1216023

JANUARY 12, 2012

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CH2MHILL
Applied Sciences Laboratory (ASL)

January 12, 2012

CHRPC Soil Toxicity

418400.BS.02

RE: Laboratory Report for CHRPC Soil Toxicity
ASL Report #: K3356

Sherry Lynch:

On December 14, 2011, CH2M HILL Applied Sciences Laboratory received 60 samples with a request for analysis of selected parameters. All analyses were performed by CH2M HILL unless otherwise indicated below. The results included in this report only relate to the samples listed on the following Sample Cross-Reference page. This report shall not be reproduced except in full, without the written approval of the laboratory.

The analytical results and associated quality control data are enclosed. Any unusual difficulties encountered during the analysis of your samples are discussed in the case narrative.

This data package meets standards requested by client and is not intended or implied to meet any other standard.

CH2M HILL Applied Sciences Laboratory appreciates your business and looks forward to serving your analytical needs again. If you should have any questions concerning the data, or if you need additional information, please call Mike Stanaway at (541) 758-0235, extension 23161.

Sincerely,

Mike Stanaway
Analytical Manager

RECEIVED
AUG 13 2012
EDMC

Enclosures

cc:
Chris McCarthy/BOS

Samples will be disposed at no additional cost to clients, 30 days (10 days for air) after the final report is issued. Storage of samples and containers beyond this may be available for an additional fee. Samples classed as hazardous based on hazardous waste regulations under Subtitle C of RCRA and 40CFR, will either be returned to client at the client's expense or the client will be charged a $5 per sample disposal fee.

CLIENT SAMPLE CROSS-REFERENCE
For Samples Received December 14, 2011

ASL Report #: K3356

Sample ID	Client Sample ID	Date Collected	Time Collected
K335601	B2C166	02/25/2011	
K335602	B2BYK2	02/27/2011	
K335603	B2BYK4	02/27/2011	
K335604	B2BYL6	02/27/2011	
K335605	B2BYM4	02/27/2011	
K335606	B2BYM8	02/27/2011	
K335607	B2BYN0	02/27/2011	
K335608	B2BYK8	02/27/2011	
K335609	B2BYL0	02/27/2011	
K335610	B2BYL8	02/27/2011	
K335611	B2BYR0	03/02/2011	
K335612	B2BYR6	03/02/2011	
K335613	B2BYR8	03/02/2011	
K335614	B2BYT6	03/02/2011	
K335615	B2BYT8	03/02/2011	
K335616	B2BYV0	03/02/2011	
K335617	B2BXV2	02/15/2011	
K335618	B2BXV6	02/15/2011	
K335619	B2BXV8	02/15/2011	
K335620	B2BXW2	02/15/2011	
K335621	B2C150	02/25/2011	
K335622	B2BPC3	02/16/2011	
K335623	B2BYY8	03/03/2011	
K335624	B2C000	03/03/2011	
K335625	B2C002	03/03/2011	
K335626	B2C004	03/03/2011	
K335627	B2C006	03/03/2011	
K335628	B2C008	03/03/2011	
K335629	BCC010	03/03/2011	
K335630	B2C012	03/03/2011	
K335631	B2C013	03/03/2011	
K335632	B2BYW3	03/03/2011	
K335633	B2BYX7	03/03/2011	
K335634	B2BYY0	03/03/2011	
K335635	B2BYY1	03/03/2011	
K335636	B2BYY3	03/03/2011	
K335637	B2BYY5	03/03/2011	
K335638	B2BYP7	03/02/2011	
K335639	B2BYR1	03/02/2011	
K335640	B2BYR3	03/02/2011	
K335641	B2BYT2	03/02/2011	
K335642	B2BYT3	03/02/2011	
K335643	B2BYV2	03/02/2011	
K335644	B2BYV4	03/02/2011	
K335645	B2BYV6	03/02/2011	
K335646	B2BYX4	03/02/2011	
K335647	B2BYR9	03/02/2011	
K335648	B2BYP5	03/02/2011	

Sample ID	Client Sample ID	Date Collected	Time Collected
K335649	B2BYW7	03/02/2011	
K335650	B2BYX0	03/02/2011	
K335651	B2BYX2	03/02/2011	
K335652	B2BYJ2	02/27/2011	
K335653	B2BYK5	02/27/2011	
K335654	B2BYL1	02/27/2011	
K335655	B2BYL4	02/27/2011	
K335656	B2BYM0	02/27/2011	
K335657	B2BYM2	02/27/2011	
K335658	B2BYM6	02/27/2011	
K335659	B2BYN1	02/27/2011	
K335660	Lab Control ID#3452	12/15/2011	12:19

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Organic CLP and CLP-Like Data Qualifiers

U — The analyte was analyzed for, but not detected above the reported sample quantitation limit.

J — The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

UJ — The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

N — The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification".

NJ — The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.

P — The primary and confirmation analyte result recoveries do not match.

E — The analyte was positively identified; the associated numerical value exceeded the instrument calibration range.

R — The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

Inorganic CLP and CLP-Like Data Qualifiers

U — The analyte was analyzed for, but not detected above the reported sample quantitation limit.

J — The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

UJ — The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

E — The analyte was positively identified; the associated numerical value exceeded the instrument calibration range.

N — The matrix spike/matrix spike duplicate recovery for the analyte is outside of acceptance criteria—qualifier is applied to the native sample only.

R — The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

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METALS BY SW6000/7000

JANUARY 12, 2012

CASE NARRATIVE
METALS ANALYSIS

Lab Name: CH2M HILL/LAB/CVO ASL SDG#: K3356

Project: CHRPC Soil Toxicity Project #: 418400.BS.02

I. Method(s):

Analysis: SW6010
Preparation: SW3050

II. Receipt/Holding Times:

Client samples were received past holding time.

III. Analysis:

A. Initial Calibration(s):

All acceptance criteria were met.

B. Calibration Verification(s):

All acceptance criteria were met.

C. Blanks:

All acceptance criteria were met.

D. Laboratory Control Sample(s):

All acceptance criteria were met.

E. Matrix Spike/Matrix Spike Duplicate Sample(s):

B2C166: Matrix spike/matrix spike duplicate recoveries (72/68%) did not meet acceptance criteria (75-125%).
B2C150: All acceptance criteria were met.
B2BYT2: Matrix spike duplicate recovery (155%) exceeded acceptance criteria (75-125%).
Lab Control ID#3452: All acceptance criteria were met.

F. Interference Check Sample(s):

All acceptance criteria were met.

G. Serial Dilution(s):

All acceptance criteria were met.

H. Digestion Exception(s):

None.

I. Analytical Exception(s):

Interference Check Samples were analyzed to check for false positives for boron. No boron hits were found when the interference check samples were analyzed. The primary boron wavelength (249) was not used for this project due to the high iron concentrations in the samples. The secondary boron wavelength (208) was used for this project and standard interelement correction factors were applied to correct for any intereferences.

IV. Documentation Exception(s):

None.

JANUARY 12, 2012

CASE NARRATIVE
METALS ANALYSIS

Lab Name: CH2M HILL/LAB/CVO ASL SDG#: K3356

Project: CHRPC Soil Toxicity Project #: 418400.BS.02

V. I certify that this data package is in compliance with the terms and conditions agreed to by the client and CH2M HILL, both technically and for completeness, except for the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or designee, as verified by the following signatures.

Prepared by: Date: 1-6-12

Reviewed by: Date: 1/12/12

JG120106-14:09-K3356-M

SAMPLE DATA

SUMMARY

INORGANICS ANALYSIS DATA SHEET

Field Sample ID:

B2C166

SDG No.: K3356

Lab Name: CH2M HILL/LAB/CVO

Matrix: SOIL

Lab Sample ID: K335601

Percent Moisture: 6

Date Received: 12/14/11

Preparation: Total

Concentration Units: mg/Kg

CAS No.	Analyte	Date Analyzed	DF	MDL	PQL	Result	C	Q	M
7440-42-8I	Boron-208	12/22/11	1	0.0538	0.406	12.9		N	P

Comments:

JG120106-14:15-K3356-M

FORM I - INORG

INORGANICS ANALYSIS DATA SHEET

Field Sample ID:

B2BYK2

SDG No.: K3356

Lab Name: CH2M HILL/LAB/CVO

Matrix: SOIL

Lab Sample ID: K335602

Percent Moisture: 6

Date Received: 12/14/11

Preparation: Total

Concentration Units: mg/Kg

CAS No.	Analyte	Date Analyzed	DF	MDL	PQL	Result	C	Q	M
7440-42-8I	Boron-208	12/22/11	1	0.0767	0.579	3.04			P

Comments:

INORGANICS ANALYSIS DATA SHEET

Field Sample ID: B2BYK4

SDG No.: K3356

Lab Name: CH2M HILL/LAB/CVO

Matrix: SOIL

Lab Sample ID: K335603

Percent Moisture: 2

Date Received: 12/14/11

Preparation: Total

Concentration Units: mg/Kg

CAS No.	Analyte	Date Analyzed	DF	MDL	PQL	Result	C	Q	M
7440-42-8I	Boron-208	12/22/11	1	0.0558	0.421	2.16			P

Comments:

JG120106-24:15-K3356-M

FORM I - INORG

INORGANICS ANALYSIS DATA SHEET

Field Sample ID:

B2BYL6

SDG No.: K3356

Lab Name: CH2M HILL/LAB/CVO

Matrix: SOIL

Lab Sample ID: K335604

Percent Moisture: 8

Date Received: 12/14/11

Preparation: Total

Concentration Units: mg/Kg

CAS No.	Analyte	Date Analyzed	DF	MDL	PQL	Result	C	Q	M
7440-42-8I	Boron-208	12/22/11	1	0.0888	0.670	7.95			P

Comments:

1A

INORGANICS ANALYSIS DATA SHEET

Field Sample ID: B2BYM4

SDG No.: K3356

Lab Name: CH2M HILL/LAB/CVO

Matrix: SOIL

Lab Sample ID: K335605

Percent Moisture: 6

Date Received: 12/14/11

Preparation: Total

Concentration Units: mg/Kg

CAS No.	Analyte	Date Analyzed	DF	MDL	PQL	Result	C	Q	M
7440-42-8I	Boron-208	12/22/11	1	0.0584	0.441	3.18			P

Comments:

JG120106-14:15-K3356-M

FORM I - INORG

INORGANICS ANALYSIS DATA SHEET

Field Sample ID:

B2BYM8

SDG No.: K3356

Lab Name: CH2M HILL/LAB/CVO

Matrix: SOIL

Lab Sample ID: K335606

Percent Moisture: 8

Date Received: 12/14/11

Preparation: Total

Concentration Units: mg/Kg

CAS No.	Analyte	Date Analyzed	DF	MDL	PQL	Result	C	Q	M
7440-42-8I	Boron-208	12/22/11	1	0.0519	0.392	6.23			P

