

GROUNDWATER TECHNOLOGY, INC.

November 15, 1988
Job No. 203 425 5003

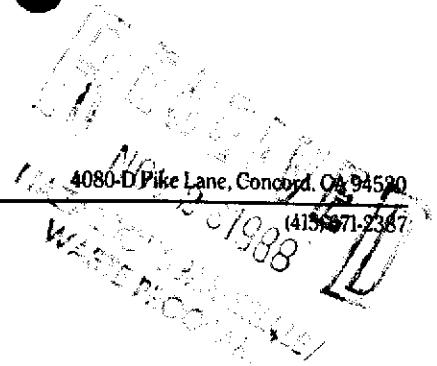
Mr. Peter Brodeur
Circle K Corporation
3437 Myrtle Ave., Suite 440
North Highland, CA 94560

Subject: **Soil Sampling for Tank Excavation at the Former Thrifty Service Station at 2504 Castro Valley Boulevard in Castro Valley, California.**

Dear Mr. Brodeur:

This letter report presents the findings of the two phases of soil sampling conducted by Groundwater Technology, Inc. (GTI) at the above-mentioned site during underground storage tank removal operations. During both sampling rounds, soil samples were collected in clean brass sample tubes. These tubes were driven into the soil then removed and sealed. The sample tubes were labeled and placed in an iced cooler for transport to GT Environmental Laboratory (GTEL) in Concord, California for analysis. During the first sampling round, a single sample of the free water in the tank excavation pit was collected in a 40-milliliter clean glass vial with a Teflon^R lined, air-tight screw cap. Proper chain-of-custody documentation was maintained and copies of the chain-of-custody forms are attached to the laboratory reports. Samples were analyzed under priority one services to allow for a 24-hour turn around time.

The soil samples taken from within the tank pit excavation were collected by sampling material dug from the bottom of the pit. Native soil from a depth of between 14- and 15-feet below grade was brought to the surface in the backhoe shovel and the sample tube driven into this soil. Field OVM readings tended to be highest by the northeast corner of the excavation.



Mr. Peter Brodeur
November 15, 1988
Page 2

Soil samples taken from the product line trenches fall into two categories. Samples 1, 2, and 3 were taken from the trenches parallel to the pump islands. These samples were taken from a depth of approximately 2-feet below grade. The sample tubes were driven into the relatively undisturbed native soil exposed during trenching and all possessed a noticeable petroleum odor. Samples 4 and 5 were taken from the trench that runs perpendicular to the pump islands. These samples were taken at approximately grade surface of the clayey gravel exposed in the trench. This material was exposed by Sacramento Equipment when the overlying asphalt was removed. The fill was left in place to allow heavy equipment to drive across the trench. This fill is not representative of conditions below the trench and as such, samples 4 and 5 were not analyzed.

