PORT OF OAKLAND

November 15, 2007

Mr. Steven Plunkett
Hazardous Materials Specialist
Alameda County Health Care Services Agency,
Department of Environmental Health
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577

Subject: **Groundwater Monitoring and Sampling Report**
801 Maritime Street, Oakland, CA
RO#0000019

Dear Mr. Plunkett:

The Port of Oakland (Port) herein submits a report prepared on our behalf by R&M Environmental and Infrastructure Engineering, Inc. for an underground storage tank site known to the County as 801 Maritime Street, Oakland, CA. Following the recent submittal of a follow-up site investigation report on October 23, 2007, the Port has conducted a groundwater monitoring event at the site. The report submitted today, the "*12th Round of Groundwater Monitoring*" reports the field and laboratory findings for your review and comment. Should you have any questions on the report or need additional information, please contact John Prall at (510) 627-1373 or by e-mail at jprall@portoakland.com.

"I declare, under penalty of perjury, that the information and/or recommendations contained in the attached documentary report is true and correct to the best of my knowledge."

Sincerely,

for Roberta Reinstein
Manager, Environmental Programs and Safety Department

Enclosure Noted

CC: Michele Heffes, Port of Oakland
John Prall, Port of Oakland
Jeff Jones, Port of Oakland
Deborah Ballati, Farell Braun + Martell
Chris Noma, Wendell Rosen Black & Dean

12TH ROUND OF GROUNDWATER MONITORING

At
801 Maritime Street Underground Storage Tank Site
Port of Oakland, Oakland, California
Fuel Leak Case RO0000019

Prepared for

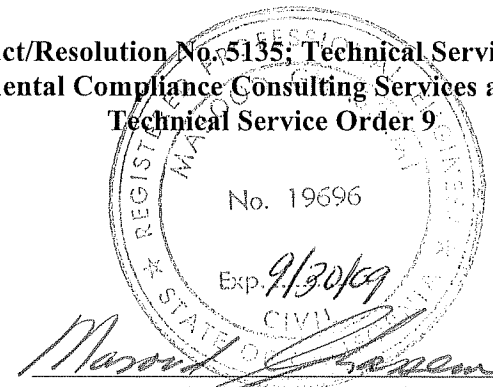
Port of Oakland
Environmental Programs & Safety Department
530 Water Street
Oakland, CA 94607

Prepared by

R&M Environmental and Infrastructure Engineering, Inc.
7994 Capwell Drive
Oakland, CA 94621-2015

Under

Contract/Resolution No. 5135; Technical Service Order 9
On-call Environmental Compliance Consulting Services at the Port of Oakland
Technical Service Order 9



Masood Ghassemi, P.E. PhD.
Rafael Carranza and Cameron Adams

October 30, 2007

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ACRONYMS

ACHCSA	Alameda County Health Care Services Agency
BTEX	Benzene, toluene, ethylbenzene, and xylenes
BS	Blind spike
BSD	Blind spike duplicate
COCs	Constituents of Concern
D.O.	Dissolved oxygen
DTB	Depth to bottom
DTW	Depth to water
LCS	Laboratory control sample
LCSD	Laboratory control sample duplicate
MS/MSD	Matrix spike/matrix spike duplicate
MSL	Mean sea level
MTBE	Methyl tertiary-butyl ether
ORP	Oxidation reduction potential
QA/QC	Quality assurance/quality control
R&M	R&M Environmental and Infrastructure Engineering, Inc.
REC	Recovery (percent)
RPD	Relative percent difference
TPH-d	Total petroleum hydrocarbons as diesel
TPH-g	Total petroleum hydrocarbons as gasoline
TDS	Total dissolved solids
TOC	Top of casing
UST	Underground storage tank

SUMMARY

While awaiting approval of the proposed locations for installation of two additional monitoring wells, the one existing monitoring well (MW-1) installed in 1989 at the former location of three underground storage tanks (UST) at 801 Maritime Street in Oakland, California, was sampled on September 28, 2007. The water samples were analyzed for total petroleum hydrocarbons as gasoline ("TPH-g"), total petroleum hydrocarbons as diesel ("TPH-d"), benzene, toluene, ethylbenzene, and total xylenes ("BTEX"), and methyl-tert-butyl ether ("MTBE"). The data for this latest (12^{th}) round of monitoring indicate TPH-g and TPH-d concentrations of 78 µg/L and 4,000 µg/L, respectively, fairly low levels of BTEX, and a non-detect level of MTBE. These results are consistent with the data from the previous groundwater monitoring event conducted on April 12, 2007, with both sets of data indicating lower levels of TPH-g, BTEX in comparison with those reported for 1996-2002 monitoring events. The reported TPH-d values, however, have fluctuated widely over the past 11 years of monitoring, with values ranging from non-detect to 7,100 µg/L.

The former USTs located immediately upgradient and outside the project site may be the source or a contributing source of the constituent of concern (COCs) currently observed in MW-1. Installation of the two proposed additional monitoring wells (to be designated MW-2 and MW-3) to supplement MW-1 and monitoring of the three wells should aid in the identification of the contamination source(s) and development and implementation of remediation measures (as deemed necessary).

1.0 INTRODUCTION

This report describes the 12th round of groundwater monitoring and sampling that was performed on September 28, 2007 at the Port of Oakland's former underground storage tank ("UST") site known as 801 Maritime Street in Oakland, California (see Figure 1, Vicinity Map; and Figure 2, Site Map). Removal of the USTs in February 1989 and subsequent construction and sampling of an on-site monitoring well (MW-1) revealed evidence of fuel releases to the soil and groundwater[1]. The Alameda County Health Care Services Agency ("ACHCSA") requested the Port to undertake additional site characterization and groundwater monitoring to generate supplementary data needed for site closure consideration. The work plan for this additional site characterization and monitoring, which was approved by ACHCSA, calls for the following[2]:

- Advancing 10 borings and collecting and analyzing soil and grab groundwater samples;
- Based on sample analysis results, proposing locations for installation of two additional monitoring wells, with the proposed locations subject to review and approval by ACHCSA;
- Installing and developing the two new monitoring wells and re-developing the existing monitoring well;
- Performing quarterly monitoring of all three wells; and
- Preparing and submitting reports of findings.

The task of advancing borings and collecting and analyzing soil and groundwater samples was completed in March 2007. The existing monitoring well was redeveloped and sampled in April 2007. The results for the additional site characterization and groundwater monitoring were presented in an August 27, 2007 report entitled "Additional Site Investigation at 801 Maritime Street, Underground Storage Tank Site, Port of Oakland, Oakland, California, Fuel Leak Case RO0000019"(the final report was uploaded to Alameda County on October 23, 2007). The report included proposed locations for installation of the two additional monitoring wells. While awaiting ACHCSA's approval of the proposed well locations, the monitoring well MW-1 was sampled again on September 28, 2007. The water samples were analyzed for total petroleum hydrocarbons as gasoline ("TPH-g"), total petroleum hydrocarbons as diesel ("TPH-d"),

[1] "Report on Tank Removal and Remediation Activities, 801 Maritime Street", prepared for the Port of Oakland by Baseline Environmental Consulting, April 1989.
[2] "Work plan for Additional Site Investigation at Underground Storage Tank Site, 801 maritime Street, Port of Oakland, Oakland, California, Fuel Leak Case RO0000019." Prepared for Port of Oakland's Environmental Health & Safety Compliance Department by R&M Environmental and Infrastructure Engineering, Inc., February 26, 2007.

methyl-tert-butyl ether ("MTBE"), and benzene, toluene, ethylbenzene, and xylenes ("BTEX"). The results for this latest (12th) round of monitoring, which included depth-to-bottom ("DTB") and depth-to-water ("DTW") measurements, are presented in this report.

Information on site background and operation history is available in previous reports and documents[3,4] and will not be repeated here.

2.0 GROUNDWATER MONITORING

2.1 SAMPLE COLLECTION AND FIELD MONITORING

The procedures for purging, sampling, and field measurements at MW-1 were as follows:

- Measured both the DTW and DTB from the top of casing ("TOC") to the nearest 0.01 foot;
- Using the measured DTW and DTB, calculated the water column length, wetted well volume, well purge volume, and the depth at which to set the ¼" polyethylene tubing for the peristaltic pump;
- Purged a minimum of 3 wetted well volumes while recording the following water quality parameters at regular intervals: temperature, pH, dissolved oxygen ("D.O."), oxidation-reduction potential ("ORP"), and electrical conductivity; and
- Continuously monitored DTW during purging to ensure that an appropriate pumping rate was achieved and that drawdown would be minimized.

Once a minimum of 3 wetted well volumes (calculated to be 3.58 gallons) were purged and the recorded field water quality data had stabilized sufficiently, samples were collected, labeled, documented on a chain-of-custody form, placed into a cooler with ice, and delivered to Curtis & Tompkins, Ltd. (Berkeley, California), a state-certified analytical laboratory, for analysis.

In order to minimize the possibilities of contamination from an external source, all equipment lowered into the well was thoroughly washed with Liquinox phosphate-free detergent, and triple rinsed with

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[3] "Additional Site Investigation at 801 Maritime Street, Underground Storage Tank Site, Port of Oakland, Oakland, California, Fuel Leak Case RO0000019." Report prepared for Port of Oakland's Environmental Programs & Safety Department by R&M Environmental and Infrastructure Engineering, Inc. (Oakland, CA), August 27, 2007.
[4] 31 May 2006 letter from Ms. Roberta Reinstein, Manager, Port Environment and Safety Department, to Mr. Barney Chan of Alameda County Health Care Services.

distilled water before sampling. Sampling logs recorded during sample collection are presented in Appendix A.

2.2 LABORATORY ANALYSIS PERFORMED

Groundwater samples were analyzed for the following analytes using the indicated methods:

- TPH-g via EPA Method 8015B;
- TPH-d via EPA Method 8015B with silica gel clean-up via EPA Method 3630C;
- BTEX and MTBE via EPA Method 8021B; and
- Total dissolved solids ("TDS") via EPA Method 160.1.

3.0 RESULTS AND DISCUSSION

3.1 GROUNDWATER ELEVATIONS

The DTW during this sampling event was 7.79 feet below the TOC with a calculated groundwater elevation of 6.39 feet above mean seal level ("MSL"). These values are consistent with previous DTW and calculated groundwater elevations which have ranged from 6.66 to 7.71 feet below the TOC and 6.09 to 7.52 feet above MSL, respectively (see Table 1).

3.2 GROUNDWATER FIELD MONITORING RESULTS

Recorded values of water temperature, electrical conductivity, D.O., pH, and ORP as the water in the well casing was being evacuated are summarized in Table 1 and contained in the field sampling sheet presented in Appendix A. The final recorded values, after three casing volumes of water had been removed, are considered to represent a "stabilized" condition and hence reflective of the formation water quality; these final values are included in Table 1. The field-measured parameters during this round of monitoring did not show any unusual conditions and were generally consistent with previous measurements obtained during the April 12, 2007 monitoring event.

3.3 RESULTS OF CHEMICAL ANALYSES

Table 1 presents analytical results for the groundwater sample collected from MW-1 on September 28, 2007 as well as data from previous 11 monitoring events. The September 28, 2007 data indicate TPH-g and TPH-d concentrations of 78 µg/L and 4,000 µg/L, respectively, fairly low levels of BTEX compounds, and a non-detect level of MTBE.

The data from the 12th round of groundwater monitoring are consistent with the data from the previous groundwater monitoring event conducted by R&M on April 12, 2007, with both sets of data indicating lower levels of TPH-g and BTEX in comparison with those reported for the 1996-2002 monitoring events. The reported TPH-d values, however, have fluctuated widely over the past 11 years of monitoring, with values being very low or less than detectable from December 1997 through March 2002 and being fairly high during the first and fourth rounds of monitoring (7,100 µg/L in July 1996 and 3,000 µg/L in June 1997, respectively). The TPH-d values from the four rounds of monitoring conducted in 1997 also vary widely (from 19 µg/L to 3,000 µg/L).

3.4 QUALITY ASSURANCE AND QUALITY CONTROL OF DATA

A summary review of the quality control and quality assurance ("QA/QC") analyses performed by the laboratories is presented in Appendix B. The QA/QC analyses indicate that the analytical results provided by the laboratory are accurate and fall within laboratory acceptance criteria. The laboratory commented on the analysis performed for TPH-d, stating, "[the] sample exhibits chromatographic pattern that does not resemble standard".

4.0 MANAGEMENT OF INVESTIGATION-DERIVED WASTES

Investigation derived wastes consisted of purged groundwater which was contained in a sealed, dated, and labeled 55-gallon drum. The drum is temporarily stored on site pending removal by the Port of Oakland.