Comments:

INORGANICS ANALYSIS DATA SHEET

Field Sample ID: B2BYN0

SDG No.: K3356

Lab Name: CH2M HILL/LAB/CVO

Matrix: SOIL

Lab Sample ID: K335607

Percent Moisture: 7

Date Received: 12/14/11

Preparation: Total

Concentration Units: mg/Kg

CAS No.	Analyte	Date Analyzed	DF	MDL	PQL	Result	C	Q	M
7440-42-8I	Boron-208	12/22/11	1	0.0886	0.669	10.3			P

Comments:

JG120106-14:15-K3356-M

FORM I - INORG

INORGANICS ANALYSIS DATA SHEET

Field Sample ID:

B2BYK8

SDG No.: K3356

Lab Name: CH2M HILL/LAB/CVO

Matrix: SOIL

Lab Sample ID: K335608

Percent Moisture: 5

Date Received: 12/14/11

Preparation: Total

Concentration Units: mg/Kg

CAS No.	Analyte	Date Analyzed	DF	MDL	PQL	Result	C	Q	M
7440-42-8I	Boron-208	12/22/11	1	0.0698	0.527	4.76			P

Comments:

INORGANICS ANALYSIS DATA SHEET

Field Sample ID:

B2BYL0

SDG No.: K3356

Lab Name: CH2M HILL/LAB/CVO

Matrix: SOIL

Lab Sample ID: K335609

Percent Moisture: 5

Date Received: 12/14/11

Preparation: Total

Concentration Units: mg/Kg

CAS No.	Analyte	Date Analyzed	DF	MDL	PQL	Result	C	Q	M
7440-42-8I	Boron-208	12/22/11	1	0.0528	0.398	4.55			P

Comments:

INORGANICS ANALYSIS DATA SHEET

Field Sample ID: B2BYL8

SDG No.: K3356

Lab Name: CH2M HILL/LAB/CVO

Matrix: SOIL

Lab Sample ID: K335610

Percent Moisture: 5

Date Received: 12/14/11

Preparation: Total

Concentration Units: mg/Kg

CAS No.	Analyte	Date Analyzed	DF	MDL	PQL	Result	C	Q	M
7440-42-8I	Boron-208	12/22/11	1	0.0703	0.531	2.14			P

Comments:

INORGANICS ANALYSIS DATA SHEET

Field Sample ID:

B2BYR0

SDG No.: K3356

Lab Name: CH2M HILL/LAB/CVO

Matrix: SOIL

Lab Sample ID: K335611

Percent Moisture: 9

Date Received: 12/14/11

Preparation: Total

Concentration Units: mg/Kg

CAS No.	Analyte	Date Analyzed	DF	MDL	PQL	Result	C	Q	M
7440-42-8I	Boron-208	12/22/11	1	0.0398	0.301	7.93			P

Comments:

INORGANICS ANALYSIS DATA SHEET

Field Sample ID:

B2BYR6

SDG No.: K3356

Lab Name: CH2M HILL/LAB/CVO

Matrix: SOIL

Lab Sample ID: K335612

Percent Moisture: 11

Date Received: 12/14/11

Preparation: Total

Concentration Units: mg/Kg

CAS No.	Analyte	Date Analyzed	DF	MDL	PQL	Result	C	Q	M
7440-42-8I	Boron-208	12/22/11	1	0.0702	0.529	15.5			P

Comments:

JG120106-14:15-K3356-M

FORM I - INORG

INORGANICS ANALYSIS DATA SHEET

Field Sample ID:

B2BYR8

SDG No.: K3356

Lab Name: CH2M HILL/LAB/CVO

Matrix: SOIL

Lab Sample ID: K335613

Percent Moisture: 11

Date Received: 12/14/11

Preparation: Total

Concentration Units: mg/Kg

CAS No.	Analyte	Date Analyzed	DF	MDL	PQL	Result	C	Q	M
7440-42-8I	Boron-208	12/22/11	1	0.0466	0.352	4.42			P

Comments:

INORGANICS ANALYSIS DATA SHEET

Field Sample ID:

B2BYT6

SDG No.: K3356

Lab Name: CH2M HILL/LAB/CVO

Matrix: SOIL

Lab Sample ID: K335614

Percent Moisture: 10

Date Received: 12/14/11

Preparation: Total

Concentration Units: mg/Kg

CAS No.	Analyte	Date Analyzed	DF	MDL	PQL	Result	C	Q	M
7440-42-8I	Boron-208	12/22/11	1	0.0638	0.482	12.3			P

Comments:

INORGANICS ANALYSIS DATA SHEET

Field Sample ID:

B2BYT8

SDG No.: K3356

Lab Name: CH2M HILL/LAB/CVO

Matrix: SOIL

Lab Sample ID: K335615

Percent Moisture: 10

Date Received: 12/14/11

Preparation: Total

Concentration Units: mg/Kg

CAS No.	Analyte	Date Analyzed	DF	MDL	PQL	Result	C	Q	M
7440-42-8I	Boron-208	12/22/11	1	0.0952	0.719	14.2			P

Comments:

1A

INORGANICS ANALYSIS DATA SHEET

Field Sample ID:

B2BYV0

SDG No.: K3356

Lab Name: CH2M HILL/LAB/CVO

Matrix: SOIL

Lab Sample ID: K335616

Percent Moisture: 8

Date Received: 12/14/11

Preparation: Total

Concentration Units: mg/Kg

CAS No.	Analyte	Date Analyzed	DF	MDL	PQL	Result	C	Q	M
7440-42-8I	Boron-208	12/22/11	1	0.0852	0.643	5.32			P

Comments:

JANUARY 12, 2012

INORGANICS ANALYSIS DATA SHEET

Field Sample ID:

B2BXV2

SDG No.: K3356

Lab Name: CH2M HILL/LAB/CVO

Matrix: SOIL

Lab Sample ID: K335617

Percent Moisture: 8

Date Received: 12/14/11

Preparation: Total

Concentration Units: mg/Kg

CAS No.	Analyte	Date Analyzed	DF	MDL	PQL	Result	C	Q	M
7440-42-8I	Boron-208	12/22/11	1	0.0663	0.500	1.07			P

Comments:

JG120106-14:15-K3356-M

FORM I - INORG

INORGANICS ANALYSIS DATA SHEET

Field Sample ID:

B2BXV6

SDG No.: K3356

Lab Name: CH2M HILL/LAB/CVO

Matrix: SOIL

Lab Sample ID: K335618

Percent Moisture: 13

Date Received: 12/14/11

Preparation: Total

Concentration Units: mg/Kg

CAS No.	Analyte	Date Analyzed	DF	MDL	PQL	Result	C	Q	M
7440-42-8I	Boron-208	12/22/11	1	0.0792	0.597	1.11			P

Comments:

INORGANICS ANALYSIS DATA SHEET

Field Sample ID: B2BXV8

SDG No.: K3356

Lab Name: CH2M HILL/LAB/CVO

Matrix: SOIL

Lab Sample ID: K335619

Percent Moisture: 13

Date Received: 12/14/11

Preparation: Total

Concentration Units: mg/Kg

CAS No.	Analyte	Date Analyzed	DF	MDL	PQL	Result	C	Q	M
7440-42-8I	Boron-208	12/22/11	1	0.0985	0.743	0.959			P

Comments:

INORGANICS ANALYSIS DATA SHEET

Field Sample ID: B2BXW2

SDG No.: K3356

Lab Name: CH2M HILL/LAB/CVO

Matrix: SOIL

Lab Sample ID: K335620

Percent Moisture: 6

Date Received: 12/14/11

Preparation: Total

Concentration Units: mg/Kg

CAS No.	Analyte	Date Analyzed	DF	MDL	PQL	Result	C	Q	M
7440-42-8I	Boron-208	12/22/11	1	0.0582	0.439	0.934			P

Comments:

INORGANICS ANALYSIS DATA SHEET

Field Sample ID:

B2C150

SDG No.: K3356

Lab Name: CH2M HILL/LAB/CVO

Matrix: SOIL

Lab Sample ID: K335621

Percent Moisture: 8

Date Received: 12/14/11

Preparation: Total

Concentration Units: mg/Kg

CAS No.	Analyte	Date Analyzed	DF	MDL	PQL	Result	C	Q	M
7440-42-8I	Boron-208	12/22/11	1	0.0949	0.716	2.30			P

Comments:

INORGANICS ANALYSIS DATA SHEET

Field Sample ID: B2BPC3

SDG No.: K3356

Lab Name: CH2M HILL/LAB/CVO

Matrix: SOIL

Lab Sample ID: K335622

Percent Moisture: 10

Date Received: 12/14/11

Preparation: Total

Concentration Units: mg/Kg

CAS No.	Analyte	Date Analyzed	DF	MDL	PQL	Result	C	Q	M
7440-42-8I	Boron-208	12/22/11	1	0.0591	0.446	4.26			P

Comments:

INORGANICS ANALYSIS DATA SHEET

Field Sample ID: B2BYY8

SDG No.: K3356

Lab Name: CH2M HILL/LAB/CVO

Matrix: SOIL

Lab Sample ID: K335623

Percent Moisture: 9

Date Received: 12/14/11

Preparation: Total

Concentration Units: mg/Kg

CAS No.	Analyte	Date Analyzed	DF	MDL	PQL	Result	C	Q	M
7440-42-8I	Boron-208	12/22/11	1	0.0925	0.698	3.65			P

Comments:

INORGANICS ANALYSIS DATA SHEET

Field Sample ID: B2C000

SDG No.: K3356

Lab Name: CH2M HILL/LAB/CVO

Matrix: SOIL

Lab Sample ID: K335624

Percent Moisture: 8

Date Received: 12/14/11

Preparation: Total

Concentration Units: mg/Kg

CAS No.	Analyte	Date Analyzed	DF	MDL	PQL	Result	C	Q	M
7440-42-8I	Boron-208	12/22/11	1	0.143	1.08	4.34			P

Comments:

INORGANICS ANALYSIS DATA SHEET

Field Sample ID: B2C002

SDG No.: K3356

Lab Name: CH2M HILL/LAB/CVO

Matrix: SOIL

Lab Sample ID: K335625

Percent Moisture: 9

Date Received: 12/14/11

Preparation: Total

Concentration Units: mg/Kg

CAS No.	Analyte	Date Analyzed	DF	MDL	PQL	Result	C	Q	M
7440-42-8I	Boron-208	12/22/11	1	0.130	0.981	5.87			P

Comments:

INORGANICS ANALYSIS DATA SHEET

Field Sample ID: B2C004

SDG No.: K3356

Lab Name: CH2M HILL/LAB/CVO

Matrix: SOIL

Lab Sample ID: K335626

Percent Moisture: 11

Date Received: 12/14/11

Preparation: Total

Concentration Units: mg/Kg

CAS No.	Analyte	Date Analyzed	DF	MDL	PQL	Result	C	Q	M
7440-42-8I	Boron-208	12/22/11	1	0.141	1.06	4.23			P

