TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Irvine
17461 Derian Ave
Suite 100
Irvine, CA 92614-5817
Tel: (949)261-1022

TestAmerica Job ID: 440-235882-1
Client Project/Site: 503 Metals

For:
City of Oceanside
Water Utilities Laboratory
3950 North River Road
Oceanside, California 92058

Attn: Luke Christian

Authorized for release by:
3/20/2019 3:58:30 PM

Janice Hsu, Project Manager I
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LINKS

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The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Sample Summary

Client: City of Oceanside
Project/Site: 503 Metals

TestAmerica Job ID: 440-235882-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
440-235882-1	SLR CAKE	Solid	03/05/19 14:00	03/11/19 14:00
440-235882-2	LS CAKE	Solid	03/03/19 09:30	03/11/19 14:00

Case Narrative

Client: City of Oceanside
Project/Site: 503 Metals

TestAmerica Job ID: 440-235882-1

Job ID: 440-235882-1

Laboratory: TestAmerica Irvine

Narrative

Job Narrative
440-235882-1

Comments
No additional comments.

Receipt
The samples were received on 3/11/2019 2:00 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.6º C.

Metals
Method(s) 6010B: The matrix spike (MS) recoveries of Lead for preparation batch 440-534503 and analytical batch 440-534774 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Client Sample Results

Client: City of Oceanside
Project/Site: 503 Metals

TestAmerica Job ID: 440-235882-1

Client Sample ID: SLR CAKE

Lab Sample ID: 440-235882-1
Date Collected: 03/05/19 14:00
Matrix: Solid
Date Received: 03/11/19 14:00

Method: 6010B - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		3.0	1.5	mg/Kg		03/15/19 09:01	03/17/19 15:17	5
Cadmium	0.29	J	0.50	0.25	mg/Kg		03/15/19 09:01	03/17/19 15:17	5
Chromium	14		1.0	0.50	mg/Kg		03/15/19 09:01	03/17/19 15:17	5
Copper	54		2.0	1.1	mg/Kg		03/15/19 09:01	03/17/19 15:17	5
Lead	1.2	J	2.0	1.0	mg/Kg		03/15/19 09:01	03/17/19 15:17	5
Molybdenum	3.8		2.0	1.0	mg/Kg		03/15/19 09:01	03/17/19 15:17	5
Nickel	12		2.0	1.0	mg/Kg		03/15/19 09:01	03/17/19 15:17	5
Selenium	3.2		3.0	1.7	mg/Kg		03/15/19 09:01	03/17/19 15:17	5
Zinc	140		5.0	2.5	mg/Kg		03/15/19 09:01	03/17/19 15:17	5

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.12		0.020	0.012	mg/Kg		03/12/19 18:15	03/13/19 02:10	1

Client Sample ID: LS CAKE

Lab Sample ID: 440-235882-2
Date Collected: 03/03/19 09:30
Matrix: Solid
Date Received: 03/11/19 14:00

Method: 6010B - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		3.0	1.5	mg/Kg		03/15/19 09:01	03/17/19 15:19	5
Cadmium	ND		0.50	0.25	mg/Kg		03/15/19 09:01	03/17/19 15:19	5
Chromium	4.4		1.0	0.50	mg/Kg		03/15/19 09:01	03/17/19 15:19	5
Copper	65		2.0	1.1	mg/Kg		03/15/19 09:01	03/17/19 15:19	5
Lead	2.0		2.0	1.0	mg/Kg		03/15/19 09:01	03/17/19 15:19	5
Molybdenum	1.9	J	2.0	1.0	mg/Kg		03/15/19 09:01	03/17/19 15:19	5
Nickel	2.6		2.0	1.0	mg/Kg		03/15/19 09:01	03/17/19 15:19	5
Selenium	2.1	J	3.0	1.7	mg/Kg		03/15/19 09:01	03/17/19 15:19	5
Zinc	150		5.0	2.5	mg/Kg		03/15/19 09:01	03/17/19 15:19	5

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.13		0.020	0.012	mg/Kg		03/12/19 18:15	03/13/19 02:08	1

Method Summary

Client: City of Oceanside
Project/Site: 503 Metals

TestAmerica Job ID: 440-235882-1

Method	Method Description	Protocol	Laboratory
6010B	Metals (ICP)	SW846	TAL IRV
7471A	Mercury (CVAA)	SW846	TAL IRV
3050B	Preparation, Metals	SW846	TAL IRV
7471A	Preparation, Mercury	SW846	TAL IRV

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Lab Chronicle

Client: City of Oceanside
Project/Site: 503 Metals

TestAmerica Job ID: 440-235882-1

Client Sample ID: SLR CAKE

Lab Sample ID: 440-235882-1

Date Collected: 03/05/19 14:00

Matrix: Solid

Date Received: 03/11/19 14:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			2.00 g	50 mL	534503	03/15/19 09:01	DT	TAL IRV
Total/NA	Analysis	6010B		5			534774	03/17/19 15:17	P1R	TAL IRV
Total/NA	Prep	7471A			0.50 g	50 mL	533868	03/12/19 18:15	DB	TAL IRV
Total/NA	Analysis	7471A		1			533914	03/13/19 02:10	DB	TAL IRV

Client Sample ID: LS CAKE

Lab Sample ID: 440-235882-2

Date Collected: 03/03/19 09:30

Matrix: Solid

Date Received: 03/11/19 14:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			2.00 g	50 mL	534503	03/15/19 09:01	DT	TAL IRV
Total/NA	Analysis	6010B		5			534774	03/17/19 15:19	P1R	TAL IRV
Total/NA	Prep	7471A			0.50 g	50 mL	533868	03/12/19 18:15	DB	TAL IRV
Total/NA	Analysis	7471A		1			533914	03/13/19 02:08	DB	TAL IRV

Laboratory References:

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

QC Sample Results

Client: City of Oceanside
Project/Site: 503 Metals

TestAmerica Job ID: 440-235882-1

Method: 6010B - Metals (ICP)

Lab Sample ID: MB 440-534503/1-A ^5 — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 534774 — **Prep Batch: 534503**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		3.0	1.5	mg/Kg		03/15/19 09:01	03/17/19 14:36	5
Cadmium	ND		0.50	0.25	mg/Kg		03/15/19 09:01	03/17/19 14:36	5
Chromium	ND		1.0	0.50	mg/Kg		03/15/19 09:01	03/17/19 14:36	5
Copper	ND		2.0	1.1	mg/Kg		03/15/19 09:01	03/17/19 14:36	5
Lead	ND		2.0	1.0	mg/Kg		03/15/19 09:01	03/17/19 14:36	5
Molybdenum	ND		2.0	1.0	mg/Kg		03/15/19 09:01	03/17/19 14:36	5
Nickel	ND		2.0	1.0	mg/Kg		03/15/19 09:01	03/17/19 14:36	5
Selenium	ND		3.0	1.7	mg/Kg		03/15/19 09:01	03/17/19 14:36	5
Zinc	ND		5.0	2.5	mg/Kg		03/15/19 09:01	03/17/19 14:36	5

Lab Sample ID: LCS 440-534503/2-A ^5 — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 534774 — **Prep Batch: 534503**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	49.8	44.7		mg/Kg		90	80 - 120
Cadmium	49.8	46.8		mg/Kg		94	80 - 120
Chromium	49.8	47.3		mg/Kg		95	80 - 120
Copper	49.8	47.5		mg/Kg		95	80 - 120
Lead	49.8	47.0		mg/Kg		95	80 - 120
Molybdenum	49.8	48.4		mg/Kg		97	80 - 120
Nickel	49.8	46.9		mg/Kg		94	80 - 120
Selenium	49.8	42.8		mg/Kg		86	80 - 120
Zinc	49.8	45.4		mg/Kg		91	80 - 120

Lab Sample ID: 440-236261-A-1-C MS ^5 — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 534774 — **Prep Batch: 534503**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	6.2		50.0	47.0		mg/Kg		82	75 - 125
Cadmium	0.26	J	50.0	42.3		mg/Kg		84	75 - 125
Chromium	13		50.0	62.4		mg/Kg		98	75 - 125
Copper	16		50.0	65.9		mg/Kg		100	75 - 125
Lead	14	F1	50.0	89.1	F1	mg/Kg		150	75 - 125
Molybdenum	ND		50.0	44.0		mg/Kg		88	75 - 125
Nickel	9.6		50.0	54.0		mg/Kg		89	75 - 125
Selenium	ND		50.0	40.4		mg/Kg		81	75 - 125
Zinc	51		50.0	105		mg/Kg		108	75 - 125

Lab Sample ID: 440-236261-A-1-D MSD ^5 — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 534774 — **Prep Batch: 534503**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	6.2		49.8	47.4		mg/Kg		83	75 - 125	1	20
Cadmium	0.26	J	49.8	42.9		mg/Kg		86	75 - 125	1	20
Chromium	13		49.8	60.9		mg/Kg		96	75 - 125	2	20
Copper	16		49.8	64.7		mg/Kg		99	75 - 125	2	20

Method: 6010B - Metals (ICP) (Continued)

Lab Sample ID: 440-236261-A-1-D MSD ^5 — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 534774 — **Prep Batch: 534503**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Lead	14	F1	49.8	72.6		mg/Kg		118	75 - 125	20	20
Molybdenum	ND		49.8	45.0		mg/Kg		90	75 - 125	2	20
Nickel	9.6		49.8	53.6		mg/Kg		89	75 - 125	1	20
Selenium	ND		49.8	40.8		mg/Kg		82	75 - 125	1	20
Zinc	51		49.8	97.3		mg/Kg		93	75 - 125	8	20

Method: 7471A - Mercury (CVAA)

Lab Sample ID: MB 440-533868/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 533914 — **Prep Batch: 533868**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.020	0.012	mg/Kg		03/12/19 18:15	03/13/19 02:40	1

Lab Sample ID: LCS 440-533868/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 533914 — **Prep Batch: 533868**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.800	0.792		mg/Kg		99	80 - 120

Lab Sample ID: 440-235940-F-1-F MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 533914 — **Prep Batch: 533868**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.10		0.800	0.799		mg/Kg		87	75 - 125

Lab Sample ID: 440-235940-F-1-G MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 533914 — **Prep Batch: 533868**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	0.10		0.784	0.790		mg/Kg		88	75 - 125	1	20

QC Association Summary

Client: City of Oceanside
Project/Site: 503 Metals

TestAmerica Job ID: 440-235882-1

Metals

Prep Batch: 533868

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-235882-1	SLR CAKE	Total/NA	Solid	7471A	
440-235882-2	LS CAKE	Total/NA	Solid	7471A	
MB 440-533868/1-A	Method Blank	Total/NA	Solid	7471A	
LCS 440-533868/2-A	Lab Control Sample	Total/NA	Solid	7471A	
440-235940-F-1-F MS	Matrix Spike	Total/NA	Solid	7471A	
440-235940-F-1-G MSD	Matrix Spike Duplicate	Total/NA	Solid	7471A	

Analysis Batch: 533914

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-235882-1	SLR CAKE	Total/NA	Solid	7471A	533868
440-235882-2	LS CAKE	Total/NA	Solid	7471A	533868
MB 440-533868/1-A	Method Blank	Total/NA	Solid	7471A	533868
LCS 440-533868/2-A	Lab Control Sample	Total/NA	Solid	7471A	533868
440-235940-F-1-F MS	Matrix Spike	Total/NA	Solid	7471A	533868
440-235940-F-1-G MSD	Matrix Spike Duplicate	Total/NA	Solid	7471A	533868

Prep Batch: 534503

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-235882-1	SLR CAKE	Total/NA	Solid	3050B	
440-235882-2	LS CAKE	Total/NA	Solid	3050B	
MB 440-534503/1-A ^5	Method Blank	Total/NA	Solid	3050B	
LCS 440-534503/2-A ^5	Lab Control Sample	Total/NA	Solid	3050B	
440-236261-A-1-C MS ^5	Matrix Spike	Total/NA	Solid	3050B	
440-236261-A-1-D MSD ^5	Matrix Spike Duplicate	Total/NA	Solid	3050B	

Analysis Batch: 534774

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-235882-1	SLR CAKE	Total/NA	Solid	6010B	534503
440-235882-2	LS CAKE	Total/NA	Solid	6010B	534503
MB 440-534503/1-A ^5	Method Blank	Total/NA	Solid	6010B	534503
LCS 440-534503/2-A ^5	Lab Control Sample	Total/NA	Solid	6010B	534503
440-236261-A-1-C MS ^5	Matrix Spike	Total/NA	Solid	6010B	534503
440-236261-A-1-D MSD ^5	Matrix Spike Duplicate	Total/NA	Solid	6010B	534503

Definitions/Glossary

Client: City of Oceanside
Project/Site: 503 Metals

TestAmerica Job ID: 440-235882-1

Qualifiers

Metals

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
F1	MS and/or MSD Recovery is outside acceptance limits.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Accreditation/Certification Summary

Client: City of Oceanside
Project/Site: 503 Metals

TestAmerica Job ID: 440-235882-1

Laboratory: TestAmerica Irvine

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
California	State Program	9	CA ELAP 2706	06-30-19

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte

TestAmerica Irvine
17461 Derian Ave
Suite 100
Irvine, CA 92614
Phone: 949.261.1022 Fax:

Chain of Custody Record

180040

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
TestAmerica Laboratories, Inc.
TAL-8210 (0713)

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☒ Other: 503

Client Contact	Project Manager: Luke Christian	Site Contact:	Date:	COC No:
Company Name: City of Oceanside	Tel/Fax: 760-435-5949	Lab Contact:	Carrier:	1 of 1 COCs
Address: 3950 North River Road	Analysis Turnaround Time			Sampler:
City/State/Zip: Oceanside, CA 92058	☒ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
Phone: 760-435-5946	TAT if different from Below			Walk-in Client:
Fax:	☒ 2 weeks			Lab Sampling:
Project Name: 503	☐ 1 week			
Site	☐ 2 days			Job / SDG No.:
PO# 503	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	Metals - As, Cd, Cr, Cu, Pb, Mo, Zn, Ni, Se	Hg	Sample Specific Notes:
SLR CAKE	3-5-19	1400	C	S	1			X X X X		
LS CAKE	3-3-19	0930	C	S	1			X X X X		

440-235882 Chain of Custody

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return to Client ☒ Disposal by Lab ☐ Archive for _____ Months

Special Instructions/QC Requirements & Comments:

Custody Seals Intact ☐ Yes ☐ No | Custody Seal No. | Cooler Temp. (°C). Obs'd 1.2 Corr'd 1.6 | Therm ID No. 21289

Relinquished by	Company	Date/Time	Received by	Company	Date/Time
[signature]	Oceanside	3-11-19/0855	[signature]	TACIRV	3/11/19 0855
Relinquished by [signature]	TACIRV 3/11/19	1400	Received by	Company	Date/Time:
Relinquished by	Company	Date/Time:	Received in Laboratory by [signature]	Company TAIRV	Date/Time 3/11/19 1400

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Denali_007361

3/26/2019

3/11/19

Login Sample Receipt Checklist

Client: City of Oceanside

Job Number: 440-235882-1

Login Number: 235882

List Source: TestAmerica Irvine

List Number: 1

Creator: Soderblom, Tim

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	N/A	Not present
Sample custody seals, if present, are intact.	N/A	Not Present
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	