Subsurface Consultants, Inc.

4/25/01
- Deed Restriction ?/notification
- residential use
- Responsible for RMP
- Future GW monitoring prior to closing Site
4000 ppb Benzene in GW

April 2, 2001
SCI 272.054

Mr. Mark Gomez
City of Oakland Public Works Agency
Environmental Services Department
250 Frank H. Ogawa Plaza, Suite 5301
Oakland, California 94612

Soil Investigation and Tier 3 RBCA Evaluation
655 12th Street (aka, MLK, Jr. Way between 11th and 12th Street)
Oakland, California

Dear Mr. Gomez:

Subsurface Consultants, Inc. (SCI) has prepared this letter to document a soil and groundwater investigation performed to characterize environmental conditions prior to the proposed development at the above property (Site). SCI has also conducted a Tier 3 Risk-Based Corrective Action (RBCA) evaluation to confirm that chemicals of potential concern at the Site would pose no significant risk to the future users of the proposed residential development. The activities and scope of work were completed in accordance with SCI's proposal to the City of Oakland (City) dated July 27, 2000.

BACKGROUND

The Site is located at 655 12th Street, along Martin Luther King Way, between 11th and 12th Streets in Oakland, California (Plate 1). SCI understands that the City is facilitating redevelopment of this Site with a 2- to 4-story, 92-unit residential structure with a ½-story belowground parking structure. We understand that the parking structure will require excavation to approximately 8 feet and will be constructed with an 11-inch thick concrete floor and ventilation system consistent with City building requirements. Previous studies of this Site include:

- Draft *Soil Contamination Assessment*, dated June 17, 1991 by SCI,
- *Preliminary Environmental Assessment* dated June 19, 1991 by SCI,

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- Draft *Phase 1 Site Assessment for Preservation Park 3* dated October 13, 1998 by Tetra Tech EM, Inc., and
- *Final Phase II Environmental Site Assessment* dated June 23, 2000 by Tetra Tech EM Inc.

Copies of these reports have been submitted to Alameda County Health Care Services Agency (ACHCSA).

In certain soil samples collected from depths of 15 to 21 feet near the former underground storage tank (UST) location, SCI's previous investigation detected up to 4,000 milligrams per kilogram (mg/kg) of total volatile hydrocarbons as gasoline (TVHg), up to 1,800 mg/kg of total extractable hydrocarbons (TEH), and up to 330 micrograms per kilogram of 1,2-dichloroethane (DCA). Samples of shallow soil from 1 and 2 feet contained lead concentrations ranging up to 598 mg/kg; using the Waste Extraction Method (WET) one sample contained soluble lead of 8.3 mg/kg.

Results of the Tetra Tech EM, Inc. (TT) investigation identified impacts to soil that were similar to the previous SCI investigation. Additionally, analyses detected petroleum hydrocarbons and certain volatile organic compounds (VOCs) in grab groundwater samples, including up to 0.35 milligrams per liter (mg/l) of benzene. Analyses reportedly detected no methyl tertiary butyl ether (MTBE) concentrations. The City was unable to obtain copies of the laboratory reports for the data compiled by TT.

The source of detected hydrocarbons, 1,2-DCA, and VOCs is likely associated with the previous service station activities at the Site. The source of detected lead concentrations in shallow soil is unknown but may be related to shallow fill and debris at the Site. A summary of the previous analytical results is presented on Tables 1 and 2. Plate 2 presents a compilation of the sampling locations from the investigations listed above.

CURRENT INVESTIGATION

On August 4, 2000, SCI excavated 12 test pits from locations shown on Plate 3. Test pits were excavated using a backhoe to depths of approximately 6 feet below ground surface (bgs). In general, the soil encountered included dry, loose, silty and/or clayey sand (Merritt Sand) with gravel and brick fragments to the maximum depth explored. Test Pit samples were collected at the ground surface, as well as between 2 to 3 and 5 to 6 feet below ground surface (bgs). The samples the from the 0 to 1 foot bgs interval were collected using hand auger equipment prior to excavating the pit. Samples from the 2 to 3 and 5 to 6 foot intervals were collected from the bucket of the backhoe.

The soil samples were retained in stainless steel liners, capped with Teflon sheeting and plastic end caps, and placed in an ice chilled cooler. SCI's field geologist screened soil samples in the field using a photoionization detector (PID), and logged samples in accordance with the Unified Soil Classification System (USCS). Logs of the test pits, including PID readings, are attached.

On February 28, 2001, SCI measured the depth to groundwater in three monitoring wells located on an adjacent City-owned property (Block T-12, approximately 100 feet east of the Site between 11th and 12th Streets). The depth to water at that location ranged from 25.5 to 26.5 feet. The calculated gradient was approximately 0.0018 ft/ft toward the north, which is consistent with previous findings.

On March 2, SCI installed 3 temporary wells (TW-1 through TW-3), at the locations shown on Plate 3. Soil samples were logged as described above. Soil encountered at TW-1 through 3 comprised silty to poorly-graded sand (Merritt Sand). Groundwater was encountered between 24 and 26 feet deep. No PID readings, odors, or staining were observed in samples from TW-2 or TW-3. Strong hydrocarbon odors, PID readings, and staining were observed in soil samples from 15 to 25 feet deep in TW-1. Well construction details are illustrated on the attached Logs of Borings.

Groundwater samples were collected for chemical analyses prior to installing the neat cement grout surface seal. Groundwater samples were retained in laboratory-prepared bottles and submitted for analyses. One soil sample (TW-1@18.5), located near the former UST location, was also submitted for analyses.

Fieldwork was conducted using standard industry practices regarding worker safety, equipment decontamination, and sample handling.

ANALYTICAL TESTING PROGRAM

A total of 36 soil samples from the test pits were submitted under chain-of-custody procedures to Curtis & Tompkins, Ltd., a State-certified laboratory. Each sample was analyzed for total lead concentrations using EPA Test Method 6010. Additionally 12 soil samples (one from each test pit) were tested for total volatile hydrocarbons as gasoline (TVHg); benzene, toluene, ethylbenzene, and xylenes (BTEX); total extractable hydrocarbons as diesel fuel (TEHd); and TEH as motor oil (TEHo) using EPA Test Method 8015m.

To assist with the offsite disposal evaluation, two composite soil samples (Comp-1 and Comp-2) were tested for soluble lead concentrations using the California Waste Extraction Test (WET) method. The testing laboratory created each composite sample. Comp-1 was comprised of soil from samples TP-4@6', TP-8@6', and TP-12@6'. Comp-2 was comprised of soil from samples TP-4@2.5', TP-8@2.5', and TP-12@2'.

To further assist with offsite disposal evaluation, five composite samples (Q1 through Q-5) from the surface and near-surface soils were tested for soluble lead concentrations using the Toxicity Characteristic Leachability Procedure (TCLP).

The soil and groundwater samples from TW-1 through TW-3 were tested for TVHg using Method 8015m, TEHd using Method 8015m with silica gel cleanup, and VOCs using Method 8260.

ANALYTICAL RESULTS

The results of chemical testing on soil samples collected from the test pits are summarized in Table 3. Results for the soil and groundwater samples collected from TW1 through TW-3 are summarized in Table 4.

Analyses detected lead in each test-pit soil sample, ranging from 1.3 to 220 milligrams per kilogram (mg/kg). There were no detected total lead concentrations exceeding 350 mg/kg, one of the criteria listed in the California Health and Safety Code (Section 25157.8.) that would require disposal at a Class I facility. Statistical evaluation of the data for the surface soil samples indicates a mean value of 157 mg/kg with a 95% upper confidence limit (UCL) of 197. For the remaining test pit samples, statistical evaluation indicates a mean value of 23 mg/kg and a 95% UCL of 42. Except for Test Pits 4, 8, and 12, lead concentrations exceeding 50 mg/kg appear limited to surface soils.

Using the WET method, analyses detected 3.6 milligrams per liter (mg/l) of soluble lead in Comp-1 and 7.7 mg/l of soluble lead in Comp-2. The result for Comp-2 exceeds the Soluble Threshold Limit Concentration (STLC) criterion of 5 ug/l, indicating that this soil will be considered a California hazardous waste if disposed of off-site. Using the TCLP method, analyses detected no soluble lead concentrations exceeding the federal criterion of 5 ug/l, indicating that the tested soil is not subject to classification as a federally-listed hazardous waste.

Analyses on 12 of the 36 samples detected no BTEX concentrations. TEHd and TEHo were detected in only 3 of the 12 samples tested. Detected TEHd concentrations included 6.3 mg/kg in TP-4@2.5', 4.6 mg/kg in TP-8@2.5', and 6.6 mg/kg in TP-12@2.0'. Detected TEHo concentrations included 46 mg/kg in TP-4@2.5', 36 mg/kg in TP-8@2.5', and 81 mg/kg in TP-12@2.

Analyses on soil sample TW-1@18.5 detected 170 mg/kg of TEHd, 680 mg/kg of TVHg, and VOC concentrations ranging from 1,500 mg/kg of propylbenzene to 14,000 mg/kg of 1,2,4-Trimethylbenzene. Analyses detected no benzene or 1,2 DCA concentrations. Analyses detected no MTBE in TW-1@18.5.

Analyses on the groundwater sample from TW-1 detected 3,100 ug/l of TEHd, 96,000 ug/l of TVHg, and 4,000 ug/l of benzene. Analyses detected other VOC concentrations ranging from 1,200 ug/l of 1,3,5 Trimethylbenzene to 13,400 ug/l of xylenes. Analyses on the groundwater samples from TW-2 and TW-3, located downgradient from TW-1, detected no concentrations of TEHd, benzene, and ethylbenzene. The detected dissolved hydrocarbon and VOC concentrations were significantly lower than those detected in TW-1, including up to 120 ug/l of TVHg, 5.1 ug/l of toluene, and 10 ug/l of xylenes. Analyses on the groundwater sample from TW-3 also detected 180 ug/l of 1,2 DCA, which was not detected in the other wells.

TIER 3 RBCA EVALUATION

SCI contracted with SOMA Corporation (SOMA) to conduct the Tier 3 RBCA evaluation. SOMA compiled the previous and current environmental data; calculated the 95% upper confidence level for lead; and performed the Tier 3 evaluation. The highest detected BTEX and VOC concentrations detected during previous and recent environmental testing were evaluated using the City's Urban Land Redevelopment (ULR) RBCA spreadsheet (Tier 3) to evaluate future risk at the Site assuming a residential scenario. The potentially complete exposure pathways considered for that evaluation included inhalation of indoor and outdoor air from chemicals in soil and groundwater. Results for total lead were compared to the residential Preliminary Remedial Goal (PRG) established by Region IX of the USEPA.

Results of the Tier 3 evaluation indicate that BTEX and VOC concentrations in soil and groundwater pose estimated excess cancer risks for both indoor and outdoor air of less than 1E-05, and noncancer hazards of less than a value of 1 for the residential scenario, which are below the City's respective target cancer risk level of 1E-05 and noncancer hazard of 1. After removal of the upper 8 feet of soil during the proposed development, the calculated 95% UCL for total lead in the remaining soil will be 27 mg/kg, with a maximum concentration of 91 mg/kg. These total lead concentrations are well below the PRG criterion of 400 mg/kg for lead in a residential scenario. Details regarding the RBCA analysis are presented in SOMA's letter dated March 30, 2001 (attached).

CONCLUSIONS AND RECOMMENDATIONS

Based on the results presented above, SCI concludes that surface soil across the Site contains elevated total lead concentrations. Results of analyses suggest that soil excavated from the upper 1 foot of soil across the Site as well as from the upper 3 to 4 feet near TP-4, 8, and 12 contains soluble lead concentrations that exceed the STLC criterion but not the federal TCLP criterion for lead, and therefore will be subject to disposal as a non-RCRA, California hazardous waste. Analyses suggest that soil excavated from the remaining areas will not exceed the STLC criterion and, therefore, can be disposed of as California non-hazardous waste.

Assuming that the upper 8 feet of soil is removed during development, results of the Tier 3 RBCA evaluation indicate that lead and other chemicals detected in the soil and groundwater do not represent a threat to the future anticipated residential uses via the indoor and outdoor inhalation pathways.

Analyses on groundwater samples from TW-1 through TW-3 suggest that impacts to groundwater are limited to the near vicinity of the former UST location. Analyses on samples from the 2 offsite, downgradient wells (TW-2 and TW-3) detected only very limited impact to groundwater, with no BTEX concentrations exceeding respective drinking water standards. In SCI's opinion, these findings confirm that residual impacts are adequately defined and that no further groundwater investigation or monitoring is necessary.

SCI also recommends that the City add this Site to their Permit Tracking System to ensure that plans for any future intrusive activities below 8 feet bgs consider health concerns related to the residual hydrocarbon and lead concentrations at the Site.

CLOSING STATEMENT

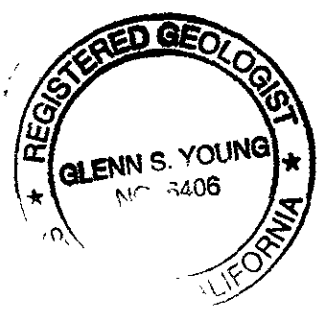
We trust that this provides the information required at this time. If you have any questions, please call.

Yours very truly,

Subsurface Consultants, Inc.

Obiajulu Nzewi
Staff Geologist

Glenn S. Young, RG
Associate Geologist



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6 copies submitted

Attachments

Table 1 - Summary of Previous Results – 1991 SCI Soil Investigation
Table 2 - Summary of Previous Results – 1998 Tetra Tech Investigation
Table 3 – Results for Test Pit Soil Samples
Table 4 – Results for Monitoring Well Locations
Plate 1 – Vicinity Map
Plate 2 – Previous Sampling Locations
Plate 3 – Sample Locations
Test Pits Logs
Logs of Borings
Analytical Reports with Chain-of-Custody Documentation
SOMA letter dated March 30, 2001

Table 1: Summary of Previous Results - 1991 SCI Soil Investigation
Martin Luther King Jr. Way, Between 11th and 12th Street
Oakland, California

Sample ID	Depth	Units	TEH	TVH	Oil and Grease	Lead	Other Detections
1	1.5	mg/kg	--	ND	--	**31.0**	
	4	mg/kg	--	--	--	ND	
	5.5	mg/kg	--	--	--	ND	
2	1	mg/kg	--	--	--	**102**	
	3	mg/kg	--	--	--	ND	
	5	mg/kg	--	--	--	ND	
	7	mg/kg	ND	ND	ND	ND	
3	3	mg/kg	--	**2,300**	--	--	
	6.5	mg/kg	--	**51**	--	--	
	15.5	mg/kg	--	**4,000**	--	--	
	20.5	mg/kg	ND	**980**	ND	--	1,2-Dichloroethane (330 ug/kg)
4	24	mg/kg	--	ND	--	--	
		mg/kg	--	--	--	--	
6	26	mg/kg	ND	ND	--	--	
	27.5	mg/kg	ND	ND	--	--	
7	3	mg/kg	--	--	--	ND	
	5.5	mg/kg	--	--	--	ND	
	21	mg/kg	~~ND~~ 10	~~ND~~ 140	--	--	
	26	mg/kg	ND	ND	--	--	
8	2	mg/kg	ND	--	--	**363**	Wet Lead (8,350 ug/l)
	4	mg/kg	--	--	--	ND	
	5.5	mg/kg	--	--	--	ND	
9	1.5	mg/kg	--	--	--	ND	
	7	mg/kg	--	--	--	ND	
10	1	mg/kg	--	--	--	**598**	
	3	mg/kg	ND	--	**58**	ND	
	5.5	mg/kg	--	--	--	ND	
11	16.5	mg/kg	**620**	**54**	--	--	
	20.5	mg/kg	--	--	ND	--	
	21	mg/kg	**1,800**	**2,000**	--	--	
12	20.5	mg/kg	--	--	ND	--	
	21	mg/kg	**1,300**	**650**	--	--	Chlorobenzene (280 ug/kg)
	22.5	mg/kg	ND	ND	--	--	
	26	mg/kg	ND	ND	--	--	
13	21	mg/kg	ND	ND	--	--	
	26	mg/kg	ND	ND	--	--	
14	24	mg/kg	ND	ND	--	--	
	26	mg/kg	ND	ND	--	--	
15	19.5	mg/kg	--	--	ND	--	
	20	mg/kg	ND	ND	--	--	1,2-Dichloroethane (52 ug/kg)

Table 1: Summary of Previous Results - 1991 SCI Soil Investigation
Martin Luther King Jr. Way, Between 11th and 12th Street
Oakland, California

Sample ID	Depth	Units	TEH	TVH	Oil and Grease	Lead	Other Detections
16	21	mg/kg	ND	ND	--	--	
	26	mg/kg	ND	ND	--	--	
17	25	mg/kg	ND	ND	--	--	
	30	mg/kg	ND	ND	--	--	
S-1	1.0	mg/kg	**7.6**	ND	ND	--	
S-2	0.5	mg/kg	--	--	--	**118**	
S-4	0.5	mg/kg	ND	--	ND	--	
S-6	0.5	mg/kg	ND	--	ND	--	
S-8	0.5	mg/kg	ND	--	**52**	--	
S-10	0.5	mg/kg	ND	--	ND	--	
S-13	0.5	mg/kg	ND	--	**82**	--	

Notes:
TEH: Total Extractable Hydrocarbons as diesel
TVHg: Total Volatile Hydrocarbons as gasoline
VOCs: Volatile Organic Compounds
mg/kg: milligrams per kilogram
ug/l: micrograms per liter
Detected concentrations shown in bold
--: Sample not analyzed

Reference: *Soil Contamination Assessment*, dated June 17, 1991 by SCI

Table 2: Summary of Previous Results - 1998 Tetra Tech Investigation
Martin Luther King Jr. Way, Between 11th and 12th Street
Oakland, California

Boring ID	Depth	Units	TPH Extractables	TPH Purgeables	Benzene	Toluene	Ethyl benzene	Xylenes	Lead	Detectable VOCs
Soil Samples										
SB1	9.5	mg/kg	**480.0**	**1,000.0**	**0.021**	**0.096**	**2.9**	**12.8**	**6.6**	
	16.5	mg/kg	**53.0**	**38.0**	ND	**0.03**	**0.12**	**1.0**	**27.4**	
	23.5	mg/kg	**1,400.0**	**1,800.0**	**3.2**	**26.0**	**19.0**	**156.0**	**4.9**	
SB2	9.5	mg/kg	ND	ND	ND	ND	ND	ND	**2.9**	
	16.5	mg/kg	ND	ND	ND	ND	**0.01**	**0.03**	**78.6**	
	23.5	mg/kg	**4.6**	**190.0**	**23.5**	**24.0**	**14.0**	**89.0**	**2.3**	
SB3	9.0	mg/kg	ND	ND	ND	ND	ND	ND	**2.4**	
	16.0	mg/kg	ND	ND	ND	ND	ND	ND	**2.3**	
	23.5	mg/kg	ND	ND	ND	ND	ND	ND	**0.88**	
Grab Groundwater Samples										
SB1	–	mg/L	**17.0**	**33.0**	**0.35**	**1.8**	**0.64**	ND	**0.43**	
SB2	–	mg/L	**0.09**	**0.11**	**0.02**	**0.026**	**0.0031**	**0.02**	**0.18**	1,2,4-Trimethylbenzene (0.0056 mg/L), 1,2-Dichlorethane (0.0014 mg/L), 1,3,5-Trimethylbenzene (0.0017 mg/L), and Napthalene (0.0014 mg/L)
SB3	–	mg/L	ND	ND	ND	ND	ND	ND	**0.04**	

Notes:
TPH: Total Petroleum Hydrocarbons
VOCs: Volatile Organic Compounds
mg/kg: milligrams per kilogram
mg/l: milligrams per liter
–: Sample not analayzed
ND: Not Detected
Detected concentrations shown in bold

Reference: *Final Phase II - Environmental Site Assessment Report*, dated June 23, 2000 by Tetra Tech EM, Inc.

Table 3: Results for Test Pit Samples
Martin Luther King Jr. Way, Between 11th and 12th Street
Oakland, California

Sample ID	Units	TEHd *	TEHo *	TVHg	Benzene	Toluene	Ethyl benzene	Xylenes	Lead	WET Lead	TCLP Lead
TP-1@0.0	mg/kg	--	--	--	--	--	--	--	160	--	--
TP-1@2.0	mg/kg	--	--	--	--	--	--	--	3.1	--	--
TP-1@5.0	mg/kg	<1	<5	<0.97	<4.9	<4.9	<4.9	<4.9	3.6	--	--
TP-2@0.0	mg/kg	--	--	--	--	--	--	--	20	--	--
TP-2@2.0	mg/kg	<1	<5	<0.97	<4.9	<4.9	<4.9	<4.9	1.6	--	--
TP-2@5.0	mg/kg	--	--	--	--	--	--	--	2.1	--	--
TP-3@0.0	mg/kg	--	--	--	--	--	--	--	160	--	--
TP-3@3.0	mg/kg	--	--	--	--	--	--	--	1.8	--	--
TP-3@6.0	mg/kg	<.99	<5	<0.95	<4.8	<4.8	<4.8	<4.8	7.0	--	--
TP-4@0.0	mg/kg	--	--	--	--	--	--	--	170	--	--
TP-4@2.5	mg/kg	**6.3**	**46**	<0.97	<4.9	<4.9	<4.9	<4.9	86	--	--
TP-4@6.0	mg/kg	--	--	--	--	--	--	--	91	--	--
TP-5@0.0	mg/kg	--	--	--	--	--	--	--	110	--	--
TP-5@2.0	mg/kg	<1	<5	<0.93	<4.7	<4.7	<4.7	<4.7	4.5	--	--
TP-5@6.0	mg/kg	--	--	--	--	--	--	--	2.4	--	--
TP-6@0.0	mg/kg	--	--	--	--	--	--	--	190	--	--
TP-6@2.5	mg/kg	--	--	--	--	--	--	--	1.9	--	--
TP-6@6.0	mg/kg	<1	<5	<0.92	<4.6	<4.6	<4.6	<4.6	2.0	--	--
TP-7@0.0	mg/kg	--	--	--	--	--	--	--	220	--	--
TP-7@2.0	mg/kg	<1	<5	<0.93	<4.7	<4.7	<4.7	<4.7	2.1	--	--
TP-7@6.0	mg/kg	--	--	--	--	--	--	--	2.5	--	--
TP-8@0.0	mg/kg	--	--	--	--	--	--	--	220	--	--
TP-8@2.5	mg/kg	**4.6**	**36**	<0.95	<4.8	<4.8	<4.8	<4.8	180	--	--
TP-8@6.0	mg/kg	--	--	--	--	--	--	--	1.7	--	--
TP-9@0.0	mg/kg	--	--	--	--	--	--	--	220	--	--
TP-9@2.0	mg/kg	--	--	--	--	--	--	--	1.4	--	--
TP-9@5.0	mg/kg	<1	<5	<0.95	<4.8	<4.8	<4.8	<4.8	1.3	--	--
TP-10@0.0	mg/kg	--	--	--	--	--	--	--	150	--	--
TP-10@2.0	mg/kg	<1	<5	<0.94	<4.7	<4.7	<4.7	<4.7	1.9	--	--
TP-10@5.0	mg/kg	--	--	--	--	--	--	--	2.2	--	--
TP-11@0.0	mg/kg	--	--	--	--	--	--	--	200	--	--
TP-11@2.0	mg/kg	--	--	--	--	--	--	--	15	--	--
TP-11@5.0	mg/kg	<1	<5	<0.97	<4.9	<4.9	<4.9	<4.9	1.9	--	--
TP-12@0.0	mg/kg	--	--	--	--	--	--	--	72	--	--
TP-12@2.0	mg/kg	**6.6**	**81**	<0.94	<4.7	<4.7	<4.7	<4.7	110	--	--
TP-12@5.0	mg/kg	--	--	--	--	--	--	--	19	--	--
COMP-1	mg/l	--	--	--	--	--	--	--	--	3.6	--
COMP-2	mg/l	--	--	--	--	--	--	--	--	7.7	--
Q1 though Q5	mg/l	--	--	--	--	--	--	--	--	--	<0.5

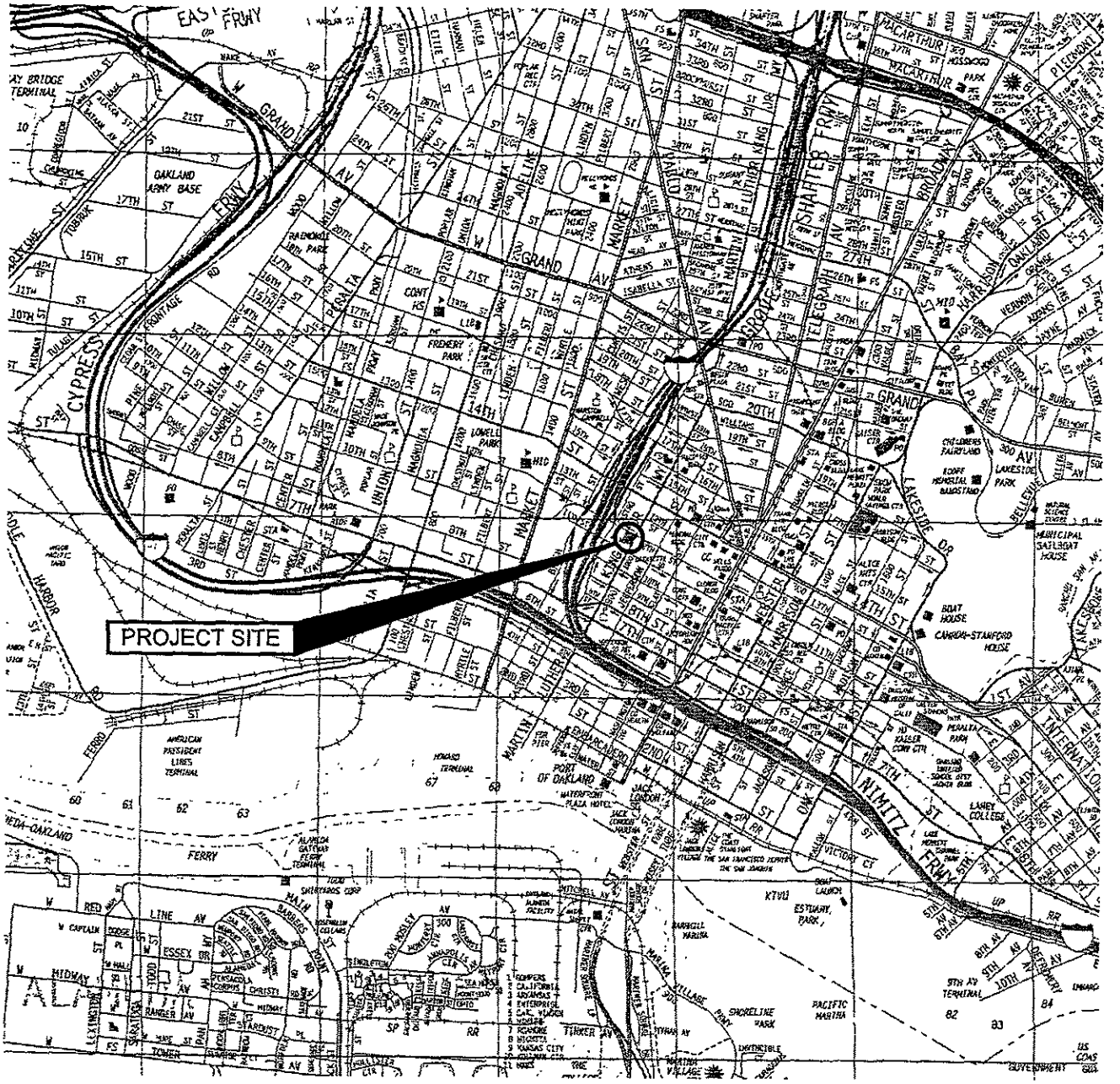
Notes:
Soil samples collected on August 4, 2000
Detected concentrations shown in bold
TEHd Total Extractable Hydrocarbons as diesel
TEHo Total Extractable Hydrocarbons as motor oil
TVHg Total Volatile Hydrocarbons as gasoline
* Using silica gel cleanup
WET Waste Extraction Test
TCLP Toxic Characteristic Leachability Procedure

mg/kg milligrams per kilogram
mg/l milligrams per liter
-- Sample not analyzed
< Not detected at or above the laboratory reporting limit
COMP - 1 is a composite of TP-4@6', TH-8@6', and TP-12@5'
COMP - 2 is a composite of TP-4@2.5', TH-8@2.5', and TP-12@2'

Table 4: Results for Monitoring Well Locations
Martin Luther King Jr. Way, Between 11th and 12th Street
Oakland, California

					Volatile Organic Compounds**									
Sample ID	Date	Units	TEHd *	TVHg	Benzene	Toluene	Ethyl Benzene	Xylenes	Propyl benzene	1,3,5-Trimethyl benzene	1,2,4-Trimethyl benzene	n-Butyl benzene	Napthalene	1,2-Dichloroethane
Soil Sample:														
TW-1@18.5	03/03/01	mg/kg	**170**	**680**	<500	**2,500**	**1,600**	**11,000**	**1,500**	**4,400**	**14,000**	**1,800**	**2,900**	<500
Grab Groundwater Samples:														
TW-1	03/03/01	ug/l	**3,100**	**96,000**	**4,000**	**11,000**	**2,200**	**13,400**	<500	**1,200**	**3,800**	<500	<500	<500
TW-2	03/03/01	ug/l	<50	**120**	<5.0	**5.1**	<5.0	**10**	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
TW-3	03/03/01	ug/l	<50	**70**	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	**180**

Notes:
Detected concentrations shown in bold
TEHd Total Extractable Hydrocarbons as diesel
TVHg Total Volatile Hydrocarbons as gasoline
* Using silica gel cleanup
** – only the detected VOC analytes are listed
mg/kg milligrams per kilogram
ug/l micrograms per liter
< Not detected at or above the laboratory reporting limit



APPROXIMATE SCALE IN FEET

0 2400 4800

N

NOTE:

THIS VICINITY MAP IS BASED ON A THOMAS GUIDE MAP FOR SAN FRANCISCO, ALAMEDA AND CONTRA COSTA COUNTIES. CALIFORNIA, MAP 649, YEAR 2000

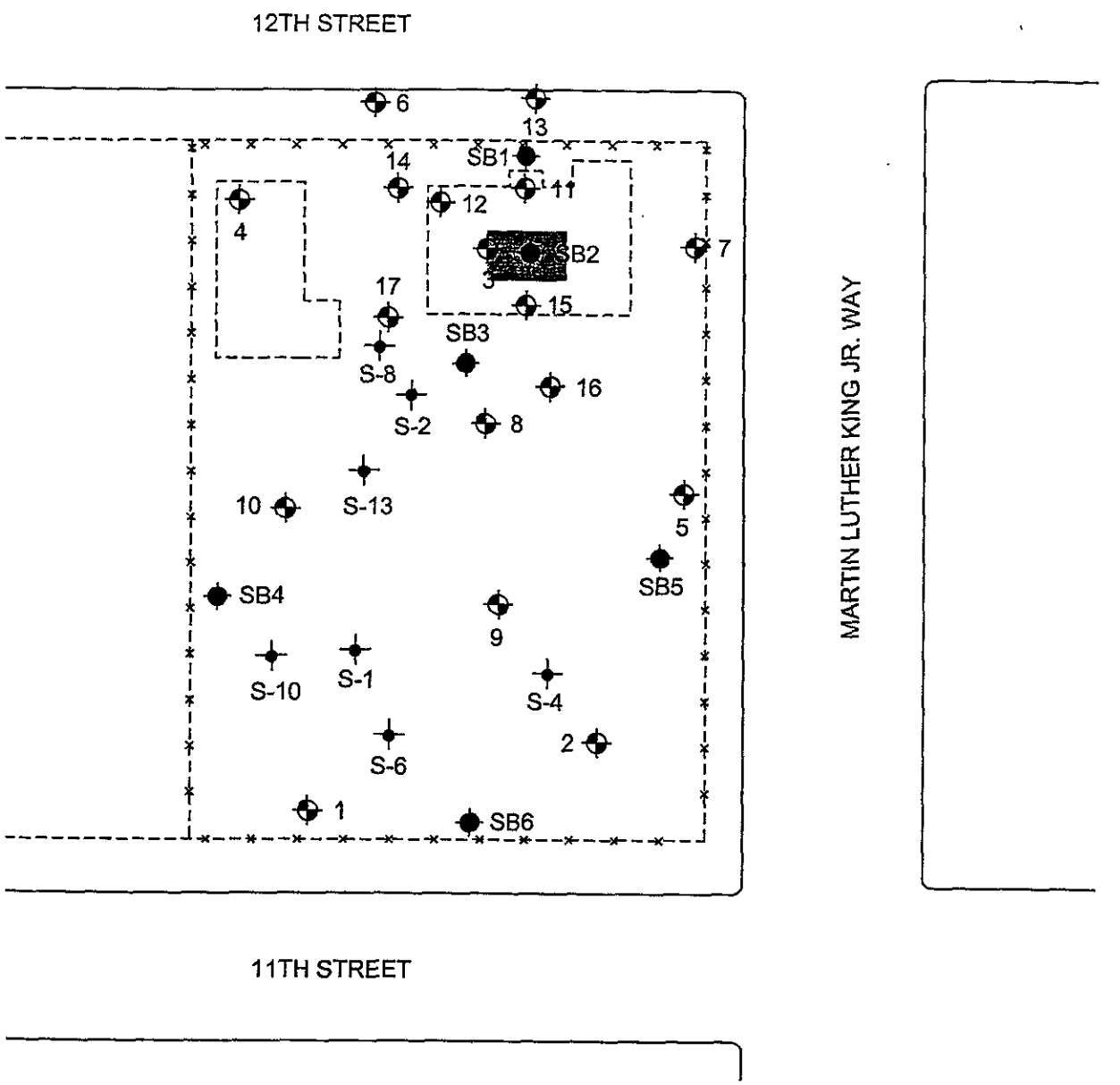
VICINITY MAP

12TH STREET AND MARTIN LUTHER KING JR. WAY
OAKLAND, CALIFORNIA

Subsurface Consultants, Inc.
Geotechnical & Environmental Engineers

DRAWN BY	DATE	PLATE
CFY	3/8/01	1
JOB NUMBER	FILE NUMBER	
272.054	A272.054 03	

G:\JOBDOCS\272\272 054\A272.054.03.dwg 3-08-01 10:12:25 AM cyoung



LEGEND:

1	APPROXIMATE LOCATION OF TEST BORING BY SCI
S-1	APPROXIMATE LOCATION OF SURFACE SAMPLE BY SCI
SB1	SOIL BORING BY OTHERS
	FENCE
	APPROXIMATE LOCATION OF PREVIOUS BASEMENTS
	APPROXIMATE LOCATION OF FORMER TANKS

APPROXIMATE SCALE IN FEET

0 50 100

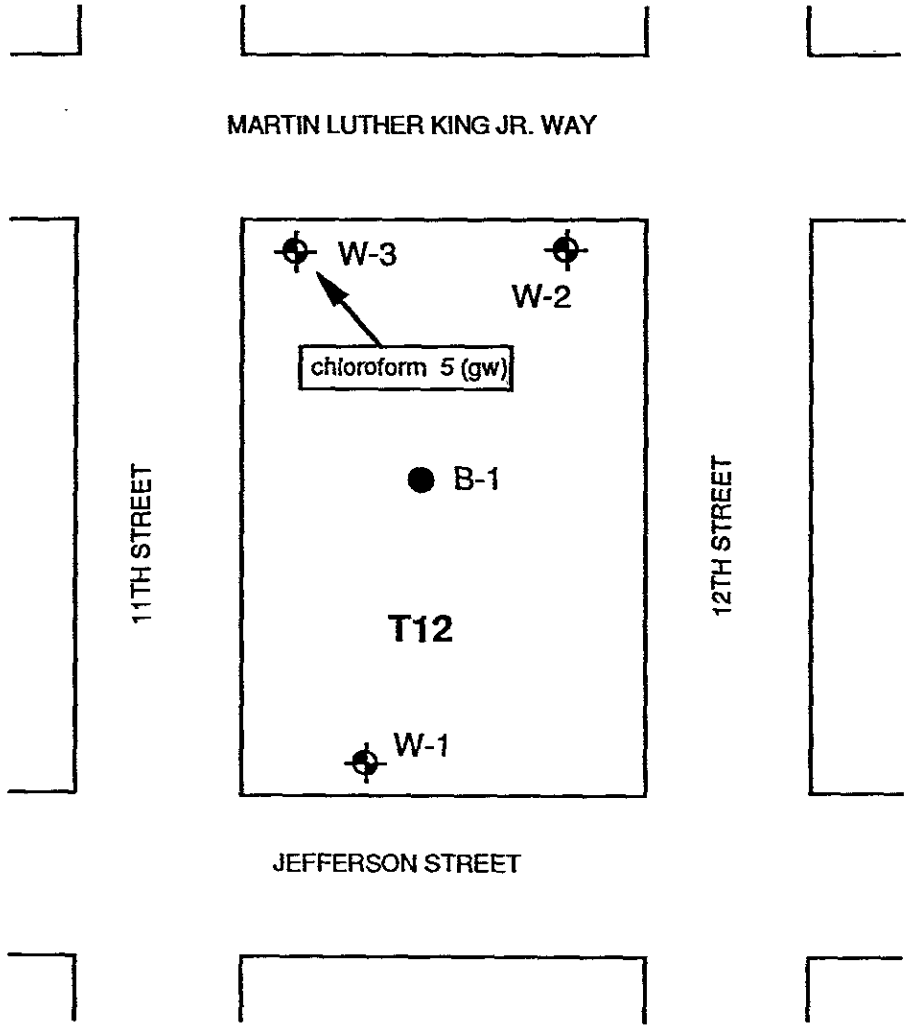
N

PREVIOUS SAMPLING LOCATIONS

12TH STREET AND MARTIN LUTHER KING JR. WAY
OAKLAND, CALIFORNIA

Subsurface Consultants, Inc.
Geotechnical & Environmental Engineers

DRAWN BY	DATE	PLATE
CFY	08/21/00	2
JOB NUMBER	FILE NUMBER	
272.054	A272.054.01	



0 100
FEET

groundwater gradient = 0.0036 ft/ft

Approximate Groundwater Flow Direction

N

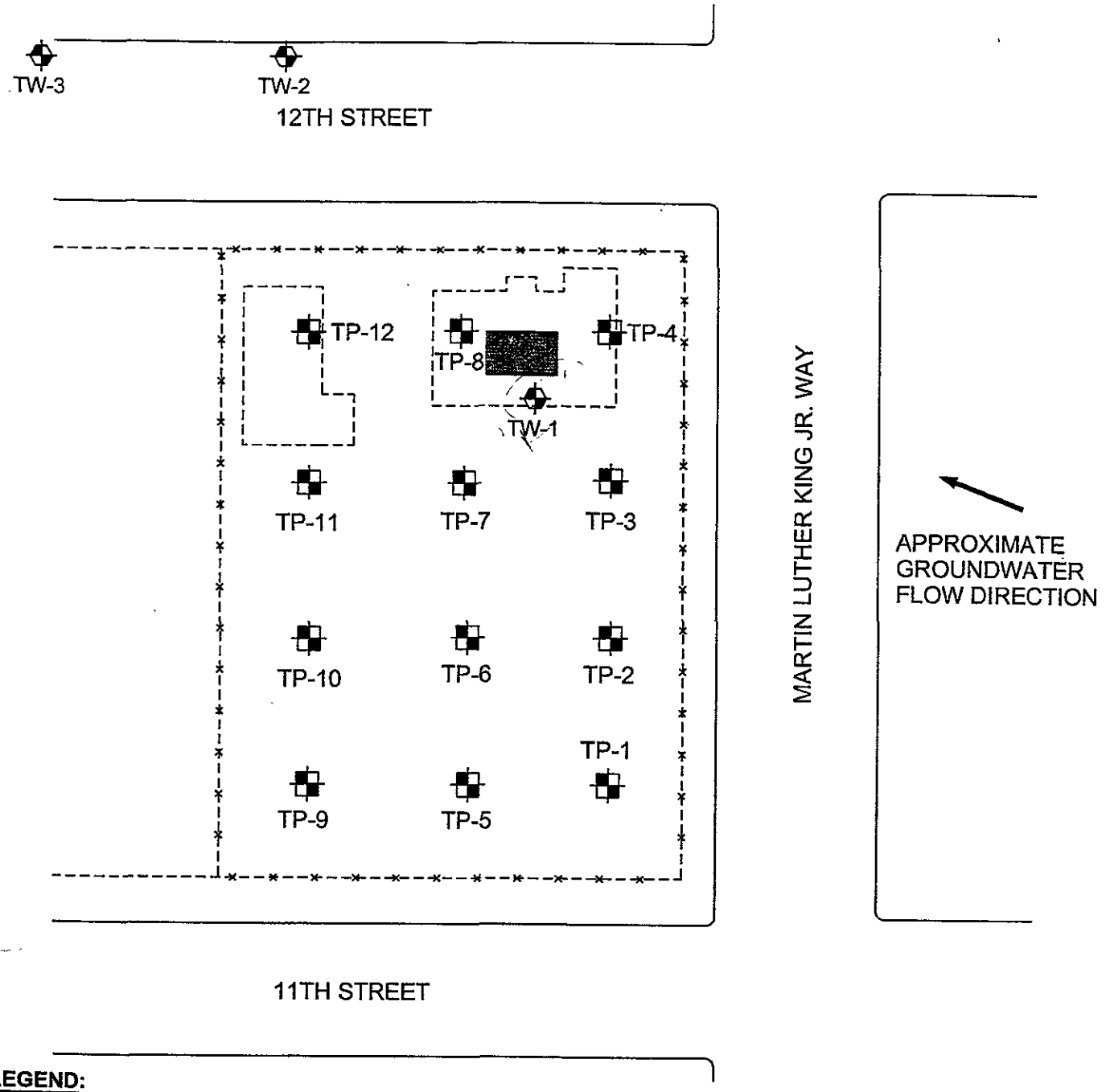
Legend:

Monitoring Well

Soil Boring

chloroform 5 (gw) - analysis in compound in groun or soil (soil), conce expressed as pp'

Project No. 90C0039A	City Center Environmental Assesment	PARCEL T12 - BORING AND MONITORING WELL LOCATIONS
Woodward-Clyde Consultants		



LEGEND:

TW-1 — APPROXIMATE LOCATION OF MONITORING WELL

TP-10 — APPROXIMATE LOCATION OF TEST PIT EXCAVATED ON 8/4/00

FENCE

APPROXIMATE LOCATION OF PREVIOUS BASEMENTS

APPROXIMATE LOCATION OF FORMER TANKS

APPROXIMATE SCALE IN FEET

0 50 100

N

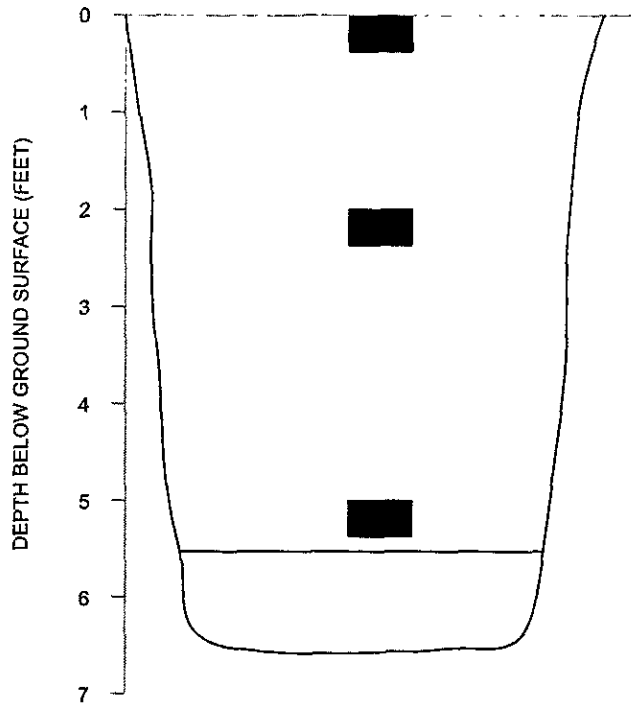
SAMPLE LOCATIONS

12TH STREET AND MARTIN LUTHER KING JR. WAY
OAKLAND, CALIFORNIA

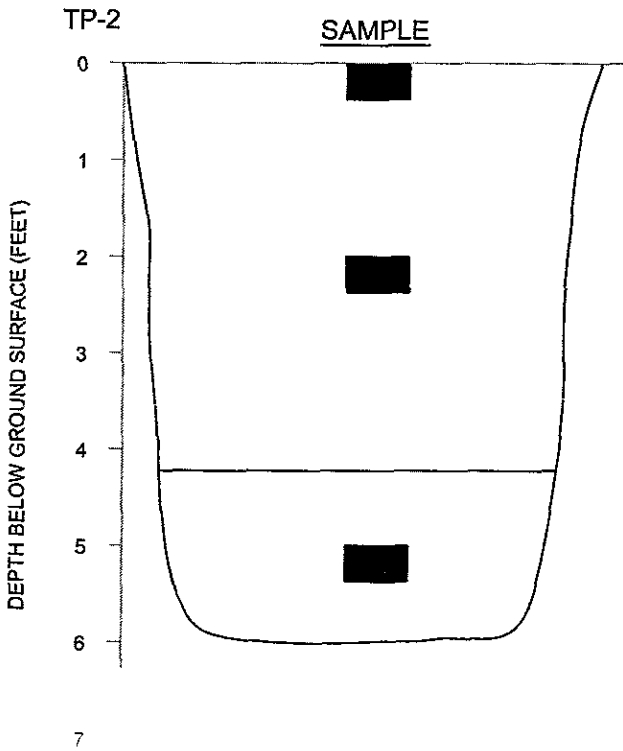
DRAWN BY	DATE	PLATE
CFY	08/21/00	3
JOB NUMBER	FILE NUMBER	
272.054	A272.054.02	

SCI Subsurface Consultants, Inc.
Geotechnical & Environmental Engineers

TP-1



TP-2



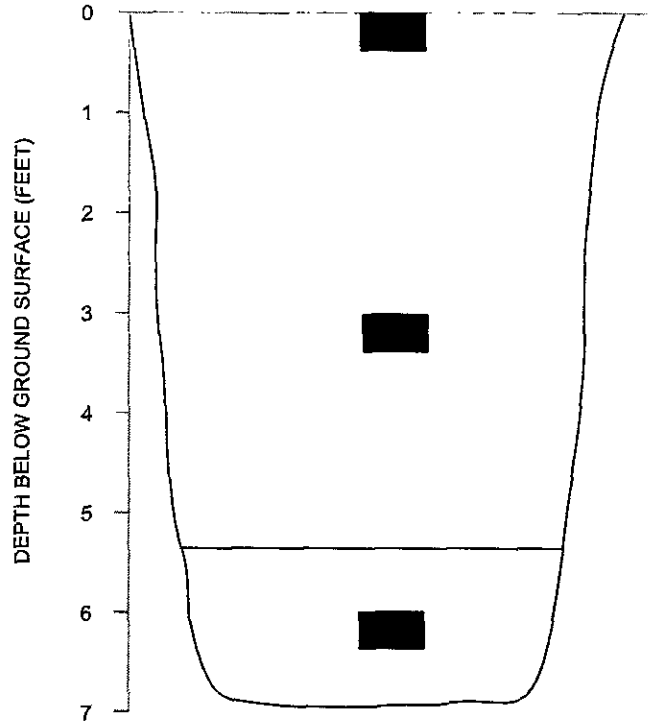
TEST PIT LOGS

MLK. JR. WAY BETWEEN 11TH AND 12TH STREETS
OAKLAND, CALIFORNIA

Subsurface Consultants, Inc.
Geotechnical & Environmental Engineers

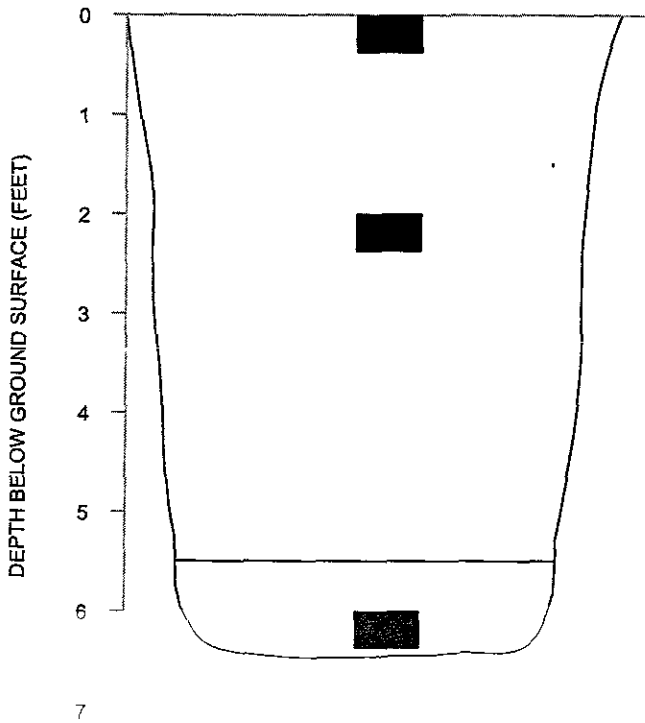
DRAWN BY	DATE	TEST PIT
CFY	9/13/00	TP-1 & TP-2
JOB NUMBER	FILE NUMBER	
272 054	A272.054.04	

TP-3



SAMPLE	DESCRIPTION	OVM
	SILTY SAND WITH GRAVEL (SM) Brown, loose, dry, bricks in upper 1 feet	4.1
	Grades to poorley graded silty sand, brown, loose, dry, soft	11.3
	CLAYEY SAND (SC) Brown, mottled, tan, moist, loose, soft	13.9
	Test pit terminated at 7.0 feet	

TP-4



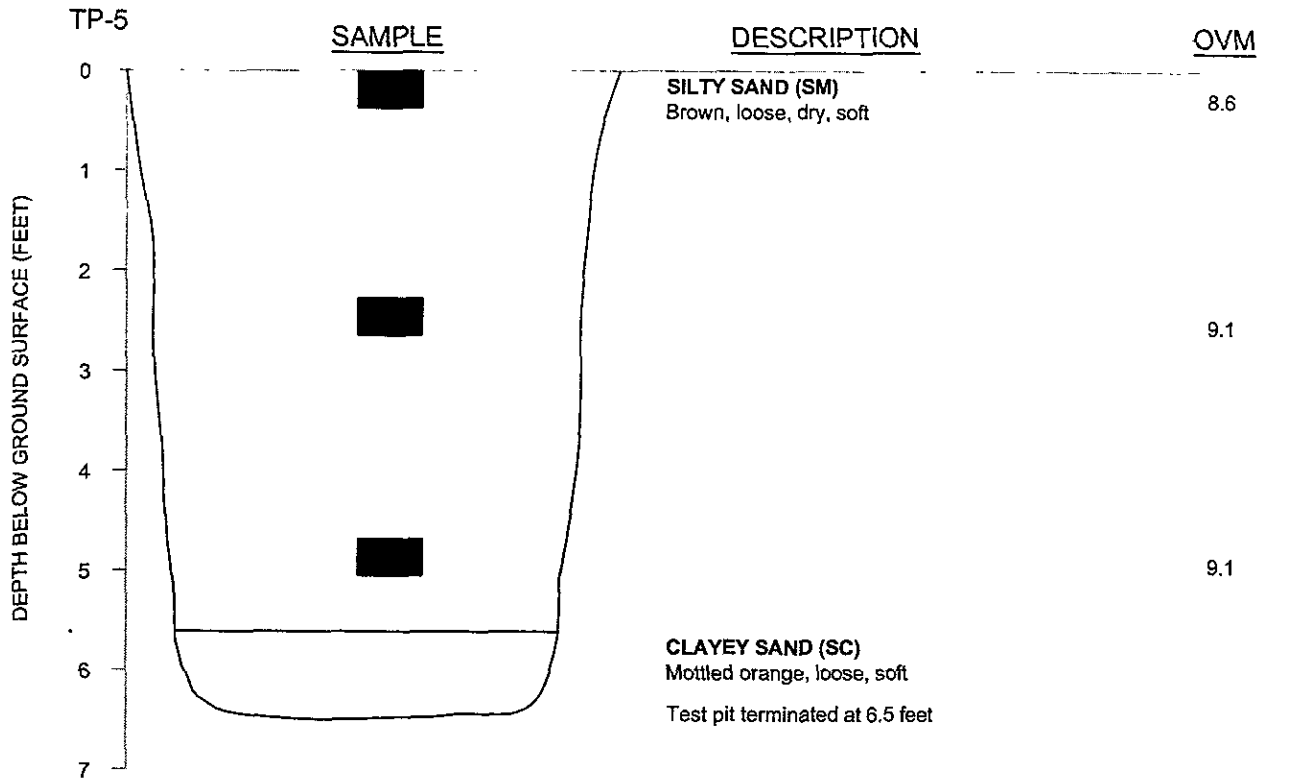
SAMPLE	DESCRIPTION	OVM
	SILTY SAND (SM) Brown, loose, dry, very soft	6.5
	SILTY SAND (SM) Poorly graded, brown, loose	13.9
	CLAYEY SAND (SC) Brown with mottled orange brown, loose, moist	13 4
	Test pit terminated at 6 5 feet	

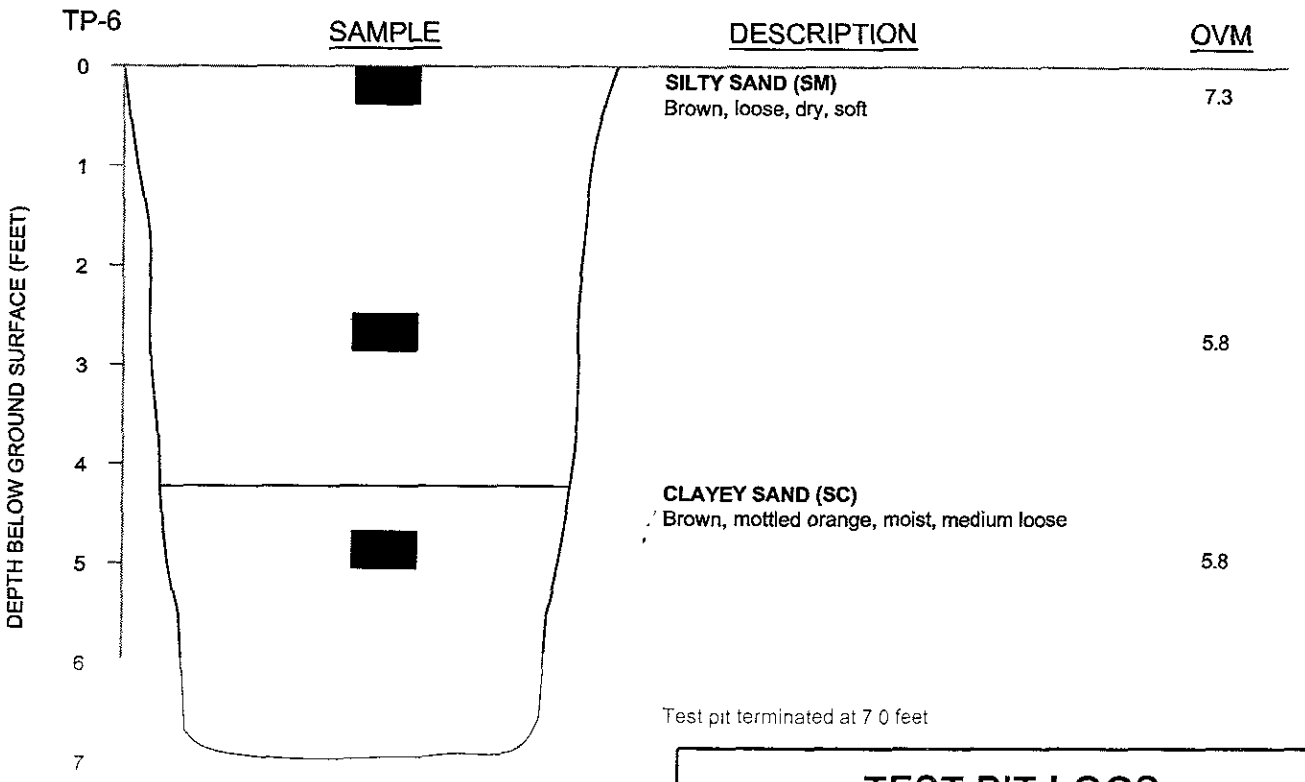
TEST PIT LOGS

MLK. JR WAY BETWEEN 11TH AND 12TH STREETS
OAKLAND, CALIFORNIA

Subsurface Consultants, Inc.
Geotechnical & Environmental Engineers

DRAWN BY	DATE	TEST PIT
CFY	9/13/00	TP-3 & TP-4
JOB NUMBER	FILE NUMBER	
272.054	A272.054.04	





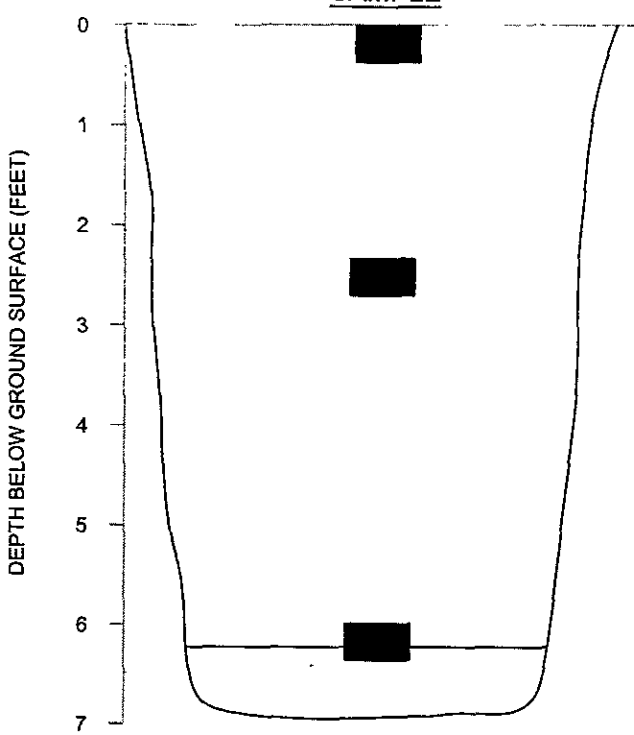
TEST PIT LOGS

MLK. JR WAY BETWEEN 11TH AND 12TH STREETS
OAKLAND, CALIFORNIA

Subsurface Consultants, Inc.
Geotechnical & Environmental Engineers

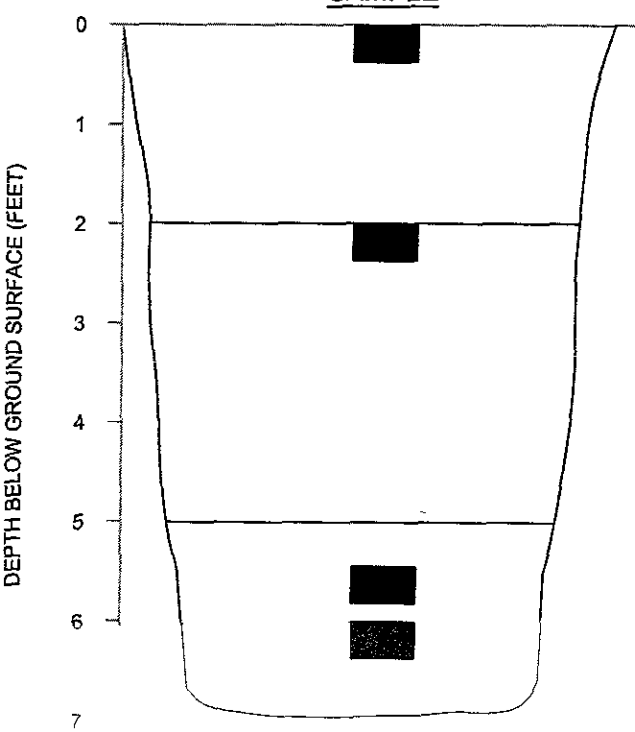
DRAWN BY	DATE	TEST PIT
CFY	9/13/00	TP-5 & TP-6
JOB NUMBER	FILE NUMBER	
272 054	A272.054.04	

TP-7



DESCRIPTION	OVM
SILTY SAND (SM) Brown, loose, soft, dry	7.5
Bricks in upper 2 feet	
Pieces of broken pottery and glass	10.2
CLAYEY SAND (SC)	0.0
Test pit terminated at 7.0 feet	

TP-8



DESCRIPTION	OVM
SILTY SAND (SM) Brown, loose, soft	9.7
Color changes to dark brown @ 2 feet	
CLAYEY SAND (SC) Brown with mottled orange, medium stiff, moist	7.2
Test pit terminated at 7.0 feet	

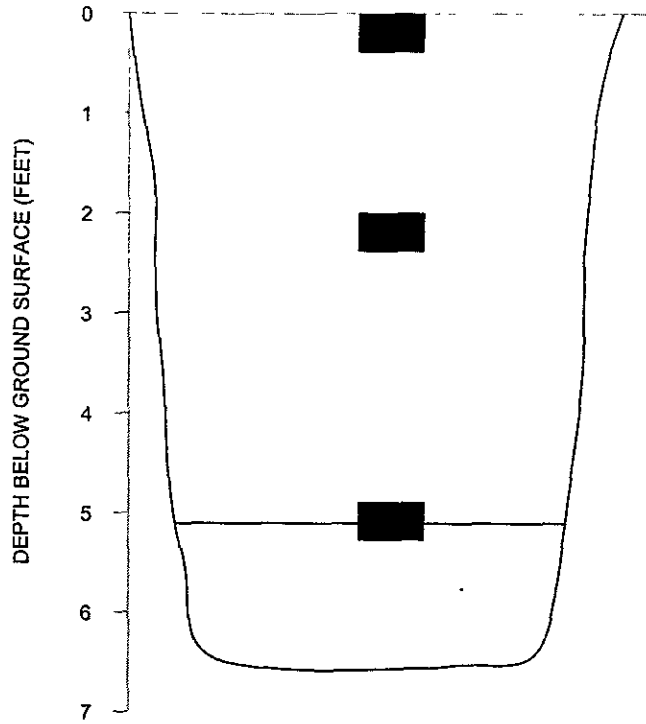
TEST PIT LOGS

MLK. JR. WAY BETWEEN 11TH AND 12TH STREETS
OAKLAND, CALIFORNIA

Subsurface Consultants, Inc.
Geotechnical & Environmental Engineers

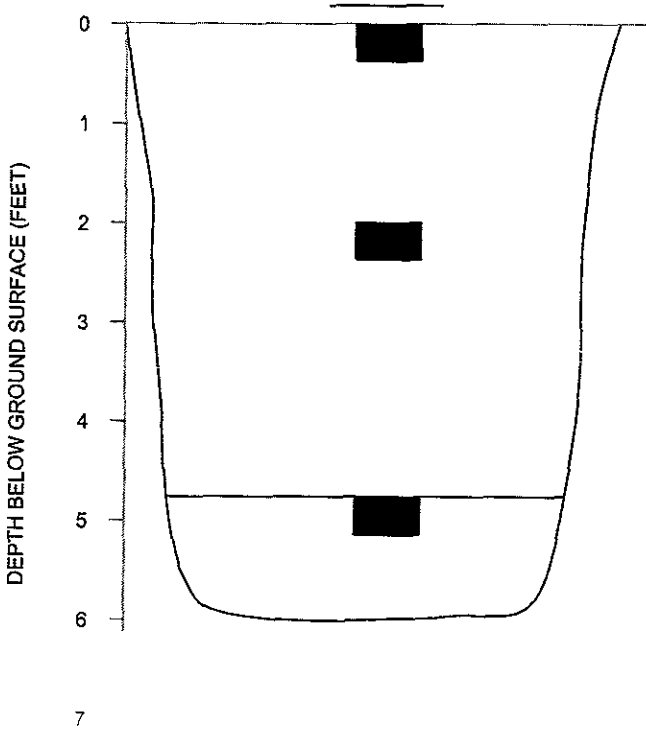
DRAWN BY	DATE	TEST PIT
CFY	9/13/00	TP-7 & TP-8
JOB NUMBER	FILE NUMBER	
272 054	A272.054.04	

TP-9



DESCRIPTION	OVM
SILTY SAND WITH GRAVEL (SM) Brown, loose, dry, bricks	7.5
Grades to silty sand (SM)	
	5.1
CLAYEY SAND (SC) Brown - mottled orange, moist, medium stiff	5.1
Test pit terminated at 6.5 feet	

TP-10



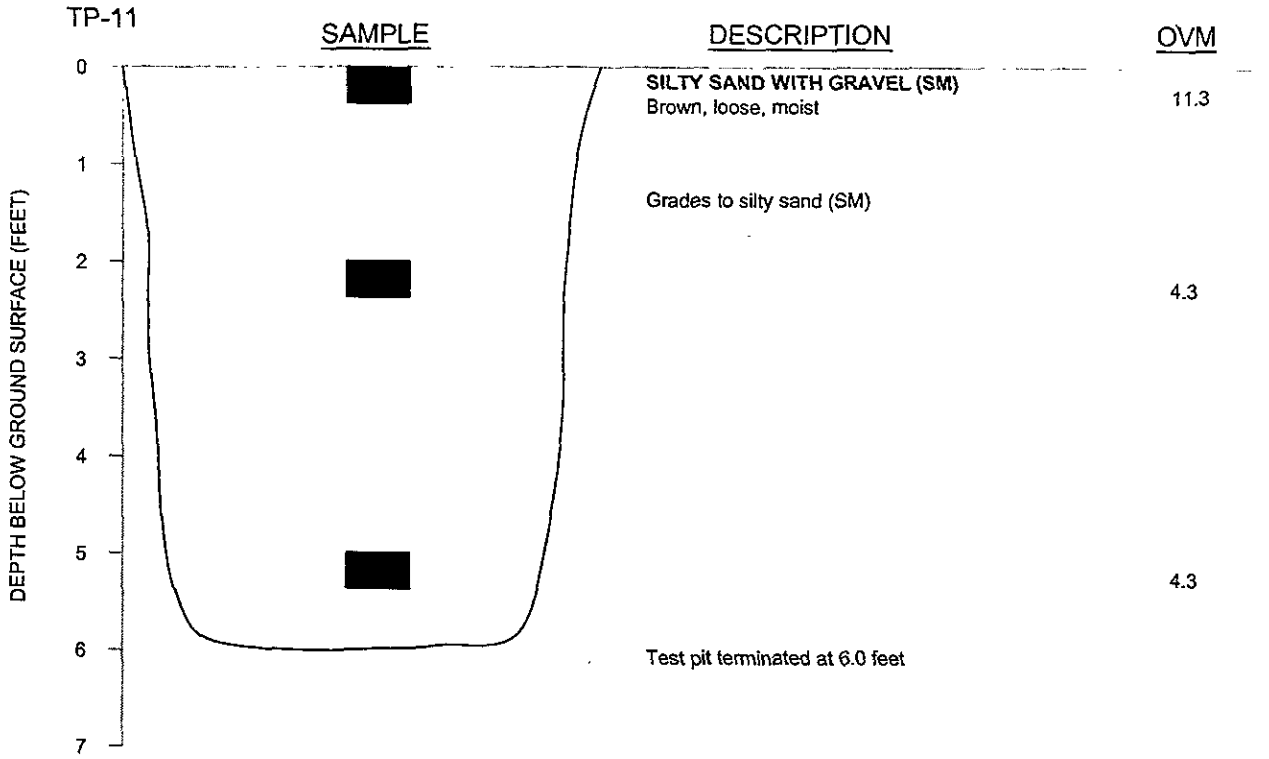
DESCRIPTION	OVM
SILTY SAND WITH GRAVEL (SM) Brown, loose, dry	7.5
Grades to a poorly graded, silty sand	7.3
CLAYEY SAND (SC) Brown - mottled orange, moist, medium stiff	7.2
Test pit terminated at 6.0 feet	

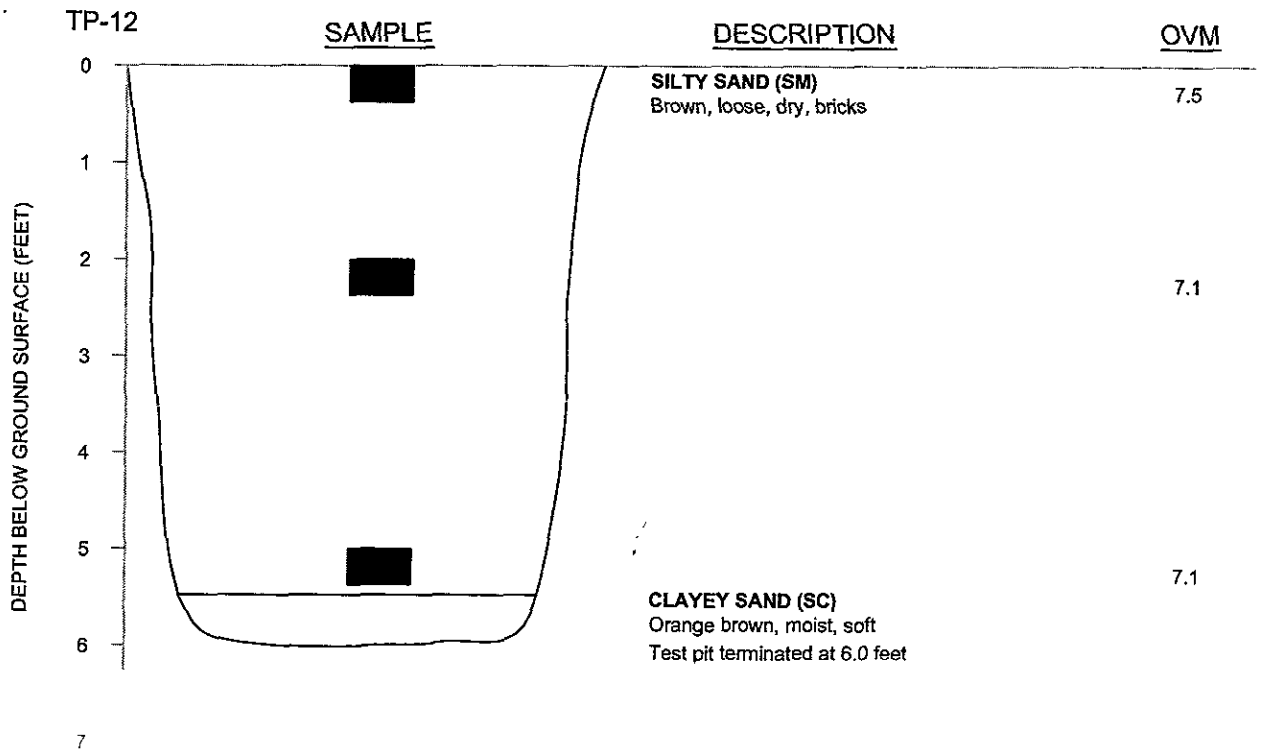
TEST PIT LOGS

MLK. JR. WAY BETWEEN 11TH AND 12TH STREETS
OAKLAND, CALIFORNIA

Subsurface Consultants, Inc.
Geotechnical & Environmental Engineers

DRAWN BY	DATE	TEST PIT
CFY	9/13/00	TP-9 & TP-10
JOB NUMBER	FILE NUMBER	
272.054	A272.054.04	





TEST PIT LOGS

MLK. JR. WAY BETWEEN 11TH AND 12TH STREETS
OAKLAND, CALIFORNIA

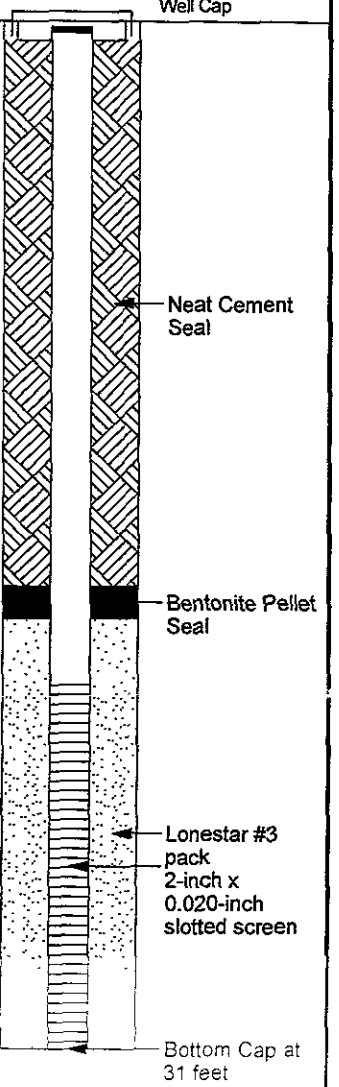
Subsurface Consultants, Inc.
Geotechnical & Environmental Engineers

DRAWN BY	DATE	TEST PIT
CFY	9/13/00	TP-11 & TP-12
JOB NUMBER	FILE NUMBER	
272.054	A272.054.04	

Project Name & Location: 12th Street and Martin Luther King Jr. Way Oakland, California	Ground Surface Elevation: Elevation Datum:
Drilling Coordinates: not surveyed	Start: Date 3/2/01 Time 14:00 / Finish: Date 3/2/01 Time 17:00
Drilling Company & Driller: Precision, Terry McAdoo	Drilling Fluid: None / Hole Diameter: 8 inches
Rig Type & Drilling Method: Mobile B-4500 / Hollow Stem Auger	
Sampler Type(s): A) Modified California (3" O.D., 2.5" I.D.)	Logged By: JTW / GWL During Drilling
Sampling Method(s): A) 140 lb hammer with 30" drop (Rope and Cathead)	Backfill Method: Completed as Well / Date: 3/2/01

