Texas Commission on Environmental Quality

Laboratory and Quality Assurance Section
P.O. Box 13087
Austin, Texas 78711
(512) 239-1716

Laboratory Analysis Results

ACL Number: 100322

ACL Lead: Karen Bachtel Region: T04 Date Received: 3/16/2010

Project(s): Barnett Shale

Facility(ies) Sampled	City	County	Facility Type
Aruba Petroleum, 6H & 7H Wright Lease	Decatur	Wise	

Laboratory Procedure(s) Performed:

Analysis: AMOR006

Determination of VOC Canisters by GC/MS Using Modified Method TO-15

Procedure:

Prior to analysis, subatmospheric samples are pressurized to twice the collected volume using a sample dilution system. For analysis, a known volume of a sample is directed from the canister into a multitrap cryogenic concentrator. Internal standards are added to the sample stream prior to the trap. The concentrated sample is thermally desorbed and carried onto a GC column for separation. The analytical strategy involves using a GC with dual columns that are coupled to a mass selective detector (MSD) and a flame ionization detector (FID). Mass spectra for individual peaks in the total ion chromatogram are then used for target compound identification and quantitation. The fragmentation pattern is compared with stored spectra taken under similar conditions in order to identify the compound. For any given compound, the intensity of the quantitation fragment is compared with the system response to the fragment for known amounts of the compound. This establishes the compound concentration in the sample. For non-target compound peaks which are at least one-half the height of the internal standard, a library search is performed in an attempt to identify the compound solely upon fracture patterns. These tentatively identified compounds (TIC's) are reported as a sample specific footnote. Accurate quantitation of TICs is not possible. The FID is used for the quantitation of ethane, ethylene, acetylene, propylene and propane and identification is based on matching retention times of standards containing known analytes.

Sample(s) Received

Field ID Number: F2555 Laboratory Sample Number: 100322-0001 Sampled by: Xin Rao

Sampling Site: 250 feet West of tank vent. Date & Time Sampled: 03/13/10 20:40:00 Valid Sample: Yes

Comments:

Canister #F2555 was used to collect a 30 minute sample. Intermittent moderate gas type odor.

Sample(s) Screening

Texas Commission on Environmental Quality

Laboratory and Quality Assurance Section
P.O. Box 13087
Austin, Texas 78711
(512) 239-1716

Laboratory Analysis Results

ACL Number: 100322

Sample(s) Screening

As a routine procedure, the data from this (these) sample(s) have been screened. No target compounds were detected at or above the Appropriate Comparison Value. Therefore, the TCEQ's Toxicology Division expects no adverse health effects or odors and will not review the data further. Please note that this analytical technique is not capable of measuring all compounds which might have the potential to cause adverse heath effects or odors. For questions on the analytical procedures please contact the laboratory manager at (512)-239-5853. If further health effects evaluation is desired please contact the Toxicology Division at (512)-239-1795.

Analyst: Jaydeep Patel Date: 03/26/10

Jaydeep Patel

Reviewed By: Karen Bachtel Date: 3/26/2010

Karen Bachtel

Technical Specialist: David Manis Date: 3/26/10

David Manis

Laboratory Analysis Results

ACL Number: 100322

Analysis Code: AMOR006

Note: Results are reported in units of parts per billion by volume (ppbv)

Lab ID			100322-0001					
Field ID			F2555					
Canister ID			F2555					
Analysis Date			03/22/10					
Compound	ESL	LOD	Concentration	SDL	Flags**	Concentration	SDL	Flags**
ethane	10000	0.50	1500	16	D1,T			
ethylene	1200	0.50	ND	16	D1,T			
acetylene	25000	0.50	ND	16	D1,T			
propane	10000	0.50	1400	16	D1,T			
propylene	5000	0.50	ND	16	D1,T			
dichlorodifluoromethane	10000	0.20	0.43	6.6	J,D1			
methyl chloride	500	0.20	0.88	6.6	J,D1			
isobutane	2000	0.23	280	7.5	D1			
vinyl chloride	26000	0.17	ND	5.6	D1			
1-butene	360	0.20	ND	6.6	D1			
1,3-butadiene	230	0.27	ND	8.9	D1			
n-butane	8000	0.20	590	6.6	D1			
t-2-butene	2100	0.18	ND	5.9	D1			
bromomethane	30	0.27	ND	8.9	D1			
c-2-butene	2100	0.27	ND	8.9	D1			
3-methyl-1-butene	250	0.23	ND	7.5	D1			
isopentane	1200	0.27	220	8.9	D1			
trichlorofluoromethane	5000	0.29	0.40	9.5	J,D1			
1-pentene	100	0.27	ND	8.9	D1			
n-pentane	1200	0.27	220	8.9	D1			
isoprene	5.0	0.27	ND	8.9	D1			
t-2-pentene	2600	0.27	ND	8.9	D1			
1,1-dichloroethylene	180	0.18	ND	5.9	D1			
c-2-pentene	2600	0.25	ND	8.2	D1			
methylene chloride	75	0.14	ND	4.6	D1			
2-methyl-2-butene	250	0.23	ND	7.5	D1,A1			
2,2-dimethylbutane	1000	0.21	2.6	6.9	J,D1			
cyclopentene	2900	0.20	ND	6.6	D1			
4-methyl-1-pentene	20	0.22	ND	7.2	D1			
1,1-dichloroethane	1000	0.19	ND	6.2	D1			
cyclopentane	1200	0.27	3.1	8.9	J,D1			
2,3-dimethylbutane	990	0.28	3.5	9.2	J,D1			
2-methylpentane	83	0.27	34	8.9	D1			
3-methylpentane	1000	0.23	18	7.5	L,D1			
2-methyl-1-pentene + 1-hexene	20	0.20	ND	6.6	D1			
n-hexane	1500	0.20	45	6.6	D1			
chloroform	20	0.21	ND	6.9	D1			
t-2-hexene	500	0.27	ND	8.9	D1			
c-2-hexene	500	0.27	ND	8.9	D1			
1,2-dichloroethane	40	0.27	ND	8.9	D1			
methylcyclopentane	750	0.27	8.5	8.9	J,D1			
2,4-dimethylpentane	850	0.27	1.3	8.9	J,D1			
1,1,1-trichloroethane	2000	0.26	ND	8.5	D1			
benzene	180	0.27	4.4	8.9	J,D1			
carbon tetrachloride	20	0.27	ND	8.9	D1			
cyclohexane	420	0.24	9.5	7.9	L,D1			
2-methylhexane	750	0.27	13	8.9	L,D1			
2,3-dimethylpentane	850	0.26	1.9	8.5	J,D1			

Laboratory Analysis Results

ACL Number: 100322

Analysis Code: AMOR006

Note: Results are reported in units of parts per billion by volume (ppbv)								
Lab ID			100322-0001					
Compound	ESL	LOD	Concentration	SDL	Flags**	Concentration	SDL	Flags**
3-methylhexane	750	0.20	9.9	6.6	L,D1			
1,2-dichloropropane	100	0.17	ND	5.6	D1			
trichloroethylene	100	0.29	ND	9.5	D1			
2,2,4-trimethylpentane	750	0.24	ND	7.9	D1			
2-chloropentane	190	0.27	ND	8.9	D1			
n-heptane	670	0.25	11	8.2	L,D1			
c-1,3-dichloropropylene	10	0.20	ND	6.6	D1			
methylcyclohexane	150	0.26	6.9	8.5	J,D1			
t-1,3-dichloropropylene	10	0.20	ND	6.6	D1,A2			
1,1,2-trichloroethane	100	0.21	ND	6.9	D1			
2,3,4-trimethylpentane	750	0.24	ND	7.9	D1			
toluene	170	0.27	4.9	8.9	J,D1			
2-methylheptane	750	0.20	1.8	6.6	J,D1			
3-methylheptane	750	0.23	1.4	7.5	J,D1			
1,2-dibromoethane	0.50	0.20	ND	6.6	D1			
n-octane	750	0.19	1.7	6.2	J,D1			
tetrachloroethylene	770	0.24	ND	7.9	D1			
chlorobenzene	100	0.27	ND	8.9	D1			
ethylbenzene	460	0.27	0.23	8.9	J,D1			
m & p-xylene	80	0.27	1.3	8.9	J,D1			
styrene	25	0.27	ND	8.9	D1			
1,1,2,2-tetrachloroethane	10	0.20	ND	6.6	D1			
o-xylene	380	0.27	ND	8.9	D1			
n-nonane	2000	0.22	ND	7.2	D1			
isopropylbenzene	100	0.24	ND	7.9	D1			
n-propylbenzene	3.8	0.27	ND	8.9	D1			
m-ethyltoluene	18	0.11	ND	3.6	D1			
p-ethyltoluene	8.3	0.16	0.03	5.2	J,D1			
1,3,5-trimethylbenzene	250	0.25	ND	8.2	D1			
o-ethyltoluene	250	0.13	ND	4.3	D1			
1,2,4-trimethylbenzene	250	0.27	ND	8.9	D1			
n-decane	620	0.27	ND	8.9	D1			
1,2,3-trimethylbenzene	250	0.27	ND	8.9	D1			
m-diethylbenzene	70	0.27	ND	8.9	D1			
p-diethylbenzene	0.39	0.27	ND	8.9	D1			
n-undecane	550	0.27	ND	8.9	D1			

Laboratory Analysis Results

ACL Number: 100322

Analysis Code: AMOR006

Note: Results are reported in units of parts per billion by volume (ppbv)

ESL - Effects Screening Level. (Short-term Health and Odor Based in units of ppbv)
LOD - Limit of Detection.
ND - not detected
NQ - concentration can not be quantified.
SDL - Sample Detection Limit (LOD adjusted for dilutions).
INV - Invalid.
J - Reported concentration is below SDL.
L - Reported concentration is at or above the SDL and is below the lower limit of quantitation.
E - Reported concentration exceeds the upper limit of instrument calibration.
M - Result modified from previous result.
T- Data was not confirmed by a confirmational analysis. Data is tentatively identified.

* SDL is equal to LOD
** Quality control flags explanations are listed on the last page of this report.
# Compound concentration is equal to or greater than the Effects Screening Level.

TCEQ laboratory customer support may be reached at kbachtel@tceq.state.tx.us

Laboratory Analysis Results

ACL Number: 100322

Analysis Code: AMOR006

Quality Control Notes:

Quality control notes for samples 100322-0001,
A1-Not all associated QC data met accuracy specification. Data may be an average 20 percent low with a range of -31 to -0 percent.
A2-Not all associated QC data met accuracy specification. Data may be an average 18 percent low with a range of -31 to +2 percent.

D1 - sample was diluted 65.61 times to determine the compound concentrations.

TCEQ laboratory customer support may be reached at kbachtel@tceq.state.tx.us