

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
21865 Copley Dr., Diamond Bar, CA 91765-4182

MONITORING & ANALYSIS
REPORT OF LABORATORY ANALYSIS

Page 1 of 12

Revised

TO: Jason Low, Ph.D. Atmospheric Measurements Manager Science and Technology Advancement	LABORATORY NO: <u>1616019</u>
	REFERENCE NO: <u>MSF-145-77</u>
SAMPLE DESCRIPTION: Grab Samples Canister # 54553 54603 54612	DATE SAMPLED: <u>06/08/16</u>
	DATE RECEIVED: <u>06/08/16</u>
	DATE ANALYZED: <u>06/23/16</u>
SAMPLE LOCATION: Orphan Well Project 323 Firmin St. Los Angeles, CA	ANALYZED BY: <u>Brian Sinajon</u>
	REQUESTED BY: <u>Jason Low</u>

Qualitative Analysis and Quantitation of Toxic Organics by Gas Chromatography (GC) with
Mass Spectrometry (MS) and Flame Ionization Detection (FID)

Note: 1. Revised to include data for canister #54612.
2. See attached for speciated results.

Date Approved: 8/2/16

Approved By: 
Solomon Teffera, Acting Sr. Manager
Laboratory Services Branch
(909) 396-2199

Lab Number: 1616019

Location: Orphan Well Project 323 Firmin St. Los Angeles, CA

Page 2 of 12

ANALYTICAL WORK PERFORMED, METHOD OF ANALYSIS AND RESULTS

Qualitative Analysis and Quantitation of Toxic Organics by Gas Chromatography (GC) with Mass Spectrometry (MS) and Flame Ionization Detection (FID)

Sample Date	06/08/16	06/08/16
Canister	54553	54612
Sampling Location	Inside Rogalski	Inside Rogalski
NMOC, ppbC	750000*	628000*

<u>Compound</u>	<u>Conc. (ppbv)</u>	<u>Conc. (ppbv)</u>
acetylene+ethylene	306000*	238000*
propylene	10	9.5
propane	11100*	9770*
Freon-12	0.46	0.5
chloromethane	1.5	1.1
isobutane	3360*	2950*
1-butene	2.5	2.2
n-butane	379	333
isopentane	1060	925
Freon-11	0.2	0.2
n-pentane	19	17
isoprene	0.5	0.5
methylene chloride	0.2	0.3
carbon disulfide	26	27
2,2-dimethylbutane	3970*	3500*
cyclopentane	20	18
2,3-dimethylbutane	9380*	8290*
2-methylpentane	65	58
3-methylpentane	648	573
n-hexane	4.4	3.9
methylcyclopentane	8.0	8.6
2,4-dimethylpentane	1420*	1260*
benzene	0.3	0.4
carbon tetrachloride	<0.1	0.1
cyclohexane	100	89
3-methylhexane	30	29
n-heptane	2.7	2.7
2,3,4-trimethylpentane	395	354

N.D. = Not Detected

* Exceeded normal calibration including as a dilution. Values including NMOC are estimates.

Lab Number: 1616019

Location: Orphan Well Project 323 Firmin St. Los Angeles, CA

Page 3 of 12

ANALYTICAL WORK PERFORMED, METHOD OF ANALYSIS AND RESULTS
Qualitative Analysis and Quantitation of Toxic Organics by Gas Chromatography (GC) with
Mass Spectrometry (MS) and Flame Ionization Detection (FID)

Sample Date	06/08/16	06/08/16
Canister	54553	54612
Sampling Location	Inside Rogalski	Inside Rogalski
NMOC, ppbC	750000*	628000*

<u>Compound</u>	<u>Conc. (ppbv)</u>	<u>Conc. (ppbv)</u>
toluene	N.D.	N.D.
2-methylheptane	375	356
styrene	N.D.	N.D.
m+p-xylene	N.D.	N.D.
o-xylene	N.D.	N.D.