Depth (feet)	Sampler Type	Blows/6 inches or Pressure	Blows/12 inches	OVM (ppm)	Sample Interval	Graphic Log	SOIL DESCRIPTIONS GROUP NAME (GROUP SYMBOL) color, consistency/density, moisture condition, other descriptions (Local Name or Material Type)
0	A	14 14 12	26	0			**SILTY SAND (SM)** Dark brown, medium dense, moist with trace of brick fragments, ash, poorly graded, fine grained
5	A	27 50/3"	77/9"	0			Wet, perched water?
							POORLY GRADED SAND (SP) Yellowish-brown, very dense
10	A	48 50/3"	98/9"	0			
							POORLY GRADED SAND WITH CLAY (SP) Mottled light grayish-brown and yellowish-brown, very dense, moist strong hydrocarbon odor
15	A	69 50/3"	119/9"	1200			
	A	81 50/1"	131/7"	2500			**POORLY GRADED SAND (SP)** Dark yellowish-brown, very dense, moist, fine to medium grained, very strong hydrocarbon odor
20	A	85 50/.5"	133/6.5"	2300			
							POORLY GRADED SAND (SP) Light olive-brown, very dense, wet, fine grained, mild hydrocarbon odor
25	A	94 50/1"	144/7"	888			▽
	A	74 50/2"	124/7"	12			
							Color change to light brownish-yellow at 29 0'
30	A	34 50/4"	84/10"	146			
							Bottom of boring at 31 feet below ground surface
35							

WELL CONSTRUCTION



LOG OF BORING 272-054.GPJ GEO-ENV.GDT 3/21/01

Subsurface Consultants, Inc.
Geotechnical & Environmental Engineers

12th Street and Martin Luther King Jr. Way
Oakland, California

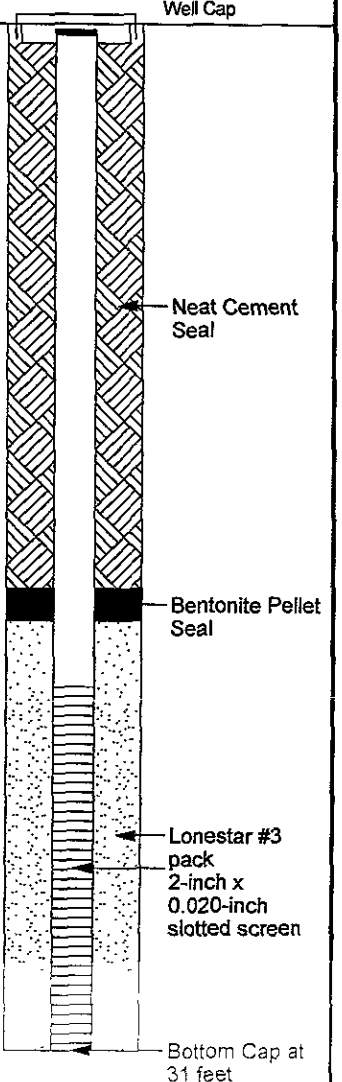
JOB NUMBER 272 054 | DATE 3/01

BORING **TW-1**

Project Name & Location: 12th Street and Martin Luther King Jr. Way Oakland, California	Ground Surface Elevation: Elevation Datum:
Drilling Coordinates: not surveyed	Start: Date 3/2/01 Time 10:45 / Finish: Date 3/2/01 Time 00:00
Drilling Company & Driller: Precision, Terry McAdoo	Drilling Fluid: None / Hole Diameter: 8 inches
Rig Type & Drilling Method: Mobile B-4500 / Hollow Stem Auger	
Sampler Type(s): A) Modified California (3" O.D., 2.5" I.D.)	Logged By: JTW / ▽ GWL During Drilling
Sampling Method(s): A) 140 lb hammer with 30" drop (Rope and Cathead)	Backfill Method: Completed as Well / Date: 3/2/01

Depth (feet)	Sampler Type	Blows/6 inches or Pressure	Blows/12 inches	OVM (ppm)	Sample Interval	Graphic Log	SOIL DESCRIPTIONS GROUP NAME (GROUP SYMBOL) color, consistency/density, moisture condition, other descriptions (Local Name or Material Type)
0							**ASPHALTIC CONCRETE 6 - INCHES THICK** **CONCRETE SLAB 4 - INCHES THICK** **POORLY GRADED SAND (SP)** Light olive-brown, very dense, moist, fine to medium grained
5	A	28 37 50/3"	87/9"	0			**INTERBEDDED CLAYEY SAND AND POORLY GRADED SAND (SP-SC)** Dark yellowish-brown and olive-brown, very dense, moist, fine to medium grained
10	A	38 50/2"	88/8"	0			**POORLY GRADED SAND WITH SILT (SP)** Dark yellowish-brown, very dense, moist, fine to medium grained
15	A	27 50/4"	77/10"	0			**POORLY GRADED SAND WITH CLAY (SP)** Light olive-brown, very dense, moist, fine to medium grained
20	A	34 50/3"	84/9"	0			**POORLY GRADED SAND (SP)** Light olive-brown, very dense, moist, fine to medium grained
25	A	81/6	81/6"	0			▽ No odor or staining observed for cuttings on auger
30	A	47 50/1"	97/7"	0			
35							Bottom of boring at 31 feet below ground surface

WELL CONSTRUCTION



LOG OF BORING 272-054.GPJ GEO-ENV.GDT 3/21/01

SCI Subsurface Consultants, Inc.
Geotechnical & Environmental Engineers

12th Street and Martin Luther King Jr. Way
Oakland, California

JOB NUMBER 272 054 | DATE 3/01

BORING **TW-2**

Project Name & Location: 12th Street and Martin Luther King Jr. Way, Oakland, California	Ground Surface Elevation:
	Elevation Datum:
Drilling Coordinates: not surveyed	Start: Date 3/2/01 Time 07:30 / Finish: Date 3/2/01 Time 10:30
Drilling Company & Driller: Precision, Terry McAdoo	Drilling Fluid: None / Hole Diameter: 8 inches
Rig Type & Drilling Method: Mobile B-4500 / Hollow Stem Auger	
Sampler Type(s): A) Modified California (3" O.D., 2.5" I.D.)	Logged By: JTW / ▽ GWL During Drilling
Sampling Method(s): A) 140 lb hammer with 30" drop (Rope and Cathead)	Backfill Method: Completed as Well / Date: 3/2/01

Depth (feet)	Sampler Type	Blows/6 inches or Pressure	Blows/12 inches	OVM (ppm)	Sample Interval	Graphic Log	SOIL DESCRIPTIONS GROUP NAME (GROUP SYMBOL) color, consistency/density, moisture condition, other descriptions (Local Name or Material Type)
0							**ASPHALTIC CONCRETE 8 - INCHES THICK** **CONCRETE SLAB 4 - INCHES THICK** **CLAYEY SAND (SC)** Mottled dark yellowish-brown
5	A	50/6"	50/6"	0			**POORLY GRADED SAND WITH CLAY (SP)** Light brown, very dense, moist
10	A	35 50	85/12"	0			**CLAYEY SAND (SC)** Grayish-brown and dark yellowish-brown, very dense, moist, poorly graded, fine to medium grained
15	A	36 50	86/12"	0			**POORLY GRADED SAND WITH CLAY (SP)** Yellowish-brown to light olive-brown, fine to medium grained
20	A	28 41 50/5"	91/11"	0			**POORLY GRADED SAND (SP)** Light olive-brown, very dense, moist, fine to medium grained ▽
25	A	18 48 50/3"	98/9"	0			
30	A	36 50/5"	86/11"	0			Bottom of boring at 31 feet below ground surface
35							

WELL CONSTRUCTION

Flush Mounted Well Cover

Locking Well Cap

Neat Cement Seal

Bentonite Pellet Seal

Lonestar #3 pack

2-inch x 0.020-inch slotted screen

Bottom Cap at 31 feet

LOG OF BORING 272-054.GPJ GEO-ENV.GDT 3/14/01

SCI Subsurface Consultants, Inc.
Geotechnical & Environmental Engineers

12th Street and Martin Luther King Jr. Way
Oakland, California

JOB NUMBER 272 054 | DATE 3/01

BORING **TW-3**

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

ANALYTICAL REPORT

Prepared for:

Subsurface Consultants
3736 Mt. Diablo Blvd.
Suite 200
Lafayette, CA 94549

Date: 25-AUG-00
Lab Job Number: 146924
Project ID: 272.054
Location: MLK Between 11th&12th

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signatures. The results contained in this report meet all requirements of NELAC and pertain only to those samples which were submitted for analysis.

Reviewed by: _____
Project Manager

Reviewed by: _____
Operations Manager

Curtis & Tompkins, Ltd.

Laboratory Number: **146924**
Client: **Subsurface Consultants, Inc.**
Project Name: **MLK between 11th & 12th**

Receipt Date: **08/07/00**

CASE NARRATIVE

This hardcopy data package contains sample results and batch QC results for thirty-six soil samples received from the above referenced project. The samples were received cold and intact.

Total Volatile Hydrocarbons: The trifluorotoluene surrogate recoveries for the blank spikes from batch number 57639 were outside acceptance limits due to coelution of the surrogate peak with hydrocarbon peaks. The associated bromofluorobenzene surrogate recoveries were acceptable. No other analytical problems were encountered.

Total Extractable Hydrocarbons: The matrix spike recoveries were not meaningful. The concentration of analyte in the spiked sample rendered the spike amount insignificant. No other analytical problems were encountered.

Metals: No analytical problems were encountered.

CHAIN OF CUSTODY FORM

PROJECT NAME: Mak between 11th & 12th

JOB NUMBER: 272.054 LAB: Curtis & Tompkins

PROJECT CONTACT: G. Young TURNAROUND: Standard

SAMPLED BY: E. Silverman REQUESTED BY: E. Silverman

LABORATORY I.D. NUMBER	SCI SAMPLE NUMBER	MATRIX: WATER	SOIL	WASTE	AIR	CONTAINERS: VOA	LITER	PINT	TUBE	METHOD PRESERVED: HCL	H_2SO_4	HNO_3	ICE	NONE	SAMPLING DATE: MONTH	DAY	YEAR	TIME	NOTES	ANALYSIS REQUESTED: Total Lead (6010)	TVH-g, BTEX (8015m)	TEH-d, TEHe(w/ silica gel) (8015)
1	TP-1 @0.0		X						1				X		08	04	00	0750		X		
2	TP-1 @2.0		X						1				X		08	04	00	0843		X		
3	TP-1 @5.0		X						1				X		08	04	00	0844		X	X	X
4	TP-2 @0.0		X						1				X		08	04	00	0752		X		
5	TP-2 @2.0		X						1				X		08	04	00	0904		X	X	X
6	TP-2 @5.6		X						1				X		08	04	00	0910		X		
7	TP-3 @0.0		X						1				X		08	04	00	0754		X		
8	TP-3 @3.0		X						1				X		08	04	00	0919		X		
9	TP-3 @6.0		X						1				X		08	04	00	0923		X	X	X
10	TP-4 @0.0		X						1				X		08	04	00	0758		X		
11	TP-4 @2.5		X						1				X		08	04	00	0933		X	X	X
12	TP-4 @6.0		X						1				X		08	04	00	0941		X		

CHAIN OF CUSTODY RECORD

RELEASED BY: (Signature)	DATE / TIME	RECEIVED BY: (Signature)	DATE / TIME
[signature]	8/4/00 5:00	[signature]	8/4/00 500
[signature]	8/7/00 10:20	[signature]	8/7/00 10:20

COMMENTS & NOTES:

Subsurface Consultants, Inc.
171 - 12th Street, Suite 202, Oakland, CA 94607
(510) 268-0461 - FAX: (510) 268-0137
3736 Mt. Diablo Blvd., Ste. 200, Lafayette, CA 94549
(925) 299-7960 - (925) 299-7970

CHAIN OF CUSTODY FORM

PROJECT NAME: Mak between 11th & 12th

JOB NUMBER: 272.054 LAB: Curtis & Tompkins

PROJECT CONTACT: G. Young TURNAROUND: Standard

SAMPLED BY: E. Silverman REQUESTED BY: E. Silverman

LABORATORY I.D. NUMBER	SCI SAMPLE NUMBER	MATRIX: WATER	SOIL	WASTE	AIR			CONTAINERS: VOA	LITER	PINT	TUBE			METHOD PRESERVED: HCL	H_2SO_4	HNO_3	ICE	NONE	SAMPLING DATE: MONTH	DAY	YEAR	TIME	NOTES	ANALYSIS REQUESTED: Total Lead (6010)	TVH-g, BTEX (8015m)	TEH-d, TEH-o (w/ silica gel) (8015)								
13	TP-5 @0.0		X								1						X		08	04	00	0801		X										
14	TP-5 @2.0		X								1						X		08	04	00	0956		X	X	X	X							
15	TP-5 @6.0		X								1						X		08	04	00	1012		X										
16	TP-6 @0.0		X								1						X		08	04	00	0804		X										
17	TP-6 @2.5		X								1						X		08	04	00	1032		X										
18	TP-6 @6.0		X								1						X		08	04	00	1038		X	X	X	X							
19	TP-7@0.0		X								1						X		08	04	00	0807		X										
20	TP-7@2.0		X								1						X		08	04	00	1049		X	X	X	X							
21	TP-7 @6.0		X								1						X		08	04	00	1053		X										
22	TP-8 @0.0		X								1						X		08	04	00	0810		X										
23	TP-8 @2.5		X								1						X		08	04	00	1112		X	X	X	X							
24	TP-8 @6.0		X								1						X		08	04	00	1118		X										

CHAIN OF CUSTODY RECORD

RELEASED BY: (Signature)	DATE / TIME	RECEIVED BY: (Signature)	DATE / TIME
	8/4/00 5:00		8/4/00 5:00
	8.7.00 10:20		8/7/00 10:20

COMMENTS & NOTES:

SCI
Subsurface Consultants, Inc.
171 - 12th Street, Suite 202, Oakland, CA 94607
(510) 268-0461 - FAX: (510) 268-0137
3736 Mt. Diablo Blvd., Ste. 200, Lafayette, CA 94549
(925) 299-7960 - (925) 299-7970

CHAIN OF CUSTODY FORM

PROJECT NAME: Mills between 11th & 12th

JOB NUMBER: 272.054 LAB: Curtis & Tompkins

PROJECT CONTACT: G. Young TURNAROUND: Standard

SAMPLED BY: E. Silverman REQUESTED BY: E. Silverman

LABORATORY I.D. NUMBER	SCI SAMPLE NUMBER	MATRIX: WATER	MATRIX: SOIL	MATRIX: WASTE	MATRIX: AIR	CONTAINERS: VOA	CONTAINERS: LITER	CONTAINERS: PINT	CONTAINERS: TUBE	METHOD PRESERVED: HCL	METHOD PRESERVED: H_2SO_4	METHOD PRESERVED: HNO_3	METHOD PRESERVED: ICE	METHOD PRESERVED: NONE	SAMPLING DATE: MONTH	SAMPLING DATE: DAY	SAMPLING DATE: YEAR	SAMPLING DATE: TIME	NOTES	ANALYSIS REQUESTED: Total Lead (6010)	ANALYSIS REQUESTED: TVH-g, BTEX (8015m)	ANALYSIS REQUESTED: TEH-d, TEHo(w) silica gel (8015)
25	TP-9 @0.0		X						1				X		08	04	00			X	X	
26	TP-9 @2.0		X						1				X		08	04	00			X	X	
27	TP-9 @5.0		X						1				X		08	04	00			X		
28	TP-10 @0.0		X						1				X		08	04	00			X	X	X
29	TP-10 @2.0		X						1				X		08	04	00			X	X	X
30	TP-10 @5.0		X						1				X		08	04	00			X		
31	TP-11 @0.0		X						1				X		08	04	00			X		
32	TP-11 @2.0		X						1				X		08	04	00			X		
33	TP-11 @5.0		X						1				X		08	04	00			X	X	X
34	TP-12 @0.0		X						1				X		08	04	00			X	X	X
35	TP-12 @2.0		X						1				X		08	04	00			X	X	X
36	TP-12 @5.0		X						1				X		08	04	00			X		

CHAIN OF CUSTODY RECORD

RELEASED BY: (Signature)	DATE / TIME	RECEIVED BY: (Signature)	DATE / TIME
E. Silverman	8/4/00 5:00	[signature]	8/4/00 5:00
[signature]	8.7.00 10:20	[signature]	8/7/00 10:20

COMMENTS & NOTES:

Subsurface Consultants, Inc.
171 - 12th Street, Suite 202, Oakland, CA 94607
(510) 268-0461 - FAX: (510) 268-0137
3736 Mt. Diablo Blvd., Ste. 200, Lafayette, CA 94549
(925) 299-7960 - (925) 299-7970

Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	146924	Location:	MLK Between 11th&12th
Client:	Subsurface Consultants	Prep:	EPA 5030
Project#:	272.054		
Matrix:	Soil	Sampled:	08/04/00
Basis:	wet	Received:	08/07/00
Diln Fac:	1.000		

Field ID:	TP-1@5.0	Batch#:	57546
Type:	SAMPLE	Analyzed:	08/09/00
Lab ID:	146924-003		

Analyte	Result	RL	Units	Analysis
Gasoline C7-C12	ND	0.97	mg/Kg	EPA 8015M
Benzene	ND	4.9	ug/Kg	EPA 8021B
Toluene	ND	4.9	ug/Kg	EPA 8021B
Ethylbenzene	ND	4.9	ug/Kg	EPA 8021B
m,p-Xylenes	ND	4.9	ug/Kg	EPA 8021B
o-Xylene	ND	4.9	ug/Kg	EPA 8021B

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	98	62-138	EPA 8015M
Bromofluorobenzene (FID)	101	46-150	EPA 8015M
Trifluorotoluene (PID)	99	65-134	EPA 8021B
Bromofluorobenzene (PID)	102	55-138	EPA 8021B

Field ID:	TP-2@2.0	Batch#:	57639
Type:	SAMPLE	Analyzed:	08/12/00
Lab ID:	146924-005		

Analyte	Result	RL	Units	Analysis
Gasoline C7-C12	ND	0.97	mg/Kg	EPA 8015M
Benzene	ND	4.9	ug/Kg	EPA 8021B
Toluene	ND	4.9	ug/Kg	EPA 8021B
Ethylbenzene	ND	4.9	ug/Kg	EPA 8021B
m,p-Xylenes	ND	4.9	ug/Kg	EPA 8021B
o-Xylene	ND	4.9	ug/Kg	EPA 8021B

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	112	62-138	EPA 8015M
Bromofluorobenzene (FID)	108	46-150	EPA 8015M
Trifluorotoluene (PID)	130	65-134	EPA 8021B
Bromofluorobenzene (PID)	127	55-138	EPA 8021B

ND = Not Detected
RL = Reporting Limit

Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	146924	Location:	MLK Between 11th&12th
Client:	Subsurface Consultants	Prep:	EPA 5030
Project#:	272.054		
Matrix:	Soil	Sampled:	08/04/00
Basis:	wet	Received:	08/07/00
Diln Fac:	1.000		

Field ID: TP-3@6.0 Batch#: 57546
Type: SAMPLE Analyzed: 08/09/00
Lab ID: 146924-009

Analyte	Result	RL	Units	Analysis
Gasoline C7-C12	ND	0.95	mg/Kg	EPA 8015M
Benzene	ND	4.8	ug/Kg	EPA 8021B
Toluene	ND	4.8	ug/Kg	EPA 8021B
Ethylbenzene	ND	4.8	ug/Kg	EPA 8021B
m,p-Xylenes	ND	4.8	ug/Kg	EPA 8021B
o-Xylene	ND	4.8	ug/Kg	EPA 8021B

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	107	62-138	EPA 8015M
Bromofluorobenzene (FID)	109	46-150	EPA 8015M
Trifluorotoluene (PID)	107	65-134	EPA 8021B
Bromofluorobenzene (PID)	109	55-138	EPA 8021B

Field ID: TP-4@2.5 Batch#: 57585
Type: SAMPLE Analyzed: 08/11/00
Lab ID: 146924-011

Analyte	Result	RL	Units	Analysis
Gasoline C7-C12	ND	0.97	mg/Kg	EPA 8015M
Benzene	ND	4.9	ug/Kg	EPA 8021B
Toluene	ND	4.9	ug/Kg	EPA 8021B
Ethylbenzene	ND	4.9	ug/Kg	EPA 8021B
m,p-Xylenes	ND	4.9	ug/Kg	EPA 8021B
o-Xylene	ND	4.9	ug/Kg	EPA 8021B

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	111	62-138	EPA 8015M
Bromofluorobenzene (FID)	115	46-150	EPA 8015M
Trifluorotoluene (PID)	111	65-134	EPA 8021B
Bromofluorobenzene (PID)	115	55-138	EPA 8021B

ND = Not Detected
RL = Reporting Limit

Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	146924	Location:	MLK Between 11th&12th
Client:	Subsurface Consultants	Prep:	EPA 5030
Project#:	272.054		
Matrix:	Soil	Sampled:	08/04/00
Basis:	wet	Received:	08/07/00
Diln Fac:	1.000		

Field ID:	TP-5@2.0	Batch#:	57546
Type:	SAMPLE	Analyzed:	08/09/00
Lab ID:	146924-014		

Analyte	Result	RL	Units	Analysis
Gasoline C7-C12	ND	0.93	mg/Kg	EPA 8015M
Benzene	ND	4.7	ug/Kg	EPA 8021B
Toluene	ND	4.7	ug/Kg	EPA 8021B
Ethylbenzene	ND	4.7	ug/Kg	EPA 8021B
m,p-Xylenes	ND	4.7	ug/Kg	EPA 8021B
o-Xylene	ND	4.7	ug/Kg	EPA 8021B

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	106	62-138	EPA 8015M
Bromofluorobenzene (FID)	110	46-150	EPA 8015M
Trifluorotoluene (PID)	108	65-134	EPA 8021B
Bromofluorobenzene (PID)	111	55-138	EPA 8021B

Field ID:	TP-6@6.0	Batch#:	57546
Type:	SAMPLE	Analyzed:	08/09/00
Lab ID:	146924-018		

Analyte	Result	RL	Units	Analysis
Gasoline C7-C12	ND	0.92	mg/Kg	EPA 8015M
Benzene	ND	4.6	ug/Kg	EPA 8021B
Toluene	ND	4.6	ug/Kg	EPA 8021B
Ethylbenzene	ND	4.6	ug/Kg	EPA 8021B
m,p-Xylenes	ND	4.6	ug/Kg	EPA 8021B
o-Xylene	ND	4.6	ug/Kg	EPA 8021B

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	106	62-138	EPA 8015M
Bromofluorobenzene (FID)	109	46-150	EPA 8015M
Trifluorotoluene (PID)	105	65-134	EPA 8021B
Bromofluorobenzene (PID)	109	55-138	EPA 8021B

ND = Not Detected
RL = Reporting Limit

Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	146924	Location:	MLK Between 11th&12th
Client:	Subsurface Consultants	Prep:	EPA 5030
Project#:	272.054		
Matrix:	Soil	Sampled:	08/04/00
Basis:	wet	Received:	08/07/00
Diln Fac:	1.000		

Field ID:	TP-7@2.0	Batch#:	57546
Type:	SAMPLE	Analyzed:	08/09/00
Lab ID:	146924-020		

Analyte	Result	RL	Units	Analysis
Gasoline C7-C12	ND	0.93	mg/Kg	EPA 8015M
Benzene	ND	4.7	ug/Kg	EPA 8021B
Toluene	ND	4.7	ug/Kg	EPA 8021B
Ethylbenzene	ND	4.7	ug/Kg	EPA 8021B
m,p-Xylenes	ND	4.7	ug/Kg	EPA 8021B
o-Xylene	ND	4.7	ug/Kg	EPA 8021B

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	109	62-138	EPA 8015M
Bromofluorobenzene (FID)	110	46-150	EPA 8015M
Trifluorotoluene (PID)	110	65-134	EPA 8021B
Bromofluorobenzene (PID)	112	55-138	EPA 8021B

Field ID:	TP-8@2.5	Batch#:	57546
Type:	SAMPLE	Analyzed:	08/09/00
Lab ID:	146924-023		

Analyte	Result	RL	Units	Analysis
Gasoline C7-C12	ND	0.95	mg/Kg	EPA 8015M
Benzene	ND	4.8	ug/Kg	EPA 8021B
Toluene	ND	4.8	ug/Kg	EPA 8021B
Ethylbenzene	ND	4.8	ug/Kg	EPA 8021B
m,p-Xylenes	ND	4.8	ug/Kg	EPA 8021B
o-Xylene	ND	4.8	ug/Kg	EPA 8021B

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	109	62-138	EPA 8015M
Bromofluorobenzene (FID)	113	46-150	EPA 8015M
Trifluorotoluene (PID)	110	65-134	EPA 8021B
Bromofluorobenzene (PID)	113	55-138	EPA 8021B

ND = Not Detected
RL = Reporting Limit

Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	146924	Location:	MLK Between 11th&12th
Client:	Subsurface Consultants	Prep:	EPA 5030
Project#:	272.054		
Matrix:	Soil	Sampled:	08/04/00
Basis:	wet	Received:	08/07/00
Diln Fac:	1.000		

Field ID: TP-9@5.0 Batch#: 57546
Type: SAMPLE Analyzed: 08/09/00
Lab ID: 146924-027

Analyte	Result	RL	Units	Analysis
Gasoline C7-C12	ND	0.95	mg/Kg	EPA 8015M
Benzene	ND	4.8	ug/Kg	EPA 8021B
Toluene	ND	4.8	ug/Kg	EPA 8021B
Ethylbenzene	ND	4.8	ug/Kg	EPA 8021B
m,p-Xylenes	ND	4.8	ug/Kg	EPA 8021B
o-Xylene	ND	4.8	ug/Kg	EPA 8021B

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	110	62-138	EPA 8015M
Bromofluorobenzene (FID)	112	46-150	EPA 8015M
Trifluorotoluene (PID)	112	65-134	EPA 8021B
Bromofluorobenzene (PID)	114	55-138	EPA 8021B

Field ID: TP-10@2.0 Batch#: 57546
Type: SAMPLE Analyzed: 08/09/00
Lab ID: 146924-029

Analyte	Result	RL	Units	Analysis
Gasoline C7-C12	ND	0.94	mg/Kg	EPA 8015M
Benzene	ND	4.7	ug/Kg	EPA 8021B
Toluene	ND	4.7	ug/Kg	EPA 8021B
Ethylbenzene	ND	4.7	ug/Kg	EPA 8021B
m,p-Xylenes	ND	4.7	ug/Kg	EPA 8021B
o-Xylene	ND	4.7	ug/Kg	EPA 8021B

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	105	62-138	EPA 8015M
Bromofluorobenzene (FID)	104	46-150	EPA 8015M
Trifluorotoluene (PID)	108	65-134	EPA 8021B
Bromofluorobenzene (PID)	109	55-138	EPA 8021B

ND = Not Detected
RL = Reporting Limit

Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	146924	Location:	MLK Between 11th&12th
Client:	Subsurface Consultants	Prep:	EPA 5030
Project#:	272.054		
Matrix:	Soil	Sampled:	08/04/00
Basis:	wet	Received:	08/07/00
Diln Fac:	1.000		

Field ID: TP-11@5.0 Batch#: 57546
Type: SAMPLE Analyzed: 08/09/00
Lab ID: 146924-033

Analyte	Result	RL	Units	Analysis
Gasoline C7-C12	ND	0.97	mg/Kg	EPA 8015M
Benzene	ND	4.9	ug/Kg	EPA 8021B
Toluene	ND	4.9	ug/Kg	EPA 8021B
Ethylbenzene	ND	4.9	ug/Kg	EPA 8021B
m,p-Xylenes	ND	4.9	ug/Kg	EPA 8021B
o-Xylene	ND	4.9	ug/Kg	EPA 8021B

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	109	62-138	EPA 8015M
Bromofluorobenzene (FID)	114	46-150	EPA 8015M
Trifluorotoluene (PID)	111	65-134	EPA 8021B
Bromofluorobenzene (PID)	114	55-138	EPA 8021B

Field ID: TP-12@2.0 Batch#: 57546
Type: SAMPLE Analyzed: 08/09/00
Lab ID: 146924-035

Analyte	Result	RL	Units	Analysis
Gasoline C7-C12	ND	0.94	mg/Kg	EPA 8015M
Benzene	ND	4.7	ug/Kg	EPA 8021B
Toluene	ND	4.7	ug/Kg	EPA 8021B
Ethylbenzene	ND	4.7	ug/Kg	EPA 8021B
m,p-Xylenes	ND	4.7	ug/Kg	EPA 8021B
o-Xylene	ND	4.7	ug/Kg	EPA 8021B

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	113	62-138	EPA 8015M
Bromofluorobenzene (FID)	115	46-150	EPA 8015M
Trifluorotoluene (PID)	114	65-134	EPA 8021B
Bromofluorobenzene (PID)	117	55-138	EPA 8021B

Type: BLANK Batch#: 57546
Lab ID: QC122256 Analyzed: 08/08/00

Analyte	Result	RL	Units	Analysis
Gasoline C7-C12	ND	1.0	mg/Kg	EPA 8015M
Benzene	ND	5.0	ug/Kg	EPA 8021B
Toluene	ND	5.0	ug/Kg	EPA 8021B
Ethylbenzene	ND	5.0	ug/Kg	EPA 8021B
m,p-Xylenes	ND	5.0	ug/Kg	EPA 8021B
o-Xylene	ND	5.0	ug/Kg	EPA 8021B

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	95	62-138	EPA 8015M
Bromofluorobenzene (FID)	94	46-150	EPA 8015M
Trifluorotoluene (PID)	95	65-134	EPA 8021B
Bromofluorobenzene (PID)	96	55-138	EPA 8021B

ND = Not Detected
RL = Reporting Limit

Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	146924	Location:	MLK Between 11th&12th
Client:	Subsurface Consultants	Prep:	EPA 5030
Project#:	272.054		
Matrix:	Soil	Sampled:	08/04/00
Basis:	wet	Received:	08/07/00
Diln Fac:	1.000		

Type:	BLANK	Batch#:	57585
Lab ID:	QC122406	Analyzed:	08/10/00

Analyte	Result	RL	Units	Analysis
Gasoline C7-C12	ND	1.0	mg/Kg	EPA 8015M
Benzene	ND	5.0	ug/Kg	EPA 8021B
Toluene	ND	5.0	ug/Kg	EPA 8021B
Ethylbenzene	ND	5.0	ug/Kg	EPA 8021B
m,p-Xylenes	ND	5.0	ug/Kg	EPA 8021B
o-Xylene	ND	5.0	ug/Kg	EPA 8021B

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	107	62-138	EPA 8015M
Bromofluorobenzene (FID)	109	46-150	EPA 8015M
Trifluorotoluene (PID)	106	65-134	EPA 8021B
Bromofluorobenzene (PID)	109	55-138	EPA 8021B

Type:	BLANK	Batch#:	57639
Lab ID:	QC122614	Analyzed:	08/11/00

Analyte	Result	RL	Units	Analysis
Gasoline C7-C12	ND	1.0	mg/Kg	EPA 8015M
Benzene	ND	5.0	ug/Kg	EPA 8021B
Toluene	ND	5.0	ug/Kg	EPA 8021B
Ethylbenzene	ND	5.0	ug/Kg	EPA 8021B
m,p-Xylenes	ND	5.0	ug/Kg	EPA 8021B
o-Xylene	ND	5.0	ug/Kg	EPA 8021B

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	113	62-138	EPA 8015M
Bromofluorobenzene (FID)	109	46-150	EPA 8015M
Trifluorotoluene (PID)	130	65-134	EPA 8021B
Bromofluorobenzene (PID)	126	55-138	EPA 8021B

ND = Not Detected
RL = Reporting Limit

Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	146924	Location:	MLK Between 11th&12th
Client:	Subsurface Consultants	Prep:	EPA 5030
Project#:	272.054		
Type:	LCS	Basis:	wet
Lab ID:	QC122257	Diln Fac:	1.000
Matrix:	Soil	Batch#:	57546
Units:	mg/Kg	Analyzed:	08/08/00

Analyte	Spiked	Result	%REC	Limits	Analysis
Gasoline C7-C12	10.00	8.781	88	75-123	EPA 8015M
Benzene		NA			
Toluene		NA			
Ethylbenzene		NA			
m,p-Xylenes		NA			
o-Xylene		NA			

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	106	62-138	EPA 8015M
Bromofluorobenzene (FID)	111	46-150	EPA 8015M
Trifluorotoluene (PID)	107	65-134	EPA 8021B
Bromofluorobenzene (PID)	106	55-138	EPA 8021B

NA= Not Analyzed

Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	146924	Location:	MLK Between 11th&12th
Client:	Subsurface Consultants	Prep:	EPA 5030
Project#:	272.054		
Matrix:	Soil	Diln Fac:	1.000
Units:	ug/Kg	Batch#:	57546
Basis:	wet	Analyzed:	08/08/00

Type: BS Lab ID: QC122258

Analyte	Spiked	Result	%REC	Limits	Analysis
Gasoline C7-C12		NA			
Benzene	100.0	74.77	75	68-117	EPA 8021B
Toluene	100.0	83.44	83	70-120	EPA 8021B
Ethylbenzene	100.0	91.77	92	67-124	EPA 8021B
m,p-Xylenes	200.0	193.0	96	72-124	EPA 8021B
o-Xylene	100.0	90.94	91	72-123	EPA 8021B

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	81	62-138	EPA 8015M
Bromofluorobenzene (FID)	86	46-150	EPA 8015M
Trifluorotoluene (PID)	81	65-134	EPA 8021B
Bromofluorobenzene (PID)	86	55-138	EPA 8021B

Type: BSD Lab ID: QC122259

Analyte	Spiked	Result	%REC	Limits	RPD	Lim	Analysis
Gasoline C7-C12		NA					
Benzene	100.0	75.32	75	68-117	1	20	EPA 8021B
Toluene	100.0	84.59	85	70-120	1	20	EPA 8021B
Ethylbenzene	100.0	92.98	93	67-124	1	20	EPA 8021B
m,p-Xylenes	200.0	196.0	98	72-124	2	20	EPA 8021B
o-Xylene	100.0	91.74	92	72-123	1	20	EPA 8021B

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	90	62-138	EPA 8015M
Bromofluorobenzene (FID)	90	46-150	EPA 8015M
Trifluorotoluene (PID)	90	65-134	EPA 8021B
Bromofluorobenzene (PID)	91	55-138	EPA 8021B

NA= Not Analyzed
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	146924	Location:	MLK Between 11th&12th
Client:	Subsurface Consultants	Prep:	EPA 5030
Project#:	272.054	Analysis:	EPA 8015M
Type:	LCS	Basis:	wet
Lab ID:	QC122405	Diln Fac:	1.000
Matrix:	Soil	Batch#:	57585
Units:	mg/Kg	Analyzed:	08/10/00

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	10.00	10.27	103	75-123
Benzene		NA		
Toluene		NA		
Ethylbenzene		NA		
m,p-Xylenes		NA		
o-Xylene		NA		

Surrogate	Result	%REC	Limits
Trifluorotoluene (FID)		129	62-138
Bromofluorobenzene (FID)		130	46-150
Trifluorotoluene (PID)	NA		
Bromofluorobenzene (PID)	NA		

NA= Not Analyzed

Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	146924	Location:	MLK Between 11th&12th
Client:	Subsurface Consultants	Prep:	EPA 5030
Project#:	272.054	Analysis:	EPA 8021B
Matrix:	Soil	Diln Fac:	1.000
Units:	ug/Kg	Batch#:	57585
Basis:	wet	Analyzed:	08/10/00

Type: BS Lab ID: QC122407

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12		NA		
Benzene	100.0	76.65	77	68-117
Toluene	100.0	75.38	75	70-120
Ethylbenzene	100.0	76.69	77	67-124
m,p-Xylenes	200.0	163.6	82	72-124
o-Xylene	100.0	78.33	78	72-123

Surrogate	Result	%REC	Limits
Trifluorotoluene (FID)	NA		
Bromofluorobenzene (FID)	NA		
Trifluorotoluene (PID)		103	65-134
Bromofluorobenzene (PID)		105	55-138

Type: BSD Lab ID: QC122408

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12		NA				
Benzene	100.0	76.91	77	68-117	0	20
Toluene	100.0	75.30	75	70-120	0	20
Ethylbenzene	100.0	76.79	77	67-124	0	20
m,p-Xylenes	200.0	163.3	82	72-124	0	20
o-Xylene	100.0	78.97	79	72-123	1	20

Surrogate	Result	%REC	Limits
Trifluorotoluene (FID)	NA		
Bromofluorobenzene (FID)	NA		
Trifluorotoluene (PID)		103	65-134
Bromofluorobenzene (PID)		107	55-138

NA= Not Analyzed
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	146924	Location:	MLK Between 11th&12th
Client:	Subsurface Consultants	Prep:	EPA 5030
Project#:	272.054		
Matrix:	Soil	Diln Fac:	1.000
Units:	mg/Kg	Batch#:	57639
Basis:	wet		

Type: BS Analyzed: 08/11/00
Lab ID: QC122615

Analyte	Spiked	Result	%REC	Limits	Analysis
Gasoline C7-C12	10.00	10.56	106	75-123	EPA 8015M
Benzene		NA			
Toluene		NA			
Ethylbenzene		NA			
m,p-Xylenes		NA			
o-Xylene		NA			

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	151 *	62-138	EPA 8015M
Bromofluorobenzene (FID)	113	46-150	EPA 8015M
Trifluorotoluene (PID)	161 *	65-134	EPA 8021B
Bromofluorobenzene (PID)	130	55-138	EPA 8021B

Type: BSD Analyzed: 08/12/00
Lab ID: QC122616

Analyte	Spiked	Result	%REC	Limits	RPD	Lim	Analysis
Gasoline C7-C12	10.00	10.50	105	75-123	1	20	EPA 8015M
Benzene		NA					
Toluene		NA					
Ethylbenzene		NA					
m,p-Xylenes		NA					
o-Xylene		NA					

