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67602

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January 15, 2000

Mr. David Bacharowski
CRWQCB - LA Region
320 West 4TH Street, Suite 200
Los Angeles, California 90013

Mr. Steven Linder
USEPA
75 Hawthorne Street
San Francisco, California 94105

SITE: 76 STATION 4357 (Former Unocal 76 Station)
11280 NATIONAL BOULEVARD
LOS ANGELES, CALIFORNIA
FILE NUMBER 96-042 (PRP SITE NUMBER 16)

RE: GROUNDWATER MONITORING REPORT
OCTOBER THROUGH DECEMBER 1999

On behalf of Tosco Corporation, Alton Geoscience submits two copies plus one electronic version of this Groundwater Monitoring Report for 76 Station 4357, located at 11280 National Boulevard, Los Angeles, California. The contents of this report include:

| | |
|---|---|
| Section 1 | Summary Data |
| Section 2 | Figures |
| Section 3 | Tables |
| Section 4 | General Field Procedures and Field Data Sheets |
| Section 5 | Official Laboratory Reports |
| Section 6 | Manifest |

If you have any questions or comments concerning this report, please contact Ms. Liz Sewell (714-428-7720) of Tosco Corporation.

Sincerely,

ALTON GEOSCIENCE

REGISTERED GEOLOGIST
JOHN GILBERT FRY
NO. 5678
STATE OF CALIFORNIA

Gil Fry, RG
Principal

cc: Ms. Denise Kruger, Southern California Water Company (2 copies plus one disc)
Mr. Rey Rodriguez, $H_2O$ $R^2$ Consultants (2 copies plus one disc)
Mr. Gilbert Borboa, Utilities Division, City of Santa Monica (1 copy)
Mr. Gino Bianchi-Mosquera, Geomatrix Consultants (1 copy)
Mr. Mike Bryan, Tosco Corporation (1 copy)
Mr. Jeff Dill, Tosco Corporation (1 copy)
Ms. Liz Sewell, Tosco Corporation (1 copy)
Mr. George Linkletter, Environ Corporation (1 copy)

20-0368/4357R10.QMS.DOC

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# SUMMARY DATA
## October through December 1999

**SITE INFORMATION**

| | |
|---|---|
| **76 Station 4357 (Former Unocal 76 Station)**<br>**11280 National Boulevard**<br>**Los Angeles, California** | Lead Agency: USEPA<br>RWQCB, Los Angeles<br>Agency Case Number: 96-042, PRP No. 16<br>Alton Project Number: 20-0368 |

**OVERVIEW**

| | |
|---|---|
| Reporting period: October 1 to December 31, 1999<br>Sampling consultant: Alton Geoscience | Groundwater wells onsite: 3 |

**FIELD ACTIVITIES**

| | |
|---|---|
| Groundwater gauging date(s): | October 26, November 22, and December 28, 1999 |
| Groundwater sampling date(s): | October 28, 1999 |
| Groundwater wells monitored: | 3 |
| Groundwater wells sampled: | 3 |
| Purging method: | Submersible pump |
| Total gallons disposed: | 165 |
| Treatment/disposal facility: | Crosby and Overton, Long Beach, CA |

**LABORATORY ANALYSIS**

Groundwater samples were submitted to a state-certified laboratory for the following analyses:

- TPH-G using EPA Method 8015 modified for gasoline;
- BTEX, MTBE, DIPE, TAME, ETBE, t-butanol using EPA Method 8260A.

**ADDITIONAL INFORMATION**

All field activities were performed under the purview of a registered professional.

**FINDINGS - SITE HYDROGEOLOGY (October 26, 1999)**

| | |
|---|---|
| Min depth to groundwater (fbg) : | 114.58 |
| Max depth to groundwater (fbg): | 116.34 |
| Average gw elevation (ft relative to mean sea level): | 8.19 |
| Average change in gw elevations since 7/26/99 (ft): | +1.49 |
| Groundwater wells with free product: | 0 |
| Groundwater gradient and flow direction (and date): | 0.004 ft/ft, southeast (10/99) |
| Previous gradient and/or flow direction (and date): | 0.004 ft/ft, east (7/99) |

**FINDINGS - ANALYTICAL RESULTS (October 28, 1999)**

| | | | |
|---|---|---|---|
| Wells with benzene concentrations below MCL: | 0 | Min MTBE concentration (μg/L): | ND<2.0 |
| Wells with benzene concentrations at or above MCL: | 3 | Max MTBE concentration (μg/L): | ND<2.0 |
| Min benzene concentration (μg/L): | $1.5^J$ | Min TPH-G concentration (μg/L): | $12^J$ |
| Max benzene concentration (μg/L): | 4.9 | Max TPH-G concentration (μg/L): | $37^J$ |

**CONCLUSIONS**

- No concentrations of MTBE, DIPE, TAME, ETBE, or t-butanol were detected during the October 1999 sampling event.
- The tops of the screen intervals in Wells MW-1, MW-2 and MW-3 were below the static groundwater level during this quarter's gauging events.
- Additional gauging and sampling events will be performed as directed by the agencies.

# SUMMARY DATA
## October through December 1999

### ABBREVIATIONS AND NOTES

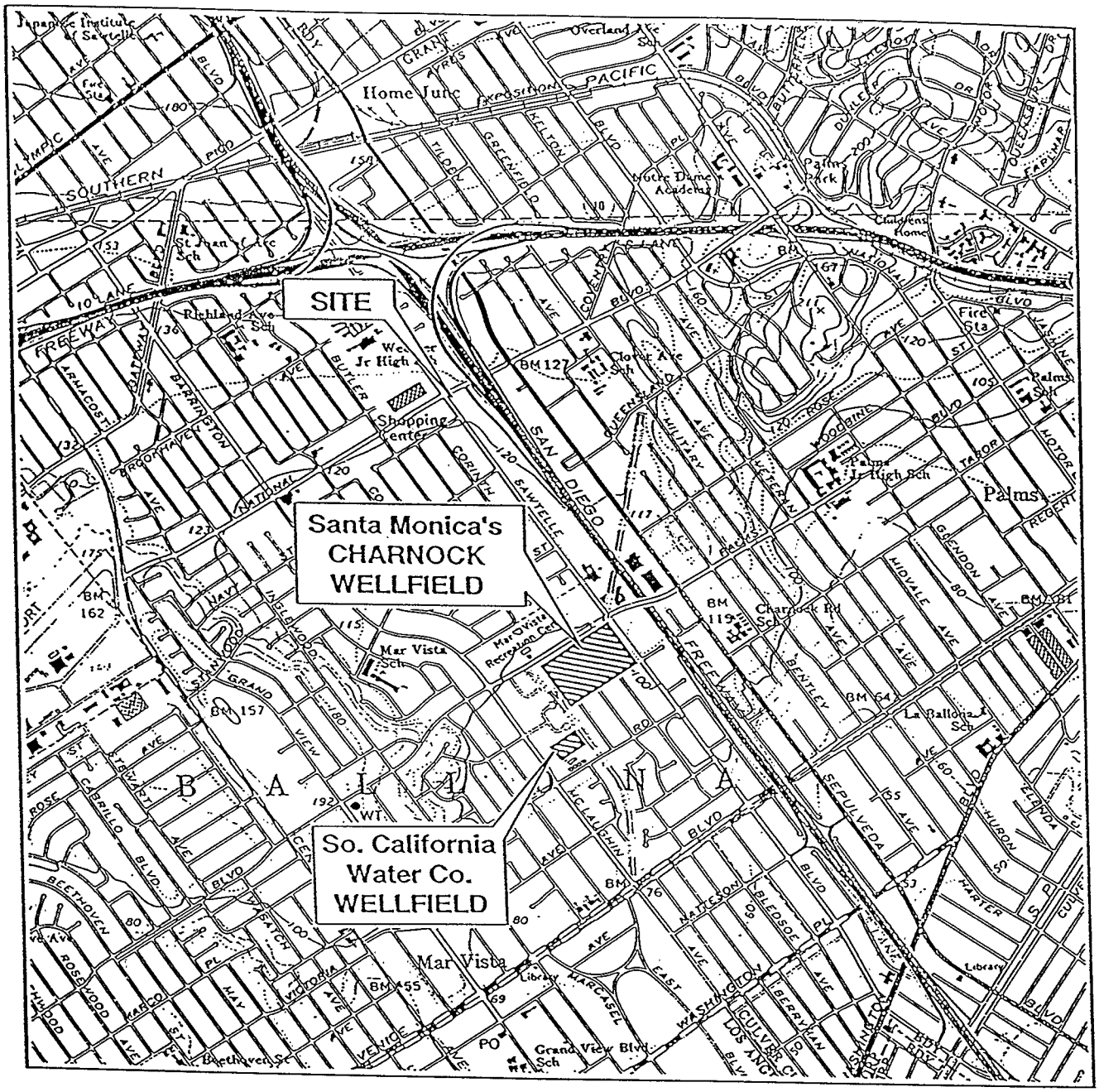
| | | |
|---|---|---|
| USEPA | = | United States Environmental Protection Agency |
| RWQCB | = | Regional Water Quality Control Board |
| UST | = | underground storage tank |
| NA | = | not applicable |
| ND | = | not detected at laboratory detection limits indicated in official laboratory report |
| MDL | = | method detection limit |
| PQL | = | practical quantitation limit |
| MCL | = | maximum contaminant level |
| LPH | = | liquid phase hydrocarbons |
| TPH-G | = | total petroleum hydrocarbons with gasoline distinction |
| BTEX | = | benzene, toluene, ethylbenzene, and total xylenes |
| DIPE | = | di-isopropyl ether |
| ETBE | = | ethyl tertiary butyl ether |
| MTBE | = | methyl tertiary butyl ether |
| TAME | = | tertiary-amyl methyl ether |
| t-butanol | = | tertiary butanol |
| ft | = | feet |
| max | = | maximum |
| min | = | minimum |
| gw | = | groundwater |
| gal | = | gallon |
| mg/L | = | micrograms per liter |
| fbg | = | feet below grade |

MCL for benzene = 1.0 μg/L.
Elevations are in feet above mean sea level (NGVD-1929).
Groundwater elevation for wells with LPH is calculated as follows:
Surface elevation - depth to water + (0.75 x LPH thickness).
J = Estimated concentration above the MDL and below the PQL.

### STATEMENT OF LIMITATIONS

The activities summarized in this report have been conducted in accordance with current practice and the standard of care exercised by geologists and engineers performing similar tasks in this area. No warranty, express or implied, is made regarding the conclusions and professional opinions presented in this report. The findings and conclusions are based solely upon an analysis of observed conditions. If actual conditions differ from those described in this report, our office should be notified.

# 2.0

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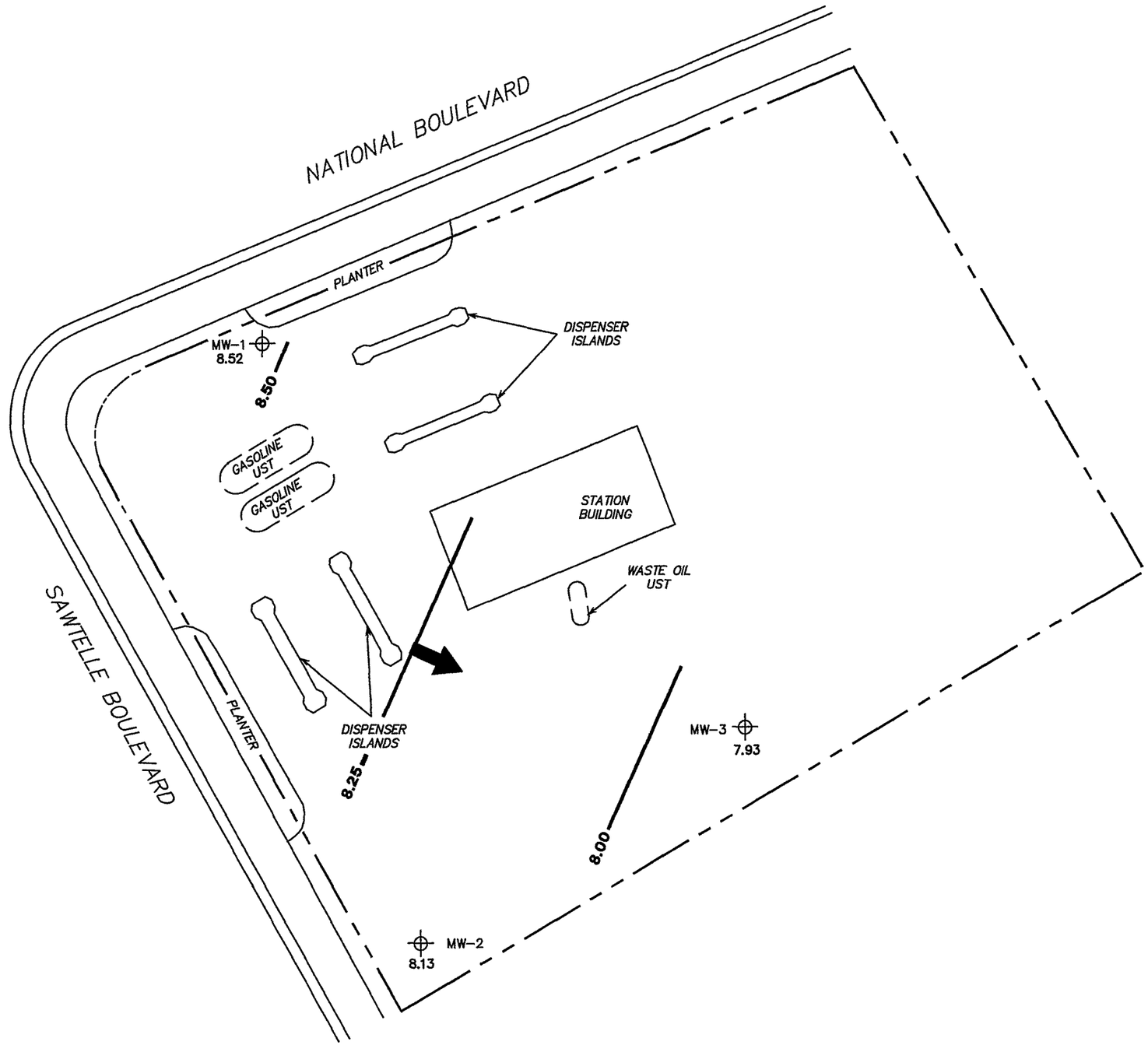
SOURCE:
United States Geological Survey
7.5 Minute Topographic Map:
Beverly Hills Quadrangle

VICINITY MAP

76 Station 4357
(Former Unocal 76 Station)
11280 National Boulevard
Los Angeles, California

ALTON
GEOSCIENCE
Irvine, California

FIGURE 1

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LEGEND

MW-3 Monitoring Well with Groundwater Elevation (feet)

8.00 Groundwater Elevation Contour (Contour Interval = 0.20 foot)

General Direction of Groundwater Flow

SCALE (FEET)

0 30

NOTES:

Contour lines are interpretive based on fluid levels measured in wells. Elevations are in feet above mean sea level. UST = underground storage tank.

**GROUNDWATER ELEVATION CONTOUR MAP**
**October 26, 1999**

76 Station 4357
(Former Unocal 76 Station)
11280 National Boulevard
Los Angeles, California

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Irvine, California

**FIGURE 2**

PS=1:360

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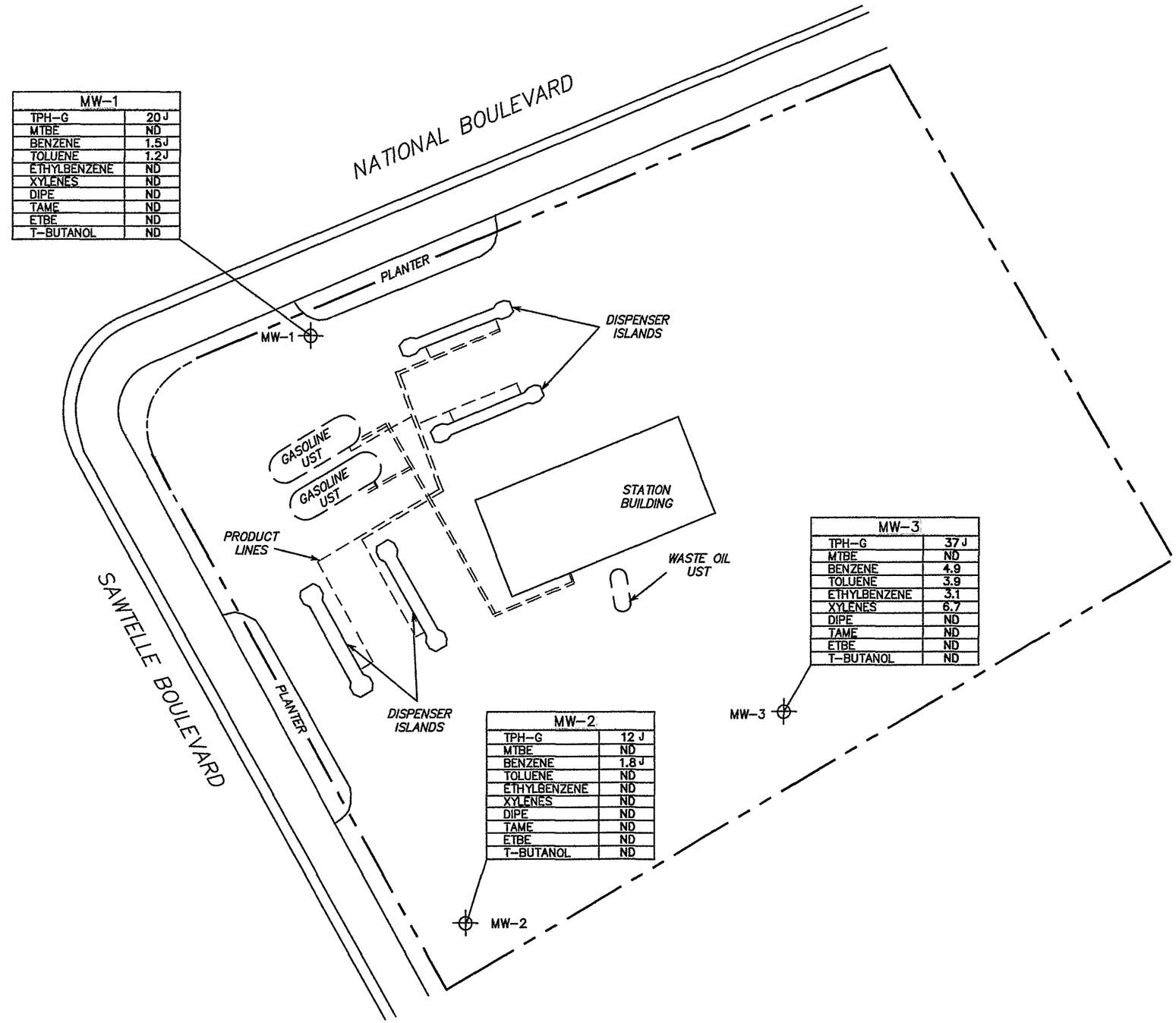


| MW-1 | |
|---|---|
| TPH-G | 20 J |
| MTBE | ND |
| BENZENE | 1.5 J |
| TOLUENE | 1.2 J |
| ETHYLBENZENE | ND |
| XYLENES | ND |
| DIPE | ND |
| TAME | ND |
| ETBE | ND |
| T-BUTANOL | ND |

| MW-2 | |
|---|---|
| TPH-G | 12 J |
| MTBE | ND |
| BENZENE | 1.8 J |
| TOLUENE | ND |
| ETHYLBENZENE | ND |
| XYLENES | ND |
| DIPE | ND |
| TAME | ND |
| ETBE | ND |
| T-BUTANOL | ND |

| MW-3 | |
|---|---|
| TPH-G | 37 J |
| MTBE | ND |
| BENZENE | 4.9 |
| TOLUENE | 3.9 |
| ETHYLBENZENE | 3.1 |
| XYLENES | 6.7 |
| DIPE | ND |
| TAME | ND |
| ETBE | ND |
| T-BUTANOL | ND |

N

LEGEND

Groundwater Monitoring Well with Dissolved-Phase Hydrocarbon Concentrations (ug/l)

| WELL NO. | |
|---|---|
| ANALYTE | RESULTS (ug/l) |

SCALE (FEET)

0 30

NOTES:

| | | |
|---|---|---|
| TPH-G | = | Total petroleum hydrocarbons as gasoline |
| MTBE | = | Methyl tertiary butyl ether |
| DIPE | = | di-isopropyl ether |
| TAME | = | Tertiary-amyl methyl ether |
| ETBE | = | Ethyl tertiary-butyl ether |
| ug/l | = | micrograms per liter |
| ND | = | not detected at concentrations above the Method Detection Limit (MDL) |
| UST | = | underground storage tank |
| J | = | estimated concentration, value is between the estimated quantitation limit (EQL) and MDL |

**HYDROCARBON CONCENTRATIONS IN GROUNDWATER**
**October 28, 1999**

76 Station 4357
(Former Unocal 76 Station)
11280 National Boulevard
Los Angeles, California

**ALTON GEOSCIENCE**
**Irvine, California**

**FIGURE 3**

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# 3.0

Table 1A

SUMMARY OF GROUNDWATER LEVELS
February 23, 1998 through December 28, 1999
76 Station 4357

| Sampling Date | Casing Elevation (feet) | Screen Interval (feet) | Depth to Water (feet) | LPH Thickness (feet) | Groundwater Elevation (feet) |
|---|---|---|---|---|---|
| **MW-1** | | | | | |
| 2/23/98 | 124.86 | 118.5-143.5 | 129.04 | 0.00 | -4.18 |
| 3/23/98 | 124.86 | 118.5-143.5 | 128.49 | 0.00 | -3.63 |
| 4/20/98 | 124.86 | 118.5-143.5 | 127.97 | 0.00 | -3.11 |
| 5/26/98 | 124.86 | 118.5-143.5 | 127.10 | 0.00 | -2.24 |
| 6/26/98 | 124.86 | 118.5-143.5 | 126.35 | 0.00 | -1.49 |
| 7/27/98 | 124.86 | 118.5-143.5 | 125.63 | 0.00 | -0.77 |
| 8/24/98 | 124.86 | 118.5-143.5 | 124.90 | 0.00 | -0.04 |
| 9/22/98 | 124.86 | 118.5-143.5 | 124.21 | 0.00 | 0.65 |
| 10/26/98 | 124.86 | 118.5-143.5 | 123.40 | 0.00 | 1.46 |
| 11/23/98 | 124.86 | 118.5-143.5 | 122.81 | 0.00 | 2.05 |
| 12/21/98 | 124.86 | 118.5-143.5 | 122.19 | 0.00 | 2.67 |
| 1/25/99 | 124.86 | 118.5-143.5 | 121.42 | 0.00 | 3.44 |
| 2/23/99 | 124.86 | 118.5-143.5 | 120.77 | 0.00 | 4.09 |
| 3/22/99 | 124.86 | 118.5-143.5 | 120.24 | 0.00 | 4.62 |
| 4/26/99 | 124.86 | 118.5-143.5 | 119.54 | 0.00 | 5.32 |
| 5/28/99 | 124.86 | 118.5-143.5 | 118.92 | 0.00 | 5.94 |
| 6/21/99 | 124.86 | 118.5-143.5 | 118.50 | 0.00 | 6.36 |
| 7/26/99 | 124.86 | 118.5-143.5 | 117.88 | 0.00 | 6.98 |
| 8/23/99 | 124.86 | 118.5-143.5 | 117.33 | 0.00 | 7.53 |
| 9/20/99 | 124.86 | 118.5-143.5 | 116.95 | 0.00 | 7.91 |
| 10/26/99 | 124.86 | 118.5-143.5 | 116.34 | 0.00 | 8.52 |
| 11/22/99 | 124.86 | 118.5-143.5 | 116.05 | 0.00 | 8.81 |
| 12/28/99 | 124.86 | 118.5-143.5 | 115.42 | 0.00 | 9.44 |
| **MW-2** | | | | | |
| 2/23/98 | 123.22 | 120-145 | 127.45 | 0.00 | -4.23 |
| 3/23/98 | 123.22 | 120-145 | 126.50 | 0.00 | -3.28 |
| 4/20/98 | 123.22 | 120-145 | 126.36 | 0.00 | -3.14 |
| 5/26/98 | 123.22 | 120-145 | 125.55 | 0.00 | -2.33 |
| 6/26/98 | 123.22 | 120-145 | 124.79 | 0.00 | -1.57 |
| 7/27/98 | 123.22 | 120-145 | 124.15 | 0.00 | -0.93 |
| 8/24/98 | 123.22 | 120-145 | 123.42 | 0.00 | -0.20 |
| 9/22/98 | 123.22 | 120-145 | 122.79 | 0.00 | 0.43 |
| 10/26/98 | 123.22 | 120-145 | 121.95 | 0.00 | 1.27 |
| 11/23/98 | 123.22 | 120-145 | 121.41 | 0.00 | 1.81 |
| 12/21/98 | 123.22 | 120-145 | 120.84 | 0.00 | 2.38 |
| 1/25/99 | 123.22 | 120-145 | 120.04 | 0.00 | 3.18 |
| 2/23/99 | 123.22 | 120-145 | 119.40 | 0.00 | 3.82 |
| 3/22/99 | 123.22 | 120-145 | 118.87 | 0.00 | 4.35 |
| 4/26/99 | 123.22 | 120-145 | 118.17 | 0.00 | 5.05 |
| 5/28/99 | 123.22 | 120-145 | 117.57 | 0.00 | 5.65 |
| 6/21/99 | 123.22 | 120-145 | 117.16 | 0.00 | 6.06 |
| 7/26/99 | 123.22 | 120-145 | 116.54 | 0.00 | 6.68 |
| 8/23/99 | 123.22 | 120-145 | 116.03 | 0.00 | 7.19 |
| 9/20/99 | 123.22 | 120-145 | 116.54 | 0.00 | 6.68 |
| 10/26/99 | 123.22 | 120-145 | 115.09 | 0.00 | 8.13 |
| 11/22/99 | 123.22 | 120-145 | 114.72 | 0.00 | 8.50 |
| 12/28/99 | 123.22 | 120-145 | 114.10 | 0.00 | 9.12 |

