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9:34 am, Mar 23, 2009

Alameda County  
Environmental Health

256419 SS X  
X M TRANSMISSION  
3 4

October 20, 1999  
ERI 233004.R02

Mr. Dave Dewitt  
Tosco Marketing Company  
2000 Crow Canyon Place, Suite 400  
San Ramon, California 94583

Subject: Soil Vapor Extraction Test at Tosco 76 Service Station 6419,  
6401 Dublin Boulevard, Dublin, California.

Mr. Dewitt:

OCT 25 1999

At the request of Tosco Marketing Company (Tosco), Environmental Resolutions, Inc. (ERI) performed a three-day soil vapor extraction (SVE) test at the subject site. The location of the site is shown on the Site Vicinity Map (Plate 1). ERI used a portable SVE trailer to extract soil vapors from groundwater monitoring wells. The SVE trailer consists of a 1.5-horsepower Rotron® blower, a moisture separator, four 200-pound vapor-phase carbon adsorbers connected in series for vapor abatement, and associated instruments for measuring flow, temperature, vacuum, and hydrocarbon concentrations. ERI performed the work from July 26 through 28, 1999.

Existing on-site groundwater monitoring well MW1 was used for soil vapor extraction; and groundwater monitoring wells MW2, MW3, and MW6 were used for observation. The locations of the wells are shown on the Generalized Site Plan (Plate 2).

Prior to beginning the SVE test on July 26, 1999, background groundwater and soil vapor samples were collected from groundwater monitoring wells MW1, MW2, and MW3. Groundwater sample results are presented in Table 1. Soil vapor sample results are presented in Table 2.

ERI personnel monitored influent concentrations utilizing a PID and recorded magnehelic readings at the observation wells on approximately 30 minute intervals. The effluent vapor stream of the carbon abatement system was monitored every hour using a PID. Field data recorded during the SVE test is presented in Table 3. At the beginning and ending of each testing day, influent soil vapor samples were collected and submitted to Sequoia Analytical Laboratories, Inc. (Sequoia) for analysis of total purgeable petroleum hydrocarbons as gasoline (TPPHg) using Environmental Protection Agency (EPA) method 8015, benzene, toluene, ethylbenzene and total xylenes (BTEX) using EPA method 8020, and methyl tertiary butyl ether (MTBE) using EPA method 8260. Soil vapor sample results are presented in Table 2. Laboratory analysis reports and Chain of Custody records are included as Attachment A.

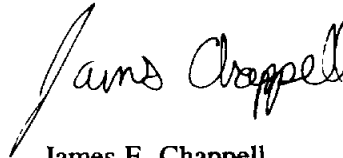
Analytical laboratory results of vapor samples collected from well MW1 indicate TPPHg concentrations decreased from 420 micrograms per liter ( $\mu\text{g/L}$ ) to 72  $\mu\text{g/L}$  and MTBE concentrations decreased from 930  $\mu\text{g/L}$  to 83  $\mu\text{g/L}$  during SVE testing.

Using ERI's standard operating procedure (SOP) 25 "Hydrocarbon Removal From a Vadose Well" (Attachment B), it is estimated that approximately 1.6 pounds of TPPHg and 4.4 pounds of MTBE were removed by SVE during the three-day SVE test. MTBE concentrations and removal rates are shown on Table 2 and Graph 1.

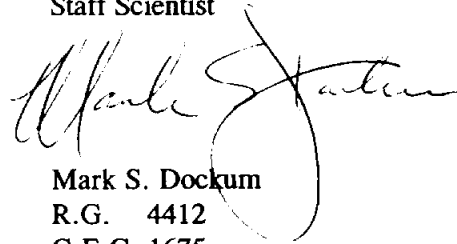
ERI estimates the effective radius of influence (ROI) for SVE by evaluating the distance from the source where the induced vacuum is equal to or greater than 0.5 inches of water. Induced vacuum was not observed at greater than 0.001 inches of water in the observation wells. ERI estimates the effective SVE vacuum ROI for SVE at less than 42 feet (the distance to the closest observation well).

Please call Mr. Glenn L. Matteucci, ERI's project manager for this site, at (415) 382-5994, with any questions regarding this letter report.

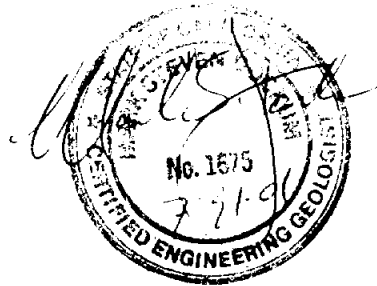
Sincerely,  
Environmental Resolutions, Inc.



James F. Chappell  
Staff Scientist



Mark S. Dockum  
R.G. 4412  
C.E.G. 1675



- Attachments: Table 1: Analytical Results of Groundwater Samples
- Table 2: Analytical Results of Soil Vapor Samples
- Table 3: Vapor Extraction Field Data
  
- Plate 1: Site Vicinity Map
- Plate 2: Generalized Site Plan
  
- Graph 1: MTBE Concentrations and Removal Rates

- Attachment A: Laboratory Analysis Reports and Chain of Custody Records
- Attachment B: SOP-25 "Hydrocarbon Removal From a Vadose Well"

**TABLE 1**  
**ANALYTICAL RESULTS OF GROUNDWATER SAMPLES**  
 Tosco 76 Service Station 6419  
 6401 Dublin Boulevard  
 Dublin, California  
 (Page 1 of 1)

Extraction Well	Date	Time	Sample ID	TPPHg	MTBE	B	T	E	X
				< ..... µg/l					
MW1	7/26/99	09:00:00	W-6-MW1	ND	95,000	93	ND	41	96
MW2	7/26/99	09:10:00	W-6-MW2	ND	71	ND	ND	ND	ND
MW3	7/26/99	09:20:00	W-6-MW3	ND	590	ND	ND	ND	ND

Notes:

- Time = Time is presented using a 24-hour clock.
- W-6-MW1 = Water sample collected from groundwater monitoring well MW3.
- TPPHg = Total purgeable petroleum hydrocarbons as gasoline analyzed using EPA method 5030/8015 modified.
- BTEX = Benzene, toluene, ethylbenzene, and total xylenes analyzed using EPA method 5030/8020.
- MTBE = Methyl tertiary butyl ether analyzed using EPA method 8260.
- µg/l = Micrograms per liter.
- ND = Not detected at or above the stated laboratory detection limit.

**TABLE 2**  
**ANALYTICAL RESULTS OF SOIL VAPOR SAMPLES**  
 Tosco 76 Service Station 6419  
 6401 Dublin Boulevard  
 Dublin, California  
 (Page 1 of 1)

Extraction Well	Date	Time	Sample ID	B	T	E	X	TPPHg	MTBE	TPPHg*	MTBE*
				<.....µg/l.....>						lbs.	lbs.
MW1	7/26/99	9:00	A-INF-MW1	25	3.8	0.86	2.2	650	950		
MW2	7/26/99	9:10	A-INF-MW2	0.27	ND	0.20	1.6	11	0.48		
MW3	7/26/99	9:20	A-INF-MW3	0.25	ND	0.13	1.0	ND	ND		
MW1	7/26/99	10:30	A-INF-1030	19	2.3	ND	2.4	420	930	0.7	1.4
		17:45	A-INF-1745	8.5	0.97	ND	1.0	170	370		
MW1	7/27/99	7:00	A-INF-700	11	1.0	ND	ND	240	1,300	0.6	2.7
		17:30	A-INF-1730	4.6	0.36	ND	ND	100	310		
MW1	7/28/99	7:00	A-INF-700	4.8	ND	ND	ND	110	93	0.3	0.3
		17:30	A-INF-1730	3.4	ND	ND	ND	72	83		
<b>Total pounds removed during SVE testing:</b>										<b>1.6</b>	<b>4.4</b>
<b>Total pounds of TPPHg and MTBE removed</b>										<b>6.0</b>	
Notes: Time = Time is presented using a 24-hour clock. A-Inf-MW1 = Influent air sample collected while extracting from MW1. TPPHg = Total purgeable petroleum hydrocarbons as gasoline analyzed using EPA method 8015. BTEX = Benzene, toluene, ethylbenzene, and total xylenes analyzed using EPA method 8020. MTBE = Methyl tertiary butyl ether analyzed using EPA method 8260. µg/l = Micrograms per liter. * = Pounds removed calculated using ERI'S standard operating procedure (SOP) 25 "Hydrocarbon Removal From a Vadose Well (Attachment B). lbs. = Pounds ND = Not detected at or above the laboratory detection limit.											

**TABLE 3  
SOIL VAPOR EXTRACTION  
FIELD DATA**

Tosco 76 Service Station 6419  
6401 Dublin Boulevard  
Dublin, California  
(Page 1 of 2)

Date		Extraction Well				Observation Wells		
7/26/99		MW1				MW2	MW3	MW6
Elapsed Time (Min)	PID (ppmv)	Flow		(EW)	<..... Vacuum (Inches of water).....>	(42')	(48'3)	(42')
		(lfm)	(scfm)					
9:30	0	8,000	2,000	43	23	0.00	0.00	---
	15	9,000	3,000	64	22	0.00	0.00	---
	30	10,000	3,000	64	22	0.00	0.00	---
	60	15,000	3,500	75	21	0.00	0.00	---
	90	15,000	3,500	75	21	0.00	0.00	---
	120	15,000	3,500	75	21	0.00	0.00	---
	150	16,000	3,500	76	20	0.00	0.00	---
	180	10,000	3,500	76	20	0.00	0.00	---
	210	9,500	3,500	76	20	0.00	0.00	---
	240	9,500	3,500	76	20	0.00	0.00	---
	270	8,500	3,500	76	20	0.00	0.00	---
	300	7,000	3,500	76	20	0.00	0.00	---
	330	6,700	3,500	76	20	0.00	0.00	---
	360	6,100	3,500	76	20	0.00	0.00	---
	390	5,900	3,500	76	20	0.00	0.00	---
	420	4,600	3,500	76	20	0.00	0.00	---
	450	4,600	3,500	76	20	0.00	0.00	---
	480	3,800	3,500	76	20	0.00	0.00	---
18:00	510	3,750	3,500	76	20	0.00	0.00	---
7/27/99		MW1				MW2	MW3	MW6
Elapsed Time (Min.)	PID (ppmv)	Flow		(EW)	<..... Vacuum (Inches of water).....>	(42')	(48')	(42'6")
		(lfm)	(scfm)					
6:30	0	2,500	3,900	84	21	0.00	0.00	---
	15	2,000	3,800	82	21	0.00	0.00	---
	30	2,000	3,800	82	21	0.00	0.00	---
	60	1,800	3,800	82	20	0.00	0.00	---
	90	1,000	3,700	80	20	0.00	0.00	---
	120	1,500	3,700	80	20	0.00	0.00	---
	150	1,500	3,700	80	20	0.00	0.00	---
	180	1,500	3,700	80	20	0.00	0.00	---
	210	1,500	3,700	80	20	0.00	0.00	---
	240	850	3,700	80	20	0.00	0.00	---
	270	1,100	3,700	80	20	0.00	0.00	---
	300	1,700	3,700	80	20	0.00	0.00	---
	330	1,200	3,700	80	20	0.00	0.00	---
	360	1,150	3,700	80	20	0.00	0.00	---
	390	1,175	3,700	80	20	0.00	0.00	---
	420	860	3,700	80	20	0.00	0.00	---
	450	900	3,700	80	20	0.00	0.00	---
	480	950	3,700	80	20	0.00	0.00	---
	510	860	3,700	80	20	0.00	---	0.00
	540	840	3,700	80	20	0.00	---	0.00
	570	780	3,700	80	20	0.00	---	0.00
	600	710	3,700	80	20	0.00	---	0.00
	630	710	3,700	80	20	0.00	---	0.00
	660	680	3,700	80	20	0.00	---	0.00
18:00	690	630	3,700	80	20	0.00	---	0.00

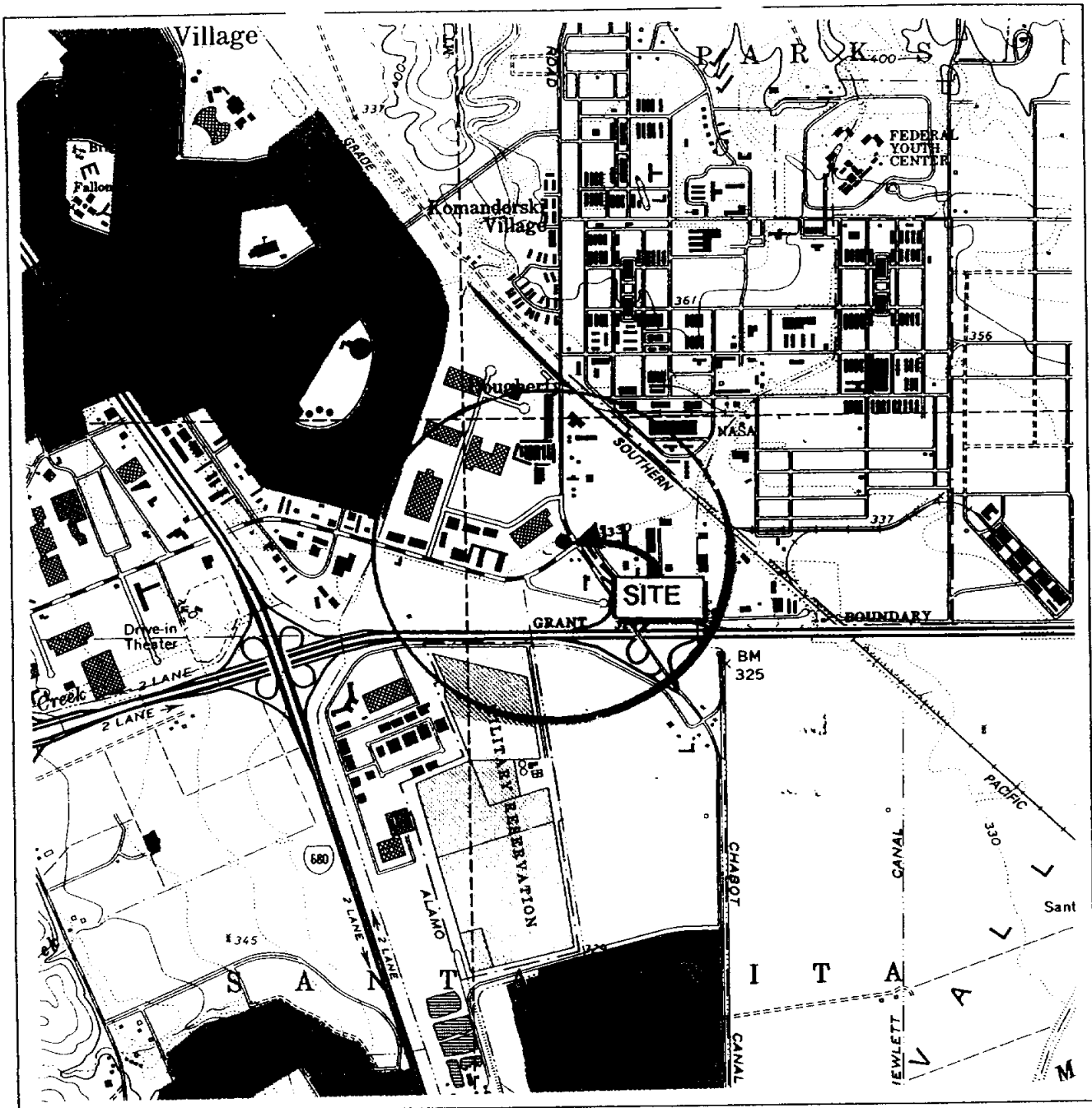
**TABLE 3  
SOIL VAPOR EXTRACTION  
FIELD DATA**

Tosco 76 Service Station 6419  
6401 Dublin Boulevard  
Dublin, California  
(Page 2 of 2)

7/28/99		MW1				MW2	MW6
Elapsed Time (Min.)	PID (ppmv)	Flow		(EW)	<..... Vacuum (Inches of water).....>	(42')	(42'6")
		(lfm)	(scfm)				
6:30	0	530	4,000	86	20	0.00	0.00
	15	460	3,800	82	20	0.00	0.00
	30	450	3,800	82	20	0.00	0.00
	60	440	3,800	82	20	0.00	0.00
	90	435	3,800	82	20	0.00	0.00
	120	470	3,700	80	20	0.00	0.00
	150	420	3,700	80	20	0.00	0.00
	180	460	3,700	80	20	0.00	0.00
	210	400	3,700	80	20	0.00	0.00
	240	330	3,700	80	20	0.00	0.00
	270	390	3,700	80	20	0.00	0.00
	300	330	3,700	80	20	0.00	0.00
	330	330	3,700	80	20	0.00	0.00
	360	335	3,700	80	20	0.00	0.00
	390	340	3,700	80	20	0.00	0.00
	420	233	3,700	80	20	0.00	0.00
	450	240	3,700	80	20	0.00	0.00
	480	245	3,700	80	20	0.00	0.00
	510	290	3,700	80	20	0.00	0.00
	540	259	3,700	80	20	0.00	0.00
	570	250	3,700	80	20	0.00	0.00
	600	280	3,700	80	20	0.00	0.00
	630	300	3,700	80	20	0.00	0.00
	660	310	3,700	80	20	0.00	0.00
18:00	690	310	3,700	80	20	0.00	0.00

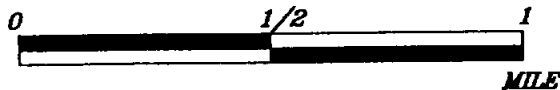
Notes:		
Elapsed Time	=	Elapsed time presented in minutes.
(Min)	=	Minutes
(ppmv)	=	Parts per million by volume as recorded in the field using a
PID	=	photoionization detector.
(lfm)	=	Linear cubic feet per minute.
(scfm)	=	Standard cubic feet per minute.
(EW)	=	Extraction Well
(MW)	=	Monitoring Well
(42')	=	Distance in feet from extraction well to monitoring well.
---	=	Not recorded



23300001



APPROXIMATE SCALE



Source: U.S.G.S. 7.5 minute topographic quadrangle map Dublin, California 1980



PROJECT ERI 2330

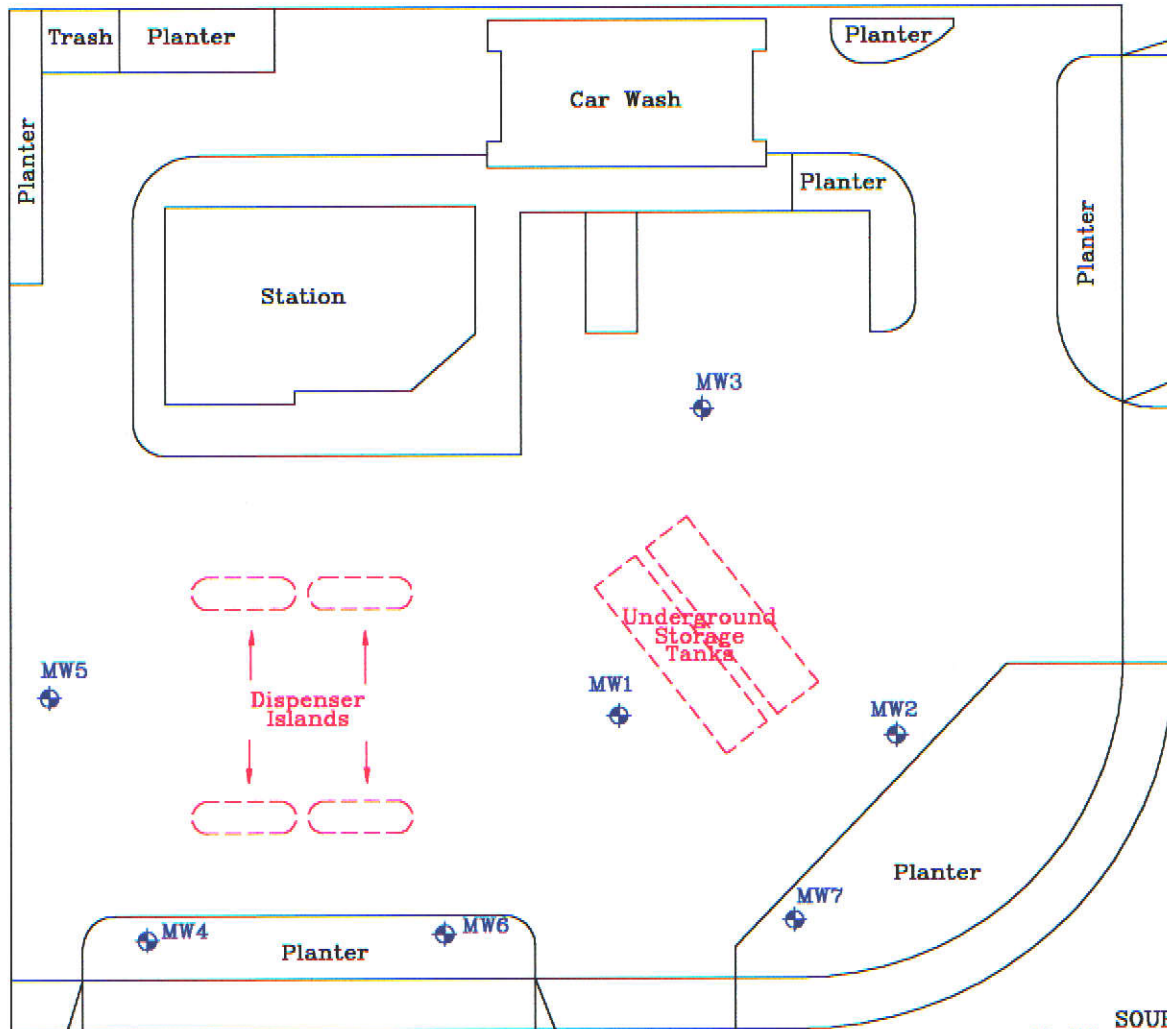
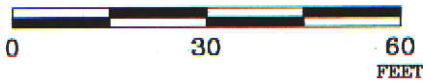
**SITE VICINITY MAP**

Tosco 76 Service Station 6419  
6401 Dublin Boulevard  
Dublin, California

**PLATE**

1

APPROXIMATE SCALE



SOURCE:  
Modified from a map  
provided by  
Tosco

FN 23300002

**EXPLANATION**

MW7  
⊕ Groundwater Monitoring Well

**GENERALIZED SITE PLAN**

TOSCO 76 SERVICE STATION 6419  
6401 Dublin Boulevard  
Dublin, California

**PROJECT NO.**

2330

**PLATE**

2

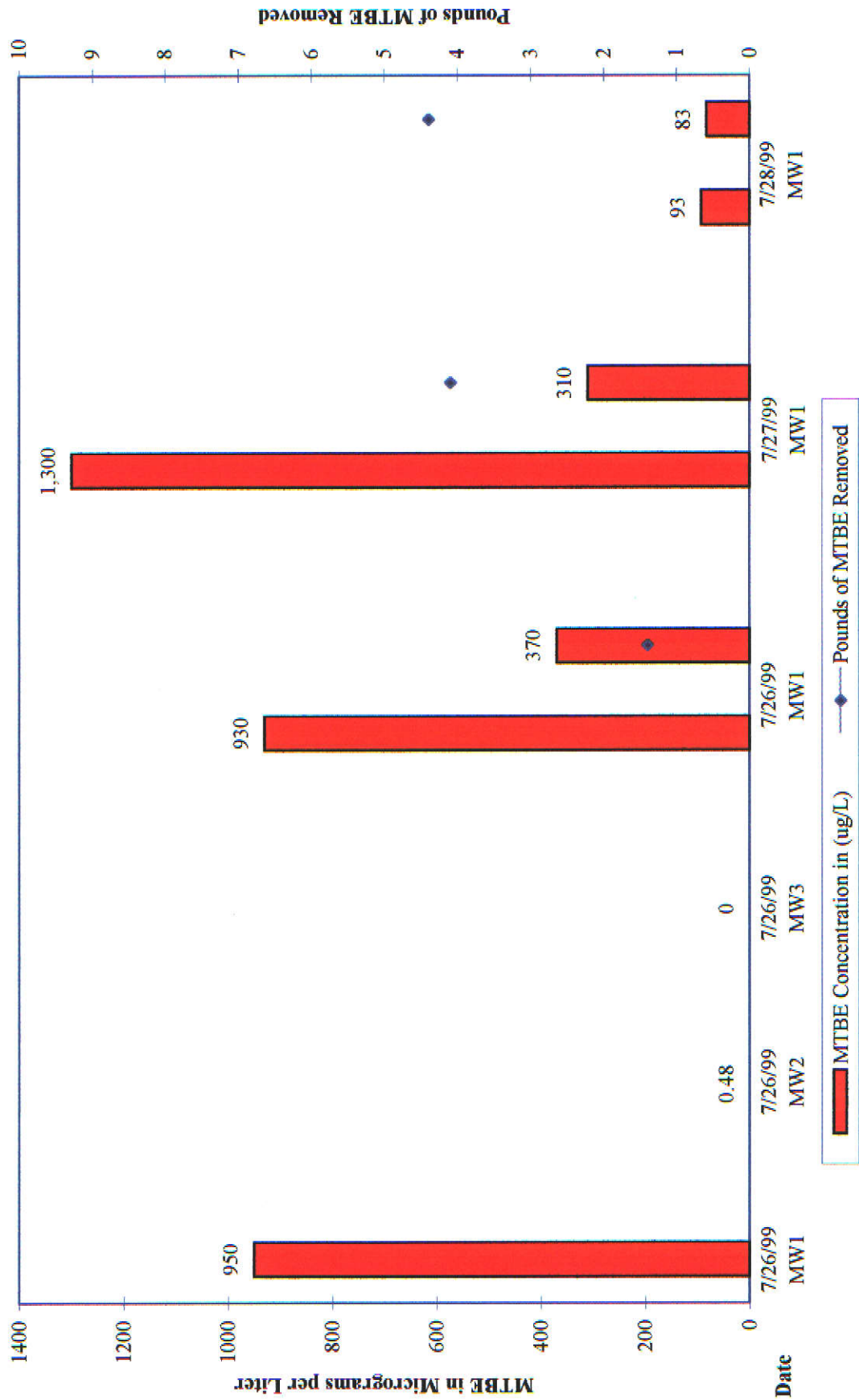
August 2, 1988





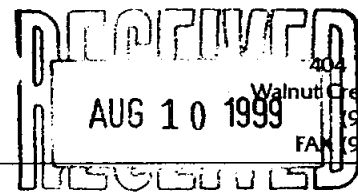
**GRAPH 1**  
**MTBE Concentrations and Removal Rates**

Tosco 76 Service Station 6419  
 6401 Dublin Boulevard  
 Dublin, California



**ATTACHMENT A**

**LABORATORY ANALYSIS REPORTS**  
**AND**  
**CHAIN OF CUSTODY RECORDS**



Environmental Resolutions 74 Digital Dr, Ste 6 Novato, CA 94949 Attention: Jim Chappell	Client Project ID: Tosco 76 #6419, Tosco MTBE Study Sample Matrix: Air Analysis Method: EPA 5030/8015 Mod./8020 First Sample #: 907-1609	Sampled: Jul 26, 1999 Received: Jul 26, 1999 Reported: Aug 3, 1999
--	---	--

QC Batch Number: GC072999 GC072999 GC072999

802002A 802002A 802002A

**TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX / MTBE**

Analyte	Reporting Limit µg/L	Sample I.D. 907-1609 A-INF-MW1	Sample I.D. 907-1610 A-INF-MW2	Sample I.D. 907-1611 A-INF-MW3
Purgeable Hydrocarbons	10	650	11	N.D.
Benzene	0.050	25	0.27	0.25
Toluene	0.050	3.8	N.D.	N.D.
Ethyl Benzene	0.050	0.86	0.20	0.13
Total Xylenes	0.050	2.2	1.6	1.0

Chromatogram Pattern: Gasoline & Unidentified Hydrocarbons <C6 Gasoline --

**Quality Control Data**

Report Limit Multiplication Factor:	10	1.0	1.0
Date Analyzed:	7/29/99	7/29/99	7/29/99
Instrument Identification:	HP-2	HP-2	HP-2
Surrogate Recovery, %: (QC Limits = 70-130%)	*	103	102

Purgeable Hydrocarbons are quantitated against a fresh gasoline standard.  
Analytes reported as N.D. were not detected above the stated reporting limit.

SEQUOIA ANALYTICAL, #1271

*Dimple Sharma*  
Dimple Sharma  
Project Manager

Please Note:  
\* Surrogate recovery above control limit due to coelution.





Environmental Resolutions 74 Digital Dr, Ste 6 Novato, CA 94949 Attention: Jim Chappell	Client Project ID: Tosco 76 #6419, Tosco MTBE Study Sample Matrix: Air Analysis Method: EPA 5030/8015 Mod./8020 First Sample #: 907-1609	Sampled: Jul 26, 1999 Received: Jul 26, 1999 Reported: Aug 3, 1999
--	---	--

QC Batch Number: GC072999 GC072999 GC072999

802002A 802002A 802002A

**TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION**

Analyte	Reporting Limit PPMV	Sample I.D. 907-1609 A-INF-MW1	Sample I.D. 907-1610 A-INF-MW2	Sample I.D. 907-1611 A-INF-MW3
Purgeable Hydrocarbons	2.4	160	2.7	N.D.
Benzene	0.016	7.8	0.085	0.078
Toluene	0.013	1.0	N.D.	N.D.
Ethyl Benzene	0.012	0.20	0.046	0.030
Total Xylenes	0.012	0.51	0.37	0.23

Chromatogram Pattern: Gasoline & Unidentified Hydrocarbons < C6 Gasoline --

**Quality Control Data**

Report Limit Multiplication Factor:	10	1.0	1.0
Date Analyzed:	7/29/99	7/29/99	7/29/99
Instrument Identification:	HP-2	HP-2	HP-2
Surrogate Recovery, %: (QC Limits = 70-130%)	*	103	102

Purgeable Hydrocarbons are quantitated against a fresh gasoline standard.  
Analytes reported as N.D. were not detected above the stated reporting limit.

SEQUOIA ANALYTICAL, #1271

*Dimple Sharma*  
Dimple Sharma  
Project Manager

Please Note:  
\* Surrogate recovery above control limit due to coelution.





Environmental Resolutions 74 Digital Dr, Ste 6 Novato, CA 94949 Attention: Jim Chappell	Client Project ID: Tosco 76 #6419, Tosco MTBE Study Sample Matrix: Water Analysis Method: EPA 5030/8015 Mod./8020 First Sample #: 907-1612	Sampled: Jul 26, 1999 Received: Jul 26, 1999 Reported: Aug 3, 1999
--	---	--

QC Batch Number:	GC072999	GC072999	GC072999
	802004A	802004A	802004A

**TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX / MTBE**

Analyte	Reporting Limit µg/L	Sample I.D. 907-1612 W-6-MW1	Sample I.D. 907-1613 W-6-MW2	Sample I.D. 907-1614 W-6-MW3
Purgeable Hydrocarbons	50	N.D.	N.D.	N.D.
Benzene	0.50	93	N.D.	N.D.
Toluene	0.50	N.D.	N.D.	N.D.
Ethyl Benzene	0.50	41	N.D.	N.D.
Total Xylenes	0.50	96	N.D.	N.D.
MTBE	2.5	-	71	-
Chromatogram Pattern:		--	--	--

**Quality Control Data**

Report Limit Multiplication Factor:	50	1.0	1.0
Date Analyzed:	7/29/99	7/29/99	7/29/99
Instrument Identification:	HP-4	HP-4	HP-4
Surrogate Recovery, %: (QC Limits = 70-130%)	94	96	99

Purgeable Hydrocarbons are quantitated against a fresh gasoline standard.  
Analytes reported as N.D. were not detected above the stated reporting limit.

SEQUOIA ANALYTICAL, #1271

*Dimple Sharma*  
Dimple Sharma  
Project Manager





Environmental Resolutions 74 Digital Dr, Ste 6 Novato, CA 94949 Attention: Jim Chappell	Client Project ID: Tosco 76 #6419, Tosco MTBE Study Sample Descript: Air, A-INF-MW1 Analysis Method: EPA 8260 Lab Number: 907-1609	Sampled: Jul 26, 1999 Received: Jul 26, 1999 Analyzed: Jul 29, 1999 Reported: Aug 3, 1999
--	---	--

QC Batch Number: MS0729998260S2A

Instrument ID: GC/MS-2

**MTBE by EPA 8260**

Analyte	Detection Limit µg/L	Sample Results µg/L
Methyl t-Butyl Ether (MTBE).....	0.40	950

Surrogates	Control Limit %	% Recovery
Dibromofluoromethane.....	50	150
		101

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL, #1271

*Sharma*

Dimple Sharma  
Project Manager





Environmental Resolutions 74 Digital Dr, Ste 6 Novato, CA 94949 Attention: Jim Chappell	Client Project ID: Tosco 76 #6419, Tosco MTBE Study Sample Descript: Air, A-INF-MW2 Analysis Method: EPA 8260 Lab Number: 907-1610	Sampled: Jul 26, 1999 Received: Jul 26, 1999 Analyzed: Jul 30, 1999 Reported: Aug 3, 1999
--	---	--

QC Batch Number: MS0729998260S2A

Instrument ID: GC/MS-2

**MTBE by EPA 8260**

Analyte	Detection Limit µg/L	Sample Results µg/L
Methyl t-Butyl Ether (MTBE).....	0.40	0.48

Surrogates	Control Limit %	% Recovery
Dibromofluoromethane.....	50	150
		110

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL, #1271

*D Sharma*  
Dimple Sharma  
Project Manager





Environmental Resolutions 74 Digital Dr, Ste 6 Novato, CA 94949 Attention: Jim Chappell	Client Project ID: Tosco 76 #6419, Tosco MTBE Study Sample Descript: Air, A-INF-MW3 Analysis Method: EPA 8260 Lab Number: 907-1611	Sampled: Jul 26, 1999 Received: Jul 26, 1999 Analyzed: Jul 29, 1999 Reported: Aug 3, 1999
--	---	--

QC Batch Number: MS0729998260S2A

Instrument ID: GC/MS-2

**MTBE by EPA 8260**

Analyte	Detection Limit µg/L	Sample Results µg/L
Methyl t-Butyl Ether (MTBE).....	0.40	N.D.

Surrogates	Control Limit %	% Recovery
Dibromofluoromethane.....	50	150
		108

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL, #1271

*D Sharma*  
Dimple Sharma  
Project Manager







Environmental Resolutions 74 Digital Dr, Ste 6 Novato, CA 94949 Attention: Jim Chappell	Client Project ID: Tosco 76 #6419, Tosco MTBE Study Sample Descript: Air, A-INF-MW1 Analysis Method: EPA 8260 Lab Number: 907-1609	Sampled: Jul 26, 1999 Received: Jul 26, 1999 Analyzed: Jul 29, 1999 Reported: Aug 3, 1999
--	---	--

QC Batch Number: MS0729998260S2A

Instrument ID: GC/MS-2

**MTBE by EPA 8260**

Analyte	Detection Limit PPMV	Sample Results PPMV
Methyl t-Butyl Ether (MTBE).....	0.11	260

Surrogates	Control Limit %	% Recovery
Dibromofluoromethane.....	50	150
		101

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL, #1271

*D Sharma*  
Dimple Sharma  
Project Manager





Environmental Resolutions 74 Digital Dr, Ste 6 Novato, CA 94949 Attention: Jim Chappell	Client Project ID: Tosco 76 #6419, Tosco MTBE Study Sample Descript: Air, A-INF-MW2 Analysis Method: EPA 8260 Lab Number: 907-1610	Sampled: Jul 26, 1999 Received: Jul 26, 1999 Analyzed: Jul 29, 1999 Reported: Aug 3, 1999
--	---	--

QC Batch Number: MS0729998260S2A

Instrument ID: GC/MS-2

**MTBE by EPA 8260**

Analyte	Detection Limit PPMV	Sample Results PPMV
Methyl t-Butyl Ether (MTBE).....	0.11	0.13

Surrogates	Control Limit %	% Recovery
Dibromofluoromethane.....	50      150.....	110

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL, #1271

Dimple Sharma  
Project Manager





# Sequoia Analytical

404 N. Wiget Lane  
Walnut Creek, CA 94598  
(925) 988-9600  
FAX (925) 988-9673

Environmental Resolutions 74 Digital Dr, Ste 6 Novato, CA 94949 Attention: Jim Chappell	Client Project ID: Tosco 76 #6419, Tosco MTBE Study Sample Descript: Air, A-INF-MW3 Analysis Method: EPA 8260 Lab Number: 907-1611	Sampled: Jul 26, 1999 Received: Jul 26, 1999 Analyzed: Jul 29, 1999 Reported: Aug 3, 1999
--	---	--

QC Batch Number: MS0729998260S2A  
Instrument ID: GC/MS-2

### MTBE by EPA 8260

Analyte	Detection Limit PPMV	Sample Results PPMV
Methyl t-Butyl Ether (MTBE).....	0.11	N.D.

Surrogates	Control Limit %	% Recovery
Dibromofluoromethane.....	50	150
		108

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL, #1271

*Dimple Sharma*  
Dimple Sharma  
Project Manager





Environmental Resolutions 74 Digital Dr, Ste 6 Novato, CA 94949 Attention: Jim Chappell	Client Project ID: Tosco 76 #6419, Tosco MTBE Study Sample Descript: Water, W-6-MW1 Analysis Method: EPA 8260 Lab Number: 907-1612	Sampled: Jul 26, 1999 Received: Jul 26, 1999 Analyzed: Aug 1, 1999 Reported: Aug 3, 1999
--	---	---

QC Batch Number: MS0801998260S2A

Instrument ID: GC/MS-2

**MTBE by EPA 8260**

Analyte	Detection Limit µg/L	Sample Results µg/L
Methyl t-Butyl Ether (MTBE).....	2.0	95,000

Surrogates	Control Limit %	% Recovery
Dibromofluoromethane.....	50	150
		99

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL, #1271

*Dimple Sharma*  
Dimple Sharma  
Project Manager





Environmental Resolutions 74 Digital Dr, Ste 6 Novato, CA 94949 Attention: Jim Chappell	Client Project ID: Tosco 76 #6419, Tosco MTBE Study Sample Descript: Water, W-6-MW2 Analysis Method: EPA 8260 Lab Number: 907-1613	Sampled: Jul 26, 1999 Received: Jul 26, 1999 Analyzed: Aug 1, 1999 Reported: Aug 3, 1999
--	---	---

QC Batch Number: MS0801998260S2A

Instrument ID: GC/MS-2

**MTBE by EPA 8260**

Analyte	Detection Limit µg/L	Sample Results µg/L
Methyl t-Butyl Ether (MTBE).....	2.0	71

Surrogates	Control Limit %	% Recovery
Dibromofluoromethane.....	50	150
		101

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL, #1271

*Dimple Sharma*  
Dimple Sharma  
Project Manager





Environmental Resolutions 74 Digital Dr, Ste 6 Novato, CA 94949 Attention: Jim Chappell	Client Project ID: Tosco 76 #6419, Tosco MTBE Study Sample Descript: Water, W-6-MW3 Analysis Method: EPA 8260 Lab Number: 907-1614	Sampled: Jul 26, 1999 Received: Jul 26, 1999 Analyzed: Aug 1, 1999 Reported: Aug 3, 1999
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QC Batch Number: MS0801998260S2A  
Instrument ID: GC/MS-2

**MTBE by EPA 8260**

Analyte	Detection Limit µg/L	Sample Results µg/L
Methyl t-Butyl Ether (MTBE).....	2.0	590

Surrogates	Control Limit %	% Recovery
Dibromofluoromethane.....	50	150
		102

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL, #1271

*D Sharma*  
Dimple Sharma  
Project Manager





Environmental Resolutions  
74 Digital Dr, Ste 6  
Novato, CA 94949  
Attention: Jim Chappell

Client Project ID: Tosco 76 #6419, Tosco MTBE Study  
Matrix: Vapor

QC Sample Group: 9071609-611

Reported: Aug 3, 1999

## QUALITY CONTROL DATA REPORT

Analyte:	Benzene	Toluene	Ethyl Benzene	Xylenes	MTBE
QC Batch#:	GC072999 802004A	GC072999 802004A	GC072999 802004A	GC072999 802004A	MS072999 8260S2A
Analy. Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020	EPA 8260
Prep. Method:	EPA 5030	EPA 5030	EPA 5030	EPA 5030	EPA 5030
Analyst:	J. Minkel	J. Minkel	J. Minkel	J. Minkel	N. Nelson
MS/MSD #:	100NG BTEX	100NG BTEX	100NG BTEX	100NG BTEX	-
Sample Conc.:	N.D.	N.D.	N.D.	N.D.	-
Prepared Date:	7/29/99	7/29/99	7/29/99	7/29/99	-
Analyzed Date:	7/29/99	7/29/99	7/29/99	7/29/99	-
Instrument I.D.#:	HP-2	HP-2	HP-2	HP-2	-
Conc. Spiked:	2.0 µg/L	2.0 µg/L	2.0 µg/L	6.0 µg/L	-
Result:	1.6	1.5	1.5	5.2	-
MS % Recovery:	80	75	75	87	-
Dup. Result:	1.8	1.6	1.6	5.4	-
MSD % Recov.:	90	80	80	90	-
RPD:	12	6.5	6.5	3.8	-
RPD Limit:	0-20	0-20	0-20	0-20	-

LCS #:	2LCS072999	2LCS072999	2LCS072999	2LCS072999	LCS072999
Prepared Date:	7/29/99	7/29/99	7/29/99	7/29/99	7/29/99
Analyzed Date:	7/29/99	7/29/99	7/29/99	7/29/99	7/29/99
Instrument I.D.#:	HP-2	HP-2	HP-2	HP-2	GC/MS-2
Conc. Spiked:	20 µg/L	20 µg/L	20 µg/L	60 µg/L	10 µg/L
LCS Result:	19	18	18	61	9.3
LCS % Recov.:	95	90	90	102	93

MS/MSD LCS Control Limits	70-130	70-130	70-130	70-130	70-130
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**Please Note:**

The LCS is a control sample of known, interferent-free matrix that is analyzed using the same reagents, preparation, and analytical methods employed for the samples. The matrix spike is an aliquot of sample fortified with known quantities of specific compounds and subjected to the entire analytical procedure. If the recovery of analytes from the matrix spike does not fall within specified control limits due to matrix interference, the LCS recovery is to be used to validate the batch.

\*\* MS = Matrix Spike, MSD = MS Duplicate, RPD = Relative % Difference

SEQUOIA ANALYTICAL, #1271

*Dimple Sharma*  
Dimple Sharma  
Project Manager





Environmental Resolutions  
74 Digital Dr, Ste 6  
Novato, CA 94949  
Attention: Jim Chappell

Client Project ID: Tosco 76 #6419, Tosco MTBE Study  
Matrix: Liquid

QC Sample Group: 9071612-614

Reported: Aug 3, 1999

## QUALITY CONTROL DATA REPORT

Analyte:	Benzene	Toluene	Ethyl Benzene	Xylenes	MTBE
QC Batch#:	GC072999 802004A	GC072999 802004A	GC072999 802004A	GC072999 802004A	MS080199 8260S2A
Analy. Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020	EPA 8260
Prep. Method:	EPA 5030	EPA 5030	EPA 5030	EPA 5030	EPA 5030
Analyst:	J. Minkel	J. Minkel	J. Minkel	J. Minkel	N. Nelson
MS/MSD #:	9071389	9071389	9071389	9071389	9071219
Sample Conc.:	N.D.	N.D.	N.D.	N.D.	N.D.
Prepared Date:	7/29/99	7/29/99	7/29/99	7/29/99	8/1/99
Analyzed Date:	7/29/99	7/29/99	7/29/99	7/29/99	8/1/99
Instrument I.D.#:	HP-4	HP-4	HP-4	HP-4	GC/MS-2
Conc. Spiked:	20 µg/L	20 µg/L	20 µg/L	60 µg/L	50 µg/L
Result:	22	18	19	66	50
MS % Recovery:	110	90	95	110	100
Dup. Result:	22	19	19	66	50
MSD % Recov.:	110	95	95	110	100
RPD:	0.0	5.4	0.0	0.0	0.0
RPD Limit:	0-20	0-20	0-20	0-20	0-25

LCS #:	4LCS072999	4LCS072999	4LCS072999	4LCS072999	LCS080199
Prepared Date:	7/29/99	7/29/99	7/29/99	7/29/99	8/1/99
Analyzed Date:	7/29/99	7/29/99	7/29/99	7/29/99	8/1/99
Instrument I.D.#:	HP-4	HP-4	HP-4	HP-4	GC/MS-2
Conc. Spiked:	20 µg/L	20 µg/L	20 µg/L	60 µg/L	50 µg/L
LCS Result:	21	17	19	63	54
LCS % Recov.:	105	85	95	105	108

MS/MSD LCS Control Limits	70-130	70-130	70-130	70-130	70-130
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**Please Note:**

The LCS is a control sample of known, interferent-free matrix that is analyzed using the same reagents, preparation, and analytical methods employed for the samples. The matrix spike is an aliquot of sample fortified with known quantities of specific compounds and subjected to the entire analytical procedure. If the recovery of analytes from the matrix spike does not fall within specified control limits due to matrix interference, the LCS recovery is to be used to validate the batch.

\*\* MS = Matrix Spike, MSD = MS Duplicate, RPD = Relative % Difference

SEQUOIA ANALYTICAL, #1271

*Dimple Sharma*  
Dimple Sharma  
Project Manager





N<sup>o</sup> 001142

# TOSCO / 76 Products

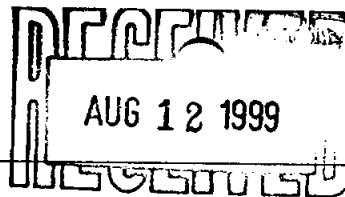
- 680 Chesapeake Drive • Redwood City, CA 94063 • (650) 364-9600 FAX (650) 364-9233
- 819 Striker Ave., Suite 8 • Sacramento, CA 95834 • (916) 921-9600 FAX (916) 921-0100
- 404 N. Wiget Lane • Walnut Creek, CA 94598 • (925) 988-9600 FAX (925) 988-9673
- 1455 McDowell Blvd. North, Suite D • Petaluma, CA 94954 • (707) 792-1865 FAX (707) 792-0342
- 1551 Industrial Road • San Carlos, CA 94070 • (650) 232-9600 FAX (650) 232-9612

Consultant Company: <u>Environmental Resolutions, Inc.</u>			Project Name: <u>TOSCO 76 6419, Tosco MTBE Study</u>		
Address: <u>73 Digital Drive, Suite 100</u>			TOSCO Engineer (required) <u>Dave Dewitt</u>		
City: <u>Novato</u>	State: <u>Ca</u>	Zip Code: <u>94949</u>	ERI # <u>23304T2</u>		<u>9907432</u>
Telephone: <u>(415) 382-9105</u>		FAX #: <u>382-1856</u>	Site #, City, State: <u>Dublin, Ca</u>		
Report To: <u>Jim Chappell</u>	Sampler: <u>John Ortega</u>		QC Data: <input checked="" type="checkbox"/> Level D (Standard) <input type="checkbox"/> Level C <input type="checkbox"/> Level B <input type="checkbox"/> Level A		
Turnaround Time: <input checked="" type="checkbox"/> 10 Work Days <input type="checkbox"/> 5 Work Days <input type="checkbox"/> 3 Work Days <input type="checkbox"/> 2 Work Days <input type="checkbox"/> 1 Work Day <input type="checkbox"/> 2-8 Hours			Analyses Requested		
CODE: <input type="checkbox"/> Misc. <input type="checkbox"/> Detect. <input type="checkbox"/> Eval. <input type="checkbox"/> Remed. <input type="checkbox"/> Demol. <input type="checkbox"/> Closure			<input type="checkbox"/> Drinking Water <input type="checkbox"/> Waste Water <input checked="" type="checkbox"/> Other		

Client Sample I.D.	Date/Time Sampled	Matrix Desc.	# of Cont.	Cont. Type	Sequoia's Sample #	TPMHg 8015	BTEX 8020	MTBE 8260	MTBE 8020	Comments
1. A-INF-mw1	7-26-99 9:00	Air	1	Tedlar	9071609	X	X	X		
2. A-INF-mw2	9:10	Air	1	↓	9071610	X	X	X		
3. A-INF-mw3	9:20	Air	1	↓	9071611	X	X	X		
4.										
5. <del>A-</del>										
6. W-6-mw1	9:00	water	4	VOA	9071612	X	X	X		<b>DUPLICATE LISTING</b> <b>5 day TAT</b> <b>for Tosco Refinery</b> <b>Profiling</b> <b>LOGGED IN</b> <b>UNDER</b> <b>9907431 7/26/99</b>
7. W-6-mw2	9:10	↓	↓	↓	9071613	X	X	X		
8. W-6-mw3	9:20	↓	↓	↓	9071614	X	X	X		
9.										
10.										

Relinquished By: <u>John Ortega</u>	Date: <u>7-26</u>	Time: <u>13:25</u>	Received By: _____	Date: _____	Time: _____
Relinquished By: _____	Date: _____	Time: _____	Received By: _____	Date: _____	Time: _____
Relinquished By: _____	Date: _____	Time: _____	Received By Lab: <u>Ronald C. Jensen WC</u>	Date: <u>7/26/99</u>	Time: <u>13:25</u>

Pink - Client  
Yellow - Sequoia  
White - Sequoia



Environmental Resolutions 74 Digital Dr, Ste 6 Novato, CA 94949 Attention: Glenn Matteucci	Client Project ID: Tosco 76 #6419 Sample Matrix: Air Analysis Method: EPA 5030/8015 Mod./8020 First Sample #: 907-1690	Sampled: Jul 26-27, 1999 Received: Jul 27, 1999 Reported: Aug 9, 1999
---	---	---

QC Batch Number: GC072999 GC072999 GC072999

**TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION**

Analyte	Reporting Limit µg/L	Sample I.D.	Sample I.D.	Sample I.D.
		907-1690 A-INF-10:30	907-1691 A-IWF-17:45	907-1692 A-IWF-07:00
Purgeable Hydrocarbons	10	420	170	240
Benzene	0.050	19	8.5	11
Toluene	0.050	2.3	0.97	1.0
Ethyl Benzene	0.050	N.D.	N.D.	N.D.
Total Xylenes	0.050	2.4	1.0	N.D.

Chromatogram Pattern:

Gasoline & Unidentified Hydrocarbons < C6	Gasoline & Unidentified Hydrocarbons < C6	Gasoline & Unidentified Hydrocarbons < C6
---	---	---

**Quality Control Data**

Report Limit Multiplication Factor:	20	10	10
Date Analyzed:	7/29/99	7/29/99	7/29/99
Instrument Identification:	HP-2	HP-2	HP-2
Surrogate Recovery, %: (QC Limits = 70-130%)	122	122	121

Purgeable Hydrocarbons are quantitated against a fresh gasoline standard.  
Analytes reported as N.D. were not detected above the stated reporting limit.

SEQUOIA ANALYTICAL, #1271

*Dimple Sharma*  
Dimple Sharma  
Project Manager





Environmental Resolutions 74 Digital Dr, Ste 6 Novato, CA 94949 Attention: Glenn Matteucci	Client Project ID: Tosco 76 #6419 Sample Matrix: Air Analysis Method: EPA 5030/8015 Mod./8020 First Sample #: 907-1690	Sampled: Jul 26-27, 1999 Received: Jul 27, 1999 Reported: Aug 9, 1999
---	---	---

QC Batch Number: GC072999 GC072999 GC072999

802002A 802002A 802002A

**TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION**

Analyte	Reporting Limit PPMV	Sample I.D. 907-1690 A-INF-10:30	Sample I.D. 907-1691 A-IWF-17:45	Sample I.D. 907-1692 A-IWF-07:00
Purgeable Hydrocarbons	2.4	100	42	59
Benzene	0.016	5.9	2.7	3.4
Toluene	0.013	0.61	0.26	0.27
Ethyl Benzene	0.012	N.D.	N.D.	N.D.
Total Xylenes	0.012	0.55	0.23	N.D.

Chromatogram Pattern:	Gasoline & Unidentified Hydrocarbons < C6	Gasoline & Unidentified Hydrocarbons < C6	Gasoline & Unidentified Hydrocarbons < C6
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**Quality Control Data**

Report Limit Multiplication Factor:	20	10	10
Date Analyzed:	7/29/99	7/29/99	7/29/99
Instrument Identification:	HP-2	HP-2	HP-2
Surrogate Recovery, %: (QC Limits = 70-130%)	122	122	121

Purgeable Hydrocarbons are quantitated against a fresh gasoline standard.  
Analytes reported as N.D. were not detected above the stated reporting limit.

SEQUOIA ANALYTICAL, #1271

*Dimple Sharma*  
Dimple Sharma  
Project Manager





Environmental Resolutions 74 Digital Dr, Ste 6 Novato, CA 94949 Attention: Glenn Matteucci	Client Project ID: Tosco 76 #6419 Sample Descript: AIR, A-INF-10:30 Analysis Method: EPA 8260 Lab Number: 907-1690	Sampled: Jul 26, 1999 Received: Jul 27, 1999 Analyzed: Jul 29, 1999 Reported: Aug 9, 1999
---	---	--

QC Batch Number: MS0729998260S2A  
Instrument ID: GC/MS-2

### MTBE by EPA 8260

Analyte	Detection Limit µg/L	Sample Results µg/L
Methyl t-Butyl Ether (MTBE).....	0.40	930

Surrogates	Control Limit %	% Recovery
Dibromofluoromethane.....	50	150
		99

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL, #1271

*D Sharma*  
Dimple Sharma  
Project Manager





Environmental Resolutions  
74 Digital Dr, Ste 6  
Novato, CA 94949  
Attention: Glenn Matteucci

Client Project ID: Tosco 76 #6419  
Sample Descript: AIR, A-IWF-17:45  
Analysis Method: EPA 8260  
Lab Number: 907-1691

Sampled: Jul 26, 1999  
Received: Jul 27, 1999  
Analyzed: Jul 29, 1999  
Reported: Aug 9, 1999

QC Batch Number: MS0729998260S2A

Instrument ID: GC/MS-2

**MTBE by EPA 8260**

Analyte	Detection Limit µg/L	Sample Results µg/L
Methyl t-Butyl Ether (MTBE).....	0.40	370

Surrogates	Control Limit %	% Recovery
Dibromofluoromethane.....	50	150
		96

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL, #1271

*D Sharma*  
Dimple Sharma  
Project Manager





Environmental Resolutions  
74 Digital Dr, Ste 6  
Novato, CA 94949  
Attention: Glenn Matteucci

Client Project ID: Tosco 76 #6419  
Sample Descript: AIR, A-IWF-07:00  
Analysis Method: EPA 8260  
Lab Number: 907-1692

Sampled: Jul 27, 1999  
Received: Jul 27, 1999  
Analyzed: Jul 29, 1999  
Reported: Aug 9, 1999

QC Batch Number: MS0729998260S2A  
Instrument ID: GC/MS-2

**MTBE by EPA 8260**

Analyte	Detection Limit µg/L	Sample Results µg/L
Methyl t-Butyl Ether (MTBE).....	0.40	1,300

Surrogates	Control Limit %	% Recovery
Dibromofluoromethane.....	50	110
	150	

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL, #1271

*D Sharma*  
Dimple Sharma  
Project Manager





Environmental Resolutions 74 Digital Dr, Ste 6 Novato, CA 94949 Attention: Glenn Matteucci	Client Project ID: Tosco 76 #6419 Sample Descript: AIR, A-INF-10:30 Analysis Method: EPA 8260 Lab Number: 907-1690	Sampled: Jul 26, 1999 Received: Jul 27, 1999 Analyzed: Jul 29, 1999 Reported: Aug 9, 1999
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QC Batch Number: MS0729998260S2A

Instrument ID: GC/MS-2

**MTBE by EPA 8260**

Analyte	Detection Limit PPMV	Sample Results PPMV
Methyl t-Butyl Ether (MTBE).....	0.11	260

Surrogates	Control Limit %	% Recovery
Dibromofluoromethane.....	50      150.....	99

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL, #1271

*D Sharma*  
Dimple Sharma  
Project Manager





Environmental Resolutions 74 Digital Dr, Ste 6 Novato, CA 94949 Attention: Glenn Matteucci	Client Project ID: Tosco 76 #6419 Sample Descript: AIR, A-IWF-17:45 Analysis Method: EPA 8260 Lab Number: 907-1691	Sampled: Jul 26, 1999 Received: Jul 27, 1999 Analyzed: Jul 29, 1999 Reported: Aug 9, 1999
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QC Batch Number: MS0729998260S2A

Instrument ID: GC/MS-2

**MTBE by EPA 8260**

Analyte	Detection Limit PPMV	Sample Results PPMV
Methyl t-Butyl Ether (MTBE).....	0.11	100

Surrogates	Control Limit %	% Recovery
Dibromofluoromethane.....	50	150
		96

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL, #1271

*Dimple Sharma*  
Dimple Sharma  
Project Manager







Environmental Resolutions  
74 Digital Dr, Ste 6  
Novato, CA 94949  
Attention: Glenn Matteucci

Client Project ID: Tosco 76 #6419  
Sample Descript: AIR, A-IWF-07:00  
Analysis Method: EPA 8260  
Lab Number: 907-1692

Sampled: Jul 27, 1999  
Received: Jul 27, 1999  
Analyzed: Jul 29, 1999  
Reported: Aug 9, 1999

QC Batch Number: MS0729998260S2A

Instrument ID: GC/MS-2

**MTBE by EPA 8260**

Analyte	Detection Limit PPMV	Sample Results PPMV
Methyl t-Butyl Ether (MTBE).....	0.11	360

Surrogates	Control Limit %	% Recovery
Dibromofluoromethane.....	50	110

Analytes reported as N.D. were not present above the stated limit of detection.

**SEQUOIA ANALYTICAL, #1271**

*Dimple Sharma*  
Dimple Sharma  
Project Manager





Environmental Resolutions  
74 Digital Dr, Ste 6  
Novato, CA 94949  
Attention: Glenn Matteucci

Client Project ID: Tosco 76 #6419  
Matrix: Vapor

QC Sample Group: 9071690-692

Reported: Aug 9, 1999

## QUALITY CONTROL DATA REPORT

Analyte:	Benzene	Toluene	Ethyl Benzene	Xylenes	MTBE
QC Batch#:	GC072999 802002A	GC072999 802002A	GC072999 802002A	GC072999 802002A	MS072999 8260S2A
Analy. Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020	EPA 8260
Prep. Method:	EPA 5030	EPA 5030	EPA 5030	EPA 5030	EPA 5030
Analyst:	J. Minkel	J. Minkel	J. Minkel	J. Minkel	N. Nelson
MS/MSD #:	100NG BTEX	100NG BTEX	100NG BTEX	100NG BTEX	-
Sample Conc.:	N.D.	N.D.	N.D.	N.D.	-
Prepared Date:	7/29/99	7/29/99	7/29/99	7/29/99	-
Analyzed Date:	7/29/99	7/29/99	7/29/99	7/29/99	-
Instrument I.D.#:	HP-2	HP-2	HP-2	HP-2	-
Conc. Spiked:	2.0 µg/L	2.0 µg/L	2.0 µg/L	6.0 µg/L	-
Result:	1.6	1.5	1.5	5.2	-
MS % Recovery:	80	75	75	87	-
Dup. Result:	1.8	1.6	1.6	5.4	-
MSD % Recov.:	90	80	80	90	-
RPD:	12	6.5	6.5	3.8	-
RPD Limit:	0-25	0-25	0-25	0-25	-

LCS #:	2LCS072999	2LCS072999	2LCS072999	2LCS072999	LCS072999
Prepared Date:	7/29/99	7/29/99	7/29/99	7/29/99	7/29/99
Analyzed Date:	7/29/99	7/29/99	7/29/99	7/29/99	7/29/99
Instrument I.D.#:	HP-2	HP-2	HP-2	HP-2	GC/MS-2
Conc. Spiked:	20 µg/L	20 µg/L	20 µg/L	60 µg/L	10 µg/L
LCS Result:	19	18	18	61	9.3
LCS % Recov.:	95	90	90	102	93

MS/MSD LCS Control Limits	70-130	70-130	70-130	70-130	70-130
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**Please Note:**

The LCS is a control sample of known, interferent-free matrix that is analyzed using the same reagents, preparation, and analytical methods employed for the samples. The matrix spike is an aliquot of sample fortified with known quantities of specific compounds and subjected to the entire analytical procedure. If the recovery of analytes from the matrix spike does not fall within specified control limits due to matrix interference, the LCS recovery is to be used to validate the batch.

\*\* MS = Matrix Spike, MSD = MS Duplicate, RPD = Relative % Difference

SEQUOIA ANALYTICAL, #1271

*Dimple Sharma*  
Dimple Sharma  
Project Manager



N<sup>o</sup> 001201

**TOSCO / 76 Products**

- 600 Chesapeake Drive • Redwood City, CA 94063 • (650) 361-3000 FAX (650) 361-3200
- 819 Striker Ave., Suite 8 • Sacramento, CA 95834 • (916) 921-9600 FAX (916) 921-0100
- 404 N. Wiget Lane • Walnut Creek, CA 94598 • (925) 988-9600 FAX (925) 988-9673
- 1455 McDowell Blvd. North, Suite D • Petaluma, CA 94954 • (707) 792-1865 FAX (707) 792-0342
- 1551 Industrial Road • San Carlos, CA 94070 • (650) 232-9600 FAX (650) 232-9612

Consultant Company: <i>Environmental Resolutions, Inc</i>			Project Name: <i>Tosco 76 #6419</i>		
Address: <i>73 Digital Drive, Suite 100</i>			TOSCO Engineer (required) <i>Dave Dewitt</i>		
City: <i>Novato</i>	State: <i>Ca</i>	Zip Code: <i>94949</i>	ERL # <i>23300472</i>		<i>9907448</i>
Telephone: <i>(415) 382-9105</i>		FAX #: <i>(415) 382-1856</i>	Site #, City, State: <i>6401 Dublin Blvd, Dublin, Ca</i>		
Report To: <i>Glenn Matteucci</i>	Sampler: <i>John Ortega</i>		QC Data: <input checked="" type="checkbox"/> Level D (Standard) <input type="checkbox"/> Level C <input type="checkbox"/> Level B <input type="checkbox"/> Level A		

Turnaround Time: <input checked="" type="checkbox"/> 10 Work Days <input type="checkbox"/> 5 Work Days <input type="checkbox"/> 3 Work Days <input type="checkbox"/> 2 Work Days <input type="checkbox"/> 1 Work Day <input type="checkbox"/> 2-8 Hours	<input type="checkbox"/> Drinking Water <input type="checkbox"/> Waste Water <input checked="" type="checkbox"/> Other	Analyses Requested
( ) DE: <input type="checkbox"/> Misc. <input type="checkbox"/> Detect. <input type="checkbox"/> Eval. <input type="checkbox"/> Remed. <input type="checkbox"/> Demol. <input type="checkbox"/> Closure		

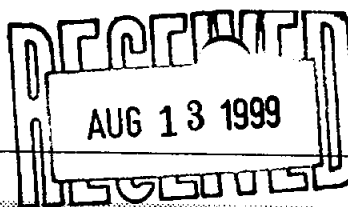
Client Sample I.D.	Date/Time Sampled	Matrix Desc.	# of Cont.	Cont. Type	Sequoia's Sample #	Analyses Requested			Comments
<i>1A- INF-10:30</i>	<i>7-26-99 10:30</i>	<i>Air</i>	<i>1</i>	<i>Tedlor</i>	<i>9071690</i>	<i>X</i>	<i>X</i>	<i>X</i>	
<i>2A- INF 1745</i>	<i>7-26-99 1745</i>	<i>Air</i>	<i>1</i>	<i>Tedlor</i>	<i>9071691</i>	<i>X</i>	<i>X</i>	<i>X</i>	
<i>3A- INF 0700</i>	<i>7-27-99 700</i>	<i>AIR</i>	<i>1</i>	<i>Tedlor</i>	<i>9071692</i>	<i>X</i>	<i>X</i>	<i>X</i>	
<i>4.</i>									
<i>5.</i>									
<i>6.</i>									
<i>7.</i>									
<i>8.</i>									
<i>9.</i>									
<i>10.</i>									

Relinquished By: <i>John Ortega</i>	Date: <i>7/27</i>	Time: <i>11:09</i>	Received By: <i>[Signature]</i>	Date: <i>7/27</i>	Time: <i>11:09</i>
Relinquished By: <i>[Signature]</i>	Date: <i>7/27</i>	Time: <i>12:25</i>	Received By: <i>[Signature]</i>	Date: <i>7/27/99</i>	Time: <i>12:25</i>
Relinquished By: <i>[Signature]</i>	Date: <i>7/27/99</i>	Time: <i>12:25</i>	Received By Lab: <i>Ronald C. Jensen INC</i>	Date: <i>7/27/99</i>	Time: <i>12:25</i>

Pink - Client

Yellow - Sequoia

White - Sequoia



Environmental Resolutions 74 Digital Dr, Ste 6 Novato, CA 94949 Attention: Jim Chappell	Client Project ID: Tosco 76 #6419 Sample Matrix: Air Analysis Method: EPA 5030/8015 Mod./8020 First Sample #: 907-1773	Sampled: Jul 27-28, 1999 Received: Jul 28, 1999 Reported: Aug 9, 1999
--	---	---

QC Batch Number: GC072999 GC072999

**TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION**

Analyte	Reporting Limit µg/L	Sample I.D. 907-1773 A-INF-1730	Sample I.D. 907-1774 A-IWF-700
Purgeable Hydrocarbons	10	100	110
Benzene	0.050	4.6	4.8
Toluene	0.050	0.36	N.D.
Ethyl Benzene	0.050	N.D.	N.D.
Total Xylenes	0.050	N.D.	N.D.

Chromatogram Pattern: Gasoline & Unidentified Hydrocarbons < C6      Gasoline & Unidentified Hydrocarbons < C6

**Quality Control Data**

Report Limit Multiplication Factor:	5.0	10
Date Analyzed:	7/30/99	7/30/99
Instrument Identification:	HP-2	HP-2
Surrogate Recovery, %: (QC Limits = 70-130%)	111	98

Purgeable Hydrocarbons are quantitated against a fresh gasoline standard.  
Analytes reported as N.D. were not detected above the stated reporting limit.

SEQUOIA ANALYTICAL, #1271

*D Sharma*  
Dimple Sharma  
Project Manager





Environmental Resolutions 74 Digital Dr, Ste 6 Novato, CA 94949 Attention: Jim Chappell	Client Project ID: Tosco 76 #6419 Sample Matrix: Air Analysis Method: EPA 5030/8015 Mod./8020 First Sample #: 907-1773	Sampled: Jul 27-28, 1999 Received: Jul 28, 1999 Reported: Aug 9, 1999
--	---	---

QC Batch Number: GC072999 GC072999

802002A 802002A

## TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

Analyte	Reporting Limit PPMV	Sample I.D. 907-1773 A-INF-1730	Sample I.D. 907-1774 A-IWF-700
Purgeable Hydrocarbons	2.4	25	27
Benzene	0.016	1.4	1.5
Toluene	0.013	0.096	N.D.
Ethyl Benzene	0.012	N.D.	N.D.
Total Xylenes	0.012	N.D.	N.D.

Chromatogram Pattern: Gasoline & Unidentified Hydrocarbons < C6      Gasoline & Unidentified Hydrocarbons < C6

### Quality Control Data

Report Limit Multiplication Factor:	5.0	10
Date Analyzed:	7/30/99	7/30/99
Instrument Identification:	HP-2	HP-2
Surrogate Recovery, %: (QC Limits = 70-130%)	111	98

Purgeable Hydrocarbons are quantitated against a fresh gasoline standard.  
Analytes reported as N.D. were not detected above the stated reporting limit.

SEQUOIA ANALYTICAL, #1271

*D Sharma*  
Dimple Sharma  
Project Manager





Environmental Resolutions 74 Digital Dr, Ste 6 Novato, CA 94949 Attention: Jim Chappell	Client Project ID: Tosco 76 #6419 Sample Descript: AIR, A-INF-1730 Analysis Method: EPA 8260 Lab Number: 907-1773	Sampled: Jul 27, 1999 Received: Jul 28, 1999 Analyzed: Jul 30, 1999 Reported: Aug 9, 1999
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QC Batch Number: MS0729998260S2A  
Instrument ID: GC/MS-2

**MTBE by EPA 8260**

Analyte	Detection Limit µg/L	Sample Results µg/L
Methyl t-Butyl Ether (MTBE).....	0.40	310

Surrogates	Control Limit %	% Recovery
Dibromofluoromethane.....	50	110

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL, #1271

*D Sharma*  
Dimple Sharma  
Project Manager





# Sequoia Analytical

404 N. Wiget Lane  
Walnut Creek, CA 94598  
(925) 988-9600  
FAX (925) 988-9673

Environmental Resolutions	Client Project ID: Tosco 76 #6419	Sampled: Jul 28, 1999
74 Digital Dr, Ste 6	Sample Descript: AIR, A-IWF-700	Received: Jul 28, 1999
Novato, CA 94949	Analysis Method: EPA 8260	Analyzed: Jul 30, 1999
Attention: Jim Chappell	Lab Number: 907-1774	Reported: Aug 9, 1999

QC Batch Number: MS0729998260S2A

Instrument ID: GC/MS-2

## MTBE by EPA 8260

Analyte	Detection Limit µg/L	Sample Results µg/L
Methyl t-Butyl Ether (MTBE).....	0.40	93

Surrogates	Control Limit %	% Recovery
Dibromofluoromethane.....	50	150
		99



# Sequoia Analytical

404 N. Wiget Lane  
Walnut Creek, CA 94598  
(925) 988-9600  
FAX (925) 988-9673

Environmental Resolutions 74 Digital Dr, Ste 6 Novato, CA 94949 Attention: Jim Chappell	Client Project ID: Tosco 76 #6419 Sample Descript: AIR, A-INF-1730 Analysis Method: EPA 8260 Lab Number: 907-1773	Sampled: Jul 27, 1999 Received: Jul 28, 1999 Analyzed: Jul 30, 1999 Reported: Aug 9, 1999
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QC Batch Number: MS0729998260S2A

Instrument ID: GC/MS-2

## MTBE by EPA 8260

Analyte	Detection Limit PPMV	Sample Results PPMV
Methyl t-Butyl Ether (MTBE).....	0.11	86

Surrogates	Control Limit %	% Recovery
Dibromofluoromethane.....	50	110





Environmental Resolutions  
74 Digital Dr, Ste 6  
Novato, CA 94949  
Attention: Jim Chappell

Client Project ID: Tosco 76 #6419  
Sample Descript: AIR, A-IWF-700  
Analysis Method: EPA 8260  
Lab Number: 907-1774

Sampled: Jul 28, 1999  
Received: Jul 28, 1999  
Analyzed: Jul 30, 1999  
Reported: Aug 9, 1999

QC Batch Number: MS0729998260S2A

Instrument ID: GC/MS-2

**MTBE by EPA 8260**

Analyte	Detection Limit PPMV	Sample Results PPMV
Methyl t-Butyl Ether (MTBE).....	0.11	26

Surrogates	Control Limit %	% Recovery
Dibromofluoromethane.....	50	150
		99

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL, #1271

*D Sharma*  
Dimple Sharma  
Project Manager





Environmental Resolutions  
74 Digital Dr, Ste 6  
Novato, CA 94949  
Attention: Jim Chappell

Client Project ID: Tosco 76 #6419  
Matrix: Vapor

QC Sample Group: 9071773-774

Reported: Aug 9, 1999

**QUALITY CONTROL DATA REPORT**

Analyte:	Benzene	Toluene	Ethyl Benzene	Xylenes	MTBE
QC Batch#:	GC072999	GC072999	GC072999	GC072999	MS072999
	802002A	802002A	802002A	802002A	8260S2A
Analy. Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020	EPA 8260
Prep. Method:	EPA 5030	EPA 5030	EPA 5030	EPA 5030	EPA 5030
Analyst:	J. Minkel	J. Minkel	J. Minkel	J. Minkel	N. Nelson
MS/MSD #:	100NG BTEX	100NG BTEX	100NG BTEX	100NG BTEX	-
Sample Conc.:	N.D.	N.D.	N.D.	7.1 µg/L	-
Prepared Date:	7/29/99	7/29/99	7/29/99	7/29/99	-
Analyzed Date:	7/29/99	7/29/99	7/29/99	7/29/99	-
Instrument I.D.#:	HP-2	HP-2	HP-2	HP-2	-
Conc. Spiked:	2.0 µg/L	2.0 µg/L	2.0 µg/L	6.0 µg/L	-
Result:	1.6	1.5	1.5	5.2	-
MS % Recovery:	80	75	75	87	-
Dup. Result:	1.8	1.6	1.6	5.4	-
MSD % Recov.:	90	80	80	90	-
RPD:	11	6.5	6.5	3.8	-
RPD Limit:	0-20	0-20	0-20	0-20	-

LCS #:	2LCS073099	2LCS073099	2LCS073099	2LCS073099	LCS073099
Prepared Date:	7/30/99	7/30/99	7/30/99	7/30/99	7/30/99
Analyzed Date:	7/30/99	7/30/99	7/30/99	7/30/99	7/30/99
Instrument I.D.#:	HP-2	HP-2	HP-2	HP-2	GC/MS-2
Conc. Spiked:	20 µg/L	20 µg/L	20 µg/L	60 µg/L	10 µg/L
LCS Result:	19	17	19	58	9.2
LCS % Recov.:	95	85	95	97	92

MS/MSD LCS Control Limits	70-130	70-130	70-130	70-130	70-130
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**Please Note:**

The LCS is a control sample of known, interferent-free matrix that is analyzed using the same reagents, preparation, and analytical methods employed for the samples. The matrix spike is an aliquot of sample fortified with known quantities of specific compounds and subjected to the entire analytical procedure. If the recovery of analytes from the matrix spike does not fall within specified control limits due to matrix interference, the LCS recovery is to be used to validate the batch.

\*\* MS= Matrix Spike, MSD=MS Duplicate, RPD=Relative % Difference

SEQUOIA ANALYTICAL, #1271

*Dimple Sharma*  
Dimple Sharma  
Project Manager



NO 001143

**TOSCO / 76 Products**

- 680 Chesapeake Drive • Redwood City, CA 94063 • (650) 304-3000 FAX (650) 304-3200
- 819 Striker Ave., Suite 8 • Sacramento, CA 95834 • (916) 921-9600 FAX (916) 921-0100
- 404 N. Wiget Lane • Walnut Creek, CA 94598 • (925) 988-9600 FAX (925) 988-9673
- 1455 McDowell Blvd. North, Suite D • Petaluma, CA 94954 • (707) 792-1865 FAX (707) 792-0342
- 1551 Industrial Road • San Carlos, CA 94070 • (650) 232-9600 FAX (650) 232-9612

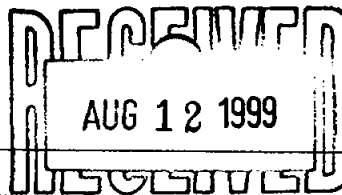
Consultant Company: <u>73 Digital Drive Suite 100</u>		Project Name: <u>Tosco 76 #6419</u>	
Address: <u>Environmental Resolutions</u>		TOSCO Engineer (required) <u>DAVE DEWITT</u>	
City: <u>Novato</u>	State: <u>CA</u>	Zip Code: <u>94949</u>	<u>FILE # 23304TZ</u> <u>9907420</u>
Telephone: <u>415 382 9105</u>		FAX #: <u>415 382 1856</u>	
Report To: <u>Jim Chappell</u>		QC Data: <input checked="" type="checkbox"/> Level D (Standard) <input type="checkbox"/> Level C <input type="checkbox"/> Level B <input type="checkbox"/> Level A	
Sampler: <u>John Ortega</u>		Site #, City, State: <u>6419 Dublin, CA</u>	

Turnaround Time: <input checked="" type="checkbox"/> 10 Work Days <input type="checkbox"/> 5 Work Days <input type="checkbox"/> 3 Work Days <input type="checkbox"/> 2 Work Days <input type="checkbox"/> 1 Work Day <input type="checkbox"/> 2-8 Hours	<input type="checkbox"/> Drinking Water <input type="checkbox"/> Waste Water <input checked="" type="checkbox"/> Other	Analyses Requested
( ) DE: <input type="checkbox"/> Misc. <input type="checkbox"/> Detect. <input type="checkbox"/> Eval. <input type="checkbox"/> Remed. <input type="checkbox"/> Demol. <input type="checkbox"/> Closure		

Client Sample I.D.	Date/Time Sampled	Matrix Desc.	# of Cont.	Cont. Type	Sequoia's Sample #	Analyses Requested				Comments
1. <del>XXXXXXXXXX</del>										
2.										
3. <u>A - INF 130</u>	<u>7/27/99</u> <u>1730</u>	<u>AIR</u>	<u>1</u>	<u>TE101R</u>	<u>9071773</u>	<u>A</u>	<u>X</u>	<u>X</u>		
4. <u>A - INF 700</u>	<u>7/28/99</u> <u>700</u>	<u>AIR</u>	<u>1</u>	<u>TE101R</u>	<u>9071774</u>	<u>X</u>	<u>X</u>	<u>X</u>		
5.										
6.										
7.										
8.										
9.										
10.										

Relinquished By: <u>John Ortega</u>	Date: <u>7/27/99</u>	Time: _____	Received By: <u>[Signature]</u>	Date: <u>7/28</u>	Time: <u>12:44</u>
Relinquished By: <u>[Signature]</u>	Date: <u>7/27</u>	Time: <u>11:45</u>	Received By: _____	Date: _____	Time: _____
Relinquished By: _____	Date: _____	Time: _____	Received By Lab: <u>Ronald C. Jensen</u>	Date: <u>7/28/99</u>	Time: <u>13:45</u>

Pink - Client  
Yellow - Sequoia  
White - Sequoia



Environmental Resolutions  
74 Digital Dr, Ste 6  
Novato, CA 94949  
Attention: Jim Chappell

Client Project ID: Tosco 76 Station 6419  
Sample Matrix: Air  
Analysis Method: EPA 5030/8015 Mod./8020  
First Sample #: 907-1803

Sampled: Jul 28, 1999  
Received: Jul 29, 1999  
Reported: Aug 10, 1999

QC Batch Number: GC072999

802002A

**TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION**

Analyte	Reporting Limit µg/L	Sample I.D. 907-1803 A-IWF-1730
Purgeable Hydrocarbons	10	72
Benzene	0.050	3.4
Toluene	0.050	N.D.
Ethyl Benzene	0.050	N.D.
Total Xylenes	0.050	N.D.

Chromatogram Pattern: Gasoline & Unidentified Hydrocarbons < C16

**Quality Control Data**

Report Limit Multiplication Factor:	1.0
Date Analyzed:	7/30/99
Instrument Identification:	HP-2
Surrogate Recovery, %: (QC Limits = 70-130%)	106

Purgeable Hydrocarbons are quantitated against a fresh gasoline standard.  
Analytes reported as N.D. were not detected above the stated reporting limit.

SEQUOIA ANALYTICAL, #1271

*Dimple Sharma*  
Dimple Sharma  
Project Manager





Environmental Resolutions 74 Digital Dr, Ste 6 Novato, CA 94949 Attention: Jim Chappell	Client Project ID: Tosco 76 Station 6419 Sample Matrix: Air Analysis Method: EPA 5030/8015 Mod./8020 First Sample #: 907-1803	Sampled: Jul 28, 1999 Received: Jul 29, 1999 Reported: Aug 10, 1999
--	--	---

QC Batch Number: GC072999

802002A

**TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION**

Analyte	Reporting Limit PPMV	Sample I.D. 907-1803 A-IWF-1730
Purgeable Hydrocarbons	2.4	18
Benzene	0.016	1.1
Toluene	0.013	N.D.
Ethyl Benzene	0.012	N.D.
Total Xylenes	0.012	N.D.

Chromatogram Pattern: Gasoline & Unidentified Hydrocarbons < C16

**Quality Control Data**

Report Limit Multiplication Factor:	1.0
Date Analyzed:	7/30/99
Instrument Identification:	HP-2
Surrogate Recovery, %: (QC Limits = 70-130%)	106

Purgeable Hydrocarbons are quantitated against a fresh gasoline standard.  
Analytes reported as N.D. were not detected above the stated reporting limit.

SEQUOIA ANALYTICAL, #1271

*D Sharma*  
Dimple Sharma  
Project Manager





Environmental Resolutions  
74 Digital Dr, Ste 6  
Novato, CA 94949  
Attention: Jim Chappell

Client Project ID: Tosco 76 Station 6419  
Sample Descript: AIR, A-IWF-1730\*  
Analysis Method: EPA 8260  
Lab Number: 907-1803

Sampled: Jul 28, 1999  
Received: Jul 29, 1999  
Analyzed: Aug 1, 1999  
Reported: Aug 10, 1999

QC Batch Number: MS0729998260S2A  
Instrument ID: GC/MS-2

**MTBE by EPA 8260**

Analyte	Detection Limit µg/L	Sample Results µg/L
Methyl t-Butyl Ether (MTBE).....	0.40	83

Surrogates	Control Limit %	% Recovery
Dibromofluoromethane.....	50	150
		96

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL, #1271

*D Sharma*  
Dimple Sharma  
Project Manager

Please Note:  
\*Sample was analyzed past one day after recommended holding time has elapsed.





Environmental Resolutions 74 Digital Dr, Ste 6 Novato, CA 94949 Attention: Jim Chappell	Client Project ID: Tosco 76 Station 6419 Sample Descript: AIR, A-IWF-1730* Analysis Method: EPA 8260 Lab Number: 907-1803	Sampled: Jul 28, 1999 Received: Jul 29, 1999 Analyzed: Aug 1, 1999 Reported: Aug 10, 1999
--	--	--

QC Batch Number: MS0729998260S2A

Instrument ID: GC/MS-2

**MTBE by EPA 8260**

Analyte	Detection Limit PPMV	Sample Results PPMV
Methyl t-Butyl Ether (MTBE).....	0.11	23

Surrogates	Control Limit %	% Recovery
Dibromofluoromethane.....	50	150
		96

Analytes reported as N.D. were not present above the stated limit of detection.

**SEQUOIA ANALYTICAL, #1271**

*D Sharma*  
Dimple Sharma  
Project Manager

Please Note:

\*Sample was analyzed past one day after recommended holding time has elapsed.





Environmental Resolutions  
74 Digital Dr, Ste 6  
Novato, CA 94949  
Attention: Jim Chappell

Client Project ID: Tosco 76 Station 6419  
Matrix: Vapor

QC Sample Group: 907-1803

Reported: Aug 10, 1999

## QUALITY CONTROL DATA REPORT

Analyte:	Benzene	Toluene	Ethyl Benzene	Xylenes	MTBE
QC Batch#:	GC072999 802002A	GC072999 802002A	GC072999 802002A	GC072999 802002A	MS072999 8260S2A
Analy. Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020	EPA 8260
Prep. Method:	EPA 5030	EPA 5030	EPA 5030	EPA 5030	EPA 5030
Analyst:	J. Minkel	J. Minkel	J. Minkel	J. Minkel	N. Nelson
MS/MSD #:	100NG BTEX	100NG BTEX	100NG BTEX	100NG BTEX	-
Sample Conc.:	N.D.	N.D.	N.D.	N.D.	-
Prepared Date:	7/29/99	7/29/99	7/29/99	7/29/99	-
Analyzed Date:	7/29/99	7/29/99	7/29/99	7/29/99	-
Instrument I.D.#:	HP-2	HP-2	HP-2	HP-2	-
Conc. Spiked:	2.0 µg/L	2.0 µg/L	2.0 µg/L	60 µg/L	-
Result:	1.6	1.5	1.5	5.2	-
MS % Recovery:	80	75	75	87	-
Dup. Result:	1.8	1.6	1.6	5.4	-
MSD % Recov.:	90	80	80	90	-
RPD:	12	6.5	6.5	3.8	-
RPD Limit:	0-25	0-25	0-25	0-25	-

LCS #:	2LCS073099	2LCS073099	2LCS073099	2LCS073099	LCS080199
Prepared Date:	7/30/99	7/30/99	7/30/99	7/30/99	8/1/99
Analyzed Date:	7/30/99	7/30/99	7/30/99	7/30/99	8/1/99
Instrument I.D.#:	HP-2	HP-2	HP-2	HP-2	GC/MS-2
Conc. Spiked:	20 µg/L	20 µg/L	20 µg/L	60 µg/L	10 µg/L
LCS Result:	19	17	19	58	11
LCS % Recov.:	95	85	95	97	110

MS/MSD LCS Control Limits	70-130	70-130	70-130	70-130	70-130

**Please Note:**

The LCS is a control sample of known, interferent-free matrix that is analyzed using the same reagents, preparation, and analytical methods employed for the samples. The matrix spike is an aliquot of sample fortified with known quantities of specific compounds and subjected to the entire analytical procedure. If the recovery of analytes from the matrix spike does not fall within specified control limits due to matrix interference, the LCS recovery is to be used to validate the batch.

\*\* MS=Matrix Spike, MSD=MS Duplicate, RPD=Relative % Difference

SEQUOIA ANALYTICAL, #1271

*D Sharma*  
Dimple Sharma  
Project Manager





Nº 001144

# TOSCO / 76 Products

- 680 Chesapeake Drive • Redwood City, CA 94063 • (650) 304-3000 FAX (650) 304-3200
- 819 Striker Ave., Suite 8 • Sacramento, CA 95834 • (916) 921-9600 FAX (916) 921-0100
- 404 N. Wiget Lane • Walnut Creek, CA 94598 • (925) 988-9600 FAX (925) 988-9673
- 1455 McDowell Blvd. North, Suite D • Petaluma, CA 94954 • (707) 792-1865 FAX (707) 792-0342
- 551 Industrial Road • San Carlos, CA 94070 • (650) 232-9600 FAX (650) 232-9612

Consultant Company: <u>Environmental Resolutions Inc.</u>		Project Name: <u>Tosco 76 STATION 6419</u>	
Address: <u>73 Digital Drive Suite 100</u>		TOSCO Engineer (required) <u>Dave Dewitt</u>	
City: <u>Novato</u>	State: <u>CA</u>	Zip Code: <u>94949</u>	ERI # <u>23304TZ</u> <u>9907184</u>
Telephone: <u>415 382 9105</u>		FAX #: <u>415 382 1856</u>	Site #, City, State: <u>6419, Dublin, CA</u>
Report To: <u>Jim Chappell</u>	Sampler: <u>John O'Leary</u>	QC Data: <input checked="" type="checkbox"/> Level D (Standard) <input type="checkbox"/> Level C <input type="checkbox"/> Level B <input type="checkbox"/> Level A	

Turnaround Time: <input checked="" type="checkbox"/> 10 Work Days <input type="checkbox"/> 5 Work Days <input type="checkbox"/> 3 Work Days	<input type="checkbox"/> Drinking Water
<input type="checkbox"/> 2 Work Days <input type="checkbox"/> 1 Work Day <input type="checkbox"/> 2-8 Hours	<input type="checkbox"/> Waste Water
CODE: <input type="checkbox"/> Misc. <input type="checkbox"/> Detect. <input type="checkbox"/> Eval. <input type="checkbox"/> Remed. <input type="checkbox"/> Demol. <input type="checkbox"/> Closure	<input type="checkbox"/> Other

Client Sample I.D.	Date/Time Sampled	Matrix Desc.	# of Cont.	Cont. Type	Sequoia's Sample #	Analyses Requested										Comments								
1. <u>A-IWF 1730</u>	<u>7/28/99/1730</u>	<u>ACR</u>	<u>1</u>	<u>TADLOR</u>	<u>9071803</u>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
2.																								
3.																								
4.																								
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10.																								

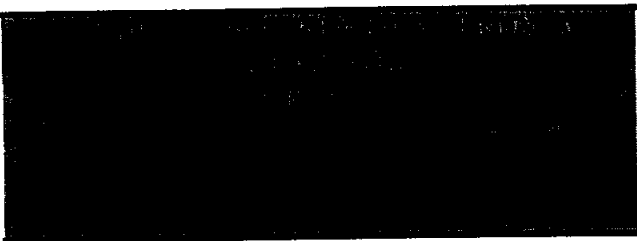
Relinquished By: <u>John O'Leary / 645</u>	Date: <u>7/29/99</u>	Time:	Received By: _____	Date: _____	Time: _____
Relinquished By: _____	Date: _____	Time: _____	Received By: _____	Date: _____	Time: _____
Relinquished By: _____	Date: _____	Time: _____	Received By Lab: <u>ADAMS</u>	Date: <u>7/29/99</u>	Time: <u>645</u>

Pink - Client  
Yellow - Sequoia  
White - Sequoia

**ATTACHMENT B**

**SOP-25**

**HYDROCARBON REMOVAL FROM A VADOSE WELL**



## POUNDS OF HYDROCARBON IN A VAPOR STREAM

### INPUT DATA:

- 1) Vapor flow rate acfm (usually by Pitot tube)
- 2) Vapor pressure at the flow measuring device (in inches of H<sub>2</sub>O) (use {-} for vacuum)
- 3) Vapor temperature at the flow measuring device.
- 4) Hydrocarbon content of vapor (usually in mg/M<sup>3</sup>) for ppmv you need molecular weight.
- 5) Length of time (usually hours) over which flow rate occurred)

From periodic measurements, a calculation of total pounds of hydrocarbons removed from a well or from a system are calculated. The input data listed above are measured at a point in time. To calculate quantities removed, some assumptions must be made about what was happening between measurements. The following assumptions will be used for the sake of consistency:

### ASSUMPTIONS:

- 1) Vapor flow for the period equals the average of the initial and final reading for the period.
- 2) Pressure and temperature for the entire period will be the final reading.
- 3) Hydrocarbon concentration for the period equals the average of the initial and final reading.
- 4) The hours of operation can be taken from an hour meter, an electric meter or will be assumed to be equal to the time between measurements.
- 5) If the unit is found down - try to determine how many hours it did operate and use the data taken for the previous period to make the calculations. Restart the unit and then take data to start the next period.

### SAMPLE DATA AND CALCULATIONS

Date	Time	Temp deg F	Press in H <sub>2</sub> O	HC conc mg/M <sup>3</sup>	Vapor flow acfm	Calc. lb. rem.
1/6/95	11:00	70	-46	2000	120	
1/7/95	13:00	55	-50	1350	90	
1/8/95	10:00	80	-13	750	100	7.4

Calculate the pounds of hydrocarbon removed from the system during the basis period from 13:00 (1:00 pm) on the 7th to 10 am on the 8th. Pressure and temperature of the measurements (at the flow meter) must be corrected to the P and T used to report the HC concentration (which are P = 1 atm and T = 70 deg F). 1 atm = 14.7psia, 760 mm Hg, or 407 in H<sub>2</sub>O. T<sub>abs</sub> = 460 + T deg F

Hours of operation = 21, T = 80, P = -13, HC = (1350+750)/2 = 1050 mg/M<sup>3</sup>, Flow = 95

$$21 \times 60 \times 95 \times \frac{(460+70)}{(460+80)} \times \frac{(407-13)}{407} \times \frac{28.3}{1000} \times \frac{1050}{1000} \times \frac{1}{454} = 7.4 \text{ lb}$$

$$\frac{\text{hr}}{\text{basis}} \times \frac{\text{min}}{\text{hr}} \times \frac{\text{cu ft}}{\text{min}} \times T_{\text{Corr}} \times P_{\text{Corr}} \times \frac{\text{M}^3}{\text{cu ft}} \times \frac{\text{g}}{\text{M}^3} \times \frac{\text{lb}}{\text{g}} = \frac{\text{lb}}{\text{basis}}$$

$$21 \times 60 \times 95 \times 0.98 \times 0.97 \times 0.0283 \times 1.050 \times 1/454 = 7.4 \text{ lb.}$$

cumulative lbs. (the running total) = the sum of all the previous periods.

Note: If results are given in ppm, an assumption about the molecular weight of the hydrocarbon must be made to convert ppm into mg/M<sup>3</sup>. ppmv x molecular wt. /24.1 = mg/M<sup>3</sup>. (Use 102 for gasoline)