Subsurface Consultants, Inc.

April 27, 1999
SCI 272.037

Ms. Juliet Shin
Alameda County Environmental Health Services
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502-6577

Report of Investigation Activities
Corporation Yard No. 4
5921 Shepherd Canyon Road
Oakland, California

Dear Ms. Shin:

Subsurface Consultants, Inc. (SCI), has prepared this letter report on behalf of the City of Oakland (City) to document the subsurface investigation at the subject site. The subsurface field investigation was conducted on March 5, 1999. The location of the property is shown on the Vicinity Map, Plate 1. The site configuration is shown on Plates 2.

BACKGROUND

In May 1990, one 2000-gallon gasoline underground storage tank (UST) and one 550-gallon diesel UST were removed from the site. Chemical analysis on two confirmation samples collected at depths 11 feet below the ground surface (bgs) detected 790 parts per million (ppm) of total petroleum hydrocarbons as gasoline (TPHg) and 27 ppm of benzene. Although a sketch map showed four USTs, only two vent pipes and two USTs were reportedly observed during the UST removal. Mr. Tim Murray of the City of Oakland, confirmed that no other USTs were observed during those removal activities. Mr. Murray also confirmed that no groundwater was encountered during the excavation activity.

At the City's request, SCI prepared a Work Plan dated February 17, 1999, to perform a subsurface investigation as required by the Alameda County Environmental Health Services (ACEHS) in their letter dated August 25, 1998. The Work Plan specified drilling one soil boring and collecting a grab groundwater sample for chemical testing if groundwater were encountered. SCI's Work Plan was approved by ACEHS in their letter dated February 23, 1999.

3736 Mt. Diablo Boulevard ■ Suite 200 ■ Lafayette, California 94549-3659 ■ 925.299.7960 ■ FAX 925.299.7970

171 – 12th Street ■ Suite 202 ■ Oakland, California 94607-4911 ■ 510.268.0461 ■ FAX 510.268.0137

FIELD INVESTIGATION

Prior to drilling, SCI obtained a drilling permit from the Alameda County Public Works Agency. A copy of the approved drilling permit is attached. SCI selected the proposed boring location in the area of the former gasoline UST based on the site sketch provided by the City, discussions with personnel familiar with the site, and the limits of patched asphalt observed in the field. SCI retained the services of California Utility Surveys (CUS), a private utility locating company to check for subsurface utilities. Underground Service Alert (USA) was also notified to check and mark subsurface utilities.

Magnetometer Survey

On April 29, and March 5, 1999, CUS conducted a magnetometer survey in the vicinity of the former USTs to confirm that no other USTs were present. A second site visit was required due to the presence of a parked vehicle during the first visit. CUS detected no magnetic anomalies in the area of the former USTs. The extent of the magnetometer survey is shown on Plate 2.

Subsurface Drilling and Sampling

SCI retained Bay Area Exploration (BAE) to drill one soil boring (SCI-1) at the former gasoline UST location. The boring location is shown on Plate 2.

The soil boring was installed by a truck-mounted drill rig utilizing hollow-stem augers. Soil samples were collected from the boring using a California Drive Sampler having an outside diameter of 2.0 inches and an inside diameter of 1.5 inches. Samples were collected at approximately 5-foot intervals and screened in the field using an organic vapor meter. Samples were retained in pre-cleaned sample liners, and capped with Teflon sheeting and plastic end caps. The boring extended to a depth of 25 feet bgs. Our field engineer observed drilling operations and prepared a detailed log of the boring. The log of boring SCI-1 is presented on Plate 3. Samples were classified in accordance with the Unified Soil Classification System, Plate 4, and the Rock Classification Criteria, Plate 5.

All augers, drill rods, sampling equipment, and temporary well casing used in the test boring were cleaned prior to their initial use and prior to each subsequent use to reduce the likelihood of cross-contamination between samples. Soil cuttings were stored in 55-gallon drums and stored on-site pending disposal.

Samples were chilled on-site in an ice chest and remained chilled until delivery to the analytical laboratory. Two soil samples collected at depths of 13.5 and 19 feet bgs were submitted to Curtis & Tompkins, a State-certified chemical testing laboratory for chemical analysis.

The boring was converted to a temporary well using 2-inch diameter PVC well casing, and a grab groundwater sample was collected from the well. The groundwater sample was collected in laboratory prepared containers using a clean, disposable bailer, and placed in an ice-filled cooler pending delivery to a State-certified chemical testing laboratory for analysis. The soil and groundwater samples were accompanied by chain-of-custody documentation.

Following collection of the samples, the boring was backfilled with neat cement grout and capped with asphalt to match existing conditions.

ANALYTICAL TESTING

Two soil samples and one grab groundwater sample were submitted to Curtis & Tompkins, Ltd., a State of California certified analytical laboratory. The analytical testing program included the following analyses:

- Total petroleum hydrocarbons as gasoline (TPHg), using USEPA Test Method 8015 modified,
- Total petroleum hydrocarbons as diesel, motor oil (TPHd, motor oil), using USEPA Test Method 8015 modified, and
- Benzene, toluene, ethylbenzene and xylenes (BTEX) and methyl tertiary butyl ether (MTBE), using USEPA Test Method 8260.

DISCUSSION OF RESULTS

Subsurface Conditions

At test boring SCI-1, we encountered 2 inches of asphalt overlying approximately 10 inches of concrete. Shallow soil was comprised of well graded gravel with sand to a depth of approximately 7 feet bgs. Brown, weathered siltstone was encountered from 7 feet bgs to the depth explored (25 feet). No organic vapors were detected during field activities.

Groundwater was first encountered at approximately 18 feet bgs. No free product was observed.

Soil Analytical Test Results

TPHg, BTEX, and MTBE were not detected in the two soil samples submitted for analyses. Analysis detected TPHd and TPHmo at concentrations ranging from 14 milligrams per kilogram (mg/kg) to 21 mg/kg in the two samples collected from 13.5 and 19 feet bgs. Results of analyses are summarized in Table 1.

Groundwater Analytical Test Results

Analysis detected 140 micrograms per liter (ug/l) of TPHg, 150 ug/l of TPHd, and 12 ug/l of benzene in the grab groundwater sample from SCI-1. Groundwater analytical test results are summarized in Table 2.

PLANNED ACTIVITIES

Based on the results of this investigation, the groundwater beneath the former USTs appears to be impacted by very low concentrations of petroleum hydrocarbons. Given the detection of benzene in the grab groundwater sample at 12 ug/l and based on a discussion with Ms. Juliet Shin of ACEHS, the City plans to install and sample one groundwater monitoring well within ten feet and downgradient of the former gasoline UST location to confirm that impacts to groundwater are localized and stable. Based on regional topography, this well will be installed south of the former gasoline USTs at the location shown on Plate 2.

Well installation will be conducted using hollow stem auger equipment and the sampling procedures outlined in our work plan dated February 17, 1999. The well will be completed to a depth of 25 feet bgs using 2-inch-diameter, Schedule 40 PVC pipe with flush threaded joints. The well will be screened from approximately 15 to 25 feet below ground surface with machine-slotted well screen having 0.020-inch slots. The remaining length of the well will consist of solid PVC well casing. The annular space around the screened section will be backfilled with sand. A bentonite seal, approximately 12 inches thick, will be placed above the sand pack in each well. The annular space above the bentonite seal will be backfilled with cement/bentonite grout. Each well will be completed below grade in a traffic-rated utility box and secured by a locking cap.

The monitoring well will be sampled twice; approximately 48 hours and 4 weeks after completion. Groundwater samples will be tested for TPHg, TPHd, and TPHmo using EPA Test Method 8015m, and BTEX and MTBE using EPA Test Method 8260. Field instruments will measure pH, temperature, conductivity, and dissolved oxygen concentrations.

The City is prepared to begin these activities immediately upon your approval. If you have any questions or need additional information, please call the undersigned.

Yours very truly,

Subsurface Consultants, Inc.

Glenn S. Young, RG
Associate Geologist

MM:GSY:rm:272.037\rptcrpyd.doc

Attachments: Table 1 - Summary of Analytical Results - Soil
Table 2 - Summary of Analytical Results - Groundwater
Plate 1 - Vicinity Map
Plate 2 - Site Plan
Plate 3 - Log of Test Boring SCI-1
Plate 4 - Unified Soil Classification System
Plate 5 - Rock Classification Criteria
Drilling Permit
Analytical Laboratory Report and Chain of Custody

cc: Mr. Odili Ojukwu
City of Oakland Public Works Agency.
Environmental Services Department
250 Frank H. Ogawa Plaza, Suite 5301
Oakland, California 94612

TABLE 1
SUMMARY OF ANALYTICAL RESULTS - SOIL
5921 SHEPHERD CANYON ROAD
OAKLAND, CALIFORNIA

Sample ID	Location	Depth (feet)	Sample Date	TPHg (mg/kg)	TPHd (mg/kg)	TPHmo (mg/kg)	Benzene (µg/kg)	Toluene (µg/kg)	Ethyl-benzene (µg/kg)	total Xylenes (µg/kg)	MTBE (µg/kg)
March 1999 Investigation Data											
SCI-1 @ 13.5	gasoline UST excavation	13.5	3/5/99	<1	21	14	<5.0	<5.0	<5.0	<5.0	<20
SCI-1 @ 19.0	gasoline UST excavation	19	3/5/99	<1	21	15	<5.0	<5.0	<5.0	<5.0	<20
Tank Removal Sampling Data											
Gasoline UST Area											
1A1	beneath UST	11	5/3/90	60	--	--	6	11	2.4	12	--
1A2	beneath UST	11	5/3/90	790	--	--	27	86	16	150	--
1A5	beneath piping	3	5/3/90	ND	--	--	ND	ND	ND	ND	--
Composite A	stockpile	NA	5/3/90	ND	--	--	ND	ND	ND	ND	--
Composite C	stockpile	NA	5/3/90	500	--	--	5.5	31	12	79	--
Diesel UST Area											
1A3	beneath UST	8	--	--	62	190	--	--	--	--	--
1A4	beneth piping	3	--	--	<MDL	24	--	--	--	--	--
Composite B	stockpile	NA	--	--	920	2,200	--	--	--	--	--

Notes:

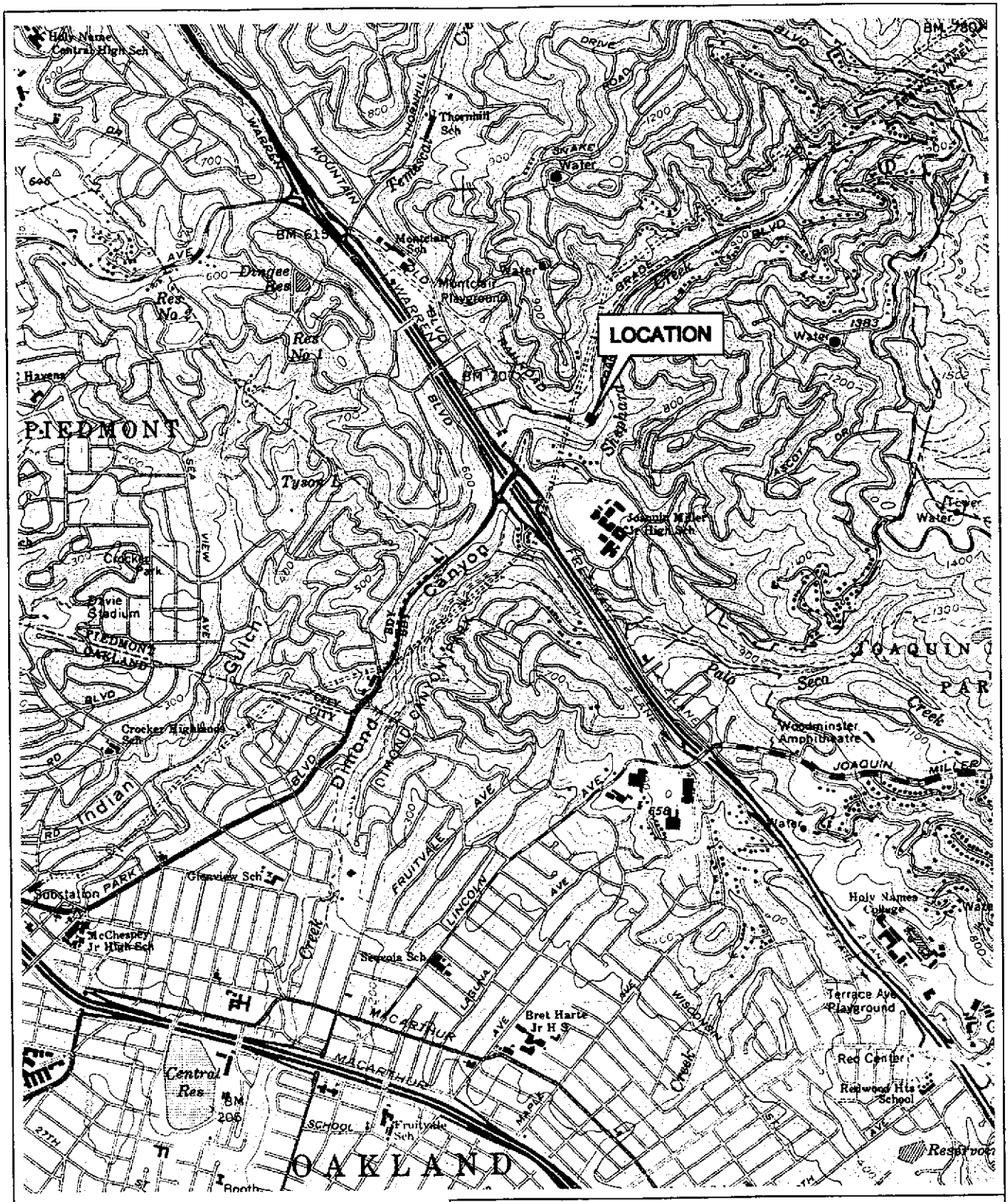
TPH = total petroleum hydrocarbons
g = gasoline
d = diesel
mo = motor oil
MTBE= methyl tertiary butyl ether

mg/kg = milligrams per kilogram
µg/kg = micrograms per kilogram
<1 = Analyte not detected above laboratory reporting limit stated.
-- = not analyzed
NA = not applicable
MDL = method detection limit

TABLE 2
SUMMARY OF ANALYTICAL RESULTS - GRAB GROUNDWATER
5921 SHEPHERD CANYON ROAD
OAKLAND, CALIFORNIA

Location	Date	TPHg (µg/l)	TPHd (µg/l)	TPHmo (µg/l)	Benzene (µg/l)	Toluene (µg/l)	Ethyl-benzene (µg/l)	Total Xylenes (µg/l)	MTBE (µg/l)
SCI-1	3/5/99	140	150	<310	12	1.8	4.0	6.9	<2.0

NOTES:
TPH = total petroleum hydrocarbons
g = gasoline
d = diesel
mo = motor oil
MTBE= methyl tertiary butyl ether
µg/l = micrograms per liter
<2 = Analyte not detected at or above the stated laboratory reporting limit.



N

APPROX. SCALE (FEET)

0 2000

VICINITY MAP

SCI

Subsurface Consultants, Inc.

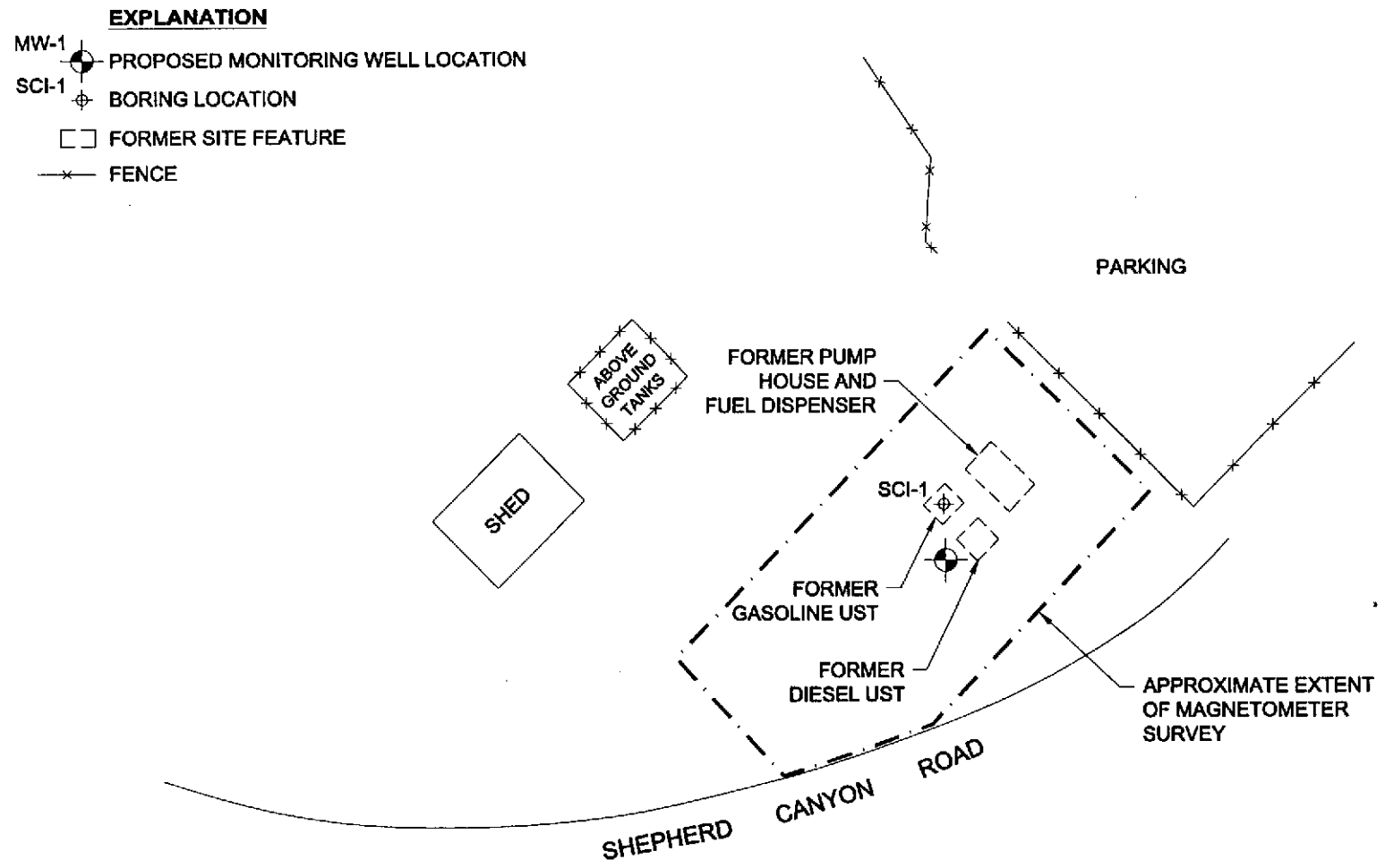
Geotechnical & Environmental Engineers

OAKLAND CORPORATION YARD NO. 4
5921 SHEPHERD CANYON ROAD
OAKLAND, CALIFORNIA

JOB NUMBER	DATE	APPROVED
272.037	03/99	

PLATE 1

TOPO.DWG



SITE PLAN

N

APPROXIMATE SCALE IN FEET

0 30 60

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OAKLAND CORPORATION YARD NO. 4
5921 SHEPHERD CANYON ROAD
OAKLAND, CALIFORNIA

JOB NUMBER	DATE	APPROVED
272.037	04/99	

PLATE 2

SITE.DWG

Project Name & Location: Oakland Corporation Yard No. 4 Oakland, California	Ground Surface Elevation: -- Elevation Datum: --
Drilling Coordinates: --	Start: Date 3/5/99 Time 0930 — Finish: Date 3/5/99 Time 1130
Drilling Company & Driller: BAE / Tom	Drilling Fluid: N/A — Hole Diameter: 6 inches
Rig Type & Drilling Method: C57 - 6" HSA	
Sampler Type(s): A) 18" California Drive Sampler w/Stainless Steel Tubes B) C)	Logged By: John Rasmussen
Sampling Method(s): A) 140# Downhole Sampler B) C)	Backfill Method: Tremmie Grout — Date: 3/5/99

Elevation (feet) / Depth (feet)	Sample Depth/No.	Sampler Type	Blows/6 inches of Pressure	OVM (ppm)	Sample Interval	Graphic Log	SOIL DESCRIPTIONS GROUP NAME (GROUP SYMBOL) color, consistency/density, moisture condition, other descriptions (Local Name or Material Type)	LABORATORY DATA Moisture Content (%)	Dry Density (pcf)	Other
0							**ASPHALTIC CONCRETE (2" thick)** **CEMENT CONCRETE (10" thick)**			
							WELL GRADED GRAVEL WITH SAND (GW) beige-tan and gray, loose to medium dense, moist (fill)			
	3.5	A	4	0						
5										
	9.0	A	50/4"	0			**SILTSTONE** light brown, intensely fractured, low hardness, friable, deeply weathered			
10							becomes less fractured and less weathered with depth			
	13.5	A	50/5"	0						
15							▽ groundwater encountered at 18.0 feet bgs			
	19.0	A	50/4"	0			becomes gray, more shale-like			
20										
	23.5	A	50/5"	NA			Temporary casing installed in borehole to obtain groundwater sample. Casing removed prior to tremmie grounting.			
25										
30										

LOG OF BORING No. SCI-1

Subsurface Consultants, Inc.
Geotechnical & Environmental Engineers

OAKLAND CORPORATION YARD NO. 4
5921 SHEPHERD CANYON ROAD
OAKLAND, CALIFORNIA

JOB NUMBER	DATE	APPROVED	PLATE
272.037	03/28/99		3

BORING.CDR

UNIFIED SOIL CLASSIFICATION SYSTEM (ASTM D2487-93)

MAJOR DIVISIONS				GROUP NAMES
COARSE-GRAINED SOILS More than 50% retained on the No. 200 sieve	GRAVELS More than 50% of coarse fraction retained on No. 4 sieve	Clean gravels less than 5% fines	GW	Well-graded gravel, Well-graded gravel with sand
			GP	Poorly graded gravel, Poorly graded gravel with sand
		Gravels with more than 12% fines	GM	Silty gravel, Silty gravel with sand
			GC	Clayey gravel, Clayey gravel with sand
	SANDS 50% or more of coarse fraction passes No. 4 sieve	Clean sand less than 5% fines	SW	Well-graded sand, Well-graded sand with gravel
			SP	Poorly graded sand, Poorly graded sand with gravel
		Sands with more than 12% fines	SM	Silty sand, Silty sand with gravel
			SC	Clayey sand, Clayey sand with gravel
FINE-GRAINED SOILS 50% or more passes the No. 200 sieve	SILTS AND CLAYS Liquid Limit Less than 50%		ML	Silt, Silt with sand or gravel, Sandy or gravelly silt, Sandy or gravelly silt with gravel or sand
			CL	Lean clay, Lean clay with sand or gravel, Sandy or gravelly lean clay, Sandy or gravelly lean clay with gravel or sand
			OL	Organic silt or clay, Organic silt or clay with sand or gravel, Sandy or gravelly organic silt or clay, Sandy or gravelly organic silt or clay with gravel or sand
	SILTS AND CLAYS Liquid Limit Greater than 50%		MH	Elastic silt, Elastic silt with sand or gravel, Sandy or gravelly elastic silt, Sandy or gravelly elastic silt with gravel or sand
			CH	Fat clay, Fat clay with sand or gravel, Sandy or gravelly fat clay, Sandy or gravelly fat clay with gravel or sand
			OH	Organic silt or clay, Organic silt or clay with sand or gravel, Sandy or gravelly organic silt or clay, Sandy or gravelly organic silt or clay with gravel or sand
HIGHLY ORGANIC SOILS			Pt	Peat

For definition of dual and borderline symbols, see ASTM D2487-93.

KEY TO TEST DATA AND SYMBOLS

Perm	-	Permeability
Consol	-	Consolidation
LL	-	Liquid Limit
PI	-	Plasticity Index
Gs	-	Specific Gravity
MA	-	Particle Size Analysis
-200	-	Percent Passing No. 200 Sieve
ND	-	Not Detected
■	-	Tube Sample
▨	-	Bag or Bulk Sample
▨	-	Lost Sample
▽	-	First Groundwater
▼	-	Stabilized Groundwater

	Shear Strength (psf)	Confining Pressure (psf)	
TxUU	3200	(2600)	Unconsolidated-Undrained Triaxial Shear
TxCU	3200	(2600)	Consolidated-Undrained Triaxial Shear
TxCD	3200	(2600)	Consolidated-Drained Triaxial Shear
SSCU	3200	(2600)	Consolidated-Undrained Simple Shear
SSCD	3200	(2600)	Consolidated-Drained Simple Shear
DSCD	2700	(2000)	Consolidated-Drained Direct Shear
UC	470		Unconfined Compression
LVS	700		Laboratory Vane Shear
FV	300		Field Vane Shear
RFV			
TV	800		Torvane Shear
PP	400		Pocket Penetrometer *(actual reading divided by 2)*

SCI Subsurface Consultants, Inc.
Geotechnical & Environmental Engineers

OAKLAND CORPORATION YARD NO. 4
5921 SHEPHERD CANYON ROAD
OAKLAND, CALIFORNIA

JOB NUMBER	DATE	APPROVED	PLATE
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USCS.CDR

ROCK CLASSIFICATION CRITERIA

BEDDING OF SEDIMENTARY ROCKS

Very thick-bedded	Greater than 4.0
Thick-bedded	2.0 to 4.0
Thin-bedded	0.2 to 2.0
Very thin-bedded	0.05 to 0.2
Laminated	0.01 to 0.05
Thinly laminated	less than 0.01

} **Bed thickness in feet**

FRACTURING

Very little fractured	Greater than 4.0
Occasionally fractured	1.0 to 4.0
Moderately fractured	0.5 to 1.0
Closely fractured	0.1 to 0.5
Intensely fractured	0.05 to 0.1
Crushed	less than 0.05

} **Size of pieces in feet**

HARDNESS

Soft . . . . . reserved for plastic material alone.

Low hardness . . . . . can be gouged deeply or carved easily with a knife blade.

Moderately hard . . . . can be readily scratched by a knife blade; scratch leaves a heavy trace of dust and is readily visible after the powder has been blown away.

Hard . . . . . can be scratched with difficulty; scratch produces little powder and is often faintly visible.

Very hard . . . . . cannot be scratched with knife blade; leaves a metallic streak.

STRENGTH

Plastic . . . . . very low strength.

Friable . . . . . crumbles easily by rubbing with fingers.

Weak . . . . . an unfractured specimen of such material will crumble under light hammer blows.

Moderately strong . . specimen will withstand a few heavy hammer blows before breaking.

Strong . . . . . specimen will withstand a few heavy ringing hammer blows and will yield with difficulty only dust and small flying fragments.

Very strong . . . . . specimen will resist heavy ringing hammer blows and will yield with difficulty only dust and small flying fragments.

WEATHERING

Deep . . . . . moderate to complete mineral decomposition, extensive disintegration, deep and thorough discoloration, many fractures, all extensively coated or filled with oxides, carbonates and/or clay or silt.

Moderate . . . . . slight change or partial decomposition of minerals, little disintegration; cementation little to unaffected. Moderate to occasionally intense discoloration. Moderately coated fractures.

Little . . . . . no megascopic decomposition of minerals; little or no effect on normal cementation. Slight and intermittent, or localized discoloration. Few stains on fracture surfaces.

Fresh . . . . . unaffected by weathering agents. No disintegration or discoloration. Fractures usually less numerous than joints.

ALAMEDA COUNTY PUBLIC WORKS AGENCY

WATER RESOURCES SECTION
951 TURNER COURT, SUITE 300, HAYWARD, CA 94545-2651
PHONE (510) 670-5575 ANDREAS GODFREY FAX (510) 670-5262
(510) 670-6248 ALVIN KAN

DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

LOCATION OF PROJECT 5921 Shepherd Canyon Rd
Oakland CA

California Coordinates Source ___ ft. Accuracy ± ___ ft.
CCN ___ ft. CCE ___ ft.
APN ___

CLIENT
Name City of Oakland
Address 250 Frank H. Ogawa Plaza Phone 510-238-7371
City Oakland Zip 94612

APPLICANT
Name Meg Mendoza
Subsurface Consultants Fax 925-299-7970
Address 3736 Mt. Diablo Blvd Phone 925-299-7960
City Lafayette Zip 94549

TYPE OF PROJECT
Well Construction
Cathodic Protection ☐
Water Supply ☐
Monitoring ☐
Geotechnical Investigation
General ☐
Contamination ☑
Well Destruction ☐

PROPOSED WATER SUPPLY WELL USE
New Domestic ☐ Replacement Domestic ☐
Municipal ☐ Irrigation ☐
Industrial ☐ Other ___ ☐

DRILLING METHOD:
Mud Rotary ☐ Air Rotary ☐ Auger ☒
Cable ☐ Other ☐

DRILLER'S LICENSE NO. 522-125

WELL PROJECTS
Drill Hole Diameter ___ in. Maximum
Casing Diameter ___ in. Depth ___ ft.
Surface Seal Depth ___ ft. Number ___

GEOTECHNICAL PROJECTS
Number of Borings 1 Maximum
Hole Diameter 8 in. Depth 50 ft.

ESTIMATED STARTING DATE 1/28/99
ESTIMATED COMPLETION DATE 1/28/99

I hereby agree to comply with all requirements of this permit and Alameda County Ordinance No. 73-68.

APPLICANT'S SIGNATURE Meg Mendoza DATE 1/20/99

FOR OFFICE USE

PERMIT NUMBER 99WR028
WELL NUMBER ___
APN ___

PERMIT CONDITIONS

Circled Permit Requirements Apply

(A.) GENERAL
1. A permit application should be submitted so as to arrive at the ACPWA office five days prior to proposed starting date.
(2.) Submit to ACPWA within 60 days after completion of permitted work the original Department of Water Resources Water Well Drillers Report or equivalent for well projects, or drilling logs and location sketch for geotechnical projects.
(3.) Permit is void if project not begun within 90 days of approval date.

B. WATER SUPPLY WELLS
1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth is 50 feet for municipal and industrial wells or 20 feet for domestic and irrigation wells unless a lesser depth is specially approved.

C. GROUNDWATER MONITORING WELLS INCLUDING PIEZOMETERS
1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth for monitoring wells is the maximum depth practicable or 20 feet.

(D.) GEOTECHNICAL
Backfill bore hole with compacted cuttings or heavy bentonite and upper two feet with compacted material. [In areas of known or suspected contamination, tremied cement grout shall be used in place of compacted cuttings.]

E. CATHODIC
Fill hole above anode zone with concrete placed by tremie.

F. WELL DESTRUCTION
See attached.

G. SPECIAL CONDITIONS

APPROVED A. K. DATE 1/21/99

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

ANALYTICAL REPORT

Prepared for:

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

Date: 17-MAR-99
Lab Job Number: 138300
Project ID: 272.037
Location: City of Oakland-Yard #4

Reviewed by: _____

Reviewed by: _____

TEH-Tot Ext Hydrocarbons

Client: Subsurface Consultants
Project#: 272.037
Location: City of Oakland-Yard #4

Analysis Method: EPA 8015M
Prep Method: CA LUFT

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
138300-001	SCI-1 @ 13.5	46689	03/05/99	03/09/99	03/12/99	
138300-002	SCI-1 @ 19.0	46689	03/05/99	03/09/99	03/12/99	

Matrix: **Soil**

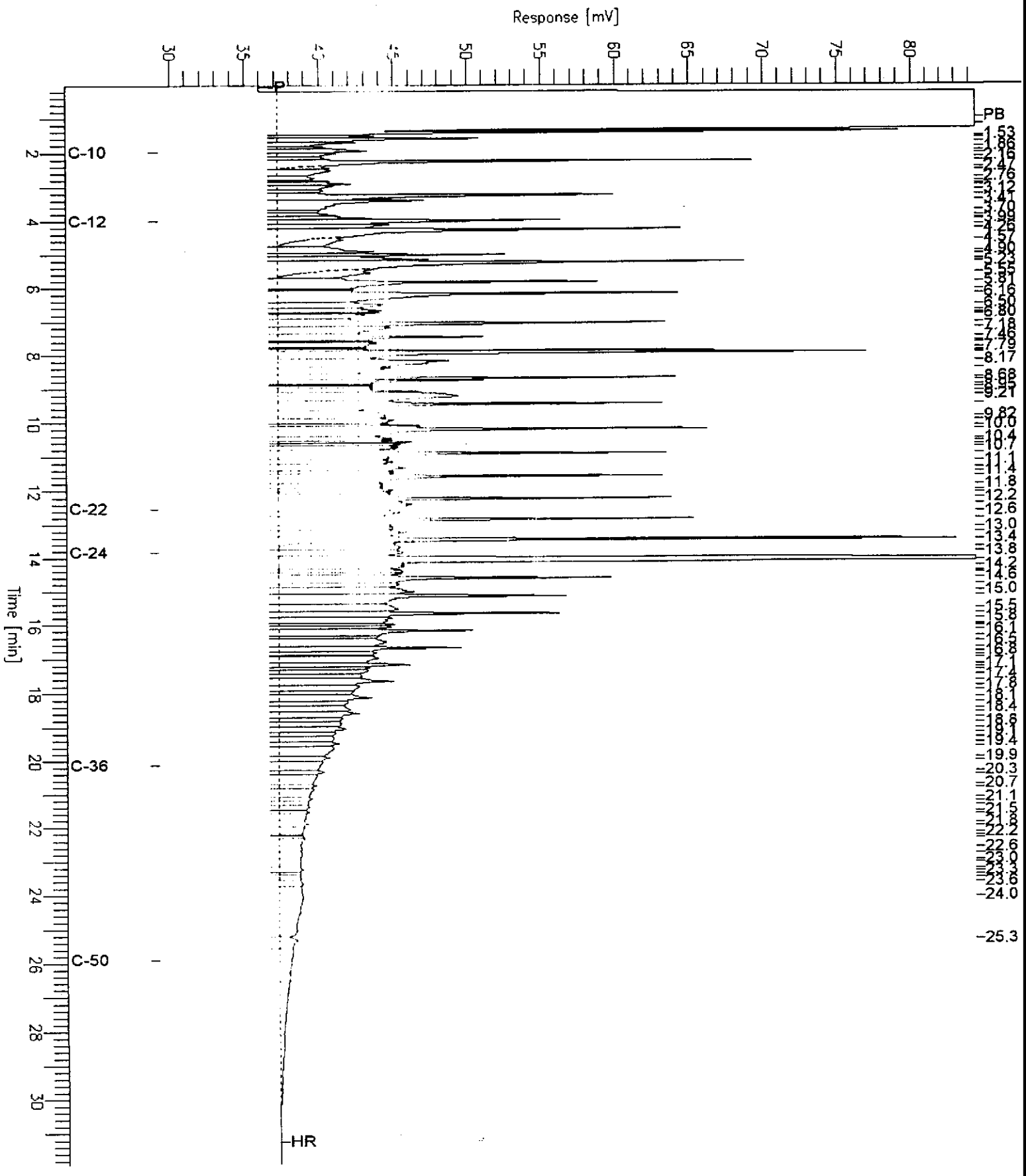
Analyte	Units	138300-001		138300-002	
Diln Fac:		1		1	
Diesel C10-C24	mg/Kg	21	YH	21	YH
Motor Oil C24-C36	mg/Kg	14	YL	15	YL
Surrogate					
Hexacosane	%REC	112		100	

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

Chromatogram

Sample Name : 138300-001,4[illegible]
FileName : C:\GC15\CHB\[illegible]
Method : B004TEH.MTH
Start Time : 0.01 min End Time : [illegible] min
Scale Factor: 0.0 Plot Offset: [illegible] mV

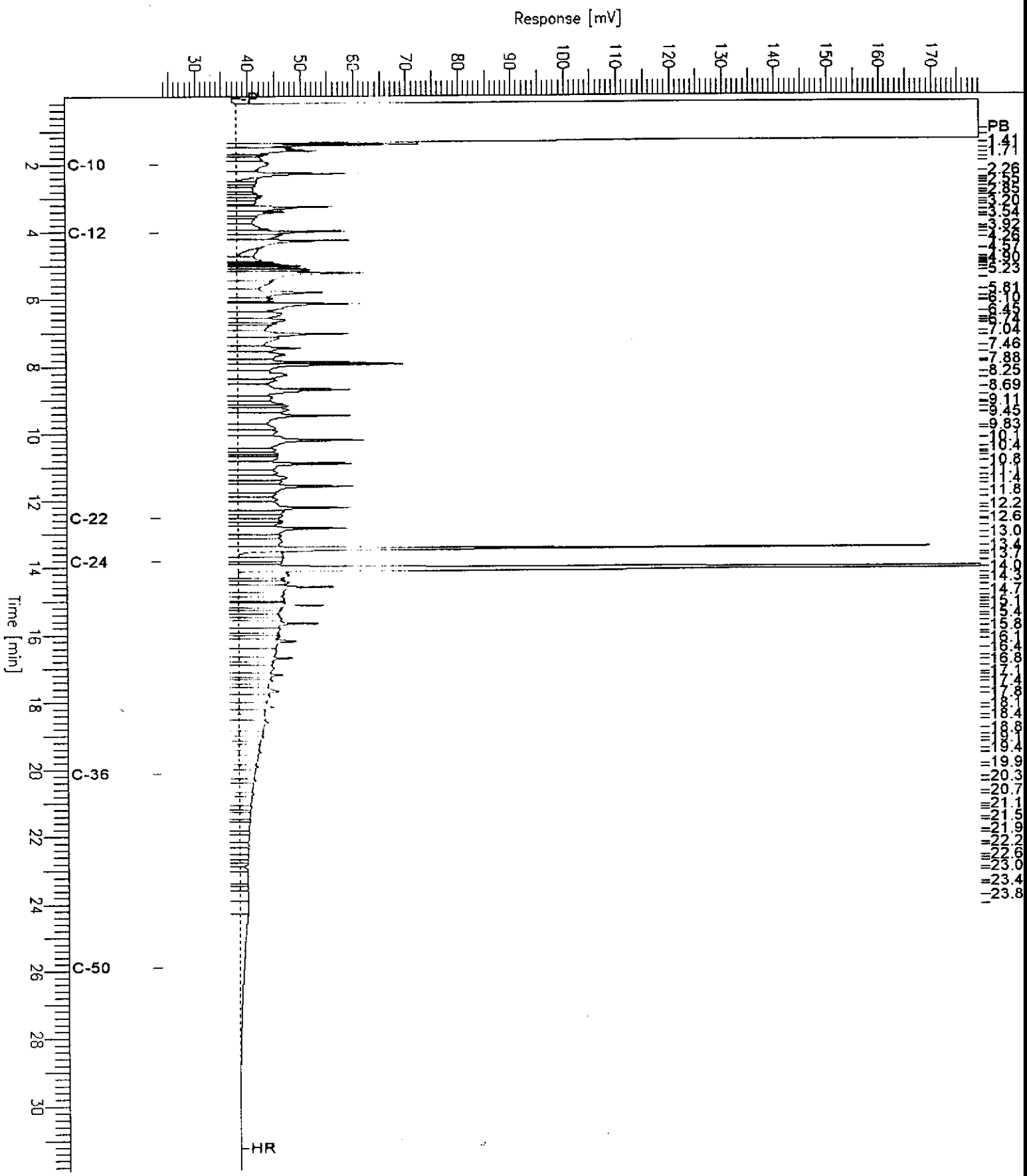
Sample #: 46689 Page 1 of 1
Date : 3/12/99 11:12 AM
Time of Injection: 3/12/99 02:08 AM
Low Point : 29.19 mV High Point : 84.45 mV
Plot Scale: 55.3 mV



Chromatogram

Sample Name : MSS,138300-002,46689
FileName : C:\GC15\CHB\070B013.RAW
Method : B004TEH.MTH
Start Time : 0.01 min End Time : 31.91 min
Scale Factor: 0.0 Plot Offset: 23 mV

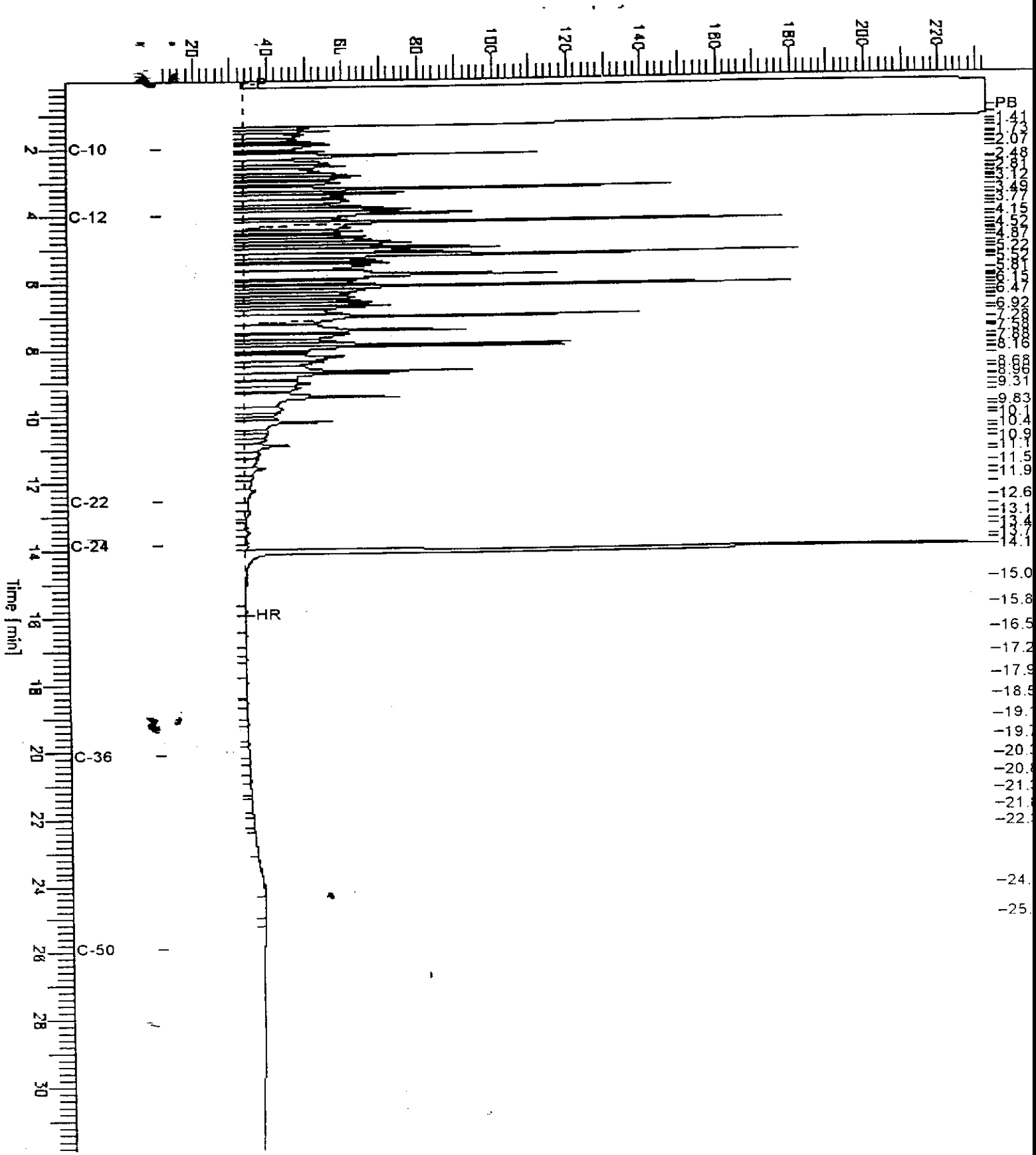
Sample #: 46689 Page 1 of 1
Date : 3/12/99 11:12 AM
Time of Injection: 3/12/99 02:51 AM
Low Point : 23.06 mV High Point : 179.13 mV
Plot Scale: 156.1 mV



Chromatogram

Sample Name : CCV,99WS7121,DSL
FileName : G:\GC15\CHB\069B019.RAW
Method : B004TEH.MTH
Start Time : 0.01 min End Time : 31.91 min
Scale Factor: 0.0 Plot Offset: 11 mV

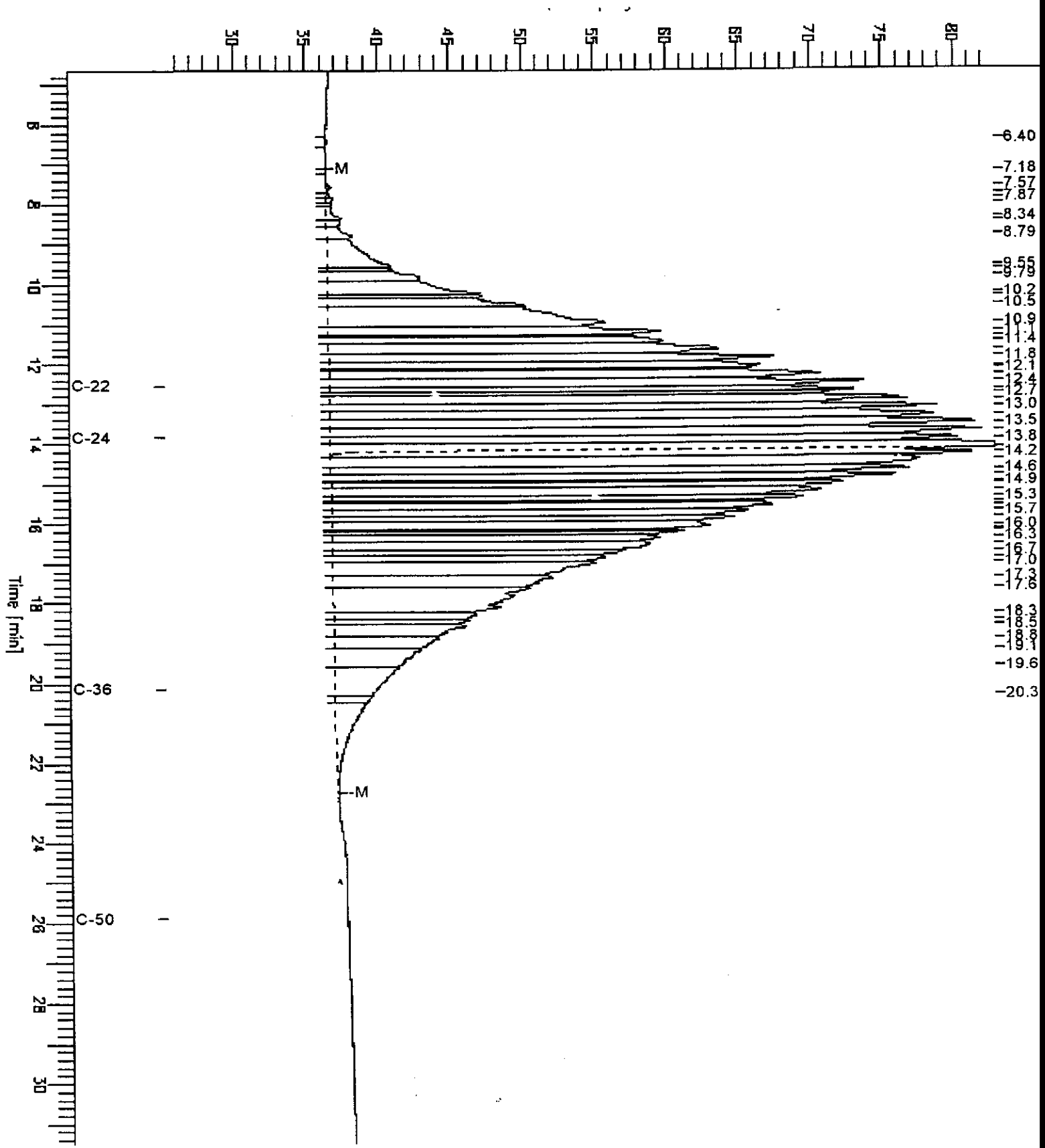
Sample #: 500MG/L
Date : 3/11/99 07:48 AM
Time of Injection: 3/11/99 01:16 AM
Low Point : 11.21 mV High Point : 232.90 mV
Plot Scale: 221.7 mV



Chromatogram

Sample Name : CCV,99WS7122,MO
FileName : C:\GC15\CHB\070B018.RAW
Method : B004TEH.MTH
Start Time : 4.65 min End Time : 31.87 min
Scale Factor: 0.0 Plot Offset: 25 mV

Sample #: 500MG/L
Date : 3/15/99 10:24 AM
Time of Injection: 3/12/99 06:22 AM
Low Point : 25.18 mV High Point : 82.93 mV
Plot Scale: 57.8 mV



TEH-Tot Ext Hydrocarbons

Client: Subsurface Consultants
Project#: 272.037
Location: City of Oakland-Yard #4

Analysis Method: EPA 8015M
Prep Method: CA LUFT

METHOD BLANK

Matrix: Soil
Batch#: 46689
Units: mg/Kg
Diln Fac: 1

Prep Date: 03/09/99
Analysis Date: 03/11/99

MB Lab ID: QC92461

Analyte	Result
Diesel C10-C24	<1.0
Motor Oil C24-C36	<5.0

Surrogate	%Rec	Recovery Limits
Hexacosane	88	52-137

TEH-Tot Ext Hydrocarbons

Client: Subsurface Consultants
Project#: 272.037
Location: City of Oakland-Yard #4

Analysis Method: EPA 8015M
Prep Method: CA LUFT

LABORATORY CONTROL SAMPLE

Matrix: Soil
Batch#: 46689
Units: mg/Kg
Diln Fac: 1

Prep Date: 03/09/99
Analysis Date: 03/12/99

LCS Lab ID: QC92462

Analyte	Result	Spike Added	%Rec #	Limits
Diesel C10-C24	44.73	49.5	90	52-117
Surrogate	**%Rec**	**Limits**		
Hexacosane	95	52-137		

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

TEH-Tot Ext Hydrocarbons

Client: Subsurface Consultants
Project#: 272.037
Location: City of Oakland-Yard #4

Analysis Method: EPA 8015M
Prep Method: CA LUFT

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Field ID: SCI-1 @ 19.0
Lab ID: 138300-002
Matrix: Soil
Batch#: 46689
Units: mg/Kg
Diln Fac: 1

Sample Date: 03/05/99
Received Date: 03/05/99
Prep Date: 03/09/99
Analysis Date: 03/12/99

MS Lab ID: QC92463

Analyte	Spike Added	Sample	MS	%Rec #	Limits
Diesel C10-C24	49.5	21.04	57.97	75	41-135
Surrogate	**%Rec**	**Limits**			
Hexacosane	97	52-137			

MSD Lab ID: QC92464

Analyte	Spike Added	MSD	%Rec #	Limits	RPD #	Limit
Diesel C10-C24	49.5	66.01	91	41-135	13	37
Surrogate	**%Rec**	**Limits**				
Hexacosane	106	52-137				

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

TEH-Tot Ext Hydrocarbons

Client: Subsurface Consultants
Project#: 272.037
Location: City of Oakland-Yard #4

Analysis Method: EPA 8015M
Prep Method: EPA 3520

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
138300-003	SCI-1	46642	03/05/99	03/05/99	03/09/99	

Matrix: Water

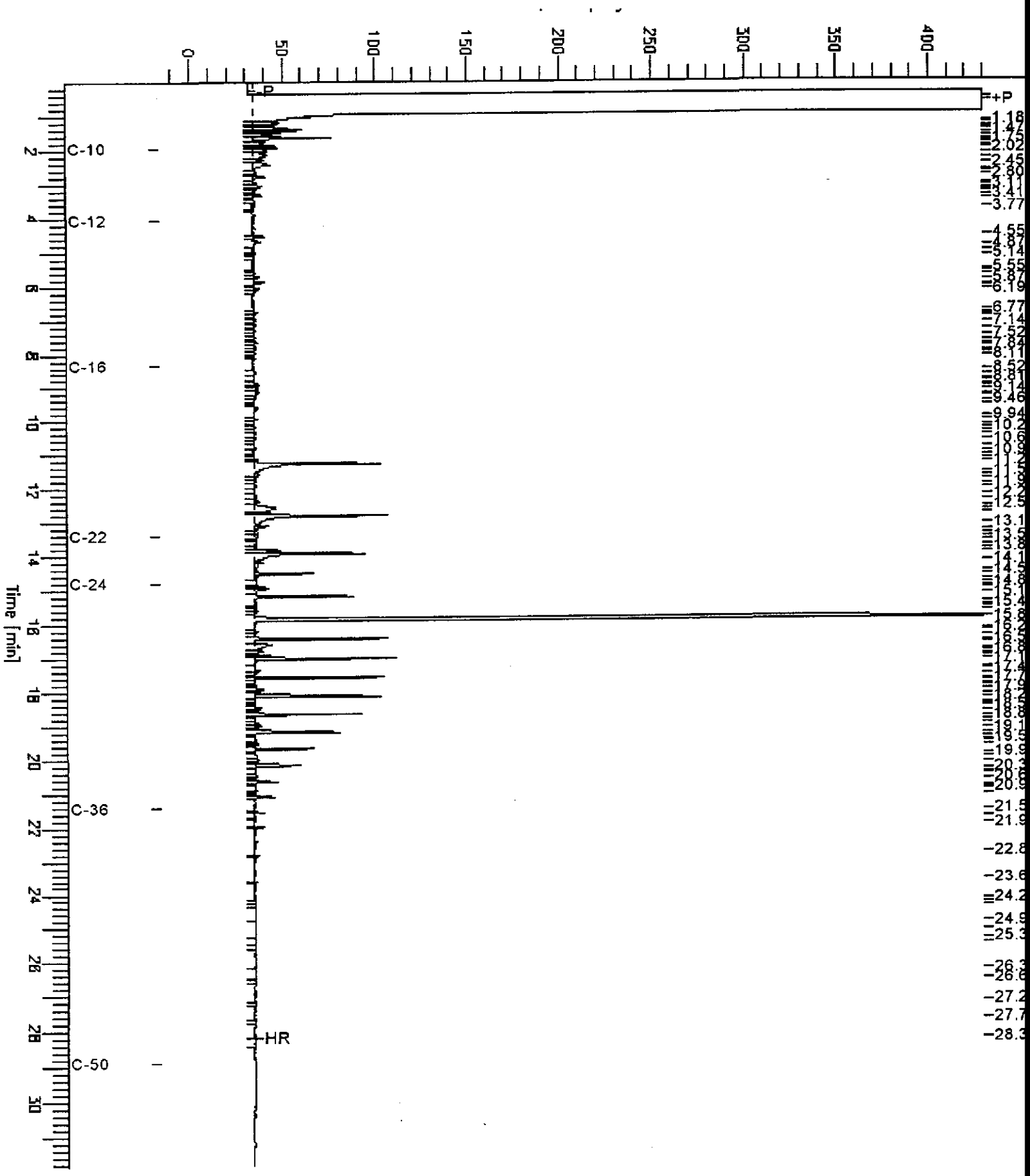
Analyte	Units	138300-003	
Diln Fac:		1	
Diesel C10-C24	ug/L	**150**	**YLH**
Motor Oil C24-C36	ug/L	<310	
Surrogate			
Hexacosane	%REC	94	

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

Chromatogram

Sample Name : 138300-003,46642
FileName : G:\GC11\CHA\069A010.RAW
Method : ATEH055.MTH
Start Time : 0.01 min End Time : 31.91 min
Scale Factor: 0.0 Plot Offset: -17 mV

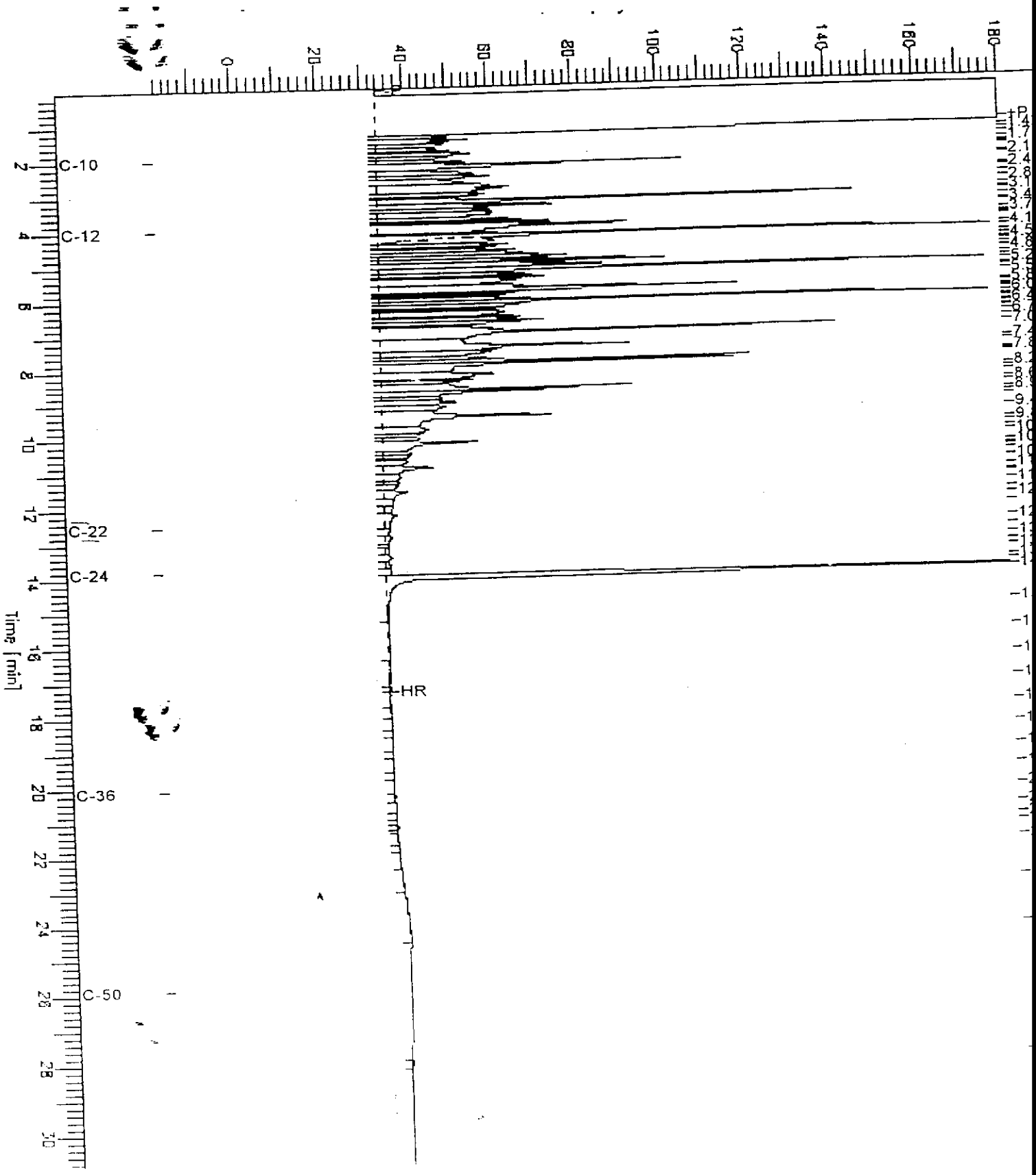
Sample #: 46642 Page 1 of 1
Date : 3/9/99 10:20 AM
Time of Injection: 3/9/99 01:10 AM
Low Point : -17.09 mV High Point : 430.23 mV
Plot Scale: 447.3 mV



Chromatogram

Sample Name : ccv,99ws7121,dsl
FileName : G:\GC15\CHB\059B004.RAW
Method : B004TBR.MTH
Start Time : 0.01 min End Time : 31.91 min
Scale Factor: 0.0 Plot Offset: -18 mV

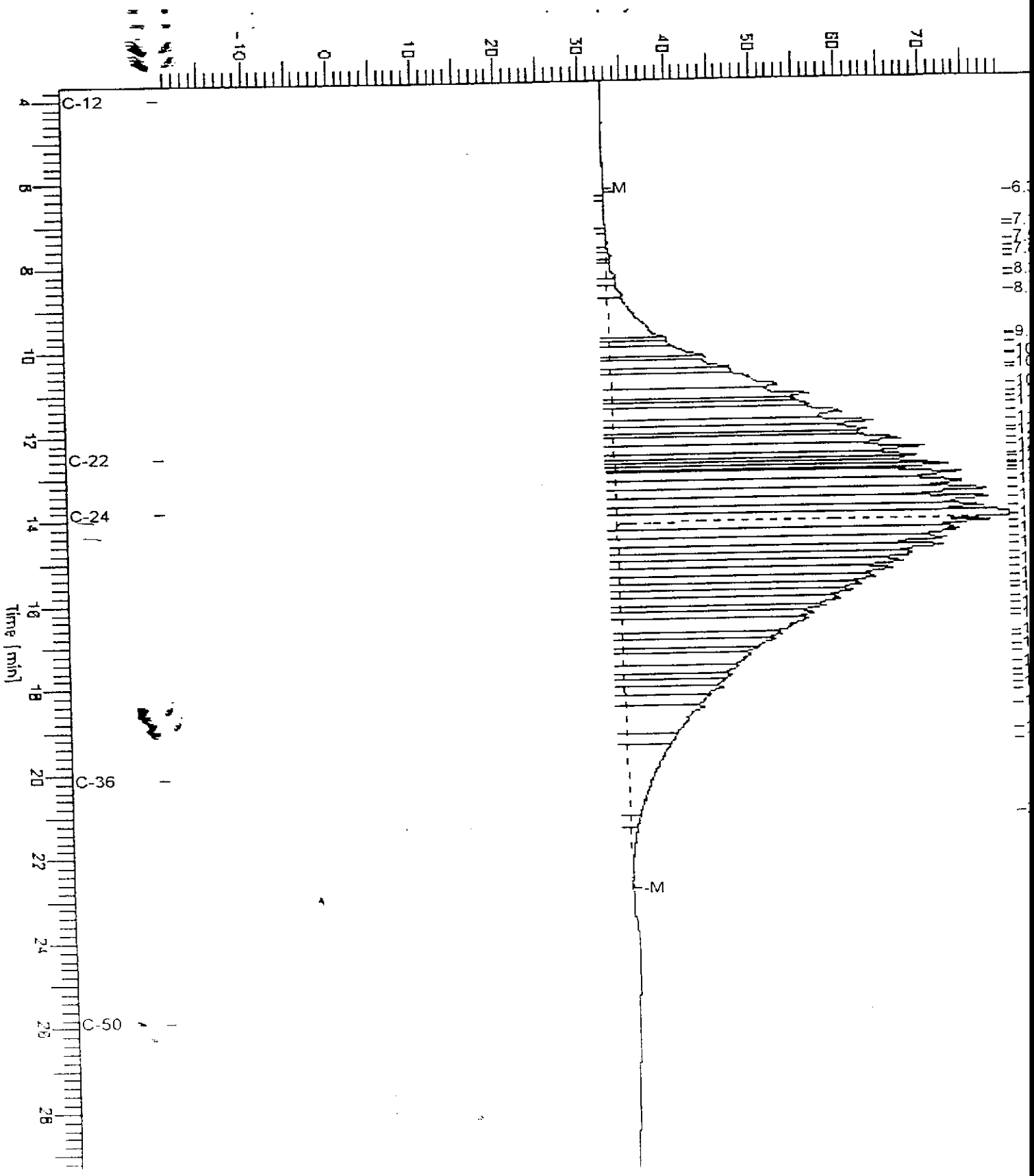
Sample #: 500mg/l
Date : 3/10/99 03:20 PM
Time of Injection: 3/10/99 02:36 PM
Low Point : -18.38 mV High Point : 180.14 mV
Plot Scale: 198.5 mV



Chromatogram

Sample Name : ccv,99ws7122,mo
FileName : G:\GC15\CHB\069B006.RAW
Method : B004TEH.MTH
Start Time : 3.69 min End Time : 29.95 min
Scale Factor: 0.0 Plot Offset: -20 mV

Sample #: 500mg/l
Date : 3/10/99 04:40 PM
Time of Injection: 3/10/99 04:02 PM
Low Point : -19.68 mV High Point : 79.74 mV
Plot Scale: 99.4 mV



TEH-Tot Ext Hydrocarbons

Client:	Subsurface Consultants	Analysis Method:	EPA 8015M
Project#:	272.037	Prep Method:	EPA 3520
Location:	City of Oakland-Yard #4		

METHOD BLANK

Matrix:	Water	Prep Date:	03/05/99
Batch#:	46642	Analysis Date:	03/11/99
Units:	ug/L		
Diln Fac:	1		

MB Lab ID: QC92299

Analyte	Result
Diesel C10-C24	<50
Motor Oil C24-C36	<300

Surrogate	%Rec	Recovery Limits
Hexacosane	85	58-128

TEH-Tot Ext Hydrocarbons

Client: Subsurface Consultants
Project#: 272.037
Location: City of Oakland-Yard #4

Analysis Method: EPA 8015M
Prep Method: EPA 3520

BLANK SPIKE/BLANK SPIKE DUPLICATE

Matrix: Water
Batch#: 46642
Units: ug/L
Diln Fac: 1

Prep Date: 03/05/99
Analysis Date: 03/08/99

BS Lab ID: QC92300

Analyte	Spike Added	BS	%Rec	#	Limits
Diesel C10-C24	2475	1603	65		50-114
Surrogate	**%Rec**	**Limits**			
Hexacosane	72	58-128			

BSD Lab ID: QC92301

Analyte	Spike Added	BSD	%Rec	#	Limits	RPD	#	Limit
Diesel C10-C24	2475	1633	66		50-114	2		25
Surrogate	**%Rec**	**Limits**						
Hexacosane	71	58-128						

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

Curtis & Tompkins Ltd.

TVH-Total Volatile Hydrocarbons

Client: Subsurface Consultants
Project#: 272.037
Location: City of Oakland-Yard #4

Analysis Method: EPA 8015M
Prep Method: EPA 5030

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
138300-001	SCI-1 @ 13.5	46638	03/05/99	03/06/99	03/06/99	
138300-002	SCI-1 @ 19.0	46638	03/05/99	03/06/99	03/06/99	

Matrix: Soil

Analyte	Units	138300-001	138300-002
Diln Fac:		1	1
Gasoline C7-C12	mg/Kg	<1	<1
Surrogate			
Trifluorotoluene	%REC	95	94
Bromofluorobenzene	%REC	92	93

Lab #: 138300

BATCH QC REPORT

Curtis & Tompkins, Ltd.

TVH-Total Volatile Hydrocarbons

Client:	Subsurface Consultants	Analysis Method:	EPA 8015M
Project#:	272.037	Prep Method:	EPA 5030
Location:	City of Oakland-Yard #4		

METHOD BLANK

Matrix:	Soil	Prep Date:	03/06/99
Batch#:	46638	Analysis Date:	03/06/99
Units:	mg/Kg		
Diln Fac:	1		

MB Lab ID: QC92285

Analyte	Result
Gasoline C7-C12	<1.0

Surrogate	%Rec	Recovery Limits
Trifluorotoluene	90	62-143
Bromofluorobenzene	95	59-150

Lab #: 138300

BATCH QC REPORT

Curtis & Tompkins, Ltd.

TVH-Total Volatile Hydrocarbons

Client:	Subsurface Consultants	Analysis Method:	EPA 8015M
Project#:	272.037	Prep Method:	EPA 5030
Location:	City of Oakland-Yard #4		

LABORATORY CONTROL SAMPLE

Matrix:	Soil	Prep Date:	03/06/99
Batch#:	46638	Analysis Date:	03/06/99
Units:	mg/Kg		
Diln Fac:	1		

LCS Lab ID: QC92282

Analyte	Result	Spike Added	%Rec #	Limits
Gasoline C7-C12	9.15	10	92	77-122

Surrogate	%Rec	Limits
Trifluorotoluene	101	62-143
Bromofluorobenzene	113	59-150

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

Lab #: 138300

BATCH QC REPORT

Curtis & Tompkins, Ltd.