Table 1A

SUMMARY OF GROUNDWATER LEVELS
February 23, 1998 through December 28, 1999
76 Station 4357

| Sampling Date | Casing Elevation (feet) | Screen Interval (feet) | Depth to Water (feet) | LPH Thickness (feet) | Groundwater Elevation (feet) |
|---|---|---|---|---|---|
| **MW-3** | | | | | |
| 2/23/98 | 122.51 | 118-143 | 127.03 | 0.00 | -4.52 |
| 3/23/98 | 122.51 | 118-143 | 126.47 | 0.00 | -3.96 |
| 4/20/98 | 122.51 | 118-143 | 125.94 | 0.00 | -3.43 |
| 5/26/98 | 122.51 | 118-143 | 126.14 | 0.00 | -3.63 |
| 6/26/98 | 122.51 | 118-143 | 124.40 | 0.00 | -1.89 |
| 7/27/98 | 122.51 | 118-143 | 123.71 | 0.00 | -1.20 |
| 8/24/98 | 122.51 | 118-143 | 123.04 | 0.00 | -0.53 |
| 9/22/98 | 122.51 | 118-143 | 122.35 | 0.00 | 0.16 |
| 10/26/98 | 122.51 | 118-143 | 121.57 | 0.00 | 0.94 |
| 11/23/98 | 122.51 | 118-143 | 121.05 | 0.00 | 1.46 |
| 12/21/98 | 122.51 | 118-143 | 120.46 | 0.00 | 2.05 |
| 1/25/99 | 122.51 | 118-143 | 119.67 | 0.00 | 2.84 |
| 2/23/99 | 122.51 | 118-143 | 119.04 | 0.00 | 3.47 |
| 3/22/99 | 122.51 | 118-143 | 118.48 | 0.00 | 4.03 |
| 4/26/99 | 122.51 | 118-143 | 117.77 | 0.00 | 4.74 |
| 5/28/99 | 122.51 | 118-143 | 117.14 | 0.00 | 5.37 |
| 6/21/99 | 122.51 | 118-143 | 116.70 | 0.00 | 5.81 |
| 7/26/99 | 122.51 | 118-143 | 116.07 | 0.00 | 6.44 |
| 8/23/99 | 122.51 | 118-143 | 115.56 | 0.00 | 6.95 |
| 9/20/99 | 122.51 | 118-143 | 115.15 | 0.00 | 7.36 |
| 10/26/99 | 122.51 | 118-143 | 114.58 | 0.00 | 7.93 |
| 11/22/99 | 122.51 | 118-143 | 114.24 | 0.00 | 8.27 |
| 12/28/99 | 122.51 | 118-143 | 113.60 | 0.00 | 8.91 |

Notes: Elevations are in feet above mean sea level (NGVD-1929).
Groundwater elevation calculated as follows:
surface elevation - depth to water + (0.75 x LPH thickness)

LPH = liquid phase hydrocarbons

Table 1B

SUMMARY OF GROUNDWATER CHEMICAL ANALYSIS RESULTS

February 1998 through October 1999

76 Station 4357

| Well/Sample Number | Sample Date | TPH-G (µg/l) | Benzene (µg/l) | Toluene (µg/l) | Ethyl-benzene (µg/l) | o-Xylenes (µg/l) | m,p-Xylenes (µg/l) | MTBE (µg/l) | DIPE (µg/l) | TAME (µg/l) | ETBE (µg/l) | t-Butanol (µg/l) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | EPA 8015m | EPA Method 8260 (EPA Method 8020 in parentheses) | | | | | | | | | |
| MW-1 | 2/26/98 | ND<12 | ND<0.90 (0.18[J]) | ND<0.90 (ND<0.031) | ND<1.4 (ND<0.025) | ND<1.3 (ND<0.032) | ND<2.6 (ND<0.077) | ND<2.1 (ND<0.48) | ND<1.6 | ND<1.6 | ND<1.6 | ND<49 |
| | 4/24/98 | 280 | 49 | 65 | 13 | 20 | 48 | 47 | ND<2.0 | ND<2.0 | ND<2.0 | ND<50 |
| | 7/30/98 | 11[J] | ND<1.0 | ND<1.0 | ND<1.0 | ND<1.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<50 |
| | 10/28/98 | ND<10 | ND<1.0 | ND<1.0 | ND<1.0 | ND<1.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<50 |
| | 1/26/99 | ND<10 | ND<1.0 | ND<1.0 | ND<1.0 | ND<1.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<50 |
| | 4/26/99 | 61 | ND<1.0 | ND<1.0 | ND<1.0 | ND<1.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<50 |
| | 7/27/99 | 10[J] | ND<1.0 | ND<1.0 | ND<1.0 | ND<1.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<50 |
| | **10/28/99** | **20[J]** | **1.5[J]** | **1.2[J]** | **ND<1.0** | **ND<1.0** | **ND<2.0** | **ND<2.0** | **ND<2.0** | **ND<2.0** | **ND<2.0** | **ND<5.0** |
| MW-2 | 2/26/98 | ND<12 | ND<0.90 (ND<0.032) | ND<0.90 (ND<0.031) | ND<1.4 (ND<0.025) | ND<1.3 (ND<0.032) | ND<2.6 (ND<0.077) | ND<2.1 (ND<0.48) | ND<1.6 | ND<1.6 | ND<1.6 | ND<49 |
| | 4/24/98 | 62 | 8.1 | 12 | 2.6 | 3.9 | 9.7 | 7.1 | ND<2.0 | ND<2.0 | ND<2.0 | ND<50 |
| | 7/30/98 | 10[J] | ND<1.0 | ND<1.0 | ND<1.0 | ND<1.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<50 |
| | 10/28/98 | ND<10 | ND<1.0 | ND<1.0 | ND<1.0 | ND<1.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<50 |
| | 1/26/99 | ND<10 | ND<1.0 | ND<1.0 | ND<1.0 | ND<1.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<50 |
| | 4/26/99 | 11[J] | ND<1.0 | ND<1.0 | ND<1.0 | ND<1.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<50 |
| | 7/27/99 | ND<10 | ND<1.0 | ND<1.0 | ND<1.0 | ND<1.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<50 |
| | **10/28/99** | **12[J]** | **1.8[J]** | **ND<1.0** | **ND<1.0** | **ND<1.0** | **ND<2.0** | **ND<2.0** | **ND<2.0** | **ND<2.0** | **ND<2.0** | **ND<5.0** |
| MW-3 | 2/26/98 | 13[J] | ND<0.90 (0.12[J]) | ND<0.90 (0.15[J]) | ND<1.4 (ND<0.025) | ND<1.3 (0.35) | ND<2.6 (ND<0.077) | ND<2.1 (ND<0.48) | ND<1.6 | ND<1.6 | ND<1.6 | ND<49 |
| | 4/24/98 | 92 | 9.3 | 13 | 2.7 | 4.4 | 10 | 8.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<50 |
| | 7/30/98 | 21[J] | ND<1.0 | ND<1.0 | ND<1.0 | ND<1.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<50 |
| | 10/28/98 | ND<10 | ND<1.0 | ND<1.0 | ND<1.0 | ND<1.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<50 |
| | 1/26/99 | ND<10 | ND<1.0 | ND<1.0 | ND<1.0 | ND<1.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<50 |
| | 4/26/99 | 19[J] | ND<1.0 | ND<1.0 | ND<1.0 | ND<1.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<50 |
| | 7/27/99 | ND<10 | ND<1.0 | ND<1.0 | ND<1.0 | ND<1.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<50 |
| | **10/28/99** | **37[J]** | **4.9** | **3.9** | **3.1** | **2.4** | **4.3** | **ND<2.0** | **ND<2.0** | **ND<2.0** | **ND<2.0** | **ND<5.0** |

Table 1B

SUMMARY OF GROUNDWATER CHEMICAL ANALYSIS RESULTS

February 1998 through October 1999

76 Station 4357

| Well/Sample Number | Sample Date | TPH-G (µg/l) | Benzene (µg/l) | Toluene (µg/l) | Ethyl-benzene (µg/l) | o-Xylenes (µg/l) | m,p-Xylenes (µg/l) | MTBE (µg/l) | DIPE (µg/l) | TAME (µg/l) | ETBE (µg/l) | t-Butanol (µg/l) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | EPA 8015m | EPA Method 8260 (EPA Method 8020 in parentheses) | | | | | | | | | |
| **Quality Assurance/Quality Control Results** | | | | | | | | | | | | |
| **Equipment Blank** | | | | | | | | | | | | |
| Probe-Pre | 2/26/98 | ND<12 | ND<0.90 (ND<0.032) | ND<0.90 (0.033[J]) | ND<1.4 (ND<0.025) | ND<1.3 (ND<0.032) | ND<2.6 (ND<0.077) | ND<2.1 (0.53[J]) | ND<1.6 | ND<1.6 | ND<1.6 | ND<49 |
| Pump-Pre | 2/26/98 | ND<12 | ND<0.90 (0.038[J]) | ND<0.90 (0.039[J]) | ND<1.4 (ND<0.025) | ND<1.3 (ND<0.032) | ND<2.6 (ND<0.077) | ND<2.1 (ND<0.48) | ND<1.6 | ND<1.6 | ND<1.6 | ND<49 |
| Pump-Pre | 4/24/98 | 11[J] | ND<1.0 | ND<1.0 | ND<1.0 | ND<1.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<50 |
| Pump-Pre | 7/30/98 | ND<10 | ND<1.0 | ND<1.0 | ND<1.0 | ND<1.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<50 |
| Pump-Post | 7/30/98 | ND<10 | ND<1.0 | ND<1.0 | ND<1.0 | ND<1.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<50 |
| Pump-Pre | 10/28/98 | ND<10 | ND<1.0 | ND<1.0 | ND<1.0 | ND<1.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<50 |
| Pump-Post | 10/28/98 | ND<10 | ND<1.0 | ND<1.0 | ND<1.0 | ND<1.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<50 |
| Probe-Pre | 10/28/98 | ND<10 | ND<1.0 | ND<1.0 | ND<1.0 | ND<1.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<50 |
| Probe-Post | 10/28/98 | ND<10 | ND<1.0 | ND<1.0 | ND<1.0 | ND<1.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<50 |
| Pump-Pre | 1/26/99 | ND<10 | ND<1.0 | ND<1.0 | ND<1.0 | ND<1.0 | ND<2.0 | 11 | ND<2.0 | ND<2.0 | ND<2.0 | ND<50 |
| Pump-Post | 1/26/99 | ND<10 | ND<1.0 | ND<1.0 | ND<1.0 | ND<1.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<50 |
| Probe-Pre | 1/26/99 | ND<10 | ND<1.0 | ND<1.0 | ND<1.0 | ND<1.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<50 |
| Probe-Post | 1/26/99 | ND<10 | ND<1.0 | ND<1.0 | ND<1.0 | ND<1.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<50 |
| Probe-Pre | 4/26/99 | ND<10 | ND<1.0 | ND<1.0 | ND<1.0 | ND<1.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<50 |
| Probe-Post | 4/26/99 | ND<10 | ND<1.0 | ND<1.0 | ND<1.0 | ND<1.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<50 |
| Pump-Pre | 4/26/99 | ND<10 | ND<1.0 | ND<1.0 | ND<1.0 | ND<1.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<50 |
| Pump-Post | 4/26/99 | ND<10 | ND<1.0 | ND<1.0 | ND<1.0 | ND<1.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<50 |
| Probe-Pre | 7/27/99 | ND<10 | ND<1.0 | ND<1.0 | ND<1.0 | ND<1.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<50 |
| Probe-Post | 7/27/99 | ND<10 | ND<1.0 | ND<1.0 | ND<1.0 | ND<1.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<50 |
| Pump-Pre | 7/27/99 | ND<10 | ND<1.0 | ND<1.0 | ND<1.0 | ND<1.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<50 |
| Pump-Post | 7/27/99 | ND<10 | ND<1.0 | ND<1.0 | ND<1.0 | ND<1.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<50 |

Table 1B

SUMMARY OF GROUNDWATER CHEMICAL ANALYSIS RESULTS

February 1998 through October 1999

76 Station 4357

| Well/Sample Number | Sample Date | TPH-G (µg/l) | Benzene (µg/l) | Toluene (µg/l) | Ethyl-benzene (µg/l) | o-Xylenes (µg/l) | m,p-Xylenes (µg/l) | MTBE (µg/l) | DIPE (µg/l) | TAME (µg/l) | ETBE (µg/l) | t-Butanol (µg/l) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | EPA 8015m | EPA Method 8260 (EPA Method 8020 in parentheses) | | | | | | | | | |
| Probe-Pre | 10/28/99 | ND<10 | ND<1.0 | ND<1.0 | ND<1.0 | ND<1.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<5.0 |
| Probe-Post | 10/28/99 | ND<10 | ND<1.0 | ND<1.0 | ND<1.0 | ND<1.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<5.0 |
| Pump-Pre | 10/28/99 | ND<10 | ND<1.0 | ND<1.0 | ND<1.0 | ND<1.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<5.0 |
| Pump-Post | 10/28/99 | ND<10 | ND<1.0 | ND<1.0 | ND<1.0 | ND<1.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<5.0 |
| Trip Blank | 2/26/98 | ND<12 | ND<0.90 (ND<0.032) | ND<0.90 (ND<0.031) | ND<1.4 (ND<0.025) | ND<1.3 (ND<0.032) | ND<2.6 (ND<0.077) | ND<2.1 (ND<0.48) | ND<1.6 | ND<1.6 | ND<1.6 | ND<49 |
| | 4/24/98 | ND<10 | ND<1.0 | ND<1.0 | ND<1.0 | ND<1.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<50 |
| | 7/30/98 | 11[J] | ND<1.0 | ND<1.0 | ND<1.0 | ND<1.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<50 |
| | 10/28/98 | ND<10 | ND<1.0 | ND<1.0 | ND<1.0 | ND<1.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<50 |
| | 1/26/99 | ND<10 | ND<1.0 | ND<1.0 | ND<1.0 | ND<1.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<50 |
| | 4/26/99 | ND<10 | ND<1.0 | ND<1.0 | ND<1.0 | ND<1.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<50 |
| | 7/27/99 | ND<10 | ND<1.0 | ND<1.0 | ND<1.0 | ND<1.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<50 |
| | 10/28/99 | ND<10 | ND<1.0 | ND<1.0 | ND<1.0 | ND<1.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<5.0 |
| Field Blank | 2/26/98 | ND<12 | ND<0.90 (ND<0.032) | ND<0.90 (0.036[J]) | ND<1.4 (ND<0.025) | ND<1.3 (ND<0.032) | ND<2.6 (ND<0.077) | ND<2.1 (0.60[J]) | ND<1.6 | ND<1.6 | ND<1.6 | ND<49 |
| | 4/24/98 | 10[J] | ND<1.0 | ND<1.0 | ND<1.0 | ND<1.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<50 |
| | 1/26/99 | ND<10 | ND<1.0 | ND<1.0 | ND<1.0 | ND<1.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<50 |
| | 4/26/99 | ND<10 | ND<1.0 | ND<1.0 | ND<1.0 | ND<1.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<50 |
| | 7/27/99 | ND<10 | ND<1.0 | ND<1.0 | ND<1.0 | ND<1.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<50 |
| | 10/28/99 | ND<10 | ND<1.0 | ND<1.0 | ND<1.0 | ND<1.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<5.0 |

Notes:

| | | |
|---|---|---|
| TPH-G | = | total petroleum hydrocarbons with gasoline distinction |
| µg/l | = | micrograms per liter |
| MTBE | = | methyl tertiary butyl ether |
| DIPE | = | di-isopropyl ether |
| TAME | = | tertiary-amyl methyl ether |
| ETBE | = | ethyl tertiary-butyl ether |
| ND | = | non detect above the Method Detection Limit (MDL) |
| J | = | estimated concentration, value is between the Estimated Quantitation Limit (EQL) and the MDL |
| Pre | = | sample collected prior to sampling |
| Post | = | sample collected following sampling |

Table 2

SUMMARY OF WELL CONSTRUCTION DETAILS
76 Station 4357

| Well ID | Date Construction Completed | Total Depth of Well (fbg) and [Elevation MSL] | Screened Interval (fbg) and [Elevation MSL] | Well Casing Nominal Diameter (inches) | Filter Pack Interval (fbg) and [Elevation MSL] |
|---|---|---|---|---|---|
| **MW-1** | 1/27/98 | (143.5)<br>[-18.38] | (118.5 to 143.5)<br>[6.62 to -18.38] | 4 | (116 to 144)<br>[9.12 to -18.88] |
| **MW-2** | 2/4/98 | (145)<br>[-21.46] | (120 to 145)<br>[3.54 to -21.46] | 4 | (118 to 145)<br>[5.54 to -21.46] |
| **MW-3** | 2/5/98 | (143)<br>[-20.15] | (118 to 143)<br>[4.85 to -20.15] | 4 | (115 to143)<br>[7.85 to -20.15] |

Notes:
fbg = feet below grade
MSL = mean sea level

# 4.0

# GENERAL FIELD PROCEDURES

A description of the general field procedures used during site investigation and monitoring activities is presented below. For an overview of protocol, refer to the appropriate section(s).

## FLUID LEVEL MONITORING

Fluid levels are monitored in the wells using an electronic interface probe with conductance sensors. The presence of liquid-phase hydrocarbons is verified using a hydrocarbon-reactive paste. The depth to liquid-phase hydrocarbons and water is measured relative to the well box top or top of casing. Well box or casing elevations are surveyed to within 0.02 foot relative to a county or city bench mark.

## GROUNDWATER PURGING AND SAMPLING

Groundwater monitoring wells are purged and sampled in accordance with standard regulatory protocol. Typically, monitoring wells that contain no liquid-phase hydrocarbons are purged of groundwater prior to sampling so that fluids sampled are representative of fluids within the formation. Temperature, pH, and specific conductance are typically measured after each well casing volume has been removed. Purging is considered complete when these parameters vary less than 10% from the previous readings, or when four casing volumes of fluid have been removed. Samples are collected without further purging if the well does not recharge within 2 hours to 80% of its volume before purging.

The purged water is either pumped directly into a licensed vacuum truck or temporarily stored in labeled drums prior to transport to an appropriate treatment or recycling facility. If an automatic recovery system (ARS) is operating at the site, purged water may be pumped into the ARS for treatment.

Groundwater samples are collected by lowering a 1.5-inch-diameter, bottom-fill, disposable polyethylene bailer just below the static water level in the well. The samples are carefully transferred from the check-valve-equipped bailer to 1-liter and 40-milliliter glass containers. The sample containers are filled to zero headspace and fitted with Teflon-sealed caps. Each sample is labeled with the project number, well number, sample date, and sampler's initials. Samples remain chilled at approximately 4°C prior to analysis by a state-certified laboratory.

## CHAIN OF CUSTODY PROTOCOL

Chain of custody protocol is followed for all soil and groundwater samples selected for laboratory analysis. The chain of custody form(s) accompanies the samples from the sampling locality to the laboratory, providing a continuous record of possession prior to analysis.

## DECONTAMINATION

Purging and sampling equipment that could contact well fluids is either dedicated to a particular well or cleaned prior to each use in a Liqui-nox solution followed by two tap water rinses.

# FIELD MONITORING DATA SHEET

ALTON GEOSCIENCE

Technician: Thomas/Mike Job #/Task #: 20-0368-07 Date: 10-26-99 10-28-99

Site # 4357 Project Manager Gil Fry Page 1 of 1

| Well # | Grade | TOC | Total Depth | Depth to Water | Depth to Product | Product Thickness (feet) | Time Sampled | Misc. Well Notes |
|---|---|---|---|---|---|---|---|---|
| MW-1 | | X | 143.60 | 116.34 | ⊘ | ⊘ | 8:11 | T.V |
| MW-2 | | X | 144.45 | 115.09 | ⊘ | ⊘ | 7:06 | MOK |
| MW-3 | | X | 142.98 | 114.56 | ⊘ | ⊘ | 7:40 | MOK |

FIELD DATA COMPLETE ✓ QA/QC ✓ COC ✓ WELL BOX CONDITION SHEETS

WTT CERTIFICATE MANIFEST DRUM INVENTORY ✓ TRAFFIC CONTROL

Fldmon.xls 8/25/99

# GROUNDWATER SAMPLING FIELD NOTES

e: 4357 Project No.: 20-0368-07 Sampled By: Thomas/Mike Date: 10-28-99

Well No. MW-2 Purge Method: SUB
pth to Water (feet): 115.09 Depth to Product (feet): Ø
al Depth (feet) 144.45 LPH & Water Recovered (gallons): Ø
Water Column (feet): 29.36 Casing Diameter (Inches): 4"
% Recharge Depth (feet): 120.66 Well Volume (gallons): 19

| Time Start | Time Stop | Depth To Water (feet) | Volume Purged (gallons) | Conductivity (uS/cm) | Temperature (F, C) | pH |
|---|---|---|---|---|---|---|
| 6:44 | | | 19 | 1.83 | 67.0 | 7.04 |
| | | | 38 | 1.81 | 67.9 | 6.98 |
| | 6:57 | | 57 | 1.79 | 68.1 | 7.00 |
| | | | | | | |

| Static at Time Sampled | Total Purged | Time Sampled |
|---|---|---|
| 115.05 | 57 | 7:06 |

Comments: TURB# 12.0

Well No. MW-3 Purge Method: SUB
Depth to Water (feet): 114.58 Depth to Product (feet): Ø
Total Depth (feet) 142.98 LPH & Water Recovered (gallons): Ø
Water Column (feet): 28.4 Casing Diameter (Inches): 4"
80% Recharge Depth (feet): 120.26 Well Volume (gallons): 18

| Time Start | Time Stop | Depth To Water (feet) | Volume Purged (gallons) | Conductivity (uS/cm) | Temperature (F, C) | pH |
|---|---|---|---|---|---|---|
| 7:18 | | | 18 | 1.64 | 65.5 | 7.03 |
| | | | 36 | 1.68 | 66.7 | 7.05 |
| | 7:30 | | 54 | 1.71 | 67.6 | 7.00 |
| | | | | | | |

| Static at Time Sampled | Total Purged | Time Sampled |
|---|---|---|
| 114.58 | 54 | 7:40 |

Comments: TURB# 3.84

Well No. MW-1 Purge Method: SUB
Depth to Water (feet) 116.34 Depth to Product (feet): Ø
otal Depth (feet): 143.60 LPH & Water Recovered (gallons): Ø
Water Column (feet) 27.26 Casing Diameter (inches): 4"
80% Recharge Depth (feet): 121.79 1 Well Volume (gallons): 18

| Time Start | Time Stop | Depth To Water (feet) | Volume Purged (gallons) | Conductivity (uS/cm) | Temperature (F, C) | pH |
|---|---|---|---|---|---|---|
| 7:51 | | | 18 | 1.22 | 67.5 | 6.94 |
| | | | 36 | 1.31 | 68.3 | 7.03 |
| | 8:02 | | 54 | 1.35 | 68.7 | 7.04 |
| | | | | | | |

| Static at Time Sampled | Total Purged | Time Sampled |
|---|---|---|
| 116.38 | 54 | 8:11 |

Comments: TURB# 4.36

Well No._____ Purge Method:_____
Depth to Water (feet)_____ Depth to Product (feet):_____
Total Depth (feet):_____ LPH & Water Recovered (gallons):____
Water Column (feet)_____ Casing Diameter (inches):_____
80% Recharge Depth (feet):_____ 1 Well Volume (gallons):_____

| Time Start | Time Stop | Depth To Water (feet) | Volume Purged (gallons) | Conductivity (uS/cm) | Temperature (F, C) | pH |
|---|---|---|---|---|---|---|
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

| Static at Time Sampled | Total Purged | Time Sampled |
|---|---|---|
| | | |

Comments:

Well No._____ Purge Method:_____
Depth to Water (feet)_____ Depth to Product (feet):_____
Total Depth (feet):_____ LPH & Water Recovered (gallons):____
Water Column (feet)_____ Casing Diameter (inches):_____
80% Recharge Depth (feet):_____ 1 Well Volume (gallons):_____

| Time Start | Time Stop | Depth To Water (feet) | Volume Purged (gallons) | Conductivity (uS/cm) | Temperature (F, C) | pH |
|---|---|---|---|---|---|---|
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

| Static at Time Sampled | Total Purged | Time Sampled |
|---|---|---|
| | | |

Comments:

# FIELD MONITORING DATA SHEET

ALTON GEOSCIENCE

Technician: MATTW. Job #/Task #: 20-0368-07 Date: 11-22-99

Site # 4357 Project Manager GILC FRY Page 1 of 1

| Well # | Grade | TOC | Total Depth | Depth to Water | Depth to Product | Product Thickness (feet) | Time Sampled | Misc. Well Notes |
|---|---|---|---|---|---|---|---|---|
| MW-1 | | X | N/A | 116.05 | 0 | 0 | N/A | MONITOR ONLY |
| MW-2 | | ↓ | ↓ | 114.72 | ↓ | ↓ | ↓ | ↓ |
| MW-3 | | ↓ | ↓ | 114.24 | ↓ | ↓ | ↓ | ↓ |

| | | | |
|---|---|---|---|
| FIELD DATA COMPLETE | QA/QC | COC | WELL BOX CONDITION SHEETS |
| | | | |
| WTT CERTIFICATE | MANIFEST | DRUM INVENTORY | TRAFFIC CONTROL |

Fldmon.xls 8/25/99

# FIELD MONITORING DATA SHEET

ALTON GEOSCIENCE

Technician: Francis Velazquez Job #/Task #: 20-0368-07 Date: 12-28-99

Site # 4357 Project Manager Gil Fry Page 1 of 1

| Well # | Grade | TOC | Total Depth | Depth to Water | Depth to Product | Product Thickness (feet) | Time Sampled | Misc. Well Notes |
|---|---|---|---|---|---|---|---|---|
| MW-1 | | X | | 115.42 | Ø | Ø | | 4" Monitored Only |
| MW-2 | | ↓ | | 114.10 | Ø | Ø | | 4" Monitored Only |
| MW-3 | | ↓ | | 113.60 | Ø | Ø | | 4" Monitored Only |

FIELD DATA COMPLETE ✓ QA/QC COC WELL BOX CONDITION SHEETS

WTT CERTIFICATE MANIFEST DRUM INVENTORY TRAFFIC CONTROL

FLDMON.XLS 3/29/99

# 5.0

Del Mar Analytical

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# LABORATORY REPORT

Prepared For: Alton Geoscience
25A Technology Drive
Irvine, CA 92618

Attention: Gil Fry
Project: 20-0368-07
4357-Tosco-Charnock

Sampled: 10/28/99
Received: 10/28/99
Reported: 11/4/99

This laboratory report is confidential and is intended for the sole use of Del Mar Analytical and its client. This entire report was reviewed and approved for release.