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	154 *	62-138	EPA 8015M
Bromofluorobenzene (FID)	116	46-150	EPA 8015M
Trifluorotoluene (PID)	161 *	65-134	EPA 8021B
Bromofluorobenzene (PID)	131	55-138	EPA 8021B

* = Value outside of QC limits; see narrative
NA= Not Analyzed
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	146924	Location:	MLK Between 11th&12th
Client:	Subsurface Consultants	Prep:	EPA 5030
Project#:	272.054		
Type:	LCS	Basis:	wet
Lab ID:	QC122623	Diln Fac:	1.000
Matrix:	Soil	Batch#:	57639
Units:	ug/Kg	Analyzed:	08/11/00

Analyte	Spiked	Result	%REC	Limits	Analysis
Gasoline C7-C12		NA			
Benzene	100.0	78.95	79	68-117	EPA 8021B
Toluene	100.0	85.89	86	70-120	EPA 8021B
Ethylbenzene	100.0	99.14	99	67-124	EPA 8021B
m,p-Xylenes	200.0	201.5	101	72-124	EPA 8021B
o-Xylene	100.0	97.71	98	72-123	EPA 8021B

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	112	62-138	EPA 8015M
Bromofluorobenzene (FID)	107	46-150	EPA 8015M
Trifluorotoluene (PID)	131	65-134	EPA 8021B
Bromofluorobenzene (PID)	127	55-138	EPA 8021B

NA= Not Analyzed

Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	146924	Location:	MLK Between 11th&12th
Client:	Subsurface Consultants	Prep:	EPA 5030
Project#:	272.054		
Field ID:	TP-1@5.0	Diln Fac:	1.000
MSS Lab ID:	146924-003	Batch#:	57546
Matrix:	Soil	Sampled:	08/04/00
Units:	mg/Kg	Received:	08/07/00
Basis:	wet	Analyzed:	08/09/00

Type: MS Lab ID: QC122260

Analyte	MSS Result	Spiked	Result	%REC	Limits	Analysis
Gasoline C7-C12	0.2433	9.709	8.843	89	41-132	EPA 8015M
Benzene			NA			
Toluene			NA			
Ethylbenzene			NA			
m,p-Xylenes			NA			
o-Xylene			NA			

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	117	62-138	EPA 8015M
Bromofluorobenzene (FID)	129	46-150	EPA 8015M
Trifluorotoluene (PID)	120	65-134	EPA 8021B
Bromofluorobenzene (PID)	124	55-138	EPA 8021B

Type: MSD Lab ID: QC122261

Analyte	Spiked	Result	%REC	Limits	RPD	Lim	Analysis
Gasoline C7-C12	9.709	8.904	89	41-132	1	25	EPA 8015M
Benzene		NA					
Toluene		NA					
Ethylbenzene		NA					
m,p-Xylenes		NA					
o-Xylene		NA					

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	122	62-138	EPA 8015M
Bromofluorobenzene (FID)	140	46-150	EPA 8015M
Trifluorotoluene (PID)	123	65-134	EPA 8021B
Bromofluorobenzene (PID)	129	55-138	EPA 8021B

NA= Not Analyzed
RPD= Relative Percent Difference

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Curtis & Tompkins Laboratories Analytical Report

Lab #:	146924	Location:	MLK Between 11th&12th
Client:	Subsurface Consultants	Prep:	EPA 5030
Project#:	272.054	Analysis:	EPA 8015M
Field ID:	TP-4@2.5	Diln Fac:	1.000
MSS Lab ID:	146924-011	Batch#:	57585
Matrix:	Soil	Sampled:	08/04/00
Units:	mg/Kg	Received:	08/07/00
Basis:	wet	Analyzed:	08/11/00

Type: MS Lab ID: QC122459

Analyte	MSS Result	Spiked	Result	%REC	Limits
Gasoline C7-C12	0.1848	9.709	7.810	79	41-132
Benzene			NA		
Toluene			NA		
Ethylbenzene			NA		
m,p-Xylenes			NA		
o-Xylene			NA		

Surrogate	Result	%REC	Limits
Trifluorotoluene (FID)		124	62-138
Bromofluorobenzene (FID)		141	46-150
Trifluorotoluene (PID)	NA		
Bromofluorobenzene (PID)	NA		

Type: MSD Lab ID: QC122460

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	9.709	7.298	73	41-132	7	25
Benzene		NA				
Toluene		NA				
Ethylbenzene		NA				
m,p-Xylenes		NA				
o-Xylene		NA				

Surrogate	Result	%REC	Limits
Trifluorotoluene (FID)		121	62-138
Bromofluorobenzene (FID)		137	46-150
Trifluorotoluene (PID)	NA		
Bromofluorobenzene (PID)	NA		

NA= Not Analyzed
RPD= Relative Percent Difference

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Curtis & Tompkins Laboratories Analytical Report

Lab #:	146924	Location:	MLK Between 11th&12th
Client:	Subsurface Consultants	Prep:	EPA 5030
Project#:	272.054		
Field ID:	ZZZZZZZZZZ	Diln Fac:	1.000
MSS Lab ID:	146958-010	Batch#:	57639
Matrix:	Soil	Sampled:	08/08/00
Units:	ug/Kg	Received:	08/09/00
Basis:	wet	Analyzed:	08/12/00

Type: MS Lab ID: QC122617

Analyte	MSS Result	Spiked	Result	%REC	Limits	Analysis
Gasoline C7-C12		NA				
Benzene	ND	96.15	75.32	78	62-117	EPA 8021B
Toluene	ND	96.15	82.52	86	55-121	EPA 8021B
Ethylbenzene	ND	96.15	93.25	97	46-128	EPA 8021B
m,p-Xylenes	ND	192.3	189.4	99	33-141	EPA 8021B
o-Xylene	ND	96.15	92.42	96	40-136	EPA 8021B

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	115	62-138	EPA 8015M
Bromofluorobenzene (FID)	106	46-150	EPA 8015M
Trifluorotoluene (PID)	129	65-134	EPA 8021B
Bromofluorobenzene (PID)	126	55-138	EPA 8021B

Type: MSD Lab ID: QC122618

Analyte	Spiked	Result	%REC	Limits	RPD	Lim	Analysis
Gasoline C7-C12		NA					
Benzene	96.15	75.30	78	62-117	0	20	EPA 8021B
Toluene	96.15	80.08	83	55-121	3	20	EPA 8021B
Ethylbenzene	96.15	92.23	96	46-128	1	20	EPA 8021B
m,p-Xylenes	192.3	185.7	97	33-141	2	20	EPA 8021B
o-Xylene	96.15	91.26	95	40-136	1	20	EPA 8021B

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	113	62-138	EPA 8015M
Bromofluorobenzene (FID)	109	46-150	EPA 8015M
Trifluorotoluene (PID)	131	65-134	EPA 8021B
Bromofluorobenzene (PID)	129	55-138	EPA 8021B

ND = Not Detected
NA= Not Analyzed
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Total Extractable Hydrocarbons

Lab #:	146924	Location:	MLK Between 11th&12th
Client:	Subsurface Consultants	Prep:	SHAKER TABLE
Project#:	272.054	Analysis:	EPA 8015M
Matrix:	Soil	Batch#:	57677
Units:	mg/Kg	Sampled:	08/04/00
Basis:	wet	Received:	08/07/00
Diln Fac:	1.000	Prepared:	08/14/00

ield ID:	TP-1@5.0	Lab ID:	146924-003
ype:	SAMPLE	Analyzed:	08/18/00

Analyte	Result	RL
Diesel C10-C24	ND	1.0
Motor Oil C24-C36	ND	5.0

Surrogate	%REC	Limits
Hexacosane	74	60-136

ield ID:	TP-2@2.0	Lab ID:	146924-005
ype:	SAMPLE	Analyzed:	08/18/00

Analyte	Result	RL
Diesel C10-C24	ND	1.0
Motor Oil C24-C36	ND	5.0

Surrogate	%REC	Limits
Hexacosane	71	60-136

ield ID:	TP-3@6.0	Lab ID:	146924-009
ype:	SAMPLE	Analyzed:	08/16/00

Analyte	Result	RL
Diesel C10-C24	ND	0.99
Motor Oil C24-C36	ND	5.0

Surrogate	%REC	Limits
Hexacosane	81	60-136

ield ID:	TP-4@2.5	Lab ID:	146924-011
ype:	SAMPLE	Analyzed:	08/16/00

Analyte	Result	RL
Diesel C10-C24	6.3 H Y	1.0
Motor Oil C24-C36	46	5.0

Surrogate	%REC	Limits
Hexacosane	76	60-136

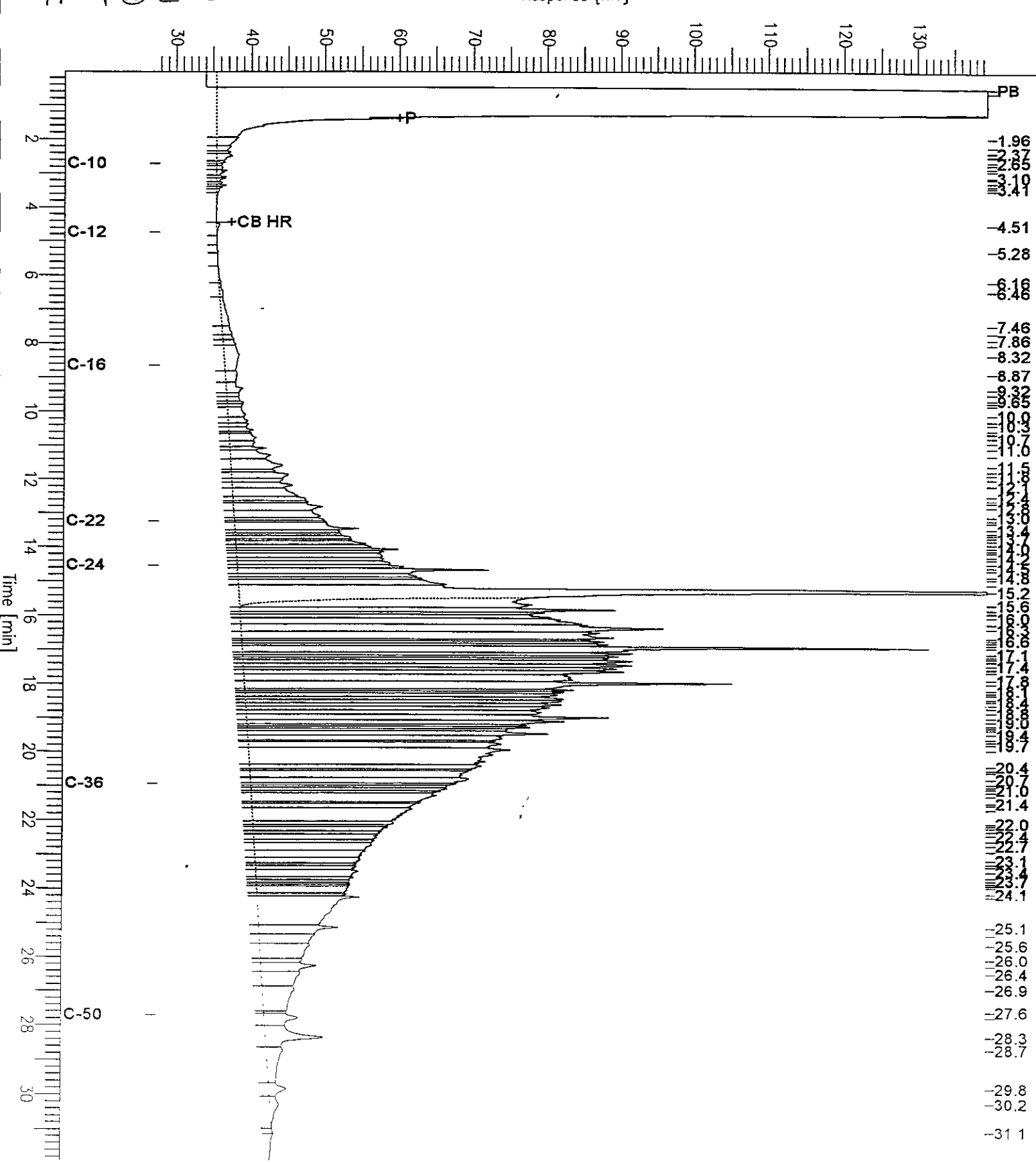
= Heavier hydrocarbons contributed to the quantitation
= Sample exhibits fuel pattern which does not resemble standard
D = Not Detected
L = Reporting Limit

Chromatogram

Sample Name : 146924-011sg,57677
FileName : G:\GC15\CHB\226B090.RAW
Method : BTEH216.MTH
Start Time : 0.01 min End Time : 31.91 min
Scale Factor: 0.0 Plot Offset: 28 mV

Sample #:
Date : 08/16/2000 10:50 AM
Time of Injection: 08/16/2000 08:37 AM
Low Point : 27.73 mV High Point : 139.52 mV
Plot Scale: 111.8 mV

TP-4 @ 2.5



Curtis & Tompkins, Ltd.

Total Extractable Hydrocarbons

Lab #:	146924	Location:	MLK Between 11th&12th
Client:	Subsurface Consultants	Prep:	SHAKER TABLE
Project#:	272.054	Analysis:	EPA 8015M
Matrix:	Soil	Batch#:	57677
Units:	mg/Kg	Sampled:	08/04/00
Basis:	wet	Received:	08/07/00
Diln Fac:	1.000	Prepared:	08/14/00

ield ID:	TP-5@2.0	Lab ID:	146924-014
ype:	SAMPLE	Analyzed:	08/18/00

Analyte	Result	RL
Diesel C10-C24	ND	1.0
Motor Oil C24-C36	ND	5.0

Surrogate	%REC	Limits
Hexacosane	86	60-136

ield ID:	TP-6@6.0	Lab ID:	146924-018
ype:	SAMPLE	Analyzed:	08/18/00

Analyte	Result	RL
Diesel C10-C24	ND	1.0
Motor Oil C24-C36	ND	5.0

Surrogate	%REC	Limits
Hexacosane	112	60-136

ield ID:	TP-7@2.0	Lab ID:	146924-020
ype:	SAMPLE	Analyzed:	08/18/00

Analyte	Result	RL
Diesel C10-C24	ND	1.0
Motor Oil C24-C36	ND	5.0

Surrogate	%REC	Limits
Hexacosane	66	60-136

ield ID:	TP-8@2.5	Lab ID:	146924-023
ype:	SAMPLE	Analyzed:	08/18/00

Analyte	Result	RL
Diesel C10-C24	4.6 H Y	1.0
Motor Oil C24-C36	36	5.0

Surrogate	%REC	Limits
Hexacosane	68	60-136

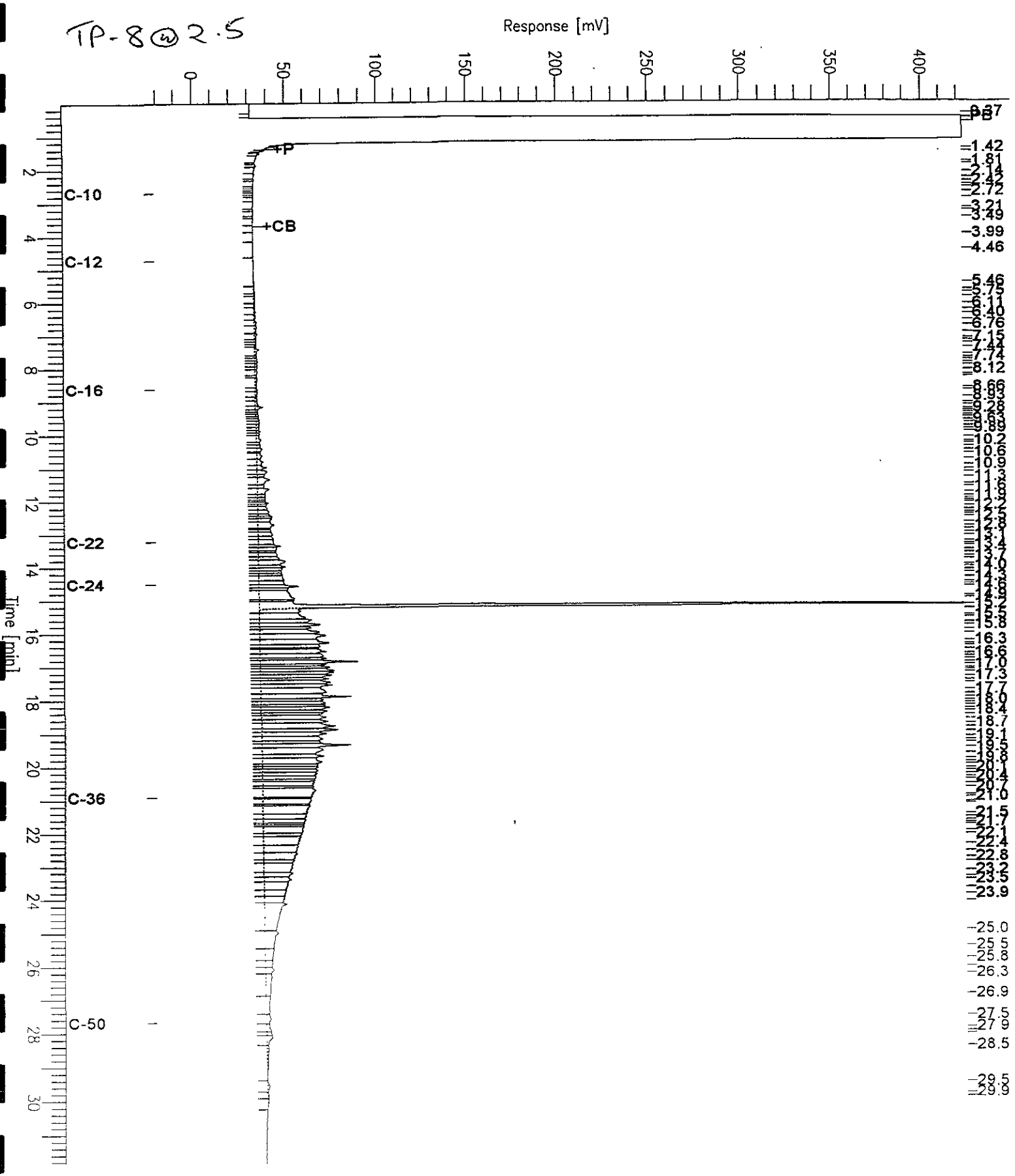
= Heavier hydrocarbons contributed to the quantitation
= Sample exhibits fuel pattern which does not resemble standard
D = Not Detected
L = Reporting Limit

Chromatogram

Sample Name : 146924-023sg,57677
FileName : G:\GC15\CHB\230B028.RAW
Method : BTEH216.MTH
Start Time : 0.01 min End Time : 31.91 min
Scale Factor: 0.0 Plot Offset: -21 mV

Sample #: 57677 Page 1 of 1
Date : 08/18/2000 08:50 AM
Time of Injection: 08/18/2000 05:51 AM
Low Point : -20.84 mV High Point : 423.05 mV
Plot Scale: 443.9 mV

TP-802.5



Curtis & Tompkins, Ltd.

Total Extractable Hydrocarbons

Lab #:	146924	Location:	MLK Between 11th&12th
Client:	Subsurface Consultants	Prep:	SHAKER TABLE
Project#:	272.054	Analysis:	EPA 8015M
Matrix:	Soil	Batch#:	57677
Units:	mg/Kg	Sampled:	08/04/00
Basis:	wet	Received:	08/07/00
Diln Fac:	1.000	Prepared:	08/14/00

ield ID:	TP-9@5.0	Lab ID:	146924-027
ype:	SAMPLE	Analyzed:	08/18/00

Analyte	Result	RL
Diesel C10-C24	ND	1.0
Motor Oil C24-C36	ND	5.0

Surrogate	%REC	Limits
Hexacosane	70	60-136

ield ID:	TP-10@2.0	Lab ID:	146924-029
ype:	SAMPLE	Analyzed:	08/18/00

Analyte	Result	RL
Diesel C10-C24	ND	1.0
Motor Oil C24-C36	ND	5.0

Surrogate	%REC	Limits
Hexacosane	83	60-136

ield ID:	TP-11@5.0	Lab ID:	146924-033
ype:	SAMPLE	Analyzed:	08/18/00

Analyte	Result	RL
Diesel C10-C24	ND	1.0
Motor Oil C24-C36	ND	5.0

Surrogate	%REC	Limits
Hexacosane	111	60-136

ield ID:	TP-12@2.0	Lab ID:	146924-035
ype:	SAMPLE	Analyzed:	08/18/00

Analyte	Result	RL
Diesel C10-C24	6.6 H Y,	1.0
Motor Oil C24-C36	81	5.0

Surrogate	%REC	Limits
Hexacosane	83	60-136

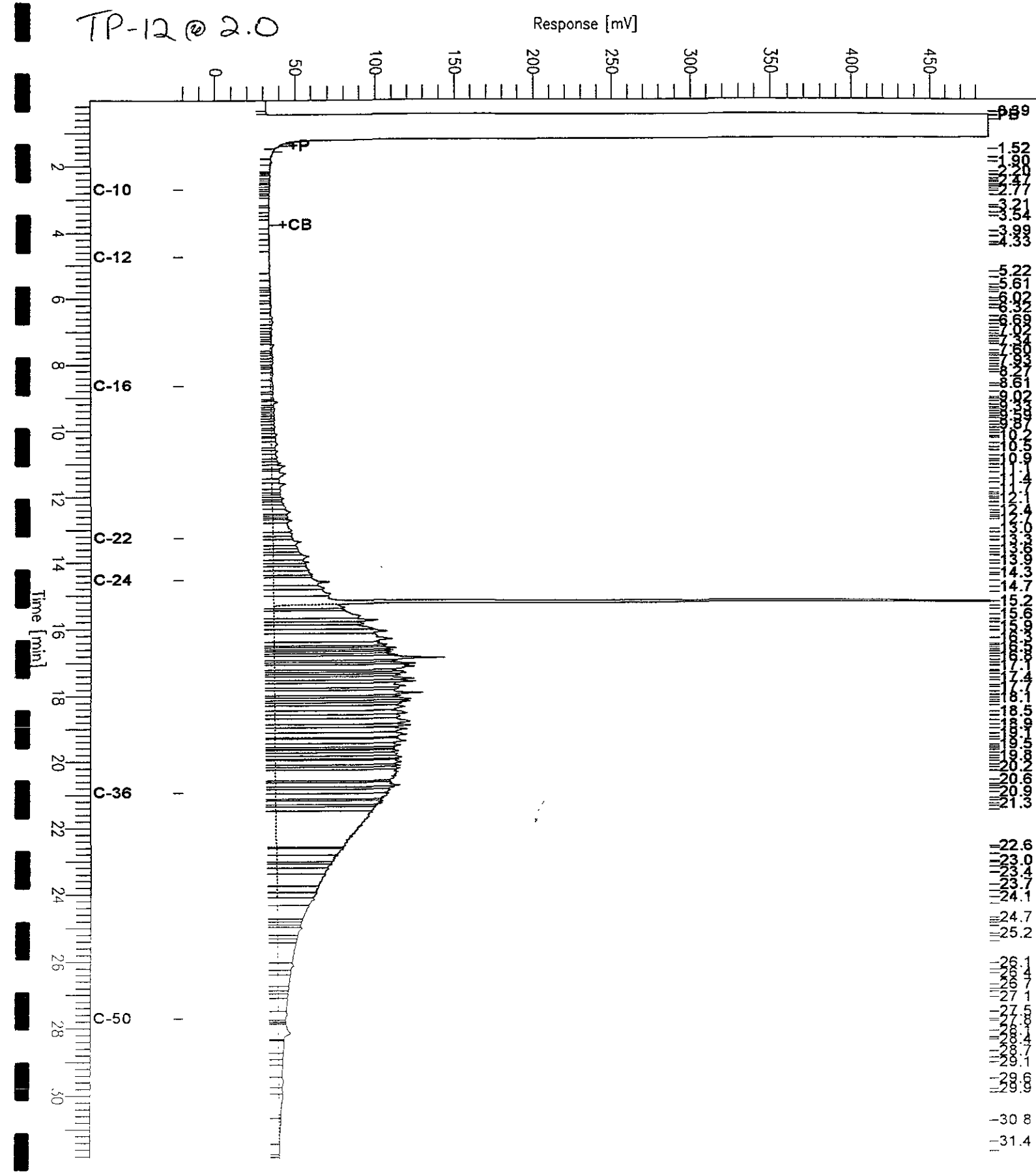
= Heavier hydrocarbons contributed to the quantitation
= Sample exhibits fuel pattern which does not resemble standard
) = Not Detected
L = Reporting Limit

Chromatogram

Sample Name : 146924-035sg,57677
FileName : G:\GC15\CHB\230B032.RAW
Method : BTEH216.MTH
Start Time : 0.01 min End Time : 31.91 min
Scale Factor: 0.0 Plot Offset: -21 mV

Sample #: 57677 Page 1 of 1
Date : 08/18/2000 09:18 AM
Time of Injection: 08/18/2000 08:43 AM
Low Point : -20.60 mV High Point : 488.23 mV
Plot Scale: 508.8 mV

TP-12 @ 2.0



Chromatogram

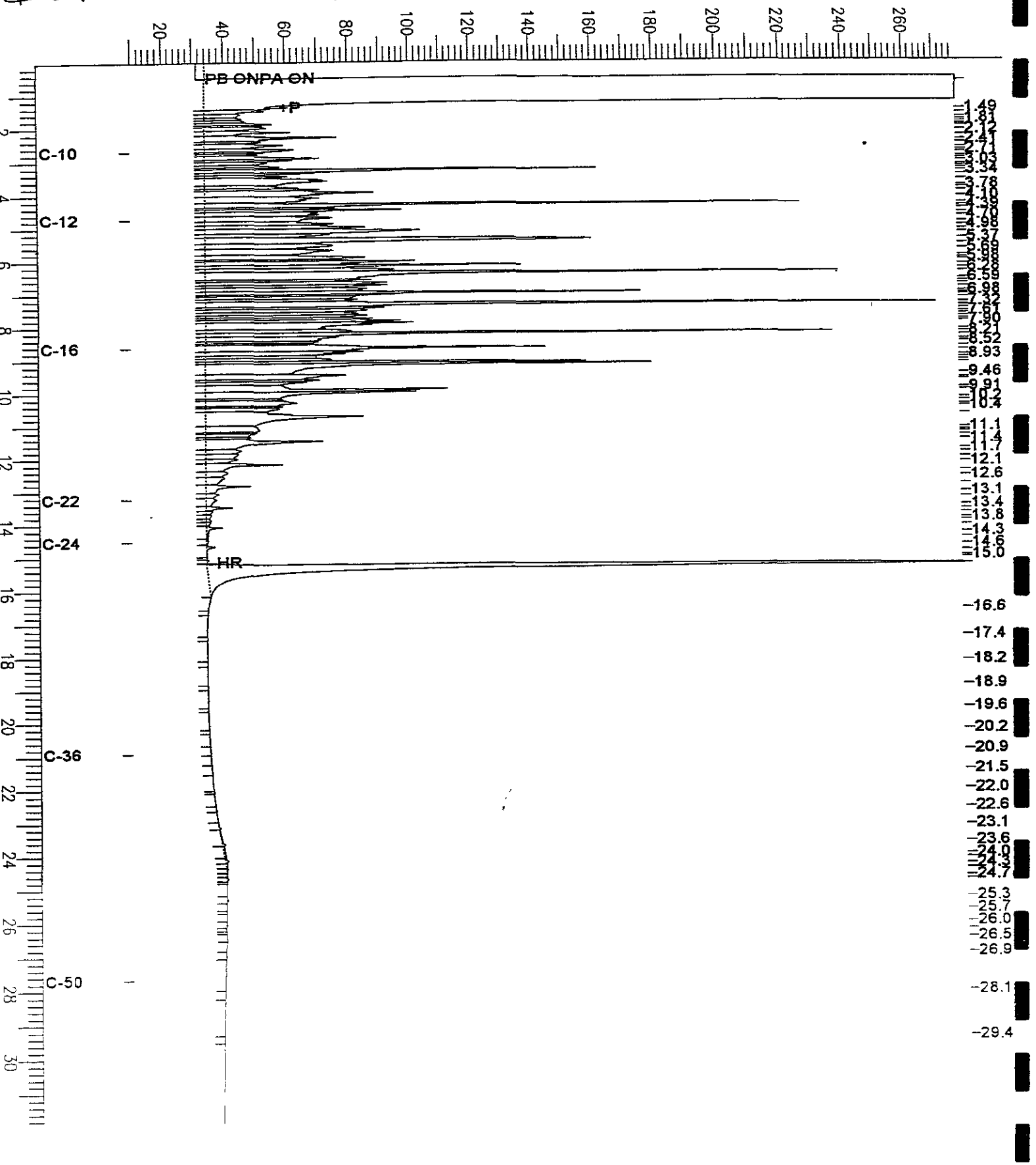
ie Name : ccv,00ws9475,dsl
Name : G:\GC15\CHB\226B002.RAW
od : BTEH216.MTH
t Time : 0.01 min
e Factor: 0.0

End Time : 31.91 min
Plot Offset: 10 mV

Sample #: 500mg/l
Date : 08/13/2000 12:52 PM
Time of Injection: 08/13/2000 12:15 PM
Low Point : 9.79 mV
Plot Scale: 267.9 mV

High Point : 277.71 mV

Diesel Standard



Chromatogram

mple Name : ccv,00ws9491,mo
ileName : G:\GC15\CHB\226B003.RAW
ethod : BTEH216.MTH
t Time : 0.01 min
e Factor: 0.0

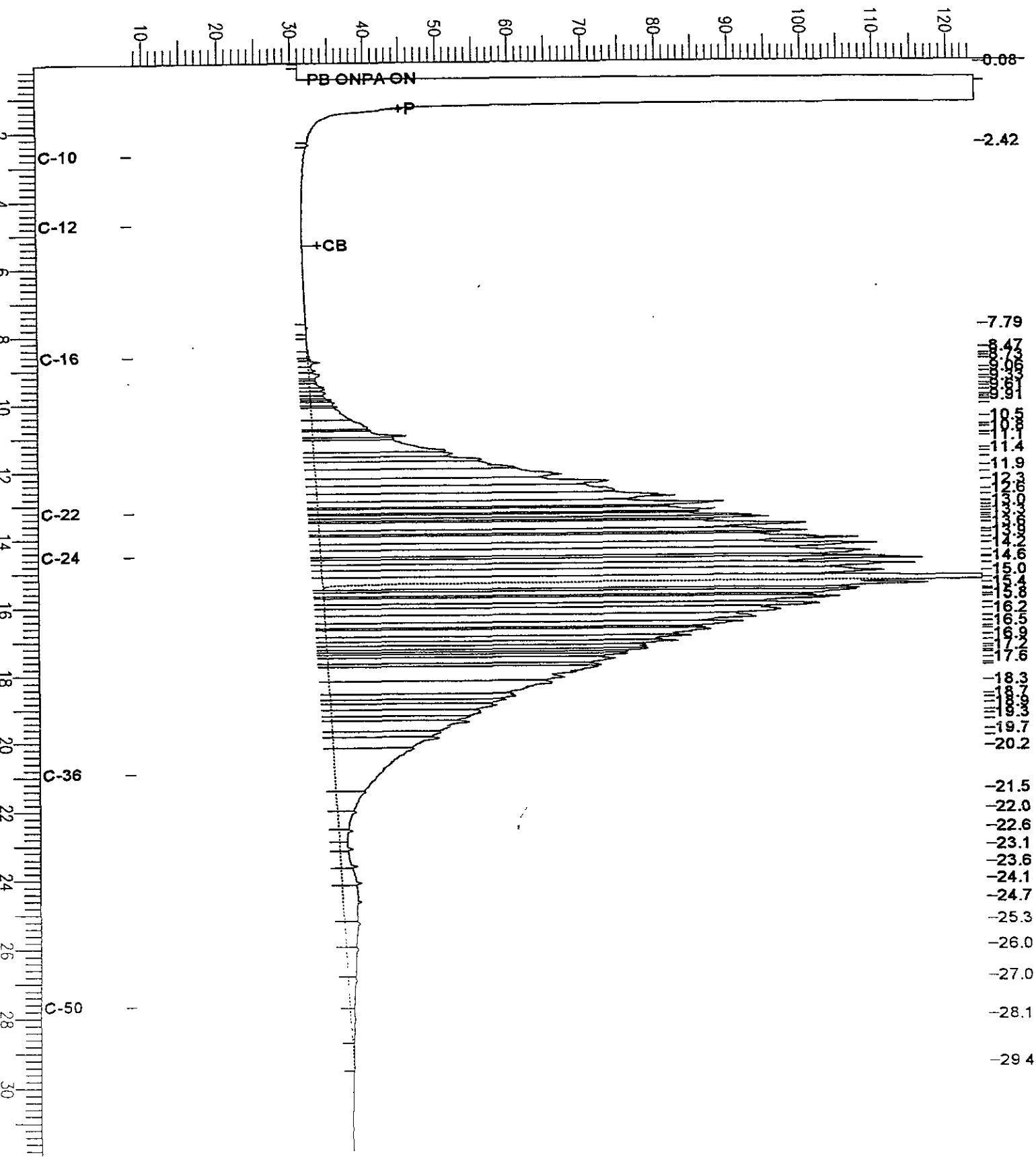
End Time : 31.91 min
Plot Offset: 9 mV

Sample #: 500mg/l
Date : 08/13/2000 01:31 PM
Time of Injection: 08/13/2000 12:58 PM
Low Point : 8.53 mV
Plot Scale: 115.3 mV

High Point : 123.79 mV

Motor Oil Standard

Response [mV]



Curtis & Tompkins, Ltd.

Total Extractable Hydrocarbons

Lab #:	146924	Location:	MLK Between 11th&12th
Client:	Subsurface Consultants	Prep:	SHAKER TABLE
Project#:	272.054	Analysis:	EPA 8015M
Matrix:	Soil	Batch#:	57677
Units:	mg/Kg	Sampled:	08/04/00
Basis:	wet	Received:	08/07/00
Diln Fac:	1.000	Prepared:	08/14/00

Type:	BLANK	Analyzed:	08/16/00
Lab ID:	QC122754		

Analyte	Result	RL
Diesel C10-C24	ND	1.0
Motor Oil C24-C36	ND	5.0

Surrogate	%REC	Limits
Hexacosane	73	60-136

[illegible] = Heavier hydrocarbons contributed to the quantitation
[illegible] = Sample exhibits fuel pattern which does not resemble standard
ND = Not Detected
RL = Reporting Limit

Curtis & Tompkins, Ltd.

Total Extractable Hydrocarbons

Lab #:	146924	Location:	MLK Between 11th&12th
Client:	Subsurface Consultants	Prep:	SHAKER TABLE
Project#:	272.054	Analysis:	EPA 8015M
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC122755	Batch#:	57677
Matrix:	Soil	Prepared:	08/14/00
Units:	mg/Kg	Analyzed:	08/15/00
Basis:	wet		

Analyte	Spiked	Result	%REC	Limits
Diesel C10-C24	47.09	36.28	77	67-121

Surrogate	%REC	Limits
Hexacosane	92	60-136

Curtis & Tompkins, Ltd.

