

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

**MONITORING & ANALYSIS  
REPORT OF LABORATORY ANALYSIS**


<b>TO:</b> Jason Low, Ph.D. Atmospheric Measurements Manager Science and Technology Advancement	<b>LABORATORY NO:</b> <u>1623626</u>
	<b>REFERENCE NO:</b> <u>GC6-121-109</u>
<b>SAMPLE DESCRIPTION:</b> Grab Sample Canister # 54124 54502 53489	<b>DATE SAMPLED:</b> <u>08/22/16</u>
	<b>DATE RECEIVED:</b> <u>08/23/16</u>
	<b>DATE ANALYZED:</b> <u>08/25/16</u>
<b>SAMPLE LOCATION:</b> Firmin Drill Site 323 Firmin Street Los Angeles 90026	<b>ANALYZED BY:</b> <u>Yang Song</u>
	<b>REQUESTED BY:</b> <u>Sumner Wilson</u>

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**ANALYTICAL WORK PERFORMED, METHOD OF ANALYSIS AND RESULTS**

Volatile Organic Compounds (VOC) by Gas Chromatography(GC)  
and Flame Ionization Detection (FID)

Note: See attached for speciated results.

Date Approved: 09/02/16 Approved By:   
Solomon Teffera, Acting Sr. Manager  
Laboratory Services Branch  
(909) 396-2199

**LAB NO: 1623626**

**Location: Firmin Drill Site**

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**ANALYTICAL WORK PERFORMED, METHOD OF ANALYSIS AND RESULTS**

Quantitation of Organic Compounds by Gas Chromatography(GC) and  
Flame Ionization Detection (FID)

Sample Date	08/22/16	08/22/16	
Canister	54124	54502	
<b>Sampling Location</b>	<b>323 Firmin St. (Porch of residence)</b>	<b>Near water return for drill</b>	<b>Ambient Air</b>
<b>Total NMOC, ppbC</b>	128	109	100-700 ppbC
<b><u>Compound</u></b>	<b><u>Conc. (ppbv)</u></b>	<b><u>Conc. (ppbv)</u></b>	<b><u>Conc. (ppbv)</u></b>
ethane	9.8	16.8	
ethylene	0.8	0.9	0.7-4.1
acetylene	0.6	0.6	
propane	2.0	2.7	0.4-5.0
propylene	0.2	0.2	0.2-0.7
isobutane	0.6	0.5	0.2-0.9
n-butane	0.9	0.7	0.3-1.7
1-butene	<0.1	<0.1	0.1-0.3
trans-2-butene	<0.1	<0.1	
cis-2-butene	<0.1	<0.1	
isopentane	2.4	2.2	
1-pentene	<0.1	<0.1	
n-pentane	0.3	0.3	0.1-0.6
isoprene	1.1	0.3	
trans-2-pentene	<0.1	<0.1	
cis-2-pentene	<0.1	<0.1	
2,2-dimethylbutane	<0.1	<0.1	
cyclopentane	<0.1	<0.1	
2,3-dimethylbutane	<0.1	<0.1	
2-methylpentane	0.2	0.2	
3-methylpentane	0.1	0.1	
1-hexene	<0.1	<0.1	<0.1-0.1
n-hexane	0.1	<0.1	0.1-0.2
methylcyclopentane	0.1	<0.1	
2,4-dimethylpentane	0.1	<0.1	
benzene	0.2	0.2	0.1-0.5
cyclohexane	<0.1	<0.1	
2-methylhexane	<0.1	<0.1	
2,3-dimethylpentane	0.3	0.1	

**LAB NO: 1623626****Location: Firmin Drill Site****ANALYTICAL WORK PERFORMED, METHOD OF ANALYSIS AND RESULTS**

Quantitation of Organic Compounds by Gas Chromatography(GC) and  
Flame Ionization Detection (FID)

Sample Date	08/22/16	08/22/16	
Canister	54124	54502	
Sampling Location	<b>323 Firmin St. (Porch of residence)</b>	<b>Near water return for drill</b>	<b>Ambient Air</b>
Total NMOC, ppbC	128	109	100-700 ppbC
<u>Compound</u>	<u>Conc. (ppbv)</u>	<u>Conc. (ppbv)</u>	<u>Conc. (ppbv)</u>
3-methylhexane	<0.1	<0.1	
2,2,4-trimethylpentane	0.3	0.2	
n-heptane	<0.1	<0.1	0.1-0.2
methylcyclohexane	<0.1	<0.1	
2,3,4-trimethylpentane	0.2	<0.1	
toluene	0.5	0.3	0.1-0.6
2-methylheptane	<0.1	<0.1	
3-methylheptane	<0.1	<0.1	
n-octane	<0.1	<0.1	<0.1-0.3
ethylbenzene	<0.1	<0.1	0.1-0.2
m+p-xylenes	0.3	0.2	0.1-0.2
styrene	<0.1	<0.1	<0.1-0.2
o-xylene	<0.1	<0.1	0.1-0.2
n-nonane	<0.1	<0.1	<0.1-0.1
isopropylbenzene	<0.1	<0.1	
n-propylbenzene	<0.1	<0.1	
m-ethyltoluene	0.1	<0.1	
p-ethyltoluene	<0.1	<0.1	
1,3,5-trimethylbenzene	<0.1	<0.1	
o-ethyltoluene	<0.1	<0.1	
1,2,4-trimethylbenzene	0.2	<0.1	
n-decane	<0.1	<0.1	<0.1-0.1
1,2,3-trimethylbenzene	<0.1	<0.1	
m-diethylbenzene	<0.1	<0.1	
p-diethylbenzene	<0.1	<0.1	
n-undecane	<0.1	<0.1	<0.1
n-dodecane	<0.1	<0.1	<0.1

NMOC = Non-Methane Organic Compounds

N.D. = Not Detected

**LAB NO: 1623626**

**Location: Firmin Drill Site**

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**ANALYTICAL WORK PERFORMED, METHOD OF ANALYSIS AND RESULTS**

Quantitation of Organic Compounds by Gas Chromatography(GC) and  
Flame Ionization Detection (FID)

Sample Date 08/22/16  
Canister 53489

**Sampling Location** 425 Firmin St. (background site) **Ambient Air**  
**Total NMOC, ppbC** 95 100-700 ppbC

<b><u>Compound</u></b>	<b><u>Conc. (ppbv)</u></b>	<b><u>Conc. (ppbv)</u></b>
ethane	8.6	
ethylene	0.9	0.7-4.1
acetylene	0.6	
propane	1.6	0.4-5.0
propylene	0.2	0.2-0.7
isobutane	0.5	0.2-0.9
n-butane	0.6	0.3-1.7
1-butene	<0.1	0.1-0.3
trans-2-butene	<0.1	
cis-2-butene	<0.1	
isopentane	2.0	
1-pentene	<0.1	
n-pentane	0.3	0.1-0.6
isoprene	0.2	
trans-2-pentene	<0.1	
cis-2-pentene	<0.1	
2,2-dimethylbutane	<0.1	
cyclopentane	<0.1	
2,3-dimethylbutane	0.1	
2-methylpentane	0.2	
3-methylpentane	0.1	
1-hexene	<0.1	<0.1-0.1
n-hexane	0.1	0.1-0.2
methylcyclopentane	0.1	
2,4-dimethylpentane	0.1	
benzene	0.2	0.1-0.5
cyclohexane	<0.1	
2-methylhexane	<0.1	
2,3-dimethylpentane	0.2	

**LAB NO: 1623626**  
**Location: Firmin Drill Site**

**ANALYTICAL WORK PERFORMED, METHOD OF ANALYSIS AND RESULTS**

Quantitation of Organic Compounds by Gas Chromatography(GC) and  
 Flame Ionization Detection (FID)

Sample Date                      08/22/16  
 Canister                            53489

**Sampling Location**            **425 Firmin St. (background site)**                      **Ambient Air**

**Total NMOC, ppbC**                      95    100-700 ppbC

<u>Compound</u>	<u>Conc. (ppbv)</u>	<u>Conc. (ppbv)</u>
3-methylhexane	<0.1	
2,2,4-trimethylpentane	0.2	
n-heptane	<0.1	0.1-0.2
methylcyclohexane	<0.1	
2,3,4-trimethylpentane	0.1	
toluene	0.4	0.1-0.6
2-methylheptane	<0.1	
3-methylheptane	<0.1	
n-octane	<0.1	<0.1-0.3
ethylbenzene	<0.1	0.1-0.2
m+p-xylenes	0.2	0.1-0.2
styrene	<0.1	<0.1-0.2
o-xylene	<0.1	0.1-0.2
n-nonane	<0.1	<0.1-0.1
isopropylbenzene	<0.1	
n-propylbenzene	<0.1	
m-ethyltoluene	<0.1	
p-ethyltoluene	<0.1	
1,3,5-trimethylbenzene	<0.1	
o-ethyltoluene	<0.1	
1,2,4-trimethylbenzene	<0.1	
n-decane	<0.1	<0.1-0.1
1,2,3-trimethylbenzene	<0.1	
m-diethylbenzene	<0.1	
p-diethylbenzene	<0.1	
n-undecane	<0.1	<0.1
n-dodecane	<0.1	<0.1

NMOC = Non-Methane Organic Compounds

N.D. = Not Detected

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

DISTRICT  
 INVOICE  
 LAP AUD  
LABORATORY

1623626



TO: SCAQMD LAB:  OTHER:  \_\_\_\_\_  
 SOURCE NAME: Firmin Drill site I.D. No. \_\_\_\_\_  
 Source Address: 323 Firmin Street City: Loa Angeles  
 Mailing Address: \_\_\_\_\_ City: \_\_\_\_\_ Zip: 90026  
 Contact Person: \_\_\_\_\_ Title: \_\_\_\_\_ Tel: \_\_\_\_\_

Analysis Requested by: Sumner Wilson Date: 08/23/2016  
 Approved by: Jason Low Office: \_\_\_\_\_ Budget #: 44716  
 REASON REQUESTED: Court/Hearing Board  Permit Pending  Hazardous/Toxic Spill   
 Suspected Violation Rule(s) \_\_\_\_\_ Other  \_\_\_\_\_

Sample Collected by: Robert Wimmer Date: 08/22/2016 Time: 15:20-17:32

**REQUESTED ANALYSIS: VOC - PAMS**

City/Location	Can#	Start day / duration	Start vac	End vac
<u>01</u> 323 Firmin St (Porch of residence) 34.063904, -118.254530	54124	08-22-16 1520 3 min	-30"	0
<u>02</u> (Near water return for drill) 34.064048, -118.254369	54502	08-22-16 15:30 3 min	-30"	0
<u>03</u> 425 Firmin St. (background site) 34.064868, -118.253879	53489	08-22-16 17:32 3 min	-30"	-1

Relinquished by	Received by	Firm/Agency	Date	Time
<u>R Wimmer</u>	<u>[Signature]</u>	SCAQMD Lab	<u>8/23/2016</u>	<u>15:02</u>

Remarks: Samples were taken during drilling operations in addition to one taken at a background site in the absence of drilling activity