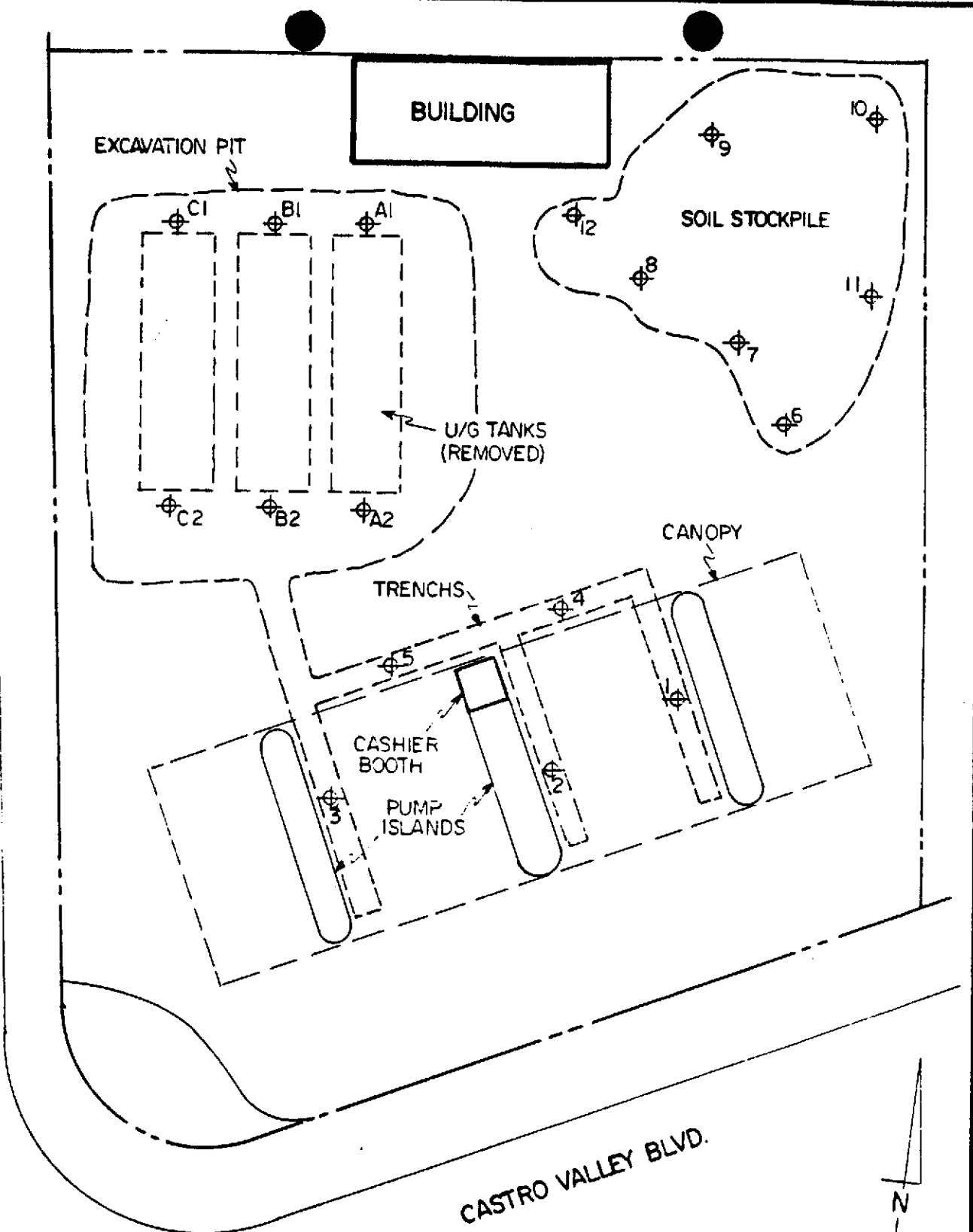
Samples 6 through 12 were taken from the excavated soils stock pile by simply driving the sample tube into the mound at a height approximately 4- to 6-feet above grade. The soil pile appeared to be comprised primarily of sand (backfill from around the tanks presumably) with large chunks of native clayey soil interspersed. Sample 12 was taken from material newly removed from the excavation pit. The entire stock pile possessed a strong gasoline odor. Please note that during the second site visit on November 11, 1988, the pile was being actively adjusted. As such, samples taken from an area along the southern edge of the stock pile may no longer reflect the nature of material now present at that location.

Figure 1 shows the approximate location of all samples collected. Analytical results for benzene, toluene, ethylbenzene, and xylenes (BTEX) and total petroleum hydrocarbons as gasoline (TPH-Gas) are attached.



GROUNDWATER
TECHNOLOGY, INC.

STANTON AVE.




LEGEND

⊕ SOIL SAMPLE LOCATIONS

**FIGURE 1
SITE PLAN**

0 FEET 20

**CIRCLE K
CASTRO VALLEY, CALIF.**

 **GROUNDWATER
TECHNOLOGY, INC.**

Of the soil samples taken from the excavation pit, only one, C1 taken from the northwest corner of the pit has detectable levels of hydrocarbon compounds. This sample showed 1 milligram per kilogram (ppm) each of toluene and xylenes with an additional 3 ppm of miscellaneous hydrocarbons for a total TPH-gasoline of 5 ppm. Samples 1, 2 and 3 show a range of concentrations. The western most trench (sample 3) is the cleanest with only 20 ppm of TPH-Gas. The other two trenches show 320 ppm of TPH-Gas. In all the trenches, the miscellaneous hydrocarbon concentration far outweighs the concentration of any and all the BTEX compounds.

The 7 samples taken from the soil stock pile show generally high concentrations of contaminants. With the exception of sample 11, all samples display TPH-Gas concentrations between 350 and 1400 ppm. Again, the greatest concentrations are for the miscellaneous hydrocarbons.

The single water sample taken from the tank pit indicates a TPH-Gas concentration of 130,000 microgram per liter (ppb) with a nearly equal division between total BTEX and miscellaneous hydrocarbons. The indicated benzene concentrations is 12,000 ppb.

The normal action levels for TPH-Gas in soil is 100 ppm, though this can be changed by the local regulatory agency. Any detectable level of benzene in groundwater is usually above the active level.

Mr. Peter Brodeur
November 15, 1988
Page 4

If you have any questions concerning this project, please contact us at our Concord office (415) 671-2387.

Sincerely,
GROUNDWATER TECHNOLOGY, INC.