Comments:

JG120106-14:15-K3356-M

FORM I - INORG

INORGANICS ANALYSIS DATA SHEET

Field Sample ID: B2C006

SDG No.: K3356

Lab Name: CH2M HILL/LAB/CVO

Matrix: SOIL

Lab Sample ID: K335627

Percent Moisture: 11

Date Received: 12/14/11

Preparation: Total

Concentration Units: mg/Kg

CAS No.	Analyte	Date Analyzed	DF	MDL	PQL	Result	C	Q	M
7440-42-8I	Boron-208	12/22/11	1	0.112	0.849	3.72			P

Comments:

JG120106-14:15-K3356-M

FORM I - INORG

INORGANICS ANALYSIS DATA SHEET

Field Sample ID: B2C008

SDG No.: K3356

Lab Name: CH2M HILL/LAB/CVO

Matrix: SOIL

Lab Sample ID: K335628

Percent Moisture: 13

Date Received: 12/14/11

Preparation: Total

Concentration Units: mg/Kg

CAS No.	Analyte	Date Analyzed	DF	MDL	PQL	Result	C	Q	M
7440-42-8I	Boron-208	12/22/11	1	0.123	0.925	12.4			P

Comments:

INORGANICS ANALYSIS DATA SHEET

Field Sample ID: BCC010

SDG No.: K3356

Lab Name: CH2M HILL/LAB/CVO

Matrix: SOIL

Lab Sample ID: K335629

Percent Moisture: 9

Date Received: 12/14/11

Preparation: Total

Concentration Units: mg/Kg

CAS No.	Analyte	Date Analyzed	DF	MDL	PQL	Result	C	Q	M
7440-42-8I	Boron-208	12/22/11	1	0.0881	0.665	2.59			P

Comments:

JG120106-14:15-K3356-M

FORM I - INORG

INORGANICS ANALYSIS DATA SHEET

Field Sample ID: B2C012

SDG No.: K3356

Lab Name: CH2M HILL/LAB/CVO

Matrix: SOIL

Lab Sample ID: K335630

Percent Moisture: 9

Date Received: 12/14/11

Preparation: Total

Concentration Units: mg/Kg

CAS No.	Analyte	Date Analyzed	DF	MDL	PQL	Result	C	Q	M
7440-42-8I	Boron-208	12/22/11	1	0.103	0.775	2.40			P

Comments:

JG120106-14:15-K3356-M

FORM I - INORG

INORGANICS ANALYSIS DATA SHEET

Field Sample ID: B2C013

SDG No.: K3356

Lab Name: CH2M HILL/LAB/CVO

Matrix: SOIL

Lab Sample ID: K335631

Percent Moisture: 9

Date Received: 12/14/11

Preparation: Total

Concentration Units: mg/Kg

CAS No.	Analyte	Date Analyzed	DF	MDL	PQL	Result	C	Q	M
7440-42-8I	Boron-208	12/22/11	1	0.134	1.01	3.45			P

Comments:

JANUARY 12, 2012

INORGANICS ANALYSIS DATA SHEET

Field Sample ID:

B2BYW3

SDG No.: K3356

Lab Name: CH2M HILL/LAB/CVO

Matrix: SOIL

Lab Sample ID: K335632

Percent Moisture: 8

Date Received: 12/14/11

Preparation: Total

Concentration Units: mg/Kg

CAS No.	Analyte	Date Analyzed	DF	MDL	PQL	Result	C	Q	M
7440-42-8I	Boron-208	12/22/11	1	0.0888	0.670	3.48			P

Comments:

INORGANICS ANALYSIS DATA SHEET

Field Sample ID: B2BYX7

SDG No.: K3356

Lab Name: CH2M HILL/LAB/CVO

Matrix: SOIL

Lab Sample ID: K335633

Percent Moisture: 8

Date Received: 12/14/11

Preparation: Total

Concentration Units: mg/Kg

CAS No.	Analyte	Date Analyzed	DF	MDL	PQL	Result	C	Q	M
7440-42-8I	Boron-208	12/22/11	1	0.123	0.926	3.82			P

Comments:

JG120106-14:15-K3356-M

FORM I - INORG

INORGANICS ANALYSIS DATA SHEET

Field Sample ID:

B2BYY0

SDG No.: K3356

Lab Name: CH2M HILL/LAB/CVO

Matrix: SOIL

Lab Sample ID: K335634

Percent Moisture: 10

Date Received: 12/14/11

Preparation: Total

Concentration Units: mg/Kg

CAS No.	Analyte	Date Analyzed	DF	MDL	PQL	Result	C	Q	M
7440-42-8I	Boron-208	12/22/11	1	0.0799	0.603	2.15			P

Comments:

INORGANICS ANALYSIS DATA SHEET

Field Sample ID: B2BYY1

SDG No.: K3356

Lab Name: CH2M HILL/LAB/CVO

Matrix: SOIL

Lab Sample ID: K335635

Percent Moisture: 5

Date Received: 12/14/11

Preparation: Total

Concentration Units: mg/Kg

CAS No.	Analyte	Date Analyzed	DF	MDL	PQL	Result	C	Q	M
7440-42-8I	Boron-208	12/22/11	1	0.0775	0.585	1.23			P

Comments:

JG120106-14:15-K3356-M

FORM I - INORG

INORGANICS ANALYSIS DATA SHEET

Field Sample ID: B2BYY3

SDG No.: K3356

Lab Name: CH2M HILL/LAB/CVO

Matrix: SOIL

Lab Sample ID: K335636

Percent Moisture: 7

Date Received: 12/14/11

Preparation: Total

Concentration Units: mg/Kg

CAS No.	Analyte	Date Analyzed	DF	MDL	PQL	Result	C	Q	M
7440-42-8I	Boron-208	12/22/11	1	0.0605	0.456	1.88			P

Comments:

INORGANICS ANALYSIS DATA SHEET

Field Sample ID: B2BYY5

SDG No.: K3356

Lab Name: CH2M HILL/LAB/CVO

Matrix: SOIL

Lab Sample ID: K335637

Percent Moisture: 7

Date Received: 12/14/11

Preparation: Total

Concentration Units: mg/Kg

CAS No.	Analyte	Date Analyzed	DF	MDL	PQL	Result	C	Q	M
7440-42-8I	Boron-208	12/22/11	1	0.0664	0.501	1.54			P

Comments:

INORGANICS ANALYSIS DATA SHEET

Field Sample ID:

B2BYP7

SDG No.: K3356

Lab Name: CH2M HILL/LAB/CVO

Matrix: SOIL

Lab Sample ID: K335638

Percent Moisture: 10

Date Received: 12/14/11

Preparation: Total

Concentration Units: mg/Kg

CAS No.	Analyte	Date Analyzed	DF	MDL	PQL	Result	C	Q	M
7440-42-8I	Boron-208	12/22/11	1	0.0732	0.553	7.11			P

Comments:

INORGANICS ANALYSIS DATA SHEET

Field Sample ID: B2BYR1

SDG No.: K3356

Lab Name: CH2M HILL/LAB/CVO

Matrix: SOIL

Lab Sample ID: K335639

Percent Moisture: 8

Date Received: 12/14/11

Preparation: Total

Concentration Units: mg/Kg

CAS No.	Analyte	Date Analyzed	DF	MDL	PQL	Result	C	Q	M
7440-42-8I	Boron-208	12/22/11	1	0.0688	0.520	4.29			P

Comments:

1A

INORGANICS ANALYSIS DATA SHEET

Field Sample ID:

B2BYR3

SDG No.: K3356

Lab Name: CH2M HILL/LAB/CVO

Matrix: SOIL

Lab Sample ID: K335640

Percent Moisture: 7

Date Received: 12/14/11

Preparation: Total

Concentration Units: mg/Kg

CAS No.	Analyte	Date Analyzed	DF	MDL	PQL	Result	C	Q	M
7440-42-8I	Boron-208	12/22/11	1	0.123	0.932	7.20			P

Comments:

INORGANICS ANALYSIS DATA SHEET

Field Sample ID: B2BYT2

SDG No.: K3356

Lab Name: CH2M HILL/LAB/CVO

Matrix: SOIL

Lab Sample ID: K335641

Percent Moisture: 10

Date Received: 12/14/11

Preparation: Total

Concentration Units: mg/Kg

CAS No.	Analyte	Date Analyzed	DF	MDL	PQL	Result	C	Q	M
7440-42-8I	Boron-208	12/27/11	1	0.0851	0.642	6.11		N	P

Comments:

JANUARY 12, 2012

INORGANICS ANALYSIS DATA SHEET

Field Sample ID: B2BYT3

SDG No.: K3356

Lab Name: CH2M HILL/LAB/CVO

Matrix: SOIL

Lab Sample ID: K335642

Percent Moisture: 11

Date Received: 12/14/11

Preparation: Total

Concentration Units: mg/Kg

CAS No.	Analyte	Date Analyzed	DF	MDL	PQL	Result	C	Q	M
7440-42-8I	Boron-208	12/27/11	1	0.129	0.975	12.8			P

Comments:

INORGANICS ANALYSIS DATA SHEET

Field Sample ID: B2BYV2

SDG No.: K3356

Lab Name: CH2M HILL/LAB/CVO

Matrix: SOIL

Lab Sample ID: K335643

Percent Moisture: 8

Date Received: 12/14/11

Preparation: Total

Concentration Units: mg/Kg

CAS No.	Analyte	Date Analyzed	DF	MDL	PQL	Result	C	Q	M
7440-42-8I	Boron-208	12/27/11	1	0.0866	0.653	4.41			P

Comments:

INORGANICS ANALYSIS DATA SHEET

Field Sample ID: B2BYV4

SDG No.: K3356

Lab Name: CH2M HILL/LAB/CVO

Matrix: SOIL

Lab Sample ID: K335644

Percent Moisture: 9

Date Received: 12/14/11

Preparation: Total

Concentration Units: mg/Kg

CAS No.	Analyte	Date Analyzed	DF	MDL	PQL	Result	C	Q	M
7440-42-8I	Boron-208	12/27/11	1	0.0506	0.382	2.23			P

Comments:

INORGANICS ANALYSIS DATA SHEET

Field Sample ID: B2BYV6

SDG No.: K3356

Lab Name: CH2M HILL/LAB/CVO

Matrix: SOIL

Lab Sample ID: K335645

Percent Moisture: 11

Date Received: 12/14/11

Preparation: Total

Concentration Units: mg/Kg

CAS No.	Analyte	Date Analyzed	DF	MDL	PQL	Result	C	Q	M
7440-42-8I	Boron-208	12/27/11	1	0.145	1.10	14.7			P

Comments:

INORGANICS ANALYSIS DATA SHEET

Field Sample ID: B2BYX4

SDG No.: K3356

Lab Name: CH2M HILL/LAB/CVO

Matrix: SOIL

Lab Sample ID: K335646

Percent Moisture: 8

Date Received: 12/14/11

Preparation: Total

Concentration Units: mg/Kg

CAS No.	Analyte	Date Analyzed	DF	MDL	PQL	Result	C	Q	M
7440-42-8I	Boron-208	12/27/11	1	0.129	0.974	7.43			P

Comments:

INORGANICS ANALYSIS DATA SHEET

Field Sample ID: B2BYR9

SDG No.: K3356

Lab Name: CH2M HILL/LAB/CVO

Matrix: SOIL

Lab Sample ID: K335647

Percent Moisture: 10

Date Received: 12/14/11

Preparation: Total

Concentration Units: mg/Kg

CAS No.	Analyte	Date Analyzed	DF	MDL	PQL	Result	C	Q	M
7440-42-8I	Boron-208	12/27/11	1	0.139	1.05	4.65			P

Comments:

INORGANICS ANALYSIS DATA SHEET

Field Sample ID: B2BYP5

SDG No.: K3356

Lab Name: CH2M HILL/LAB/CVO

Matrix: SOIL

Lab Sample ID: K335648

Percent Moisture: 9

Date Received: 12/14/11

Preparation: Total

Concentration Units: mg/Kg

CAS No.	Analyte	Date Analyzed	DF	MDL	PQL	Result	C	Q	M
7440-42-8I	Boron-208	12/27/11	1	0.0952	0.718	3.93			P

Comments:

INORGANICS ANALYSIS DATA SHEET

Field Sample ID:

B2BYW7

SDG No.: K3356

Lab Name: CH2M HILL/LAB/CVO

Matrix: SOIL

Lab Sample ID: K335649

Percent Moisture: 13

Date Received: 12/14/11

Preparation: Total

Concentration Units: mg/Kg

CAS No.	Analyte	Date Analyzed	DF	MDL	PQL	Result	C	Q	M
7440-42-8I	Boron-208	12/27/11	1	0.126	0.948	12.6			P

Comments:

INORGANICS ANALYSIS DATA SHEET

Field Sample ID:

B2BYX0

SDG No.: K3356

Lab Name: CH2M HILL/LAB/CVO

Matrix: SOIL

Lab Sample ID: K335650

Percent Moisture: 9

Date Received: 12/14/11

Preparation: Total

Concentration Units: mg/Kg

CAS No.	Analyte	Date Analyzed	DF	MDL	PQL	Result	C	Q	M
7440-42-8I	Boron-208	12/27/11	1	0.144	1.09	10.1			P

Comments:

JG120106-14:15-K3356-M

FORM I - INORG

INORGANICS ANALYSIS DATA SHEET

Field Sample ID: B2BYX2

SDG No.: K3356

Lab Name: CH2M HILL/LAB/CVO

Matrix: SOIL

Lab Sample ID: K335651

Percent Moisture: 13

Date Received: 12/14/11

Preparation: Total

Concentration Units: mg/Kg

CAS No.	Analyte	Date Analyzed	DF	MDL	PQL	Result	C	Q	M
7440-42-8I	Boron-208	12/27/11	1	0.104	0.782	10.2			P

Comments:

INORGANICS ANALYSIS DATA SHEET

Field Sample ID: B2BYJ2

SDG No.: K3356

Lab Name: CH2M HILL/LAB/CVO

Matrix: SOIL

Lab Sample ID: K335652

Percent Moisture: 5

Date Received: 12/14/11

Preparation: Total

Concentration Units: mg/Kg

CAS No.	Analyte	Date Analyzed	DF	MDL	PQL	Result	C	Q	M
7440-42-8I	Boron-208	12/27/11	1	0.0607	0.458	2.19			P

Comments:

FORM I - INORG

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INORGANICS ANALYSIS DATA SHEET

Field Sample ID: B2BYK5

SDG No.: K3356

Lab Name: CH2M HILL/LAB/CVO

Matrix: SOIL

Lab Sample ID: K335653

Percent Moisture: 6

Date Received: 12/14/11

Preparation: Total

Concentration Units: mg/Kg

CAS No.	Analyte	Date Analyzed	DF	MDL	PQL	Result	C	Q	M
7440-42-8I	Boron-208	12/27/11	1	0.110	0.834	1.93			P

Comments:

INORGANICS ANALYSIS DATA SHEET

Field Sample ID: B2BYL1

SDG No.: K3356

Lab Name: CH2M HILL/LAB/CVO

Matrix: SOIL

Lab Sample ID: K335654

Percent Moisture: 6

Date Received: 12/14/11

Preparation: Total

Concentration Units: mg/Kg

CAS No.	Analyte	Date Analyzed	DF	MDL	PQL	Result	C	Q	M
7440-42-8I	Boron-208	12/27/11	1	0.129	0.974	4.26			P

Comments:

JG120106-14:15-K3356-M

FORM I - INORG

INORGANICS ANALYSIS DATA SHEET

Field Sample ID: B2BYL4

SDG No.: K3356

Lab Name: CH2M HILL/LAB/CVO

Matrix: SOIL

Lab Sample ID: K335655

Percent Moisture: 6

Date Received: 12/14/11

Preparation: Total

Concentration Units: mg/Kg

CAS No.	Analyte	Date Analyzed	DF	MDL	PQL	Result	C	Q	M
7440-42-8I	Boron-208	12/27/11	1	0.118	0.889	5.24			P

Comments:

INORGANICS ANALYSIS DATA SHEET

Field Sample ID: B2BYM0

SDG No.: K3356

Lab Name: CH2M HILL/LAB/CVO

Matrix: SOIL

Lab Sample ID: K335656

Percent Moisture: 7

Date Received: 12/14/11

Preparation: Total

Concentration Units: mg/Kg

CAS No.	Analyte	Date Analyzed	DF	MDL	PQL	Result	C	Q	M
7440-42-8I	Boron-208	12/27/11	1	0.0876	0.661	3.82			P

Comments:

INORGANICS ANALYSIS DATA SHEET

Field Sample ID: B2BYM2

SDG No.: K3356

Lab Name: CH2M HILL/LAB/CVO

Matrix: SOIL

Lab Sample ID: K335657

Percent Moisture: 7

Date Received: 12/14/11

Preparation: Total

Concentration Units: mg/Kg

CAS No.	Analyte	Date Analyzed	DF	MDL	PQL	Result	C	Q	M
7440-42-8I	Boron-208	12/27/11	1	0.0992	0.749	3.68			P

Comments:

JG120106-14:15-K3356-M

FORM I - INORG

INORGANICS ANALYSIS DATA SHEET

Field Sample ID: B2BYM6

SDG No.: K3356

Lab Name: CH2M HILL/LAB/CVO

Matrix: SOIL

Lab Sample ID: K335658

Percent Moisture: 5

Date Received: 12/14/11

Preparation: Total

Concentration Units: mg/Kg

CAS No.	Analyte	Date Analyzed	DF	MDL	PQL	Result	C	Q	M
7440-42-8I	Boron-208	12/27/11	1	0.113	0.852	4.20			P

Comments:

INORGANICS ANALYSIS DATA SHEET

Field Sample ID: B2BYN1

SDG No.: K3356

Lab Name: CH2M HILL/LAB/CVO

Matrix: SOIL

Lab Sample ID: K335659

Percent Moisture: 6

Date Received: 12/14/11

Preparation: Total

Concentration Units: mg/Kg

CAS No.	Analyte	Date Analyzed	DF	MDL	PQL	Result	C	Q	M
7440-42-8I	Boron-208	12/27/11	1	0.105	0.794	5.32			P

Comments:

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INORGANICS ANALYSIS DATA SHEET

Field Sample ID:

Lab Control ID#3452

SDG No.: K3356

Lab Name: CH2M HILL/LAB/CVO

Matrix: SOIL

Lab Sample ID: K335660

Percent Moisture: 2

Date Received: 12/14/11

Preparation: Total

Concentration Units: mg/Kg

CAS No.	Analyte	Date Analyzed	DF	MDL	PQL	Result	C	Q	M
7440-42-8I	Boron-208	01/03/12	1	0.0721	0.544	1.53			P

Comments:

INORGANICS ANALYSIS DATA SHEET

Field Sample ID: SB1-0103

SDG No.: K3356

Lab Name: CH2M HILL/LAB/CVO

Matrix: SOIL

Lab Sample ID: SB1-0103

Percent Moisture: 0

Date Received: / /

Preparation: Total

Concentration Units: mg/Kg

CAS No.	Analyte	Date Analyzed	DF	MDL	PQL	Result	C	Q	M
7440-42-8I	Boron-208	01/03/12	1	0.133	1.00	0.133	U		P

Comments:

JG120106-14:15-K3356-M

FORM I - INORG

INORGANICS ANALYSIS DATA SHEET

Field Sample ID: SB1-1215

SDG No.: K3356

Lab Name: CH2M HILL/LAB/CVO

Matrix: SOIL

Lab Sample ID: SB1-1215

Percent Moisture: 0

Date Received: / /

Preparation: Total

Concentration Units: mg/Kg

CAS No.	Analyte	Date Analyzed	DF	MDL	PQL	Result	C	Q	M
7440-42-8I	Boron-208	12/22/11	1	0.133	1.00	0.154	J		P

Comments:

INORGANICS ANALYSIS DATA SHEET

Field Sample ID: SB2-1215

SDG No.: K3356

Lab Name: CH2M HILL/LAB/CVO

Matrix: SOIL

Lab Sample ID: SB2-1215

Percent Moisture: 0

Date Received: / /

Preparation: Total

Concentration Units: mg/Kg

CAS No.	Analyte	Date Analyzed	DF	MDL	PQL	Result	C	Q	M
7440-42-8I	Boron-208	12/22/11	1	0.133	1.00	0.520	J		P

Comments:

INORGANICS ANALYSIS DATA SHEET

Field Sample ID: SB3-1215

SDG No.: K3356

Lab Name: CH2M HILL/LAB/CVO

Matrix: SOIL

Lab Sample ID: SB3-1215

Percent Moisture: 0

Date Received: / /

Preparation: Total

Concentration Units: mg/Kg

CAS No.	Analyte	Date Analyzed	DF	MDL	PQL	Result	C	Q	M
7440-42-8I	Boron-208	12/27/11	1	0.133	1.00	0.133	U		P

Comments:

QC DATA
SUMMARY

JANUARY 12, 2012

INITIAL AND CONTINUING CALIBRATION VERIFICATION

SDG No.: K3356 Lab Name: CH2M HILL/LAB/CVO

Initial Calibration ID: 122211ICP Concentration Units: ug/L

Instrument ID: OP3000

2nd Source/ICV ID: ICV-1222 CCV1 ID: CV1-1222 CCV2 ID: CV2-1222 CCV3 ID: CV3-1222

Initial Calibration				Continuing Calibration							
Analyte	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	Found	%R(1)	M
Boron-208	1000	1030	103	1000	1000	100	970	97	983	98	P

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

SW846 Control Limits: Mercury and GFAA 80-120; ICP 90-110; Cyanide 85-115

JANUARY 12, 2012

INITIAL AND CONTINUING CALIBRATION VERIFICATION

SDG No.: K3356 Lab Name: CH2M HILL/LAB/CVO

Initial Calibration ID: 122211ICP Concentration Units: ug/L

Instrument ID: OP3000

2nd Source/ICV ID: ICV-1222 CCV4 ID: CV4-1222

Initial Calibration				Continuing Calibration							
Analyte	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	Found	%R(1)	M
Boron-208	1000	1030	103	1000	1070	107					P

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

SW846 Control Limits: Mercury and GFAA 80-120; ICP 90-110; Cyanide 85-115

JANUARY 12, 2012

2A

INITIAL AND CONTINUING CALIBRATION VERIFICATION

SDG No.: K3356

Lab Name: CH2M HILL/LAB/CVO

Initial Calibration ID: 122711ICP

Concentration Units: ug/L

Instrument ID: OP3000

2nd Source/ICV ID: ICV-1227 CCV1 ID: CV1-1227 CCV2 ID: CV2-1227

Initial Calibration				Continuing Calibration							
Analyte	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	Found	%R(1)	M
Boron-208	1000	1020	102	1000	1070	107	1050	105			P

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

SW846 Control Limits: Mercury and GFAA 80-120; ICP 90-110; Cyanide 85-115

JANUARY 12, 2012

INITIAL AND CONTINUING CALIBRATION VERIFICATION

SDG No.: K3356 Lab Name: CH2M HILL/LAB/CVO

Initial Calibration ID: 010312ICP Concentration Units: ug/L

Instrument ID: OP3000

2nd Source/ICV ID: ICV-0103 CCV1 ID: CV1-0103

Initial Calibration				Continuing Calibration							
Analyte	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	Found	%R(1)	M
Boron-208	1000	998	100	1000	997	100					P

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

SW846 Control Limits: Mercury and GFAA 80-120; ICP 90-110; Cyanide 85-115

BLANKS

SDG No.: K3356 Lab Name: CH2M HILL/LAB/CVO

Initial Calibration ID: 122211ICP Concentration Units: ug/L

Instrument ID: OP3000

ICB ID: ICB-1222 CCB1 ID: CB1-1222 CCB2 ID: CB2-1222 CCB3 ID: CB3-1222

Analyte	Method	Initial Calib. Blank	Continuing Calibration Blank			M
			1	2	3	
Boron-208	SW6010B	4.19J	6.34J	6.64J	7.41J	P

Comments:

BLANKS

SDG No.: K3356

Lab Name: CH2M HILL/LAB/CVO

Initial Calibration ID: 122211ICP

Concentration Units: ug/L

Instrument ID: OP3000

ICB ID:

CCB4 ID: CB4-1222

Analyte	Method	Initial Calib. Blank	Continuing Calibration Blank			M
			4	5	6	
Boron-208	SW6010		4.52 J			P

Comments:

BLANKS

SDG No.: K3356 Lab Name: CH2M HILL/LAB/CVO

Initial Calibration ID: 122711ICP Concentration Units: ug/L

Instrument ID: OP3000

ICB ID: ICB-1227 CCB1 ID: CB1-1227 CCB2 ID: CB2-1227

Analyte	Method	Initial Calib. Blank	Continuing Calibration Blank			M
			1	2	3	
Boron-208	SW6010B	1.33U	1.35J	1.33U		P

Comments:

BLANKS

SDG No.: K3356

Lab Name: CH2M HILL/LAB/CVO

Initial Calibration ID: 010312ICP

Concentration Units: ug/L

Instrument ID: OP3000

ICB ID: ICB-0103

CCB1 ID: CB1-0103

Analyte	Method	Initial Calib. Blank	Continuing Calibration Blank			M
			1	2	3	
Boron-208	SW6010B	1.33U	1.33U			P

Comments:

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INTERFERENCE CHECK SAMPLE

SDG No.: K3356

Lab Name: CH2M HILL/LAB/CVO

Initial Calibration ID: 122211ICP

ICS Source: 3-MW-14-1& 2

Instrument ID: OP3000

Concentration Units: ug/L

Analyte	True Value		Initial Found			Final Found		
	Sol. A	Sol. AB	Sol. A	Sol. AB	%R	Sol. A	Sol. AB	%R
Aluminum	500000	500000	459000	466000	93.2			
Calcium	500000	500000	450000	457000	91.4			
Iron	200000	200000	163000	166000	83.0			
Magnesium	500000	500000	475000	480000	96.0			

JANUARY 12, 2012

INTERFERENCE CHECK SAMPLE

SDG No.: K3356

Lab Name: CH2M HILL/LAB/CVO

Initial Calibration ID: 122711ICP

ICS Source: 3-MW-14-1& 2

Instrument ID: OP3000

Concentration Units: ug/L

Analyte	True Value		Initial Found			Final Found		
	Sol. A	Sol. AB	Sol. A	Sol. AB	%R	Sol. A	Sol. AB	%R
Aluminum	500000	500000	461000	453000	90.6			
Calcium	500000	500000	456000	448000	89.6			
Iron	200000	200000	165000	163000	81.5			
Magnesium	500000	500000	486000	474000	94.8			

JANUARY 12, 2012

INTERFERENCE CHECK SAMPLE

SDG No.: K3356

Lab Name: CH2M HILL/LAB/CVO

Initial Calibration ID: 010312ICP

ICS Source: 3-MW-14-1& 2

Instrument ID: OP3000

Concentration Units: ug/L

Analyte	True Value		Initial Found			Final Found		
	Sol. A	Sol. AB	Sol. A	Sol. AB	%R	Sol. A	Sol. AB	%R
Aluminum	500000	500000	461000	458000	91.6			
Calcium	500000	500000	464000	463000	92.6			
Iron	200000	200000	168000	168000	84.0			
Magnesium	500000	500000	489000	487000	97.4			

JANUARY 12, 2012

5A

MATRIX SPIKE/MATRIX SPIKE DUPLICATE SAMPLE RECOVERY

SDG No.: K3356

Lab Name: CH2M HILL/LAB/CVO

Matrix: Soil

Concentration Units: mg/Kg

Percent Moisture: 6

Native Sample ID: B2C166

MS Sample ID: B2C166MS

MSD Sample ID: B2C166MSD

Analyte	Method	Native Sample Result	MS Spike Added	MS Result	MS %R	MSD Spike Added	MSD Result	MSD %R	%RPD	QC Limits %R	QC Limits %RPD	Q	M
Boron-208	SW6010B	12.9	21.4	28.3	72	18.8	25.6	68	9.9	75-125	20	*	P

Comments:
Total Metals

MATRIX SPIKE/MATRIX SPIKE DUPLICATE SAMPLE RECOVERY

SDG No.: K3356

Lab Name: CH2M HILL/LAB/CVO

Matrix: Soil

Concentration Units: mg/Kg

Percent Moisture: 8

Native Sample ID: B2C150

MS Sample ID: B2C150MS

MSD Sample ID: B2C150MSD

Analyte	Method	Native Sample Result	MS Spike Added	MS Result	MS %R	MSD Spike Added	MSD Result	MSD %R	%RPD	QC Limits %R	QC Limits %RPD	Q	M
Boron-208	SW6010B	2.30	43.9	46.0	100	43.7	45.1	98	1.9	75-125	20		P

Comments:
Total Metals

MATRIX SPIKE/MATRIX SPIKE DUPLICATE SAMPLE RECOVERY

SDG No.: K3356

Lab Name: CH2M HILL/LAB/CVO

Matrix: Soil

Concentration Units: mg/Kg

Percent Moisture: 10

Native Sample ID: B2BYT2

MS Sample ID: B2BYT2MS

MSD Sample ID: B2BYT2MSD

Analyte	Method	Native Sample Result	MS Spike Added	MS Result	MS %R	MSD Spike Added	MSD Result	MSD %R	%RPD	QC Limits %R	QC Limits %RPD	Q	M
Boron-208	SW6010B	6.11	37.7	44.5	102	37.3	64.0	155	35.8	75-125	20	*	P

Comments:
Total Metals

5A

MATRIX SPIKE/MATRIX SPIKE DUPLICATE SAMPLE RECOVERY

SDG No.: K3356

Lab Name: CH2M HILL/LAB/CVO

Matrix: Soil

Concentration Units: mg/Kg

Percent Moisture: 2

Native Sample ID: Lab Control ID#3452

MS Sample ID: Lab Control ID#3452MS

MSD Sample ID: Lab Control ID#3452MSD

Analyte	Method	Native Sample Result	MS Spike Added	MS Result	MS %R	MSD Spike Added	MSD Result	MSD %R	%RPD	QC Limits %R	QC Limits %RPD	Q	M
Boron-208	SW6010B	1.53	31.2	29.1	88	30.4	30.7	96	5.3	75-125	20		P

Comments:
Total Metals

LABORATORY CONTROL SAMPLE

SDG No.: K3356

Lab Name: CH2M HILL/LAB/CVO

Aqueous LCS ID:

Solid LCS ID: BS1S1215

Analyte	Method	Aqueous (ug/L) True	Aqueous (ug/L) Found	Aqueous (ug/L) %R	Solid (mg/Kg) True	Solid (mg/Kg) Found	Solid (mg/Kg) %R	Limits	C
Boron-208	SW6010B				50.0	46.4	93	80-120	

Comments:

JANUARY 12, 2012

LABORATORY CONTROL SAMPLE

SDG No.: K3356

Lab Name: CH2M HILL/LAB/CVO

Aqueous LCS ID:

Solid LCS ID: BS2S1215

Analyte	Method	Aqueous (ug/L)			Solid (mg/Kg)			Limits	C
		True	Found	%R	True	Found	%R		
Boron-208	SW6010B				50.0	48.5	97	80-120	

Comments:

LABORATORY CONTROL SAMPLE

SDG No.: K3356

Lab Name: CH2M HILL/LAB/CVO

Aqueous LCS ID:

Solid LCS ID: BS3S1215

Analyte	Method	Aqueous (ug/L) True	Aqueous (ug/L) Found	Aqueous (ug/L) %R	Solid (mg/Kg) True	Solid (mg/Kg) Found	Solid (mg/Kg) %R	Limits	C
Boron-208	SW6010B				50.0	50.7	101	80-120	

Comments:

JANUARY 12, 2012

LABORATORY CONTROL SAMPLE

SDG No.: K3356

Lab Name: CH2M HILL/LAB/CVO

Aqueous LCS ID:

Solid LCS ID: BS1S0103

Analyte	Method	Aqueous (ug/L)			Solid (mg/Kg)			Limits	C
		True	Found	%R	True	Found	%R		
Boron-208	SW6010B				50.0	47.9	96	80-120	

Comments:

JANUARY 9 12, 2012

SERIAL DILUTIONS

Field Sample ID:

B2BYT2DL

SDG No.: K3356

Lab Name: CH2M HILL/LAB/CVO

Matrix: Soil

Concentration Units: mg/Kg

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)		% Difference	Q	M
Boron-208	6.11		5.97		2.3		P

Comments:

10% Criteria does not apply if undiluted sample result is <50 times the MDL for ICP.

10% Criteria does not apply if undiluted sample result is <100 times the MDL for ICPMS.

JANUARY 9, 12, 2012

SERIAL DILUTIONS

Field Sample ID:

B2C150DL

SDG No.: K3356

Lab Name: CH2M HILL/LAB/CVO

Matrix: Soil

Concentration Units: mg/Kg

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)		% Difference	Q	M
Boron-208	2.30		3.58		35.8		P

Comments:

10% Criteria does not apply if undiluted sample result is <50 times the MDL for ICP.

10% Criteria does not apply if undiluted sample result is <100 times the MDL for ICPMS.

JANUARY 12, 2012

SERIAL DILUTIONS

Field Sample ID:

B2C166DL

SDG No.: K3356

Lab Name: CH2M HILL/LAB/CVO

Matrix: Soil

Concentration Units: mg/Kg

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)		% Difference	Q	M
Boron-208	12.9		13.6		5.1		P

Comments:

10% Criteria does not apply if undiluted sample result is <50 times the MDL for ICP.

10% Criteria does not apply if undiluted sample result is <100 times the MDL for ICPMS.

JANUARY 10, 2012

INSTRUMENT DETECTION LIMITS

SDG No.: K3356

Lab Name: CH2M HILL/LAB/CVO

Instrument ID: OP3000

Matrix: SOIL

Concentration Units: mg/Kg

Analyte	Method	Wavelength (nm)	Background	MDL	RL	M
Boron-208	SW6010B	208	+0.013, -0.026	0.133	1.00	P

Comments:

ICP INTERELEMENT CORRECTION FACTORS (ANNUALLY)

SDG No.: K3356 Lab Name: CH2M HILL/LAB/CVO

Instrument ID: OP3000 Date: 01/13/10

Analyte	Method	Wave-length (nm)	Interelement Correction Factors for:			
			Al	Ca	Fe	Mg
Boron-208	SW6010	208	0.0617	0.0067	0.01825	0

Comments:

JANUARY 12, 2012

LINEAR RANGES (QUARTERLY)

SDG No.: K3356 Lab Name: CH2M HILL/LAB/CVO

Analyte	Method	Integ. Time (Sec.)	Concentration (ug/L)	M
Boron-208	SW6010B	Auto	20000	P

Comments:

PREPARATION LOG

SDG No.: K3356

Lab Name: CH2M HILL/LAB/CVO

Method Code: P

	Field Sample ID	Lab Sample ID	Date Prepared	Weight (g)	Volume (ml)
1	B2BPC3	K335622	12/15/11	1.25	50.0
2	B2BXV2	K335617	12/15/11	1.09	50.0
3	B2BXV6	K335618	12/15/11	0.96	50.0
4	B2BXV8	K335619	12/15/11	0.77	50.0
5	B2BXW2	K335620	12/15/11	1.21	50.0
6	B2BYJ2	K335652	12/15/11	1.15	50.0
7	B2BYK2	K335602	12/15/11	0.92	50.0
8	B2BYK4	K335603	12/15/11	1.21	50.0
9	B2BYK5	K335653	12/15/11	0.64	50.0
10	B2BYK8	K335608	12/15/11	1.00	50.0
11	B2BYL0	K335609	12/15/11	1.32	50.0
12	B2BYL1	K335654	12/15/11	0.55	50.0
13	B2BYL4	K335655	12/15/11	0.60	50.0
14	B2BYL6	K335604	12/15/11	0.81	50.0
15	B2BYL8	K335610	12/15/11	0.99	50.0
16	B2BYM0	K335656	12/15/11	0.81	50.0
17	B2BYM2	K335657	12/15/11	0.72	50.0
18	B2BYM4	K335605	12/15/11	1.21	50.0
19	B2BYM6	K335658	12/15/11	0.62	50.0
20	B2BYM8	K335606	12/15/11	1.39	50.0
21	B2BYN0	K335607	12/15/11	0.80	50.0
22	B2BYN1	K335659	12/15/11	0.67	50.0
23	B2BYP5	K335648	12/15/11	0.77	50.0
24	B2BYP7	K335638	12/15/11	1.01	50.0
25	B2BYR0	K335611	12/15/11	1.83	50.0
26	B2BYR1	K335639	12/15/11	1.05	50.0
27	B2BYR3	K335640	12/15/11	0.58	50.0
28	B2BYR6	K335612	12/15/11	1.06	50.0
29	B2BYR8	K335613	12/15/11	1.60	50.0
30	B2BYR9	K335647	12/15/11	0.53	50.0
31	B2BYT2	K335641	12/15/11	0.87	50.0
32	B2BYT2DL	K335641DL	12/15/11	0.87	50.0
33	B2BYT2MS	K335641MS	12/15/11	0.73	50.0
34	B2BYT2MSD	K335641MSD	12/15/11	0.74	50.0

Comments:

PREPARATION LOG

SDG No.: K3356 Lab Name: CH2M HILL/LAB/CVO

Method Code: P

	Field Sample ID	Lab Sample ID	Date Prepared	Weight (g)	Volume (ml)
35	B2BYT3	K335642	12/15/11	0.58	50.0
36	B2BYT6	K335614	12/15/11	1.15	50.0
37	B2BYT8	K335615	12/15/11	0.77	50.0
38	B2BYV0	K335616	12/15/11	0.85	50.0
39	B2BYV2	K335643	12/15/11	0.83	50.0
40	B2BYV4	K335644	12/15/11	1.44	50.0
41	B2BYV6	K335645	12/15/11	0.51	50.0
42	B2BYW3	K335632	12/15/11	0.81	50.0
43	B2BYW7	K335649	12/15/11	0.61	50.0
44	B2BYX0	K335650	12/15/11	0.51	50.0
45	B2BYX2	K335651	12/15/11	0.74	50.0
46	B2BYX4	K335646	12/15/11	0.56	50.0
47	B2BYX7	K335633	12/15/11	0.59	50.0
48	B2BYY0	K335634	12/15/11	0.92	50.0
49	B2BYY1	K335635	12/15/11	0.90	50.0
50	B2BYY3	K335636	12/15/11	1.18	50.0
51	B2BYY5	K335637	12/15/11	1.07	50.0
52	B2BYY8	K335623	12/15/11	0.79	50.0
53	B2C000	K335624	12/15/11	0.50	50.0
54	B2C002	K335625	12/15/11	0.56	50.0
55	B2C004	K335626	12/15/11	0.53	50.0
56	B2C006	K335627	12/15/11	0.66	50.0
57	B2C008	K335628	12/15/11	0.62	50.0
58	B2C012	K335630	12/15/11	0.71	50.0
59	B2C013	K335631	12/15/11	0.54	50.0
60	B2C150	K335621	12/15/11	0.76	50.0
61	B2C150DL	K335621DL	12/15/11	0.76	50.0
62	B2C150MS	K335621MS	12/15/11	0.62	50.0
63	B2C150MSD	K335621MSD	12/15/11	0.62	50.0
64	B2C166	K335601	12/15/11	1.31	50.0
65	B2C166DL	K335601DL	12/15/11	1.31	50.0
66	B2C166MS	K335601MS	12/15/11	1.25	50.0
67	B2C166MSD	K335601MSD	12/15/11	1.42	50.0
68	BCC010	K335629	12/15/11	0.83	50.0

Comments:

PREPARATION LOG

SDG No.: K3356

Lab Name: CH2M HILL/LAB/CVO

Method Code: P

	Field Sample ID	Lab Sample ID	Date Prepared	Weight (g)	Volume (ml)
69	BS1S1215	BS1S1215	12/15/11	0.50	50.0
70	BS2S1215	BS2S1215	12/15/11	0.50	50.0
71	BS3S1215	BS3S1215	12/15/11	0.50	50.0
72	SB1-1215	SB1-1215	12/15/11	0.50	50.0
73	SB2-1215	SB2-1215	12/15/11	0.50	50.0
74	SB3-1215	SB3-1215	12/15/11	0.50	50.0

Comments:

JANUARY 12, 2012

PREPARATION LOG

SDG No.: K3356

Lab Name: CH2M HILL/LAB/CVO

Method Code: P

	Field Sample ID	Lab Sample ID	Date Prepared	Weight (g)	Volume (ml)
1	BS1S0103	BS1S0103	01/03/12	0.50	50.0
2	Lab Control ID#3452	K335660	01/03/12	0.94	50.0
3	Lab Control ID#3452MS	K335660MS	01/03/12	0.82	50.0
4	Lab Control ID#3452MSD	K335660MSD	01/03/12	0.84	50.0
5	SB1-0103	SB1-0103	01/03/12	0.50	50.0

Comments:

JANUARY 14 12, 2012

ANALYSIS RUN LOG

SDG No.: K3356 Lab Name: CH2M HILL/LAB/CVO

Instrument ID: OP3000 Method: SW6010B Sequence Name: 122211ICP

	Field Sample ID	Lab Sample ID	DF	Date Analyzed	Time Analyzed
1	CAL BLANK	CAL BLANK	1	12/22/11	1530
2	CAL 2	CAL 2	1	12/22/11	1533
3	ICV-1222	ICV-1222	1	12/22/11	1539
4	ICB-1222	ICB-1222	1	12/22/11	1543
5	ICSA	ICSA	1	12/22/11	1554
6	ICSAB	ICSAB	1	12/22/11	1557
7	SB1-1215	SB1-1215	1	12/22/11	1605
8	BS1S1215	BS1S1215	1	12/22/11	1607
9	B2C166DL	K335601DL	5	12/22/11	1617
10	B2C166	K335601	1	12/22/11	1621
11	B2C166MS	K335601MS	1	12/22/11	1630
12	B2C166MSD	K335601MSD	1	12/22/11	1633
13	B2BYK2	K335602	1	12/22/11	1636
14	B2BYK4	K335603	1	12/22/11	1639
15	B2BYL6	K335604	1	12/22/11	1643
16	B2BYM4	K335605	1	12/22/11	1646
17	B2BYM8	K335606	1	12/22/11	1649
18	B2BYN0	K335607	1	12/22/11	1652
19	B2BYK8	K335608	1	12/22/11	1655
20	B2BYL0	K335609	1	12/22/11	1658
21	B2BYL8	K335610	1	12/22/11	1701
22	CV1-1222	CV1-1222	1	12/22/11	1704
23	CB1-1222	CB1-1222	1	12/22/11	1708
24	B2BYR0	K335611	1	12/22/11	1711
25	B2BYR6	K335612	1	12/22/11	1715
26	B2BYR8	K335613	1	12/22/11	1718
27	B2BYT6	K335614	1	12/22/11	1721
28	B2BYT8	K335615	1	12/22/11	1724
29	B2BYV0	K335616	1	12/22/11	1727
30	B2BXV2	K335617	1	12/22/11	1731
31	B2BXV6	K335618	1	12/22/11	1734
32	B2BXV8	K335619	1	12/22/11	1737
33	B2BXW2	K335620	1	12/22/11	1740
34	CV2-1222	CV2-1222	1	12/22/11	1743
35	CB2-1222	CB2-1222	1	12/22/11	1747
36	SB2-1215	SB2-1215	1	12/22/11	1754
37	BS2S1215	BS2S1215	1	12/22/11	1757

COMMENTS:

ANALYSIS RUN LOG

SDG No.: K3356 Lab Name: CH2M HILL/LAB/CVO

Instrument ID: OP3000 Method: SW6010B Sequence Name: 122211ICP

	Field Sample ID	Lab Sample ID	DF	Date Analyzed	Time Analyzed
38	B2C150	K335621	1	12/22/11	1803
39	B2C150DL	K335621DL	5	12/22/11	1806
40	B2C150MS	K335621MS	1	12/22/11	1813
41	B2C150MSD	K335621MSD	1	12/22/11	1816
42	B2BPC3	K335622	1	12/22/11	1818
43	B2BYY8	K335623	1	12/22/11	1822
44	B2C000	K335624	1	12/22/11	1825
45	B2C002	K335625	1	12/22/11	1828
46	B2C004	K335626	1	12/22/11	1831
47	B2C006	K335627	1	12/22/11	1834
48	B2C008	K335628	1	12/22/11	1837
49	BCC010	K335629	1	12/22/11	1840
50	B2C012	K335630	1	12/22/11	1843
51	CV3-1222	CV3-1222	1	12/22/11	1846
52	CB3-1222	CB3-1222	1	12/22/11	1850
53	B2C013	K335631	1	12/22/11	1853
54	B2BYW3	K335632	1	12/22/11	1856
55	B2BYX7	K335633	1	12/22/11	1859
56	B2BYY0	K335634	1	12/22/11	1903
57	B2BYY1	K335635	1	12/22/11	1906
58	B2BYY3	K335636	1	12/22/11	1909
59	B2BYY5	K335637	1	12/22/11	1912
60	B2BYP7	K335638	1	12/22/11	1915
61	B2BYR1	K335639	1	12/22/11	1918
62	B2BYR3	K335640	1	12/22/11	1921
63	CV4-1222	CV4-1222	1	12/22/11	1924
64	CB4-1222	CB4-1222	1	12/22/11	1928

COMMENTS:

JANUARY 14 12, 2012

ANALYSIS RUN LOG

SDG No.: K3356 Lab Name: CH2M HILL/LAB/CVO

Instrument ID: OP3000 Method: SW6010B Sequence Name: 122711ICP

	Field Sample ID	Lab Sample ID	DF	Date Analyzed	Time Analyzed
1	CAL BLANK	CAL BLANK	1	12/27/11	1509
2	CAL 2	CAL 2	1	12/27/11	1511
3	ICV-1227	ICV-1227	1	12/27/11	1517
4	ICB-1227	ICB-1227	1	12/27/11	1521
5	ICSA	ICSA	1	12/27/11	1549
6	ICSAB	ICSAB	1	12/27/11	1554
7	SB3-1215	SB3-1215	1	12/27/11	1601
8	BS3S1215	BS3S1215	1	12/27/11	1605
9	B2BYT2	K335641	1	12/27/11	1611
10	B2BYT2DL	K335641DL	5	12/27/11	1615
11	B2BYT2MS	K335641MS	1	12/27/11	1621
12	B2BYT2MSD	K335641MSD	1	12/27/11	1625
13	B2BYT3	K335642	1	12/27/11	1629
14	B2BYV2	K335643	1	12/27/11	1633
15	B2BYV4	K335644	1	12/27/11	1637
16	B2BYV6	K335645	1	12/27/11	1641
17	B2BYX4	K335646	1	12/27/11	1645
18	B2BYR9	K335647	1	12/27/11	1650
19	B2BYP5	K335648	1	12/27/11	1654
20	B2BYW7	K335649	1	12/27/11	1658
21	B2BYX0	K335650	1	12/27/11	1702
22	CV1-1227	CV1-1227	1	12/27/11	1705
23	CB1-1227	CB1-1227	1	12/27/11	1709
24	B2BYX2	K335651	1	12/27/11	1712
25	B2BYJ2	K335652	1	12/27/11	1715
26	B2BYK5	K335653	1	12/27/11	1719
27	B2BYL1	K335654	1	12/27/11	1723
28	B2BYL4	K335655	1	12/27/11	1727
29	B2BYM0	K335656	1	12/27/11	1731
30	B2BYM2	K335657	1	12/27/11	1734
31	B2BYM6	K335658	1	12/27/11	1737
32	B2BYN1	K335659	1	12/27/11	1740
33	CV2-1227	CV2-1227	1	12/27/11	1743
34	CB2-1227	CB2-1227	1	12/27/11	1747

COMMENTS:

FORM XIV - INORG

JANUARY 14 12, 2012

ANALYSIS RUN LOG

SDG No.: K3356 Lab Name: CH2M HILL/LAB/CVO

Instrument ID: OP3000 Method: SW6010B Sequence Name: 010312ICP

	Field Sample ID	Lab Sample ID	DF	Date Analyzed	Time Analyzed
1	CAL BLANK	CAL BLANK	1	01/03/12	1424
2	CAL 2	CAL 2	1	01/03/12	1427
3	ICV-0103	ICV-0103	1	01/03/12	1433
4	ICB-0103	ICB-0103	1	01/03/12	1437
5	ICSA	ICSA	1	01/03/12	1445
6	ICSAB	ICSAB	1	01/03/12	1449
7	SB1-0103	SB1-0103	1	01/03/12	1457
8	BS1S0103	BS1S0103	1	01/03/12	1501
9	Lab Control ID#3452	K335660	1	01/03/12	1504
10	Lab Control ID#3452MS	K335660MS	1	01/03/12	1507
11	Lab Control ID#3452MSD	K335660MSD	1	01/03/12	1510
12	CV1-0103	CV1-0103	1	01/03/12	1513
13	CB1-0103	CB1-0103	1	01/03/12	1516

COMMENTS:

CH2MHILL
Applied Sciences Laboratory (ASL)

JANUARY 12, 2012

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MDL Study Report

Matrix: Soil

Concentration Units: mg/Kg

Analyte	Method	Analysis Date	Amt. Spiked	Replicates 1	2	3	4	5	6	7	8	Std. Dev.	MDL	Instrument ID
Boron-208	SW6010B	09/17/10	0.500	0.534	0.563	0.471	0.458	0.446	0.436	0.470	0.469	0.0442	0.133	OP3000

CHAIN OF CUSTODY/SHIPPING DOCUMENTS

CH2MHILL Applied Sciences Lab
CHAIN OF CUSTODY RECORD
AND AGREEMENT TO PERFORM SERVICES

1000 NE Circle Blvd., Suite 10350
Corvallis, OR 97330
(541) 768-3120 FAX (541) 752-0276

COC #

Project # or Purchase Order # 112534. MS ROLO 12-15-11 418400.BS.02

Project Name CHPRC

Company Name or Home Address/Phone Number

Email Address for Reporting

Report Copy to: Cheryl Lynch Chris McCarthy

Turnaround Time ☐24 hours ☐48 hours ☐72 hours ☐7 days ☐14 days ☐21 days (STD)

Drinking Water? Yes ☐ No ☐

Sample Disposal: Dispose ☐ Return ☐

TOTAL # OF CONTAINERS

Requested Analytical Method # — Boron S3 6020

THIS AREA FOR LAB USE ONLY: Lab # K3356 Page of

Sampling Date	Sampling Time	Type COMP	Type GRAB	Matrix WATER	Matrix SOIL	Matrix AIR	CLIENT SAMPLE ID	TOTAL # OF CONTAINERS	UNPRES	H_2SO_4	HNO_3	HCl	NaOH	ZnAcNaOH	Boron S3 6020			Canister ID	Lab ID
12-15-11	1219	X					Lab Control ID# 3452	1							X				

Preservative

EPA Tier QC Level 1 (Screening) 2 3 4

Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Volatile Contaminants/Odorous ☐ Biohazard ☐ Other

Relinquished By — Date/Time	Received By: — Date/Time
Sampled By and Title (Please sign and print name) — Date/Time: 12-15-11 1219	Relinquished By (Please sign and print name) — Date/Time: 12-15-11. 1235
Received By (Please sign and print name) — Date/Time	Relinquished By (Please sign and print name) — Date/Time
Received By (Please sign and print name) — Date/Time	Shipped Via UPS Fed-Ex Other — Tracking #

Special Instructions: Add with K3356 Report - Q11-2888

Instructions and Agreement Provisions on Reverse Side

DISTRIBUTION: Original – LAB, Yellow – LAB, Pink – Client
Rev 09/2010 LAB FORM 340

JANUARY 12, 2012

JANUARY 12, 2012

CH2MHILL
Applied Sciences Laboratory (ASL)

Sample Receipt Record

Batch Number: K3356

Date received: 12/14/11

Client/Project: CHPRC

Checked by: Gm

Checked by: _____

VERIFICATION OF SAMPLE CONDITIONS (verify all items) * HD = Client Hand delivered Samples

Observation	NA	YES	NO
Radiological Screening for DoD	✓		
Were custody seals intact and on the outside of the cooler? from bioassay walk-in	✓		
Type of packing material: Ice Blue Ice Bubble wrap from bioassay walk-in	✓		
Was a Chain of Custody provided?		✓	
Was the Chain of Custody properly filled out? If not document in SRER		✓	
Were the sample containers in good condition (broken or leaking)?		✓	
Containers supplied by ASL?		✓	
Any sample with < 1/2 holding time remaining? If so contact LPM			✓
Samples have multi-phase? If yes, document on SRER			✓
Was there ice in the cooler? Enter temp. If >6°C contact client/SRER from bioassay walk-in °C	✓		
All VOCs free of air bubbles? No, document on SRER	✓		
pH of all samples checked and met requirements? No, then document in SRER	✓		
Enough sample volume provided for analysis? No, document in SRER		✓	
Did sample labels agree with COC? No, document in SRER		✓	
Dissolved/Soluble metals filtered in the field?	✓		
Dissolved/Soluble metals have sediment in bottom of container? Document in SRER	✓		

Sample ID	Reagent	Reagent Lot Number	Volume Added	Initials

JANUARY 12, 2012

If other bottle was sampling

K 3356

LocationID	WasteSite	ASL Sample ID		Client Sample ID		ASL Sample ID	Sample Date
Target 8-3	600-281	B252205	1	B2C165	2206	B2C166	2/25
Target 12-1	OCSA	B252225	2	B2BYK1	2226	B2BYK2	2/27
Target 12-2	OCSA	B252227	3	B2BYK3	2228	B2BYK4	2/27
Target 13-2	OCSA	B252229	4	B2BYL6			2/27
Target 14-1	OCSA	B252231	5	B2BYM4			2/27
Target 14-3	OCSA	B252233	6	B2BYM7	2234	B2BYM8	2/27
Target 14-4	OCSA	B252235	7	B2BYM9	2236	B2BYN0	2/27
Target 12-4	OCSA	B252237	8	B2BYK7	2238	B2BYK8	2/27
Target 12-4D	OCSA	B252239	9	B2BYL0			2/27
Target 13-3	OCSA	B252241	10	B2BYL8			2/27
Target 16-3	OCSA	B252243	11	B2BYR0			3/2
Target 17-1	OCSA	B252245	12	B2BYR5	2246	B2BYR6	3/2
Target 17-2	OCSA	B252247	13	B2BYR7	2248	B2BYR8	3/2
Target 18-1	OCSA	B252249	14	B2BYT5	2250	B2BYT6	3/2
Target 18-2	OCSA	B252251	15	B2BYT7	2252	B2BYT8	3/2
Target 18-3	OCSA	B252253	16	B2BYT9	2254	B2BYV0	3/2
Target 24-1	120-KW-1	B252255	17	B2BXV1	2257	B2BXV2	2/15
Target 24-2	120-KW-1	B252260	18	B2BXV5	2261	B2BXV6	2/15
Target 24-3	120-KW-1	B252262	19	B2BXV7	2263	B2BXV8	2/15
Target 24-5	120-KW-1	B252265	20	B2BXW1	2266	B2BXW2	2/15
Target 7-1	600-281	B252267	21	B2C149	2268	B2C150	2/25
Target 6-5	600-228	B252302	22	B2BPC2	2303	B2BPC3	2/16
Target 22-1	OCSA	B252376	23	B2BYY7	2377	B2BYY8	3/3
Target 22-2	OCSA	B252378	24	B2BYY9	2379	B2C000	3/3
Target 22-3	OCSA	B252380	25	B2C001	2381	B2C002	3/3
Target 22-4	OCSA	B252382	26	B2C003	2383	B2C004	3/3
Target 22-4D	OCSA	B252384	27	B2C005	2385	B2C006	3/3
Target 22-5	OCSA	B252386	28	B2C007	2387	B2C008	3/3
Target 23-1	OCSA	B252388	29	B2C009	2389	B2C010	3/3
Target 23-2	OCSA	B252390	30	B2C011	2391	B2C012	3/3
Target 23-3	OCSA	B252392	31	B2C013			3/3
Target 19-4	OCSA	B252401	32	B2BYW3	3/3		
Target 21-1	OCSA	B252403	33	B2BYX7	3/3		3/3
Target 21-2	OCSA	B252405	34	B2BYY0	3/3		
Target 21-3	OCSA	B252407	35	B2BYY1	3/3		
Target 21-4	OCSA	B252409	36	B2BYY3	3/3		
Target 21-5	OCSA	B252411	37	B2BYY5	3/3		
Target 16-2	OCSA	B252413	38	B2BYP7	3/2		
Target 16-4	OCSA	B252415	39	B2BYR1	3/2		
Target 16-5	OCSA	B252417	40	B2BYR3	3/2		
Target 17-4	OCSA	~~B252419~~	41	B2BYT1	2420 /	B2BYT2	3/2
Target 17-5	OCSA	B252421	42	B2BYT3	3/2		
Target 18-3D	OCSA	B252423	43	B2BYV2	3/2		
Target 18-4	OCSA	B252425	44	B2BYV4	3/2		
Target 18-5	OCSA	B252427	45	B2BYV6	3/2		
Target 20-4	OCSA	B252429	46	B2BYX4	3/2		
Target 17-3	OCSA	B252443	47	B2BYR9	3/2		
Target 16-1	OCSA	B252447	48	B2BYP5	3/2		
Target 20-1	OCSA	~~B252449~~	49	B2BYW8	2450 /	B2BYW7	
Target 20-2	OCSA	B252451	50	B2BYX0	3/2		
Target 20-3	OCSA	B252453	51	B2BYX2	3/2		
Target 11-1	OCSA	B252463	52	B2BYJ2	2/27		
Target 12-3	OCSA	B252467	53	B2BYK5	2/27		
Target 12-5	OCSA	B252469	54	B2BYL1	2/27		
Target 13-1	OCSA	B252471	55	B2BYL4	2/27		
Target 13-4	OCSA	B252473	56	B2BYM0	2/27		
Target 13-5	OCSA	B252475	57	B2BYM2	2/27		
Target 14-2	OCSA	B252477	58	B2BYM6	2/27		
Target 14-5	OCSA	B252479	59	B2BYN1	2/27		
Lab Soil	None	#N/A		#N/A			

2/27/11

3/3/11

Greydanus, Judy/CVO

From: McKinley, Kathy/CVO
Sent: Monday, December 19, 2011 2:04 PM
To: Greydanus, Judy/CVO
Subject: FW: CHPRC Boran Samples: batch controls on boron analysis

FYI

From: McCarthy, Chris/BOS
Sent: Monday, December 19, 2011 1:42 PM
To: McKinley, Kathy/CVO; Stanaway, Mike/CVO
Subject: CHPRC Boran Samples: batch controls on boron analysis

Kathy
Some notes on what CHPRC's chemist says is needed to pass validation. If for some reason anything listed below is not normally included, and we need to discuss it, please contact me. Thanks.

CHRISTOPHER J. MCCARTHY
Senior Environmental Scientist
CH2M HILL
Direct: 207-221-0703
Cell: 281-513-6370
email: chris.mccarthy@ch2m.com

From: Fitzgerald, Scot L [mailto:Scot_L_Fitzgerald@RL.gov]
Sent: Monday, December 19, 2011 4:40 PM
To: McCarthy, Chris/BOS
Cc: Trent, Stephen J
Subject: RE: batch controls on boron analysis

Chris,

As a follow up, there are a few other things besides the batch QC that should be included in the data package:

The package should have a narrative discussing any analytical anomalies or QC failures.
Also, all of the lab acceptance ranges (i.e. LCS/MS acceptable recovery, RPD acceptance criteria, etc) and should include relative percent difference (RPD) values for duplicates.
The data package should also include any information required to link batch QC back to each associated sample.

Let me know if you have any questions.

Scot Fitzgerald
Analytical Support Group
Soil & Groundwater Remediation Project (S&GRP)
Phone: (509) 373-7495
CH2MHILL
Plateau Remediation Company

From: Chris.McCarthy@CH2M.com [mailto:Chris.McCarthy@CH2M.com]
Sent: Monday, December 19, 2011 12:58 PM
To: Trent, Stephen J; Fitzgerald, Scot L
Subject: batch controls on boron analysis

ASL said they are doing batch QC including MS, MSD, lab control sample, and method blank. Will that cut it?

CHRISTOPHER J. MCCARTHY
Senior Environmental Scientist
CH2M HILL
Direct: 207-221-0703
Cell: 281-513-6370
email: chris.mccarthy@ch2m.com

Greydanus, Judy/CVO

From: McKinley, Kathy/CVO
Sent: Monday, December 19, 2011 4:32 PM
To: Greydanus, Judy/CVO
Subject: FW: CH2M HILL Applied Sciences Laboratory (ASL) -- RE: Quotation Q11-02888

Just a reminder for the case narrative....

-----Original Message-----
From: McCarthy, Chris/BOS
Sent: Wednesday, December 07, 2011 12:23 PM
To: McKinley, Kathy/CVO
Subject: RE: CH2M HILL Applied Sciences Laboratory (ASL) -- RE: Quotation Q11-02888

Thanks. The main thing was avoiding iron interference so I appreciate the input. I will wrote the contract with the option and emphasize avoidance of the iron masking. I will tell you that I think at this site, boron with ICP/MS has yielded background concentrations in the 1-3 ppm range. With the other method used by another lab, I think with a GC though I could be wrong, they were getting 20-45 ppm in background and waste sites. We now know from comparative analysis those were artificially high.

-----Original Message-----
From: McKinley, Kathy/CVO
Sent: Wednesday, December 07, 2011 2:42 PM
To: McCarthy, Chris/BOS
Subject: RE: CH2M HILL Applied Sciences Laboratory (ASL) -- RE: Quotation Q11-02888

Chris
I checked with our analysts and she said she could develop a method on ICPMS if needed by the project.

Typically Boron is high enough concentration that with ICP-MS one has to make a lot of dilutions -thus better to run on ICP.

On ICP, we do run a secondary wavelength so that iron is not an interference.

So we can reference either methods.

Kathy

-----Original Message-----
From: McKinley, Kathy/CVO
Sent: Wednesday, December 07, 2011 10:26 AM
To: McCarthy, Chris/BOS
Subject: RE: CH2M HILL Applied Sciences Laboratory (ASL) -- RE: Quotation Q11-02888

For Boron, We don't report using ICPMS (SW6020/E200.8) but report using ICP (SW6010/E200.7).

-----Original Message-----
From: McCarthy, Chris/BOS
Sent: Wednesday, December 07, 2011 10:22 AM
To: McKinley, Kathy/CVO
Subject: RE: CH2M HILL Applied Sciences Laboratory (ASL) -- RE: Quotation Q11-02888

Kathy

I am helping PRC finalize a contract and have a quick question. What is the standard method that would be used to perform boron analysis by ICP/MS?

-----Original Message-----
From: McKinley, Kathy/CVO
Sent: Thursday, November 17, 2011 4:23 PM
To: McCarthy, Chris/BOS
Cc: Muckey, Brett/CVO; Stanaway, Mike/CVO
Subject: CH2M HILL Applied Sciences Laboratory (ASL) -- RE: Quotation Q11-02888

Chris
Attached is the quote. Let me know if you need anything else.

Kathy McKinley
Laboratory Customer Services Manager/Inorganics Laboratory Manager CH2M HILL Inc. Applied Sciences Laboratory
Phone: 541.768.3144 | FAX: 541.766.2852

How is our Service? CH2MHILL's Applied Sciences Laboratory (ASL) would like your feedback. Please Click Here to leave your comments and suggestions. Sign up for ASL News emails.These emails include new capabilities and technical topics.

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The attached files are being sent to you by CH2M HILL Applied Sciences Laboratory (ASL).

Please let us know how we are doing. Take the ASL Survey at: www.ch2mlab.com/Feedback.php

For any additional analytical questions, contact Customer Services at 541-768-3120 (asl@ch2m.com)