Additional Compounds

Canister	54553	54612
Sample Date	06/08/16	06/08/16
Sampling Location	Inside Rogalski	Inside Rogalski
NMOC, ppbC	750000*	628000*

<u>Compound</u>	<u>Conc. (ppbv)</u>	<u>Conc. (ppbv)</u>
1-Propene, 2-methyl-	2070*	See pages 5 and 6
Butane, 2,3-dimethyl-	4410*	
Pentane, 2,2,3,4-tetramethyl-	385	
Butane, 2,2,3-trimethyl-	393	
Hexane, 3-methyl-	1180*	
Cyclopentane, 1,1-dimethyl-	1650*	
Cyclopentane, 1,3-dimethyl-, trans-	177	
Pentane, 3-ethyl-	525	
Cyclopentane, 1,2-dimethyl-	639	
Cyclopentane, 1,1,3-trimethyl-	1380*	
Butane, 2,2,3-trimethyl-	266	
Cyclopentane, 1,2,3-trimethyl-, (1.alpha.,2.alpha.,3.beta.)-	631	
Cyclopentane, 1,2,3-trimethyl-, (1.alpha.,2.alpha.,3.beta.)-	382	
Pentane, 2,3,3-trimethyl-	131	

N.D. = Not Detected

* Exceeded normal calibration including as a dilution. Values including NMOC are estimates.

Lab Number: 1616019

Location: Orphan Well Project 323 Firmin St. Los Angeles, CA

Page 4 of 12

ANALYTICAL WORK PERFORMED, METHOD OF ANALYSIS AND RESULTS

Qualitative Analysis and Quantitation of Toxic Organics by Gas Chromatography (GC) with Mass Spectrometry (MS) and Flame Ionization Detection (FID)

	Additional Compounds	
Canister	54553	54612
Sample Date	06/08/16	06/08/16
Sampling Location	Inside Rogalski	Inside Rogalski
NMOC, ppbC	750000*	628000*
<u>Compound</u>	<u>Conc. (ppbv)</u>	<u>Conc. (ppbv)</u>
Cyclopentane, 1,1,3,3-tetramethyl-	92	See pages 5 and 6
Cyclopentane, 1-ethenyl-3-ethyl-2-methyl-	173	
Cyclohexane, 1,1-dimethyl-1.alpha.,2.beta.,3.alpha.,4.beta.-	64	
Tetramethylcyclopentane	232	
2,3-Dimethyl-3-heptene, (Z)-	699	
1,1,4-Trimethylcyclohexane	31	
Cyclohexane, 1-ethyl-1-methyl-	156	
Cyclohexane, 1,2,4-trimethyl-	356	
Cyclohexane, 1,1,3,5-tetramethyl-, trans-	363	
2-Octene, 2,6-dimethyl-	283	
Cyclohexane, 1,1,3,5-tetramethyl-, cis-	420	
2,3-Dimethyl-3-heptene, (Z)-	243	
Cyclohexene, 4-methyl-1-(1-methylethyl)-	155	

N.D. = Not Detected

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Lab Number: 1616019

Location: Orphan Well Project 323 Firmin St. Los Angeles, CA

Page 5 of 12

ANALYTICAL WORK PERFORMED, METHOD OF ANALYSIS AND RESULTS

Qualitative Analysis and Quantitation of Toxic Organics by Gas Chromatography (GC) with Mass Spectrometry (MS) and Flame Ionization Detection (FID)

Additional Compounds

Canister	54553	54612
Sample Date	06/08/16	06/08/16
Sampling Location	Inside Rogalski	Inside Rogalski
NMOC, ppbC	750000*	628000*