CA ELAP Certificate #1197
AZ DHS Licence #AZ0428

**DEL MAR ANALYTICAL**

Fred Haley
Project Manager

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| | | |
|---|---|---|
| Alton Geoscience | Client Project ID: 20-0368-07 | Sampled: 10/28/99 |
| 25A Technology Drive | 4357-Tosco-Charnock | Received: 10/28/99 |
| Irvine, CA 92618 | Sample Descript: Water, MW-2 | Extracted: 10/29/99 |
| Attention: Gil Fry | Lab Number: IJ02876 | Reported: 11/4/99 |

## VOLATILE FUEL HYDROCARBONS (EPA 5030/CA DHS Mod. 8015)

| Analyte | Estimated* Quantitation Limit (EQL) µg/L (ppb) | Method** Detection Limit µg/L (ppb) | Sample Result µg/L (ppb) | Date Analyzed | Dilution Factor | QC Batch |
|---|---|---|---|---|---|---|
| **Volatile Fuel Hydrocarbons.....** | **50** | **10** | **12 J** | **10/29/99** | **1.0** | **IJ29141W** |
| Surrogate Recoveries (Acceptance Limits): | | | | | | |
| a,a,a-trifluorotoluene (60-135)..... | N.A. | N.A. | 79% | 10/29/99 | 1.0 | IJ29141W |

J= Estimated value. Analyte detected at a level less than the Estimated Quantitation Limit (EQL) and greater than or equal to the Method Detection Limit (MDL). The user of this data should be aware that this data is of unknown quality.
Volatile Fuel Hydrocarbons are quantitated against a gasoline standard. Hydrocarbons detected by this method range from C6 to C12.
* Estimated Quantitation Limit is equal to the lowest non-zero calibration standard used for the analysis.
** Method Detection Limit (MDL) requirements established by LA-RWQCB.

**DEL MAR ANALYTICAL (ELAP #1197)**
Fred Haley
Project Manager

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2465 W. 12th St., Suite 1, Tempe, AZ 85281 (602) 968-8272 FAX (602) 968-1338

| | | |
|---|---|---|
| Alton Geoscience | Client Project ID: 20-0368-07 | Sampled: 10/28/99 |
| 25A Technology Drive | 4357-Tosco-Charnock | Received: 10/28/99 |
| Irvine, CA 92618 | Sample Descript: Water, MW-3 | Extracted: 10/29/99 |
| Attention: Gil Fry | Lab Number: IJ02877 | Reported: 11/4/99 |

## VOLATILE FUEL HYDROCARBONS (EPA 5030/CA DHS Mod. 8015)

| Analyte | Estimated* Quantitation Limit (EQL) µg/L (ppb) | Method** Detection Limit µg/L (ppb) | Sample Result µg/L (ppb) | Date Analyzed | Dilution Factor | QC Batch |
|---|---|---|---|---|---|---|
| **Volatile Fuel Hydrocarbons.....** | **50** | **10** | **37 J** | **10/29/99** | **1.0** | **IJ29141W** |
| Surrogate Recoveries (Acceptance Limits): | | | | | | |
| a,a,a-trifluorotoluene (60-135)..... | N.A. | N.A. | 80% | 10/29/99 | 1.0 | IJ29141W |

J= Estimated value. Analyte detected at a level less than the Estimated Quantitation Limit (EQL) and greater than or equal to the Method Detection Limit (MDL). The user of this data should be aware that this data is of unknown quality.
Volatile Fuel Hydrocarbons are quantitated against a gasoline standard. Hydrocarbons detected by this method range from C6 to C12.
* Estimated Quantitation Limit is equal to the lowest non-zero calibration standard used for the analysis.
** Method Detection Limit (MDL) requirements established by LA-RWQCB.

**DEL MAR ANALYTICAL (ELAP #1197)**
Fred Haley
Project Manager

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| | | |
|---|---|---|
| Alton Geoscience | Client Project ID: 20-0368-07 | Sampled: 10/28/99 |
| 25A Technology Drive | 4357-Tosco-Charnock | Received: 10/28/99 |
| Irvine, CA 92618 | Sample Descript: Water, MW-1 | Extracted: 10/29/99 |
| Attention: Gil Fry | Lab Number: IJ02878 | Reported: 11/4/99 |

## VOLATILE FUEL HYDROCARBONS (EPA 5030/CA DHS Mod. 8015)

| Analyte | Estimated* Quantitation Limit (EQL) µg/L (ppb) | Method** Detection Limit µg/L (ppb) | Sample Result µg/L (ppb) | Date Analyzed | Dilution Factor | QC Batch |
|---|---|---|---|---|---|---|
| **Volatile Fuel Hydrocarbons.....** | **50** | **10** | **20 J** | **10/29/99** | **1.0** | **IJ29141W** |
| Surrogate Recoveries (Acceptance Limits): | | | | | | |
| a,a,a-trifluorotoluene (60-135)..... | N.A. | N.A. | 78% | 10/29/99 | 1.0 | IJ29141W |

J= Estimated value. Analyte detected at a level less than the Estimated Quantitation Limit (EQL) and greater than or equal to the Method Detection Limit (MDL). The user of this data should be aware that this data is of unknown quality.
Volatile Fuel Hydrocarbons are quantitated against a gasoline standard. Hydrocarbons detected by this method range from C6 to C12.
* Estimated Quantitation Limit is equal to the lowest non-zero calibration standard used for the analysis.
** Method Detection Limit (MDL) requirements established by LA-RWQCB.

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| | | |
|---|---|---|
| Alton Geoscience | Client Project ID: 20-0368-07 | Sampled: 10/28/99 |
| 25A Technology Drive | 4357-Tosco-Charnock | Received: 10/28/99 |
| Irvine, CA 92618 | Sample Descript: Water, Trip Blank | Extracted: 10/29/99 |
| Attention: Gil Fry | Lab Number: IJ02879 | Reported: 11/4/99 |

# VOLATILE FUEL HYDROCARBONS (EPA 5030/CA DHS Mod. 8015)

| Analyte | Estimated* Quantitation Limit (EQL) µg/L (ppb) | Method** Detection Limit µg/L (ppb) | Sample Result µg/L (ppb) | Date Analyzed | Dilution Factor | QC Batch |
|---|---|---|---|---|---|---|
| Volatile Fuel Hydrocarbons..... | 50 | 10 | < 10 | 10/29/99 | 1.0 | IJ29141W |
| Surrogate Recoveries (Acceptance Limits): | | | | | | |
| a,a,a-trifluorotoluene (60-135)..... | N.A. | N.A. | 78% | 10/29/99 | 1.0 | IJ29141W |

Volatile Fuel Hydrocarbons are quantitated against a gasoline standard. Hydrocarbons detected by this method range from C6 to C12.
* Estimated Quantitation Limit is equal to the lowest non-zero calibration standard used for the analysis.
** Method Detection Limit (MDL) requirements established by LA-RWQCB.

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| | | |
|---|---|---|
| Alton Geoscience | Client Project ID: 20-0368-07 | Sampled: 10/28/99 |
| 25A Technology Drive | 4357-Tosco-Charnock | Received: 10/28/99 |
| Irvine, CA 92618 | Sample Descript: Water, Field Blank | Extracted: 10/29/99 |
| Attention: Gil Fry | Lab Number: IJ02880 | Reported: 11/4/99 |

## VOLATILE FUEL HYDROCARBONS (EPA 5030/CA DHS Mod. 8015)

| Analyte | Estimated* Quantitation Limit (EQL) µg/L (ppb) | Method** Detection Limit µg/L (ppb) | Sample Result µg/L (ppb) | Date Analyzed | Dilution Factor | QC Batch |
|---|---|---|---|---|---|---|
| Volatile Fuel Hydrocarbons..... | 50 | 10 | < 10 | 10/29/99 | 1.0 | IJ29141W |
| Surrogate Recoveries (Acceptance Limits): | | | | | | |
| a,a,a-trifluorotoluene (60-135)..... | N.A. | N.A. | 74% | 10/29/99 | 1.0 | IJ29141W |

Volatile Fuel Hydrocarbons are quantitated against a gasoline standard. Hydrocarbons detected by this method range from C6 to C12.
* Estimated Quantitation Limit is equal to the lowest non-zero calibration standard used for the analysis.
** Method Detection Limit (MDL) requirements established by LA-RWQCB.

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| | | |
|---|---|---|
| Alton Geoscience | Client Project ID: 20-0368-07 | Sampled: 10/28/99 |
| 25A Technology Drive | 4357-Tosco-Charnock | Received: 10/28/99 |
| Irvine, CA 92618 | Sample Descript: Water, Pump-Pre | Extracted: 10/29/99 |
| Attention: Gil Fry | Lab Number: IJ02881 | Reported: 11/4/99 |

## VOLATILE FUEL HYDROCARBONS (EPA 5030/CA DHS Mod. 8015)

| Analyte | Estimated* Quantitation Limit (EQL) µg/L (ppb) | Method** Detection Limit µg/L (ppb) | Sample Result µg/L (ppb) | Date Analyzed | Dilution Factor | QC Batch |
|---|---|---|---|---|---|---|
| Volatile Fuel Hydrocarbons..... | 50 | 10 | < 10 | 10/29/99 | 1.0 | IJ29141W |
| Surrogate Recoveries (Acceptance Limits): | | | | | | |
| a,a,a-trifluorotoluene (60-135)..... | N.A. | N.A. | 77% | 10/29/99 | 1.0 | IJ29141W |

Volatile Fuel Hydrocarbons are quantitated against a gasoline standard. Hydrocarbons detected by this method range from C6 to C12.
* Estimated Quantitation Limit is equal to the lowest non-zero calibration standard used for the analysis.
** Method Detection Limit (MDL) requirements established by LA-RWQCB.

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| | | |
|---|---|---|
| Alton Geoscience | Client Project ID: 20-0368-07 | Sampled: 10/28/99 |
| 25A Technology Drive | 4357-Tosco-Charnock | Received: 10/28/99 |
| Irvine, CA 92618 | Sample Descript: Water, Pump-Post | Extracted: 10/29/99 |
| Attention: Gil Fry | Lab Number: IJ02882 | Reported: 11/4/99 |

## VOLATILE FUEL HYDROCARBONS (EPA 5030/CA DHS Mod. 8015)

| Analyte | Estimated* Quantitation Limit (EQL) µg/L (ppb) | Method** Detection Limit µg/L (ppb) | Sample Result µg/L (ppb) | Date Analyzed | Dilution Factor | QC Batch |
|---|---|---|---|---|---|---|
| Volatile Fuel Hydrocarbons..... | 50 | 10 | < 10 | 10/29/99 | 1.0 | IJ29141W |
| Surrogate Recoveries (Acceptance Limits): | | | | | | |
| a,a,a-trifluorotoluene (60-135)..... | N.A. | N.A. | 78% | 10/29/99 | 1.0 | IJ29141W |

Volatile Fuel Hydrocarbons are quantitated against a gasoline standard. Hydrocarbons detected by this method range from C6 to C12.
* Estimated Quantitation Limit is equal to the lowest non-zero calibration standard used for the analysis.
** Method Detection Limit (MDL) requirements established by LA-RWQCB.

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Alton Geoscience
25A Technology Drive
Irvine, CA 92618
Attention: Gil Fry

Client Project ID: 20-0368-07
4357-Tosco-Charnock
Sample Descript: Water, Probe-Pre
Lab Number: IJ02883

Sampled: 10/28/99
Received: 10/28/99
Extracted: 10/29/99
Reported: 11/4/99

## VOLATILE FUEL HYDROCARBONS (EPA 5030/CA DHS Mod. 8015)

| Analyte | Estimated* Quantitation Limit (EQL) µg/L (ppb) | Method** Detection Limit µg/L (ppb) | Sample Result µg/L (ppb) | Date Analyzed | Dilution Factor | QC Batch |
|---|---|---|---|---|---|---|
| Volatile Fuel Hydrocarbons..... | 50 | 10 | < 10 | 10/29/99 | 1.0 | IJ29141W |
| Surrogate Recoveries (Acceptance Limits): | | | | | | |
| a,a,a-trifluorotoluene (60-135)..... | N.A. | N.A. | 81% | 10/29/99 | 1.0 | IJ29141W |

Volatile Fuel Hydrocarbons are quantitated against a gasoline standard. Hydrocarbons detected by this method range from C6 to C12.
* Estimated Quantitation Limit is equal to the lowest non-zero calibration standard used for the analysis.
** Method Detection Limit (MDL) requirements established by LA-RWQCB.

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| | | |
|---|---|---|
| Alton Geoscience | Client Project ID: 20-0368-07 | Sampled: 10/28/99 |
| 25A Technology Drive | 4357-Tosco-Charnock | Received: 10/28/99 |
| Irvine, CA 92618 | Sample Descript: Water, Probe-Post | Extracted: 10/29/99 |
| Attention: Gil Fry | Lab Number: IJ02884 | Reported: 11/4/99 |

## VOLATILE FUEL HYDROCARBONS (EPA 5030/CA DHS Mod. 8015)

| Analyte | Estimated* Quantitation Limit (EQL) µg/L (ppb) | Method** Detection Limit µg/L (ppb) | Sample Result µg/L (ppb) | Date Analyzed | Dilution Factor | QC Batch |
|---|---|---|---|---|---|---|
| Volatile Fuel Hydrocarbons..... | 50 | 10 | < 10 | 10/29/99 | 1.0 | IJ29141W |
| Surrogate Recoveries (Acceptance Limits): | | | | | | |
| a,a,a-trifluorotoluene (60-135)..... | N.A. | N.A. | 76% | 10/29/99 | 1.0 | IJ29141W |

Volatile Fuel Hydrocarbons are quantitated against a gasoline standard. Hydrocarbons detected by this method range from C6 to C12.
* Estimated Quantitation Limit is equal to the lowest non-zero calibration standard used for the analysis.
** Method Detection Limit (MDL) requirements established by LA-RWQCB.

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2465 W. 12th St., Suite 1, Tempe, AZ 85281 (602) 968-8272 FAX (602) 968-1338

| | | |
|---|---|---|
| Alton Geoscience | Client Project ID: 20-0368-07 | Sampled: 10/28/99 |
| 25A Technology Drive | 4357-Tosco-Charnock | Received: 10/28/99 |
| Irvine, CA 92618 | Sample Descript: Water, MW-2 | Extracted: 10/31/99 |
| Attention: Gil Fry | Lab Number: IJ02876 | Reported: 11/4/99 |

## BTEX/OXYGENATES by GC/MS (EPA 8260A)

| Analyte | Estimated* Quantitation Limit (EQL) µg/L (ppb) | Method** Detection Limit µg/L (ppb) | Sample Result µg/L (ppb) | Date Analyzed | Dilution Factor | QC Batch |
|---|---|---|---|---|---|---|
| **Benzene** | **2.0** | **1.0** | **1.8 J** | **10/31/99** | **1.0** | **IJ31071W** |
| Di-isopropyl Ether | 5.0 | 2.0 | < 2.0 | 10/31/99 | 1.0 | IJ31071WO |
| Ethylbenzene | 2.0 | 1.0 | < 1.0 | 10/31/99 | 1.0 | IJ31071W |
| Ethyl tertiary-Butyl Ether | 5.0 | 2.0 | < 2.0 | 10/31/99 | 1.0 | IJ31071WO |
| Methyl tert-Butyl Ether | 5.0 | 2.0 | < 2.0 | 10/31/99 | 1.0 | IJ31071W |
| Tertiary-Amyl Methyl Ether | 5.0 | 2.0 | < 2.0 | 10/31/99 | 1.0 | IJ31071WO |
| Tertiary-butanol | 25 | 5.0 | < 5.0 | 10/31/99 | 1.0 | IJ31071WO |
| Toluene | 2.0 | 1.0 | < 1.0 | 10/31/99 | 1.0 | IJ31071W |
| o-Xylene | 2.0 | 1.0 | < 1.0 | 10/31/99 | 1.0 | IJ31071W |
| m,p-Xylenes | 4.0 | 2.0 | < 2.0 | 10/31/99 | 1.0 | IJ31071W |
| Total Xylenes | 4.0 | 2.0 | < 2.0 | 10/31/99 | 1.0 | IJ31071W |
| Surrogate Recoveries (Acceptance Limits): | | | | | | |
| 4-Bromofluorobenzene (86-115) | N.A. | N.A. | 102% | 10/31/99 | 1.0 | IJ31071W |
| Dibromofluoromethane (86-118) | N.A. | N.A. | 95% | 10/31/99 | 1.0 | IJ31071W |
| Toluene-d8 (88-110) | N.A. | N.A. | 100% | 10/31/99 | 1.0 | IJ31071W |

J= Estimated value. Analyte detected at a level less than the Estimated Quantitation Limit (EQL) and greater than or equal to the Method Detection Limit (MDL). The user of this data should be aware that this data is of unknown quality.
* Estimated Quantitation Limit is equal to the lowest non-zero calibration standard used for the analysis.
** Method Detection Limit (MDL) requirements established by LA-RWQCB.

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| | | |
|---|---|---|
| Alton Geoscience | Client Project ID: 20-0368-07 | Sampled: 10/28/99 |
| 25A Technology Drive | 4357-Tosco-Charnock | Received: 10/28/99 |
| Irvine, CA 92618 | Sample Descript: Water, MW-3 | Extracted: 10/31/99 |
| Attention: Gil Fry | Lab Number: IJ02877 | Reported: 11/4/99 |

## BTEX/OXYGENATES by GC/MS (EPA 8260A)

| Analyte | Estimated* Quantitation Limit (EQL) µg/L (ppb) | Method** Detection Limit µg/L (ppb) | Sample Result µg/L (ppb) | Date Analyzed | Dilution Factor | QC Batch |
|---|---|---|---|---|---|---|
| **Benzene** | **2.0** | **1.0** | **4.9** | **10/31/99** | **1.0** | **IJ31071W** |
| Di-isopropyl Ether | 5.0 | 2.0 | < 2.0 | 10/31/99 | 1.0 | IJ31071WO |
| **Ethylbenzene** | **2.0** | **1.0** | **3.1** | **10/31/99** | **1.0** | **IJ31071W** |
| Ethyl tertiary-Butyl Ether | 5.0 | 2.0 | < 2.0 | 10/31/99 | 1.0 | IJ31071WO |
| Methyl tert-Butyl Ether | 5.0 | 2.0 | < 2.0 | 10/31/99 | 1.0 | IJ31071W |
| Tertiary-Amyl Methyl Ether | 5.0 | 2.0 | < 2.0 | 10/31/99 | 1.0 | IJ31071WO |
| Tertiary-butanol | 25 | 5.0 | < 5.0 | 10/31/99 | 1.0 | IJ31071WO |
| **Toluene** | **2.0** | **1.0** | **3.9** | **10/31/99** | **1.0** | **IJ31071W** |
| **o-Xylene** | **2.0** | **1.0** | **2.4** | **10/31/99** | **1.0** | **IJ31071W** |
| **m,p-Xylenes** | **4.0** | **2.0** | **4.3** | **10/31/99** | **1.0** | **IJ31071W** |
| **Total Xylenes** | **4.0** | **2.0** | **6.7** | **10/31/99** | **1.0** | **IJ31071W** |
| Surrogate Recoveries (Acceptance Limits): | | | | | | |
| 4-Bromofluorobenzene (86-115) | N.A. | N.A. | 101% | 10/31/99 | 1.0 | IJ31071W |
| Dibromofluoromethane (86-118) | N.A. | N.A. | 95% | 10/31/99 | 1.0 | IJ31071W |
| Toluene-d8 (88-110) | N.A. | N.A. | 99% | 10/31/99 | 1.0 | IJ31071W |

* Estimated Quantitation Limit is equal to the lowest non-zero calibration standard used for the analysis.
** Method Detection Limit (MDL) requirements established by LA-RWQCB.

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Project Manager

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Alton Geoscience
25A Technology Drive
Irvine, CA 92618
Attention: Gil Fry

Client Project ID: 20-0368-07
4357-Tosco-Charnock
Sample Descript: Water, MW-1
Lab Number: IJ02878

Sampled: 10/28/99
Received: 10/28/99
Extracted: 10/31/99
Reported: 11/4/99

## BTEX/OXYGENATES by GC/MS (EPA 8260A)

| Analyte | Estimated* Quantitation Limit (EQL) µg/L (ppb) | Method** Detection Limit µg/L (ppb) | Sample Result µg/L (ppb) | Date Analyzed | Dilution Factor | QC Batch |
|---|---|---|---|---|---|---|
| **Benzene** | **2.0** | **1.0** | **1.5 J** | **10/31/99** | **1.0** | **IJ31071W** |
| Di-isopropyl Ether | 5.0 | 2.0 | < 2.0 | 10/31/99 | 1.0 | IJ31071WO |
| Ethylbenzene | 2.0 | 1.0 | < 1.0 | 10/31/99 | 1.0 | IJ31071W |
| Ethyl tertiary-Butyl Ether | 5.0 | 2.0 | < 2.0 | 10/31/99 | 1.0 | IJ31071WO |
| Methyl tert-Butyl Ether | 5.0 | 2.0 | < 2.0 | 10/31/99 | 1.0 | IJ31071W |
| Tertiary-Amyl Methyl Ether | 5.0 | 2.0 | < 2.0 | 10/31/99 | 1.0 | IJ31071WO |
| Tertiary-butanol | 25 | 5.0 | < 5.0 | 10/31/99 | 1.0 | IJ31071WO |
| **Toluene** | **2.0** | **1.0** | **1.2 J** | **10/31/99** | **1.0** | **IJ31071W** |
| o-Xylene | 2.0 | 1.0 | < 1.0 | 10/31/99 | 1.0 | IJ31071W |
| m,p-Xylenes | 4.0 | 2.0 | < 2.0 | 10/31/99 | 1.0 | IJ31071W |
| Total Xylenes | 4.0 | 2.0 | < 2.0 | 10/31/99 | 1.0 | IJ31071W |
| Surrogate Recoveries (Acceptance Limits): | | | | | | |
| 4-Bromofluorobenzene (86-115) | N.A. | N.A. | 100% | 10/31/99 | 1.0 | IJ31071W |
| Dibromofluoromethane (86-118) | N.A. | N.A. | 96% | 10/31/99 | 1.0 | IJ31071W |
| Toluene-d8 (88-110) | N.A. | N.A. | 98% | 10/31/99 | 1.0 | IJ31071W |

J= Estimated value. Analyte detected at a level less than the Estimated Quantitation Limit (EQL) and greater than or equal to the Method Detection Limit (MDL). The user of this data should be aware that this data is of unknown quality.
* Estimated Quantitation Limit is equal to the lowest non-zero calibration standard used for the analysis.
** Method Detection Limit (MDL) requirements established by LA-RWQCB.

