



# ENVIRONMENTAL

Analytical Chemists

www.fgline.com



October 21, 2011

Lab ID : CH 1176516

Customer : 7-5000

Chico, CA 95973

## Laboratory Report

**Introduction:** This report package contains total of 6 pages divided into 3 sections:

Case Narrative	(2 pages) : An overview of the work performed at FGL.
Sample Results	(1 page) : Results for each sample submitted.
Quality Control	(3 pages) : Supporting Quality Control (QC) results.

### Case Narrative

This Case Narrative pertains to the following samples:

Sample Description	Date Sampled	Date Received	FGL Lab ID #	Matrix
Chem Trails	10/05/2011	10/06/2011	CH 1176516-001	N/A

**Sampling and Receipt Information:** The sample was received, prepared and analyzed within the method specified holding times. All samples arrived on ice. All samples were checked for pH if acid or base preservation is required (except for VOAs). For details of sample receipt information, please see the attached Chain of Custody and Condition Upon Receipt Form.

**Quality Control:** All samples were prepared and analyzed according to the following tables:

### Inorganic - Metals QC

200.1	10/13/2011:211385 All preparation quality controls are within established criteria, except: The following note applies to Arsenic, Nickel, Lead, Antimony, Selenium, Thallium, Chromium: 435 Sample matrix may be affecting this analyte. Data was accepted based on the LCS or CCV recovery. The following note applies to Selenium: 435 Sample matrix may be affecting this analyte. Data was accepted based on the LCS or CCV recovery.
200.8	10/18/2011:215440 All analysis quality controls are within established criteria.
	10/19/2011:215502 All analysis quality controls are within established criteria.
245.1	10/13/2011:215184 All analysis quality controls are within established criteria.
7470	10/13/2011:211415 All preparation quality controls are within established criteria.

October 21, 2011

Lab ID : CH 1176516  
Customer : 7-5000

**Certification::** I certify that this data package is in compliance with NELAC standards, both technically and for completeness, except for any conditions listed above. Release of the data contained in this data package is authorized by the Laboratory Director or his designee, as verified by the following electronic signature.

KD:DMB

Approved By **Kelly A. Dunnahoo, B.S.**



Digitally signed by Kelly A. Dunnahoo, B.S.  
Title: Laboratory Director  
Date: 2011-10-24





# ENVIRONMENTAL

Analytical Chemists

www.fgline.com



October 21, 2011

Lab ID : CH 1176516-001

Customer ID : 7-5000

Chico, CA 95973

Sampled On : October 5, 2011-19:00

Sampled By :

Received On : October 6, 2011-13:25

Matrix :

Description : Chem Trails

Project : Inorganic Chemicals

## Sample Result - Inorganic

Constituent	Result	PQL	Units	Note	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
<b>Metals, Total</b> <sup>P,T5</sup>								
Aluminum	700	50*	ug/L		200.1	10/13/11:211385	200.8	10/19/11:215502
Antimony	ND	1	ug/L		200.1	10/13/11:211385	200.8	10/18/11:215440
Arsenic	ND	2	ug/L		200.1	10/13/11:211385	200.8	10/18/11:215440
Barium	23.9	0.2	ug/L		200.1	10/13/11:211385	200.8	10/18/11:215440
Beryllium	ND	0.2	ug/L		200.1	10/13/11:211385	200.8	10/18/11:215440
Cadmium	0.3	0.2	ug/L		200.1	10/13/11:211385	200.8	10/18/11:215440
Chromium	3	1	ug/L		200.1	10/13/11:211385	200.8	10/18/11:215440
Lead	2.2	0.2	ug/L		200.1	10/13/11:211385	200.8	10/18/11:215440
Mercury	0.03	0.02	ug/L		7470	10/13/11:211415	245.1	10/13/11:215184
Nickel	5	1	ug/L		200.1	10/13/11:211385	200.8	10/18/11:215440
Selenium	ND	2	ug/L		200.1	10/13/11:211385	200.8	10/18/11:215440
Silver	ND	1	ug/L		200.1	10/13/11:211385	200.8	10/18/11:215440
Thallium	ND	0.2	ug/L		200.1	10/13/11:211385	200.8	10/18/11:215440
Vanadium	4	2	ug/L		200.1	10/13/11:211385	200.8	10/18/11:215440

ND=Non-Detected. PQL=Practical Quantitation Limit. Containers: (P) Plastic Preservatives; HNO3 pH < 2 ‡Surrogate. \* PQL adjusted for dilution.