Glen L. Mitchell

Glen L. Mitchell
Project Geologist

Attachments

cc: Mr. Pete DiAmico
Thrifty Oil

Mr. Terry Masters
Sacramento Equipment

GLM:lf
LR5003A

Page 1 of 1
 WORK ORD#: 8811106
 CLIENT: Greg Hoehn
 Groundwater Technology, Inc.
 4000 Pike Lane
 Concord, CA 94520
 PROJECT#: 203-425-5003-4
 LOCATION: 2504 Castro Valley Blvd.
 Castro Valley, CA
 SAMPLED: 11/10/88 BY: D. Kaufman
 RECEIVED: 11/11/88 BY: E. Larsen
 ANALYZED: 11/11/88 BY: RE
 MATRIX: Water
 UNITS: ug/L (ppb)

TEST RESULTS

COMPOUNDS	MDL	LAB #	QIA				
	I	I.I.D.#	ITANKWATERI				
Benzene	0.5		12,000				
Toluene	0.5		18,000				
Ethylbenzene	0.5		2500				
Xylenes	0.5		3000 30,000				
Total BTEX	0.5		63,000				
Misc. Hydrocarbons (C4-C12)	1		67,000				
Total Petroleum Hydrocarbons as Gasoline	1		130,000				

EM
11-14-88

MDL = Method Detection Limit; compound below this level would not be detected.
 Results rounded to two significant figures.

METHOD:
 Modified EPA Method 5030/662/8020/8015

SAFY KHALIFA, Ph.D., Director

WORK ORD#: 8811185
 CLIENT: Breg Moehn
 Groundwater Technology, Inc.
 4880 Pike Lane
 Concord, CA 94520
 PROJECT#: 203-475-5003-3
 LOCATION: 2504 Castro Valley Blvd.
 Castro Valley, CA
 SAMPLED: 11/10/88 BY: D. Kaufman
 RECEIVED: 11/11/88 BY: E. Larsen
 ANALYZED: 11/11/88 BY: RK
 MATRIX: Soil
 UNITS: mg/kg (ppe)

TEST RESULTS

COMPOUNDS	MDL	LAB #	01A	02A	03A	04A	05A
			SS#A1	SS#A2	SS#B1	SS#B2	SS#C
Benzene	0.5		<0.5	<0.5	<0.5	<0.5	<0.5
Toluene	0.5		↓	↓	↓	↓	1 ✓
Ethylbenzene	0.5		↓	↓	↓	↓	40.5
Xylenes	0.5		↓	↓	↓	↓	1 ✓
Total BTEX	0.5		↓	↓	↓	↓	2 ✓
Misc. Hydrocarbons (C4-C12)	1.0		<1	<1	<1	<1	3
Total Petroleum Hydrocarbons as Gasoline	1.0		<1	<1	<1	<1	5
			✓	✓	✓	✓	✓

*Pam Smer
11-14-88*

MDL = Method Detection Limit; compound below this level would not be detected.
 Results rounded to two significant figures.

METHOD:
 Modified EPA Method 5030/8020/8015

SAFY KHALIFA, Ph.D., Director

CLIENT: Greg Hoehn
 PROJECT#: 203-475-5003-3
 LOCATION: 2504 Castro Valley Blvd.
 Castro Valley, CA

TEST RESULTS MATRIX: Soil
 UNITS: mg/kg (ppm)

COMPOUNDS	MDL	LAB #	06A
		I.I.D.#	SS#C2
Benzene	0.5		<0.5
Toluene	0.5		↓
Ethylbenzene	0.5		
Xylenes	0.5		
Total BTEX	0.5		
Misc. Hydrocarbons (C4-C12)	1.0		<1
Total Petroleum Hydrocarbons as Gasoline	1.0		<1

MDL = Method Detection Limit; compound below this level would not be detected.
 Results rounded to two significant figures.

METHOD:
 Modified EPA Method 5030/8020/8015

SAFY KHALIFA, Ph.D., Director

Page 1 of 2
 WORK ORD#: 8811134
 CLIENT: Paul Horton
 Groundwater Technology, Inc.
 4888 Pike Ln.
 Concord, CA 94520
 PROJECT#: 283-425-5003-5
 LOCATION: Castro Valley, CA

SAMPLED: 11/11/88 BY: G. Miller
 RECEIVED: 11/11/88 BY: K. Fillinger
 ANALYZED: 11/11/88 BY: RC
 MATRIX: Soil
 UNITS: mg/kg (ppm)

TEST RESULTS

COMPOUNDS	MDL	LAB #	01A		02A		03A		04A		05A	
			I.I.D.#	1	1	2	1	3	1	6	1	7
Benzene	0.5		2	✓	1		<0.5		3		2	
Toluene	0.5		2	✓	1		↓		44	✓	20	
Ethylbenzene	0.5		9		1		↓		22		10	✓
Xylenes	0.5		28	✓	6		1		180		110	✓
Total BTEX	0.5		41		9		1		250		140	
Misc. Hydrocarbons (C4-C12)	1		280		30		19		1200		1100	
Total Petroleum Hydrocarbons as Gasoline	1		320		320		20		1400		1200	

GM
11-14-88

MDL = Method Detection Limit; compound below this level would not be detected.
 Results rounded to two significant figures.

METHOD:
 Modified EPA Method 5830/8020/8015

SAFY KHALIFA, Ph.D., Director

CLIENT: Paul Horton
 PROJECT#: 203-425-5003-5
 LOCATION: Castro Valley, CA

MATRIX: Soil
 UNITS: mg/kg (ppm)

TEST RESULTS

COMPOUNDS	MDL	LAB #	06A	07A	08A	09A	10A
		I.D.#	8	9	10	11	12
Benzene	0.5		2	2	1	1	3
Toluene	0.5		15	14	8	1	15
Ethylbenzene	0.5		10 ¹	9 ^v	7 ^v	<0.5	7 ^v
Xylenes	0.5		81 ^v	71	58	1	47 ^v
Total BTEX	0.5		110	96	74	3	72
Misc. Hydrocarbons (C4-C12)	1		610	570	1000	6	280
Total Petroleum Hydrocarbons as Gasoline	1		720 ^v	610 ^v	1100 ^v	9 ^v	350 ^v

MDL = Method Detection Limit; compound below this level would not be detected.
 Results rounded to two significant figures.

METHOD:
 Modified EPA Method 5030/8020/8015

SAFY KHALIFA, Ph.D., Director



4080-C Pike Lane
Concord, CA 94520
415-685-7852

800-544-3422 (In CA)
800-423-7143 (Outside CA)

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

Project Manager: Paul Horton Phone #: _____

Address: _____ FAX #: _____

Project Number: 203 425 5005 Project Name: Castro Valley

Location: Castro Valley, CA Sampler Signature: [Signature]

Sample ID	Lab # (Lab use only)	# CONTAINERS	Volume/Amount	Matrix					Method Preserved					Sampling		
				WATER	SOIL	AIR	SLUDGE	OTHER	HCl	HNO ₃	ICE	NONE	OTHER	DATE	TIME	
12		1			X						X					

ANALYSIS REQUEST										OTHER		SPECIAL HANDLING			
<input checked="" type="checkbox"/>															

Relinquished by: <u>[Signature]</u>	Date Time: <u>11/11/88 - 10</u>	Received by: _____
Relinquished by: _____	Date Time: _____	Received by: _____
Relinquished by: _____	Date Time: _____	Received by Laboratory: _____

Remarks: _____



4080-C Pike Lane
Concord, CA 94520
415-685-7852

800-544-3422 (In CA)
800-423-7143 (Outside CA)

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

Project Manager: 6226 110242 Phone #: _____

Address: 571 CONCORD FAX #: _____

Project Number: 200 405 0005 Project Name: CIRCLE K / EAST VALLEY

Point Location: 2504 Con Valley St Sampler Signature: [Signature]

ANALYSIS REQUEST

OTHER

SPECIAL HANDLING

Sample ID	Lab # (Lab use only)	# CONTAINERS	Volume/Amount	Matrix				Method Preserved				Sampling		BTEX (602/8020)	BTEX/TPH as Gasoline (602/8020/8015)	TPH as Diesel (8015 or 8270)	TPH as Jetfuel (8015 or 8270)	Total Oil & Grease (413.1)	Total Oil & Grease (413.2)	Total Petroleum Hydrocarbons (418.1)	EPA 601/8010	EPA 602/8020	EPA 608/8080	EPA 608/8080-PCBs Only	EPA 624/8240	EPA 625/8270	CAM - 17 Metals	EPTOX - 8 Metals	EPA - Priority Pollutant Metals	LEAD(7420/7421/239.2)	ORGANIC LEAD	PRIORITY ONE SERVICE (24 hr)	EXPEDITED SERVICE (2-4 days)	VERBALS/FAX	SPECIAL DETECTION LIMITS (SPECIFY)	SPECIAL REPORTING REQUIREMENTS		
				WATER	SOIL	AIR	SLUDGE	OTHER	HCl	HNO3	ICE	NONE	OTHER																								DATE	TIME
55° 4A1					X																																	
55° 4A2					X																																	
55° B1					X																																	
55° C1					X																																	
55° C2					X																																	
TANK PIT		2	2								X																											

Relinquished by:	Date	Time	Received by:
Relinquished by:	Date	Time	Received by:
Relinquished by:	Date	Time	Received by Laboratory:

11-11 1:00

Remarks: 24