**DEL MAR ANALYTICAL (ELAP #1197)**
Fred Haley
Project Manager

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Alton Geoscience
25A Technology Drive
Irvine, CA 92618
Attention: Gil Fry

Client Project ID: 20-0368-07
4357-Tosco-Charnock
Sample Descript: Water, Trip Blank
Lab Number: IJ02879

Sampled: 10/28/99
Received: 10/28/99
Extracted: 10/31/99
Reported: 11/4/99

## BTEX/OXYGENATES by GC/MS (EPA 8260A)

| Analyte | Estimated* Quantitation Limit (EQL) µg/L (ppb) | Method** Detection Limit µg/L (ppb) | Sample Result µg/L (ppb) | Date Analyzed | Dilution Factor | QC Batch |
|---|---|---|---|---|---|---|
| Benzene | 2.0 | 1.0 | < 1.0 | 10/31/99 | 1.0 | IJ31071W |
| Di-isopropyl Ether | 5.0 | 2.0 | < 2.0 | 10/31/99 | 1.0 | IJ31071WO |
| Ethylbenzene | 2.0 | 1.0 | < 1.0 | 10/31/99 | 1.0 | IJ31071W |
| Ethyl tertiary-Butyl Ether | 5.0 | 2.0 | < 2.0 | 10/31/99 | 1.0 | IJ31071WO |
| Methyl tert-Butyl Ether | 5.0 | 2.0 | < 2.0 | 10/31/99 | 1.0 | IJ31071W |
| Tertiary-Amyl Methyl Ether | 5.0 | 2.0 | < 2.0 | 10/31/99 | 1.0 | IJ31071WO |
| Tertiary-butanol | 25 | 5.0 | < 5.0 | 10/31/99 | 1.0 | IJ31071WO |
| Toluene | 2.0 | 1.0 | < 1.0 | 10/31/99 | 1.0 | IJ31071W |
| o-Xylene | 2.0 | 1.0 | < 1.0 | 10/31/99 | 1.0 | IJ31071W |
| m,p-Xylenes | 4.0 | 2.0 | < 2.0 | 10/31/99 | 1.0 | IJ31071W |
| Total Xylenes | 4.0 | 2.0 | < 2.0 | 10/31/99 | 1.0 | IJ31071W |
| Surrogate Recoveries (Acceptance Limits): | | | | | | |
| 4-Bromofluorobenzene (86-115) | N.A. | N.A. | 97% | 10/31/99 | 1.0 | IJ31071W |
| Dibromofluoromethane (86-118) | N.A. | N.A. | 96% | 10/31/99 | 1.0 | IJ31071W |
| Toluene-d8 (88-110) | N.A. | N.A. | 96% | 10/31/99 | 1.0 | IJ31071W |

* Estimated Quantitation Limit is equal to the lowest non-zero calibration standard used for the analysis.
** Method Detection Limit (MDL) requirements established by LA-RWQCB.

**DEL MAR ANALYTICAL (ELAP #1197)**
Fred Haley
Project Manager

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| | | |
|---|---|---|
| Alton Geoscience | Client Project ID: 20-0368-07 | Sampled: 10/28/99 |
| 25A Technology Drive | 4357-Tosco-Charnock | Received: 10/28/99 |
| Irvine, CA 92618 | Sample Descript: Water, Field Blank | Extracted: 10/31/99 |
| Attention: Gil Fry | Lab Number: IJ02880 | Reported: 11/4/99 |

## BTEX/OXYGENATES by GC/MS (EPA 8260A)

| Analyte | Estimated* Quantitation Limit (EQL) µg/L (ppb) | Method** Detection Limit µg/L (ppb) | Sample Result µg/L (ppb) | Date Analyzed | Dilution Factor | QC Batch |
|---|---|---|---|---|---|---|
| Benzene | 2.0 | 1.0 | < 1.0 | 10/31/99 | 1.0 | IJ31071W |
| Di-isopropyl Ether | 5.0 | 2.0 | < 2.0 | 10/31/99 | 1.0 | IJ31071WO |
| Ethylbenzene | 2.0 | 1.0 | < 1.0 | 10/31/99 | 1.0 | IJ31071W |
| Ethyl tertiary-Butyl Ether | 5.0 | 2.0 | < 2.0 | 10/31/99 | 1.0 | IJ31071WO |
| Methyl tert-Butyl Ether | 5.0 | 2.0 | < 2.0 | 10/31/99 | 1.0 | IJ31071W |
| Tertiary-Amyl Methyl Ether | 5.0 | 2.0 | < 2.0 | 10/31/99 | 1.0 | IJ31071WO |
| Tertiary-butanol | 25 | 5.0 | < 5.0 | 10/31/99 | 1.0 | IJ31071WO |
| Toluene | 2.0 | 1.0 | < 1.0 | 10/31/99 | 1.0 | IJ31071W |
| o-Xylene | 2.0 | 1.0 | < 1.0 | 10/31/99 | 1.0 | IJ31071W |
| m,p-Xylenes | 4.0 | 2.0 | < 2.0 | 10/31/99 | 1.0 | IJ31071W |
| Total Xylenes | 4.0 | 2.0 | < 2.0 | 10/31/99 | 1.0 | IJ31071W |
| Surrogate Recoveries (Acceptance Limits): | | | | | | |
| 4-Bromofluorobenzene (86-115) | N.A. | N.A. | 94% | 10/31/99 | 1.0 | IJ31071W |
| Dibromofluoromethane (86-118) | N.A. | N.A. | 96% | 10/31/99 | 1.0 | IJ31071W |
| Toluene-d8 (88-110) | N.A. | N.A. | 95% | 10/31/99 | 1.0 | IJ31071W |

* Estimated Quantitation Limit is equal to the lowest non-zero calibration standard used for the analysis.
** Method Detection Limit (MDL) requirements established by LA-RWQCB.

**DEL MAR ANALYTICAL (ELAP #1197)**
Fred Haley
Project Manager

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Alton Geoscience
25A Technology Drive
Irvine, CA 92618
Attention: Gil Fry

Client Project ID: 20-0368-07
4357-Tosco-Charnock
Sample Descript: Water, Pump-Pre
Lab Number: IJ02881

Sampled: 10/28/99
Received: 10/28/99
Extracted: 10/31/99
Reported: 11/4/99

## BTEX/OXYGENATES by GC/MS (EPA 8260A)

| Analyte | Estimated* Quantitation Limit (EQL) µg/L (ppb) | Method** Detection Limit µg/L (ppb) | Sample Result µg/L (ppb) | Date Analyzed | Dilution Factor | QC Batch |
|---|---|---|---|---|---|---|
| Benzene | 2.0 | 1.0 | < 1.0 | 10/31/99 | 1.0 | IJ31071W |
| Di-isopropyl Ether | 5.0 | 2.0 | < 2.0 | 10/31/99 | 1.0 | IJ31071WO |
| Ethylbenzene | 2.0 | 1.0 | < 1.0 | 10/31/99 | 1.0 | IJ31071W |
| Ethyl tertiary-Butyl Ether | 5.0 | 2.0 | < 2.0 | 10/31/99 | 1.0 | IJ31071WO |
| Methyl tert-Butyl Ether | 5.0 | 2.0 | < 2.0 | 10/31/99 | 1.0 | IJ31071W |
| Tertiary-Amyl Methyl Ether | 5.0 | 2.0 | < 2.0 | 10/31/99 | 1.0 | IJ31071WO |
| Tertiary-butanol | 25 | 5.0 | < 5.0 | 10/31/99 | 1.0 | IJ31071WO |
| Toluene | 2.0 | 1.0 | < 1.0 | 10/31/99 | 1.0 | IJ31071W |
| o-Xylene | 2.0 | 1.0 | < 1.0 | 10/31/99 | 1.0 | IJ31071W |
| m,p-Xylenes | 4.0 | 2.0 | < 2.0 | 10/31/99 | 1.0 | IJ31071W |
| Total Xylenes | 4.0 | 2.0 | < 2.0 | 10/31/99 | 1.0 | IJ31071W |
| Surrogate Recoveries (Acceptance Limits): | | | | | | |
| 4-Bromofluorobenzene (86-115) | N.A. | N.A. | 95% | 10/31/99 | 1.0 | IJ31071W |
| Dibromofluoromethane (86-118) | N.A. | N.A. | 100% | 10/31/99 | 1.0 | IJ31071W |
| Toluene-d8 (88-110) | N.A. | N.A. | 96% | 10/31/99 | 1.0 | IJ31071W |

* Estimated Quantitation Limit is equal to the lowest non-zero calibration standard used for the analysis.
** Method Detection Limit (MDL) requirements established by LA-RWQCB.

**DEL MAR ANALYTICAL (ELAP #1197)**
Fred Haley
Project Manager

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2465 W. 12th St., Suite 1, Tempe, AZ 85281 (602) 968-8272 FAX (602) 968-1338

| | | |
|---|---|---|
| Alton Geoscience | Client Project ID: 20-0368-07 | Sampled: 10/28/99 |
| 25A Technology Drive | 4357-Tosco-Charnock | Received: 10/28/99 |
| Irvine, CA 92618 | Sample Descript: Water, Pump-Post | Extracted: 10/31/99 |
| Attention: Gil Fry | Lab Number: IJ02882 | Reported: 11/4/99 |

## BTEX/OXYGENATES by GC/MS (EPA 8260A)

| Analyte | Estimated* Quantitation Limit (EQL) µg/L (ppb) | Method** Detection Limit µg/L (ppb) | Sample Result µg/L (ppb) | Date Analyzed | Dilution Factor | QC Batch |
|---|---|---|---|---|---|---|
| Benzene | 2.0 | 1.0 | < 1.0 | 10/31/99 | 1.0 | IJ31071W |
| Di-isopropyl Ether | 5.0 | 2.0 | < 2.0 | 10/31/99 | 1.0 | IJ31071WO |
| Ethylbenzene | 2.0 | 1.0 | < 1.0 | 10/31/99 | 1.0 | IJ31071W |
| Ethyl tertiary-Butyl Ether | 5.0 | 2.0 | < 2.0 | 10/31/99 | 1.0 | IJ31071WO |
| Methyl tert-Butyl Ether | 5.0 | 2.0 | < 2.0 | 10/31/99 | 1.0 | IJ31071W |
| Tertiary-Amyl Methyl Ether | 5.0 | 2.0 | < 2.0 | 10/31/99 | 1.0 | IJ31071WO |
| Tertiary-butanol | 25 | 5.0 | < 5.0 | 10/31/99 | 1.0 | IJ31071WO |
| Toluene | 2.0 | 1.0 | < 1.0 | 10/31/99 | 1.0 | IJ31071W |
| o-Xylene | 2.0 | 1.0 | < 1.0 | 10/31/99 | 1.0 | IJ31071W |
| m,p-Xylenes | 4.0 | 2.0 | < 2.0 | 10/31/99 | 1.0 | IJ31071W |
| Total Xylenes | 4.0 | 2.0 | < 2.0 | 10/31/99 | 1.0 | IJ31071W |
| Surrogate Recoveries (Acceptance Limits): | | | | | | |
| 4-Bromofluorobenzene (86-115) | N.A. | N.A. | 94% | 10/31/99 | 1.0 | IJ31071W |
| Dibromofluoromethane (86-118) | N.A. | N.A. | 97% | 10/31/99 | 1.0 | IJ31071W |
| Toluene-d8 (88-110) | N.A. | N.A. | 94% | 10/31/99 | 1.0 | IJ31071W |

* Estimated Quantitation Limit is equal to the lowest non-zero calibration standard used for the analysis.
** Method Detection Limit (MDL) requirements established by LA-RWQCB.

**DEL MAR ANALYTICAL (ELAP #1197)**
Fred Haley
Project Manager

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| | | |
|---|---|---|
| Alton Geoscience | Client Project ID: 20-0368-07 | Sampled: 10/28/99 |
| 25A Technology Drive | 4357-Tosco-Charnock | Received: 10/28/99 |
| Irvine, CA 92618 | Sample Descript: Water, Probe-Pre | Extracted: 11/2/99 |
| Attention: Gil Fry | Lab Number: IJ02883 | Reported: 11/4/99 |

## BTEX/OXYGENATES by GC/MS (EPA 8260A)

| Analyte | Estimated* Quantitation Limit (EQL) µg/L (ppb) | Method** Detection Limit µg/L (ppb) | Sample Result µg/L (ppb) | Date Analyzed | Dilution Factor | QC Batch |
|---|---|---|---|---|---|---|
| Benzene | 2.0 | 1.0 | < 1.0 | 11/2/99 | 1.0 | IK02071W |
| Di-isopropyl Ether | 5.0 | 2.0 | < 2.0 | 11/2/99 | 1.0 | IK02071WO |
| Ethylbenzene | 2.0 | 1.0 | < 1.0 | 11/2/99 | 1.0 | IK02071W |
| Ethyl tertiary-Butyl Ether | 5.0 | 2.0 | < 2.0 | 11/2/99 | 1.0 | IK02071WO |
| Methyl tert-Butyl Ether | 5.0 | 2.0 | < 2.0 | 11/2/99 | 1.0 | IK02071W |
| Tertiary-Amyl Methyl Ether | 5.0 | 2.0 | < 2.0 | 11/2/99 | 1.0 | IK02071WO |
| Tertiary-butanol | 25 | 5.0 | < 5.0 | 11/2/99 | 1.0 | IK02071WO |
| Toluene | 2.0 | 1.0 | < 1.0 | 11/2/99 | 1.0 | IK02071W |
| o-Xylene | 2.0 | 1.0 | < 1.0 | 11/2/99 | 1.0 | IK02071W |
| m,p-Xylenes | 4.0 | 2.0 | < 2.0 | 11/2/99 | 1.0 | IK02071W |
| Total Xylenes | 4.0 | 2.0 | < 2.0 | 11/2/99 | 1.0 | IK02071W |
| Surrogate Recoveries (Acceptance Limits): | | | | | | |
| 4-Bromofluorobenzene (86-115) | N.A. | N.A. | 98% | 11/2/99 | 1.0 | IK02071W |
| Dibromofluoromethane (86-118) | N.A. | N.A. | 95% | 11/2/99 | 1.0 | IK02071W |
| Toluene-d8 (88-110) | N.A. | N.A. | 97% | 11/2/99 | 1.0 | IK02071W |

* Estimated Quantitation Limit is equal to the lowest non-zero calibration standard used for the analysis.
** Method Detection Limit (MDL) requirements established by LA-RWQCB.

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Alton Geoscience
25A Technology Drive
Irvine, CA 92618
Attention: Gil Fry

Client Project ID: 20-0368-07
4357-Tosco-Charnock
Sample Descript: Water, Probe-Post
Lab Number: IJ02884

Sampled: 10/28/99
Received: 10/28/99
Extracted: 11/2/99
Reported: 11/4/99

## BTEX/OXYGENATES by GC/MS (EPA 8260A)

| Analyte | Estimated* Quantitation Limit (EQL) µg/L (ppb) | Method** Detection Limit µg/L (ppb) | Sample Result µg/L (ppb) | Date Analyzed | Dilution Factor | QC Batch |
|---|---|---|---|---|---|---|
| Benzene | 2.0 | 1.0 | < 1.0 | 11/2/99 | 1.0 | IK02071W |
| Di-isopropyl Ether | 5.0 | 2.0 | < 2.0 | 11/2/99 | 1.0 | IK02071WO |
| Ethylbenzene | 2.0 | 1.0 | < 1.0 | 11/2/99 | 1.0 | IK02071W |
| Ethyl tertiary-Butyl Ether | 5.0 | 2.0 | < 2.0 | 11/2/99 | 1.0 | IK02071WO |
| Methyl tert-Butyl Ether | 5.0 | 2.0 | < 2.0 | 11/2/99 | 1.0 | IK02071W |
| Tertiary-Amyl Methyl Ether | 5.0 | 2.0 | < 2.0 | 11/2/99 | 1.0 | IK02071WO |
| Tertiary-butanol | 25 | 5.0 | < 5.0 | 11/2/99 | 1.0 | IK02071WO |
| Toluene | 2.0 | 1.0 | < 1.0 | 11/2/99 | 1.0 | IK02071W |
| o-Xylene | 2.0 | 1.0 | < 1.0 | 11/2/99 | 1.0 | IK02071W |
| m,p-Xylenes | 4.0 | 2.0 | < 2.0 | 11/2/99 | 1.0 | IK02071W |
| Total Xylenes | 4.0 | 2.0 | < 2.0 | 11/2/99 | 1.0 | IK02071W |
| Surrogate Recoveries (Acceptance Limits): | | | | | | |
| 4-Bromofluorobenzene (86-115) | N.A. | N.A. | 95% | 11/2/99 | 1.0 | IK02071W |
| Dibromofluoromethane (86-118) | N.A. | N.A. | 94% | 11/2/99 | 1.0 | IK02071W |
| Toluene-d8 (88-110) | N.A. | N.A. | 97% | 11/2/99 | 1.0 | IK02071W |

* Estimated Quantitation Limit is equal to the lowest non-zero calibration standard used for the analysis.
** Method Detection Limit (MDL) requirements established by LA-RWQCB.

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Project Manager

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| | | |
|---|---|---|
| Alton Geoscience | Client Project ID: 20-0368-07 | Sampled: 10/28/99 |
| 25A Technology Drive | 4357-Tosco-Charnock | Received: 10/28/99 |
| Irvine, CA 92618 | Sample Descript: Water, MW-2 | Analyzed: 10/28/99 |
| Attention: Gil Fry | First Sample #: IJ02876 | Reported: 11/4/99 |

## LABORATORY ANALYSIS

| Parameter | Method | Reporting Limit ° C | Sample Result ° C |
|---|---|---|---|
| Cooler Temperature upon receipt..... | N.A. | N.A. | 3.0 |

**DEL MAR ANALYTICAL (ELAP #1197)**
Fred Haley
Project Manager

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Alton Geoscience
25A Technology Drive
Irvine, CA 92618
Attention: Gil Fry

**Method Blank**

Extracted: 10/29/99
Reported: 11/4/99

## VOLATILE FUEL HYDROCARBONS (EPA 5030/CA DHS Mod. 8015)

| Analyte | Estimated* Quantitation Limit (EQL) µg/L (ppb) | Method** Detection Limit µg/L (ppb) | Sample Result µg/L (ppb) | Date Analyzed | Dilution Factor | QC Batch |
|---|---|---|---|---|---|---|
| Volatile Fuel Hydrocarbons..... | 50 | 10 | < 10 | 10/29/99 | 1.0 | IJ29141W |
| Surrogate Recoveries (Acceptance Limits): | | | | | | |
| a,a,a-trifluorotoluene (60-135)..... | N.A. | N.A. | 80% | 10/29/99 | 1.0 | IJ29141W |

Volatile Fuel Hydrocarbons are quantitated against a gasoline standard. Hydrocarbons detected by this method range from C6 to C12.
* Estimated Quantitation Limit is equal to the lowest non-zero calibration standard used for the analysis.
** Method Detection Limit (MDL) requirements established by LA-RWQCB.

**DEL MAR ANALYTICAL (ELAP #1197)**
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Project Manager

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Alton Geoscience
25A Technology Drive
Irvine, CA 92618
Attention: Gil Fry

**Method Blank**

Extracted: 10/31/99
Reported: 11/4/99

## BTEX/OXYGENATES by GC/MS (EPA 8260A)

| Analyte | Estimated* Quantitation Limit (EQL) µg/L (ppb) | Method** Detection Limit µg/L (ppb) | Sample Result µg/L (ppb) | Date Analyzed | Dilution Factor | QC Batch |
|---|---|---|---|---|---|---|
| Benzene | 2.0 | 1.0 | < 1.0 | 10/31/99 | 1.0 | IJ31071W |
| Di-isopropyl Ether | 5.0 | 2.0 | < 2.0 | 10/31/99 | 1.0 | IJ31071WO |
| Ethylbenzene | 2.0 | 1.0 | < 1.0 | 10/31/99 | 1.0 | IJ31071W |
| Ethyl tertiary-Butyl Ether | 5.0 | 2.0 | < 2.0 | 10/31/99 | 1.0 | IJ31071WO |
| Methyl tert-Butyl Ether | 5.0 | 2.0 | < 2.0 | 10/31/99 | 1.0 | IJ31071W |
| Tertiary-Amyl Methyl Ether | 5.0 | 2.0 | < 2.0 | 10/31/99 | 1.0 | IJ31071WO |
| Tertiary-butanol | 25 | 5.0 | < 5.0 | 10/31/99 | 1.0 | IJ31071WO |
| Toluene | 2.0 | 1.0 | < 1.0 | 10/31/99 | 1.0 | IJ31071W |
| o-Xylene | 2.0 | 1.0 | < 1.0 | 10/31/99 | 1.0 | IJ31071W |
| m,p-Xylenes | 4.0 | 2.0 | < 2.0 | 10/31/99 | 1.0 | IJ31071W |
| Total Xylenes | 4.0 | 2.0 | < 2.0 | 10/31/99 | 1.0 | IJ31071W |
| Surrogate Recoveries (Acceptance Limits): | | | | | | |
| 4-Bromofluorobenzene (86-115) | N.A. | N.A. | 94% | 10/31/99 | 1.0 | IJ31071W |
| Dibromofluoromethane (86-118) | N.A. | N.A. | 92% | 10/31/99 | 1.0 | IJ31071W |
| Toluene-d8 (88-110) | N.A. | N.A. | 96% | 10/31/99 | 1.0 | IJ31071W |

* Estimated Quantitation Limit is equal to the lowest non-zero calibration standard used for the analysis.
** Method Detection Limit (MDL) requirements established by LA-RWQCB.

**DEL MAR ANALYTICAL (ELAP #1197)**
Fred Haley
Project Manager

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Alton Geoscience
25A Technology Drive
Irvine, CA 92618
Attention: Gil Fry

**Method Blank**

Extracted: 11/2/99
Reported: 11/4/99

## BTEX/OXYGENATES by GC/MS (EPA 8260A)

| Analyte | Estimated* Quantitation Limit (EQL) µg/L (ppb) | Method** Detection Limit µg/L (ppb) | Sample Result µg/L (ppb) | Date Analyzed | Dilution Factor | QC Batch |
|---|---|---|---|---|---|---|
| Benzene | 2.0 | 1.0 | < 1.0 | 11/2/99 | 1.0 | IK02071W |
| Di-isopropyl Ether | 5.0 | 2.0 | < 2.0 | 11/2/99 | 1.0 | IK02071WO |
| Ethylbenzene | 2.0 | 1.0 | < 1.0 | 11/2/99 | 1.0 | IK02071W |
| Ethyl tertiary-Butyl Ether | 5.0 | 2.0 | < 2.0 | 11/2/99 | 1.0 | IK02071WO |
| Methyl tert-Butyl Ether | 5.0 | 2.0 | < 2.0 | 11/2/99 | 1.0 | IK02071W |
| Tertiary-Amyl Methyl Ether | 5.0 | 2.0 | < 2.0 | 11/2/99 | 1.0 | IK02071WO |
| Tertiary-butanol | 25 | 5.0 | < 5.0 | 11/2/99 | 1.0 | IK02071WO |
| Toluene | 2.0 | 1.0 | < 1.0 | 11/2/99 | 1.0 | IK02071W |
| o-Xylene | 2.0 | 1.0 | < 1.0 | 11/2/99 | 1.0 | IK02071W |
| m,p-Xylenes | 4.0 | 2.0 | < 2.0 | 11/2/99 | 1.0 | IK02071W |
| Total Xylenes | 4.0 | 2.0 | < 2.0 | 11/2/99 | 1.0 | IK02071W |
| Surrogate Recoveries (Acceptance Limits): | | | | | | |
| 4-Bromofluorobenzene (86-115) | N.A. | N.A. | 95% | 11/2/99 | 1.0 | IK02071W |
| Dibromofluoromethane (86-118) | N.A. | N.A. | 91% | 11/2/99 | 1.0 | IK02071W |
| Toluene-d8 (88-110) | N.A. | N.A. | 98% | 11/2/99 | 1.0 | IK02071W |

* Estimated Quantitation Limit is equal to the lowest non-zero calibration standard used for the analysis.
** Method Detection Limit (MDL) requirements established by LA-RWQCB.

**DEL MAR ANALYTICAL (ELAP #1197)**
Fred Haley
Project Manager

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# MS/MSD DATA REPORT

**Date:** 10/29/99 **EPA Method 8015**

**Sample #:** IJ02876 Matrix: Water

**Batch #:** IJ29141W

| Analyte | R1 | Sp | MS | MSD | PR1 | PR2 | RPD | Mean PR | Acceptance Limits | |
|---|---|---|---|---|---|---|---|---|---|---|
| | µg/L | µg/L | µg/L | µg/L | % | % | % | % | RPD | Mean PR |
| TPH | 12 | 220 | 196 | 189 | 84 | 80 | 3.9 | 82 | ≤20 | 65 - 130 |

## Definition of Terms

**R1**..... Result of Sample Analysis
**Sp**..... Spike Concentration added to sample
**MS**..... Matrix Spike Result
**MSD**..... Matrix Spike Duplicate Result
**PR1**..... Percent Recovery of MS; ((MS-R1)/SP) X 100
**PR2**..... Percent Recovery of MSD; ((MSD-R1)/SP) X 100
**RPD**..... Relative Percent Difference; ((MS-MSD)/(MS+MSD)/2) X 100
**Mean PR**..... Mean Percent Recovery
**Acceptance Limits**..... Determined by in-house Control Charts

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# LCS DATA REPORT

## EPA Method 8015

**Date:** 10/29/99

**Batch #:** IJ29141W

| Analyte | Spike Conc. ppb | Result ppb | % Recovery | ACP |
|---|---|---|---|---|
| TPH | 220 | 190 | 87 | 70 - 125 % |

**Definition of Terms**

**LCS** ..... Laboratory Control Sample
**Spike Conc** ..... Concentration of spike added to blank
**Result** ..... Result of Laboratory Control Sample Analysis
**%Recovery** ..... Percent Recovery of LCS; ((Result) / Spike Conc.) X 100
**ACP** ..... Acceptance Limits for Percent Recovery
**TPH** ..... Total Petroleum Hydrocarbons

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# MS/MSD DATA REPORT

**EPA METHOD: 8260A**
**Matrix: Water**

**Date Analyzed:** 10/31/99

**Sample:** IJ02804

**Batch:** IJ31071W

| Analyte | R1 | Sp | MS | MSD | PR1 | PR2 | RPD | MEAN PR | Acceptance Limits | |
|---|---|---|---|---|---|---|---|---|---|---|
| | ppb | ppb | ppb | ppb | % | % | % | % | RPD | MPR |
| Vinyl Chloride | 0 | 25 | 22 | 20 | 88% | 80% | 9.5% | 84% | 20 | 25-190 |
| 1,1-Dichloroethene | 0 | 25 | 24 | 24 | 96% | 96% | 0% | 96% | 50 | 45-165 |
| MTBE | 2.3 | 25 | 35 | 35 | 131% | 131% | 0% | 131% | 25 | 60-150 |
| 1,1-Dichloroethane | 0 | 25 | 28 | 28 | 112% | 112% | 0% | 112% | 20 | 55-160 |
| Chloroform | 0 | 25 | 26 | 26 | 104% | 104% | 0% | 104% | 20 | 60-150 |
| 1,2-Dichloroethane | 0.2 | 25 | 29 | 28 | 115% | 111% | 3.5% | 113% | 20 | 40-160 |
| Benzene | 0 | 25 | 27 | 27 | 108% | 108% | 0% | 108% | 20 | 65-140 |
| Trichloroethene | 0 | 25 | 26 | 26 | 104% | 104% | 0% | 104% | 20 | 65-130 |
| Toluene | 0 | 25 | 27 | 28 | 108% | 112% | 3.6% | 110% | 20 | 70-135 |
| Tetrachloroethene | 0 | 25 | 26 | 26 | 104% | 104% | 0% | 104% | 20 | 50-155 |
| Chlorobenzene | 0 | 25 | 26 | 26 | 104% | 104% | 0% | 104% | 20 | 75-130 |
| Ethylbenzene | 0 | 25 | 27 | 27 | 108% | 108% | 0% | 108% | 20 | 70-135 |
| m,p-Xylenes | 0 | 50 | 53 | 52 | 106% | 104% | 1.9% | 105% | 20 | 65-140 |
| o-Xylene | 0 | 25 | 27 | 27 | 108% | 108% | 0% | 108% | 25 | 70-150 |

**Definition of Terms:**

**R1**..... Result of Sample Analysis
**Sp**..... Spike Concentration Added to Sample
**MS**..... Matrix Spike Result
**MSD**..... Matrix Spike Duplicate Result
**PR1**..... Percent Recovery of MS; ((MS-R1) / SP) X 100
**PR2**..... Percent Recovery of MSD; ((MSD-R1) / SP) X 100
**RPD**..... Relative Percent Difference; ((MS-MSD)/(MS+MSD)/2) X 100
**Acceptance Limits**.... Statistically determined on an annual basis.

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# LCS DATA REPORT

## EPA METHOD: 8260A

Date Analyzed: 10/31/99

Batch: IJ31071W

| Analyte | St | R1 | PR | Acceptance Limits |
|---|---|---|---|---|
| | ppb | ppb | % | % |
| Vinyl Chloride | 25 | 25 | 100% | 40-145 |
| 1,1-Dichloroethene | 25 | 23 | 92% | 55-145 |
| MTBE | 25 | 26 | 104% | 60-140 |
| 1,1-Dichloroethane | 25 | 27 | 108% | 60-140 |
| Chloroform | 25 | 24 | 96% | 65-135 |
| 1,2-Dichloroethane | 25 | 25 | 100% | 55-135 |
| Benzene | 25 | 25 | 100% | 65-130 |
| Trichloroethene | 25 | 25 | 100% | 70-130 |
| Toluene | 25 | 26 | 104% | 70-125 |
| Tetrachloroethene | 25 | 25 | 100% | 65-130 |
| Chlorobenzene | 25 | 24 | 96% | 75-125 |
| Ethylbenzene | 25 | 26 | 104% | 70-125 |
| m,p-Xylenes | 50 | 51 | 102% | 70-130 |
| o-Xylene | 25 | 26 | 104% | 70-135 |

**Definition of Terms:**

**St. . . . . Concentration of standard added to blank.**

**R1 . . . . . Standard Result**

**PR . . . . . Percent Recovery of R1; (R1 / St) X 100**

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# MS/MSD DATA REPORT

**EPA METHOD: 8260A**
**Matrix: Water**

**Date Analyzed:** 11/2/99

**Sample:** IJ02976

**Batch:** IK02071W

| Analyte | R1 | Sp | MS | MSD | PR1 | PR2 | RPD | MEAN PR | Acceptance Limits | |
|---|---|---|---|---|---|---|---|---|---|---|
| | ppb | ppb | ppb | ppb | % | % | % | % | RPD | MPR |
| Vinyl Chloride | 0 | 25 | 18 | 17 | 72% | 68% | 5.7% | 70% | 20 | 25-190 |
| 1,1-Dichloroethene | 0 | 25 | 20 | 20 | 80% | 80% | 0% | 80% | 50 | 45-165 |
| MTBE | 0.3 | 25 | 28 | 28 | 111% | 111% | 0% | 111% | 25 | 60-150 |
| 1,1-Dichloroethane | 0 | 25 | 24 | 24 | 96% | 96% | 0% | 96% | 20 | 55-160 |
| Chloroform | 0.1 | 25 | 23 | 23 | 92% | 92% | 0% | 92% | 20 | 60-150 |
| 1,2-Dichloroethane | 0 | 25 | 25 | 24 | 100% | 96% | 4.1% | 98% | 20 | 40-160 |
| Benzene | 0 | 25 | 23 | 24 | 92% | 96% | 4.3% | 94% | 20 | 65-140 |
| Trichloroethene | 0 | 25 | 22 | 22 | 88% | 88% | 0% | 88% | 20 | 65-130 |
| Toluene | 0.1 | 25 | 23 | 24 | 92% | 96% | 4.3% | 94% | 20 | 70-135 |
| Tetrachloroethene | 0 | 25 | 22 | 22 | 88% | 88% | 0% | 88% | 20 | 50-155 |
| Chlorobenzene | 0 | 25 | 22 | 23 | 88% | 92% | 4.4% | 90% | 20 | 75-130 |
| Ethylbenzene | 0 | 25 | 23 | 24 | 92% | 96% | 4.3% | 94% | 20 | 70-135 |
| m,p-Xylenes | 0 | 50 | 44 | 45 | 88% | 90% | 2.2% | 89% | 20 | 65-140 |
| o-Xylene | 0 | 25 | 23 | 23 | 92% | 92% | 0% | 92% | 25 | 70-150 |

**Definition of Terms:**

**R1**..... Result of Sample Analysis
**Sp**..... Spike Concentration Added to Sample
**MS**..... Matrix Spike Result
**MSD**..... Matrix Spike Duplicate Result
**PR1**..... Percent Recovery of MS; ((MS-R1) / SP) X 100
**PR2**..... Percent Recovery of MSD; ((MSD-R1) / SP) X 100
**RPD**..... Relative Percent Difference; ((MS-MSD)/(MS+MSD)/2) X 100
**Acceptance Limits**.... Statistically determined on an annual basis.

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# LCS DATA REPORT

## EPA METHOD: 8260A

Date Analyzed: 11/2/99

Batch: IK02071W

| Analyte | St | R1 | PR | Acceptance Limits |
|---|---|---|---|---|
| | ppb | ppb | % | % |
| Vinyl Chloride | 25 | 20 | 80% | 40-145 |
| 1,1-Dichloroethene | 25 | 22 | 88% | 55-145 |
| MTBE | 25 | 27 | 108% | 60-140 |
| 1,1-Dichloroethane | 25 | 26 | 104% | 60-140 |
| Chloroform | 25 | 24 | 96% | 65-135 |
| 1,2-Dichloroethane | 25 | 25 | 100% | 55-135 |
| Benzene | 25 | 24 | 96% | 65-130 |
| Trichloroethene | 25 | 23 | 92% | 70-130 |
| Toluene | 25 | 25 | 100% | 70-125 |
| Tetrachloroethene | 25 | 23 | 92% | 65-130 |
| Chlorobenzene | 25 | 23 | 92% | 75-125 |
| Ethylbenzene | 25 | 25 | 100% | 70-125 |
| m,p-Xylenes | 50 | 49 | 98% | 70-130 |
| o-Xylene | 25 | 25 | 100% | 70-135 |

**Definition of Terms:**

**St. . . . . Concentration of standard added to blank.**

**R1 . . . . . Standard Result**

**PR . . . . . Percent Recovery of R1; (R1 / St) X 100**

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# CRWQCB - L.A. REGION
# WELL INVESTIGATION PROGRAM
# QA/QC REPORT

PREPARED FOR ALTON GEOSCIENCE
PROJECT: 20-0368-07 / 4357-TOSCO-CHARNOCK
SAMPLED: 10/28/99
LABORATORY NUMBER: IJ02876.ALT

ATTENTION: GIL FRY

Del Mar Analytical
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9484 Chesapeake Dr., Suite 805, San Diego, CA 92123 (619) 505-9596 FAX (619) 505-9689



# CHAIN OF CUSTODY FORM



Client Name/Address: ALton-Geoscience, 25 A Technology Dr., Irvine CA 92618

Project/PO Number: 20-0368-07, Tosco 4357

Project Manager: Gill Fry

Phone Number: 949 753-0101

Sampler: Thomas Velazquez, mike Kobzoff

Fax Number: 949 753-0111

Analysis Required

| Sample Description | Sample Matrix | Container Type | # of Cont. | Sampling Date/Time | Preservatives | Oxy's/MTBE 8260 | TPH-G by (8015M) | | | | | | | | Special Instructions |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MW-2 | GW | VOAS | 6 | 10-28-99 7:06 | HCL | X | X | | | | | | | | |
| MW-3 | | | 6 | 7:40 | | | | | | | | | | | |
| MW-1 | | | 6 | 8:11 | | | | | | | | | | | |
| Trip Blank | H2O | | 2 | N/A | | | | | | | | | | | |
| Field Blank | | | 6 | 6:12 | | | | | | | | | | | |
| Pump-Pre | | | 6 | 6:19 | | | | | | | | | | | |
| Pump-Post | | | 6 | 8:40 | | | | | | | | | | | |
| Probe-Pre | | | 6 | 6:24 | | | | | | | | | | | |
| Probe-Post | | | 6 | 8:37 | | | | | | | | | | | |

| Relinquished By: | Date/Time: | Received by: | Date/Time: |
|---|---|---|---|
| Thomas Velazquez | 10/28/99 9:14 | Gill Fry | 10/28/99 9:14 |
| Gill Fry | 10/28/99 12:06 | Received by: | Date/Time: |
| Relinquished By: | Date/Time: | Received in Lab by: | Date/Time: |
| | | [illegible] | 10/28/99 12:06 |

Turnaround Time: (Check)
same day ____ 72 hours ____
24 hours ____ 5 days ____
48 hours ____ normal X

Sample Integrity: (Check)
intact X on ice X

Note: By relinquishing samples to Del Mar Analytical, client agrees to pay for the services requested on this chain of custody form and any additional analyses performed on this project. Payment for services is due within 30 days from the date of invoice. Sample(s) will be disposed of after 30 days.

COC-GB

## CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
## LOS ANGELES REGION

LABORATORY REPORT FORM (COVER PAGE 1)

Laboratory Name: Del Mar Analytical
Address: 2852 Alton Avenue
Irvine, CA 92606
Telephone/FAX: (949) 261-1022 / (949) 261-1228

ELAP Certification No.: 1197 Expiration Date: May 31, 2000

Authorized Signature:
Name, Title (print) Scott C. Hoatson, Quality Assurance Director

Signature, Date: 11/12/99

Client Name: Alton Geoscience
Project No.: 20-0368-07 / 4357-Tosco-Charnock

Date(s) Sampled: 10/28/99 To
Date(s) Received: 10/28/99 To
Date(s) Reported: 11/4/99 To

Chain of Custody receive Yes X No

Comments:

(RWQCB LabForm; Ver 12/94)

## CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
## LOS ANGELES REGION

LABORATORY REPORT FORM (COVER PAGE 2)

| Organic Analyses | # of Samples | # of Samples Subcontracted |
|---|---|---|
| EPA 8015A | 9 | 0 |
| EPA 8260A | 9 | 0 |

Sample Condition: Acceptable

| Inorganic Analyses | # of Samples | # of Samples Subcontracted |
|---|---|---|

Sample Condition:

| Microbiological Analyses | # of Samples | # of Samples Subcontracted |
|---|---|---|

Sample Condition:

| Other Types of Analyses | # of Samples | # of Samples Subcontracted |
|---|---|---|

Sample Condition:

(RWQCB LabForm; Ver 12/94)

PROJECT NO: 20-0368-07 / 4357-Tosco-Charnock (RWQCB LabForm 10A; Ver12/94)

# ANALYTICAL RESULT FOR ORGANICS

**METHOD:** **EPA 8015 Modified Gasoline** **REPORTING UNIT:** **µg/L**

| | | | | | |
|---|---|---|---|---|---|
| **DATE ANALYZED** | | 10/29/99 | 10/29/99 | 10/29/99 | 10/29/99 |
| **DATE EXTRACTED** | | 10/29/99 | 10/29/99 | 10/29/99 | 10/29/99 |
| **LAB SAMPLE ID** | | Method Blank | IJ02876 | IJ02877 | IJ02878 |
| **SAMPLE ID** | | IJ29141W | MW-2 | MW-3 | MW-1 |
| **EXTRACTION SOLVENT** | | n/a | n/a | n/a | n/a |
| **EXTRACTION METHOD** | | 5030 | 5030 | 5030 | 5030 |
| **DILUTION FACTOR** | | 1 | 1 | 1 | 1 |
| **COMPOUND** | **MDL** | | | | |
| Volatile Fuel Hydrocarbons C6-C12 | 10 | < 10 | **12 J** | **37 J** | **20 J** |

| **SURROGATE** | **SPIKE CONC** | **ACCEPT LIMITS %** | **% RECOVERY** | **% RECOVERY** | **% RECOVERY** | **% RECOVERY** |
|---|---|---|---|---|---|---|
| a,a,a-trifluorotoluene | 100 | 60-135 | 80 | 79 | 80 | 78 |

PROJECT NO: 20-0368-07 / 4357-Tosco-Charnock (RWQCB LabForm 10A; Ver12/94)

# ANALYTICAL RESULT FOR ORGANICS

**METHOD:** **EPA 8015 Modified Gasoline** **REPORTING UNIT:** **µg/L**

| | | | | | |
|---|---|---|---|---|---|
| **DATE ANALYZED** | | 10/29/99 | 10/29/99 | 10/29/99 | 10/29/99 |
| **DATE EXTRACTED** | | 10/29/99 | 10/29/99 | 10/29/99 | 10/29/99 |
| **LAB SAMPLE ID** | | IJ02879 | IJ02880 | IJ02881 | IJ02882 |
| **SAMPLE ID** | | Trip Blank | Field Blank | Pump-Pre | Pump-Post |
| **EXTRACTION SOLVENT** | | n/a | n/a | n/a | n/a |
| **EXTRACTION METHOD** | | 5030 | 5030 | 5030 | 5030 |
| **DILUTION FACTOR** | | 1 | 1 | 1 | 1 |
| **COMPOUND** | **MDL** | | | | |
| Volatile Fuel Hydrocarbons C6-C12 | 10 | < 10 | < 10 | < 10 | < 10 |

| **SURROGATE** | **SPIKE CONC** | **ACCEPT LIMITS %** | **% RECOVERY** | **% RECOVERY** | **% RECOVERY** | **% RECOVERY** |
|---|---|---|---|---|---|---|
| a,a,a-trifluorotoluene | 100 | 60-135 | 78 | 74 | 77 | 78 |

PROJECT NO: 20-0368-07 / 4357-Tosco-Charnock (RWQCB LabForm 10A; Ver12/94)

# ANALYTICAL RESULT FOR ORGANICS

**METHOD:** **EPA 8015 Modified Gasoline** **REPORTING UNIT:** **µg/L**

| | | | | | | |
|---|---|---|---|---|---|---|
| | | **DATE ANALYZED** | 10/29/99 | 10/29/99 | | |
| | | **DATE EXTRACTED** | 10/29/99 | 10/29/99 | | |
| | | **LAB SAMPLE ID** | IJ02883 | IJ02884 | | |
| | | **SAMPLE ID** | Probe-Pre | Probe-Post | | |
| | | **EXTRACTION SOLVENT** | n/a | n/a | | |
| | | **EXTRACTION METHOD** | 5030 | 5030 | | |
| | | **DILUTION FACTOR** | 1 | 1 | | |
| **COMPOUND** | **MDL** | | | | | |
| Volatile Fuel Hydrocarbons C6-C12 | 10 | | < 10 | < 10 | | |
| **SURROGATE** | **SPIKE CONC** | **ACCEPT LIMITS %** | **% RECOVERY** | **% RECOVERY** | | |
| a,a,a-trifluorotoluene | 100 | 60-135 | 81 | 76 | | |

PROJECT NO: 20-0368-07 / 4357-Tosco-Charnock (RWQCB LabForm 10A; Ver12/94)

# ANALYTICAL RESULT FOR ORGANICS

**METHOD:** EPA 8260A **REPORTING UNIT:** µg/L

| | | | | | |
|---|---|---|---|---|---|
| **DATE ANALYZED** | | 10/31/99 | 10/31/99 | 10/31/99 | 10/31/99 |
| **DATE EXTRACTED** | | 10/31/99 | 10/31/99 | 10/31/99 | 10/31/99 |
| **LAB SAMPLE ID** | | Method Blank | IJ02876 | IJ02877 | IJ02878 |
| **CLIENT SAMPLE ID** | | IJ31071WO | MW-2 | MW-3 | MW-1 |
| **EXTRACTION SOLVENT** | | n/a | n/a | n/a | n/a |
| **EXTRACTION METHOD** | | 8260 | 8260 | 8260 | 8260 |
| **DILUTION FACTOR** | | 1 | 1 | 1 | 1 |
| **COMPOUND** | **MDL** | | | | |
| Benzene | 1.0 | < 1.0 | **1.8 J** | **4.9** | **1.5 J** |
| Di-isopropyl Ether | 2.0 | < 2.0 | < 2.0 | < 2.0 | < 2.0 |
| Ethylbenzene | 1.0 | < 1.0 | < 1.0 | **3.1** | < 1.0 |
| Ethyl tertiary-Butyl Ether | 2.0 | < 2.0 | < 2.0 | < 2.0 | < 2.0 |
| Methyl tertiary-Butyl Ether | 2.0 | < 2.0 | < 2.0 | < 2.0 | < 2.0 |
| Tertiary-Amyl Methyl Ether | 2.0 | < 2.0 | < 2.0 | < 2.0 | < 2.0 |
| Tertiary-Butanol | 5.0 | < 5.0 | < 5.0 | < 5.0 | < 5.0 |
| Toluene | 1.0 | < 1.0 | < 1.0 | **3.9** | **1.2 J** |
| o-Xylene | 1.0 | < 1.0 | < 1.0 | **2.4** | < 1.0 |
| m,p-Xylenes | 2.0 | < 2.0 | < 2.0 | **4.3** | < 2.0 |
| Total Xylenes | 2.0 | < 2.0 | < 2.0 | **6.7** | < 2.0 |

| **SURROGATE** | **SPIKE CONC** | **ACCEPT LIMITS %** | **% RECOVERY** | **% RECOVERY** | **% RECOVERY** | **% RECOVERY** |
|---|---|---|---|---|---|---|
| Dibromofluoromethane | 25 | 86-118 | 92 | 95 | 95 | 96 |
| Toluene-d8 | 25 | 88-110 | 96 | 100 | 99 | 98 |
| 4-Bromofluorobenzene | 25 | 86-115 | 94 | 102 | 101 | 100 |

PROJECT NO: 20-0368-07 / 4357-Tosco-Charnock (RWQCB LabForm 10A; Ver12/94)

# ANALYTICAL RESULT FOR ORGANICS

**METHOD:** EPA 8260A **REPORTING UNIT:** µg/L

| | | | | | |
|---|---|---|---|---|---|
| | | **DATE ANALYZED** | 10/31/99 | 10/31/99 | 10/31/99 | 10/31/99 |
| | | **DATE EXTRACTED** | 10/31/99 | 10/31/99 | 10/31/99 | 10/31/99 |
| | | **LAB SAMPLE ID** | IJ02879 | IJ02880 | IJ02881 | IJ02882 |
| | | **SAMPLE ID** | Trip Blank | Field Blank | Pump-Pre | Pump-Post |
| | | **EXTRACTION SOLVENT** | n/a | n/a | n/a | n/a |
| | | **EXTRACTION METHOD** | 8260 | 8260 | 8260 | 8260 |
| | | **DILUTION FACTOR** | 1 | 1 | 1 | 1 |
| **COMPOUND** | **MDL** | | | | | |
| Benzene | 1.0 | | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Di-isopropyl Ether | 2.0 | | < 2.0 | < 2.0 | < 2.0 | < 2.0 |
| Ethylbenzene | 1.0 | | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Ethyl tertiary-Butyl Ether | 2.0 | | < 2.0 | < 2.0 | < 2.0 | < 2.0 |
| Methyl tertiary-Butyl Ether | 2.0 | | < 2.0 | < 2.0 | < 2.0 | < 2.0 |
| Tertiary-Amyl Methyl Ether | 2.0 | | < 2.0 | < 2.0 | < 2.0 | < 2.0 |
| Tertiary-Butanol | 5.0 | | < 5.0 | < 5.0 | < 5.0 | < 5.0 |
| Toluene | 1.0 | | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| o-Xylene | 1.0 | | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| m,p-Xylenes | 2.0 | | < 2.0 | < 2.0 | < 2.0 | < 2.0 |
| Total Xylenes | 2.0 | | < 2.0 | < 2.0 | < 2.0 | < 2.0 |
| **SURROGATE** | **SPIKE CONC** | **ACCEPT LIMITS %** | **% RECOVERY** | **% RECOVERY** | **% RECOVERY** | **% RECOVERY** |
| Dibromofluoromethane | 25 | 86-118 | 96 | 96 | 100 | 97 |
| Toluene-d8 | 25 | 88-110 | 96 | 95 | 96 | 94 |
| 4-Bromofluorobenzene | 25 | 86-115 | 97 | 94 | 95 | 94 |

PROJECT NO: 20-0368-07 / 4357-Tosco-Charnock (RWQCB LabForm 10A; Ver12/94)

# ANALYTICAL RESULT FOR ORGANICS

**METHOD:** EPA 8260A **REPORTING UNIT:** µg/L

| | | | | | |
|---|---|---|---|---|---|
| | **DATE ANALYZED** | 11/2/99 | 11/2/99 | 11/2/99 | |
| | **DATE EXTRACTED** | 11/2/99 | 11/2/99 | 11/2/99 | |
| | **LAB SAMPLE ID** | Method Blank | IJ02883 | IJ02884 | |
| | **SAMPLE ID** | IK02071WO | Probe-Pre | Probe-Post | |
| | **EXTRACTION SOLVENT** | n/a | n/a | n/a | |
| | **EXTRACTION METHOD** | 8260 | 8260 | 8260 | |
| | **DILUTION FACTOR** | 1 | 1 | 1 | |
| **COMPOUND** | **MDL** | | | | |
| Benzene | 1.0 | < 1.0 | < 1.0 | < 1.0 | |
| Di-isopropyl Ether | 2.0 | < 2.0 | < 2.0 | < 2.0 | |
| Ethylbenzene | 1.0 | < 1.0 | < 1.0 | < 1.0 | |
| Ethyl tertiary-Butyl Ether | 2.0 | < 2.0 | < 2.0 | < 2.0 | |
| Methyl tertiary-Butyl Ether | 2.0 | < 2.0 | < 2.0 | < 2.0 | |
| Tertiary-Amyl Methyl Ether | 2.0 | < 2.0 | < 2.0 | < 2.0 | |
| Tertiary-Butanol | 5.0 | < 5.0 | < 5.0 | < 5.0 | |
| Toluene | 1.0 | < 1.0 | < 1.0 | < 1.0 | |
| o-Xylene | 1.0 | < 1.0 | < 1.0 | < 1.0 | |
| m,p-Xylenes | 2.0 | < 2.0 | < 2.0 | < 2.0 | |
| Total Xylenes | 2.0 | < 2.0 | < 2.0 | < 2.0 | |

| **SURROGATE** | **SPIKE CONC** | **ACCEPT LIMITS %** | **% RECOVERY** | **% RECOVERY** | **% RECOVERY** | |
|---|---|---|---|---|---|---|
| Dibromofluoromethane | 25 | 86-118 | 91 | 95 | 94 | |
| Toluene-d8 | 25 | 88-110 | 98 | 97 | 97 | |
| 4-Bromofluorobenzene | 25 | 86-115 | 95 | 98 | 95 | |

Project Number: 20-0368-07 / 4357-Tosco-Charnock (RWQCB LabForm 10A; Ver12/94)

# QA/QC REPORT

## II. MATRIX SPIKE (MS) MATRIX SPIKE DUPLICATE (MSD)

Date Performed: 10/29/99
Batch Number: IJ29141W
Lab Sample I.D.: IJ02876

Analytical Method: EPA 8015
Reporting Unit: µg/L

| Analyte | Sample Result | Spike Conc | MS | % MS | Spike Conc (Dup) | MSD | % MSD | RPD | MS/MSD % Limit | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| Volatile Fuel Hydrocarbons | 12 | 220 | 200 | 84 | 220 | 190 | 80 | 3.9 | 65-130 | ≤ 20 |
| | | | | | | | | | | |
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## III. LABORATORY QUALITY CONTROL CHECK SAMPLE (LCS)

Date Performed: 10/29/99
Supply Source: SUPELCO
Lot Number: LA75910
Date of Source: 04/28/99

Analytical Method: EPA 8015
Reporting Unit: µg/L
Lab LCS I.D.: LCS

| Analyte | Spike Concentration | Result | % Recovery | Acceptance % Recovery Limit |
|---|---|---|---|---|
| Volatile Fuel Hydrocarbons | 220 | 192 | 87 | 80-120 |
| | | | | |
| | | | | |
| | | | | |
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| | | | | |

PROJECT NO: 20-0368-07 / 4357-Tosco-Charnock (RWQCB LabForm 10A; Ver12/94)

# QA/QC REPORT

## II. MATRIX SPIKE (MS)/ MATRIX SPIKE DUPLICATE (MSD)

Date Performed: 10/31/99
Batch Number: IJ31071W
Lab Sample I.D.: IJ02804
Analytical Method: EPA 8260A
Reporting Unit: µg/L

| Analyte | Sample Result | Spike Conc | MS | % MS | Spike Conc (Dup) | MSD | %MSD | RPD | MS/MSD Limit | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | 0 | 25 | 27 | 108% | 25 | 27 | 108% | 0.0% | 65-140 | ≤ 20 |
| Chlorobenzene | 0 | 25 | 26 | 104% | 25 | 26 | 104% | 0.0% | 75-130 | ≤ 20 |
| 1,1-Dichloroethane | 0 | 25 | 28 | 112% | 25 | 28 | 112% | 0.0% | 55-160 | ≤ 20 |
| 1,2-Dichloroethane | 0.2 | 25 | 29 | 115% | 25 | 28 | 111% | 3.5% | 40-160 | ≤ 20 |
| 1,1-Dichloroethene | 0 | 25 | 24 | 96% | 25 | 24 | 96% | 0.0% | 45-165 | ≤ 50 |
| Chloroform | 0 | 25 | 26 | 104% | 25 | 26 | 104% | 0.0% | 60-150 | ≤ 20 |
| Ethylbenzene | 0 | 25 | 27 | 108% | 25 | 27 | 108% | 0.0% | 70-135 | ≤ 20 |
| MTBE | 2.3 | 25 | 35 | 131% | 25 | 35 | 131% | 0.0% | 60-150 | ≤ 25 |
| Tetrachloroethene | 0 | 25 | 26 | 104% | 25 | 26 | 104% | 0.0% | 50-155 | ≤ 20 |
| Toluene | 0 | 25 | 27 | 108% | 25 | 28 | 112% | 3.6% | 70-135 | ≤ 20 |
| Trichloroethene | 0 | 25 | 26 | 104% | 25 | 26 | 104% | 0.0% | 65-130 | ≤ 20 |
| Vinyl Chloride | 0 | 25 | 22 | 88% | 25 | 20 | 80% | 9.5% | 25-190 | ≤ 20 |
| m,p-Xylenes | 0 | 50 | 53 | 106% | 50 | 52 | 104% | 1.9% | 65-140 | ≤ 20 |
| o-Xylene | 0 | 25 | 27 | 108% | 25 | 27 | 108% | 0.0% | 70-150 | ≤ 25 |

## III. LABORATORY QUALITY CONTROL CHECK SAMPLE (LCS)

Date Performed: 10/31/99
Supply Source: Ultra Scientific
Lot Number: M-1685
Date of Source: 11/2/99
Analytical Method: EPA 8260A
Reporting Unit: µg/L
Lab LCS I.D.: LCS

| Analyte | Spike Concentration | Result | % Recovery | Acceptance % Recovery Limit |
|---|---|---|---|---|
| Benzene | 25 | 25 | 100% | 65-130 |
| Chlorobenzene | 25 | 24 | 96% | 75-125 |
| 1,1-Dichloroethane | 25 | 27 | 108% | 60-140 |
| 1,2-Dichloroethane | 25 | 25 | 100% | 55-135 |
| 1,1-Dichloroethene | 25 | 23 | 92% | 55-145 |
| Chloroform | 25 | 24 | 96% | 65-135 |
| Ethylbenzene | 25 | 26 | 104% | 70-125 |
| MTBE | 25 | 26 | 104% | 60-140 |
| Tetrachloroethene | 25 | 25 | 100% | 65-130 |
| Toluene | 25 | 26 | 104% | 70-125 |
| Trichloroethene | 25 | 25 | 100% | 70-130 |
| Vinyl Chloride | 25 | 25 | 100% | 40-145 |
| m,p-Xylenes | 50 | 51 | 102% | 70-130 |
| o-Xylene | 25 | 26 | 104% | 70-135 |

PROJECT NO: 20-0368-07 / 4357-Tosco-Charnock (RWQCB LabForm 10A; Ver12/94)

# QA/QC REPORT

## II. MATRIX SPIKE (MS)/ MATRIX SPIKE DUPLICATE (MSD)

Date Performed: 11/2/99
Batch Number: IK02071W
Lab Sample I.D.: IJ02976
Analytical Method: EPA 8260A
Reporting Unit: µg/L

| Analyte | Sample Result | Spike Conc | MS | % MS | Spike Conc (Dup) | MSD | %MSD | RPD | MS/MSD Limit | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | 0 | 25 | 23 | 92% | 25 | 24 | 96% | 4.3% | 65-140 | ≤ 20 |
| Chlorobenzene | 0 | 25 | 22 | 88% | 25 | 23 | 92% | 4.4% | 75-130 | ≤ 20 |
| 1,1-Dichloroethane | 0 | 25 | 24 | 96% | 25 | 24 | 96% | 0.0% | 55-160 | ≤ 20 |
| 1,2-Dichloroethane | 0 | 25 | 25 | 100% | 25 | 24 | 96% | 4.1% | 40-160 | ≤ 20 |
| 1,1-Dichloroethene | 0 | 25 | 20 | 80% | 25 | 20 | 80% | 0.0% | 45-165 | ≤ 50 |
| Chloroform | 0.1 | 25 | 23 | 92% | 25 | 23 | 92% | 0.0% | 60-150 | ≤ 20 |
| Ethylbenzene | 0 | 25 | 23 | 92% | 25 | 24 | 96% | 4.3% | 70-135 | ≤ 20 |
| MTBE | 0.3 | 25 | 28 | 111% | 25 | 28 | 111% | 0.0% | 60-150 | ≤ 25 |
| Tetrachloroethene | 0 | 25 | 22 | 88% | 25 | 22 | 88% | 0.0% | 50-155 | ≤ 20 |
| Toluene | 0.1 | 25 | 23 | 92% | 25 | 24 | 96% | 4.3% | 70-135 | ≤ 20 |
| Trichloroethene | 0 | 25 | 22 | 88% | 25 | 22 | 88% | 0.0% | 65-130 | ≤ 20 |
| Vinyl Chloride | 0 | 25 | 18 | 72% | 25 | 17 | 68% | 5.7% | 25-190 | ≤ 20 |
| m,p-Xylenes | 0 | 50 | 44 | 88% | 50 | 45 | 90% | 2.2% | 65-140 | ≤ 20 |
| o-Xylene | 0 | 25 | 23 | 92% | 25 | 23 | 92% | 0.0% | 70-150 | ≤ 25 |

## III. LABORATORY QUALITY CONTROL CHECK SAMPLE (LCS)

Date Performed: 11/2/99
Supply Source: Ultra Scientific
Lot Number: M-1685
Date of Source: 11/2/99
Analytical Method: EPA 8260A
Reporting Unit: µg/L
Lab LCS I.D.: LCS

| Analyte | Spike Concentration | Result | % Recovery | Acceptance % Recovery Limit |
|---|---|---|---|---|
| Benzene | 25 | 24 | 96% | 65-130 |
| Chlorobenzene | 25 | 23 | 92% | 75-125 |
| 1,1-Dichloroethane | 25 | 26 | 104% | 60-140 |
| 1,2-Dichloroethane | 25 | 25 | 100% | 55-135 |
| 1,1-Dichloroethene | 25 | 22 | 88% | 55-145 |
| Chloroform | 25 | 24 | 96% | 65-135 |
| Ethylbenzene | 25 | 25 | 100% | 70-125 |
| MTBE | 25 | 27 | 108% | 60-140 |
| Tetrachloroethene | 25 | 23 | 92% | 65-130 |
| Toluene | 25 | 25 | 100% | 70-125 |
| Trichloroethene | 25 | 23 | 92% | 70-130 |
| Vinyl Chloride | 25 | 20 | 80% | 40-145 |
| m,p-Xylenes | 50 | 49 | 98% | 70-130 |
| o-Xylene | 25 | 25 | 100% | 70-135 |

# SAMPLE TRACK SHEET (8015/8020)

Date: 10/24/99 Analyst: SM Instrument: 14 Calibration Date: BTEX ← 5/12 TPH: Morning Sent: [illegible] 10/29 Validated: 1-16 [illegible] 10/29

I/S: 8115BNSUR A20 LCS: 16-28BKLLS 10 MS/MSD: 1J20BKCAL10 TPH: 1J026BKTPH100 Evening Sent: Validated:

N=Not Sent

8015/8020

| FILE | 8015 | 8020 | MTBE | PORT# | CLIENT | SAMPLE# | AMT | MATRIX | COMMENTS | RESHOT AMT. |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | 25 | | MDIWL | 10ml | W | pores: | |
| 2 | | | — | 26 | | RVIBTEX | ↓ | ↓ | 8015/8020 Only | |
| 3 | | | | 27 | | RVITPH | ↓ | ↓ pH | pores: | |
| 4 | | — | — | 25 | Dec-Area | 1J02833A | 10ml | W, <2 | 8015 Only good | |
| 5 | | — | — | 26 | ALT ~~Dec-Area~~ | 1J02876A | 10ml | W | " good | |
| 6 | | — | — | 27 | ALT-CRV | 1J02877A | 10ml | W | " good | |
| 7 | | — | — | 28 | ALT-CRV | 1J02878A | 10ml | W | " good: | |
| 8 | | — | — | 29 | ALT-CRV | 1J02879A | 10ml | W | " good | |
| 9 | | — | — | 30 | ALT-CRV | 1J02880A | 10ml | W | " good | |
| 10 | | — | — | 25 | ALT-CRV | 1J02881A | 10ml | W | " good: | |
| 11 | | — | — | 26 | ALT-CRV | 1J02882A | 10ml | W | " good | |
| 12 | | — | — | 27 | ALT-CRV | 1J02883A | 10ml | W | " good | |
| 13 | | — | — | 28 | ALT-CRV | 1J02884A | 10ml | W | " | |
| 14 | | — | — | 29 | | MDIWBTEX | 10ml | W | " 1J02876A | pores |
| 15 | | — | — | 30 | | MDIWBTEX | 10ml | W | " 1J02876A | pores: |
| 16 | | | | 31 | | MSIW | 10ml | W: | | |
| 17 | | | | 30 | GEOK | 1J02914 | 5g/200ml | extr | To CF NGP GC-19 10/29 | |
| 18 | | | | | | | | | | |
| 19 | | | | | | | | | | |
| 20 | | | | | | | | | | |
| 21 | | | | | | | | | | |
| 22 | | | | | | | | | | |
| 23 | | | | | | | | | | |
| 24 | | | | | | | | | | |
| 25 | | | | | | | | | | |
| 26 | | | | | | | | | | |
| 27 | | | | | | | | | | |

# Calibration data for Sequence file: H:\DATA\GC14\z29.seq

| | | | | | |
|---|---|---|---|---|---|
| Initial Calibration Date: | 05/12/99 | BTEX Sample File: | h:\data\gc14\btxmay12 | Supply Source: | SUPELCO |
| Created by: | | TPH Sample File: | h:\data\gc14\tphmay12 | Lot Number: | LA75910 |
| ICV Acquire Date: | 10/29/99 | BTEX ICV File: | h:\data\gc14\z29a002.rst | Standard Prep. Date: | 04/28/99 |
| Date Printed: | 10/29/99 | TPH ICV File: | h:\data\gc14\z29b003.rst | | |

INITIAL CALIBRATION — DAILY ICV CALIBRATION

## MTBE (RT = 1.64 Minutes)

Calibration Levels

| Level | Amount | Area | Response | | Daily RF | Amount | Result | % diff | Area | % diff Accep.limits |
|---|---|---|---|---|---|---|---|---|---|---|
| . | 15 | 1922 | 0.112 | | | | | | | |
| 1 | 30 | 11238 | 0.334 | | | | | | | |
| 2 | 300 | 141755 | 0.438 | (Ave. RF = 0.399) | | | | | | |
| 3 | 3000 | 1810871 | 0.553 | %RSD = 46.45 | 0.000 | 3000 | 2.3 | 100 | 876 | ≤ 15% |
| 4 | 6000 | 3730210 | 0.559 | | | | | | | |

## BENZENE (RT = 2.45 Minutes)

Calibration Levels

| Level | Amount | Area | Response | | Daily RF | Amount | Result | % diff | Area | % diff Accep.limits |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2.0 | 7281 | 3.173 | | | | | | | |
| 2 | 20 | 71204 | 3.177 | | | | | | | |
| 3 | 200 | 737819 | 3.422 | (Ave. RF = 3.301) | | | | | | |
| 4 | 400 | 1463066 | 3.351 | %RSD = 1.47 | 3.682 | 200 | 223.1 | 12 | 715597 | ≤ 15% |
| 5 | 600 | 2179113 | 3.265 | | | | | | | |

## ETHYLBENZENE (RT = 6.01 Minutes)

Calibration Levels

| Level | Amount | Area | Response | | Daily RF | Amount | Result | % diff | Area | % diff Accep.limits |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2.0 | 5937 | 2.587 | | | | | | | |
| 2 | 20 | 56390 | 2.516 | | | | | | | |
| 3 | 200 | 594116 | 2.755 | (Ave. RF = 2.665) | | | | | | |
| 4 | 400 | 1187643 | 2.721 | %RSD = 1.46 | 2.954 | 200 | 221.7 | 11 | 574119 | ≤ 15% |
| 5 | 600 | 1770671 | 2.653 | | | | | | | |

## TOLUENE (RT = 4.12 Minutes)

Calibration Levels

| Level | Amount | Area | Response | | Daily RF | Amount | Result | % diff | Area | % diff Accep.limits |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2.0 | 7335 | 3.197 | | | | | | | |
| 2 | 20 | 62011 | 2.767 | | | | | | | |
| 3 | 200 | 663581 | 3.078 | (Ave. RF = 3.020) | | | | | | |
| 4 | 400 | 1304970 | 2.989 | %RSD = 5.08 | 3.306 | 200 | 218.9 | 9.5 | 642593 | ≤ 15% |
| 5 | 600 | 1976171 | 2.961 | | | | | | | |

## XYLENE-PM (RT = 6.18 Minutes)

Calibration Levels

| Level | Amount | Area | Response | | Daily RF | Amount | Result | % diff | Area | % diff Accep.limits |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 4.0 | 15656 | 3.411 | | | | | | | |
| 2 | 40 | 139965 | 3.122 | | | | | | | |
| 3 | 400 | 1440754 | 3.341 | (Ave. RF = 3.267) | | | | | | |
| 4 | 800 | 2837853 | 3.250 | %RSD = 4.44 | 3.574 | 400 | 437.7 | 9.4 | 1389491 | ≤ 15% |
| 5 | 1200 | 4118228 | 3.085 | | | | | | | |

## XYLENE-O (RT = 6.67 Minutes)

Calibration Levels

| Level | Amount | Area | Response | | Daily RF | Amount | Result | % diff | Area | % diff Accep.limits |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2.0 | 6148 | 2.680 | | | | | | | |
| 2 | 20 | 58746 | 2.621 | | | | | | | |
| 3 | 200 | 606646 | 2.814 | (Ave. RF = 2.734) | | | | | | |
| 4 | 400 | 1204486 | 2.759 | %RSD = 1.05 | 2.947 | 200 | 215.6 | 7.8 | 572849 | ≤ 15% |
| 5 | 600 | 1800331 | 2.697 | | | | | | | |

## Total Petroleum Hydrocarbons

Calibration Levels

| Level | Amount | Area | Response | | Daily RF | Amount | Result | % diff | Area | % diff Accep.limits |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 200 | 553075 | 2765.375 | | | | | | | |
| 2 | 1500 | 2983075 | 1988.717 | | | | | | | |
| 3 | 5000 | 9512890 | 1902.578 | (Ave. RF = 2102.989) | | | | | | |
| 4 | 7500 | 14319856 | 1909.314 | %RSD = 17.68 | 1804.323 | 5000 | 4289.9 | 14 | 9021614 | ≤ 15% |
| 5 | 15000 | 29234425 | 1948.962 | | | | | | | |

# GC/MS DAILY LOG SUMMARY

QC BATCH# N/A

DATE: 10-11-99 DATAFILE: C:\GCMS7\DATA\99Oct11

ANALYST: RPD INSTRUMENT: GC/MS # 7 EPA METHOD: 8260

| #ALS | SAMPLE NAME | | FILENAME | MATRIX | CLIENT | RESULTS / RECOVERIES | | | |
|---|---|---|---|---|---|---|---|---|---|
| System backflushed? ✓ | | | | | | | | | |
| dir.inj. | 50 NG BFB | | VTUN01 | ***** | ***** | Pass @ 16:05 p.m | | | |
| 1 | 0.5ppb 8260 +KN ~~25PPB STD~~ | | VSTN0-5 ~~VSTD025~~ | ***** | ***** | S1 | S2 | S3 | |
| 2 | 1ppb 8260 +KN ~~METHOD BLANK~~ | PH | VSTD001 ~~VBLK~~ | — | ***** | | | | |
| 3 | 2ppb 8260 +KN | | VSTD002 | | | | | | |
| 4 | 5ppb | | 5 | | 8260 Initial | Cal. | | | |
| 5 | 10ppb | | 10 | | | | | | |
| 6 | 25ppb | | 25 | | | | | | |
| 7 | 50ppb | | 50 | | | | | | |
| 8 | 100ppb | | 100 | | | | | | |
| 9 | 200ppb | | 200 | | | | | | |
| 10 | 5ppb TBA. only | | TBut005 | | | | | | |

**SURROGATE RECOVERY LIMITS:**

| | SOILS | WATERS |
|---|---|---|
| S1: Dibromofluoromethane | 80-120 | 86-118 |
| S2: Toluene-d-8 | 81-117 | 88-110 |
| S3: 4-bromofluorobenzene | 74-121 | 86-115 |

CCV: IJ11VM60CAL5 IJ11VM60CALA

IS ~~LCS~~: IJ08VM60 IS only

SS ~~SPK~~: IJ11VM60SSA / IJ11VM60SSB

I/S: IJ11VM60FISA

BFB: IJ01VMBFB

EXT:

Data sent _____ initial. _____ Data validated _____ initial. _____

Response Factor Report GCMS7

Method : C:\HPCHEM\1\METHODS\8260.M (RTE Integrator)
Title : This method is 8260 volatiles analysis
Last Update : Tue Oct 12 07:15:12 1999
Response via : Initial Calibration

Calibration Files
0.5 =VSTD0_5.D 1.0 =VSTD001.D 5.0 =VSTD005.D
10 =VSTD010.D 25 =VSTD025.D 50 =VSTD050.D

| | | Compound | 0.5 | 1.0 | 5.0 | 10 | 25 | 50 | Avg | %RSD |
|---|---|---|---|---|---|---|---|---|---|---|
| 1) | I | Pentafluorobenzene (I | ----------ISTD---------- | | | | | | | |
| 2) | S | Dibromofluoromethan | | | 0.723 | 0.757 | 0.735 | 0.737 | 0.737 | 1.54 |
| 3) | T | Dichlorodifluoromet | 0.808 | 0.658 | 0.801 | 0.802 | 0.772 | 0.846 | 0.782 | 8.92 |
| 4) | P | Chloromethane | 0.815 | 0.734 | 0.810 | 0.832 | 0.808 | 0.823 | 0.786 | 5.72 |
| 5) | CM | Vinyl Chloride | 0.650 | 0.555 | 0.638 | 0.653 | 0.498 | 0.600 | 0.579 | 10.98 |
| 6) | T | Bromomethane | 0.612 | 0.529 | 0.570 | 0.580 | 0.557 | 0.575 | 0.564 | 4.87 |
| 7) | T | Chloroethane | 0.388 | 0.350 | 0.377 | 0.394 | 0.385 | 0.395 | 0.370 | 6.64 |
| 8) | T | Trichlorofluorometh | 0.798 | 0.730 | 0.888 | 0.972 | 0.960 | 1.023 | 0.918 | 13.01 |
| 9) | T | Acetone | | | 0.164 | 0.152 | 0.151 | 0.142 | 0.153 | 7.52 |
| 10) | CM | 1,1-Dichloroethene | 0.826 | 0.679 | 0.708 | 0.729 | 0.713 | 0.730 | 0.730 | 6.20 |
| 11) | T | Methylene Chloride | 0.984 | 0.796 | 0.750 | 0.751 | 0.743 | 0.747 | 0.784 | 10.65 |
| 12) | T | Carbon disulfide | 2.062 | 1.802 | 1.907 | 1.950 | 1.910 | 1.981 | 1.942 | 5.39 |
| 13) | T | trans-1,2-Dichloroe | 0.885 | 0.753 | 0.787 | 0.789 | 0.775 | 0.794 | 0.794 | 5.14 |
| 14) | TM | MTBE | 1.114 | 1.178 | 1.158 | 1.139 | 1.208 | 1.169 | 1.164 | 2.87 |
| 15) | PM | 1,1-Dichloroethane | 1.244 | 1.121 | 1.197 | 1.203 | 1.194 | 1.207 | 1.177 | 4.28 |
| 16) | T | Vinyl Acetate | | 0.818 | 0.865 | 0.896 | 0.925 | 0.887 | 0.852 | 7.06 |
| 17) | T | 2-Butanone (MEK) | | | 0.183 | 0.183 | 0.195 | 0.187 | 0.190 | 3.87 |
| 18) | T | cis-1,2-Dichloroeth | 0.938 | 0.819 | 0.830 | 0.841 | 0.822 | 0.843 | 0.843 | 5.26 |
| 19) | T | Bromochloromethane | 0.311 | 0.312 | 0.332 | 0.347 | 0.347 | 0.342 | 0.324 | 6.18 |
| 20) | CM | Chloroform | 1.317 | 1.194 | 1.241 | 1.267 | 1.255 | 1.276 | 1.254 | 3.71 |
| 21) | T | 2,2-Dichloropropane | 0.773 | 0.694 | 0.693 | 0.702 | 0.675 | 0.655 | 0.676 | 7.22 |
| 22) | M | 1,2-Dichloroethane | 0.672 | 0.670 | 0.706 | 0.728 | 0.735 | 0.725 | 0.696 | 4.72 |
| 23) | T | 1,1,1-Trichloroetha | 1.114 | 0.965 | 1.034 | 1.043 | 1.029 | 1.027 | 1.023 | 4.78 |
| 24) | I | 1,4-Difluorobenzene ( | ----------ISTD---------- | | | | | | | |
| 25) | S | Toluene-d8 (SU2) | | | 1.182 | 1.241 | 1.231 | 1.249 | 1.213 | 4.18 |
| 26) | T | 1,1-Dichloropropene | 0.528 | 0.451 | 0.483 | 0.499 | 0.492 | 0.497 | 0.485 | 5.19 |
| 27) | T | Carbon Tetrachlorid | 0.416 | 0.372 | 0.407 | 0.417 | 0.415 | 0.417 | 0.403 | 4.45 |
| 28) | M | Benzene | 1.608 | 1.339 | 1.389 | 1.417 | 1.400 | 1.433 | 1.401 | 7.01 |
| 29) | T | Dibromomethane | 0.183 | 0.183 | 0.190 | 0.196 | 0.201 | 0.201 | 0.193 | 4.55 |
| 30) | C | 1,2-Dichloropropane | 0.309 | 0.300 | 0.311 | 0.315 | 0.317 | 0.318 | 0.306 | 4.26 |
| 31) | M | Trichloroethene | 0.362 | 0.321 | 0.347 | 0.350 | 0.343 | 0.334 | 0.326 | 10.04 |
| 32) | T | Bromodichloromethan | 0.430 | 0.375 | 0.421 | 0.431 | 0.440 | 0.449 | 0.425 | 6.47 |
| 33) | T | 2-Chlorovinylethyle | | 0.118 | 0.137 | 0.146 | 0.160 | 0.142 | 0.137 | 10.62 |
| 34) | T | cis-1,3-Dichloropro | 0.507 | 0.468 | 0.498 | 0.512 | 0.519 | 0.532 | 0.505 | 4.95 |
| 35) | T | 4-Methyl-2-Pentanon | | | 0.185 | 0.197 | 0.219 | 0.211 | 0.200 | 7.11 |
| 36) | T | trans-1,3-Dichlorop | 0.367 | 0.376 | 0.397 | 0.413 | 0.429 | 0.434 | 0.404 | 6.67 |
| 37) | T | 1,1,2-Trichloroetha | 0.194 | 0.198 | 0.201 | 0.209 | 0.217 | 0.216 | 0.207 | 4.99 |
| 38) | CM | Toluene | 1.593 | 1.359 | 1.403 | 1.438 | 1.444 | 1.471 | 1.419 | 7.32 |
| 39) | I | Chlorobenzene-d5 (IS) | ----------ISTD---------- | | | | | | | |
| 40) | S | 4-Bromofluorobenzen | | | 0.527 | 0.545 | 0.541 | 0.551 | 0.543 | 2.10 |
| 41) | T | 1,3-Dichloropropane | 0.517 | 0.494 | 0.517 | 0.529 | 0.537 | 0.540 | 0.527 | 5.01 |

(#) = Out of Range ### Number of calibration levels exceeded format ###

Response Factor Report GCMS7

Method : C:\HPCHEM\1\METHODS\8260.M (RTE Integrator)
Title : This method is 8260 volatiles analysis
Last Update : Tue Oct 12 07:15:12 1999
Response via : Initial Calibration

Calibration Files
0.5 =VSTD0_5.D 1.0 =VSTD001.D 5.0 =VSTD005.D
10 =VSTD010.D 25 =VSTD025.D 50 =VSTD050.D

| | | Compound | 0.5 | 1.0 | 5.0 | 10 | 25 | 50 | Avg | %RSD |
|---|---|---|---|---|---|---|---|---|---|---|
| 42) | T | 2-Hexanone | | | 0.161 | 0.165 | 0.185 | 0.179 | 0.175 | 8.07 |
| 43) | T | Dibromochloromethan | 0.298 | 0.299 | 0.328 | 0.341 | 0.350 | 0.353 | 0.327 | 7.19 |
| 44) | T | 1,2-Dibromoethane | 0.310 | 0.316 | 0.324 | 0.338 | 0.348 | 0.346 | 0.334 | 5.87 |
| 45) | M | Tetrachloroethene | 0.302 | 0.263 | 0.280 | 0.281 | 0.271 | 0.263 | 0.268 | 7.53 |
| 46) | T | 1,1,1,2-Tetrachloro | 0.348 | 0.311 | 0.333 | 0.341 | 0.333 | 0.334 | 0.324 | 6.41 |
| 47) | PM | Chlorobenzene | 1.245 | 1.094 | 1.140 | 1.153 | 1.128 | 1.148 | 1.137 | 4.70 |
| 48) | CM | Ethylbenzene | 2.129 | 1.864 | 1.982 | 2.011 | 1.984 | 2.069 | 1.978 | 6.75 |
| 49) | TM | m,p-Xylenes | 0.843 | 0.736 | 0.781 | 0.799 | 0.784 | 0.800 | 0.761 | 9.27 |
| 50) | P | Bromoform | 0.120 | 0.129 | 0.143 | 0.157 | 0.166 | 0.167 | 0.149 | 11.94 |
| 51) | T | Styrene | 1.147 | 1.067 | 1.218 | 1.256 | 1.265 | 1.307 | 1.211 | 7.37 |
| 52) | TM | o-Xylene | 0.788 | 0.706 | 0.757 | 0.763 | 0.755 | 0.776 | 0.740 | 6.35 |
| 53) | I | 1,4-Dichlorobenzene-d | ---------- | ---------- | ISTD | ---------- | ---------- | ---------- | ---------- | |
| 54) | P | 1,1,2,2-Tetrachloro | 0.728 | 0.821 | 0.802 | 0.828 | 0.882 | 0.886 | 0.823 | 7.79 |
| 55) | T | 1,2,3-Trichloroprop | 0.515 | 0.552 | 0.574 | 0.588 | 0.619 | 0.609 | 0.588 | 7.51 |
| 56) | T | Isopropylbenzene | 5.500 | 4.591 | 4.968 | 4.990 | 4.941 | 5.046 | 4.912 | 6.93 |
| 57) | T | Bromobenzene | 0.884 | 0.825 | 0.884 | 0.898 | 0.875 | 0.868 | 0.850 | 5.55 |
| 58) | T | n-Propylbenzene | 6.417 | 5.478 | 5.881 | 5.971 | 5.954 | 6.139 | 5.846 | 8.45 |
| 59) | T | 2-Chlorotoluene | 3.791 | 3.213 | 3.411 | 3.453 | 3.398 | 3.523 | 3.450 | 5.93 |
| 60) | T | 4-Chlorotoluene | 3.686 | 3.217 | 3.403 | 3.399 | 3.391 | 3.496 | 3.426 | 5.17 |
| 61) | T | 1,3,5-Trimethylbenz | 4.203 | 3.577 | 3.863 | 3.963 | 3.935 | 3.953 | 3.851 | 5.75 |
| 62) | T | tert-Butylbenzene | 3.240 | 2.794 | 2.941 | 2.923 | 2.872 | 2.826 | 2.838 | 7.33 |
| 63) | T | 1,2,4-Trimethylbenz | 4.228 | 3.654 | 3.923 | 4.007 | 3.961 | 3.984 | 3.892 | 5.32 |
| 64) | T | sec-Butylbenzene | 5.765 | 4.854 | 5.219 | 5.283 | 5.239 | 5.309 | 5.155 | 6.99 |
| 65) | T | 1,3-Dichlorobenzene | 1.931 | 1.620 | 1.723 | 1.743 | 1.708 | 1.673 | 1.664 | 8.88 |
| 66) | T | 1,4-Dichlorobenzene | 1.876 | 1.695 | 1.716 | 1.717 | 1.706 | 1.648 | 1.657 | 8.74 |
| 67) | T | p-Isopropyltoluene | 3.967 | 3.497 | 3.732 | 3.741 | 3.679 | 3.521 | 3.558 | 7.63 |
| 68) | T | 1,2-Dichlorobenzene | 1.541 | 1.427 | 1.498 | 1.514 | 1.523 | 1.492 | 1.459 | 5.70 |
| 69) | T | n-Butylbenzene | 4.329 | 3.709 | 4.003 | 4.106 | 4.068 | 4.233 | 4.066 | 5.60 |
| 70) | T | 1,2-Dibromo-3-chlor | | | 0.096 | 0.103 | 0.114 | 0.113 | 0.109 | 11.62 |
| 71) | T | 1,2,4-Trichlorobenz | 0.847 | 0.777 | 0.795 | 0.838 | 0.856 | 0.868 | 0.831 | 4.21 |
| 72) | T | Napthalene | 1.752 | 1.641 | 1.719 | 1.849 | 2.040 | 2.051 | 1.877 | 9.73 |
| 73) | T | Hexachlorobutadiene | 0.502 | 0.454 | 0.421 | 0.426 | 0.437 | 0.451 | 0.453 | 5.57 |
| 74) | T | 1,2,3-Trichlorobenz | 0.633 | 0.639 | 0.650 | 0.693 | 0.729 | 0.737 | 0.691 | 6.68 |

(#) = Out of Range ### Number of calibration levels exceeded format ###

# GC/MS DAILY LOG SUMMARY

**QC BATCH#** N/A

**DATE:** 10/8/99 **DATAFILE:** C:\GCMS7\DATA\ 99OCT08

**ANALYST:** DF **INSTRUMENT:** GC/MS # 7 **EPA METHOD:** 8260

| #ALS | SAMPLE NAME | | FILENAME | MATRIX | CLIENT | RESULTS / RECOVERIES | | | |
|---|---|---|---|---|---|---|---|---|---|
| System backflushed? ✓ | | | | | | | | | |
| dir.inj. | 50 NG BFB | | VTUN01 | ***** | ***** | Pass @ 2:35 pm | | | |
| 1 | 0.5ppb 8260 STD +km ~~25PPB STD~~ | – | VSTD0-5 ~~VSTD025~~ | ***** | ***** | S1 | S2 | S3 | |
| 2 | 1ppb 8260 STD+km ~~METHOD BLANK~~ | PH | VSTD001 ~~VBLK~~ | – | ***** | | | | |
| 3 | 2ppb 8260 STD+km | – | VSTD002 | – | – | | 8260 | Initial Cal. | |
| 4 | 5 | – | 005 | – | – | | | | |
| 5 | 10 | – | 010 | – | – | | | | |
| 6 | 25 | – | 025 | – | – | | | | |
| 7 | 50 | – | 050 | – | – | | | | |
| 8 | 100 | – | 100 | – | – | | | | |
| 9 | 200 | – | 200 | – | – | | | | |
| 10 | 2.5/12.5 ppb OXY/TBA | – | OXY02-5 | – | – | | | | |
| 11 | 5/25 ppb | – | 005 | – | – | | 8260 Oxygas | Initial | |
| 12 | 10/50 ppb | – | 010 | – | – | | Cal | | |
| 13 | 25/125 ppb | – | 025 | – | – | | | | |
| 14 | 50/250 ppb | – | 050 | – | – | | | | |
| 15 | 100/500 ppb | – | 100 | – | – | | | | |
| 16 | 200/1000 ppb | – | 200 | – | – | | | | |

**SURROGATE RECOVERY LIMITS:**

| | SOILS | WATERS |
|---|---|---|
| S1: Dibromofluoromethane | 80-120 | 86-118 |
| S2: Toluene-d-8 | 81-117 | 88-110 |
| S3: 4-bromofluorobenzene | 74-121 | 86-115 |

**CCV:** IJ08VM60CAL5 IJ08VM60CALA IJ08VM60CAL B

SURR ~~LCS:~~ IJ01VM60SSA/IJ01VM60SSI

IS only ~~SPK:~~ IJ08VM60IS

**I/S:** IJ08VM60I/SD

**BFB:** IJ01VMBFB

OXY ~~EXT:~~ IJ01VMOXYGASCAL IJ01VMTBVTCAL

**Data sent** _____ **initial.** _____ **Data validated** _____ **initial.** _____

Response Factor Report GCMS7

Method : C:\HPCHEM\1\METHODS\60OXYGAS.M (RTE Integrator)
Title : This is 8260 Oxygenates/ Gasoline Method
Last Update : Sat Oct 09 09:50:32 1999
Response via : Initial Calibration

Calibration Files
5 =OXY005.D 10 =OXY010.D 25 =OXY025.D
50 =OXY050.D 100 =OXY100.D 200 =OXY200.D

| | | Compound | 5 | 10 | 25 | 50 | 100 | 200 | Avg | %RSD |
|---|---|---|---|---|---|---|---|---|---|---|
| 1) | | Pentafluorobenzene (I | ----------ISTD---------- | | | | | | | |
| 2) | TM | tert-Butanol | 0.043 | 0.035 | 0.039 | 0.027 | 0.024 | 0.040 | 0.035 | 21.58 |
| 3) | T | Cyclopentane | 2.038 | 2.046 | 2.085 | 1.978 | 1.932 | 1.691 | 1.990 | 7.54 |
| 4) | T | 2-Methylpentane | 1.884 | 1.907 | 1.919 | 1.844 | 1.757 | 1.480 | 1.804 | 8.46 |
| 5) | TM | MTBE | 1.293 | 1.198 | 1.200 | 1.087 | 0.972 | 1.080 | 1.160 | 10.20 |
| 6) | T | 3-Methylpentane | 1.363 | 1.409 | 1.393 | 1.360 | 1.311 | 1.128 | 1.326 | 7.10 |
| 7) | TM | Diisopropyl Ether ( | 2.823 | 2.800 | 2.823 | 2.648 | 2.442 | 2.272 | 2.661 | 8.34 |
| 8) | T | 2-Methyl-2-Pentene | 1.593 | 1.621 | 1.622 | 1.566 | 1.477 | 1.260 | 1.529 | 8.41 |
| 9) | TM | (ETBE) 2-ethoxy-2-m | 1.999 | 1.933 | 1.928 | 1.748 | 1.570 | 1.561 | 1.814 | 10.33 |
| 10) | TM | (TAME) tert-Amyl me | 1.732 | 1.631 | 1.659 | 1.435 | 1.290 | 1.354 | 1.545 | 11.72 |
| 11) | I | 1,4-Difluorobenzene ( | ----------ISTD---------- | | | | | | | |
| 12) | I | Chlorobenzene-d5 (IS) | ----------ISTD---------- | | | | | | | |
| 13) | I | 1,4-Dichlorobenzene-d | ----------ISTD---------- | | | | | | | |

(#) = Out of Range ### Number of calibration levels exceeded format ###

# GC/MS DAILY LOG SUMMARY

QC BATCH# IJ3107IW

DATE: 10/31/99 DATAFILE: C:\GCMS7\DATA\99 Oct 31

ANALYST: RPD/NA INSTRUMENT: GC/MS # 7 EPA METHOD: 8260

| #ALS | SAMPLE NAME | | FILENAME | MATRIX | CLIENT | RESULTS / RECOVERIES | | | |
|---|---|---|---|---|---|---|---|---|---|
| System backflushed? ✓ | | | | | | | | | |
| dir.inj. | 50 NG BFB | | VTUN01 | ***** | ***** | Pass @ 8:43am | | | |
| | | | | | | 568 | 1163 | 895 | 376 |
| 1 | 25PPB STD | | VSTD025 | ***** | ***** | S1 | S2 | S3 | |
| 2 | 25 ppb oxy + 125ppb ~~METHOD BLANK~~ TBA | PH | OXY025A ~~VBLK~~ | W | ***** | | | | Good |
| 3 | Method Blank | | VBLK01 | WATER | — | 92 | 96 | 94 | |
| 4 | VSTD025 LCSIW | | F1031001 | ↓ | — | 95 | 99 | 101 | |
| 5 | 10mL IJ02804 | LL | 2 | WATER | GMC-NB | 92 | 97 | 95 | ✓ |
| 6 | 10mL MSIW | | 3 | | | 96 | 98 | 103 | ✓ |
| 7 | 10mL MSDIW | | 4 | | | 94 | 98 | 102 | ✓ |
| 8 | 10mL 2805 | | 5 | | | 93 | 97 | 97 | ✓ |
| 9 | 10mL 2806 | | 6 | | | 93 | 96 | 95 | ✓ |
| 10 | 10mL 2632 | | 7 | | | 93 | 97 | 94 | ✓ |
| 11 | 10mL 2634 | | 8 | | ↓ | 97 | 97 | 96 | ✓ |
| 12 | 2.5mL 2776 | | 9 | | BEC | 95 | 100 | 102 | ✓ |
| 13 | 0.5mL 2779 | | 10 | | ↓ | 95 | 101 | 105 | ✓ |
| 14 | 10mL 2826 | | 11 | | ALT | 95 | 98 | 102 | ✓ |
| 15 | 10mL 2876 ~~2827~~ ~~2826~~ | | 12 | | | 95 | 100 | 102 | ✓ |
| 16 | 10mL 2877 ~~2828~~ ~~2827~~ | | 13 | | | 95 | 99 | 101 | ✓ |
| 1 | 10mL 2878 ~~2829~~ ~~2828~~ | | 14 | | | 96 | 98 | 100 | ✓ |
| 2 | 10mL 2879 ~~2830~~ ~~2829~~ | | 15 | | | 96 | 96 | 97 | ✓ |
| 3 | 10mL 2880 | | 16 | | | 96 | 95 | 94 | ✓ |
| 4 | 10mL 2881 | | 17 | | | 100 | 96 | 95 | ✓ |
| 5 | 10mL 2882 | ✓ | 18 | ✓ | ✓ | 97 | 94 | 94 | ✓ |

8pm 131

**SURROGATE RECOVERY LIMITS:**

| | SOILS | WATERS |
|---|---|---|
| S1: Dibromofluoromethane | 80-120 | 86-118 |
| S2: Toluene-d-8 | 81-117 | 88-110 |
| S3: 4-bromofluorobenzene | 74-121 | 86-115 |

CCV: IJ21VM60CAL A
LCS: IJ26VM60 LCS
SPK: ↓
I/S: IJ28VM60ISC
BFB: IJ26VMBFB
~~EXT:~~ NA 10-31-99 IJ21VMOXY+GAS CAL
OXY IJ21VMT-BUT CAL

Data sent 11/1 initial. S.S. Data validated 11/1/99 initial. MN7

# Evaluate Continuing Calibration Report

Data File : C:\GCMS7\DATA\99OCT31\VSTD025.D  Vial: 1
Acq On : 31 Oct 1999 8:57 am  Operator: RPD/MNT/NA
Sample : 25PPB 8260 STD + KM  Inst : GCMS7
Misc : 8260 Int Cal (10-11-1999)  Multiplr: 1.00
MS Integration Params: rteint.p

Method : C:\HPCHEM\1\METHODS\8260.M (RTE Integrator)
Title : This method is 8260 volatiles analysis
Last Update : Tue Oct 12 07:15:12 1999
Response via : Multiple Level Calibration

Min. RRF : 0.100 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 30% Max. Rel. Area : 200%

| | | Compound | AvgRF | CCRF | %Dev | Area% | Dev(min) |
|---|---|---|---|---|---|---|---|
| 1 | I | Pentafluorobenzene (IS) | 1.000 | 1.000 | 0.0 | 74 | 0.02 |
| 2 | S | Dibromofluoromethane (SU1) | 0.737 | 0.696 | 5.6 | 70 | 0.01 |
| 3 | T | Dichlorodifluoromethane | 0.782 | 0.571 | 27.0 | 55 | 0.00 |
| 4 | P | Chloromethane | 0.786 | 0.871 | -10.8 | 80 | 0.00 |
| 5 | CM | Vinyl Chloride | 0.579 | 0.676 | -16.8 | 101 | 0.00 |
| 6 | T | Bromomethane | 0.564 | 0.541 | 4.1 | 72 | 0.00 |
| 7 | T | Chloroethane | 0.370 | 0.443 | -19.7 | 86 | 0.00 |
| 8 | T | Trichlorofluoromethane | 0.918 | 0.932 | -1.5 | 72 | 0.01 |
| 9 | T | Acetone | 0.153 | 0.120 | 21.6 | 59 | 0.01 |
| 10 | CM | 1,1-Dichloroethene | 0.730 | 0.678 | 7.1 | 71 | 0.01 |
| 11 | T | Methylene Chloride | 0.784 | 0.712 | 9.2 | 71 | 0.01 |
| 12 | T | Carbon disulfide | 1.942 | 2.416 | -24.4 | 94 | 0.00 |
| 13 | T | trans-1,2-Dichloroethene | 0.794 | 0.751 | 5.4 | 72 | 0.01 |
| 14 | TM | MTBE | 1.164 | 1.245 | -7.0 | 77 | 0.02 |
| 15 | PM | 1,1-Dichloroethane | 1.177 | 1.253 | -6.5 | 78 | 0.01 |
| 16 | T | Vinyl Acetate | 0.852 | 0.953 | -11.9 | 77 | 0.01 |
| 17 | T | 2-Butanone (MEK) | 0.190 | 0.187 | 1.6 | 71 | 0.02 |
| 18 | T | cis-1,2-Dichloroethene | 0.843 | 0.801 | 5.0 | 72 | 0.01 |
| 19 | T | Bromochloromethane | 0.324 | 0.313 | 3.4 | 67 | 0.02 |
| 20 | CM | Chloroform | 1.254 | 1.189 | 5.2 | 70 | 0.01 |
| 21 | T | 2,2-Dichloropropane | 0.676 | 0.745 | -10.2 | 82 | 0.01 |
| 22 | M | 1,2-Dichloroethane | 0.696 | 0.697 | -0.1 | 70 | 0.02 |
| 23 | T | 1,1,1-Trichloroethane | 1.023 | 1.024 | -0.1 | 74 | 0.02 |
| 24 | I | 1,4-Difluorobenzene (IS) | 1.000 | 1.000 | 0.0 | 75 | 0.01 |
| 25 | S | Toluene-d8 (SU2) | 1.213 | 1.182 | 2.6 | 72 | 0.00 |
| 26 | T | 1,1-Dichloropropene | 0.485 | 0.485 | 0.0 | 74 | 0.02 |
| 27 | T | Carbon Tetrachloride | 0.403 | 0.387 | 4.0 | 70 | 0.01 |
| 28 | M | Benzene | 1.401 | 1.376 | 1.8 | 74 | 0.01 |
| 29 | T | Dibromomethane | 0.193 | 0.182 | 5.7 | 68 | 0.01 |
| 30 | C | 1,2-Dichloropropane | 0.306 | 0.331 | -8.2 | 78 | 0.02 |
| 31 | M | Trichloroethene | 0.326 | 0.314 | 3.7 | 69 | 0.01 |
| 32 | T | Bromodichloromethane | 0.425 | 0.408 | 4.0 | 69 | 0.01 |
| 33 | T | 2-Chlorovinylethylether (2- | 0.137 | 0.139 | -1.5 | 65 | 0.01 |
| 34 | T | cis-1,3-Dichloropropene | 0.505 | 0.504 | 0.2 | 73 | 0.01 |
| 35 | T | 4-Methyl-2-Pentanone (MIBK) | 0.200 | 0.191 | 4.5 | 65 | 0.01 |
| 36 | T | trans-1,3-Dichloropropene | 0.404 | 0.396 | 2.0 | 69 | 0.01 |
| 37 | T | 1,1,2-Trichloroethane | 0.207 | 0.194 | 6.3 | 67 | 0.01 |
| 38 | CM | Toluene | 1.419 | 1.408 | 0.8 | 73 | 0.00 |
| 39 | I | Chlorobenzene-d5 (IS) | 1.000 | 1.000 | 0.0 | 72 | 0.00 |

(#) = Out of Range

# Evaluate Continuing Calibration Report

Data File : C:\GCMS7\DATA\99OCT31\VSTD025.D  Vial: 1
Acq On : 31 Oct 1999 8:57 am  Operator: RPD/MNT/NA
Sample : 25PPB 8260 STD + KM  Inst : GCMS7
Misc : 8260 Int Cal (10-11-1999)  Multiplr: 1.00
MS Integration Params: rteint.p

Method : C:\HPCHEM\1\METHODS\8260.M (RTE Integrator)
Title : This method is 8260 volatiles analysis
Last Update : Tue Oct 12 07:15:12 1999
Response via : Multiple Level Calibration

Min. RRF : 0.100 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 30% Max. Rel. Area : 200%

| | | Compound | AvgRF | CCRF | %Dev | Area% | Dev(min) |
|---|---|---|---|---|---|---|---|
| 40 | S | 4-Bromofluorobenzene (SU3) | 0.543 | 0.551 | -1.5 | 73 | 0.00 |
| 41 | T | 1,3-Dichloropropane | 0.527 | 0.519 | 1.5 | 69 | 0.01 |
| 42 | T | 2-Hexanone | 0.175 | 0.164 | 6.3 | 63 | 0.00 |
| 43 | T | Dibromochloromethane | 0.327 | 0.314 | 4.0 | 64 | 0.01 |
| 44 | T | 1,2-Dibromoethane | 0.334 | 0.316 | 5.4 | 65 | 0.00 |
| 45 | M | Tetrachloroethene | 0.268 | 0.271 | -1.1 | 72 | 0.00 |
| 46 | T | 1,1,1,2-Tetrachloroethane | 0.324 | 0.314 | 3.1 | 67 | 0.00 |
| 47 | PM | Chlorobenzene | 1.137 | 1.100 | 3.3 | 70 | 0.00 |
| 48 | CM | Ethylbenzene | 1.978 | 2.030 | -2.6 | 73 | 0.00 |
| 49 | TM | m,p-Xylenes | 0.761 | 0.775 | -1.8 | 71 | 0.00 |
| 50 | P | Bromoform | 0.149 | 0.147 | 1.3 | 63 | 0.00 |
| 51 | T | Styrene | 1.211 | 1.267 | -4.6 | 72 | 0.00 |
| 52 | TM | o-Xylene | 0.740 | 0.762 | -3.0 | 72 | 0.00 |
| 53 | I | 1,4-Dichlorobenzene-d4 (IS) | 1.000 | 1.000 | 0.0 | 77 | 0.00 |
| 54 | P | 1,1,2,2-Tetrachloroethane | 0.823 | 0.782 | 5.0 | 68 | 0.00 |
| 55 | T | 1,2,3-Trichloropropane | 0.588 | 0.528 | 10.2 | 66 | 0.00 |
| 56 | T | Isopropylbenzene | 4.912 | 4.702 | 4.3 | 73 | 0.00 |
| 57 | T | Bromobenzene | 0.850 | 0.824 | 3.1 | 73 | 0.00 |
| 58 | T | n-Propylbenzene | 5.846 | 5.875 | -0.5 | 76 | 0.00 |
| 59 | T | 2-Chlorotoluene | 3.450 | 3.322 | 3.7 | 75 | 0.00 |
| 60 | T | 4-Chlorotoluene | 3.426 | 3.317 | 3.2 | 76 | 0.00 |
| 61 | T | 1,3,5-Trimethylbenzene | 3.851 | 3.722 | 3.3 | 73 | 0.00 |
| 62 | T | tert-Butylbenzene | 2.838 | 2.764 | 2.6 | 74 | 0.00 |
| 63 | T | 1,2,4-Trimethylbenzene | 3.892 | 3.822 | 1.8 | 74 | 0.00 |
| 64 | T | sec-Butylbenzene | 5.155 | 5.145 | 0.2 | 76 | 0.00 |
| 65 | T | 1,3-Dichlorobenzene | 1.664 | 1.644 | 1.2 | 74 | 0.00 |
| 66 | T | 1,4-Dichlorobenzene | 1.657 | 1.641 | 1.0 | 74 | 0.00 |
| 67 | T | p-Isopropyltoluene | 3.558 | 3.581 | -0.6 | 75 | 0.00 |
| 68 | T | 1,2-Dichlorobenzene | 1.459 | 1.431 | 1.9 | 72 | 0.00 |
| 69 | T | n-Butylbenzene | 4.066 | 4.257 | -4.7 | 81 | 0.00 |
| 70 | T | 1,2-Dibromo-3-chloropropane | 0.109 | 0.091# | 16.5 | 61 | 0.00 |
| 71 | T | 1,2,4-Trichlorobenzene | 0.831 | 0.837 | -0.7 | 76 | 0.00 |
| 72 | T | Napthalene | 1.877 | 1.669 | 11.1 | 63 | 0.00 |
| 73 | T | Hexachlorobutadiene | 0.453 | 0.461 | -1.8 | 81 | -0.01 |
| 74 | T | 1,2,3-Trichlorobenzene | 0.691 | 0.686 | 0.7 | 73 | 0.00 |

(#) = Out of Range  SPCC's out = 0  CCC's out = 0

# Evaluate Continuing Calibration Report

Data File : C:\GCMS7\DATA\99OCT31\OXY025.D  Vial: 2
Acq On : 31 Oct 1999 9:31 am  Operator: RPD/MNT/NA
Sample : 25PPB OXY + 125PPB TBA  Inst : GCMS7
Misc : 60OXYGAS+TBA (ICAL 10-08-99)  Multiplr: 1.00
MS Integration Params: rteint.p

Method : C:\HPCHEM\1\METHODS\60OXYGAS.M (RTE Integrator)
Title : This is 8260 Oxygenates/ Gasoline Method
Last Update : Sat Oct 09 09:48:50 1999
Response via : Multiple Level Calibration

Min. RRF : 0.000  Min. Rel. Area : 50%  Max. R.T. Dev 0.50min
Max. RRF Dev : 30%  Max. Rel. Area : 200%

| | | Compound | AvgRF | CCRF | %Dev | Area% | Dev(min) |
|---|---|---|---|---|---|---|---|
| 1 | | Pentafluorobenzene (IS) | 1.000 | 1.000 | 0.0 | 92 | 0.01 |
| 2 | TM | tert-Butanol | 0.035 | 0.033 | 5.7 | 76 | 0.00 |
| 3 | T | Cyclopentane | 1.990 | 2.453 | -23.3 | 108 | 0.00 |
| 4 | T | 2-Methylpentane | 1.804 | 1.523 | 15.6 | 73 | 0.00 |
| 5 | TM | MTBE | 1.160 | 1.220 | -5.2 | 93 | 0.00 |
| 6 | T | 3-Methylpentane | 1.326 | 1.178 | 11.2 | 78 | 0.00 |
| 7 | TM | Diisopropyl Ether (DIPE) | 2.661 | 2.240 | 15.8 | 73 | 0.01 |
| 8 | T | 2-Methyl-2-Pentene | 1.529 | 1.352 | 11.6 | 77 | 0.00 |
| 9 | TM | (ETBE) 2-ethoxy-2-methyl pr | 1.814 | 1.679 | 7.4 | 80 | 0.01 |
| 10 | TM | (TAME) tert-Amyl methyl eth | 1.545 | 1.410 | 8.7 | 78 | 0.00 |
| 11 | I | 1,4-Difluorobenzene (IS) | 1.000 | 1.000 | 0.0 | 96 | 0.00 |
| 12 | I | Chlorobenzene-d5 (IS) | 1.000 | 1.000 | 0.0 | 93 | 0.00 |
| 13 | I | 1,4-Dichlorobenzene-d4 (IS) | 1.000 | 1.000 | 0.0 | 87 | 0.00 |

(#) = Out of Range  SPCC's out = 0  CCC's out = 0

# GC/MS DAILY LOG SUMMARY

QC BATCH# IK02C72W 11/2/99

DATE: 11/2/99 DATAFILE: C:\GCMS7\DATA\ 99 NOV 02

ANALYST: SS/NA/RPD INSTRUMENT: GC/MS # 7 EPA METHOD: 8260

| #ALS | SAMPLE NAME | | FILENAME | MATRIX | CLIENT | RESULTS / RECOVERIES | | | |
|---|---|---|---|---|---|---|---|---|---|
| System backflushed? ✓ | | | | | | | | | |
| dir.inj. | 50 NG BFB | | VTUN01 | ***** | ***** | Pass @ 7:39 A.M | | | |
| 1 | 25PPB STD | | VSTD025 | ***** | ***** | S1 | S2 | S3 | NO GOOD RERUN |
| 1 | 25ppb STD ~~METHOD BLANK~~ | PH | VSTD025A ~~VBLK~~ | — | ***** | 601 | 1217 | 929 | 361 |
| 2 | 25ppb OXY + 125ppb TBA | | OXY025 | — | — | | | | |
| 3 | METHOD BLANK | | VBLK01 | W | — | 91 | 98 | 95 | |
| 4 | VSTD025LCS1W | | F1102001 | | — | 96 | 98 | 102 | |
| 5 | 10ml IJ02976 | <2 | 2 | | GMC-NB | 93 | 96 | 97 | ✓ |
| 6 | 2976MS1W | | 3 | | | 96 | 97 | 103 | ✓ |
| 7 | 2976MSD1W | | 4 | | | 95 | 99 | 105 | ✓ |
| 8 | 2983 | | 5 | | | 94 | 97 | 98 | ✓ |
| 9 | 2984 | | 6 | | | 94 | 98 | 97 | ✓ |
| 10 | 2985 | | 7 | | | 95 | 96 | 96 | ✓ |
| 11 | SCC IK00126 | — | 8 | AIV | DEC-ARCO | 95 | 99 | 98 | ✓ |
| 12 | 10ml IJ02003 | <2 | 9 | W | ALT-IRV | 95 | 97 | 98 | ✓ |
| 13 | 2004 | | 10 | | | 94 | 97 | 95 | ✓ |
| 14 | | | 11 | | | | | | |

**SURROGATE RECOVERY LIMITS:**

| | SOILS | WATERS |
|---|---|---|
| S1: Dibromofluoromethane | 80-120 | 86-118 |
| S2: Toluene-d-8 | 81-117 | 88-110 |
| S3: 4-bromofluorobenzene | 74-121 | 86-115 |

CCV: IJ26VM60CALA

LCS: LCS

SPK:

I/S: IK01VM60I/SA

BFB: IJ26VMBFB

OXY~~EXT~~: IJ21VMOXYGASCAL

TBUTCAL

Data sent _____ initial. _____

Data validated 11/4/99 initial. MNT

# Evaluate Continuing Calibration Report

Data File : C:\GCMS7\DATA\99NOV02\VSTD025A.D  Vial: 2
Acq On : 2 Nov 1999 8:33 am  Operator: RPD/MNT/NA
Sample : 25PPB 8260 STD + KM  Inst : GCMS7
Misc : 8260 Int Cal (10-11-1999)  Multiplr: 1.00
MS Integration Params: rteint.p

Method : C:\HPCHEM\1\METHODS\8260.M (RTE Integrator)
Title : This method is 8260 volatiles analysis
Last Update : Tue Oct 12 07:15:12 1999
Response via : Multiple Level Calibration

Min. RRF : 0.100 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 30% Max. Rel. Area : 200%

| | | Compound | AvgRF | CCRF | %Dev | Area% | Dev(min) |
|---|---|---|---|---|---|---|---|
| 1 | I | Pentafluorobenzene (IS) | 1.000 | 1.000 | 0.0 | 79 | 0.02 |
| 2 | S | Dibromofluoromethane (SU1) | 0.737 | 0.657 | 10.9 | 70 | 0.01 |
| 3 | T | Dichlorodifluoromethane | 0.782 | 0.576 | 26.3 | 59 | 0.00 |
| 4 | P | Chloromethane | 0.786 | 0.803 | -2.2 | 78 | 0.00 |
| 5 | CM | Vinyl Chloride | 0.579 | 0.696 | -20.2 | 110 | 0.00 |
| 6 | T | Bromomethane | 0.564 | 0.562 | 0.4 | 79 | 0.00 |
| 7 | T | Chloroethane | 0.370 | 0.435 | -17.6 | 89 | 0.00 |
| 8 | T | Trichlorofluoromethane | 0.918 | 0.980 | -6.8 | 80 | 0.01 |
| 9 | T | Acetone | 0.153 | 0.162 | -5.9 | 84 | 0.01 |
| 10 | CM | 1,1-Dichloroethene | 0.730 | 0.701 | 4.0 | 77 | 0.01 |
| 11 | T | Methylene Chloride | 0.784 | 0.719 | 8.3 | 76 | 0.01 |
| 12 | T | Carbon disulfide | 1.942 | 2.497 | -28.6 | 103 | 0.00 |
| 13 | T | trans-1,2-Dichloroethene | 0.794 | 0.771 | 2.9 | 78 | 0.01 |
| 14 | TM | MTBE | 1.164 | 1.017 | 12.6 | 66 | 0.01 |
| 15 | PM | 1,1-Dichloroethane | 1.177 | 1.250 | -6.2 | 82 | 0.01 |
| 16 | T | Vinyl Acetate | 0.852 | 0.688 | 19.2 | 59 | 0.01 |
| 17 | T | 2-Butanone (MEK) | 0.190 | 0.179 | 5.8 | 72 | 0.02 |
| 18 | T | cis-1,2-Dichloroethene | 0.843 | 0.807 | 4.3 | 77 | 0.01 |
| 19 | T | Bromochloromethane | 0.324 | 0.287 | 11.4 | 65 | 0.02 |
| 20 | CM | Chloroform | 1.254 | 1.192 | 4.9 | 75 | 0.01 |
| 21 | T | 2,2-Dichloropropane | 0.676 | 0.760 | -12.4 | 89 | 0.01 |
| 22 | M | 1,2-Dichloroethane | 0.696 | 0.610 | 12.4 | 65 | 0.02 |
| 23 | T | 1,1,1-Trichloroethane | 1.023 | 1.031 | -0.8 | 79 | 0.01 |
| 24 | I | 1,4-Difluorobenzene (IS) | 1.000 | 1.000 | 0.0 | 78 | 0.01 |
| 25 | S | Toluene-d8 (SU2) | 1.213 | 1.192 | 1.7 | 76 | 0.00 |
| 26 | T | 1,1-Dichloropropene | 0.485 | 0.506 | -4.3 | 81 | 0.02 |
| 27 | T | Carbon Tetrachloride | 0.403 | 0.396 | 1.7 | 75 | 0.01 |
| 28 | M | Benzene | 1.401 | 1.431 | -2.1 | 80 | 0.01 |
| 29 | T | Dibromomethane | 0.193 | 0.161 | 16.6 | 63 | 0.01 |
| 30 | C | 1,2-Dichloropropane | 0.306 | 0.328 | -7.2 | 81 | 0.01 |
| 31 | M | Trichloroethene | 0.326 | 0.319 | 2.1 | 73 | 0.01 |
| 32 | T | Bromodichloromethane | 0.425 | 0.395 | 7.1 | 70 | 0.01 |
| 33 | T | 2-Chlorovinylethylether (2- | 0.137 | 0.114 | 16.8 | 56 | 0.01 |
| 34 | T | cis-1,3-Dichloropropene | 0.505 | 0.481 | 4.8 | 73 | 0.01 |
| 35 | T | 4-Methyl-2-Pentanone (MIBK) | 0.200 | 0.140 | 30.0 | 50 | 0.01 |
| 36 | T | trans-1,3-Dichloropropene | 0.404 | 0.354 | 12.4 | 65 | 0.01 |
| 37 | T | 1,1,2-Trichloroethane | 0.207 | 0.171 | 17.4 | 62 | 0.01 |
| 38 | CM | Toluene | 1.419 | 1.445 | -1.8 | 78 | 0.00 |
| 39 | I | Chlorobenzene-d5 (IS) | 1.000 | 1.000 | 0.0 | 74 | 0.00 |

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File : C:\GCMS7\DATA\99NOV02\VSTD025A.D  Vial: 2
Acq On : 2 Nov 1999 8:33 am  Operator: RPD/MNT/NA
Sample : 25PPB 8260 STD + KM  Inst : GCMS7
Misc : 8260 Int Cal (10-11-1999)  Multiplr: 1.00
MS Integration Params: rteint.p

Method : C:\HPCHEM\1\METHODS\8260.M (RTE Integrator)
Title : This method is 8260 volatiles analysis
Last Update : Tue Oct 12 07:15:12 1999
Response via : Multiple Level Calibration

Min. RRF : 0.100  Min. Rel. Area : 50%  Max. R.T. Dev 0.50min
Max. RRF Dev : 30%  Max. Rel. Area : 200%

| | | Compound | AvgRF | CCRF | %Dev | Area% | Dev(min) |
|---|---|---|---|---|---|---|---|
| 40 | S | 4-Bromofluorobenzene (SU3) | 0.543 | 0.530 | 2.4 | 73 | 0.00 |
| 41 | T | 1,3-Dichloropropane | 0.527 | 0.464 | 12.0 | 64 | 0.01 |
| 42 | T | 2-Hexanone | 0.175 | 0.152 | 13.1 | 61 | 0.00 |
| 43 | T | Dibromochloromethane | 0.327 | 0.279 | 14.7 | 59 | 0.01 |
| 44 | T | 1,2-Dibromoethane | 0.334 | 0.271 | 18.9 | 58 | 0.00 |
| 45 | M | Tetrachloroethene | 0.268 | 0.272 | -1.5 | 74 | 0.00 |
| 46 | T | 1,1,1,2-Tetrachloroethane | 0.324 | 0.301 | 7.1 | 67 | 0.01 |
| 47 | PM | Chlorobenzene | 1.137 | 1.103 | 3.0 | 73 | 0.00 |
| 48 | CM | Ethylbenzene | 1.978 | 2.118 | -7.1 | 79 | 0.00 |
| 49 | TM | m,p-Xylenes | 0.761 | 0.802 | -5.4 | 76 | 0.00 |
| 50 | P | Bromoform | 0.149 | 0.121 | 18.8 | 54 | 0.00 |
| 51 | T | Styrene | 1.211 | 1.255 | -3.6 | 74 | 0.00 |
| 52 | TM | o-Xylene | 0.740 | 0.763 | -3.1 | 75 | 0.00 |
| 53 | I | 1,4-Dichlorobenzene-d4 (IS) | 1.000 | 1.000 | 0.0 | 74 | 0.00 |
| 54 | P | 1,1,2,2-Tetrachloroethane | 0.823 | 0.678 | 17.6 | 57 | 0.00 |
| 55 | T | 1,2,3-Trichloropropane | 0.588 | 0.462 | 21.4 | 55 | 0.00 |
| 56 | T | Isopropylbenzene | 4.912 | 5.180 | -5.5 | 78 | 0.00 |
| 57 | T | Bromobenzene | 0.850 | 0.822 | 3.3 | 70 | 0.00 |
| 58 | T | n-Propylbenzene | 5.846 | 6.490 | -11.0 | 81 | 0.00 |
| 59 | T | 2-Chlorotoluene | 3.450 | 3.613 | -4.7 | 79 | 0.00 |
| 60 | T | 4-Chlorotoluene | 3.426 | 3.611 | -5.4 | 79 | 0.00 |
| 61 | T | 1,3,5-Trimethylbenzene | 3.851 | 4.095 | -6.3 | 77 | 0.00 |
| 62 | T | tert-Butylbenzene | 2.838 | 2.995 | -5.5 | 77 | 0.00 |
| 63 | T | 1,2,4-Trimethylbenzene | 3.892 | 4.128 | -6.1 | 77 | 0.00 |
| 64 | T | sec-Butylbenzene | 5.155 | 5.673 | -10.0 | 80 | 0.00 |
| 65 | T | 1,3-Dichlorobenzene | 1.664 | 1.663 | 0.1 | 72 | 0.00 |
| 66 | T | 1,4-Dichlorobenzene | 1.657 | 1.651 | 0.4 | 72 | 0.00 |
| 67 | T | p-Isopropyltoluene | 3.558 | 3.849 | -8.2 | 78 | 0.00 |
| 68 | T | 1,2-Dichlorobenzene | 1.459 | 1.399 | 4.1 | 68 | 0.00 |
| 69 | T | n-Butylbenzene | 4.066 | 4.689 | -15.3 | 86 | 0.00 |
| 70 | T | 1,2-Dibromo-3-chloropropane | 0.109 | 0.075# | 31.2# | 49# | 0.00 |
| 71 | T | 1,2,4-Trichlorobenzene | 0.831 | 0.787 | 5.3 | 68 | 0.00 |
| 72 | T | Napthalene | 1.877 | 1.446 | 23.0 | 53 | 0.00 |
| 73 | T | Hexachlorobutadiene | 0.453 | 0.490 | -8.2 | 83 | 0.00 |
| 74 | T | 1,2,3-Trichlorobenzene | 0.691 | 0.616 | 10.9 | 63 | 0.00 |

(#) = Out of Range  SPCC's out = 0  CCC's out = 0

# Evaluate Continuing Calibration Report

Data File : C:\GCMS7\DATA\99NOV02\OXY025.D  Vial: 2
Acq On : 2 Nov 1999 9:07 am  Operator: RPD/MNT/NA
Sample : 25PPB OXY + 125PPB TBA  Inst : GCMS7
Misc : 60OXYGAS+TBA (ICAL 10-08-99)  Multiplr: 1.00
MS Integration Params: rteint.p

Method : C:\HPCHEM\1\METHODS\60OXYGAS.M (RTE Integrator)
Title : This is 8260 Oxygenates/ Gasoline Method
Last Update : Sat Oct 09 09:48:50 1999
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 30% Max. Rel. Area : 200%

| | | Compound | AvgRF | CCRF | %Dev | Area% | Dev(min) |
|---|---|---|---|---|---|---|---|
| 1 | | Pentafluorobenzene (IS) | 1.000 | 1.000 | 0.0 | 91 | 0.01 |
| 2 | TM | tert-Butanol | 0.035 | 0.035 | 0.0 | 81 | 0.00 |
| 3 | T | Cyclopentane | 1.990 | 2.448 | -23.0 | 107 | 0.00 |
| 4 | T | 2-Methylpentane | 1.804 | 1.506 | 16.5 | 72 | 0.01 |
| 5 | TM | MTBE | 1.160 | 1.326 | -14.3 | 101 | 0.01 |
| 6 | T | 3-Methylpentane | 1.326 | 1.194 | 10.0 | 78 | 0.01 |
| 7 | TM | Diisopropyl Ether (DIPE) | 2.661 | 2.339 | 12.1 | 76 | 0.01 |
| 8 | T | 2-Methyl-2-Pentene | 1.529 | 1.363 | 10.9 | 77 | 0.01 |
| 9 | TM | (ETBE) 2-ethoxy-2-methyl pr | 1.814 | 1.783 | 1.7 | 85 | 0.01 |
| 10 | TM | (TAME) tert-Amyl methyl eth | 1.545 | 1.556 | -0.7 | 86 | 0.01 |
| 11 | I | 1,4-Difluorobenzene (IS) | 1.000 | 1.000 | 0.0 | 98 | 0.01 |
| 12 | I | Chlorobenzene-d5 (IS) | 1.000 | 1.000 | 0.0 | 95 | 0.00 |
| 13 | I | 1,4-Dichlorobenzene-d4 (IS) | 1.000 | 1.000 | 0.0 | 89 | 0.00 |

(#) = Out of Range  SPCC's out = 0  CCC's out = 0

| NON-HAZARDOUS WASTE MANIFEST | 1. Generator's US EPA ID No. NOT REQUIRED | Manifest Document No. 2092 | 2. Page 1 of 1 |
|---|---|---|---|

3. Generator's Name and Mailing Address
TOSCO MARKETING
P.O. BOX 25376 SANTA ANA, CA 92799
4. Generator's Phone ( )

NON HAZ WASTE MAN # 2092

| 5. Transporter 1 Company Name | 6. US EPA ID Number | A. Transporter's Phone |
|---|---|---|
| Ecology Control Industries | CAD982030177 | (310) 320-2555 |
| 7. Transporter 2 Company Name | 8. US EPA ID Number | B. Transporter's Phone |
| | | |
| 9. Designated Facility Name and Site Address | 10. US EPA ID Number | C. Facility's Phone |
| Crosby and Overton<br>1630 West 16th Street<br>Long Beach, CA 90810 | CAD028409019 | (562) -432-5445 |

| 11. Waste Shipping Name and Description | 12. Containers No. | Type | 13. Total Quantity | 14. Unit Wt/Vol |
|---|---|---|---|---|
| a. NON-HAZARDOUS WASTE LIQUID (DECON / GROUNDWATER) | 0-0-3 | DM | 00-1-65 | G |
| b. | | | | |
| c. | | | | |
| d. | | | | |

D. Additional Descriptions for Materials Listed Above
11A. PROFILE # 09607 (55g) DM

E. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information
Wear proper protective equipment while handling. Weights or volumes are approximate. 24 Hour emergency telephone number (800) 262-1900 (ECI Dispatcher).
SITE: TOSCO 76 # 4357 @ 11260 NATIONAL BLVD LOS ANGELES CA

16. GENERATOR'S CERTIFICATION: I certify the materials described above on this manifest are not subject to federal regulations for reporting proper disposal of Hazardous Waste.

| Printed/Typed Name | Signature | Month | Day | Year |
|---|---|---|---|---|
| Tim Opitz on behalf of TOSCO | [signature] | 01 | 06 | 00 |

17. Transporter 1 Acknowledgement of Receipt of Materials

| Printed/Typed Name | Signature | Month | Day | Year |
|---|---|---|---|---|
| Ignacio Hernandez | [signature] | 01 | 06 | 00 |

18. Transporter 2 Acknowledgement of Receipt of Materials

| Printed/Typed Name | Signature | Month | Day | Year |
|---|---|---|---|---|
| | | | | |

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of waste materials covered by this manifest except as noted in item 19.

| Printed/Typed Name | Signature | Month | Day | Year |
|---|---|---|---|---|
| FIDEL MALDONADO | [signature] | 01 | 07 | 00 |

TRANSPORTER #1