1000	748	99.1	75-125	0.750	25	

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Laboratory Representative

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RWQC Central Valley 11020 Sun Center Dr. #200 Rancho Cordova, CA 95670	Project: Walker Mine Project Number: [none] Project Manager: Jeff Huggins	Date Reported: 11/15/13 10:47
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Total Recoverable Metals - Quality Control

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch AWK0083 - EPA 200.7

Matrix Spike Dup (AWK0083-MSD2)	Source: 1311042-14			Prepared: 11/07/13 Analyzed: 11/12/13							
Aluminum	1070	50.0	24.5	ug/l	1000	37.0	103	75-125	0.468	25	
Arsenic	995	5.0	1.0	"	1000	ND	99.5	75-125	1.49	25	
Cadmium	998	5.0	0.1	"	1000	0.300	99.7	75-125	1.67	25	
Calcium	16900	100	79.0	"	1000	16400	50.0	75-125	2.39	25	QL-01
Copper	1030	5.0	0.8	"	1000	1.60	103	75-125	1.57	25	
Iron	1110	20.0	11.5	"	1000	70.5	104	75-125	2.28	25	
Magnesium	8650	50.0	15.6	"	1000	7960	69.0	75-125	2.28	25	QL-01
Potassium	11700	200	46.8	"	10000	1040	106	75-125	0.769	25	
Sodium	3920	200	120	"	1000	2890	102	75-125	1.19	25	
Zinc	989	10.0	0.3	"	1000	1.30	98.8	75-125	1.68	25	

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RWQC Central Valley 11020 Sun Center Dr. #200 Rancho Cordova, CA 95670	Project: Walker Mine Project Number: [none] Project Manager: Jeff Huggins	Date Reported: 11/15/13 10:47
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Dissolved Metals - Quality Control

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch AWK0102 - EPA 200.7

Blank (AWK0102-BLK1)

Prepared: 11/12/13 Analyzed: 11/14/13

Dissolved Aluminum	ND	50.0	24.5	ug/l							
Dissolved Arsenic	ND	5.0	1.0	"							
Dissolved Cadmium	0.100	5.0	0.1	"							J
Dissolved Copper	ND	5.0	0.8	"							
Dissolved Iron	13.0	20.0	11.5	"							J
Dissolved Zinc	0.800	10.0	0.3	"							J

Blank (AWK0102-BLK2)

Prepared: 11/12/13 Analyzed: 11/13/13

Dissolved Aluminum	ND	50.0	24.5	ug/l							
Dissolved Arsenic	ND	5.0	1.0	"							
Dissolved Cadmium	0.100	5.0	0.1	"							J
Dissolved Copper	1.10	5.0	0.8	"							J
Dissolved Iron	13.0	20.0	11.5	"							J
Dissolved Zinc	0.400	10.0	0.3	"							J

LCS (AWK0102-BS1)

Prepared: 11/12/13 Analyzed: 11/13/13


Dissolved Aluminum	1020	50.0	24.5	ug/l	1000		102	85-115			
Dissolved Arsenic	1010	5.0	1.0	"	1000		101	85-115			
Dissolved Cadmium	980	5.0	0.1	"	1000		98.0	85-115			
Dissolved Copper	1050	5.0	0.8	"	1000		105	85-115			
Dissolved Iron	1020	20.0	11.5	"	1000		102	85-115			
Dissolved Zinc	988	10.0	0.3	"	1000		98.8	85-115			

LCS (AWK0102-BS2)

Prepared: 11/12/13 Analyzed: 11/13/13

Dissolved Aluminum	1010	50.0	24.5	ug/l	1000		101	85-115			
Dissolved Arsenic	1010	5.0	1.0	"	1000		101	85-115			
Dissolved Cadmium	981	5.0	0.1	"	1000		98.1	85-115			
Dissolved Copper	1050	5.0	0.8	"	1000		105	85-115			
Dissolved Iron	1050	20.0	11.5	"	1000		105	85-115			
Dissolved Zinc	984	10.0	0.3	"	1000		98.4	85-115			

Excelchem Environmental Lab.



