PORT OF OAKLAND

September 15, 1999

Mr. Larry Seto
Hazardous Materials Specialist
Alameda County Environmental Health Services
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577

SUBJECT: REPORT SUBMISSION REGARDING UNION PACIFIC RAILROAD TRAILER-ON-FLAT-CAR SITE OAKLAND, CALIFORNIA

Dear Mr. Seto:

The Port of Oakland herein submits a copy of a report titled, "*First Semi-Annual 1999 Groundwater Monitoring Report, Union Pacific Railroad, Trailer-On-Flat-Car Site, 1717 Middle Harbor Road, Oakland, California*" dated August 2, 1999. This report was prepared on the behalf of the Port by Camp Dresser & McKee. If any questions arise during your review, please contact me at 272-1373.

Sincerely,

John Prall, R.G.
Associate Environmental Scientist

Enclosure

Cc: Neil Werner

CDM Camp Dresser & McKee

Report

Union Pacific Railroad Trailer-On-Flat-Car Site

1717 Middle Harbor Road
Oakland, California

First Semi-Annual 1999 Groundwater Monitoring Report

August 2, 1999

Prepared For:

Port of Oakland
530 Water Street
Oakland, California 94607

Prepared by:

CDM/FEJ Joint Association
1440 Broadway, Suite 400
Oakland, CA 94612

CDM Project No. 10605-25291-GW.UPTOFC

CDM Camp Dresser & McKee Inc.

consulting engineering construction operations

1440 Broadway, Suite 400
Oakland, California 94612
Tel: 510 835-8413 Fax: 510 839-9304

August 2, 1999

Mr. John Prall
Port of Oakland
Environmental Health and Safety Compliance Department
530 Water Street
Oakland, CA 94607

Subject: *First Semi-Annual 1999 Groundwater Monitoring Report*
Union Pacific Railroad
1717 Middle Harbor Road, Oakland, California
CDM Project No. 10605-25291-GW.UPTOFC

Dear Mr. Prall:

The Camp Dresser & McKee Inc./F.E. Jordan Joint Association (CDM/FEJ) is pleased present the enclosed First Semi-Annual 1999 Groundwater Monitoring Report for the Union Pacific Railroad Trailer-on-Flat-Car (TOFC) site located at 1717 Middle Harbor Road in Oakland, California. As required by a written directive (502-51231) from the East Bay Municipal Utility Department (EBMUD) and the Alameda County Department of Environmental Health (ACDEH), this report presents the operation, maintenance and monitoring (OM&M) of the hydrocarbon recovery and groundwater treatment system (treatment system) and the results of the February 1999 groundwater monitoring event.

The results of the first semi-annual monitoring showed that the dissolved volatile aromatics and total petroleum hydrocarbons as diesel (TPH-D) concentrations in the monitored wells were consistent with historic concentration ranges. However, there was one to two orders of magnitude decrease in TPH-D concentrations during the February 1999 monitoring event from the August 1998 monitoring event in most of the wells. As required by ACDEH in their letter dated May 28, 1999, groundwater samples will be tested for the presence of methyl tert-butyl ether (MTBE) during August 1999 sampling event. The groundwater flow direction was to the southeast during this period and consistent with previous groundwater monitoring events.

Please contact the undersign at (925) 933-2900 if you have any questions or comments regarding the report.

Very truly yours,

CAMP DRESSER & McKEE INC.

Hoa Voscott
Task Manager

Michael G. Gray, C.E.G.
Senior Project Manager

Enclosure

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Union Pacific Railroad Trailer-On-Flat-Car Site

1717 Middle Harbor Road
Oakland, California

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Executive Summary

This first semi-annual 1999 groundwater monitoring report presents the findings of the February and May 1999 sampling events conducted at the Union Pacific Railroad Trailer-on-Flat-Car (TOFC) site located at 1717 Middle Harbor Road in Oakland, California. The report was prepared by the Camp Dresser & McKee Inc./F.E. Jordan Joint Association (CDM/FEJ) on behalf of the Port of Oakland (Port).

This report was prepared in accordance with the East Bay Municipal Utility District (EBMUD) permit number 502-51231 and in fulfillment of the requirements cited in the September 21, 1994 letter prepared by the Alameda County Department of Environmental Health (ACDEH). The objectives of the monitoring program are to evaluate changes in the distribution of petroleum hydrocarbons in groundwater and to document the operation, maintenance, and monitoring of the hydrocarbon recovery system.

On December 24, 1998, the Port assumed responsibility for the groundwater monitoring at the Union Pacific Motor Freight (UPMF) and TOFC sites. On behalf of the Port, CDM/FEJ has performed the groundwater monitoring at the two sites since February 1999. Work performed at the sites was previously performed by Environmental Decision Group, Inc. (formerly Laidlaw Consulting Services) and their subcontractor, Burns & McDonnell, on behalf of Union Pacific Railroad (UPRR). Groundwater monitoring results for the UPMF site is presented in a separate semi-annual report on an annual basis in May and October.

In May 1992, UPRR began operation of the treatment system to recover light non-aqueous phase liquid (LNAPL) petroleum hydrocarbons (diesel) identified during previous investigations. In March 21, 1997, ACDEH approved the Additional Remediation Work Plan to expand the recovery system from three to five pumping wells. In addition, the ACDEH letter approved the semi-annual groundwater monitoring schedule on an annual basis in February and August. Presently, 17 groundwater wells are sampled at the TOFC site and are used to determine the lateral extent of petroleum hydrocarbons in the groundwater.

On February 17 through 19, 1999, groundwater samples were collected from the seven semi-annually monitored wells. The remaining 10 wells either contained product or are used as recovery wells. The groundwater samples were analyzed for total petroleum hydrocarbons as diesel (TPH-D) and for purgeable aromatic hydrocarbons. Concentrations of petroleum hydrocarbons and purgeable aromatics in the groundwater samples collected from the monitoring wells were comparable to those obtained from previous sampling events. In most of the wells, there was at least an order of magnitude decrease in TPH-D concentrations during the February 1999 monitoring event from the August 1998 monitoring event. Groundwater flow beneath the sites is southeast toward Oakland Inner Harbor.

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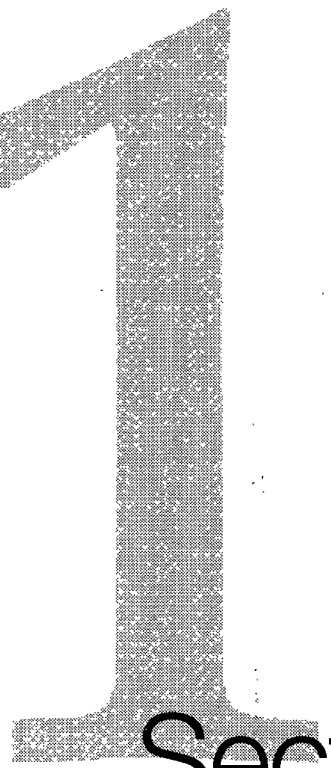


Section One

Section 1
Introduction

This report presents the results of the semi-annual monitoring program conducted at the Union Pacific Railroad trailer-on-flat-car (TOFC) site located at 1717 Middle Harbor Road in Oakland, California (Figure 1). The monitoring program covers the period from December 1, 1998 to June 30, 1999 and consists of operation, maintenance and monitoring (OM&M) of the hydrocarbon recovery and groundwater treatment system (treatment system) and the February 1999 groundwater monitoring event.

This report was prepared by the Camp Dresser & McKee Inc./F.E. Jordan Joint Association (CDM/FEJ) on behalf of the Port of Oakland (Port) in accordance with the East Bay Municipal Utility District (EBMUD) permit number 502-51231 and in fulfillment of the requirements cited in the September 21, 1994 letter prepared by the Alameda County Department of Environmental Health (ACDEH). The objectives of the monitoring program are to evaluate changes in the distribution of petroleum hydrocarbons in groundwater and to document the OM&M of the hydrocarbon recovery system.

In May 1992, Union Pacific Railroad (UPRR) began operation of the treatment system to recover light non-aqueous phase liquid (LNAPL) petroleum hydrocarbons (diesel) identified during previous investigations (Laidlaw, 1991a). The treatment system design was presented in *The Preliminary Design Report* and the as-built information was later presented in *The Hydrocarbon Recovery Systems, As-Built Construction Report* (Laidlaw, 1991b and Laidlaw, 1992a, respectively). In March 21, 1997, ACDEH approved the Additional Remediation Work Plan to expand the recovery system from three pumping wells (ORW-1 through ORW-3) to five pumping wells (addition of OMW-9 and OP-4). In addition, the ACDEH letter approved the semi-annual groundwater monitoring schedule of February and August.

On December 24, 1998, the Port assumed responsibility for the groundwater monitoring at the UPRR Motor Freight (UPMF) and TOFC railyards and for OM&M of the two groundwater treatment systems at the sites. On behalf of the Port, CDM/FEJ has performed the groundwater monitoring at the TOFC railyard (site) and UPMF railyard since February 1999. Work performed at the UPMF and TOFC railyards was previously performed by Environmental Decision Group, Inc. (formerly Laidlaw Consulting Services) and their subcontractor, Burns & McDonnell, on behalf of UPRR. Groundwater monitoring results for the UPMF railyard was presented in a separate report, dated April 1999 (CDM/FEJ, 1999).

The semi-annual monitoring program consists of the results of fluid-level measurements, analytical results for groundwater samples collected by CDM/FEJ in February 1999 and the OM&M activities for the treatment system from December 1, 1998 to June 30, 1999. The purpose of the groundwater monitoring program is to monitor the hydraulic flow direction and the changes in the concentration of dissolved petroleum hydrocarbons at the TOFC site while the OM&M program documents the

volume of treated groundwater and recovered product. This report includes a discussion of the background information about the site, field and analytical results for the semi-annual period, and summary of findings.

1.1 Background

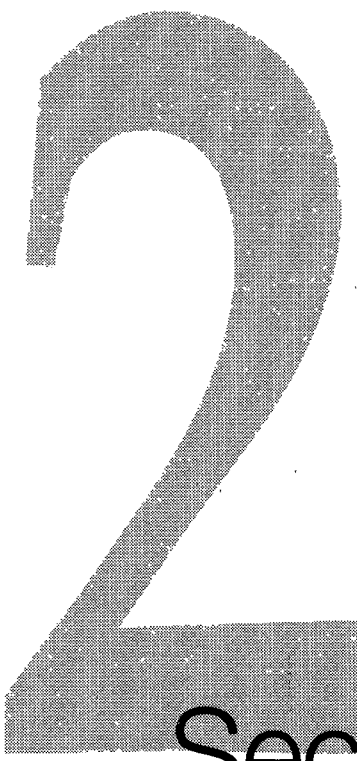
The TOFC site is located on the northeastern portion of UPRR, which is adjacent to the Oakland Inner Harbor or Oakland Estuary (Figures 1 and 2). The area surrounding the TOFC site is used for light to heavy commerce. Residential areas are located approximately one-half mile north of the site and across the Oakland Estuary one-half mile south of the site.

Previous investigations indicated the presence of LNAPL petroleum hydrocarbons (diesel) floating on groundwater near the fueling area. In May 1992, the treatment system was installed to remove the free phase diesel from extracted groundwater.

Downgradient and approximately 700 feet southeast of the TOFC site is the UPMF railyard. Previous investigations have defined the extent of petroleum hydrocarbons in the soil and groundwater (Laidlaw, 1993). Groundwater monitoring has been performed at UPMF railyard since 1993. On the basis of these investigations and subsequent monitoring, petroleum hydrocarbons from the TOFC site do not appear to have migrated to the UPMF site. The ACDEH treats the UPMF site as a separate project and it will be discussed in a separate report, due for presentation to the ACDEH in October 1999. However, the water level data collected from the UPMF site in conjunction with the TOFC site are used to contour the local groundwater elevations and are depicted in Figures 3 and 4.

1.2 Report Organization

This report consists of four sections. This Section 1, *Introduction*, provides the regulatory framework for the activities at the TOFC site and background information. Section 2, *Completed Activities*, documents the OM&M activities, results of fluid level measurements, and summary of analytical laboratory results. Section 3, *Summary of Findings*, presents the results of the most recent monitoring events. Section 4, *References*, provides the references used in preparation of this report. Following Section 4, the Figures, Tables, and Appendices are presented.



Section Two

Section 2
Completed Activities

Since submission of the last Semi-Annual Monitoring Report (July 1 to November 30, 1998), dated December 28, 1998, to ACDEH by Environmental Decision Group Inc., the major activities completed at the site were OM&M of the treatment system, groundwater elevation measurement and sampling, and resurvey of the monitoring wells. Work performed during the monitoring events followed the standard operating procedures previously approved by the ACDEH (Laidlaw, 1994). The scope of work during this semi-annual monitoring period (December 1, 1998 to June 30, 1999) consisted of the following:

- Resurvey of the monitoring wells with respect to the horizontal coordinates and the vertical elevations per Port datum (Port datum defined as mean sea level minus 3.20 feet, February 1999).
- On a weekly basis, perform operation, maintenance, and monitoring of the hydrocarbon recovery and groundwater treatment system;
- On a quarterly basis, measure fluid-levels in all of the TOFC groundwater monitoring wells quarterly (conducted in February and May 1999);
- Determine the local groundwater flow direction and hydraulic gradient based on the potentiometric surface elevations (conducted in February and May 1999); and
- On a semi-annual basis, purge and sample the seven groundwater monitoring wells where product is not observed semi-annually (conducted in February 1999);
- Analyze groundwater samples for total petroleum hydrocarbons and volatile aromatic constituents semi-annually (conducted in February 1999);

2.1 OM&M of Treatment System

The treatment system at TOFC site consist of five recovery wells (ORW-1, ORW-2, ORW-3, OMW-9, and OP-4), a diesel/water separator, a recovered diesel storage tank, air compressor, and an activated carbon treatment system. The recovery of diesel is accomplished by depressing the groundwater table with total-fluid pumps to recover diesel and groundwater and create a cone of depression surrounding each recovery well. The recovered groundwater is treated via the diesel/water separator and then the activated carbon treatment system before discharged to the EBMUD sanitary sewer under the permit number 502-51231. The locations of the five recovery wells (ORW-1, ORW-2, ORW-3, OMW-9, and OP-4) and the water treatment facility are indicated on Figure 2.

2.1.1 System Operation

During the operating period of November 30, 1998 to June 30, 1999, the groundwater recovery and treatment system treated approximately 644,472 gallons of groundwater. Since start-up on May 12, 1992 until June 30, 1999, the system has recovered approximately 7,122,172 gallons of water (see Table 1) and 11,000 gallons of diesel (see Table 2).

The system has operated continuously since being restarted on June 22, 1998 with minor down time due to required maintenance. It was down for approximately eight days in February 1999 until the air compressor motor was replaced on February 19, 1999.

Combined pumping rates for ORW-1, ORW-2, ORW-3, OMW-9, and OP-4 averaged approximately 2 gallons per minute (gpm). This represents the average cumulative pumping rated for the operating period from November 30, 1998 to June 30, 1999.

2.1.2 System Maintenance

System maintenance is performed on a weekly basis and consists of backwashing the carbon vessels, changing particulate filters, and checking the status of recovery pumps and chlorine feed system. In addition, operational readings (cumulative flow, hydrocarbon storage volume, and pressure drop across the particle filters) are collected during each site visit. Copies of the OM&M checklist for the treatment system are included in Appendix A.

2.1.3 System Monitoring

System monitoring is performed on a monthly basis during a scheduled maintenance visit. Recovered groundwater samples are collected from the sampling ports at the treatment system periodically to assess the performance of the system and to compare the concentrations of the discharge with limits established by the EBMUD.

The samples are collected from sampling ports located before (influent), between (midfluent), and after (effluent) the two granular activated carbon vessels at the following frequencies.

- On a monthly basis, water samples are collected from the midfluent stream. These samples are analyzed for benzene, toluene, ethylbenzene, and xylenes (BTEX) using EPA Method 8020.

- Influent and effluent water samples are collected on a quarterly basis (January, April, July, and October). These samples are analyzed for BTEX using EPA Method 8020 and total petroleum hydrocarbons as diesel (TPH-D) using EPA Method 8015 modified with silica gel cleanup.

2.1.4 System Monitoring Results

Influent and effluent samples are collected quarterly and were obtained on January 10, 1999 and April 21, 1999. During this semi-annual period, TPH-D, benzene, and total xylenes were identified above laboratory detection limits (see Table 3). Toluene and ethylbenzene were not detected above laboratory detection limits. For the effluent samples, no compounds were detected above laboratory detection limits and the EBMUD discharge limits (see Table 4).

Midfluent samples are collected on a monthly period and were obtained on December 16, 1998, January 10, 1999, February 23, 1999, March 1, 1999, April 21, 1999, May 4, 1999, and June 9, 1999. During this semi-annual period, no compounds were detected above laboratory detection limits (see Table 5).

2.1.5 System Activated Carbon Usage

Two 2,000-pound granular activated carbon vessels are connected in series to remove organic compounds dissolved in the recovered groundwater. The second vessel is in-place to reduce a potential discharge to the sewer system in the event of breakthrough of the first carbon vessel.

Table 1 presents the estimated amount of spent carbon (adsorption sites loaded with contaminants) and the expected life of the first carbon vessel. The methodologies for performing calculations were originally presented in the Hydrocarbon Recovery System Quarterly Monitoring Report, Second Quarter, 1992 (Laidlaw, 1992b). Based on the calculations, there is approximately 88 days left and the projected breakthrough date is in September 1999. CDM/FEJ will evaluate the need to replace the first carbon vessel in August 1999. The second carbon vessel was replaced on August 28, 1998.

2.2 Groundwater Monitoring

2.2.1 Field Activities

February 1999 Monitoring Event

On February 16, 1999, CDM/FEJ measured fluid levels (combined water and diesel) in 12 of the 17 monitoring wells at the TOFC site. In addition, fluid levels were measured from the 10 wells located at the UPMF site . CDM/FEJ's fluid level measurements for the TOFC site are presented in Table 5.

From February 17 and 18, 1999, CDM/FEJ purged and collected groundwater samples from seven of the 17 wells at the TOFC site. In addition, a duplicate sample was collected from well OMW-10 (labeled as OMW-12). CDM/FEJ's monitoring well purge and sampling forms for the seven wells are presented in Appendix B.

At each monitoring well, CDM/FEJ purged a minimum of three well volumes using a new, polypropylene disposable bailer. Groundwater samples were collected with the disposable bailer following the removal of three well volumes of water. Samples were decanted to the appropriate laboratory supplied bottles. Specifically, samples were contained in three 40-milliliter glass vials preserved with hydrochloric acid (with no headspace) and one 1-liter amber glass bottle. All samples were transported in a cooler chilled with ice and submitted under chain-of-custody protocol to Curtis & Tompkins, Ltd. (Port designated laboratory), a state-certified analytical laboratory, in Berkeley, California.

Groundwater samples were analyzed for the following:

- TPH-D by EPA Method 8015 Modified with silica gel cleanup; and
- BTEX by EPA Method 8020.

May 1999 Monitoring Event

On May 4, 1999, CDM/FEJ measured fluid levels in all the 17 monitoring wells at the site. In addition, fluid levels were measured from the 10 wells located at the UPMF railyard. CDM/FEJ's fluid level measurements for the site is presented in Table 5. As it was not required by the ACDEH, no groundwater samples were collected at the TOFC site.

2.2.2 Results of Fluid Level Measurements

During the February and May 1999 monitoring events, fluid levels were measured from the wells at the TOFC and UPMF sites and were used in calculating groundwater elevations for each monitoring event. The cumulative fluid level measurement data is presented in Table 6.

February 1999 Monitoring Event

A potentiometric surface map, created with measurements collected from groundwater monitoring wells at the TOFC site and from the adjacent UPMF site on February 16, 1999, is presented as Figure 3. In the region of the TOFC site, groundwater flow is generally to the southeast. Pumping activity was discontinued on the TOFC site (due to system shutdown) during the fluid level measurements, flattening the water table (compare Figure 3 to Figure 4). Groundwater gradient varies across the sites but generally slopes toward the well APL/UP-W2 (refer to Figure 3 and 4).

May 1999 Monitoring Event

A potentiometric surface map, created with measurements collected from groundwater monitoring wells at the TOFC site and from the adjacent UPMF on May 4, 1999, is presented as Figure 4. In the region of the TOFC railyard, groundwater flow is generally to the southeast. Pumping activity was active at the TOFC during the fluid level measurements, creating cones of depression around the

five recovery wells (compare Figure 3 to Figure 4). Consistent with the February observations , the groundwater gradient varies across the sites but generally slopes toward well APL/UP-W2.

2.2.3 Results of Groundwater Analytical Testing

February 1999 Monitoring Event

Dissolved TPH-D was detected in groundwater samples collected from five of the seven monitoring wells sampled during the February 1999 monitoring event. TPH-D concentrations ranged from below 50 µg/l in wells OMW-1 and OMW-2, up to 15,000 microgram/liter (µg/l) in well OMW-10. TPH-D concentrations exhibited at least an order of magnitude decrease in all of the wells, except for well OMW-10, from the previous monitoring event (August 1998).

For the seven wells sampled, benzene concentrations ranged from less than 0.5 µg/l in most wells to 1.9 µg/l in wells OMW-1 and OMW-10. For toluene, all samples had concentrations below laboratory detection limits (5 µg/l). Ethylbenzene concentrations ranged from below 0.5 µg/l in most wells to 1.9 µg/l in well OMW-2. For total xylenes, all samples had concentrations that were below laboratory detection limits (5 µg/l). The concentrations are consistent with previous monitoring events.

Overall, well OMW-10 contained the highest dissolved concentrations of TPH-D and BTEX. TPH-D and BTEX concentrations measured during the February 1999 monitoring events are presented as Figure 7. Analytical reports and chain of custody forms are included in Appendix C.

2.2.4 Results of Field and Laboratory QA/QC

A duplicate groundwater sample (OMW-12) was collected at well OMW-10 and analyzed for TPH-D and BTEX to measure groundwater data reproductively. The duplicate sample showed good correlation with its partner sample, particularly for BTEX. In addition, a trip blank sample was collected during each day of field activities and analyzed for TPH-G and BTEX. Laboratory results for the three trip blank samples, collected from February 17 through 19, 1999, were all below laboratory detection limits. This indicates that sample handing procedures were adequate.

The maximum holding time for TPH-D, and BTEX in water is 14 days from the time of sample collection to time of analysis. According to the analytical reports, all samples were analyzed within the analytes' respective holding times. Based on the analytical reports' case narratives, no analytical problems were encountered during laboratory Quality Assurance/Quality Control (QA/QC) procedures.

2.3 Re-Survey of Monitoring Wells

On February 17, 1999, PLS Survey Inc. (PLS) re-surveyed the 17 wells at the site and the ten wells at the UPMF railyard. At each well location, PLS surveyed the horizontal coordinates and the vertical elevations using the Port datum (-3.202 Mean Sea Level). These wells were initially surveyed by various surveyors using the City of Oakland datum (2.998 Mean Sea Level). According to PLS, horizontal and vertical accuracies of 0.1 foot and 0.01 foot were achieved, respectively. In addition to these wells, the northwest and southwest corners of the UPRR transport building were tied into the survey. A copy of the survey results is presented in Appendix C.

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Section Three

Section 3
Summary and Conclusions

Based upon the results of the most recent monitoring events in February and May 1999, presented below are CDM/FEJ's summary of findings:

- The treatment system operated continuously during this semi-annual period with minor downtown due to repairs. System sampling indicated that all midfluent and effluent samples were below laboratory detection and EBMUD discharge limits.

- The groundwater flow direction was to the southeast during the two monitoring events. This flow direction is consistent with previous groundwater monitoring events.

- The dissolved BTEX and TPH concentrations in all wells were consistent with historic concentration ranges. However, there was at least an order of magnitude decrease in TPH-D concentrations during the February 1999 monitoring event from the previous monitoring event in most of the wells.

- Historic monitoring results show that residual petroleum contamination in the source area has decreased over time, which suggests that a continued source of contamination is not present.

4

Section Four

Section 4
References

CDM/FEJ, 1999, First Semi-Annual 1999 Groundwater Monitoring Report for UPMF, April 1999.

Laidlaw, 1991a, Hydrocarbon Investigation and Remediation Design. Laidlaw Environmental Services, June 10, 1991.

Laidlaw, 1991b, The Preliminary Design Report. Laidlaw Environmental Services, 1991.

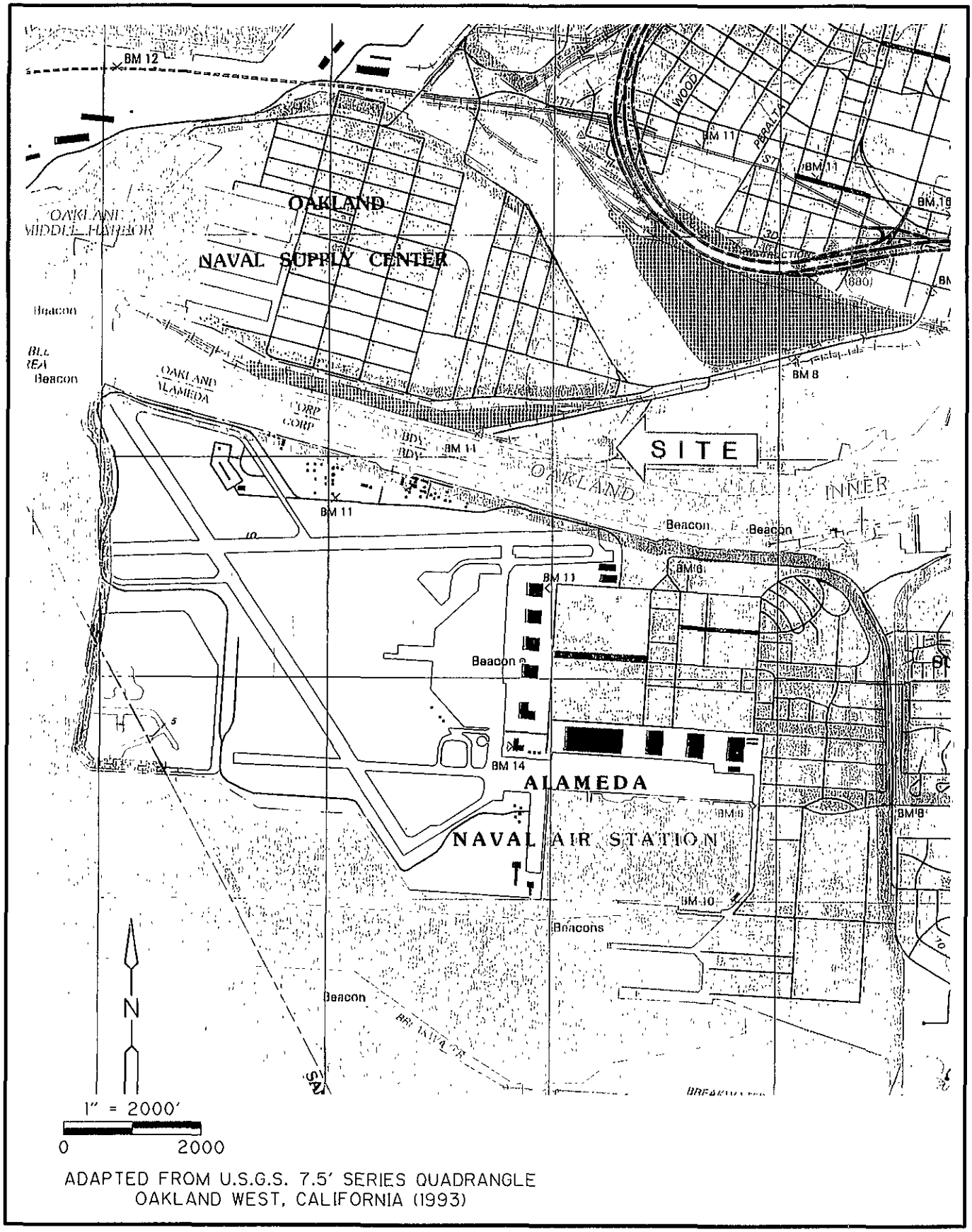
Laidlaw, 1992a, The Hydrocarbon Recovery Systems, As-Builts Construction Report. Laidlaw Environmental Services, 1992.

Laidlaw, 1992b, Hydrocarbon Recovery System Quarterly Report. Laidlaw Environmental Services, 1992.

Laidlaw, 1993, Phase II Site Assessment Report. Laidlaw Environmental Services, October 1993.

Laidlaw, 1994, Fourth Quarter 1993 Monitoring Event. Laidlaw Environmental Services, October 1993.

Figures



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OAKLAND WEST, CALIFORNIA (1993)

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CDM Camp Dresser & McKee

Figure 1
UNION PACIFIC RAILROAD
TOFC AND UPMF SITES
SITE LOCATION MAP

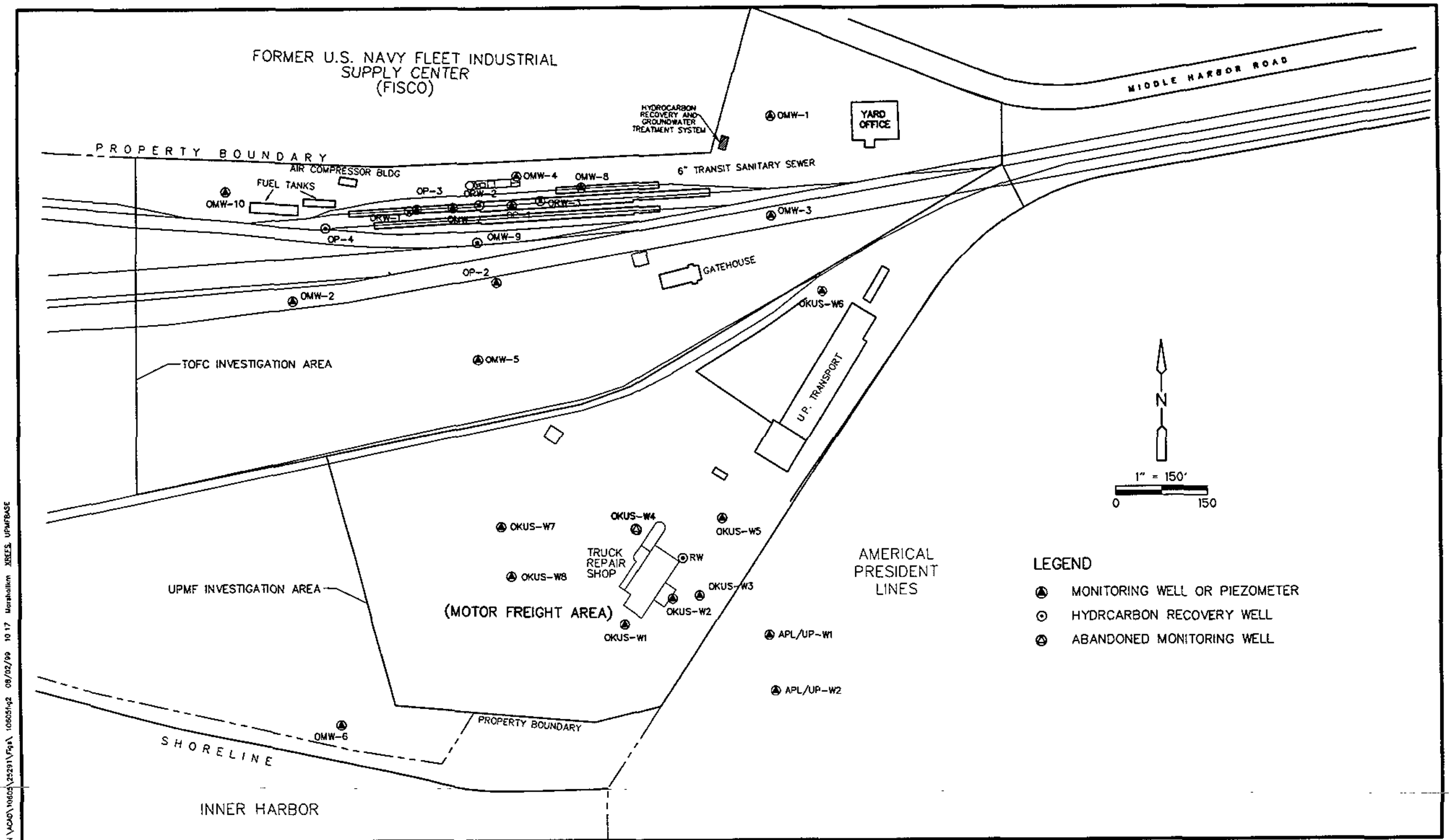

Figure 2

UNION PACIFIC RAILROAD
TOFC AND UPMF SITES
SITE VICINITY MAP

CDM Camp Dresser & McKee

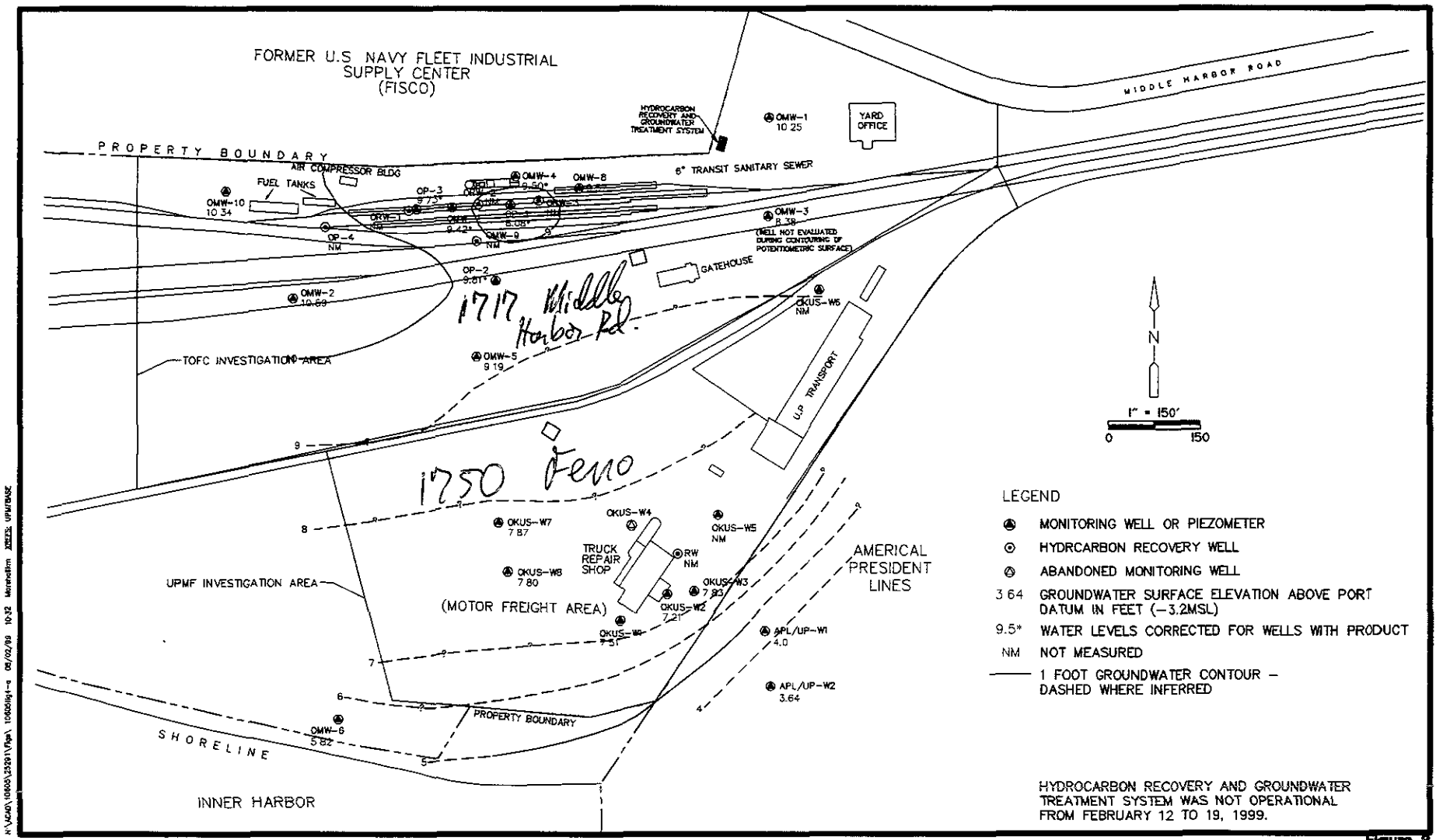

Figure 3
UNION PACIFIC RAILROAD
TOFC AND UPMF SITES - Oakland, California
GROUNDWATER POTENTIOMETRIC SURFACE MAP - FEBRUARY 16, 1999

CDM Camp Dresser & McKee

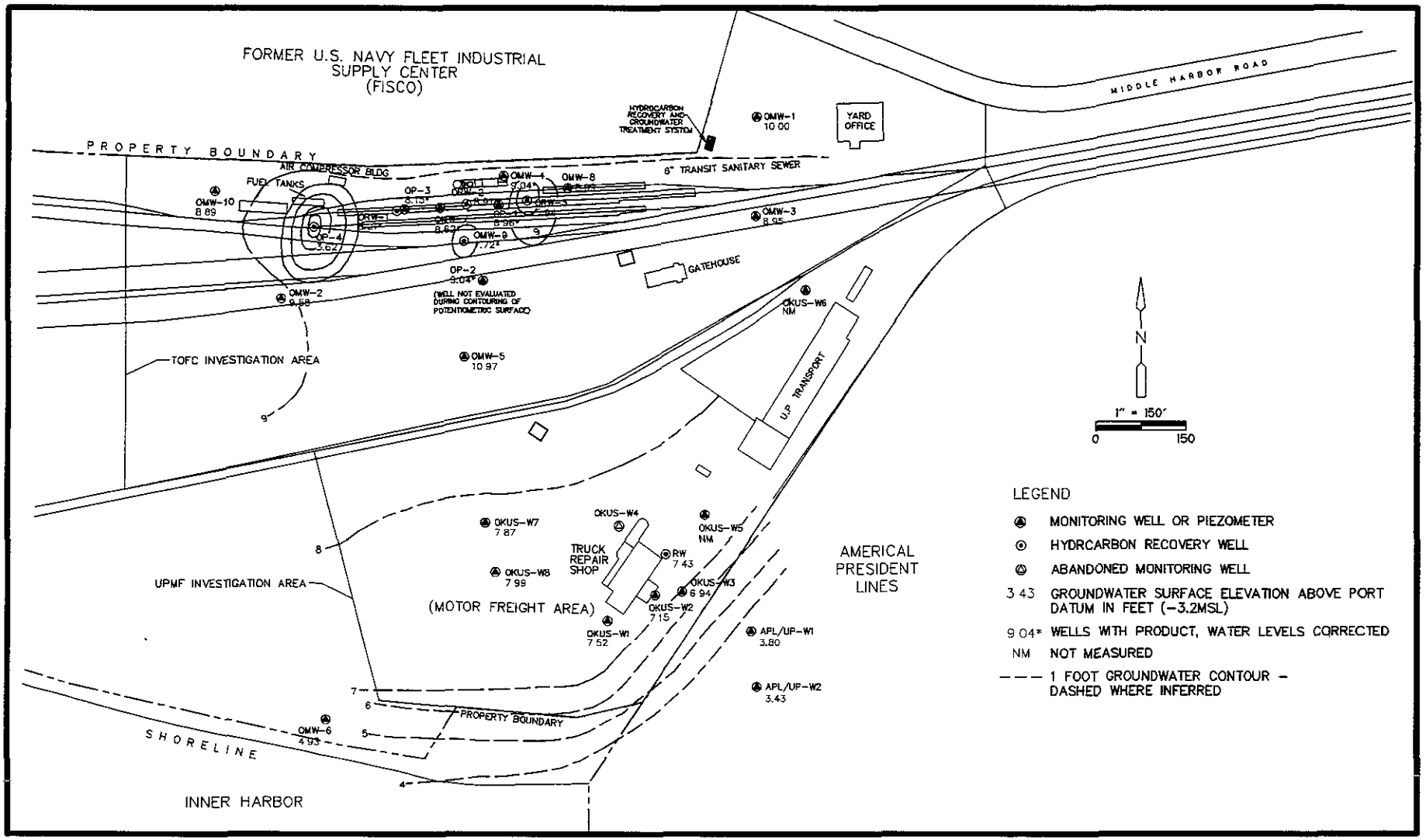

Figure 4
UNION PACIFIC RAILROAD
TOFC AND UPMF SITES - Oakland, California
GROUNDWATER POTENTIOMETRIC SURFACE MAP - MAY 4, 1999

CDM Camp Dresser & McKee

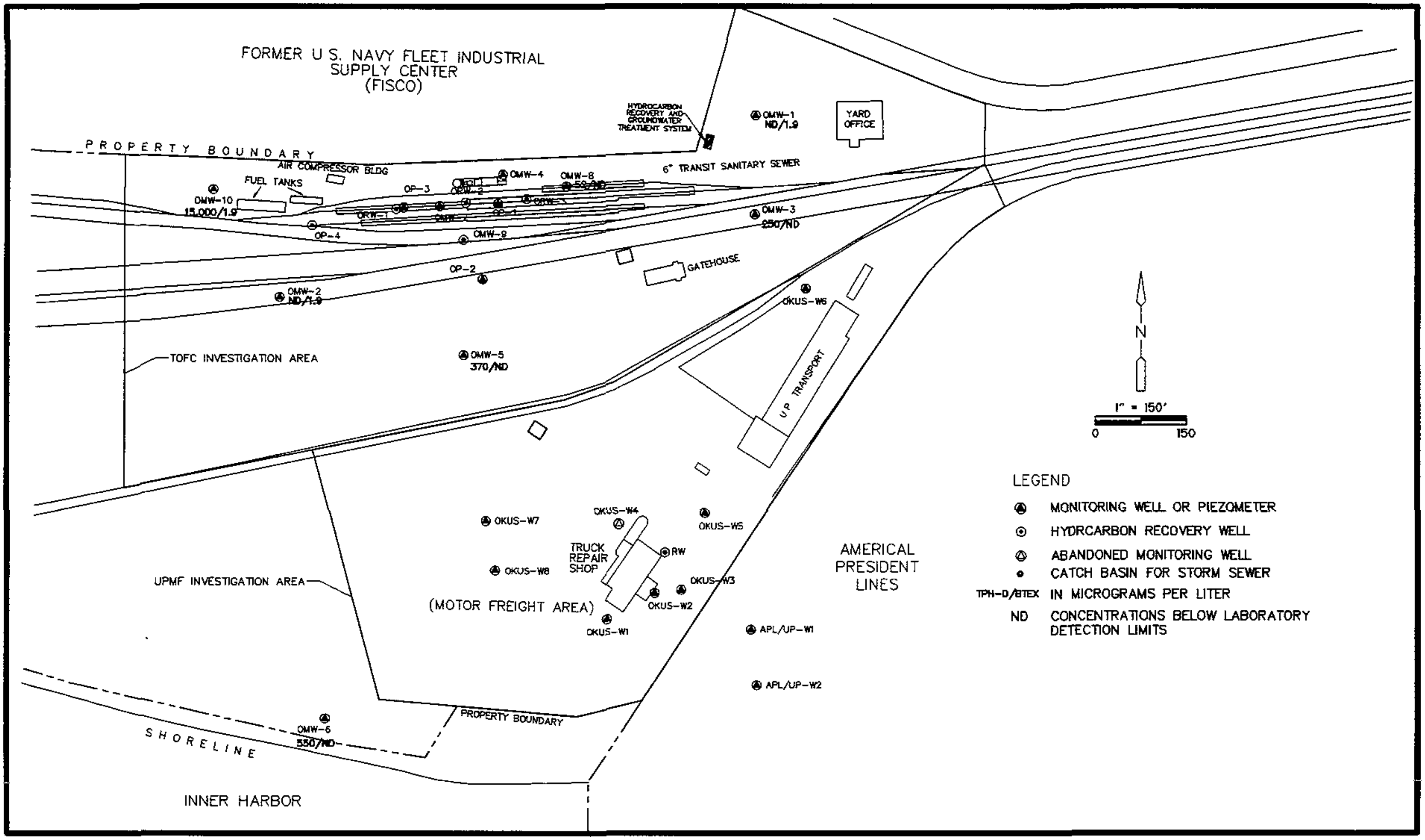

Figure 5
UNION PACIFIC RAILROAD
TOFC AND UPMF SITES - Oakland, California
HYDROCARBON CONCENTRATIONS
FEBRUARY 16 through 19, 1999

CDM Camp Dresser & McKee

Tables

TABLE 1
GRANULAR ACTIVATED CARBON USAGE
PORT OF OAKLAND
TRAILER-ON-FLAT-CAR (TOFC) SITE

Date	Time	Volume (gallons)	Periodic Flowrate (gpm)	Average Flowrate (gpm)	Infl Conc TPHd (mg/l)	Carbon Used (pounds)	Spent Carbon (pounds)	Remaining Pumpable (gallons)	Remaining Pumpable (days)	Projected Breakthru Date
05/07/92	11:35 PM	2020	1.74	1.74	45 *	8	8	531663	213	Dec-92
05/12/92	08:30 AM	12980	1.74	1.74	45	41	49	520703	208	Dec-92
05/19/92	01:30 PM	24990	1.16	1.55	59	50	98	387036	174	Nov-92
05/27/92	10:50 AM	45350	1.79	1.61	61	89	187	356823	154	Oct-92
06/02/92	03:00 PM	73150	3.13	1.91	100	144	331	200426	73	Aug-92
07/07/92	05:35 PM	166500	1.85	1.90	200	661	992	60539	22	Jul-92
08/11/92	11:56 AM	232370	1.32	1.32	6.1	0 +	0	1771651	935	Mar-95
09/25/92	09:55 AM	386390	2.41	1.86	17	333	333	529708	197	Apr-93
11/16/92	09:55 AM	484380	1.28	1.67	100	729	1062	50663	21	Dec-92
12/04/92	09:55 AM	518160	1.30	1.58	8.7	206	1268	454391	200	Jun-93
02/02/93	02:30 PM	673180	1.79	1.62	6.9	796	2064	-50298	-22	Jan-93
03/10/93	03:00 PM	741070	1.31	1.31	30 *	0 +	0	400262	212	Oct-93
03/30/93	09:00 AM	743950	0.10	1.61	44	18	18	270484	117	Jul-93
04/30/93	04:00 PM	755900	0.27	1.51	14	58	76	825055	379	May-94
05/27/93	01:40 PM	854610	2.55	1.58	120	855	931	53482	23	Jun-93
06/30/93	07:30 AM	1007200	3.14	1.68	1.2	1063	1994	27899	12	Jul-93
07/21/93	07:30 AM	1094630	2.89	2.89	2.2 *	0 +	0	2183247	524	Dec-94
07/28/93	08:30 AM	1125630	3.06	2.97	2.2	28	28	2152247	503	Dec-94
08/31/93	01:55 PM	1256910	2.66	2.87	3.2	138	167	1375740	333	Jul-94
09/30/93	04:00 PM	1333050	1.76	2.59	20	219	386	193850	52	Nov-93
10/28/93	05:50 PM	1411050	1.93	2.46	6.1	219	605	549390	155	Apr-94
11/30/93	08:00 PM	1475300	1.35	2.27	31	288	893	85757	26	Dec-93
12/28/93	12:00 PM	1526880	1.29	2.13	10	229	1122	210802	69	Mar-94
01/31/94	03:00 PM	1584340	1.17	2.01	3.3	233	1356	469026	162	Jul-94
02/07/94	12:00 PM	1595300	1.11	1.11	8.0 *	0 +	0	1500982	942	Sep-96
02/25/94	04:00 PM	1658010	2.40	1.75	9.3	90	90	1232840	489	Jun-95
03/30/94	11:00 AM	1785000	2.69	2.06	2.7	141	231	3932895	1323	Nov-97
05/03/94	05:00 PM	1841190	1.14	1.83	67	204	435	140249	53	Jun-94
06/01/94	04:00 PM	1909040	1.63	1.79	3.5	205	639	2333885	904	Nov-96
07/29/94	07:30 PM	2029010	1.43	1.73	1.4	306	946	4522185	1813	Jul-99
08/31/94	07:00 PM	2113920	1.79	1.74	2.1	190	1135	2471828	986	May-97
09/27/94	11:00 AM	2175320	1.60	1.72	5.9	128	1263	749848	302	Jul-95
10/28/94	12:00 PM	2254600	1.77	1.73	5.5	155	1418	635573	255	Jul-95
11/16/94	03:30 PM	2269370	0.54	1.61	39	36	1453	84163	36	Dec-94
11/23/94	11:00 AM	2276880	0.77	0.77	16 *	0 +	0	750491	681	Oct-96
01/25/95	01:30 PM	2468180	2.11	1.44	35 **	812	812	203706	99	May-95
04/12/95	10:50 AM	2549270	0.73	1.20	3.7	246	1059	1527342	883	Sep-97
05/29/95	03:30 PM	2732640	2.70	1.58	0	418	1476	1527342	673	Apr-97
06/30/95	02:00 PM	2830380	2.13	1.69	25	259	1736	63424	26	Jul-95
07/19/95	02:30 PM	2882550	1.90	1.72	13	134	1870	59968	24	Aug-95
07/21/95	11:00 AM	2890500	2.98	2.98	12 *	0 +	0	1000655	233	Mar-96
08/08/95	04:00 PM	2986700	3.67	3.32	11	184	184	991051	207	Mar-96
09/08/95	02:00 PM	3108110	2.73	3.12	11	229	413	865962	192	Mar-96
10/13/95	10:30 AM	3206500	1.96	2.83	66	410	823	107058	26	Nov-95
11/22/95	03:30 PM	3318600	1.94	2.65	38	515	1338	104523	27	Dec-95
12/15/95	08:00 AM	3369800	1.57	2.47	19	223	1562	138533	39	Jan-96
01/08/96	11:45 AM	3554790	5.32	2.88	0.05	691	2253	255074	62	Mar-96
02/12/96	08:00 AM	3714500	3.18	2.92	56	708	2961	4150	1	Feb-96

TABLE 1
GRANULAR ACTIVATED CARBON USAGE
PORT OF OAKLAND
TRAILER-ON-FLAT-CAR (TOFC) SITE

Date	Time	Volume (gallons)	Periodic Flowrate (gpm)	Average Flowrate (gpm)	Infl Conc TPHd (mg/l)	Carbon Used (pounds)	Spent Carbon (pounds)	Remaining Pumpable (gallons)	Remaining Pumpable (days)	Projected Breakthru Date
03/12/96	11:00 AM	3814170	2.38	2.86	42	470	3432	2610	1	Mar-96
04/10/96	08:00 AM	3927670	2.73	2.84	36	550	3982	3011	1	Apr-96
05/06/96	08:00 AM	4035290	2.87	2.87	25 *	0 +	0	480314	116	Aug-96
05/13/96	08:00 AM	4055530	2.69	2.78	14	66	66	829513	207	Dec-96
06/13/96	07:00 AM	4172140	2.62	2.73	18	369	435	522088	133	Oct-96
07/17/96	07:50 AM	4343300	3.49	2.92	9.7	475	910	674587	161	Dec-96
08/19/96	08:00 AM	4478300	2.84	2.90	14	363	1273	311757	75	Nov-96
09/16/96	10:00 AM	4556200	1.93	2.74	14	205	1478	223934	57	Nov-96
10/17/96	02:55 PM	4645700	1.99	2.63	11	225	1703	162148	43	Nov-96
11/25/96	10:25 AM	4781700	2.43	2.61	13	336	2039	-18021	-5	Nov-96
12/13/96	09:35 AM	4829600	1.85	2.52	14	118	2157	-67181	-18	Nov-96
12/19/96	09:40 AM	4840900	1.31	1.31	17 *	0 +	0	706345	375	Dec-97
01/14/97	01:00 PM	4914200	1.95	1.63	22	238	238	480841	205	Aug-97
02/11/97	02:30 PM	5072700	3.92	2.39	13	462	700	600366	174	Aug-97
03/10/97	10:00 AM	5186800	2.96	2.53	16	276	976	384394	105	Jun-97
04/04/97	11:00 AM	5288500	2.82	2.59	8.7	209	1185	562565	151	Sep-97
05/15/97	07:30 AM	5435800	2.50	2.58	8.5	211	1396	426769	115	Sep-97
06/30/97	11:25 AM	5484800	0.74	2.31	8.5 *	69	1465	377769	113	Oct-97
07/18/97	01:00 PM	5580700	3.69	2.48	18	212	1677	107798	30	Aug-97
08/08/97	09:00 AM	5666400	2.86	2.86	18 *	0 +	0	667103	162	Jan-98
08/15/97	11:00 AM	5679200	1.25	2.06	12	32	32	984655	333	Jul-98
09/05/97	11:00 AM	5790000	3.66	2.59	14	240	272	741104	199	Mar-98
6/30/1998***	Not Recorded	5925800	10.48	4.56	26.5	480	751	282887	43	Aug-98
07/29/98	09:30 AM	6083000	12.13	6 08	27.5	581	1333	145697	17	Aug-98
08/28/98	09:00 AM	6166900	1.94	1.94	26	0 +	0	461841	165	Feb-99
09/28/98	10:30 AM	6267800	2.26	2.10	12	355	355	823146	272	Jun-99
10/31/98	10:00 AM	6400200	2.79	2.33	19	380	735	399870	119	Feb-99
11/23/98	10:00 AM	6477700	2.34	2.33	1	140	874	13515883	4025	Nov-09
12/29/98	12:00 AM	6638500	3.10	2.49	6 *	97	971	1029546	288	Oct-99
01/29/99	12:00 AM	6777500	3.11	3.11	12	232	1203	398940	89	Apr-99
02/26/99	10:00 AM	6859255	2.03	2.57	9 *	159	1362	425941	115	Jun-99
03/28/99	10:00 AM	6953415	2.18	2.44	6 *	131	1492	508133	145	Aug-99
04/28/99	10:00 AM	7025380	1.61	2.23	2	53	1545	1364478	424	Jun-00
05/28/99	10:00 AM	7072500	1.09	2.00	6 *	35	1580	419922	145	Oct-99
06/30/99	10:00 AM	7122172	1.05	1.84	9 *	69	1649	233956	88	Sep-99

* - Concentration estimate

** - Concentration represents the average estimated value from January to the next sampling event.

*** - Recovery system was inoperable from Sept. 22, 1997 to June 22, 1998. Readings reflect the first 7 days after the system was restarted.

+ - Changed carbon vessel on this date.

Signet meter battery changed on 9/1/95 - last reading 3,089,890 gallons.

Carbon fudge factor: 0.05

gpm - gallons per minute

TABLE 2
CUMULATIVE SUMMARY OF DIESEL RECOVERY
PORT OF OAKLAND
TRAILER-ON-FLAT-CAR (TOFC) SITE

DATE	TOTAL VOLUME RECOVERED (gallons)	RECOVERY RATE (gal/day)	NOTES
03/02/93	1500	--	VOLUME ESTIMATED FROM GAUGE
05/11/93	1700	2.9	TANK EMPTIED
06/10/93	1900	6.7	VOLUME ESTIMATED FROM GAUGE
09/03/93	2700	9.4	TANK EMPTIED
11/30/93	3400	8.0	VOLUME ESTIMATED FROM GAUGE
02/25/94	4200	9.2	VOLUME ESTIMATED FROM GAUGE
06/01/94	4800	6.3	VOLUME ESTIMATED FROM GAUGE
06/27/94	4900	3.8	TANK EMPTIED
09/23/94	5500	6.8	TANK EMPTIED
12/27/94	6000	5.3	TANK EMPTIED
03/17/95	6300	3.8	TANK EMPTIED
07/14/95	6900	5.0	TANK EMPTIED
10/18/95	7500	6.3	TANK EMPTIED
01/30/96	8200	6.7	TANK EMPTIED
07/08/96	9000	5.0	TANK EMPTIED
01/02/97	9800	4.5	TANK EMPTIED
08/05/97	10500	1.3	TANK EMPTIED
06/30/98*	10600	7.6	VOLUME ESTIMATED FROM GAUGE
09/28/98	10800	5.6	VOLUME ESTIMATED FROM GAUGE
11/23/98	10900	0.4	VOLUME ESTIMATED FROM GAUGE
06/30/99	11000	0.3	VOLUME ESTIMATED FROM GAUGE

* Recovery system was inoperable from Sept. 22, 1997 to June 22, 1998.
Readings reflect the first 7 days after the system was restarted.

