

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


**MONITORING & ANALYSIS
REPORT OF LABORATORY ANALYSIS**

TO: Jason Low, Ph.D. Atmospheric Measurements Manager Science and Technology Advancement	LABORATORY NO: <u>1623717</u>
	REFERENCE NO: <u>GC6-121-109</u>
SAMPLE DESCRIPTION: Grab Sample Canister # 54623 54696 E4281	DATE SAMPLED: <u>08/23/16</u>
	DATE RECEIVED: <u>08/24/16</u>
	DATE ANALYZED: <u>08/26/16</u>
SAMPLE LOCATION: Firmin Drill Site 323 Firmin Street Los Angeles 90026	ANALYZED BY: <u>Yang Song</u>
	REQUESTED BY: <u>Sumner Wilson</u>

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: 1623717

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	08/23/16	08/23/16	
Canister	54623	54696	
Sampling Location	323 Firmin St. (Porch of residence)	Near water return for drill	Ambient Air
Total NMOC, ppbC	169	108	100-700 ppbC
<u>Compound</u>	<u>Conc. (ppbv)</u>	<u>Conc. (ppbv)</u>	<u>Conc. (ppbv)</u>
ethane	13.1	10.8	
ethylene	2.7	1.0	0.7-4.1
acetylene	2.0	0.7	
propane	5.4	2.5	0.4-5.0
propylene	0.5	0.2	0.2-0.7
isobutane	1.4	0.5	0.2-0.9
n-butane	2.2	0.9	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	4.4	2.9	
1-pentene	<0.1	<0.1	
n-pentane	0.8	0.4	0.1-0.6
isoprene	0.5	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	0.2	<0.1	
2-methylpentane	0.5	0.2	
3-methylpentane	0.3	0.1	
1-hexene	<0.1	<0.1	<0.1-0.1
n-hexane	0.3	0.1	0.1-0.2
methylcyclopentane	0.3	0.1	
2,4-dimethylpentane	0.1	<0.1	
benzene	0.4	0.2	0.1-0.5
cyclohexane	0.1	<0.1	
2-methylhexane	0.2	<0.1	
2,3-dimethylpentane	0.2	0.1	

LAB NO: 1623717
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	08/23/16	08/23/16	
Canister	54623	54696	
Sampling Location	323 Firmin St. (Porch of residence)	Near water return for drill	Ambient Air
Total NMOC, ppbC	169	108	100-700 ppbC
<u>Compound</u>	<u>Conc. (ppbv)</u>	<u>Conc. (ppbv)</u>	<u>Conc. (ppbv)</u>
3-methylhexane	0.2	<0.1	
2,2,4-trimethylpentane	0.4	0.2	
n-heptane	0.1	<0.1	0.1-0.2
methylcyclohexane	0.1	<0.1	
2,3,4-trimethylpentane	0.1	<0.1	
toluene	0.8	0.4	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	<0.1	<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: 1623717
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 08/23/16
Canister E4281

Sampling Location **414 Firmin St. (background site)** **Ambient Air**

Total NMOC, ppbC 209 100-700 ppbC

<u>Compound</u>	<u>Conc. (ppbv)</u>	<u>Conc. (ppbv)</u>
ethane	11.4	
ethylene	N.D.	0.7-4.1
acetylene	4.6	
propane	5.3	0.4-5.0
propylene	0.8	0.2-0.7
isobutane	1.3	0.2-0.9
n-butane	2.0	0.3-1.7
1-butene	0.1	0.1-0.3
trans-2-butene	<0.1	
cis-2-butene	<0.1	
isopentane	6.5	
1-pentene	<0.1	
n-pentane	0.9	0.1-0.6
isoprene	1.0	
trans-2-pentene	<0.1	
cis-2-pentene	<0.1	
2,2-dimethylbutane	0.1	
cyclopentane	0.1	
2,3-dimethylbutane	0.3	
2-methylpentane	0.6	
3-methylpentane	0.4	
1-hexene	<0.1	<0.1-0.1
n-hexane	0.4	0.1-0.2
methylcyclopentane	0.4	
2,4-dimethylpentane	0.2	
benzene	0.5	0.1-0.5
cyclohexane	0.2	
2-methylhexane	0.2	
2,3-dimethylpentane	0.3	

LAB NO: 1623717
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 08/23/16
 Canister E4281

Sampling Location **414 Firmin St. (background site)** **Ambient Air**

Total NMOC, ppbC 209 100-700 ppbC

<u>Compound</u>	<u>Conc. (ppbv)</u>	<u>Conc. (ppbv)</u>
3-methylhexane	0.2	
2,2,4-trimethylpentane	0.5	
n-heptane	0.2	0.1-0.2
methylcyclohexane	0.2	
2,3,4-trimethylpentane	0.2	
toluene	1.2	0.1-0.6
2-methylheptane	<0.1	
3-methylheptane	<0.1	
n-octane	<0.1	<0.1-0.3
ethylbenzene	0.2	0.1-0.2
m+p-xylenes	0.5	0.1-0.2
styrene	<0.1	<0.1-0.2
o-xylene	0.2	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	0.2	
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 AU
LABORATORY

1623717



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: 08/24/2016

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: 08/23/2016 Time: 10:58-14:15

REQUESTED ANALYSIS: VOC - PAMS - TCA (CH₄)^{gm} 8-24-16

City/Location	Can#	Start day / duration	Start vac	End vac
<u>01</u> 323 Firmin St (Porch of residence) 34.063904, -118.254530	54623	08-23-16 10:58 2 min	-30"	0
<u>02</u> (Near water return for drill) 34.064048, -118.254369	54696	08-23-16 14:15 2 min	-30"	<u>PW</u> <u>-23</u>
<u>03</u> 414 Firmin St. (background site) 34.064868, -118.253879	E4281	08-23-16 11:25 3 min	-30"	-2

Relinquished by	Received by	Firm/Agency	Date	Time
B Vongphachanh		SCAQMD Lab	8/24/2016	9:03

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