Laboratory Representative

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Excelchem Environmental Labs

RWQC Central Valley
11020 Sun Center Dr. #200
Rancho Cordova, CA 95670

Project: Walker Mine
Project Number: [none]
Project Manager: Jeff Huggins

Date Reported:
11/15/13 10:47

Dissolved Metals - Quality Control

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch AWK0102 - EPA 200.7

LCS Dup (AWK0102-BSD1)

Prepared: 11/12/13 Analyzed: 11/13/13

Dissolved Aluminum	1020	50.0	24.5	ug/l	1000		102	85-115	0.0981	20	
Dissolved Arsenic	1010	5.0	1.0	"	1000		101	85-115	0.297	20	
Dissolved Cadmium	981	5.0	0.1	"	1000		98.1	85-115	0.0714	20	
Dissolved Copper	1050	5.0	0.8	"	1000		105	85-115	0.380	20	
Dissolved Iron	1040	20.0	11.5	"	1000		104	85-115	2.63	20	
Dissolved Zinc	990	10.0	0.3	"	1000		99.0	85-115	0.192	20	

LCS Dup (AWK0102-BSD2)

Prepared: 11/12/13 Analyzed: 11/13/13

Dissolved Aluminum	1010	50.0	24.5	ug/l	1000		101	85-115	0.296	20	
Dissolved Arsenic	1020	5.0	1.0	"	1000		102	85-115	0.591	20	
Dissolved Cadmium	986	5.0	0.1	"	1000		98.6	85-115	0.498	20	
Dissolved Copper	1060	5.0	0.8	"	1000		106	85-115	0.664	20	
Dissolved Iron	1050	20.0	11.5	"	1000		105	85-115	0.572	20	
Dissolved Zinc	990	10.0	0.3	"	1000		99.0	85-115	0.608	20	

Matrix Spike (AWK0102-MS1)

Source: 1311042-01

Prepared: 11/12/13 Analyzed: 11/13/13

Dissolved Aluminum	3850	50.0	24.5	ug/l	1000	3070	77.5	75-125			
Dissolved Arsenic	1030	5.0	1.0	"	1000	ND	103	75-125			
Dissolved Cadmium	1000	5.0	0.1	"	1000	9.50	99.6	75-125			
Dissolved Copper	11400	5.0	0.8	"	1000	10200	123	75-125			
Dissolved Iron	1200	20.0	11.5	"	1000	202	99.6	75-125			
Dissolved Zinc	1700	10.0	0.3	"	1000	719	98.1	75-125			

Matrix Spike (AWK0102-MS2)

Source: 1311042-14

Prepared: 11/12/13 Analyzed: 11/13/13

Dissolved Aluminum	1060	50.0	24.5	ug/l	1000	ND	106	75-125			
Dissolved Arsenic	1030	5.0	1.0	"	1000	1.90	102	75-125			
Dissolved Cadmium	992	5.0	0.1	"	1000	0.300	99.2	75-125			
Dissolved Copper	1070	5.0	0.8	"	1000	2.50	106	75-125			
Dissolved Iron	1100	20.0	11.5	"	1000	39.9	106	75-125			
Dissolved Zinc	994	10.0	0.3	"	1000	1.80	99.3	75-125			

Excelchem Environmental Lab.