TABLE 3

CUMULATIVE SUMMARY OF ANALYTICAL DATA
TREATMENT SYSTEM - INFLUENT SAMPLES
PORT OF OAKLAND
TRAILER-ON-FLAT-CAR (TOFC) SITE

Date Collected	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylenes (mg/L)	Total Petroleum Hydrocarbons as Diesel (mg/L)
05/12/92	0.023	0.022	0.029	0.200	7
05/19/92	<0.002	0.007	0.003	0.064	59
05/27/92	<0.005	<0.005	0.006	0.059	61
06/02/92	<0.005	<0.005	<0.005	0.025	100
07/07/92	<0.005	<0.005	0.005	0.026	200
08/11/92	0.0091	<0.003	0.013	0.051	6.1
09/25/92	0.0085	<0.003	0.0055	0.024	17
11/16/92	<0.050	<0.050	<0.050	<0.050	100
12/04/92	0.0042	<0.001	<0.001	0.009	8.7
02/02/93	0.0083	<0.001	<0.001	0.0012	6.9
03/30/93	0.0095	0.0015	0.0087	0.030	44
04/30/93	0.0007	0.0012	0.001	0.0069	14
05/27/93	0.0054	0.019	0.0092	0.040	120
06/30/93	<0.0003	<0.0003	<0.0003	<0.0009	1.2
07/28/93	0.014	0.0006	0.0054	0.025	2.2
08/31/93	0.012	0.0007	0.0041	0.023	3.2
09/30/93	0.011	0.0007	0.013	0.035	20
10/28/93	0.010	0.0006	0.0098	0.026	6.1
11/30/93	0.0092	<0.0005	0.0012	0.013	31
12/28/93	0.011	<0.0005	0.0041	0.016	10
01/31/94	<0.0005	<0.0005	<0.0005	<0.0005	3.3
02/25/94	0.013	0.0013	0.0077	0.021	9.3
03/30/94	0.012	<0.0005	0.0027	0.018	2.7
05/03/94	0.0044	0.0018	0.0097	0.028	67
06/01/94	0.0065	<0.0005	<0.0005	0.0094	3.5
07/29/94	0.0091	<0.0005	0.0043	0.017	1.4
08/31/94	NA	NA	NA	NA	2.1
09/27/94	NA	NA	NA	NA	5.9
10/27/94	0.011	0.0031	0.0095	0.018	5.5
11/16/94	NA	NA	NA	NA	39
01/05/95	NA	NA	NA	NA	140
01/25/95	<0.03	<0.03	<0.03	<0.03	550
04/12/95	0.0015	<0.0003	<0.0003	0.0023	3.7
05/29/95	NA	NA	NA	NA	<0.02*
06/30/95	NA	NA	NA	NA	25
07/19/95	0.011	0.0006	0.005	0.015	13
08/08/95	NA	NA	NA	NA	11
09/08/95	NA	NA	NA	NA	11
10/13/95	0.009	0.0006	0.010	0.020	66
11/22/95	NA	NA	NA	NA	38
12/15/95	NA	NA	NA	NA	19

TABLE 3

CUMULATIVE SUMMARY OF ANALYTICAL DATA
TREATMENT SYSTEM - INFLUENT SAMPLES
PORT OF OAKLAND
TRAILER-ON-FLAT-CAR (TOFC) SITE

Date Collected	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylenes (mg/L)	Total Petroleum Hydrocarbons as Diesel (mg/L)
01/08/96	0.013	<0.0005	0.010	0.021	<0.05
02/12/96	NA	NA	NA	NA	56
03/12/96	NA	NA	NA	NA	42
04/10/96	0.0097	<0.0005	0.0067	0.010	36
05/13/96	NA	NA	NA	NA	14
06/13/96	NA	NA	NA	NA	18
07/17/96	<0.0005	<0.0005	<0.0005	<0.002	9.7
08/19/96	NA	NA	NA	NA	14
09/16/96	NA	NA	NA	NA	14
10/17/96	<0.0005	<0.0005	<0.0005	<0.001	11
11/25/96	NA	NA	NA	NA	13
12/13/96	NA	NA	NA	NA	14
01/14/97	0.0061	<0.0005	<0.0005	0.0039	22
02/11/97	NA	NA	NA	NA	13
03/10/97	NA	NA	NA	NA	16
04/04/97	0.003	<0.0005	<0.0005	<0.001	8.7
05/15/97	NA	NA	NA	NA	8.5
07/18/97	0.0024	<0.0005	<0.0005	0.0011	18
08/15/97	NA	NA	NA	NA	12
09/05/97	NA	NA	NA	NA	14
06/25/98	0.0046	<0.0005	0.0053	0.0105	26.5
07/09/98	0.0015	<0.0005	<0.0005	0.001	20
08/14/98	NA	NA	NA	NA	26
09/11/98	NA	NA	NA	NA	12
10/02/98	0.00054	<0.0005	<0.0005	<0.0005	19
11/06/98	NA	NA	NA	NA	<0.050
12/16/98	NA	NA	NA	NA	22
01/10/99	0.0029	<0.0005	<0.0005	0.00201	12
04/21/99	0.00075	<0.0005	<0.0005	<0.001	2.4

TPH/D - Total Petroleum Hydrocarbons as Diesel anaylzed using EPA Method 8015 Mod. with Silicia Gel Cleanup (since 4/99).

BTEX -Benzene, toluene, ethylbenzene, and xylenes analyzed using EPA Method 8020.

Samples were analyzed at Curtis & Tompkins Ltd., a state certified analytical laboratory in Berkeley, California (since 4/99).

mg/L - milligram per liter

NA - Not Analyzed

*Unknown hydrocarbon in the Diesel range reported concentration of 14 mg/L

TABLE 4
CUMULATIVE SUMMARY OF ANALYTICAL DATA
TREATMENT SYSTEM - EFFLUENT SAMPLES
PORT OF OAKLAND
TRAILER-ON-FLAT-CAR (TOFC) SITE

Date Collected	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylenes (mg/L)	Total Petroleum Hydrocarbons as Diesel (mg/L)
EBMUD Discharge Limit*	0.005	0.005	0.005	0.005	N/A
05/12/92	<0.0005	<0.0005	<0.0005	<0.0005	<0.050
05/19/92	<0.0005	<0.0005	<0.0005	<0.0005	<0.050
05/27/92	<0.0005	<0.0005	<0.0005	<0.0005	<0.050
06/02/92	<0.0005	<0.0005	<0.0005	<0.0005	0.12
07/07/92	<0.0005	<0.0005	<0.0005	0.0011	18
08/11/92	<0.0005	<0.0005	<0.0005	<0.0005	1.3
09/25/92	<0.001	<0.001	<0.001	0.0014	9.7
11/16/92	<0.0005	<0.0005	<0.0005	<0.0005	0.53
12/04/92	<0.0005	<0.0005	<0.0005	<0.0005	0.24
02/02/93	<0.0005	<0.0005	<0.0005	<0.0005	<0.050
03/30/93	<0.0005	<0.0005	<0.0005	<0.0005	0.074
04/30/93	<0.0003	<0.0003	<0.0003	<0.0009	<0.050
05/27/93	<0.0003	<0.0003	<0.0003	<0.0009	<0.050
06/30/93	<0.0003	<0.0003	<0.0003	<0.0009	<0.050
07/28/93	<0.0003	<0.0003	<0.0003	<0.0009	<0.100
08/31/93	<0.0003	<0.0003	<0.0003	<0.0009	<0.050
09/30/93	<0.0003	<0.0003	<0.0003	<0.0009	<0.050
10/28/93	<0.0003	<0.0003	<0.0003	<0.0009	<0.050
11/30/93	<0.0005	<0.0005	<0.0005	<0.0005	<0.050
12/28/93	<0.0005	<0.0005	<0.0005	<0.0005	<0.050
01/31/94	<0.0005	<0.0005	<0.0005	<0.0005	<0.050
02/25/94	<0.0005	<0.0005	<0.0005	<0.0005	<0.050
03/30/94	<0.0005	<0.0005	<0.0005	<0.0005	<0.050
05/03/94	<0.0005	<0.0005	<0.0005	<0.0005	<0.050
06/01/94	<0.0005	<0.0005	<0.0005	<0.0005	<0.050
07/29/94	<0.0005	<0.0005	<0.0005	0.0007	<0.050
10/27/94	<0.0005	<0.0005	<0.0005	0.0006	<0.050
01/25/95	<0.03	<0.03	<0.03	<0.03	470
04/12/95	<0.0003	<0.0003	<0.0003	<0.0003	<0.050
07/19/95	<0.0005	<0.0005	<0.0005	<0.002	1.5
10/13/95	<0.0005	<0.0005	<0.0005	<0.002	<0.050
01/08/96	<0.0005	<0.0005	<0.0005	<0.002	36
04/10/96	<0.0005	<0.0005	<0.0005	<0.002	1.8
07/17/96	<0.0005	<0.0005	<0.0005	<0.002	0.12
10/17/96	<0.0005	<0.0005	<0.0005	<0.001	<0.050
01/11/97	<0.0005	<0.0005	<0.0005	<0.001	<0.050
04/04/97	<0.0005	<0.0005	<0.0005	<0.001	<0.050
07/18/97	<0.0005	<0.0005	<0.0005	<0.001	0.096

TABLE 4

CUMULATIVE SUMMARY OF ANALYTICAL DATA
TREATMENT SYSTEM - EFFLUENT SAMPLES
PORT OF OAKLAND
TRAILER-ON-FLAT-CAR (TOFC) SITE

Date Collected	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylenes (mg/L)	Total Petroleum Hydrocarbons as Diesel (mg/L)
EBMUD Discharge Limit*	0.005	0.005	0.005	0.005	N/A
06/25/98	<0.0005	<0.0005	<0.0005	<0.001	<0.1
07/09/98	<0.0005	<0.0005	<0.0005	<0.001	0.066
07/28/98**	N/A	N/A	N/A	N/A	0.05
10/02/98	<0.0005	<0.0005	<0.0005	<0.001	<0.050
01/10/99	<0.0005	<0.0005	<0.0005	<0.001	<0.047
04/21/99	<0.0005	<0.0005	<0.0005	<0.001	<0.05

* - Discharge limits updated on July 1, 1996.

** - Resampled to verifiy breakthrough

TPH/D - Total Petroleum Hydrocarbons as Diesel anaylzed using EPA Method 8015 Mod. with Silicia Gel Cleanup (since 4/99).

BTEX -Benzene, toluene, ethylbenzene, and xylenes analyzed using EPA Method 8020.

Samples were analyzed at Curtis & Tompkins Ltd., a state certified analytical laboratory in Berkeley, California (since 4/99).

mg/L - milligram per liter

TABLE 5

CUMULATIVE SUMMARY OF ANALYTICAL DATA
TREATMENT SYSTEM - MIDFLUENT SAMPLES
PORT OF OAKLAND
TRAILER-ON-FLAT-CAR (TOFC) SITE

Date Collected	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylenes (mg/L)
08/11/92	<0.0005	<0.0005	<0.0005	<0.0005
09/14/92	<0.003	<0.003	<0.003	<0.003
11/06/92	<0.0005	<0.001	<0.0005	<0.0005
12/04/92	<0.003	<0.003	<0.003	<0.003
12/18/92	<0.005	<0.005	<0.005	<0.005
01/20/93	0.0012	0.0005	<0.0005	0.0015
02/02/93	0.00077	<0.0005	<0.0005	<0.0005
02/16/93	0.0043	<0.0005	0.0012	0.0038
03/30/93	<0.0005	<0.0005	<0.0005	<0.0005
04/22/93	<0.0005	<0.0005	<0.0005	<0.0005
04/30/93	<0.0003	<0.0003	<0.0003	<0.0009
05/27/93	<0.003	<0.003	<0.003	<0.009
06/14/93	0.0004	0.0004	0.0004	0.0023
06/30/93	<0.0003	<0.0003	<0.0003	<0.0009
07/13/93	0.0007	0.0004	<0.0003	<0.0009
07/28/93	<0.0003	<0.0003	<0.0003	<0.0009
08/31/93	<0.0003	<0.0003	<0.0003	<0.0009
09/30/93	<0.0003	<0.0003	<0.0003	<0.0009
10/28/93	<0.0003	<0.0003	<0.0003	<0.0009
11/30/93	0.0006	<0.0005	<0.0005	<0.0005
12/28/93	0.0017	<0.0005	<0.0005	0.0007
01/31/94	0.0001	<0.0005	<0.0005	0.0005
02/25/94	<0.0005	<0.0005	<0.0005	<0.0005
03/30/94	<0.0005	<0.0005	<0.0005	<0.0005
05/03/94	<0.0005	<0.0005	0.0013	0.0033
06/01/94	<0.0005	<0.0005	<0.0005	<0.0005
07/29/94	0.0008	<0.0005	<0.0005	0.0006
08/31/94	0.0017	<0.0005	<0.0005	<0.0005
09/27/94	0.0010	<0.0005	<0.0005	<0.0005
10/27/94	0.0012	0.00050	<0.0005	0.00090
11/16/94	<0.0005	<0.0005	<0.0005	<0.0005
01/05/95	0.0048	0.0035	<0.003	0.015
01/25/95	<0.03	<0.03	<0.03	<0.03
04/12/95	0.0013	<0.0003	<0.0003	<0.0003
05/29/95	0.0032	<0.0005	<0.0005	<0.0005
06/30/95	0.002	<0.0005	<0.0005	<0.002
07/19/95	0.002	<0.0005	<0.0005	<0.002
08/08/95	<0.0005	<0.0005	<0.0005	<0.002
09/08/95	<0.0005	0.0008	<0.0005	<0.002
11/22/95	<0.0005	<0.0005	<0.0005	<0.002
12/15/95	<0.0005	<0.0005	<0.0005	<0.002

TABLE 5

CUMULATIVE SUMMARY OF ANALYTICAL DATA
TREATMENT SYSTEM - MIDFLUENT SAMPLES
PORT OF OAKLAND
TRAILER-ON-FLAT-CAR (TOFC) SITE

Date Collected	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylenes (mg/L)
01/08/96	0.0008	<0.0005	<0.0005	<0.002
02/12/96	0.0012	0.0005	<0.0005	<0.002
03/12/96	<0.0005	<0.0005	<0.0005	<0.002
04/10/96	0.0018	<0.0005	0.0005	<0.002
05/13/96	<0.0005	<0.0005	<0.0005	<0.002
06/13/96	<0.0005	<0.0005	<0.0005	<0.002
07/17/96	<0.0005	<0.0005	<0.0005	<0.002
08/19/96	<0.0005	<0.0005	<0.0005	<0.001
09/16/96	<0.0005	<0.0005	<0.0005	<0.001
10/17/96	<0.0005	<0.0005	<0.0005	<0.001
11/25/96	0.023	0.0037	<0.0005	0.031
12/13/96	<0.0005	<0.0005	<0.0005	<0.001
01/14/97	<0.0005	<0.0005	<0.0005	<0.001
02/11/97	<0.0005	<0.0005	<0.0005	<0.001
03/10/97	<0.0005	<0.0005	<0.0005	<0.001
04/04/97	<0.0005	<0.0005	<0.0005	<0.001
05/15/97	<0.0005	<0.0005	<0.0005	<0.001
07/18/97	<0.0005	<0.0005	<0.0005	<0.001
08/15/97	<0.0005	<0.0005	<0.0005	<0.001
09/05/97	<0.0005	<0.0005	<0.0005	<0.001
06/25/98	<0.0005	<0.0005	<0.0005	<0.001
07/09/98	<0.0005	<0.0005	<0.0005	<0.001
08/14/98	<0.0005	<0.0005	<0.0005	<0.001
09/11/98	<0.0005	<0.0005	<0.0005	<0.001
10/02/98	<0.0005	<0.0005	<0.0005	<0.001
11/06/98	<0.0005	<0.0005	<0.0005	<0.001
12/16/98	<0.0005	<0.0005	<0.0005	<0.001
01/10/99	<0.0005	<0.0005	<0.0005	<0.001
02/23/99	<0.0005	<0.0005	<0.0005	<0.001
03/10/99	<0.0005	<0.0005	<0.0005	<0.001
04/21/99	<0.0005	<0.0005	<0.0005	<0.001
05/04/99	<0.0005	<0.0005	<0.0005	<0.001
06/09/99	<0.0005	<0.0005	<0.0005	<0.001

BTEX -Benzene, toluene, ethylbenzene, and xylenes analyzed using EPA Method 8020.

Samples were analyzed at Curtis & Tompkins Ltd., a state certified analytical laboratory in Berkeley, California (since 2/99).

mg/L - milligram per liter

TABLE 6

CUMULATIVE SUMMARY OF FLUID LEVEL MEASUREMENT DATA
PORT OF OAKLAND
TRAILER-ON-FLAT-CAR (TOFC) SITE

Well No.	Date	Well Casing Elevation * (Feet)	Depth to Product (Feet)	Depth to Water (Feet)	Water Level Elevation (Feet)	Product Thickness (Feet)	Corrected Water Level Elevation ** (Feet)
OMW-1	01/25/95	8.79		2.52	6.27		6.27
	05/09/95	8.79		5.55	3.24		3.24
	05/17/95	8.79		4.43	4.36		4.36
	07/31/95	8.79		6.43	2.36		2.36
	09/07/95	8.79		6.86	1.93		1.93
	11/30/95	8.79		7.69	1.10		1.10
	01/10/96	8.79		6.48	2.31		2.31
	03/25/96	8.79		5.00	3.79		3.79
	05/17/96	8.79		2.98	5.81		5.81
	07/25/96	8.79		6.29	2.50		2.50
	09/16/96	8.79		7.05	1.74		1.74
	11/12/96	8.79		7.51	1.28		1.28
	01/20/97	8.79		4.26	4.53		4.53
	03/06/97	8.79		4.65	4.14		4.14
	05/20/97	8.79		6.11	2.68		2.68
	07/15/97	8.79		6.66	2.13		2.13
	08/28/97	8.79		6.58	2.21		2.21
	09/15/97	8.79		7.16	1.63		1.63
	11/18/97	8.79		6.58	2.21		2.21
	02/04/98	8.79		1.78	7.01		7.01
	05/21/98	8.79		5.43	3.36		3.36
	07/30/98	8.79		6.41	2.38		2.38
	08/12/98	8.79		6.54	2.25		2.25
	09/28/98	8.79		7.11	1.68		1.68
	11/04/98	8.79		7.32	1.47		1.47
	11/30/98	14.88		7.40	7.48		7.48
	01/27/99	14.88		5.15	9.73		9.73
	02/16/99	14.88		4.63	10.25		10.25
	05/04/99	14.88		4.88	10.00		10.00
OMW-2	01/25/95	5.88		3.35	2.53		2.53
	05/09/95	5.88	NOT GAUGED				
	05/17/95	5.88		2.44	3.44		3.44
	07/31/95	5.88	NOT GAUGED				
	09/07/95	5.88		4.35	1.53		1.53
	11/30/95	5.88		5.12	0.76		0.76
	01/10/96	5.88		2.60	3.28		3.28
	03/25/96	5.88		2.35	3.53		3.53
	05/17/96	5.88		1.73	4.15		4.15
	07/25/96	5.88		4.07	1.81		1.81
	09/16/96	5.88		4.60	1.28		1.28
	11/12/96	5.88		4.93	0.95		0.95
	01/20/97	5.88		2.44	3.44		3.44
	03/06/97	5.88		4.26	1.62		1.62
	05/20/97	5.88		4.65	1.23		1.23
	07/15/97	5.88		4.64	1.24		1.24
	08/28/97	5.88		4.58	1.30		1.30
	09/15/97	5.88		4.90	0.98		0.98
	11/18/97	5.88		2.11	3.77		3.77
	02/04/98	5.88		1.72	4.16		4.16
	05/21/98	5.88		2.34	3.54		3.54
	07/30/98	5.88		4.11	1.77		1.77
	08/12/98	5.88		4.30	1.58		1.58

TABLE 6

CUMULATIVE SUMMARY OF FLUID LEVEL MEASUREMENT DATA
PORT OF OAKLAND
TRAILER-ON-FLAT-CAR (TOFC) SITE

Well No.	Date	Well Casing Elevation * (Feet)	Depth to Product (Feet)	Depth to Water (Feet)	Water Level Elevation (Feet)	Product Thickness (Feet)	Corrected Water Level Elevation ** (Feet)
OMW-2	09/28/98	5.88		4.64	1.24		1.24
	11/04/98	5.88		5.03	0.85		0.85
	11/30/98	12.07		4.82	7.25		7.25
	01/27/99	12.07		2.13	9.94		9.94
	02/16/99	12.07		1.38	10.69		10.69
	05/04/99	12.07		2.49	9.58		9.58
OMW-3	01/25/95	7.16	NOT GAUGED - WELL UNDER WATER				
	05/09/95	7.16		4.37	2.79		2.79
	05/17/95	7.16		4.46	2.70		2.70
	07/31/95	7.16		5.22	1.94		1.94
	09/07/95	7.16		5.64	1.52		1.52
	11/30/95	7.16		6.36	0.80		0.80
	01/10/96	7.16		5.13	2.03		2.03
	03/25/96	7.16		4.08	3.08		3.08
	05/17/96	7.16		2.61	4.55		4.55
	07/25/96	7.16		5.26	1.90		1.90
	09/16/96	7.16		5.90	1.26		1.26
	11/12/96	7.16		6.22	0.94		0.94
	01/20/97	7.16		3.79	3.37		3.37
	03/06/97	7.16		4.02	3.14		3.14
	05/20/97	7.16		5.34	1.82		1.82
	07/15/97	7.16		5.64	1.52		1.52
	08/28/97	7.16		5.79	1.37		1.37
	09/15/97	7.16		5.95	1.21		1.21
	11/18/97	7.16		5.27	1.89		1.89
	02/04/98	7.16		0.94	6.22		6.22
	05/21/98	7.16		4.12	3.04		3.04
	07/30/98	Well Not Gauged	PVC Damaged				
	08/12/98	Well Not Gauged	PVC Damaged				
	09/28/98	Well Not Gauged	PVC Damaged				
	11/04/98	7.16		5.90	1.26		1.26
	11/30/98	Well Not Gauged					
	01/27/99	12.99		4.70	8.29		8.29
	02/16/99	12.99		3.61	9.38		9.38
	05/04/99	12.99		4.04	8.95		8.95
OMW-4	01/25/95	7.41	6.23	7.12	0.29	0.89	1.04
	05/09/95	7.41	4.99	6.38	1.03	1.39	2.20
	05/17/95	7.41	5.19	6.58	0.83	1.39	2.00
	07/31/95	7.41	5.78	6.99	0.42	1.21	1.44
	09/07/95	7.41	6.01	6.92	0.49	0.91	1.25
	11/30/95	7.41	6.60	7.06	0.35	0.46	0.74
	01/10/96	7.41	5.73	6.48	0.93	0.75	1.56
	03/25/96	7.41	5.22	6.19	1.22	0.97	2.03
	05/17/96	7.41	5.23	6.26	1.15	1.03	2.02
	07/25/96	7.41	TRACE	5.82	1.59		1.59
	09/16/96	7.41	6.11	7.55	-0.14	1.44	1.07
	11/12/96	7.41	6.58	8.12	-0.71	1.54	0.58
	01/20/97	7.41	4.75	6.45	0.96	1.70	2.39
	03/06/97	7.41	5.25	6.24	1.17	0.99	2.00
	05/20/97	7.41	5.83	6.35	1.06	0.52	1.50
	07/15/97	7.41	6.24	6.75	0.66	0.51	1.09

TABLE 6

CUMULATIVE SUMMARY OF FLUID LEVEL MEASUREMENT DATA
PORT OF OAKLAND
TRAILER-ON-FLAT-CAR (TOFC) SITE

Well No.	Date	Well Casing Elevation * (Feet)	Depth to Product (Feet)	Depth to Water (Feet)	Water Level Elevation (Feet)	Product Thickness (Feet)	Corrected Water Level Elevation ** (Feet)
OMW-4	08/28/97	7.41	6.46	7.05	0.36	0.59	0.86
	09/15/97	7.41	6.40	7.11	0.30	0.71	0.90
	11/18/97	7.41	4.76	5.43	1.98	0.67	2.54
	03/31/98	7.41	3.07	4.00	3.41	0.93	4.19
	05/22/98	7.41	3.52	3.41	4.00	-0.11	3.91
	07/30/98	7.41	6.45	7.00	0.41	0.55	0.87
	08/12/98	7.41	5.68	7.02	0.39	1.34	1.52
	09/28/98	7.41	6.02	7.55	-0.14	1.53	1.15
	11/04/98	7.41	6.17	7.65	-0.24	1.48	1.00
	11/30/98	13.38	6.31	6.31	7.07	0.00	7.07
	01/27/99	13.38	5.15	6.75	6.63	1.60	7.97
	02/16/99	13.38	3.59	4.75	8.63	1.16	9.60
	05/04/99	13.38	4.10	5.62	7.76	1.52	9.04
OMW-5	01/25/95	7.62	NOT GAUGED				
	05/09/95	7.62	NOT GAUGED				
	05/18/95	7.62		4.84	2.78		2.78
	07/31/95	7.62	NOT GAUGED				
	09/07/95	7.62		5.85	1.77		1.77
	11/30/95	7.62		6.55	1.07		1.07
	01/10/96	7.62		5.46	2.16		2.16
	03/25/96	7.62		4.63	2.99		2.99
	05/17/96	7.62		4.83	2.79		2.79
	07/25/96	7.62		5.66	1.96		1.96
	09/16/96	7.62		6.17	1.45		1.45
	11/12/96	7.62	TRACE	6.59	1.03		1.03
	01/20/97	7.62		3.73	3.89		3.89
	03/06/97	7.62		5.34	2.28		2.28
	05/20/97	7.62		5.59	2.03		2.03
	07/15/97	7.62		6.15	1.47		1.47
	08/28/97	7.62		6.36	1.26		1.26
	09/15/97	7.62		6.58	1.04		1.04
	11/18/97	7.62		5.33	2.29		2.29
	02/04/98	7.62		3.05	4.57		4.57
	05/21/98	7.62		3.56	4.06		4.06
	07/30/98	7.62		4.79	2.83		2.83
	08/12/98	7.62		5.00	2.62		2.62
	09/08/98	7.62		5.73	1.89		1.89
	11/04/98	7.62		6.14	1.48		1.48
	11/30/98	13.76		6.01	7.75		7.75
	01/27/99	13.76		5.00	8.76		8.76
	02/18/99	13.76		4.57	9.19		9.19
	05/04/99	13.76		2.79	10.97		10.97
OMW-6	01/25/95	5.78		6.91	-1.13		-1.13
	05/09/95	5.78		7.19	-1.41		-1.41
	05/17/95	5.78		6.84	-1.06		-1.06
	07/31/95	5.78		5.65	0.13		0.13
	09/07/95	5.78		5.51	0.27		0.27
	11/30/95	5.78		6.71	-0.93		-0.93
	01/10/96	5.78		6.72	-0.94		-0.94
	03/25/96	5.78		6.73	-0.95		-0.95
	05/17/96	5.78		6.50	-0.72		-0.72

TABLE 6

CUMULATIVE SUMMARY OF FLUID LEVEL MEASUREMENT DATA
PORT OF OAKLAND
TRAILER-ON-FLAT-CAR (TOFC) SITE

Well No.	Date	Well Casing Elevation * (Feet)	Depth to Product (Feet)	Depth to Water (Feet)	Water Level Elevation (Feet)	Product Thickness (Feet)	Corrected Water Level Elevation ** (Feet)
OMW-6	07/25/96	5.78		6.62	-0.84		-0.84
	09/16/96	5.78		6.44	-0.66		-0.66
	11/12/96	5.78		5.65	0.13		0.13
	01/20/97	5.78		5.52	0.26		0.26
	03/06/97	5.78		7.17	-1.39		-1.39
	05/20/97	5.78		6.39	-0.61		-0.61
	07/15/97	5.78		6.77	-0.99		-0.99
	08/28/97	5.78		6.59	-0.81		-0.81
	09/15/97	5.78		6.02	-0.24		-0.24
	11/18/97	5.78		4.89	0.89		0.89
	02/04/98	5.78		5.85	0.07		-0.07
	05/21/98	5.78		6.13	-0.35		-0.35
	07/30/98	5.78		6.76	-0.98		-0.98
	08/12/98	5.78		6.88	-1.10		-1.10
	09/28/98	5.78		6.63	-0.85		-0.85
	11/04/98	5.78		5.42	0.36		0.36
	11/30/98	11.67		6.22	5.45		5.45
	01/27/99	11.67		6.65	5.02		5.02
	02/16/99	11.67		5.85	5.82		5.82
	05/04/99	11.67		6.74	4.93		4.93
OMW-7	01/25/95	7.03	3.31	9.53	-2.50	6.22	2.72
	05/09/95	7.03	5.22	9.25	-2.22	4.03	1.17
	05/17/95	7.03	5.41	8.38	-1.35	2.97	1.14
	07/31/95	7.03	5.61	8.83	-1.80	3.22	0.90
	09/07/95	7.03	5.80	7.97	-0.94	2.17	0.88
	11/30/95	7.03	6.49	7.54	-0.51	1.05	0.37
	01/10/96	7.03	5.40	8.33	-1.30	2.93	1.16
	03/25/96	7.03	5.46	9.60	-2.57	4.14	0.91
	05/17/96	7.03	5.40	8.79	-1.76	3.39	1.09
	07/25/96	7.03	5.92	9.32	-2.29	3.40	0.57
	09/16/96	7.03	6.18	8.86	-1.83	2.68	0.42
	11/12/96	7.03	6.50	8.79	-1.76	2.29	0.16
	01/20/97	7.03	4.95	10.76	-3.73	5.81	1.15
	03/06/97	7.03	5.26	7.70	-0.67	2.44	1.38
	05/20/97	7.03	5.71	8.26	-1.23	2.55	0.91
	07/15/97	7.03	6.21	9.67	-2.64	3.46	0.27
	08/28/97	7.03	6.39	9.10	-2.07	2.71	0.21
	09/15/97	7.03	6.51	8.03	-1.00	1.52	0.28
	11/18/97	7.03	4.58	5.54	1.49	0.96	2.30
	03/31/98	7.03	3.15	6.75	0.28	3.60	3.30
	05/21/98	7.03	3.68	7.15	-0.12	3.47	2.79
	07/30/98	7.03	5.33	8.70	-1.67	3.37	1.16
	08/12/98	7.03	5.42	8.03	-1.00	2.61	1.19
	09/28/98	7.03	6.11	8.51	-1.48	2.40	0.54
	11/04/98	7.03	6.22	8.22	-1.19	2.00	0.49
	11/30/98	13.17	8.76	8.76	4.41	0.00	4.41
	01/27/99	13.17	5.15	8.75	4.42	3.60	7.44
	02/16/99	13.17	3.06	7.40	5.77	4.34	9.42
	05/04/99	13.17	3.81	8.43	4.74	4.62	8.62
OMW-8	01/25/95	7.52	TRACE	3.55	3.97		3.97
	05/09/95	7.52		5.00	2.52		2.52

TABLE 6

CUMULATIVE SUMMARY OF FLUID LEVEL MEASUREMENT DATA
PORT OF OAKLAND
TRAILER-ON-FLAT-CAR (TOFC) SITE

Well No.	Date	Well Casing Elevation * (Feet)	Depth to Product (Feet)	Depth to Water (Feet)	Water Level Elevation (Feet)	Product Thickness (Feet)	Corrected Water Level Elevation ** (Feet)
OMW-8	05/17/95	7.52		5.16	2.36		2.36
	07/31/95	7.52		5.70	1.82		1.82
	09/07/95	7.52		5.99	1.53		1.53
	11/30/95	7.52		6.53	0.99		0.99
	01/10/96	7.52		5.87	1.65		1.65
	03/25/96	7.52		5.01	2.51		2.51
	05/17/96	7.52		5.18	2.34		2.34
	07/25/96	7.52		5.77	1.75		1.75
	09/16/96	7.52		6.21	1.31		1.31
	11/12/96	7.52		6.69	0.83		0.83
	01/20/97	7.52		4.84	2.68		2.68
	03/06/97	7.52		5.15	2.37		2.37
	05/20/97	7.52		5.81	1.71		1.71
	07/15/97	7.52		6.12	1.40		1.40
	08/28/97	7.52		6.29	1.23		1.23
	09/15/97	7.52		6.40	1.12		1.12
	11/18/97	7.52		5.27	2.25		2.25
	02/04/98	7.52		1.67	5.85		5.85
	05/21/98	7.52		3.97	3.55		3.55
	07/30/98	7.52		5.52	2.00		2.00
	08/12/98	7.52		5.73	1.79		1.79
	09/28/98	7.52		6.17	1.35		1.35
	11/04/98	7.52		6.40	1.12		1.12
	11/30/98	13.62		6.29	7.33		7.33
	01/27/99	13.62		5.47	8.15		8.15
	02/16/99	13.62		4.05	9.57		9.57
	05/04/99	13.62		4.63	8.99		8.99
OMW-9	01/25/95	6.64	3.83	6.25	0.39	2.42	2.42
	05/09/95	6.64	4.94	9.02	-2.38	4.08	1.05
	05/17/95	6.64	4.18	8.95	-2.31	4.77	1.70
	07/31/95	6.64	6.07	8.46	-1.82	2.39	0.19
	09/07/95	6.64	5.23	6.89	-0.25	1.66	1.14
	11/30/95	6.64	5.76	7.25	-0.61	1.49	0.64
	01/10/96	6.64	4.45	9.00	-2.36	4.55	1.46
	03/25/96	6.64	4.19	8.96	-2.32	4.77	1.69
	05/17/96	6.64	5.41	7.40	-0.76	1.99	0.91
	07/25/96	6.64	5.16	8.41	-1.77	3.25	0.96
	09/16/96	6.64	5.75	6.19	0.45	0.44	0.82
	11/12/96	6.64	5.84	8.37	-1.73	2.53	0.40
	01/20/97	6.64	4.10	9.42	-2.78	5.32	1.69
	03/06/97	6.64	4.55	7.95	-1.31	3.40	1.55
	05/20/97	6.64	5.09	7.11	-0.47	2.02	1.23
	07/15/97	6.64		* 8.8	6.64		-2.16
	08/28/97	6.64		* 8.8	6.64		-2.16
	09/15/97	6.64		7.80	-1.16		-1.16
	11/18/97	6.64		NA	6.64		NA
	02/04/98	6.64		NA	6.64		NA
	05/21/98	6.64		NA	6.64		NA
	07/30/98	6.64	8.40	* 8.5	6.64	0.10	-1.78
	08/12/98	6.64		NA	6.64		NA
	09/28/98	6.64		8.50	-1.86		-1.86
	11/04/98	6.64	TRACE	6.50	0.14		0.14

TABLE 6

CUMULATIVE SUMMARY OF FLUID LEVEL MEASUREMENT DATA
PORT OF OAKLAND
TRAILER-ON-FLAT-CAR (TOFC) SITE

Well No.	Date	Well Casing Elevation * (Feet)	Depth to Product (Feet)	Depth to Water (Feet)	Water Level Elevation (Feet)	Product Thickness (Feet)	Corrected Water Level Elevation ** (Feet)
OMW-9	01/27/99	12.31	5.90	7.80	4.51	1.90	6.11
	11/30/98	12.31	8.76	8.76	3.55	0.00	3.55
	02/16/99	12.31	NOT GAUGED				
	05/04/99	12.31	4.13	7.00	5.31	2.87	7.72
OMW-10	01/25/95	7.56	NOT GAUGED - WELL COVERED				
	05/09/95	7.56	NOT GAUGED - WELL COVERED				
	05/17/95	7.56	TRACE	4.64	2.92		2.92
	07/31/95	7.56	NOT GAUGED - WELL COVERED				
	09/07/95	7.56		6.02	1.54		1.54
	11/30/95	7.56	TRACE	7.78	-0.22		-0.22
	01/10/96	7.56	TRACE	4.68	2.88		2.88
	03/25/96	7.56		4.58	2.98		2.98
	05/17/96	7.56		4.75	2.81		2.81
	07/25/96	7.56		5.79	1.77		1.77
	09/16/96	7.56		6.33	1.23		1.23
	11/12/96	7.56	TRACE	6.50	1.06		1.06
	01/20/97	7.56		4.33	3.23		3.23
	03/06/97	7.56		5.05	2.51		2.51
	05/20/97	7.56		5.69	1.87		1.87
	07/15/97	7.56		6.71	0.85		0.85
	08/28/97	7.56		6.11	1.45	SHEEN	1.45
	09/15/97	7.56		6.75	0.81	SHEEN	0.81
	11/18/97	7.56		4.63	2.93		2.93
	02/04/98	7.56		3.00	4.56		4.56
	05/21/98	7.56		4.13	3.43		3.43
	07/30/98	7.56		5.81	1.75		1.75
	08/12/98	7.56		4.94	2.62		2.62
	09/28/98	7.56		6.32	1.24		1.24
	11/04/98	7.56		6.53	1.03		1.03
	11/30/98	13.71		6.48	7.23		7.23
	01/27/99	13.71	NOT GAUGED				
	02/17/99	13.71		3.37	10.34		10.34
	05/04/99	13.71		4.82	8.89		8.89
ORW-1	01/25/95	6.59	NOT GAUGED				
	05/09/95	6.59	NOT GAUGED				
	05/18/95	6.59	8.77	9.76	-3.17	0.99	-2.34
	07/31/95	6.59	8.35	10.55	-3.96	2.20	-2.11
	09/07/95	6.59	8.55	11.03	-4.44	2.48	-2.36
	11/30/95	6.59	5.92	5.98	0.61	0.06	0.66
	01/10/96	6.59	TRACE	11.20	-4.61		-4.61
	03/25/96	6.59		11.20	-4.61		-4.61
	05/17/96	6.59		11.40	-4.81		-4.81
	07/25/96	6.59	TRACE	10.90	-4.31		-4.31
	09/16/96	6.59		9.60	-3.01		-3.01
	11/12/96	6.59		9.60	-3.01		-3.01
	01/20/97	6.59	NOT GAUGED				
	03/06/97	6.59	9.55	9.75	-3.16	0.20	-2.99
	05/20/97	6.59	9.75	9.86	-3.27	0.11	-3.18
	07/15/97	6.59		7.98	-1.39	SHEEN	-1.39
	08/28/97	6.59	NOT GAUGED				
	09/15/97	6.59	NOT GAUGED				

TABLE 6

CUMULATIVE SUMMARY OF FLUID LEVEL MEASUREMENT DATA
PORT OF OAKLAND
TRAILER-ON-FLAT-CAR (TOFC) SITE

Well No.	Date	Well Casing Elevation * (Feet)	Depth to Product (Feet)	Depth to Water (Feet)	Water Level Elevation (Feet)	Product Thickness (Feet)	Corrected Water Level Elevation ** (Feet)
ORW-1	11/18/97	6.59	3.94	3.96	2.63	0.02	2.65
	03/31/98	6.59	2.25	2.88	3.71	0.63	4.24
	05/21/98	6.59	2.66	3.65	2.94	0.99	3.77
	07/30/98	6.59		8.90	-2.31		-2.31
	08/12/98	6.59		10.01	-3.42		-3.42
	09/28/98	6.59		9.72	-3.13		-3.13
	11/04/98	6.59	TRACE	9.45	-2.86		-2.86
	11/30/98	13.29	10.03	10.03	3.26	0.00	3.26
	01/27/99	13.29	9.50	10.00	3.29	0.50	3.71
	02/16/99	13.29	NOT GAUGED	NM			
	05/04/99	13.29	4.97	5.63	7.66	0.66	8.21
ORW-2	01/25/95	6.79	NOT GAUGED				
	05/09/95	6.79	NOT GAUGED				
	05/18/95	6.79	9.55	9.56	-2.77	0.01	-2.76
	07/31/95	6.79	9.30	9.45	-2.66	0.15	-2.53
	09/07/95	6.79	9.45	9.50	-2.71	0.05	-2.67
	11/30/95	6.79	9.66	9.68	-2.89	0.02	-2.87
	01/10/96	6.79	9.55	9.60	-2.81	0.05	-2.77
	03/25/96	6.79	10.75	11.85	-5.06	1.10	-4.14
	05/17/96	6.79	10.60	11.60	-4.81	1.00	-3.97
	07/25/96	6.79	11.70	12.30	-5.51	0.60	-5.01
	09/16/96	6.79	10.95	12.30	-5.51	1.35	-4.38
	11/12/96	6.79	9.63	10.87	-4.08	1.24	-3.04
	01/20/97	6.79	9.61	11.00	-4.21	1.39	-3.04
	03/06/97	6.79	10.05	11.09	-4.30	1.04	-3.43
	05/20/97	6.79	10.70	11.46	-4.67	0.76	-4.03
	07/15/97	6.79	11.68	12.01	-5.22	0.33	-4.94
	08/28/97	6.79	11.60	11.87	-5.08	0.27	-4.85
	09/15/97	6.79	11.90	12.08	-5.29	0.18	-5.14
	11/18/97	6.79	4.09	5.62	1.17	1.53	2.46
	03/31/98	6.79	2.27	4.05	2.74	1.78	4.24
	05/21/98	6.79	2.77	4.53	2.26	1.76	3.74
	07/30/98	6.79	11.26	11.36	-4.57	0.10	-4.49
	08/12/98	6.79		12.31	-5.52		-5.52
	09/28/98	6.79	11.88	12.00	-5.21	0.12	-5.11
	11/04/98	6.79	11.50	11.85	-5.06	0.35	-4.77
	11/30/98	12.92	12.52	12.52	0.40	0.00	0.40
	01/27/99	12.92	12.01	12.10	0.82	0.09	0.90
	02/16/99	12.92	NOT GAUGED				
	05/04/99	12.92	3.77	5.28	7.64	1.51	8.91
ORW-3	01/25/95	6.30	NOT GAUGED				
	05/09/95	6.30	NOT GAUGED				
	05/18/95	6.30	9.45	9.48	-3.18	0.03	-3.15
	07/31/95	6.30	TRACE	9.68	-3.38		-3.38
	09/07/95	6.30	9.57	9.60	-3.30	0.03	-3.27
	11/30/95	6.30	TRACE	9.67	-3.37		-3.37
	01/10/96	6.30	TRACE	9.55	-3.25		-3.25
	03/25/96	6.30	11.55	12.05	-5.75	0.50	-5.33
	05/17/96	6.30	11.60	12.10	-5.80	0.50	-5.38
	07/25/96	6.30		11.60	-5.30		-5.30
	09/16/96	6.30	11.40	11.90	-5.60	0.50	-5.18

TABLE 6

CUMULATIVE SUMMARY OF FLUID LEVEL MEASUREMENT DATA
PORT OF OAKLAND
TRAILER-ON-FLAT-CAR (TOFC) SITE

Well No.	Date	Well Casing Elevation * (Feet)	Depth to Product (Feet)	Depth to Water (Feet)	Water Level Elevation (Feet)	Product Thickness (Feet)	Corrected Water Level Elevation ** (Feet)
ORW-3	11/12/96	6.30	11.63	11.87	-5.57	0.24	-5.37
	01/20/97	6.30	NOT GAUGED		6.30	0.00	6.30
	03/06/97	6.30	11.20	11.50	-5.20	0.30	-4.95
	05/20/97	6.30	8.60	11.49	-5.19	2.89	-2.76
	07/15/97	6.30		11.46	-5.16	SHEEN	-5.16
	08/28/97	6.30		11.55	-5.25		-5.25
	09/15/97	6.30	11.40	11.47	-5.17	0.07	-5.11
	11/18/97	6.30	3.36	3.52	2.78	0.16	2.91
	03/31/98	6.30	2.20	2.69	3.61	0.49	4.02
	05/21/98	6.30	2.31	2.70	3.60	0.39	3.93
	07/30/98	6.30	11.45	11.48	-5.18	0.03	-5.15
	08/12/98	6.30	11.61	11.72	-5.42	0.11	-5.33
	09/28/98	6.30		11.61	-5.31		-5.31
	11/04/98	6.30	11.36	11.38	-5.08	0.02	-5.06
	11/30/98	12.46	11.87	11.87	0.59	0.00	0.59
	01/27/99	12.46	11.30	11.34	1.12	0.04	1.15
	02/16/99	12.46	NOT GAUGED				
	05/04/99	12.46	6.52	6.52	5.94	0.00	5.94
OP-1	05/18/95	6.71	3.84	5.05	1.66	1.21	2.68
	07/31/95	6.71	5.23	5.35	1.36	0.12	1.46
	09/07/95	6.71	5.55	6.13	0.58	0.58	1.07
	11/30/95	6.71	5.81	9.36	-2.65	3.55	0.33
	01/10/96	6.71	TRACE	4.41	2.30		2.30
	03/25/96	6.71		3.78	2.93		2.93
	05/17/96	6.71		2.18	4.53		4.53
	07/25/96	6.71		3.71	3.00		3.00
	09/16/96	6.71		3.15	3.56		3.56
	11/12/96	6.71	TRACE	2.90	3.81		3.81
	01/20/97	6.71	TRACE	3.90	2.81		2.81
	03/06/97	6.71	TRACE	4.19	2.52		2.52
	05/20/97	6.71	4.87	4.94	1.77	0.07	1.83
	07/15/97	6.71	4.91	5.18	1.53	0.27	1.76
	08/28/97	6.71	4.55	4.64	2.07	0.09	2.15
	09/15/97	6.71	4.89	5.03	1.68	0.14	1.80
	11/18/97	6.71	3.33	3.38	3.33	0.05	3.37
	03/31/98	6.71	SHEEN	3.83	2.88		2.88
	05/21/98	6.71		3.82	2.89		2.89
	07/30/98	6.71	3.80	12.03	-5.32	8.23	1.59
	08/12/98	6.71	3.90	12.51	-5.80	8.61	1.43
	09/28/98	6.71	4.81	8.77	-2.06	3.96	1.27
	11/04/98	6.71	4.75	6.25	0.46	1.50	1.72
	11/30/98	12.87	8.99	6.01	6.86	-2.98	4.36
	01/27/99	12.87	4.70	6.01	6.86	1.31	7.96
	02/17/99	12.87	SHEEN	4.79	8.08		8.08
	05/04/99	12.87	SHEEN	3.91	8.96		8.96
OP-2	05/18/95	7.80	5.15	6.97	0.83	1.82	2.36
	07/31/95	7.80	NOT GAUGED				
	09/07/95	7.80	6.04	7.85	-0.05	1.81	1.47
	11/30/95	7.80	6.85	7.26	0.54	0.41	0.88
	01/10/96	7.80	5.70	6.25	1.55	0.55	2.01
	03/25/96	7.80	5.00	6.67	1.13	1.67	2.53

TABLE 6

CUMULATIVE SUMMARY OF FLUID LEVEL MEASUREMENT DATA
PORT OF OAKLAND
TRAILER-ON-FLAT-CAR (TOFC) SITE

Well No.	Date	Well Casing Elevation * (Feet)	Depth to Product (Feet)	Depth to Water (Feet)	Water Level Elevation (Feet)	Product Thickness (Feet)	Corrected Water Level Elevation ** (Feet)
OP-2	05/17/96	7.80	5.30	6.45	1.35	1.15	2.32
	07/25/96	7.80	5.97	6.62	1.18	0.65	1.73
	09/16/96	7.80	6.25	8.15	-0.35	1.90	1.25
	11/12/96	7.80	6.66	8.79	-0.99	2.13	0.80
	01/20/97	7.80	4.74	6.35	1.45	1.61	2.80
	03/06/97	7.80	5.38	6.40	1.40	1.02	2.26
	05/20/97	7.80	5.92	7.26	0.54	1.34	1.67
	07/15/97	7.80	6.34	8.37	-0.57	2.03	1.14
	08/28/97	7.80	6.55	8.45	-0.65	1.90	0.95
	09/15/97	7.80	6.62	8.59	-0.79	1.97	0.86
	11/18/97	7.80	5.55	5.87	1.93	0.32	2.20
	03/31/98	7.80	3.28	6.18	1.62	2.90	4.06
	05/21/98	7.80	NOT GAUGED				
	07/30/98	7.80	5.79	7.64	0.16	1.85	1.71
	08/12/98	7.80	5.92	8.92	-1.12	3.00	1.40
	09/28/98	7.80	6.27	9.05	-1.25	2.78	1.09
	11/04/98	7.80	6.42	8.82	-1.02	2.40	1.00
	11/30/98	13.95	9.20	9.20	4.75	0.00	4.75
	01/27/99	13.95	5.63	6.20	7.75	0.57	8.23
	02/18/99	13.95	3.87	5.57	8.38	1.70	9.81
	05/04/99	13.95	4.54	6.57	7.38	2.03	9.09
OP-3	05/18/95	6.48	4.88	9.86	-3.38	4.98	0.80
	07/31/95	6.48	5.32	8.46	-1.98	3.14	0.66
	09/07/95	6.48	5.16	8.22	-1.74	3.06	0.83
	11/30/95	6.48	5.75	6.52	-0.04	0.77	0.61
	01/10/96	6.48	4.84	10.20	-3.72	5.36	0.78
	03/25/96	6.48	5.12	9.84	-3.36	4.72	0.60
	05/17/96	6.48	5.03	10.29	-3.81	5.26	0.61
	07/25/96	6.48	TRACE	5.61	0.87		0.87
	09/16/96	6.48	5.75	9.29	-2.81	3.54	0.16
	11/12/96	6.48	6.14	8.89	-2.41	2.75	-0.10
	01/20/97	6.48	4.96	8.20	-1.72	3.24	1.00
	03/06/97	6.48	4.75	8.42	-1.94	3.67	1.14
	05/20/97	6.48	6.38	6.95	-0.47	0.57	0.01
	07/15/97	6.48	5.87	7.64	-1.16	1.77	0.33
	08/28/97	6.48	6.89	8.65	-2.17	1.76	-0.69
	09/15/97	6.48	6.03	8.03	-1.55	2.00	0.13
	11/18/97	6.48	3.89	5.61	0.87	1.72	2.81
	03/31/98	6.48	2.70	6.00	0.48	3.30	3.25
	05/21/98	6.48	3.80	6.77	-0.29	2.97	2.20
	07/30/98	6.48	5.79	7.64	-1.16	1.85	0.39
	08/12/98	6.48	5.20	8.40	-1.92	3.20	0.77
	09/28/98	6.48	5.74	7.49	-1.01	1.75	0.46
	11/04/98	6.48	5.86	7.65	-1.17	1.79	0.33
	11/30/98	12.61	7.59	7.59	5.02	0.00	5.02
	01/27/99	12.61	5.28	6.60	6.01	1.32	7.12
	02/17/99	12.61	2.75	3.55	9.06	0.80	9.73
	05/04/99	12.61	3.65	8.71	3.90	5.06	8.15
OP-4	05/18/95	6.32	3.28	7.15	-0.83	3.87	2.42
	07/31/95	6.32	NOT GAUGED				
	09/07/95	6.32	4.64	6.17	0.15	1.53	1.44

TABLE 6

CUMULATIVE SUMMARY OF FLUID LEVEL MEASUREMENT DATA
PORT OF OAKLAND
TRAILER-ON-FLAT-CAR (TOFC) SITE

Well No.	Date	Well Casing Elevation * (Feet)	Depth to Product (Feet)	Depth to Water (Feet)	Water Level Elevation (Feet)	Product Thickness (Feet)	Corrected Water Level Elevation ** (Feet)
OP-4	11/30/95	6.32	5.56	5.75	0.57	0.19	0.73
	01/10/96	6.32	3.43	6.45	-0.13	3.02	2.41
	03/25/96	6.32	3.11	6.89	-0.57	3.78	2.61
	05/17/96	6.32	3.30	6.43	-0.11	3.13	2.52
	07/25/96	6.32	4.30	7.58	-1.26	3.28	1.50
	09/16/96	6.32	4.71	8.09	-1.77	3.38	1.07
	11/12/96	6.32	5.10	8.56	-2.24	3.46	0.67
	01/20/97	6.32	3.30	6.49	-0.17	3.19	2.51
	03/06/97	6.32	3.80	4.99	1.33	1.19	2.33
	05/20/97	6.32	4.59	5.28	1.04	0.69	1.62
	07/15/97	6.32		* 6.32	-1.68		-1.68
	08/28/97	6.32		* 6.32	-1.68		-1.68
	09/15/97	6.32		9.90	-3.58		-3.58
	11/18/97	6.32		NA	NA		NA
	02/04/98	6.32		NA	NA		NA
	05/22/98	6.32		NA	NA		NA
	07/30/98	6.32		6.85	-0.53		-0.53
	08/12/98	6.32		NA	NA		NA
	09/28/98	6.32		10.51	-4.19		-4.19
	11/04/98	6.32		9.59	-3.27		-3.27
	11/30/98	12.22		10.77	1.45		1.45
	01/27/99	12.22		9.50	2.72		2.72
	02/16/99	12.22	NOT GAUGED				
	05/04/99	12.22		8.60	3.62		3.62

* Elevation of top of casing, all well casings and groundwater elevations measured to City of Oakland Datum (2.998 Mean Sea Level) from May 1996 through August 1998. In February 1999, the well casings were resurveyed to Port Datum (-3.202 Mean sea Level) by PLS Survey Inc.
Water and product levels below pump housing - reported value is depth to pump.

** The groundwater elevations in the monitoring wells with product are corrected by multiplying the specific gravity (0.84) of diesel by the diesel thickness and adding this value to the water elevation measurement from the well.

NA = Not Applicable. Wells are not gauged due to pump components blocking casing.

TABLE 7

CUMULATIVE SUMMARY OF ANALYTICAL DATA
PORT OF OAKLAND
TRAILER-ON-FLAT-CAR (TOFC) SITE

Well Number	Date Sampled	Total Petroleum Hydrocarbons-Diesel (mg/L)	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylenes (mg/L)
OMW-1	05/11/92	<0.050	<0.0005	<0.0005	<0.0005	<0.0005
	08/11/92	0.060	<0.0005	<0.0005	<0.0005	<0.0005
	11/13/92	0.067	<0.0005	0.00061 *	<0.0005	<0.0005
	05/14/93	<0.050	<0.0003	<0.0003	<0.0003	<0.0009
	11/10/93	<0.050	<0.0003	<0.0003	<0.0003	<0.0009
	05/02/94	<0.050	<0.0005	<0.0005	<0.0005	<0.0005
	11/15/94	<0.050	<0.0005	<0.0005	<0.0005	<0.0005
	05/17/95	<0.050	<0.0005	<0.0005	<0.0005	<0.0005
	11/30/95	0.240	<0.0005	<0.0005	<0.0005	<0.0005
	05/29/96	0.056	<0.0005	<0.0005	<0.0005	<0.0005
	11/12/96	<0.050	<0.0005	<0.0005	<0.0005	<0.0005
	08/28/97	0.13	<0.0005	<0.0005	<0.0005	<0.0005
	02/05/98	<0.050	<0.0005	<0.0005	<0.0005	<0.0005
	08/13/98	0.17	<0.0005	<0.0005	<0.0005	<0.0005
	02/17/99	<0.050	0.0019	<0.0005	<0.0005	<0.0005
OMW-2	05/11/92	4.5	<0.0005	<0.0005	<0.0005	<0.0005
	08/11/92	2.7	<0.0005	<0.0005	<0.0005	<0.0005
	11/13/92	3.4	<0.0005	0.00057 *	0.0011	0.0033
	05/14/93	<0.050	<0.0003	<0.0003	<0.0003	<0.0009
	11/10/93	<0.050	<0.0003	<0.0003	<0.0003	<0.0009
	05/02/94	<0.050	<0.0005	<0.0005	<0.0005	<0.0005
	11/16/94	0.26	<0.0005	<0.0005	<0.0005	<0.0005
	05/17/95	0.082	<0.0005	<0.0005	<0.0005	<0.0005
	11/30/95	4.0	<0.0005	<0.0005	<0.0005	<0.0005
	05/29/96	0.58	<0.0005	<0.0005	<0.0005	<0.0005
	11/12/96	3.4	<0.0005	<0.0005	<0.0005	<0.0005
	08/28/97	0.72	<0.0005	<0.0005	<0.0005	<0.0005
	02/05/98	1.8	<0.0005	<0.0005	0.0023	<0.0005
	08/13/98	2.0	<0.0005	<0.0005	<0.0005	<0.0005
	02/18/99	<0.050	<0.0005	<0.0005	0.0019	<0.0005
OMW-3	05/11/92	2.3	.0003 J	0.0013	.0003 J	0.0034
	08/11/92	5.8	<0.0005	0.00071	<0.0005	.0017
	11/13/92	110	<0.0005	0.00089 *	0.0015	.0084
	05/14/93	0.180	<0.0003	0.036	<0.0003	.0027
	11/10/93	1.8	<0.0003	0.0005	<0.0003	<0.0009
	05/02/94	1.8	<0.0005	0.0023	<0.0005	0.00089
	11/15/94	1.2	<0.0005	<0.0005	<0.0005	<0.0005
	05/17/95	0.46	<0.0005	0.0013	<0.0005	<0.0005
	11/30/95	2.4	<0.0005	<0.0005	<0.0005	<0.0005
	05/29/96	2.3	<0.0005	<0.0005	<0.0005	<0.0005
	11/12/96	3.1	<0.0005	<0.0005	<0.0005	<0.0005
	08/28/97	1.4	<0.0005	<0.0005	<0.0005	<0.0005
	02/05/98	1.3	<0.0005	<0.0005	<0.0005	<0.0005
	08/13/98	3.2	<0.0005	<0.0005	<0.0005	<0.0005
	02/17/99	0.25 YH	<0.0005	<0.0005	<0.0005	<0.0005
OMW-5	05/11/92	2.1	<0.0005	.0004 J	<0.0005	0.0003
	08/11/92	2.1	<0.0005	<0.0005	<0.0005	<0.0005
	11/13/92	4.4	<0.0005	0.00078 *	<0.0005	<0.0005
	05/14/93	11	<0.0003	0.0018	<0.0003	<0.0009
	11/10/93	<0.050	<0.0003	0.0006	<0.0003	<0.0009

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PORT OF OAKLAND
TRAILER-ON-FLAT-CAR (TOFC) SITE

Well Number	Date Sampled	Total Petroleum Hydrocarbons-Diesel (mg/L)	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylenes (mg/L)
OMW-5	05/02/94	<0.050	<0.0005	<0.0005	<0.0005	<0.0005
	11/16/94	0.52	<0.0005	0.0012	0.0014	0.0077
	05/18/95	2.4	<0.0005	<0.0005	<0.0005	0.0017
	11/30/95	13	<0.0005	<0.0005	<0.0005	<0.0005
	05/29/96	5.8	<0.0005	<0.0005	<0.0005	<0.0005
	11/12/96	****** NOT SAMPLED - Well Contained Product/Sheen******				
	08/28/97	1.7	<0.0005	<0.0005	<0.0005	<0.0005
	02/05/98	2.2	<0.0005	<0.0005	<0.0005	<0.0005
	08/13/98	3.7	<0.0005	<0.0005	<0.0005	<0.0005
	02/18/99	0.37	<0.0005	<0.0005	<0.0005	<0.0005
OMW-6	05/11/92	0.52	<0.0005	<0.0005	<0.0005	0.0016
	08/11/92	0.55	<0.0005	<0.0005	<0.0005	<0.0005
	11/13/92	6.0	<0.0005	0.00077 *	<0.0005	<0.0005
	05/14/93	0.18	<0.0003	<0.0003	<0.0003	<0.0009
	11/10/93	<0.050	<0.0003	<0.0003	<0.0003	<0.0009
	05/02/94	<0.050	<0.0005	<0.0005	<0.0005	<0.0005
	11/16/94	0.46	<0.0005	<0.0005	<0.0005	<0.0005
	05/17/95	1.1	<0.0005	<0.0005	<0.0005	<0.0005
	11/30/95	2.5	<0.0005	<0.0005	<0.0005	<0.0005
	05/29/96	2.3	<0.0005	<0.0005	<0.0005	<0.0005
	11/12/96	1.9	<0.0005	<0.0005	<0.0005	<0.0005
	08/28/97	0.99	<0.0005	<0.0005	<0.0005	<0.0005
	02/05/98	1.5	<0.0005	<0.0005	<0.0005	<0.0005
	08/13/98	1.5	<0.0005	<0.0005	<0.0005	<0.0005
	02/18/99	0.55 Y	<0.0005	<0.0005	<0.0005	<0.0005
OMW-8	05/11/92	0.24	<0.0005	<0.0005	<0.0005	<0.0005
	08/11/92	0.22	<0.0005	<0.0005	<0.0005	<0.0005
	11/13/92	0.26	<0.0005	0.00058 *	<0.0005	<0.0005
	05/14/93	<0.050	<0.0003	<0.0003	<0.0003	<0.0009
	11/10/93	<0.050	<0.0003	<0.0003	<0.0003	<0.0009
	05/02/94	<0.050	<0.0005	<0.0005	<0.0005	<0.0005
	11/15/94	0.26	<0.0005	<0.0005	<0.0005	<0.0005
	05/17/95	0.26	<0.0005	<0.0005	<0.0005	<0.0005
	11/30/95	1.7	<0.0005	<0.0005	<0.0005	<0.0005
	05/29/96	1.3	<0.0005	<0.0005	<0.0005	<0.0005
	11/12/96	1.3	<0.0005	<0.0005	<0.0005	<0.0005
	08/28/97	1.3	<0.0005	<0.0005	<0.0005	<0.0005
	02/05/98	1.9	<0.0005	<0.0005	<0.0005	<0.0005
	08/13/98	1.6	<0.0005	<0.0005	<0.0005	<0.0005
	02/17/99	0.052 YH	<0.0005	<0.0005	<0.0005	<0.0005
OMW-10	05/11/92	2.1	0.033	<0.0005	<0.0005	0.0027
	08/11/92	1.3	0.0096	<0.0005	<0.0005	.00062
	11/13/92	2.8	0.0066	0.00084 *	<0.0005	.00062
	05/14/93	****** NOT SAMPLED - Well Contained Product/Sheen******				
	11/10/93	2.6	0.0043	0.0011	<0.0003	.00012
	05/02/94	2.6	0.00052	<0.0005	<0.0005	<0.0005
	11/16/94	****** NOT SAMPLED - Well Contained Product/Sheen******				
	05/17/95	****** NOT SAMPLED - Well Contained Product/Sheen******				
	11/30/95	****** NOT SAMPLED - Well Contained Product/Sheen******				
	05/29/96	****** NOT SAMPLED - Well Contained Product/Sheen******				
	11/12/96	****** NOT SAMPLED - Well Contained Product/Sheen******				

TABLE 7

CUMULATIVE SUMMARY OF ANALYTICAL DATA
PORT OF OAKLAND
TRAILER-ON-FLAT-CAR (TOFC) SITE

Well Number	Date Sampled	Total Petroleum Hydrocarbons-Diesel (mg/L)	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylenes (mg/L)
OMW-10	08/28/97	****** NOT SAMPLED - Well Contained Product/Sheen******				
	02/05/98	9.1	18	<0.0005	<0.0005	<0.0005
	08/13/98	4.5	0.21	0.0005	<0.0005	<0.0005
	02/17/99	15	0.0019	<0.0005	<0.0005	<0.0005
(duplicate)	02/17/99	19	0.0019	<0.0005	<0.0005	<0.0005

J - Estimated value below reporting limit.

