

TRACE ANALYSIS, INC.

6701 Aberdeen Avenue, Suite 9

200 East Sunset Road, Suite E

5002 Basin Street, Suite A1

8808 Camp Bowie Blvd. West, Suite 180

Lubbock, Texas 79424

El Paso, Texas 79922

Midland, Texas 79703

Ft. Worth, Texas 76116

800•378•1296

888•588•3443

806•794•1296

915•585•3443

432•689•6301

817•201•5260

FAX 806•794•1298

FAX 915•585•4944

FAX 432•689•6313

FAX 817•560•4336

E-Mail: lab@traceanalysis.com

OCT 15 2007
OCD-ARTESIA

ANALYTICAL RESULTS FOR

CIMAREX-MIDLAND

Attention: Aaron Hamilton

508 W. Wall Street

Midland, TX 79701

October 09, 2007

Receiving Date: 10/04/2007

Sample Type: Soil-138470/Water-138471

Project No: NA

Project Location: NA

Work Order: 7100426

Prep Date: 10/05/2007

Analysis Date: 10/05/2007

Sampling Date: 10/03/2007

Sample Condition: I & C

Sample Received by: SM

Project Name: Liberty 14 Fed. 1

TA#: 138470 - Pad Composite NW to SE Area

TA#: 138471 - Separator Fluid

FINGERPRINT

Samples 138470 and 138471 were analyzed for chlorides and hydrocarbon fingerprints. The soil and water samples were extracted with pentane and analyzed by GC, FID, capillary column and direct injection. The chloride data (attached) and hydrocarbon fingerprints (attached) indicate that the separator fluid was the possible source of the spilled liquid on the pad. The hydrocarbon fingerprints for the soil and water samples are similar containing the same peaks. The soil sample has a lower concentration of light peaks C6-C12 probably due to volatilization of those light compounds due to aeration after being applied to the soil. The less volatile, heavier hydrocarbons C12-C28 are approximately ten times less in the soil than the water. Likewise, the chlorides are approximately eight times less in the soil than the water. This reduction in concentration is what would be expected due to the product being applied to the soil in a thin application. The soil hydrocarbon fingerprint indicates that the hydrocarbons are a fresh spill and not aged as shown by the relatively large number and concentration of lighter hydrocarbon compounds C6-C12.

CHEMIST: SP


Director, Dr. Blair Leftwich

10-9-07
DATE

Summary Report

Aaron Hamilton
Cimarex-Midland
508 W. Wall Street #600
Midland, TX, 79701

Report Date: October 8, 2007

Work Order: 7100426



Project Name: Liberty 24 Fed. 1

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
138470	Pad Composite NW to SE Area	soil	2007-10-03	14:30	2007-10-04
138471	Separator Fluid	water	2007-10-03	15:00	2007-10-04

Sample: 138470 - Pad Composite NW to SE Area

Param	Flag	Result	Units	RL
Chloride		17800	mg/Kg	5.00

Sample: 138471 - Separator Fluid

Param	Flag	Result	Units	RL
Chloride		132000	mg/L	0.500

Software Version : 6.1.2.0.1:D19
 Operator : Turbochrom
 Sample Number : 019
 AutoSampler : BUILT-IN
 Instrument Name : TPH2
 Instrument Serial # : None
 Delay Time : 0.00 min
 Sampling Rate : 25.0000 pts/s
 Volume Injected : 1.000000 ul
 Sample Amount : 1.0000
 Data Acquisition Time : 10/10/01 10:22:15 PM

Date : 10/23/01 9:40:55 AM
 Sample Name : Fresh Crude Oil
 Study : QC14735
 Rack/Vial : 0/19
 Channel : A
 A/D mV Range : 1000
 End Time : 4.54 min
 Area Reject : 0.000000
 Dilution Factor : 400.00
 Cycle : 19

*Fresh Crude Oil
 Standard*

Raw Data File : D:\Data\TPH2\KWT2A019-20011015-103045.raw <Modified>

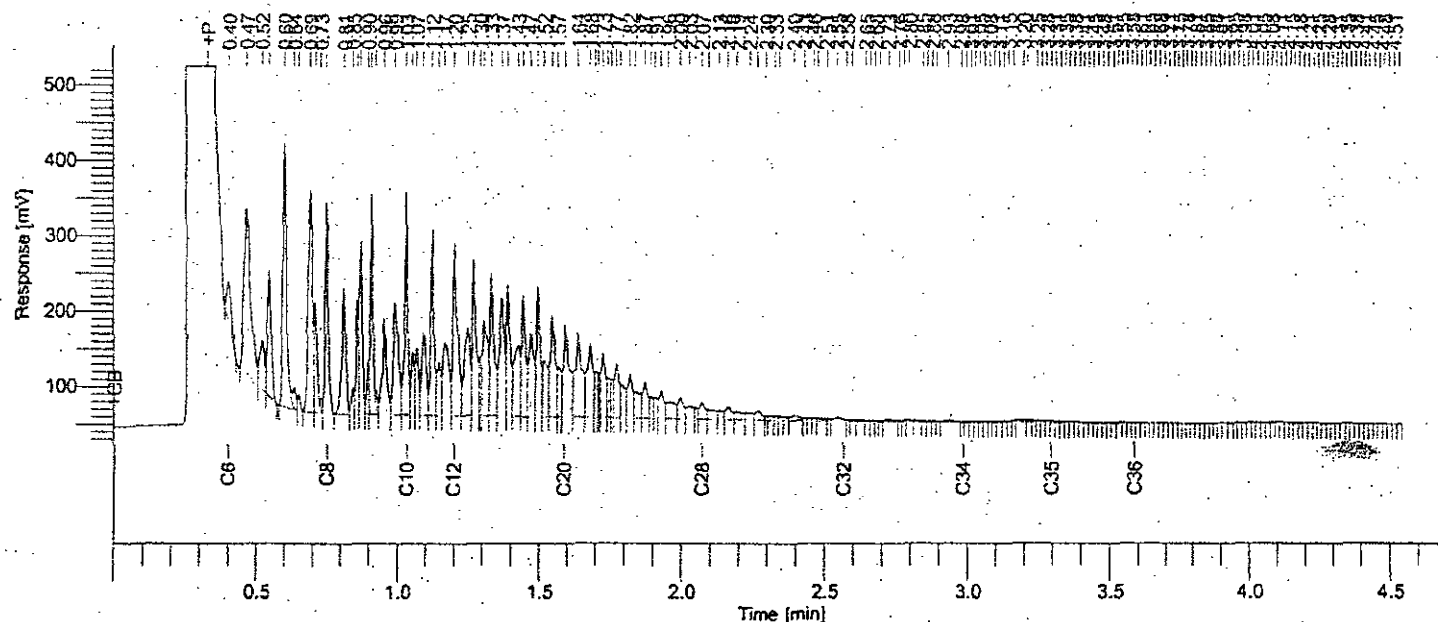
Result File : D:\Data\TPH2\KWT2A019-20011015-103048.rst

Inst Method : D:\Methods\TPH2EXTSUR from D:\Data\TPH2\KWT2A019-20011015-103048.rst

Proc Method : D:\Methods\TPH2EXTSUR.mth from D:\Data\TPH2\KWT2A019-20011015-103048.rst

Calib Method : D:\Methods\TPH2EXTSUR.mth from D:\Data\TPH2\KWT2A019-20011015-103048.rst

Sequence File : D:\Sequence\KWT2A.seq



TX1005

Analytical Method: TX1005

Reporting Units: mg/Kg

Matrix: soil

Component Name	Adjusted Amount	Raw Amount	Area [μV s]
TPH AS GASOLINE	475537.0	1188.8	4462405.81
TPH AS DIESEL	367389.7	918.5	2976773.19
C30=	6422.6	16.1	40919.37
			7480098.37

Report stored in ASCII file: D:\Data\TPH2\KWT2A019-20011015-103048.TX0

Software Version : 6.3.0.0445
 Reprocess Number : turbogc3_xp: 98547
 Operator : tcprocess
 Sample Number : 062
 AutoSampler : BUILT-IN
 Instrument Name : TPH3
 Instrument Serial # : None
 Delay Time : 0.00 min
 Sampling Rate : 25.0000 pts/s
 Sample Volume : 1.000000 ul
 Sample Amount : 1.0000
 Data Acquisition Time : 10/5/2007 10:16:53 AM

Date : 10/5/2007 11:00:11 AM

Sample Name : 138470
 Study : 41795
 Rack/Vial : 0/62
 Channel : A
 A/D mV Range : 1000
 End Time : 5.87 min

Area Reject : 0.000000
 Dilution Factor : 1.00
 Cycle : 62

Raw Data File : D:\Data\Tph3\KQT3A062.raw <Modified>

Result File : D:\Data\Tph3\KQT3A062.rst

Inst Method : d:\methods\tph3txsur020607 from D:\Data\Tph3\KQT3A062.raw

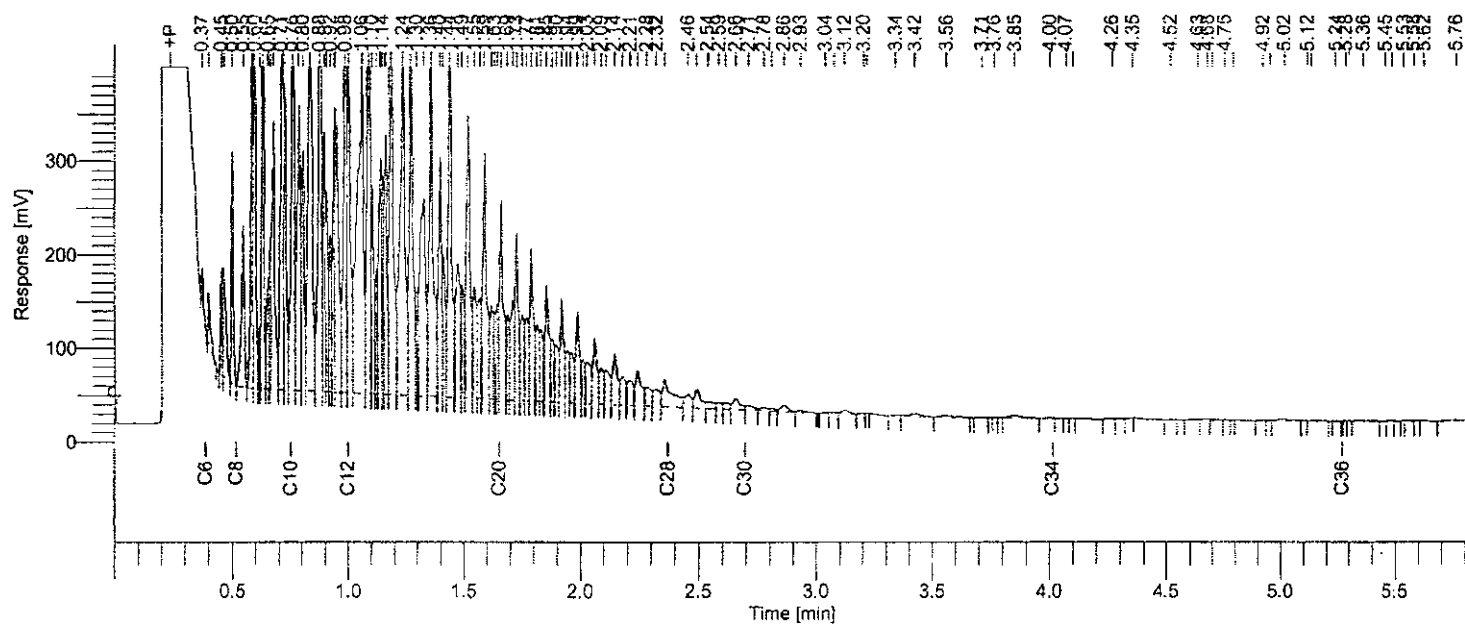
Proc Method : d:\methods\tph3txsur020607.mth from D:\Data\Tph3\KQT3A062.rst

Calib Method : d:\methods\tph3txsur020607.mth from D:\Data\Tph3\KQT3A062.rst

Report Format File : d:\methods\lms-tx1005-soil.rpt

Sequence File : D:\Sequence\KQT3A.seq

138470
 Fingerprint



TX1005

Analytical Method: TX1005

Reporting Units: mg/Kg

Matrix: soil

Component Name	Adjusted Amount	Raw Amount	Area [$\mu\text{V}\cdot\text{s}$]
Gasoline	4335.960	4335.96	6235418.06
Diesel	3442.539	3442.54	9625173.91
Surrogate	53.245	53.25	150848.92
			16011440.90

x10 less DRO
 product → prod

Report stored in ASCII file: D:\Data\Tph3\KQT3A062.TX0

Software Version : 6.3.0.0445
 Reprocess Number : turbogc3_xp: 98543
 Operator : turbochrom
 Sample Number : 058
 AutoSampler : BUILT-IN
 Instrument Name : TPH3
 Instrument Serial # : None
 Delay Time : 0.00 min
 Sampling Rate : 25.0000 pts/s
 Sample Volume : 1.000000 ul
 Sample Amount : 1.0000
 Data Acquisition Time : 10/5/2007 8:39:02 AM

Date : 10/5/2007 11:00:06 AM

Sample Name : 138471
 Study : 41795
 Rack/Vial : 0/58
 Channel : A
 A/D mV Range : 1000
 End Time : 5.87 min

Area Reject : 0.000000
 Dilution Factor : 20.00
 Cycle : 58

Raw Data File : D:\Data\Tph3\KQT3A058.raw <Modified>

Result File : D:\Data\Tph3\KQT3A058.rst

Inst Method : d:\methods\tph3txsur020607 from D:\Data\Tph3\KQT3A058.raw

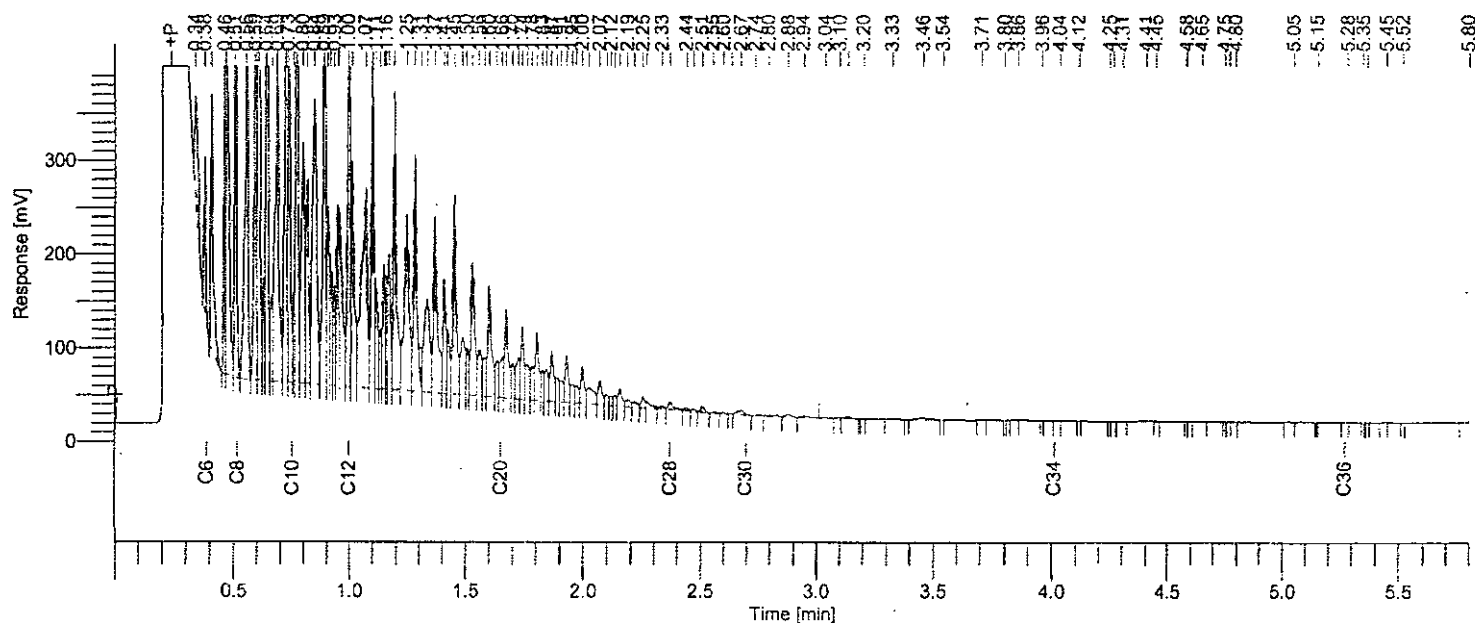
Proc Method : d:\methods\tph3txsur020607.mth from D:\Data\Tph3\KQT3A058.rst

Calib Method : d:\methods\tph3txsur020607.mth from D:\Data\Tph3\KQT3A058.rst

Report Format File : d:\methods\lims-bx1005-soil.rpt

Sequence File : D:\Sequence\KQT3A.seq

138471
 Fingerprint



TraceAnalysis, Inc.

5002 Basin Street, Suite A1
Midland, Texas 79703
Tel (432) 689-6301
Fax (432) 689-6313

200 East Sunset Rd., Suite E
El Paso, Texas 79922
Tel (915) 585-3443
Fax (915) 585-4944
1 (888) 588-3443

6015 Harris Pkwy., Suite 110
Ft. Worth, Texas 76132
Tel (817) 201-5260

6701 Aberdeen Avenue, Suite 9
Lubbock, Texas 79424
Tel (806) 794-1296
Fax (806) 794-1298
1 (800) 378-1296

email: lab@traceanalysis.com

Company Name: UMAREX ENERGY CO. Phone #: 432-751-7800
Address: (Street, City, Zip) 808W. Wall St. #600, Midland, TX 79706 Fax #: _____
Contact Person: HARM HAMILTON E-mail: ohamilton@cumex.com
Invoice to: _____
(If different from above)
Project #: _____ Project Name: 22W
6126474 24 Fed. No. 1
Project Location (including state): _____
Sampler Signature: _____

ANALYSIS REQUEST
(Circle or Specify Method No.)[illegible]

LAB USE ONLY Intact: <u>Y/N</u> Headspace: <u>Y/N</u> Temp: <u>22</u> Log-in-Review: <u>13</u>	REMARKS: <u>24 HOUR</u> ☐ Dry Weight Basis Required ☐ TRRP Report Required ☐ Check If Special Reporting Limits Are Needed <u>Verpats for GWS</u> 10/5/07 45-A 8
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Carrier # BWS G-LI 304296820

[illegible]

Relinquished by: <i>Chad D. Smith</i>	Date: <i>12/17/17</i>	Time: <i>1720</i>	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received at Laboratory by: <i>S. J. W.</i>	Date:	Time: <i>1105</i>

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