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Laboratory Representative

Excelchem Environmental Labs

RWQC Central Valley 11020 Sun Center Dr. #200 Rancho Cordova, CA 95670	Project: Walker Mine Project Number: [none] Project Manager: Jeff Huggins	Date Reported: 11/15/13 10:47
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Dissolved Metals - Quality Control

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch AWK0102 - EPA 200.7

Matrix Spike Dup (AWK0102-MSD1)		Source: 1311042-01			Prepared: 11/12/13 Analyzed: 11/13/13						
Dissolved Aluminum	3910	50.0	24.5	ug/l	1000	3070	83.5	75-125	1.55	25	
Dissolved Arsenic	1130	5.0	1.0	"	1000	ND	113	75-125	8.87	25	
Dissolved Cadmium	1100	5.0	0.1	"	1000	9.50	109	75-125	9.30	25	
Dissolved Copper	12700	5.0	0.8	"	1000	10200	251	75-125	10.6	25	QL-01
Dissolved Iron	1200	20.0	11.5	"	1000	202	99.6	75-125	0.00	25	
Dissolved Zinc	1890	10.0	0.3	"	1000	719	117	75-125	10.7	25	
Matrix Spike Dup (AWK0102-MSD2)		Source: 1311042-14			Prepared: 11/12/13 Analyzed: 11/13/13						
Dissolved Aluminum	1050	50.0	24.5	ug/l	1000	ND	105	75-125	0.853	25	
Dissolved Arsenic	1020	5.0	1.0	"	1000	1.90	102	75-125	0.587	25	
Dissolved Cadmium	986	5.0	0.1	"	1000	0.300	98.6	75-125	0.576	25	
Dissolved Copper	1060	5.0	0.8	"	1000	2.50	106	75-125	0.564	25	
Dissolved Iron	1050	20.0	11.5	"	1000	39.9	101	75-125	5.21	25	
Dissolved Zinc	992	10.0	0.3	"	1000	1.80	99.1	75-125	0.211	25	

Excelchem Environmental Lab.



Laboratory Representative

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Excelchem Environmental Labs

RWQC Central Valley
11020 Sun Center Dr. #200
Rancho Cordova, CA 95670

Project: Walker Mine
Project Number: [none]
Project Manager: Jeff Huggins

Date Reported:
11/15/13 10:47

Notes and Definitions

- QL-01 Sample results for the QC batch were accepted based on LCS/LCSD percent recoveries and RPD values.
- J Detected but below the Reporting Limit; therefore, result is an estimated concentration (CLP J-Flag).
- Field This analyte was analyzed outside of the EPA recommended hold time of ASAP and should be analyzed in the field.
- ND Analyte not detected at reporting limit.
- NR Not reported

Analysis Method

EPA 8260, EPA 8021/8015M
EPA 8270, EPA 8081, EPA 8082, EPA 8141, EPA 8015M (extractable)
Metals
TCLP
Not Specified

Prep Method

EPA 5030B
Water - EPA 3510C, Soil- EPA 3550B
Water- 3005A, Soil- 3050B
EPA 1311
Same as Analysis Method

Excelchem Environmental Lab.



Laboratory Representative

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Excelchem Environmental Labs

RWQC Central Valley
11020 Sun Center Dr. #200
Rancho Cordova, CA 95670

Project: Walker Mine
Project Number: [none]
Project Manager: Jeff Huggins

Date Reported:
11/15/13 10:47

Front Desk

W/O# 1311042

From: Huggins, Jeff@Waterboards [Jeff.Huggins@waterboards.ca.gov]
Sent: Wednesday, October 30, 2013 2:16 PM
To: Front Desk
Subject: Request for Sample Bottles and Analytical Services - Walker Mine Project

Hello Front Desk,

We are planning on doing some surface water sampling (no soils) next week at an old abandoned copper mine (Walker Mine) in Plumas County. In June of 2013, Excelchem provided bottles and analytical services for this same site. **Excelchem's Work Order number for the 8 July 2013 analytical report is: 1306272.** We would like Excelchem to analyze and report for the same constituents as last year. Those were:

- 1. Total Metals - Aluminum, Arsenic, Copper, Iron, Zinc, and Cadmium. **All with HNO3 (or equal) preservative.**
- 2. Dissolved Metals - Aluminum, Arsenic, Copper, Iron, Zinc, and Cadmium.
- 3. General Minerals - Total Alkalinity, Bicarbonate as CaCO3, Carbonate as CaCO3, Hydroxide as CaCO3, Chloride, Specific Conductance (EC), Calcium, Magnesium, Potassium, Sodium, Hardness as CaCO3, pH, Sulfate as SO4 and Total Dissolved Solids.