* 0.00062 mg/L was detected in the trip blank.

mg/L - milligrams per liter

TPH/D - Total Petroleum Hydrocarbons as Diesel anaylzed using EPA Method 8015 Mod. with Silicia Gel Cleanup (since 2/99).

BTEX -Benzene, toluene, ethylbenzene, and xylenes analyzed using EPA Method 8020.

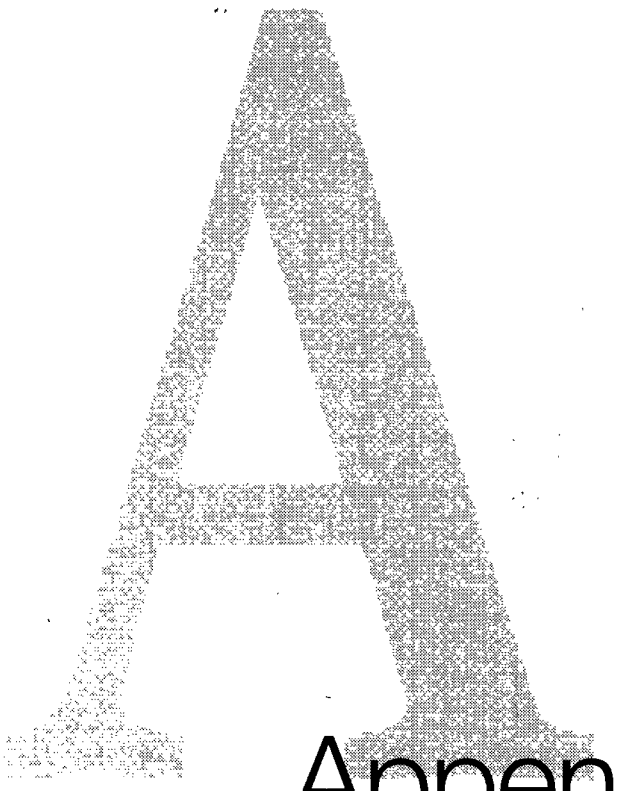
Samples were analyzed at Curtis & Tompkins Ltd., a state certified analytical laboratory in Berkeley, California (since 2/99).

Y - Sample exhibits fuel pattern which does not resemble standard, per Curtis & Tompkins, Ltd.

H - Heavier hydrocarbons than indicated standard, per Curtis & Tompkins, Ltd.

L - Lighter hydrocarbons than indicated standard, per Curtis & Tompkins, Ltd.

Due to the presence of product, recovery wells ORW-1, ORW-2, ORW-3, OP-1, OP-2, OP-3, and OP-4 and monitoring wells OMW-4, OMW-7, and OMW-9 were not sampled.



Appendix A

Appendix A

Field Forms and OM&M Checklist

Field Notes
December 1998

30's 12/2/98 M.F. ONSITE @ 1800 HRS OVERCAST 50's, PERCIPITATION

NEP	6516700
SIG	857570
FLOW	21.0
OIL	34.0"
PSI-IN	10
PSI-OUT	9.5
OMW-4	941,743
OMW-9	743,727

1800 HRS - INSPECTING SYSTEM. HOLDING TANK HALF FULL. BEGIN PUMPING DOWN TANK. CHANGE OUT BAG FILTERS. INSPECT & SKIM OVERFLOW TRENCH. TURN ON Cl PUMP.

1900 HRS - INSPECTING ORW's & OMW's. ORW-3 NOT PUMPING. RE-ADJUST BUBBLER LINE AND REDEPLOY PUMP. PUMP BEGINS PUMPING IMMEDIATELY AND CYCLES OFF WHEN WELL GOES DRY. ORW-1 & ORW-2 BOTH CYCLING PROPERLY. CLEAN SCREENS REDEPLOY PUMPS INTO WELLS. OMW-4 & OMW-9 BOTH OPERATING NORMALLY. PERFORM O&M ON AIR COMPRESSOR.

2000 HRS - TAKE PARAMETER READINGS. TURN OFF Cl PUMP SECURE SITE.

2015 HRS - LEFT SITE

M. Thomas

12/9/98 MF ONSITE @ 1950 ARS. CLEAR SKIES 50°F.

NEP	654900
SIG	886200
Flow	24.0
OIL	34.0
PSI IN	9.5
PSI OUT	10.0
OMW-4	998792
OMW-9	772677

1930 ARS - ONSITE. INSPECTING SYSTEM. HOLDING TANK 3/4 FULL. BEGIN PUMP DOWN. TAKE PARAMETER READINGS. SKIM OVERFLOW TROUGH. CHANGE BAG FILTERS.

2030 ARS - BEGIN BACKFLUSHING PRIMARY CARBON UNIT. EFFLUENT HAS GOOD DEAL OF BIO MATERIAL. CONTINUE BACKFLUSHING FOR 30 MINUTES. WATER EVENTUALLY CLEARS.

2100 ARS - TURN ON CI PUMP. INSPECTING ORW's & OMW's. OMW's FUNCTIONING PROPERLY. ORW's FUNCTIONING PROPERLY, CLEAN SCREENS REDEPLOY PUMPS.

2150 ARS - INSPECT AIR COMPRESSOR. UNIT FUNCTIONING PROPERLY OIL LEVEL CORRECT. TURN OFF CI PUMP SECURE SITE.

2200 ARS - LEFT SITE

M. Truman

12/14/98 M.F. ONSITE @ 1300 HRS. CLEAR 60°

NEP	6572100
SIG	901910
Flow	25.0
OIL	34.0
PSI IN	10
PSI OUT	10
OMW-4	00 5677
OMW-9	#73333

1300 ARS - ONSITE @ 1300 HRS. INSPECTING O/W SEPARATOR. TANK (HOLDING) WATER LEVEL LOW. CHANGE BAG FILTERS. BEGIN BACKFLUSHING PRIMARY CANISTER. CONTINUE BACKFLUSH FOR 30 MIN.

1400 ARS - TURN ON AIR PUMP. TAKE PARAMETER READINGS FROM O/W SEPARATOR TROUGH.

1430 ARS - INSPECTING OMW'S & ORW'S. OMW'S WORKING PROPERLY. ORW'S WORKING PROPERLY. CLEAN SCREEN RECEIVED HOSES INTO RESPECTIVE WELLS.

1500 ARS - PERFORM WEEKLY O/M ON AIR COMPRESSOR OIL LEVEL IN UNIT CORRECT. RESSAIR COMPRESSOR SYSTEM WORKING CORRECTLY.

1530 ARS - TURN OFF AIR PUMP. SECURE SITE. LEFT SITE

M. Freeman

12/16/19 M.F. ONSITE @ 0900 HRS CLEAR 50°

NEP	6,582,500
SIG	914,910
FLOW	23.0
OIL	34.0
PSI-IN	10
PSI-OUT	10
OMW-4	5677
OMW-9	792,457

0900 HRS- ONSITE. INSPECTING SYSTEM. HOLDING TANK APPROX 3/4 FULL- PUMP DOWN TANK. CHANGE BAG FILTERS. TURN ON CL PUMP.

1000 HRS- BEGIN BACKFLUSH OF PRIMARY CARBON UNIT. CONTINUE BACKFLUSH FOR APPROX. 30 MIN. WATER (EFFLUENT) CONTAINS FAIR AMOUNT OF BIO MATERIAL HOWEVER BY END OF BACKFLUSH WATER WAS CLEANED.

1045 HRS- INSPECTING OMW'S & ORW'S. OMW'S OPERATING PROPERLY - ORW'S OPERATING PROPERLY CLEAN HOSE SCREENS REDEPLOY HOSES INTO WELLS. PERFORM WEEKLY O&M ON AIR COMPRESSOR. OIL LEVEL CORRECT.

1130 HRS- BEGIN SCHEDULED INFLUENT & MIDFLUENT SAMPLING. 2- INFLUENT SAMPLES TAKEN @ 1130 HRS. 3- MIDFLUENT SAMPLES TAKEN @ 1145 HRS.

1200 HRS- TURN OFF CL PUMP. TAKE PARAMETER READINGS SECURE SITE.

1230 HRS- LEFT SITE

M. Jacinto

12/22/98 M.F. ONSITE @ 1000 HRS CLEARS 50° NO WIND

NEP	6611000
SIG	921700
FLOW	20.0
OIL	34.25
PSI-IN	10
PSI-OUT	10
OMW-4	005678
OMW-9	840780

1000 HRS - ONSITE INSPECTING SYSTEM. CHANGE FILTER BAGS PLUG IN CI PUMP. PUMP NOT DELIVERING CI TO O/W SEPARATOR. UNSCREW FIXTURES SECURING HOSE FROM PUMP TO O/W SEPARATOR. THERE SEEMS TO BE AN AIR LOCK. WAIT FOR BUBBLES TO CLEAR FROM PUMP CHAMBER AND HOSE. PROPER PUMPING RESUMES.

1100 HRS - TAKE PARAMETER READINGS. CLEAN O/W SEPARATOR TROUGH. TROUGH HAS LARGE AMOUNT OF BIO MATERIAL IN SUSPENSION. MAY BE DUE TO AIR LOCK IN CI PUMP.

1130 HRS - INSPECT OMW's & ORW's. ALL WELLS OPERATIONAL. CLEAN HOSE SCREENS. TAKE OMW COUNTER READINGS. BEGIN BACKFLUSHING PRIMARY CARBON. BIO MATERIAL IN EFFLUENT WATER BACKFLUSHED FOR 30 MIN.

1230 HRS SECURED SITE. TURNED OFF CI PUMP. LEFT SITE.

M. Fuson

12/29/98 M.E ONSITE @ 1230HRS CLEAR SKIES 50° NO WIND

N&P	1638500
S&G	323000
flow	150
OIL	34.20
PSI IN	10
PSI OUT	10
OMW-4	5678
OMW-9	84,000

1230 HRS - ONSITE. INSPECTING O/W SEPARATOR. TURN ON CI PUMP. TUBING ON PUMP NEEDS TO BE CHANGED - LOOK INTO CHEMICAL RESISTANT MATERIAL. HOLDING TANK FULL BEGIN PUMP DOWN. TAKE PARAMETER READINGS. SKIM O/W TROUGH. LARGE AMOUNT OF BIOMATERIAL.

1300 HRS - CHANGE BAG FILTERS. BEGIN BACK FLUSHING PRIMARY CARBON. CONTINUE BACKFLUSH FOR 30 MIN.

1330 HRS - INSPECTING OMW & ORW WELLS. OMW-4 COUNTER IS STUCK. OMW-4 & OMW-9 PUMPING PROPERLY. ORW'S ALL PUMPING PROPERLY. CLEAN SCREENS & REDEPLOY HOSES INTO WELLS.

1430 HRS - INSPECTING AIR COMPRESSOR. CHANGE OIL AS PER O&M SCHEDULE FOR DECEMBER. RESTART COMPRESSOR SYSTEM WORKING PROPERLY.

1530 HRS - TURN ~~off~~ m? CI PUMP DOWN TO HALF NORMAL RATE TO CONTROL BIO GROWTH WILL RESUME NORMAL CI PUMPING NEXT WEEK. SECURE SITE

1545 HRS - LEFT SITE

M. Freeman

Field Notes
January 1999

1/5/99 MF ONSITE @ 1800 HRS DARK 50's LIGHT WIND

NEP	6665750
SIC	946695
Flow	200
Oil	34.25"
PSI IN	10
PSI OUT	10
OMW-4	6000
OMW-9	348100

1800 HRS - ON SITE. INSPECTING SYSTEM. HOLDING TANK 3/4 FULL. TRIP RELAY TO PUMP DOWN. TAKE PARAMETER READINGS. SKIM OVERFLOW TROUGH. TURN ON CL PUMP.

1830 HRS - CHANGE BAG FILTERS. BEGIN BACKFLUSH OF PRIMARY CARBON. WATER: GREY TURBID. CONTINUE BACKFLUSHING FOR APPROX 30 MIN

1900 HRS - INSPECTING ORW'S & OMW'S. ALL PUMPS OPERATIONAL. CLEAN SCREENS REDEPLOY HOSES INTO WELLS.

1945 HRS - INSPECTING AIR COMPRESSOR. OPEN BLEEDER VALVE TO CHECK FOR ~~LT~~ ANY CONDENSATION IN LINES, NONE FOUND.

2030 HRS - TURN OFF CL PUMP. SECURE SITE

2045 HRS - LEFT SITE

M Freeman

11/10/99 M.F. ONSITE @ 2030 ARS MEAN SMGS SO'S

NTP	6693000
SMG	969400
FLOW	26.0
OIL	34.25
PSIN	10
PSIOUT	10
OMW-4	6192
OMW-9	850727

2030 ARS - ONSITE. INSPECTING O/W SEPARATOR. HOLDING TANK F/L FULL; PUMP DOWN. CHANGE BAG FILTERS. BACKFLUSH PRIMARY CARBON.

2100 ARS - BEGIN MONTHLY SAMPLING OF INFLUENT, MIDFLUENT AND EFFLUENT. EFFLUENT PORT STORMS T= BE CHOKED DISCHARGE RATE IS QUITE SLOW.

2130 ARS - FINISHED SAMPLING. TURN ON C/ PUMP. CLEAN O/W OVERFLOW TROUGH. TAKE PARAMETER READINGS.

2200 ARS - INSPECTING OMW'S & ORW'S. TART COUNTER READING. ALL PUMPS OPERATING. CLEAN PUMP SCREENS & REDEPLOY.

2230 ARS - PERFORM DSM ON AIR COMPRESSOR. OIL LEVEL CORRECT.

2300 ARS - TURN OFF C/ PUMP. SECURE SITE. LEAVE SITE.

M. Fleming

1/18/99 M.F. ONSITE @ 1300 HRS OVERCAST LITE RAIN 50°

NEP	6724866
SV6	687320
Flow	14.0
Oil	34.25
PSI IN	11
PSI OUT	11
OMW-4	13820
OMW-9	851000

1300 HRS - ON SITE. INSPECTING SYSTEM. HOLDING TANK 4 FULL. CHANGE BAG FILTERS. TURN ON CI PUMP. BEGIN BACKFLUSHING PRIMARY CARBON. MUCH BIOFOULING NOTICED IN EFFLUENT. CONTINUED BACKFLUSH FOR 30 MIN.

1345 HRS - INSPECTING ORW-1 OMW-2 ORW-4 NOT PUMPING. REMOVED HOSE FROM WELL TO INSPECT. NO OBSTRUCTIONS NOTICED. CLEAN SCREENS REDEPLOY IN WELL. ADJUST BUBBLER UNIT AT MASTER CONTROL AND PUMP BEGINS OPERATING AGAIN. ALL OTHER PUMPS FUNCTIONAL, CLEAN SCREENS REDEPLOY.

1400 HRS - INSPECTING AIR COMPRESSOR: OIL LEVEL CORRECT. NO CONDENSATION IN LINES.

1510 HRS - TURN OFF CI PUMP. SECURE SITE LEAVE SITE

M. Freeman

1/22/99 MF ON SITE @ 1430 HRS OVERCAST, ~~LIGHT~~ RAIN 50's

NEP	674086C
SIG	796286
FLOW	7.0
OIL	34.25
PSI-IN	14/.2
PSI-OUT	6/12
OMW-4	1734
OMW-9	851619

1430 HRS - ON SITE TO PERFORM WEEKLY MAINTENANCE AND INVESTIGATE ALERT CONDITION #3. DROP B/W PSI-IN AND PSI-OUT IS 8 psi (PSI IN 14 PSI OUT 6). SHUT OFF POWER AND CHANGE BAG FILTERS. THICK LAYER OF SLUDGE IN BAGS. TURNED OIL PUMP WILL LEAVE ON OVER THE WEEKEND TO CONTROL BIO GROWTH.

1500 HRS - BEGAN BACKFLUSH OF PRIMARY CARBON. CONTINUED BACKFLUSH FOR 30 min. INITIALLY LARGE AMOUNT OF BIOMATERIAL IS EFFLUENT/DISCHARGE WATER.

1530 HRS - PERFORMED WEEKLY O&M ON AIR COMPRESSOR. OIL LEVEL IS CORRECT. NO WATER IN ANY OF THE LINES. INSPECTING OMW'S & ORW'S. ALL WELLS/PUMPS OPERATING PROPERLY WITH THE EXCEPTION OF OMW-9 WHICH WAS CYCLING BUT SEEMED TO BE GURGLING. WILL PULL NEXT VISIT IF PROBLEM CONTINUES. CLEANED HOSE SCREENS AND REDEPLOYED.

1600 HRS - TAILING PARAMETER READINGS. TURNED OFF WATER. SECURED SITE. LEFT SITE

M. Brenna

1/25/99 M.F ON SITE @ 1400 HRS CLEAR SKIES NO WIND 60°

NEP	6767050
SIG	1017442
FLOW	15.0
OIL	34.25"
PSI IN	11/11
PSI OUT	8/11
OMW-4	28792
OMW-9	893652

1400 HRS - MEETING HCA TO DISCUSS O/M SEPARATOR O&M. REVIEW AS BUILT DRAWINGS AND GO THROUGH WEEKLY MAINTANANCE OPERATIONS. CHANGE BAG FILTERS. UNPLUG CL PUMP WHICH HAS BEEN RUNNING CONTINUOSLY OVER WKEND. TRIP RELAY TO PUMP DOWN HOLDING TANK.

1530 HRS - BEGIN BACKWASHING PRIMARY CARBON. EFFLUENT WATER VERY TURBID. CONTINUE BACKWASH FOR APPROX 30 min UNTIL WATER CLEARS. SKIM OVERFLOW TROUGH OF BIO. MAT.

1610 HRS INSPECTING OMW'S & OMW'S. ALL PUMPS OPERATIONAL. CLEAN SCREENS REPEPLOY. TAKE COUNTER READINGS.

1645 HRS INSPECTING AIR COMPRESSOR - UNIT FUNCTIONING PROPERLY. OIL LEVEL CORRECT. NO WATER IN LINES.

1700 HRS TAKE SYSTEM PARAMETER READINGS. SECURE SITE LEAVE SITE.

M. Fuson

1/27/99 M. F & J. P. ONSITE @ 1230 AMS SUNNY NO WIND 60's

1230 AMS - ON SITE TO PERFORM WELL GAUGING. NO O&M OR PARAMETER READINGS WILL BE TAKEN TODAY.

1630 AMS ALL WELLS GAUGED WITH THE EXCEPTION OF WELL CM-10 WHICH WAS COVERED BY PILE OF AGGREGATE ROCK. MET WITH Rob TO GIVE HIM O&M BINDER, SITE KEY AND APPROX. 50 BAG FILTERS.

1645 AMS - SECURED SITE, LEFT SITE

M. Fuemo

OM&M Checklist
February 1999

OPERATION, MAINTENANCE & MONITORING CHECKLIST

Union Pacific Railroad - Oakland Trailer-on-flat-car (TOFC) railyard
1717 Middle Harbor Road, Oakland, California

Inspection Date: 2/2/98
Inspector's Name: Hoa + Rex
Company: CAM + Calcon System
Time Inspector On-site: 1340
Offsite: 1605
UPRR Person Notified: Tom Artusy
Time/Date: 1355 (2/2/98)
Reason for Visit: O&M
Weather Conditions: sunny, clear 60s

Record status as found and any repairs/adjustments performed

Treatment System General Inspection/Readings:

System Operating? (Yes) No

System Readings:

Signet Volume (gallons):	104277 x 10	
Neptune Volume (gallons):	6796400	
Flow Rate thru Carbon (gallons/minute):	10.5	
Filter Pressure - Inlet (psig):	11.5 @ 1345	12 @ 1648
Filter Pressure - Outlet (psig):	2.5 @ 1345	10 @ 1648
Oil Level in Tank (inches):	34.25"	
~~OMW-4~~ meter reading (gallons):	041687 @	1520
OMW-9 meter reading (gallons):	036359 @	1533

Change Filters: (Yes) No

Procedures: close valves, loosen hatch, change filters and clean screen
Observations: filters full of organic matter

Backwash Primary Carbon Canisters: (Yes) No

Is holding tank half empty? yes
Duration of backwashing: 1435 - 1538
Observation of Effluent: light tan, low turbidity → clear

Inspection and Cleaning of Pumps:

Wells	Operating?	Requires Cleaning?	Comments
ORW-1	yes	yes	
ORW-2	yes	yes	
ORW-3	yes	no	
OMW-9	yes	no	
OP-4	yes	yes	041687 @ 1520

OPERATION, MAINTENANCE & MONITORING CHECKLIST
Union Pacific Railroad - Oakland Trailer-on-flat-car (TOFC) railyard
1717 Middle Harbor Road, Oakland, California

Chlorine Feed System:

Volume of Sodium Hypochlorite Remaining: 40 gallons
Period of Feed System Operation: From 1400 - 1605, Rex replaced tubi

Air Compressor:

Check Oil Level: yes, okay
Change Oil in Compressor every 3 months:

Sampling:

Sample Location	Sampling Frequency	Analytes	EPA Method	Sampling Method
Midpoint	Monthly	BTEX	8020	3 - 40 ml vials with HCl 4 degree Celcius
Influent Effluent	Quarterly January, April, July, October	BTEX TPH-D	8020 8015M	3 - 40 ml vials with HCl 1 - 1 liter amber glass 4 degree Celcius

Performed during this visit? **Yes** **No**

IV. Comments

→ Plan to label power switches (sump pump and recovery pumps)
→ Changed autodialer #s - 925-216-5071 (Voscott)
925-277-0465 (Calco System)
707-745-3368 (Rex Ross/home #)
→ need to change autodialer batteries 6-D size

Before departing site, please call Hoa Voscott at CDM (925-296-8071)
If no answer, dial "0" for operator and request a page.

OPERATION, MAINTENANCE & MONITORING CHECKLIST

Union Pacific Railroad - Oakland Trailer-on-flat-car (TOFC) railyard
1717 Middle Harbor Road, Oakland, California

Inspection Date: 2-9-99
Inspector's Name: VOSCOTT
Company: COM
Time Inspector On-site: 1230
Offsite: 1400
UPRR Person Notified: Tom Arturo
Time: 1230 / 2/9/99
Reason for Visit: OMBAT
Weather Conditions: Sunny cool 50s

Record status as found and any repairs/adjustments performed

Treatment System General Inspection/Readings:

System Operating? (Yes) No

System Readings:

Signet Volume (gallons):	x10 106714 @ 1235
Neptune Volume (gallons):	08 22490 @ 1235
Flow Rate thru Carbon (gallons/minute):	11.7
Filter Pressure - Inlet (psig):	4 @ 1250
Filter Pressure - Outlet (psig):	4 @ 1250
Oil Level in Tank (inches):	35"
OP-4 meter reading (gallons):	— @ —
OMW-9 meter reading (gallons):	— @ —

Change Filters: (Yes) No

Procedures: remove and replace w/ clean filter
clean canister

Observations: lots of solids - iron bacteria

Backwash Primary Carbon Canisters: (Yes) No

Is holding tank half empty? yes
Duration of backwashing: 1300 — 1340
Observation of Effluent: fairly low turb.

Inspection and Cleaning of Pumps:

Wells	Operating?	Requires Cleaning?	Comments
ORW-1	—		no cleaning performed
ORW-2	—		
ORW-3	—		
OMW-9	—		
OP-4	—		

OPERATION, MAINTENANCE & MONITORING CHECKLIST
Union Pacific Railroad - Oakland Trailer-on-flat-car (TOFC) railyard
1717 Middle Harbor Road, Oakland, California

Chlorine Feed System:

Volume of Sodium Hypochlorite Remaining: 40 gallons
Period of Feed System Operation: 1230 - 1345

Air Compressor:

Check Oil Level: ok
Change Oil in Compressor every 3 months: ok

Sampling:

Sample Location	Sampling Frequency	Analytes	EPA Method	Sampling Method
Midpoint	Monthly	BTEX	8020	3 - 40 ml vials with HCl 4 degree Celcius
Influent Effluent	Quarterly January, April, July, October	BTEX TPH-D	8020 8015M	3 - 40 ml vials with HCl 1 - 1 liter amber glass 4 degree Celcius

Performed during this visit? Yes **No** (circled)

IV. Comments

Routine O&M - change filters + backwash + take readings.

Before departing site, please call Hoa Voscott at CDM (925-296-8071)
If no answer, dial "0" for operator and request a page.

OPERATION, MAINTENANCE & MONITORING CHECKLIST

Union Pacific Railroad - Oakland Trailer-on-flat-car (TOFC) railyard

1717 Middle Harbor Road, Oakland, California

Inspection Date: 2-12-99

Inspector's Name: REX ROSS Company: CALCON SYSTEMS, INC.

Time Inspector On-site: 08:00 Offsite: 12:30

UPRR Person Notified: TOM ARTURO Time: 08:30

Reason for Visit: SCHEDULED WEEKLY MAINT.

Weather Conditions: CLOUDY, HAZY, CHILLY, OVERCAST

Record status as found and any repairs/adjustments performed

Treatment System General Inspection/Readings:

System Operating? (Yes) No

System Readings:

Signet Volume (gallons):	106751	
Neptune Volume (gallons):	06822875	
Flow Rate thru Carbon (gallons/minute):	0	
Filter Pressure - Inlet (psig):	N/A	@
Filter Pressure - Outlet (psig):	N/A	@
Oil Level in Tank (inches):	35	
OP-4 meter reading (gallons):	—	@
OMW-9 meter reading (gallons):	—	@

Change Filters: (Yes) No

Procedures: ISOLATE ONE AT A TIME WITH BALL VALVES ON INLET & OUTLET - CHANGE FILTER - PUT BACK ON LINE & DO THE OTHER ONE.

Observations:

Backwash Primary Carbon Canisters: (Yes) No

Is holding tank half empty?	YES
Duration of backwashing:	NO
Observation of Effluent:	NO

Inspection and Cleaning of Pumps:

Wells	Operating?	Requires Cleaning?	Comments
ORW-1	NO		PLANT DOWN
ORW-2			
ORW-3			
OMW-9			
OP-4			

OPERATION, MAINTENANCE & MONITORING CHECKLIST

Union Pacific Railroad - Oakland Trailer-on-flat-car (TOFC) railyard
1717 Middle Harbor Road, Oakland, California

Chlorine Feed System:

Volume of Sodium Hypochlorite Remaining: 16 INCHES (32 INCH HIGH DRUM)
Period of Feed System Operation: 08:30 to

Air Compressor:

Check Oil Level: OK - BUT MOTOR IS KAPUT
Change Oil in Compressor every 3 months:

Sampling:

Sample Location	Sampling Frequency	Analytes	EPA Method	Sampling - Method
Midpoint	Monthly	BTEX	8020	3 - 40 ml vials with HCl 4 degree Celcius
Influent Effluent	Quarterly January, April, July, October	BTEX TPH-D	8020 8015M	3 - 40 ml vials with HCl 1 - 1 liter amber glass 4 degree Celcius

Performed during this visit? Yes (No)

IV. Comments

SODIUM HYPOCHLORITE FEED PUMP WAS RUNNING BUT NOT PUMPING IT HAD LOST ITS' PRIME. I REPRIMED IT & IT PUMPED OK. - THIS SHOULD BE CHECKED EACH VISIT, BECAUSE OF THE TIME BETWEEN VISITS, DURING WHICH IT COULD LOOSE ITS PRIME.

FILTERS WERE DISCOLORED (BROWN), BUT DIDN'T HAVE THE LAYER OF MUD CAKED UP IN THEM AS OBSERVED BEFORE - THEY WERE PRETTY CLEAN.

→ COMPRESSOR MOTOR IS SHORTED OUT - MUST BE REPLACED/REPAIRED

Before departing site, please call Hoa Voscott at CDM (925-296-8071)
If no answer, dial "0" for operator and request a page.

NOTE: OIL TANK HAS A LOCK ON THE CAP ON TOP - NEED TO REPLACE THIS WITH ANOTHER LOCK WITH KEY #3202 - GANG BOX COULD ALSO USE A LOCK.

OPERATION, MAINTENANCE & MONITORING CHECKLIST

Union Pacific Railroad - Oakland Trailer-on-flat-car (TOFC) railyard
1717 Middle Harbor Road, Oakland, California

Inspection Date: 2-19-99
Inspector's Name: REX ROSS Company: CALCON SYSTEMS
Time Inspector On-site: ~~LOUIE CHAVEZ~~ 09:05 Offsite: 12 NOON
UPRR Person Notified: LOUIE CHAVEZ Time/Date: 09:10 2-19-99
Reason for Visit: MAINT.
Weather Conditions: BEAUTIFUL

Record status as found and any repairs/adjustments performed

Treatment System General Inspection/Readings:

System Operating? (Yes) No

System Readings:

Signet Volume (gallons): (X 10) 1071410
Neptune Volume (gallons): 06827350
Flow Rate thru Carbon (gallons/minute): 10.3 GPM — 13.1 AFTER FILTER CHG
Filter Pressure - Inlet (psig): 11.0 (BEFORE CHG) 10.0 (AFTER
Filter Pressure - Outlet (psig): 8.5 10.0
Oil Level in Tank (inches): 34 +
MW-4 meter reading (gallons): N/A - RR CARS BEING MOVED
MW-9 meter reading (gallons): 131687

Change Filters: (Yes) No

Procedures: CHANGED FILTERS ONE AT A TIME — PLANT OPERATING

Observations: FILTERS WERE CAKED UP PRETTY GOOD

Backwash Primary Carbon Canisters: Yes (No)

Is holding tank half empty? TANK PUMPED DOWN ON AUTOMATIC DURING VISIT
Duration of backwashing: NOT DONE
Observation of Effluent:

Inspection and Cleaning of Pumps:

Wells	Operating?	Clean?	Comments
ORW-1	YES	USUAL SLIME COATING	
ORW-2	YES	"	"
ORW-3	YES	"	"
MW-9	YES	"	"
P-4	"	"	"

2-19-99

OPERATION, MAINTENANCE & MONITORING CHECKLIST

Union Pacific Railroad - Oakland Trailer-on-flat-car (TOFC) railyard
1717 Middle Harbor Road, Oakland, California

Chlorine Feed System:

Volume of Sodium Hypochlorite Remaining: 1/2 BBL
Period of Feed System Operation: 2 HRS

Air Compressor:
GREASE BEARINGS ON ELECTRIC MOTOR
Check Oil Level: O.K.
Change Oil in Compressor every 3 months: 4/99 7/99 10/99 1/00 4/00
CHANGE AIR FILTER ~~every~~ AS REQ'D. CHECK MONTHLY
Sampling:

Sample Location	Sampling Frequency	Analytes	EPA Method	Sampling Method
Midpoint	Monthly	BTEX	8020	3 - 40 ml vials with HCl 4 degree Celcius
Influent Effluent	Quarterly January, April, July, October	BTEX TPH-D	8020 8015M	3 - 40 ml vials with HCl 1 - 1 liter amber glass 4 degree Celcius

Performed during this visit? Yes (No)

Comments
AIR FILTER P/N 9201295 7 (STANDARD)
3216S466 (HEAVY DUTY)
OIL P/N (QUARTS) 3231887S
(CASE) 32318883

THE WATER SUPPLY VALVE OUT ON THE CONCRETE PAD WAS NOT SHUT OFF — I CLOSED IT PER PREVIOUS INSTRUCTION (THERE IS A LEAK ON THIS LINE THAT WASTES WATER) — ANY CHANGE ON THIS THAT I DON'T KNOW ABOUT?

Before departing site, please call Hoa Voscott at CDM (925-296-8071)
If no answer, dial "0" for operator and request a page.

called —
11:30 AM
2-19-99
LEFT MESSAGE

OPERATION, MAINTENANCE & MONITORING CHECKLIST

Union Pacific Railroad - Oakland Trailer-on-flat-car (TOFC) railyard
1717 Middle Harbor Road, Oakland, California

Inspection Date: 2-23-99
Inspector's Name: Vuscott — Company: CDM
Time Inspector On-site: 815 — Offsite: 925
UPRR Person Notified: Tom Arato — Time: 820.
Reason for Visit: O&M
Weather Conditions: Sunny 50s

Record status as found and any repairs/adjustments performed

Treatment System General Inspection/Readings:

System Operating? (Yes) No

System Readings:

Signet Volume (gallons): 1086850
Neptune Volume (gallons): 6849945
Flow Rate thru Carbon (gallons/minute): 6.4
Filter Pressure - Inlet (psig): 11 @ 835
Filter Pressure - Outlet (psig): 9 @ 835
Oil Level in Tank (inches): 35"
OP-4 meter reading (gallons): 87435 @ 850
OMW-9 meter reading (gallons): 13[illegible] @ 855

Change Filters: (Yes) No

Procedures:

Observations:

Backwash Primary Carbon Canisters: Yes (No)

Is holding tank half empty?
Duration of backwashing:
Observation of Effluent:

Inspection and Cleaning of Pumps:

Wells	Operating?	Requires Cleaning?	Comments
ORW-1	Yes	Yes	
ORW-2	Yes	Yes	
ORW-3	Yes	Yes	
OMW-9	Yes	Yes	
OP-4	Yes	Yes	

OPERATION, MAINTENANCE & MONITORING CHECKLIST
Union Pacific Railroad - Oakland Trailer-on-flat-car (TOFC) railyard
1717 Middle Harbor Road, Oakland, California

Chlorine Feed System:

Volume of Sodium Hypochlorite Remaining: 3/4 full
Period of Feed System Operation: 830 – 925

Air Compressor:

Check Oil Level: OK
Change Oil in Compressor every 3 months:

Sampling:

Sample Location	Sampling Frequency	Analytes	EPA Method	Sampling - Method
Midpoint	Monthly	BTEX	8020	3 - 40 ml vials with HCl 4 degree Celcius
Influent Effluent	Quarterly January, April, July, October	BTEX TPH-D	8020 8015M	3 - 40 ml vials with HCl 1 - 1 liter amber glass 4 degree Celcius

Performed during this visit? **Yes** **No**

IV. Comments

Don Seil
Tom Andrews Artuzy > 871-1143
Lenie Chavez

Before departing site, please call Hoa Voscott at CDM (925-296-8071)
If no answer, dial "0" for operator and request a page.

OPERATION, MAINTENANCE & MONITORING CHECKLIST
Union Pacific Railroad - Oakland Trailer-on-flat-car (TOFC) railyard
1717 Middle Harbor Road, Oakland, California

Inspection Date: 2/26/99
Inspector's Name: V Scott
Company: ~~850~~ CDM
Time Inspector On-site: 850
Offsite: 1035
UPRR Person Notified: Tom
Time: 855
Reason for Visit: OM&M
Weather Conditions: Sunny, 55 °F

Record status as found and any repairs/adjustments performed

Treatment System General Inspection/Readings:

System Operating? **(Yes)** No

System Readings:

Signet Volume (gallons): 109819
Neptune Volume (gallons): 6859255
Flow Rate thru Carbon (gallons/minute): 7.0
Filter Pressure - Inlet (psig): 11 @ 910
Filter Pressure - Outlet (psig): 9 @ 910
Oil Level in Tank (inches): 35.25"
OP-4 meter reading (gallons): 117436 @ 1005
OMW-9 meter reading (gallons): 131687 @ 1015

Change Filters: **(Yes)** No

Procedures: Same as before

Observations: cakes of iron bacteria

Backwash Primary Carbon Canisters: **(Yes)** No

Is holding tank half empty? no, empty tank
Duration of backwashing: 935 - 1020
Observation of Effluent:

Inspection and Cleaning of Pumps:

Wells	Operating?	Requires Cleaning?	Comments
ORW-1	yes	yes	pump cycles
ORW-2	yes	yes	
ORW-3	yes	yes	
OMW-9	yes ?	yes	
OP-4	yes	yes	

OPERATION, MAINTENANCE & MONITORING CHECKLIST
Union Pacific Railroad - Oakland Trailer-on-flat-car (TOFC) railyard
1717 Middle Harbor Road, Oakland, California

Chlorine Feed System:

Volume of Sodium Hypochlorite Remaining: 1/4 full
Period of Feed System Operation: $850 - next O&M scheduled for 3/1

Air Compressor:

Check Oil Level: OK
Change Oil in Compressor every 3 months: —

Sampling:

Sample Location	Sampling Frequency	Analytes	EPA Method	Sampling Method
Midpoint	Monthly	BTEX	8020	3 - 40 ml vials with HCl 4 degree Celcius
Influent Effluent	Quarterly January, April, July, October	BTEX TPH-D	8020 8015M	3 - 40 ml vials with HCl 1 - 1 liter amber glass 4 degree Celcius

Performed during this visit? **Yes** (**No**)

IV. Comments

Need to order more Sodium Hypochlorite

Before departing site, please call Hoa Voscott at CDM (925-296-8071)
If no answer, dial "0" for operator and request a page.

OM&M Checklist
March 1999

OPERATION, MAINTENANCE & MONITORING CHECKLIST

Union Pacific Railroad - Oakland Trailer-on-flat-car (TOFC) railyard

1717 Middle Harbor Road, Oakland, California

Inspection Date: 3-2-99

Inspector's Name: VOSCOTT Company: CRW

Time Inspector On-site: 1725 Offsite: 1800

UPRR Person Notified: TOM Time: 1730

Reason for Visit: ouod

Weather Conditions: cloudy, low 50s

Record status as found and any repairs/adjustments performed

Treatment System General Inspection/Readings:

System Operating? (Yes) No

System Readings:

Signet Volume (gallons): 111138

Neptune Volume (gallons): 68 73985

Flow Rate thru Carbon (gallons/minute): 6.4

Filter Pressure - Inlet (psig): 12 @ 1745

Filter Pressure - Outlet (psig): 10 @ 1745

Oil Level in Tank (inches): 35.25"

OP-4 meter reading (gallons): @

OMW-9 meter reading (gallons): @

Change Filters: (Yes) No

Procedures:

Observations:

Backwash Primary Carbon Canisters: Yes (No)

Is holding tank half empty?

Duration of backwashing:

Observation of Effluent:

Inspection and Cleaning of Pumps:

Wells	Operating?	Requires Cleaning?	Comments
ORW-1			
ORW-2			
ORW-3			
OMW-9			
OP-4			

OPERATION, MAINTENANCE & MONITORING CHECKLIST

Union Pacific Railroad - Oakland Trailer-on-flat-car (TOFC) railyard
1717 Middle Harbor Road, Oakland, California

Chlorine Feed System:

Volume of Sodium Hypochlorite Remaining:
Period of Feed System Operation: 1735 - left on till Friday

Air Compressor:

Check Oil Level: ok
Change Oil in Compressor every 3 months:

Sampling:

Sample Location	Sampling Frequency	Analytes	EPA Method	Sampling Method
Midpoint	Monthly	BTEX	8020	3 - 40 ml vials with HCl 4 degree Celcius
Influent Effluent	Quarterly January, April, July, October	BTEX TPH-D	8020 8015M	3 - 40 ml vials with HCl 1 - 1 liter amber glass 4 degree Celcius

Performed during this visit? **Yes** **No**

IV. Comments

Before departing site, please call Hoa Voscott at CDM (925-296-8071)
If no answer, dial "0" for operator and request a page.

OPERATION, MAINTENANCE & MONITORING CHECKLIST

Union Pacific Railroad - Oakland Trailer-on-flat-car (TOFC) railyard

1717 Middle Harbor Road, Oakland, California

Inspection Date: 3-5-99

Inspector's Name: Voscott — Company: CDM

Time Inspector On-site: 1445 — Offsite: 1640

UPRR Person Notified: Tom Arturo — Time: 1450

Reason for Visit: Quarterly

Weather Conditions: Sunny Low 60s

Record status as found and any repairs/adjustments performed

Treatment System General Inspection/Readings:

System Operating? (Yes) No

System Readings:

Signet Volume (gallons): 111670 K10

Neptune Volume (gallons): 6880120

Flow Rate thru Carbon (gallons/minute): 8.5

Filter Pressure - Inlet (psig): 12 @ 1455

Filter Pressure - Outlet (psig): 10 @ 1455

Oil Level in Tank (inches): 35.25"

OP-4 meter reading (gallons): 181858 @ 1530

OMW-9 meter reading (gallons): 132460 @ 1540

Change Filters: (Yes) No

Procedures:

Observations:

Backwash Primary Carbon Canisters: (Yes) No

Is holding tank half empty? yes

Duration of backwashing: 1545 – 1630

Observation of Effluent:

Inspection and Cleaning of Pumps:

Wells	Operating?	Requires Cleaning?	Comments
ORW-1	yes	yes	
ORW-2	yes	yes	
ORW-3	yes	yes	
OMW-9	yes	yes	
OP-4	yes	yes	

OPERATION, MAINTENANCE & MONITORING CHECKLIST
Union Pacific Railroad - Oakland Trailer-on-flat-car (TOFC) railyard
1717 Middle Harbor Road, Oakland, California

Chlorine Feed System:

Volume of Sodium Hypochlorite Remaining: 1/4 full
Period of Feed System Operation: from 3/2/99 - 3/5/99

Air Compressor:

Check Oil Level: yes
Change Oil in Compressor every 3 months:

Sampling:

Sample Location	Sampling Frequency	Analytes	EPA Method	Sampling Method
Midpoint	Monthly	BTEX	8020	3 - 40 ml vials with HCl 4 degree Celcius
Influent Effluent	Quarterly January, April, July, October	BTEX TPH-D	8020 8015M	3 - 40 ml vials with HCl 1 - 1 liter amber glass 4 degree Celcius

Performed during this visit? Yes (No)

IV. Comments

Need to order more 660900 Sodium Hypochlorite
Van Waters & Rogers Inc.

Before departing site, please call Hoa Voscott at CDM (925-296-8071)
If no answer, dial "0" for operator and request a page.

OPERATION, MAINTENANCE & MONITORING CHECKLIST

Union Pacific Railroad - Oakland Trailer-on-flat-car (TOFC) railyard
1717 Middle Harbor Road, Oakland, California

Inspection Date: 3-10-99
Inspector's Name: VOSCOTT
Company: Cour.
Time Inspector On-site: 840
Offsite: 940
UPRR Person Notified: Gary Jones
Time: 900
Reason for Visit: OM & M
Weather Conditions: Sunny 50s

Record status as found and any repairs/adjustments performed

Treatment System General Inspection/Readings:

System Operating? (Yes) No

System Readings:

Signet Volume (gallons): 1127260
Neptune Volume (gallons): 6892545
Flow Rate thru Carbon (gallons/minute): 7.6
Filter Pressure - Inlet (psig): 11 @ 910
Filter Pressure - Outlet (psig): 9 @ 910
Oil Level in Tank (inches): 35 3/4"
OP-4 meter reading (gallons): — @
OMW-9 meter reading (gallons): — @

Change Filters: (Yes) No

Procedures:

Observations:

Backwash Primary Carbon Canisters: Yes (No)

Is holding tank half empty?
Duration of backwashing:
Observation of Effluent:

Inspection and Cleaning of Pumps:

Wells	Operating?	Requires Cleaning?	Comments
ORW-1			Too many trains in the way
ORW-2			
ORW-3			
OMW-9			
OP-4			

OPERATION, MAINTENANCE & MONITORING CHECKLIST
Union Pacific Railroad - Oakland Trailer-on-flat-car (TOFC) railyard
1717 Middle Harbor Road, Oakland, California

Chlorine Feed System:

Volume of Sodium Hypochlorite Remaining: CD - VAN WATER & RODGERS WILL
Period of Feed System Operation: — DELIVER 3 DRUMS

Air Compressor:

Check Oil Level: YES
Change Oil in Compressor every 3 months: —

Sampling:

Sample Location	Sampling Frequency	Analytes	EPA Method	Sampling Method
Midpoint	Monthly	BTEX	8020	3 - 40 ml vials with HCl 4 degree Celcius
Influent Effluent	Quarterly January, April, July, October	BTEX TPH-D	8020 8015M	3 - 40 ml vials with HCl 1 - 1 liter amber glass 4 degree Celcius

Performed during this visit? **Yes** No

IV. Comments

Collected system samples.

Before departing site, please call Hoa Voscott at CDM (925-296-8071)
If no answer, dial "0" for operator and request a page.

OPERATION, MAINTENANCE & MONITORING CHECKLIST

Union Pacific Railroad - Oakland Trailer-on-flat-car (TOFC) railyard
1717 Middle Harbor Road, Oakland, California

spection Date: 3-12-99
Inspector's Name: R Ross Company: CALCON SYSTEMS
Time Inspector On-site: 1:35 PM Offsite: 4:25 PM
UPRR Person Notified: Time/Date:
Reason for Visit: SCHEDULED MAINT
Weather Conditions: PERFECT

Record status as found and any repairs/adjustments performed

Treatment System General Inspection/Readings:

System Operating? (Yes) No

System Readings:

Signet Volume (gallons): 113511 (X10)
Neptune Volume (gallons): 06901420
Flow Rate thru Carbon (gallons/minute): 7.5 @ START 10.8 GPM AFTER FILTER CHAN
Filter Pressure - Inlet (psig): START 12 psig AFTER CHANGE 10 psig
Filter Pressure - Outlet (psig): START 10 psig " " 10 psig
Oil Level in Tank (inches): 35
W-4 meter reading (gallons): 246137
MW-9 meter reading (gallons): 132792

Change Filters: (Yes) No

Procedures: USUAL - CHANGE ONE AT A TIME.

Observations: USUAL CAKE LAYER

Backwash Primary Carbon Canisters: (Yes) No

Is holding tank half empty? YES
Duration of backwashing: 30 MIN.
Observation of Effluent: BLACK FLECKS IN MEDIUM BROWN WATER AT FIRST — WATER FINALLY TURNED TO LIGHT TAN. — BUILT UP PRESSURE FOR TWO MINUTES, LET IT BLOW FOR 1 MIN. DID THIS 10 TIMES.

Inspection and Cleaning of Pumps:

Wells	Operating?	Clean?	Comments
ORW-1	YES	NO	
ORW-2	YES	NO	
ORW-3	YES	NO	
W-9	YES	NO	
-4	YES	USUAL CRUD	

3-12-99

OPERATION, MAINTENANCE & MONITORING CHECKLIST

Union Pacific Railroad - Oakland Trailer-on-flat-car (TOFC) railyard
1717 Middle Harbor Road, Oakland, California

Chlorine Feed System:

Volume of Sodium Hypochlorite Remaining: 3 55 GALLON DRUMS (DELIVERED TODAY)
Period of Feed System Operation: CONTINUOUS 10% SETTING

Air Compressor:

Check Oil Level: OK - FULL
Change Oil in Compressor every 3 months: DUE NEXT VISIT

Sampling:

Sample Location	Sampling Frequency	Analytes	EPA Method	Sampling Method
Midpoint	Monthly	BTEX	8020	3 - 40 ml vials with HCl 4 degree Celcius
Influent Effluent	Quarterly January, April, July, October	BTEX TPH-D	8020 8015M	3 - 40 ml vials with HCl 1 - 1 liter amber glass 4 degree Celcius

Performed during this visit? Yes (No)

Comments

VW'R DRIVER PICKED UP ONE OF TWO EMPTY SODIUM HYPOCHLORITE DRUMS — ONE DRUM IS NOT PROPERLY MARKED — NEEDS A LABEL THAT IDENTIFIES IT AS "BLEACH" THE DRIVER SAID TO ASK FOR ONE NEXT TIME HE WOULD BRING IT OUT SO THE DRUM CAN BE RETURNED FOR $40.00 DEPOSIT THESE ARE OSHA REQUIREMENTS.

THE MSDS FOR THIS MATERIAL IS IN THE CONTROL PANEL.

Before departing site, please call Hoa Voscott at CDM (925-296-8071)
If no answer, dial "0" for operator and request a page.

PHONE DIALER ON ✓
WATER MAIN OFF ✓

OPERATION, MAINTENANCE & MONITORING CHECKLIST
Union Pacific Railroad - Oakland Trailer-on-flat-car (TOFC) railyard
1717 Middle Harbor Road, Oakland, California

Inspection Date: 3-16-99
Inspector's Name: V. SCOTT
Company: CAMP
Time Inspector On-site: 830
Offsite:
UPRR Person Notified: TOM
Time: 840
Reason for Visit: O&M
Weather Conditions: Overcast 50s

Record status as found and any repairs/adjustments performed

Treatment System General Inspection/Readings:

System Operating? (Yes) No

System Readings:

Signet Volume (gallons):	1148020	
Neptune Volume (gallons):	6916085	
Flow Rate thru Carbon (gallons/minute):	9.3	
Filter Pressure - Inlet (psig):	11	@ 845
Filter Pressure - Outlet (psig):	10	@ 845
Oil Level in Tank (inches):	35 3/4"	
OP-4 meter reading (gallons):	—	@
OMW-9 meter reading (gallons):	—	@

Change Filters: (Yes) No

Procedures:

Observations:

Backwash Primary Carbon Canisters: Yes (No)

Is holding tank half empty?
Duration of backwashing:
Observation of Effluent:

Inspection and Cleaning of Pumps:

Wells	Operating?	Requires Cleaning?	Comments
ORW-1	yes	—	—
ORW-2	↓		
ORW-3			
OMW-9			
OP-4			

OPERATION, MAINTENANCE & MONITORING CHECKLIST
Union Pacific Railroad - Oakland Trailer-on-flat-car (TOFC) railyard
1717 Middle Harbor Road, Oakland, California

Chlorine Feed System:

Volume of Sodium Hypochlorite Remaining: 3 full drums onsite
Period of Feed System Operation: from last Friday to Tuesday 3/16 @ 930.

Air Compressor:

Check Oil Level: ok
Change Oil in Compressor every 3 months: ✓

Sampling:

Sample Location	Sampling Frequency	Analytes	EPA Method	Sampling Method
Midpoint	Monthly	BTEX	8020	3 - 40 ml vials with HCl 4 degree Celcius
Influent Effluent	Quarterly January, April, July, October	BTEX TPH-D	8020 8015M	3 - 40 ml vials with HCl 1 - 1 liter amber glass 4 degree Celcius

Performed during this visit? **Yes** **No**

IV. Comments

Before departing site, please call Hoa Voscott at CDM (925-296-8071)
If no answer, dial "0" for operator and request a page.

OPERATION, MAINTENANCE & MONITORING CHECKLIST

Union Pacific Railroad - Oakland Trailer-on-flat-car (TOFC) railyard

1717 Middle Harbor Road, Oakland, California

Inspection Date: 3-22-99

Inspector's Name: VOSCOTT Company: CDM

Time Inspector On-site: 820 Offsite: 1010

UPRR Person Notified: TOM Time: 835

Reason for Visit: O&M

Weather Conditions: Sunny 50s.

Record status as found and any repairs/adjustments performed

Treatment System General Inspection/Readings:

System Operating? (Yes) No

System Readings:

Signet Volume (gallons): 1166180

Neptune Volume (gallons): 6937430

Flow Rate thru Carbon (gallons/minute): 7.3

Filter Pressure - Inlet (psig): 11 @ 830

Filter Pressure - Outlet (psig): 9 @ 830

Oil Level in Tank (inches): 35.75"

OP-4 meter reading (gallons): 334498 @ 945

OMW-9 meter reading (gallons): 134953 @ 955

Change Filters: (Yes) No

Procedures:

Observations: yellow bacteria growth on filters

Backwash Primary Carbon Canisters: (Yes) No

Is holding tank half empty? yes, emptied it first

Duration of backwashing: 900 - 935

Observation of Effluent: yellow cloudy to fairly clear @ end.

Inspection and Cleaning of Pumps:

Wells	Operating?	Requires Cleaning?	Comments
ORW-1	yes	yes	
ORW-2	↓	↓	
ORW-3			
OMW-9			
OP-4			

OPERATION, MAINTENANCE & MONITORING CHECKLIST
Union Pacific Railroad - Oakland Trailer-on-flat-car (TOFC) railyard
1717 Middle Harbor Road, Oakland, California

Chlorine Feed System:

Volume of Sodium Hypochlorite Remaining: 3 - drums

Period of Feed System Operation: Continuous

Air Compressor:

Check Oil Level: ok

Change Oil in Compressor every 3 months: ok

Sampling:

Sample Location	Sampling Frequency	Analytes	EPA Method	Sampling Method
Midpoint	Monthly	BTEX	8020	3 - 40 ml vials with HCl 4 degree Celcius
Influent Effluent	Quarterly January, April, July, October	BTEX TPH-D	8020 8015M	3 - 40 ml vials with HCl 1 - 1 liter amber glass 4 degree Celcius

Performed during this visit? Yes (No)

IV. Comments

Before departing site, please call Hoa Voscott at CDM (925-296-8071)
If no answer, dial "0" for operator and request a page.

OPERATION, MAINTENANCE & MONITORING CHECKLIST

Union Pacific Railroad - Oakland Trailer-on-flat-car (TOFC) railyard
1717 Middle Harbor Road, Oakland, California

Inspection Date: 3-28-99
Inspector's Name: Vossott
Company: CDM
Time Inspector On-site: ~~8:30~~ 4:50 pm
Offsite: 550
UPRR Person Notified: Tom
Time: 500
Reason for Visit: O&M
Weather Conditions: Sunny 50s

Record status as found and any repairs/adjustments performed

Treatment System General Inspection/Readings:

System Operating? (Yes) No

System Readings:

Signet Volume (gallons):	1180630
Neptune Volume (gallons):	6953415
Flow Rate thru Carbon (gallons/minute):	11.4
Filter Pressure - Inlet (psig):	11 @ 510
Filter Pressure - Outlet (psig):	9 @ 510
Oil Level in Tank (inches):	353/4"
OP-4 meter reading (gallons):	— @
OMW-9 meter reading (gallons):	— @

Change Filters: (Yes) No

Procedures:

Observations:

Backwash Primary Carbon Canisters: Yes (No)

Is holding tank half empty?
Duration of backwashing:
Observation of Effluent:

Inspection and Cleaning of Pumps:

Wells	Operating?	Requires Cleaning?	Comments
ORW-1	yes	yes	
ORW-2	↓	↓	
ORW-3			
OMW-9			
OP-4			

OPERATION, MAINTENANCE & MONITORING CHECKLIST
Union Pacific Railroad - Oakland Trailer-on-flat-car (TOFC) railyard
1717 Middle Harbor Road, Oakland, California

Chlorine Feed System:

Volume of Sodium Hypochlorite Remaining: Continuous 3 drums delivered

Period of Feed System Operation: "

Air Compressor:

Check Oil Level: ok

Change Oil in Compressor every 3 months: ✓

Sampling:

Sample Location	Sampling Frequency	Analytes	EPA Method	Sampling Method
Midpoint	Monthly	BTEX	8020	3 - 40 ml vials with HCl 4 degree Celcius
Influent Effluent	Quarterly January, April, July, October	BTEX TPH-D	8020 8015M	3 - 40 ml vials with HCl 1 - 1 liter amber glass 4 degree Celcius

Performed during this visit? Yes (No)

IV. Comments

Before departing site, please call Hoa Voscott at CDM (925-296-8071)
If no answer, dial "0" for operator and request a page.