October 21, 2011

Lab ID : CH 1176516  
Customer : 7-5000

**Quality Control - Inorganic**

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
<b>Metals</b>								
Aluminum	200.1	10/13/11:211385amb (STK1138643-001)	Blank	ug/L		ND	<10	
			LCS	ug/L	199.8	98.8 %	85-115	
			MS	ug/L	199.8	-263 %	<1/4	
			MSD	ug/L	199.8	-808 %	<1/4	
			MSRPD	ug/L	39.94	8.3 %	≤20.0	
Antimony	200.1	10/13/11:211385amb (STK1138643-001)	Blank	ug/L		ND	<1	
			LCS	ug/L	24.00	108 %	85-115	
			MS	ug/L	24.00	138 %	75-125	
			MSD	ug/L	24.00	111 %	75-125	
			MSRPD	ug/L	39.94	18.7 %	≤20.0	435
Arsenic	200.1	10/13/11:211385amb (STK1138643-001)	Blank	ug/L		ND	<2	
			LCS	ug/L	40.00	102 %	85-115	
			MS	ug/L	40.00	141 %	75-125	
			MSD	ug/L	40.00	90.4 %	75-125	
			MSRPD	ug/L	39.94	15.9 %	≤20	435
Barium	200.1	10/13/11:211385amb (STK1138643-001)	Blank	ug/L		ND	<0.2	
			LCS	ug/L	39.92	100 %	85-115	
			MS	ug/L	39.92	134 %	<1/4	
			MSD	ug/L	39.92	-26.7 %	<1/4	
			MSRPD	ug/L	39.94	14.4 %	≤20	
Beryllium	200.1	10/13/11:211385amb (STK1138643-001)	Blank	ug/L		ND	<0.2	
			LCS	ug/L	40.14	94.6 %	85-115	
			MS	ug/L	40.14	108 %	75-125	
			MSD	ug/L	40.14	97.9 %	75-125	
			MSRPD	ug/L	39.94	10.1 %	≤20	
Cadmium	200.1	10/13/11:211385amb (STK1138643-001)	Blank	ug/L		ND	<0.2	
			LCS	ug/L	40.00	98.1 %	85-115	
			MS	ug/L	40.00	113 %	75-125	
			MSD	ug/L	40.00	96.8 %	75-125	
			MSRPD	ug/L	39.94	14.2 %	≤20.0	
Chromium	200.1	10/13/11:211385amb (STK1138643-001)	Blank	ug/L		ND	<1	
			LCS	ug/L	40.00	98.9 %	85-115	
			MS	ug/L	40.00	92.0 %	75-125	
			MSD	ug/L	40.00	61.1 %	75-125	
			MSRPD	ug/L	39.94	9.7 %	≤20.0	435
Lead	200.1	10/13/11:211385amb (STK1138643-001)	Blank	ug/L		ND	<0.2	
			LCS	ug/L	40.00	101 %	85-115	
			MS	ug/L	40.00	127 %	75-125	
			MSD	ug/L	40.00	102 %	75-125	
			MSRPD	ug/L	39.94	15.8 %	≤20.0	435
Nickel	200.1	10/13/11:211385amb (STK1138643-001)	Blank	ug/L		ND	<1	
			LCS	ug/L	40.00	99.2 %	85-115	
			MS	ug/L	40.00	128 %	75-125	
			MSD	ug/L	40.00	107 %	75-125	
			MSRPD	ug/L	39.94	5.2 %	≤20	435
Selenium	200.1	10/13/11:211385amb (STK1138643-001)	Blank	ug/L		ND	<2	
			LCS	ug/L	39.98	99.1 %	85-115	
			MS	ug/L	39.98	156 %	75-125	
			MSD	ug/L	39.98	119 %	75-125	
			MSRPD	ug/L	39.94	41.8 %	≤20.0	435
Silver	200.1	10/13/11:211385amb (STK1138643-001)	Blank	ug/L		ND	<1	
			LCS	ug/L	39.94	95.1 %	85-115	
			MS	ug/L	39.94	94.6 %	75-125	
			MSD	ug/L	39.94	85.1 %	75-125	
			MSRPD	ug/L	39.94	10.4 %	≤20.0	435

October 21, 2011

Lab ID : CH 1176516  
Customer : 7-5000

## Quality Control - Inorganic

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
<b>Metals</b>								
Thallium	200.1	10/13/11:211385amb (STK1138643-001)	Blank LCS MS MSD MSRPD	ug/L ug/L ug/L ug/L ug/L	 39.98 39.98 39.98 39.94	ND 97.4 % 151 % 139 % 7.6%	<0.2 85-115 75-125 75-125 ≤20	 435 435
Vanadium	200.1	10/13/11:211385amb (STK1138643-001)	Blank LCS MS MSD MSRPD	ug/L ug/L ug/L ug/L ug/L	 40.00 40.00 40.00 39.94	ND 100 % 125 % 85.4 % 17.9%	<2 85-115 75-125 75-125 ≤20	
Aluminum	200.8	10/19/11:215502EMV	ICV ICB CCV CCB	ppb ppb ppb ppb	120.0  120.0	96.9 % 0.5 91.0 % 0.3	90-110 10 90-110 10	
Antimony	200.8	10/18/11:215440EMV	CCV CCB CCV CCB	ppb ppb ppb ppb	120.0  120.0	100 % 0.45 100 % 1.70	90-110 1 90-110 1	
Arsenic	200.8	10/18/11:215440EMV	CCV CCB CCV CCB	ppb ppb ppb ppb	120.0  120.0	97.6 % 0.06 99.4 % 0.27	90-110 2 90-110 2	
Barium	200.8	10/18/11:215440EMV	CCV CCB CCV CCB	ppb ppb ppb ppb	120.0  120.0	102 % 0.002 105 % 0.12	90-110 1 90-110 1	
Beryllium	200.8	10/18/11:215440EMV	CCV CCB CCV CCB	ppb ppb ppb ppb	120.0  120.0	95.7 % 0.01 98.8 % 0.099	90-110 0.2 90-110 0.2	
Cadmium	200.8	10/18/11:215440EMV	CCV CCB CCV CCB	ppb ppb ppb ppb	120.0  120.0	99.2 % 0.004 102 % 0.087	90-110 0.2 90-110 0.2	
Chromium	200.8	10/18/11:215440EMV	CCV CCB CCV CCB	ppb ppb ppb ppb	120.0  120.0	98.3 % 0.16 101 % 0.24	90-110 1 90-110 1	
Lead	200.8	10/18/11:215440EMV	CCV CCB CCV CCB	ppb ppb ppb ppb	120.0  120.0	98.0 % -0.01 100 % 0.079	90-110 0.2 90-110 0.2	
Nickel	200.8	10/18/11:215440EMV	CCV CCB CCV CCB	ppb ppb ppb ppb	120.0  120.0	99.6 % 0.01 101 % 0.07	90-110 1 90-110 1	
Selenium	200.8	10/18/11:215440EMV	CCV CCB CCV CCB	ppb ppb ppb ppb	120.0  120.0	101 % -0.22 103 % 0.13	90-110 2 90-110 2	
Silver	200.8	10/18/11:215440EMV	CCV CCB CCV CCB	ppb ppb ppb ppb	120.0  120.0	101 % 0.02 103 % 0.1	90-110 1 90-110 1	



October 21, 2011

Lab ID : CH 1176516  
Customer : 7-5000**Quality Control - Inorganic**

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
<b>Metals</b>								
Thallium	200.8	10/18/11:215440EMV	CCV	ppb	120.0	97.6 %	90-110	
			CCB	ppb		0.024	0.2	
			CCV	ppb	120.0	99.6 %	90-110	
			CCB	ppb		0.095	0.2	
Vanadium	200.8	10/18/11:215440EMV	CCV	ppb	120.0	99.2 %	90-110	
			CCB	ppb		-0.02	2	
			CCV	ppb	120.0	102 %	90-110	
			CCB	ppb		0.1	2	
Mercury	245.1	10/13/11:215184AC	CCV	ppt	199.8	98.4 %	90-110	
			CCB	ppt		4.9	20	
			CCV	ppt	199.8	97.9 %	90-110	
			CCB	ppt		4.4	20	
	7470	10/13/11:211415ac  (CC 1182532-001)	Blank	ug/L		ND	<0.02	
			LCS	ug/L	0.1998	110 %	85-115	
			MS	ug/L	0.1998	106 %	75-125	
			MSD	ug/L	0.1998	104 %	75-125	
			MSRPD	ug/L	0.1998	1.8 %	≤20	
<b>Definition</b>								
ICV	: Initial Calibration Verification - Analyzed to verify the instrument calibration is within criteria.							
ICB	: Initial Calibration Blank - Analyzed to verify the instrument baseline is within criteria.							
CCV	: Continuing Calibration Verification - Analyzed to verify the instrument calibration is within criteria.							
CCB	: Continuing Calibration Blank - Analyzed to verify the instrument baseline is within criteria.							
Blank	: Method Blank - Prepared to verify that the preparation process is not contributing contamination to the samples.							
LCS	: Laboratory Control Standard/Sample - Prepared to verify that the preparation process is not affecting analyte recovery.							
MS	: Matrix Spikes - A random sample is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.							
MSD	: Matrix Spike Duplicate of MS/MSD pair - A random sample duplicate is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.							
MSRPD	: MS/MSD Relative Percent Difference (RPD) - The MS relative percent difference is an indication of precision for the preparation and analysis.							
ND	: Non-detect - Result was below the DQO listed for the analyte.							
<¼	: High Sample Background - Spike concentration was less than one forth of the sample concentration.							
DQO	: Data Quality Objective - This is the criteria against which the quality control data is compared.							
<b>Explanation</b>								
435	: Sample matrix may be affecting this analyte. Data was accepted based on the LCS or CCV recovery.							



ENVIRONMENTAL

CHAIN OF CUSTODY  
AND ANALYSIS REQUEST DOCUMENT

Lab Number:  
1176516

TEST DESCRIPTION AND ANALYSES REQUESTED

Client:  
Customer Number:  
Address:

Phone:  
Contact Person:  
Project Name:  
Purchase Order Number:  
Quote Number:

Sampler(s):

Sampling Fee: \_\_\_\_\_ Pickup Fee: \_\_\_\_\_  
Compositor Setup Date: \_\_\_\_\_ Time: \_\_\_\_\_

Sample Num	Location Description	Date Sampled	Time Sampled
------------	----------------------	--------------	--------------

1	Chem Trails	10-5-11	1900
---	-------------	---------	------

Method of Sampling: Composite (C) Grab (G)

Number of Containers

Type of Containers: (G)Glass (P)Plastic (V)VOA (MT)Metal Tube

Potable (P) Non-Potable (NP) Ag Water (AgW)

(SW) Surface Water (MW) Monitoring Well (GW) Ground Water  
(TB) Travel Blank (WW) Waste Water (DW) Drinking Water

(S) Soil (SLG) Sludge (SLD) Solid (O) Oil

BacT: (Sys) System (SRC) Source (W) Waste

BacT: (ROUT)Routine (RPT)Repeat (OTH)Other (RPL)Replace

(LT) Leaf Tissue (PET) Petiole Tissue (PRD) Produce

Preservative: (1) NaOH + ZnAc, (2) NaOH, (3) HCl  
(4) H<sub>2</sub>SO<sub>4</sub>, (5) HNO<sub>3</sub>, (6) Na<sub>2</sub>SO<sub>3</sub>, (7) Other

INORGANIC CHEMS

Remarks

3 Better or trail-  
one sample location

Relinquished

Date:

Time: 13:25

Relinquished

Date:

Time:

Relinquished

Date:

Time:

Received By:

Date:

Time:

Received By:

Date:

Time:

Received By:

Date:

Time:

CP

1

4

CP

10-6-11

1700

CP

10-11-2000

1000



1176516

Chico - Condition Upon Receipt (Attach to COC)

Sample Receipt at CH:

1. Number of ice chests/packages received: OTC
2. Were samples received in a chilled condition? Temps: 201 /     /     /      
Acceptable is above freezing to 6° C. Also acceptable is received on ice (ROI) for the same day of sampling or received at room temperature (RRT) if sampled within one hour of receipt. Client contact for temperature failures must be documented below. If many packages are received at one time check for tests/H.T.'s/rushes/Bacti's to prioritize further review. Please notify Microbiology personnel immediately of bacti samples received.
3. Do the number of bottles received agree with the COC? Yes No N/A
4. Were samples received intact? (i.e. no broken bottles, leaks etc.) Yes No
5. Were sample custody seals intact? N/A Yes No

Sign and date the COC, place in a ziplock and put in the same ice chest as the samples  
Sample Receipt Review completed by (initials): CP

Sample Receipt at SP:

1. Were samples received in a chilled condition? Temps: 30 /     /     /      
Acceptable is above freezing to 6° C. If many packages are received at one time check for tests/H.T.'s/rushes/Bacti's to prioritize further review. Please notify Microbiology personnel immediately of bacti samples received.
2. Do the number of bottles received agree with the COC? Yes No N/A
3. Were samples received intact? (i.e. no broken bottles, leaks etc.) Yes No
4. Were sample custody seals intact? N/A Yes No

Sign and date the COC, obtain LIMS sample numbers, select methods/tests and print labels.

Sample Verification, Labeling and Distribution:

1. Were all requested analyses understood and acceptable? Yes No
2. Did bottle labels correspond with the client's ID's? Yes No
3. Were all bottles requiring sample preservation properly preserved? Yes No N/A FGL
4. VOA's Checked for Headspace? Yes No N/A
5. Were all analyses within holding times at time of receipt? Yes No
6. Have rush or project due dates been checked and accepted? N/A Yes No

Attach labels to the containers and include a copy of the COC for lab delivery.

Sample Receipt, Login and Verification completed by (initials): SP

Discrepancy Documentation:

Any items above which are "No" or do not meet specifications (i.e. temps) must be reviewed

1. Person Contacted: \_\_\_\_\_  
Initiated By: \_\_\_\_\_  
Problem: \_\_\_\_\_

(7-5000)

Resolution:

CH 1176516

NMB-10/07/2011-08:24:15