Total Extractable Hydrocarbons

Lab #:	146924	Location:	MLK Between 11th&12th
Client:	Subsurface Consultants	Prep:	SHAKER TABLE
Project#:	272.054	Analysis:	EPA 8015M
Field ID:	ZZZZZZZZZZ	Batch#:	57677
MSS Lab ID:	146977-008	Sampled:	08/07/00
Matrix:	Soil	Received:	08/09/00
Units:	mg/Kg	Prepared:	08/14/00
Basis:	wet	Analyzed:	08/16/00
Diln Fac:	1.000		

Type: MS Lab ID: QC122756

Analyte	MSS Result	Spiked	Result	%REC	Limits
Diesel C10-C24	848.1	46.74	697.8 >LR	-322 NM	35-146

Surrogate	%REC	Limits
Hexacosane	76	60-136

Type: MSD Lab ID: QC122757

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Diesel C10-C24	46.75	423.9	-907 NM	35-146	NC	48

Surrogate	%REC	Limits
Hexacosane	78	60-136

NC = Not Calculated
NM = Not Meaningful
LR= Response exceeds instrument s linear range
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Lead

Lab #:	146924	Location:	MLK Between 11th&12th
Client:	Subsurface Consultants	Prep:	EPA 3050
Project#:	272.054	Analysis:	EPA 6010B
Analyte:	Lead	Sampled:	08/04/00
Matrix:	Soil	Received:	08/07/00
Units:	mg/Kg	Prepared:	08/08/00
Basis:	wet	Analyzed:	08/09/00
Diln Fac:	1.000		

Field ID	Type	Lab ID	Result	RL	Batch#
TP-1@0.0	SAMPLE	146924-001	160	0.15	57540
TP-1@2.0	SAMPLE	146924-002	3.1	0.15	57540
TP-1@5.0	SAMPLE	146924-003	3.6	0.15	57540
TP-2@0.0	SAMPLE	146924-004	20	0.14	57540
TP-2@2.0	SAMPLE	146924-005	1.6	0.15	57540
TP-2@5.0	SAMPLE	146924-006	2.1	0.15	57540
TP-3@0.0	SAMPLE	146924-007	160	0.15	57540
TP-3@3.0	SAMPLE	146924-008	1.8	0.15	57540
TP-3@6.0	SAMPLE	146924-009	7.0	0.15	57540
TP-4@0.0	SAMPLE	146924-010	170	0.15	57540
TP-4@2.5	SAMPLE	146924-011	86	0.15	57540
TP-4@6.0	SAMPLE	146924-012	91	0.14	57540
TP-5@0.0	SAMPLE	146924-013	110	0.15	57540
TP-5@2.0	SAMPLE	146924-014	4.5	0.15	57540
TP-5@6.0	SAMPLE	146924-015	2.4	0.15	57540
TP-6@0.0	SAMPLE	146924-016	190	0.15	57540
TP-6@2.5	SAMPLE	146924-017	1.9	0.15	57540
TP-6@6.0	SAMPLE	146924-018	2.0	0.15	57540
TP-7@0.0	SAMPLE	146924-019	220	0.15	57540
TP-7@2.0	SAMPLE	146924-020	2.1	0.15	57540
TP-7@6.0	SAMPLE	146924-021	2.5	0.15	57541
TP-8@0.0	SAMPLE	146924-022	220	0.14	57541
TP-8@2.5	SAMPLE	146924-023	180	0.15	57541
TP-8@6.0	SAMPLE	146924-024	1.7	0.15	57541
TP-9@0.0	SAMPLE	146924-025	220	0.15	57541
TP-9@2.0	SAMPLE	146924-026	1.4	0.15	57541
TP-9@5.0	SAMPLE	146924-027	1.3	0.15	57541
TP-10@0.0	SAMPLE	146924-028	150	0.14	57541
TP-10@2.0	SAMPLE	146924-029	1.9	0.15	57541
TP-10@5.0	SAMPLE	146924-030	2.2	0.15	57541
TP-11@0.0	SAMPLE	146924-031	200	0.15	57541
TP-11@2.0	SAMPLE	146924-032	15	0.15	57541
TP-11@5.0	SAMPLE	146924-033	1.9	0.14	57541
TP-12@0.0	SAMPLE	146924-034	72	0.14	57541
TP-12@2.0	SAMPLE	146924-035	110	0.15	57541
TP-12@5.0	SAMPLE	146924-036	19	0.15	57541
	BLANK	QC122233	0.19	0.15	57540
	BLANK	QC122238	ND	0.15	57541

ND = Not Detected
RL = Reporting Limit

Lead

Lab #:	146924	Location:	MLK Between 11th&12th
Client:	Subsurface Consultants	Prep:	EPA 3050
Project#:	272.054	Analysis:	EPA 6010B
Analyte:	Lead	Diln Fac:	1.000
Matrix:	Soil	Sampled:	08/04/00
Units	mg/Kg	Received:	08/07/00
Basis	wet	Prepared:	08/08/00

Field ID	Type	MSS Lab ID	Lab ID	MSS Result	Spiked	Result	RL	%REC	Limits	RPD	Lim	Batch#	Analyzed
	BS		QC122234		100.0	90.50		91	70-110			57540	08/11/00
	BSD		QC122235		100.0	94.00		94	70-110	4	20	57540	08/11/00
[illegible]	SDUP	146924-001	QC122236	161.1		167.8	0.15			4	40	57540	08/09/00
[illegible]	SSPIKD	146924 001	QC122237	161.1	96.62	231.9		73	31-133			57540	08/09/00
	BS		QC122239		100.0	79.00		79	70-110			57541	08/09/00
	BSD		QC122240		100.0	76.00		76	70-110	4	20	57541	08/09/00
[illegible]	SDUP	146924 021	QC122241	2.488		2.593	0.14			4	40	57541	08/09/00
[illegible]	SSPIKD	146924 021	QC122242	2.488	100.0	72.00		70	31-133			57541	08/09/00

RL - Reporting Limit
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

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

ANALYTICAL REPORT

Prepared for:

Subsurface Consultants
3736 Mt. Diablo Blvd.
Suite 200
Lafayette, CA 94549

Date: 13-SEP-00
Lab Job Number: 147277
Project ID: 272.054
Location: MLK Between 11th&12th

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signatures. The results contained in this report meet all requirements of NELAC and pertain only to those samples which were submitted for analysis.

Reviewed by: _____
Project Manager

Reviewed by: _____
Operations Manager

CURTIS & TOMPKINS, LTD. BERKELEY LOGIN CHANGE FORM

Reason for change ___X___ Client Request: By: G. Young Date/Time: 8/28 4:00 PM Initials: SES
_____ Login Review _____ Data Review

Current Lab ID	Previous Lab ID	Client ID	Matrix	Add/Cancel	Analysis	Duedate
147277-001	146924-012	TP-4@6'	Soil		—	9/5
-002	-024	TP-8@6'	↓		—	↓
-003	-036	TP-12@5'			—	
-004	—	COMP 1		Add	COMP3, WET Pb	
-005	146924-011	TP-4@2.5'			—	
-006	-023	TP-8@2.5'			—	
-007	-035	TP-12@2'			—	
-008	—	COMP 2	↓	Add	COMP3, WET Pb	↓

Curtis & Tompkins, Ltd.

Curtis & Tompkins, Ltd.

Lead

Lab #:	147277	Location:	MLK Between 11th&12th
Client:	Subsurface Consultants	Prep:	METHOD
Project#:	272.054	Analysis:	EPA 6010B
Analyte:	Lead	Sampled:	08/04/00
Matrix:	WET Leachate	Received:	08/07/00
Units:	ug/L	Prepared:	09/01/00
Diln Fac:	10.00	Analyzed:	09/05/00
Batch#:	58065		

Field ID	Type	Lab ID	Result	RL
COMP 1	SAMPLE	147277-004	3,600	150
COMP 2	SAMPLE	147277-008	7,700	150
	BLANK	QC124280	240	150

RL = Reporting Limit

Lead

Lab #:	147277	Location:	MLK Between 11th&12th
Client:	Subsurface Consultants	Prep:	METHOD
Project#:	27-054	Analysis:	EPA 6010B
Analyte:	Lead	Batch#:	58065
Field ID:	ZZZZZZZZZZ	Sampled:	06/16/00
MSS Lab ID:	147214-001	Received:	06/19/00
Matrix:	WET Leachate	Prepared:	09/01/00
Units:	ug/L	Analyzed:	09/05/00

Type	Lab ID	MSS Result	Spiked	Result	RL	%REC	Limits	RPD	Lim	Dln Fac
BS	QC124781		2,000	1,810		91	78-120			1.000
BSD	QC124782		2,000	1,830		92	78-120	1	20	1.000
DUP	QC124783	[illegible]		3,740	300			4	29	20.00
MS	QC124784	[illegible]	10,000	12,300		84	66-128			20.00

RL - Reporting Limit
RPD: Relative Percent Difference

Curtis & Tompkins, Ltd.

Subsurface Consultants, Inc.
3736 Mt. Diablo Blvd., Suite 200
Lafayette, CA 94549

Attn.: Mr. Glenn Young

Project: 272.054
11th-12th / mlk

Dear Glenn

Attached is our report for your samples received on Monday November 13, 2000
This report has been reviewed and approved for release. Reproduction of this report is permitted only in its entirety.

Please note that any unused portion of the samples will be discarded after December 28, 2000 unless you have requested otherwise. We appreciate the opportunity to be of service to you.
If you have any questions, please call me at (925) 484-1919. You can also contact me via email.
My email address is: gcook@chromalab.com

Sincerely,

Gary Cook

TCLP Lead

Subsurface Consultants, Inc.
✉ *3736 Mt. Diablo Blvd., Suite 200*
Lafayette, CA 94549

Attn: Glenn Young
Phone: (925) 299-7960 Fax: (925) 299-7970

Project #: 272.054
Project: 11th-12th / mlk

Samples Reported

Sample ID	Matrix	Date Sampled	Lab #
Q1-A,B,C,D	Soil	11/09/2000	1
Q2-A,B,C,D	Soil	11/09/2000	2
Q3-A,B,C,D	Soil	11/09/2000	3
Q4-A,B,C,D	Soil	11/09/2000	4
Q1-E,F,G,H	Soil	11/09/2000	5

CHROMALAB, INC.

Environmental Services (SDB)

Submission #: 2000-11-0250

To: **Subsurface Consultants, Inc.**
Attn.: Glenn Young

Test Method: 6010B
Prep Method: 3010A

TCLP Lead

Sample ID:	**Q1-A,B,C,D**	Lab Sample ID:	**2000-11-0250-001**
Project:	272.054 11th-12th / mlk	Received:	11/13/2000 14:40
		Extracted:	11/15/2000 06:54
Sampled:	11/09/2000	QC-Batch:	2000/11/15-01.15
Matrix:	Soil		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Lead	ND	0.50	mg/L	1.00	11/15/2000 10:45	

CHROMALAB, INC.

Environmental Services (SDB)

Submission #: 2000-11-0250

To: **Subsurface Consultants, Inc.**

Attn.: Glenn Young

Test Method: 6010B

Prep Method: 3010A

TCLP Lead

Sample ID:	**Q2-A,B,C,D**	Lab Sample ID:	**2000-11-0250-002**
Project:	272.054 11th-12th / mlk	Received:	11/13/2000 14:40
		Extracted:	11/15/2000 06:54
Sampled:	11/09/2000	QC-Batch:	2000/11/15-01.15
Matrix:	Soil		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Lead	ND	0.50	mg/L	1.00	11/15/2000 10:59	

CHROMALAB, INC.

Environmental Services (SDB)

Submission #: 2000-11-0250

To: **Subsurface Consultants, Inc.**
Attn.: Glenn Young

Test Method: 6010B
Prep Method: 3010A

TCLP Lead

Sample ID:	**Q3-A,B,C,D**	Lab Sample ID:	**2000-11-0250-003**
Project:	272.054 11th-12th / mlk	Received:	11/13/2000 14:40
		Extracted:	11/15/2000 06:54
Sampled:	11/09/2000	QC-Batch:	2000/11/15-01.15
Matrix:	Soil		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Lead	ND	0.50	mg/L	1.00	11/15/2000 11:03	

CHROMALAB, INC.

Environmental Services (SDB)

Submission #: 2000-11-0250

To: **Subsurface Consultants, Inc.**
Attn.: Glenn Young

Test Method: 6010B
Prep Method: 3010A

TCLP Lead

Sample ID:	**Q4-A,B,C,D**	Lab Sample ID:	**2000-11-0250-004**
Project:	272.054 11th-12th / mlk	Received:	11/13/2000 14:40
		Extracted:	11/15/2000 06:54
Sampled:	11/09/2000	QC-Batch:	2000/11/15-01.15
Matrix:	Soil		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Lead	ND	0.50	mg/L	1.00	11/15/2000 11:08	

To: **Subsurface Consultants, Inc.**
Attn.: Glenn Young

Test Method: 6010B
Prep Method: 3010A

TCLP Lead

Sample ID:	***Q1-E,F,G,H***	Lab Sample ID:	**2000-11-0250-005**
Project:	272.054 11th-12th / mlk	Received:	11/13/2000 14:40
		Extracted:	11/15/2000 06:54
Sampled:	11/09/2000	QC-Batch:	2000/11/15-01.15
Matrix:	Soil		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Lead	0.73	0.50	mg/L	1.00	11/15/2000 11:12	

CHROMALAB, INC.

Environmental Services (SDB)

Submission #: 2000-11-0250

To: **Subsurface Consultants, Inc.**
Attn.: Glenn Young

Test Method: 6010B
Prep Method: 3010A

Batch QC Report
TCLP Lead

Method Blank | **Soil** | **QC Batch # 2000/11/15-01.15**

MB: 2000/11/15-01.15-030 | Date Extracted: 11/15/2000 06:54

Compound	Result	Rep.Limit	Units	Analyzed	Flag
Lead	ND	0.50	mg/L	11/15/2000 10:17	

To: **Subsurface Consultants, Inc.**
Attn: Glenn Young

Test Method: 6010B
Prep Method: 3010A

Batch QC Report

TCLP Lead

Laboratory Control Spike (LCS/LCSD) **Soil** **QC Batch # 2000/11/15-01.15**

LCS: 2000/11/15-01.15-031 Extracted: 11/15/2000 06:54 Analyzed 11/15/2000 10:21
LCSD: 2000/11/15-01.15-032 Extracted: 11/15/2000 06:54 Analyzed 11/15/2000 10:26

Compound	Conc. [mg/L]		Exp.Conc. [mg/L]		Recovery [%]		RPD	Ctrl. Limits [%]		Flags	
	LCS	LCSD	LCS	LCSD	LCS	LCSD	[%]	Recovery	RPD	LCS	LCSD
Lead	4.81	5.08	5.00	5.00	96.2	101.6	5.5	80-120	20		

CHROMALAB, INC.

Environmental Services (SDB)

Submission #: 2000-11-0250

To: **Subsurface Consultants, Inc.**

Attn.: *Glenn Young*

Test Method: 6010B

Prep Method: 3010A

Batch QC Report

TCLP Lead

Matrix Spike (MS / MSD) **Soil** **QC Batch # 2000/11/15-01.15**

Sample ID: **Q1-A,B,C,D** Lab Sample ID: 2000-11-0250-001

MS: 2000/11/15-01.15-036 Extracted: 11/15/2000 06:54 Analyzed: 11/15/2000 10:50 Dilution: 1.0

MSD: 2000/11/15-01.15-037 Extracted: 11/15/2000 06:54 Analyzed: 11/15/2000 10:54 Dilution: 1.0

Compound	Conc. [mg/L]			Exp.Conc. [mg/L]		Recovery [%]		RPD	Ctrl. Limits [%]		Flags	
	MS	MSD	Sample	MS	MSD	MS	MSD	[%]	Recovery	RPD	MS	MSD
Lead	5.32	5.36	ND	5.00	5.00	106.4	107.2	0.7	75-125	20		

CHAIN OF CUSTODY FORM 2000-11-0250

48 hr TAT

PAGE 1 OF 2

PROJECT NAME: Hayward / MLK

JOB NUMBER: 270.054 LAB: C & T

PROJECT CONTACT: Glenn Young TURNAROUND: Standard

SAMPLED BY: Dan Park REQUESTED BY: Dan Park

LABORATORY I.D. NUMBER	SCI SAMPLE NUMBER	MATRIX: WATER	SOIL	WASTE	AIR	CONTAINERS: VOA	LITER	PINT	TUBE	BAG (sterile)	METHOD PRESERVED: HCL	H_2SO_4	HNO_3	ICE	NONE	SAMPLING DATE: MONTH	DAY	YEAR	TIME	NOTES: TCLP Lead
148661-1	Q1-A		X							X				X		11	09	00	1430	X
-2	Q1-B																		1330	
-5 composite -3	Q1-C																		1335	
-4	Q1-D																		1338	
-6	Q2-A																		2626	
-7	Q2-B																		2623	
-10 composite -8	Q2-C																		2620	
-9	Q2-D																		2641	
-11	Q3-A																		2631	
-12	Q3-B																		2633	
-14 composite -13	Q3-C																		2636	
	Q3-D																		2639	

PUSH

Received: ☒ Cold ☐ Ambient ☐ Intact ☒ On Ice

CHAIN OF CUSTODY RECORD

RELEASED BY: (Signature)	DATE / TIME	RECEIVED BY: (Signature)	DATE / TIME
Dan Park	11-10-00 12:55P	Lisa Dennett	11/10/00 12:55
Lisa Dennett	11/13/00 1:45	Dan Park	11/13/00 1:45P
Dan Park	11 13 00 14:45	Denise Harrington	11/13/00 1440
RELEASED BY: (Signature)	DATE / TIME	RECEIVED BY: (Signature)	DATE / TIME

COMMENTS & NOTES:

Composite then Analyze
Did not receive Q3-D

received B-4 @ 3.0'
Sampled 10/6/00 908
not on COC placed on hold

Preservation Correct? ☐ Yes ☐ No ☒ N/A

Subsurface Consultants, Inc.
171 - 12th Street, Suite 202, Oakland, CA 94607
(510) 268-0461 - FAX: (510) 268-0137
3736 Mt. Diablo Blvd., Ste. 200, Lafayette, CA 94549
(925) 299-7960 - (925) 299-7970

CHAIN OF CUSTODY FORM 2000-11-0258

PAGE 2 OF 2

PROJECT NAME: 11th St. - 12th St. / MLK

JOB NUMBER: 212.054 LAB: C&T

PROJECT CONTACT: Glenn Young TURNAROUND: Standard

SAMPLED BY: Dan Park REQUESTED BY: Dan Park

LABORATORY I.D. NUMBER	SCI SAMPLE NUMBER	MATRIX: WATER	SOIL	WASTE	AIR			CONTAINERS: VOA	LITER	PINT	TUBE	2 pint BAG		METHOD PRESERVED: HCL	H_2SO_4	HNO_3	ICE	NONE	SAMPLING DATE: MONTH	DAY	YEAR	TIME	NOTES	ANALYSIS REQUESTED: TCLP LEAD
14866 -15	124-A		X									X					X		11	09	00	15:57		X
-16	24-B																					53		
-17 COMPOSITE	24-C																					50		
-18	24-D																					46		
-20	21-E@2.5																							
-21 COMPOSITE	21-F@2.5																				16	06		
-22	21-G@2.5																					10		
-23	21-H@2.5																					17		
																						21		

RUSH

CHAIN OF CUSTODY RECORD

RELEASED BY: (Signature)	DATE / TIME	RECEIVED BY: (Signature)	DATE / TIME
Dan Park	11.10.00 12:55pm	Lisa Schnell	11/10 12:55
Lisa Schnell	11/13/00 1:45	Dan Park	11/13/00 1:45p
Dan Park	11 13 00 14:40	Denise Harrington	11/13/00 1440
RELEASED BY: (Signature)	DATE / TIME	RECEIVED BY: (Signature)	DATE / TIME

COMMENTS & NOTES: Composite & Analyze.

Received: ☒ On Ice ☒ Cold ☐ Ambient ☐ Intact

Preservation Correct? ☐ Yes ☐ No ☒ N/A

Subsurface Consultants, Inc.
171 - 12th Street, Suite 202, Oakland, CA 94607
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3736 Mt. Diablo Blvd., Ste. 200, Lafayette, CA 94549
(925) 299-7960 - (925) 299-7970

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

ANALYTICAL REPORT

Prepared for:

Subsurface Consultants
3736 Mt. Diablo Blvd.
Suite 200
Lafayette, CA 94549

Date: 08-MAR-01
Lab Job Number: 150646
Project ID: 272.054
Location: MLK Jr. Way

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signatures. The results contained in this report meet all requirements of NELAC and pertain only to those samples which were submitted for analysis.

Reviewed by: _____
Project Manager

Reviewed by: _____
Operations Manager

Curtis & Tompkins, Ltd.

Laboratory Number: **150646** Receipt Date: **03/02/01**
Client: **Subsurface Consultants, Inc.**
Project Name: **MLK Jr. Way**

CASE NARRATIVE

This hardcopy data package contains sample results and batch QC results for one soil and three water samples received from the above referenced project. The samples were received cold and intact.

Total Volatile Hydrocarbons: The bromofluorobenzene surrogate recovery for sample TW-1 @ 18.5' (150646-002) was outside acceptance limits due to coelution of the surrogate peak with hydrocarbon peaks. The associated trifluorotoluene surrogate recovery was acceptable. No other analytical problems were encountered.

Total Extractable Hydrocarbons: The matrix spike duplicate recovery for diesel was outside acceptance limits. The associated matrix spike and laboratory control sample (LCS) recoveries were acceptable. No other analytical problems were encountered.

Volatile Organic Compounds: No analytical problems were encountered.

150696

CHAIN OF CUSTODY FORM

PAGE ____ OF ____

PROJECT NAME: MLK Jr. Way
JOB NUMBER: 272.05H
PROJECT CONTACT: Glenn Young
SAMPLED BY: John Wolbe
LAB: C&T
TURNAROUND: 24hr
REQUESTED BY: Glenn Young

LABORATORY ID NUMBER	SCI SAMPLE NUMBER	MATRIX: WATER	SOIL	WASTE	AIR			CONTAINERS: VOA	LITER	PINT	TUBE			METHOD PRESERVED: HCL	H_2SO_4	HNO_3	ICE	NONE		SAMPLING DATE: MONTH	DAY	YEAR	TIME	NOTES	ANALYSIS REQUESTED: TPHg (8015m)	TEHg (8015m)	MTBE VOCs (8260)
150696-1	TW-1	X						X	X					X			X	X		03	02	01		(1)	++	+	+
-2	TW-1@18.5'		X								X						X			03	02	01		(1)	+	+	+

Preservation Correct? ☒ Yes ☐ No ☐ N/A

CHAIN OF CUSTODY RECORD

RELEASED BY (Signature)	DATE / TIME	RECEIVED BY: (Signature)	DATE / TIME
[signature]	3/2/01 1715	[signature]	3/2/01 1715
RELEASED BY (Signature)	DATE / TIME	RECEIVED BY: (Signature)	DATE / TIME
RELEASED BY (Signature)	DATE / TIME	RECEIVED BY: (Signature)	DATE / TIME
RELEASED BY (Signature)	DATE / TIME	RECEIVED BY: (Signature)	DATE / TIME

COMMENTS & NOTES:
(1) with silica gel clean up

Received ☒ On Ice ☐ Cold ☐ Ambient ☒ Intact

Subsurface Consultants, Inc.
171 12TH STREET, SUITE 201, OAKLAND, CALIFORNIA 94607
(510) 268-0461 • FAX: 510-268-0137

CHAIN OF CUSTODY FORM

PAGE ___ OF ___

PROJECT NAME: MLK Jr. Way
JOB NUMBER: 272.054 LAB: CST
PROJECT CONTACT: Glenn Young TURNAROUND: 24 hr
SAMPLED BY: Obi Nzeni REQUESTED BY: Glenn Young

LABORATORY I.D. NUMBER	SCI SAMPLE NUMBER	MATRIX: WATER	SOIL	WASTE	AIR	CONTAINERS: VOA(6)	LITER(2)	PINT	TUBE	METHOD PRESERVED: HCL	H_2SO_4	HNO_3	ICE	NONE	SAMPLING DATE: MONTH	DAY	YEAR	TIME	NOTES	ANALYSIS REQUESTED: TPHg (8015m)	TPHd (8015m) w/silica gel	VOCs (8260)	X MTBE
150146-3	IW-2	X				X	X			X			X	X	03	02	01		①	X	X	X	X

CHAIN OF CUSTODY RECORD

RELEASED BY: (Signature)	DATE / TIME	RECEIVED BY: (Signature)	DATE / TIME
[signature]	3/2/01 1715	[signature]	3/2/01 1715
RELEASED BY: (Signature)	DATE / TIME	RECEIVED BY: (Signature)	DATE / TIME
RELEASED BY: (Signature)	DATE / TIME	RECEIVED BY: (Signature)	DATE / TIME
RELEASED BY (Signature)	DATE / TIME	RECEIVED BY: (Signature)	DATE / TIME

COMMENTS & NOTES:
① with silica gel cleanup

Subsurface Consultants, Inc.
171 12TH STREET, SUITE 201, OAKLAND, CALIFORNIA 94607
(510) 268-0461 • FAX: 510-268-0137

CHAIN OF CUSTODY FORM

PAGE OF

PROJECT NAME: MLK Jr Way

JOB NUMBER: 272.05H LAB: C&T

PROJECT CONTACT: Glenn Young TURNAROUND: 24hr

SAMPLED BY: John Wolbe REQUESTED BY: Glenn Young

LABORATORY I.D. NUMBER	SCI SAMPLE NUMBER	MATRIX						CONTAINERS						METHOD PRESERVED					SAMPLING DATE				NOTES	ANALYSIS REQUESTED										
		WATER	SOIL	WASTE	AIR			VOA	LITER	PINT	TUBE			HCL	H_2SO_4	HNO_3	ICE	NONE	MONTH	DAY	YEAR	TIME			TPHg (8015m)	TEPH (8015m)	VOCs (8260)	MTBE					
150646-4	TW-3	X						X	X					X			X	X	03	02	01			X	X	X	X							

CHAIN OF CUSTODY RECORD

RELEASED BY (Signature)	DATE / TIME	RECEIVED BY: (Signature)	DATE / TIME
	3/2/01 1715		3/2/01 1715
RELEASED BY (Signature)	DATE / TIME	RECEIVED BY: (Signature)	DATE / TIME
RELEASED BY (Signature)	DATE / TIME	RECEIVED BY: (Signature)	DATE / TIME
RELEASED BY: (Signature)	DATE / TIME	RECEIVED BY: (Signature)	DATE / TIME

COMMENTS & NOTES:
O with silica gel clean up.

Subsurface Consultants, Inc.
171 12TH STREET, SUITE 201, OAKLAND, CALIFORNIA 94607
(510) 268-0461 • FAX: 510-268-0137

Curtis & Tompkins, Ltd.

Gasoline by GC/FID CA LUFT

Lab #:	150646	Location:	MLK Jr. Way
Client:	Subsurface Consultants	Prep:	EPA 5030
Project#:	272.054	Analysis:	EPA 8015M
Matrix:	Water	Sampled:	03/02/01
Units:	ug/L	Received:	03/02/01

Field ID:	TW-1	Diln Fac:	50.00
Type:	SAMPLE	Batch#:	61940
Lab ID:	150646-001	Analyzed:	03/05/01

Analyte	Result	RL
Gasoline C7-C12	96,000	2,500

Surrogate	%REC	Limits
Trifluorotoluene (FID)	109	59-135
Bromofluorobenzene (FID)	109	60-140

Field ID:	TW-2	Diln Fac:	1.000
Type:	SAMPLE	Batch#:	61934
Lab ID:	150646-003	Analyzed:	03/03/01

Analyte	Result	RL
Gasoline C7-C12	120	50

Surrogate	%REC	Limits
Trifluorotoluene (FID)	99	59-135
Bromofluorobenzene (FID)	77	60-140

Field ID:	TW-3	Diln Fac:	1.000
Type:	SAMPLE	Batch#:	61934
Lab ID:	150646-004	Analyzed:	03/03/01

Analyte	Result	RL
Gasoline C7-C12	70 Y Z	50

Surrogate	%REC	Limits
Trifluorotoluene (FID)	101	59-135
Bromofluorobenzene (FID)	80	60-140

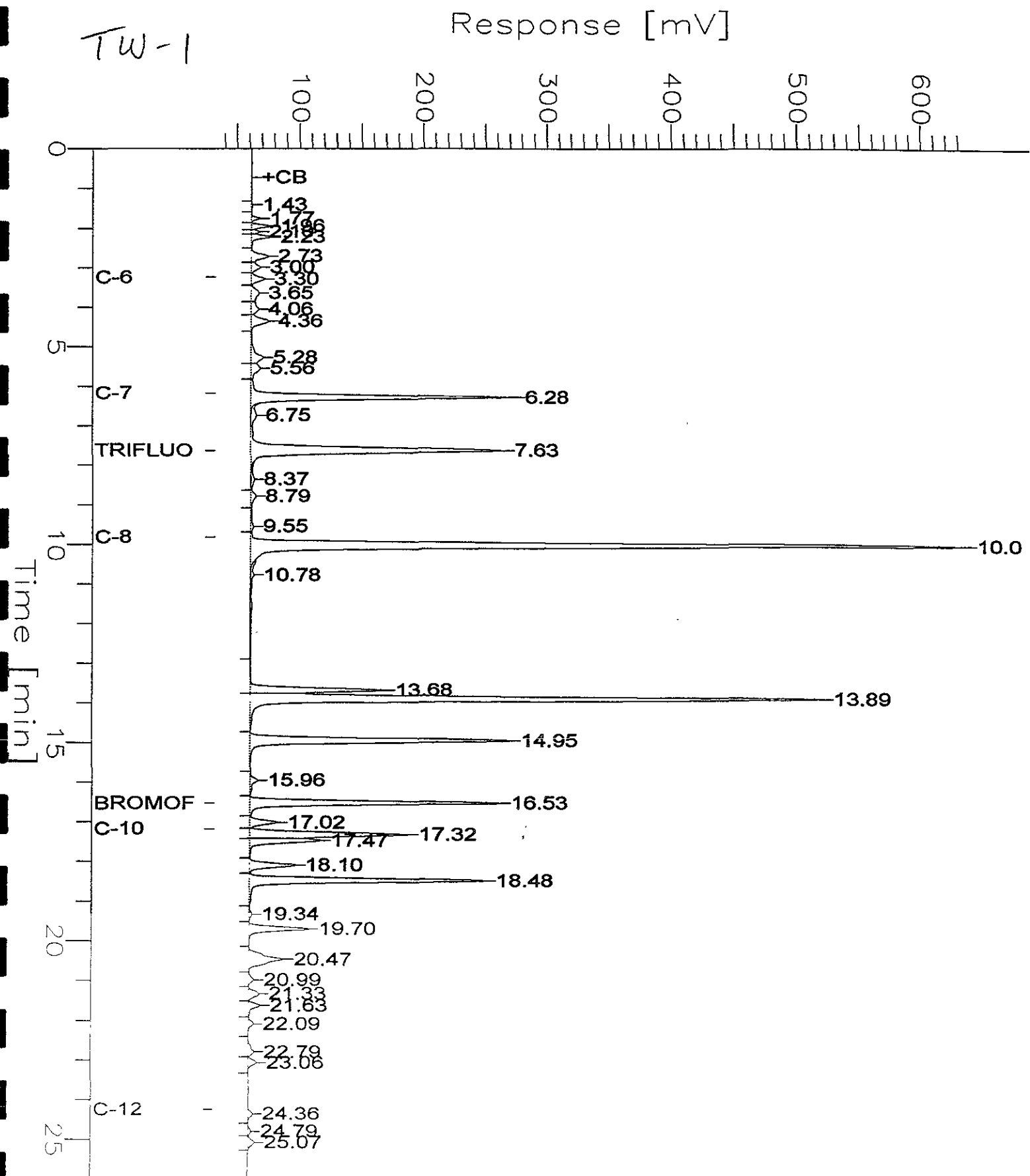
Y= Sample exhibits fuel pattern which does not resemble standard
Z= Sample exhibits unknown single peak or peaks
ND= Not Detected
RL= Reporting Limit

GC04 TVH 'J' Data File FID

Sample Name : 150646-001,61940,TVH ONLY
FileName : G:\GC04\DATA\064J011.raw
Method : TVHBTXE
Start Time : 0.00 min End Time : 26.00 min
Scale Factor: 1.0 Plot Offset: 32 mV

Sample #: A1 Page 1 of 1
Date : 3/5/01 03:59 PM
Time of Injection: 3/5/01 03:32 PM
Low Point : 32.16 mV High Point : 637.19 mV
Plot Scale: 605.0 mV

TW-1

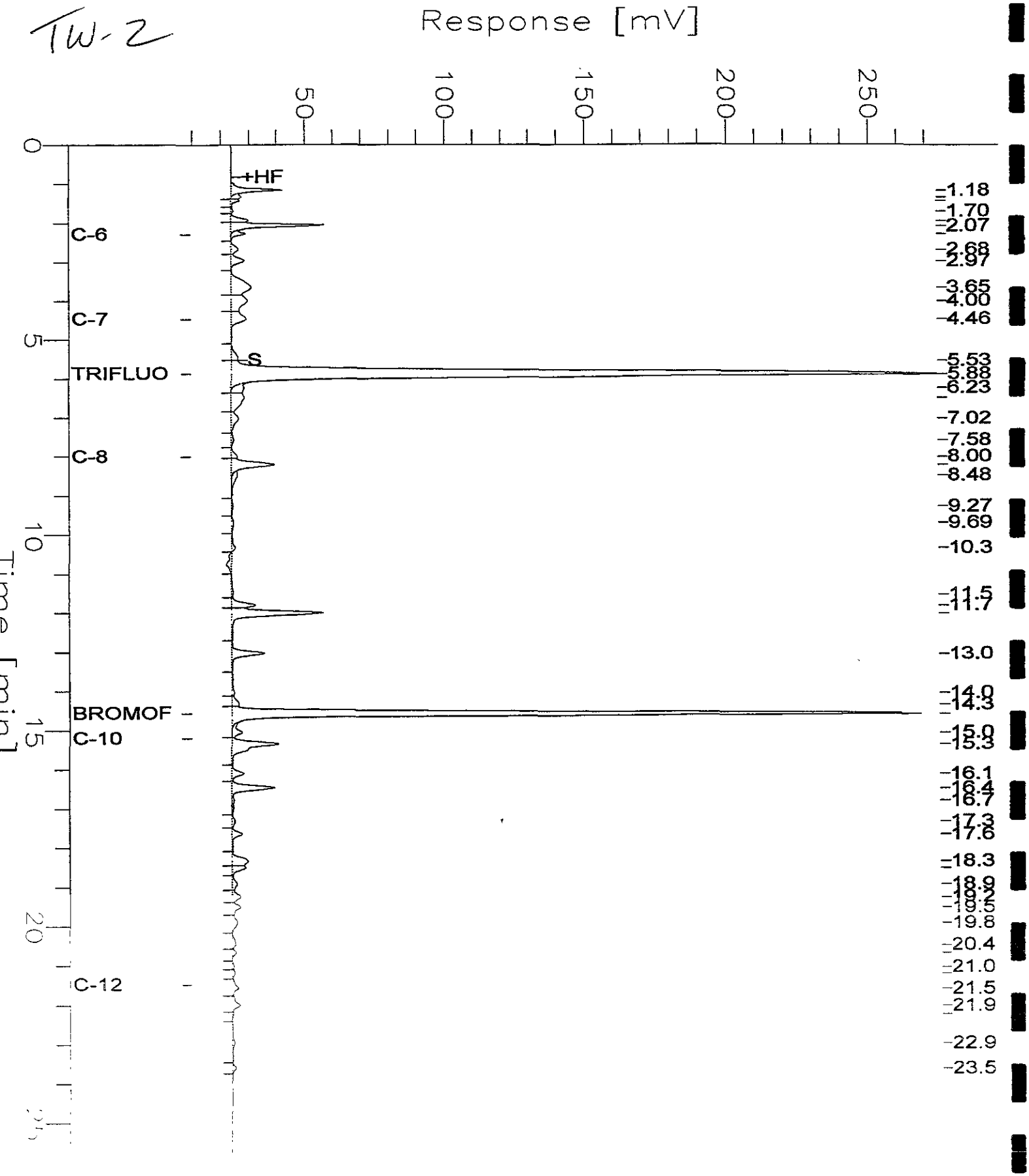


GC07 TVH 'A' Data File RTX 502

mple Name : 150646-003,61934,TVH ONLY
leName : G:\GC07\DATA\061A029.raw
thod : TVHBTXE
art Time : 0.00 min End Time : 26.00 min
ale Factor: 1.0 Plot Offset: 9 mV

Sample #: A1 Page 1 of 1
Date : 3/5/01 02:35 PM
Time of Injection: 3/3/01 10:07 AM
Low Point : 9.33 mV High Point : 274.52 mV
Plot Scale: 265.2 mV

TW-2

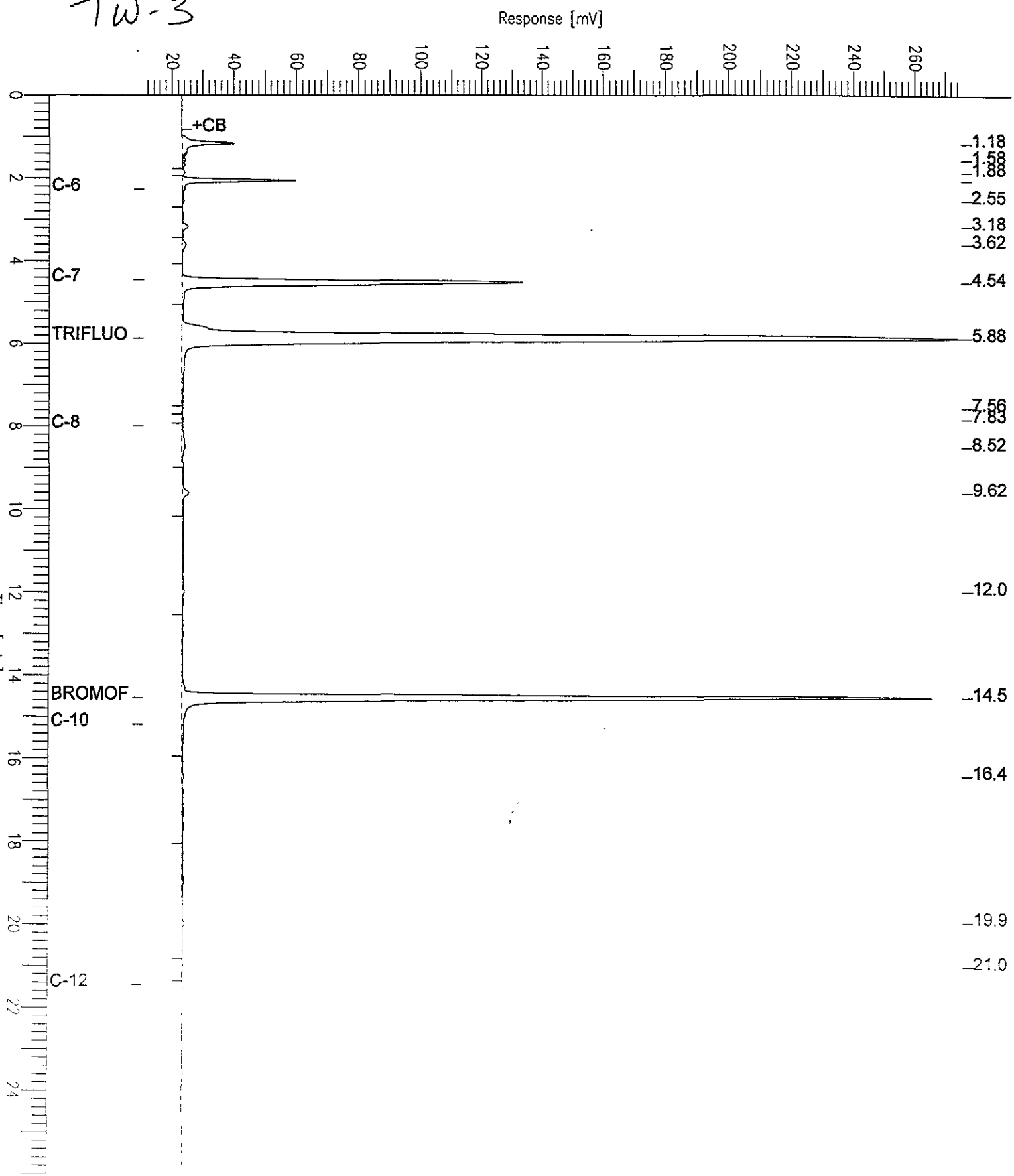


GC07 TVH 'A' Data File RTX 502

Sample Name : 150646-004,61934,TVH ONLY
FileName : G:\GC07\DATA\061A028.raw
Method : TVHBTXE
Start Time : 0.00 min End Time : 26.00 min
Scale Factor: 1.0 Plot Offset: 10 mV