OM&M Checklist
April 1999

OPERATION, MAINTENANCE & MONITORING CHECKLIST

Union Pacific Railroad - Oakland Trailer-on-flat-car (TOFC) railyard

1717 Middle Harbor Road, Oakland, California

Inspection Date:	4-3-99 SATURDAY		
Inspector's Name:	REX ROSS	Company:	CALCON SYSTEMS
Time Inspector On-site:	08:30 am	Offsite:	11:15 am
UPRR Person Notified:		Time/Date:	
Reason for Visit:	SCHEDULED MAINT.		
Weather Conditions:	PERFECT, BUT WINDY		

Record status as found and any repairs/adjustments performed

Treatment System General Inspection/Readings:

System Operating? (Yes) No

System Readings:

Magnet Volume (gallons):	119418 (X10)	1194180 - 1135110 = 59070
Neptune Volume (gallons):	06968987	06904200 68,567
Flow Rate thru Carbon (gallons/minute):	10.0	
Filter Pressure - Inlet (psig):	10.5 psig } after filter change	
Filter Pressure - Outlet (psig):	10.5 psig }	
Oil Level in Tank (inches):	35.75	
MW-4 meter reading (gallons):	413587	
OMW-9 meter reading (gallons):	TRAINS PREVENTED ACCESS TO WELL	

Change Filters: (Yes) No

Procedures: USUAL

Observations: HEAVIER LAYER OF CAKED UP DEPOSITS THAN USUAL

Backwash Primary Carbon Canisters: (Yes) No

Is holding tank half empty?	✓
Duration of backwashing:	30 MIN
Observation of Effluent:	NORMAL

Inspection and Cleaning of Pumps:

Wells	Operating?	Clean?	Comments
ORW-1	YES	USUAL SLIME DEPOSITS ON SCREEN	
ORW-2	YES	DITTO	
ORW-3	YES	DITTO	
MW-9			
MW-4	YES	DITTO	

4-3-99

OPERATION, MAINTENANCE & MONITORING CHECKLIST

Union Pacific Railroad - Oakland Trailer-on-flat-car (TOFC) railyard
1717 Middle Harbor Road, Oakland, California

Chlorine Feed System:

Volume of Sodium Hypochlorite Remaining: 10 INCHES DOWN FROM TOP
Period of Feed System Operation: CONTINUOUS

Air Compressor:

Check Oil Level: OK
Change Oil in Compressor every 3 months:

Sampling:

Sample Location	Sampling Frequency	Analytes	EPA Method	Sampling Method
Midpoint	Monthly	BTEX	8020	3 - 40 ml vials with HCl 4 degree Celcius
Influent Effluent	Quarterly January, April, July, October	BTEX TPH-D	8020 8015M	3 - 40 ml vials with HCl 1 - 1 liter amber glass 4 degree Celcius

Performed during this visit? **Yes** (N6)

Comments

FOUND OIL & AIRFILTERS FOR COMPRESSOR — CHANGED BOTH / FILTER LEFT + A CASE OF OIL IN THE GRAINGER BOX

Before departing site, please call Hoa Voscott at CDM (925-296-8071)
If no answer, dial "0" for operator and request a page.

OPERATION, MAINTENANCE & MONITORING CHECKLIST

Union Pacific Railroad - Oakland Trailer-on-flat-car (TOFC) railyard

1717 Middle Harbor Road, Oakland, California

Inspection Date: 4-7-99

Inspector's Name: Joseph Company: OHM

Time Inspector On-site: Gary 835 Offsite: 930

UPRR Person Notified: ↓ Time: 845

Reason for Visit: Quarterly

Weather Conditions: Cool 50s, Cloudy

Record status as found and any repairs/adjustments performed

Treatment System General Inspection/Readings:

System Operating? (Yes) No

System Readings:

Signet Volume (gallons):	120021
Neptune Volume (gallons):	6975780
Flow Rate thru Carbon (gallons/minute):	12.0
Filter Pressure - Inlet (psig):	11 @ 850
Filter Pressure - Outlet (psig):	11 @ 850
Oil Level in Tank (inches):	35 3/4"
OP-4 meter reading (gallons):	@
OMW-9 meter reading (gallons):	@

Change Filters: (Yes) No

Procedures:

Observations:

Backwash Primary Carbon Canisters: Yes (No)

Is holding tank half empty?

Duration of backwashing:

Observation of Effluent:

Inspection and Cleaning of Pumps:

Wells	Operating?	Requires Cleaning?	Comments
ORW-1	Yes		
ORW-2	↓		
ORW-3			
OMW-9			
OP-4			

OPERATION, MAINTENANCE & MONITORING CHECKLIST
Union Pacific Railroad - Oakland Trailer-on-flat-car (TOFC) railyard
1717 Middle Harbor Road, Oakland, California

Chlorine Feed System:

Volume of Sodium Hypochlorite Remaining: 3 Gallons
Period of Feed System Operation: Continuous

Air Compressor:

Check Oil Level: Yes
Change Oil in Compressor every 3 months: Yes, Last week

Sampling:

Sample Location	Sampling Frequency	Analytes	EPA Method	Sampling - Method
Midpoint	Monthly	BTEX	8020	3 - 40 ml vials with HCl 4 degree Celcius
Influent Effluent	Quarterly January, April, July, October	BTEX TPH-D	8020 8015M	3 - 40 ml vials with HCl 1 - 1 liter amber glass 4 degree Celcius

Performed during this visit? **Yes** **No**

IV. Comments

Before departing site, please call Hoa Voscott at CDM (925-296-8071)
If no answer, dial "0" for operator and request a page.

OPERATION, MAINTENANCE & MONITORING CHECKLIST

Union Pacific Railroad - Oakland Trailer-on-flat-car (TOFC) railyard

1717 Middle Harbor Road, Oakland, California

Inspection Date: 4-12-98

Inspector's Name: Voscott   Company: CAM

Time Inspector On-site: 840   Offsite: 1010

UPRR Person Notified: Lowe   Time: 845

Reason for Visit: O&M

Weather Conditions: Sunny 50s

Record status as found and any repairs/adjustments performed

Treatment System General Inspection/Readings:

System Operating? **Yes** (circled) **No**

System Readings:

Signet Volume (gallons):	1204710		
Neptune Volume (gallons):	6980740		
Flow Rate thru Carbon (gallons/minute):	10.2		
Filter Pressure - Inlet (psig):	11	@	850
Filter Pressure - Outlet (psig):	11	@	850
Oil Level in Tank (inches):	36		
OP-4 meter reading (gallons):	449230	@	930
OMW-9 meter reading (gallons):	134953	@	940

Change Filters: **Yes** (circled) **No**

Procedures: full of brownish-brown bacteria

Observations:

Backwash Primary Carbon Canisters: **Yes** (circled) **No**

Is holding tank half empty? No, start pump

Duration of backwashing: 850 - 925

Observation of Effluent: clear to silty

Inspection and Cleaning of Pumps:

Wells	Operating?	Requires Cleaning?	Comments
ORW-1	yes	yes	
ORW-2	↓	↓	
ORW-3	↓	↓	
OMW-9	↓	↓	
OP-4	↓	↓	

OPERATION, MAINTENANCE & MONITORING CHECKLIST
Union Pacific Railroad - Oakland Trailer-on-flat-car (TOFC) railyard
1717 Middle Harbor Road, Oakland, California

Chlorine Feed System:

Volume of Sodium Hypochlorite Remaining: 2 - 55 gallon drums
Period of Feed System Operation: continuous @ 5%

Air Compressor:

Check Oil Level: ok
Change Oil in Compressor every 3 months: ✓

Sampling:

Sample Location	Sampling Frequency	Analytes	EPA Method	Sampling Method
Midpoint	Monthly	BTEX	8020	3 - 40 ml vials with HCl 4 degree Celcius
Influent Effluent	Quarterly January, April, July, October	BTEX TPH-D	8020 8015M	3 - 40 ml vials with HCl 1 - 1 liter amber glass 4 degree Celcius

Performed during this visit? **Yes** **No**

IV. Comments

Before departing site, please call Hoa Voscott at CDM (925-296-8071)
If no answer, dial "0" for operator and request a page.

OPERATION, MAINTENANCE & MONITORING CHECKLIST
Union Pacific Railroad - Oakland Trailer-on-flat-car (TOFC) railyard
1717 Middle Harbor Road, Oakland, California

Inspection Date:	4-16-99		
Inspector's Name:	REX ROSS	Company:	CALCON Systems
Time Inspector On-site:	0830 Am	Offsite:	1230 Pm
UPRR Person Notified:		Time/Date:	
Reason for Visit:	Scheduled Maint		
Weather Conditions:	HOT		

Record status as found and any repairs/adjustments performed

Treatment System General Inspection/Readings:

System Operating? (Yes) No

System Readings:

Signet Volume (gallons):	121233	(X10)
Neptune Volume (gallons):	06989555	
Flow Rate thru Carbon (gallons/minute):	9 GPM BEFORE FILTER CHG.	15 GPM AFTER
Filter Pressure - Inlet (psig):	11 BEFORE FILTER CHG	10 AFTER
Filter Pressure - Outlet (psig):	8 " "	10 "
Oil Level in Tank (inches):	35.5 ± 5 = 36	
FW-4 meter reading (gallons):	423473	
FW-9 meter reading (gallons):	134953	

Change Filters: (Yes) No

Procedures: USUAL

Observations: NORMAL LAYER OF CAKED MATERIAL

Backwash Primary Carbon Canisters: (Yes) No

Holding tank half empty? YES

Duration of backwashing:

Observation of Effluent:

Operation and Cleaning of Pumps:

	Operating?	Clean?	Comments
V-1	YES	USUAL CRUD	
V-2	✓	" "	
V-3	✓	" "	
V-4	NOT AT 1ST — "STUCK-NOT PUMPING" SHOOK UNIT + IT STARTED WORKING		
V-5	YES	USUAL CRUD	

OPERATION, MAINTENANCE & MONITORING CHECKLIST

Union Pacific Railroad - Oakland Trailer-on-flat-car (TOFC) railyard
1717 Middle Harbor Road, Oakland, California

Inspection Date: 4/21/99
Inspector's Name: Voskott — Company: CDM
Time Inspector On-site: 1500 — Offsite: 1605
UPRR Person Notified: Tom A. — Time: 1510
Reason for Visit: OMoM
Weather Conditions: Sunny 60s

Record status as found and any repairs/adjustments performed

Treatment System General Inspection/Readings:

System Operating? **(Yes)** **No**

System Readings:

Signet Volume (gallons): 122440
Neptune Volume (gallons): 7006445
Flow Rate thru Carbon (gallons/minute): 13.4
Filter Pressure - Inlet (psig): 11 @ 1515
Filter Pressure - Outlet (psig): 11 @ 1515
Oil Level in Tank (inches): 36 1/4"
OP-4 meter reading (gallons): @
OMW-9 meter reading (gallons): @

Change Filters: **(Yes)** **No**

Procedures:

Observations:

Backwash Primary Carbon Canisters: **Yes** **(No)**

Is holding tank half empty?
Duration of backwashing:
Observation of Effluent:

Inspection and Cleaning of Pumps:

Wells	Operating?	Requires Cleaning?	Comments
ORW-1	Yes		
ORW-2			
ORW-3			
OMW-9			
OP-4			

OPERATION, MAINTENANCE & MONITORING CHECKLIST

Union Pacific Railroad - Oakland Trailer-on-flat-car (TOFC) railyard

1717 Middle Harbor Road, Oakland, California

Chlorine Feed System:

Volume of Sodium Hypochlorite Remaining: 2 - 55 Gallon

Period of Feed System Operation: continuous

Air Compressor:

Check Oil Level:

Change Oil in Compressor every 3 months: yes Oil

Sampling:

Sample Location	Sampling Frequency	Analytes	EPA Method	Sampling Method
Midpoint	Monthly	BTEX	8020	3 - 40 ml vials with HCl 4 degree Celcius
Influent Effluent	Quarterly January, April, July, October	BTEX TPH-D	8020 8015M	3 - 40 ml vials with HCl 1 - 1 liter amber glass 4 degree Celcius

Performed during this visit? **Yes** **No**

IV. Comments

Before departing site, please call Hoa Voscott at CDM (925-296-8071)
If no answer, dial "0" for operator and request a page.

OPERATION, MAINTENANCE & MONITORING CHECKLIST
Union Pacific Railroad - Oakland Trailer-on-flat-car (TOFC) railyard
1717 Middle Harbor Road, Oakland, California

Inspection Date: 4/28/99
Inspector's Name: Voscott
Company: CAM
Time Inspector On-site: 1510
Offsite:
UPRR Person Notified: Gary Jones
Time: 1530.
Reason for Visit: OM well
Weather Conditions: Sunny, windy 60's.

Record status as found and any repairs/adjustments performed

Treatment System General Inspection/Readings:

System Operating? **Yes** (circled) **No**

System Readings:

Signet Volume (gallons): 1244090
Neptune Volume (gallons): 7025380
Flow Rate thru Carbon (gallons/minute): 9.4
Filter Pressure - Inlet (psig): 11 @ 1535
Filter Pressure - Outlet (psig): 11 @ 1535
Oil Level in Tank (inches): 36 3/4"
OP-4 meter reading (gallons): 517429 @ 1620
OMW-9 meter reading (gallons): @

Change Filters: **Yes** (circled) **No**

Procedures:

Observations: full of dark gray bacteria growth

Backwash Primary Carbon Canisters: **Yes** (circled) **No**

Is holding tank half empty? ✓
Duration of backwashing: 1545 - 1620
Observation of Effluent: dark → light tan

Inspection and Cleaning of Pumps:

Wells	Operating?	Requires Cleaning?	Comments
ORW-1	yes	"	
ORW-2	yes	"	
ORW-3	yes	"	
OMW-9	yes?	Not Accessible due to boxes	
OP-4	yes	"	

OPERATION, MAINTENANCE & MONITORING CHECKLIST
Union Pacific Railroad - Oakland Trailer-on-flat-car (TOFC) railyard
1717 Middle Harbor Road, Oakland, California

Chlorine Feed System:

Volume of Sodium Hypochlorite Remaining: 1/2 drum
Period of Feed System Operation: continuous

Air Compressor:

Check Oil Level: ok
Change Oil in Compressor every 3 months: ✓

Sampling:

Sample Location	Sampling Frequency	Analytes	EPA Method	Sampling Method
Midpoint	Monthly	BTEX	8020	3 - 40 ml vials with HCl 4 degree Celcius
Influent Effluent	Quarterly January, April, July, October	BTEX TPH-D	8020 8015M	3 - 40 ml vials with HCl 1 - 1 liter amber glass 4 degree Celcius

Performed during this visit? **Yes** **No**

IV. Comments

Before departing site, please call Hoa Voscott at CDM (925-296-8071)
If no answer, dial "0" for operator and request a page.

OM&M Checklist
May 1999

OPERATION, MAINTENANCE & MONITORING CHECKLIST

Union Pacific Railroad - Oakland Trailer-on-flat-car (TOFC) railyard
1717 Middle Harbor Road, Oakland, California

Inspection Date: 5/4/99
Inspector's Name: Sharma/Vescelt — Company: CDM
Time Inspector On-site: 1530 — Offsite: 1700
UPRR Person Notified: Gary — Time: 900
Reason for Visit: OM&M/GW sampling
Weather Conditions: sunny 60°F slight wind from N

Record status as found and any repairs/adjustments performed

Treatment System General Inspection/Readings:

System Operating? (Yes) No

System Readings:

Signet Volume (gallons): 1256190
Neptune Volume (gallons): 6703400
Flow Rate thru Carbon (gallons/minute): 11.7
Filter Pressure - Inlet (psig): 12.5 / 11.5 @ 1537
Filter Pressure - Outlet (psig): 5.75 / 10.5 @ 1537
Oil Level in Tank (inches): 37
OP-4 meter reading (gallons): @
OMW-9 meter reading (gallons): @

Change Filters: (Yes) No

Procedures: during backwash removed old filters and replaced with new filters
Observations: filled w/ yellow water.

Backwash Primary Carbon Canisters: (Yes) No

Is holding tank half empty? yes
Duration of backwashing: 1540 - 1610
Observation of Effluent: Clear

Inspection and Cleaning of Pumps:

Wells	Operating?	Requires Cleaning?	Comments
ORW-1	yes	—	—
ORW-2	↓	↓	↓
ORW-3			
OMW-9			
OP-4			

OPERATION, MAINTENANCE & MONITORING CHECKLIST

Union Pacific Railroad - Oakland Trailer-on-flat-car (TOFC) railyard
1717 Middle Harbor Road, Oakland, California

Chlorine Feed System:

Volume of Sodium Hypochlorite Remaining: 1 1/2 drum
Period of Feed System Operation: continuous

Air Compressor:

Check Oil Level: ok
Change Oil in Compressor every 3 months: ✓

Sampling:

Sample Location	*Sampling Frequency*	Analytes	EPA Method	Sampling Method
Midpoint	Monthly	BTEX	8020	3 - 40 ml vials with HCl 4 degree Celcius
Influent Effluent	Quarterly January, April, July, October	BTEX TPH-D	8020 8015M	3 - 40 ml vials with HCl 1 - 1 liter amber glass 4 degree Celcius

Performed during this visit? **Yes** **No**

IV. Comments

Before departing site, please call Hoa Voscott at CDM (925-296-8071)
If no answer, dial "0" for operator and request a page.

OPERATION, MAINTENANCE & MONITORING CHECKLIST

Union Pacific Railroad - Oakland Trailer-on-flat-car (TOFC) railyard
1717 Middle Harbor Road, Oakland, California

Inspection Date: 5-10-99
Inspector's Name: Voscott — Company: CAM
Time Inspector On-site: 1545 — Offsite: 1635
UPRR Person Notified: Tom — Time: 1555
Reason for Visit: OM&M
Weather Conditions: 60s Sunny

Record status as found and any repairs/adjustments performed

Treatment System General Inspection/Readings:

System Operating? **Yes** **No**

System Readings:

Signet Volume (gallons):	1268910	
Neptune Volume (gallons):	7053080	
Flow Rate thru Carbon (gallons/minute):	9.7	
Filter Pressure - Inlet (psig):	19	@ 1600
Filter Pressure - Outlet (psig):	7	@ 1600
Oil Level in Tank (inches):	37"	
OP-4 meter reading (gallons):	—	@
OMW-9 meter reading (gallons):	—	@

Change Filters: **Yes** **No**

Procedures:

Observations:

Backwash Primary Carbon Canisters: **Yes** **No**

Is holding tank half empty?
Duration of backwashing:
Observation of Effluent:

Inspection and Cleaning of Pumps:

Wells	Operating?	Requires Cleaning?	Comments
ORW-1	yes		
ORW-2	↓		
ORW-3			
OMW-9			
OP-4			

OPERATION, MAINTENANCE & MONITORING CHECKLIST
Union Pacific Railroad - Oakland Trailer-on-flat-car (TOFC) railyard
1717 Middle Harbor Road, Oakland, California

Chlorine Feed System:

Volume of Sodium Hypochlorite Remaining: 1/3 drum

Period of Feed System Operation: Continuous

Air Compressor:

Check Oil Level: ok

Change Oil in Compressor every 3 months: ok

Sampling:

Sample Location	Sampling Frequency	Analytes	EPA Method	Sampling Method
Midpoint	Monthly	BTEX	8020	3 - 40 ml vials with HCl 4 degree Celcius
Influent Effluent	Quarterly January, April, July, October	BTEX TPH-D	8020 8015M	3 - 40 ml vials with HCl 1 - 1 liter amber glass 4 degree Celcius

Performed during this visit? **Yes** **No**

IV. Comments

Before departing site, please call Hoa Voscott at CDM (925-296-8071)
If no answer, dial "0" for operator and request a page.

OPERATION, MAINTENANCE & MONITORING CHECKLIST

Union Pacific Railroad - Oakland Trailer-on-flat-car (TOFC) railyard
1717 Middle Harbor Road, Oakland, California

Inspection Date: 5-17-99
Inspector's Name: Voscott — Company: ASM
Time Inspector On-site: 835 — Offsite: 1030
UPRR Person Notified: Gary — Time: 845
Reason for Visit: OM&M
Weather Conditions: Cool 50s overcast

Record status as found and any repairs/adjustments performed

Treatment System General Inspection/Readings:

System Operating? (Yes) No

System Readings:

Signet Volume (gallons):	1281920	
Neptune Volume (gallons):	7067320	
Flow Rate thru Carbon (gallons/minute):	11.2	
Filter Pressure - Inlet (psig):	10	@ 900
Filter Pressure - Outlet (psig):	8	@ 900
Oil Level in Tank (inches):	37"	
OP-4 meter reading (gallons):	663899	@ 1000
OMW-9 meter reading (gallons):	137272	@

Change Filters: (Yes) No

Procedures:

Observations:

Backwash Primary Carbon Canisters: (Yes) No

Is holding tank half empty?
Duration of backwashing:
Observation of Effluent:

Inspection and Cleaning of Pumps:

Wells	Operating?	Requires Cleaning?	Comments
ORW-1	yes	yes	
ORW-2	↓	↓	
ORW-3			
OMW-9			
OP-4			

OPERATION, MAINTENANCE & MONITORING CHECKLIST
Union Pacific Railroad - Oakland Trailer-on-flat-car (TOFC) railyard
1717 Middle Harbor Road, Oakland, California

Chlorine Feed System:

Volume of Sodium Hypochlorite Remaining: 1 1/3 drum

Period of Feed System Operation: continuous

Air Compressor:

Check Oil Level: OK

Change Oil in Compressor every 3 months: ✓

Sampling:

Sample Location	Sampling Frequency	Analytes	EPA Method	Sampling Method
Midpoint	Monthly	BTEX	8020	3 - 40 ml vials with HCl 4 degree Celcius
Influent Effluent	Quarterly January, April, July, October	BTEX TPH-D	8020 8015M	3 - 40 ml vials with HCl 1 - 1 liter amber glass 4 degree Celcius

Performed during this visit? **Yes** **No**

IV. Comments

Before departing site, please call Hoa Voscott at CDM (925-296-8071)
If no answer, dial "0" for operator and request a page.

OPERATION, MAINTENANCE & MONITORING CHECKLIST

Union Pacific Railroad - Oakland Trailer-on-flat-car (TOFC) railyard
1717 Middle Harbor Road, Oakland, California

Inspection Date: 5-20-99
Inspector's Name: Voscott — Company: CDM
Time Inspector On-site: 830 — Offsite: 915
UPRR Person Notified: Gary — Time: 835
Reason for Visit: Quarterly
Weather Conditions: Cool 50s

Record status as found and any repairs/adjustments performed

Treatment System General Inspection/Readings:

System Operating? (Yes) No

System Readings:

Signet Volume (gallons):	1283540	
Neptune Volume (gallons):	7069120	
Flow Rate thru Carbon (gallons/minute):	0.2	
Filter Pressure - Inlet (psig):	10	@
Filter Pressure - Outlet (psig):	10	@
Oil Level in Tank (inches):	37 1/2"	
OP-4 meter reading (gallons):	–	@
OMW-9 meter reading (gallons):	–	@

Change Filters: (Yes) No

Procedures:

Observations:

Backwash Primary Carbon Canisters: Yes (No)

Is holding tank half empty?
Duration of backwashing:
Observation of Effluent:

Inspection and Cleaning of Pumps:

Wells	Operating?	Requires Cleaning?	Comments
ORW-1	yes	N/A	–
ORW-2	↓	↓	↓
ORW-3			
OMW-9			
OP-4			

OPERATION, MAINTENANCE & MONITORING CHECKLIST
Union Pacific Railroad - Oakland Trailer-on-flat-car (TOFC) railyard
1717 Middle Harbor Road, Oakland, California

Chlorine Feed System:

Volume of Sodium Hypochlorite Remaining: 1 1/3 drum

Period of Feed System Operation: Continuous

Air Compressor:

Check Oil Level: OK ✓

Change Oil in Compressor every 3 months:

Sampling:

Sample Location	Sampling Frequency	Analytes	EPA Method	Sampling Method
Midpoint	Monthly	BTEX	8020	3 - 40 ml vials with HCl 4 degree Celcius
Influent Effluent	Quarterly January, April, July, October	BTEX TPH-D	8020 8015M	3 - 40 ml vials with HCl 1 - 1 liter amber glass 4 degree Celcius

Performed during this visit? **Yes** **No**

IV. Comments

Before departing site, please call Hoa Voscott at CDM (925-296-8071)
If no answer, dial "0" for operator and request a page.

OPERATION, MAINTENANCE & MONITORING CHECKLIST

Union Pacific Railroad - Oakland Trailer-on-flat-car (TOFC) railyard
1717 Middle Harbor Road, Oakland, California

Inspection Date: 5-24-99
Inspector's Name: Voscott Company: CDM
Time Inspector On-site: 830 Offsite:
UPRR Person Notified: Gary Time: 835
Reason for Visit: OMM
Weather Conditions: Cool 50s overcast

Record status as found and any repairs/adjustments performed

Treatment System General Inspection/Readings:

System Operating? (Yes) No

System Readings:

Signet Volume (gallons): 1283540
Neptune Volume (gallons): 7069172
Flow Rate thru Carbon (gallons/minute):
Filter Pressure - Inlet (psig): @
Filter Pressure - Outlet (psig): @
Oil Level in Tank (inches): 37 1/4"
OP-4 meter reading (gallons): @
OMW-9 meter reading (gallons): @

Change Filters: Yes No

Procedures:

Observations:

Backwash Primary Carbon Canisters: Yes No

Is holding tank half empty?
Duration of backwashing:
Observation of Effluent:

Inspection and Cleaning of Pumps:

Wells	Operating?	Requires Cleaning?	Comments
ORW-1			
ORW-2			
ORW-3			
OMW-9			
OP-4			

OPERATION, MAINTENANCE & MONITORING CHECKLIST
Union Pacific Railroad - Oakland Trailer-on-flat-car (TOFC) railyard
1717 Middle Harbor Road, Oakland, California

Chlorine Feed System:

Volume of Sodium Hypochlorite Remaining: _____

Period of Feed System Operation: _____

Air Compressor:

Check Oil Level: _____

Change Oil in Compressor every 3 months: _____

Sampling:

Sample Location	Sampling Frequency	Analytes	EPA Method	Sampling Method
Midpoint	Monthly	BTEX	8020	3 - 40 ml vials with HCl 4 degree Celcius
Influent Effluent	Quarterly January, April, July, October	BTEX TPH-D	8020 8015M	3 - 40 ml vials with HCl 1 - 1 liter amber glass 4 degree Celcius

Performed during this visit? **Yes** **No**

IV. Comments

_____

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Before departing site, please call Hoa Voscott at CDM (925-296-8071)
If no answer, dial "0" for operator and request a page.

OPERATION, MAINTENANCE & MONITORING CHECKLIST

Union Pacific Railroad - Oakland Trailer-on-flat-car (TOFC) railyard

1717 Middle Harbor Road, Oakland, California

Inspection Date: 5-28-99

Inspector's Name: REX ROSS Company: CALCON SYSTEMS

Time Inspector On-site: 8:00 AM Offsite: Noon

UPRR Person Notified: Time/Date:

Reason for Visit: MAINT

Weather Conditions: OVERCAST - CHILLY

Record status as found and any repairs/adjustments performed

Treatment System General Inspection/Readings:

System Operating? (Yes) No

System Readings:

Magnet Volume (gallons): 128644 (x 10)

Neptune Volume (gallons): 0707250

Flow Rate thru Carbon (gallons/minute): 20 ±

Filter Pressure - Inlet (psig): 11

Filter Pressure - Outlet (psig): 9

Oil Level in Tank (inches): 37 1/4

MW-4 meter reading (gallons): 724904

OMW-9 meter reading (gallons): 241222

Change Filters: (Yes) No

Procedures: USUAL

Observations: THIN LAYER OF CAKED MATL

Backwash Primary Carbon Canisters: (Yes) No

Is holding tank half empty? YES

Duration of backwashing: 30

Observation of Effluent: USUAL TAN COLOR

Inspection and Cleaning of Pumps:

Wells	Operating?	Clean?	Comments
ORW-1	YES		
ORW-2	NO		CONTROL PANEL CONTROLLER HAS WATER IN IT
ORW-3	NO		PUMP REMOVED FOR REPAIR
OMW-9	NO		"STUCK" RESTARTED PUMP
MW-4	NO		" " RESTARTED PUMP

OPERATION, MAINTENANCE & MONITORING CHECKLIST
Union Pacific Railroad - Oakland Trailer-on-flat-car (TOFC) railyard
1717 Middle Harbor Road, Oakland, California

Chlorine Feed System:

Volume of Sodium Hypochlorite Remaining: 1/2 BBL.
Period of Feed System Operation: CONTINUOUS

Air Compressor:

Check Oil Level: OK
Change Oil in Compressor every 3 months: DONE IN APRIL

Sampling:

Sample Location	Sampling Frequency	Analytes	EPA Method	Sampling Method
Midpoint	Monthly	BTEX	8020	3 - 40 ml vials with HCl 4 degree Celcius
Influent Effluent	Quarterly January, April, July, October	BTEX TPH-D	8020 8015M	3 - 40 ml vials with HCl 1 - 1 liter amber glass 4 degree Celcius

Performed during this visit? Yes (No)

Comments

Before departing site, please call Hoa Voscott at CDM (925-296-8071)
If no answer, dial "0" for operator and request a page.

OM&M Checklist
June 1999

OPERATION, MAINTENANCE & MONITORING CHECKLIST

Union Pacific Railroad - Oakland Trailer-on-flat-car (TOFC) railyard

1717 Middle Harbor Road, Oakland, California

Inspection Date: 6/9/99

Inspector's Name: Voscoll — Company: CAU

Time Inspector On-site: 825 — Offsite: 950

UPRR Person Notified: Gary — Time: 830

Reason for Visit: OM&M

Weather Conditions: Sunny 50s

Record status as found and any repairs/adjustments performed

Treatment System General Inspection/Readings:

System Operating? **Yes** / **No**

System Readings:

Signet Volume (gallons):	1302060
Neptune Volume (gallons):	7089540
Flow Rate thru Carbon (gallons/minute):	20 gpm
Filter Pressure - Inlet (psig):	10 @ 90
Filter Pressure - Outlet (psig):	10 @ 90
Oil Level in Tank (inches):	38"
OP-4 meter reading (gallons):	- @
OMW-9 meter reading (gallons):	- @

Change Filters: **Yes** / **No**

Procedures: Same as before

Observations: yellow-dyed, dark grain size particles

Backwash Primary Carbon Canisters: **Yes** / **No**

Is holding tank half empty?

Duration of backwashing:

Observation of Effluent:

Inspection and Cleaning of Pumps:

Wells	Operating?	Requires Cleaning?	Comments
ORW-1	yes	—	
ORW-2	↓	↓	
ORW-3			
OMW-9			
OP-4			

OPERATION, MAINTENANCE & MONITORING CHECKLIST
Union Pacific Railroad - Oakland Trailer-on-flat-car (TOFC) railyard
1717 Middle Harbor Road, Oakland, California

Chlorine Feed System:

Volume of Sodium Hypochlorite Remaining: 1 1/4 drum
Period of Feed System Operation: Continuous

Air Compressor:

Check Oil Level: OK
Change Oil in Compressor every 3 months: OK

Sampling:

Sample Location	Sampling Frequency	Analytes	EPA Method	Sampling Method
Midpoint	Monthly	BTEX	8020	3 - 40 ml vials with HCl 4 degree Celcius
Influent Effluent	Quarterly January, April, July, October	BTEX TPH-D	8020 8015M	3 - 40 ml vials with HCl 1 - 1 liter amber glass 4 degree Celcius

Performed during this visit? **Yes** **No**

IV. Comments

Before departing site, please call Hoa Voscott at CDM (925-296-8071)
If no answer, dial "0" for operator and request a page.

OPERATION, MAINTENANCE & MONITORING CHECKLIST

Union Pacific Railroad - Oakland Trailer-on-flat-car (TOFC) railyard
1717 Middle Harbor Road, Oakland, California

Inspection Date: 5/15/99
Inspector's Name: Pawan Sharma — Company: CDM
Time Inspector On-site: 1045 — Offsite:
UPRR Person Notified: yes — Time: 1050
Reason for Visit: OM
Weather Conditions: overcast ~63°F

Record status as found and any repairs/adjustments performed

Treatment System General Inspection/Readings:

System Operating? (Yes) / No — after backwash and change filter yes

System Readings:

Signet Volume (gallons): 130760
Neptune Volume (gallons): 07095618
Flow Rate thru Carbon (gallons/minute): before 0 after 24.1
Filter Pressure - Inlet (psig): 2 after 12.5 @
Filter Pressure - Outlet (psig): 2 after 10.5 @
Oil Level in Tank (inches): 38
OP-4 meter reading (gallons): 4%. @
OMW-9 meter reading (gallons): @

Change Filters: (Yes) / No

Procedures: change filter; scrape sides

Observations:

Backwash Primary Carbon Canisters: (Yes) / No

Is holding tank half empty? yes
Duration of backwashing: 30 minutes
Observation of Effluent: dirty; cleared up slightly

Inspection and Cleaning of Pumps:

Wells	Operating?	Requires Cleaning?	Comments
ORW-1			
ORW-2			
ORW-3			
OMW-9			
OP-4			

OPERATION, MAINTENANCE & MONITORING CHECKLIST

Union Pacific Railroad - Oakland Trailer-on-flat-car (TOFC) railyard

1717 Middle Harbor Road, Oakland, California

Chlorine Feed System:

Volume of Sodium Hypochlorite Remaining: _____

Period of Feed System Operation: _____

Air Compressor:

Check Oil Level: _____

Change Oil in Compressor every 3 months: _____

Sampling:

Sample Location	Sampling Frequency	Analytes	EPA Method	Sampling Method
Midpoint	Monthly	BTEX	8020	3 - 40 ml vials with HCl 4 degree Celcius
Influent Effluent	Quarterly January, April, July, October	BTEX TPH-D	8020 8015M	3 - 40 ml vials with HCl 1 - 1 liter amber glass 4 degree Celcius

Performed during this visit? **Yes** **No**

IV. Comments

Before departing site, please call Hoa Voscott at CDM (925-296-8071)
If no answer, dial "0" for operator and request a page.

OPERATION, MAINTENANCE & MONITORING CHECKLIST

Union Pacific Railroad - Oakland Trailer-on-flat-car (TOFC) railyard
1717 Middle Harbor Road, Oakland, California

Inspection Date: 6-17-99
Inspector's Name: Wescott — Company: CDM
Time Inspector On-site: 815 — Offsite: 940
UPRR Person Notified: Corey — Time:
Reason for Visit: OM&M
Weather Conditions: Sunny 50s

Record status as found and any repairs/adjustments performed

Treatment System General Inspection/Readings:

System Operating? **Yes** / **No**

System Readings:

Signet Volume (gallons):	1311936		
Neptune Volume (gallons):	7100340		
Flow Rate thru Carbon (gallons/minute):	21.6		
Filter Pressure - Inlet (psig):	10	@	855
Filter Pressure - Outlet (psig):	10	@	855
Oil Level in Tank (inches):	36"		
OP-4 meter reading (gallons):	—	@	
OMW-9 meter reading (gallons):	—	@	

Change Filters: **Yes** / **No**

Procedures:

Observations:

Backwash Primary Carbon Canisters: **Yes** / **No**

Is holding tank half empty?
Duration of backwashing:
Observation of Effluent:

Inspection and Cleaning of Pumps:

Wells	Operating?	Requires Cleaning?	Comments
ORW-1	yes		
ORW-2	no		
ORW-3	no		
OMW-9	yes		
OP-4	yes		

OPERATION, MAINTENANCE & MONITORING CHECKLIST
Union Pacific Railroad - Oakland Trailer-on-flat-car (TOFC) railyard
1717 Middle Harbor Road, Oakland, California

Chlorine Feed System:

Volume of Sodium Hypochlorite Remaining: 1 drum

Period of Feed System Operation: Continuous

Air Compressor:

Check Oil Level: OK ✓

Change Oil in Compressor every 3 months:

Sampling:

Sample Location	Sampling Frequency	Analytes	EPA Method	Sampling Method
Midpoint	Monthly	BTEX	8020	3 - 40 ml vials with HCl 4 degree Celcius
Influent Effluent	Quarterly January, April, July, October	BTEX TPH-D	8020 8015M	3 - 40 ml vials with HCl 1 - 1 liter amber glass 4 degree Celcius

Performed during this visit? **Yes** **No**

IV. Comments

Before departing site, please call Hoa Voscott at CDM (925-296-8071)
If no answer, dial "0" for operator and request a page.

OPERATION, MAINTENANCE & MONITORING CHECKLIST

Union Pacific Railroad - Oakland Trailer-on-flat-car (TOFC) railyard
1717 Middle Harbor Road, Oakland, California

Inspection Date:	6-24-99		
Inspector's Name:	Voscott	Company:	CBM
Time Inspector On-site:	830	Offsite:	955
UPRR Person Notified:	Tom	Time:	820
Reason for Visit:	OM&M		
Weather Conditions:	Cool SOS		

Record status as found and any repairs/adjustments performed

Treatment System General Inspection/Readings:

System Operating? **(Yes)** **No**

System Readings:

Signet Volume (gallons):	1320850		
Neptune Volume (gallons):	711030		
Flow Rate thru Carbon (gallons/minute):	20.1		
Filter Pressure - Inlet (psig):	10	@	900
Filter Pressure - Outlet (psig):	10	@	900
Oil Level in Tank (inches):	38"		
OP-4 meter reading (gallons):	738562	@	930
OMW-9 meter reading (gallons):	243206	@	930

Change Filters: **(Yes)** **No**

Procedures:

Observations:

Backwash Primary Carbon Canisters: **(Yes)** **No**

Is holding tank half empty?

Duration of backwashing:

Observation of Effluent:

Inspection and Cleaning of Pumps:

Wells	Operating?	Requires Cleaning?	Comments
ORW-1	yes	yes	
ORW-2	"	"	
ORW-3	"	"	
OMW-9	yes		
OP-4	yes		

OPERATION, MAINTENANCE & MONITORING CHECKLIST
Union Pacific Railroad - Oakland Trailer-on-flat-car (TOFC) railyard
1717 Middle Harbor Road, Oakland, California

Chlorine Feed System:

Volume of Sodium Hypochlorite Remaining: (illegible
Period of Feed System Operation: Continuous

Air Compressor:

Check Oil Level: ok ✓
Change Oil in Compressor every 3 months:

Sampling:

Sample Location	Sampling Frequency	Analytes	EPA Method	Sampling Method
Midpoint	Monthly	BTEX	8020	3 - 40 ml vials with HCl 4 degree Celcius
Influent Effluent	Quarterly January, April, July, October	BTEX TPH-D	8020 8015M	3 - 40 ml vials with HCl 1 - 1 liter amber glass 4 degree Celcius

Performed during this visit? **Yes** **No** (circled)

IV. Comments

Before departing site, please call Hoa Voscott at CDM (925-296-8071)
If no answer, dial "0" for operator and request a page.

OPERATION, MAINTENANCE & MONITORING CHECKLIST

Union Pacific Railroad - Oakland Trailer-on-flat-car (TOFC) railyard

1717 Middle Harbor Road, Oakland, California

Inspection Date: 7/1/99
Inspector's Name: REX ROSS Company: CALCON SYSTEMS
Time Inspector On-site: 0700 Offsite:
UPRR Person Notified: Time:
Reason for Visit: SCHEDULED MAINT
Weather Conditions: HOT, SUNNY

Record status as found and any repairs/adjustments performed

Treatment System General Inspection/Readings:

System Operating? (Yes) No

System Readings:

Signet Volume (gallons): 133 199 (XCO)
Neptune Volume (gallons): 07122173
Flow Rate thru Carbon (gallons/minute): 15+ BEFORE FILTER CHANGE 21 GPM, AFTER
Filter Pressure - Inlet (psig): BEFORE 13 AFTER 10 @ 10 AM
Filter Pressure - Outlet (psig): BEFORE 9 AFTER 10 @ 10 AM
Water Level in Tank (inches): 38 IN.
OMW-4 meter reading (gallons): 728653 @ 9:00 AM
OMW-9 meter reading (gallons): 463230 @ 9:00 AM

Change Filters: (Yes) No

Procedures: PRESSURIZE 30 SECONDS, DISCHARGE 30 SECONDS

Observations: LIGHT TAN DISCHARGE/CAKED MATERIAL ON BAGS

Backwash Primary Carbon Canisters: (Yes) No

Is holding tank half empty? YES
Duration of backwashing: 30 SECONDS PRESSURIZING / 30 SECONDS DISCHARGING
Observation of Effluent: VERY LIGHT TAN

Inspection and Cleaning of Pumps:

Wells	Operating?	Requires Cleaning?	Comments
ORW-1	YES	YES	
ORW-2	OK NOW	YES	PUMP REPAIRED
ORW-3	NO	YES	CONTROL UNIT NOT FUNCTIONAL / NEEDS REPAIR
OMW-9	YES	YES	
OP-4	YES	YES	

↑ NORMAL ROUTINE EACH VISIT

OPERATION, MAINTENANCE & MONITORING CHECKLIST

Union Pacific Railroad - Oakland Trailer-on-flat-car (TOFC) railyard

6-30-99

1717 Middle Harbor Road, Oakland, California

Chlorine Feed System:

Volume of Sodium Hypochlorite Remaining: 1 BARREL LEFT (BBL WAS EMPTY, NEW BBL INSTALL
Period of Feed System Operation: CONTINUOUS

Air Compressor:

Check Oil Level: OK
Change Oil in Compressor every 3 months: DONE 6-30-99 (DONE LAST ON 4-3-99

Sampling:

Sample Location	Sampling Frequency	Analytes	EPA Method	Sampling - Method
Midpoint	Monthly	BTEX	8020	3 - 40 ml vials with HCl 4 degree Celcius
Influent Effluent	Quarterly January, April, July, October	BTEX TPH-D	8020 8015M	3 - 40 ml vials with HCl 1 - 1 liter amber glass 4 degree Celcius

Performed during this visit? Yes (No)

Comments

THE LAST FULL BBL OF SODIUM HYPOCHLORITE WAS PLACED IN SERVICE TODAY

Before departing site, please call Hoa Voscott at CDM (925-296-8071)
If no answer, dial "0" for operator and request a page.

Appendix B

Appendix B

Monitoring Well Purge and Sampling Forms

Well No.: OMW-1	Site: UP TOFC	Date: 2/17/99
Client: Port of Oakland	Project No.:	
Well Casing Diameter: (2") 4" 6" Other:	Well Casing Material: PVC SS Other:	
Well Headspace:	PID (ppm):	FID (ppm):
Sampler: C O'Neill C Chan		

Total Depth of Well (feet): 12.07 Reference Point: ______ Datum: ______

Depth to Water (feet): (4.63)

Water Column Height (feet): 7.44 (X) (2" - 0.16) 4" - 0.65 6" - 1.47 Gal/feet = 1.19 (X) 3 = 3.6 Minimum Purge Volume (Gallons)

PURGE METHOD:

Submersible Pump ☐ Bladder Pump ☐ Hand Pump ☐ Peristaltic Pump ☐ Bailer: PVC ☒ Teflon ☐ SS ☐ Disposable ☐

Pump Make/Model: ______ Purge Equipment Decon'd? Y ☐ N ☐

Depth of Pump Intake (feet): ______ Purge/Decon Water Containerized? Y ☐ N ☐ Container Type/Volume? ______

Time	Gallons	Temp. (C / F)	pH	Conductivity (µmhos/cm)	Turbidity (NTUs)	DO (ppm)	Eh (mV)	Observations/Comments
1430	0	65.5	7.74	654				
1435	2	62.1	8.60	570				
1436	3	60.4	9.07	421				
1437	4	59.4	8.89	389				

SAMPLE COLLECTION METHOD:

Pump: ☐ Flow rate: ______
Bailer: ☒ Type: ______
Other: ☐ Desc.: ______

Sample ID: OMW-1
Dup. ID (if appl.): ______
Sample Time: 1440

SAMPLE ANALYSES:

Method:	Container Type/Vol.	Preservative
8015M 8020	3 40mL VOAs	HCl
8015M	1 1L Amber	—

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MONITORING WELL PURGE AND SAMPLING FORM

Well No.: OMW-2	Site: UP TOFC	Date: 2/18/99
Client: Port of Oakland	Project No.:	
Well Casing Diameter: (2") 4" 6" Other:	Well Casing Material: PVC SS Other:	
Well Headspace:	PID (ppm):	FID (ppm):
Sampler: C O'Neill C Chan		

Total Depth of Well (feet): 9.92 Reference Point: ______ Datum: ______

Depth to Water (feet): (1.38)

Water Column Height (feet): 8.54 (X) (2" - 0.16) / 4" - 0.65 / 6" - 1.47 / ___" - ___ Gal/feet = 1.37 (X) 3 = 4.1 Minimum Purge Volume (Gallons)

PURGE METHOD:

Submersible Pump ☐ Bladder Pump ☐ Hand Pump ☐ Peristaltic Pump ☐ Bailer: PVC ☒ Teflon ☐ SS ☐ Disposable ☐

Pump Make/Model: ______ Purge Equipment Decon'd? Y ☐ N ☐

Depth of Pump Intake (feet): ______ Purge/Decon Water Containerized? Y ☐ N ☐ Container Type/Volume? ______

Time	Gallons	Temp. (C / F)	pH	Conductivity (μmhos/cm)	Turbidity (NTUs)	DO (ppm)	Eh (mV)	Observations/Comments
1149	0	56.2		296				
1152	2	56.6		290				
1154	4	57.1		300				
1155	4.5	57.4		313				

SAMPLE COLLECTION METHOD:

Pump: ☐ Flow rate: ______

Bailer: ☒ Type: ______

Other: ☐ Desc.: ______

Sample ID: ______

Dup. ID (if appl.): ______

Sample Time: 1205

SAMPLE ANALYSES:

Method:	Container Type/Vol.	Preservative
8015M 8020	3 40mL VOAs	HCl
8015M	1 1L amber	—

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MONITORING WELL PURGE AND SAMPLING FORM

Well No.: OMW-3	Site: UP Fueling Area (TOFC)	Date: 2/17/99
Client: Port of Oakland	Project No.:	
Well Casing Diameter: (2") 4" 6" Other:	Well Casing Material: PVC SS Other:	
Well Headspace:	PID (ppm):	FID (ppm):
Sampler: CONeill CChan		

Total Depth of Well (feet): 10.69 (no depth listed) 10.39 + 0.3 Reference Point: North side of casing Datum:

Depth to Water (feet): 3.61

Water Column Height (feet): 7.08 (X) (2" - 0.16, 4" - 0.65, 6" - 1.47) Gal/feet = 1.13 (X) 3 = 3.4 Minimum Purge Volume (Gallons)

PURGE METHOD:

Submersible Pump ☐ Bladder Pump ☐ Hand Pump ☐ Peristaltic Pump ☐ Bailer: PVC ☐ Teflon ☐ SS ☐ Disposable ☐

Pump Make/Model: Purge Equipment Decon'd? Y ☐ N ☐

Depth of Pump Intake (feet): Purge/Decon Water Containerized? Y ☐ N ☐ Container Type/ Volume?

Time	Gallons	Temp. (C / F)	pH	Conductivity (µmhos/cm)	Turbidity (NTUs)	DO (ppm)	Eh (mV)	Observations/Comments
1532	0	58.1	8.25	211				
1533	1	57	7.97	235				
1534	2	57.1	7.84	244				
1536	3.5	57.2	7.89	238				

SAMPLE COLLECTION METHOD:

Pump: ☐ Flow rate:
Bailer: ☒ Type:
Other: ☐ Desc.:

Sample ID: OMW-3
Dup. ID (if appl.):
Sample Time: 1540

SAMPLE ANALYSES:

Method:	Container Type/Vol.	Preservative
8015M 8020	3-40 mL VOAs	HCl
8015M	1 1L amber	—

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MONITORING WELL PURGE AND SAMPLING FORM

I:\PROJECTS\FORMS\CAD\MWPURGE 10/05/94 0.00.40 Comm Dress & Vicks

Well No.: OMW-5	Site: UP TOFC		Date: 2/18/99
Client: Port of Oakland		Project No.:	
Well Casing Diameter: (2") 4" 6" Other:		Well Casing Material: PVC SS Other:	
Well Headspace:	PID (ppm):	FID (ppm):	
Sampler: C O'Neill C Chan			

Total Depth of Well (feet): 17.46 Reference Point: ____ Datum: ____

Depth to Water (feet): 4.57

Water Column Height (feet): 12.89 (X) 2" - 0.16 / 4" - 0.65 / 6" - 1.47 / __" - __ Gal/feet = 2.06 (X) 3 = 6.2 Minimum Purge Volume (Gallons)

PURGE METHOD:

Submersible Pump ☐ Bladder Pump ☐ Hand Pump ☐ Peristaltic Pump ☐ Bailer: PVC ☒ Teflon ☐ SS ☐ Disposable ☐

Pump Make/Model: ____ Purge Equipment Decon'd? Y ☐ N ☐

Depth of Pump Intake (feet): ____ Purge/Decon Water Containerized? Y ☐ N ☐ Container Type/Volume? ____

Time	Gallons	Temp. (C / F)	pH	Conductivity (µmhos/cm)	Turbidity (NTUs)	DO (ppm)	Eh (mV)	Observations/Comments
1115	0	60.0	11+	7720				water is black w/ sheen
1118	2	63.0	10.5+	7320				odor; sediment on
1120	3	64.0	[illegible]	5160				side of casing - probably
1121	3.5							gets [illegible] from
								parking lot in top of
								well
								+4 dec still having
								problems stabilizing
								pH
								drawdown near to bottom
								of well
								[illegible]

SAMPLE COLLECTION METHOD:

Pump: ☐ Flow rate: ____

Bailer: ☒ Type: ____

Other: ☐ Desc.: ____

Sample ID: OMW-5

Dup. ID (if appl.): ____

Sample Time: 1125

SAMPLE ANALYSES:

Method:	Container Type/Vol.	Preservative
8015M, 8020	3 40mL VOAs	HCl
8015M	1 1L Amber	—

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MONITORING WELL PURGE AND SAMPLING FORM

Well No.: OMW-6	Site: UP TOFC	Date: 2/18/98
Client: Port of Oakland	Project No.:	
Well Casing Diameter: (2") 4" 6" Other:	Well Casing Material: PVC SS Other:	
Well Headspace: PID (ppm):	FID (ppm):	
Sampler: C O'Neill C Chan		

Total Depth of Well (feet): 11.80   Reference Point: ______   Datum: ______

Depth to Water (feet): 5.85

Water Column Height (feet): 5.95 (X) (2" - 0.16) 4" - 0.65 6" - 1.47 __" - __ Gal/feet = 0.95 (X) 3 = 2.9 Minimum Purge Volume (Gallons)

PURGE METHOD:

Submersible Pump ☐ Bladder Pump ☐ Hand Pump ☐ Peristaltic Pump ☐ Bailer: PVC ☒ Teflon ☐ SS ☐ Disposable ☐

Pump Make/Model: ______   Purge Equipment Decon'd? Y ☐ N ☐

Depth of Pump Intake (feet): ______   Purge/Decon Water Containerized? Y ☐ N ☐   Container Type/Volume? ______

Time	Gallons	Temp. (C / F)	pH	Conductivity (µmhos/cm)	Turbidity (NTUs)	DO (ppm)	Eh (mV)	Observations/Comments
1505	[illegible]	[illegible]						[illegible]
1506	1	[illegible]						[illegible]
[illegible]	[illegible]	[illegible]						
[illegible]	3	[illegible]						

SAMPLE COLLECTION METHOD:

Pump: ☐ Flow rate: ______
Bailer: ☒ Type: ______
Other: ☐ Desc.: ______

Sample ID: [illegible]
Dup. ID (if appl.): ______
Sample Time: 1315

SAMPLE ANALYSES:

Method:	Container Type/Vol.	Preservative
8015M, 8020	3 40mL VOAs	HCl
8015M	1 1L amber	—

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MONITORING WELL PURGE AND SAMPLING FORM

Well No.: OMW-8	Site: UP TOFC	Date: 2/17/99
Client: Port of Oakland	Project No.:	
Well Casing Diameter: (2") 4" 6" Other:	Well Casing Material: PVC SS Other:	
Well Headspace: PID (ppm):	FID (ppm):	
Sampler: C. ONeill C Chan		

Total Depth of Well (feet): 17.46 Reference Point: ______ Datum: ______

Depth to Water (feet): 4.05

Water Column Height (feet): 13.41 (X) (2" - 0.16) 4" - 0.65 6" - 1.47 ___" - ___ Gal/feet = 2.15 (X) 3 = 6.4 Minimum Purge Volume (Gallons)

PURGE METHOD:

Submersible Pump ☐ Bladder Pump ☐ Hand Pump ☐ Peristaltic Pump ☐ Bailer: PVC ☒ Teflon ☐ SS ☐ Disposable ☐

Pump Make/Model: ______ Purge Equipment Decon'd? Y ☐ N ☐

Depth of Pump Intake (feet): ______ Purge/Decon Water Containerized? Y ☐ N ☐ Container Type/Volume? ______

Time	Gallons	Temp. (C / F)	pH	Conductivity (µmhos/cm)	Turbidity (NTUs)	DO (ppm)	Eh (mV)	Observations/Comments
1501	0	62.7	8.30	354				
1502	1	59.4	8.30	407				
1504	2.5	58.3	8.20	458				
1505	4	58.1	8.25	413				
1506	5	58.0	8.24	605				
1507	6	58.4	8.20	637				
1508	7	58.5	8.15	628				

SAMPLE COLLECTION METHOD:

Pump: ☐ Flow rate: ______
Bailer: ☒ Type: ______
Other: ☐ Desc.: ______

Sample ID: OMW-8
Dup. ID (if appl.): ______
Sample Time: 1515

SAMPLE ANALYSES:

Method:	Container Type/Vol.	Preservative
8015M 8020	3 40mL VOAs	HCl
8015M	1 1L amber	—

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MONITORING WELL PURGE AND SAMPLING FORM

Well No.: OMW-10	Site: UP TOFC	Date: 2/17/99
Client: Port of Oakland	Project No.:	
Well Casing Diameter: (2") 4" 6" Other:	Well Casing Material: PVC SS Other:	
Well Headspace:	PID (ppm):	FID (ppm):
Sampler: C. O'Rill C Chan		

Total Depth of Well (feet): 15.35 Reference Point: _____ Datum: _____

Depth to Water (feet): 3.37

Water Column Height (feet): 11.98 (X) (2" - 0.16, 4" - 0.65, 6" - 1.47) Gal/feet = 1.92 (X) 3 = 5.8 Minimum Purge Volume (Gallons)

—" - —

PURGE METHOD:

Submersible Pump ☐ Bladder Pump ☐ Hand Pump ☐ Peristaltic Pump ☐ Bailer: PVC ☒ Teflon ☐ SS ☐ Disposable ☐

Pump Make/Model: _____ Purge Equipment Decon'd? Y ☐ N ☐

Depth of Pump Intake (feet): _____ Purge/Decon Water Containerized? Y ☐ N ☐ Container Type/ Volume? _____

Time	Gallons	Temp. (C / F)	pH	Conductivity (µmhos/cm)	Turbidity (NTUs)	DO (ppm)	Eh (mV)	Observations/Comments
1200	0	69	3.30	2760				odor, sheen
1202	1	64.6	3.54	2590				
1203	2	64.5	3.30	2620				
1204	4	64.4	3.78	2640				
1206	6	64.2	4.50	2570				
1208	6.5	63.5	4.5	2550				

SAMPLE COLLECTION METHOD:

Pump: ☐ Flow rate: _____
Bailer: ☒ Type: _____
Other: ☐ Desc.: _____

Sample ID: OMW-10
Dup. ID (if appl.): OMW-12 (label, 1317)
Sample Time: 1217

SAMPLE ANALYSES:

Method:	Container Type/Vol.	Preservative
8015M, 8020	3 40mL VOAs	HCl
8015	1 1L Amber	—

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MONITORING WELL PURGE AND SAMPLING FORM

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Appendix C

Appendix C

Analytical Results and Chain-of-Custody Records

System Monitoring Analytical Report and Chain-of-Custody Record December 1998

Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878
2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

ANALYTICAL REPORT

Prepared for:

Burns & McDonnell
377 Oyster Point Blvd. Ste. 13
South San Francisco, CA 94080

Date: 31-DEC-98
Lab Job Number: 137192
Project ID: 96-071-1
Location: UNPAC

Reviewed by: Deanna Moore

Reviewed by: Steven E Stanley

Curtis & Tompkins, Ltd.

Client: **Burns & McDonnell**
Laboratory Number: **137192**
Project#: **96-071-1**
Location: **UNPAC**

Receipt Date: **12/16/98**

CASE NARRATIVE

This hardcopy data package contains sample and QC results for two water samples that were received on December 16, 1998. All samples were cold and in tact.

BTXE by EPA 8020: The surrogate trifluorotoluene was observed to be below QC limits in sample MIDFLUENT_GW (137192-002). Matrix interference was confirmed in the MS/MSD, also performed on this sample. This surrogate was within QC limits for the method blank and laboratory control sample. No other analytical problems were encountered.

137192

Request for Chemical Analysis and Chain of Custody Record

Burns & McDonnell Waste Consultants, Inc.
9400 Ward Parkway
Kansas City, Missouri 64114
Phone: (816) 333-8787 *Fax:* (816) 822-3463

Laboratory: CURTIS & TOMPKINS
Address: 2323 5TH ST.
City/State/Zip: BERKELEY CA. 94710
Telephone: 510 486-0900
Attention: SCOTT HILSTEDT

Document Control No.: 121698
Lab. Reference No. or Episode No.:

Project Number: 96-071-1
Project Name: U.N.P.A.C
Site, Group, or SWMU Name:

Sample Number		Sample Event		Sample Depth (in feet)		Sample Collected		Sample Type: Matrix					Number of Containers	Analysis: TPH D 8015	Analysis: BTEX 8020	Remarks
Sample Point	Sample Designator	Round	Year	From	To	Date	Time	Liquid	Solid	Gas	Composite	Grab				
INFLUENT	GW		1998			12/16/98	1150 AM	X					2	X		STANDARD
MID FLUENT	GW		1998			12/16/98	1145 AM	X					3		X	TURN AROUND
																TIME

Special Instructions:

Sampler (signature): Michael Truman
Sampler (signature):

Relinquished By:	Date/Time	Received By:	Date/Time
1. Michael Truman (signature):	12/16/98 1550	(signature):	
Relinquished By:	Date/Time	Received By:	Date/Time
2. (signature):		(signature):	12/16/98

Condition of Shipping Container: Good ☐ Fair ☐ Poor ☐
Ice Present in Container: Yes ☑ No ☐
Comments:

061998 Form WCI-OP1

BTXE

Client: Burns & McDonnell
Project#: 96-071-1
Location: UNPAC

Analysis Method: EPA 8021B
Prep Method: EPA 5030

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
137192-002	MIDFLUENT_GW	45484	12/16/98	12/30/98	12/30/98	

Matrix: Water

Analyte	Units	137192-002	
Diln Fac:		1	
Benzene	ug/L	<0.5	
Toluene	ug/L	<0.5	
Ethylbenzene	ug/L	<0.5	
m,p-Xylenes	ug/L	<0.5	
o-Xylene	ug/L	<0.5	
Surrogate			
Trifluorotoluene	%REC	52	*
Bromofluorobenzene	%REC	119	

Lab #: 137192

BATCH QC REPORT

Curtis & Tompkins, Ltd.

BTXE

Client: Burns & McDonnell
Project#: 96-071-1
Location: UNPAC

Analysis Method: EPA 8021B
Prep Method: EPA 5030

METHOD BLANK

Matrix: Water
Batch#: 45484
Units: ug/L
Diln Fac: 1

Prep Date: 12/29/98
Analysis Date: 12/29/98

MB Lab ID: QC87885

Analyte	Result
Benzene	<0.5
Toluene	<0.5
Ethylbenzene	<0.5
m,p-Xylenes	<0.5
o-Xylene	<0.5

Surrogate	%Rec	Recovery Limits
Trifluorotoluene	95	53-124
Bromofluorobenzene	115	41-142

Lab #: 137192

BATCH QC REPORT

Curtis & Tompkins, Ltd.

BTXE

Client:	Burns & McDonnell	Analysis Method:	EPA 8021B
Project#:	96-071-1	Prep Method:	EPA 5030
Location:	UNPAC		

LABORATORY CONTROL SAMPLE

Matrix:	Water	Prep Date:	12/29/98
Batch#:	45484	Analysis Date:	12/29/98
Units:	ug/L		
Diln Fac:	1		

LCS Lab ID: QC87884

Analyte	Result	Spike Added	%Rec #	Limits
Benzene	18.12	20	91	69-109
Toluene	19.27	20	96	72-116
Ethylbenzene	19.63	20	98	67-120
m,p-Xylenes	40.03	40	100	69-117
o-Xylene	20.24	20	101	75-122

Surrogate	%Rec	Limits
Trifluorotoluene	91	53-124
Bromofluorobenzene	113	41-142

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits
Spike Recovery: 0 out of 5 outside limits

Lab #: 137192

BATCH QC REPORT

Curtis & Tompkins, Ltd.

BTXE

Client: Burns & McDonnell
Project#: 96-071-1
Location: UNPAC

Analysis Method: EPA 8021B
Prep Method: EPA 5030

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Field ID: MIDFLUENT_GW
Lab ID: 137192-002
Matrix: Water
Batch#: 45484
Units: ug/L
Diln Fac: 1

Sample Date: 12/16/98
Received Date: 12/16/98
Prep Date: 12/30/98
Analysis Date: 12/30/98

MS Lab ID: QC87886

Analyte	Spike Added	Sample	MS	%Rec #	Limits
Benzene	20	<0.5	18.08	90	55-125
Toluene	20	<0.5	18.86	94	65-126
Ethylbenzene	20	<0.5	19.05	95	60-129
m,p-Xylenes	40	<0.5	39.52	99	68-116
o-Xylene	20	<0.5	20.45	102	69-129

Surrogate	%Rec	Limits
Trifluorotoluene	26*	53-124
Bromofluorobenzene	104	41-142

MSD Lab ID: QC87887

Analyte	Spike Added	MSD	%Rec #	Limits	RPD #	Limit
Benzene	20	18.14	91	55-125	0	11
Toluene	20	18.83	94	65-126	0	11
Ethylbenzene	20	19	95	60-129	0	12
m,p-Xylenes	40	39.14	98	68-116	1	11
o-Xylene	20	20.3	102	69-129	1	12

Surrogate	%Rec	Limits
Trifluorotoluene	33*	53-124
Bromofluorobenzene	90	41-142

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits
RPD: 0 out of 5 outside limits
Spike Recovery: 0 out of 10 outside limits

Curtis & Tompkins, Ltd.

TEH-Tot Ext Hydrocarbons

Client: Burns & McDonnell
Project#: 96-071-1
Location: UNPAC

Analysis Method: EPA 8015M
Prep Method: EPA 3520

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
137192-001	INFLUENT_GW	45324	12/16/98	12/17/98	12/22/98	

Matrix: Water

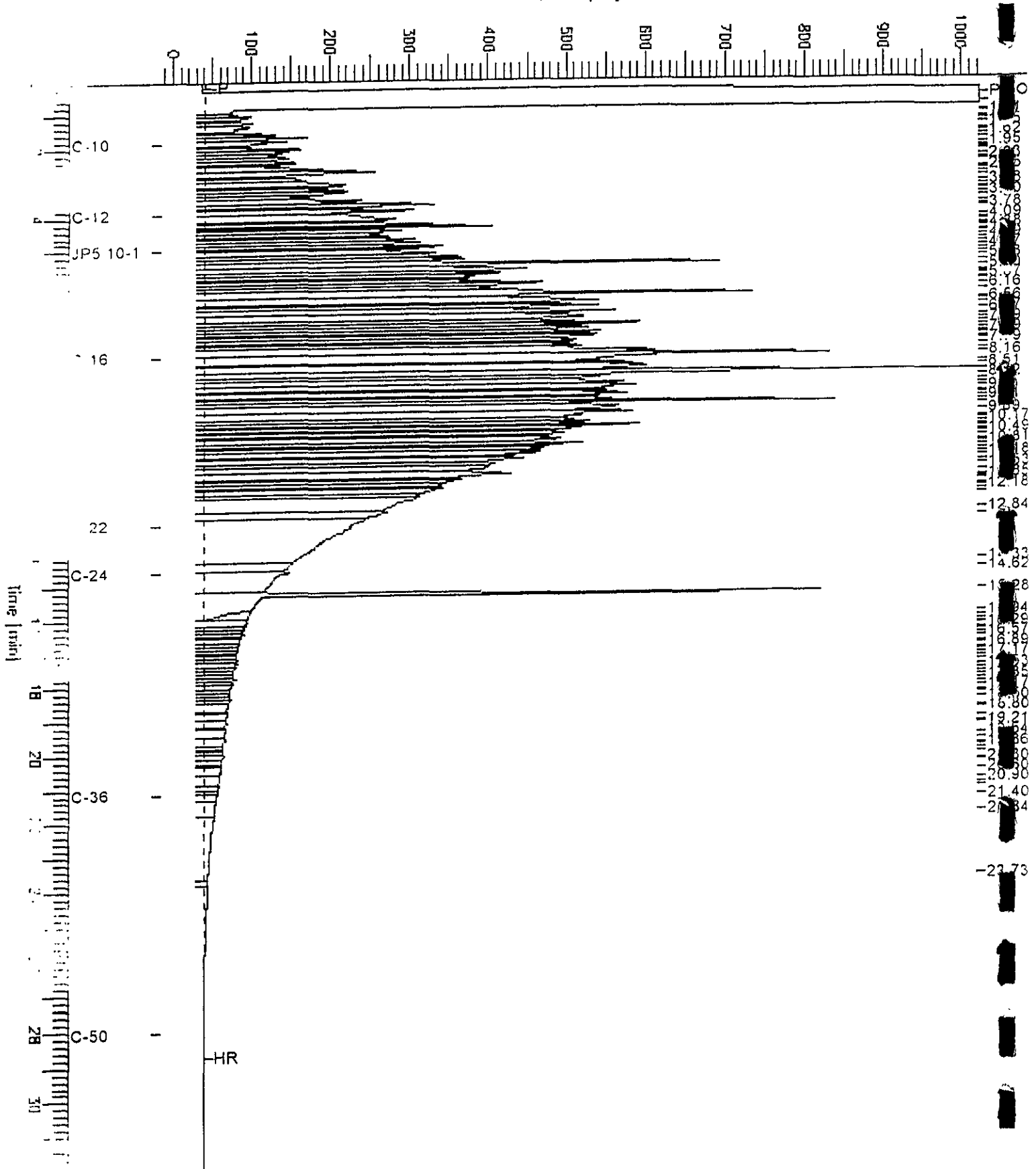
Analyte Diln Fac:	Units	137192-001 1
Diesel C10-C24	ug/L	22000 H
Surrogate		
Hexacosane	%REC	92

H: Heavier hydrocarbons than indicated standard

Chromatogram

S.. ple Name : 137192-001,45324
FileName : C:\GC13\CHB\355B052.RAW
Method : BTEH352.MTH
Start Time : 0.00 min End Time : 31.90 min
Scale Factor: 0.0 Plot Offset: -15 mV

Sample #: 45324 Page 1 of 1
Date : 12/23/98 08:16 AM
Time of Injection: 12/22/98 02:35 PM
Low Point : -15.40 mV High Point : 1024.00 mV
Plot Scale: 1039.4 mV



Lab #: 137192

BATCH QC REPORT

Curtis & Tompkins, Ltd.

TEH-Tot Ext Hydrocarbons	
Client: Burns & McDonnell	Analysis Method: EPA 8015M
Project#: 96-071-1	Prep Method: EPA 3520
Location: UNPAC	
METHOD BLANK	
Matrix: Water	Prep Date: 12/17/98
Batch#: 45324	Analysis Date: 12/22/98
Units: ug/L	
Diln Fac: 1	

MB Lab ID: QC87232

Analyte	Result	
Diesel C10-C24	<50	
Surrogate	**%Rec**	**Recovery Limits**
Hexacosane	110	53-136

Lab #: 137192

BATCH QC REPORT

Curtis & Tompkins, Ltd.

Page 1 of 1

TEH-Tot Ext Hydrocarbons

Client: Burns & McDonnell
Project#: 96-071-1
Location: UNPAC

Analysis Method: EPA 8015M
Prep Method: EPA 3520

BLANK SPIKE/BLANK SPIKE DUPLICATE

Matrix: Water
Batch#: 45324
Units: ug/L
Diln Fac: 1

Prep Date: 12/17/98
Analysis Date: 12/22/98

BS Lab ID: QC87233

Analyte	Spike Added	BS	%Rec #	Limits
Diesel C10-C24	2475	1708	69	58-110
Surrogate	**%Rec**	**Limits**		
Hexacosane	105	53-136		

BSD Lab ID: QC87234

Analyte	Spike Added	BSD	%Rec #	Limits	RPD #	Limit
Diesel C10-C24	2475	1562	63	58-110	9	21
Surrogate	**%Rec**	**Limits**				
Hexacosane	99	53-136				

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits
RPD: 0 out of 1 outside limits
Spike Recovery: 0 out of 2 outside limits

System Monitoring Analytical Report and Chain-of-Custody Record January 1999

Curtis & Tompkins Ltd.

BTXE

Client: Burns & McDonnell
Project#: 96-071-1

Analysis Method: EPA 8021B
Prep Method: EPA 5030

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
137487-001	INFLUENT_GW	45841	01/10/99	01/21/99	01/21/99	
137487-002	MIDFLUENT_GW	45841	01/10/99	01/21/99	01/21/99	
137487-003	EFFLUENT_GW	45841	01/10/99	01/21/99	01/21/99	

Matrix: Water

Analyte Diln Fac:	Units	137487-001 1	137487-002 1	137487-003 1
Benzene	ug/L	2.9	<0.5	<0.5
Toluene	ug/L	<0.5	<0.5	<0.5
Ethylbenzene	ug/L	<0.5	<0.5	<0.5
m,p-Xylenes	ug/L	1.2	<0.5	<0.5
o-Xylene	ug/L	0.81	<0.5	<0.5
Surrogate				
Trifluorotoluene	%REC	124	119	117
Bromofluorobenzene	%REC	122	121	120

Lab #: 137487

BATCH QC REPORT

Curtis & Tompkins, Ltd.

BTXE

Client: Burns & McDonnell
Project#: 96-071-1

Analysis Method: EPA 8021B
Prep Method: EPA 5030

METHOD BLANK

Matrix: Water
Batch#: 45841
Units: ug/L
Diln Fac: 1

Prep Date: 01/20/99
Analysis Date: 01/20/99

MB Lab ID: QC89271

Analyte	Result
Benzene	<0.5
Toluene	<0.5
Ethylbenzene	<0.5
m,p-Xylenes	<0.5
o-Xylene	<0.5

Surrogate	%Rec	Recovery Limits
Trifluorotoluene	113	53-124
Bromofluorobenzene	111	41-142

Lab #: 137487

BATCH QC REPORT

Curtis & Tompkins Ltd.

BTXE

Client: Burns & McDonnell
Project#: 96-071-1

Analysis Method: EPA 8021B
Prep Method: EPA 5030

BLANK SPIKE/BLANK SPIKE DUPLICATE

Matrix: Water
Batch#: 45841
Units: ug/L
Diln Fac: 1

Prep Date: 01/20/99
Analysis Date: 01/20/99

BS Lab ID: QC89269

Analyte	Spike Added	BS	%Rec #	Limits
Benzene	20	19.72	99	69-109
Toluene	20	19.3	97	72-116
Ethylbenzene	20	20.24	101	67-120
m,p-Xylenes	40	40.6	102	69-117
o-Xylene	20	20.14	101	75-122

Surrogate	%Rec	Limits
Trifluorotoluene	113	53-124
Bromofluorobenzene	115	41-142

BSD Lab ID: QC89270

Analyte	Spike Added	BSD	%Rec #	Limits	RPD #	Limit
Benzene	20	19.75	99	69-109	0	11
Toluene	20	19.16	96	72-116	1	11
Ethylbenzene	20	20.24	101	67-120	0	12
m,p-Xylenes	40	40.58	101	69-117	0	11
o-Xylene	20	19.95	100	75-122	1	12

Surrogate	%Rec	Limits
Trifluorotoluene	111	53-124
Bromofluorobenzene	112	41-142

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits
RPD: 0 out of 5 outside limits
Spike Recovery: 0 out of 10 outside limits

Curtis & Tompkins, Ltd.

TEH-Tot Ext Hydrocarbons

Client: Burns & McDonnell
Project#: 96-071-1

Analysis Method: EPA 8015M
Prep Method: EPA 3520

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
137487-001	INFLUENT_GW	45711	01/10/99	01/12/99	01/15/99	
137487-003	EFFLUENT_GW	45711	01/10/99	01/12/99	01/15/99	

Matrix: Water

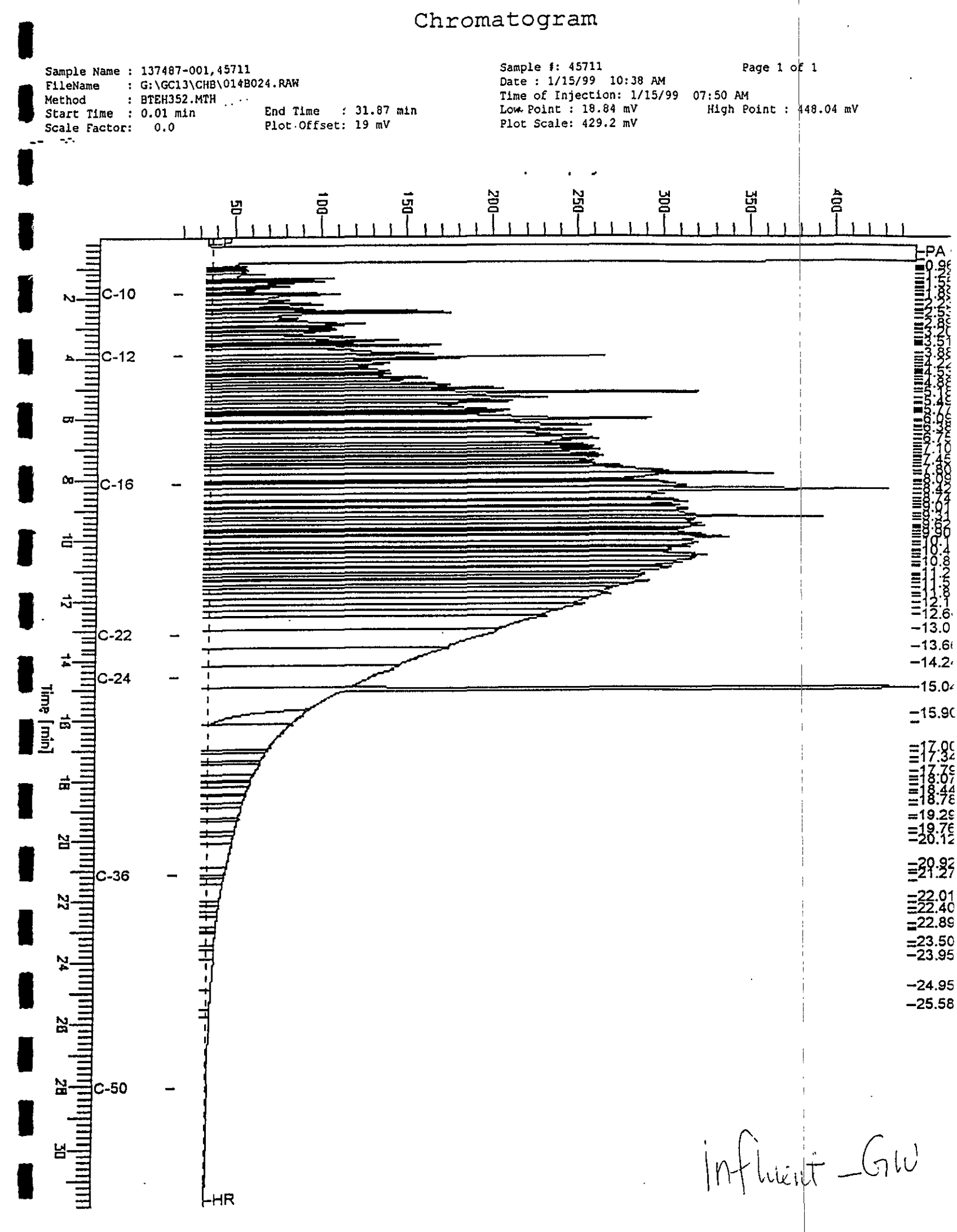
Analyte	Units	137487-001	137487-003
Diln Fac:		1	1
Diesel C10-C24	ug/L	12000 YH	<47
Surrogate			
Hexacosane	%REC	79	91

Y: Sample exhibits fuel pattern which does not resemble standard
H: Heavier hydrocarbons than indicated standard

Chromatogram

Sample Name : 137487-001,45711
FileName : G:\GC13\CHB\014B024.RAW
Method : BTEH352.MTH
Start Time : 0.01 min End Time : 31.87 min
Scale Factor: 0.0 Plot Offset: 19 mV

Sample #: 45711 Page 1 of 1
Date : 1/15/99 10:38 AM
Time of Injection: 1/15/99 07:50 AM
Low Point : 18.84 mV High Point : 448.04 mV
Plot Scale: 429.2 mV

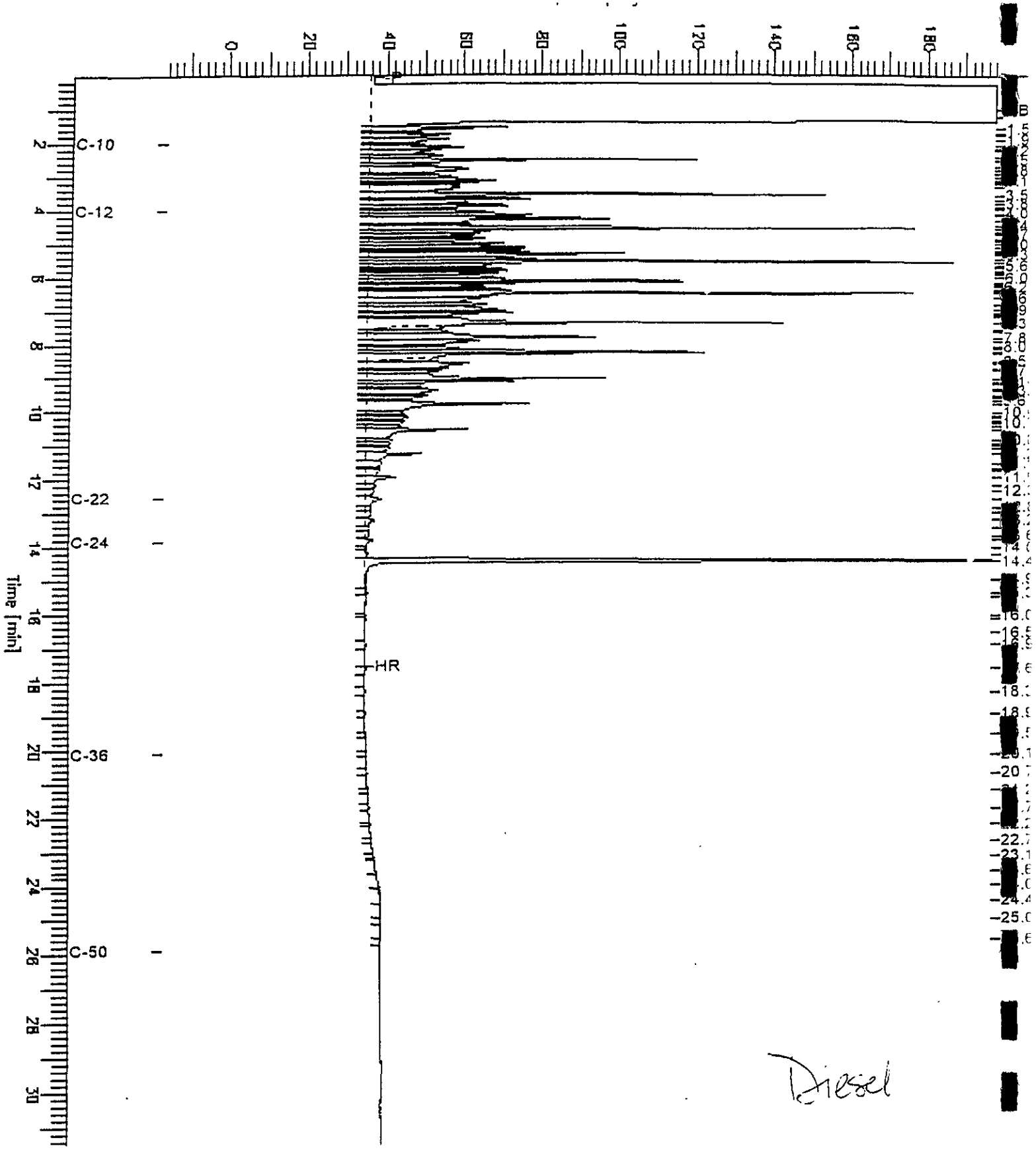


influent - GW

GC15 Channel B TEH

Sample Name : ccv,98ws6771;ds
FileName : C:\GC15\CHB\014B016.RAW
Method : B004TEH.MT1
Start Time : 0.01 min End Time : 31.91 min
Scale Factor: 0.0 Plot Offset: -1n mV

Sample #: 500mg/l
Date : 1/15/99 11:48 AM
Time of Injection: 1/14/99 10:39 PM
Low Point : -16.31 mV High Point : 198.06 mV
Plot Scale: 214.4 mV



TEH-Tot Ext Hydrocarbons

Client:	Burns & McDonnell	Analysis Method:	EPA 8015M
Project#:	96-071-1	Prep Method:	EPA 3520

METHOD BLANK

Matrix:	Water	Prep Date:	01/12/99
Batch#:	45711	Analysis Date:	01/15/99
Units:	ug/L		
Diln Fac:	1		

MB Lab ID: QC88753

Analyte	Result	
Diesel C10-C24	<50	
Surrogate	**%Rec**	**Recovery Limits**
Hexacosane	84	53-136

Lab #: 137487

BATCH QC REPORT

Curtis & Tompkins, Ltd.

TEH-Tot Ext Hydrocarbons

Client:	Burns & McDonnell	Analysis Method:	EPA 8015M
Project#:	96-071-1	Prep Method:	EPA 3520

BLANK SPIKE/BLANK SPIKE DUPLICATE

Matrix:	Water	Prep Date:	01/12/99
Batch#:	45711	Analysis Date:	01/15/99
Units:	ug/L		
Diln Fac:	1		

BS Lab ID: QC88754

Analyte	Spike Added	BS	%Rec	#	Limits
Diesel C10-C24	2475	1546	62		58-110

Surrogate	%Rec	Limits
Hexacosane	96	53-136

BSD Lab ID: QC88755

Analyte	Spike Added	BSD	%Rec	#	Limits	RPD	#	Limit
Diesel C10-C24	2475	1547	63		58-110	0		21

Surrogate	%Rec	Limits
Hexacosane	85	53-136

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits
RPD: 0 out of 1 outside limits
Spike Recovery: 0 out of 2 outside limits

137987

Request for Chemical Analysis and Chain of Custody Record

Burns & McDonnell Waste Consultants, Inc.
9400 Ward Parkway
Kansas City, Missouri 64114
Phone: (816) 333-8787 Fax: (816) 822-3463

Laboratory
Address
City/State/Zip
Telephone

Document Control No.: 011991

Lab. Reference No. or Episode No.:

Attention:

Project Number:

Project Name:

Site, Group, or SWMU Name:

Sample Number		Sample Event		Sample Depth (in feet)		Sample Collected		Sample Type: Matrix					Number of Containers	Analysis							Remarks
Sample Point	Sample Designator	Round	Year	From	To	Date	Time	Liquid	Solid	Gas	Composite	Grab									

Sampler (signature):

Sampler (signature):

Special Instructions:

Relinquished By: 1. (signature):	Date/Time	Received By: (signature):	Date/Time	Condition of Shipping Container: Good ☐ Fair ☐ Poor ☐	Ice Present in Container: Yes ☐ No ☐
Relinquished By: 2. (signature):	Date/Time	Received By: (signature).	Date/Time 4/14	Comments:	

061996 Form WCI-OP1

System Monitoring Analytical Report and Chain-of-Custody Record February 1999

Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878
2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900, Fax (510) 486-0532

ANALYTICAL REPORT

Prepared for:

Camp, Dresser & McKee
1 Walnut Creek Center
100 Pringle Ave, Suite 300
Walnut Creek, CA 94596

Date: 02-MAR-99
Lab Job Number: 138084
Project ID: 10605
Location: Port Of Oakland

Reviewed by: _____

Reviewed by: _____

CHAIN OF CUSTODY FORM

Curtis & Tompkins, Ltd.
Analytical Laboratories, Since 1878
2323 Fifth Street
Berkeley, CA 94710
(510) 486-0900 Phone
(510) 486-0532 Fax

C&T LOGIN # 138084

Sampler: JOSCOTT

Project No: 10605

Report To: JOSCOTT

Project Name: Port -TS09

Company: CDM

Project P.O.:

Telephone: (925) 933-8071

Turnaround Time: 10 day

Fax: 933-4174

Lab Number	Sample ID.	Sampling Date Time	Matrix: Soil	Matrix: Water	Matrix: Waste	# of Containers	Preservative: HCl	Preservative: H_2SO_4	Preservative: HNO_3	Preservative: ICE	Field Notes	Analyses: BTEX - 8020
	PORT-MID	2/23/930		✓		3	✓			✓		✓

Notes:

RELINQUISHED BY:	RECEIVED BY:
2/23 @ 955 DATE/TIME	2/23 955 DATE/TIME
DATE/TIME	DATE/TIME
DATE/TIME	DATE/TIME

Signature on this form constitutes a firm Purchase Order for the services requested above.

Curtis & Tompkins Ltd.

BTXE

Client: Camp, Dresser & McKee
Project#: 10605
Location: Port Of Oakland

Analysis Method: EPA 8021B
Prep Method: EPA 5030

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
138084-001	PORT-MID	46463	02/23/99	02/24/99	02/24/99	

Matrix: Water

Analyte	Units	138084-001
Diln Fac:		1
Benzene	ug/L	<0.5
Toluene	ug/L	<0.5
Ethylbenzene	ug/L	<0.5
m,p-Xylenes	ug/L	<0.5
o-Xylene	ug/L	<0.5
Surrogate		
Trifluorotoluene	%REC	90
Bromofluorobenzene	%REC	91

Lab #: 138084

BATCH QC REPORT

Curtis & Tompkins Ltd.

BTXE

Client: Camp, Dresser & McKee
Project#: 10605
Location: Port Of Oakland

Analysis Method: EPA 8021B
Prep Method: EPA 5030

METHOD BLANK

Matrix: Water
Batch#: 46463
Units: ug/L
Diln Fac: 1

Prep Date: 02/24/99
Analysis Date: 02/24/99

MB Lab ID: QC91611

Analyte	Result
Benzene	<0.5
Toluene	<0.5
Ethylbenzene	<0.5
m,p-Xylenes	<0.5
o-Xylene	<0.5

Surrogate	%Rec	Recovery Limits
Trifluorotoluene	87	51-143
Bromofluorobenzene	87	37-146

Lab #: 138084

BATCH QC REPORT

Curtis & Tompkins Ltd.

BTXE

Client: Camp, Dresser & McKee
Project#: 10605
Location: Port Of Oakland

Analysis Method: EPA 8021B
Prep Method: EPA 5030

LABORATORY CONTROL SAMPLE

Matrix: Water
Batch#: 46463
Units: ug/L
Diln Fac: 1

Prep Date: 02/24/99
Analysis Date: 02/24/99

LCS Lab ID: QC91610

Analyte	Result	Spike Added	%Rec #	Limits
Benzene	18.19	20	91	65-111
Toluene	17.85	20	89	76-117
Ethylbenzene	18.37	20	92	71-121
m,p-Xylenes	37.52	40	94	80-123
o-Xylene	17.94	20	90	75-127

Surrogate	%Rec	Limits
Trifluorotoluene	86	51-143
Bromofluorobenzene	87	37-146

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits
Spike Recovery: 0 out of 5 outside limits

Lab #: 138084

BATCH QC REPORT

Curtis & Tompkins Ltd.

BTXE

Client: Camp, Dresser & McKee
Project#: 10605
Location: Port Of Oakland

Analysis Method: EPA 8021B
Prep Method: EPA 5030

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Field ID: PORT-MID
Lab ID: 138084-001
Matrix: Water
Batch#: 46463
Units: ug/L
Diln Fac: 1

Sample Date: 02/23/99
Received Date: 02/23/99
Prep Date: 02/24/99
Analysis Date: 02/24/99

MS Lab ID: QC91612

Analyte	Spike Added	Sample	MS	%Rec #	Limits
Benzene	20	<0.5	18.91	95	55-122
Toluene	20	<0.5	18.65	93	63-139
Ethylbenzene	20	<0.5	19.19	96	61-137
m,p-Xylenes	40	<0.5	39.35	98	57-148
o-Xylene	20	<0.5	18.87	94	70-141

Surrogate	%Rec	Limits
Trifluorotoluene	92	51-143
Bromofluorobenzene	94	37-146

MSD Lab ID: QC91613

Analyte	Spike Added	MSD	%Rec #	Limits	RPD #	Limit
Benzene	20	18.91	95	55-122	0	10
Toluene	20	18.57	93	63-139	0	10
Ethylbenzene	20	18.92	95	61-137	1	10
m,p-Xylenes	40	38.69	97	57-148	2	10
o-Xylene	20	18.56	93	70-141	2	10

Surrogate	%Rec	Limits
Trifluorotoluene	92	51-143
Bromofluorobenzene	93	37-146

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits
RPD: 0 out of 5 outside limits
Spike Recovery: 0 out of 10 outside limits

System Monitoring Analytical Report and Chain-of-Custody Record March 1999

Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878
2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900, Fax (510) 486-0532

A N A L Y T I C A L R E P O R T

Prepared for:

Camp, Dresser & McKee
1 Walnut Creek Center
100 Pringle Ave, Suite 300
Walnut Creek, CA 94596

Date: 23-MAR-99
Lab Job Number: 138366
Project ID: N/A
Location: Port TS0-19

Reviewed by: _____

Reviewed by: _____

CHAIN OF CUSTODY FORM

Curtis & Tompkins, Ltd.
Analytical Laboratories, Since 1878
2323 Fifth Street
Berkeley, CA 94710
(510) 486-0900 Phone
(510) 486-0532 Fax

C&T LOGIN # 139366

Sampler: VOSCOTT

Project No:

Project Name: Port

Project P.O.: TSO-19

Turnaround Time:

Report To: VOSCOTT

Company: COM

Telephone: (925) 296-8071

Fax: (925) 933-474

Analyses

8020 BTEX ✓

Lab Number	Sample ID.	Sampling Date Time	Matrix: Soil	Water	Waste	# of Containers	Preservative: HCl	H_2SO_4	HNO_3	ICE		Field Notes
	Port-Mid	3/10 @ 930		✓		3	✓			✓		

Notes:

RELINQUISHED BY:

Scott 3/10 @ 945 DATE/TIME

DATE/TIME

DATE/TIME

RECEIVED BY:

M Lawrence 3/10/99 0945 DATE/TIME

DATE/TIME

DATE/TIME

Signature on this form constitutes a firm Purchase Order for the services requested above.

BTXE

Client: Camp, Dresser & McKee
Location: Port TS0-19

Analysis Method: EPA 8021B
Prep Method: EPA 5030

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
138366-001	PORT-MID	46812	03/10/99	03/16/99	03/16/99	

Matrix: Water

Analyte	Units	138366-001
Diln Fac:		1
Benzene	ug/L	<0.5
Toluene	ug/L	<0.5
Ethylbenzene	ug/L	<0.5
m,p-Xylenes	ug/L	<0.5
o-Xylene	ug/L	<0.5
Surrogate		
Trifluorotoluene	%REC	95
Bromofluorobenzene	%REC	96

BTXE	
Client: Camp, Dresser & McKee	Analysis Method: EPA 8021B
Location: Port TSO-19	Prep Method: EPA 5030
METHOD BLANK	
Matrix: Water	Prep Date: 03/16/99
Batch#: 46812	Analysis Date: 03/16/99
Units: ug/L	
Diln Fac: 1	

MB Lab ID: QC92922

Analyte	Result
Benzene	<0.5
Toluene	<0.5
Ethylbenzene	<0.5
m,p-Xylenes	<0.5
o-Xylene	<0.5

Surrogate	%Rec	Recovery Limits
Trifluorotoluene	85	51-143
Bromofluorobenzene	85	37-146

Lab #: 138366 BATCH QC REPORT Page 1 of 1

BTXE

Client: Camp, Dresser & McKee
Location: Port TS0-19

Analysis Method: EPA 8021B
Prep Method: EPA 5030

LABORATORY CONTROL SAMPLE

Matrix: Water
Batch#: 46812
Units: ug/L
Diln Fac: 1

Prep Date: 03/16/99
Analysis Date: 03/16/99

LCS Lab ID: QC92921

Analyte	Result	Spike Added	%Rec #	Limits
Benzene	18.23	20	91	65-111
Toluene	18.33	20	92	76-117
Ethylbenzene	18.21	20	91	71-121
m,p-Xylenes	33.94	40	85	80-123
o-Xylene	16.98	20	85	75-127

Surrogate	%Rec	Limits
Trifluorotoluene	85	51-143
Bromofluorobenzene	86	37-146

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits
Spike Recovery: 0 out of 5 outside limits

BTXE

Client: Camp, Dresser & McKee
Location: Port TS0-19

Analysis Method: EPA 8021B
Prep Method: EPA 5030

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Field ID: ZZZZZZ
Lab ID: 138335-005
Matrix: Water
Batch#: 46812
Units: ug/L
Diln Fac: 1

Sample Date: 03/08/99
Received Date: 03/08/99
Prep Date: 03/16/99
Analysis Date: 03/16/99

MS Lab ID: QC92925

Analyte	Spike Added	Sample	MS	%Rec #	Limits
Benzene	20	27.5	44.31	84	55-122
Toluene	20	3.19	24.12	105	63-139
Ethylbenzene	20	9.22	28.98	99	61-137
m,p-Xylenes	40	11.14	49.01	95	57-148
o-Xylene	20	2.09	21.16	95	70-141

Surrogate	%Rec	Limits
Trifluorotoluene	96	51-143
Bromofluorobenzene	96	37-146

MSD Lab ID: QC92926

Analyte	Spike Added	MSD	%Rec #	Limits	RPD #	Limit
Benzene	20	43.89	82	55-122	1	10
Toluene	20	24.18	105	63-139	0	10
Ethylbenzene	20	28.8	98	61-137	1	10
m,p-Xylenes	40	48.8	94	57-148	0	10
o-Xylene	20	21.13	95	70-141	0	10

Surrogate	%Rec	Limits
Trifluorotoluene	95	51-143
Bromofluorobenzene	94	37-146

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits
RPD: 0 out of 5 outside limits
Spike Recovery: 0 out of 10 outside limits

System Monitoring Analytical Report and Chain-of-Custody Record April 1999

Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878
2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900, Fax (510) 486-0532

ANALYTICAL REPORT

Prepared for:

Camp, Dresser & McKee
1 Walnut Creek Center
100 Pringle Ave, Suite 300
Walnut Creek, CA 94596

Date: 06-MAY-99
Lab Job Number: 139027
Project ID: 10605
Location: Port Of Oakland

Reviewed by: _____

Reviewed by: _____

Curtis & Tompkins, Ltd.

Laboratory Number: **139027**
Client: **Camp, Dresser & McKee**
Project#: **10605**
Location: **Port of Oakland**

Receipt Date: **4/21/99**

TSO#: **19**

CASE NARRATIVE

This hardcopy data package contains sample and QC results for three water samples that were received by the laboratory on April 21, 1999. All samples were received cold and intact.

BTXE: No analytical problems were encountered.

Total Extractable Hydrocarbons: All extracts were treated with silica gel prior to analysis. No analytical problems were encountered.

CHAIN OF CUSTODY FORM

Curtis & Tompkins, Ltd.
Analytical Laboratories, Since 1878
2323 Fifth Street
Berkeley, CA 94710
(510) 486-0900 Phone
(510) 486-0532 Fax

C&T LOGIN # 13907

Sampler: Vossoff

Report To: Vossoff

Company: CDM

Telephone: 925-296-8071

Fax: 925-933-4174

Project No: 10605

Project Name: Port TS09

Project P.O.: TS09

Turnaround Time: Standard

Lab Number	Sample ID.	Sampling Date Time	Matrix: Soil	Matrix: Water	Matrix: Waste	# of Containers	Preservative: HCl	Preservative: H_2SO_4	Preservative: HNO_3	Preservative: ICE	Field Notes	Analyses: TPH-D	Analyses: BTEX	Analyses: 8015 M w silica gel	Analyses: 8021
	INFLUENT	4/21 1550		✓		4	✓					✓	✓		
	MIDPOINT	1555		✓		3	✓						✓		
	EFFLUENT	1600		✓		3	✓						✓		

Laboratory Use Only

Notes:

TS0 19
Port of Oakland

TEMP RECEIVED: 4.0 °C

RECEIVED BY:

RELINQUISHED BY:	RECEIVED BY:
4/21 @ 1620 DATE/TIME	4/21 @ 1620 DATE/TIME
DATE/TIME	DATE/TIME
DATE/TIME	DATE/TIME

Signature on this form constitutes a firm Purchase Order for the services requested above.

BTXE

Client: Camp, Dresser & McKee
Project#: 10605
Location: Port Of Oakland

Analysis Method: EPA 8021B
Prep Method: EPA 5030

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
139027-001	INFLUENT	47645	04/21/99	04/26/99	04/26/99	
139027-002	MIDPOINT	47645	04/21/99	04/26/99	04/26/99	
139027-003	EFFLUENT	47645	04/21/99	04/26/99	04/26/99	

Matrix: Water

Analyte Diln Fac:	Units	139027-001 1	139027-002 1	139027-003 1
Benzene	ug/L	0.75	<0.5	<0.5
Toluene	ug/L	<0.5	<0.5	<0.5
Ethylbenzene	ug/L	<0.5	<0.5	<0.5
m,p-Xylenes	ug/L	<0.5	<0.5	<0.5
o-Xylene	ug/L	<0.5	<0.5	<0.5
Surrogate				
Trifluorotoluene	%REC	78	81	81
Bromofluorobenzene	%REC	78	82	85

Curtis & Tompkins, Ltd.

Lab #: 139027

BATCH QC REPORT

BTXE

Client: Camp, Dresser & McKee
Project#: 10605
Location: Port Of Oakland

Analysis Method: EPA 8021B
Prep Method: EPA 5030

METHOD BLANK

Matrix: Water
Batch#: 47645
Units: ug/L
Diln Fac: 1

Prep Date: 04/26/99
Analysis Date: 04/26/99

MB Lab ID: QC96053

Analyte	Result
Benzene	<0.5
Toluene	<0.5
Ethylbenzene	<0.5
m,p-Xylenes	<0.5
o-Xylene	<0.5

Surrogate	%Rec	Recovery Limits
Trifluorotoluene	80	51-143
Bromofluorobenzene	80	37-146

Lab #: 139027

BATCH QC REPORT

Curtis & Tompkins, Ltd.

BTXE

Client: Camp, Dresser & McKee
Project#: 10605
Location: Port Of Oakland

Analysis Method: EPA 8021B
Prep Method: EPA 5030

LABORATORY CONTROL SAMPLE

Matrix: Water
Batch#: 47645
Units: ug/L
Diln Fac: 1

Prep Date: 04/26/99
Analysis Date: 04/26/99

LCS Lab ID: QC96052

Analyte	Result	Spike Added	%Rec #	Limits
Benzene	16.91	20	85	65-111
Toluene	18.17	20	91	76-117
Ethylbenzene	18.13	20	91	71-121
m,p-Xylenes	37.73	40	94	80-123
o-Xylene	17.76	20	89	75-127

Surrogate	%Rec	Limits
Trifluorotoluene	87	51-143
Bromofluorobenzene	88	37-146

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits
Spike Recovery: 0 out of 5 outside limits

Lab #: 139027

BATCH QC REPORT

Curtis & Tompkins, Ltd.

BTXE

Client: Camp, Dresser & McKee
Project#: 10605
Location: Port Of Oakland

Analysis Method: EPA 8021B
Prep Method: EPA 5030

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Field ID: ZZZZZZ
Lab ID: 139084-010
Matrix: Water
Batch#: 47645
Units: ug/L
Diln Fac: 1

Sample Date: 04/23/99
Received Date: 04/23/99
Prep Date: 04/26/99
Analysis Date: 04/26/99

MS Lab ID: QC96054

Analyte	Spike Added	Sample	MS	%Rec #	Limits
Benzene	20	<0.5	18.07	90	55-122
Toluene	20	<0.5	20.19	101	63-139
Ethylbenzene	20	<0.5	19.79	99	61-137
m,p-Xylenes	40	0.7	41.55	102	57-148
o-Xylene	20	<0.5	19.48	97	70-141

Surrogate	%Rec	Limits
Trifluorotoluene	85	51-143
Bromofluorobenzene	88	37-146

MSD Lab ID: QC96055

Analyte	Spike Added	MSD	%Rec #	Limits	RPD #	Limit
Benzene	20	18.17	91	55-122	1	10
Toluene	20	19.85	99	63-139	2	10
Ethylbenzene	20	19.95	100	61-137	1	10
m,p-Xylenes	40	41.94	103	57-148	1	10
o-Xylene	20	19.75	99	70-141	1	10

Surrogate	%Rec	Limits
Trifluorotoluene	85	51-143
Bromofluorobenzene	87	37-146

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits
RPD: 0 out of 5 outside limits
Spike Recovery: 0 out of 10 outside limits

TEH-Tot Ext Hydrocarbons

Client: Camp, Dresser & McKee
Project#: 10605
Location: Port Of Oakland

Analysis Method: EPA 8015M
Prep Method: EPA 3520

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
139027-001	INFLUENT	47606	04/21/99	04/22/99	04/26/99	
139027-003	EFFLUENT	47606	04/21/99	04/22/99	04/26/99	

Matrix: Water

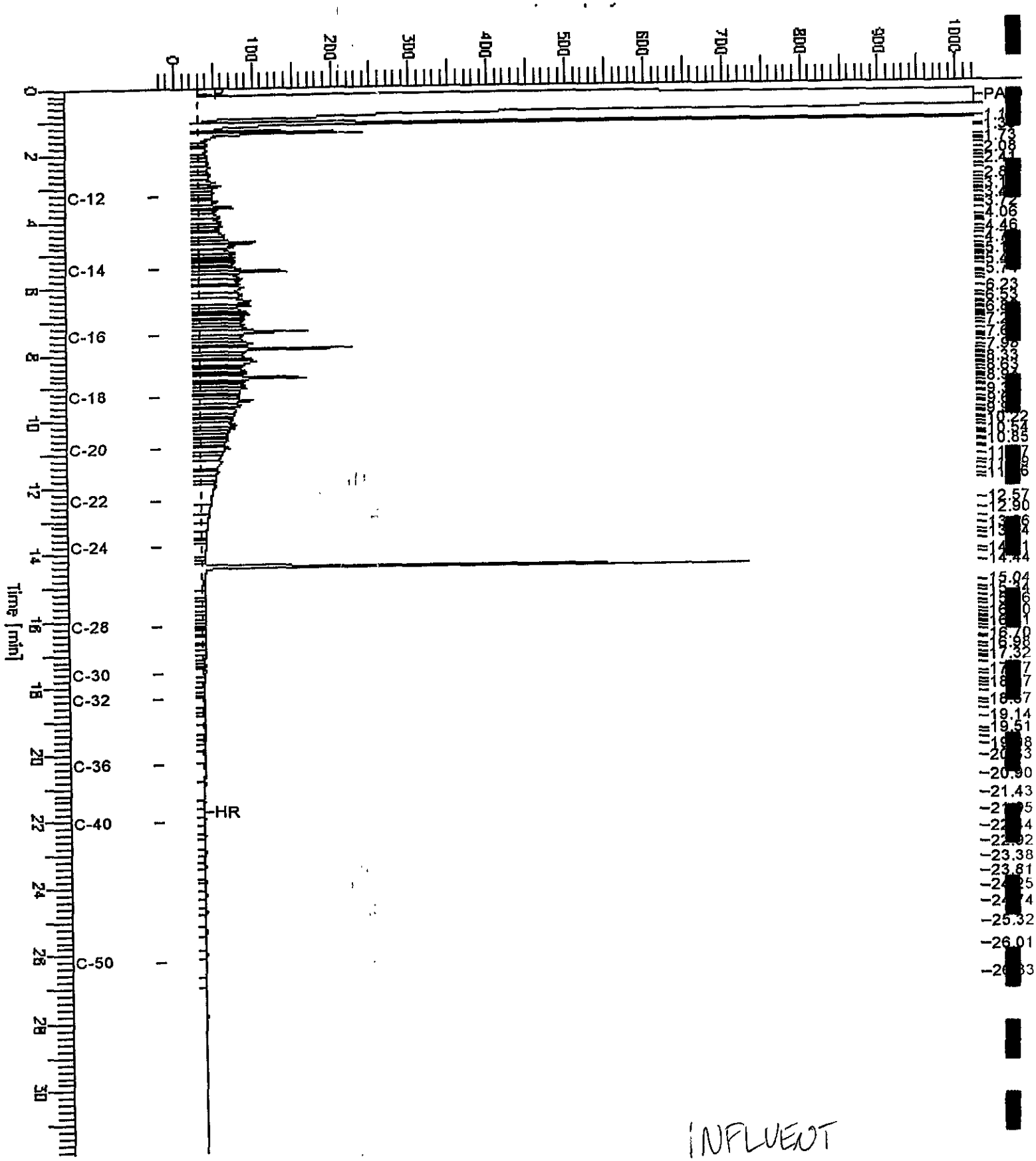
Analyte	Units	139027-001		139027-003
Diln Fac:		1		1
Diesel C10-C24	ug/L	2400	YLH	<50
Motor Oil C24-C36	ug/L	<300		<300
Hydraulic Fluid,C22-50	ug/L	<300		<300
Surrogate				
Hexacosane	%REC	89		89

Y: Sample exhibits fuel pattern which does not resemble standard
H: Heavier hydrocarbons than indicated standard
L: Lighter hydrocarbons than indicated standard

Chromatogram

Sample Name : 139027-001sg,47606
FileName : G:\GC13\CHB\116B009.RAW
Method : BTEH015X.MTH
Start Time : 0.00 min End Time : 31.90 min
Scale Factor: 0.0 Plot Offset: -22 mV

Sample #: 47606 Page 1 of 1
Date : 4/27/99 08:10 AM
Time of Injection: 4/26/99 08:39 PM
Low Point : -21.92 mV High Point : 1024.00 mV
Plot Scale: 1045.9 mV



INFLUENT

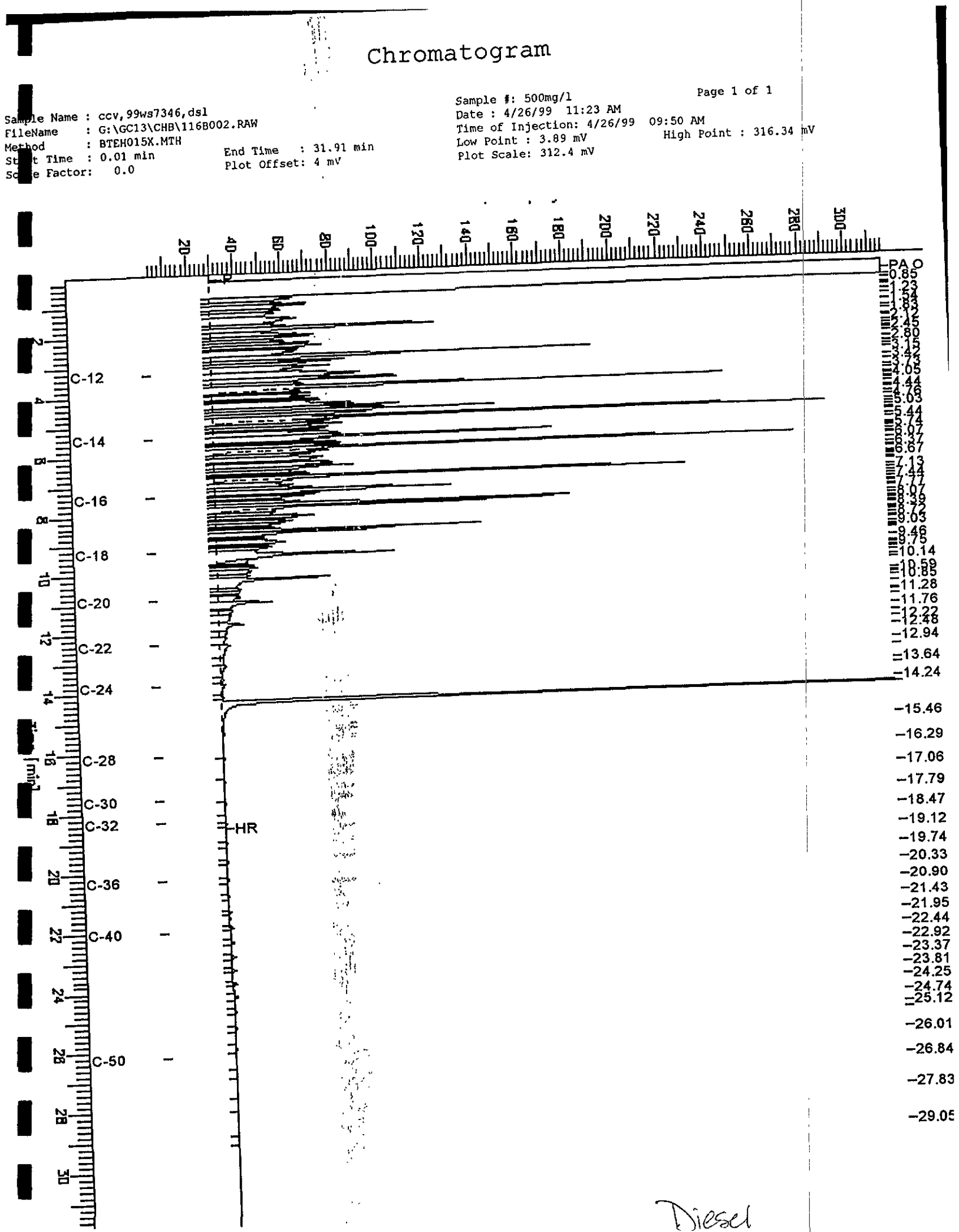
Chromatogram

Sample Name : ccv,99ws7346,dsl
FileName : G:\GC13\CHB\116B002.RAW
Method : BTEH015X.MTH
Start Time : 0.01 min
Scale Factor: 0.0

End Time : 31.91 min
Plot Offset: 4 mV

Sample #: 500mg/l
Date : 4/26/99 11:23 AM
Time of Injection: 4/26/99 09:50 AM
Low Point : 3.89 mV
Plot Scale: 312.4 mV

High Point : 316.34 mV

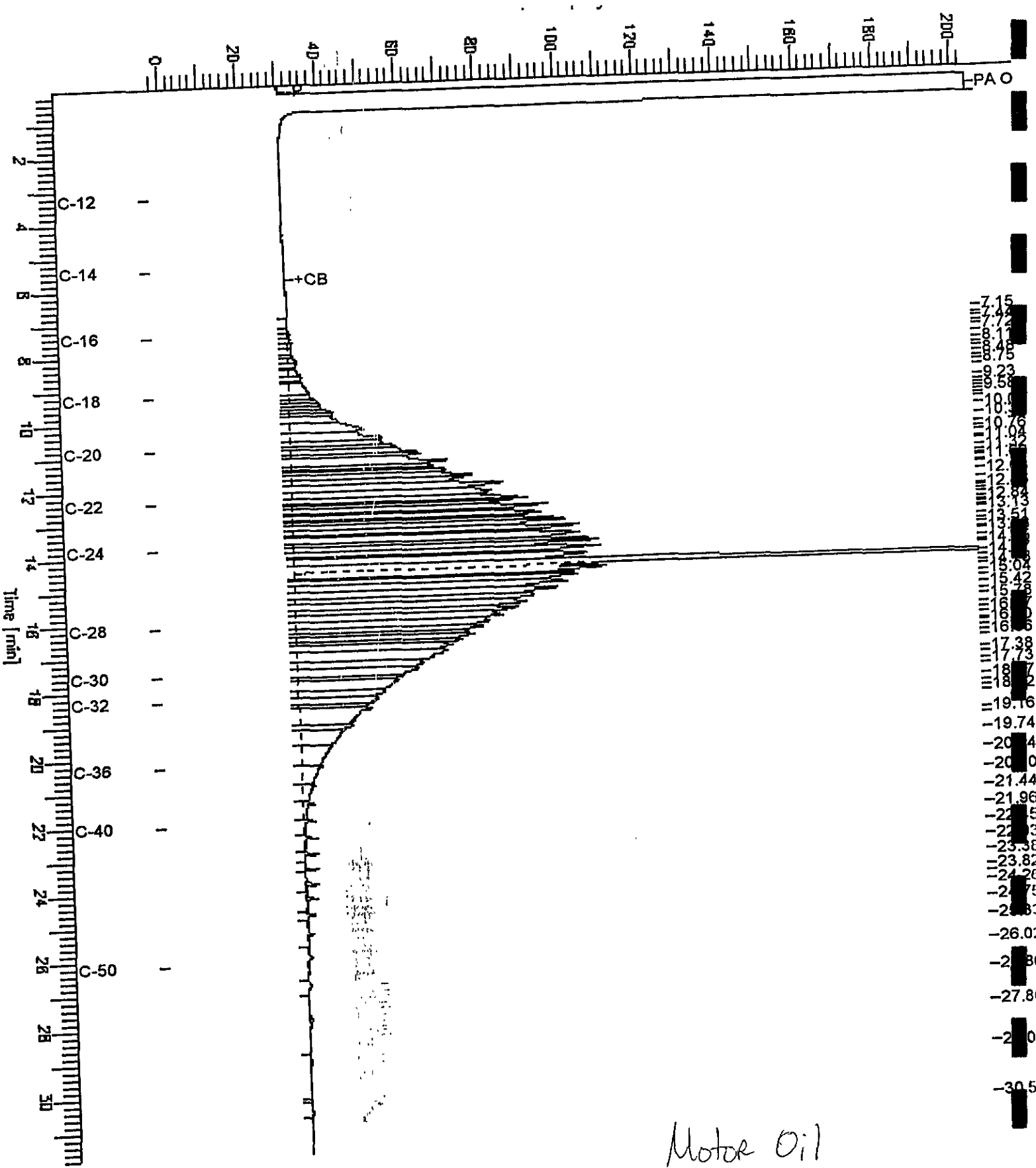


Chromatogram

Sample Name : ccv,99ws7423,mo
FileName : G:\GC13\CHB\116B007.RAW
Method : BTEH015X.MTH
Start Time : 0.01 min
Scale Factor: 0.0

End Time : 31.3[illegible] min
Plot Offset: -3 nV

Sample #: 500mg/l
Date : 4/27/99 08:05 AM
Time of Injection: 4/26/99 07:16 PM
Low Point : -3.05 mV
High Point : 203.96 mV
Plot Scale: 207.0 mV



Motor Oil

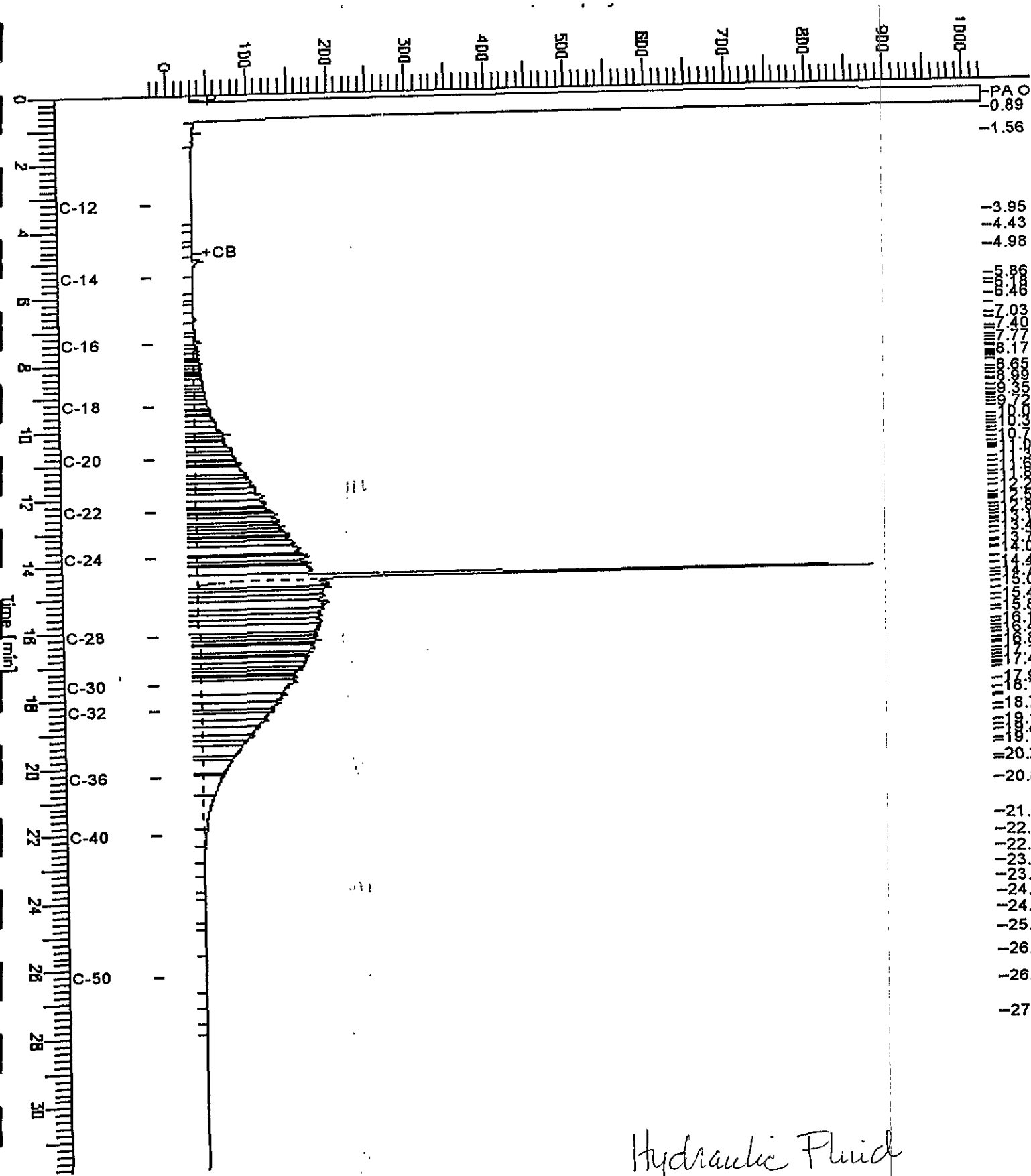
Chromatogram

mple Name : ccv,98ws6799
FileName : G:\GC13\CHB\116B008.RAW
Method : BTEH015X.MTH
Start Time : 0.00 min
ale Factor: 0.0

End Time : 31.90 min
Plot Offset: 22 mV

Sample #: 1250mg/l
Date : 4/27/99 08:08 AM
Time of Injection: 4/26/99 07:57 PM
Low Point : -21.93 mV
Plot Scale: 1045.9 mV

High Point : 1024.00 mV



Hydraulic Fluid

TEH-Tot Ext Hydrocarbons

Client: Camp, Dresser & McKee
Project#: 10605
Location: Port Of Oakland

Analysis Method: EPA 8015M
Prep Method: EPA 3520

METHOD BLANK

Matrix: Water
Batch#: 47606
Units: ug/L
Diln Fac: 1

Prep Date: 04/22/99
Analysis Date: 04/26/99

MB Lab ID: QC95906

Analyte	Result
Diesel C10-C24	<50
Motor Oil C24-C36	<300
Hydraulic Fluid,C22-50	<300

Surrogate	%Rec	Recovery Limits
Hexacosane	84	58-128

Lab #: 139027

BATCH QC REPORT

TEH-Tot Ext Hydrocarbons

Client: Camp, Dresser & McKee
Project#: 10605
Location: Port Of Oakland

Analysis Method: EPA 8015M
Prep Method: EPA 3520

BLANK SPIKE/BLANK SPIKE DUPLICATE

Matrix: Water
Batch#: 47606
Units: ug/L
Diln Fac: 1

Prep Date: 04/22/99
Analysis Date: 04/27/99

BS Lab ID: QC95907

Analyte	Spike Added	BS	%Rec	#	Limits
Diesel C10-C24	2475	1358	55		50-114
Surrogate	**%Rec**	**Limits**			
Hexacosane	75	58-128			

BSD Lab ID: QC95908

Analyte	Spike Added	BSD	%Rec	#	Limits	RPD	#	Limit
Diesel C10-C24	2475	1592	64		50-114	16		25
Surrogate	**%Rec**	**Limits**						
Hexacosane	78	58-128						

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits
RPD: 0 out of 1 outside limits
Spike Recovery: 0 out of 2 outside limits

System Monitoring Analytical Report and Chain-of-Custody Record May 1999

Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878
2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900, Fax (510) 486-0532

Laboratory Number 139232

Camp, Dresser & McKee
1 Walnut Creek Center
100 Pringle Ave, Suite 300
Walnut Creek, CA 94596

Project#: 10605
Location: Port Of Oakland

Sample ID	Lab ID
MIDPOINT	139232-001

I certify that this data package has been reviewed for technical correctness and completeness. Please see attached narrative for a discussion of any analytical problems related to this sample set. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signatures.

Signature: _____ Date: 5.11.99
Title: Operations Manager

Signature: _____ Date: 11 May 99
Title: Project Manager

Curtis & Tompkins, Ltd.

Laboratory Number: 139232 **Received Date: 05/04/99**
Client: Camp Dresser & McKee
Location: Port of Oakland
Project #: *10605*

CASE NARRATIVE

This hardcopy data package contains sample and QC results for one water sample that was received on May 4, 1999.

BTXE: No analytical problems were encountered.

CHAIN OF CUSTODY FORM

Page ___ of ___

Curtis & Tompkins, Ltd.
Analytical Laboratories, Since 1878
2323 Fifth Street
Berkeley, CA 94710
(510) 486-0900 Phone
(510) 486-0532 Fax

C&T LOGIN # 139232

Analyses

Sampler: VOSCOTT

Report To: VOSCOTT

Company: CDM

Telephone: 925-933-2900

Fax:

Project No: 10605

Project Name:

Project P.O.:

Turnaround Time:

Lab Number	Sample ID.	Sampling Date Time	Matrix: Soil	Water	Waste	# of Containers	Preservative: HCl	H_2SO_4	HNO_3	ICE	Field Notes
	MidPoint	5/4 @ 1630		✓		3	✓				

8020 BTEX ✓

Laboratory

Notes:

TSO 19

5.0 °C

RELINQUISHED BY:	RECEIVED BY:
5/4@1700 DATE/TIME	5/4/99 1700 DATE/TIME
DATE/TIME	DATE/TIME
DATE/TIME	DATE/TIME

Signature on this form constitutes a firm Purchase Order for the services requested above

BTXE

Client: Camp, Dresser & McKee
Project#: 10605
Location: Port Of Oakland

Analysis Method: EPA 8021B
Prep Method: EPA 5030

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
139232-001	MIDPOINT	47873	05/04/99	05/07/99	05/07/99	

Matrix: Water

Analyte	Units	139232-001
Diln Fac:		1
Benzene	ug/L	<0.5
Toluene	ug/L	<0.5
Ethylbenzene	ug/L	<0.5
m,p-Xylenes	ug/L	<0.5
o-Xylene	ug/L	<0.5
Surrogate		
Trifluorotoluene	%REC	82
Bromofluorobenzene	%REC	82

BATCH QC REPORT

Curtis & Tompkins, Ltd.

BTXE

Client: Camp, Dresser & McKee
Project#: 10605
Location: Port Of Oakland

Analysis Method: EPA 8021B
Prep Method: EPA 5030

METHOD BLANK

Matrix: Water
Batch#: 47873
Units: ug/L
Diln Fac: 1

Prep Date: 05/06/99
Analysis Date: 05/06/99

MB Lab ID: QC96897

Analyte	Result
Benzene	<0.5
Toluene	<0.5
Ethylbenzene	<0.5
m,p-Xylenes	<0.5
o-Xylene	<0.5

Surrogate	%Rec	Recovery Limits
Trifluorotoluene	65	51-143
Bromofluorobenzene	67	37-146

Lab #: 139232

BATCH QC REPORT

Curtis & Tompkins, Ltd.

BTXE

Client: Camp, Dresser & McKee
Project#: 10605
Location: Port Of Oakland

Analysis Method: EPA 8021B
Prep Method: EPA 5030

LABORATORY CONTROL SAMPLE

Matrix: Water
Batch#: 47873
Units: ug/L
Diln Fac: 1

Prep Date: 05/06/99
Analysis Date: 05/06/99

LCS Lab ID: QC96896

Analyte	Result	Spike Added	%Rec #	Limits
Benzene	14.39	20	72	65-111
Toluene	15.6	20	78	76-117
Ethylbenzene	15.84	20	79	71-121
m,p-Xylenes	32.88	40	82	80-123
o-Xylene	15.16	20	76	75-127

Surrogate	%Rec	Limits
Trifluorotoluene	70	51-143
Bromofluorobenzene	72	37-146

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits
Spike Recovery: 0 out of 5 outside limits

Lab #: 139232

BATCH QC REPORT

Curtis & Tompkins, Ltd.

BTXE

Client: Camp, Dresser & McKee
Project#: 10605
Location: Port Of Oakland

Analysis Method: EPA 8021B
Prep Method: EPA 5030

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Field ID: ZZZZZZ
Lab ID: 139235-003
Matrix: Water
Batch#: 47873
Units: ug/L
Diln Fac: 1

Sample Date: 05/05/99
Received Date: 05/05/99
Prep Date: 05/06/99
Analysis Date: 05/06/99

MS Lab ID: QC96898

Analyte	Spike Added	Sample	MS	%Rec #	Limits
Benzene	20	0.72	22.79	110	55-122
Toluene	20	0.77	21.88	106	63-139
Ethylbenzene	20	63.02	77	70	61-137
m,p-Xylenes	40	43.82	81.44	94	57-148
o-Xylene	20	<0.5	19.79	99	70-141

Surrogate	%Rec	Limits
Trifluorotoluene	91	51-143
Bromofluorobenzene	98	37-146

MSD Lab ID: QC96899

Analyte	Spike Added	MSD	%Rec #	Limits	RPD #	Limit
Benzene	20	21.99	106	55-122	4	10
Toluene	20	21.84	105	63-139	0	10
Ethylbenzene	20	75.22	61	61-137	2	10
m,p-Xylenes	40	80.14	91	57-148	2	10
o-Xylene	20	19.82	99	70-141	0	10

Surrogate	%Rec	Limits
Trifluorotoluene	89	51-143
Bromofluorobenzene	97	37-146

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits
RPD: 0 out of 5 outside limits
Spike Recovery: 0 out of 10 outside limits

System Monitoring Analytical Report and Chain-of-Custody Record June 1999

Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878
2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900, Fax (510) 486-0532

A N A L Y T I C A L R E P O R T

Prepared for:

Camp, Dresser & McKee
1 Walnut Creek Center
100 Pringle Ave, Suite 300
Walnut Creek, CA 94596

Date: 17-JUN-99
Lab Job Number: 139806
Project ID: 10605
Location: Port Of Oakland

Reviewed by: _____

Reviewed by: _____

CHAIN OF CUSTODY FORM

Curtis & Tompkins, Ltd.
Analytical Laboratory Since 1878
2323 Fifth Street
Berkeley, CA 94710
(510)486-0900 Phone
(510)486-0532 Fax

C&T LOGIN # 139806

Analyses

Sampler: VOSCOTT

Project No: 10605

Report To: U

Project Name: Port TS09

Company: COM

Project P.O.: TS019

Telephone: 933-2900

Turnaround Time: standard

Fax: 933-4174

Laboratory Number	Sample ID.	Sampling Date Time	Matrix: Soil	Water	Waste	# of Containers	Preservative: HCL	H_2SO	HNO_3	ICE		Field Notes	8020 BTEX
For Laboratory Use	MIDPOINT	6/9 945		✓		3	✓			✓			✓

Notes:

RELINQUISHED BY:

Signature — DATE/TIME 6/9 955

DATE/TIME

DATE/TIME

RECEIVED BY:

DATE/TIME 6/9 0955

DATE/TIME

DATE/TIME

BTXE

Client: Camp, Dresser & McKee
Project#: 10605
Location: Port Of Oakland

Analysis Method: EPA 8021B
Prep Method: EPA 5030

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
139806-001	MIDPOINT	48595	06/09/99	06/12/99	06/12/99	

Matrix: Water

Analyte	Units	139806-001
Diln Fac:		1
Benzene	ug/L	<0.5
Toluene	ug/L	<0.5
Ethylbenzene	ug/L	<0.5
m,p-Xylenes	ug/L	<0.5
o-Xylene	ug/L	<0.5
Surrogate		
Trifluorotoluene	%REC	103
Bromofluorobenzene	%REC	107

Lab #: 139806

BATCH QC REPORT

Curtis & Tompkins, Ltd.

BTXE	
Client: Camp, Dresser & McKee	Analysis Method: EPA 8021B
Project#: 10605	Prep Method: EPA 5030
Location: Port Of Oakland	

METHOD BLANK	
Matrix: Water	Prep Date: 06/11/99
Batch#: 48595	Analysis Date: 06/11/99
Units: ug/L	
Diln Fac: 1	

MB Lab ID: QC99724

Analyte	Result
Benzene	<0.5
Toluene	<0.5
Ethylbenzene	<0.5
m,p-Xylenes	<0.5
o-Xylene	<0.5

Surrogate	%Rec	Recovery Limits
Trifluorotoluene	103	51-143
Bromofluorobenzene	103	37-146

Curtis & Tompkins, Ltd.

Lab #: 139806

BATCH QC REPORT

BTXE

Client: Camp, Dresser & McKee
Project#: 10605
Location: Port Of Oakland

Analysis Method: EPA 8021B
Prep Method: EPA 5030

LABORATORY CONTROL SAMPLE

Matrix: Water
Batch#: 48595
Units: ug/L
Diln Fac: 1

Prep Date: 06/11/99
Analysis Date: 06/11/99

LCS Lab ID: QC99723

Analyte	Result	Spike Added	%Rec #	Limits
Benzene	16.27	20	81	65-111
Toluene	17.48	20	87	76-117
Ethylbenzene	17.52	20	88	71-121
m,p-Xylenes	35.68	40	89	80-123
o-Xylene	17.5	20	88	75-127

Surrogate	%Rec	Limits
Trifluorotoluene	91	51-143
Bromofluorobenzene	95	37-146

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits
Spike Recovery: 0 out of 5 outside limits

Lab #: 139806

BATCH QC REPORT

Curtis & Tompkins, Ltd.

BTXE

Client: Camp, Dresser & McKee
Project#: 10605
Location: Port Of Oakland

Analysis Method: EPA 8021B
Prep Method: EPA 5030

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Field ID: ZZZZZZ
Lab ID: 139741-002
Matrix: Water
Batch#: 48595
Units: ug/L
Diln Fac: 1

Sample Date: 06/01/99
Received Date: 06/04/99
Prep Date: 06/11/99
Analysis Date: 06/11/99

MS Lab ID: QC99725

Analyte	Spike Added	Sample	MS	%Rec #	Limits
Benzene	20	<0.5	17.11	86	55-122
Toluene	20	<0.5	18.1	91	63-139
Ethylbenzene	20	<0.5	18.06	90	61-137
m,p-Xylenes	40	<0.5	36.69	92	57-148
o-Xylene	20	<0.5	18.34	92	70-141

Surrogate	%Rec	Limits
Trifluorotoluene	109	51-143
Bromofluorobenzene	112	37-146

MSD Lab ID: QC99726

Analyte	Spike Added	MSD	%Rec #	Limits	RPD #	Limit
Benzene	20	17.56	88	55-122	3	10
Toluene	20	18.52	93	63-139	2	10
Ethylbenzene	20	18.63	93	61-137	3	10
m,p-Xylenes	40	37.83	95	57-148	3	10
o-Xylene	20	18.94	95	70-141	3	10

Surrogate	%Rec	Limits
Trifluorotoluene	105	51-143
Bromofluorobenzene	108	37-146

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits
RPD: 0 out of 5 outside limits
Spike Recovery: 0 out of 10 outside limits

Groundwater Monitoring Analytical Report and Chain-of-Custody Record February 1999

Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878
2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900, Fax (510) 486-0532

ANALYTICAL REPORT

Prepared for:

Camp, Dresser & McKee
1 Walnut Creek Center
100 Pringle Ave, Suite 300
Walnut Creek, CA 94596

Date: 03-MAR-99
Lab Job Number: 138022
Project ID: 10605-25291
Location: Port Of Oakland,U.P.GW

Reviewed by: _____

Reviewed by: _____

Curtis & Tompkins, Ltd.

Laboratory Number: **138022**
Client: **Camp, Dresser & McKee**
Location: **Port of Oakland, U.P. GW**
Project: **10605-25291**

Receipt Date: **2/17/99**

CASE NARRATIVE

This hardcopy data package contains sample and QC results for eleven water samples that were received on February 17, 1999. All samples were received cold and intact.

Total Volatile Hydrocarbons/BTXE: No analytical problems were encountered.

Total Extractable Hydrocarbons: All extracts were treated with silica gel prior to analysis. No analytical problems were encountered.

Volatile Organics by EPA Method 8260: No analytical problems were encountered.

Polynuclear Aromatic Hydrocarbons by EPA Method 8270B: The extracts for all samples did not require GPC clean-up. No analytical problems were encountered.

Metals & Arsenic by EPA Method 6010A: All samples were preserved and filtered prior to analysis. Because there was no metal elements detected, with the exception of Barium, the %RPD is 'Not Calculable' for the Sample Duplicate. No analytical problems were encountered.

CHAIN OF CUSTODY FORM

Page 1 of 1

Curtis & Tompkins, Ltd.
Analytical Laboratories, Since 1878
2323 Fifth Street
Berkeley, CA 94710
(510) 486-0900 Phone
(510) 486-0532 Fax

4.5°C/40°C

C&T LOGIN # 13402

Sampler: Charlie O'Neill, Clara Chan

Project No: 10605-25291-GW.UPIR.GW.UPMF, GW.UPTOFC

Report To: Hoa Voscott

Project Name: Port of Oakland, UP gw sampling

Company: Camp Dresser & McKee

Project P.O.:

Telephone: 925 933 2900

Turnaround Time: 5 days

Fax: 925 933 4174

Lab Number	Sample ID.	Sampling Date Time	Matrix: Soil	Water	Waste	# of Containers	Preservative: HCl	H_2SO_4	HNO_3	ICE	Directions / Field Notes	TPH-gas 8015M	BTEX 8020	VOCs 8260	TPH-diesel, motor oil, hydr oil 8015M w/ silica gel cleanup	PAHs 8270 with gel permeation calumn cleanup	Dissolved (Can 17) metals 6010	Arsenic 6000	TPH-diesel 8015M w/ silica gel cleanup
01	PORT-MW01	2/17/99 948		X		9	X*			X	Please filter and preserve	X	X	X	X	X	X		
02	PORT-MW02	1038				9					Metals (6010) samples	X	X	X	X	X	X		
03	PORT-MW04	1127				9					IMMEDIATELY	X	X	X	X	X	X		
04	OMW-10	1217				4							X						X
05	OMW-12	1317				4							X						X
06	OMW-1	1440				4							X						X
07	OMW-8	1515				4							X						X
08	OMW-3	1540				4							X						X
09	OKUS-W3	1625				5					Please filter and preserve	X	X					X	X
10	OKUS-W12	1615				5					Arsenic (6000) sample IMMEDIATELY	X	X					X	X
11																			
12	Trip Blank											X	X	X					
	2/18/99																		

*HCl for TPH-gas/BTEX + VOCs vials only

Notes: note cleanups for TPH-diesel + TPH-diesel, motor + hydr oil
filter + preserve Metals (6010) + Arsenic (6000) samples, ASAP

RELINQUISHED BY:	RECEIVED BY:
Clara Chan 2/17/99 1700 DATE/TIME	2/17/99 1700 DATE/TIME
DATE/TIME	DATE/TIME
DATE/TIME	DATE/TIME

Signature on this form constitutes a firm Purchase Order for the services requested above

Curtis & Tompkins, Ltd.

TVH-Total Volatile Hydrocarbons

Client: Camp, Dresser & McKee
Project#: 10605-25291
Location: Port Of Oakland,U.P.GW

Analysis Method: EPA 8015M
Prep Method: EPA 5030

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
138022-001	PORT-MW01	46364	02/17/99	02/19/99	02/19/99	
138022-002	PORT-MW02	46364	02/17/99	02/19/99	02/19/99	
138022-003	PORT-MW04	46364	02/17/99	02/19/99	02/19/99	
138022-009	OKUS-W3	46364	02/17/99	02/20/99	02/20/99	

Matrix: Water

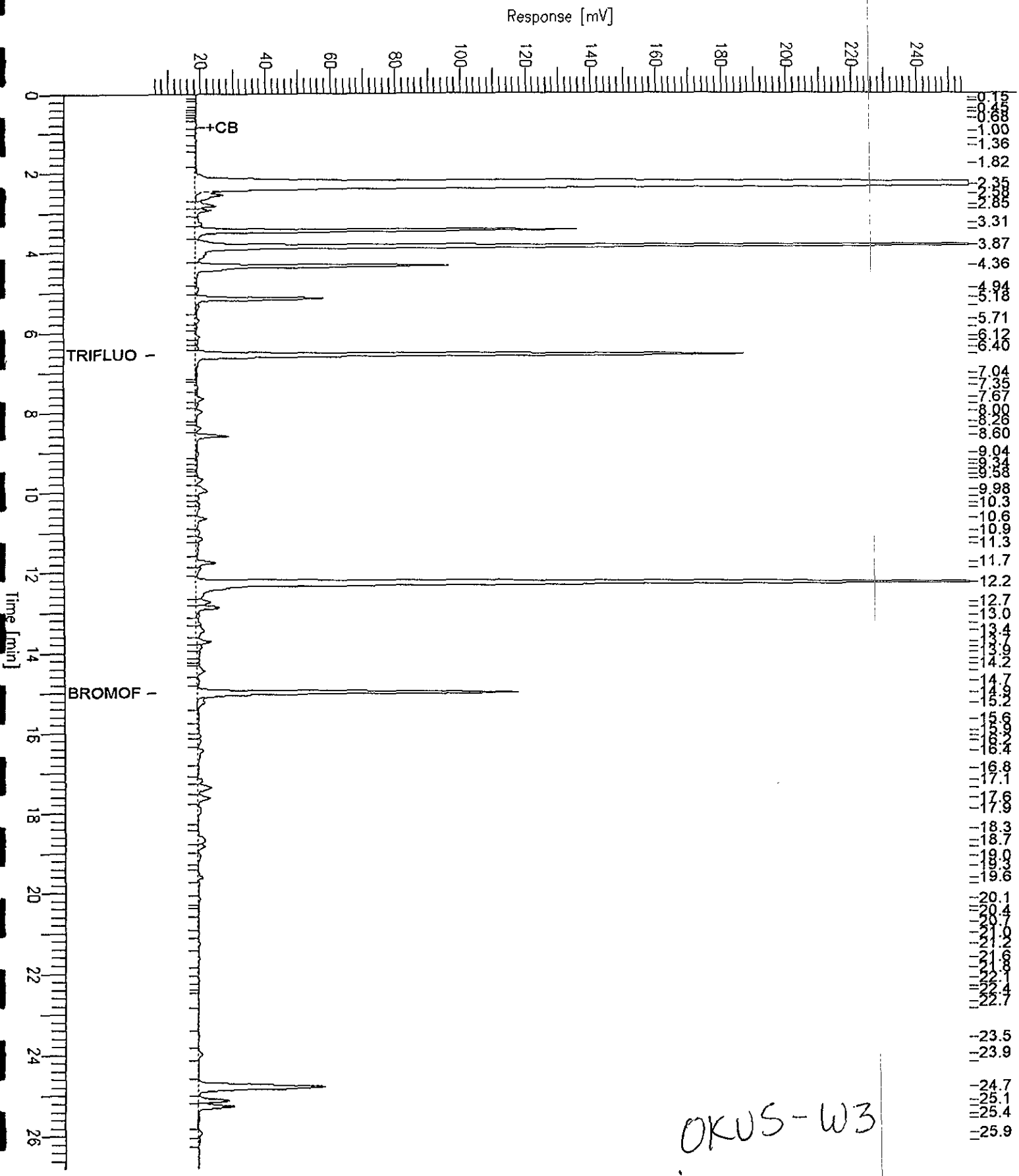
Analyte Diln Fac:	Units	138022-001 1	138022-002 1	138022-003 1	138022-009 25
Gasoline C7-C12	ug/L	<50	<50	<50	9800 YL
Surrogate					
Trifluorotoluene	%REC	102	102	104	106
Bromofluorobenzene	%REC	101	102	102	103

Y: Sample exhibits fuel pattern which does not resemble standard
L: Lighter hydrocarbons than indicated standard

GC19 TVH 'X' Data File (FID)

Sample Name : D,138022-009C,46364
FileName : G:\GC19\DATA\050X019.raw
Method : TVHBTXE
Start Time : 0.00 min End Time : 26.80 min
Scale Factor: -1.0 Plot Offset: 6 mV

Sample #: PH<2 Page 1 of 1
Date : 2/20/99 01:57 AM
Time of Injection: 2/20/99 01:30 AM
Low Point : 5.88 mV High Point : 255.88 mV
Plot Scale: 250.0 mV

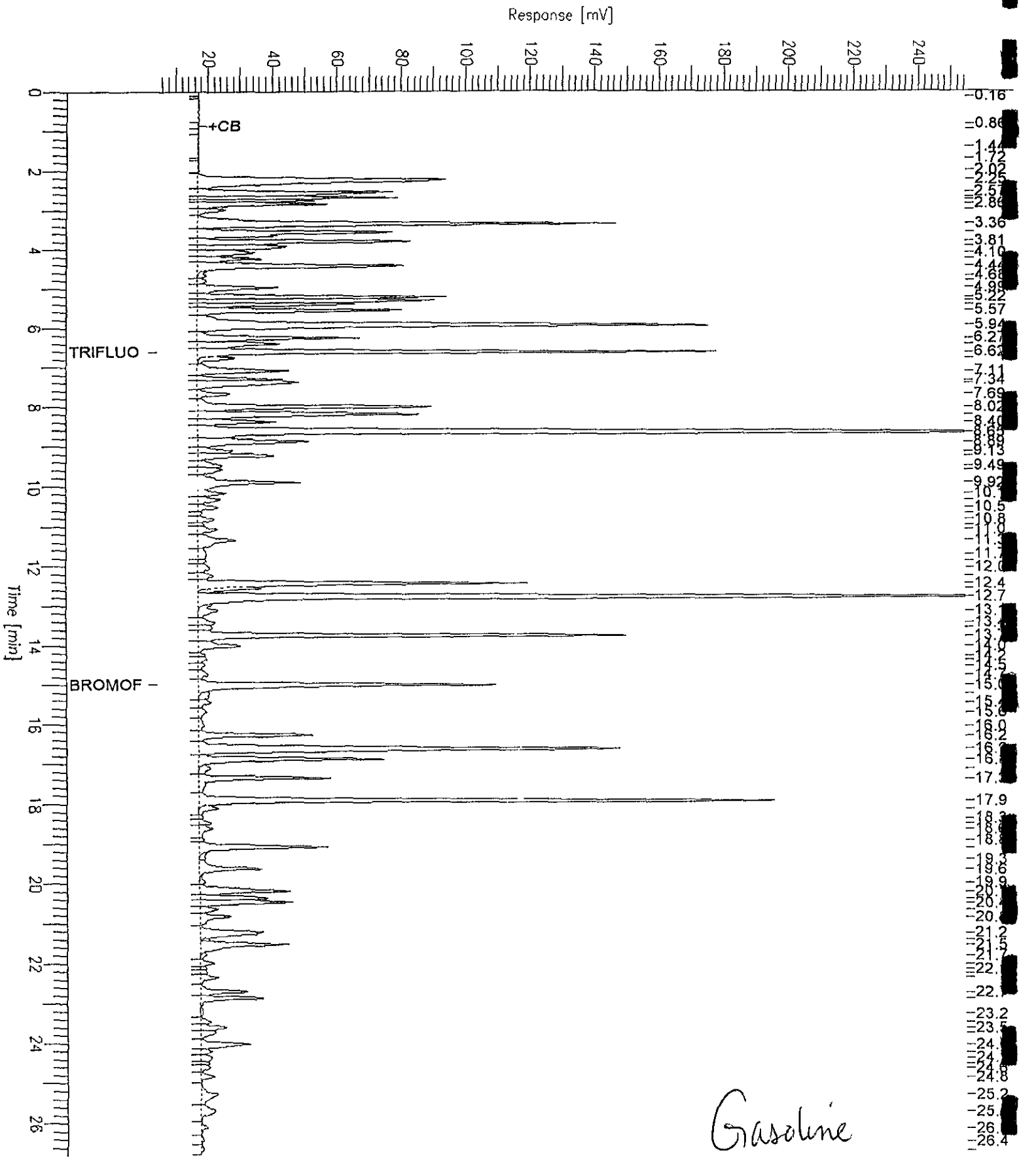


OKUS-W3

GC19 TVH 'X' Data File (FID)

Sample Name : CCV/LCS,QC91261,99WS7126,46364,
FileName : G:\GC19\DATA\050X002.raw
Method : TVHBTXE
Start Time : 0.00 min End Time : 26.80 min
Scale Factor: -1.0 Plot Offset: 4 mV

Sample #: GAS Page 1 of 1
Date : 2/19/99 02:17 PM
Time of Injection: 2/19/99 01:50 PM
Low Point : 4.37 mV High Point : 254.37 mV
Plot Scale: 250.0 mV



Gasoline

TVH-Total Volatile Hydrocarbons

Client: Camp, Dresser & McKee
Project#: 10605-25291
Location: Port Of Oakland,U.P.GW

Analysis Method: EPA 8015M
Prep Method: EPA 5030

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
138022-010	OKUS-W12	46386	02/17/99	02/23/99	02/23/99	
138022-011	TRIP BLANK	46364	02/17/99	02/19/99	02/19/99	

Matrix: Water

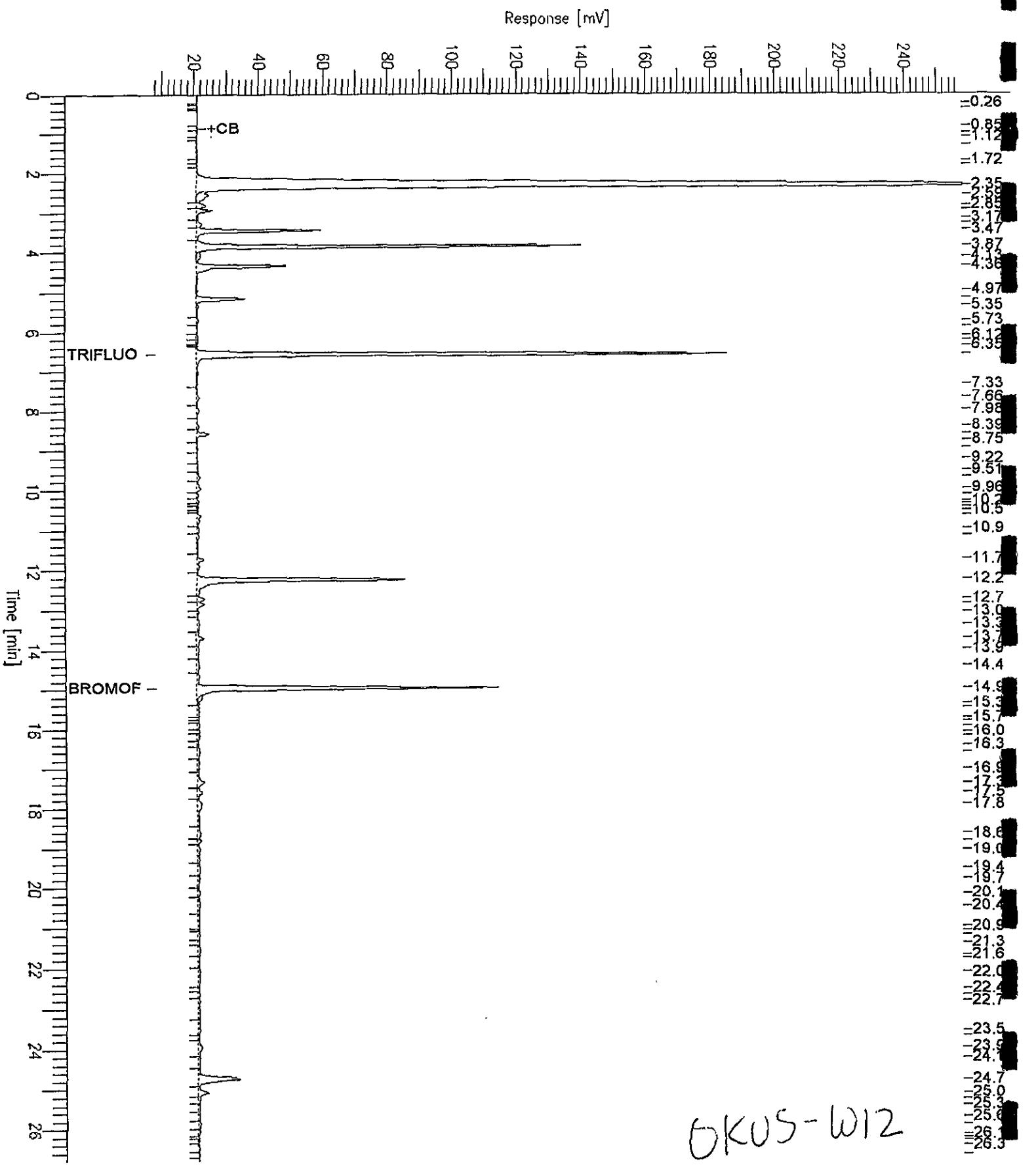
Analyte	Units	138022-010		138022-011
Diln Fac:		50		1
Gasoline C7-C12	ug/L	6700	Y	<50
Surrogate				
Trifluorotoluene	%REC	100		99
Bromofluorobenzene	%REC	100		95

Y: Sample exhibits fuel pattern which does not resemble standard

GC19 TVH 'X' Data File (FID)

Sample Name : RD,138022-010E,46386
FileName : G:\GC19\DATA\053X030.raw
Method : TVHBTXE
Start Time : 0.00 min End Time : 26.80 min
Scale Factor: -1.0 Plot Offset: 8 mV

Sample #: 50X,PH=3 Page 1 of 1
Date : 2/23/99 08:51 AM
Time of Injection: 2/23/99 08:24 AM
Low Point : 7.96 mV High Point : 257.96 mV
Plot Scale: 250.0 mV

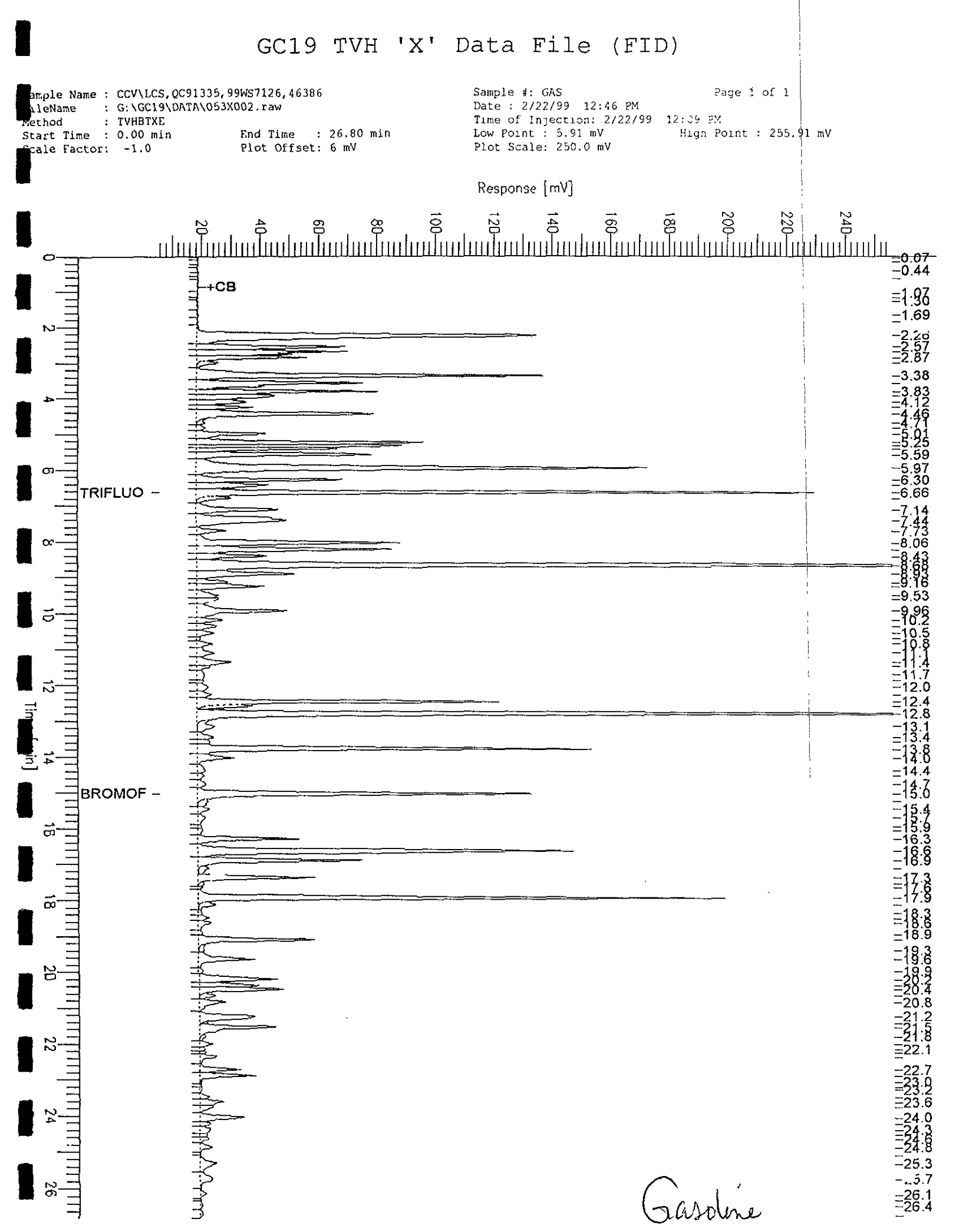


OKUS-W12

GC19 TVH 'X' Data File (FID)

Sample Name : CCV\LCS,QC91335,99WS7126,46386
FileName : G:\GC19\DATA\053X002.raw
Method : TVHBTXE
Start Time : 0.00 min End Time : 26.80 min
Scale Factor: -1.0 Plot Offset: 6 mV

Sample #: GAS Page 1 of 1
Date : 2/22/99 12:46 PM
Time of Injection: 2/22/99 12:39 PM
Low Point : 5.91 mV High Point : 255.91 mV
Plot Scale: 250.0 mV



Gasoline

BTXE

Client: Camp, Dresser & McKee
Project#: 10605-25291
Location: Port Of Oakland,U.P.GW

Analysis Method: EPA 8021B
Prep Method: EPA 5030

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
138022-001	PORT-MW01	46364	02/17/99	02/19/99	02/19/99	
138022-002	PORT-MW02	46364	02/17/99	02/19/99	02/19/99	
138022-003	PORT-MW04	46364	02/17/99	02/19/99	02/19/99	
138022-004	OMW-10	46364	02/17/99	02/20/99	02/20/99	

Matrix: Water

Analyte Diln Fac:	Units	138022-001 1	138022-002 1	138022-003 1	138022-004 1
Benzene	ug/L	<0.5	<0.5	<0.5	1.9
Toluene	ug/L	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	ug/L	<0.5	<0.5	<0.5	<0.5
m,p-Xylenes	ug/L	<0.5	<0.5	<0.5	<0.5
o-Xylene	ug/L	<0.5	<0.5	<0.5	<0.5
Surrogate					
Trifluorotoluene	%REC	97	97	98	98
Bromofluorobenzene	%REC	99	99	101	100

BTXE

Client: Camp, Dresser & McKee
Project#: 10605-25291
Location: Port Of Oakland,U.P.GW

Analysis Method: EPA 8021B
Prep Method: EPA 5030

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
138022-005	OMW-12	46364	02/17/99	02/20/99	02/20/99	
138022-006	OMW-1	46364	02/17/99	02/19/99	02/19/99	
138022-007	OMW-8	46364	02/17/99	02/19/99	02/19/99	
138022-008	OMW-3	46364	02/17/99	02/19/99	02/19/99	

Matrix: Water

Analyte Diln Fac:	Units	138022-005 1	138022-006 1	138022-007 1	138022-008 1
Benzene	ug/L	1.9	<0.5	<0.5	<0.5
Toluene	ug/L	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	ug/L	<0.5	<0.5	<0.5	<0.5
m,p-Xylenes	ug/L	<0.5	<0.5	<0.5	<0.5
o-Xylene	ug/L	<0.5	<0.5	<0.5	<0.5
Surrogate					
Trifluorotoluene	%REC	98	98	69	97
Bromofluorobenzene	%REC	100	102	69	98

BTXE

Client: Camp, Dresser & McKee
Project#: 10605-25291
Location: Port Of Oakland,U.P.GW

Analysis Method: EPA 8021B
Prep Method: EPA 5030

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
138022-009	OKUS-W3	46386	02/17/99	02/23/99	02/23/99	
138022-010	OKUS-W12	46386	02/17/99	02/23/99	02/23/99	
138022-011	TRIP BLANK	46364	02/17/99	02/19/99	02/19/99	

Matrix: Water

Analyte	Units	138022-009	138022-010	138022-011
Diln Fac:		100	50	1
Benzene	ug/L	200	190	<0.5
Toluene	ug/L	<50	45	<0.5
Ethylbenzene	ug/L	2700	2600	<0.5
m,p-Xylenes	ug/L	<50	<25	<0.5
o-Xylene	ug/L	<50	<25	<0.5
Surrogate				
Trifluorotoluene	%REC	91	95	93
Bromofluorobenzene	%REC	93	97	92

TVH-Total Volatile Hydrocarbons

Client:	Camp, Dresser & McKee	Analysis Method:	EPA 8015M
Project#:	10605-25291	Prep Method:	EPA 5030
Location:	Port Of Oakland,U.P.GW		

METHOD BLANK

Matrix:	Water	Prep Date:	02/22/99
Batch#:	46386	Analysis Date:	02/22/99
Units:	ug/L		
Diln Fac:	1		

MB Lab ID: QC91338

Analyte	Result
Gasoline C7-C12	<50

Surrogate	%Rec	Recovery Limits
Trifluorotoluene	89	53-150
Bromofluorobenzene	88	53-149

Lab #: 138022

BATCH QC REPORT

Curtis & Tompkins, Ltd.

BTXE	
Client: Camp, Dresser & McKee	Analysis Method: EPA 8021B
Project#: 10605-25291	Prep Method: EPA 5030
Location: Port Of Oakland,U.P.GW	

METHOD BLANK	
Matrix: Water	Prep Date: 02/22/99
Batch#: 46386	Analysis Date: 02/22/99
Units: ug/L	
Diln Fac: 1	

MB Lab ID: QC91338

Analyte	Result
Benzene	<0.5
Toluene	<0.5
Ethylbenzene	<0.5
m,p-Xylenes	<0.5
o-Xylene	<0.5

Surrogate	%Rec	Recovery Limits
Trifluorotoluene	83	51-143
Bromofluorobenzene	84	37-146

Lab #: 138022

BATCH QC REPORT

Curtis & Tompkins, Ltd.

TVH-Total Volatile Hydrocarbons

Client: Camp, Dresser & McKee
Project#: 10605-25291
Location: Port Of Oakland,U.P.GW

Analysis Method: EPA 8015M
Prep Method: EPA 5030

LABORATORY CONTROL SAMPLE

Matrix: Water
Batch#: 46386
Units: ug/L
Diln Fac: 1

Prep Date: 02/22/99
Analysis Date: 02/22/99

LCS Lab ID: QC91335

Analyte	Result	Spike Added	%Rec #	Limits
Gasoline C7-C12	1746	2000	87	77-117

Surrogate	%Rec	Limits
Trifluorotoluene	133	53-150
Bromofluorobenzene	134	53-149

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits
Spike Recovery: 0 out of 1 outside limits

Lab #: 138022

BATCH QC REPORT

Curtis & Tompkins Ltd.

TVH-Total Volatile Hydrocarbons

Client: Camp, Dresser & McKee
Project#: 10605-25291
Location: Port Of Oakland,U.P.GW

Analysis Method: EPA 8015M
Prep Method: EPA 5030

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Field ID: ZZZZZZ
Lab ID: 138050-001
Matrix: Water
Batch#: 46386
Units: ug/L
Diln Fac: 1

Sample Date: 02/18/99
Received Date: 02/18/99
Prep Date: 02/22/99
Analysis Date: 02/22/99

MS Lab ID: QC91375

Analyte	Spike Added	Sample	MS	%Rec #	Limits
Gasoline C7-C12	2000	140.1	2059	96	69-131

Surrogate	%Rec	Limits
Trifluorotoluene	110	53-150
Bromofluorobenzene	123	53-149

MSD Lab ID: QC91376

Analyte	Spike Added	MSD	%Rec #	Limits	RPD #	Limit
Gasoline C7-C12	2000	2037	95	69-131	1	13

Surrogate	%Rec	Limits
Trifluorotoluene	109	53-150
Bromofluorobenzene	122	53-149

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits
RPD: 0 out of 1 outside limits
Spike Recovery: 0 out of 2 outside limits

BTXE

Client: Camp, Dresser & McKee
Project#: 10605-25291
Location: Port Of Oakland,U.P.GW

Analysis Method: EPA 8021B
Prep Method: EPA 5030

BLANK SPIKE/BLANK SPIKE DUPLICATE

Matrix: Soil
Batch#: 46386
Units: ug/Kg
Diln Fac: 1

Prep Date: 02/22/99
Analysis Date: 02/22/99

BS Lab ID: QC91336

Analyte	Spike Added	BS	%Rec #	Limits
Benzene	20	16.48	82	65-111
Toluene	20	15.95	80	76-117
Ethylbenzene	20	16.39	82	71-121
m,p-Xylenes	40	33.33	83	80-123
o-Xylene	20	15.8	79	75-127

Surrogate	%Rec	Limits
Trifluorotoluene	87	51-143
Bromofluorobenzene	90	37-146

BSD Lab ID: QC91337

Analyte	Spike Added	BSD	%Rec #	Limits	RPD #	Limit
Benzene	20	18.11	91	65-111	9	10
Toluene	20	17.42	87	76-117	9	10
Ethylbenzene	20	18.05	90	71-121	10	11
m,p-Xylenes	40	36.86	92	80-123	10	10
o-Xylene	20	17.65	88	75-127	11	11

Surrogate	%Rec	Limits
Trifluorotoluene	93	51-143
Bromofluorobenzene	95	37-146

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits
RPD: 0 out of 5 outside limits
Spike Recovery: 0 out of 10 outside limits

Lab #: 138022

BATCH QC REPORT

Curtis & Tompkins, Ltd.

TVH-Total Volatile Hydrocarbons

Client:	Camp, Dresser & McKee	Analysis Method:	EPA 8015M
Project#:	10605-25291	Prep Method:	EPA 5030
Location:	Port Of Oakland,U.P.GW		

METHOD BLANK

Matrix:	Water	Prep Date:	02/19/99
Batch#:	46364	Analysis Date:	02/19/99
Units:	ug/L		
Diln Fac:	1		

MB Lab ID: QC91263

Analyte	Result
Gasoline C7-C12	<50

Surrogate	%Rec	Recovery Limits
Trifluorotoluene	93	53-150
Bromofluorobenzene	94	53-149

BTXE	
Client: Camp, Dresser & McKee	Analysis Method: EPA 8021B
Project#: 10605-25291	Prep Method: EPA 5030
Location: Port Of Oakland,U.P.GW	

METHOD BLANK	
Matrix: Water	Prep Date: 02/19/99
Batch#: 46364	Analysis Date: 02/19/99
Units: ug/L	
Diln Fac: 1	

MB Lab ID: QC91263

Analyte	Result
Benzene	<0.5
Toluene	<0.5
Ethylbenzene	<0.5
m,p-Xylenes	<0.5
o-Xylene	<0.5

Surrogate	%Rec	Recovery Limits
Trifluorotoluene	87	51-143
Bromofluorobenzene	88	37-146

TVH-Total Volatile Hydrocarbons	
Client: Camp, Dresser & McKee	Analysis Method: EPA 8015M
Project#: 10605-25291	Prep Method: EPA 5030
Location: Port Of Oakland,U.P.GW	

LABORATORY CONTROL SAMPLE	
Matrix: Water	Prep Date: 02/19/99
Batch#: 46364	Analysis Date: 02/19/99
Units: ug/L	
Diln Fac: 1	

LCS Lab ID: QC91261

Analyte	Result	Spike Added	%Rec #	Limits
Gasoline C7-C12	1791	2000	90	77-117

Surrogate	%Rec	Limits
Trifluorotoluene	102	53-150
Bromofluorobenzene	112	53-149

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits
Spike Recovery: 0 out of 1 outside limits

Lab #: 138022

BATCH QC REPORT

Curtis & Tompkins, Ltd.

BTXE

Client: Camp, Dresser & McKee
Project#: 10605-25291
Location: Port Of Oakland,U.P.GW

Analysis Method: EPA 8021B
Prep Method: EPA 5030

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Field ID: PORT-MW04
Lab ID: 138022-003
Matrix: Water
Batch#: 46364
Units: ug/L
Diln Fac: 1

Sample Date: 02/17/99
Received Date: 02/17/99
Prep Date: 02/19/99
Analysis Date: 02/19/99

MS Lab ID: QC91264

Analyte	Spike Added	Sample	MS	%Rec #	Limits
Benzene	20	<0.5	17.25	86	55-122
Toluene	20	<0.5	16.69	83	63-139
Ethylbenzene	20	<0.5	17.14	86	61-137
m,p-Xylenes	40	<0.5	35.02	88	57-148
o-Xylene	20	<0.5	16.88	84	70-141

Surrogate	%Rec	Limits
Trifluorotoluene	98	51-143
Bromofluorobenzene	101	37-146

MSD Lab ID: QC91265

Analyte	Spike Added	MSD	%Rec #	Limits	RPD #	Limit
Benzene	20	15.88	79	55-122	8	10
Toluene	20	15.34	77	63-139	8	10
Ethylbenzene	20	15.85	79	61-137	8	10
m,p-Xylenes	40	32.35	81	57-148	8	10
o-Xylene	20	15.56	78	70-141	8	10

Surrogate	%Rec	Limits
Trifluorotoluene	85	51-143
Bromofluorobenzene	89	37-146

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits
RPD: 0 out of 5 outside limits
Spike Recovery: 0 out of 10 outside limits

Curtis & Tompkins Ltd.

TEH-Tot Ext Hydrocarbons

Client: Camp, Dresser & McKee
Project#: 10605-25291
Location: Port Of Oakland,U.P.GW

Analysis Method: EPA 8015M
Prep Method: EPA 3520

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
138022-001	PORT-MW01	46362	02/17/99	02/18/99	02/23/99	
138022-002	PORT-MW02	46362	02/17/99	02/18/99	02/24/99	
138022-003	PORT-MW04	46362	02/17/99	02/18/99	02/24/99	
138022-004	OMW-10	46362	02/17/99	02/18/99	02/24/99	

Matrix: Water

Analyte Diln Fac:	Units	138022-001 1	138022-002 1	138022-003 1	138022-004 2
Diesel C10-C24	ug/L	<50	<50	<50	15000
Motor Oil C24-C36	ug/L	<300	<300	<300	<600
Hydraulic Fluid,C24-36	ug/L	<300	<300	<300	<600
Surrogate					
Hexacosane	%REC	73	81	75	68

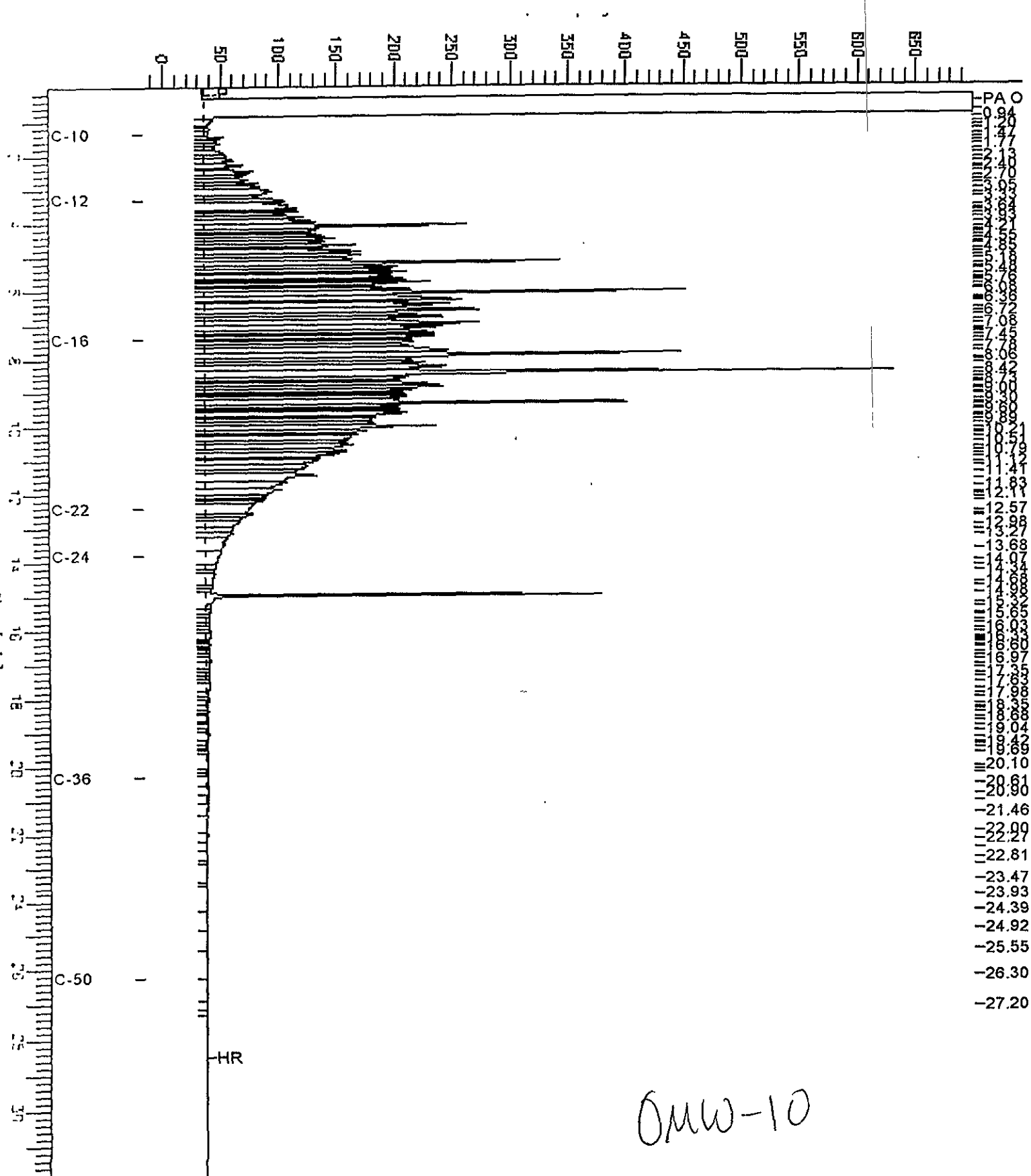
Chromatogram

: 138022-004sg,46362
: G:\GC13\CHB\054B026.RAW
: BTEH015.MTH
: 0.01 min
: 0.0

End Time : 31.91 min
Plot Offset: -18 mV

Sample #: 46362
Date : 2/24/99 11:27 AM
Time of Injection: 2/24/99 06:11 AM
Low Point : -18.47 mV
Plot Scale: 718.1 mV

High Point : 699.63 mV



OMW-10

Curtis & Tompkins Ltd.

TEH-Tot Ext Hydrocarbons

Client: Camp, Dresser & McKee
Project#: 10605-25291
Location: Port Of Oakland,U.P.GW

Analysis Method: EPA 8015M
Prep Method: EPA 3520

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
138022-005	OMW-12	46362	02/17/99	02/18/99	02/24/99	
138022-006	OMW-1	46362	02/17/99	02/18/99	02/24/99	
138022-007	OMW-8	46362	02/17/99	02/18/99	02/24/99	
138022-008	OMW-3	46362	02/17/99	02/18/99	02/24/99	

Matrix: Water

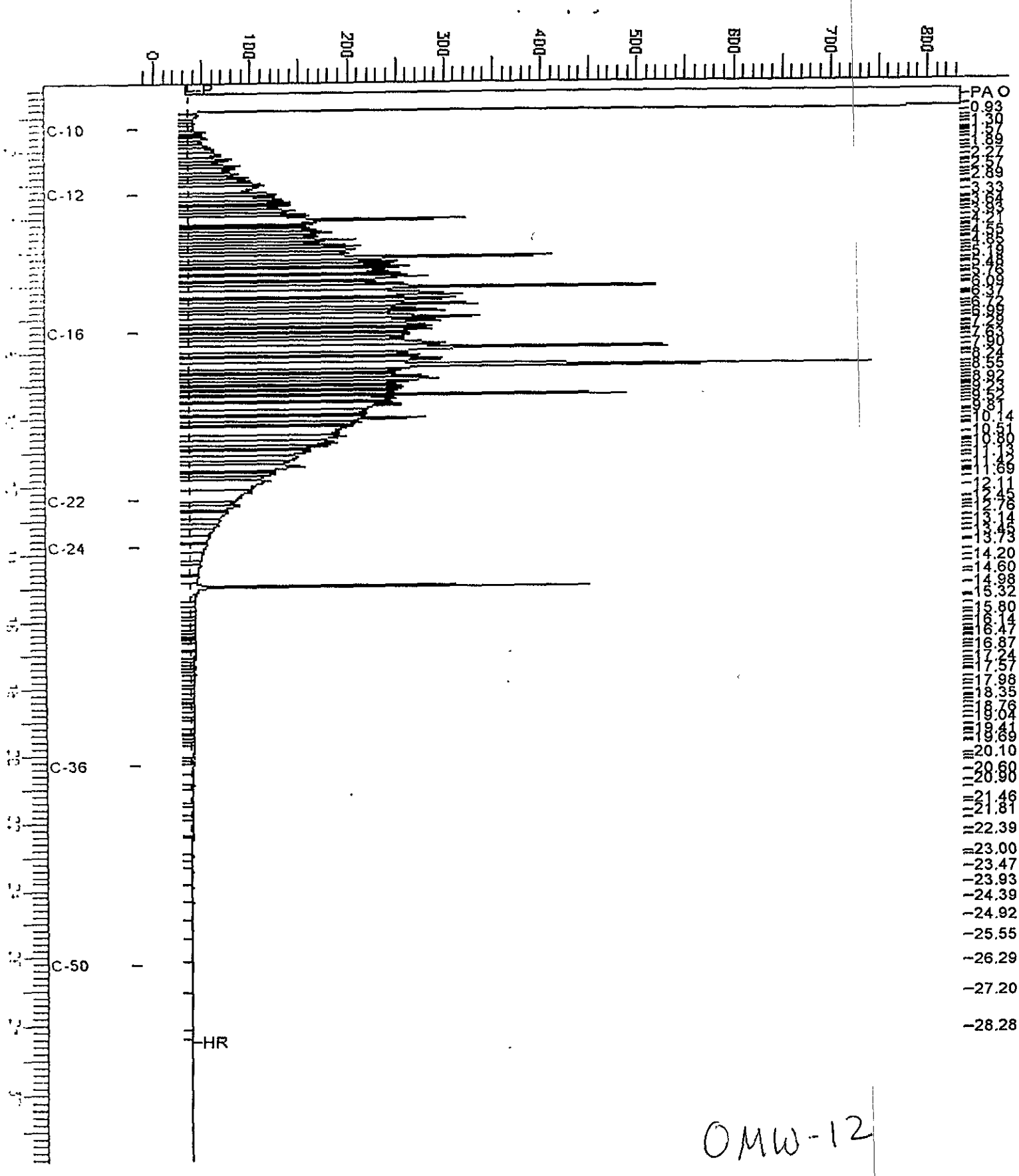
Analyte	Units	138022-005	138022-006	138022-007	138022-008
Diln Fac:		2	1	1	1
Diesel C10-C24	ug/L	19000	<50	52 YH	250 YH
Motor Oil C24-C36	ug/L	<600	<300	<300	380
Hydraulic Fluid,C24-36	ug/L	<600	<300	<300	330
Surrogate					
Hexacosane	%REC	77	72	70	78

Y: Sample exhibits fuel pattern which does not resemble standard
H: Heavier hydrocarbons than indicated standard

Chromatogram

: 138022-005sg,46362
: G:\GC13\CHB\054B027.RAW
: BTEH015.MTH
: 0.01 min End Time : 31.91 min
: 0.0 Plot Offset: -18 mV

Sample #: 46362 Page 1 of 1
Date : 2/24/99 11:28 AM
Time of Injection: 2/24/99 06:53 AM
Low Point : -18.13 mV High Point : 834.45 mV
Plot Scale: 852.6 mV

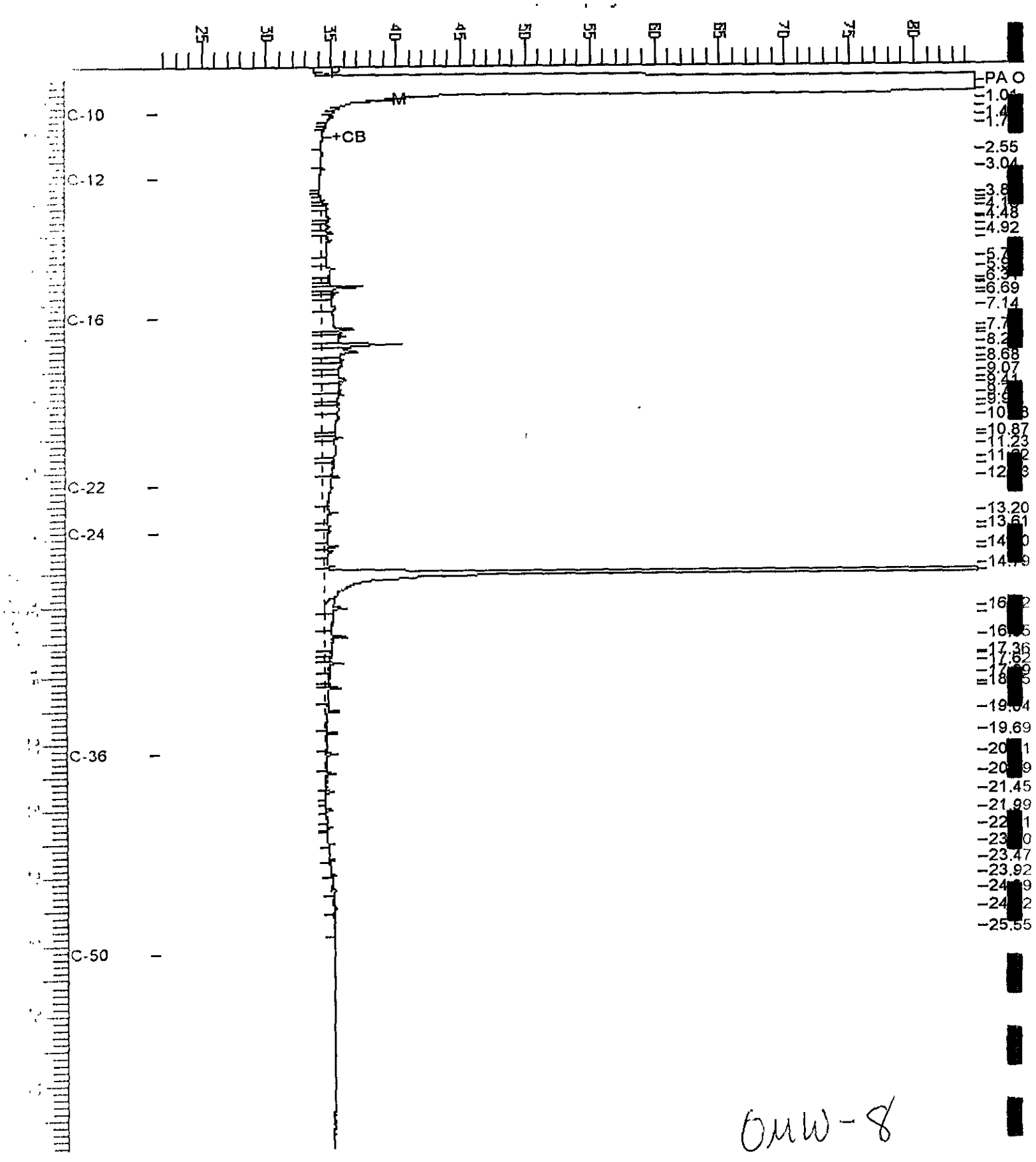


OMW-12

Chromatogram

: 138022-007sg,46362
: G:\GC13\CHB\054B029.RAW
: BTEH015.MTH
: 0.01 min End Time : 31.91 min
:: 0.0 Plot Offset: 21 mV

Sample #: 46362 Page 1 of 1
Date : 2/24/99 11:33 AM
Time of Injection: 2/24/99 08:17 AM
Low Point : 21.46 mV High Point : 84.81 mV
Plot Scale: 63.3 mV

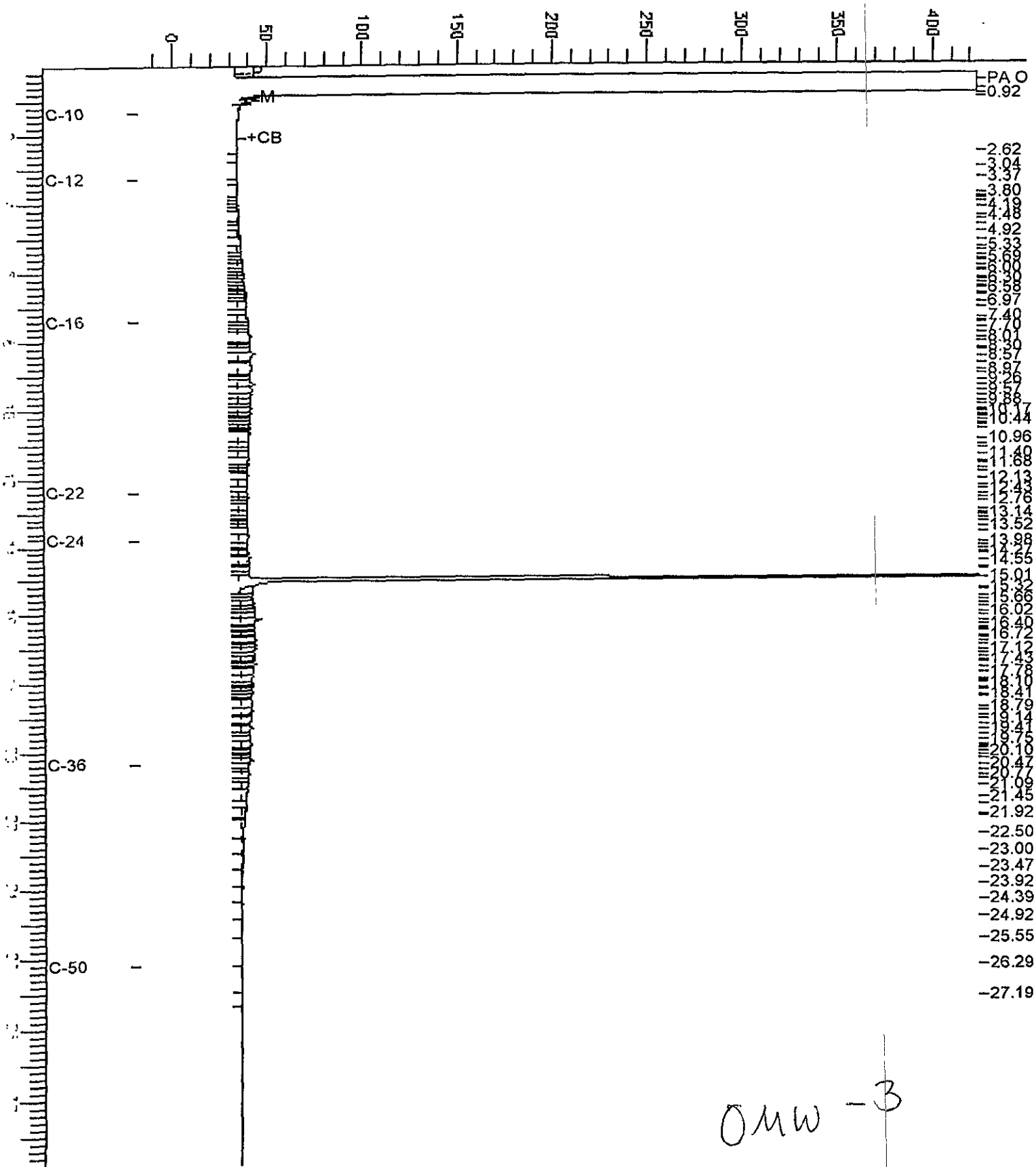


OMW-8

Chromatogram

ample Name : 138022-008sg,46362
leName : G:\GC13\CHB\054B030.RAW
thod : BTEH015.MTH
art Time : 0.01 min End Time : 31.87 min
ale Factor: 0.0 Plot Offset: -19 mV

Sample #: 46362 Page 1 of 1
Date : 2/24/99 11:36 AM
Time of Injection: 2/24/99 08:59 AM
Low Point : -18.61 mV High Point : 423.67 mV
Plot Scale: 442.3 mV



OMW -3

TEH-Tot Ext Hydrocarbons

Client: Camp, Dresser & McKee
Project#: 10605-25291
Location: Port Of Oakland,U.P.GW

Analysis Method: EPA 8015M
Prep Method: EPA 3520

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
138022-009	OKUS-W3	46362	02/17/99	02/18/99	02/24/99	
138022-010	OKUS-W12	46362	02/17/99	02/18/99	02/24/99	

Matrix: Water

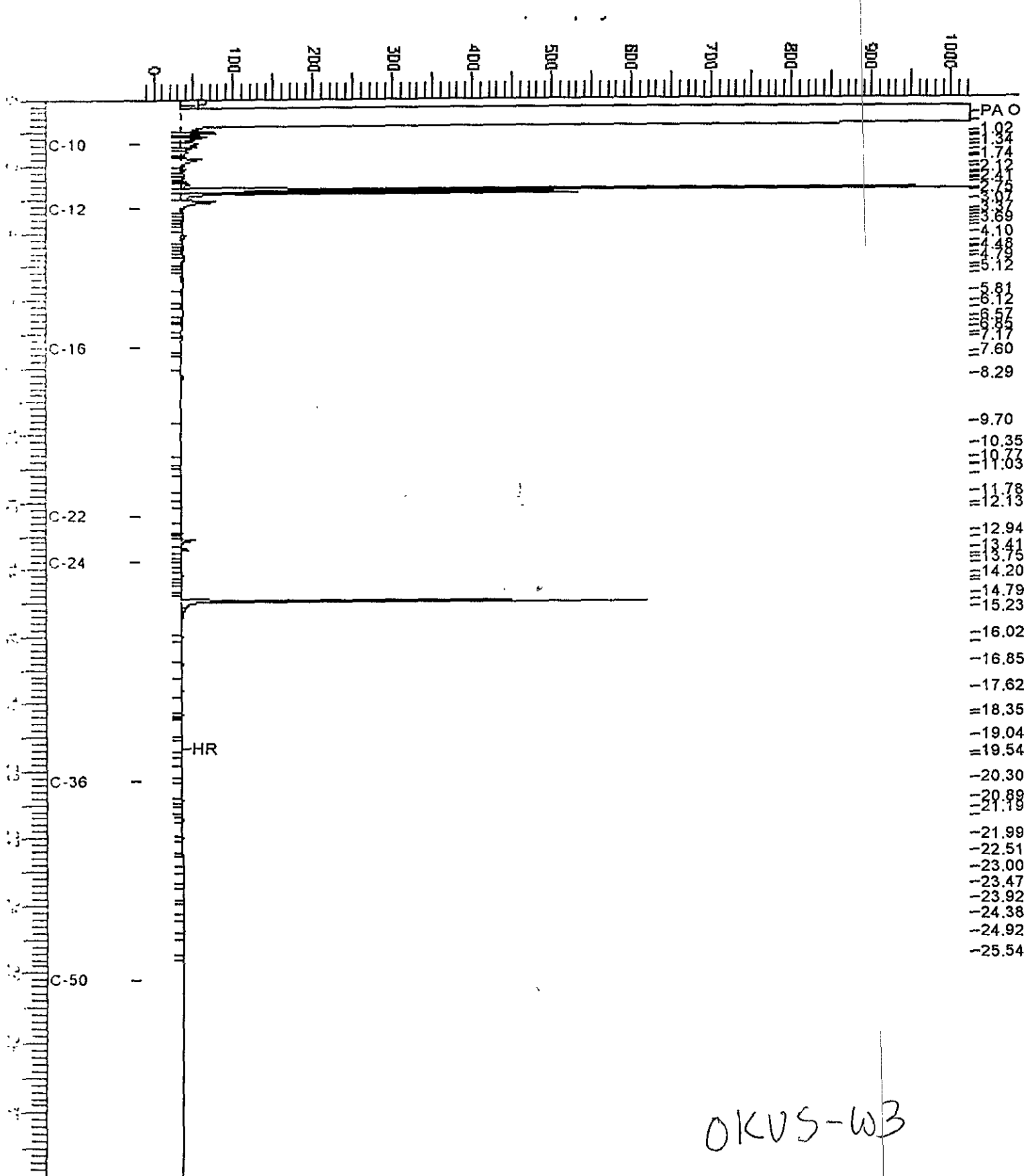
Analyte	Units	138022-009	138022-010
Diln Fac:		1	1
Diesel C10-C24	ug/L	610 YLZ	460 YLZ
Motor Oil C24-C36	ug/L	<300	<300
Hydraulic Fluid,C24-36	ug/L	<300	<300
Surrogate			
Hexacosane	%REC	67	74

Y: Sample exhibits fuel pattern which does not resemble standard
Z: Sample exhibits unknown single peak or peaks
L: Lighter hydrocarbons than indicated standard

Chromatogram

: 138022-009sg,46362
: G:\GC13\CHB\054B031.RAW
: BTEH015.MTH
: 0.00 min End Time : 31.90 min
: 0.0 Plot Offset: -19 mV

Sample #: 46362 Page 1 of 1
Date : 2/24/99 11:38 AM
Time of Injection: 2/24/99 09:41 AM
Low Point : -18.85 mV High Point : 1024.00 mV
Plot Scale: 1042.8 mV

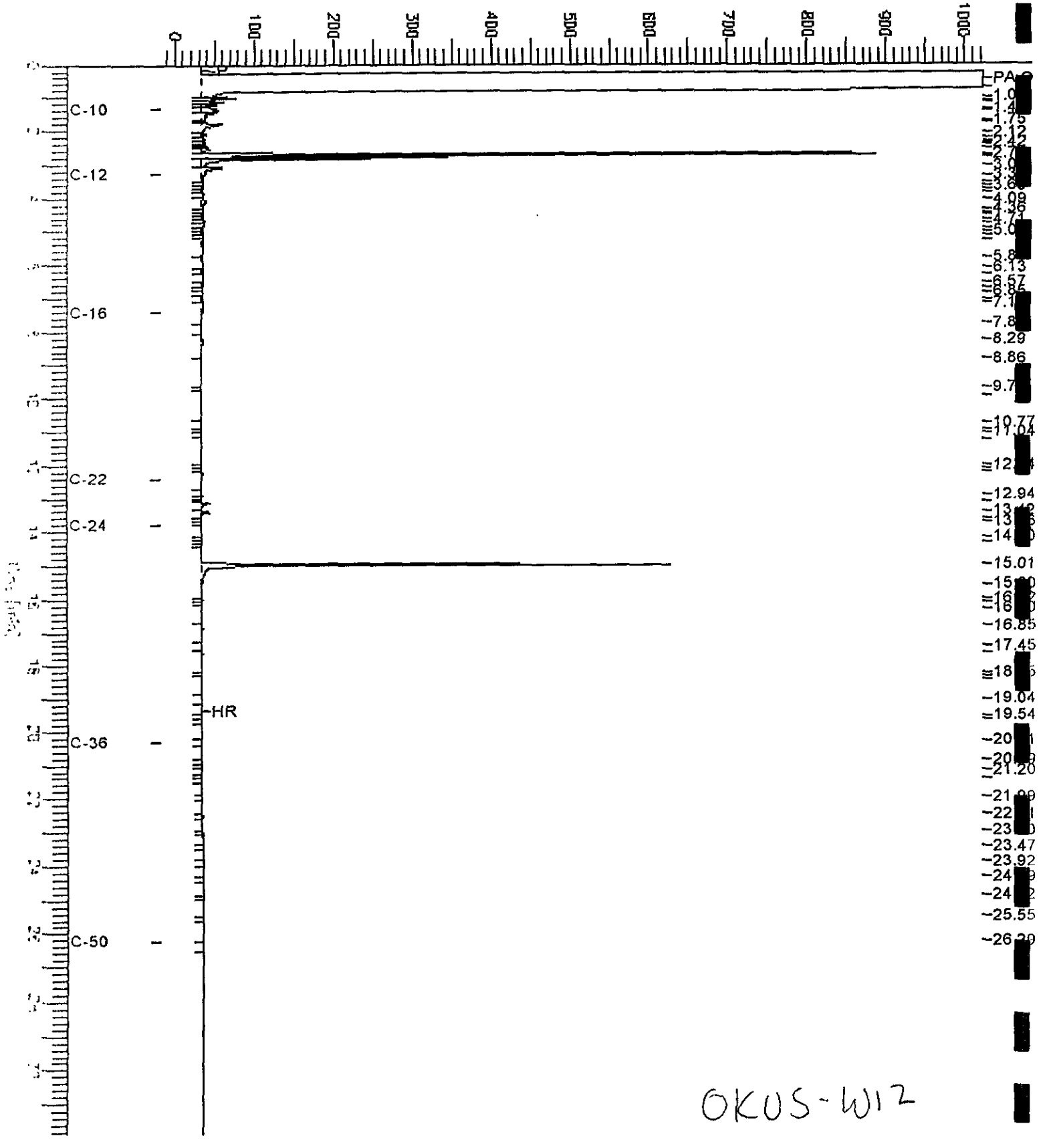


OKUS-W3

Chromatogram

: 138022-010sg,46362
: G:\GC13\CHB\054B032.RAW
: BTEH015.MTH
: 0.00 min End Time : 31.90 min
: 0.0 Plot Offset: -19 mV

Sample #: 46362 Page 1 of 1
Date : 2/24/99 11:39 AM
Time of Injection: 2/24/99 10:23 AM
Low Point : -19.32 mV High Point : 1024.00 mV
Plot Scale: 1043.3 mV

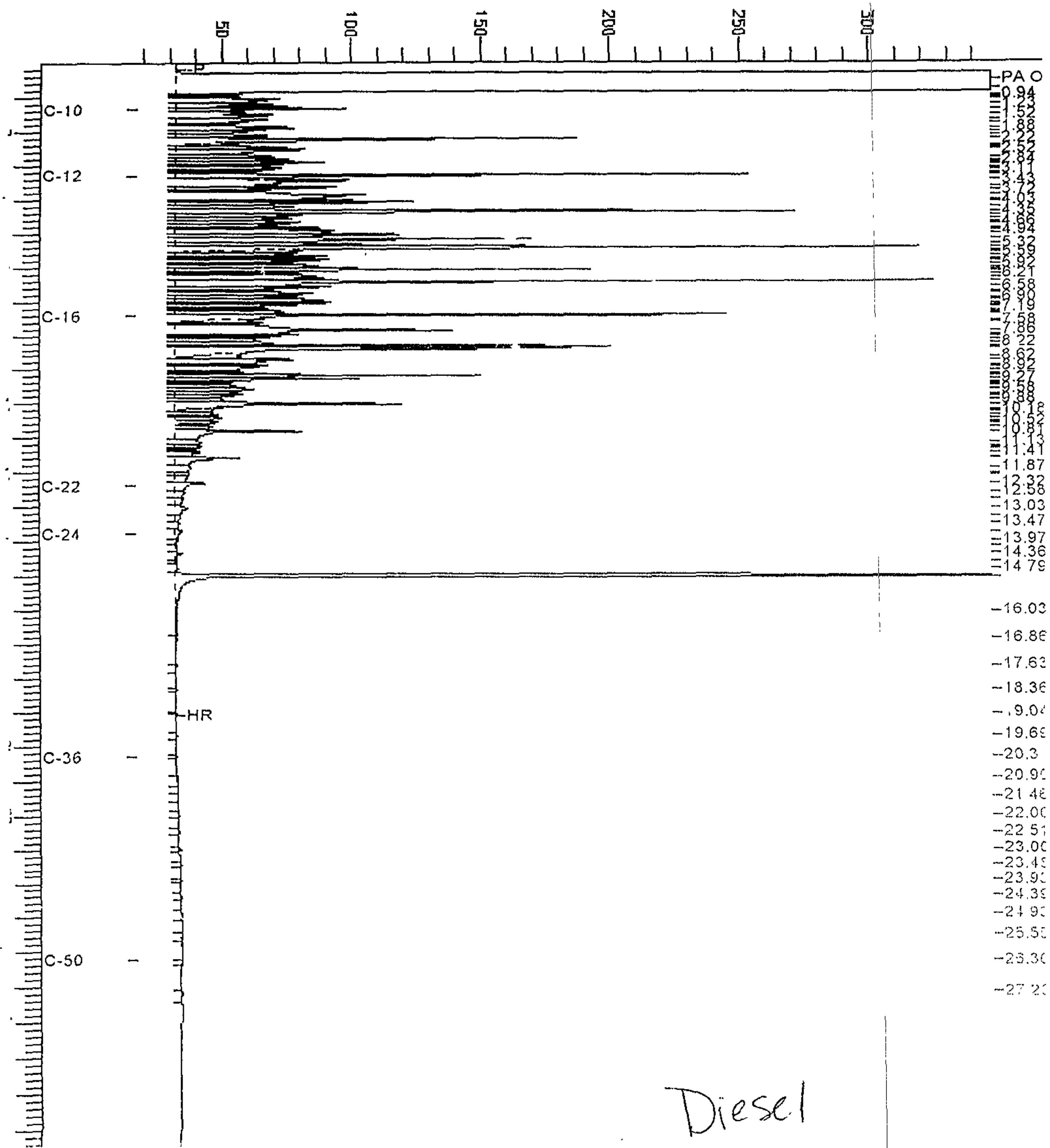


OKUS-W12

Chromatogram

Name : ,99ws7121,dsl
...e : ?:\GC13\CHB\054B003.RAW
. : H015.MTH
Time : .01 min End Time : 31.91 min
Fact. : 0.0 Plot Offset: 17 mV

Sample #: 500MG/L Page 1 of 1
Date : 2/23/99 02:21 PM
Time of Injection: 2/23/99 10:54 AM
Low Point : 16.91 mV High Point : 347.65 mV
Plot Scale: 330.7 mV

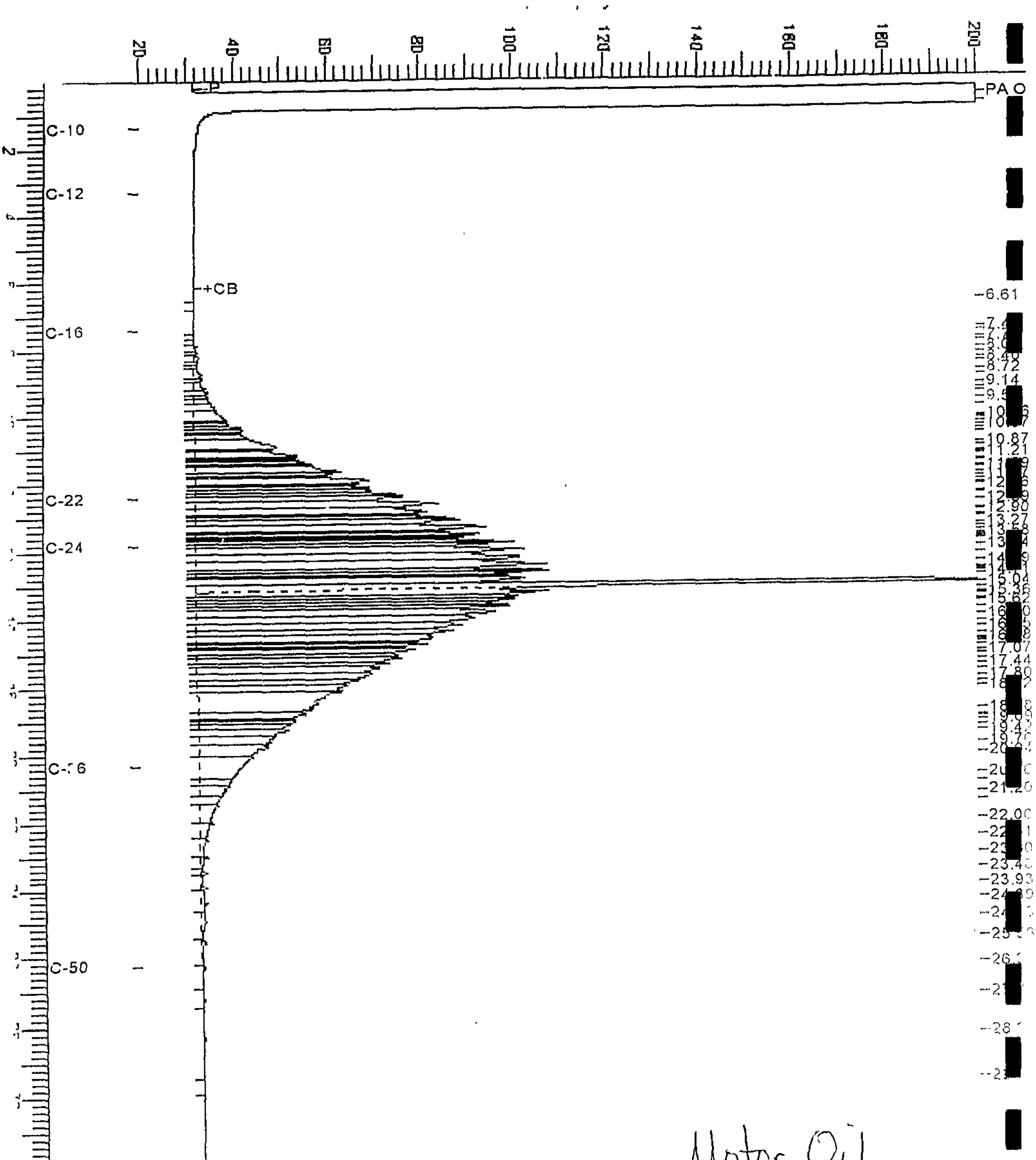


Diesel

Chromatogram

: ,99ws7122,mo
. ..GC13\CHB\054B004.RAW
. ..CH015.MTH
: .01 min — End Time : 31.91 min
. 0.0 — Plot Offset: 20 mV

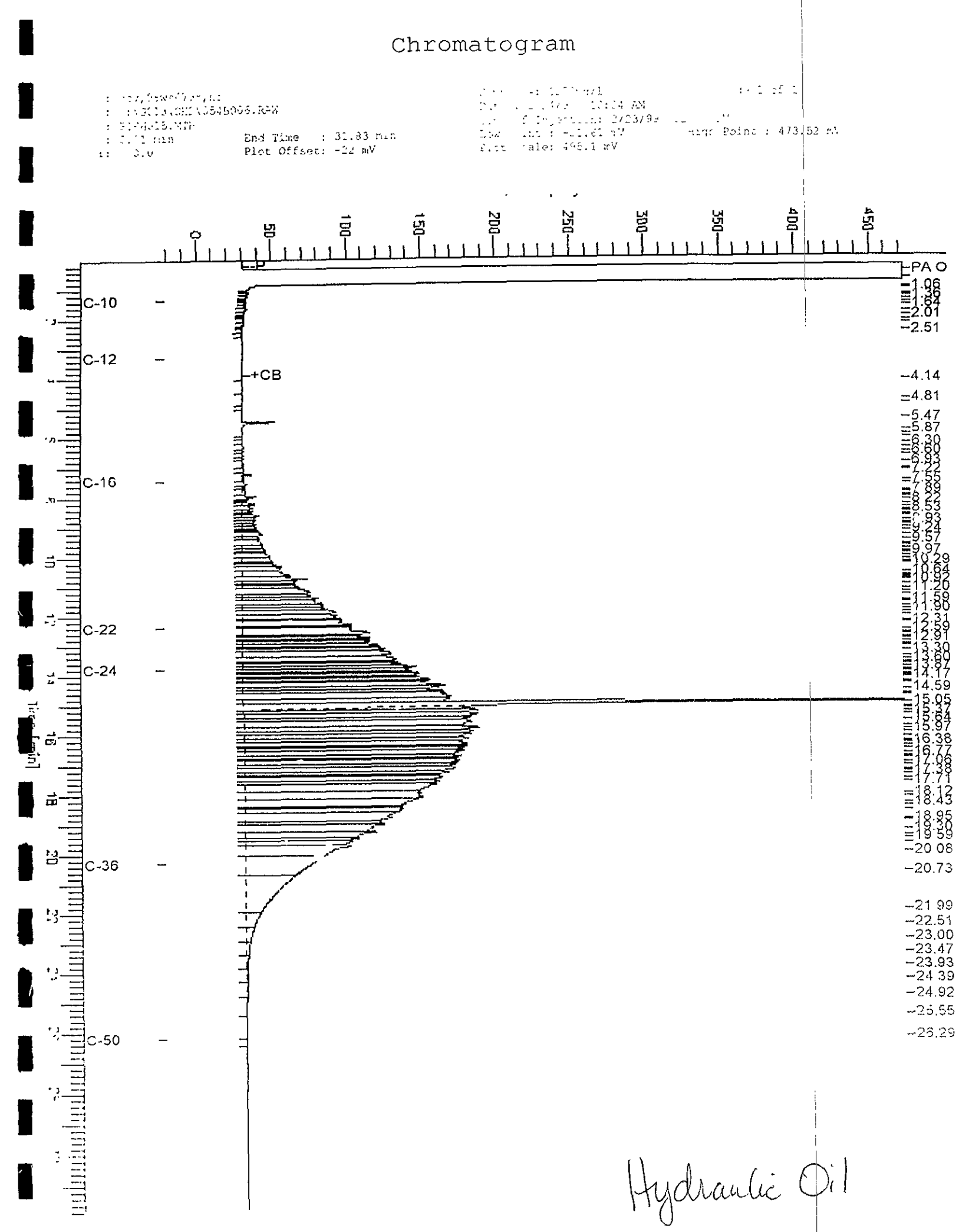
Sample #: 500MG/L — Page 1 of 1
Date : 2/23/99 02:24 PM
Time of Injection: 2/23/99
Low Point : 19.76 mV — High Point : 200.00 mV
Plot Scale: 180.2 mV



Motor Oil

Chromatogram

End Time : 31.83 min
Plot Offset: -22 mV



Hydraulic Oil

Lab #: 138022

BATCH QC REPORT

Curtis & Tompkins Ltd.

TEH-Tot Ext Hydrocarbons	
Client: Camp, Dresser & McKee	Analysis Method: EPA 8015M
Project#: 10605-25291	Prep Method: EPA 3520
Location: Port Of Oakland,U.P.GW	

METHOD BLANK

Matrix: Water	Prep Date: 02/18/99
Batch#: 46362	Analysis Date: 02/23/99
Units: ug/L	
Diln Fac: 1	

MB Lab ID: QC91253

Analyte	Result
Diesel C10-C24	<50
Motor Oil C24-C36	<300
Hydraulic Fluid,C24-36	<300

Surrogate	%Rec	Recovery Limits
Hexacosane	62	58-128

TEH-Tot Ext Hydrocarbons

Client: Camp, Dresser & McKee
Project#: 10605-25291
Location: Port Of Oakland,U.P.GW

Analysis Method: EPA 8015M
Prep Method: EPA 3520

BLANK SPIKE/BLANK SPIKE DUPLICATE

Matrix: Water
Batch#: 46362
Units: ug/L
Diln Fac: 1

Prep Date: 02/18/99
Analysis Date: 02/23/99

BS Lab ID: QC91254

Analyte	Spike Added	BS	%Rec #	Limits
Diesel C10-C24	2475	1312	53	50-114
Surrogate	**%Rec**	**Limits**		
Hexacosane	69	58-128		

BSD Lab ID: QC91255

Analyte	Spike Added	BSD	%Rec #	Limits	RPD #	Limit
Diesel C10-C24	2475	1392	56	50-114	6	25
Surrogate	**%Rec**	**Limits**				
Hexacosane	69	58-128				

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits
RPD: 0 out of 1 outside limits
Spike Recovery: 0 out of 2 outside limits

Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878
2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900, Fax (510) 486-0532

A N A L Y T I C A L R E P O R T

Prepared for:

Camp, Dresser & McKee
1 Walnut Creek Center
100 Pringle Ave, Suite 300
Walnut Creek, CA 94596

Date: 03-MAR-99
Lab Job Number: 138050
Project ID: 10605-25291
Location: Port Of Oakland,U.P.GW

Reviewed by: _____

Reviewed by: _____

Curtis & Tompkins, Ltd.

Laboratory Number: **138050**
Client: **Camp, Dresser & McKee**
Location: **Port of Oakland, U.P. GW**
Project: **10605-25291**

Receipt Date: **2/18/99**

CASE NARRATIVE

This hardcopy data package contains sample and QC results for nine water samples that were received on February 18, 1999. All samples were received cold and intact.

Total Volatile Hydrocarbons/BTXE: No analytical problems were encountered.

Total Extractable Hydrocarbons: All extracts were treated with silica gel prior to analysis. No analytical problems were encountered.

Volatile Organics by EPA Method 8260: No analytical problems were encountered.

Arsenic by EPA Method 6010A: No analytical problems were encountered.

CHAIN OF CUSTODY FORM

Page 1 of 1

Curtis & Tompkins, Ltd.
Analytical Laboratories, Since 1878
2323 Fifth Street
Berkeley, CA 94710
(510) 486-0900 Phone
(510) 486-0532 Fax

C&T LOGIN # 138056

Sampler: C O'Neill C Chan

Project No:

Project Name: Port of Oakland, UP

Project P.O.: 10605-25291-GW-UPMFGW UPTOFC

Turnaround Time: 5days

Report To: Hoa Voscott

Company: Camp Dresser & McKee

Telephone: 925 9332900

Fax: 925 933 4174

Lab Number	Sample ID.	Sampling Date Time	Matrix: Soil	Matrix: Water	Matrix: Waste	# of Containers	Preservative: HCl*	Preservative: H_2SO_4	Preservative: HNO_3	Preservative: ICE	Directions / Field Notes	Analyses: TPH diesel 8015M w/silica gel cleanup	Analyses: BTEX 8020	Analyses: TPHgas 8015M	Analyses: Arsenic 6000	Analyses: VOCs 8260
1	APL/UP-W1	2/18/99 935		X		5	X				Pls. filter + preserve arsenic (6000) samples ASAP	X	X	X	X	
2	APL/UP-W2	1005				5						X	X	X	X	
3	OMW-5	1125				4						X	X			
4	OMW-2	1205				4						X	X			
5	OKUS-W2	1417				5					Pls filter + preserve arsenic (6000) samples ASAP	X	X	X	X	
6	OKUS-W1	1445				5						X	X	X	X	
7	OMW-6	1515				4						X	X			
8	OKUS-W8	1555				5					Pls filter + preserve arsenic sample ASAP	X	X	X	X	
9	TB2					1							X	X		X
10																
11																
12																
13																

* HCl in VOAs only (TPH gas, BTEX samples)

Notes:
Filter + preserve arsenic (6000) samples immediately
4:0
JQW

RELINQUISHED BY:	RECEIVED BY:
C O'Neill 2/18/99 1635 DATE/TIME	2/18/99 1635 DATE/TIME
DATE/TIME	DATE/TIME
DATE/TIME	DATE/TIME

Signature on this form constitutes a firm Purchase Order for the services requested above

TVH-Total Volatile Hydrocarbons

Client: Camp, Dresser & McKee
Project#: 10605-25291
Location: Port Of Oakland,U.P.GW

Analysis Method: EPA 8015M
Prep Method: EPA 5030

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
138050-001	APL/UP-W1	46386	02/18/99	02/22/99	02/22/99	
138050-002	APL/UP-W2	46386	02/18/99	02/23/99	02/23/99	
138050-005	OKUS-W2	46434	02/18/99	02/24/99	02/24/99	
138050-006	OKUS-W1	46386	02/18/99	02/23/99	02/23/99	

Matrix: Water

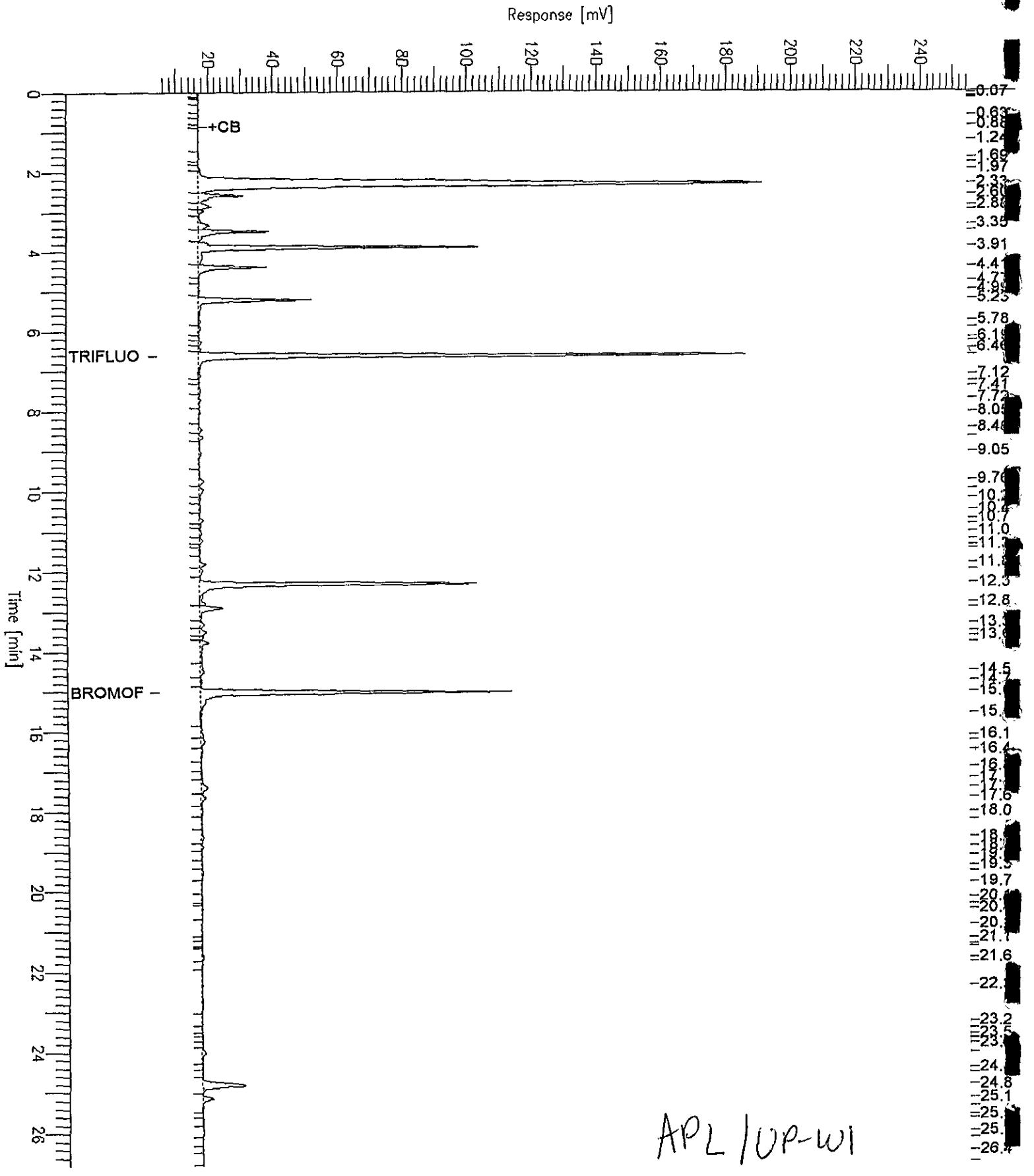
Analyte	Units	138050-001	138050-002	138050-005	138050-006
Diln Fac:		1	1	10	1
Gasoline C7-C12	ug/L	140 YL	130 YL	6200 YL	<50
Surrogate					
Trifluorotoluene	%REC	102	103	107	100
Bromofluorobenzene	%REC	105	108	101	100

Y: Sample exhibits fuel pattern which does not resemble standard
L: Lighter hydrocarbons than indicated standard

GC19 TVH 'X' Data File (FID)

Sample Name : MSS,138050-001C,46386
FileName : G:\GC19\DATA\053X009.raw
Method : TVHBTXE
Start Time : 0.00 min End Time : 26.80 min
Scale Factor: -1.0 Plot Offset: 4 mV

Sample #: PH=2 Page 1 of 1
Date : 2/22/99 07:53 PM
Time of Injection: 2/22/99 07:25 PM
Low Point : 4.25 mV High Point : 254.25 mV
Plot Scale: 250.0 mV

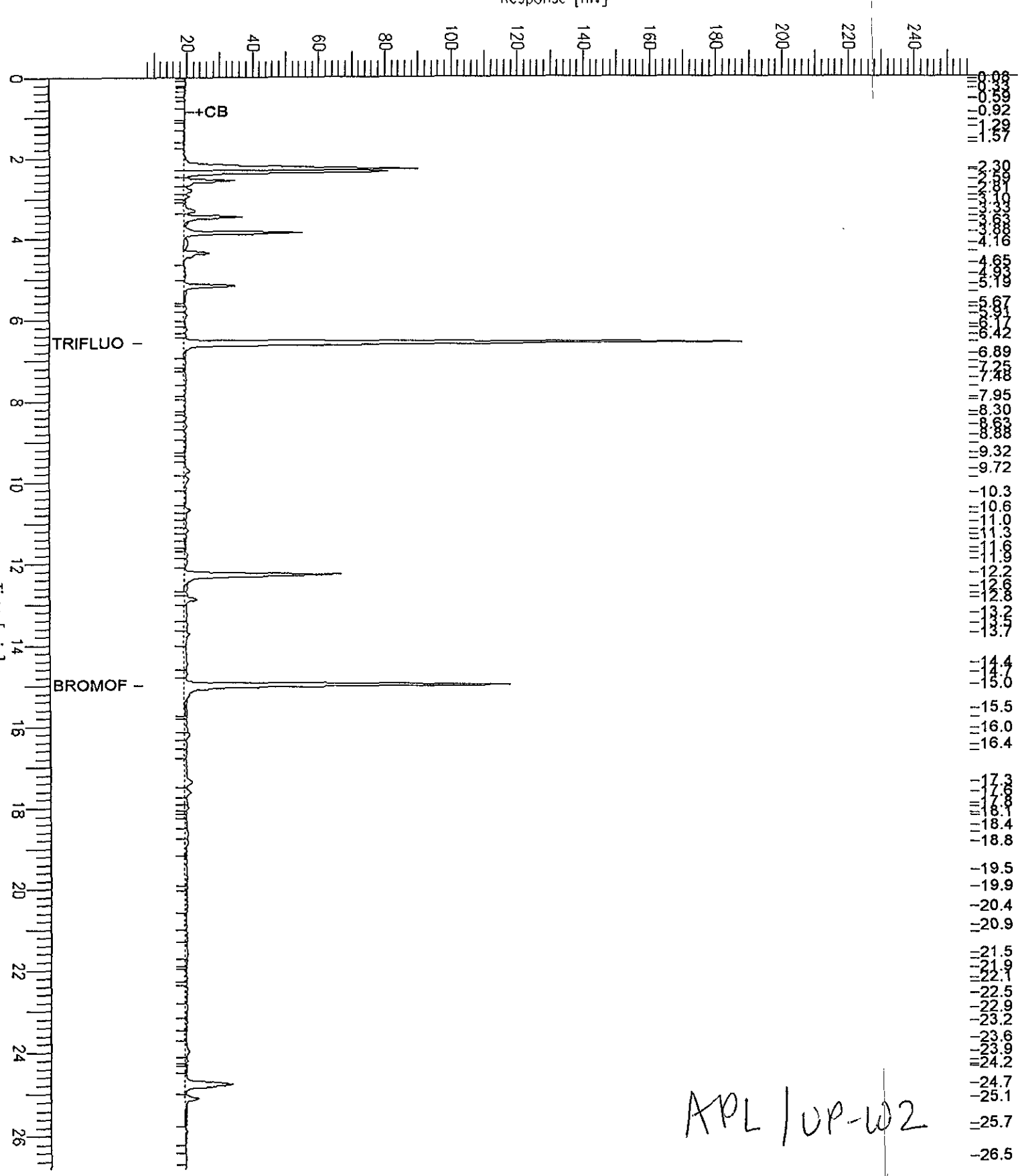


APL/UP-WI

GC19 TVH 'X' Data File (FID)

Sample Name : 138050-002E,46386
FileName : G:\GC19\DATA\053X033.raw
Method : TVHBTXE
Start Time : 0.00 min End Time : 26.80 min
Scale Factor: -1.0 Plot Offset: 6 mV

Sample #: PH=2 Page 1 of 1
Date : 2/23/99 10:43 AM
Time of Injection: 2/23/99 10:16 AM
Low Point : 6.27 mV High Point : 256.27 mV
Plot Scale: 250.0 mV

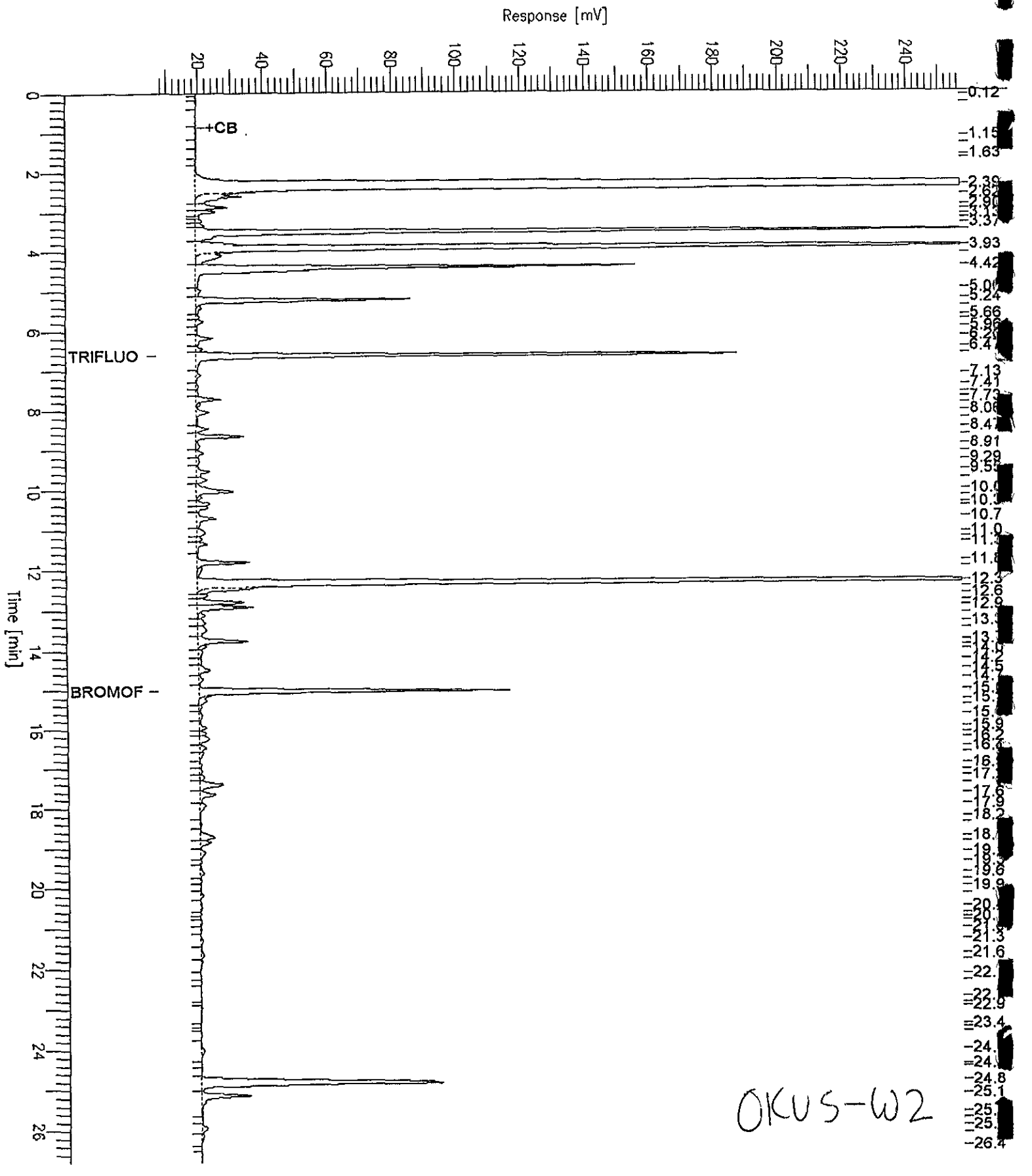


APL | UP-02

GC19 TVH 'X' Data File (FID)

Sample Name : RD,137050-005C,46434
FileName : G:\GC19\DATA\054X012.raw
Method : TVHBTXE
Start Time : 0.00 min End Time : 26.80 min
Scale Factor: -1.0 Plot Offset: 7 mV

Sample #: 1:10 pH<2 Page 1 of 1
Date : 2/24/99 02:27 AM
Time of Injection: 2/24/99 02:00 AM
Low Point : 6.61 mV High Point : 256.61 mV
Plot Scale: 250.0 mV



OKUS-W2

TVH-Total Volatile Hydrocarbons

Client: Camp, Dresser & McKee
Project#: 10605-25291
Location: Port Of Oakland,U.P.GW

Analysis Method: EPA 8015M
Prep Method: EPA 5030

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
138050-008	OKUS-W8	46386	02/18/99	02/23/99	02/23/99	
138050-009	TB2	46386	02/18/99	02/23/99	02/23/99	

Matrix: Water

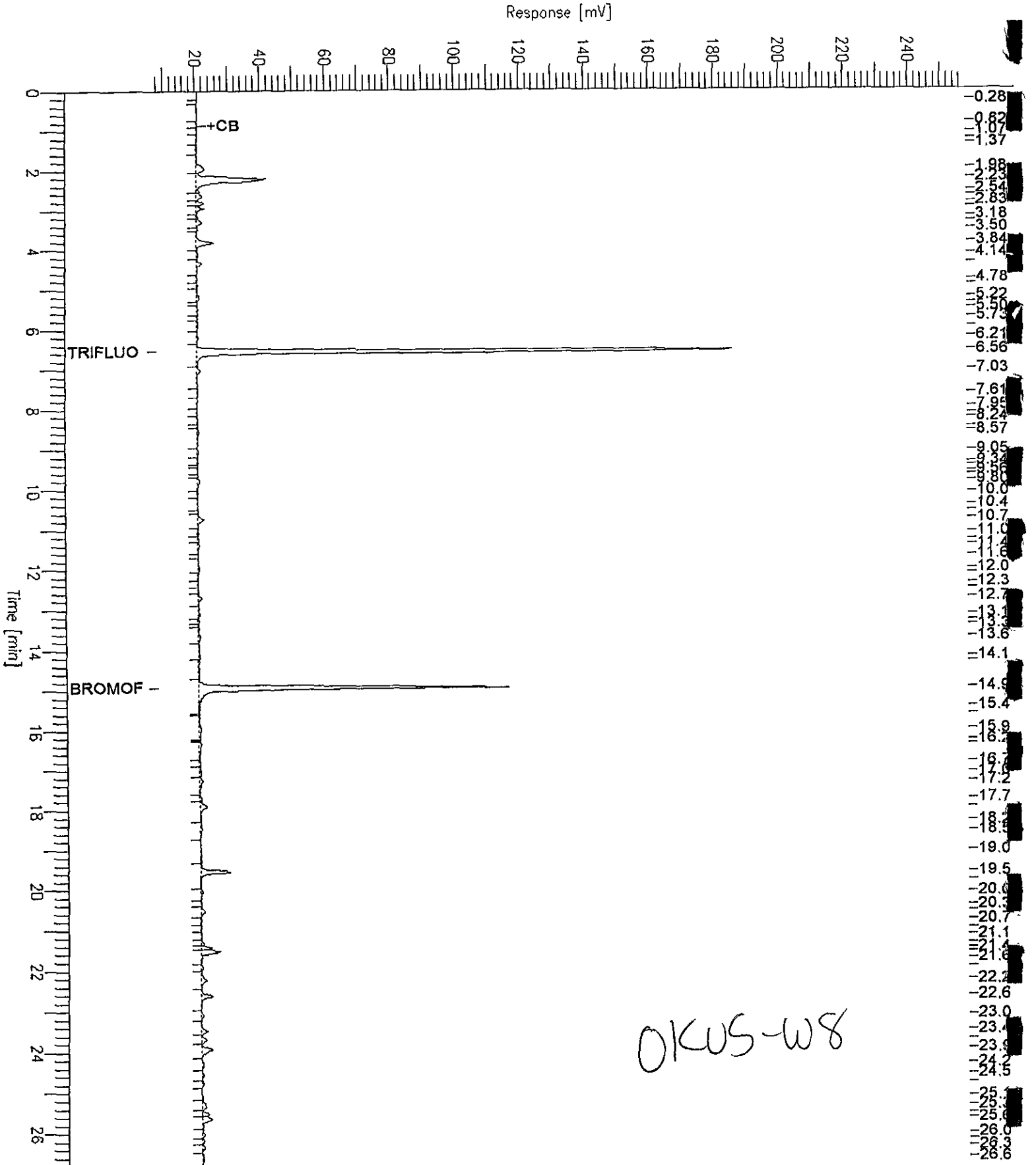
Analyte	Units	138050-008	138050-009
Diln Fac:		1	1
Gasoline C7-C12	ug/L	64 Y	<50
Surrogate			
Trifluorotoluene	%REC	103	101
Bromofluorobenzene	%REC	103	99