Items 1 and 2 above should be analyzed on an individual basis (not as a Bid Group) to reduce costs. Item 3 should be run as Bid Group 20 (Title 22 General Minerals) in accordance with the Regional Water Boards contract if that is most effective cost-wise.

We will not be filtering in the field, but do want Excelchem to filter the samples in the laboratory. Reporting limits for metals should be sufficiently low to meet the following criteria:

- Al 50 ug/L
- As 5 ug/L
- Cd 5 ug/L
- Cu 5 ug/L
- Fe 150 ug/L
- Zn 20 ug/L

For this sampling event we have 23 sample locations. I believe that we used 500 ml plastic bottles for the total and dissolved samples, and 1-liter plastic bottles for the general minerals. If this protocol has changed, please contact me and let me know what to expect.

We need the sample bottles (and chain of custodies) delivered to our Rancho Cordova office no later than 1:00pm on Monday November 4th and we will drop off the sample bottles at your Roseville facility later in the week.

Please contact me should you have any questions.

Jeff S. Huggins
Water Resources Control Engineer
Title 27 Permitting and Mining Unit
Central Valley Water Board
11020 Sun Center Drive, #200
Rancho Cordova, CA 95670
Phone (916) 464-4639
Email jhuggins@waterboards.ca.gov

11/6/2013



Excelchem Environmental Labs

RWQC Central Valley
11020 Sun Center Dr. #200
Rancho Cordova, CA 95670

Project: Walker Mine
Project Number: [none]
Project Manager: Jeff Huggins

Date Reported:
11/15/13 10:47

Sample Integrity

WORK ORDER 1311042

Date Received: 11/6/13

Section 1 - Sample Arrival Info.

Sample Transport: ONTRAC UPS USPS Walk-In EXCELICHEM Courier Fed-Ex Other: _____

Transported In: Ice Chest Box Hand

Describe type of packing materials: Bubble Wrap Foam Packing Peanuts Paper Other: _____

Has chilling process begun? N Samples Received: Chilled to Touch / Ambient / On Ice

Temperature of Samples (°C): 2 Ice Chest Temperature(s) (°C): 2

Section 2 - Bottle/Analysis Info.

	Yes	No	N/A	Comments
Did all bottles arrive unbroken and intact?	X			
Did all bottle labels agree with COC?	X			
Were correct containers used for the tests requested?	X			
Were correct preservations used for the tests requested?	X			
Was a sufficient amount of sample sent for tests indicated?	X			
Were bubbles present in VOA Vials?. (Volatile Methods Only)			X	

Section 3 - Summa/Flow regulator Info.

Used Summa#: _____
Unused Summa#: N/A
Cleaning Summa#: _____
Regulator#: _____
Was there any visual damage to summa canisters or flow regulators? **Explain.**

Section 4 - COC Info.

	Completed		Info From Container		Completed		Comments
	Yes	No			Yes	No	
Was COC Received	X				X		
Date Sampled	X				X		
Time Sampled	X				X		
Sample ID	X				X		
Rush TAT		X			X		
Analysis Requested					X	X	attached email
Samples arrived within holding time					X	X	pH
Any hold times less than 72 hrs					X	X	*pH out of help
Client Name					X		
Address/Telephone #					X		

Section 5 - Comments / Discrepancies

Was Client notified of discrepancies: Yes No N/A Notified by: _____

Explanations / Comments:

Samples Labeled by: ck
Bin #s: P-15
COC Scanned/Attached by: ck
Sample labels reviewed by: _____

Filled Out by: ck Date: 11-6-13
Time: 1450