<u>Compound</u>	<u>Conc. (ppbv)</u>	<u>Conc. (ppbv)</u>
Neopentane	See pages 3 and 4	1810*
Pentane, 2,2-dimethyl-		340
Butane, 2,2,3-trimethyl-		348
Hexane, 3-methyl-		1040*
Cyclopentane, 1,1-dimethyl-		1470*
Cyclopentane, 1,3-dimethyl-, trans-		157
Pentane, 3-ethyl-		466
Cyclopentane, 1,2-dimethyl-		568
Cyclopentane, 1,1,3-trimethyl-		1230*
Butane, 2,2,3-trimethyl-		236
Hexane, 2-methyl-4-methylene-		563
Cyclopentane, 1,2,3-trimethyl-, (1.alpha.,2.alpha.,3.beta.)-		341
Hexane, 2,3,4-trimethyl-		117
Cyclopentane, 1,1,3,3-tetramethyl-		82
Cyclopentane, 1,1,3,4-tetramethyl-, cis-		997
1,4-Hexadiene, 3-ethyl-		155
Cyclohexane, 1,1-dimethyl-		57
1,1,4-Trimethylcyclohexane		480
Cyclohexane, 1-ethyl-1-methyl-		142
Cyclohexane, 1,2,4-trimethyl-		321

N.D. = Not Detected

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Lab Number: 1616019

Location: Orphan Well Project 323 Firmin St. Los Angeles, CA

Page 6 of 12

ANALYTICAL WORK PERFORMED, METHOD OF ANALYSIS AND RESULTS
Qualitative Analysis and Quantitation of Toxic Organics by Gas Chromatography (GC) with
Mass Spectrometry (MS) and Flame Ionization Detection (FID)

Additional Compounds

Canister	54553	54612
Sample Date	06/08/16	06/08/16
Sampling Location	Inside Rogalski	Inside Rogalski
NMOC, ppbC	750000*	628000*

<u>Compound</u>	<u>Conc. (ppbv)</u>	<u>Conc. (ppbv)</u>
2,3,3-Trimethyl-1-hexene	See pages 3 and 4	327
Cyclohexane, 1,1,3,5-tetramethyl-, trans-		90
Cyclohexane, 1,1,3,5-tetramethyl-, cis-		169
Cyclopentane, 1,2,3,4,5-pentamethyl-		116
1R,2c,3t,4t-Tetramethyl-cyclohexane		255
Cyclohexane, 1,1,3,5-tetramethyl-, cis-		378
2,3-Dimethyl-3-heptene, (Z)-		218
Cyclopentene, 1-isopropyl-4,5-dimethyl-		140
Cyclopentane, (2-methylbutylidene)-		175

N.D. = Not Detected

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Lab Number: 1616019

Location: Orphan Well Project 323 Firmin St. Los Angeles, CA

Page 7 of 12

ANALYTICAL WORK PERFORMED, METHOD OF ANALYSIS AND RESULTS

Qualitative Analysis and Quantitation of Toxic Organics by Gas Chromatography (GC) with Mass Spectrometry (MS) and Flame Ionization Detection (FID)

Sample Date 06/08/16
Canister 54603
Sampling Location Patel Surface Well
NMOC, ppbC 10300*

<u>Compound</u>	<u>Conc. (ppbv)</u>
acetylene+ethylene	N.D.
ethane	2180
propylene	0.8
propane	141
Freon-12	0.5
chloromethane	0.7
isobutane	27
Freon-114	N.D.
vinyl chloride	N.D.
1-butene	0.2
1,3-butadiene	N.D.
n-butane	6.9
trans-2-butene	N.D.
bromomethane	N.D.
cis-2-butene	N.D.
chloroethane	N.D.
ethanol	N.D.
2-propenal	0.6
isopentane	9.9
acetone	N.D.
Freon-11	0.3
1-pentene	N.D.
isopropylalcohol	N.D.
n-pentane	1.1
isoprene	0.3