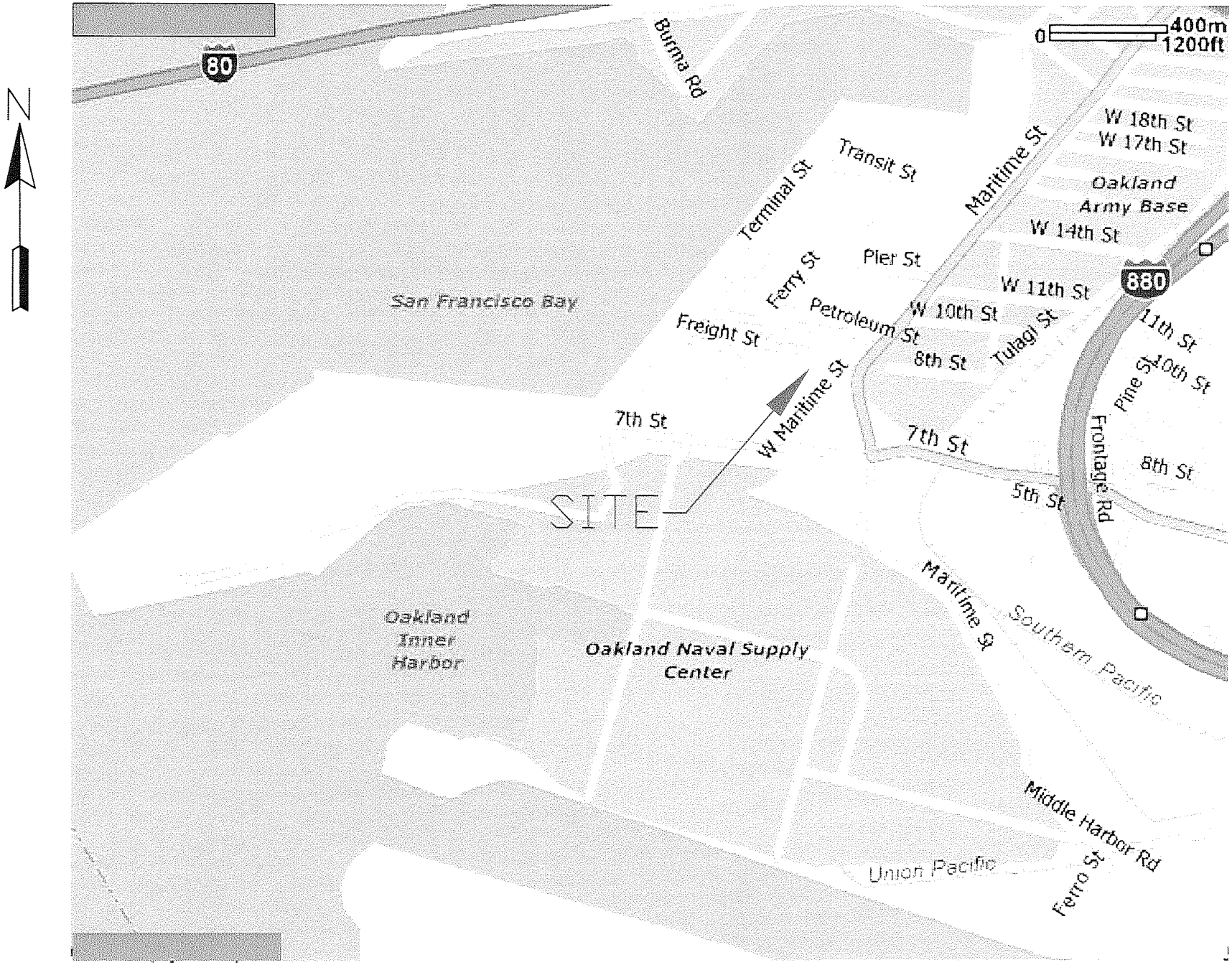
5.0 RECOMMENDATIONS

The former USTs located immediately upgradient and outside the project site may be the source or a contributing source of the COCs currently observed in MW-1. Installation of the two proposed additional monitoring wells (to be designated MW-2 and MW-3) to supplement MW-1 and monitoring of the three wells should aid in the identification of the contamination source(s) and development and implementation of remediation measures (as deemed necessary).

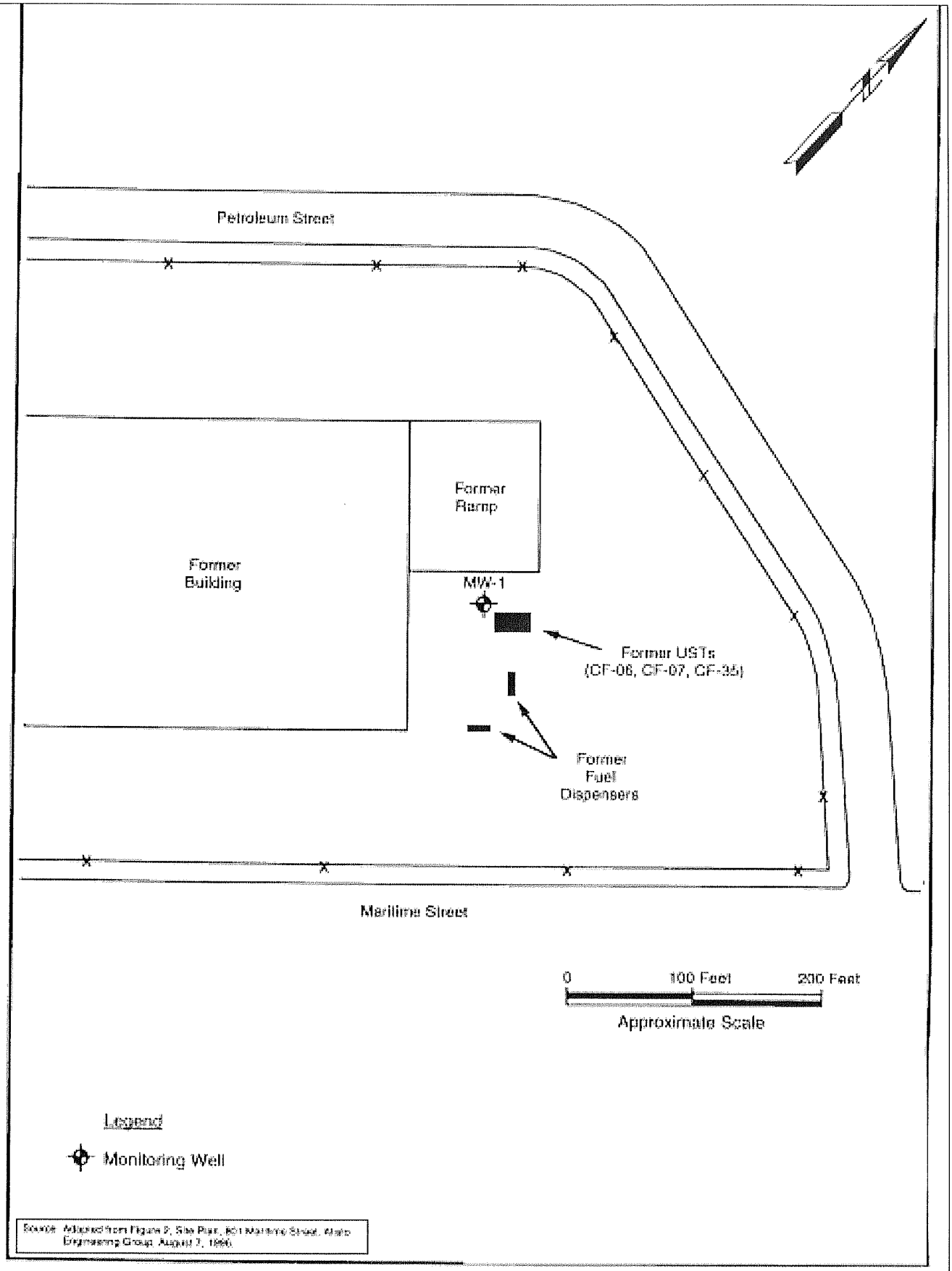
Table 1
9/28/2007 AND PREVIOUS GROUNDWATER MONITORING RESULTS FOR MW-1
801 MARITIME STREET
OAKLAND, CA 94607

Well	Parameters	Event											
		7/10/1996	12/27/1996	3/25/1997	6/23/1997	9/30/1997	12/31/1997	4/17/2001	7/26/2001	12/21/2001	3/13/2002	4/12/2007	9/28/2007
MW-1	TPH-g	180	180	180	170	190	130	160	130	160	110	62	76
	TPH-d	7,100	670	19	3,000	830	ND<48	59	ND<50	ND<100	ND<50	4,800 (H)	4,000 (Y)
	Benzene	27	30	21	20	35	26	11	17	14	8.5	3.5	4.6
	Toluene	14	15	11	11	17	14	6.2	8.7	6.9	4.2	2.2	2.4
	Ethyl Benzene	5.4	5.8	4	4.1	5.2	4.3	2.6	3.2	2.6	1.3	1.2	1.2
	Xylenes	23	26	17	18	22	18	11.2	14.2	11.5	7.3	5.2	5.1
	MTBE	NA	NA	NA	NA	NA	NA	ND<2.0	ND<2.0	ND<2.0	ND<5.0	ND<2.0	ND<2.0
	TDS	NA	NA	1,840	1,320	2,020	1,880	1,860	1,880	1,860	1,100	1,560	1,650
	Temp (C°)	—	—	—	—	—	—	—	—	—	—	17.76	23.36
	E.C. (mS/cm)	—	—	—	—	—	—	—	—	—	—	4.489	4.672
	D.O. (mg/L)	—	—	—	—	—	—	—	—	—	—	0.33	0.10
	pH	—	—	—	—	—	—	—	—	—	—	12.52	12.59
	ORP (mV)	—	—	—	—	—	—	—	—	—	—	-162.5	-157.4
	DTW (ft)	7.36	7.55	7.31	7.55	7.46	7.17	7.59	7.65	7.71	6.66	7.60	7.79
	GW Elevation (ft MSL)	6.45	6.26	6.50	6.26	6.09	6.38	6.59	6.53	6.47	7.52	6.58	6.39