Sample #: A2 Page 1 of 1
Date : 3/3/01 09:59 AM
Time of Injection: 3/3/01 09:33 AM
Low Point : 10.48 mV High Point : 275.07 mV
Plot Scale: 264.6 mV

TW-3

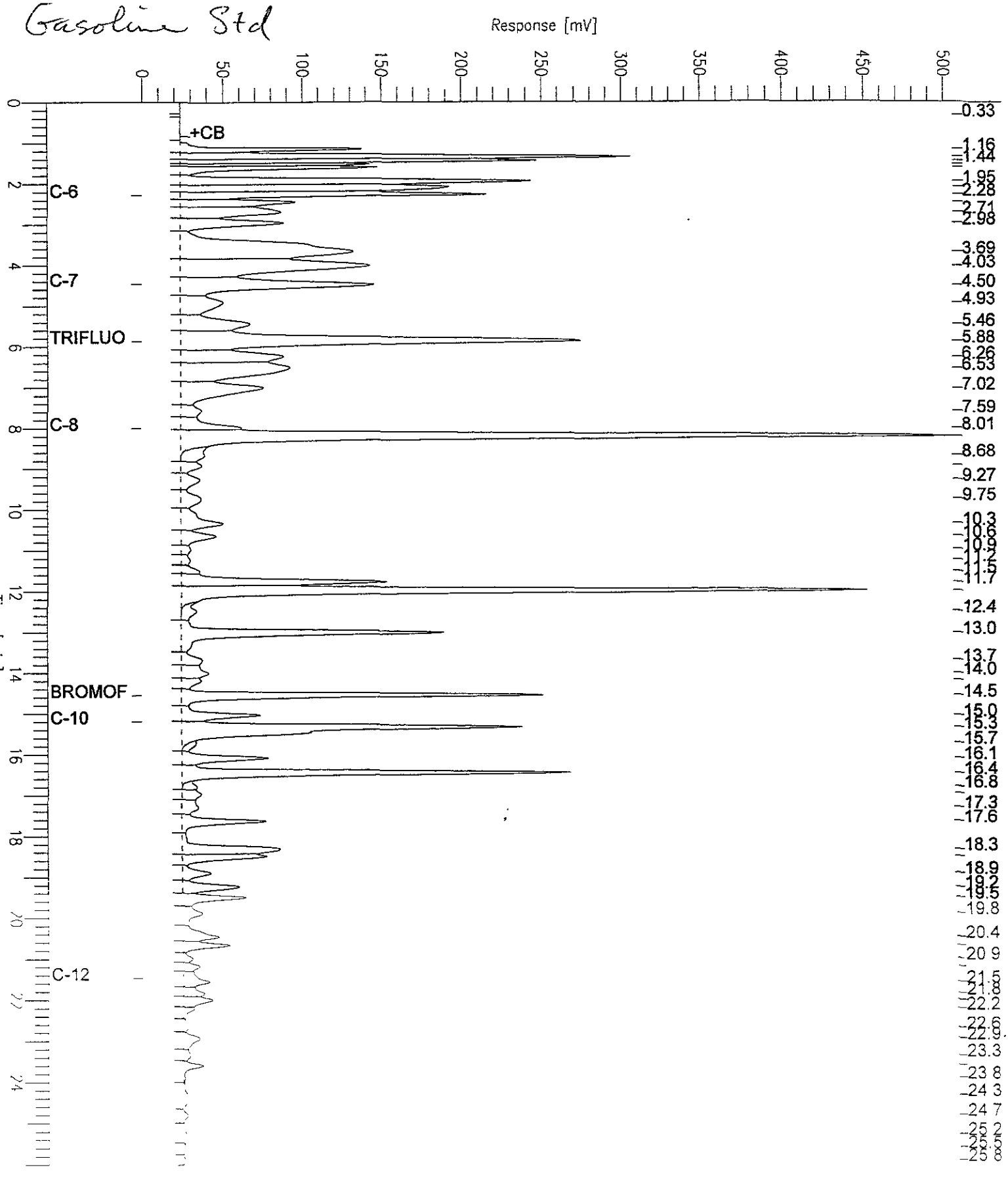


GC07 TVH 'A' Data File RTX 502

mple Name : CCV/LCS,QC139059,61934,01WS0395,5/5000
leName : G:\GC07\DATA\061A013.raw
thod : TVHBTXE
art Time : 0.00 min End Time : 26.00 min
ale Factor: 1.0 Plot Offset: -1 mV

Sample #:
Date : 3/3/01 01:34 AM
Time of Injection: 3/3/01 01:08 AM
Low Point : -0.73 mV High Point : 505.62 mV
Plot Scale: 506.4 mV

Gasoline Std



Curtis & Tompkins, Ltd.

Gasoline by GC/FID CA LUFT

Lab #:	150646	Location:	MLK Jr. Way
Client:	Subsurface Consultants	Prep:	EPA 5030
Project#:	272.054	Analysis:	EPA 8015M
Matrix:	Water	Sampled:	03/02/01
Units:	ug/L	Received:	03/02/01

Type:	BLANK	Batch#:	61934
Lab ID:	QC139058	Analyzed:	03/03/01
Diln Fac:	1.000		

Analyte	Result	RL
Gasoline C7-C12	ND	50

Surrogate	%REC	Limits
Trifluorotoluene (FID)	90	59-135
Bromofluorobenzene (FID)	68	60-140

Type:	BLANK	Batch#:	61940
Lab ID:	QC139082	Analyzed:	03/05/01
Diln Fac:	1.000		

Analyte	Result	RL
Gasoline C7-C12	ND	50

Surrogate	%REC	Limits
Trifluorotoluene (FID)	101	59-135
Bromofluorobenzene (FID)	100	60-140

Y= Sample exhibits fuel pattern which does not resemble standard
Z= Sample exhibits unknown single peak or peaks
ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Gasoline by GC/FID CA LUFT

Lab #:	150646	Location:	MLK Jr. Way
Client:	Subsurface Consultants	Prep:	EPA 5030
Project#:	272.054	Analysis:	EPA 8015M
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC139059	Batch#:	61934
Matrix:	Water	Analyzed:	03/03/01
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	2,000	1,981	99	73-121

Surrogate	%REC	Limits
Trifluorotoluene (FID)	111	59-135
Bromofluorobenzene (FID)	74	60-140

Curtis & Tompkins, Ltd.

Gasoline by GC/FID CA LUFT

Lab #:	150646	Location:	MLK Jr. Way
Client:	Subsurface Consultants	Prep:	EPA 5030
Project#:	272.054	Analysis:	EPA 8015M
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC139083	Batch#:	61940
Matrix:	Water	Analyzed:	03/05/01
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	2,000	2,127	106	73-121

Surrogate	%REC	Limits
Trifluorotoluene (FID)	115	59-135
Bromofluorobenzene (FID)	104	60-140

Curtis & Tompkins, Ltd.

Gasoline by GC/FID CA LUFT

Lab #:	150646	Location:	MLK Jr. Way
Client:	Subsurface Consultants	Prep:	EPA 5030
Project#:	272.054	Analysis:	EPA 8015M
Field ID:	ZZZZZZZZZZ	Batch#:	61934
MSS Lab ID:	150586-001	Sampled:	02/28/01
Matrix:	Water	Received:	02/28/01
Units:	ug/L	Analyzed:	03/03/01
Diln Fac:	1.000		

Type: MS Lab ID: QC139060

Analyte	MSS Result	Spiked	Result	%REC	Limits
Gasoline C7-C12	1,262	2,000	3,136	94	65-131

Surrogate	%REC	Limits
Trifluorotoluene (FID)	100	59-135
Bromofluorobenzene (FID)	80	60-140

Type: MSD Lab ID: QC139061

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	2,000	3,133	94	65-131	0	20

Surrogate	%REC	Limits
Trifluorotoluene (FID)	100	59-135
Bromofluorobenzene (FID)	79	60-140

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Gasoline by GC/FID CA LUFT

Lab #:	150646	Location:	MLK Jr. Way
Client:	Subsurface Consultants	Prep:	EPA 5030
Project#:	272.054	Analysis:	EPA 8015M
Field ID:	ZZZZZZZZZZ	Batch#:	61940
MSS Lab ID:	150612-001	Sampled:	03/01/01
Matrix:	Water	Received:	03/01/01
Units:	ug/L	Analyzed:	03/06/01
Diln Fac:	1.000		

Type: MS Lab ID: QC139084

Analyte	MSS Result	Spiked	Result	%REC	Limits
Gasoline C7-C12	<21.00	2,000	2,069	103	65-131

Surrogate	%REC	Limits
Trifluorotoluene (FID)	119	59-135
Bromofluorobenzene (FID)	110	60-140

Type: MSD Lab ID: QC139085

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	2,000	2,124	106	65-131	3	20

Surrogate	%REC	Limits
Trifluorotoluene (FID)	120	59-135
Bromofluorobenzene (FID)	112	60-140

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Gasoline by GC/FID CA LUFT

Lab #:	150646	Location:	MLK Jr. Way
Client:	Subsurface Consultants	Prep:	EPA 5030
Project#:	272.054	Analysis:	EPA 8015M
Field ID:	TW-1@18.5'	Batch#:	61941
Matrix:	Soil	Sampled:	03/02/01
Units:	mg/Kg	Received:	03/02/01
Basis:	wet		

Type:	SAMPLE	Diln Fac:	25.00
Lab ID:	150646-002	Analyzed:	03/04/01

Analyte	Result	RL
Gasoline C7-C12	680	25

Surrogate	%REC	Limits
Trifluorotoluene (FID)	131	62-138
Bromofluorobenzene (FID)	164 *	46-150

Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC139087	Analyzed:	03/03/01

Analyte	Result	RL
Gasoline C7-C12	ND	1.0

Surrogate	%REC	Limits
Trifluorotoluene (FID)	105	62-138
Bromofluorobenzene (FID)	111	46-150

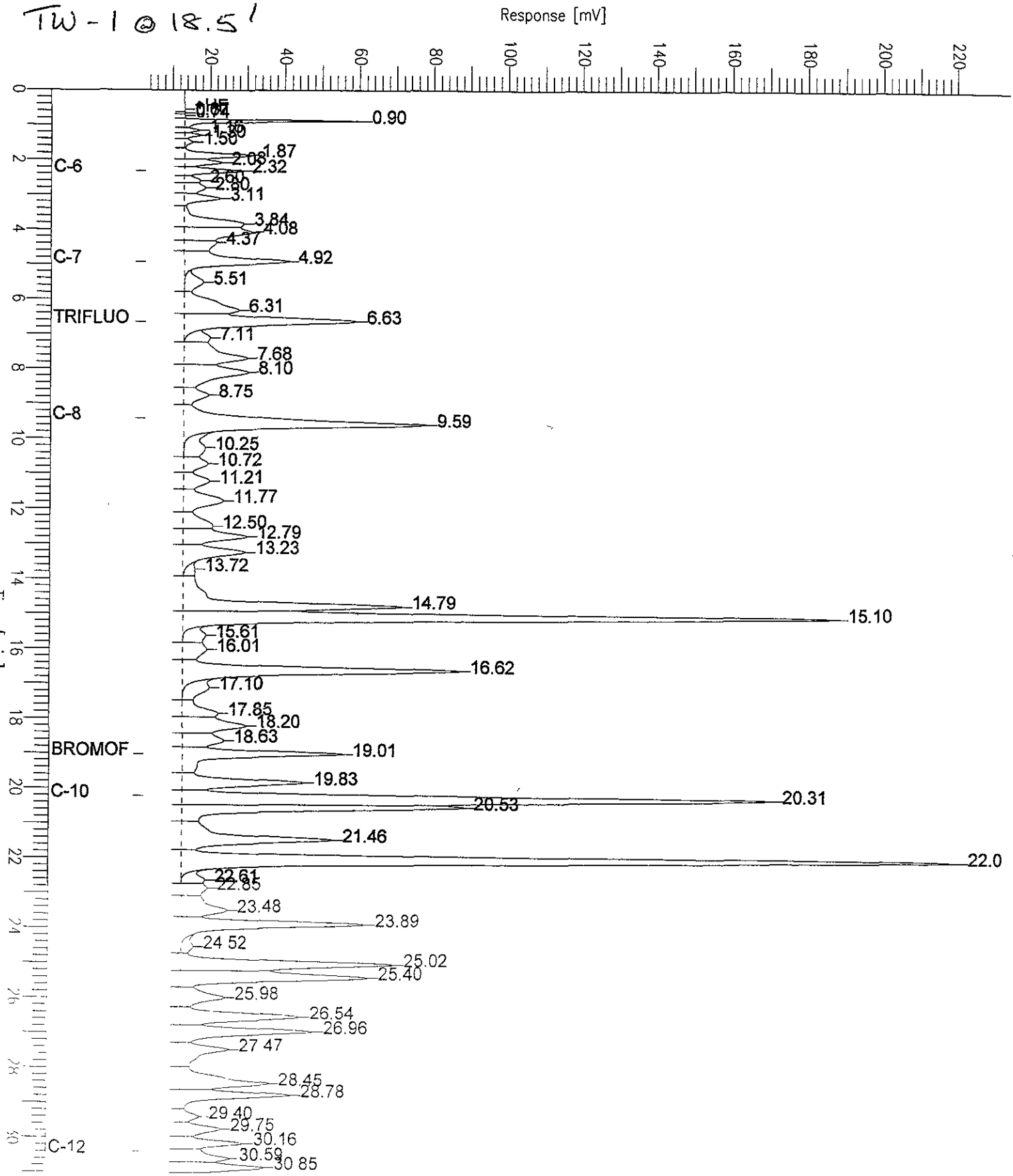
*= Value outside of QC limits; see narrative
ND= Not Detected
RL= Reporting Limit

Chromatogram

Sample Name : 150646-002,61941,TVH ONLY
FileName : G:\GC05\DATA\062G011.raw
Method : TVHBTXE
Start Time : 0.00 min End Time : 31.00 min
Scale Factor: 1.0 Plot Offset: 3 mV

Sample #: A Page 1 of 1
Date : 3/5/01 12:02 PM
Time of Injection: 3/4/01 01:13 AM
Low Point : 2.65 mV High Point : 220.58 mV
Plot Scale: 217.9 mV

TW-1 @ 18.5'

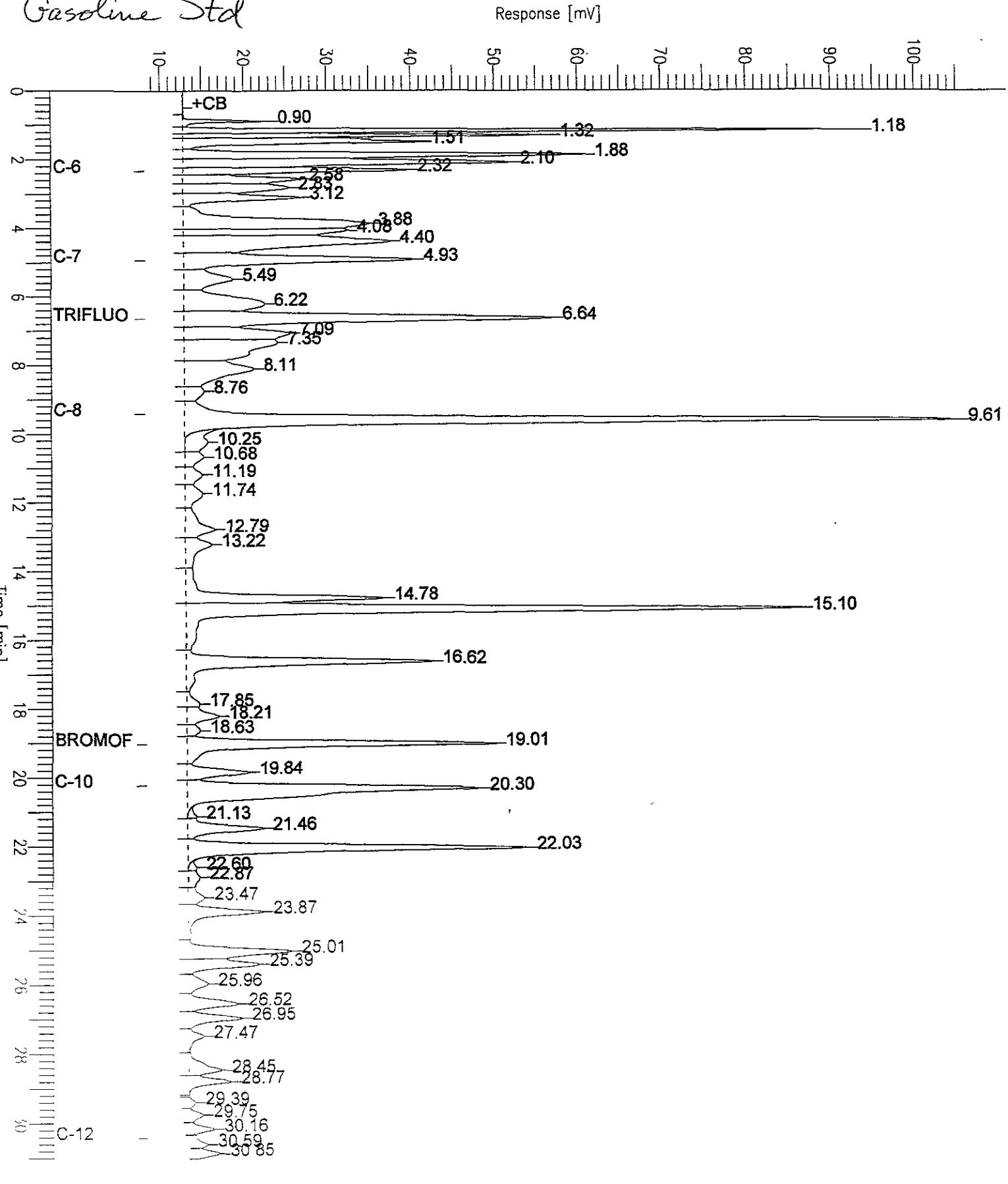


Chromatogram

Sample Name : CCV/LCS,QC139088,61941,01WS0395,5/5000
FileName : G:\GC05\DATA\062G002.raw
Method : TVHBTXE
Start Time : 0.00 min End Time : 31.00 min
Scale Factor: 1.0 Plot Offset: 8 mV

Sample #: GAS Page 1 of 1
Date : 3/3/01 07:12 PM
Time of Injection: 3/3/01 06:41 PM
Low Point : 8.13 mV High Point : 105.20 mV
Plot Scale: 97.1 mV

Gasoline Std



Curtis & Tompkins, Ltd.

Gasoline by GC/FID CA LUFT

Lab #:	150646	Location:	MLK Jr. Way
Client:	Subsurface Consultants	Prep:	EPA 5030
Project#:	272.054	Analysis:	EPA 8015M
Type:	LCS	Basis:	wet
Lab ID:	QC139088	Diln Fac:	1.000
Matrix:	Soil	Batch#:	61941
Units:	mg/Kg	Analyzed:	03/03/01

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	10.00	8.754	88	75-123

Surrogate	%REC	Limits
Trifluorotoluene (FID)	119	62-138
Bromofluorobenzene (FID)	124	46-150

Curtis & Tompkins, Ltd.

Gasoline by GC/FID CA LUFT

Lab #:	150646	Location:	MLK Jr. Way
Client:	Subsurface Consultants	Prep:	EPA 5030
Project#:	272.054	Analysis:	EPA 8015M
Field ID:	ZZZZZZZZZZ	Diln Fac:	1.000
MSS Lab ID:	150644-001	Batch#:	61941
Matrix:	Soil	Sampled:	03/02/01
Units:	mg/Kg	Received:	03/02/01
Basis:	wet	Analyzed:	03/03/01

Type: MS Lab ID: QC139090

Analyte	MSS Result	Spiked	Result	%REC	Limits
Gasoline C7-C12	<0.1100	10.75	8.465	79	41-132

Surrogate	%REC	Limits
Trifluorotoluene (FID)	119	62-138
Bromofluorobenzene (FID)	121	46-150

Type: MSD Lab ID: QC139091

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	9.709	7.755	80	41-132	1	25

Surrogate	%REC	Limits
Trifluorotoluene (FID)	121	62-138
Bromofluorobenzene (FID)	122	46-150

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Total Extractable Hydrocarbons

Lab #:	150646	Location:	MLK Jr. Way
Client:	Subsurface Consultants	Prep:	EPA 3520
Project#:	272.054	Analysis:	EPA 8015M
Matrix:	Water	Sampled:	03/02/01
Units:	ug/L	Received:	03/02/01
Batch#:	61937	Prepared:	03/02/01

ield ID:	TW-1	Diln Fac:	2.000
Type:	SAMPLE	Analyzed:	03/05/01
Lab ID:	150646-001	Cleanup Method:	EPA 3630C

Analyte	Result	RL
Diesel C10-C24	3,100 L Y	100

Surrogate	%REC	Limits
Hexacosane	70	44-121

ield ID:	TW-2	Diln Fac:	1.000
ype:	SAMPLE	Analyzed:	03/03/01
ab ID:	150646-003	Cleanup Method:	EPA 3630C

Analyte	Result	RL
Diesel C10-C24	ND	50

Surrogate	%REC	Limits
Hexacosane	79	44-121

Field ID:	TW-3	Diln Fac:	1.000
ype:	SAMPLE	Analyzed:	03/03/01
ab ID:	150646-004	Cleanup Method:	EPA 3630C

Analyte	Result	RL
Diesel C10-C24	ND	50

Surrogate	%REC	Limits
Hexacosane	70	44-121

ype:	BLANK	Analyzed:	03/03/01
Lab ID:	QC139069	Cleanup Method:	EPA 3630C
Diln Fac:	1.000		

Analyte	Result	RL
Diesel C10-C24	ND	50

Surrogate	%REC	Limits
Hexacosane	68	44-121

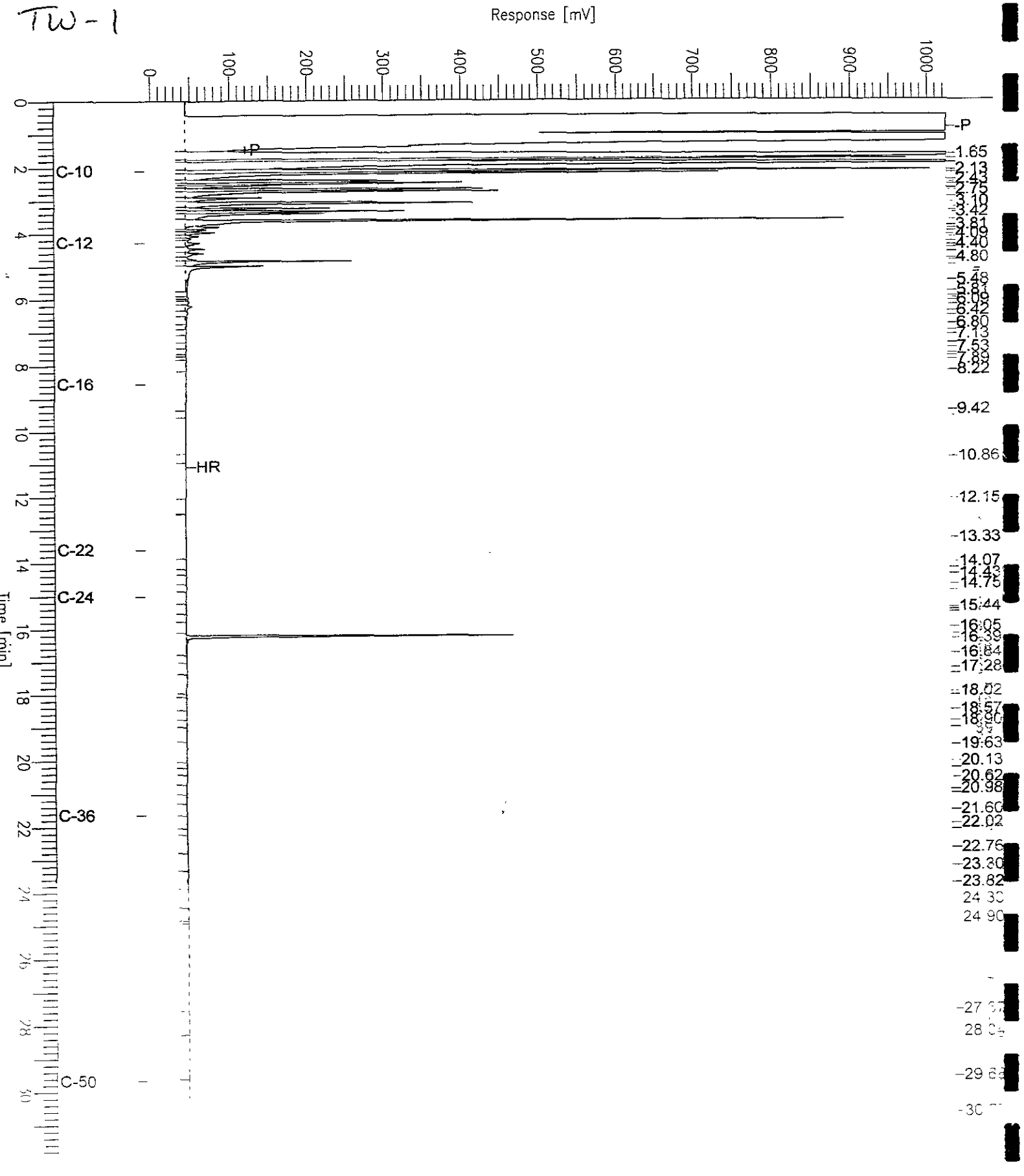
L= Lighter hydrocarbons contributed to the quantitation
Y= Sample exhibits fuel pattern which does not resemble standard
D= Not Detected
L= Reporting Limit

Chromatogram

ample Name : 150646-001sg,61937
ileName : G:\GC11\CHA\060A129.RAW
ethod : ATEH035.MTH
tart Time : 0.00 min End Time : 31.90 min
cale Factor: 0.0 Plot Offset: -7 mV

Sample #: 61937 Page 1 of 1
Date : 3/5/01 12:51 PM
Time of Injection: 3/5/01 12:01 PM
Low Point : -7.11 mV High Point : 1024.00 mV
Plot Scale: 1031.1 mV

TW-1

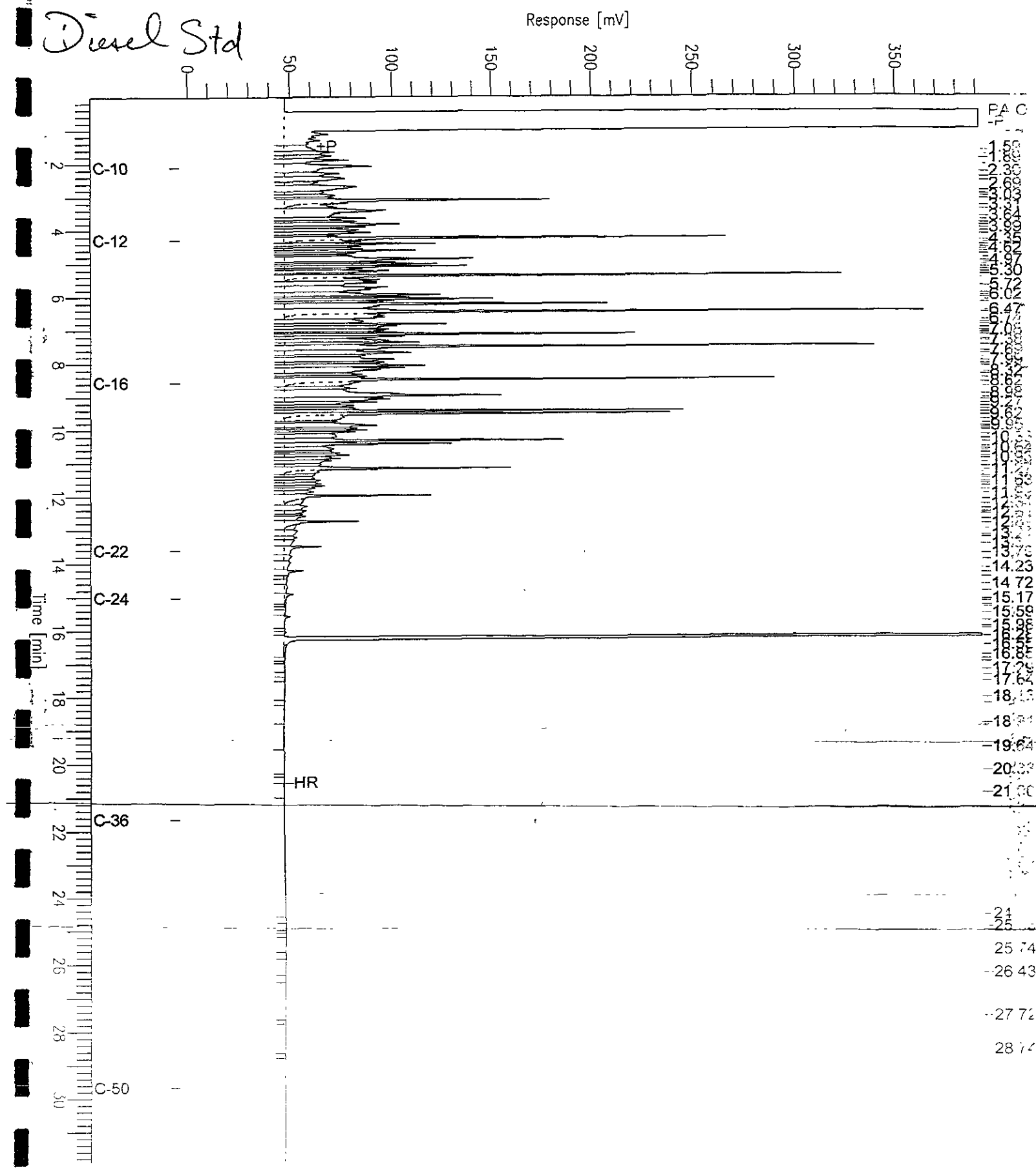


Chromatogram

Sample Name : ccv,01ws0489,dsl
FileName : G:\GC11\CHA\060A003.RAW
Method :
Start Time : 0.01 min End Time : 31.91 min
Scale Factor: 0.0 Plot Offset: -4 mV

Sample #: 500mg/l
Date : 03/05/2001 01:04 PM
Time of Injection: 03/01/2001 10:19 AM
Low Point : -3.91 mV High Point : 391.68 mV
Plot Scale: 395.6 mV

Diesel Std



Curtis & Tompkins, Ltd.

Total Extractable Hydrocarbons

Lab #:	150646	Location:	MLK Jr. Way
Client:	Subsurface Consultants	Prep:	EPA 3520
Project#:	272.054	Analysis:	EPA 8015M
Matrix:	Water	Batch#:	61937
Units:	ug/L	Prepared:	03/02/01
Diln Fac:	1.000	Analyzed:	03/03/01

Type: BS
Lab ID: QC139070
Cleanup Method: EPA 3630C

Analyte	Spiked	Result	%REC	Limits
Diesel C10-C24	2,339	1,463	63	45-110

Surrogate	%REC	Limits
Hexacosane	78	44-121

Type: BSD
Lab ID: QC139071
Cleanup Method: EPA 3630C

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Diesel C10-C24	2,339	1,831	78	45-110	22	22

Surrogate	%REC	Limits
Hexacosane	85	44-121

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Total Extractable Hydrocarbons

Lab #:	150646	Location:	MLK Jr. Way
Client:	Subsurface Consultants	Prep:	SHAKER TABLE
Project#:	272.054	Analysis:	EPA 8015M
Field ID:	TW-1@18.5'	Batch#:	61939
Matrix:	Soil	Sampled:	03/02/01
Units:	mg/Kg	Received:	03/02/01
Basis:	wet	Prepared:	03/02/01

Type:	SAMPLE	Analyzed:	03/05/01
Lab ID:	150646-002	Cleanup Method:	EPA 3630C
Dil'n Fac:	5.000		

Analyte	Result	RL
Diesel C10-C24	170 L Y	5.0

Surrogate	%REC	Limits
Hexacosane	84	60-136

Type:	BLANK	Analyzed:	03/04/01
Lab ID:	QC139078	Cleanup Method:	EPA 3630C
Dil'n Fac:	1.000		

Analyte	Result	RL
Diesel C10-C24	ND	1.0

Surrogate	%REC	Limits
Hexacosane	76	60-136

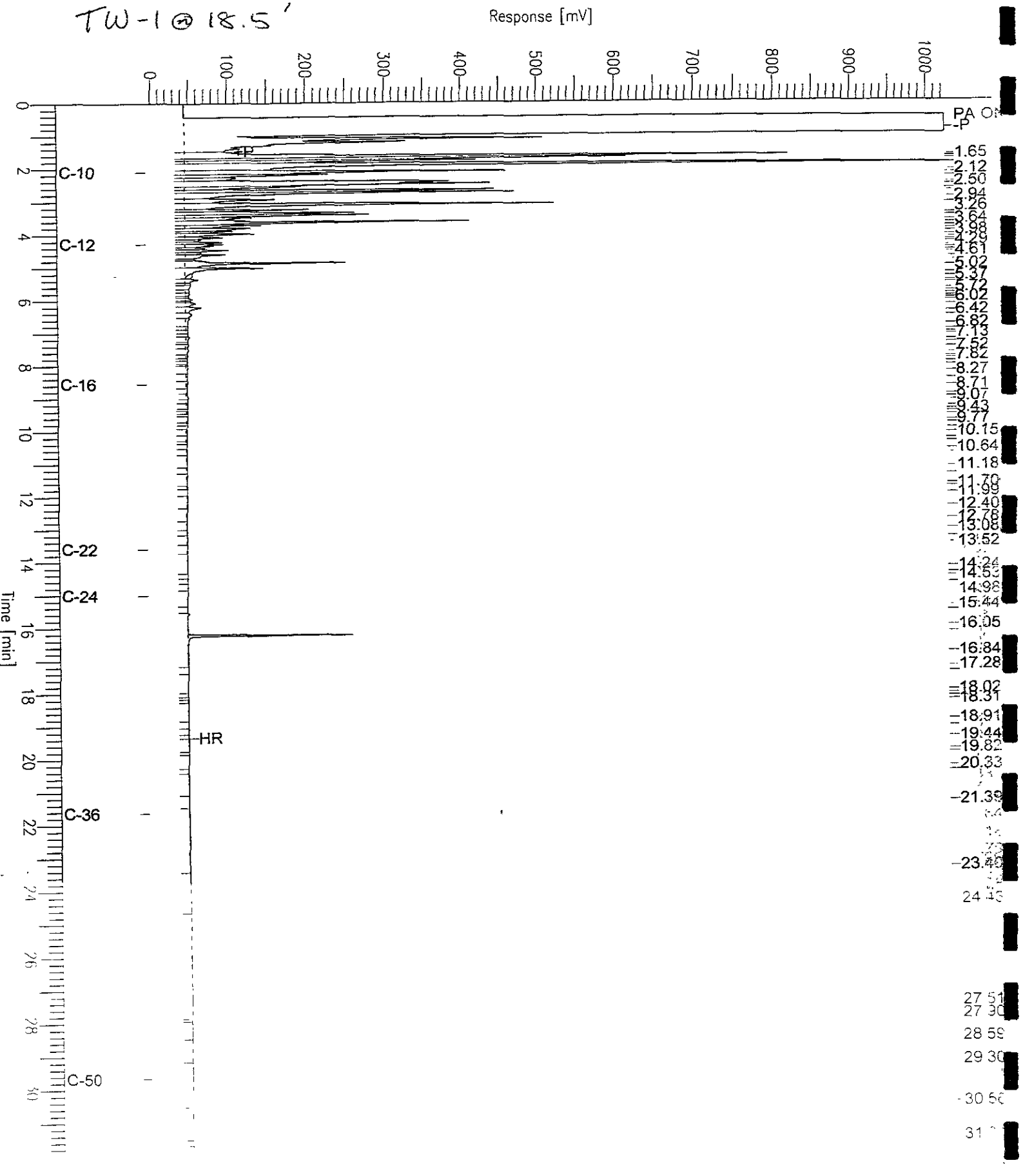
L= Lighter hydrocarbons contributed to the quantitation
Y= Sample exhibits fuel pattern which does not resemble standard
ND= Not Detected
RL= Reporting Limit

Chromatogram

ample Name : 150646-002sg,61939
ileName : G:\GC11\CHA\060A130.RAW
ethod : ATEH035.MTH
tart Time : 0.00 min End Time : 31.90 min
cale Factor: 0.0 Plot Offset: -7 mV

Sample #: 61939 Page 1 of 1
Date : 3/5/01 01:43 PM
Time of Injection: 3/5/01 12:48 PM
Low Point : -7.17 mV High Point : 1024.00 mV
Plot Scale: 1031.2 mV

TW-10 @ 18.5'



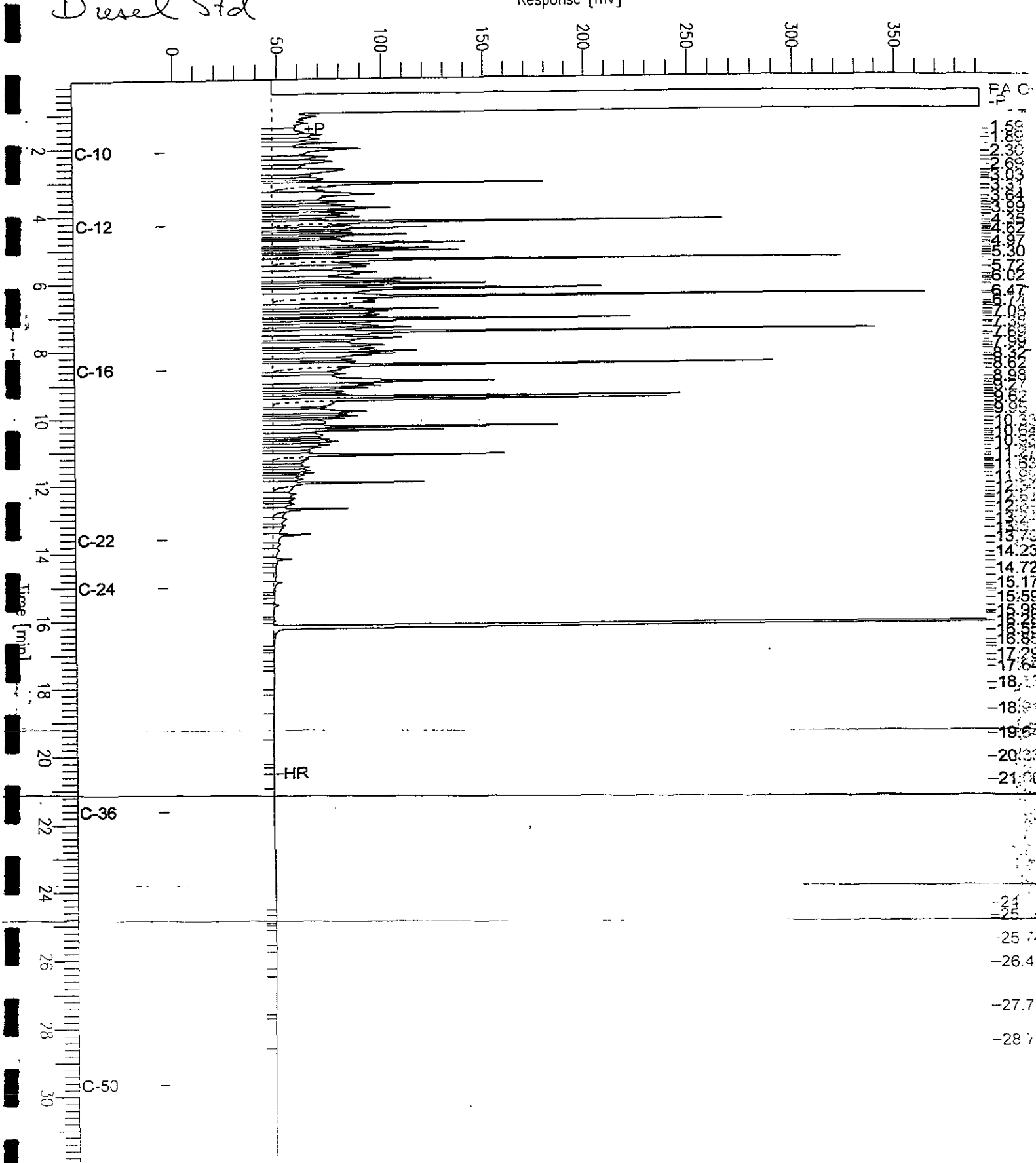
Sample Name : ccv,01ws0489,dsl
FileName : G:\GC11\CHA\060A003.RAW
Method :
Start Time : 0.01 min
Scale Factor: 0.0

End Time : 31.91 min
Plot Offset: -4 mV

Sample #: 500mg/l
Date : 03/05/2001 01:04 PM
Time of Injection: 03/01/2001 10:19 AM
Low Point : -3.91 mV
Plot Scale: 395.6 mV

High Point : 391.68 mV

Diesel Std



Curtis & Tompkins, Ltd.

Total Extractable Hydrocarbons

Lab #:	150646	Location:	MLK Jr. Way
Client:	Subsurface Consultants	Prep:	SHAKER TABLE
Project#:	272.054	Analysis:	EPA 8015M
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC139079	Batch#:	61939
Matrix:	Soil	Prepared:	03/02/01
Units:	mg/Kg	Analyzed:	03/05/01
Basis:	wet		

Cleanup Method: EPA 3630C

Analyte	Spiked	Result	%REC	Limits
Diesel C10-C24	46.56	35.15	75	67-121

Surrogate	%REC	Limits
Hexacosane	84	60-136

Curtis & Tompkins, Ltd.

Total Extractable Hydrocarbons

Lab #:	150646	Location:	MLK Jr. Way
Client:	Subsurface Consultants	Prep:	SHAKER TABLE
Project#:	272.054	Analysis:	EPA 8015M
Field ID:	TW-1@18.5'	Batch#:	61939
MSS Lab ID:	150646-002	Sampled:	03/02/01
Matrix:	Soil	Received:	03/02/01
Units:	mg/Kg	Prepared:	03/02/01
Basis:	wet	Analyzed:	03/06/01
Diln Fac:	5.000		

ype: MS Cleanup Method: EPA 3630C
Lab ID: QC139080

Analyte	MSS Result	Spiked	Result	%REC	Limits
Diesel C10-C24	173.2	46.38	199.0	56	35-146

Surrogate	%REC	Limits
Hexacosane	88	60-136

Type: MSD Cleanup Method: EPA 3630C
Lab ID: QC139081

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Diesel C10-C24	47.20	163.7	-20 *	35-146	20	48

Surrogate	%REC	Limits
Hexacosane	81	60-136

*= Value outside of QC limits, see narrative
PD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	150646	Location:	MLK Jr. Way
Client:	Subsurface Consultants	Prep:	EPA 5030
Project#:	272.054	Analysis:	EPA 8260B
Field ID:	TW-1	Batch#:	61943
Lab ID:	150646-001	Sampled:	03/02/01
Matrix:	Water	Received:	03/02/01
Units:	ug/L	Analyzed:	03/04/01
Diln Fac:	100.0		

Analyte	Result	RL
Freon 12	ND	1,000
Chloromethane	ND	1,000
Vinyl Chloride	ND	1,000
Bromomethane	ND	1,000
Chloroethane	ND	1,000
Trichlorofluoromethane	ND	500
Acetone	ND	2,000
Freon 113	ND	500
1,1-Dichloroethene	ND	500
Methylene Chloride	ND	2,000
Carbon Disulfide	ND	500
MTBE	ND	500
trans-1,2-Dichloroethene	ND	500
Vinyl Acetate	ND	5,000
1,1-Dichloroethane	ND	500
2-Butanone	ND	1,000
cis-1,2-Dichloroethene	ND	500
2,2-Dichloropropane	ND	500
Chloroform	ND	500
Bromochloromethane	ND	1,000
1,1,1-Trichloroethane	ND	500
1,1-Dichloropropene	ND	500
Carbon Tetrachloride	ND	500
1,2-Dichloroethane	ND	500
Benzene	4,000	500
Trichloroethene	ND	500
1,2-Dichloropropane	ND	500
Bromodichloromethane	ND	500
Dibromomethane	ND	500
4-Methyl-2-Pentanone	ND	1,000
cis-1,3-Dichloropropene	ND	500
Toluene	11,000	500
trans-1,3-Dichloropropene	ND	500
1,1,2-Trichloroethane	ND	500
2-Hexanone	ND	1,000
1,3-Dichloropropane	ND	500
Tetrachloroethene	ND	500

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	150646	Location:	MLK Jr. Way
Client:	Subsurface Consultants	Prep:	EPA 5030
Project#:	272.054	Analysis:	EPA 8260B
Field ID:	TW-1	Batch#:	61943
Lab ID:	150646-001	Sampled:	03/02/01
Matrix:	Water	Received:	03/02/01
Units:	ug/L	Analyzed:	03/04/01
Diln Fac:	100.0		

Analyte	Result	RL
Dibromochloromethane	ND	500
1,2-Dibromoethane	ND	500
Chlorobenzene	ND	500
1,1,1,2-Tetrachloroethane	ND	500
Ethylbenzene	2,200	500
m,p-Xylenes	8,900	500
o-Xylene	4,500	500
Styrene	ND	500
Bromoform	ND	500
Isopropylbenzene	ND	500
1,1,2,2-Tetrachloroethane	ND	500
1,2,3-Trichloropropane	ND	500
Propylbenzene	ND	500
Bromobenzene	ND	500
1,3,5-Trimethylbenzene	1,200	500
2-Chlorotoluene	ND	500
4-Chlorotoluene	ND	500
tert-Butylbenzene	ND	500
1,2,4-Trimethylbenzene	3,800	500
sec-Butylbenzene	ND	500
para-Isopropyl Toluene	ND	500
1,3-Dichlorobenzene	ND	500
1,4-Dichlorobenzene	ND	500
n-Butylbenzene	ND	500
1,2-Dichlorobenzene	ND	500
1,2-Dibromo-3-Chloropropane	ND	500
1,2,4-Trichlorobenzene	ND	500
Hexachlorobutadiene	ND	500
Naphthalene	ND	500
1,2,3-Trichlorobenzene	ND	500

Surrogate	%REC	Limits
Dibromofluoromethane	105	80-122
1,2-Dichloroethane-d4	85	78-123
Toluene-d8	98	80-110
Bromofluorobenzene	102	80-115

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	150646	Location:	MLK Jr. Way
Client:	Subsurface Consultants	Prep:	EPA 5030
Project#:	272.054	Analysis:	EPA 8260B
Field ID:	TW-2	Batch#:	61957
Lab ID:	150646-003	Sampled:	03/02/01
Matrix:	Water	Received:	03/02/01
Units:	ug/L	Analyzed:	03/05/01
Diln Fac:	1.000		

Analyte	Result	RL
Freon 12	ND	10
Chloromethane	ND	10
Vinyl Chloride	ND	10
Bromomethane	ND	10
Chloroethane	ND	10
Trichlorofluoromethane	ND	5.0
Acetone	ND	20
Freon 113	ND	5.0
1,1-Dichloroethene	ND	5.0
Methylene Chloride	ND	20
Carbon Disulfide	ND	5.0
MTBE	ND	5.0
trans-1,2-Dichloroethene	ND	5.0
Vinyl Acetate	ND	50
1,1-Dichloroethane	ND	5.0
2-Butanone	ND	10
cis-1,2-Dichloroethene	ND	5.0
2,2-Dichloropropane	ND	5.0
Chloroform	ND	5.0
Bromochloromethane	ND	10
1,1,1-Trichloroethane	ND	5.0
1,1-Dichloropropene	ND	5.0
Carbon Tetrachloride	ND	5.0
1,2-Dichloroethane	ND	5.0
Benzene	ND	5.0
Trichloroethene	ND	5.0
1,2-Dichloropropane	ND	5.0
Bromodichloromethane	ND	5.0
Dibromomethane	ND	5.0
4-Methyl-2-Pentanone	ND	10
cis-1,3-Dichloropropene	ND	5.0
Toluene	5.1	5.0
trans-1,3-Dichloropropene	ND	5.0
1,1,2-Trichloroethane	ND	5.0
2-Hexanone	ND	10
1,3-Dichloropropane	ND	5.0
Tetrachloroethene	ND	5.0

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	150646	Location:	MLK Jr. Way
Client:	Subsurface Consultants	Prep:	EPA 5030
Project#:	272.054	Analysis:	EPA 8260B
Field ID:	TW-2	Batch#:	61957
Lab ID:	150646-003	Sampled:	03/02/01
Matrix:	Water	Received:	03/02/01
Units:	ug/L	Analyzed:	03/05/01
Diln Fac:	1.000		

Analyte	Result	RL
Dibromochloromethane	ND	5.0
1,2-Dibromoethane	ND	5.0
Chlorobenzene	ND	5.0
1,1,1,2-Tetrachloroethane	ND	5.0
Ethylbenzene	ND	5.0
m,p-Xylenes	10	5.0
o-Xylene	ND	5.0
Styrene	ND	5.0
Bromoform	ND	5.0
Isopropylbenzene	ND	5.0
1,1,2,2-Tetrachloroethane	ND	5.0
1,2,3-Trichloropropane	ND	5.0
Propylbenzene	ND	5.0
Bromobenzene	ND	5.0
1,3,5-Trimethylbenzene	ND	5.0
2-Chlorotoluene	ND	5.0
4-Chlorotoluene	ND	5.0
tert-Butylbenzene	ND	5.0
1,2,4-Trimethylbenzene	ND	5.0
sec-Butylbenzene	ND	5.0
para-Isopropyl Toluene	ND	5.0
1,3-Dichlorobenzene	ND	5.0
1,4-Dichlorobenzene	ND	5.0
n-Butylbenzene	ND	5.0
1,2-Dichlorobenzene	ND	5.0
1,2-Dibromo-3-Chloropropane	ND	5.0
1,2,4-Trichlorobenzene	ND	5.0
Hexachlorobutadiene	ND	5.0
Naphthalene	ND	5.0
1,2,3-Trichlorobenzene	ND	5.0

Surrogate	%REC	Limits
Dibromofluoromethane	102	80-122
1,2-Dichloroethane-d4	113	78-123
Toluene-d8	100	80-110
Bromofluorobenzene	100	80-115

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	150646	Location:	MLK Jr. Way
Client:	Subsurface Consultants	Prep:	EPA 5030
Project#:	272.054	Analysis:	EPA 8260B
Field ID:	TW-3	Batch#:	61957
Lab ID:	150646-004	Sampled:	03/02/01
Matrix:	Water	Received:	03/02/01
Units:	ug/L	Analyzed:	03/05/01
Diln Fac:	1.000		

Analyte	Result	RL
Freon 12	ND	10
Chloromethane	ND	10
Vinyl Chloride	ND	10
Bromomethane	ND	10
Chloroethane	ND	10
Trichlorofluoromethane	ND	5.0
Acetone	ND	20
Freon 113	ND	5.0
1,1-Dichloroethene	ND	5.0
Methylene Chloride	ND	20
Carbon Disulfide	ND	5.0
MTBE	ND	5.0
trans-1,2-Dichloroethene	ND	5.0
Vinyl Acetate	ND	50
1,1-Dichloroethane	ND	5.0
2-Butanone	ND	10
cis-1,2-Dichloroethene	ND	5.0
2,2-Dichloropropane	ND	5.0
Chloroform	ND	5.0
Bromochloromethane	ND	10
1,1,1-Trichloroethane	ND	5.0
1,1-Dichloropropene	ND	5.0
Carbon Tetrachloride	ND	5.0
1,2-Dichloroethane	180	5.0
Benzene	ND	5.0
Trichloroethene	ND	5.0
1,2-Dichloropropane	ND	5.0
Bromodichloromethane	ND	5.0
Dibromomethane	ND	5.0
4-Methyl-2-Pentanone	ND	10
cis-1,3-Dichloropropene	ND	5.0
Toluene	ND	5.0
trans-1,3-Dichloropropene	ND	5.0
1,1,2-Trichloroethane	ND	5.0
2-Hexanone	ND	10
1,3-Dichloropropane	ND	5.0
Tetrachloroethene	ND	5.0

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	150646	Location:	MLK Jr. Way
Client:	Subsurface Consultants	Prep:	EPA 5030
Project#:	272.054	Analysis:	EPA 8260B
Field ID:	TW-3	Batch#:	61957
Lab ID:	150646-004	Sampled:	03/02/01
Matrix:	Water	Received:	03/02/01
Units:	ug/L	Analyzed:	03/05/01
Diln Fac:	1.000		

Analyte	Result	RL
Dibromochloromethane	ND	5.0
1,2-Dibromoethane	ND	5.0
Chlorobenzene	ND	5.0
1,1,1,2-Tetrachloroethane	ND	5.0
Ethylbenzene	ND	5.0
m,p-Xylenes	ND	5.0
o-Xylene	ND	5.0
Styrene	ND	5.0
Bromoform	ND	5.0
Isopropylbenzene	ND	5.0
1,1,2,2-Tetrachloroethane	ND	5.0
1,2,3-Trichloropropane	ND	5.0
Propylbenzene	ND	5.0
Bromobenzene	ND	5.0
1,3,5-Trimethylbenzene	ND	5.0
2-Chlorotoluene	ND	5.0
4-Chlorotoluene	ND	5.0
tert-Butylbenzene	ND	5.0
1,2,4-Trimethylbenzene	ND	5.0
sec-Butylbenzene	ND	5.0
para-Isopropyl Toluene	ND	5.0
1,3-Dichlorobenzene	ND	5.0
1,4-Dichlorobenzene	ND	5.0
n-Butylbenzene	ND	5.0
1,2-Dichlorobenzene	ND	5.0
1,2-Dibromo-3-Chloropropane	ND	5.0
1,2,4-Trichlorobenzene	ND	5.0
Hexachlorobutadiene	ND	5.0
Naphthalene	ND	5.0
1,2,3-Trichlorobenzene	ND	5.0

Surrogate	%REC	Limits
Dibromofluoromethane	102	80-122
1,2-Dichloroethane-d4	107	78-123
Toluene-d8	98	80-110
Bromofluorobenzene	100	80-115

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	150646	Location:	MLK Jr. Way
Client:	Subsurface Consultants	Prep:	EPA 5030
Project#:	272.054	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC139094	Batch#:	61943
Matrix:	Water	Analyzed:	03/04/01
Units:	ug/L		

Analyte	Result	RL
Freon 12	ND	10
Chloromethane	ND	10
Vinyl Chloride	ND	10
Bromomethane	ND	10
Chloroethane	ND	10
Trichlorofluoromethane	ND	5.0
Acetone	ND	20
Freon 113	ND	5.0
1,1-Dichloroethene	ND	5.0
Methylene Chloride	ND	20
Carbon Disulfide	ND	5.0
MTBE	ND	5.0
trans-1,2-Dichloroethene	ND	5.0
Vinyl Acetate	ND	50
1,1-Dichloroethane	ND	5.0
2-Butanone	ND	10
cis-1,2-Dichloroethene	ND	5.0
2,2-Dichloropropane	ND	5.0
Chloroform	ND	5.0
Bromochloromethane	ND	10
1,1,1-Trichloroethane	ND	5.0
1,1-Dichloropropene	ND	5.0
Carbon Tetrachloride	ND	5.0
1,2-Dichloroethane	ND	5.0
Benzene	ND	5.0
Trichloroethene	ND	5.0
1,2-Dichloropropane	ND	5.0
Bromodichloromethane	ND	5.0
Dibromomethane	ND	5.0
4-Methyl-2-Pentanone	ND	10
cis-1,3-Dichloropropene	ND	5.0
Toluene	ND	5.0
trans-1,3-Dichloropropene	ND	5.0
1,1,2-Trichloroethane	ND	5.0
2-Hexanone	ND	10
1,3-Dichloropropane	ND	5.0
Tetrachloroethene	ND	5.0
Dibromochloromethane	ND	5.0

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	150646	Location:	MLK Jr. Way
Client:	Subsurface Consultants	Prep:	EPA 5030
Project#:	272.054	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC139094	Batch#:	61943
Matrix:	Water	Analyzed:	03/04/01
Units:	ug/L		

Analyte	Result	RL
1,2-Dibromoethane	ND	5.0
Chlorobenzene	ND	5.0
1,1,1,2-Tetrachloroethane	ND	5.0
Ethylbenzene	ND	5.0
m,p-Xylenes	ND	5.0
o-Xylene	ND	5.0
Styrene	ND	5.0
Bromoform	ND	5.0
Isopropylbenzene	ND	5.0
1,1,2,2-Tetrachloroethane	ND	5.0
1,2,3-Trichloropropane	ND	5.0
Propylbenzene	ND	5.0
Bromobenzene	ND	5.0
1,3,5-Trimethylbenzene	ND	5.0
2-Chlorotoluene	ND	5.0
4-Chlorotoluene	ND	5.0
tert-Butylbenzene	ND	5.0
1,2,4-Trimethylbenzene	ND	5.0
sec-Butylbenzene	ND	5.0
para-Isopropyl Toluene	ND	5.0
1,3-Dichlorobenzene	ND	5.0
1,4-Dichlorobenzene	ND	5.0
n-Butylbenzene	ND	5.0
1,2-Dichlorobenzene	ND	5.0
1,2-Dibromo-3-Chloropropane	ND	5.0
1,2,4-Trichlorobenzene	ND	5.0
Hexachlorobutadiene	ND	5.0
Naphthalene	ND	5.0
1,2,3-Trichlorobenzene	ND	5.0

Surrogate	%REC	Limits
Dibromofluoromethane	102	80-122
1,2-Dichloroethane-d4	86	78-123
Toluene-d8	96	80-110
Bromofluorobenzene	107	80-115

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	150646	Location:	MLK Jr. Way
Client:	Subsurface Consultants	Prep:	EPA 5030
Project#:	272.054	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC139144	Batch#:	61957
Matrix:	Water	Analyzed:	03/05/01
Units:	ug/L		

Analyte	Result	RL
Freon 12	ND	10
Chloromethane	ND	10
Vinyl Chloride	ND	10
Bromomethane	ND	10
Chloroethane	ND	10
Trichlorofluoromethane	ND	5.0
Acetone	ND	20
Freon 113	ND	5.0
1,1-Dichloroethene	ND	5.0
Methylene Chloride	ND	20
Carbon Disulfide	ND	5.0
MTBE	ND	5.0
trans-1,2-Dichloroethene	ND	5.0
Vinyl Acetate	ND	50
1,1-Dichloroethane	ND	5.0
2-Butanone	ND	10
cis-1,2-Dichloroethene	ND	5.0
2,2-Dichloropropane	ND	5.0
Chloroform	ND	5.0
Bromochloromethane	ND	10
1,1,1-Trichloroethane	ND	5.0
1,1-Dichloropropene	ND	5.0
Carbon Tetrachloride	ND	5.0
1,2-Dichloroethane	ND	5.0
Benzene	ND	5.0
Trichloroethene	ND	5.0
1,2-Dichloropropane	ND	5.0
Bromodichloromethane	ND	5.0
Dibromomethane	ND	5.0
4-Methyl-2-Pentanone	ND	10
cis-1,3-Dichloropropene	ND	5.0
Toluene	ND	5.0
trans-1,3-Dichloropropene	ND	5.0
1,1,2-Trichloroethane	ND	5.0
2-Hexanone	ND	10
1,3-Dichloropropane	ND	5.0
Tetrachloroethene	ND	5.0
Dibromochloromethane	ND	5.0

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	150646	Location:	MLK Jr. Way
Client:	Subsurface Consultants	Prep:	EPA 5030
Project#:	272.054	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC139144	Batch#:	61957
Matrix:	Water	Analyzed:	03/05/01
Units:	ug/L		

Analyte	Result	RL
1,2-Dibromoethane	ND	5.0
Chlorobenzene	ND	5.0
1,1,1,2-Tetrachloroethane	ND	5.0
Ethylbenzene	ND	5.0
m,p-Xylenes	ND	5.0
o-Xylene	ND	5.0
Styrene	ND	5.0
Bromoform	ND	5.0
Isopropylbenzene	ND	5.0
1,1,2,2-Tetrachloroethane	ND	5.0
1,2,3-Trichloropropane	ND	5.0
Propylbenzene	ND	5.0
Bromobenzene	ND	5.0
1,3,5-Trimethylbenzene	ND	5.0
2-Chlorotoluene	ND	5.0
4-Chlorotoluene	ND	5.0
tert-Butylbenzene	ND	5.0
1,2,4-Trimethylbenzene	ND	5.0
sec-Butylbenzene	ND	5.0
para-Isopropyl Toluene	ND	5.0
1,3-Dichlorobenzene	ND	5.0
1,4-Dichlorobenzene	ND	5.0
n-Butylbenzene	ND	5.0
1,2-Dichlorobenzene	ND	5.0
1,2-Dibromo-3-Chloropropane	ND	5.0
1,2,4-Trichlorobenzene	ND	5.0
Hexachlorobutadiene	ND	5.0
Naphthalene	ND	5.0
1,2,3-Trichlorobenzene	ND	5.0

Surrogate	%REC	Limits
Dibromofluoromethane	103	80-122
1,2-Dichloroethane-d4	111	78-123
Toluene-d8	103	80-110
Bromofluorobenzene	101	80-115

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	150646	Location:	MLK Jr. Way
Client:	Subsurface Consultants	Prep:	EPA 5030
Project#:	272.054	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	61943
Units:	ug/L	Analyzed:	03/04/01
Diln Fac:	1.000		

Type: BS Lab ID: QC139092

Analyte	Spiked	Result	%REC	Limits
1,1-Dichloroethene	50.00	51.27	103	74-132
Benzene	50.00	54.82	110	80-116
Trichloroethene	50.00	50.44	101	80-119
Toluene	50.00	52.88	106	80-120
Chlorobenzene	50.00	53.74	107	80-117

Surrogate	%REC	Limits
Dibromofluoromethane	96	80-122
1,2-Dichloroethane-d4	82	78-123
Toluene-d8	97	80-110
Bromofluorobenzene	101	80-115

Type: BSD Lab ID: QC139093

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
1,1-Dichloroethene	50.00	52.67	105	74-132	3	20
Benzene	50.00	55.29	111	80-116	1	20
Trichloroethene	50.00	51.40	103	80-119	2	20
Toluene	50.00	52.05	104	80-120	2	20
Chlorobenzene	50.00	54.64	109	80-117	2	20

Surrogate	%REC	Limits
Dibromofluoromethane	96	80-122
1,2-Dichloroethane-d4	81	78-123
Toluene-d8	94	80-110
Bromofluorobenzene	101	80-115

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	150646	Location:	MLK Jr. Way
Client:	Subsurface Consultants	Prep:	EPA 5030
Project#:	272.054	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	61957
Units:	ug/L	Analyzed:	03/05/01
Diln Fac:	1.000		

Type: BS Lab ID: QC139142

Analyte	Spiked	Result	%REC	Limits
1,1-Dichloroethene	50.00	47.90	96	74-132
Benzene	50.00	46.98	94	80-116
Trichloroethene	50.00	52.27	105	80-119
Toluene	50.00	52.48	105	80-120
Chlorobenzene	50.00	53.06	106	80-117

Surrogate	%REC	Limits
Dibromofluoromethane	100	80-122
1,2-Dichloroethane-d4	105	78-123
Toluene-d8	100	80-110
Bromofluorobenzene	99	80-115

Type: BSD Lab ID: QC139143

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
1,1-Dichloroethene	50.00	45.63	91	74-132	5	20
Benzene	50.00	45.92	92	80-116	2	20
Trichloroethene	50.00	52.04	104	80-119	0	20
Toluene	50.00	50.60	101	80-120	4	20
Chlorobenzene	50.00	50.01	100	80-117	6	20

Surrogate	%REC	Limits
Dibromofluoromethane	100	80-122
1,2-Dichloroethane-d4	107	78-123
Toluene-d8	103	80-110
Bromofluorobenzene	97	80-115

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	150646	Location:	MLK Jr. Way
Client:	Subsurface Consultants	Prep:	EPA 5030
Project#:	272.054	Analysis:	EPA 8260B
Field ID:	TW-1@18.5'	Diln Fac:	100.0
Lab ID:	150646-002	Batch#:	61957
Matrix:	Soil	Sampled:	03/02/01
Units:	ug/Kg	Received:	03/02/01
Basis:	wet	Analyzed:	03/05/01

Analyte	Result	RL
Freon 12	ND	1,000
Chloromethane	ND	1,000
Vinyl Chloride	ND	1,000
Bromomethane	ND	1,000
Chloroethane	ND	1,000
Trichlorofluoromethane	ND	500
Acetone	ND	2,000
Freon 113	ND	500
1,1-Dichloroethene	ND	500
Methylene Chloride	ND	2,000
Carbon Disulfide	ND	500
MTBE	ND	500
trans-1,2-Dichloroethene	ND	500
Vinyl Acetate	ND	5,000
1,1-Dichloroethane	ND	500
2-Butanone	ND	1,000
cis-1,2-Dichloroethene	ND	500
2,2-Dichloropropane	ND	500
Chloroform	ND	500
Bromochloromethane	ND	500
1,1,1-Trichloroethane	ND	500
1,1-Dichloropropene	ND	500
Carbon Tetrachloride	ND	500
1,2-Dichloroethane	ND	500
Benzene	ND	500
Trichloroethene	ND	500
1,2-Dichloropropane	ND	500
Bromodichloromethane	ND	500
Dibromomethane	ND	500
4-Methyl-2-Pentanone	ND	1,000
cis-1,3-Dichloropropene	ND	500
Toluene	2,500	500
trans-1,3-Dichloropropene	ND	500
1,1,2-Trichloroethane	ND	500
2-Hexanone	ND	1,000
1,3-Dichloropropane	ND	500
Tetrachloroethene	ND	500

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	150646	Location:	MLK Jr. Way
Client:	Subsurface Consultants	Prep:	EPA 5030
Project#:	272.054	Analysis:	EPA 8260B
Field ID:	TW-1@18.5'	Diln Fac:	100.0
Lab ID:	150646-002	Batch#:	61957
Matrix:	Soil	Sampled:	03/02/01
Units:	ug/Kg	Received:	03/02/01
Basis:	wet	Analyzed:	03/05/01

Analyte	Result	RL
Dibromochloromethane	ND	500
1,2-Dibromoethane	ND	500
Chlorobenzene	ND	500
1,1,1,2-Tetrachloroethane	ND	500
Ethylbenzene	1,600	500
m,p-Xylenes	7,700	500
o-Xylene	3,300	500
Styrene	ND	500
Bromoform	ND	500
Isopropylbenzene	ND	500
1,1,2,2-Tetrachloroethane	ND	500
1,2,3-Trichloropropane	ND	500
Propylbenzene	1,500	500
Bromobenzene	ND	500
1,3,5-Trimethylbenzene	4,400	500
2-Chlorotoluene	ND	500
4-Chlorotoluene	ND	500
tert-Butylbenzene	ND	500
1,2,4-Trimethylbenzene	14,000	500
sec-Butylbenzene	ND	500
para-Isopropyl Toluene	ND	500
1,3-Dichlorobenzene	ND	500
1,4-Dichlorobenzene	ND	500
n-Butylbenzene	1,800	500
1,2-Dichlorobenzene	ND	500
1,2-Dibromo-3-Chloropropane	ND	500
1,2,4-Trichlorobenzene	ND	500
Hexachlorobutadiene	ND	500
Naphthalene	2,900	500
1,2,3-Trichlorobenzene	ND	500

Surrogate	%REC	Limits
Dibromofluoromethane	97	63-133
1,2-Dichloroethane-d4	110	76-127
Toluene-d8	101	80-111
Bromofluorobenzene	96	77-126

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	150646	Location:	MLK Jr. Way
Client:	Subsurface Consultants	Prep:	EPA 5030
Project#:	272.054	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC139144	Batch#:	61957
Matrix:	Water	Analyzed:	03/05/01
Units:	ug/L		

Analyte	Result	RL
Freon 12	ND	10
Chloromethane	ND	10
Vinyl Chloride	ND	10
Bromomethane	ND	10
Chloroethane	ND	10
Trichlorofluoromethane	ND	5.0
Acetone	ND	20
Freon 113	ND	5.0
1,1-Dichloroethene	ND	5.0
Methylene Chloride	ND	20
Carbon Disulfide	ND	5.0
MTBE	ND	5.0
trans-1,2-Dichloroethene	ND	5.0
Vinyl Acetate	ND	50
1,1-Dichloroethane	ND	5.0
2-Butanone	ND	10
cis-1,2-Dichloroethene	ND	5.0
2,2-Dichloropropane	ND	5.0
Chloroform	ND	5.0
Bromochloromethane	ND	5.0
1,1,1-Trichloroethane	ND	5.0
1,1-Dichloropropene	ND	5.0
Carbon Tetrachloride	ND	5.0
1,2-Dichloroethane	ND	5.0
Benzene	ND	5.0
Trichloroethene	ND	5.0
1,2-Dichloropropane	ND	5.0
Bromodichloromethane	ND	5.0
Dibromomethane	ND	5.0
4-Methyl-2-Pentanone	ND	10
cis-1,3-Dichloropropene	ND	5.0
Toluene	ND	5.0
trans-1,3-Dichloropropene	ND	5.0
1,1,2-Trichloroethane	ND	5.0
2-Hexanone	ND	10
1,3-Dichloropropane	ND	5.0
Tetrachloroethene	ND	5.0
Dibromochloromethane	ND	5.0

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	150646	Location:	MLK Jr. Way
Client:	Subsurface Consultants	Prep:	EPA 5030
Project#:	272.054	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC139144	Batch#:	61957
Matrix:	Water	Analyzed:	03/05/01
Units:	ug/L		

Analyte	Result	RL
1,2-Dibromoethane	ND	5.0
Chlorobenzene	ND	5.0
1,1,1,2-Tetrachloroethane	ND	5.0
Ethylbenzene	ND	5.0
m,p-Xylenes	ND	5.0
o-Xylene	ND	5.0
Styrene	ND	5.0
Bromoform	ND	5.0
Isopropylbenzene	ND	5.0
1,1,2,2-Tetrachloroethane	ND	5.0
1,2,3-Trichloropropane	ND	5.0
Propylbenzene	ND	5.0
Bromobenzene	ND	5.0
1,3,5-Trimethylbenzene	ND	5.0
2-Chlorotoluene	ND	5.0
4-Chlorotoluene	ND	5.0
tert-Butylbenzene	ND	5.0
1,2,4-Trimethylbenzene	ND	5.0
sec-Butylbenzene	ND	5.0
para-Isopropyl Toluene	ND	5.0
1,3-Dichlorobenzene	ND	5.0
1,4-Dichlorobenzene	ND	5.0
n-Butylbenzene	ND	5.0
1,2-Dichlorobenzene	ND	5.0
1,2-Dibromo-3-Chloropropane	ND	5.0
1,2,4-Trichlorobenzene	ND	5.0
Hexachlorobutadiene	ND	5.0
Naphthalene	ND	5.0
1,2,3-Trichlorobenzene	ND	5.0

Surrogate	%REC	Limits
Dibromofluoromethane	103	63-133
1,2-Dichloroethane-d4	111	76-127
Toluene-d8	103	80-111
Bromofluorobenzene	101	77-126

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	150646	Location:	MLK Jr. Way
Client:	Subsurface Consultants	Prep:	EPA 5030
Project#:	272.054	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	61957
Units:	ug/L	Analyzed:	03/05/01
Diln Fac:	1.000		

Type: BS Lab ID: QC139142

Analyte	Spiked	Result	%REC	Limits
1,1-Dichloroethene	50.00	47.90	96	66-138
Benzene	50.00	46.98	94	76-121
Trichloroethene	50.00	52.27	105	75-124
Toluene	50.00	52.48	105	75-124
Chlorobenzene	50.00	53.06	106	78-115

Surrogate	%REC	Limits
Dibromofluoromethane	100	63-133
1,2-Dichloroethane-d4	105	76-127
Toluene-d8	100	80-111
Bromofluorobenzene	99	77-126

Type: BSD Lab ID: QC139143

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
1,1-Dichloroethene	50.00	45.63	91	66-138	5	20
Benzene	50.00	45.92	92	76-121	2	20
Trichloroethene	50.00	52.04	104	75-124	0	20
Toluene	50.00	50.60	101	75-124	4	20
Chlorobenzene	50.00	50.01	100	78-115	6	20

Surrogate	%REC	Limits
Dibromofluoromethane	100	63-133
1,2-Dichloroethane-d4	107	76-127
Toluene-d8	103	80-111
Bromofluorobenzene	97	77-126

RPD= Relative Percent Difference

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March 30, 2001 SOMA 98-2164

Glenn Young
Subsurface Consultants, Inc.
3736 Mt. Diablo Boulevard, Suite 200
Lafayette, CA 94549-3659

Subject: Tier 3 Risk-Based Corrective Action Evaluation for Property at Martin Luther King Jr. Way, Between 11th and 12th Street, Oakland, California

Dear Glenn,

Pursuant to your request, SOMA Corporation (SOMA) has completed a Tier 3 Risk-Based Corrective Action (RBCA) Evaluation for Property at Martin Luther King Jr. Way, between 11th and 12th Street, Oakland, California ("the Site") using the approach developed by the Oakland Urban Land Redevelopment (ULR) Program Technical Advisory Committee. This letter report outlines the assumptions used in the evaluation and presents the results of the evaluation. In addition to the text presented herein, tables are attached as referenced throughout the letter report.

Overall Approach

The overall approach was to use the Oakland RBCA spreadsheet available from the City of Oakland as the basis for the human health evaluation of chemical concentrations in soil and groundwater at the Site under a future land use assumption. It is our understanding that the Site is to be redeveloped and will include residential housing with below grade parking on the first floor. The upper 8 feet of soil currently present at the Site will be excavated from the Site for construction purposes.

The Oakland RBCA approach includes a three tier process of comparing site concentrations to various levels:

- Tier 1 is a comparison to Risk-Based Screening Levels (RBSL) that may be applied to all sites in Oakland
- Tier 2 is a comparison to site-specific target levels (SSTL) that incorporate consideration of three predominant soil types found in Oakland
- Tier 3 is comparison to SSTLs that are generated by modification of the Tier 2 calculations to account for additional site-specific factors

The approach used for this evaluation was to develop representative chemical concentrations in soil and groundwater and develop Tier 3 SSTLs by incorporating site-specific information into the calculations, including redevelopment information for the Site. This approach was used for organic chemicals, but lead was evaluated separately from the Tier 3 approach.

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Chemical Data and Calculation of Representative Concentrations

Previous environmental investigations have included the collection of soil and groundwater samples for analyses for chemicals including total petroleum hydrocarbon as gasoline (TPHg), total petroleum hydrocarbons as diesel (TPHd), total petroleum hydrocarbons as oil (TPHo), benzene, toluene, ethylbenzene, xylenes, 1,2-dichloroethane, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, propylbenzene, n-butylbenzene, and lead. Chemical data available for this Tier 3 evaluation included:

- Results from soil and groundwater samples collected in 1998 by Tetra Tech EM Inc. ("Oakland Redevelopment Project Phase II Environmental Site Assessment Summary Report, Preservation Park 3 Site, Oakland, California")
- Results from soil samples collected in 2000 by Subsurface Consultants, Inc. (SCI)
- Results from a groundwater sample and soil sample collected by SCI in March 2001

In order to evaluate future land use conditions, soil samples collected from a depth less than 6 feet below ground surface (bgs) were assumed to be excavated and were not included in the data considered further in this evaluation. The remaining soil and groundwater data were tabulated and a summary of statistical parameters was generated. Potential human health effects from exposure to TPH mixtures detected in soil and groundwater were evaluated by assuming that the benzene, toluene, ethylbenzene, and total xylenes (BTEX) components and other organic chemicals detected represent the toxic components of the TPH mixtures. Consequently, TPHg, TPHd, and TPHo were not evaluated further.

The 95 percent upper confidence level (95% UCL) of the arithmetic mean assuming a normal distribution using the Student-t statistic was used as the representative concentration for the chemicals of potential concern. For both soil and groundwater, if the number of samples used to calculate a particular 95% UCL was less than 5, the maximum concentration was used as the representative concentration. The use of sample results reported as not detected was conducted by taking one-half of the sample quantitation limit (SQL) and using the value as a proxy concentration (U.S. EPA 1989). Table 1 presents the soil data and summary statistics. Table 2 presents the groundwater data and summary statistics. For chemicals detected in only one sample (i.e., naphthalene, 1,2-dichlorothane, organic lead, propylbenzene, and n-butylbenzene), the single concentration was used as the representative concentration.

Variations from Default Parameters in the Oakland RBCA Model

Selected parameters were revised from the Oakland RBCA model default parameters. These parameters included the depth to groundwater, foundation thickness, indoor air exchange rate, building air volume/floor area ratio, and selected chemical properties. With the exception of the chemical properties, the revised parameters accounted for known depth to groundwater at the Site and for the configuration of the proposed redevelopment at the Site.

It is our understanding that the Site is to be redeveloped and will include residential housing with below grade parking on the first floor. The upper 8 feet of soil presently at the Site will be excavated for construction purposes and will be covered with 11 inches of concrete for the garage. The garage height will be 8.5 feet and the structure will cover the entire site of approximately 150 feet by 200 feet. Based upon conversations with Mr. Donald Alexander with the City of Oakland Building Services Operations Division, a parking garage facility is considered an S3 occupancy. According to the 1997 Uniform Building Code, Chapter 12, Section 1202.2, ventilation for a closed parking structure is 1.5 $feet^3$/minute/$feet^2$. It is assumed that this will be the minimum ventilation rate for the first floor of the garage. Because the vapor transport model incorporated into the Oakland RBCA spreadsheet does not include a ventilated garage compartment beneath occupied structures, it was assumed that the first floor of the garage would represent the first full-time occupied floor of the building. This is a very conservative screening-level assumption and results in an overestimate of the potential indoor air inhalation exposure to the future users of the building. However, if estimates of exposure and risk based upon a first garage floor occupancy assumption are relatively low, estimates of exposure and risk for users in the actual building would be significantly less. This is primarily due to dilution of vapor concentrations in the garage as a result of mechanical ventilation required for the construction of the garage. Table 3 presents the variations from the default exposure parameters used in the evaluation. Table 4 presents all of the input parameters used in the evaluation. Table 5 presents the chemical properties used in the evaluation.

Although the Oakland RBCA model includes a wide array of potential exposure pathways that may be evaluated, the exposure pathways considered complete for this Tier 3 evaluation are the following:

- Inhalation of outdoor air vapors from chemicals in soil
- Inhalation of indoor air vapors from chemicals in soil
- Inhalation of outdoor air vapors from chemicals in groundwater
- Inhalation of indoor air vapors from chemicals in groundwater

It was assumed that inhalation of indoor air vapors and outdoor air vapors were not additive, but that vapors from soil and groundwater for a given air-type were additive. Because a building will be constructed over the Site, the exposure pathways of ingestion of surface soil, inhalation of particulates from surface soil, and dermal contact with surface soil were not considered complete. Direct contact with groundwater as drinking water was also not considered a complete exposure pathway.

Although 1,2,4-trimethylbenzene and 1,3,5-trimethylbenzene were detected, these chemicals are not included in the Oakland RBCA Model. These chemicals were added to the spreadsheet model with the appropriate chemical properties (Table 5) so that the model generated the corresponding SSTL. Propylbenzene, and n-butylbenzene were detected in a single soil sample

but are also not included in the Oakland RBCA Model. Toxicity criteria and chemical property information were not available for these chemicals. Consequently, cumene (isopropylbenzene) was selected as a surrogate chemical for these chemicals. The chemical properties, as well as toxicity criteria for cumene were included in the Oakland RBCA Model under "propylbenzene/n-butylbenzene".

Tier 3 Evaluation Results

This Tier 3 evaluation assumed a future use of the Site that included a residential scenario as a point of reference. Table 6 presents the Tier 3 SSTLs. The comparison of representative chemical concentrations to SSTLs included the estimation of total excess cancer risk and total noncancer hazard. Risk and hazard were estimated by calculating the ratio of representative concentration to the SSTL and multiplying by the Oakland RBCA target risk (1E-05) and target hazard (hazard of 1), respectively. Soil and groundwater risks and hazards were calculated and summed to yield total hazard and risk. As noted previously, risks and hazards from indoor and outdoor air inhalation exposure pathways were evaluated separately. For the residential scenario, the estimated indoor air total excess cancer risk was 8.1E-06 and the total noncancer hazard was 0.26 (Table 7). The estimated outdoor air total excess cancer risk was 8.2E-06 and the total noncancer hazard was 0.26 (Table 8).

The outdoor air estimated excess cancer risks were slightly greater than the indoor air estimates due to the ventilation requirements for the parking garage. In slab on-grade foundation exposure scenarios, the outdoor air dilution and dispersion of vapors from subsurface volatilization is generally assumed to be greater than indoor air dilution dispersion. The presence of the parking garage at the ground level of the proposed building changes this assumption. The factoring of the parking garage ventilation requirements for the Site into the Oakland RBCA model resulted in indoor air inhalation SSTLs lower than the outdoor air inhalation SSTLs. Consequently, indoor air inhalation risks were slightly less than outdoor air inhalation risks and hazards.

As noted in Tables 7 and 8, selected SSTLs for toluene, ethylbenzene, total xylenes, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, n-butylbenzene, and propylbenzene are noted as either "SAT" for soil or "SOL" for groundwater. The term "SAT" indicates that the calculated SSTL exceeds the saturated soil concentration of the chemical. Because the Site soil concentrations of toluene, ethylbenzene, and total xylene are significantly less than the saturation concentrations for those chemicals, potential noncancer hazards from these chemicals in soil are considered insignificant. The term "SOL" indicates that the calculated SSTL exceeds the solubility of the chemical in water. Because the Site groundwater concentrations of toluene, ethylbenzene, total xylene, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, propylbenzene, and n-butylbenzene are less than the water solubility concentrations for those chemicals, potential noncancer hazards from these chemicals in groundwater are considered insignificant.

Lead Evaluation

The potential for health effects from residential exposure to lead was addressed by comparing the representative lead concentrations in soil to the U.S. EPA Region 9 1999 residential Preliminary

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Remediation Goal (PRG) of 400 mg/kg. The PRG was developed to protect the children exposed to lead in a residential setting. The PRG is based on the results of an EPA analysis that used the Integrated Exposure Uptake Biokinetic (IEUBK) Model for Lead in Children that estimates soil lead concentrations corresponding to a blood-lead concentration of 10 ug/dL, the threshold level of concern. The model reflects exposure to lead by ingestion of soil, dermal contact with soil; and inhalation of dusts from site-related sources, and by ingestion of water, food, and air from background sources.

Using the 95% UCL calculations previously described, the representative concentration of lead in soil was 27 mg/kg, while the maximum concentration of lead in soil was 91 mg/kg. Organic lead was detected in one sample at a concentration of 0.53 mg/kg. These concentrations are significantly less than the PRG and are not considered to represent a threat to human health.

Summary

The results of the Tier 3 Oakland RBCA evaluation for the Site indicate that soil and groundwater chemical concentrations yield estimated excess cancer risks for both indoor and outdoor air of less than 1E-05 and noncancer hazards less than a value of 1 for a residential scenario. The Tier 3 Oakland RBCA evaluation included an assumption that the first floor parking garage of the proposed building at the Site was occupied by potential receptors, but that ventilation requirements for the enclosed parking structure are factored into the calculations for indoor air SSTLs. Actual future users in the parking garage would be subject to significantly less exposure from chemicals in soil and groundwater due to limited exposure time per day. Although not completed for this evaluation, more detailed transport modeling of the potential vapor intrusion of chemicals into the garage from soil and groundwater into the residential areas of the building is expected to yield significantly lower estimates of exposure and associated risks and hazards. This is because of the additional barrier that the vapors must infiltrate (garage ceiling/residential floor) and the additional vapor dilution and dispersion from the building ventilation systems. It should be noted that although an outdoor air evaluation was performed, this potential exposure scenario is not considered applicable because of the lack of space planned around the proposed building at the Site, precluding potential outdoor air exposure directly from the subsurface.

Thank you for the opportunity to work with you on this project. If you have any questions, please call me at (510) 654-3900.

Sincerely,

Glenn M. Leong
Vice President and Senior Scientist

attachments (Tables 1 through 8)

Table 1 Soil Data and Summary Statistics

Sample ID	Boring ID	Depth (feet)	Sample Date	Units	Benzene	Toluene	Ethylbenzene	Xylenes	Lead	Organic Lead	Propylbenzene	1,3,5-Trimethylbenzene	1,2,4-Trimethylbenzene	n-butylbenzene	Naphthalene	Source
LW 1	LW 1	18 5	3/2/01	mg/kg	<0 5	2 5	1.6	11	--	--	1.5	4.4	14	1 8	2 9	Subsurface Consultants, Inc.
IP-1	NA	0 0	8/1 00	mg/kg	--	--	--	--	160	--	--	--	--	--	--	Subsurface Consultants, Inc.
IP 1	NA	2 0	8 1 00	mg/kg	--	--	--	--	3 1	--	--	--	--	--	--	Subsurface Consultants, Inc.
IP 1	NA	5 0	8/4/00	mg/kg	<4 9	<4.9	<4 9	<4.9	3.6	--	--	--	--	--	--	Subsurface Consultants, Inc.
IP 2	NA	0 0	8 4/00	mg/kg	--	--	--	--	20	--	--	--	--	--	--	Subsurface Consultants, Inc
IP 2	NA	2 0	8 1/00	mg/kg	<4 9	<4.9	<4 9	<4 9	1.6	--	--	--	--	--	--	Subsurface Consultants, Inc.
IP 2	NA	5 0	8/4 00	mg/kg	--	--	--	--	2 1	--	--	--	--	--	--	*Subsurface Consultants, Inc.*
IP 3	NA	0 0	8 4 00	mg/kg	--	--	--	--	160	--	--	--	--	--	--	Subsurface Consultants, Inc.
IP 3	NA	3 0	8 1 00	mg/kg	--	--	--	--	1 8	--	--	--	--	--	--	Subsurface Consultants, Inc.
IP 3	NA	6 0	8/1 00	mg/kg	<4.8	<4 8	<4.8	<4.8	7 0	--	--	--	--	--	--	Subsurface Consultants, Inc.
IP 4	NA	0 0	8 1 00	mg/kg	--	--	--	--	170	--	--	--	--	--	--	Subsurface Consultants, Inc.
IP 4	NA	2 5	8 1 00	mg/kg	<4.9	<4 9	<4 9	<4.9	86	--	--	--	--	--	--	Subsurface Consultants, Inc.
IP 4	NA	6 0	8 4/00	mg/kg	--	--	--	--	91	--	--	--	--	--	--	Subsurface Consultants, Inc.
IP 5	NA	0 0	8/4/00	mg/kg	--	--	--	--	110	--	--	--	--	--	--	Subsurface Consultants, Inc.
IP 5	NA	2 0	8/4 00	mg/kg	<4 7	<4.7	<4.7	<4 7	4 5	--	--	--	--	--	--	*Subsurface Consultants, Inc.*
IP 5	NA	6 0	8/1/00	mg/kg	--	--	--	--	2 4	--	--	--	--	--	--	Subsurface Consultants, Inc.
IP-6	NA	0 0	8/4/00	mg/kg	--	--	--	--	190	--	--	--	--	--	--	Subsurface Consultants, Inc.
IP 6	NA	2 5	8 1 00	mg/kg	--	--	--	--	1 9	--	--	--	--	--	--	Subsurface Consultants, Inc.
IP 6	NA	6 0	8/4/00	mg/kg	<4 6	<4 6	<4 6	<4.6	2 0	--	--	--	--	--	--	Subsurface Consultants, Inc
IP 7	NA	0 0	8/1 00	mg/kg	--	--	--	--	220	--	--	--	--	--	--	Subsurface Consultants, Inc
IP-7	NA	2 0	8 1/00	mg/kg	<4 7	<4 7	<4 7	<4.7	2 1	--	--	--	--	--	--	Subsurface Consultants, Inc
IP 7	NA	6 0	8/1/00	mg/kg	--	--	--	--	2 5	--	--	--	--	--	--	Subsurface Consultants, Inc
IP 8	NA	0 0	8/1/00	mg/kg	--	--	--	--	220	--	--	--	--	--	--	*Subsurface Consultants, Inc.*
IP 8	NA	2 5	8/4/00	mg/kg	<4.8	<4.8	<4 8	<4.8	180	--	--	--	--	--	--	Subsurface Consultants, Inc.
IP 8	NA	6 0	8/1 00	mg/kg	--	--	--	--	1 7	--	--	--	--	--	--	Subsurface Consultants, Inc.
IP 9	NA	0 0	8/1 00	mg/kg	--	--	--	--	220	--	--	--	--	--	--	Subsurface Consultants, Inc.
IP 9	NA	2 0	8 1 00	mg/kg	--	--	--	--	1.4	--	--	--	--	--	--	Subsurface Consultants, Inc.
IP 9	NA	5 0	8/1/00	mg/kg	<4 8	<4 8	<4.8	<4 8	1 3	--	--	--	--	--	--	Subsurface Consultants, Inc.
IP-10	NA	0 0	8 1 00	mg/kg	--	--	--	--	150	--	--	--	--	--	--	Subsurface Consultants, Inc
IP 10	NA	2 0	8/1/00	mg/kg	<4 7	<4.7	<4.7	<4 7	1 9	--	--	--	--	--	--	Subsurface Consultants, Inc
IP 10	NA	5 0	8/4/00	mg/kg	--	--	--	--	2 2	--	--	--	--	--	--	*Subsurface Consultants, Inc*
IP 11	NA	0 0	8/1/00	mg/kg	--	--	--	--	200	--	--	--	--	--	--	Subsurface Consultants, Inc.
IP 11	NA	2 0	8/1/00	mg/kg	--	--	--	--	15	--	--	--	--	--	--	Subsurface Consultants, Inc.
IP 11	NA	5 0	8/1/00	mg/kg	<4.9	<4 9	<4 9	<4 9	1.9	--	--	--	--	--	--	Subsurface Consultants, Inc
IP 12	NA	0 0	8/4 00	mg/kg	--	--	--	--	72	--	--	--	--	--	--	Subsurface Consultants, Inc.
IP 12	NA	2 0	8/4/00	mg/kg	<4.7	<4 7	<4 7	<4.7	110	--	--	--	--	--	--	Subsurface Consultants, Inc.
IP 12	NA	5 0	8/1/00	mg/kg	--	--	--	--	19	--	--	--	--	--	--	Subsurface Consultants, Inc.
9850N001	SB2	9 5 10 0		mg/kg	--	--	--	--	2 9	--	--	--	--	--	--	Tetra Tech BM Inc.
9850N002	SB2	16 5-17 0		mg/kg	--	--	0.01	0.03	78 6	--	--	--	--	--	--	*Tetra Tech BM Inc.*
9850N003	SB2	23 5-24 0		mg/kg	1 9	24 0	14.0	89.0	2 3	--	--	--	--	--	--	Tetra Tech BM Inc.
9850N007	SB1	9 5 10 0		mg/kg	0.021	0 96	2.9	12 8	6.6	--	--	--	--	--	--	Tetra Tech BM Inc
9850N008	SB1	16 5 17 0		mg/kg	--	0 03	0 12	1 0	27 4	--	--	--	--	--	--	Tetra Tech BM Inc
9850N009	SB1	23 5 24 0		mg/kg	3 2	26 0	19.0	156 0	4 9	0 53	--	--	--	--	--	Tetra Tech BM Inc
9850N017	SB3	9 0 10 0		mg/kg	--	--	--	--	2 4	--	--	--	--	--	--	Tetra Tech BM Inc.
9850N018 Duplicate	SB3	16 5 17 0		mg/kg	--	--	--	--	2 8	--	--	--	--	--	--	Tetra Tech BM Inc.
9850N019	SB3	16 0-16 5		mg/kg	--	--	--	--	2.3	--	--	--	--	--	--	*Tetra Tech BM Inc.*
9850N020	SB3	23 5 24 0		mg/kg	--	--	--	--	0 88	--	--	--	--	--	--	Tetra Tech BM Inc
				Minimum	0 021	0.03	0.01	0 03	0.88	0.53	1 5	4 4	14	1 8	2 9	
				Maximum	3 2	26	19	156	91	0.53	1 5	4 4	14	1 8	2 9	
				Average	1 6785	8 312857	5.29125	34 31625	14 855	--	1.5	4 4	14	1 8	2 9	
			Standard Deviation		1 269549	11.44914	7 121956869	57.48671	28 10435	--	--	--	--	--	--	
				Count	6	7	8	8	16	1	1	1	1	1	1	
				t-value	2 132	2 015	1.943	1.943	1 753	--	--	--	--	--	--	
				95 UCL	2 78	17 03	10.18	73.81	27 17	--	--	--	--	--	--	

Notes
Statistics only include data greater than 6 feet below ground surface
NA - Not applicable
- Sample not analyzed

Table 2. Groundwater Data and Summary Statistics

Sample ID	Boring ID	Depth (feet)	Sample Date	Units	Benzene	Toluene	Ethylbenzene	Xylenes	Lead	1,2,4-Trimethyl-benzene	1,2-Dichloro-ethane	1,3,5-Trimethyl-benzene	Naphthalene	Source
TW-1	TW-1	--	03/02/01	mg/L	4	11	2.2	13.4		3.8	ND, < 0.5	1.2	ND, < 0.5	SCI
9850N010	SB1	36 0-40 0		mg/L	0.35	1.8	0.64	4.7	0.43	--	--	--	--	Tetra Tech EM Inc.
9850N013	SB2	36 0-40 0		mg/L	0.02	0.026	0.0031	0.02	0.18	0.0056	0.0014	0.0017	0.0014	Tetra Tech EM Inc.
9850N015	SB3	36 0-40 0		mg/L	--	--	--	--	0.04	--	--	--	--	Tetra Tech EM Inc.
				Minimum	0.02	0.026	0.0031	0.02	0.04	0.0056	0.0014	0.0017	0.0014	
				Maximum	4	11	2.2	13.4	0.43	3.8	0.0014	1.2	0.0014	
				Average	1.456667	4.275333	0.9477	6.04	0.216667	1.9028	0.0014	0.60085	0.0014	
				Standard Deviation	2.208763	5.890893	1.130310519	6.789904	0.197569	2.683045971	--	0.847326056	--	
				Count	3	3	3	3	3	2	1	2	1	
				t-value	6.314	6.314	6.314	6.314	2.92	--	--	--	--	
				95 UCL	--	--	--	--	--	--	--	--	--	

Notes
-- Sample not analyzed

Table 3. Tier 3 Parameter Variations

Parameter	Units	Tier 2 Value	Tier 3 Value	Notes
Depth to Groundwater	cm	300	486.4	Depth is approximately 24 feet below ground surface (bgs) , but soil to be excavated 8 feet bgs, resulting in depth to groundwater from bottom of concrete floor of 16 feet bgs (486.4 cm)
Foundation Thickness	cm	15	27.94	Construction specifications indicate 11" floor beneath parking structure
Indoor Air Exchange Rate	sec^{-1}	5.6E-04 Residential	2.90E-03	Assume indoor air compartment where exposure may occur is a subsurface parking garage - 1997 Uniform Building Code Chapter 12, Section 1202.2.7 - ventilation for closed parking garage (S3 occupancy) is 1.5 $feet^3$/minute/$feet^2$ - Height of garage is 8.5 feet and approximate floor area is 150 feet by 200 feet
Building Air Volume/floor area	cm^3/cm^2	229	259	Assumed first floor garage dimensions - 8.5 feet x 150 feet x 200 feet / 150 feet x 250 feet
Benzene Oral Verified Reference Dose (RfD)	mg/kg-day	1.70E-03	3.00E-03	From 1999 U.S. EPA Region IX Preliminary Remediation Goal Tables - value from National Center for Environmental Assessment (NCEA)
Benzene Oral Verified Reference Dose (RfD)	mg/kg-day	1.70E-03	3.00E-03	From 1999 U.S. EPA Region IX Preliminary Remediation Goal Tables - value from National Center for Environmental Assessment (NCEA)
1,2 Dichloroethane Oral Verified Reference Dose (RfD)	mg/kg-day	2.90E-03	3.00E-02	From 1999 U.S. EPA Region IX Preliminary Remediation Goal Tables - value from National Center for Environmental Assessment (NCEA)
1,2-Dichloroethane Inhalation Verified Reference Dose (RfD)	mg/kg-day	2.90E-03	1.40E-03	From 1999 U.S. EPA Region IX Preliminary Remediation Goal Tables - value from National Center for Environmental Assessment (NCEA)
Propylbenzene and n-Butylbenzene Oral Reference Dose (RfD)	mg/kg-day	Not Available	1.14E-01	From 2000 Integrated Risk Information System (IRIS) for cumene (isopropylbenzene) - Inhalation value used based upon route-to-route extrapolation
Propylbenzene and n-Butylbenzene Inhalation Verified Reference Dose (RfD)	mg/kg-day	Not Available	1.14E-01	From 2000 Integrated Risk Information System (IRIS) for cumene (isopropylbenzene)
Propylbenzene and n-Butylbenzene Chemical Properties	Assorted	Not Available	Assorted	Values for cumene (isopropylbenzene) used, as derived from 1999 U.S. EPA Region IX Preliminary Remediation Goal Tables
Naphthalene Oral Verified Reference Dose (RfD)	mg/kg-day	4.00E-02	2.00E-02	From 2000 Integrated Risk Information System (IRIS)
Naphthalene Inhalation Verified Reference Dose (RfD)	mg/kg-day	4.00E-02	8.57E-04	From Referece Concentration (3E-3 mg/m^3) referenced in 2000 Integrated Risk Information System (IRIS)
1,2,4-Trimethylbenzene and 1,3,5-Trimethybenzene Oral Verified Reference Dose (RfD)	mg/kg-day	Not Available	5.00E-02	From 1999 U.S. EPA Region IX Preliminary Remediation Goal Tables - value from National Center for Environmental Assessment (NCEA)

Notes

cm = centimeters
cm2 = square centimeters
cm3 = cubic centimeters
sec = seconds

Table 4. Tier 3 Input Parameters

		Risk Scenario		
		Residential		Commercial
TARGET RISK LEVELS:	Units	Value for ADULT	Value for CHILD	Value for Industrial
Target cancer risk (TECR)	unitless	1.0E-05	= *adult res.*	1.0E-05
Target hazard quotient	unitless	1.0	= *adult res.*	1.0
		Residential		Commercial
EXPOSURE PARAMETERS	Units	Value for ADULT	Value for CHILD	Value for Industrial
Averaging time for carcinogens	yr	70	= adult res.	= adult res.
Averaging time for non-carcinogens	yr	24	6	25
Body weight	kg	70	15	70
Exposure duration	yr	24	6	25
Exposure frequency	d/yr	350	350	250
Exposure time to indoor air	hr/d	24	24	9
Exposure time to outdoor air	hr/d	16	16	9
Soil ingestion rate	mg/d	100	200	50
Indoor inhalation rate	m^3/d	15	10	20
Outdoor inhalation rate	m^3/d	20	10	20
Groundwater ingestion rate	L/d	2	1	1
Soil to skin adherence factor	mg/cm^2	0.2	0.2	0.2
Skin surface area exposed to soil	cm^2	5000	2000	5000
Exp. freq. to water used for recreation	d/yr	120	120	0
Exp. time to water used for recreation	hr/d	1.0	2	0
Skin surface area exposed to water used for recreation	cm^2	20000	8000	0
Ingestion rate of water used for recreation	L/hr	0.05	0.05	0
		Residential		Commercial
SATURATED ZONE PARAMETERS:	Units	Value for ADULT	Value for CHILD	Value for Industrial
Groundwater Darcy velocity	cm/yr	600	=*adult res.*	=*adult res*
Groundwater mixing zone thickness	cm	305	=*adult res*	=*adult res.*

Table 4. Tier 3 Input Parameters

		Residential		Commercial
VADOSE ZONE PARAMETERS	Units	Value for ADULT	Value for CHILD	Value for Industrial
Lower depth of surficial soil zone	cm	100.0	=adult res.	=adult res.
Fraction organic carbon (FOC)	g oc/g soil	0.01	=adult res.	=adult res.
Vadose zone thickness	cm	538.54	=adult res.	=adult res.
Infiltration rate through the vadose zone	cm/yr	9	=adult res.	=adult res.
Depth to groundwater	cm	548.64	=adult res.	=adult res.
Depth to subsurface soil sources	cm	100	=adult res.	=adult res.
Vadose zone air content	cm^3/cm^3	0.2	=adult res.	=adult res.
Total soil porosity	cm^3/cm^3	0.35	=adult res.	=adult res.
Vadose zone water content	cm^3/cm^3	0.15	=adult res.	=adult res.
Soil bulk density	g/cm^3	1.72	=adult res.	=adult res.
Capillary fringe thickness	cm	10.1	=adult res.	=adult res.
Capillary fringe air content	cm^3/cm^3	0.025	=adult res.	=adult res.
Capillary fringe water content	cm^3/cm^3	0.325	=adult res.	=adult res.

		Residential		Commercial
OUTDOOR AND INDOOR VOLATILIZATION BUILDING PARAMETERS	Units	Value for ADULT	Value for CHILD	Value for Industrial
Indoor air exchange rate	1/s	2.90E-03	=adult res.	2.90E-03
Building air volume/floor area	cm^3/cm^2	259	=adult res.	259
Foundation thickness	cm	27.94	=adult res.	27.94
Area fraction of cracks in building foundation	cm^2/cm^2	0.001	=adult res.	0.001
Foundation air content	cm^3/cm^3	0.25	=adult res.	=adult res.
Foundation water content	cm^3/cm^3	0	=adult res.	=adult res.
Particulate emission rate	g/cm^2-s	1.38E-11	=adult res.	1.38E-11
Wind speed above ground surface in outdoor air mixing zone	cm/s	322	=adult res.	=adult res.
Width of source area parallel to wind or groundwater flow direction	cm	1500	=adult res.	=adult res.
Outdoor air mixing zone height	cm	200	=adult res.	=adult res.
Averaging time for vapor flux	s	9.46E+08	=adult res	7.88E+08

Table 5. Chemical Properties

Parameter	Units	Benzene	Propylbenzene/ n-Butylbenzene	Dichloro ethane (1,2-) (EDC)	Ethyl-benzene	Naphthalene	Tetraethyl Lead	Toluene	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	Xylenes
Toxicity Data											
Slope Factor Oral	1/(mg/kg-d)	1.00E-01	ND	7.00E-02	ND	ND	ND	ND	ND	7.20E-02	ND
Slope Factor Inhalation	1/(mg/kg-d)	1.00E-01	ND	7.00E-02	ND	ND	ND	ND	ND	7.20E-02	ND
RfD Oral	mg/kg-d	3.00E-03	1.14E-01	3.00E-02	1.00E-01	2.00E-02	1.00E-07	2.00E-01	5.00E-02	5.00E-02	2.00E+00
RfD Inhalation	mg/kg-d	1.70E-03	1.14E-01	1.40E-03	2.90E-01	8.57E-04	ND	1.14E-01	1.70E-03	1.70E-03	2.00E-01
Absorption Adjustment Factor Oral-Soil	-	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00
Absorption Adjustment Factor Oral-Water	-	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00
Absorption Adjustment Factor Dermal-Soil	-	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01
Absorption Adjustment Factor Dermal-Water	-	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00
Absorption Adjustment Factor Inhalation	-	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00
Fate and Transport Parameters											
Solubility	mg/L	1.75E+03	6.10E+01	8.52E+03	1.69E+02	3.10E+01	2.10E-01	5.26E+02	2.60E-01	5.00E+01	1.98E+02
Henry's Law Constant (no NDs)	-	2.28E-01	4.90E+01	4.01E-02	3.23E-01	1.98E-02	2.33E+01	2.72E-01	2.30E-01	3.20E-01	2.90E-01
Koc (for organics, ND for inorganics)	ml/g	5.89E+01	2.20E+02	1.74E+01	3.63E+02	2.00E+03	4.90E+03	1.82E+02	3.70E+03	8.20E+02	2.40E+02
Kd (partition coefficient for inorganics)	ml/g	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Diffusion Coeff in Air	cm2/s	8.80E-02	7.50E-02	1.04E-01	7.50E-02	5.90E-02	5.70E-02	8.70E-02	7.50E-02	7.50E-02	7.20E-02
Diffusion Coefficient in Water	cm2/s	9.80E-06	7.10E-06	9.90E-06	7.80E-06	7.50E-06	6.40E-06	8.60E-06	7.10E-06	7.10E-06	8.50E-06

Table 6. Tier 3 Site-Specific Target Levels

Medium	Exposure Pathway	Land Use	Type of Risk	Benzene	Propylbenzene/ n-Butylbenzene	Dichloro ethane (1,2-) (EDC)	Ethyl-benzene	Naphthalene	Tetraethyl Lead	Toluene	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	Xylenes
Subsurface Soil [mg/kg]	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic	3.9E+00		1.0E+01						5.4E+01	
			Hazard	1.6E+01	6.5E+01	2.3E+01	SAT	SAT		SAT	SAT	1.5E+02	SAT
	Inhalation of Indoor Air Vapors	Residential	Carcinogenic	7.3E+00		1.9E+01						1.0E+02	
			Hazard	2.4E+01	1.0E+02	3.7E+01	SAT	SAT		SAT	SAT	2.4E+02	SAT
Groundwater [mg/l]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic	1.3E+01		7.8E+01						1.6E+01	
			Hazard	4.3E+01	2.3E+01	1.5E+02	>Sol	>Sol		>Sol	>Sol	3.9E+01	>Sol
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic	2.0E+02		5.1E+02						>Sol	
			Hazard	7.7E+02	>Sol	1.2E+03	>Sol	>Sol		>Sol	>Sol	>Sol	>Sol

SAT = RBSL exceeds saturated soil concentration of chemical
Sol = RBSL exceeds solubility of chemical in water

Table 7. Summary of Risk and Hazard for Indoor Air - Residential Scenario

Chemical	Representative Concentration (mg/kg or mg/L)	Tier 3 SSTL Inhalation of Indoor Air Vapors - Cancer at 1 x 10-5 (mg/kg or mg/L)	Excess Cancer Risk	Tier 3 SSTL Inhalation of Indoor Air Vapors - Noncancer at Hazard of 1 (mg/kg or mg/L)	Noncancer Hazard
Soil					
Benzene	2.78	7.30E+00	3.8E-06	2.40E+01	1.E-01
Toluene	17.03	--	NA	SAT	NA
Ethylbenzene	10.18	--	NA	SAT	NA
Xylene	73.81	--	NA	SAT	NA
Propylbenzene	1.50	--	NA	1.00E+02	2.E-02
1,3,5-Trimethylbenzene	4.40	1.00E+02	4.4E-07	2.40E+02	2.E-02
1,2,4-Trimethylbenzene	14.00	--	NA	SAT	NA
n-Butylbenzene	1.80	--	NA	1.00E+02	2.E-02
Naphthalene	2.90	--	NA	SAT	NA
Groundwater					
Benzene	4	1.30E+01	3.1E-06	4.30E+01	9.E-02
Toluene	11	--	NA	>SOL	NA
Ethylbenzene	2.2	--	NA	>SOL	NA
Xylene	13.4	--	NA	>SOL	NA
1,2-Dichloroethane	0.0014	7.80E+01	1.8E-10	1.50E+02	9.E-06
Naphthalene	0.0014	--	NA	>SOL	NA
1,2,4-Trimethylbenzene	3.8	--	NA	>SOL	NA
1,3,5-Trimethylbenzene	1.2	1.60E+01	7.5E-07	>SOL	NA
		Total Excess Cancer Risk	8.1E-06	**Total Hazard**	0.26

Notes
SSTL = Site-Specific Target Level
SAT = SSTL exceeds saturated soil concentration of chemical
>SOL = SSTL exceeds solubility of chemical in water
NA = Not applicable

Table 8. Summary of Risk and Hazard for Outdoor Air - Residential Scenario

Chemical	Representative Concentration (mg/kg or mg/L)	Tier 3 SSTLInhalation of Outdoor Air Vapors - Cancer at 1 x 10^{-5} (mg/kg or mg/L)	Excess Cancer Risk	Tier 3 SSTLInhalation of Outdoor Air Vapors - Noncancer at Hazard of 1 (mg/kg or mg/L)	Noncancer Hazard
Soil					
Benzene	2.78	3.90E+00	7.1E-06	1.60E+01	2.E-01
Toluene	17.03	--	NA	SAT	NA
Ethylbenzene	10.18	--	NA	SAT	NA
Xylene	73.81	--	NA	SAT	NA
Propylbenzene	1.50	--	NA	6.50E+01	2.E-02
1,3,5-Trimethylbenzene	4.40	5.40E+01	8.1E-07	1.50E+02	3.E-02
1,2,4-Trimethylbenzene	14.00	--	NA	SAT	NA
n-Butylbenzene	1.80	--	NA	6.50E+01	3.E-02
Naphthalene	2.90	--	NA	SAT	NA
Groundwater					
Benzene	4	2.00E+02	2.0E-07	7.60E+02	5.E-03
Toluene	11	--	NA	>SOL	NA
Ethylbenzene	2.2	--	NA	>SOL	NA
Xylene	13.4	--	NA	>SOL	NA
1,2-Dichloroethane	0.0014	4.90E+02	2.9E-11	1.10E+03	1.E-06
Naphthalene	0.0014	--	NA	>SOL	NA
1,2,4-Trimethylbenzene	3.8	--	NA	>SOL	NA
1,3,5-Trimethylbenzene	1.2	>SOL	NA	>SOL	NA
		Total Excess Cancer Risk	8.2E-06	**Total Hazard**	0.26

Notes:
SSTL = Site-Specific Target Level
SAT = SSTL exceeds saturated soil concentration of chemical
>SOL = SSTL exceeds solubility of chemical in water
NA = Not applicable