TVH-Total Volatile Hydrocarbons

Client:	Subsurface Consultants	Analysis Method:	EPA 8015M
Project#:	272.037	Prep Method:	EPA 5030
Location:	City of Oakland-Yard #4		

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Field ID:	ZZZZZZ	Sample Date:	03/02/99
Lab ID:	138286-001	Received Date:	03/03/99
Matrix:	Soil	Prep Date:	03/06/99
Batch#:	46638	Analysis Date:	03/06/99
Units:	mg/Kg		
Diln Fac:	1		

MS Lab ID: QC92286

Analyte	Spike Added	Sample	MS	%Rec #	Limits
Gasoline C7-C12	10	<1	7.18	72	55-134

Surrogate	%Rec	Limits
Trifluorotoluene	102	62-143
Bromofluorobenzene	114	59-150

MSD Lab ID: QC92287

Analyte	Spike Added	MSD	%Rec #	Limits	RPD #	Limit
Gasoline C7-C12	10	7.89	79	55-134	9	30

Surrogate	%Rec	Limits
Trifluorotoluene	104	62-143
Bromofluorobenzene	114	59-150

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

TVH-Total Volatile Hydrocarbons

Client: Subsurface Consultants
Project#: 272.037
Location: City of Oakland-Yard #4

Analysis Method: EPA 8015M
Prep Method: EPA 5030

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
138300-003	SCI-1	46723	03/05/99	03/11/99	03/11/99	

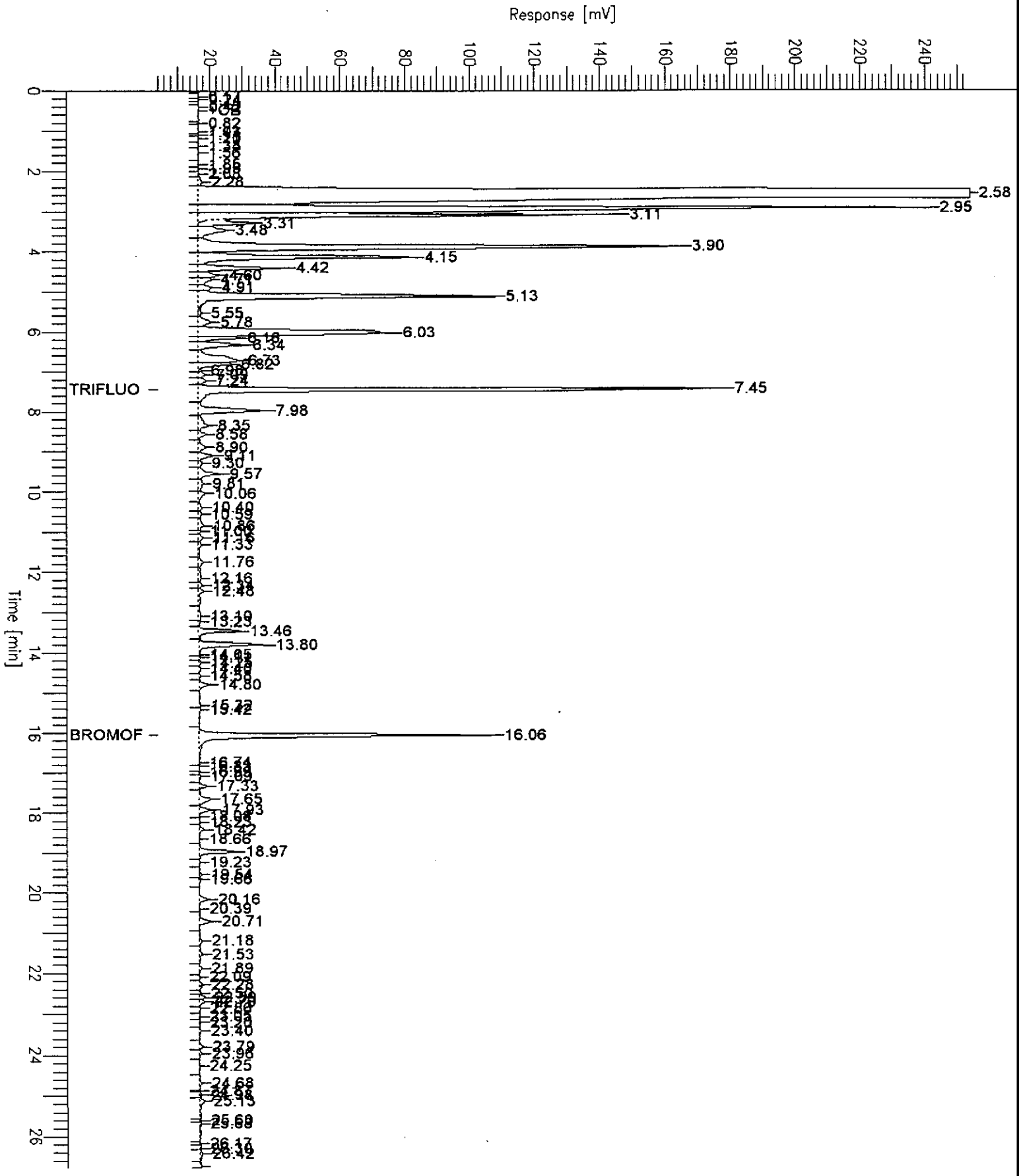
Matrix: **Water**

Analyte	Units	138300-003
Diln Fac:		1
Gasoline C7-C12	ug/L	140
Surrogate		
Trifluorotoluene	%REC	101
Bromofluorobenzene	%REC	102

GC19 TVH 'X' Data File (FID)

Sample Name : 138300-003F,46723,TVH ONLY ~~+MTBE~~ JEW
FileName : G:\GC19\DATA\069X025.raw
Method : TVHBTXE
Start Time : 0.00 min End Time : 26.80 min
Scale Factor: -1.0 Plot Offset: 4 mV

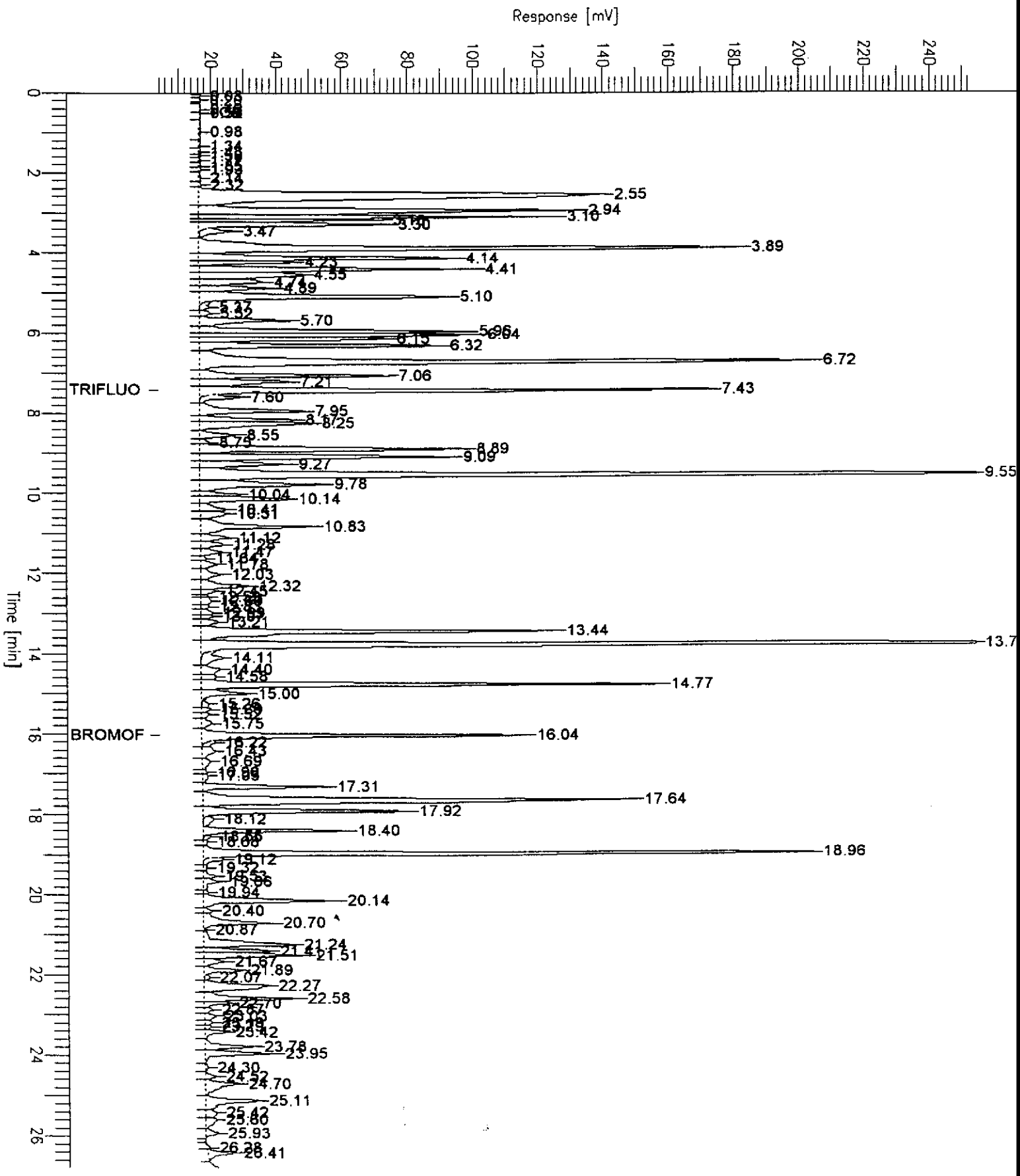
Sample #: pH<2 Page 1 of 1
Date : 3/11/99 11:45 AM
Time of Injection: 3/11/99 11:18 AM
Low Point : 3.87 mV High Point : 253.87 mV
Plot Scale: 250.0 mV



GC19 TVH 'X' Data File (FID)

Sample Name : CCV/LCS,QC92586,99WS7126,46723
FileName : G:\GC19\DATA\068X034.raw
Method : TVHBTXE
Start Time : 0.00 min End Time : 26.80 min
Scale Factor: -1.0 Plot Offset: 4 mV

Sample #: GAS Page 1 of 1
Date : 3/11/99 03:46 PM
Time of Injection: 3/10/99 04:34 PM
Low Point : 3.88 mV High Point : 253.88 mV
Plot Scale: 250.0 mV



Lab #: 138300

BATCH QC REPORT

Curtis & Tompkins, Ltd.

TVH-Total Volatile Hydrocarbons

Client:	Subsurface Consultants	Analysis Method:	EPA 8015M
Project#:	272.037	Prep Method:	EPA 5030
Location:	City of Oakland-Yard #4		

METHOD BLANK

Matrix:	Water	Prep Date:	03/10/99
Batch#:	46723	Analysis Date:	03/10/99
Units:	ug/L		
Diln Fac:	1		

MB Lab ID: QC92589

Analyte	Result
Gasoline C7-C12	<50

Surrogate	%Rec	Recovery Limits
Trifluorotoluene	93	53-150
Bromofluorobenzene	90	53-149

Lab #: 138300 BATCH QC REPORT Curtis & Tompkins, Ltd.

TVH-Total Volatile Hydrocarbons

Client:	Subsurface Consultants	Analysis Method:	EPA 8015M
Project#:	272.037	Prep Method:	EPA 5030
Location:	City of Oakland-Yard #4		

LABORATORY CONTROL SAMPLE

Matrix:	Water	Prep Date:	03/10/99
Batch#:	46723	Analysis Date:	03/10/99
Units:	ug/L		
Diln Fac:	1		

LCS Lab ID: QC92586

Analyte	Result	Spike Added	%Rec #	Limits
Gasoline C7-C12	1895	2000	95	77-117

Surrogate	%Rec	Limits
Trifluorotoluene	102	53-150
Bromofluorobenzene	115	53-149

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

Lab #: 138300

BATCH QC REPORT

Curtis & Tompkins Ltd.

TVH-Total Volatile Hydrocarbons

Client:	Subsurface Consultants	Analysis Method:	EPA 8015M
Project#:	272.037	Prep Method:	EPA 5030
Location:	City of Oakland-Yard #4		

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Field ID:	ZZZZZZ	Sample Date:	02/26/99
Lab ID:	138206-001	Received Date:	03/01/99
Matrix:	Water	Prep Date:	03/12/99
Batch#:	46723	Analysis Date:	03/12/99
Units:	ug/L		
Diln Fac:	1		

MS Lab ID: QC92590

Analyte	Spike Added	Sample	MS	%Rec #	Limits
Gasoline C7-C12	2000	<50	1919	96	69-131

Surrogate	%Rec	Limits
Trifluorotoluene	106	53-150
Bromofluorobenzene	119	53-149

MSD Lab ID: QC92591

Analyte	Spike Added	MSD	%Rec #	Limits	RPD #	Limit
Gasoline C7-C12	2000	1856	93	69-131	3	13

Surrogate	%Rec	Limits
Trifluorotoluene	100	53-150
Bromofluorobenzene	112	53-149

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

Curtis & Tompkins, Ltd.

Aromatic Volatile Organics
EPA 8020 Analyte List

Client:	Subsurface Consultants	Analysis Method:	EPA 8260A
Project#:	272.037	Prep Method:	EPA 5030
Location:	City of Oakland-Yard #4		

Field ID:	SCI-1 @ 13.5	Sampled:	03/05/99
Lab ID:	138300-001	Received:	03/05/99
Matrix:	Soil	Extracted:	03/08/99
Batch#:	46670	Analyzed:	03/08/99
Units:	ug/Kg		
Diln Fac:	1		

Analyte	Result	Reporting Limit
MTBE	ND	20
Benzene	ND	5.0
Toluene	ND	5.0
Ethylbenzene	ND	5.0
m,p-Xylenes	ND	5.0
o-Xylene	ND	5.0

Surrogate	%Recovery	Recovery Limits
1,2-Dichloroethane-d4	103	80-129
Toluene-d8	98	88-111
Bromofluorobenzene	114	76-128

Curtis & Tompkins, Ltd.

Aromatic Volatile Organics
EPA 8020 Analyte List

Client:	Subsurface Consultants	Analysis Method:	EPA 8260A
Project#:	272.037	Prep Method:	EPA 5030
Location:	City of Oakland-Yard #4		

Field ID:	SCI-1 @ 19.0	Sampled:	03/05/99
Lab ID:	138300-002	Received:	03/05/99
Matrix:	Soil	Extracted:	03/08/99
Batch#:	46670	Analyzed:	03/08/99
Units:	ug/Kg		
Diln Fac:	1		

Analyte	Result	Reporting Limit
MTBE	ND	20
Benzene	ND	5.0
Toluene	ND	5.0
Ethylbenzene	ND	5.0
m,p-Xylenes	ND	5.0
o-Xylene	ND	5.0

Surrogate	%Recovery	Recovery Limits
1,2-Dichloroethane-d4	101	80-129
Toluene-d8	100	88-111
Bromofluorobenzene	118	76-128

Lab #: 138300 BATCH QC REPORT Curtis & Tompkins Ltd.

Purgeable Aromatics by GC/MS
EPA 8020 Analyte List

Client:	Subsurface Consultants	Analysis Method:	EPA 8260A
Project#:	272.037	Prep Method:	EPA 5030
Location:	City of Oakland-Yard #4		

METHOD BLANK

Matrix:	Soil	Prep Date:	03/08/99
Batch#:	46670	Analysis Date:	03/08/99
Units:	ug/Kg		
Diln Fac:	1		

MB Lab ID: QC92396

Analyte	Result	Reporting Limit
MTBE	ND	20
Benzene	ND	5.0
Toluene	ND	5.0
Ethylbenzene	ND	5.0
m,p-Xylenes	ND	5.0
o-Xylene	ND	5.0

Surrogate	%Rec	Recovery Limits
1,2-Dichloroethane-d4	99	80-129
Toluene-d8	103	88-111
Bromofluorobenzene	107	76-128

Lab #: 138300

BATCH QC REPORT

Curtis & Tompkins Ltd.

Purgeable Aromatics by GC/MS
EPA 8020 Analyte List

Client:	Subsurface Consultants	Analysis Method:	EPA 8260A
Project#:	272.037	Prep Method:	EPA 5030
Location:	City of Oakland-Yard #4		

LABORATORY CONTROL SAMPLE

Matrix:	Soil	Prep Date:	03/08/99
Batch#:	46670	Analysis Date:	03/08/99
Units:	ug/Kg		
Diln Fac:	1		

LCS Lab ID: QC92395

Analyte	Result	Spike Added	%Rec #	Limits
Benzene	47.98	50	96	74-127
Toluene	48.48	50	97	72-131

Surrogate	%Rec	Limits
1,2-Dichloroethane-d4	96	80-129
Toluene-d8	99	88-111
Bromofluorobenzene	101	76-128

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

Lab #: 138300 BATCH QC REPORT Curtis & Tompkins Ltd.

Purgeable Aromatics by GC/MS
EPA 8020 Analyte List

Client:	Subsurface Consultants	Analysis Method:	EPA 8260A
Project#:	272.037	Prep Method:	EPA 5030
Location:	City of Oakland-Yard #4		

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Field ID:	SCI-1 @ 13.5	Sample Date:	03/05/99
Lab ID:	138300-001	Received Date:	03/05/99
Matrix:	Soil	Prep Date:	03/08/99
Batch#:	46670	Analysis Date:	03/08/99
Units:	ug/Kg		
Diln Fac:	1		

MS Lab ID: QC92397

Analyte	Spike Added	Sample	MS	%Rec #	Limits
Benzene	50	<5	37.16	74	53-128
Toluene	50	<5	33.13	66	45-134

Surrogate	%Rec	Limits
1,2-Dichloroethane-d4	97	80-129
Toluene-d8	98	88-111
Bromofluorobenzene	103	76-128

MSD Lab ID: QC92398

Analyte	Spike Added	MSD	%Rec #	Limits	RPD #	Limit
Benzene	50	39.27	79	53-128	6	34
Toluene	50	37.13	74	45-134	11	44

Surrogate	%Rec	Limits
1,2-Dichloroethane-d4	100	80-129
Toluene-d8	100	88-111
Bromofluorobenzene	104	76-128

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits
RPD: 0 out of 2 outside limits
Spike Recovery: 0 out of 4 outside limits

Curtis & Tompkins, Ltd.

Aromatic Volatile Organics
EPA 8020 Analyte List

Client:	Subsurface Consultants	Analysis Method:	EPA 8260A
Project#:	272.037	Prep Method:	EPA 5030
Location:	City of Oakland-Yard #4		

Field ID:	SCI-1	Sampled:	03/05/99
Lab ID:	138300-003	Received:	03/05/99
Matrix:	Water	Extracted:	03/08/99
Batch#:	46650	Analyzed:	03/08/99
Units:	ug/L		
Diln Fac:	1		

Analyte	Result	Reporting Limit
MTBE	ND	2.0
Benzene	12	1.0
Toluene	1.8	1.0
Ethylbenzene	4.0	1.0
m,p-Xylenes	6.9	1.0
o-Xylene	ND	1.0

Surrogate	%Recovery	Recovery Limits
1,2-Dichloroethane-d4	110	76-127
Toluene-d8	99	90-109
Bromofluorobenzene	104	82-118

Lab #: 138300

BATCH QC REPORT

Curtis & Tompkins Ltd.

Purgeable Aromatics by GC/MS
EPA 8020 Analyte List

Client: Subsurface Consultants
Project#: 272.037
Location: City of Oakland-Yard #4

Analysis Method: EPA 8260A
Prep Method: EPA 5030

METHOD BLANK

Matrix: **Water**
Batch#: 46650
Units: ug/L
Diln Fac: 1

Prep Date: 03/07/99
Analysis Date: 03/07/99

MB Lab ID: QC92334

Analyte	Result	Reporting Limit
MTBE	ND	2.0
Benzene	ND	1.0
Toluene	ND	1.0
Ethylbenzene	ND	1.0
m,p-Xylenes	ND	1.0
o-Xylene	ND	1.0

Surrogate	%Rec	Recovery Limits
1,2-Dichloroethane-d4	111	76-127
Toluene-d8	99	90-109
Bromofluorobenzene	105	82-118

Lab #: 138300

BATCH QC REPORT

Curtis & Tompkins, Ltd.

Purgeable Aromatics by GC/MS
EPA 8020 Analyte List

Client: Subsurface Consultants
Project#: 272.037
Location: City of Oakland-Yard #4

Analysis Method: EPA 8260A
Prep Method: EPA 5030

BLANK SPIKE/BLANK SPIKE DUPLICATE

Matrix: Water
Batch#: 46650
Units: ug/L
Diln Fac: 1

Prep Date: 03/07/99
Analysis Date: 03/07/99

BS Lab ID: QC92331

Analyte	Spike Added	BS	%Rec	#	Limits
Benzene	50	47.15	94		71-127
Toluene	50	47.37	95		73-129

Surrogate	%Rec	Limits
1,2-Dichloroethane-d4	108	76-127
Toluene-d8	99	90-109
Bromofluorobenzene	98	82-118

BSD Lab ID: QC92332

Analyte	Spike Added	BSD	%Rec	#	Limits	RPD	#	Limit
Benzene	50	46.65	93		71-127	1		10
Toluene	50	47.41	95		73-129	0		10

Surrogate	%Rec	Limits
1,2-Dichloroethane-d4	108	76-127
Toluene-d8	99	90-109
Bromofluorobenzene	100	82-118

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits
RPD: 0 out of 2 outside limits
Spike Recovery: 0 out of 4 outside limits

138300

CHAIN OF CUSTODY FORM

PAGE 1 OF 1

PROJECT NAME: City of Oakland - Corporation Yard #4
JOB NUMBER: 272.037 LAB: Curtis & Tompkins, LTD
PROJECT CONTACT: Mez Mendoza TURNAROUND: Standard
SAMPLED BY: John Rasmussen REQUESTED BY: Mez Mendoza

LABORATORY I.D. NUMBER	SCI SAMPLE NUMBER	MATRIX: WATER	SOIL	WASTE	AIR	CONTAINERS: VOA	LITER	PINT	TUBE	METHOD PRESERVED: HCL VOA	H_2SO_4	HNO_3	ICE	NONE	SAMPLING DATE: MONTH	DAY	YEAR	TIME	NOTES	ANALYSIS REQUESTED: TEPH,mo EPA 8015	EPA 8015 TVHg	BTEX/MTBE EPA 8260
1	SCI-1 @ 13.5		X						X				X		03	05	99			X	X	X
(1A)	SCI-1 @ 18.5																					
2	SCI-1 @ 19.0		X						X				X							X	X	X
3	SCI-1	X				6	2			X			X							X	X	X

CHAIN OF CUSTODY RECORD

RELEASED BY: (Signature)	DATE / TIME	RECEIVED BY: (Signature)	DATE / TIME
J. R Rasmussen	3/5/99 1230		3/5/99 1230
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:

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