Notes:
Analytical reports for water sample collected on 9/28/2007 are contained in Appendix B
Groundwater elevations refereneced to the Port Datum
Port Datum = Mean Sea Level - 3.20 feet
NA = Not Analyzed
DTW = Depth to water
TPH-g = Total petroleum hydrocarbons as gasoline
TPH-d = Total petroleum hydrocarbons as diesel
MTBE = Methyl tert-butyl ether
TDS = Total dissolved solids
E.C. = Electrical conductivity
D.O. = Dissolved oxygen
ORP = Oxidation reduction potential
H = Heavier hydrocarbons contributed to the quantitation
Y = Sample exhibits chromatographic pattern that does not resemble standard
GW Elevations for 4/12/2007 and 9/28/2007 were calculated based on 2001 surveyed top-of-casing elevations of 14.18 feet (Port of Oakland Datum)



DESIGNED BY:	CHECKED BY:	**VICINITY MAP** PORT OF OAKLAND 801 MARITIME STREET OAKLAND, CA	DATE: 02/21/2007	FIGURE: 1
DRAWN BY: CA	SCALE:		R&M Environmental and Infrastructure Engineering, Inc.	
PROJECT NO:				



Source: Adapted from Figure 2, Site Plan, 801 Maritime Street, Allsto Engineering Group, August 7, 1996

DESIGNED BY:	CHECKED BY:	**SITE MAP**	DATE: 02/21/2007	FIGURE: 2
DRAWN BY: CA	SCALE:	PORT OF OAKLAND 801 MARITIME STREET OAKLAND, CA	R&M Environmental	
PROJECT NO:				

Source: Adapted from, Figure 2, Site Plan, 801 Maritime, Allsto Engineering Group, 8/5/1996

APPENDIX A

MW-1 SAMPLING SHEET

R&M ENVIRONMENTAL and INFRASTRUCTURE ENGINEERING, INC.
MONITORING WELL SAMPLING SHEET

SITE INFORMATION	
Project Name: 801 Maritime Street	Project Number: 4009
Project Location: 801 Maritime Street, Oakland, CA	Date: 9/28/2007
Personnel: Cameron Adams, Rafael Carranza	

FIELD MEASUREMENT						EXTRACTION EQUIPMENT USED		
							Purging	Sampling
Depth to Bottom (DTB):	15.12	ft.	**Well ID:**	MW-1		Submersible Pump	☐	☐
Depth to Water (DTW):	7.79	ft.	Casing Diameter:	2"	in.	Peristaltic Pump	■	■
Water Column Height:	7.33	ft.	OVC[1]:	0	ppm	Disposable Bailer	☐	☐
Purged Volume (PV)*:	3.58	gal.	Pump Setting:	14.12	ft.			

1: Organic Vapor Concentration at Top-of-Casing

GROUNDATER PARAMETERS

Time	CPV[2] (gal)	FR[3] (gal/min)	DTW (ft)	T (°C)	E.C. (mS/cm)	D.O. (mg/L)	pH	ORP (mV)	REMARKS
7:37	0		7.79						clear, steady flow
7:40	1		7.85	22.96	4.593	0.28	12.62	-108.2	
7:43	2		7.87	23.29	4.633	0.21	12.63	-133.4	
7:47	3		7.88	23.37	4.641	0.15	12.61	-150.4	
7:50	4		7.88	23.36	4.672	0.1	12.59	-157.4	

2: Cumulative Purged Volume 3: Flow Rate

SAMPLE OBSERVATION AND REMARKS			SAMPLE INFORMATION
Color:	Yes ☐	No ■	Sample ID: **MW-1**
Odor:	Yes ■	No ☐	Sampling Time: 7:51
Sheen:	Yes ☐	No ■	Field Duplicate ID:
Precipitate:	Yes ☐	No ■	MS/MSD ID:
Floating Particles:	Yes ☐	No ■	Trip Blank ID:
Immiscible Phase:	Yes ☐	No ■	Equipment Rinsate ID:

SAMPLE ANALYSIS

Requested Analysis	No. of Containers	Container Type
Method 8260 for TPH-g, BTEX, MTBE,	6	40-mL w/HCl
Method 8015B for Diesel	1	1-L amber w/ no preservative
Total Dissolved Solids (TDS)	1	250 mL poly w/no preservative

*Purged Water from 0.75-inch Well (gal) = (number of casing volume)(0.023 gal/ft)(water column height, ft)
*Purged Water from 2-inch Well (gal) = (number of casing volume)(0.163 gal/ft)(water column height, ft)
*Purged Water from 4-inch Well (gal) = (number of casing volume)(0.652 gal/ft)(water column height, ft)

NM: Not Measured
NR: No Reading
NA: Not Applicable

APPENDIX B

QA/QC SUMMARY REVIEW, CERTIFIED ANALYTICAL REPORT FOR SOIL/GROUNDWATER SAMPLING AND CHAIN-OFCUSTODY DOCUMENTATION

R&M Environmental and Infrastructure Engineering, Inc.

Memo

To: Masood Ghassemi

From: Cameron Adams

Date: October 8, 2007

Re: QA/QC Review of Analytical Data
September 28, 2007 Sampling Event
Project Number (4009 – 801 Maritime Street, Oakland, CA)

On September 28, 2007 groundwater samples were collected from monitoring well MW-1 located at Berth 24, 801 Maritime Street, Oakland, CA. The sample was analyzed by Curtis & Tompkins, Ltd (Berkeley, CA) for the following parameters:

Analysis Methods

- Total petroleum hydrocarbon as gasoline via EPA Method 8015B;
- Total petroleum hydrocarbon as diesel via EPA Methods 8015B with silica gel clean-up via EPA Method 3630C;
- Benzene, toluene, ethylbenzene, xylenes and methyl tert-butyl ether via EPA Method 8021B; and
- Total dissolved solids via EPA Method 160.1.

The following data set was reviewed in support of this investigation:

Data Set	Date Sampled	Matrix
197960	9/28/2007	Groundwater

The quality assurance/quality control ("QA/QC") analytical results in association with the analytical results for groundwater samples were evaluated for achievement of any method-specific QA/QC criteria. The QA/QC review results are discussed in the following pages.

1. Chain-of-Custody: No problems were noted with the chain-of-custody ("COC") forms.

2. Requested Analyses Completed: All analyses were performed as requested on the COC. The following requests were noted on the COCs and performed by the laboratory as requested:

3. Holding Times: All samples were extracted and/or analyzed within the appropriate holding times.

4. Sample Preservation: No problems were noted with sample preservation.

5. Laboratory Method Blanks: Method blanks were reviewed to determine the potential for sample cross contamination due to handling within the laboratory. No detections of target compounds were noted in the method blanks.