Y: Sample exhibits fuel pattern which does not resemble standard

GC19 TVH 'X' Data File (FID)

Sample Name : 138050-008D,46386
FileName : G:\GC19\DATA\053X025.raw
Method : TVHBTXE
Start Time : 0.00 min End Time : 26.80 min
Scale Factor: -1.0 Plot Offset: 8 mV

Sample #: PH=7 Page 1 of 1
Date : 2/23/99 05:46 AM
Time of Injection: 2/23/99 05:19 AM
Low Point : 7.92 mV High Point : 257.92 mV
Plot Scale: 250.0 mV

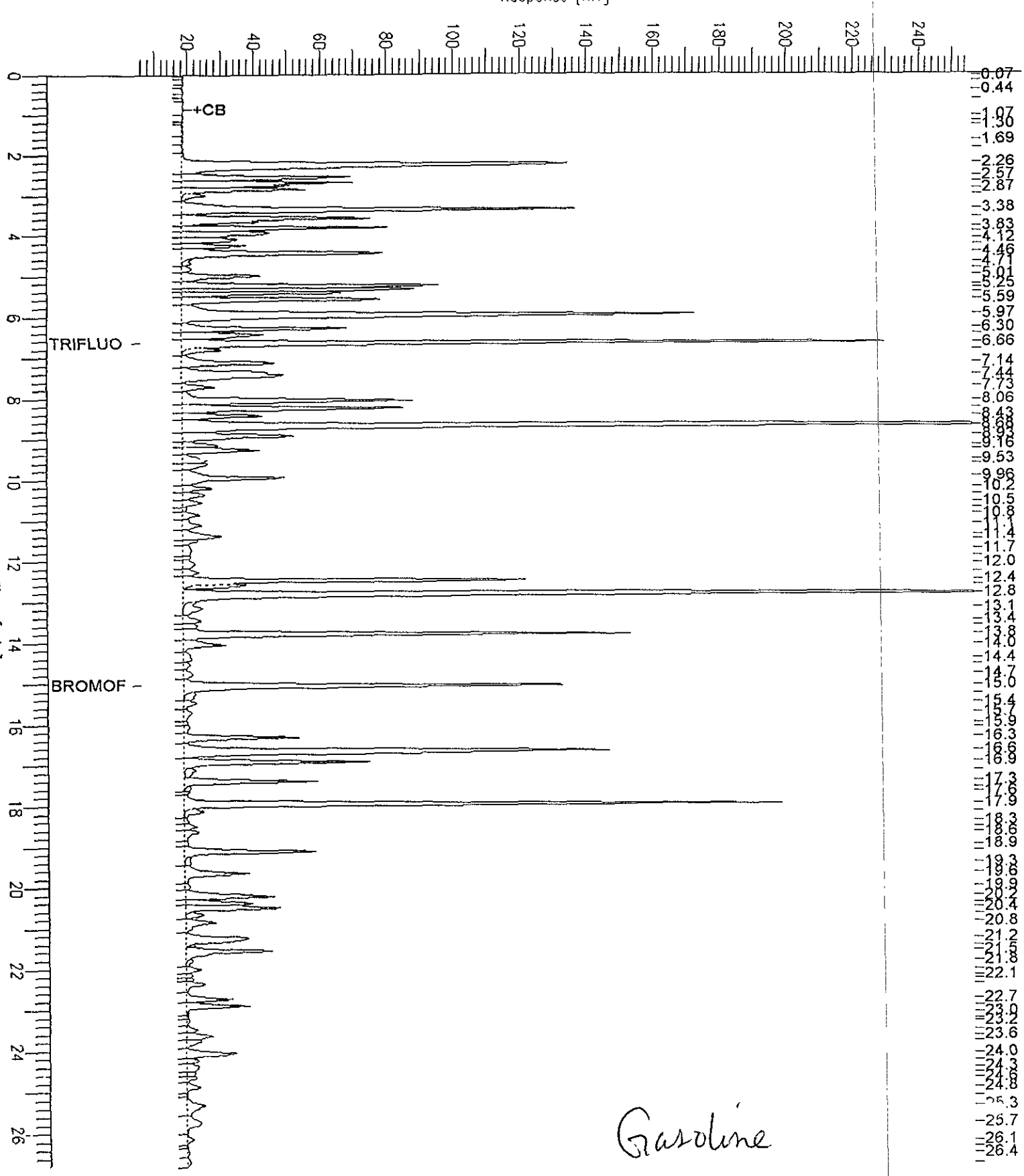


OKUS-W8

GC19 TVH 'X' Data File (FID)

Sample Name : CCV\LCS,QC91335,99WS7126,46386
FileName : G:\GC19\DATA\053X002.raw
Method : TVHBTXE
Start Time : 0.00 min End Time : 26.80 min
Scale Factor: -1.0 Plot Offset: 6 mV

Sample #: GAS Page 1 of 1
Date : 2/22/99 12:46 PM
Time of Injection: 2/22/99 12:09 PM
Low Point : 5.91 mV High Point : 255.91 mV
Plot Scale: 250.0 mV

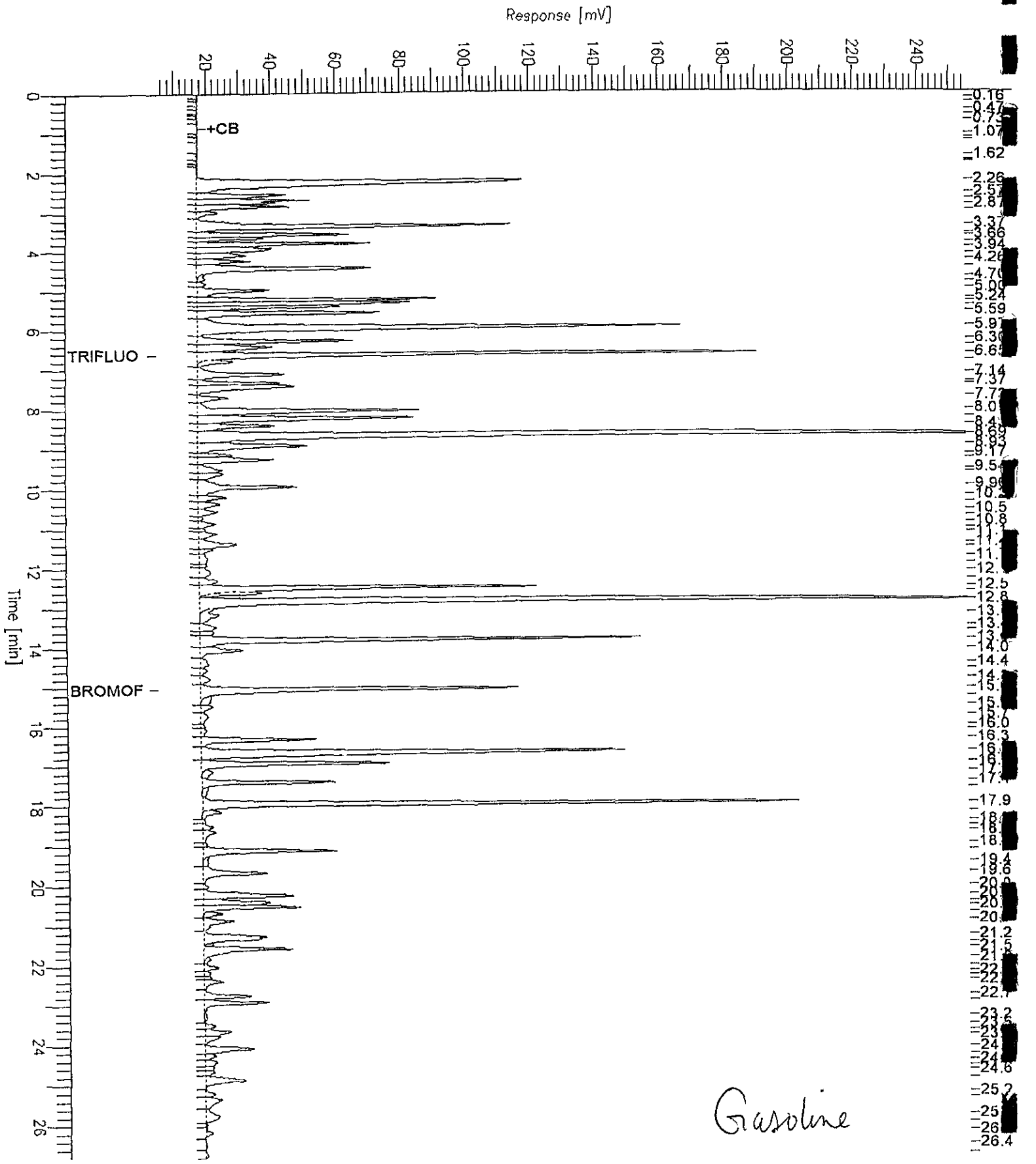


Gasoline

GC19 TVH 'X' Data File (FID)

Sample Name : CCV\BS,QC91492,99WS7126,46434
FileName : G:\GC19\DATA\054X001.raw
Method : TVHBTXE
Start Time : 0.00 min End Time : 26.80 min
Scale Factor: -1.0 Plot Offset: 5 mV

Sample #: 054XY GAS Page 1 of 1
Date : 2/23/99 07:38 PM
Time of Injection: 2/23/99 07:11 PM
Low Point : 4.79 mV High Point : 254.79 mV
Plot Scale: 250.0 mV



Curtis & Tompkins Ltd.

BTXE

Client: Camp, Dresser & McKee
Project#: 10605-25291
Location: Port Of Oakland,U.P.GW

Analysis Method: EPA 8021B
Prep Method: EPA 5030

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
138050-001	APL/UP-W1	46386	02/18/99	02/22/99	02/22/99	
138050-002	APL/UP-W2	46386	02/18/99	02/23/99	02/23/99	
138050-003	OMW-5	46386	02/18/99	02/23/99	02/23/99	
138050-004	OMW-2	46386	02/18/99	02/23/99	02/23/99	

Matrix: Water

Analyte Diln Fac:	Units	138050-001 1	138050-002 1	138050-003 1	138050-004 1
Benzene	ug/L	9.3	4	<0.5	<0.5
Toluene	ug/L	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	ug/L	70	37	<0.5	1.9
m,p-Xylenes	ug/L	<0.5	<0.5	<0.5	<0.5
o-Xylene	ug/L	<0.5	<0.5	<0.5	<0.5
Surrogate					
Trifluorotoluene	%REC	98	99	95	79
Bromofluorobenzene	%REC	102	103	96	82

Curtis & Tompkins, Ltd.

BTXE

Client: Camp, Dresser & McKee
Project#: 10605-25291
Location: Port Of Oakland,U.P.GW

Analysis Method: EPA 8021B
Prep Method: EPA 5030

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
138050-005	OKUS-W2	46434	02/18/99	02/24/99	02/24/99	
138050-006	OKUS-W1	46386	02/18/99	02/23/99	02/23/99	
138050-007	OMW-6	46386	02/18/99	02/23/99	02/23/99	
138050-008	OKUS-W8	46386	02/18/99	02/23/99	02/23/99	

Matrix: Water

Analyte Diln Fac:	Units	138050-005 40	138050-006 1	138050-007 1	138050-008 1
Benzene	ug/L	220	<0.5	<0.5	<0.5
Toluene	ug/L	52	<0.5	<0.5	<0.5
Ethylbenzene	ug/L	5300	<0.5	<0.5	<0.5
m,p-Xylenes	ug/L	77	<0.5	<0.5	<0.5
o-Xylene	ug/L	51	<0.5	<0.5	<0.5
Surrogate					
Trifluorotoluene	%REC	97	95	95	97
Bromofluorobenzene	%REC	99	97	96	98

Curtis & Tompkins Ltd.

BTXE

Client: Camp, Dresser & McKee
Project#: 10605-25291
Location: Port Of Oakland,U.P.GW

Analysis Method: EPA 8021B
Prep Method: EPA 5030

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
138050-009	TB2	46386	02/18/99	02/23/99	02/23/99	

Matrix: Water

Analyte	Units	138050-009
Diln Fac:		1
Benzene	ug/L	<0.5
Toluene	ug/L	<0.5
Ethylbenzene	ug/L	<0.5
m,p-Xylenes	ug/L	<0.5
o-Xylene	ug/L	<0.5
Surrogate		
Trifluorotoluene	%REC	95
Bromofluorobenzene	%REC	97

TVH-Total Volatile Hydrocarbons

Client: Camp, Dresser & McKee
Project#: 10605-25291
Location: Port Of Oakland,U.P.GW

Analysis Method: EPA 8015M
Prep Method: EPA 5030

METHOD BLANK

Matrix: Water
Batch#: 46386
Units: ug/L
Diln Fac: 1

Prep Date: 02/22/99
Analysis Date: 02/22/99

MB Lab ID: QC91338

Analyte	Result	
Gasoline C7-C12	<50	
Surrogate	**%Rec**	**Recovery Limits**
Trifluorotoluene	89	53-150
Bromofluorobenzene	88	53-149

BTXE

Client: Camp, Dresser & McKee
Project#: 10605-25291
Location: Port Of Oakland,U.P.GW

Analysis Method: EPA 8021B
Prep Method: EPA 5030

METHOD BLANK

Matrix: Water
Batch#: 46386
Units: ug/L
Diln Fac: 1

Prep Date: 02/22/99
Analysis Date: 02/22/99

MB Lab ID: QC91338

Analyte	Result
Benzene	<0.5
Toluene	<0.5
Ethylbenzene	<0.5
m,p-Xylenes	<0.5
o-Xylene	<0.5

Surrogate	%Rec	Recovery Limits
Trifluorotoluene	83	51-143
Bromofluorobenzene	84	37-146

Lab #: 138050

BATCH QC REPORT

Curtis & Tompkins Ltd.

TVH-Total Volatile Hydrocarbons

Client:	Camp, Dresser & McKee	Analysis Method:	EPA 8015M
Project#:	10605-25291	Prep Method:	EPA 5030
Location:	Port Of Oakland,U.P.GW		

METHOD BLANK

Matrix:	Water	Prep Date:	02/23/99
Batch#:	46434	Analysis Date:	02/23/99
Units:	ug/L		
Diln Fac:	1		

MB Lab ID: QC91495

Analyte	Result	
Gasoline C7-C12	<50	
Surrogate	**%Rec**	**Recovery Limits**
Trifluorotoluene	95	53-150
Bromofluorobenzene	93	53-149

Lab #: 138050

BATCH QC REPORT

Curtis & Tompkins Ltd.

BTXE

Client: Camp, Dresser & McKee
Project#: 10605-25291
Location: Port Of Oakland,U.P.GW

Analysis Method: EPA 8021B
Prep Method: EPA 5030

METHOD BLANK

Matrix: Water
Batch#: 46434
Units: ug/L
Diln Fac: 1

Prep Date: 02/23/99
Analysis Date: 02/23/99

MB Lab ID: QC91495

Analyte	Result
Benzene	<0.5
Toluene	<0.5
Ethylbenzene	<0.5
m,p-Xylenes	<0.5
o-Xylene	<0.5

Surrogate	%Rec	Recovery Limits
Trifluorotoluene	94	51-143
Bromofluorobenzene	95	37-146

Lab #: 138050

BATCH QC REPORT

Curtis & Tompkins Ltd.

TVH-Total Volatile Hydrocarbons

Client: Camp, Dresser & McKee
Project#: 10605-25291
Location: Port Of Oakland,U.P.GW

Analysis Method: EPA 8015M
Prep Method: EPA 5030

LABORATORY CONTROL SAMPLE

Matrix: Water
Batch#: 46386
Units: ug/L
Diln Fac: 1

Prep Date: 02/22/99
Analysis Date: 02/22/99

LCS Lab ID: QC91335

Analyte	Result	Spike Added	%Rec #	Limits
Gasoline C7-C12	1746	2000	87	77-117

Surrogate	%Rec	Limits
Trifluorotoluene	133	53-150
Bromofluorobenzene	134	53-149

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits
Spike Recovery: 0 out of 1 outside limits

Lab #: 138050

BATCH QC REPORT

Curtis & Tompkins Ltd.

BTXE

Client: Camp, Dresser & McKee
Project#: 10605-25291
Location: Port Of Oakland,U.P.GW

Analysis Method: EPA 8021B
Prep Method: EPA 5030

LABORATORY CONTROL SAMPLE

Matrix: Water
Batch#: 46434
Units: ug/L
Diln Fac: 1

Prep Date: 02/23/99
Analysis Date: 02/23/99

LCS Lab ID: QC91494

Analyte	Result	Spike Added	%Rec #	Limits
Benzene	18.42	20	92	65-111
Toluene	17.98	20	90	76-117
Ethylbenzene	18.6	20	93	71-121
m,p-Xylenes	37.95	40	95	80-123
o-Xylene	18.06	20	90	75-127

Surrogate	%Rec	Limits
Trifluorotoluene	96	51-143
Bromofluorobenzene	100	37-146

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits
Spike Recovery: 0 out of 5 outside limits

Lab #: 138050

BATCH QC REPORT

Curtis & Tompkins Ltd.

BTXE

Client: Camp, Dresser & McKee
Project#: 10605-25291
Location: Port Of Oakland,U.P.GW

Analysis Method: EPA 8021B
Prep Method: EPA 5030

BLANK SPIKE/BLANK SPIKE DUPLICATE

Matrix: Soil
Batch#: 46386
Units: ug/Kg
Diln Fac: 1

Prep Date: 02/22/99
Analysis Date: 02/22/99

BS Lab ID: QC91336

Analyte	Spike Added	BS	%Rec #	Limits
Benzene	20	16.48	82	65-111
Toluene	20	15.95	80	76-117
Ethylbenzene	20	16.39	82	71-121
m,p-Xylenes	40	33.33	83	80-123
o-Xylene	20	15.8	79	75-127

Surrogate	%Rec	Limits
Trifluorotoluene	87	51-143
Bromofluorobenzene	90	37-146

BSD Lab ID: QC91337

Analyte	Spike Added	BSD	%Rec #	Limits	RPD #	Limit
Benzene	20	18.11	91	65-111	9	10
Toluene	20	17.42	87	76-117	9	10
Ethylbenzene	20	18.05	90	71-121	10	11
m,p-Xylenes	40	36.86	92	80-123	10	10
o-Xylene	20	17.65	88	75-127	11	11

Surrogate	%Rec	Limits
Trifluorotoluene	93	51-143
Bromofluorobenzene	95	37-146

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits
RPD: 0 out of 5 outside limits
Spike Recovery: 0 out of 10 outside limits

Lab #: 138050

BATCH QC REPORT

Curtis & Tompkins Ltd.

TVH-Total Volatile Hydrocarbons

Client: Camp, Dresser & McKee
Project#: 10605-25291
Location: Port Of Oakland,U.P.GW

Analysis Method: EPA 8015M
Prep Method: EPA 5030

BLANK SPIKE/BLANK SPIKE DUPLICATE

Matrix: Water
Batch#: 46434
Units: ug/L
Diln Fac: 1

Prep Date: 02/23/99
Analysis Date: 02/23/99

BS Lab ID: QC91492

Analyte	Spike Added	BS	%Rec #	Limits
Gasoline C7-C12	2000	1786	89	77-117

Surrogate	%Rec	Limits
Trifluorotoluene	107	53-150
Bromofluorobenzene	103	53-149

BSD Lab ID: QC91493

Analyte	Spike Added	BSD	%Rec #	Limits	RPD #	Limit
Gasoline C7-C12	2000	1821	91	77-117	2	10

Surrogate	%Rec	Limits
Trifluorotoluene	103	53-150
Bromofluorobenzene	115	53-149

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits
RPD: 0 out of 1 outside limits
Spike Recovery: 0 out of 2 outside limits

Lab #: 138050

BATCH QC REPORT

Curtis & Tompkins Ltd.

TVH-Total Volatile Hydrocarbons

Client: Camp, Dresser & McKee
Project#: 10605-25291
Location: Port Of Oakland,U.P.GW

Analysis Method: EPA 8015M
Prep Method: EPA 5030

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Field ID: APL/UP-W1
Lab ID: 138050-001
Matrix: Water
Batch#: 46386
Units: ug/L
Diln Fac: 1

Sample Date: 02/18/99
Received Date: 02/18/99
Prep Date: 02/22/99
Analysis Date: 02/22/99

MS Lab ID: QC91375

Analyte	Spike Added	Sample	MS	%Rec #	Limits
Gasoline C7-C12	2000	140.1	2059	96	69-131

Surrogate	%Rec	Limits
Trifluorotoluene	110	53-150
Bromofluorobenzene	123	53-149

MSD Lab ID: QC91376

Analyte	Spike Added	MSD	%Rec #	Limits	RPD #	Limit
Gasoline C7-C12	2000	2037	95	69-131	1	13

Surrogate	%Rec	Limits
Trifluorotoluene	109	53-150
Bromofluorobenzene	122	53-149

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits
RPD: 0 out of 1 outside limits
Spike Recovery: 0 out of 2 outside limits

Lab #: 138050

BATCH QC REPORT

Curtis & Tompkins Ltd.

BTXE

Client: Camp, Dresser & McKee
Project#: 10605-25291
Location: Port Of Oakland,U.P.GW

Analysis Method: EPA 8021B
Prep Method: EPA 5030

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Field ID: ZZZZZZ
Lab ID: 138046-005
Matrix: Water
Batch#: 46434
Units: ug/L
Diln Fac: 1

Sample Date: 02/17/99
Received Date: 02/19/99
Prep Date: 02/23/99
Analysis Date: 02/23/99

MS Lab ID: QC91496

Analyte	Spike Added	Sample	MS	%Rec #	Limits
Benzene	20	<0.5	19.16	96	55-122
Toluene	20	<0.5	18.7	94	63-139
Ethylbenzene	20	<0.5	19.03	95	61-137
m,p-Xylenes	40	<0.5	39.88	97	57-148
o-Xylene	20	<0.5	18.72	94	70-141

Surrogate	%Rec	Limits
Trifluorotoluene	105	51-143
Bromofluorobenzene	109	37-146

MSD Lab ID: QC91497

Analyte	Spike Added	MSD	%Rec #	Limits	RPD #	Limit
Benzene	20	19.16	96	55-122	0	10
Toluene	20	18.87	94	63-139	1	10
Ethylbenzene	20	19.19	96	61-137	1	10
m,p-Xylenes	40	39.13	98	57-148	1	10
o-Xylene	20	19.02	95	70-141	2	10

Surrogate	%Rec	Limits
Trifluorotoluene	102	51-143
Bromofluorobenzene	107	37-146

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits
RPD: 0 out of 5 outside limits
Spike Recovery: 0 out of 10 outside limits

Curtis & Tompkins, Ltd.

TEH-Tot Ext Hydrocarbons

Client: Camp, Dresser & McKee
Project#: 10605-25291
Location: Port Of Oakland,U.P.GW

Analysis Method: EPA 8015M
Prep Method: EPA 3520

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
138050-001	APL/UP-W1	46409	02/18/99	02/22/99	02/25/99	
138050-002	APL/UP-W2	46409	02/18/99	02/22/99	02/25/99	
138050-003	OMW-5	46409	02/18/99	02/22/99	02/27/99	
138050-004	OMW-2	46409	02/18/99	02/22/99	02/25/99	

Matrix: Water

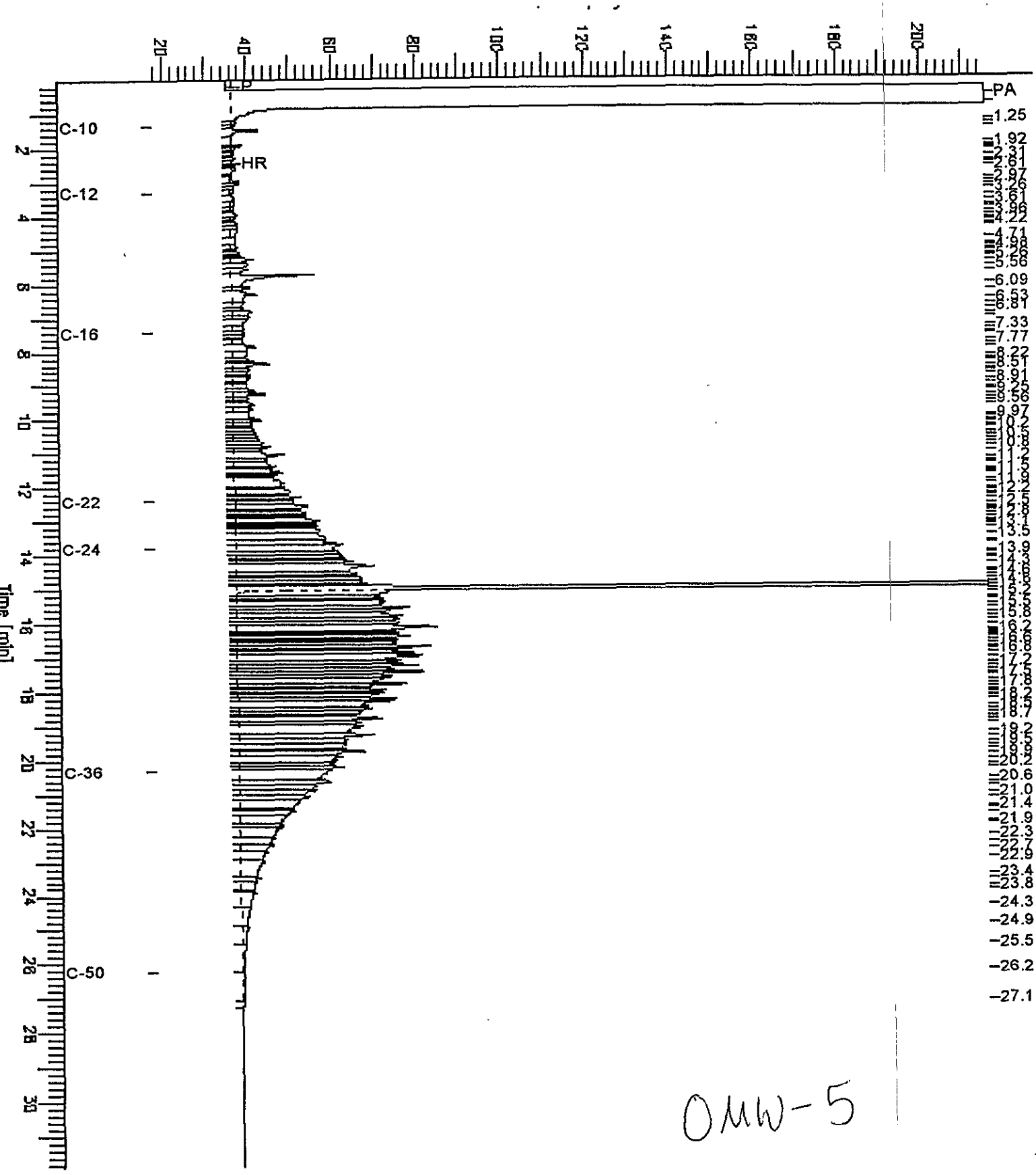
Analyte	Units	138050-001	138050-002	138050-003	138050-004
Diln Fac:		1	1	1	1
Diesel C10-C24	ug/L	<50	<50	370 YH	<50
Motor Oil C24-C36	ug/L	<300	<300	1900 YH	<300
Surrogate					
Hexacosane	%REC	92	96	92	101

Y: Sample exhibits fuel pattern which does not resemble standard
H: Heavier hydrocarbons than indicated standard

Chromatogram

Sample Name : 138050-003sg,46409
FileName : G:\GC13\CHB\056B053.RAW
Method : BTEH015.MTH
Start Time : 0.01 min End Time : 31.91 min
Scale Factor: 0.0 Plot Offset: 17 mV

Sample #: 46409 Page 1 of 1
Date : 2/27/99 05:36 PM
Time of Injection: 2/27/99 07:31 AM
Low Point : 17.49 mV High Point : 215.69 mV
Plot Scale: 198.2 mV



OMW-5

Curtis & Tompkins Ltd.

TEH-Tot Ext Hydrocarbons

Client: Camp, Dresser & McKee
Project#: 10605-25291
Location: Port Of Oakland,U.P.GW

Analysis Method: EPA 8015M
Prep Method: EPA 3520

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
138050-005	OKUS-W2	46409	02/18/99	02/22/99	02/27/99	
138050-006	OKUS-W1	46409	02/18/99	02/22/99	02/25/99	
138050-007	OMW-6	46409	02/18/99	02/22/99	02/25/99	
138050-008	OKUS-W8	46409	02/18/99	02/22/99	02/25/99	

Matrix: Water

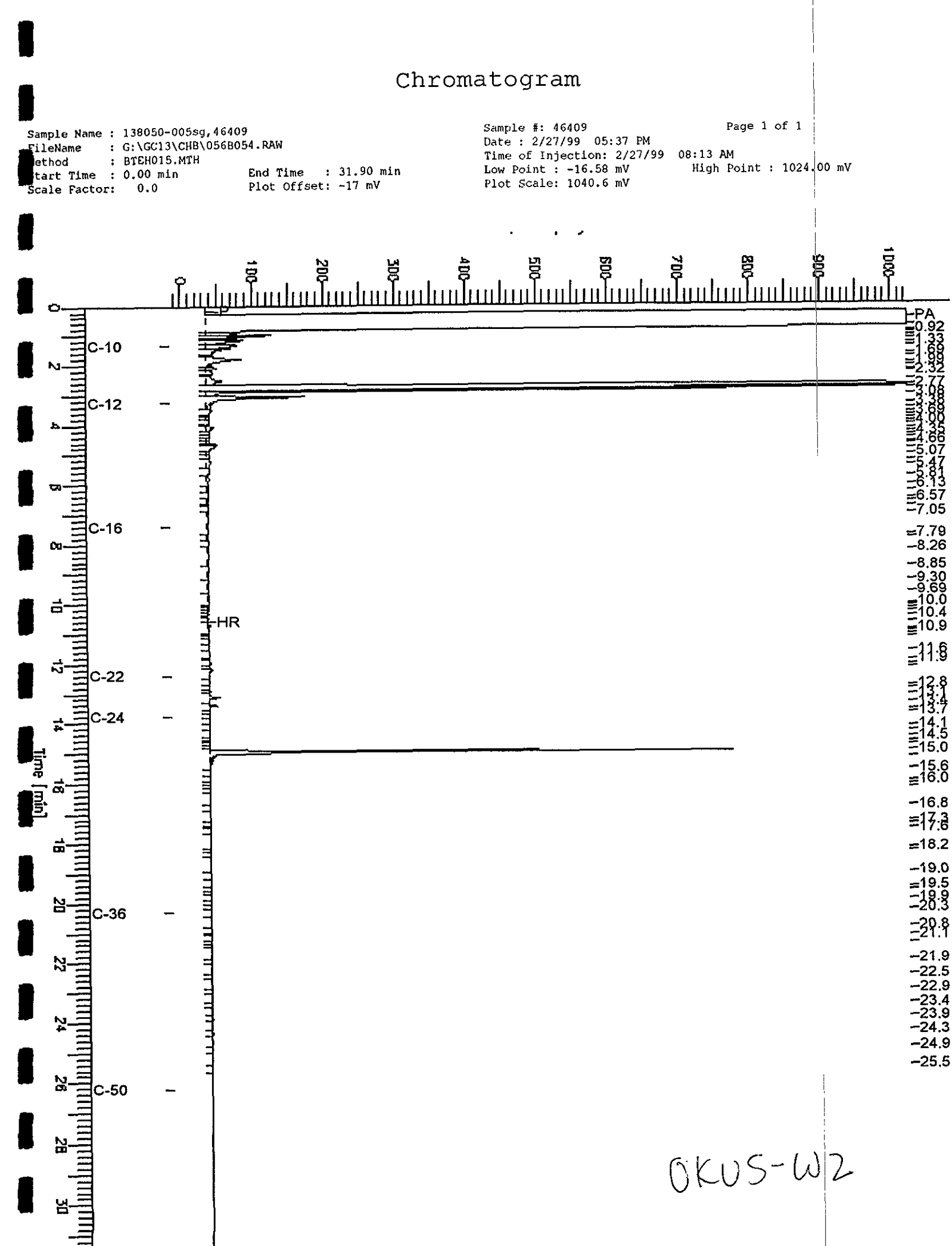
Analyte Diln Fac:	Units	138050-005 1	138050-006 1	138050-007 1	138050-008 1
Diesel C10-C24	ug/L	1200 YLZ	<50	550 Y	110 Y
Motor Oil C24-C36	ug/L	<300	<300	<300	<300
Surrogate					
Hexacosane	%REC	91	100	99	105

Y: Sample exhibits fuel pattern which does not resemble standard
Z: Sample exhibits unknown single peak or peaks
L: Lighter hydrocarbons than indicated standard

Chromatogram

Sample Name : 138050-005sg,46409
FileName : G:\GC13\CHB\056B054.RAW
Method : BTEH015.MTH
Start Time : 0.00 min End Time : 31.90 min
Scale Factor: 0.0 Plot Offset: -17 mV

Sample #: 46409 Page 1 of 1
Date : 2/27/99 05:37 PM
Time of Injection: 2/27/99 08:13 AM
Low Point : -16.58 mV High Point : 1024.00 mV
Plot Scale: 1040.6 mV

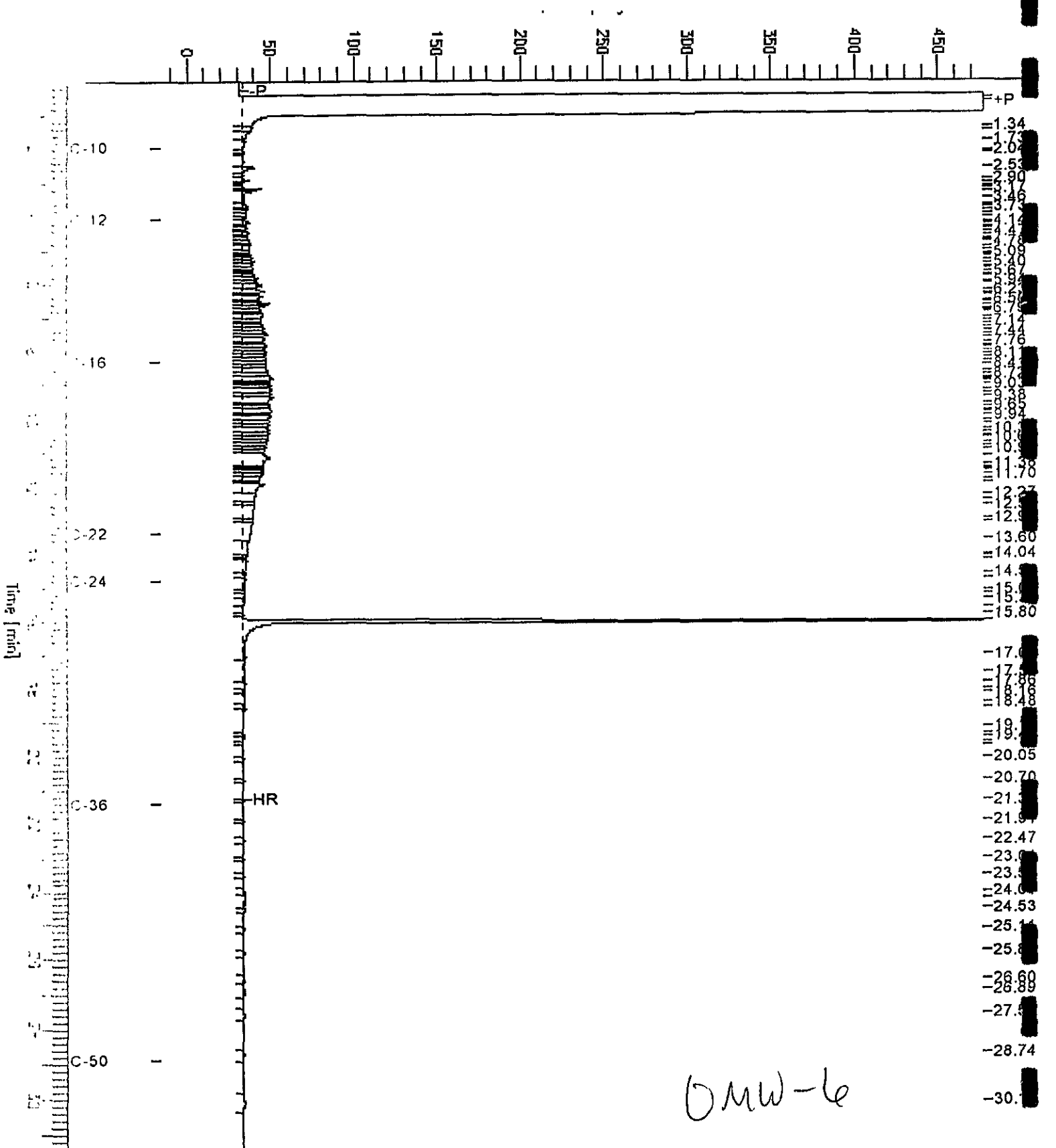


OKUS-W2

Chromatogram

: 138050-007sg,46409
: G:\GC11\CHA\055A043.RAW
: ATEH050.MTH
: 0.01 min End Time : 31.91 min
: 0.0 Plot Offset: -16 mV

Sample #: 46409 Page 1 of 1
Date : 2/26/99 11:03 AM
Time of Injection: 2/25/99 06:30 PM
Low Point : -16.33 mV High Point : 477.71 mV
Plot Scale: 494.0 mV

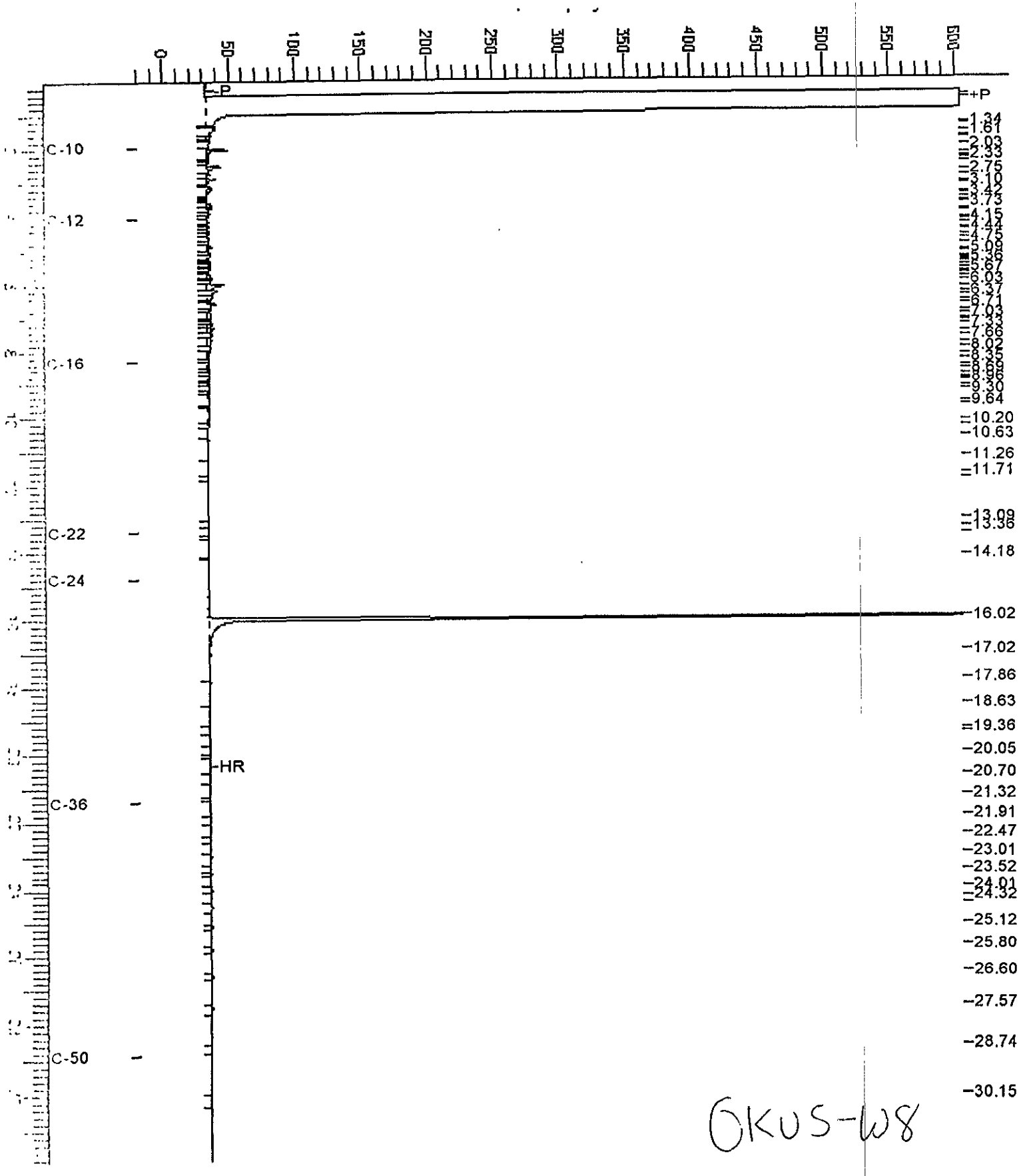


OMW-6

Chromatogram

le Name : 1.0050-008sg,46409
Name : G:\GC11\CHA\055A044.RAW
od : ATEH050.MTH
Time : 0.01 min End Time : 31.91 min
Factor: 0.0 Plot Offset: -20 mV

Sample #: 46409 Page 1 of 1
Date : 2/26/99 10:51 AM
Time of Injection: 2/25/99 07:10 PM
Low Point : -20.08 mV High Point : 604.74 mV
Plot Scale: 624.8 mV

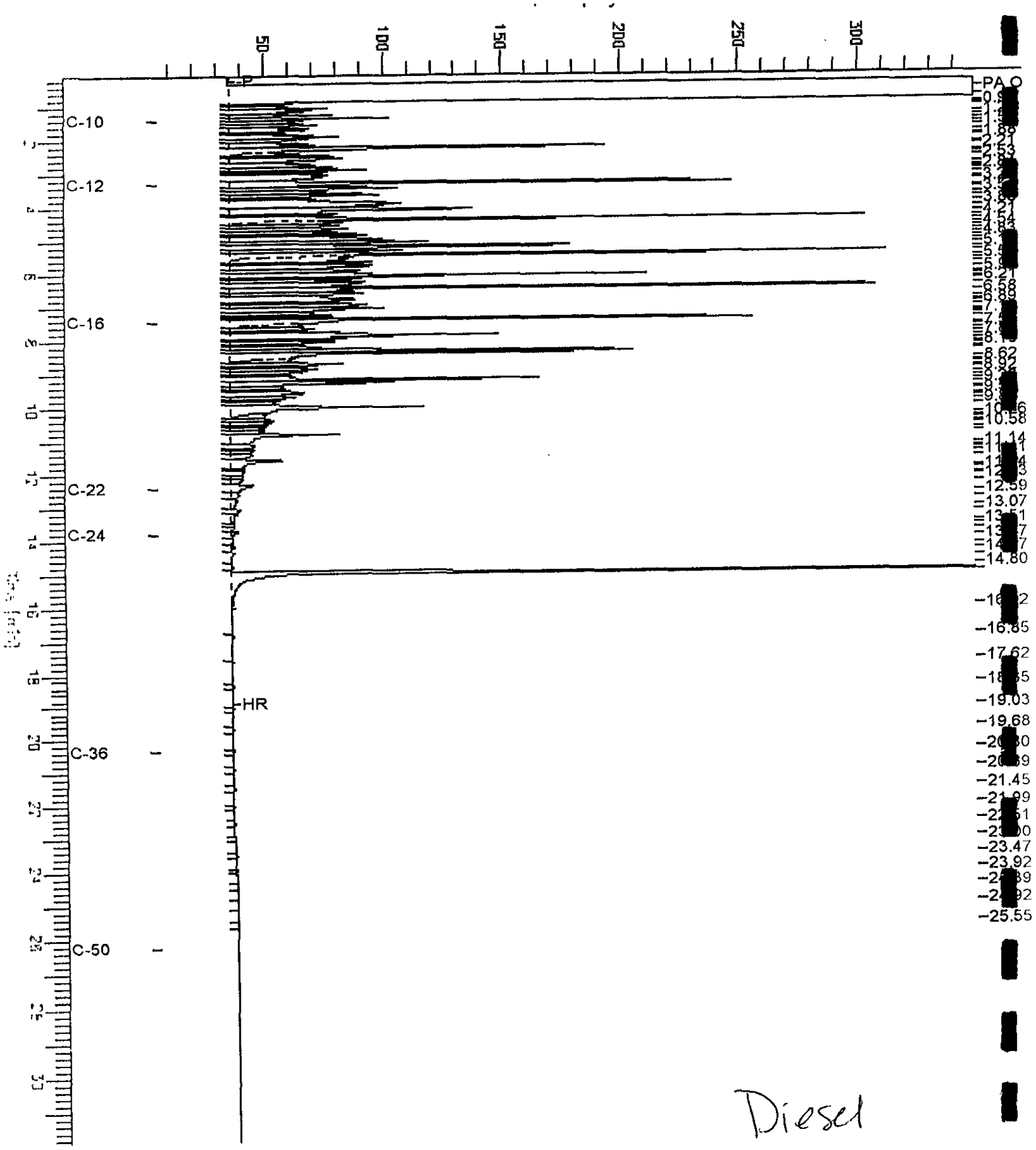


OKUS-W8

Chromatogram

: ccv,99ws7121,dsl
: G:\GC13\CHB\056B019.RAW
: BTEH015.MTH
: 0.05 min End Time : 31.91 min
: 0.0 Plot Offset: 5 mV

Sample #: 500mg/l Page 1 of 1
Date : 2/26/99 10:41 AM
Time of Injection: 2/26/99 07:27 AM
Low Point : 4.51 mV High Point : 349.13 mV
Plot Scale: 344.6 mV

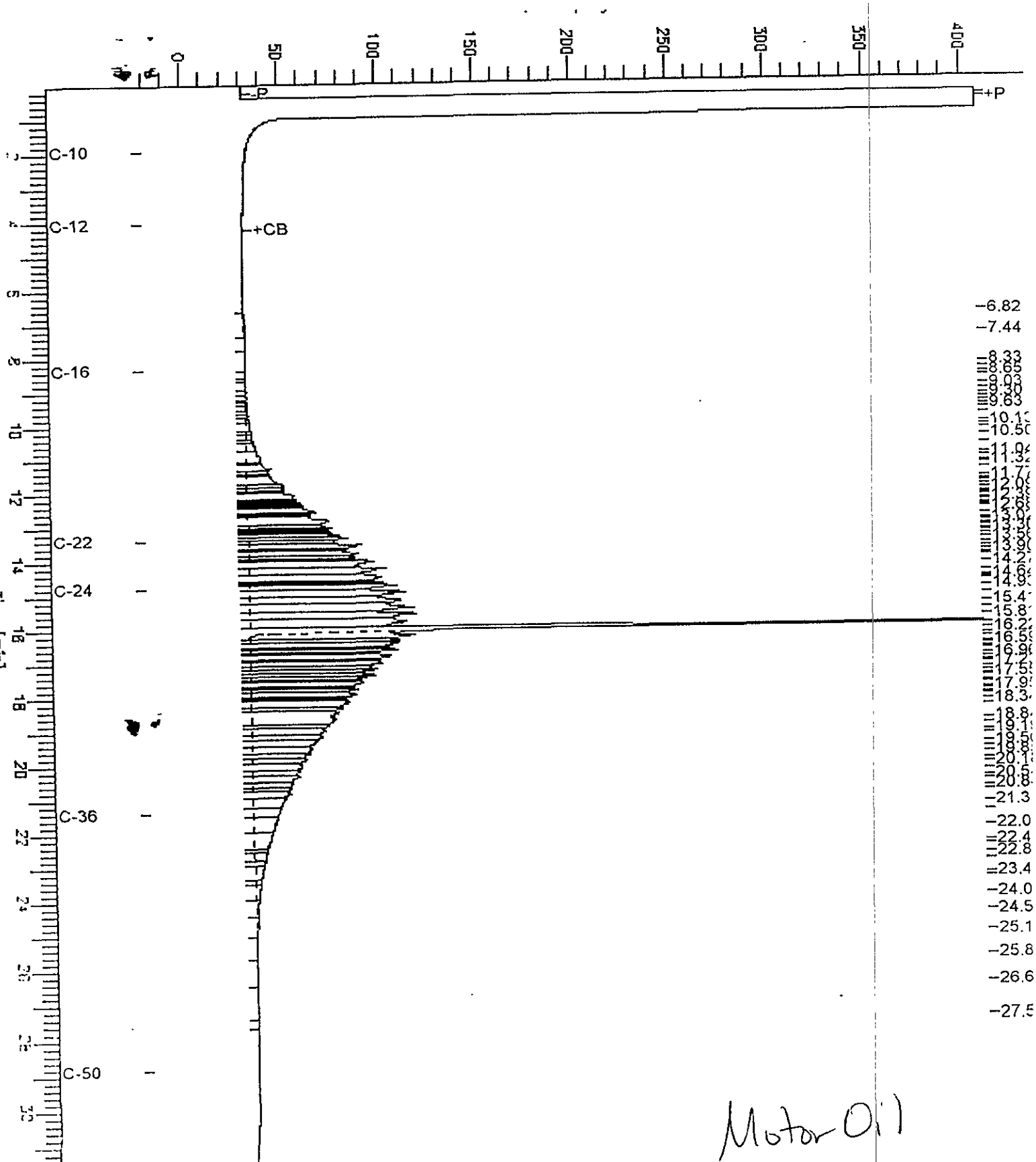


Diesel

Chromatogram

ple Name : ccv,99ws7122,mo
Name : G:\GC11\CHA\055A009.RAW
od : ATEH050.MTH
t Time : 0.01 min End Time : 31.83 min
e Factor: 0.0 Plot Offset: -20 mV

Sample #: 500mg/l
Date : 2/25/99 12:32 PM
Time of Injection: 2/24/99 07:49 PM
Low Point : -20.09 mV High Point : 408.74 mV
Plot Scale: 428.8 mV



Motor Oil

Lab #: 138050

BATCH QC REPORT

Curtis & Tompkins Ltd.

TEH-Tot Ext Hydrocarbons

Client:	Camp, Dresser & McKee	Analysis Method:	EPA 8015M
Project#:	10605-25291	Prep Method:	EPA 3520
Location:	Port Of Oakland,U.P.GW		

METHOD BLANK

Matrix:	Water	Prep Date:	02/22/99
Batch#:	46409	Analysis Date:	02/25/99
Units:	ug/L		
Diln Fac:	1		

MB Lab ID: QC91402

Analyte	Result
Diesel C10-C24	<50
Motor Oil C24-C36	<300

Surrogate	%Rec	Recovery Limits
Hexacosane	74	58-128

Lab #: 138050

BATCH QC REPORT

Curtis & Tompkins Ltd.

TEH-Tot Ext Hydrocarbons

Client: Camp, Dresser & McKee
Project#: 10605-25291
Location: Port Of Oakland,U.P.GW

Analysis Method: EPA 8015M
Prep Method: EPA 3520

BLANK SPIKE/BLANK SPIKE DUPLICATE

Matrix: Water
Batch#: 46409
Units: ug/L
Diln Fac: 1

Prep Date: 02/22/99
Analysis Date: 02/27/99

BS Lab ID: QC91403

Analyte	Spike Added	BS	%Rec	#	Limits
Diesel C10-C24	2475	2466	100		50-114
Surrogate	%Rec	Limits			
Hexacosane	122	58-128			

BSD Lab ID: QC91404

Analyte	Spike Added	BSD	%Rec	#	Limits	RPD	#	Limit
Diesel C10-C24	2475	2256	91		50-114	9		25
Surrogate	%Rec	Limits						
Hexacosane	115	58-128						

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits
RPD: 0 out of 1 outside limits
Spike Recovery: 0 out of 2 outside limits

Appendix D

Appendix D

PLS Survey Inc.
Survey Data

PLS Surveys, Inc.
e-mail: plssurv@pacbell.net

27A Embarcadero Cove
Oakland, California 94606-5203
510.261.0900 FAX 510.261.3303

CADD PT NUMBER	NORTHING	EASTING	ELEVATION	DESCRIPTION		
23	2117653.81	6040234.35	15.18	OMW-1 VAULT		
24	2117653.86	6040234.31	14.88	QMW-1.CASING		
25	2117492.96	6040233.47	12.99	OMW-3.CASE		
26	2117558.40	6039815.75	13.75	OMW-4.VAULT		
27	2117558.14	6039815.61	13.38	OMW-4.CASING		
28	2117538.80	6039921.11	13.85	OMW-8.VAULT		
29	2117538.85	6039920.90	13.62	OMW-8.CASING		
33	2117502.35	6039638 96	12.48	ORW-1 VAULT		
34	2117502.10	6039639.84	13.29	1.8X2.9LID.ORW-1		
35	2117504.62	6039652.43	12.61	OP-3.CASING		
36	2117504.55	6039652.58	13.28	OP-3.VAULT		
37	2117506.93	6039711.41	13.17	OMW-7.CASING		
38	2117506.92	6039711.53	13.41	OMW-7.VAULT		
39	2117512.28	6039754.43	12.92	ORW-2.CASE		
40	2117511.85	6039755.53	13.40	1.8X2.9 ORW-2		
41	2117510.82	6039807.59	13.20	OP-1.VAULT		
42	2117510.91	6039807.50	12.87	OP-1.CASING		
43	2117518.33	6039854.09	12.46	ORW-3.CASING		
44	2117517.77	6039853.53	13.43	1.8X2.9.VLT ORW-3		
45	2117452.97	6039750.98	12.91	OMW-9.VAULT		
46	2117451.96	6039750.69	12.31	OMW-9.CASING		
47	2117475.55	6039502.57	12.22	OP-4 CASING		
48	2117475.91	6039501.91	12.78	1.8X2.9.OP-4.VLT		
52	2117358.31	6039449.13	12.07	OMW-2.CASING		
53	2117358.20	6039449.19	12.26	OMW-2.VAULT		
54	2117387.34	6039782.31	13.95	OP-2.CASING		
55	2117387.31	6039782.38	14.15	OP-2.VAULT		
56	2117262.38	6039751.24	13.76	OMW-6.CASING		
57	2117261.22	6039750.74	14.24	G OMW-6		
58	2117371.85	6040317.26	13.10	OKUSW-6.CASING		
59	2117371.74	6040316.99	13.37	OKUSW-6.VAULT		
60	2117347.32	6040362.93	27.94	BC.NO.ELEV		
61	2117110.39	6040204.83	14.02	BC		
62	2117004.05	6040150.06	15.32	OKUSW-5.CASING		
63	2117003.88	6040150.14	15.49	OKUSW-5.VAULT		
64	2116939.90	6040084.02	15.84	RW.CASING		
65	2116939.38	6040083.67	16.56	RW.VAULT		
67	2116879.17	6040111.32	15.85	OKUSW-3.CASING		
68	2116879.54	6040111.13	16.06	OKUSW-3.VAULT		
69	2116874.16	6040067.12	15.73	OKUSW-2.CASING		
70	2116874.10	6040067.03	15.93	OKUSW-2.VAULT		
71	2116831.70	6039988.43	15.24	OKUSW-1.CASING		
72	2116831.61	6039988.56	15.56	OKUSW-1.VAULT		
73	2116723.65	6040236.66	13.19	APLUP-W2.CASING		
74	2116723.84	6040236.95	13.48	APLUP-W2.VAULT		

PLS Surveys, Inc.
e-mail: plssurv@pacbell.net

27A Embarcadero Cove
Oakland, California 94606-5203
510.261.0900 FAX 510.261.3303

75	2116814.40	6040227.07	14.19	APLUP-W1.CASING		
76	2116814.73	6040226.98	14.55	APLUP-W1.VAULT		
77	2116910.85	6039803.09	12.80	OKUSW-8.CASING		
78	2116911.13	6039802.74	13.09	OKUSW-8.VAULT		
79	2116991.20	6039787.28	12.98	OKUSW-7.CASING		
80	2116991.62	6039787.17	13.45	OKUSW-7.VAULT		
83	2116670.11	6039523.74	11.67	OMW-6.CASING		
84	2116670.00	6039523.83	11.88	OMW-6.VAULT		
85	2117534.24	6039339.72	13.71	OMW-10.CASING		
86	2117534.11	6039339.74	14.00	OMW-10.VAULT		
CONTROL: COORDINATE VALUES ARE BASED ON THE CALIFORNIA COORDINATE						
	SYSTEM, NAD '83 ZONE III. HORIZONTAL CONTROL IS BASED ON					
	POINT "CHAN", HAVING THE FOLLOWING VALUES:					
	NORTHING-2115374.50, EASTING-6040926.93. ELEVATION IS					
	BASED ON BENCHMARK "VENT", EL=17.20, PORT OF OAKLAND DATUM.