

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Irvine 17461 Derian Ave Suite 100

Irvine, CA 92614-5817

Tel: (949)261-1022

TestAmerica Job ID: 440-97145-1

RECEIVED

By Alameda County Environmental Health at 10:42 am, Dec 29, 2014

Client Project/Site: ARCO 2162, San Leandro

For:

Broadbent & Associates, Inc. 4820 Business Center Drive #110 Fairfield, California 94534

Attn: Kristene Tidwell

Authorized for release by: 12/18/2014 2:27:08 PM

Kathleen Robb, Project Manager II (949)261-1022 kathleen.robb@testamericainc.com

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.

Client: Broadbent & Associates, Inc. Project/Site: ARCO 2162, San Leandro TestAmerica Job ID: 440-97145-1

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Sample Summary

Client: Broadbent & Associates, Inc. Project/Site: ARCO 2162, San Leandro

TestAmerica Job ID: 440-97145-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
440-97145-1	Irrigation Well	Water	12/16/14 18:45	12/18/14 10:43

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Case Narrative

Client: Broadbent & Associates, Inc. Project/Site: ARCO 2162, San Leandro

TestAmerica Job ID: 440-97145-1

Job ID: 440-97145-1

Laboratory: TestAmerica Irvine

Narrative

Job Narrative 440-97145-1

Comments

No additional comments.

Receipt

The samples were received on 12/18/2014 10:10 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.9° C.

GC/MS VOA

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

VOA Prep

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

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Client Sample Results

Client: Broadbent & Associates, Inc. Project/Site: ARCO 2162, San Leandro TestAmerica Job ID: 440-97145-1

Lab Sample ID: 440-97145-1

Matrix: Water

Client Sample ID: Irrigation Well

Date Collected: 12/16/14 18:45 Date Received: 12/18/14 10:43

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C4-C12)	ND		50	ug/L			12/18/14 13:09	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
Dibromofluoromethane (Surr)	104		76 - 132		-		12/18/14 13:09	1
4-Bromofluorobenzene (Surr)	97		80 - 120				12/18/14 13:09	1
Toluene-d8 (Surr)	107		80 - 128				12/18/14 13:09	1

Analyte	Result Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND ND	0.50	ug/L			12/18/14 13:09	1
Ethylbenzene	ND	0.50	ug/L			12/18/14 13:09	1
m,p-Xylene	ND	1.0	ug/L			12/18/14 13:09	1
Methyl-t-Butyl Ether (MTBE)	ND	0.50	ug/L			12/18/14 13:09	1
o-Xylene	ND	0.50	ug/L			12/18/14 13:09	1
Toluene	ND	0.50	ug/L			12/18/14 13:09	1
Xylenes, Total	ND	1.0	ug/L			12/18/14 13:09	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	97		80 - 120		12/18/14 13:09	1
Dibromofluoromethane (Surr)	104		76 - 132		12/18/14 13:09	1
Toluene-d8 (Surr)	107		80 - 128		12/18/14 13:09	1

Method Summary

Client: Broadbent & Associates, Inc. Project/Site: ARCO 2162, San Leandro

TestAmerica Job ID: 440-97145-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL IRV
8260B/CA_LUFTM	Volatile Organic Compounds by GC/MS	SW846	TAL IRV
S			

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

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Lab Chronicle

Client: Broadbent & Associates, Inc. Project/Site: ARCO 2162, San Leandro TestAmerica Job ID: 440-97145-1

Client Sample ID: Irrigation Well Lab Sample ID: 440-97145-1 Date Collected: 12/16/14 18:45

Matrix: Water

Date Received: 12/18/14 10:43

Batch Batch Dil Initial Final Batch Prepared Prep Type Method or Analyzed Type Run Factor Amount Amount Number Analyst Lab Total/NA Analysis 8260B 10 mL 10 mL 225459 12/18/14 13:09 LB TAL IRV Total/NA 225460 LB TAL IRV Analysis 1 10 mL 10 mL 12/18/14 13:09 8260B/CA_LUFTM

Laboratory References:

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

Client: Broadbent & Associates, Inc. Project/Site: ARCO 2162, San Leandro

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 440-225459/4 Client Sample ID: Method Blank Prep Type: Total/NA

Analysis Batch: 225459

Matrix: Water

	MR MR						
Analyte	Result Qualifie	er RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND	0.50	ug/L			12/18/14 08:30	1
Ethylbenzene	ND	0.50	ug/L			12/18/14 08:30	1
m,p-Xylene	ND	1.0	ug/L			12/18/14 08:30	1
Methyl-t-Butyl Ether (MTBE)	ND	0.50	ug/L			12/18/14 08:30	1
o-Xylene	ND	0.50	ug/L			12/18/14 08:30	1
Toluene	ND	0.50	ug/L			12/18/14 08:30	1
Xylenes, Total	ND	1.0	ug/L			12/18/14 08:30	1

MB MB Dil Fac Surrogate %Recovery Qualifier Limits Prepared Analyzed 4-Bromofluorobenzene (Surr) 99 80 - 120 12/18/14 08:30 Dibromofluoromethane (Surr) 106 76 - 132 12/18/14 08:30 Toluene-d8 (Surr) 109 80 - 128 12/18/14 08:30

Lab Sample ID: LCS 440-225459/5 Client Sample ID: Lab Control Sample Matrix: Water Prep Type: Total/NA

Analysis Batch: 225459

Alialysis Datcii. 220400								
	Spike	LCS	LCS				%Rec.	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Benzene	25.0	25.9		ug/L		104	68 - 130	
Ethylbenzene	25.0	27.8		ug/L		111	70 - 130	
m,p-Xylene	25.0	28.1		ug/L		113	70 - 130	
Methyl-t-Butyl Ether (MTBE)	25.0	28.1		ug/L		112	63 _ 131	
o-Xylene	25.0	27.5		ug/L		110	70 - 130	
Toluene	25.0	26.5		ug/L		106	70 - 130	

	LCS	LCS	
Surrogate	%Recovery	Qualifier	Limits
4-Bromofluorobenzene (Surr)	99		80 - 120
Dibromofluoromethane (Surr)	106		76 - 132
Toluene-d8 (Surr)	104		80 - 128

Lab Sample ID: 440-96888-B-7 MS Client Sample ID: Matrix Spike Matrix: Water Prep Type: Total/NA

Analysis Batch: 225459

	Sample Sa	mple Spike	MS	MS				%Rec.	
Analyte	Result Qu	alifier Added	Result	Qualifier	Unit	D	%Rec	Limits	
Benzene	ND	25.0	26.3		ug/L		104	66 - 130	
Ethylbenzene	0.51	25.0	28.3		ug/L		111	70 - 130	
m,p-Xylene	2.2	25.0	30.5		ug/L		113	70 - 133	
Methyl-t-Butyl Ether (MTBE)	ND	25.0	29.5		ug/L		118	70 - 130	
o-Xylene	1.2	25.0	28.5		ug/L		109	70 - 133	
Toluene	1.5	25.0	28.3		ug/L		107	70 - 130	

	MS	MS	
Surrogate	%Recovery	Qualifier	Limits
4-Bromofluorobenzene (Surr)	97		80 - 120
Dibromofluoromethane (Surr)	102		76 - 132
Toluene-d8 (Surr)	103		80 - 128

TestAmerica Irvine

TestAmerica Job ID: 440-97145-1

Client: Broadbent & Associates, Inc. Project/Site: ARCO 2162, San Leandro

Toluene-d8 (Surr)

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 440-96888-B-7	7 MSD						Client Sa	ample IE): Matrix Sp	oike Dup	olicate
Matrix: Water									Prep T	ype: To	tal/NA
Analysis Batch: 225459											
	Sample	Sample	Spike	MSD	MSD				%Rec.		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Benzene	ND		25.0	25.6		ug/L		101	66 - 130	3	20
Ethylbenzene	0.51		25.0	27.9		ug/L		109	70 - 130	1	20
m,p-Xylene	2.2		25.0	30.3		ug/L		112	70 - 133	1	25
Methyl-t-Butyl Ether (MTBE)	ND		25.0	27.8		ug/L		111	70 - 130	6	25
o-Xylene	1.2		25.0	28.5		ug/L		110	70 - 133	0	20
Toluene	1.5		25.0	27.7		ug/L		105	70 - 130	2	20
	MSD	MSD									
Surrogate	%Recovery	Qualifier	Limits								
4-Bromofluorobenzene (Surr)	99		80 - 120								
Dibromofluoromethane (Surr)	101		76 - 132								
Toluene-d8 (Surr)	104		80 - 128								

Method: 8260B/CA_LUFTMS - Volatile Organic Compounds by GC/MS

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Lab Sample ID: MB 440-225460/4 Matrix: Water						Client S	ample ID: Metho Prep Type: T	
Analysis Batch: 225460								
	MB	MB						
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C4-C12)	ND		50	ug/L			12/18/14 08:30	•
	MB	MB						
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
Dibromofluoromethane (Surr)	106		76 - 132		-		12/18/14 08:30	
4-Bromofluorobenzene (Surr)	99		80 - 120				12/18/14 08:30	1

Lab Sample ID: LCS 440-225460/6					Client	Sample	: ID: Lab Control	Sample
Matrix: Water							Prep Type:	Γotal/NA
Analysis Batch: 225460								
-	Spike	LCS	LCS				%Rec.	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
GRO (C4-C12)	500	486		ug/L		97	55 - 130	
100 100								

80 - 128

	LCS	LCS	
Surrogate	%Recovery	Qualifier	Limits
Dibromofluoromethane (Surr)	104		76 - 132
4-Bromofluorobenzene (Surr)	99		80 - 120
Toluene-d8 (Surr)	108		80 - 128

Lab Sample ID: 440-96888-B-7 MS Matrix: Water								Client	•	: Matrix Spi ype: Total/N	
Analysis Batch: 225460											
	Sample	Sample	Spike	MS	MS				%Rec.		
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits		
GPO (C4 C12)	170		1730	2410	-	ua/l		130	50 145		

12/18/14 08:30

QC Sample Results

Client: Broadbent & Associates, Inc. Project/Site: ARCO 2162, San Leandro TestAmerica Job ID: 440-97145-1

Method: 8260B/CA_LUFTMS - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: 440-96888-B-7 MS

Lab Sample ID: 440-96888-B-7 MSD

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Matrix: Water Analysis Batch: 225460

MS MS

Surrogate	%Recovery	Qualifier	Limits
Dibromofluoromethane (Surr)	102		76 - 132
4-Bromofluorobenzene (Surr)	97		80 - 120
Toluene-d8 (Surr)	103		80 - 128

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Analysis Batch: 225460

Matrix: Water

Sample Sample Spike MSD MSD %Rec. RPD Analyte Result Qualifier Added Result Qualifier Limits RPD Limit Unit D %Rec GRO (C4-C12) 1730 170 2240 ug/L 120 50 - 145 8 20

MSD MSD Surrogate %Recovery Qualifier Limits Dibromofluoromethane (Surr) 101 76 - 132 4-Bromofluorobenzene (Surr) 99 80 - 120 Toluene-d8 (Surr) 104 80 - 128

QC Association Summary

Client: Broadbent & Associates, Inc. Project/Site: ARCO 2162, San Leandro

TestAmerica Job ID: 440-97145-1

GC/MS VOA

Analysis Batch: 225459

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-96888-B-7 MS	Matrix Spike	Total/NA	Water	8260B	
440-96888-B-7 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	
440-97145-1	Irrigation Well	Total/NA	Water	8260B	
LCS 440-225459/5	Lab Control Sample	Total/NA	Water	8260B	
MB 440-225459/4	Method Blank	Total/NA	Water	8260B	

Analysis Batch: 225460

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method Prep Bato
440-96888-B-7 MS	Matrix Spike	Total/NA	Water	8260B/CA_LUFT
				MS
440-96888-B-7 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B/CA_LUFT
				MS
440-97145-1	Irrigation Well	Total/NA	Water	8260B/CA_LUFT
				MS
LCS 440-225460/6	Lab Control Sample	Total/NA	Water	8260B/CA_LUFT
				MS
MB 440-225460/4	Method Blank	Total/NA	Water	8260B/CA_LUFT
				MS

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Definitions/Glossary

Client: Broadbent & Associates, Inc. Project/Site: ARCO 2162, San Leandro

Toxicity Equivalent Quotient (Dioxin)

TestAmerica Job ID: 440-97145-1

Glossary

TEQ

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, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
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
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)

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Certification Summary

Client: Broadbent & Associates, Inc. Project/Site: ARCO 2162, San Leandro

TestAmerica Job ID: 440-97145-1

Laboratory: TestAmerica Irvine

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska	State Program	10	CA01531	06-30-15
Arizona	State Program	9	AZ0671	10-13-15
California	LA Cty Sanitation Districts	9	10256	01-31-15
California	State Program	9	2706	06-30-16
Guam	State Program	9	Cert. No. 12.002r	01-23-15
Hawaii	State Program	9	N/A	01-29-15 *
Nevada	State Program	9	CA015312007A	07-31-15
New Mexico	State Program	6	N/A	01-29-15
Northern Mariana Islands	State Program	9	MP0002	01-29-15
Oregon	NELAP	10	4005	01-29-15
USDA	Federal		P330-09-00080	06-06-15
USEPA UCMR	Federal	1	CA01531	01-31-15

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 $[\]ensuremath{^{\star}}$ Certification renewal pending - certification considered valid.

TestAmerica Irvine

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Laboratory Management Program LaMP Chain of Custody Record

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Ŀ	ВР РМ Елі	ii: <u>charles.carmel@bp.com</u>	1		1											8260			ŀ											Full C	Data Pa	ackage .		
Page 14 of 15	Lab No.	Sample Description	Date	Time	Soil / Solid	Water / Liquid	Air / Vapor	Is this location a well?	Total Number of Containers	Unpreserved	H2SO4	HNO3	Ę.	Methanol		GRO/BTEX/MTBE by 8												Sa	ample" li	n comme	nts and	ed, indica single-str ample de	ike out	: n
5		Irrigation Well	12/16/2014	1845		x			3				х			x																		
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		THIS LINE - LAB USE OF						Te	mp Bl	ank: \	es / N	10	(Cooler	Tem	on Re	cerpt	7.	<u> 3</u> د	°F/C		Tr	ip Bla	nk: Ye	s / No		MS	/MSD S	ample	Submitte	ed. Yes	s / No		
+	BP Remed	iation Management COC - Effective	e Dates: August	23, 2011- June	e 30,	2012								•																E	3P LaM	P COC R	ev. 7, A	lug 23, 2011

Login Sample Receipt Checklist

Client: Broadbent & Associates, Inc. Job Number: 440-97145-1

Login Number: 97145 List Source: TestAmerica Irvine

List Number: 1

TestAmerica Irvine

Creator: Robb, Kathleen

Question	Answer	Comment
Radioactivity wasn't checked or is = background as measured by a survey meter.</td <td>True</td> <td></td>	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
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	
s 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.	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	