6. Surrogates: Surrogates are added for organic analyses. Surrogates are compounds not normally found in the environment that are added (spiked) into samples and analyzed for percent recovery ("REC"). Maximum and minimum limits on the REC are set by the laboratory for the method used.

   All surrogate RECs were within control limits.

7. Laboratory Control Sample ("LCS")/Laboratory Control Sample Duplicate ("LCSD"): The LCS and LCSD are analyte-free, lab-created samples that are spiked with a known amount of target analyte(s) and analyzed to verify the extraction process. As a measure of analytical accuracy, the results of the LCS are compared against the known analyte concentrations in the spike to determine REC. The purpose of the LCS is to determine the performance of the laboratory with respect to analyte recovery, independent of field sample matrix interference. The LCSD is a duplicate preparation and analysis of the LCS. Results of the LCS and LCSD are compared to each other to determine analytical precision using the relative percent difference ("RPD"). Curtis and Tompkins provided blind spike ("BS") and Blind Spike Duplicate ("BSD") samples in their analytical report (# 197960), which are also prepared and analyzed similarly to LCS/LCSD samples.

   All LCS/LCSD and BS/BSD results were within QC limits.

8. Matrix Spike and Matrix Spike Duplicate ("MS/MSD"): MS/MSDs are typically run for inorganic and/or organic analyses. A sample is split into three portions (original, MS, and MSD), and a known amount of a target analyte is added (spiked) to two portions (MS and MSD) of the sample. The results are compared against the

un-spiked portion of the sample for REC of the spike. Additionally, the results are compared against each other using a RPD to determine reproducibility.

All MS/MSD results were within QC limits.

9. Field Duplicate Results: A field duplicate was not collected during the sampling event.

10. Detection and Quantitation Limits: No dilutions were required for the analyses.

11. Conclusion: No data were rejected as a result of this data review. The data are usable, as qualified, in reporting the results of this sampling event.

Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	197960	Location:	801 Maritime
Client:	R&M Environmental	Prep:	EPA 5030B
Project#:	STANDARD		
Matrix:	Water	Batch#:	130104
Units:	ug/L	Sampled:	09/28/07
Diln Fac:	1.000	Received:	09/28/07

Field ID: MW-1 Lab ID: 197960-001
Type: SAMPLE Analyzed: 10/04/07

Analyte	Result	RL	Analysis
Gasoline C7-C12	76	50	EPA 8015B
MTBE	ND	2.0	EPA 8021B
Benzene	4.6	0.50	EPA 8021B
Toluene	2.4	0.50	EPA 8021B
Ethylbenzene	1.2	0.50	EPA 8021B
m,p-Xylenes	3.2	0.50	EPA 8021B
o-Xylene	1.9	0.50	EPA 8021B

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	112	73-134	EPA 8015B
Bromofluorobenzene (FID)	114	77-140	EPA 8015B
Trifluorotoluene (PID)	101	65-142	EPA 8021B
Bromofluorobenzene (PID)	98	74-135	EPA 8021B

Field ID: QCTB Lab ID: 197960-004
Type: SAMPLE Analyzed: 10/04/07

Analyte	Result	RL	Analysis
Gasoline C7-C12	ND	50	EPA 8015B
MTBE	ND	2.0	EPA 8021B
Benzene	ND	0.50	EPA 8021B
Toluene	ND	0.50	EPA 8021B
Ethylbenzene	ND	0.50	EPA 8021B
m,p-Xylenes	ND	0.50	EPA 8021B
o-Xylene	ND	0.50	EPA 8021B

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	118	73-134	EPA 8015B
Bromofluorobenzene (FID)	119	77-140	EPA 8015B
Trifluorotoluene (PID)	107	65-142	EPA 8021B
Bromofluorobenzene (PID)	104	74-135	EPA 8021B

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	197960	Location:	801 Maritime
Client:	R&M Environmental	Prep:	EPA 5030B
Project#:	STANDARD		
Matrix:	Water	Batch#:	130104
Units:	ug/L	Sampled:	09/28/07
Diln Fac:	1.000	Received:	09/28/07

Type: BLANK Analyzed: 10/03/07
Lab ID: QC408716

Analyte	Result	RL	Analysis
Gasoline C7-C12	ND	50	EPA 8015B
MTBE	ND	2.0	EPA 8021B
Benzene	ND	0.50	EPA 8021B
Toluene	ND	0.50	EPA 8021B
Ethylbenzene	ND	0.50	EPA 8021B
m,p-Xylenes	ND	0.50	EPA 8021B
o-Xylene	ND	0.50	EPA 8021B

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	109	73-134	EPA 8015B
Bromofluorobenzene (FID)	95	77-140	EPA 8015B
Trifluorotoluene (PID)	92	65-142	EPA 8021B
Bromofluorobenzene (PID)	81	74-135	EPA 8021B

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	197960	Location:	801 Maritime
Client:	R&M Environmental	Prep:	EPA 5030B
Project#:	STANDARD	Analysis:	EPA 8021B
Type:	BS	Diln Fac:	1.000
Lab ID:	QC408717	Batch#:	130104
Matrix:	Water	Analyzed:	10/03/07
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
MTBE	20.00	17.18	86	73-123
Benzene	20.00	22.60	113	80-120
Toluene	20.00	18.91	95	80-120
Ethylbenzene	20.00	19.06	95	80-120
m,p-Xylenes	20.00	19.49	97	80-121
o-Xylene	20.00	19.65	98	80-120

Surrogate	%REC	Limits
Trifluorotoluene (PID)	94	65-142
Bromofluorobenzene (PID)	90	74-135

Curtis & Tompkins, Ltd.

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	197960	Location:	801 Maritime
Client:	R&M Environmental	Prep:	EPA 5030B
Project#:	STANDARD	Analysis:	EPA 8015B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC408718	Batch#:	130104
Matrix:	Water	Analyzed:	10/03/07
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	1,000	887.1	89	79-120

Surrogate	%REC	Limits
Trifluorotoluene (FID)	88	73-134
Bromofluorobenzene (FID)	94	77-140

Curtis & Tompkins, Ltd.

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	197960	Location:	801 Maritime
Client:	R&M Environmental	Prep:	EPA 5030B
Project#:	STANDARD	Analysis:	EPA 8015B
Field ID:	ZZZZZZZZZZ	Batch#:	130104
MSS Lab ID:	197918-007	Sampled:	09/26/07
Matrix:	Water	Received:	09/27/07
Units:	ug/L	Analyzed:	10/04/07
Diln Fac:	1.000		

Type: MS Lab ID: QC408719

Analyte	MSS Result	Spiked	Result	%REC	Limits
Gasoline C7-C12	31.78	2,000	1,932	95	72-120

Surrogate	%REC	Limits
Trifluorotoluene (FID)	150 *	73-134
Bromofluorobenzene (FID)	151 *	77-140

Type: MSD Lab ID: QC408720

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	2,000	1,945	96	72-120	1	20

Surrogate	%REC	Limits
Trifluorotoluene (FID)	155 *	73-134
Bromofluorobenzene (FID)	154 *	77-140

*= Value outside of QC limits; see narrative
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

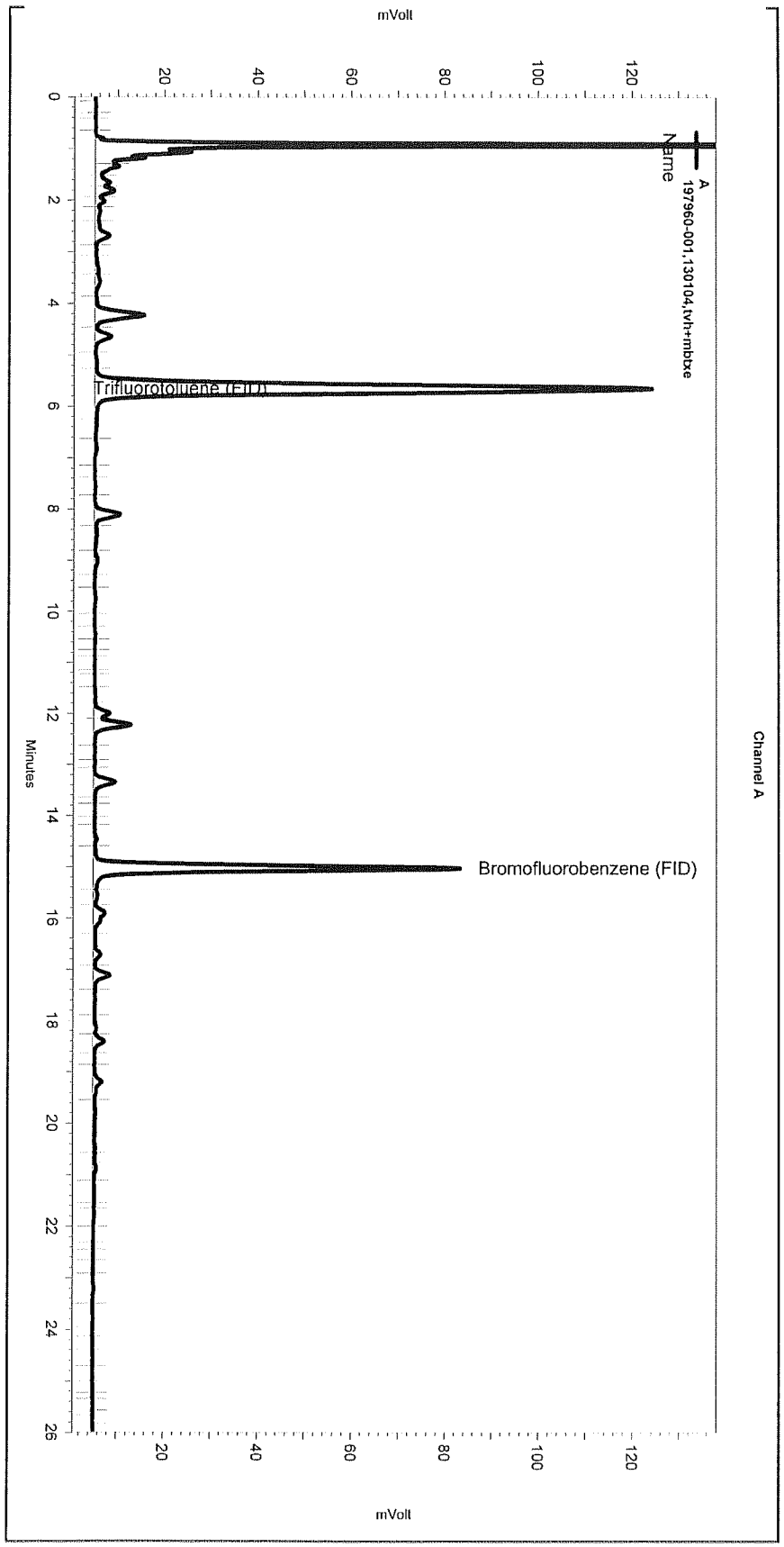
Lab #:	197960	Location:	801 Maritime
Client:	R&M Environmental	Prep:	EPA 5030B
Project#:	STANDARD	Analysis:	EPA 8021B
Type:	BSD	Diln Fac:	1.000
Lab ID:	QC408733	Batch#:	130104
Matrix:	Water	Analyzed:	10/03/07
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
MTBE	10.00	8.514	85	73-123	1	20
Benzene	10.00	10.33	103	80-120	9	20
Toluene	10.00	8.624	86	80-120	9	20
Ethylbenzene	10.00	8.525	85	80-120	11	20
m,p-Xylenes	10.00	8.563	86	80-121	13	20
o-Xylene	10.00	8.719	87	80-120	12	20

Surrogate	%REC	Limits
Trifluorotoluene (PID)	90	65-142
Bromofluorobenzene (PID)	86	74-135

RPD= Relative Percent Difference

Sequence File: **\\Lims\gdrive\ezchrom\Projects\GC05\Sequence\276.seq** Sample Name: **197960-001,130104,tvh+mbtxe** Data File: **\\Lims\gdrive\ezchrom\Projects\GC05\Data\276_040** Instrument: GC05 (Offline) Vial: N/A Operator: Tvh 2. Analyst (lims2k3\tvh2) Method Name: \\Lims\gdrive\ezchrom\Projects\GC05\Method\tvhbtxe264.met	Software Version 3.1.7 Run Date: 10/4/2007 10:26:34 AM Analysis Date: 10/4/2007 11:10:50 AM Sample Amount: 5 Multiplier: 5 Vial & pH or Core ID: a1.3



---< General Method Parameters >---

No items selected for this section

---< A >---

No items selected for this section

Integration Events

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Width	0	0	0.2
Yes	Threshold	0	0	50

Manual Integration Fixes

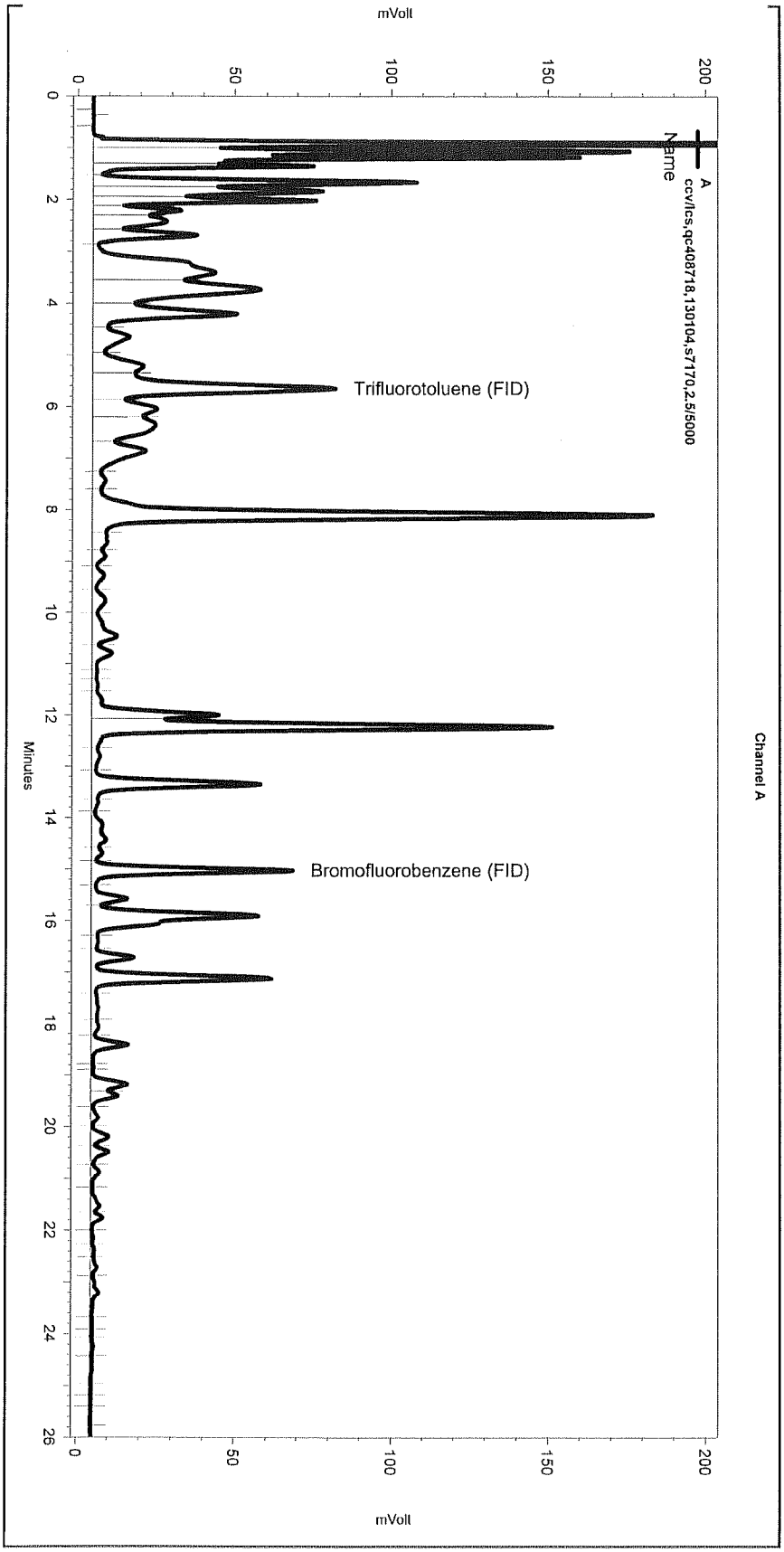
Data File: \\Lims\gdrive\ezchrom\Projects\GC05\Data\276_040

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value

None

Sequence File: \\Lims\gdrive\ezchrom\Projects\GC05\Sequence\276.seq
Sample Name: **ccv/lcs,qc408718,130104,s7170,2.5/5000**
Data File: \\Lims\gdrive\ezchrom\Projects\GC05\Data\276_010
Instrument: GC05 (Offline) Vial: N/A Operator: Tvh 2. Analyst (lims2k3\tvh2)
Method Name: \\Lims\gdrive\ezchrom\Projects\GC05\Method\tvhbtxe264.met

Software Version 3.1.7
Run Date: 10/3/2007 3:36:01 PM
Analysis Date: 10/4/2007 7:46:19 AM
Sample Amount: 5 Multiplier: 5
Vial & pH or Core ID: {Data Description}



---< General Method Parameters >---

No items selected for this section

---< A >---

No items selected for this section

Integration Events

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Width	0	0	0.2
Yes	Threshold	0	0	50

Manual Integration Fixes

Data File: \\Lims\gdrive\ezchrom\Projects\GC05\Data\276_010

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value

None

Curtis & Tompkins, Ltd.

Total Extractable Hydrocarbons

Lab #:	197960	Location:	801 Maritime
Client:	R&M Environmental	Prep:	EPA 3520C
Project#:	STANDARD	Analysis:	EPA 8015B
Field ID:	MW-1	Batch#:	130096
Matrix:	Water	Sampled:	09/28/07
Units:	ug/L	Received:	09/28/07
Diln Fac:	1.000	Prepared:	10/02/07

Type: SAMPLE Analyzed: 10/04/07
Lab ID: 197960-002

Analyte	Result	RL
Diesel C10-C24	4,000 Y	50

Surrogate	%REC	Limits
Hexacosane	102	61-133

Type: BLANK Analyzed: 10/03/07
Lab ID: QC408677

Analyte	Result	RL
Diesel C10-C24	ND	50

Surrogate	%REC	Limits
Hexacosane	98	61-133

Y= Sample exhibits chromatographic pattern which does not resemble standard
ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Total Extractable Hydrocarbons

Lab #:	197960	Location:	801 Maritime
Client:	R&M Environmental	Prep:	EPA 3520C
Project#:	STANDARD	Analysis:	EPA 8015B
Matrix:	Water	Batch#:	130096
Units:	ug/L	Prepared:	10/02/07
Diln Fac:	1.000	Analyzed:	10/03/07

Type: BS
Lab ID: QC408678
Cleanup Method: EPA 3630C

Analyte	Spiked	Result	%REC	Limits
Diesel C10-C24	2,500	1,892	76	58-128

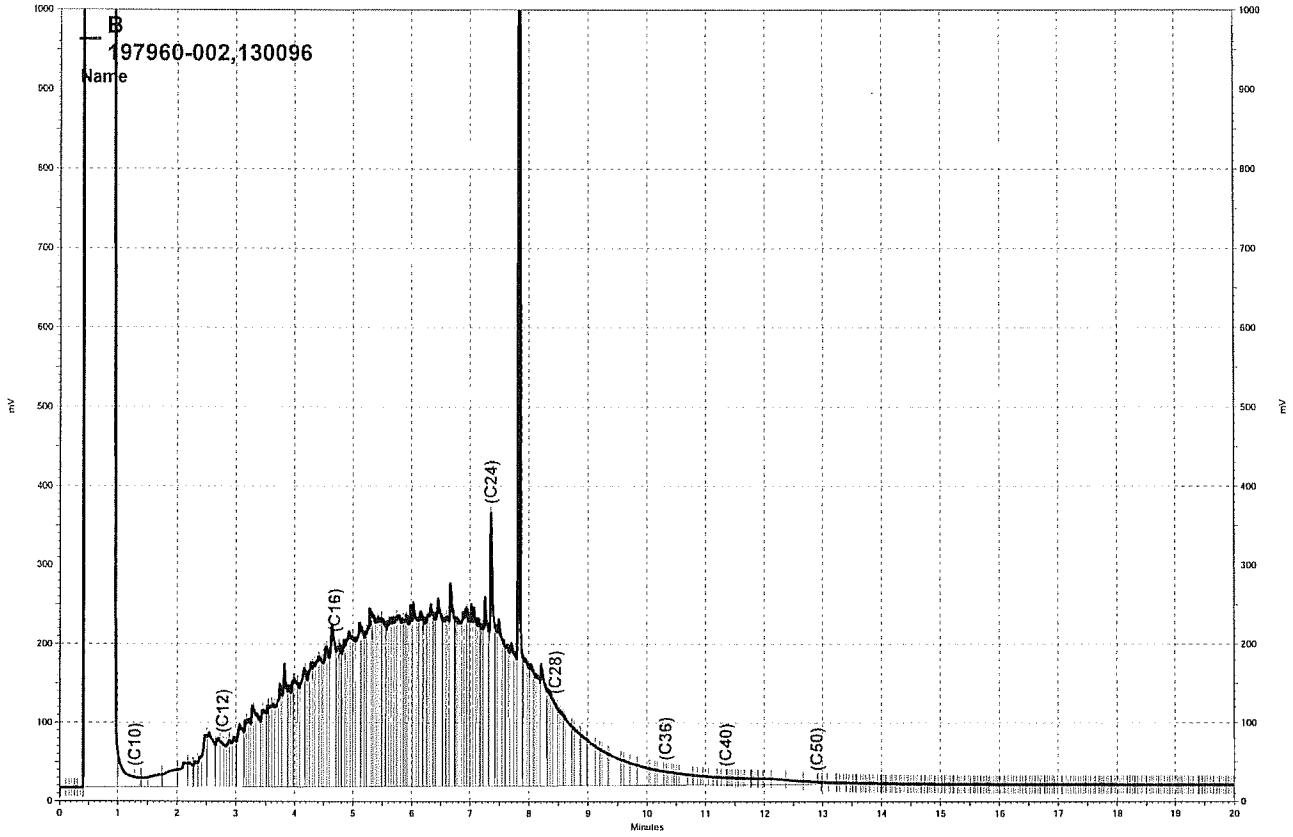
Surrogate	%REC	Limits
Hexacosane	80	61-133

Type: BSD
Lab ID: QC408679
Cleanup Method: EPA 3630C

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Diesel C10-C24	2,500	2,464	99	58-128	26	29

Surrogate	%REC	Limits
Hexacosane	103	61-133

RPD= Relative Percent Difference



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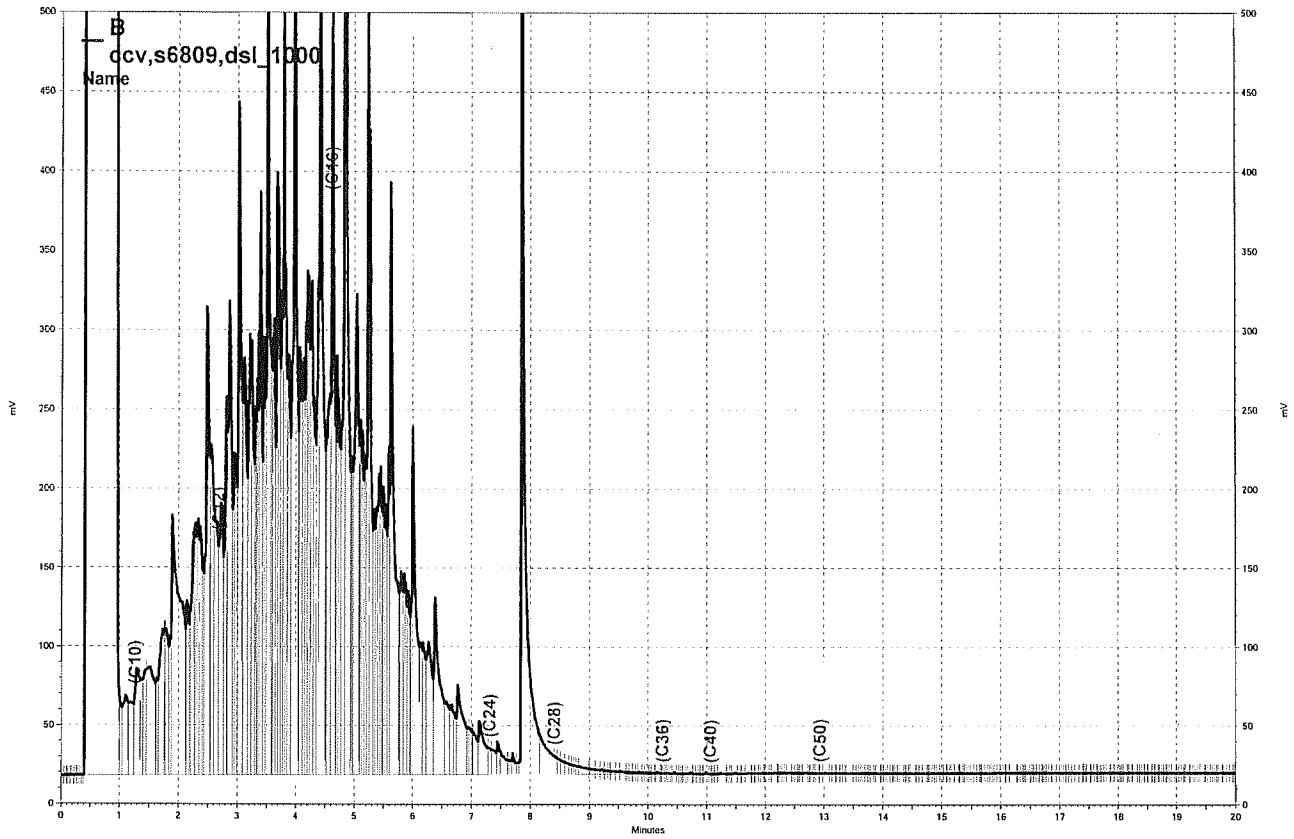

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Curtis & Tompkins, Ltd.

Total Dissolved Solids (TDS)

Lab #:	197960	Location:	801 Maritime
Client:	R&M Environmental	Prep:	METHOD
Project#:	STANDARD	Analysis:	SM2540C
Analyte:	Total Dissolved Solids	Batch#:	130048
Field ID:	MW-1	Sampled:	09/28/07
Matrix:	Water	Received:	09/28/07
Units:	mg/L	Analyzed:	10/01/07

Type	Lab ID	Result	RL	Diln Fac
SAMPLE	197960-003	1,650	11	1.111
BLANK	QC408476	ND	10	1.000

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Total Dissolved Solids (TDS)

Lab #:	197960	Location:	801 Maritime
Client:	R&M Environmental	Prep:	METHOD
Project#:	STANDARD	Analysis:	SM2540C
Analyte:	Total Dissolved Solids	Diln Fac:	1.000
Field ID:	ZZZZZZZZZZ	Batch#:	130048
MSS Lab ID:	197962-004	Sampled:	09/28/07
Matrix:	Water	Received:	09/28/07
Units:	mg/L	Analyzed:	10/01/07

Type	Lab ID	MSS Result	Spiked	Result	RL	%REC	Limits	RPD	Lim
BS	QC408477		100.0	86.00		86	77-130		
BSD	QC408478		100.0	100.0		100	77-130	15	27
SDUP	QC408479	722.0		774.0	10.00			7	20

RL= Reporting Limit
RPD= Relative Percent Difference

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

CHAIN OF CUSTODY

C & T LOGIN #: 197960

Sampler: C. Adams, R. Carranza

Project No.:

Report To: C. Adams

Project Name: 801 Maritime

Company: R&M Environmental

Project P.O.:

Telephone: (510) 553-2144

Turnaround Time: Standard

Fax: (510) 553-2145

Lab No.	Sample ID.	Sampling Date Time	Matrix: Soil	Matrix: Water	Matrix: Waste	# of Containers	Preservative: HCL	Preservative: H_2SO_4	Preservative: HNO_3	Preservative: ICE	Preservative: None	Analysis: TPH-g	Analysis: BTEX	Analysis: MTBE	Analysis: TPH-d	Analysis: TDS
	MW-1	9-28-2007		X		6x40mL VOA	X				X	X	X	X		
	MW-1			X		1x1L Amber									X	
	MW-1			X		1x250mL poly					X					X
	QCTB			X		6x40mL VOA	X					X	X	X		

Notes:

SAMPLE RECEIPT
☐ Intact ☒ Cold
☐ On Ice ☐ Ambient
Preservative Correct?
☐ Yes ☐ No ☐ N/A

RELINQUISHED BY: Cameron Adams
9-28-2007 / 14:41 DATE / TIME
DATE / TIME
DATE / TIME

RECEIVED BY:
9.28.07 2:41 DATE / TIME
DATE / TIME
DATE / TIME

SIGNATURE