N.D. = Not Detected

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Lab Number: 1616019

Location: Orphan Well Project 323 Firmin St. Los Angeles, CA

Page 8 of 12

ANALYTICAL WORK PERFORMED, METHOD OF ANALYSIS AND RESULTS

Qualitative Analysis and Quantitation of Toxic Organics by Gas Chromatography (GC) with
Mass Spectrometry (MS) and Flame Ionization Detection (FID)

Sample Date 06/08/16
Canister 54603
Sampling Location Patel Surface Well
NMOC, ppbC 10300*

<u>Compound</u>	<u>Conc. (ppbv)</u>
trans-2-pentene	N.D.
1,1-dichloroethylene	N.D.
cis-2-pentene	N.D.
carbon disulfide	1.4
methylene chloride	0.5
Freon-113	<0.1
2,2-dimethylbutane	50
trans-1,2-dichloroethylene	N.D.
cyclopentane	N.D.
1,1-dichloroethane	N.D.
2,3-dimethylbutane	118
methyl tert butyl ether	N.D.
2-methylpentane	1.5
vinyl acetate	N.D.
2-Butanone MEK	0.6
3-methylpentane	8.5
1-hexene	N.D.
cis-1,2-dichloroethylene	N.D.
n-hexane	0.4
chloroform	<0.1
ethylacetate	N.D.
tetrahydrofuran	<0.1
methylcyclopentane	0.4
1,2-dichloroethane	N.D.
2,4-dimethylpentane	18

N.D. = Not Detected

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Lab Number: 1616019

Location: Orphan Well Project 323 Firmin St. Los Angeles, CA

Page 9 of 12

ANALYTICAL WORK PERFORMED, METHOD OF ANALYSIS AND RESULTS

Qualitative Analysis and Quantitation of Toxic Organics by Gas Chromatography (GC) with Mass Spectrometry (MS) and Flame Ionization Detection (FID)

Sample Date 06/08/16
Canister 54603
Sampling Location Patel Surface Well
NMOC, ppbC 10300*

<u>Compound</u>	<u>Conc. (ppbv)</u>
1,1,1-trichloroethane	N.D.
benzene	0.3
carbon tetrachloride	<0.1
cyclohexane	1.4
2-methylhexane	N.D.
2,3-dimethylpentane	28
3-methylhexane	0.7
1,2-dichloropropane	N.D.
bromodichloromethane	N.D.
trichloroethylene	N.D.
1,4-dioxane	N.D.
2,2,4-trimethylpentane	14
methyl methacrylate	N.D.
n-heptane	0.5
cis-1,3-dichloropropene	N.D.
methyl isobutyl ketone	N.D.
methylcyclohexane	N.D.
trans-1,3-dichloropropene	N.D.
1,1,2-trichloroethane	N.D.
2,3,4-trimethylpentane	4.7
2,3,4-trimethylpentane	4.4
toluene	1.1
2-methylheptane	5.4
2-Hexanone MBK	N.D.
3-methylheptane	N.D.

N.D. = Not Detected

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Lab Number: 1616019

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Page 10 of 12

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Qualitative Analysis and Quantitation of Toxic Organics by Gas Chromatography (GC) with
Mass Spectrometry (MS) and Flame Ionization Detection (FID)

Sample Date 06/08/16
Canister 54603
Sampling Location Patel Surface Well
NMOC, ppbC 10300*

<u>Compound</u>	<u>Conc. (ppbv)</u>
dibromochloromethane	N.D.
1,2-dibromoethane	N.D.
n-octane	0.2
tetrachloroethylene	N.D.
chlorobenzene	N.D.
ethylbenzene	N.D.
m+p-xylene	0.4
bromoform	N.D.
styrene	N.D.
1,1,2,2-tetrachloroethane	N.D.
o-xylene	0.2
n-nonane	N.D.
isopropylbenzene	N.D.
n-propylbenzene	N.D.
m-ethyltoluene	N.D.
p-ethyltoluene	N.D.
1,3,5-trimethylbenzene	N.D.
o-ethyltoluene	N.D.
1,2,4-trimethylbenzene	0.2
n-decane	N.D.
benzylchloride	N.D.
1,3-dichlorobenzene	N.D.
1,4-dichlorobenzene	N.D.
1,2,3-trimethylbenzene	N.D.
1,2-dichlorobenzene	N.D.

N.D. = Not Detected

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Lab Number: 1616019

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Page 11 of 12

ANALYTICAL WORK PERFORMED, METHOD OF ANALYSIS AND RESULTS
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Sample Date 06/08/16
Canister 54603
Sampling Location Patel Surface Well
NMOC, ppbC 10300*

<u>Compound</u>	<u>Conc. (ppbv)</u>
m-diethylbenzene	N.D.
p-diethylbenzene	N.D.
n-undecane	N.D.
1,2,4-trichlorobenzene	N.D.
naphthalene	N.D.
n-dodecane	N.D.
hexachloro-1,3-butadiene	N.D.
2-methyl-2-propanethiol	N.D.

Additional Compounds

Sample Date 06/08/16
Canister 54603
Sampling Location Patel Surface Well
NMOC, ppbC 10300*

<u>Compound</u>	<u>Conc. (ppbv)</u>
Neopentane	51
Pentane, 2,2-dimethyl-	10
Butane, 2,2,3-trimethyl-	10
Cyclopentane, 1,3-dimethyl-, cis-	4.6
4,4-Dimethylpent-2-enal	37
Cyclopentane, 1,2-dimethyl-	2.8
Hexane, 2,5-dimethyl-	1.8

N.D. = Not Detected

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Page 12 of 12

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Additional Compounds

Sample Date 06/08/16
Canister 54603
Sampling Location Patel Surface Well
NMOC, ppbC 10300*

<u>Compound</u>	<u>Conc. (ppbv)</u>
Hexane, 2,4-dimethyl-	7.2
Cyclopentane, 1,2,4-trimethyl-, (1.alpha	17
Cyclopentane, 1,2,3-trimethyl-, (1.alpha	10
Cyclopentane, 1,1,2-trimethyl-	6.6
Cyclopentane, 1,1,3,4-tetramethyl-, trans	31
Cyclohexene, 1-methyl-	4.5
1.alpha.,2.beta.,3.alpha.,4.beta.-Tetrame	6.8
Cyclopentane, 1,1,3,4-tetramethyl-, cis-	19
(E)-Hexadec-2-enal	4.4

N.D. = Not Detected

* Exceeded normal calibration including as a dilution. Values including NMOC are estimates.

**SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
SAMPLE ANALYSIS REQUEST**

DISTRICT INFORMATION
 I
 L
LAB

WO #: 1616019



TO: SCAQMD LAB: OTHER:
 SOURCE NAME: Orphan Well Project Dogur I.D. No. _____
 Source Address: 323 Firmin St., City: Los Angeles
 Mailing Address: _____ City: _____ Zip: _____
 Contact Person: Jason Low Title: Atmos. Meas. Manager Tel: 909-396-2269

Analysis Requested by: Jason Low Date: 06-08-16
 Approved by: Jason Low Office: M&A Budget #: _____
 REASON REQUESTED: Court/Hearing Board Permit Pending Hazardous/Toxic Spill
 Suspected Violation Rule(s) _____ Other

Sample Collected by: Jason Low Date: 06-08-16 Time: 9:35am

SAMPLE DESCRIPTION: Cal Can. Area
54553 - Inside Foghorn 10 well - 304 prob
54612 - " " " "
~~54574~~ Surface of well 10:05 May be higher level
54603 - Surface well
used for Mattell well

REQUESTED ANALYSIS: Methane
10-15

Relinquished by	Received by	Firm/Agency	Date	Time
<u>[Signature]</u>	<u>[Signature]</u>	SCAQMD LAB	6/8/16	12:30

Remarks: