McCampbell Analytical, Inc.

"When Quality Counts"

Analytical Report

WorkOrder: 1712962

Report Created for: Patrick Roddie

1935 Franklin Street #603
San Francisco, CA 94109

Project Contact: Patrick Roddie
Project P.O.:
Project: SF rain 12-20-17

Project Received: 12/20/2017

Analytical Report reviewed & approved for release on 12/27/2017 by:

Jennifer Lagerbom
Project Manager

The report shall not be reproduced except in full, without the written approval of the laboratory. The analytical results relate only to the items tested. Results reported conform to the most current NELAP standards, where applicable, unless otherwise stated in the case narrative.

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1534 Willow Pass Road, Pittsburg, CA 94565-1701
Toll Free Telephone: (877) 252-9262 / Fax: (925) 252-9269
http://www.mccampbell.com / E-mail: main@mccampbell.com

Glossary of Terms & Qualifier Definitions

Client: Patrick Roddie
Project: SF rain 12-20-17
WorkOrder: 1712962

Glossary Abbreviation

%D	Serial Dilution Percent Difference
95% Interval	95% Confident Interval
DF	Dilution Factor
DI WET	(DISTLC) Waste Extraction Test using DI water
DISS	Dissolved (direct analysis of 0.45 µm filtered and acidified water sample)
DLT	Dilution Test (Serial Dilution)
DUP	Duplicate
EDL	Estimated Detection Limit
ERS	External reference sample. Second source calibration verification.
ITEF	International Toxicity Equivalence Factor
LCS	Laboratory Control Sample
MB	Method Blank
MB % Rec	% Recovery of Surrogate in Method Blank, if applicable
MDL	Method Detection Limit
ML	Minimum Level of Quantitation
MS	Matrix Spike
MSD	Matrix Spike Duplicate
N/A	Not Applicable
ND	Not detected at or above the indicated MDL or RL
NR	Data Not Reported due to matrix interference or insufficient sample amount.
PDS	Post Digestion Spike
PDSD	Post Digestion Spike Duplicate
PF	Prep Factor
RD	Relative Difference
RL	Reporting Limit (The RL is the lowest calibration standard in a multipoint calibration.)
RPD	Relative Percent Deviation
RRT	Relative Retention Time
SPK Val	Spike Value
SPKRef Val	Spike Reference Value
SPLP	Synthetic Precipitation Leachate Procedure
ST	Sorbent Tube
TCLP	Toxicity Characteristic Leachate Procedure
TEQ	Toxicity Equivalents
WET (STLC)	Waste Extraction Test (Soluble Threshold Limit Concentration)

Analytical Qualifiers

J	Result is less than the RL/ML but greater than the MDL. The reported concentration is an estimated value.

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Analytical Report

Client:	Patrick Roddie	**WorkOrder:**	1712962
Date Received:	12/20/17 17:00	**Extraction Method:**	E200.8
Date Prepared:	12/20/17	**Analytical Method:**	E200.8
Project:	SF rain 12-20-17	**Unit:**	µg/L

Metals

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
San Francisco	**1712962-001A**	**Water**	**12/20/2017 07:00**	**ICP-MS1 128SMPL.D**	**150610**

Analytes	Result	Qualifiers	MDL	RL	DF	Date Analyzed
Aluminum	ND		14	50	1	12/22/2017 03:08
Barium	**4.1**	J	1.1	5.0	1	12/22/2017 03:08
Iron	**15**	J	4.4	20	1	12/22/2017 03:08
Titanium	**0.42**	J	0.13	0.50	1	12/22/2017 03:08

Surrogates	REC (%)	Limits	
Terbium	97	70-130	12/22/2017 03:08

Analyst(s): ND

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Quality Control Report

Client:	Patrick Roddie	**WorkOrder:**	1712962
Date Prepared:	12/20/17	**BatchID:**	150610
Date Analyzed:	12/21/17 - 12/22/17	**Extraction Method:**	E200.8
Instrument:	ICP-MS1, ICP-MS3	**Analytical Method:**	E200.8
Matrix:	Water	**Unit:**	µg/L
Project:	SF rain 12-20-17	**Sample ID:**	MB/LCS-150610 1712950-001GMS/MSD

QC Summary Report for Metals

Analyte	MB Result	LCS Result	MDL	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Aluminum	ND	498	14	50	500	-	100	85-115
Barium	ND	486	1.1	5.0	500	-	97	85-115
Iron	ND	4890	4.4	20	5000	-	98	85-115
Titanium	ND	48.9	0.13	0.50	50	-	98	85-115
Surrogate Recovery								
Terbium	780.2	744			750	104	99	70-130

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Aluminum	595	595	500	120	96	96	75-125	0	20
Barium	638	627	500	130	102	99	75-125	1.64	20
Iron	5520	5450	5000	670	97	96	75-125	1.19	20
Titanium	57.4	56.7	50	7.3	100	99	75-125	1.30	20
Surrogate Recovery									
Terbium	773	775	750		103	103	70-130	0	20

Analyte	DLT Result	DLTRef Val	%D	%D Limit
Aluminum	ND<250	120	-	-
Barium	123	130	5.38	-
Iron	650	670	2.99	20
Titanium	7.08	7.3	3.01	-

%D Control Limit applied to analytes with concentrations greater than 25 times the reporting limits.

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(925) 252-9262

CHAIN-OF-CUSTODY RECORD

WorkOrder: 1712962 **ClientCode: PRSF**

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☑ EQuIS ☐ Email ☐ HardCopy ☐ ThirdParty ☑ J-flag
☑ Detection Summary ☑ Dry-Weight

Report to:
Patrick Roddie
Patrick Roddie
1935 Franklin Street #603
San Francisco, CA 94109
415 336-4728 FAX:

Email: patrick@webbery.com
cc/3rd Party:
PO:
Project: SF rain 12-20-17

Bill to:
Accounts Payable
Patrick Roddie
1935 Franklin Street #603
San Francisco, CA 94109

Requested TAT: **5 days;**

Date Received: **12/20/2017**
Date Logged: **12/20/2017**

Lab ID	Client ID	Matrix	Collection Date	Hold	Requested Tests (See legend below) 1	2	3	4	5	6	7	8	9	10	11	12
1712962-001	San Francisco	Water	12/20/2017 07:00	☐	A											

Test Legend:

1	METALSMS_TTLC_W	2		3		4	
5		6		7		8	
9		10		11		12	

Prepared by: Nancy Palacios

Comments:

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.

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WORK ORDER SUMMARY

Client Name: PATRICK RODDIE **Project:** SF rain 12-20-17 **Work Order:** 1712962
Client Contact: Patrick Roddie **QC Level:** LEVEL 2
Contact's Email: patrick@webbery.com **Comments:** **Date Logged:** 12/20/2017

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☐ Fax ☐ Email ☐ HardCopy ☐ ThirdParty ☑ J-flag

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	De-chlorinated	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
1712962-001A	San Francisco	Water	E200.8 (Metals) <Aluminum, Barium, Iron, Titanium>	1	250mL HDPE w/ HNO3	☐	12/20/2017 7:00	5 days	None	☐	

NOTES: - STLC and TCLP extractions require 2 days to complete; therefore, all TATs begin after the extraction is completed (i.e., One-day TAT yields results in 3 days from sample submission).

- MAI assumes that all material present in the provided sampling container is considered part of the sample - MAI does not exclude any material from the sample prior to sample preparation unless requested in writing by the client.

General COC

MAI Work Order # 1712962

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CHAIN OF CUSTODY RECORD

Turn Around Time:	1 Day Rush		2 Day Rush		3 Day Rush		STD	✓	Quote #										
J-Flag / MDL		ESL		Cleanup Approved					Bottle Order #										
Delivery Format:	PDF	✓	GeoTracker EDF		EDD		Write On (DW)		EQuIS										

Report To: Patrick Roddie Bill To: same - cc on file

Company:

Email: patrick@webbery.com

Alt Email: Tele: 415-336-4728

Project Name: SF rain 12-20-17 Project #:

Project Location: San Francisco PO #

Sampler Signature:

SAMPLE ID Location / Field Point	Sampling Date	Sampling Time	#Containers	Matrix	Preservative	Analysis Requested: AL BA TI FE
San Francisco	12-20	7am	1	O	4	✓

MAI clients MUST disclose any dangerous chemicals known to be present in their submitted samples in concentrations that may cause immediate harm or serious future health endangerment as a result of brief, gloved, open air, sample handling by MAI staff. Non-disclosure incurs an immediate $250 surcharge and the client is subject to full legal liability for harm suffered. Thank you for your understanding and for allowing us to work safely.

* If metals are requested for water samples and the water type (Matrix) is not specified on the chain of custody, MAI will default to metals by E200.8.

Please provide an adequate volume of sample. If the volume is not sufficient for a MS/MSD a LCS/LCSD will be prepared in its place and noted in the report.

Comments / Instructions

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
	12-20-17	12-13 PM	MV	12/20/17	1230
MV	12-20-17	~~1700~~	Nancy Palacios	12/20	1700

Matrix Code: DW=Drinking Water, GW=Ground Water, WW=Waste Water, SW=Seawater, S=Soil, SL=Sludge, A=Air, WP=Wipe, O=Other

Preservative Code: 1=4°C 2=HCl 3=H_2SO_4 4=HNO_3 5=NaOH 6=ZnOAc/NaOH 7=None

Temp _____ °C Initials _____

3.5 WET

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Sample Receipt Checklist

Client Name:	**Patrick Roddie**	Date and Time Received	**12/20/2017 17:00**
Project:	**SF rain 12-20-17**	Date Logged:	**12/20/2017**
		Received by:	Nancy Palacios
WorkOrder №:	**1712962** Matrix: Water	Logged by:	Nancy Palacios
Carrier:	Moises Vasquez (contract courier)		

Chain of Custody (COC) Information

Chain of custody present?	Yes	☑	No	☐	
Chain of custody signed when relinquished and received?	Yes	☑	No	☐	
Chain of custody agrees with sample labels?	Yes	☑	No	☐	
Sample IDs noted by Client on COC?	Yes	☑	No	☐	
Date and Time of collection noted by Client on COC?	Yes	☑	No	☐	
Sampler's name noted on COC?	Yes	☑	No	☐	
COC agrees with Quote?	Yes	☐	No	☐	NA ☑

Sample Receipt Information

Custody seals intact on shipping container/cooler?	Yes	☐	No	☐	NA ☑
Shipping container/cooler in good condition?	Yes	☑	No	☐	
Samples in proper containers/bottles?	Yes	☑	No	☐	
Sample containers intact?	Yes	☑	No	☐	
Sufficient sample volume for indicated test?	Yes	☑	No	☐	

Sample Preservation and Hold Time (HT) Information

All samples received within holding time?	Yes	☑	No	☐	NA ☐
Sample/Temp Blank temperature	Temp: 3.5°C				NA ☐
Water - VOA vials have zero headspace / no bubbles?	Yes	☑	No	☐	NA ☐
Sample labels checked for correct preservation?	Yes	☑	No	☐	
pH acceptable upon receipt (Metal: <2; 522: <4; 218.7: >8)?	Yes	☑	No	☐	NA ☐
Samples Received on Ice?	Yes	☑	No	☐	
(Ice Type: WET ICE)					

UCMR Samples:

Total Chlorine tested and acceptable upon receipt for EPA 522?	Yes	☐	No	☐	NA ☑
Free Chlorine tested and acceptable upon receipt for EPA 218.7, 300.1, 537, 539?	Yes	☐	No	☐	NA ☑

Comments: