Environmental
Science &
Engineering, Inc.
A CILCORP Company

TO: Alameda County Health Care Services Agency
1131 Harbor Bay Parkway
Alameda,CA 94502-6577

DATE: November 1, 1996

JOB NUMBER: 6595214

ATTN: ~~Eva~~ DK Chu

SUBJECT: **Second and Third Quarter Monitoring Report - CORE Resource, Inc.**

WE ARE TRANSMITTING THE FOLLOWING:

One copy of the "Report of Ground Water Monitoring - Second and Third Quarter Report and Bi-Annual Treatment System Self Monitoring Report" for Core Resource, Inc. Property No. 4286, 2740 Broadway, Oakland, CA

CC: Tom Moffatt, CORE Resource, Inc.

DIST:
LB
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ENVIRONMENTAL SCIENCE & ENGINEERING, INC.

BY: _____

R. Maqbool Qadir
Senior Engineer

4090 Nelson Avenue, Suite J Concord, CA 94520 Phone (510) 685-4053 Fax (510) 685-5323

Report of Ground Water Monitoring Second and Third Quarter 1996 and Bi-Annual Treatment System Self Monitoring Report

Prepared for:
CORE Resource, Inc.
Property No. 4826
Broadway Volkswagen

Prepared by:
Environmental Science & Engineering, Inc.
4090 Nelson Avenue, Suite J
Concord, CA 94520
(510) 685-4053

October 1996

ESE Project No. 6595214

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This report has been prepared by Environmental Science & Engineering, Inc. for the exclusive use of CORE Resource, Inc., as it pertains to their site located at 2740 Broadway Avenue in Oakland, California. Our professional services have been performed using that degree of care and skill ordinarily exercised under similar circumstances by other geologists and engineers practicing in this field. No other warranty, express or implied, is made as to professional advice in this report.

REPORT PREPARED BY:

Karen Faber
Senior Staff Engineer

10/30/96
Date

REPORT REVIEWED BY:

R. Maqbool Qadir, P.E.
Senior Engineer

October 30, 1996
Date

ESE PROJECT NO. 6595214

CORE Resource, Inc.

Corporate America's Real Estate Resource

November 1, 1996

Ms. Sue Jenne
California Regional Water Quality Control Board
San Francisco Bay Region
2101 Webster Street, Suite 500
Oakland, CA 94612

Subject: Report of Ground Water Monitoring
Second & Third Quarter 1996 and Bi-Annual Treatment System
Self Monitoring Report
Volkswagen of America Property #4826
Broadway Volkswagen, Oakland, CA

Dear Ms. Jenne:

Enclosed is a combined quarterly monitoring and bi-annual treatment system self monitoring report for the subject site. This report describes the events and presents the findings of system operation and ground water monitoring for the period April 1996 through September 1996 conducted by Environmental Science & Engineering, Inc. (ESE) at Broadway Volkswagen, 2740 Broadway, Oakland. The report has been prepared by ESE on behalf of CORE Resource Inc. (CORE) agent for Volkswagen of America. This report is submitted in compliance with the East Bay Municipal Utilities District (EBMUD) Wastewater Discharge Permit No. 503-34591. The report includes treatment system operating and ground water monitoring data as well as water level data for the monitoring wells.

The treatment system has operated in compliance with all effluent discharge limits of permit No. 503-34591 throughout the reporting period. Due to a misreading of the permit conditions by ESE, influent and midpoint samples were analyzed for TPH-g rather than BTEX. Future analyses will be performed in accordance with permit conditions.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those

persons directly responsible for gathering information, the information submitted is, to the best of my knowledge true, accurate and complete.

If you have any questions regarding this report please call R. Maqbool Qadir of ESE at (510) 685-4053 or the undersigned at (810) 340-5503.

Sincerely,

Tom Moffatt
Engineering Administrator

1.0 Introduction

This report describes the events and presents the findings of system operation and ground water monitoring for the period April 1996 through September 1996 conducted by Environmental Science & Engineering, Inc. (ESE) at CORE Resource, Inc., Broadway Volkswagen, 2740 Broadway, Oakland. The purpose of this work was to conduct quarterly monitoring and to operate and maintain a dual-phase extraction and treatment system operating at the site. The following report presents the procedures and methods used during this monitoring event for ground water monitoring, and the results and conclusions drawn from the monitoring during the months of April through September 1996.

1.1 Work Performed

To complete the objectives for this ground water monitoring and system operation and maintenance, ESE performed the following tasks:

- Collected water samples from the treatment system influent, midpoint and effluent;
- Analyzed treatment system samples for benzene, toluene, ethylbenzene and xylenes (BTEX), total petroleum hydrocarbons as gasoline (TPH-g) and methyl tertiary butyl ether (MTBE);
- Collected air samples from the vapor extraction system and monitored system influent, midpoint and effluent concentrations with a photoionization detector (PID);
- Measured ground water levels and collected ground water samples from three monitoring wells;
- Analyzed the ground water samples for TPH-g and BTEX;
- Evaluated all field and analytical data and prepared a report of findings for all monitoring this period.

1.2 Site Description

The site is located on the southeast corner of the intersection of Broadway Avenue and 28th Street in Oakland, California (Figure 1) in a predominantly commercial area. The Broadway Volkswagen automobile dealership currently occupies the site and consists of a three-story steel-reinforced concrete building, multiple service bays and a showroom (Figure 2). Numerous automobile dealerships and maintenance shops are in operation in the immediate area. Numerous underground service utilities are present within the right-of-way of 28th Street immediately adjacent to the site.

The site is at an approximate elevation of approximately 30 feet above mean sea level (amsl) in an area of moderately sloping topography (U.S.G.S., 1980).

1.3 Geology/Hydrogeology

The site is situated on an alluviated highland portion of Oakland and is topographically characterized by a gentle southeasterly slope toward Lake Merritt which lies approximately 2,000 feet south of the site. Soil borings drilled to depths of approximately 30 feet below ground surface indicated that the subsurface consists of clay, silty clay, sandy clay, silt, sandy silt and sand. A predominant sand layer, approximately two feet thick is present beneath the site at approximately 11 to 17 feet below ground surface and is sloping in a general northwesterly direction.

Regional ground water appears to flow in a predominantly southeasterly direction. Local ground water flow under the site appears to deviate from the regional ground water flow in a west-northwest direction. Confined ground water beneath the site has been observed at depths of 11 to 17 feet below ground surface, with observed elevations between 16 to 23 feet amsl. Recent measurements of ground water elevations are shown in Table 1.

1.4 Project Background

During August 1988, two underground storage tanks (USTs), one 500-gallon waste oil UST and one 3,000-gallon gasoline UST were removed from an area at the northeast side of the site along 28th Street (Figure 2). Soil samples collected during the removal of these USTs were reported to contain detectable concentrations of TPH-g and BTEX

(SEMCO, 1989). Soil samples collected from soil borings, SB-3 and SB-4, drilled subsequent to the tank removal also contained detectable concentrations of TPH-g and BTEX (ESE, 1991a).

Boring logs for five additional ground water monitoring wells (MW-1, MW-3, MW-4, MW-5, and MW-6) installed by ESE at the site indicate the presence of clay sediments with perched, moist to wet sand beds at depths ranging between 11 to 17 feet below grade (ESE, 1991a; ESE, 1991b). ESE installed wells MW-1 and MW-3 to a depth of approximately 20 feet below grade and screened both over the interval containing the perched sand beds. ESE identified one two-foot thick perched sand bed in wells MW-5 and MW-6 at depths of 17 and 11 feet, respectively (ESE, 1991b). The sand bed was observed to have an apparent dip toward the west. Clay sediments above and immediately below the sand beds were observed to be dry.

Soil samples collected from the sand beds in borings MW-5 and MW-6 were noted to have a fuel odor and detectable volatile organic compound (VOC) concentrations as determined using a PID. However, ESE did not observe a fuel odor or detect VOCs with a PID in samples of clay collected above and below the sand bed in these borings. No detectable concentrations of halogenated VOCs (HVOCs) have been reported to occur in soil samples collected from the sand and clay sediments at the site.

The analytical results of soil samples collected at this site indicate the petroleum hydrocarbon affected soil beneath the site is limited to the immediate area surrounding the former UST locations.

A sandy clay aquifer was intersected beneath the clay unit containing the perched sand beds at a depth of approximately 22 to 23 feet below grade in wells MW-4, MW-5, and MW-6. Monitoring well MW-4 was installed to a depth of 25 feet below grade and wells MW-5 and MW-6 were installed to a depth of 30 feet below grade. Water levels in these wells were observed to rise approximately 12 to 14 feet when the sandy clay aquifer was penetrated suggesting some confining pressures. These three wells were screened over the interval containing the sandy clay aquifer as well as the perched sand beds.

Detectable concentrations of TPH-g, BTEX, and HVOCs including trichloroethylene (TCE), tetrachloroethylene (PCE), and 1,2-Dichloroethane (DCA) have been reported to occur in some ground water samples collected from various site wells since May 13,

1991 (ESE, 1991a; ESE, 1991b; ESE, 1992; ESE, 1993). Historically, the highest concentrations of TPH-g and BTEX have been reported to occur in ground water samples collected from well MW-3 located west and hydraulically downgradient of the former UST area. Well MW-3 is selectively screened to recharge with water from the perched sand beds. The highest concentrations of HVOCs have been reported to occur in ground water samples collected from wells screened into the deeper, semi-confined aquifer (MW-4, MW-5, and MW-6). Contours of TCE concentration in ground water indicate an offsite source of TCE located to the north of the UST area. ESE concluded that ground water in the semi-confined aquifer containing TCE was cross-contaminating the upper perched sand beds at the site by upwardly migrating through the monitoring wells completed in the shallower sand beds (ESE, 1993).

Background research by ESE (ESE, 1991a) indicates that several sites surrounding the CORE property handled petroleum hydrocarbons and solvents containing HVOCs. In addition, numerous unauthorized releases at other properties have been documented by the ACHCSA and the RWQCB - San Francisco Bay Region (ESE, 1991a).

Wells MW-4, MW-5 and MW-6 were abandoned in March 1994. The ACHCSA recommended that one additional well be installed further west of MW-3 to try and define the TPH-G plume in the downgradient direction (ACHCSA, 1993). Well MW-7 was installed for this purpose (ESE 1994).

ESE performed a soil vapor extraction test in 1994 and aquifer testing in 1995 to determine feasibility for a remediation system. The results of these tests were reported in the Remedial Action Plan (RAP) dated August 25, 1995 (ESE 1995). The RAP was approved by the ACHCSA in September 1995. A dual phase extraction and treatment system was constructed in late 1995 and early 1996. The vapor phase of the system was put into operation in February 1996 and the ground water phase in April 1996.

2.0 Quarterly Ground Water Monitoring Activities

2.1 Ground Water Monitoring Procedures

2.1.1 Ground Water Level Measurements

ESE measured the depth to ground water in MW 1 and MW-7 during the second quarter and MW-1, MW-3 and MW-7 during the third quarter with respect to the surveyed elevation datum at the top of each well casing. The water level measurements were collected using an electronic water level sounder on June 27, 1996 for the second quarter and on September 19 and 25, 1996 for the third quarter.

2.1.2 Ground Water Monitoring Well Sampling

On June 27-28, 1996, and on September 19 and 25, 1996 ESE staff collected ground water samples from MW-1, MW-3 and MW-7. Prior to collection of the ground water samples, a minimum of three well-casing volumes of ground water were purged from each well. During the well purging process the pH, conductivity, and temperature of the ground water were periodically monitored for stabilization to ensure the collection of samples representative of the aquifer surrounding each well.

Ground water samples were obtained from the wells by lowering a new disposable bailer into each well. The ground water was then decanted from the bailers into laboratory supplied 40-milliliter glass vials containing hydrochloric acid (a preservative). Three vials were collected for each well. The sample vials were then sealed with a Teflon-lined cap, labeled, placed on ice in a cooler and transported under chain-of-custody to Curtis and Tompkins Laboratory in Berkeley, California.

2.2 Ground Water Monitoring and Sampling Results

2.2.1 Ground Water Levels and Flow

Depth to water during the June monitoring event ranged from 6.25 feet below ground surface (bgs) in MW-1 to 9.70 ft bgs in MW-7. Depth to water during the September monitoring event ranged from 10.46 ft bgs in MW-1 to 11.92 ft bgs in MW-7. Depth to water measurements are summarized in Table 1.

2.2.2 Ground Water Monitoring Well Sampling

Samples were taken from MW-1, MW-3 and MW-7 and analyzed for TPH as gasoline by EPA Method 8015M and BTEX by EPA Method 8020. Sample MW-1 was below detection limits for TPH-g and BTEX in both June and September. The June sample from MW-7 was below detection limits for both TPH-g and BTEX. The September sample from MW-7 was below detection limits for BTEX. TPH-g was detected at 67 micrograms per liter (μg/L) in MW-7. In MW-3, benzene was detected at 120 μg/L in June and 6,000 μg/L in September, toluene was detected at 75 μg/L in June and 2,700 μg/L in September, ethylbenzene was detected at 6.2 μg/L in June and 450 μg/L in September and xylenes at 47 μg/L in June and 2,180 in September. TPH-g was detected at concentrations of 370 μg/L in June and 15,000 μg/L in September. Benzene concentrations and TPH-g concentrations at each well are shown in Figures 3 (June) and 4 (September). These analytical results are presented in Appendix A and summarized in Table 2. These results indicate that ground water hydrocarbon concentrations are being reduced following remediation system startup.

3.0 Treatment System Monitoring and Operation

3.1 Ground Water Extraction and Treatment

The ground water extraction and treatment system was put into operation in April 1996, after receiving a permit to discharge from the East Bay Municipal Utility District (EBMUD). A 7-1/2 horsepower positive displacement blower extracts vapors from wells MW-3, VW-1, VW-2 and VW-3. Ground water is extracted by becoming entrained in the air stream flowing from the vapor extraction wells. The entrained ground water passes through the system piping into the moisture knockout pot. The water is pumped by a transfer pump to two 200-pound carbon vessels for treatment. The treated ground water is discharged to the sanitary sewer. Monthly readings were taken from the flow totalizer to determine the volume of water discharged to the sanitary sewer. These readings are presented in Table 3. As of October 8, 1996, 9,854 gallons have been discharged since system operation began.

Influent, midpoint and effluent samples were collected bi-monthly when the system was in operation. The samples were collected from sample ports on the system into laboratory supplied 40-milliliter glass vials containing hydrochloric acid (a preservative). Four vials were collected for each sample location. The sample vials were then sealed with a Teflon-lined cap, labeled, placed on ice in a cooler and transported under chain-of-custody to Curtis and Tompkins Laboratory.

Influent and midpoint samples were analyzed for TPH-g by EPA Method 8015M. Effluent samples were analyzed for BTEX and MTBE by EPA Method 8020. Influent sample concentrations of TPH-g ranged from 390 μg/L in May 1996 to 71 μg/L in September 1996. Midpoint sample concentrations of TPH-g were below detection limits in all samples except for 61 μg/L in September 1996. All effluent concentrations of both BTEX and MTBE were below detection limits. Analytical results are included in Appendix A and summarized in Table 4. Due to a misreading of permit conditions, influent and midpoint samples were analyzed for TPH-g rather than BTEX. Future analyses will be performed in accordance with permit conditions.

3.2 Vapor Extraction and Treatment

The vapor phase extraction and treatment system was put into operation in February 1995 after receiving a permit from the Bay Area Air Quality Management District (BAAQMD). The extracted vapors are routed to two 1,000-pound vapor phase carbon vessels for treatment. The influent, midpoint and effluent vapor concentrations were monitored regularly using a PID. PID measurements are summarized in Table 5. Influent air samples were taken in May 1996 and September 1996 to determine the amount of vapor hydrocarbons removed from the soil. Two tedlar bags were collected for each sample. The vapor samples were placed on ice in a cooler and transported under chain-of-custody to Curtis and Tompkins Laboratory.

The influent vapor samples were analyzed for TPH-g by EPA Method 8015M and BTEX by EPA Method 8020. All May 1996 sample results were below detection limits. In September 1996, TPH-g concentrations were detected at 78 milligrams per cubic meter (mg/M^3), and BTEX concentrations were detected at 3.6 mg/M^3 benzene, 8.5 mg/M^3 toluene, 1.6 mg/M^3 ethylbenzene and 2 mg/M^3 xylenes. Analytical results are included in Appendix A and summarized in Table 6.

4.0 Summary

- The vapor phase of the dual phase extraction and treatment system was put into operation in February 1996 and the ground water phase in April 1996.

- Second quarter ground water sampling and monitoring was conducted on June 27-28, 1996. Third quarter ground water monitoring was conducted on September 19 and 25, 1996. ESE staff collected ground water samples from MW-1, MW-3 and MW-7 on both occasions.

- Depth to water during the June monitoring event ranged from 6.25 ft bgs in MW-1 to 9.70 ft bgs in MW-7. Depth to water during the November monitoring event ranged from 10.46 ft bgs in MW-1 to 11.92 ft bgs in MW-7.

- Sample results from MW-1 and MW-7 were all below detection limits with the exception of 67 μg/L TPH-g in MW-7.

- In MW-3, benzene was detected at 120 μg/L in June and 6,000 μg/L in September, toluene was detected at 75 μg/L in June and 2,700 μg/L in September, ethylbenzene was detected at 6.2 μg/L in June and 450 μg/L in September and xylenes at 47 μg/L in June and 2,180 μg/L in September. TPH-g was detected in concentrations of 370 μg/L in June and 15,000 μg/L in September.

- Monthly readings were taken from the flow totalizer to determine the volume of water discharged to the sanitary sewer. As of October 8, 1996, 9,854 gallons have been treated and discharged.

- All ground water treatment system effluent concentrations of both BTEX and MTBE were below detection limits.

- Due to a misreading of permit conditions, influent and midpoint samples were analyzed for TPH-g rather than BTEX. Future analyses will be performed in accordence with permit conditions.

- All May 1996 influent air sample results were below detection limits. In September 1996, TPH-g concentrations were detected at 78 milligrams per cubic meter

(mg/M^3), and BTEX concentrations were detected at 3.6 mg/M^3 benzene, 8.5 mg/M^3 toluene, 1.6 mg/M^3 ethylbenzene and 2 mg/M^3 xylenes.

5.0 References

County of Alameda Health Care Services Agency (ACHCSA), 1993. Unpublished Letter Response to Recommendations in August 3, 1993 Environmental Science & Engineering, Inc. Report of Quarterly Activities at Vorelco Property No. 4826, Broadway Volkswagen, 2740 Broadway, Oakland, California; September 23, 1993.

Environmental Science & Engineering, Inc. (ESE), 1991a. Unpublished Report of Quarterly Activities at Vorelco Property No. 4826, Broadway Volkswagen, 2740 Broadway, Oakland, California; July 10, 1991.

_____, 1991b. Unpublished Report of Quarterly Activities at Vorelco Property No. 4826, Broadway Volkswagen, 2740 Broadway, Oakland, California; November 12, 1991.

_____, 1992. Unpublished Report of Quarterly Activities at Vorelco Property No. 4826, Broadway Volkswagen, 2740 Broadway, Oakland, California; December 3, 1992.

_____, 1993. Unpublished Report of Quarterly Activities at Vorelco Property No. 4826, Broadway Volkswagen, 2740 Broadway, Oakland, California; August 3, 1993.

_____, 1995. Report of Findings Soil Vapor Extraction Test, CORE Resource Property No. 4826, Broadway Volkswagen, 2740 Broadway, Oakland, California; January 27, 1995.

SEMCO, Inc., 1989. Unpublished Report of Underground Storage Tank Removal at Vorelco Property No. 4826, Broadway Volkswagen, 2740 Broadway, Oakland, California; February 3, 1989.

State of California Department of Water Resources (DWR), 1981. Water Well Standards: State of California. DWR Bull. 74-81; December, 1981.

TABLE 1
GROUND WATER ELEVATION DATA
CORE Resource, Inc.
2740 Broadway
Oakland, CA

Well Number	Date	Top of Well Casing Elevation (feet above MSL)	Depth to Ground Water from Top of Casing (feet)	Ground Water Elevation (feet above MSL)
MW-1	1/29/89	29.22	7.50	21.72
	2/6/89		9.00	20.22
	3/13/89		8.50	20.72
	5/13/91		12.60	16.62
	10/18/91		10.11	19.11
	10/27/92		9.63	19.59
	7/13/93		6.26	22.96
	6/27/96		6.25	22.97
	9/19/96		10.46	18.76
MW-3	1/29/89	30.00	11.70	18.30
	2/6/89		11.00	19.00
	3/13/89		10.70	19.30
	5/13/91		10.56	19.44
	10/18/91		10.21	19.79
	10/27/92		10.81	19.19
	7/13/93		9.64	20.36
	6/28/96		NM	NA
	9/19/96		11.22	18.78
MW-4*	1/29/89	29.70	NM	NA
	2/6/89		NM	NA
	3/13/89		NM	NA
	5/13/91		11.20	18.50
	10/18/91		9.55	20.15
	10/27/92		9.21	20.49
	7/13/93		8.32	21.38
MW-5*	1/29/89	30.50	NM	NA
	2/6/89		NM	NA
	3/13/89		NM	NA
	5/13/91		NM	NA
	10/18/91		11.27	19.23
	10/27/92		11.24	19.26
	7/13/93		10.21	20.29
MW-6*	1/29/89	29.19	NM	NA
	2/6/89		NM	NA
	3/13/89		NM	NA
	5/13/91		NM	NA
	10/18/91		10.21	18.98
	10/27/92		9.78	19.41

TABLE 1
GROUND WATER ELEVATION DATA
CORE Resource, Inc.
2740 Broadway
Oakland, CA

Well Number	Date	Top of Well Casing Elevation (feet above MSL)	Depth to Ground Water from Top of Casing (feet)	Ground Water Elevation (feet above MSL)
	7/13/93		8.50	20.69
MW-7	1/29/89		NM	NA
	2/6/89		NM	NA
	3/13/89		NM	NA
	5/13/91		NM	NA
	10/18/91		NM	NA
	10/27/92		NM	NA
	7/13/93		NM	NA
	6/27/96		9.70	
	9/19/96		11.92	

Notes:
* - Well abandonded on 3/16/94
NM - Not Measured
NA - Not Applicable

TABLE 2
Summary of Analytical Results of Ground Water Samples
CORE Resource, Inc.
2740 Broadway
Oakland, CA

Well Number	Date Sampled	Benzene	Toluene	Ethylbenzene	Xylenes	TPH-g
		concentrations (ug/L)				
MW-1	1/21/89	53	13	1.4	8.2	ND
	5/16/91	ND	ND	ND	1.1	130
	10/18/91	ND	ND	ND	ND	ND
	10/27/91	ND	ND	ND	ND	ND
	7/13/93	ND	ND	ND	ND	ND
	6/27/96	ND	ND	ND	ND	ND
	9/19/96	ND	ND	ND	ND	ND
MW-3	1/21/89	9,600	8,200	1,800	6,200	32,000
	5/16/91	7,800	12,000	1,200	4,000	81,000
	10/18/91	9,400	8,600	750	3,300	73,000
	10/27/91	7,100	4,900	970	3,500	37,000
	7/13/93	8,100	6,200	8,100	4,400	41,000
	6/28/96	120	75	6.2	47	370
	9/25/96	6,000	2,700	450	2,100	15,000
MW-4*	1/21/89	NA	NA	NA	NA	NA
	5/16/91	160	690	250	1,100	13,000
	10/18/91	11.0	11.0	ND	15	ND
	10/27/91	6.4	2.8	1.2	6.2	180
	7/13/93	36	4.4	1.8	6.3	320
MW-5*	1/21/89	NA	NA	NA	NA	NA
	5/16/91	NA	NA	NA	NA	NA
	10/18/91	3,500	530	670	1,100	16,000
	10/27/91	ND	ND	ND	ND	87
	7/13/93	ND	ND	ND	ND	90
MW-6*	1/21/89	NA	NA	NA	NA	NA
	5/16/91	NA	NA	NA	NA	NA
	10/18/91	640	2,700	1,100	4,500	28,000
	10/27/91	48	130	55	230	1,300
	7/13/93	5.1	30	30	230	1,100
MW-7	1/21/89	NA	NA	NA	NA	NA
	5/16/91	NA	NA	NA	NA	NA
	10/18/91	NA	NA	NA	NA	NA
	10/27/91	NA	NA	NA	NA	NA
	7/13/93	NA	NA	NA	NA	NA
	6/27/96	ND	ND	ND	ND	ND
	9/19/96	ND	ND	ND	ND	67

Notes:

TPH-g - Total Petroleum Hydrocarbons as gasoline

BTEX - Benzene, toluene, ethylbenzene and xylenes

* - Wells abandoned on 3/16/94

ND - Not detected at or above detection limits

NA - Not Analyzed

ug/L - micrograms per liter

TABLE 3
Summary of Analytical Results of Ground Water Treatment System
CORE Resource, Inc.
2740 Broadway
Oakland, CA

Sample Point	Date Sampled	Benzene	Toluene	Ethylbenzene	Xylenes	TPH-g	MTBE
		concentrations (ug/L)					
Influent	5/30/96	--	--	--	--	390	--
	6/27/95	--	--	--	--	86	--
	9/19/96	--	--	--	--	71	--
Midpoint	5/30/96	--	--	--	--	ND	--
	6/27/96	--	--	--	--	ND	--
	9/19/96	--	--	--	--	61	--
Effluent	5/30/96	ND	ND	ND	ND	--	ND
	6/27/96	ND	ND	ND	ND	--	ND
	9/19/96	ND	ND	ND	ND	--	ND

Notes:
TPH-g - Total Petroleum Hydrocarbons as gasoline
BTEX - Benzene, toluene, ethylbenzene and xylenes
MTBE - Methyl tertiary butyl ether
-- - Not analyzed for this constituent
ND - Not detected at or above the reporting limit
ug/L - micrograms per liter

TABLE 4
Ground Water System Flow Totalizer Readings
CORE Resource, Inc.
2740 Broadway
Oakland, CA

Date	Totalizer Reading (gallons)
4/19/96	2800
4/30/96	3494
5/6/96	4080
5/21/96	4433
5/30/96	4493
7/22/96	4790
8/19/96	5780
9/9/96	8070
9/19/96	9810
10/8/96	9854

TABLE 5
Vapor Concentrations - Vapor Phase Treatment System
CORE Resource, Inc.
2740 Broadway
Oakland, CA

Date Sampled	Influent (ppm)	Midpoint (ppm)	Effluent (ppm)
2/29/96	54.6	0.0	0.0
3/22/96	23.3	0.0	0.0
4/19/96	126	0.0	0.0
4/30/96	120	0.0	0.0
5/3/96	55.7	0.0	0.0
5/21/96	120	0.0	0.0
5/30/96	118	0.0	0.0
7/22/96	230	0.0	0.0
8/19/96	5	4.0	0.0
9/4/96	120	0.0	0.0
9/9/96	76	0.0	0.0
10/8/96	35.7	1.5	0.0

Notes:
PID - photo ionization detector
ppm - parts per million, vapor-phase total hydrocarbon concentrations measured with a PID

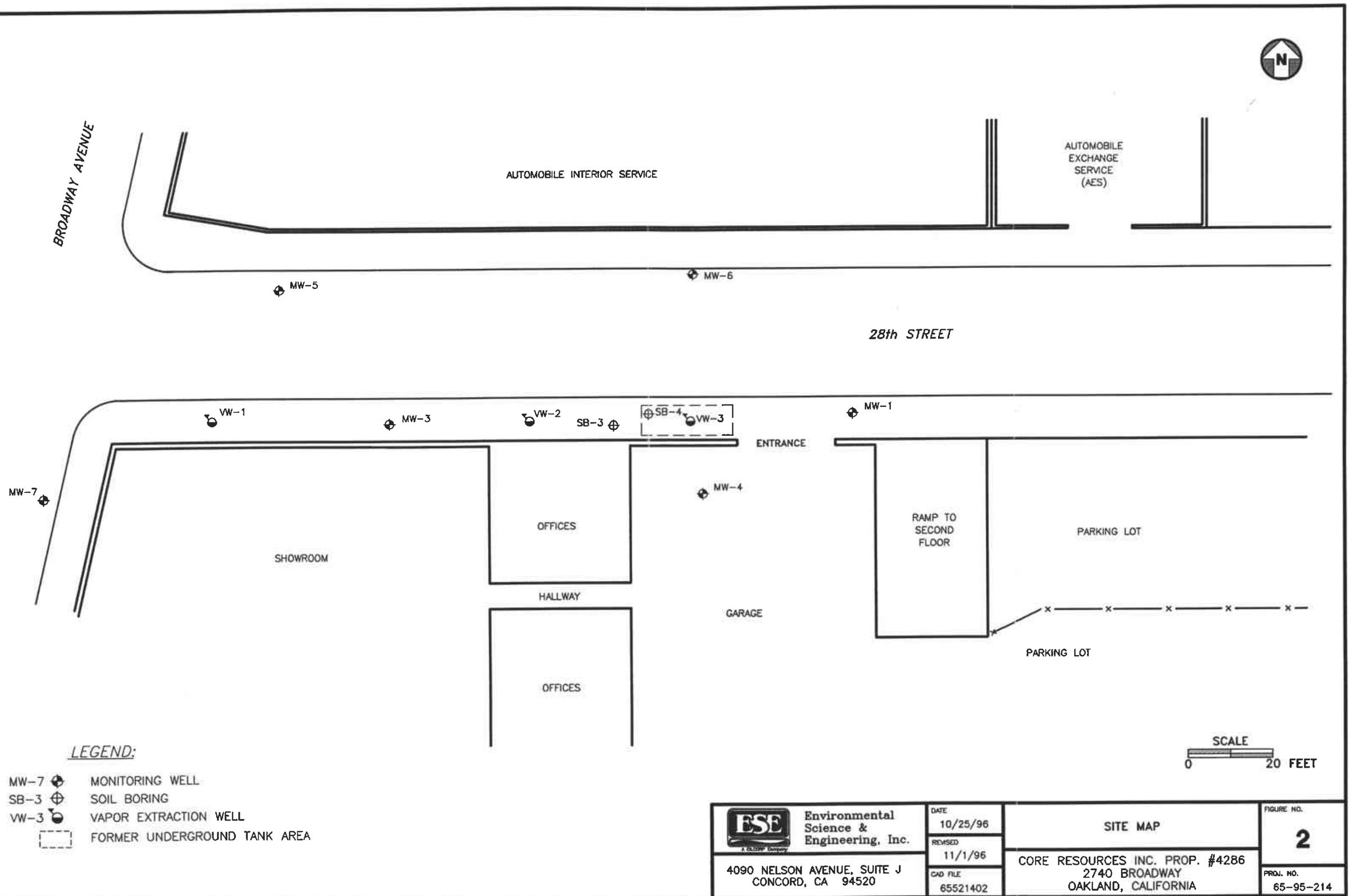
TABLE 6
Summary of Analytical Results of Vapor Samples
CORE Resource, Inc.
2740 Broadway
Oakland, CA

Sample Point	Date Sampled	Benzene	Toluene	Ethylbenzene	Xylenes	TPH-g
		All results reported in milligrams per cubic meter				
Influent	5/30/96	ND	ND	ND	ND	ND
	9/25/96	3.6	8.5	1.6	2	78

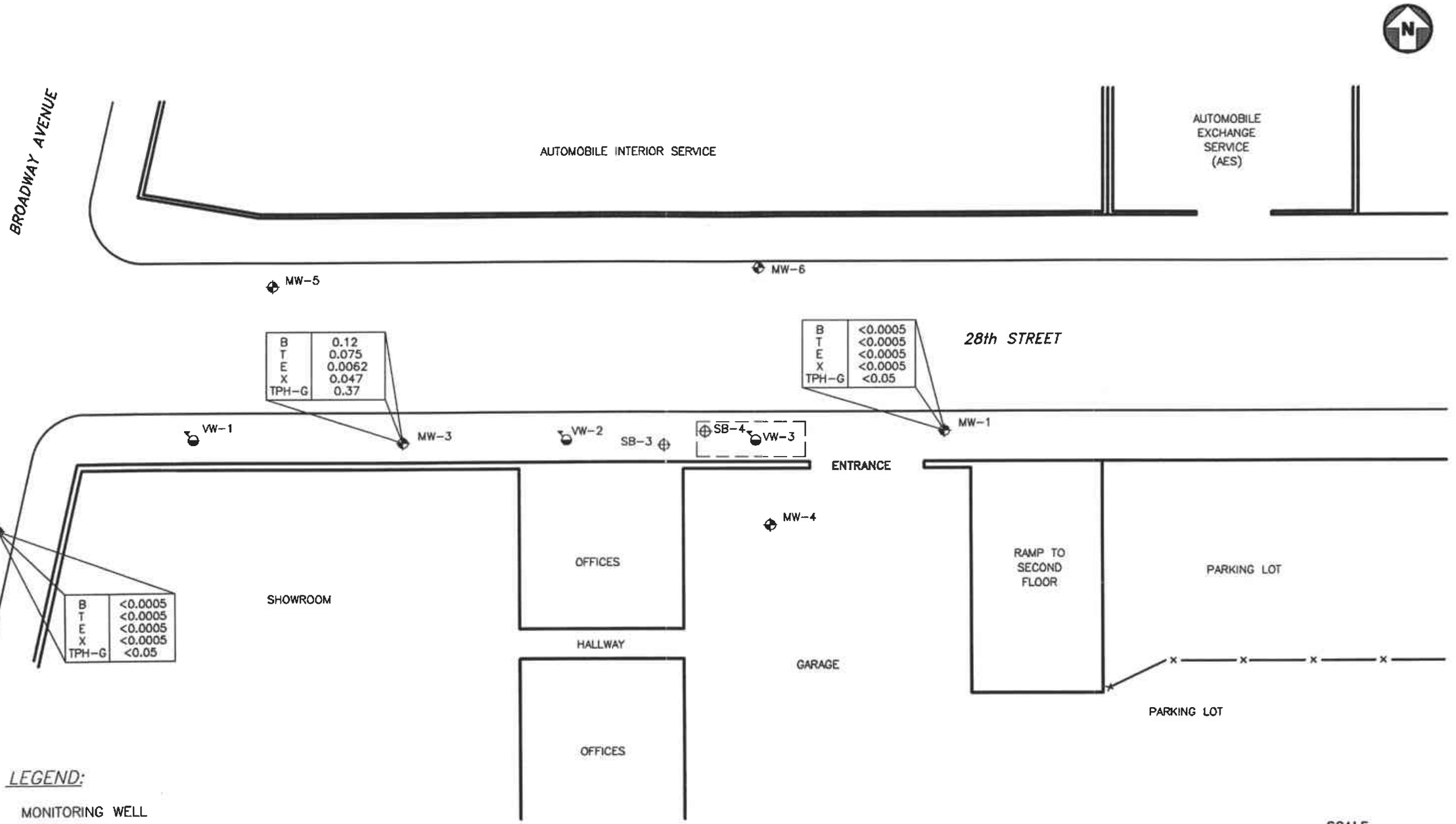
Notes:
TPH-g - Total Petroleum Hydrocarbons as gasoline
BTEX - Benzene, toluene, ethylbenzene and xylenes
ND - Not detected at or above the reporting limit

ADAPTED FROM U.S.G.S. OAKLAND WEST 7.5 MINUTE TOPOGRAPHIC QUADRANGLE, 1959, PHOTOREVISED 1980.

ESE Environmental Science & Engineering, Inc.	DATE 8/93	VICINITY MAP	FIGURE NO. 1
4090 NELSON AVENUE, SUITE J CONCORD, CA 94520	REVISED 5/23/95	CORE RESOURCE, INC. PROPERTY #4286 2740 BROADWAY OAKLAND, CALIFORNIA	PROJ. NO. 6-93-5093
	CAD FILE 50931001		



ESE Environmental Science & Engineering, Inc. 4090 NELSON AVENUE, SUITE J CONCORD, CA 94520	DATE 10/25/96 REVISED 11/1/96 CAD FILE 65521402	SITE MAP CORE RESOURCES INC. PROP. #4286 2740 BROADWAY OAKLAND, CALIFORNIA	FIGURE NO. 2 PROJ. NO. 65-95-214



LEGEND:

MW-7 ⊕	MONITORING WELL
SB-3 ⊕	SOIL BORING
VW-3	SOIL BORING
[ ]	FORMER UNDERGROUND TANK AREA
B	CONCENTRATION OF BENZENE IN GROUND WATER IN MILLIGRAMS PER LITER (mg/L)
T	CONCENTRATION OF TOLUENE IN GROUND WATER IN MILLIGRAMS PER LITER (mg/L)
E	CONCENTRATION OF ETHYLBENZENE IN GROUND WATER IN MILLIGRAMS PER LITER (mg/L)
X	CONCENTRATION OF XYLENES IN GROUND WATER IN MILLIGRAMS PER LITER (mg/L)
TPH-G	CONCENTRATION OF TPH-G IN GROUND WATER IN MILLIGRAMS PER LITER (mg/L)
*	MW-3 SAMPLED ON SEPTEMBER 25, 1996

ESE Environmental Science & Engineering, Inc.
4090 NELSON AVENUE, SUITE J
CONCORD, CA 94520

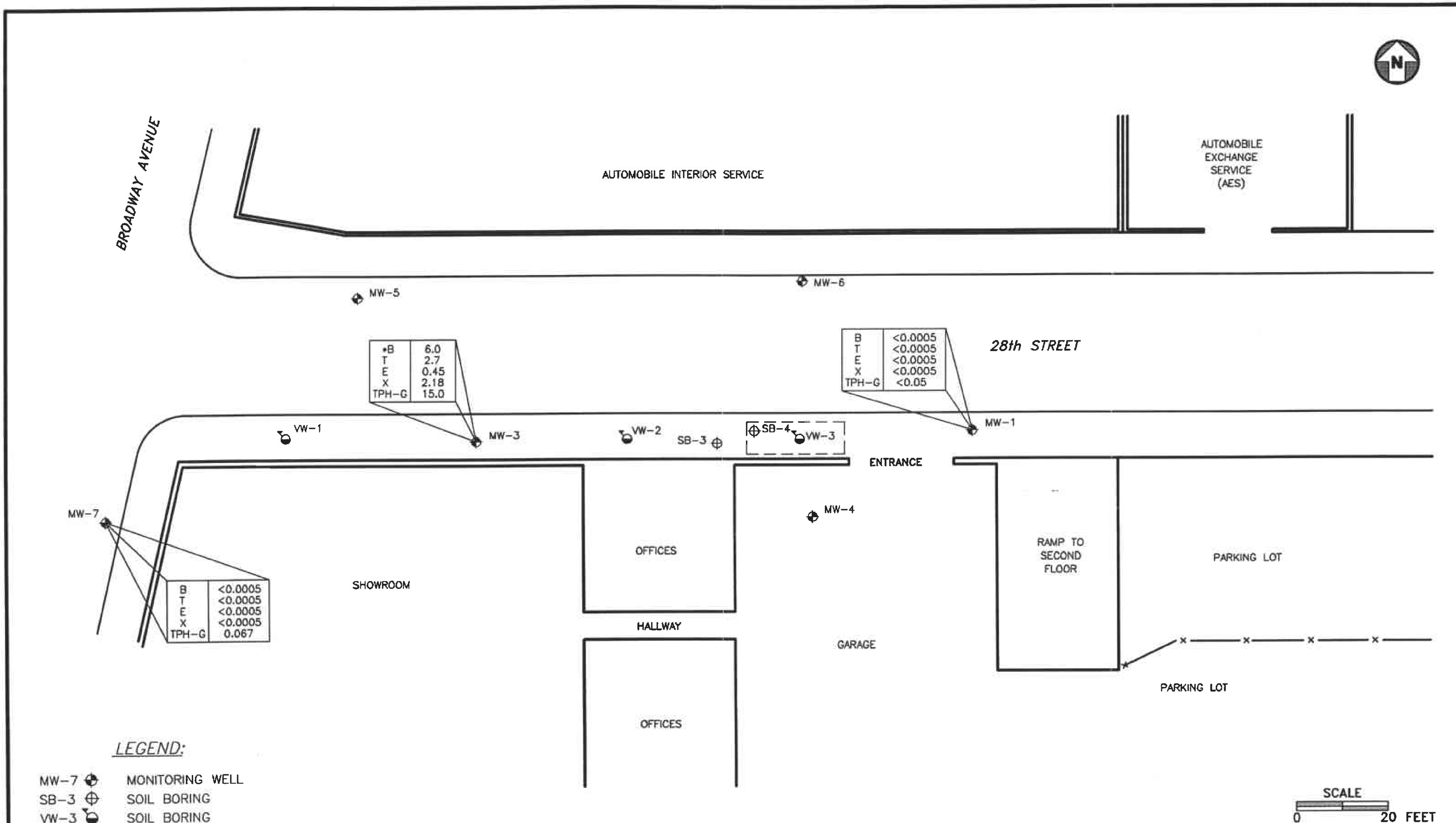
DATE 10/25/96
REVISED 11/1/96
CAD FILE 65521403

TPH-G AND BTEX CONCENTRATIONS IN GROUND WATER, JUNE 27, 1996

CORE RESOURCES INC. PROP. #4286
2740 BROADWAY
OAKLAND, CALIFORNIA

FIGURE NO. **3**

PROJ. NO. 65-95-214



LEGEND:

- MW-7 MONITORING WELL
- SB-3 SOIL BORING
- VW-3 SOIL BORING
- FORMER UNDERGROUND TANK AREA

B	CONCENTRATION OF BENZENE IN GROUND WATER IN MILLIGRAMS PER LITER (mg/L)
T	CONCENTRATION OF TOLUENE IN GROUND WATER IN MILLIGRAMS PER LITER (mg/L)
E	CONCENTRATION OF ETHYLBENZENE IN GROUND WATER IN MILLIGRAMS PER LITER (mg/L)
X	CONCENTRATION OF XYLENES IN GROUND WATER IN MILLIGRAMS PER LITER (mg/L)
TPH-G	CONCENTRATION OF TPH-G IN GROUND WATER IN MILLIGRAMS PER LITER (mg/L)
*	MW-3 SAMPLED ON SEPTEMBER 25, 1996

ESE Environmental Science & Engineering, Inc.	DATE 10/25/96	TPH-G AND BTEX CONCENTRATIONS IN GROUND WATER, SEPTEMBER 19 & 25, 1996	FIGURE NO. 4
4090 NELSON AVENUE, SUITE J CONCORD, CA 94520	REVISED 10/29/96	CORE RESOURCES INC. PROP. #4286 2740 BROADWAY OAKLAND, CALIFORNIA	PROJ. NO. 65-95-214
	CAD FILE 65521403		

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

ANALYTICAL REPORT

Prepared for:

Environmental Science & Engineering
4090 Nelson Avenue
Suite J
Concord, CA 94520

Date: 04-JUN-96
Lab Job Number: 125752
Project ID: 6595214
Location: Core

Reviewed by: _____

Reviewed by: _____

Curtis & Tompkins, Ltd.

TVH-Total Volatile Hydrocarbons

Client: Environmental Science & Engineering
Project#: 6595214
Location: Core

Analysis Method: CA LUFT (EPA 8015M)
Prep Method: EPA 5030

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
125752-001	INFLUENT	27926	05/30/96	06/01/96	06/01/96	
125752-002	MIDPOINT	27926	05/30/96	06/01/96	06/01/96	

Matrix: Water

Analyte	Units	125752-001	125752-002
Diln Fac:		1	1
Gasoline	ug/L	390 Y	<50
Surrogate			
Trifluorotoluene	%REC	92	90
Bromobenzene	%REC	88	83

Y: Sample exhibits fuel pattern which does not resemble standard

TVH-Total Volatile Hydrocarbons

Client: Environmental Science & Engineering
Project#: 6595214
Location: Core

Analysis Method: CA LUFT (EPA 8015M)
Prep Method: EPA 5030

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
125752-004	AIR	27882	05/30/96	05/30/96	05/30/96	

Matrix: Air

Analyte	Units	125752-004
Diln Fac:		1
Gasoline	mg/M3	<50
Surrogate		
Trifluorotoluene	%REC	92
Bromobenzene	%REC	93

Curtis & Tompkins, Ltd.

Lab #: 125752 BATCH QC REPORT

TVH-Total Volatile Hydrocarbons

Client: Environmental Science & Engineering
Project#: 6595214
Location: Core

Analysis Method: CA LUFT (EPA 8015M)
Prep Method: EPA 5030

METHOD BLANK

Matrix: Water
Batch#: 27926
Units: ug/L
Diln Fac: 1

Prep Date: 05/31/96
Analysis Date: 05/31/96

MB Lab ID: QC23084

Analyte	Result	
Gasoline	<50	
Surrogate	**%Rec**	**Recovery Limits**
Trifluorotoluene	90	69-120
Bromobenzene	76	70-122

Curtis & Tompkins, Ltd.

Lab #: 125752 BATCH QC REPORT

TVH-Total Volatile Hydrocarbons

Client: Environmental Science & Engineering
Project#: 6595214
Location: Core

Analysis Method: CA LUFT (EPA 8015M)
Prep Method: EPA 5030

METHOD BLANK

Matrix: Water
Batch#: 27882
Units: ug/L
Diln Fac: 1

Prep Date: 05/29/96
Analysis Date: 05/29/96

MB Lab ID: QC22896

Analyte	Result	
Gasoline	<50	
Surrogate	**%Rec**	**Recovery Limits**
Trifluorotoluene	85	69-120
Bromobenzene	71	70-122

DO: Surrogate diluted out

Curtis & Tompkins, Ltd.

Lab #: 125752 BATCH QC REPORT

TVH-Total Volatile Hydrocarbons

Client: Environmental Science & Engineering
Project#: 6595214
Location: Core

Analysis Method: CA LUFT (EPA 8015M)
Prep Method: EPA 5030

LABORATORY CONTROL SAMPLE

Matrix: Water
Batch#: 27926
Units: ug/L
Diln Fac: 1

Prep Date: 05/31/96
Analysis Date: 05/31/96

LCS Lab ID: QC23085

Analyte	Result	Spike Added	%Rec #	Limits
Gasoline	2010	2006	101	80-120

Surrogate	%Rec	Limits
Trifluorotoluene	95	69-120
Bromobenzene	92	70-122

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

Curtis & Tompkins, Ltd.

Lab #: 125752 BATCH QC REPORT

TVH-Total Volatile Hydrocarbons

Client: Environmental Science & Engineering
Project#: 6595214
Location: Core

Analysis Method: CA LUFT (EPA 8015M)
Prep Method: EPA 5030

LABORATORY CONTROL SAMPLE

Matrix: Water
Batch#: 27882
Units: ug/L
Diln Fac: 1

Prep Date: 05/29/96
Analysis Date: 05/29/96

LCS Lab ID: QC22897

Analyte	Result	Spike Added	%Rec #	Limits
Gasoline	2081	2006	104	80-120
Surrogate	**%Rec**	**Limits**		
Trifluorotoluene	88	69-120		
Bromobenzene	87	70-122		

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

Curtis & Tompkins, Ltd.

Lab #: 125752 BATCH QC REPORT

TVH-Total Volatile Hydrocarbons

Client: Environmental Science & Engineering
Project#: 6595214
Location: Core

Analysis Method: CA LUFT (EPA 8015M)
Prep Method: EPA 5030

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Field ID: ZZZZZZ
Lab ID: 125692-001
Matrix: Water
Batch#: 27926
Units: ug/L
Diln Fac: 1

Sample Date: 05/22/96
Received Date: 05/23/96
Prep Date: 05/31/96
Analysis Date: 05/31/96

MS Lab ID: QC23087

Analyte	Spike Added	Sample	MS	%Rec #	Limits
Gasoline	2000	<50.00	1850	93	75-125
Surrogate	**%Rec**	**Limits**			
Trifluorotoluene	95	69-120			
Bromobenzene	86	70-122			

MSD Lab ID: QC23088

Analyte	Spike Added	MSD	%Rec #	Limits	RPD #	Limit
Gasoline	2000	1979	90	75-125	7	<35
Surrogate	**%Rec**	**Limits**				
Trifluorotoluene	95	69-120				
Bromobenzene	98	70-122				

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.

Lab #: 125752 BATCH QC REPORT

TVH-Total Volatile Hydrocarbons

Client: Environmental Science & Engineering
Project#: 6595214
Location: Core

Analysis Method: CA LUFT (EPA 8015M)
Prep Method: EPA 5030

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Field ID: ZZZZZZ
Lab ID: 125723-001
Matrix: Water
Batch#: 27882
Units: ug/L
Diln Fac: 1

Sample Date: 05/28/96
Received Date: 05/28/96
Prep Date: 05/29/96
Analysis Date: 05/29/96

MS Lab ID: QC22899

Analyte	Spike Added	Sample	MS	%Rec #	Limits
Gasoline	2000	860	2839	99	75-125
Surrogate	**%Rec**	**Limits**			
Trifluorotoluene	93	69-120			
Bromobenzene	108	70-122			

MSD Lab ID: QC22900

Analyte	Spike Added	MSD	%Rec #	Limits	RPD #	Limit
Gasoline	2000	2882	101	75-125	2	<35
Surrogate	**%Rec**	**Limits**				
Trifluorotoluene	93	69-120				
Bromobenzene	109	70-122				

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.

BTXE

Client: Environmental Science & Engineering
Project#: 6595214
Location: Core

Analysis Method: EPA 8020
Prep Method: EPA 5030

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
125752-003	EFFLUENT	27936	05/30/96	06/02/96	06/02/96	

Matrix: Water

Analyte	Units	125752-003
Diln Fac:		1
MTBE	ug/L	<2
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	94
Bromobenzene	%REC	83

BTXE

Client: Environmental Science & Engineering
Project#: 6595214
Location: Core

Analysis Method: EPA 8020
Prep Method: EPA 5030

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
125752-004	AIR	27882	05/30/96	05/30/96	05/30/96	

Matrix: Air

Analyte	Units	125752-004
Diln Fac:		1
Benzene	mg/M3	<0.5
Toluene	mg/M3	<0.5
Ethylbenzene	mg/M3	<0.5
m,p-Xylenes	mg/M3	<0.5
o-Xylene	mg/M3	<0.5
Surrogate		
Trifluorotoluene	%REC	101
Bromobenzene	%REC	104

Curtis & Tompkins, Ltd.

Lab #: 125752 BATCH QC REPORT

BTXE

Client: Environmental Science & Engineering
Project#: 6595214
Location: Core

Analysis Method: EPA 8020
Prep Method: EPA 5030

METHOD BLANK

Matrix: Water
Batch#: 27936
Units: ug/L
Diln Fac: 1

Prep Date: 06/01/96
Analysis Date: 06/01/96

MB Lab ID: QC23135

Analyte	Result
MTBE	<2.0
Benzene	<0.5
Toluene	<0.5
Ethylbenzene	<0.5
m,p-Xylenes	<0.5
o-Xylene	<0.5

Surrogate	%Rec	Recovery Limits
Trifluorotoluene	91	58-130
Bromobenzene	78	62-131

Curtis & Tompkins, Ltd.

Lab #: 125752

BATCH QC REPORT

BTXE

Client: Environmental Science & Engineering
Project#: 6595214
Location: Core

Analysis Method: EPA 8020
Prep Method: EPA 5030

METHOD BLANK

Matrix: Water
Batch#: 27882
Units: ug/L
Diln Fac: 1

Prep Date: 05/29/96
Analysis Date: 05/29/96

MB Lab ID: QC22896

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	92	58-130
Bromobenzene	80	62-131

DO: Surrogate diluted out

Curtis & Tompkins, Ltd.

Lab #: 125752

BATCH QC REPORT

BTXE

Client: Environmental Science & Engineering
Project#: 6595214
Location: Core

Analysis Method: EPA 8020
Prep Method: EPA 5030

LABORATORY CONTROL SAMPLE

Matrix: Water
Batch#: 27936
Units: ug/L
Diln Fac: 1

Prep Date: 06/01/96
Analysis Date: 06/01/96

LCS Lab ID: QC23137

Analyte	Result	Spike Added	%Rec #	Limits
Benzene	16.1	20	81	80-120
Toluene	16.1	20	81	80-120
Ethylbenzene	16.2	20	81	80-120
m,p-Xylenes	32	40	80	80-120
o-Xylene	16.2	20	81	80-120

Surrogate	%Rec	Limits
Trifluorotoluene	92	58-130
Bromobenzene	85	62-131

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

Curtis & Tompkins, Ltd.

Lab #: 125752

BATCH QC REPORT

BTXE

Client: Environmental Science & Engineering
Project#: 6595214
Location: Core

Analysis Method: EPA 8020
Prep Method: EPA 5030

LABORATORY CONTROL SAMPLE

Matrix: Water
Batch#: 27882
Units: ug/L
Diln Fac: 1

Prep Date: 05/29/96
Analysis Date: 05/29/96

LCS Lab ID: QC22898

Analyte	Result	Spike Added	%Rec #	Limits
Benzene	22.1	20	111	80-120
Toluene	21.9	20	110	80-120
Ethylbenzene	21.7	20	109	80-120
m,p-Xylenes	45.4	40	114	80-120
o-Xylene	23	20	115	85-120

Surrogate	%Rec	Limits
Trifluorotoluene	93	58-130
Bromobenzene	83	62-131

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

Curtis & Tompkins, Ltd.

Lab #: 125752 BATCH QC REPORT

BTXE

Client: Environmental Science & Engineering
Project#: 6595214
Location: Core

Analysis Method: EPA 8020
Prep Method: EPA 5030

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Field ID: ZZZZZZ
Lab ID: 125762-001
Matrix: Water
Batch#: 27936
Units: ug/L
Diln Fac: 1

Sample Date: 05/29/96
Received Date: 05/30/96
Prep Date: 06/01/96
Analysis Date: 06/01/96

MS Lab ID: QC23138

Analyte	Spike Added	Sample	MS	%Rec #	Limits
Benzene	20	<0.5000	17.7	89	75-125
Toluene	20	<0.5000	17.5	88	75-125
Ethylbenzene	20	<0.5000	17.7	89	75-125
m,p-Xylenes	40	<0.5000	34.6	87	75-125
o-Xylene	20	<0.5000	17.8	89	75-125

Surrogate	%Rec	Limits
Trifluorotoluene	91	58-130
Bromobenzene	84	62-131

MSD Lab ID: QC23139

Analyte	Spike Added	MSD	%Rec #	Limits	RPD #	Limit
Benzene	20	19.2	96	75-125	8	<20
Toluene	20	18.9	95	75-125	8	<20
Ethylbenzene	20	18.7	94	75-125	6	<20
m,p-Xylenes	40	36.8	92	75-125	6	<20
o-Xylene	20	18.9	95	75-125	6	<20

Surrogate	%Rec	Limits
Trifluorotoluene	91	58-130
Bromobenzene	84	62-131

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

12756

CHAIN OF CUSTODY RECORD

DATE May 30 96 PAGE 1 OF 1

PROJECT NAME Coca

ADDRESS 2740 Broadway
Oakland

PROJECT NO. 6595.214 task 5000

SAMPLED BY Paul Marsden

LAB NAME Curtis & Tompkins

ESE Environmental Science & Engineering, Inc.
A CILCORP Company
4090 Nelson Avenue
Suite J
Concord, CA 94520
Phone (510) 685-4053
Fax (510) 685-5323

	SAMPLE #	DATE	TIME	LOCATION	ANALYSES TO BE PERFORMED: 8015M Gas	8020 MTBE	8020 BTEX							MATRIX	NUMBER OF CONTAINERS	REMARKS (CONTAINER, SIZE, ETC.)
1	Influent	5/30	12:45	Oakland	X									H_2O	4	Voas
2	Midpoint	"	12:50	"	X									"	4	"
3	Effluent	"	12:55	"		X	X							"	4	"
4	Air	"	10 30	"	X		X							Air	2	Tedlar bags

RELINQUISHED BY: (signature)	RECEIVED BY: (signature)	date	time
1. Paul Marsden			
2.			
3.			
4.			
5.	D. Moore	5/30	12:55

14 TOTAL NUMBER OF CONTAINERS

REPORT RESULTS TO: Mac Q.

SPECIAL SHIPMENT REQUIREMENTS

INSTRUCTIONS TO LABORATORY (handling, analyses, storage, etc.):

SAMPLE RECEIPT

CHAIN OF CUSTODY SEALS	
REC'D GOOD CONDTN/COLD	
CONFORMS TO RECORD	

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

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

Prepared for:

Environmental Science & Engineering
4090 Nelson Avenue
Suite J
Concord, CA 94520

Date: 10-JUL-96
Lab Job Number: 126191
Project ID: 6595214
Location: Core

Reviewed by: Teresa K Morrison

Reviewed by: Tracy Babajian

TVH-Total Volatile Hydrocarbons

Client: Environmental Science & Engineering
Project#: 6595214
Location: Core

Analysis Method: CA LUFT (EPA 8015M)
Prep Method: EPA 5030

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
126191-001	MW-1	28558	06/27/96	07/05/96	07/05/96	
126191-002	MW-7	28558	06/27/96	07/05/96	07/05/96	
126191-003	DUP	28558	06/27/96	07/05/96	07/05/96	
126191-004	6-27-IN	28558	06/27/96	07/05/96	07/05/96	

Matrix: Water

Analyte Diln Fac:	Units	126191-001 1	126191-002 1	126191-003 1	126191-004 1	
Gasoline	ug/L	<50	<50	<50	86	Y,Z
Surrogate						
Trifluorotoluene	%REC	98	98	98	101	
Bromobenzene	%REC	79	80	81	89	

Y: Sample exhibits fuel pattern which does not resemble standard
Z: Sample exhibits unknown single peak or peaks

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 126191
CLIENT: ENVIRONMENTAL SCIENCE & ENG.
PROJECT #: 6595214
LOCATION: CORE

DATE SAMPLED: 06/27/96
DATE RECEIVED: 07/03/96
DATE ANALYZED: 07/07/96
DATE REPORTED: 07/10/96
BATCH #: 28566

ANALYSIS: METHYL TERT-BUTYL ETHER
ANALYSIS METHOD: EPA 8020

LAB ID	SAMPLE ID	RESULT (ug/L)	REPORTING LIMIT	SURROGATE RECOVERY, % (TFT)	(BFB)
126191-006	6-27-EFF	ND	2.0	94	78
METHOD BLANK	N/A	ND	2.0	92	74

ND = Not detected at or above reporting limit.

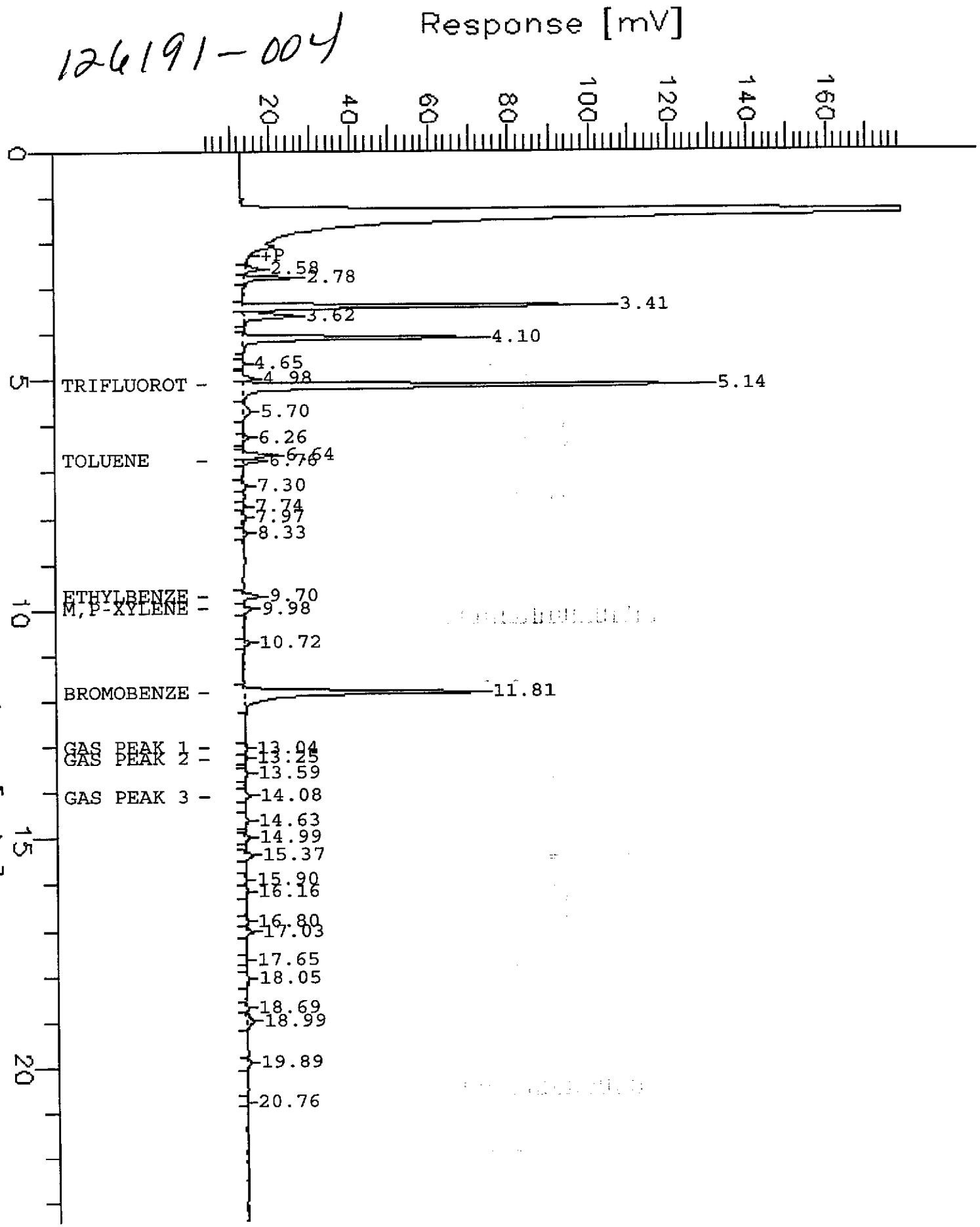
TVH2 - GC-05 RTX-1

FileName : G:\GC05\187H015.raw
Start Time : 0.00 min
End Time : 23.42 min
Scale Factor: -1
Plot Offset: 4 mV

Date : 7/5/96 8:23 PM
Low Point : 3.91 mV
Plot Scale: 175 mV

High Point : 178.91 mV

126191-004



TVH-Total Volatile Hydrocarbons

Client: Environmental Science & Engineering
Project#: 6595214
Location: Core

Analysis Method: CA LUFT (EPA 8015M)
Prep Method: EPA 5030

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
126191-005	6-27-MID	28558	06/27/96	07/05/96	07/05/96	
126191-007	MW-3	28558	06/28/96	07/06/96	07/06/96	

Matrix: Water

Analyte	Units	126191-005	126191-007
Diln Fac:		1	1
Gasoline	ug/L	<50	370 Y,Z
Surrogate			
Trifluorotoluene	%REC	99	101
Bromobenzene	%REC	83	88

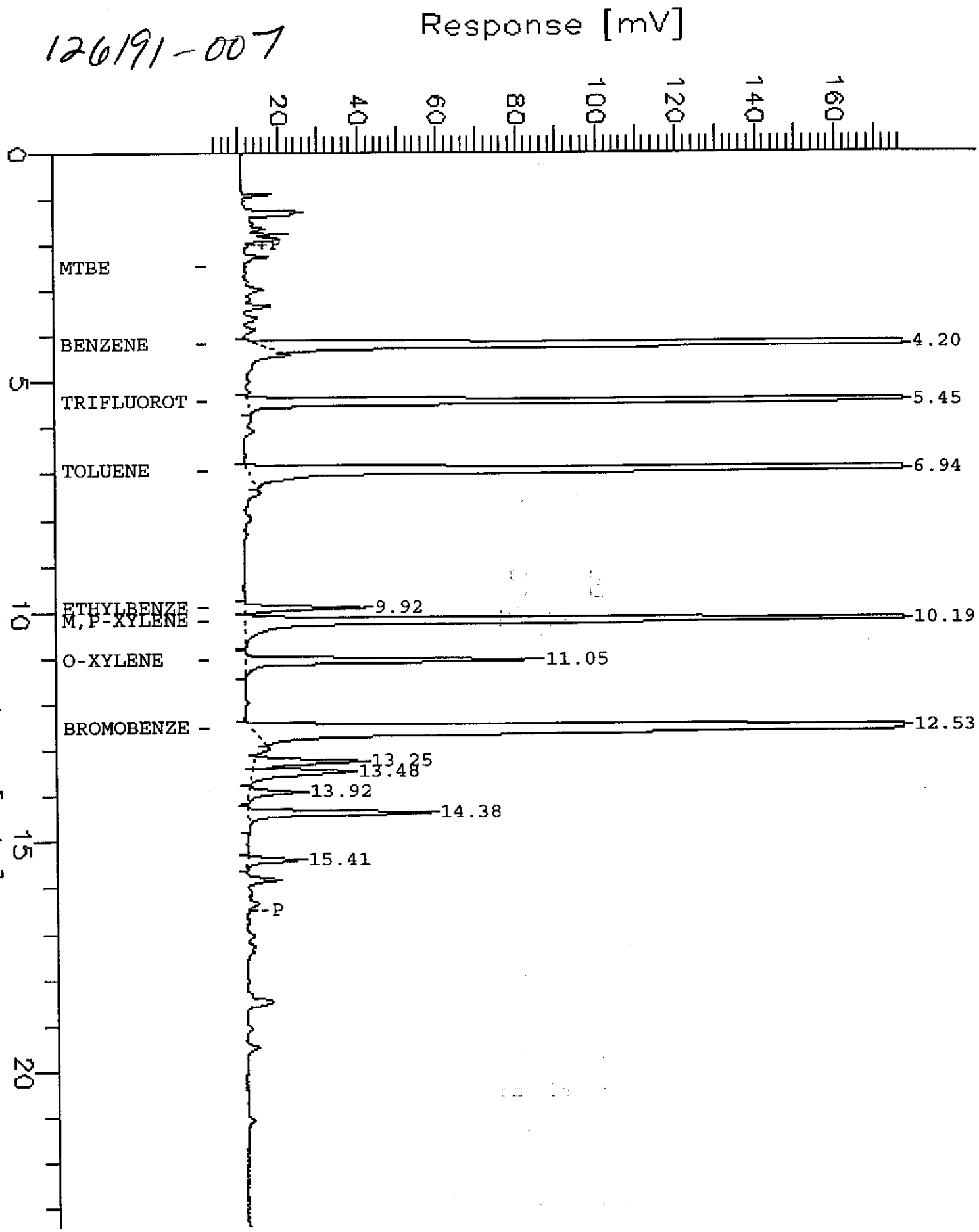
Y: Sample exhibits fuel pattern which does not resemble standard
Z: Sample exhibits unknown single peak or peaks

BTXE1 - GC-05 DB 624

FileName : G:\GC05\CONFIRM\187E022.raw
Start Time : 0.00 min
Scale Factor: -1
End Time : 23.42 min
Plot Offset: 2 mV
Date : 7/6/96 12:34 AM
Low Point : 2.05 mV
Plot Scale: 175 mV

High Point : 177.05 mV

126191-007



BTXE

Client: Environmental Science & Engineering
Project#: 6595214
Location: Core

Analysis Method: EPA 8020
Prep Method: EPA 5030

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
126191-001	MW-1	28558	06/27/96	07/05/96	07/05/96	
126191-002	MW-7	28558	06/27/96	07/05/96	07/05/96	
126191-003	DUP	28558	06/27/96	07/05/96	07/05/96	
126191-006	6-27-EFF	28566	06/27/96	07/07/96	07/07/96	

Matrix: Water

Analyte Diln Fac:	Units	126191-001 1	126191-002 1	126191-003 1	126191-006 1
Benzene	ug/L	<0.5	<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	96	95	95	94
Bromobenzene	%REC	79	79	80	78

BTXE

Client: Environmental Science & Engineering
Project#: 6595214
Location: Core

Analysis Method: EPA 8020
Prep Method: EPA 5030

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
126191-007	MW-3	28558	06/28/96	07/06/96	07/06/96	

Matrix: Water

Analyte	Units	126191-007
Diln Fac:		1
Benzene	ug/L	120
Toluene	ug/L	75
Ethylbenzene	ug/L	6.2
m,p-Xylenes	ug/L	33
o-Xylene	ug/L	14
Surrogate		
Trifluorotoluene	%REC	98
Bromobenzene	%REC	88

Curtis & Tompkins, Ltd.

Lab #: 126191

BATCH QC REPORT

TVH-Total Volatile Hydrocarbons

Client: Environmental Science & Engineering
Project#: 6595214
Location: Core

Analysis Method: CA LUFT (EPA 8015M)
Prep Method: EPA 5030

METHOD BLANK

Matrix: Water
Batch#: 28558
Units: ug/L
Diln Fac: 1

Prep Date: 07/05/96
Analysis Date: 07/05/96

MB Lab ID: QC25747

Analyte	Result	
Gasoline	<50	
Surrogate	**%Rec**	**Recovery Limits**
Trifluorotoluene	98	69-120
Bromobenzene	80	70-122

Curtis & Tompkins, Ltd.

Lab #: 126191

BATCH QC REPORT

BTXE

Client: Environmental Science & Engineering
Project#: 6595214
Location: Core

Analysis Method: EPA 8020
Prep Method: EPA 5030

METHOD BLANK

Matrix: Water
Batch#: 28558
Units: ug/L
Diln Fac: 1

Prep Date: 07/05/96
Analysis Date: 07/05/96

MB Lab ID: QC25747

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	96	58-130
Bromobenzene	78	62-131

Curtis & Tompkins, Ltd.

Lab #: 126191

BATCH QC REPORT

BTXE

Client: Environmental Science & Engineering
Project#: 6595214
Location: Core

Analysis Method: EPA 8020
Prep Method: EPA 5030

METHOD BLANK

Matrix: Water
Batch#: 28566
Units: ug/L
Diln Fac: 1

Prep Date: 07/06/96
Analysis Date: 07/06/96

MB Lab ID: QC25783

Analyte	Result
MTBE	<2.0
Benzene	<0.5
Toluene	<0.5
Ethylbenzene	<0.5
m,p-Xylenes	<0.5
o-Xylene	<0.5

Surrogate	%Rec	Recovery Limits
Trifluorotoluene	92	58-130
Bromobenzene	74	62-131

Curtis & Tompkins, Ltd.

Lab #: 126191

BATCH QC REPORT

TVH-Total Volatile Hydrocarbons

Client: Environmental Science & Engineering
Project#: 6595214
Location: Core

Analysis Method: CA LUFT (EPA 8015M)
Prep Method: EPA 5030

LABORATORY CONTROL SAMPLE

Matrix: Water
Batch#: 28558
Units: ug/L
Diln Fac: 1

Prep Date: 07/05/96
Analysis Date: 07/05/96

LCS Lab ID: QC25748

Analyte	Result	Spike Added	%Rec #	Limits
Gasoline	2014	2000	101	80-120
Surrogate	**%Rec**	**Limits**		
Trifluorotoluene	105	69-120		
Bromobenzene	100	70-122		

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

Curtis & Tompkins, Ltd.

Lab #: 126191

BATCH QC REPORT

BTXE

Client: Environmental Science & Engineering
Project#: 6595214
Location: Core

Analysis Method: EPA 8020
Prep Method: EPA 5030

LABORATORY CONTROL SAMPLE

Matrix: Water
Batch#: 28558
Units: ug/L
Diln Fac: 1

Prep Date: 07/05/96
Analysis Date: 07/05/96

LCS Lab ID: QC25749

Analyte	Result	Spike Added	%Rec #	Limits
Benzene	18.2	20	91	80-120
Toluene	17.8	20	89	80-120
Ethylbenzene	17.4	20	87	80-120
m,p-Xylenes	34.8	40	87	80-120
o-Xylene	17.8	20	89	80-120

Surrogate	%Rec	Limits
Trifluorotoluene	97	58-130
Bromobenzene	82	62-131

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
NM: Not meaningful

Curtis & Tompkins, Ltd.

Lab #: 126191

BATCH QC REPORT

BTXE

Client: Environmental Science & Engineering
Project#: 6595214
Location: Core

Analysis Method: EPA 8020
Prep Method: EPA 5030

LABORATORY CONTROL SAMPLE

Matrix: Water
Batch#: 28566
Units: ug/L
Diln Fac: 1

Prep Date: 07/06/96
Analysis Date: 07/06/96

LCS Lab ID: QC25785

Analyte	Result	Spike Added	%Rec #	Limits
MTBE	17.42	20	87	85-115
Benzene	20.1	20	101	80-120
Toluene	19.4	20	97	80-120
Ethylbenzene	18.7	20	94	80-120
m,p-Xylenes	37.6	40	94	80-120
o-Xylene	19.1	20	96	80-120

Surrogate	%Rec	Limits
Trifluorotoluene	93	58-130
Bromobenzene	78	62-131

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits
Spike Recovery: 0 out of 6 outside limits
NM: Not meaningful

Curtis & Tompkins, Ltd.

Lab #: 126191

BATCH QC REPORT

TVH-Total Volatile Hydrocarbons

Client: Environmental Science & Engineering
Project#: 6595214
Location: Core

Analysis Method: CA LUFT (EPA 8015M)
Prep Method: EPA 5030

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Field ID: ZZZZZZ
Lab ID: 126174-003
Matrix: Water
Batch#: 28558
Units: ug/L
Diln Fac: 1

Sample Date: 07/01/96
Received Date: 07/01/96
Prep Date: 07/05/96
Analysis Date: 07/05/96

MS Lab ID: QC25750

Analyte	Spike Added	Sample	MS	%Rec #	Limits
Gasoline	2000	<50.00	2119	106	75-125
Surrogate	**%Rec**	**Limits**			
Trifluorotoluene	106	69-120			
Bromobenzene	105	70-122			

MSD Lab ID: QC25751

Analyte	Spike Added	MSD	%Rec #	Limits	RPD #	Limit
Gasoline	2000	2130	107	75-125	1	<20
Surrogate	**%Rec**	**Limits**				
Trifluorotoluene	107	69-120				
Bromobenzene	106	70-122				

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

120194

CHAIN OF CUSTODY RECORD

ESE
Environmental Science & Engineering, Inc.
A CILCORP Company
4090 Nelson Avenue
Suite J
Concord, CA 94520
Phone (510) 685-4053
Fax (510) 685-5323

DATE June 27, 96 PAGE 1 OF 2

PROJECT NAME Core

ADDRESS Oakland Ca.

PROJECT NO. 6595 214

SAMPLED BY Paul Marsden

LAB NAME Curtis & Tompkins

	SAMPLE #	DATE	TIME	LOCATION	8015M Gas	EPA 8020 MTBE	EPA 8020 BTEX							MATRIX	NUMBER OF CONTAINERS	REMARKS (CONTAINER, SIZE, ETC.)
-1	MW-1	6/27	1433	Oakland	X		X							H2O	4	Voas
-2	MW-7	↓	1440	↓	X		X							↓	4	↓
-3	Dup	↓	1440	↓	X		X							↓	4	↓
4	6-27-IN	↓	1250	↓	X									↓	4	↓
-5	6-27-Mid	↓	1255	↓	X									↓	4	↓
6	6-27-EFF	↓	1300	↓		X	X							↓	4	↓

RELINQUISHED BY: (signature)	RECEIVED BY: (signature)	date	time
1. Paul Marsden	[signature]	7/3/96	10:15
2.			
3.			
4.			
5.			

TOTAL NUMBER OF CONTAINERS: 24

REPORT RESULTS TO: Mae Q.

SPECIAL SHIPMENT REQUIREMENTS

SAMPLE RECEIPT

CHAIN OF CUSTODY SEALS	
REC'D GOOD CONDTN/COLD	
CONFORMS TO RECORD	

INSTRUCTIONS TO LABORATORY (handling, analyses, storage, etc.):

Normal Turn around.

126191

CHAIN OF CUSTODY RECORD

DATE 6/28/96 PAGE 1 OF 2

PROJECT NAME CORE

ADDRESS OAKLAND, CA

PROJECT NO. 6595B14

SAMPLED BY J. CARPENTER

LAB NAME Curtis & Tompkins.

ESE Environmental Science & Engineering, Inc.
A CILCORP Company
4090 Nelson Avenue
Suite J
Concord, CA 94520
Phone (510) 685-4053
Fax (510) 685-5323

SAMPLE #	DATE	TIME	LOCATION	ANALYSES TO BE PERFORMED: 8015-M Gas	ANALYSES TO BE PERFORMED: EPA 8020 BTEX	MATRIX	NUMBER OF CONTAINERS	REMARKS (CONTAINER, SIZE, ETC.)
7 MW-3	6/28/96	4:05	CORE	X	X	WATER	4	4 - VOA's

RELINQUISHED BY: (signature)	RECEIVED BY: (signature)	date	time
1.		6/28	17:00
2.		7/3/96	10:15
3.			
4.			
5.			

4 TOTAL NUMBER OF CONTAINERS

REPORT RESULTS TO:

SPECIAL SHIPMENT REQUIREMENTS

INSTRUCTIONS TO LABORATORY (handling, analyses, storage, etc.):

SAMPLE RECEIPT

CHAIN OF CUSTODY SEALS	
REC'D GOOD CONDTN/COLD	
CONFORMS TO RECORD	

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

ANALYTICAL REPORT

Prepared for:

Environmental Science & Engineering
4090 Nelson Avenue
Suite J
Concord, CA 94520

Date: 26-SEP-96
Lab Job Number: 126903
Project ID: 6595214
Location: Core

Reviewed by: _____

Reviewed by: _____

TVH-Total Volatile Hydrocarbons

Client: Environmental Science & Engineering
Project#: 6595214
Location: Core

Analysis Method: CA LUFT (EPA 8015M)
Prep Method: EPA 5030

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
126903-001	MW1	30026	09/19/96	09/25/96	09/25/96	
126903-002	MW7	30026	09/19/96	09/25/96	09/25/96	

Matrix: Water

Analyte	Units	126903-001	126903-002
Diln Fac:		1	1
Gasoline	ug/L	<50	67 Z
Surrogate			
Trifluorotoluene	%REC	102	101
Bromobenzene	%REC	88	88

Z: Sample exhibits unknown single peak or peaks

BTXE

Client: Environmental Science & Engineering
Project#: 6595214
Location: Core

Analysis Method: EPA 8020
Prep Method: EPA 5030

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
126903-001	MW1	30026	09/19/96	09/25/96	09/25/96	
126903-002	MW7	30026	09/19/96	09/25/96	09/25/96	

Matrix: Water

Analyte	Units	126903-001	126903-002
Diln Fac:		1	1
Benzene	ug/L	<0.5	<0.5
Toluene	ug/L	<0.5	<0.5
Ethylbenzene	ug/L	<0.5	<0.5
m,p-Xylenes	ug/L	<0.5	<0.5
o-Xylene	ug/L	<0.5	<0.5
Surrogate			
Trifluorotoluene	%REC	109	109
Bromobenzene	%REC	97	98

TVH-Total Volatile Hydrocarbons

Client: Environmental Science & Engineering
Project#: 6595214
Location: Core

Analysis Method: CA LUFT (EPA 8015M)
Prep Method: EPA 5030

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
126903-003	INF	30026	09/19/96	09/25/96	09/25/96	
126903-004	MIDPOINT	30026	09/19/96	09/25/96	09/25/96	

Matrix: Water

Analyte	Units	126903-003	126903-004
Diln Fac:		1	1
Gasoline	ug/L	71 Z	61 Z
Surrogate			
Trifluorotoluene	%REC	101	101
Bromobenzene	%REC	91	88

Z: Sample exhibits unknown single peak or peaks

TVH-Total Volatile Hydrocarbons

Client: Environmental Science & Engineering
Project#: 6595214
Location: Core

Analysis Method: CA LUFT (EPA 8015M)
Prep Method: EPA 5030

METHOD BLANK

Matrix: Water
Batch#: 30026
Units: ug/L
Diln Fac: 1

Prep Date: 09/25/96
Analysis Date: 09/25/96

MB Lab ID: QC31239

Analyte	Result	
Gasoline	<50	
Surrogate	**%Rec**	**Recovery Limits**
Trifluorotoluene	101	69-120
Bromobenzene	90	70-122

Curtis & Tompkins, Ltd.

Lab #: 126903

BATCH QC REPORT

BTXE

Client: Environmental Science & Engineering
Project#: 6595214
Location: Core

Analysis Method: EPA 8020
Prep Method: EPA 5030

METHOD BLANK

Matrix: Water
Batch#: 30026
Units: ug/L
Diln Fac: 1

Prep Date: 09/25/96
Analysis Date: 09/25/96

MB Lab ID: QC31239

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	102	58-130
Bromobenzene	99	62-131

Curtis & Tompkins, Ltd.

Lab #: 126903

BATCH QC REPORT

TVH-Total Volatile Hydrocarbons

Client: Environmental Science & Engineering
Project#: 6595214
Location: Core

Analysis Method: CA LUFT (EPA 8015M)
Prep Method: EPA 5030

LABORATORY CONTROL SAMPLE

Matrix: Water
Batch#: 30026
Units: ug/L
Diln Fac: 1

Prep Date: 09/25/96
Analysis Date: 09/25/96

LCS Lab ID: QC31237

Analyte	Result	Spike Added	%Rec #	Limits
Gasoline	1889	2000	94	80-120

Surrogate	%Rec	Limits
Trifluorotoluene	102	69-120
Bromobenzene	113	70-122

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

Curtis & Tompkins, Ltd.

Lab #: 126903

BATCH QC REPORT

BTXE

Client: Environmental Science & Engineering
Project#: 6595214
Location: Core

Analysis Method: EPA 8020
Prep Method: EPA 5030

LABORATORY CONTROL SAMPLE

Matrix: Water
Batch#: 30026
Units: ug/L
Diln Fac: 1

Prep Date: 09/25/96
Analysis Date: 09/25/96

LCS Lab ID: QC31238

Analyte	Result	Spike Added	%Rec #	Limits
Benzene	18.7	20	94	80-120
Toluene	17.9	20	90	80-120
Ethylbenzene	18.5	20	93	80-120
m,p-Xylenes	48	40	120	80-120
o-Xylene	18.8	20	94	80-120

Surrogate	%Rec	Limits
Trifluorotoluene	103	58-130
Bromobenzene	102	62-131

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

Curtis & Tompkins, Ltd.

Lab #: 126903

BATCH QC REPORT

TVH-Total Volatile Hydrocarbons

Client: Environmental Science & Engineering
Project#: 6595214
Location: Core

Analysis Method: CA LUFT (EPA 8015M)
Prep Method: EPA 5030

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Field ID: ZZZZZZ
Lab ID: 126864-001
Matrix: Water
Batch#: 30026
Units: ug/L
Diln Fac: 1

Sample Date: 09/16/96
Received Date: 09/17/96
Prep Date: 09/25/96
Analysis Date: 09/25/96

MS Lab ID: QC31254

Analyte	Spike Added	Sample	MS	%Rec #	Limits
Gasoline	2000	<50	1584	79	75-125
Surrogate	**%Rec**	**Limits**			
Trifluorotoluene	98	69-120			
Bromobenzene	113	70-122			

MSD Lab ID: QC31255

Analyte	Spike Added	MSD	%Rec #	Limits	RPD #	Limit
Gasoline	2000	1576	79	75-125	1	20
Surrogate	**%Rec**	**Limits**				
Trifluorotoluene	97	69-120				
Bromobenzene	114	70-122				

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.

LABORATORY NUMBER: 126903
CLIENT: ENVIRONMENTAL SCIENCE & ENG.
PROJECT ID: 6595214
LOCATION: CORE

DATE SAMPLED: 09/19/96
DATE RECEIVED: 09/19/96
DATE ANALYZED: 09/25/96
DATE REPORTED: 09/26/96

Benzene, Toluene, Ethyl Benzene, Xylenes by EPA 8020
Extraction by EPA 5030 Purge and Trap

LAB ID	CLIENT ID	BENZENE (ug/L)	TOLUENE (ug/L)	ETHYL BENZENE (ug/L)	TOTAL XYLENES (ug/L)	MTBE (ug/L)
126903-005	EFF	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(2.0)
METHOD BLANK	N/A	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(2.0)

ND = Not detected at or above reporting limit.

Reporting Limit applies to all analytes.

QA/QC SUMMARY: MS/MSD OF SAMPLE NO:126933-002

RPD, %	10
RECOVERY, %	96

12690

DATE 9-19-96 PAGE 1 OF 1

CHAIN OF CUSTODY RECORD

PROJECT NAME Cole Broadway V.W.
ADDRESS 2740 Broadway
Oakland
PROJECT NO. 6595214
SAMPLED BY Tom Gormley
LAB NAME Curtis & Tompkins

ESE Environmental Science & Engineering, Inc.
A CILCORP Company
4090 Nelson Avenue
Suite J
Concord, CA 94520
Phone (510) 685-4053
Fax (510) 685-5323

SAMPLE #	DATE	TIME	LOCATION	8015M Gasoline	EPA 8020 MTBE	EPA 8020 & 602 TCE	MATRIX	NUMBER OF CONTAINERS	REMARKS (CONTAINER, SIZE, ETC.)
MW1	9-19-96		Well	X		X	H_2O	4 VOAs	
MW 7	"		Well	X		X	"	4 VOAs	
IHF	"			X			System	4 VOAs	
MID POINT	"			X			"	4 VOAs	
EFF	"				X	X	"	4 VOAs	
~~Vapor~~ IHF	"			X		X		2 Bags	2 Tedlar air bags.
									DOW per TLB 9/19/96

RELINQUISHED BY: (signature)	RECEIVED BY: (signature)	date	time
1. Tommy Gormley	9/19/96 14:40		
2.		9.19.96	
3.			
4.			
5.			

TOTAL NUMBER OF CONTAINERS

REPORT RESULTS TO: MAQ @ ESE

SPECIAL SHIPMENT REQUIREMENTS

INSTRUCTIONS TO LABORATORY (handling, analyses, storage, etc.):

SAMPLE RECEIPT

CHAIN OF CUSTODY SEALS	
REC'D GOOD CONDTN/COLD	✓
CONFORMS TO RECORD	

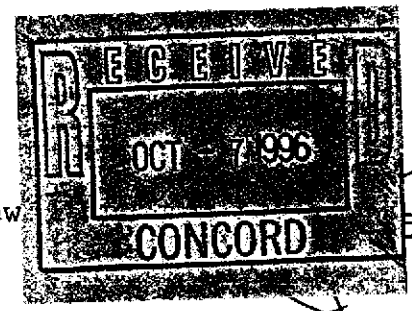
Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878
2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

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

Prepared for:

Environmental Science & Engineering
4090 Nelson Avenue
Suite J
Concord, CA 94520

Date: 02-OCT-96
Lab Job Number: 126949
Project ID: 6595214
Location: Core



Review

Reviewed by:

TVH-Total Volatile Hydrocarbons

Client: Environmental Science & Engineering
Project#: 6595214
Location: Core

Analysis Method: CA LUFT (EPA 8015M)
Prep Method: EPA 5030

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
126949-001	MW3	30129	09/25/96	09/29/96	09/29/96	

Matrix: Water

Analyte	Units	126949-001
Diln Fac:		50
Gasoline	ug/L	15000 YZ
Surrogate		
Trifluorotoluene	%REC	99
Bromobenzene	%REC	99

Y: Sample exhibits fuel pattern which does not resemble standard
Z: Sample exhibits unknown single peak or peaks

Curtis & Tompkins, Ltd.

BTXE

Client: Environmental Science & Engineering
Project#: 6595214
Location: Core

Analysis Method: EPA 8020
Prep Method: EPA 5030

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
126949-001	MW3	30129	09/25/96	09/29/96	09/29/96	

Matrix: Water

Analyte	Units	126949-001
Diln Fac:		50
Benzene	ug/L	6000
Toluene	ug/L	2700
Ethylbenzene	ug/L	450
m,p-Xylenes	ug/L	1700
o-Xylene	ug/L	480
Surrogate		
Trifluorotoluene	%REC	105
Bromobenzene	%REC	106

TVH-Total Volatile Hydrocarbons

Client: Environmental Science & Engineering
Project#: 6595214
Location: Core

Analysis Method: CA LUFT (EPA 8015M)
Prep Method: EPA 5030

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
126949-002	VAPOR INF	30059	09/25/96	09/26/96	09/26/96	

Matrix: Air

Analyte	Units	126949-002
Diln Fac:		1
Gasoline	mg/M3	78 Y
Surrogate		
Trifluorotoluene	%REC	77
Bromobenzene	%REC	77

Y: Sample exhibits fuel pattern which does not resemble standard

BTXE

Client: Environmental Science & Engineering
Project#: 6595214
Location: Core

Analysis Method: EPA 8020
Prep Method: EPA 5030

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
126949-002	VAPOR INF	30059	09/25/96	09/26/96	09/26/96	

Matrix: Air

Analyte	Units	126949-002
Diln Fac:		1
Benzene	mg/M3	3.6
Toluene	mg/M3	8.5
Ethylbenzene	mg/M3	1.6
m,p-Xylenes	mg/M3	<0.5
o-Xylene	mg/M3	2
Surrogate		
Trifluorotoluene	%REC	77
Bromobenzene	%REC	82

Curtis & Tompkins, Ltd.

Lab #: 126949

BATCH QC REPORT

TVH-Total Volatile Hydrocarbons

Client: Environmental Science & Engineering
Project#: 6595214
Location: Core

Analysis Method: CA LUFT (EPA 8015M)
Prep Method: EPA 5030

METHOD BLANK

Matrix: Water
Batch#: 30129
Units: ug/L
Diln Fac: 1

Prep Date: 09/28/96
Analysis Date: 09/28/96

MB Lab ID: QC31602

Analyte	Result	
Gasoline	<50	
Surrogate	**%Rec**	**Recovery Limits**
Trifluorotoluene	94	69-120
Bromobenzene	81	70-122

Curtis & Tompkins, Ltd.

Lab #: 126949

BATCH QC REPORT

TVH-Total Volatile Hydrocarbons

Client: Environmental Science & Engineering
Project#: 6595214
Location: Core

Analysis Method: CA LUFT (EPA 8015M)
Prep Method: EPA 5030

METHOD BLANK

Matrix: Water
Batch#: 30059
Units: ug/L
Diln Fac: 1

Prep Date: 09/26/96
Analysis Date: 09/26/96

MB Lab ID: QC31359

Analyte	Result	
Gasoline	<50	
Surrogate	**%Rec**	**Recovery Limits**
Trifluorotoluene	87	69-120
Bromobenzene	75	70-122

Curtis & Tompkins, Ltd.

Lab #: 126949

BATCH QC REPORT

BTXE

Client: Environmental Science & Engineering
Project#: 6595214
Location: Core

Analysis Method: EPA 8020
Prep Method: EPA 5030

METHOD BLANK

Matrix: Water
Batch#: 30129
Units: ug/L
Diln Fac: 1

Prep Date: 09/28/96
Analysis Date: 09/28/96

MB Lab ID: QC31602

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	98	58-130
Bromobenzene	93	62-131

Curtis & Tompkins, Ltd.

Lab #: 126949

BATCH QC REPORT

BTXE

Client: Environmental Science & Engineering
Project#: 6595214
Location: Core

Analysis Method: EPA 8020
Prep Method: EPA 5030

METHOD BLANK

Matrix: Water
Batch#: 30059
Units: ug/L
Diln Fac: 1

Prep Date: 09/26/96
Analysis Date: 09/26/96

MB Lab ID: QC31359

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	58-130
Bromobenzene	83	62-131

Curtis & Tompkins, Ltd.

Lab #: 126949

BATCH QC REPORT

TVH-Total Volatile Hydrocarbons

Client: Environmental Science & Engineering
Project#: 6595214
Location: Core

Analysis Method: CA LUFT (EPA 8015M)
Prep Method: EPA 5030

LABORATORY CONTROL SAMPLE

Matrix: Water
Batch#: 30059
Units: ug/L
Diln Fac: 1

Prep Date: 09/26/96
Analysis Date: 09/26/96

LCS Lab ID: QC31360

Analyte	Result	Spike Added	%Rec #	Limits
Gasoline	1832	2000	92	80-120
Surrogate	**%Rec**	**Limits**		
Trifluorotoluene	78	69-120		
Bromobenzene	89	70-122		

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

Curtis & Tompkins, Ltd.

Lab #: 126949 BATCH QC REPORT

TVH-Total Volatile Hydrocarbons

Client: Environmental Science & Engineering
Project#: 6595214
Location: Core

Analysis Method: CA LUFT (EPA 8015M)
Prep Method: EPA 5030

LABORATORY CONTROL SAMPLE

Matrix: Water
Batch#: 30129
Units: ug/L
Diln Fac: 1

Prep Date: 09/28/96
Analysis Date: 09/28/96

LCS Lab ID: QC31603

Analyte	Result	Spike Added	%Rec #	Limits
Gasoline	1834	2000	92	80-120
Surrogate	**%Rec**	**Limits**		
Trifluorotoluene	90	69-120		
Bromobenzene	102	70-122		

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

Curtis & Tompkins, Ltd.

Lab #: 126949

BATCH QC REPORT

BTXE

Client: Environmental Science & Engineering
Project#: 6595214
Location: Core

Analysis Method: EPA 8020
Prep Method: EPA 5030

LABORATORY CONTROL SAMPLE

Matrix: Water
Batch#: 30059
Units: ug/L
Diln Fac: 1

Prep Date: 09/26/96
Analysis Date: 09/26/96

LCS Lab ID: QC31361

Analyte	Result	Spike Added	%Rec #	Limits
Benzene	18.5	20	92	80-120
Toluene	17.8	20	89	80-120
Ethylbenzene	18.4	20	92	80-120
m,p-Xylenes	48	40	120	80-120
o-Xylene	18.8	20	94	80-120

Surrogate	%Rec	Limits
Trifluorotoluene	88	58-130
Bromobenzene	87	62-131

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

Curtis & Tompkins, Ltd.

Lab #: 126949

BATCH QC REPORT

BTXE

Client: Environmental Science & Engineering
Project#: 6595214
Location: Core

Analysis Method: EPA 8020
Prep Method: EPA 5030

LABORATORY CONTROL SAMPLE

Matrix: Water
Batch#: 30129
Units: ug/L
Diln Fac: 1

Prep Date: 09/28/96
Analysis Date: 09/28/96

LCS Lab ID: QC31604

Analyte	Result	Spike Added	%Rec #	Limits
Benzene	17.8	20	89	80-120
Toluene	17.1	20	86	80-120
Ethylbenzene	17.8	20	89	80-120
m,p-Xylenes	45.7	40	114	80-120
o-Xylene	17.9	20	90	80-120

Surrogate	%Rec	Limits
Trifluorotoluene	100	58-130
Bromobenzene	96	62-131

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

Curtis & Tompkins, Ltd.

Lab #: 126949

BATCH QC REPORT

TVH-Total Volatile Hydrocarbons

Client: Environmental Science & Engineering
Project#: 6595214
Location: Core

Analysis Method: CA LUFT (EPA 8015M)
Prep Method: EPA 5030

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Field ID: ZZZZZZ
Lab ID: 126912-001
Matrix: Water
Batch#: 30059
Units: ug/L
Diln Fac: 1

Sample Date: 09/19/96
Received Date: 09/20/96
Prep Date: 09/26/96
Analysis Date: 09/26/96

MS Lab ID: QC31362

Analyte	Spike Added	Sample	MS	%Rec #	Limits
Gasoline	2000	<50	1803	90	75-125
Surrogate	**%Rec**	**Limits**			
Trifluorotoluene	76	69-120			
Bromobenzene	91	70-122			

MSD Lab ID: QC31363

Analyte	Spike Added	MSD	%Rec #	Limits	RPD #	Limit
Gasoline	2000	1779	89	75-125	1	20
Surrogate	**%Rec**	**Limits**				
Trifluorotoluene	78	69-120				
Bromobenzene	94	70-122				

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

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 # 126949

Sampler: Tom Gormley

Project No: 6595214
Project Name: Coke.
Project P.O.:
Turnaround Time:

Report To: MAQ
Company: LESE
Telephone: 510 685 4053
Fax:

Lab Number	Sample ID.	Sampling Date Time	Matrix: Soil	Water	Waste	Vapor	# of Containers	Preservative: HCl	H_2SO_4	HNO_3	ICE	Field Notes	Analyses: 8015 M GAS	EPA 8020 BTEX
1	MW 3	9-25-96 315		X			3	X			X		X	X
2	Vapor, INF	9-25-96 3:30				X	2 Bags				X		X	X

Laboratory Use Only

Notes:

RELINQUISHED BY:	RECEIVED BY:
Tom Gormley 9-25-96 4:00pm DATE/TIME	DATE/TIME
DATE/TIME	DATE/TIME
DATE/TIME	Tracy Bell 9/25/96 DATE/TIME

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

4:00