

ALAMEDA COUNTY  
HEALTH CARE SERVICES

AGENCY  
DAVID J. KEARS, Agency Director



October 29, 1999

STID 3798

ENVIRONMENTAL HEALTH SERVICES  
ENVIRONMENTAL PROTECTION  
1131 Harbor Bay Parkway, Suite 250  
Alameda, CA 94502-6577  
(510) 567-6700

**REMEDIAL ACTION COMPLETION CERTIFICATION**

Mr. Mike Karvelot  
Quick Stop Markets, Inc.  
4567 Enterprise Street  
Fremont, CA 94538

RE: Quick Stop Market #46, 363 Grand Avenue, Oakland

Dear Mr. Karvelot:

This letter confirms the completion of a site investigation and remedial action for the underground storage tanks formerly located at the above-described location. Thank you for your cooperation throughout this investigation. Your willingness and promptness in responding to our inquiries concerning the former underground storage tanks are greatly appreciated.

Based on information in the above-referenced file and with the provision that the information provided to this agency was accurate and representative of site conditions, no further action related to the underground tank release is required.

This notice is issued pursuant to a regulation contained in Section 2721(e) of Title 23 of the California Code of Regulations.

Please contact our office if you have any questions regarding this matter.

Sincerely,

Mee Ling Tung  
Director, Environmental Health Services

c: Chuck Headlee, RWQCB  
Dave Deaner, SWRCB (w/attachment)  
Leroy Griffin, Oakland Fire Department  
Ram Bali, BPR Real Estate Group, Inc. (w/attachment)  
46 Olive Ave., Piedmont, CA 94611  
SOS/files

ALAMEDA COUNTY  
HEALTH CARE SERVICES



AGENCY  
DAVID J. KEARS, Agency Director

October 29, 1999

ENVIRONMENTAL HEALTH SERVICES  
ENVIRONMENTAL PROTECTION  
1131 Harbor Bay Parkway, Suite 250  
Alameda, CA 94502-6577  
(510) 567-6700

STID 3798

Mr. Mike Karvelot  
Quick Stop markets, Inc.  
4567 Enterprise Street  
Fremont, CA 94538

RE: Quick Stop Market #46, 363 Grand Avenue, Oakland

Dear Mr. Karvelot:

This letter transmits the enclosed underground storage tank (UST) case closure letter in accordance with Chapter 6.75 (Article 4, Section 25299.37[h]) of the California Health and Safety Code. The State Water Resources Control Board (SWRCB) has required since March 1, 1997 that this agency use this case closure letter for all UST leak sites. We are also transmitting to you the enclosed case closure summary. These documents confirm the completion of the investigation and cleanup of the reported release at this site.

**SITE INVESTIGATION AND CLEANUP SUMMARY**

Please be advised that the following conditions exist at the site:

- Up to 2900 micrograms per liter (ug/l) Total Petroleum Hydrocarbons as Gasoline (TPH-G) and 38 ug/l Benzene are present in groundwater beneath the site.
- Up to 9200 milligrams per kilogram (mg/kg) TPH-G and 31 mg/kg Benzene are present in soil at the 20' depth.

If you have any questions, please contact the undersigned at (510) 567-6783.

Sincerely,



Scott O. Seery, CHMM  
Hazardous Materials Specialist

Enclosures:

1. Case Closure Letter
2. Case Closure Summary

cc: Ariu Levi, Chief, Environmental Protection  
Ram Bali, BPR Real Estate Group, Inc.  
46 Olive Ave., Piedmont, CA 94611

(w/attachment)

- SIGNED  
COPY -

RB# 01-1218

ENVIRONMENTAL  
PROTECTION

**CASE CLOSURE SUMMARY**  
Leaking Underground Fuel Storage Tank Program

**I. AGENCY INFORMATION**

Date: 10/05/99

Agency name: **Alameda County-EPD**  
City/State/Zip: **Alameda, CA 94502**  
Responsible staff person: **Scott Seery**

Address: **1131 Harbor Bay Pkwy #250**  
Phone: **(510) 567-6700**  
Title: **Haz. Materials Spec.**

**II. CASE INFORMATION**

Site facility name: **Quick Stop Market No. 46**  
Site facility address: **363 Grand Ave., Oakland 94610**  
RB LUSTIS Case No: **N/A** Local Case No./LOP Case No.: **3798**  
URF filing date: **08/03/88** SWEEPS No: **N/A**

<u>Responsible Parties:</u>	<u>Addresses:</u>	<u>Phone Numbers:</u>
Quick Stop Markets, Inc. <u>Attn:</u> Mike Karvelot	4567 Enterprise St. Fremont, CA 94538	(510) 657-8500
BPR Real Estate Group Inc. <u>Attn:</u> Ram Bali	46 Olive Ave. Piedmont, CA 94611	(510) 444-7629

CALIFORNIA REGIONAL WATER  
OCT 07 1999  
QUALITY CONTROL BOARD

<u>Tank No:</u>	<u>Size in gal.:</u>	<u>Contents:</u>	<u>Closed in-place or removed?:</u>	<u>Date:</u>
1	10,000	gasoline	removed	06/15/88
2	10,000	"	"	"

**III. RELEASE AND SITE CHARACTERIZATION INFORMATION**

Cause and type of release: Possible piping leaks and/or spills

Site characterization complete? YES

Date approved by oversight agency:

Monitoring Wells installed? YES Number: 10 + 2 recovery wells

Proper screened interval? YES

Highest GW depth below ground surface: 4.60' (MW-1) Lowest depth: 23.14' (MW-2)

Flow direction: typically S-SW; occasional GW mounding or depression on-site

Most sensitive current use: commercial

Are drinking water wells affected? YES Aquifer name: NA

Leaking Underground Fuel Storage Tank Program

III. RELEASE AND SITE CHARACTERIZATION INFORMATION (Continued)

Is surface water affected? NO Nearest affected SW name: NA

Off-site beneficial use impacts (addresses/locations): NONE

Report(s) on file? YES Where is report filed? **Oakland Fire Dept., Station 1  
1603 MLK Way  
Oakland, CA 94612**

**Treatment and Disposal of Affected Material:**

<u>Material</u>	<u>Amount (include units)</u>	<u>Action (Treatment or Disposal w/destination)</u>	<u>Date</u>
Tank	2 x 10K gals.	Disposal/Destruction – AMRI Ontario, CA	06/17/88
Piping	as above		
Free Product	UNK	<u>Treatment</u>	1996-1998
Soil	~400 tons	<u>Aeration/Disposal ?</u>	1988 ?
Groundwater	~3.8 million gals.	<u>Treatment/Discharge to POTW</u>	1992-1998

**Maximum Documented Contaminant Concentrations - - Before and After Cleanup**

<b>Contaminant</b>	<b>Soil (ppm)</b>		<b>Water (ppb)</b>	
	<u>Before<sup>1</sup></u>	<u>After<sup>2</sup></u>	<u>Before<sup>3</sup></u>	<u>After<sup>4</sup></u>
TPH (Gas)	860	9200	920,000	2900
Benzene	<0.15	31	740	38
Toluene	1.2	26	610	6
Xylene	4.7	190	4800	59
Ethylbenzene	<0.15	66	600	31
Heavy metals (Org. Pb)	<0.5	NA	NA	NA
Other	MtBE NA	36 (EPA 8020)	"	470 (EPA 8020)

- Note:**
- 1) "Before" soil results are for samples collected from the base of the UST excavation and beneath dispensers during 1988 UST closures.
  - 2) "After" soil results are a composite from soil borings AB-1 @ 20' BG and B-6 @ 20' BG, advanced at the site in 7/98 and 6/99, respectively.
  - 3) "Before" water results compiled from well MW-2 data for January and July 1989 sampling events.
  - 4) "After" water results are a composite from 8/99 sampling of wells MW-2 and -9.

**Comments (Depth of Remediation, etc.):**

Two 10,000 gallon gasoline underground storage tanks (UST) were removed in June 1988 from this still-active Quick Stop "mini mart" site. Both tanks were constructed of steel, and both were reported to be in "good" condition upon their removal. Soil samples were collected from beneath the inverts of the removed USTs at the base of the final excavation (14 – 16.5' BG), and from beneath the fuel dispensers (4' BG). Samples exhibited up to 860 ppm Total Petroleum Hydrocarbons as Gasoline (TPH-G). Concentrations of the remaining gasoline analytes were not particularly noteworthy.

Leaking Underground Fuel Storage Tank Program

III. RELEASE AND SITE CHARACTERIZATION INFORMATION (Continued)

Excavated soil (~400 tons) was reportedly transported to Quick Stop's Vasco Road facility (Livermore) for aeration. The final destination for this soil is not indicated in the case file, although it appears from recent conversations with Quick Stop that the treated soil may have eventually ended up in a nearby landfill.

IV. CLOSURE

Does completed corrective action protect existing beneficial uses per the Regional Board Basin Plan? \_\_\_\_\_

Does completed corrective action protect potential beneficial uses per the Regional Board Basin Plan? \_\_\_\_\_

Does corrective action protect public health for current land use? YES  
Site management requirements: NA

Should corrective action be reviewed if land use changes? YES

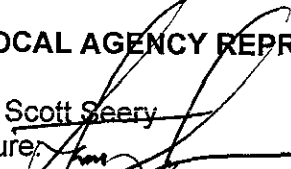
Monitoring wells Decommissioned: YES (2 - remainder pending case closure)


Number Decommissioned: 2                      Number Retained: 8 + 2 (pending case closure)

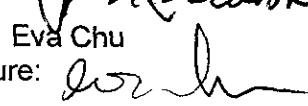
List enforcement actions taken: NONE

List enforcement actions rescinded: NA


V. LOCAL AGENCY REPRESENTATIVE DATA

Name: ~~Scott Seery~~                      Title: Haz Mat Specialist  
Signature:                       Date: 10/5/99

Reviewed by  
Name: Tom Peacock                      Title: Supervising Haz Mat Specialist  
Signature:                       Date: 10-4-99

Name: Eva Chu                      Title: Haz Mat Specialist  
Signature:                       Date: 10/4/99

VI. RWQCB NOTIFICATION

Date Submitted to RB: 10-5-99                      RB Response:   
RWQCB Staff Name: Chuck Headlee                      Title: Assoc. Eng. Geologist                      Date: 10/7/99.

## Leaking Underground Fuel Storage Tank Program

### VII. ADDITIONAL COMMENTS, DATA, ETC.

Three (3) monitoring wells were initially installed at this site in November 1988. Encountered sediments were reported as a mixture of silts and clays with localized interbeds of gravely and silty sand to depths of 22' BG. Well MW-1 reportedly intersected a buried sewer line, and was abandoned and re-drilled elsewhere (MW-1R). Difficulty with flowing formation sands at depth affected the final construction of well MW-3. Both geogenic and Lonestar #2/12 sands consequently comprise the resultant filter pack in this one well.

Groundwater (GW) was reportedly under "confined" conditions, initially encountered at depths between 27 and 31', but later stabilized at depths between 7.5 and 10' BG. Elevated concentrations of dissolved phase fuel hydrocarbons (HC) were noted in each of the completed wells, with the highest concentrations present in samples collected from well MW-2. Soil samples collected during boring advancement demonstrate both shallow and water-borne HC impacts. Sampling and reporting continued more or less on a quarterly schedule from this point forward.

During November 1989 four additional exploratory soil borings were advanced on site to depths of just over 26'. This investigation resulted in a recognition of the complex shallow sedimentary sequence that underlies the site. From depths of 10 – 20", however, it was reported that sediments were comprised of silty clay. GW was reportedly encountered under confined conditions in an aquifer comprised of silty sand. GW impact was noteworthy, as was the presence of HC impact in soil samples collected from the capillary zone. A product "sheen" was reported in well MW-2.

Five (5) additional wells were installed in off-site locations during March 1990. Two wells (MW-4 and -5) were constructed within Grand Avenue, one well (MW-6) was installed within Ellita Avenue, and two wells (MW-7 and -8) were constructed within the adjoining residential property to the south. No significant impacts to GW were noted in any of these off-site wells during the initial sampling event. GW concentrations in samples collected from on-site wells remained elevated.

In October 1990, a remedial action plan (RAP) was presented that proposed four steps: 1) installation of an above-ground treatment system to remediate impacted and extracted GW; 2) excavation of shallow impacted soil; 3) off-site treatment of excavated soil; and, 4) continued GW clean-up. In preparation for this work, an extraction well (RW-1) was constructed to facilitate the performance of aquifer tests to assist in determining the feasibility of GW extraction. Step/drawdown and pump tests were performed and data analyzed. It was estimated that an appropriate capture zone could be achieved at a pumping rate of 4.0 gpm.

A second RAP was submitted by a successor consultant in May 1992. In it was proposed the use of a spray aeration vapor extraction (SAVE) system (i.e., vacuum enhanced pump-and-treat) to remediate impacted GW beneath the site, with effluent discharge to the local sanitary sewer. This system was eventually installed and began operation in September 1992.

Four (4) additional recovery wells were proposed in August 1994. This plan was later pared down to a single recovery well (RW-2) and an additional on-site monitoring well (MW-9) in early 1995. Both wells were eventually constructed. Well RW-2 was tied into the SAVE system. Well MW-3 was destroyed in April of that year. GW, although encountered between 26 and 33' BG, stabilized in the completed wells at depths of ~8 to 9' BG. These data demonstrate the confined conditions under which GW is encountered at the site.

## Leaking Underground Fuel Storage Tank Program

### VII. ADDITIONAL COMMENTS, DATA, ETC. (Continued)

The SAVE system operated intermittently through March 1996. The SAVE (treatment) component of the GW extraction and treatment system was replaced with granular activated carbon (GAC) canisters in May 1996, with GW extraction directed from recovery well RW-2.

The (reported) occurrence of "free product" in monitoring well MW-2 (up to 0.29 feet) prompted periodic pump-outs of RW-2 beginning in February 1996. Resultant fluids were directed to the treatment system. In addition, an oxygen releasing compound (ORC) – magnesium peroxide – was placed in monitoring wells MW-1R, -5, -9 and recovery well RW-1 in September 1996 to promote aerobic bioattenuation and consequent HC degradation. The ORC was eventually removed from wells MW-5, -9 and RW-1 in early 1998 due to negligible enhancement of dissolved oxygen (DO) concentrations in formation water sampled from those wells. The occurrence of apparent free product ended the summer of 1999.

A mobile treatment system (MTS) was used in February 1997 to augment the fixed remediation system by extracting fluids under high vacuum from several of the site wells. Vapors were routed to the MTS thermal oxidizer while liquids were directed to the fixed treatment system. Approximately 3.9 pounds of HC vapors and 1980 gallons of HC-impacted GW were recovered by the MTS process during this single event. The fixed treatment unit operated until 1998, at which point a reported total of ~3.8 million gallons of HC-impacted GW had been extracted, treated, and discharged to the sanitary sewer.

In July 1998, six Geoprobe™ borings (AB-1 through AB-6) were advanced about the site to depths of ~30' BG in order to gauge the effectiveness of past remedial efforts and determine residual HC impacts in the vadose zone. Certain of the soil samples collected from probe AB-3 were additionally analyzed for physical parameters (e.g.,  $T_{oc}$ , moisture content, etc.) for the eventual completion of a risk-based corrective action evaluation (RBCA). HC-impacted soil was recovered from all borings, with the exception of AB-5. The highest HC impacts were discovered at the 20' BG sampling depth, with the exception of AB-6 where the greatest impact identified was at 10' BG. The 20' depth appears consistent with the capillary zone.

In June 1999, approximately 670 pounds of ORC grout were reportedly injected into 13 Geoprobe™ boreholes emplaced in strategic locations about the former UST complex. Seven (7) additional probes were advanced concurrently with the ORC injection, intended to provide additional HC distribution data. Four of these investigative borings (B-4, -5, -6, and -7) were also reportedly injected with ORC, and three were continuously cored. ORC was injected over the 18 – 23' depth interval. An estimated 100 pounds of  $O_2$  is reportedly expected to be dispersed to the saturated zone over a span of approximately 6 months.

The degree of heterogeneous HC distribution in the subsurface at this site was better recognized as a result of the June 1999 work. Such HC distributions are difficult to explain in areas of the site where a degree of sedimentary homogeneity is apparent. It has been proffered, however, that this phenomenon may be due to the tortuous migration pathways present in fine-grained sediments through which impacted GW has passed. Under this theory, residual HC concentrations in soil samples collected from neighboring borings, although from similar or identical depths (e.g., B-6 and AB-3 @ 20' BG), may differ substantially depending upon the proximity of retrieved sample relative to GW migration pathways.

## Leaking Underground Fuel Storage Tank Program

### VII. ADDITIONAL COMMENTS, DATA, ETC. (Continued)

Also in June 1999, GW samples collected from wells MW-4, RW-2, and MW-7 were analyzed for the occurrence of specific biodegradation indicators (CH<sub>4</sub>, N, O<sub>2</sub>, CO<sub>2</sub>, and heterotrophic plate counts) prior to ORC injection. These samples were collected in order to demonstrate whether or not bioattenuation was occurring. The dissolved gas concentrations appear to demonstrate that anaerobic biodegradation was in progress. Plate counts, on the other hand, were less conclusive. Nevertheless, ORC injection is expected to increase dissolved O<sub>2</sub> concentrations and thereby stimulate resident aerobic and facultative bacteria, accelerating the rate at which the residual HC mass is ultimately depleted.

In July 1999, weekly GW purging activities reportedly began. An additional ~1100 gallons of GW was purged from wells MW-2 and -9 and discharged through the fixed treatment system during this process.

MtBE has appeared in both soil and GW samples collected during the course of the investigation since it was first sought in 1995, but not in all locations and from all borings or wells. Its presence was initially confirmed in 1998 using EPA Method 8260 in a GW sample collected from well MW-9, and again in 1999 in a soil sample collected at the 20' depth in boring B-6. The source of MtBE is unclear, although it does not appear to be due to the historic operation of the USTs at this site for a variety of factors (e.g., era of on-site UST use and discontinuation of that use, expected MtBE fate-and-transport, etc.). The data suggest an off-site source for the MtBE identified at the site, although a migration pathway, whether geogenic or manmade, has not yet been clearly identified.

The City of Oakland Urban Land Redevelopment (ULR) Program Risk-Based Corrective Action (RBCA) guidance document (1999) was used by ACDEH and the consultant to evaluate potential human health risks as a result of residual HC impacts to soil and GW at the site. This guidance sets forth Oakland-specific RBCA standards for "qualifying" sites following ASTM RBCA standard E-1739. Applicability of the Oakland RBCA guidance to this site was evaluated through completion of the Oakland RBCA Eligibility Checklist. The site appeared eligible.

Potential human receptor populations, both on- and off-site, were identified and plausible exposure pathways considered. Only those potential exposures due to the inhalation of indoor vapors appeared applicable in this case. Effort was expended in further contemplation of the structures in which both on- and off-site receptors are housed. This evaluation demonstrated that only the on-site commercial structure (i.e., active mini mart) was configured in such a way (i.e., slab-on-grade) that a potential exposure risk should be further evaluated. (Note: Although the adjacent off-site residential receptors [apartments at 457 Ellita Ave.] should be excluded from further consideration due to an apparent absence of potentially-complete exposure pathways, the consultant nonetheless followed through with a limited risk-evaluation of this population.)

Off-site "ecological" receptors (e.g., Lake Merritt) were likewise considered initially and subsequently excluded from further consideration as the HC plume does not extend a sufficient distance from the site to place any at risk. In addition, preferential plume migration pathways (e.g., utility conduits) were also evaluated, with a final determination that none were present in locations that would provide a conduit for dispersal of the plume to other off-site receptor locations.



## Leaking Underground Fuel Storage Tank Program

### VII. ADDITIONAL COMMENTS, DATA, ETC. (Continued)

Oakland-specific RBCA Tier 1 Risk-Based Screening Levels (RBSL) and Tier 2 Site-Specific Target Levels for three soil types (Merritt Sands, Sandy Silts, and Clayey Silts) were then compared to site-specific geology and chemical data. Maximum soil and GW concentrations from site borings and wells were employed for this initial comparison.

Comparison of maximum GW concentrations with the Oakland-specific commercial/industrial RBSLs and SSTLs for *benzene* (the risk-driving chemical of concern [COC]) for the indoor vapor inhalation pathway demonstrated that GW concentrations were well below the RBSL and listed SSTLs for all three soil types. As a result, GW, as an exposure medium, was excluded from further evaluation. Comparison of maximum soil concentrations (from strategic borings proximal to the evaluated receptor locations) to Oakland RBSLs demonstrated site-specific concentrations exceeded Tier 1 values for the evaluated exposure pathway. Consequently, Tier 2 evaluation became necessary.

The consultant concluded the physical characteristics of the Oakland RBCA "sandy silt" soil type appeared reasonably comparable to the soils encountered in closest proximity to the mini mart building. This was believed to be a conservative approach, as soil types encountered in borings advanced in the target area ranged from sandy silts to silty clays. Standard Oakland RBCA defaults for the sandy silt soil type were employed in completion of risk calculations, with the exception of depth-to-soil-source (averaged to a conservative 17.5' BG), and bulk density (changed to 1.4 g-soil/cm<sup>3</sup> based on site-specific laboratory testing).

Completion of this RBCA evaluation, with adherence to Oakland-specific guidance, demonstrated that site-specific maximum soil *benzene* concentrations from strategic borings did not exceed the calculated SSTL for the indoor vapor inhalation pathway, even with the application of very conservative assumptions. As indicated previously, complete exposure pathways were not apparent with respect to the adjacent residential property. Nevertheless, the calculated *benzene* SSTL for the Oakland "sandy silt" soil type was not exceeded for mean benzene concentrations in soils encountered at the 10' depth from borings most proximal to that potential receptor population. Consequently, there does not appear to be a potential health risk to either employees of the on-site mini mart or off-site residential receptors.

---

This case should be closed as it meets the definition of a "Low Risk Groundwater Case", as outlined in the 05 January 1996 guidance from the San Francisco Bay Regional Water Quality Control entitled "*Regional Board Supplemental Instructions to State Water Board December 8, 1995, Interim Guidance on Required Cleanup at Low-Risk Sites*", as follows:

- 1) **The leak has been stopped and ongoing sources, including free product, have been removed or remediated.**

The subject USTs were removed in 1988. Hence, no ongoing HC source remains at the site. "Free product" has been removed to the extent practical, first through use of a GW pump-and-treat

## Leaking Underground Fuel Storage Tank Program

### VII. ADDITIONAL COMMENTS, DATA, ETC. (Continued)

system that extracted and treated some 3.8 million gallons of impacted GW, followed by periodic pump-outs of strategic wells at the site, and finally, in order to ensure continued aerobic biodegradation of residual HC impacts, the injection of ~670 pounds of ORC grout into a total of 17 borings.

**2) The site has been adequately characterized.**

Over the course of the investigation and remediation of this site, 26 soil borings, 9 monitoring wells and 2 recovery wells have been installed. From each soil and GW samples have been collected and analyzed. This site is very well characterized as a result of this work.

**3) The dissolved hydrocarbon plume is not migrating.**

Long-term sampling of the well network has demonstrated that the HC plume is substantially constrained to the source site. The plume appears stable at this time, and is anticipated to shrink due to intrinsic, as well as enhanced, biodegradation.

**4) No water wells, deeper drinking water aquifers, surface water, or other sensitive receptors are likely to be impacted.**

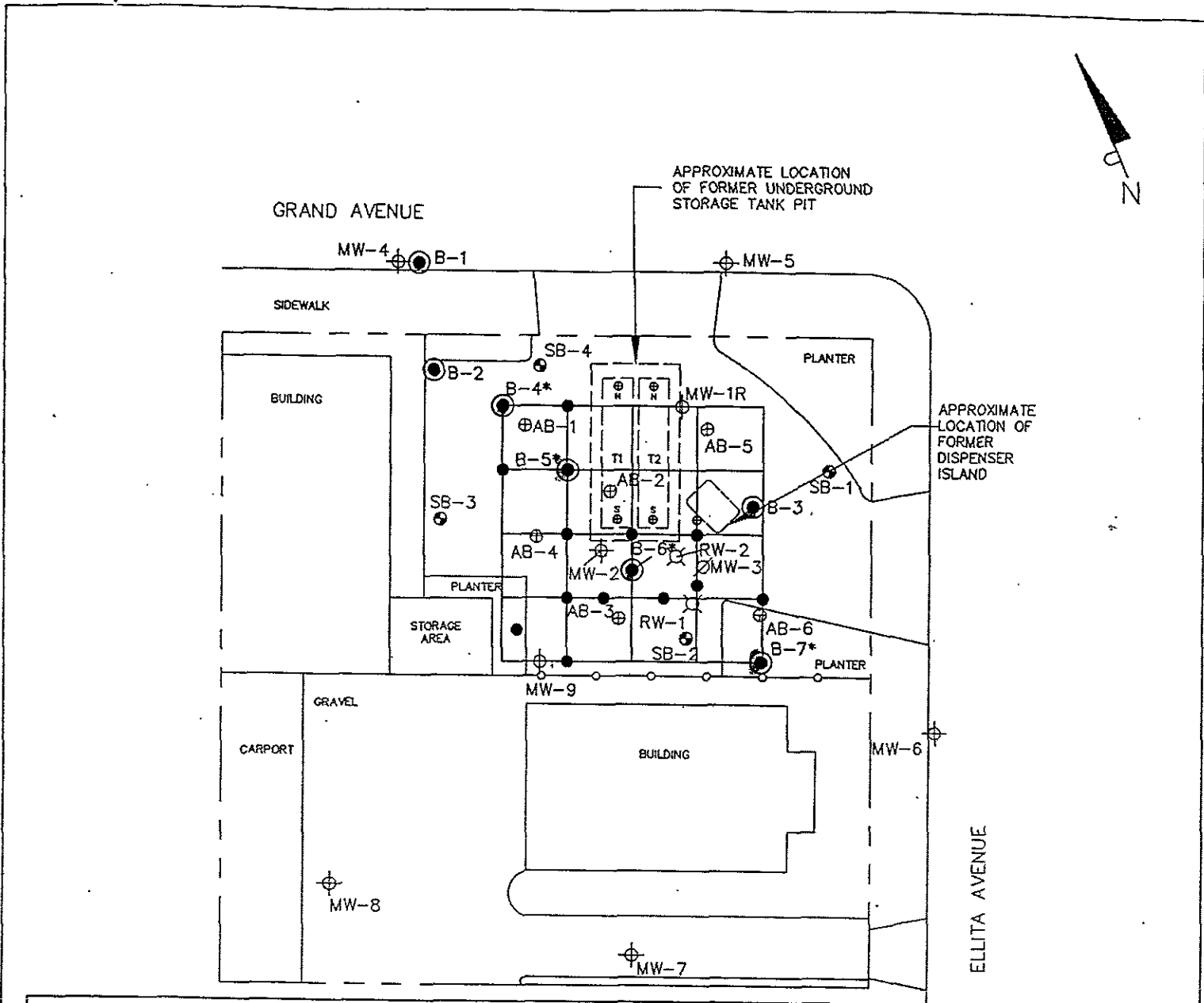
There are no known drinking water wells or aquifers in the vicinity of the site. Surface water and other sensitive receptors were contemplated during completion of the risk evaluation for this site, but were well outside the boundaries of the HC plume.

**5) The site presents no significant risk to human health.**

A risk evaluation was performed following the Oakland RBCA guidance. No significant health risk is anticipated for either on-site workers or off-site residential receptors based on plausible exposure scenarios.

**6) The site presents no significant risk to the environment.**

Risk to environmental receptors (e.g., Lake Merritt) was evaluated. No potential risk was identified due to the geographic separation of the site from those receptor locations.



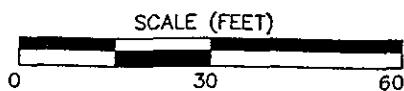
**LEGEND**

- |        |   |        |   |
|--------|---|--------|---|
| MW-1 ⊕ | Monitoring Well   | AB-4 ⊕ | Soil Boring by Alton Geoscience (July 1998)           |
| RW-1 ⌘ | Recovery Well   | ●      | ORC Injection Location (June 9-11, 1999)              |
| ---    | Property Line   | B-1 ⊙  | Soil Boring (Investigative Location, June 9-11, 1999) |
| —○—    | Fence   |        |   |
| ⊕      | Soil Boring (Collected During Tank Excavation, June 1988)         |        |   |
| SB-4 ⊕ | Soil Boring by Ensco Environmental Services, Inc. (November 1988) |        |   |

**NOTES:**  
 \* = soil boring is also injected with oxygen releasing compounds (ORC)

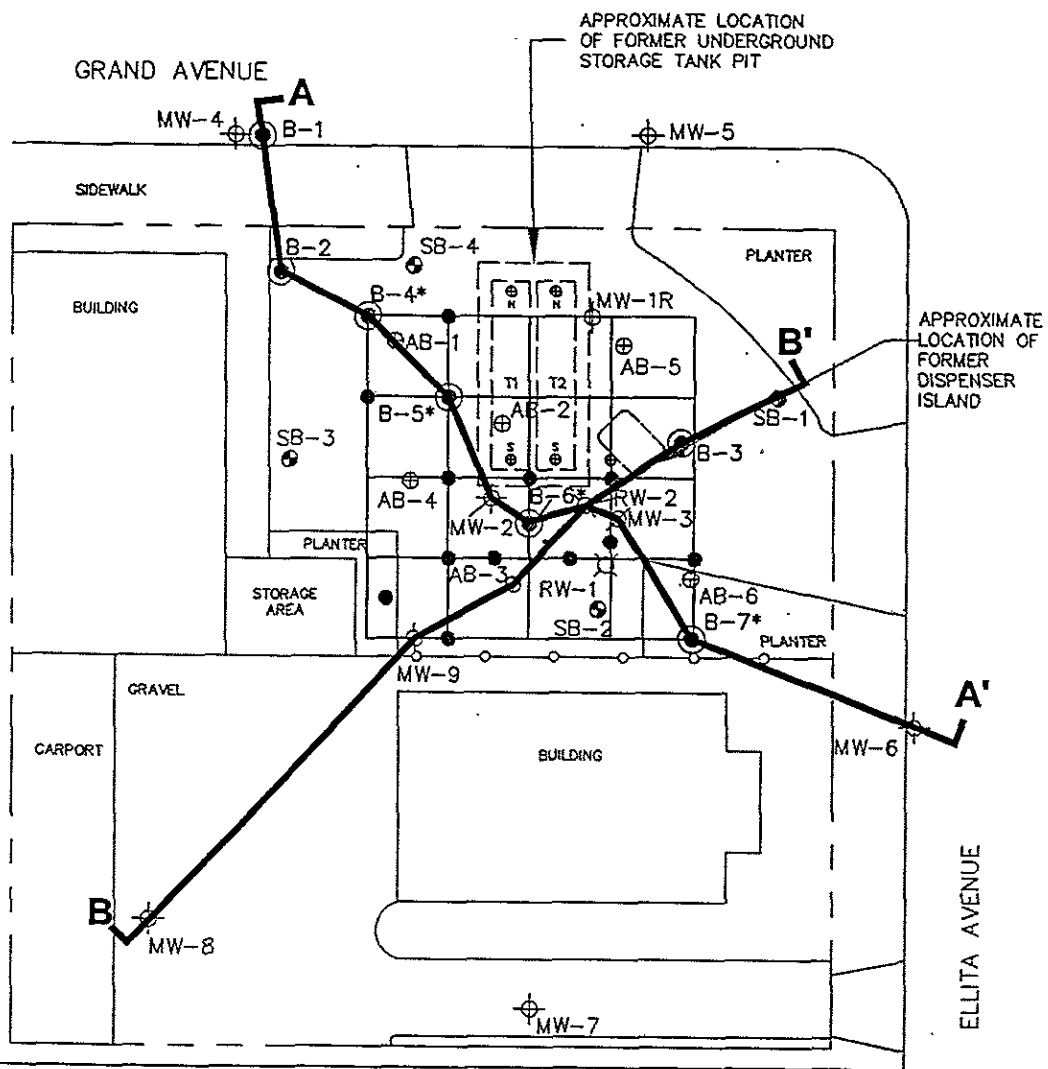
**SITE PLAN SHOWING BORING, WELL, AND ORC™ INJECTION LOCATIONS**

Quik Stop No. 46  
 363 Grand Avenue  
 Oakland, California



SOURCE: Resna

**FIGURE 2**



**LEGEND**

- |        |   |        |   |
|--------|---|--------|---|
| MW-1 ⊕ | Monitoring Well   | AB-4 ⊕ | Soil Boring by Alton Geoscience (July 1998)           |
| RW-1 ⊗ | Recovery Well   | ●      | ORC Injection Location (June 9-11, 1999)              |
| ---    | Property Line   | B-1 ⊙  | Soil Boring (Investigative Location, June 9-11, 1999) |
| —○—    | Fence   | A A'   | Cross Section Line                                    |
| ⊕      | Soil Boring (Collected During Tank Excavation, June 1988)         |        |   |
| SB-4 ⊕ | Soil Boring by Ensco Environmental Services, Inc. (November 1988) |        |   |

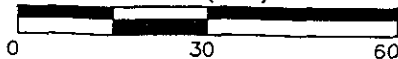
**NOTES:**

\* = soil boring is also injected with oxygen releasing compounds (ORC)

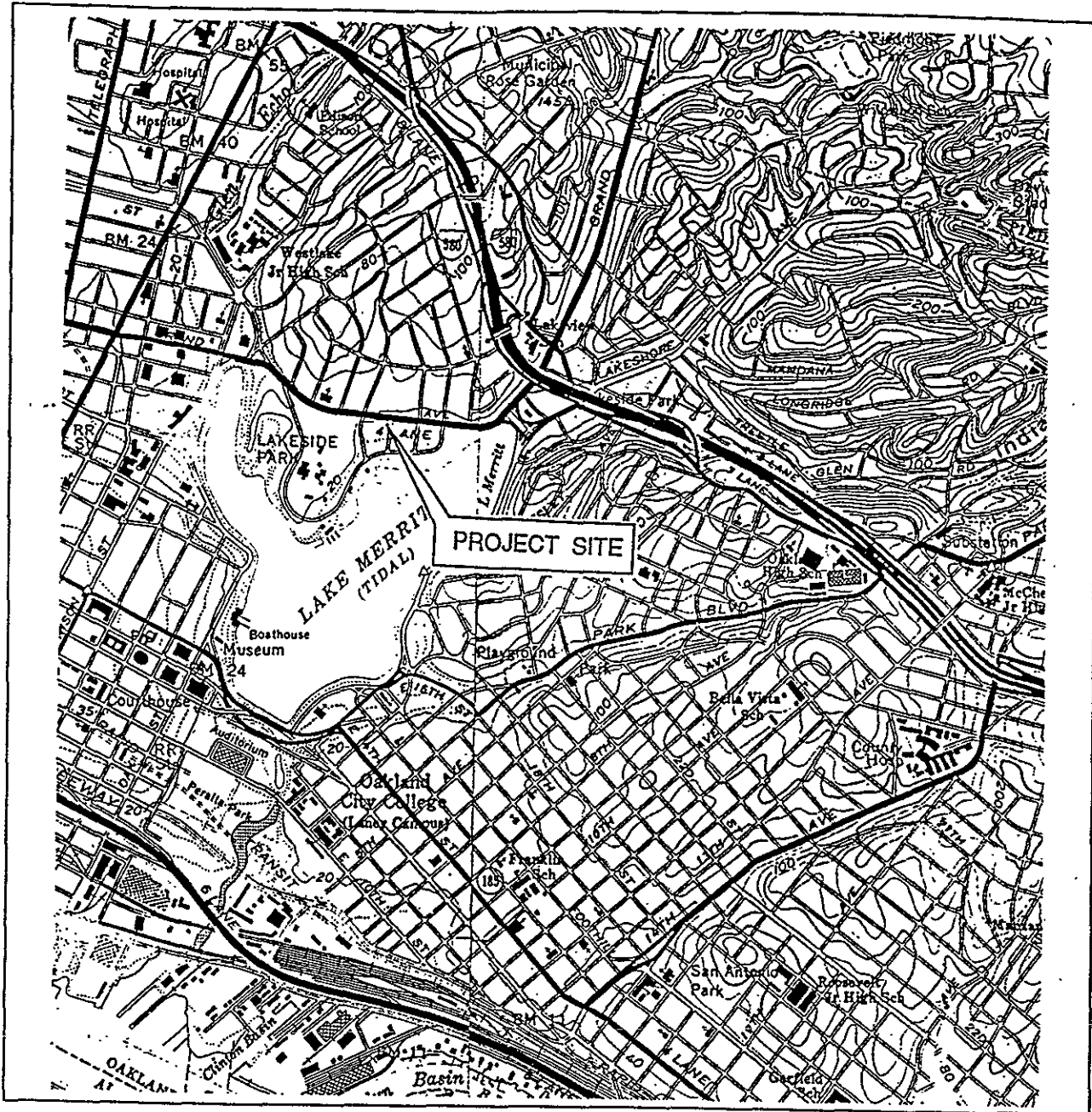
**CROSS SECTIONS**

Quik Stop No. 46  
363 Grand Avenue  
Oakland, California

SCALE (FEET)



SOURCE: Resna



1 MILE    3/4    1/2    1/4    0    1 MILE



SCALE 1 : 24,000



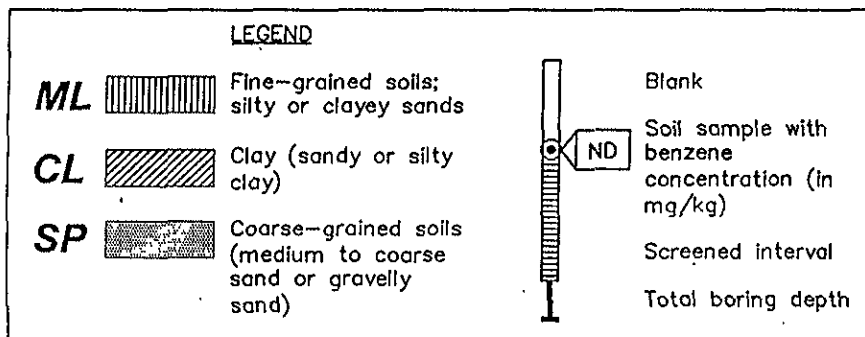
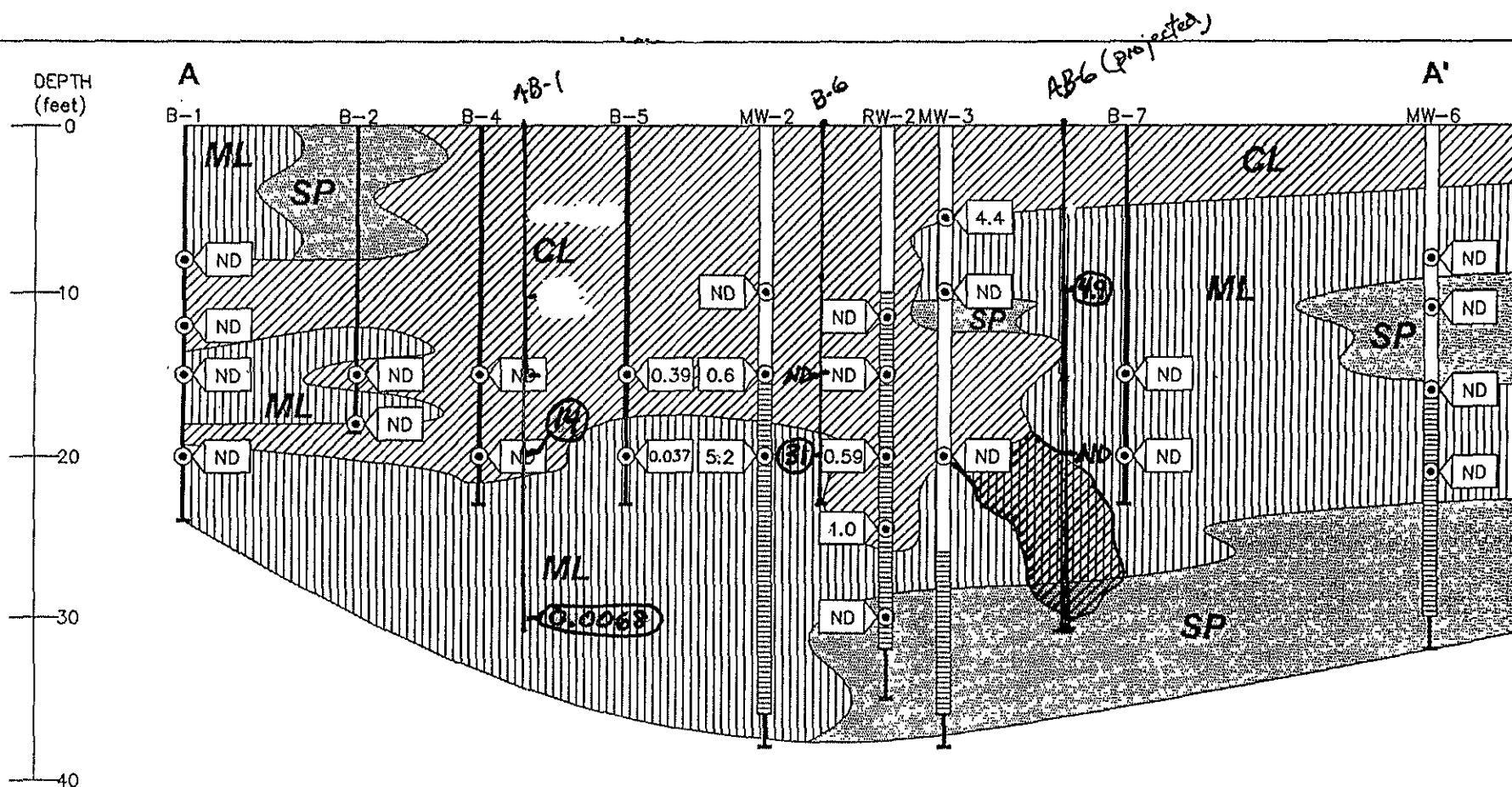
SOURCE:  
 United States Geological Survey  
 7.5 Minute Topographic Maps:  
 Oakland West Quadrangle



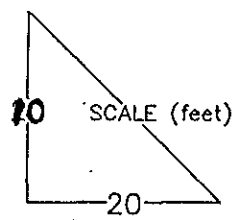
VICINITY MAP  
 Quik Stop No. 46  
 363 Grand Avenue  
 Oakland, California

**FIGURE 1**





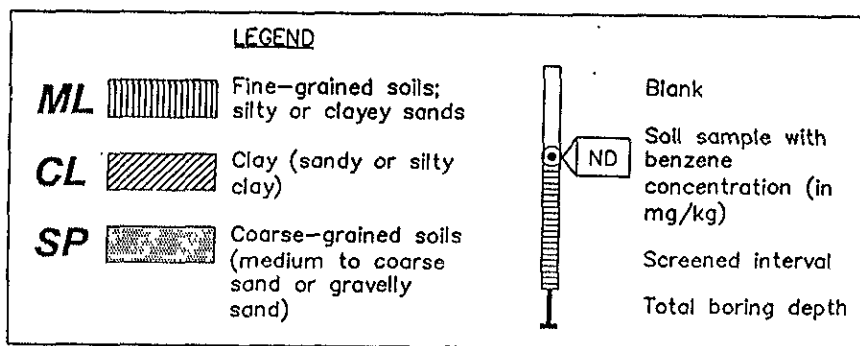
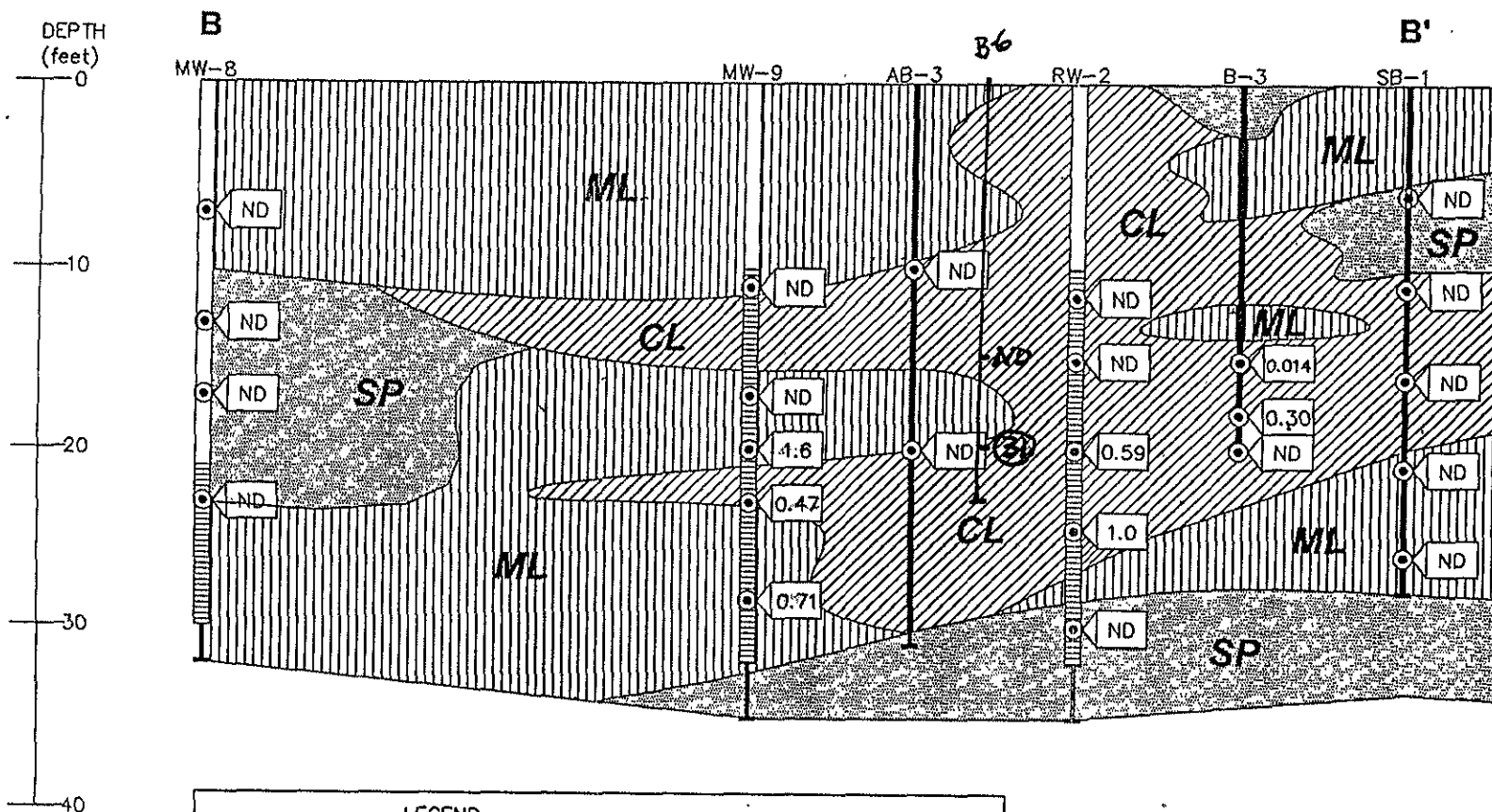
**NOTES:**  
 Depths are in feet below grade. Screened intervals are approximate. ND = not detected at detection limits stated in official laboratory reports. B = benzene; mg/kg = milligrams per kilogram. See Figure 2 for location of cross section.



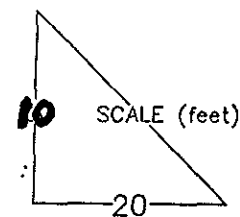
**CROSS SECTION A-A'**

Quik Stop No. 46  
 363 Grand Avenue  
 Oakland, California

**FIGURE 4**



**NOTES:**  
 Depths are in feet below grade. Screened intervals are approximate. ND = not detected at detection limits stated in official laboratory reports. B = benzene; mg/kg = milligrams per kilogram. See Figure 3 for location of cross section.



**CROSS SECTION B-B'**

Quik Stop No. 46  
 363 Grand Avenue  
 Oakland, California

**FIGURE 5**

**Table 1**  
**Summary of Groundwater Monitoring and Analysis**

Quik Stop Market No. 46

Well ID	Date	Casing Elevation (feet)	Free Product Thickness (feet)	Depth to Water (feet)	Groundwater				Ethyl-benzene (ppb)	Total Xylenes (ppb)	MTBE (ppb)	MTBE 8260 (ppb)	Dissolved Oxygen (ppm)
					Elevation (feet)	TPH-G (ppb)	Benzene (ppb)	Toluene (ppb)					
MW-1R	01/10/89	15.67	0.00	7.49	8.18	2,900	490	29	ND	210	—	—	—
MW-1R	07/20/89	15.67	0.00	8.34	7.33	5,200	200	12	78	ND	—	—	—
MW-1R	12/08/89	15.67	0.00	7.50	8.17	1,900	62	17	32	ND	—	—	—
MW-1R	03/23/90	15.67	0.00	7.55	8.12	1,100	33	2.0	14	6.0	—	—	—
MW-1R	06/05/90	15.67	0.00	7.65	8.02	1,200	34	4.0	24	9.0	—	—	—
MW-1R	09/24/90	15.67	0.00	9.09	6.58	1,000	50	8.0	26	6.0	—	—	—
MW-1R	01/18/91	15.67	0.00	9.45	6.22	470	16	5.0	9.0	12	—	—	—
MW-1R	03/27/91	15.67	0.00	8.78	8.89	570	41	17	15	25	—	—	—
MW-1R	06/17/91	15.67	0.00	8.54	7.13	680	110	12	33	17	—	—	—
MW-1R	09/12/91	15.67	0.00	9.19	6.48	1,200	36	2.7	12	7.4	—	—	—
MW-1R	12/16/91	15.67	0.00	9.55	6.12	1,800	29	2.2	15	15	—	—	—
MW-1R	03/20/92	15.67	0.00	8.30	9.37	2,100	41	6.2	30	32	—	—	—
MW-1R	06/16/92	15.67	0.00	8.21	7.46	2,600	40	7.7	26	21	—	—	—
MW-1R	09/14/92	15.67	0.00	9.06	6.61	1,500	ND	6.0	10	7.3	—	—	—
MW-1R	12/29/92	15.67	0.00	12.18	3.49	2,300	ND	4.6	7.6	16	—	—	—
MW-1R	03/15/93	15.67	0.00	9.28	6.39	730	6.0	4.5	4.7	8.1	—	—	—
MW-1R	06/17/93	15.67	0.00	5.24	10.43	440	60	5.0	16	16	—	—	—
MW-1R	09/21/93	15.67	0.00	6.67	9.00	300	15	1.7	4.8	6.4	—	—	—
MW-1R	12/15/93	15.67	0.00	6.56	9.11	190	ND	0.6	3.7	2.9	—	—	—
MW-1R	03/23/94	15.67	0.00	7.22	8.46	800	93	19.0	18	26	—	—	—
MW-1R	06/22/94	15.67	0.00	5.89	9.78	540	68	6.4	11	6.5	—	—	—
MW-1R	09/23/94	15.67	0.00	12.64	3.03	180	0.86	1.9	0.72	3.1	—	—	—
MW-1R	12/09/94	15.67	0.00	14.46	1.21	53	ND	ND	ND	ND	—	—	—
MW-1R	03/06/95	15.67	0.00	8.08	7.59	250	ND	ND	2.6	1.3	—	—	—
MW-1R*	05/01/95	18.67	0.00	10.25	8.42	290	4.0	7.2	4.6	20	—	—	—
MW-1R	07/19/95	18.67	0.00	9.08	9.59	160	4.2	1.3	0.99	7.6	2.0	—	—
MW-1R**	08/02/95	18.67	0.00	9.84	8.83	—	—	—	—	—	—	—	—
MW-1R	10/30/95	18.67	0.00	11.42	7.25	110	ND	0.82	ND	1.1	1.3	—	—
MW-1R	01/15/96	18.67	0.00	8.78	9.89	200	1.8	1.5	ND	7.8	3.9	—	—
MW-1R	03/22/96	18.67	0.00	5.51	13.16	73	ND	2.0	0.51	4.8	0.95	—	—
MW-1R	06/13/96	18.67	0.00	8.04	10.63	150	ND	2.2	0.6	2	ND	—	—
MW-1R	01/29/97	18.67	0.00	4.60	14.07	ND	ND	0.8	ND	ND	ND	—	19.95
MW-1R	08/20/97	18.67	0.00	10.86	7.81	ND	ND	ND	ND	ND	ND	—	9.18
MW-1R	01/23/98	18.67	0.00	5.80	12.87	—	—	—	—	—	—	—	9.15
MW-1R	02/25/98	18.67	0.00	7.43	11.24	ND	ND	ND	ND	ND	ND	—	—
MW-1R	08/25/98	18.67	0.00	8.33	10.34	ND	ND	ND	ND	ND	ND	—	13.86



Table 1  
 Summary of Groundwater Monitoring and Analysis

Quik Stop Market No. 46

Well ID	Date	Casing Elevation (feet)	Free Product Thickness (feet)	Depth to Water (feet)	Groundwater Elevation (feet)	TPH-G (ppb)	Benzene (ppb)	Toluene (ppb)	Ethyl-benzene (ppb)	Total Xylenes (ppb)	MTBE (ppb)	MTBE 8260 (ppb)	Dissolved Oxygen (ppm)
MW-1R***	12/02/98	18.67	0.00	10.08	8.59	—	—	—	—	—	—	—	—
MW-1R	01/06/99	18.67	0.00	6.98	11.69	—	—	—	—	—	—	—	4.45
MW-1R	02/02/99	18.67	—	—	—	—	—	—	—	—	—	—	—
MW-1R	03/04/99	18.67	0.00	4.80	13.87	85	14	2.9	2.5	7.0	6.1	—	—
MW-1R	05/08/99	18.67	0.00	5.91	12.76	—	—	—	—	—	—	—	—
MW-1R	06/09/99	18.67	0.00	5.98	12.69	—	—	—	—	—	—	—	0.67
MW-1R	07/08/99	18.67	0.00	6.71	11.96	—	—	—	—	—	—	—	1.21
MW-1R	08/03/99	18.67	0.00	7.23	11.44	—	—	—	—	—	—	—	1.69
													0.28
MW-2	01/10/89	15.91	0.00	10.38	5.53	68,000	740	220	180	780	—	—	—
MW-2	07/20/89	15.91	0.00	10.32	5.59	920,000	670	610	600	4800	—	—	—
MW-2	12/06/89	15.91	0.00	9.82	6.09	64,000	190	ND	ND	310	—	—	—
MW-2	03/23/90	15.91	0.00	9.87	6.04	4,900	760	33	73	74	—	—	—
MW-2	06/06/90	15.91	0.00	10.40	5.51	5,300	650	ND	57	16	—	—	—
MW-2	09/21/90	15.91	0.00	11.12	4.79	8,600	430	26	100	120	—	—	—
MW-2	01/18/91	15.91	0.00	11.10	4.81	3,900	140	62	120	97	—	—	—
MW-2	03/27/91	15.91	0.00	9.38	6.53	4,800	330	68	110	140	—	—	—
MW-2	06/17/91	15.91	0.00	10.45	5.46	4,500	260	56	110	99	—	—	—
MW-2	09/13/91	15.91	0.00	11.85	4.06	6,800	250	42	78	87	—	—	—
MW-2	12/16/91	15.91	0.00	11.04	4.87	6,300	58	18	26	29	—	—	—
MW-2	03/20/92	15.91	0.00	9.42	6.49	5,700	250	8.5	25	15	—	—	—
MW-2	06/16/92	15.91	0.00	10.40	5.51	4,500	60	22	42	76	—	—	—
MW-2	09/14/92	15.91	0.00	10.98	4.93	5,400	72	42	37	140	—	—	—
MW-2	12/29/92	15.91	0.00	21.31	-5.40	740,000	1,500	1,800	1,900	6,800	—	—	—
MW-2	03/15/93	15.91	0.00	8.77	7.14	55,000	1,100	160	260	720	—	—	—
MW-2	06/17/93	15.91	Trace	17.02	-1.11	—	—	—	—	—	—	—	—
MW-2	09/21/93	15.91	0.00	10.47	5.44	3,900	240	10	31	78	—	—	—
MW-2	12/15/93	15.91	0.00	11.53	4.38	9,800	550	29	190	470	—	—	—
MW-2	03/23/94	15.91	0.00	12.56	3.35	9,000	710	110	130	340	—	—	—
MW-2	08/22/94	15.91	Trace	19.57	-3.66	—	—	—	—	—	—	—	—
MW-2	09/23/94	15.91	Trace	23.14	-7.23	—	—	—	—	—	—	—	—
MW-2	12/09/94	15.91	0.22	18.89	-2.82	—	—	—	—	—	—	—	—
MW-2	03/06/95	15.91	0.03	8.74	7.19	—	—	—	—	—	—	—	—
MW-2*	05/01/95	18.90	0.00	7.97	10.93	26,000	1,100	160	200	340	—	—	—
MW-2	07/19/95	18.90	0.03	10.73	8.19	—	—	—	—	—	—	—	—
MW-2**	08/02/95	18.90	0.22	18.57	0.49	—	—	—	—	—	—	—	—

Table 1  
 Summary of Groundwater Monitoring and Analysis

Quik Stop Market No. 46

Well ID	Date	Casing Elevation (feet)	Free Product Thickness (feet)	Depth to Water (feet)	Groundwater				Ethyl-benzene (ppb)	Total Xylenes (ppb)	MTBE (ppb)	MTBE 8260 (ppb)	Dissolved Oxygen (ppm)
					Elevation (feet)	TPH-G (ppb)	Benzene (ppb)	Toluene (ppb)					
MW-2	10/30/85	18.90	0.26	19.44	-0.35	—	—	—	—	—	—	—	—
MW-2	01/15/86	18.90	0.02	17.46	1.46	—	—	—	—	—	—	—	—
MW-2	03/22/86	18.90	0.00	8.08	10.82	240	18	1.4	3.6	7.2	11	—	—
MW-2	08/13/86	18.80	Trace	10.98	7.92	2,400	180	6.5	27	50	2.4	—	—
MW-2	01/29/87	18.90	0.00	8.92	9.98	14,000	2,400	90	590	610	300	—	10.18
MW-2	08/20/87	18.90	0.29	20.31	-1.19	—	—	—	—	—	—	—	—
MW-2	01/23/88	18.90	0.29	13.47	5.65	—	—	—	—	—	—	—	—
MW-2	02/25/88	18.90	0.01	11.52	7.39	2,400	150	18	38	66	70	—	2.31
MW-2	08/25/88	18.90	0.01	9.07	9.84	2,500	170	30	34	63	61	—	—
MW-2	12/02/88	18.90	0.01	10.12	8.79	4,600	150	ND	ND	47	57	—	0.62
MW-2	01/06/89	18.90	0.01	9.96	8.95	2,500	200	ND	28	42	100	—	0.42
MW-2	02/02/89	18.90	0.01	8.90	10.01	4,400	440	16	48	63	160	—	—
MW-2	03/04/89	18.90	0.01	7.97	10.94	14,000	690	ND	110	260	ND	—	0.51
MW-2	05/06/89	18.90	Trace	8.13	10.77	9,000	250	44	54	120	28	—	—
MW-2	06/09/89	18.90	0.00	8.97	9.93	19,000	560	110	300	570	380	—	0.24
MW-2	07/08/89	18.90	0.00	9.11	9.79	2,500	150	12	12	19	110	—	0.72
MW-2	08/03/89	18.90	0.00	9.36	9.54	2,900	38	6	18	52	16	—	4.41
													4.98
MW-3	01/10/89	15.87	0.00	10.43	5.44	3,100	220	21	22	24	—	—	—
MW-3	07/20/89	15.87	0.00	10.18	5.69	8,400	240	10	45	90	—	—	—
MW-3	12/06/89	15.87	0.00	9.82	6.05	5,000	340	35	38	23	—	—	—
MW-3	03/23/90	15.87	0.00	9.78	6.09	3,800	330	32	58	43	—	—	—
MW-3	06/06/90	15.87	0.00	9.83	6.04	20,000	280	ND	52	70	—	—	—
MW-3	09/21/90	15.87	0.00	11.08	4.79	3,800	96	23	27	33	—	—	—
MW-3	01/18/91	15.87	0.00	11.15	4.72	4,800	270	36	72	55	—	—	—
MW-3	03/27/91	15.87	0.00	9.05	6.82	2,300	150	32	43	56	—	—	—
MW-3	06/17/91	15.87	0.00	10.42	5.45	2,100	130	37	63	63	—	—	—
MW-3	09/13/91	15.87	0.00	11.71	4.18	3,300	95	20	27	41	—	—	—
MW-3	12/18/91	15.87	0.00	11.24	4.63	23,000	100	130	110	520	—	—	—
MW-3	03/20/92	15.87	0.00	8.87	7.00	5,800	140	24	29	24	—	—	—
MW-3	06/16/92	15.87	0.00	10.34	5.53	9,700	110	24	33	66	—	—	—
MW-3	09/14/92	15.87	0.00	10.95	4.92	7,100	48	33	13	120	—	—	—
MW-3	12/29/92	15.87	0.00	21.70	-5.83	10,000	27	26	36	130	—	—	—
MW-3	03/15/93	15.87	0.00	8.41	7.46	9,300	140	15	30	90	—	—	—
MW-3	06/17/93	15.87	0.00	18.05	-2.18	1,000	13	ND	10	14	—	—	—
MW-3	09/21/93	15.87	0.00	11.45	4.42	1,700	65	2.8	10	16	—	—	—

SEP-20-1999 13:00

TRC ALTON GEOSCIENCE

925 688 0388

P.04/13

Table 1  
**Summary of Groundwater Monitoring and Analysis**

Quik Stop Market No. 46

Well ID	Date	Casing Elevation (feet)	Free Product Thickness (feet)	Depth to Water (feet)	Groundwater		TPH-G (ppb)	Benzene (ppb)	Toluene (ppb)	Ethyl-benzene (ppb)	Total Xylenes (ppb)	MTBE (ppb)	MTBE 8260 (ppb)	Dissolved Oxygen (ppm)
					Elevation (feet)									
MW-3	12/15/93	15.87	0.00	11.18	4.69		1,300	4.4	ND	9.1	7.7	—	—	—
MW-3	03/23/94	15.87	0.00	12.14	3.73		900	5.1	ND	ND	4.0	—	—	—
MW-3	06/22/94	15.87	Trace	20.02	-4.15		—	—	—	—	—	—	—	—
MW-3	09/23/94	15.87	Trace	22.99	-7.12		—	—	—	—	—	—	—	—
MW-3	12/09/94	15.87	0.00	19.09	-3.22		1,800	44	12	10	11	—	—	—
MW-3	03/06/95	15.87	0.00	8.31	7.56		1,800	86	4.9	13	12	—	—	—
Well abandoned April 7, 1995														
MW-4	04/16/90	15.99	0.00	8.61	7.38		ND	ND	ND	ND	ND	—	—	—
MW-4	06/05/90	15.99	0.00	8.62	7.37		ND	ND	ND	ND	ND	—	—	—
MW-4	09/21/90	15.99	0.00	10.09	5.90		ND	ND	ND	ND	ND	—	—	—
MW-4	01/17/91	15.99	0.00	10.45	5.54		ND	ND	ND	ND	ND	—	—	—
MW-4	03/27/91	15.99	0.00	8.28	7.71		ND	ND	ND	ND	ND	—	—	—
MW-4	06/17/91	15.99	0.00	9.48	6.51		ND	ND	ND	ND	ND	—	—	—
MW-4	09/12/91	15.99	0.00	10.24	5.75		ND	ND	ND	ND	ND	—	—	—
MW-4	12/16/91	15.99	0.00	10.46	5.51		ND	ND	ND	ND	ND	—	—	—
MW-4	03/19/92	15.99	0.00	7.96	8.03		ND	ND	ND	ND	ND	—	—	—
MW-4	08/15/92	15.99	0.00	9.35	6.64		ND	ND	ND	ND	ND	—	—	—
MW-4	09/14/92	15.99	0.00	12.72	3.27		ND	ND	ND	ND	ND	—	—	—
MW-4	12/29/92	15.99	0.00	16.26	-0.27		ND	ND	ND	ND	ND	—	—	—
MW-4	03/15/93	15.99	0.00	7.54	8.45		ND	ND	ND	ND	ND	—	—	—
MW-4	06/17/93	15.99	0.00	13.16	2.83		ND	ND	ND	ND	ND	—	—	—
MW-4	08/21/93	15.99	0.00	9.78	6.21		ND	ND	ND	ND	ND	—	—	—
MW-4	12/15/93	15.99	0.00	10.60	5.39		ND	ND	ND	ND	ND	—	—	—
MW-4	03/23/94	15.99	0.00	11.37	4.62		ND	ND	ND	ND	ND	—	—	—
MW-4	06/22/94	15.99	0.00	13.29	2.70		ND	ND	ND	ND	ND	—	—	—
MW-4	09/23/94	15.99	0.00	17.78	-1.79		ND	ND	ND	ND	ND	—	—	—
MW-4	12/09/94	15.99	0.00	14.19	1.80		ND	ND	ND	ND	ND	—	—	—
MW-4	03/06/95	15.99	0.00	7.48	8.51		ND	ND	ND	ND	ND	—	—	—
MW-4*	05/01/95	18.99	0.00	7.09	11.90		150	5.5	18	8.2	34	—	—	—
MW-4	07/19/95	18.99	0.00	9.53	9.46		ND	ND	ND	ND	ND	—	—	—
MW-4**	08/02/95	18.99	0.00	12.61	6.38		—	—	—	—	—	—	—	—
MW-4	10/30/95	18.99	0.00	14.46	4.53		ND	ND	ND	ND	ND	0.73	—	—
MW-4	01/15/96	18.99	0.00	13.15	5.84		ND	ND	0.55	ND	ND	—	—	—
MW-4	03/22/96	18.99	0.00	6.64	12.35		ND	ND	1.5	ND	1.3	—	—	—
MW-4	08/13/96	18.99	0.00	8.79	10.20		ND	ND	0.7	ND	ND	—	—	—

Table 1  
Summary of Groundwater Monitoring and Analysis

Quik Stop Market No. 46

Well ID	Date	Casing		Free Product		Depth to		Groundwater		Ethyl-benzene (ppb)	Total Xylenes (ppb)	MTBE (ppb)	MTBE 8260 (ppb)	Dissolved Oxygen (ppm)
		Elevation (feet)	Thickness (feet)	Water (feet)	Elevation (feet)	TPH-G (ppb)	Benzene (ppb)	Toluene (ppb)						
MW-4	01/29/97	18.99	0.00	7.13	11.86	ND	ND	ND	ND	ND	ND	—	2.18	
MW-4	08/20/97	18.99	0.00	14.39	4.60	ND	ND	ND	ND	ND	ND	—	2.28	
MW-4	01/23/98	18.99	0.00	9.71	9.28	—	—	—	—	—	—	—	0.49	
MW-4	02/25/98	18.99	0.00	8.13	10.86	ND	ND	ND	ND	ND	ND	—	—	
MW-4	08/25/98	18.99	0.00	8.06	10.93	ND	ND	ND	ND	1.2	ND	—	1.71	
MW-4	12/02/98	18.99	0.00	8.75	10.24	—	—	—	—	—	—	—	1.75	
MW-4	01/06/99	18.99	0.00	8.79	10.20	—	—	—	—	—	—	—	—	
MW-4	02/02/99	18.99	—	—	—	—	—	—	—	—	—	—	—	
MW-4	03/04/99	18.99	0.00	6.64	12.35	130	39	4.5	5.0	11	5.2	—	—	
MW-4	05/06/99	18.99	0.00	7.09	11.90	ND	ND	ND	ND	ND	ND	—	1.78	
MW-4	06/09/99	18.99	0.00	7.71	11.28	—	—	—	—	—	—	—	1.77	
MW-4	07/08/99	18.99	0.00	8.13	10.86	—	—	—	—	—	—	—	3.04	
MW-4	08/03/99	18.99	0.00	8.48	10.51	—	—	—	—	—	—	—	1.01	
MW-5	03/23/90	15.83	0.00	8.11	7.72	390	ND	ND	ND	3.0	—	—	—	
MW-5	06/05/90	15.83	0.00	8.73	7.10	210	21	ND	1.1	3.3	—	—	—	
MW-5	09/21/90	15.83	0.00	10.04	5.79	340	18	1.5	2.6	2.5	—	—	—	
MW-5	01/18/91	15.83	0.00	9.75	6.08	180	8.5	2.4	0.9	4.6	—	—	—	
MW-5	03/27/91	15.83	0.00	8.55	7.28	ND	4.4	0.9	ND	2.0	—	—	—	
MW-5	06/17/91	15.83	0.00	8.73	7.10	91	8.6	ND	2.4	6.7	—	—	—	
MW-5	09/12/91	15.83	0.00	9.30	6.53	<50	2.0	ND	ND	ND	—	—	—	
MW-5	12/16/91	15.83	0.00	9.60	6.23	170	9.2	ND	ND	1.0	—	—	—	
MW-5	03/19/92	15.83	0.00	8.05	7.78	110	1.8	ND	ND	0.8	—	—	—	
MW-5	06/15/92	15.83	0.00	8.48	7.35	270	4.5	0.7	ND	1.9	—	—	—	
MW-5	09/14/92	15.83	0.00	11.89	3.94	1,600	23	4.8	8.5	30	—	—	—	
MW-5	12/29/92	15.83	0.00	12.92	2.91	77,000	420	130	71	200	—	—	—	
MW-5	03/15/93	15.83	0.00	7.16	8.67	25,000	48	44	59	170	—	—	—	
MW-5	06/18/93	15.83	0.00	10.25	5.58	2,400	16	ND	11	25	—	—	—	
MW-5	09/21/93	15.83	0.00	9.00	6.83	1,300	22	17	3.7	10	—	—	—	
MW-5	12/15/93	15.83	0.00	9.62	6.21	380	5.4	0.80	1.1	0.95	—	—	—	
MW-5	03/23/94	15.83	0.00	10.96	4.87	740	8.8	ND	ND	ND	—	—	—	
MW-5	06/22/94	15.83	0.00	10.52	5.31	—	—	—	—	—	—	—	—	
MW-5	09/23/94	15.83	0.00	14.05	1.78	66	2.7	ND	ND	0.84	—	—	—	
MW-5	12/09/94	15.83	0.00	12.23	3.60	95	2.7	0.73	0.54	0.87	—	—	—	
MW-5	03/08/95	15.83	0.00	7.19	8.64	1,200	7.6	2.3	1.2	2.4	—	—	—	
MW-5*	05/01/95	18.83	0.00	7.54	11.29	580	30	33	14	63	—	—	—	

**Table 1**  
**Summary of Groundwater Monitoring and Analysis**

Quik Stop Market No. 46

Well ID	Date	Casing		Free Product		Depth to		Groundwater			Ethyl-benzene (ppb)	Total Xylenes (ppb)	MTBE (ppb)	MTBE 8260 (ppb)	Dissolved Oxygen (ppm)
		Elevation (feet)	Thickness (feet)	Water (feet)	Elevation (feet)	TPH-G (ppb)	Benzene (ppb)	Toluene (ppb)							
MW-5	07/19/95	18.83	0.00	8.48	10.34	120	3.9	0.64	ND	2.6	ND	—	—		
MW-5**	08/02/95	18.83	0.00	10.28	8.55	—	—	—	—	—	—	—	—		
MW-5	10/30/95	18.83	0.00	11.93	6.90	250	7.9	0.65	0.92	1.3	1.8	—	—		
MW-5	01/15/96	18.83	0.00	9.97	8.86	110	2.9	1.3	1.5	3.7	5.5	—	—		
MW-5	03/22/96	18.83	0.00	7.28	11.57	280	17	2.1	ND	8.7	ND	—	—		
MW-5	08/13/96	18.83	0.00	8.33	10.50	250	7.7	1.5	2.6	2.0	ND	—	—		
MW-5	01/29/97	18.83	0.00	8.30	12.53	ND	ND	ND	ND	ND	ND	—	9.23		
MW-5	08/20/97	18.83	0.00	11.97	6.86	ND	ND	ND	ND	ND	ND	—	2.82		
MW-5	01/23/98	18.83	0.00	7.96	10.87	—	—	—	—	—	—	—	2.20		
MW-5	02/25/98	18.83	0.00	6.80	12.03	ND	ND	ND	ND	0.75	ND	—	—		
MW-5	08/25/98	18.83	0.00	7.67	11.16	58	ND	ND	ND	1.5	ND	—	0.99		
MW-5	12/02/98	18.83	0.00	8.37	10.46	—	—	—	—	—	—	—	3.71		
MW-5	01/06/99	18.83	0.00	7.88	10.97	—	—	—	—	—	—	—	—		
MW-5	02/02/99	18.83	—	—	—	—	—	—	—	—	—	—	—		
MW-5	03/04/99	18.83	0.00	6.16	12.67	ND	1.3	ND	ND	1.0	ND	—	—		
MW-5	05/06/99	18.83	0.00	6.89	11.94	—	—	—	—	—	—	—	0.72		
MW-5	06/09/99	18.83	0.00	7.25	11.58	—	—	—	—	—	—	—	0.51		
MW-5	07/08/99	18.83	0.00	7.80	11.23	—	—	—	—	—	—	—	2.58		
MW-5	08/03/99	18.83	0.00	7.93	10.90	—	—	—	—	—	—	—	0.51		
MW-6	03/23/90	14.20	0.00	8.70	5.50	76	ND	ND	ND	ND	—	—	—		
MW-6	06/05/90	14.20	0.00	9.46	4.74	ND	ND	ND	ND	ND	—	—	—		
MW-6	09/21/90	14.20	0.00	9.42	4.78	ND	ND	ND	ND	ND	—	—	—		
MW-6	01/18/91	14.20	0.00	9.55	4.65	ND	ND	ND	ND	ND	—	—	—		
MW-6	03/27/91	14.20	0.00	7.90	6.30	ND	ND	ND	ND	ND	—	—	—		
MW-6	06/17/91	14.20	0.00	8.90	5.30	ND	ND	ND	ND	ND	—	—	—		
MW-6	09/12/91	14.20	0.00	9.40	4.80	ND	ND	ND	ND	ND	—	—	—		
MW-6	12/16/91	14.20	0.00	9.56	4.64	ND	ND	ND	ND	ND	—	—	—		
MW-6	03/20/92	14.20	0.00	8.53	5.67	ND	ND	ND	ND	ND	—	—	—		
MW-6	06/15/92	14.20	0.00	8.23	5.97	ND	ND	ND	ND	ND	—	—	—		
MW-6	09/14/92	14.20	0.00	12.88	1.32	ND	ND	ND	ND	ND	—	—	—		
MW-6	12/29/92	14.20	0.00	19.03	-4.83	ND	ND	ND	ND	ND	—	—	—		
MW-6	08/17/93	14.20	0.00	15.60	-1.40	ND	ND	ND	ND	ND	—	—	—		
MW-6	09/21/93	14.20	0.00	8.78	5.42	ND	ND	ND	ND	ND	—	—	—		
MW-6	09/23/94	14.20	0.00	20.40	-6.20	ND	ND	ND	ND	ND	—	—	—		
MW-6	12/09/94	14.20	0.00	16.40	-2.20	ND	ND	ND	ND	ND	—	—	—		

SEP-20-1999

13:01

TRC ALTON GEOSCIENCE

925 688 0388

P.07/13

**Table 1**  
**Summary of Groundwater Monitoring and Analysis**

Quik Stop Market No. 46

Well ID	Date	Groundwater				TPH-G (ppb)	Benzene (ppb)	Toluene (ppb)	Ethyl-benzene (ppb)	Total Xylenes (ppb)	MTBE (ppb)	MTBE 8260 (ppb)	Dissolved Oxygen (ppm)
		Casing Elevation (feet)	Free Product Thickness (feet)	Depth to Water (feet)	Elevation (feet)								
MW-6	03/06/95	14.20	0.00	8.88	7.51	ND	ND	ND	ND	ND	—	—	—
MW-6*	05/01/95	17.19	0.00	6.35	10.84	210	9.9	29	14	55	—	—	—
MW-6	07/19/95	17.19	0.00	8.84	8.35	ND	ND	ND	ND	ND	1.1	—	—
MW-6**	08/02/95	17.19	0.00	15.95	1.24	—	—	—	—	—	—	—	—
MW-6	03/22/96	17.19	0.00	7.06	10.13	ND	ND	1.9	ND	1.4	4.4	—	—
MW-6	01/29/97	17.19	0.00	6.94	10.25	ND	ND	ND	ND	ND	7	—	1.52
MW-6#	08/20/97	17.19	—	—	—	—	—	—	—	—	—	—	—
MW-6#	01/23/98	17.19	—	—	—	—	—	—	—	—	—	—	—
MW-6	02/25/98	17.19	0.00	9.27	7.92	ND	ND	ND	ND	ND	ND	—	—
MW-6#	08/25/98	17.19	0.00	8.45	8.74	—	—	—	—	—	—	—	1.45
MW-6	12/02/98	17.19	0.00	7.84	9.35	ND	ND	ND	ND	ND	ND	—	2.67
MW-6#	01/06/99	17.19	—	—	—	—	—	—	—	—	—	—	—
MW-6#	02/02/99	17.19	—	—	—	—	—	—	—	—	—	—	—
MW-6	03/04/99	17.19	0.00	6.23	10.96	ND	ND	ND	ND	ND	4.4	—	—
MW-6	05/06/99	17.19	0.00	6.35	10.84	ND	ND	ND	ND	ND	ND	—	0.69
MW-6	06/09/99	17.19	0.00	6.98	10.21	58	0.63	ND	0.98	1.3	3.4	—	0.44
MW-6	07/08/99	17.19	0.00	7.36	9.83	ND	ND	ND	ND	ND	ND	—	1.66
MW-6	08/03/99	17.19	0.00	7.64	9.55	ND	ND	ND	ND	ND	2.0	—	0.61
MW-7	03/23/90	14.79	0.00	8.65	6.14	ND	ND	ND	ND	ND	—	—	—
MW-7	06/05/90	14.79	0.00	8.63	6.16	ND	ND	ND	ND	ND	—	—	—
MW-7	09/21/90	14.79	0.00	10.11	4.68	ND	ND	ND	ND	ND	—	—	—
MW-7	01/17/91	14.79	0.00	10.15	4.64	ND	ND	ND	ND	ND	—	—	—
MW-7	03/27/91	14.79	0.00	7.55	7.24	ND	ND	ND	ND	ND	—	—	—
MW-7	06/17/91	14.79	0.00	10.33	4.46	ND	ND	ND	ND	ND	—	—	—
MW-7	09/12/91	14.79	0.00	10.10	4.69	ND	ND	ND	ND	ND	—	—	—
MW-7	12/16/91	14.79	0.00	10.32	4.47	ND	ND	ND	ND	ND	—	—	—
MW-7	03/19/92	14.79	0.00	7.40	7.39	ND	ND	ND	ND	ND	—	—	—
MW-7	06/15/92	14.79	0.00	9.17	5.62	ND	ND	ND	ND	ND	—	—	—
MW-7	09/14/92	14.79	0.00	12.58	2.21	ND	ND	ND	ND	ND	—	—	—
MW-7	12/29/92	14.79	0.00	16.02	-1.23	ND	ND	ND	ND	ND	—	—	—
MW-7	03/15/93	14.79	0.00	7.09	7.70	ND	ND	ND	ND	ND	—	—	—
MW-7	06/17/93	14.79	0.00	13.13	1.66	ND	ND	ND	ND	ND	—	—	—
MW-7	09/21/93	14.79	0.00	9.40	5.39	ND	ND	ND	ND	ND	—	—	—
MW-7	12/15/93	14.79	0.00	10.45	4.34	ND	ND	ND	ND	ND	—	—	—
MW-7	03/23/94	14.79	0.00	11.82	2.97	ND	ND	ND	ND	ND	—	—	—

**Table 1**  
**Summary of Groundwater Monitoring and Analysis**

Quik Stop Market No. 46

Well ID	Date	Casing		Depth to Water (feet)	Groundwater				Ethyl-benzene (ppb)	Total Xylenes (ppb)	MTBE (ppb)	MTBE 9260 (ppb)	Dissolved Oxygen (ppm)
		Elevation (feet)	Free Product Thickness (feet)		Elevation (feet)	TPH-G (ppb)	Benzene (ppb)	Toluene (ppb)					
MW-7	08/22/94	14.79	0.00	13.15	1.64	ND	ND	ND	ND	ND	—	—	—
MW-7	09/23/94	14.79	0.00	16.06	-2.07	ND	ND	ND	ND	ND	—	—	—
MW-7	12/09/94	14.79	0.00	13.74	1.05	ND	ND	ND	ND	ND	—	—	—
MW-7	03/06/95	14.79	0.00	6.93	7.86	ND	ND	ND	ND	ND	—	—	—
MW-7*	05/01/95	17.78	0.00	7.53	10.25	150	7.0	20	8.1	33	—	—	—
MW-7	07/19/95	17.78	0.00	9.60	8.18	ND	ND	ND	ND	ND	6.7	—	—
MW-7**	08/02/95	17.78	0.00	12.25	5.53	—	—	—	—	—	—	—	—
MW-7	10/30/95	17.78	0.00	14.20	3.58	ND	ND	ND	ND	ND	0.84	—	—
MW-7	01/15/96	17.78	0.00	12.80	4.98	ND	ND	ND	ND	0.61	14	—	—
MW-7	03/22/96	17.78	0.00	6.02	11.76	ND	0.59	2.7	ND	2.7	3.3	—	—
MW-7	08/13/96	17.78	0.00	8.53	9.25	ND	ND	ND	ND	ND	9	—	—
MW-7	01/29/97	17.78	0.00	6.35	11.43	ND	ND	0.8	ND	ND	ND	—	4.89
MW-7	08/20/97	17.78	0.00	14.20	3.58	ND	ND	ND	ND	ND	ND	—	4.62
MW-7	01/23/98	17.78	0.00	8.99	8.79	—	—	—	—	—	—	—	2.34
MW-7	02/25/98	17.78	0.00	6.91	10.87	ND	ND	ND	ND	ND	8.4	—	—
MW-7	08/25/98	17.78	0.00	8.78	9.00	ND	0.76	ND	ND	1.1	14	—	3.19
MW-7	12/02/98	17.78	0.00	9.28	8.52	ND	ND	ND	ND	ND	ND	—	4.18
MW-7	01/06/99	17.78	0.00	8.39	9.39	ND	ND	ND	ND	ND	11	—	—
MW-7	02/02/99	17.78	0.00	7.61	10.17	ND	ND	ND	ND	ND	ND	—	3.60
MW-7	03/04/99	17.78	0.00	6.91	10.87	72	20	2.4	1.9	5.3	4.9	—	—
MW-7	05/06/99	17.78	0.00	6.67	11.11	ND	ND	ND	ND	1.2	ND	—	5.02
MW-7	06/09/99	17.78	0.00	7.33	10.46	ND	ND	ND	ND	ND	1.2	—	2.55
MW-7	07/08/99	17.78	0.00	7.71	10.07	ND	ND	ND	ND	ND	38.0	—	1.96
MW-7	08/03/99	17.78	0.00	8.07	9.71	ND	ND	ND	ND	ND	41.0	—	0.55
MW-8	03/23/90	15.81	0.00	9.85	5.98	ND	ND	ND	ND	ND	—	—	—
MW-8	06/05/90	15.81	0.00	8.70	7.11	ND	ND	ND	ND	ND	—	—	—
MW-8	08/21/90	15.81	0.00	11.20	4.61	ND	ND	ND	ND	ND	—	—	—
MW-8	01/18/91	15.81	0.00	11.32	4.49	ND	ND	ND	ND	ND	—	—	—
MW-8	03/27/91	15.81	0.00	9.67	6.14	ND	ND	ND	ND	ND	—	—	—
MW-8	06/17/91	15.81	0.00	9.35	6.46	ND	ND	ND	ND	ND	—	—	—
MW-8	09/12/91	15.81	0.00	11.11	4.70	ND	ND	ND	ND	ND	—	—	—
MW-8	12/16/91	15.81	0.00	11.35	4.48	ND	ND	ND	ND	ND	—	—	—
MW-8	03/19/92	15.81	0.00	8.56	7.25	ND	ND	ND	ND	ND	—	—	—
MW-8	06/15/92	15.81	0.00	10.18	5.63	ND	ND	ND	ND	ND	—	—	—
MW-8	09/14/92	15.81	0.00	13.58	2.23	ND	ND	ND	ND	ND	—	—	—

SEP-20-1999 13:02 TRC ALTON GEOSCIENCE 925 688 0388 P.09/13

Table 1  
Summary of Groundwater Monitoring and Analysis

Quik Stop Market No. 46

Well ID	Date	Casing Elevation (feet)	Free Product Thickness (feet)	Depth to Water (feet)	Groundwater Elevation (feet)	TPH-G (ppb)	Benzene (ppb)	Toluene (ppb)	Ethyl-benzene (ppb)	Total Xylenes (ppb)	MTBE (ppb)	MTBE 8260 (ppb)	Dissolved Oxygen (ppm)
MW-8	12/29/92	15.81	0.00	18.81	-1.00	ND	ND	ND	ND	ND	—	—	—
MW-8	03/15/93	15.81	0.00	8.14	7.67	ND	ND	ND	ND	ND	—	—	—
MW-8	08/17/93	15.81	0.00	13.93	1.88	ND	ND	ND	ND	ND	—	—	—
MW-8	09/21/93	15.81	0.00	10.40	5.41	ND	ND	ND	ND	ND	—	—	—
MW-8	12/15/93	15.81	0.00	11.47	4.34	ND	ND	ND	ND	ND	—	—	—
MW-8	03/23/94	15.81	0.00	12.55	3.26	ND	ND	ND	ND	ND	—	—	—
MW-8	08/22/94	15.81	0.00	13.88	1.93	ND	ND	ND	ND	ND	—	—	—
MW-8	09/23/94	15.81	0.00	17.39	-1.58	ND	ND	ND	ND	ND	—	—	—
MW-8	12/09/94	15.81	0.00	14.66	1.15	ND	ND	ND	ND	ND	—	—	—
MW-8	03/06/95	15.81	0.00	7.92	7.89	ND	ND	ND	ND	ND	—	—	—
MW-8*	05/01/95	18.81	0.00	7.51	11.30	170	8.5	23	8.8	36	—	—	—
MW-8	07/19/95	18.81	0.00	10.57	8.24	ND	ND	ND	ND	ND	—	—	—
MW-8**	08/02/95	18.81	0.00	13.05	5.76	—	—	—	—	—	—	—	—
MW-8	10/30/95	18.81	0.00	14.92	3.89	ND	ND	ND	ND	ND	—	—	—
MW-8	01/15/96	18.81	0.00	13.60	5.21	ND	ND	ND	ND	ND	—	—	—
MW-8	03/22/96	18.81	0.00	7.54	11.27	50	1.2	4.5	0.65	3.6	9.7	—	—
MW-8	08/13/96	18.81	0.00	9.48	9.33	ND	ND	ND	ND	ND	—	—	—
MW-8	01/29/97	18.81	0.00	7.80	11.01	ND	ND	0.6	ND	ND	—	—	4.42
MW-8	08/20/97	18.81	0.00	14.59	4.22	ND	ND	ND	ND	ND	—	—	3.15
MW-8	01/23/98	18.81	0.00	10.40	8.41	—	—	—	—	—	—	—	5.45
MW-8	02/25/98	18.81	0.00	7.73	11.08	ND	ND	ND	ND	ND	—	—	—
MW-8	08/25/98	18.81	0.00	9.75	9.06	ND	0.70	ND	ND	0.95	—	—	3.13
MW-8	12/02/98	18.81	0.00	9.18	9.63	ND	ND	ND	ND	ND	—	—	4.37
MW-8	01/06/99	18.81	0.00	9.37	9.44	ND	ND	ND	ND	ND	—	—	—
MW-8	02/02/99	18.81	0.00	8.52	10.29	ND	ND	ND	ND	ND	—	—	3.77
MW-8	03/04/99	18.81	0.00	6.05	12.76	51	14	2.0	1.8	4.6	4.6	—	—
MW-8	05/06/99	18.81	0.00	7.62	11.19	ND	ND	ND	ND	ND	3.6	—	3.40
MW-8	08/08/99	18.81	0.00	8.21	10.80	ND	ND	ND	ND	ND	—	—	2.94
MW-8	07/08/99	18.81	0.00	8.73	10.08	ND	ND	ND	ND	ND	—	—	2.76
MW-8	08/03/99	18.81	0.00	9.08	9.73	ND	ND	ND	ND	ND	—	—	2.21
MW-9	05/01/95	19.89	0.00	8.95	10.94	9,900	280	25	75	280	—	—	—
MW-9	07/19/95	19.89	0.00	11.51	8.38	2,200	120	18	26	35	180	—	—
MW-9**	08/02/95	19.89	0.00	18.98	0.91	—	—	—	—	—	—	—	—
MW-9	10/30/95	19.89	0.00	19.96	-0.07	1,700	99	14	19	31	150	—	—
MW-9	01/15/96	19.89	0.00	18.34	1.55	530	34	1.9	5.3	7.2	110	—	—

SEP-20-1999 13:02

TRC ALTON GEOSCIENCE

925 688 0388

P.10/13



Table 1  
**Summary of Groundwater Monitoring and Analysis**

Quik Stop Market No. 46

Well ID	Date	Casing Elevation (feet)	Free Product Thickness (feet)	Depth to Water (feet)	Groundwater			Ethyl-benzene (ppb)	Total Xylenes (ppb)	MTBE (ppb)	MTBE 8260 (ppb)	Dissolved Oxygen (ppm)	
					Elevation (feet)	TPH-G (ppb)	Benzene (ppb)						Toluene (ppb)
MW-9	03/22/96	19.89	0.00	8.78	11.11	ND	0.72	2.7	0.54	2.8	43	—	—
MW-9	08/13/96	19.89	0.00	11.48	8.41	540	57	1.3	12	10	170	—	—
MW-9	01/29/97	19.89	0.00	9.70	10.19	260	6.8	1.2	3.3	5	82	—	9.48
MW-9	08/20/97	19.89	0.00	20.76	-0.87	ND	1.1	ND	ND	ND	160	—	0.98
MW-9	01/23/98	19.89	0.00	14.19	5.70	—	—	—	—	—	—	—	0.68
MW-9	02/25/98	19.89	0.00	12.03	7.86	910	23	4.9	28	57	400	—	—
MW-9	08/25/98	19.89	0.00	10.09	9.80	1,100	12	4.0	35	50	430	610	1.24
MW-9	12/02/98	19.89	0.00	11.12	8.77	94	3.5	1.2	1.3	2.3	53	—	0.53
MW-9	01/08/99	19.89	0.00	10.60	9.29	ND	ND	ND	ND	ND	74	—	—
MW-9	02/02/99	19.89	0.00	8.90	10.99	580	13	3.5	11	8.2	460	—	0.73
MW-9	03/04/99	19.89	0.00	8.70	11.19	1,500	31	7.7	31	48	570	—	—
MW-9	05/06/99	19.89	0.00	9.11	10.78	1,200	36	5.9	22	38	500	—	0.74
MW-9	06/09/99	19.89	0.00	9.94	9.95	5,600	32	2.4	22	29	380	—	0.44
MW-9	07/08/99	19.89	0.00	9.21	10.88	770	84	4.4	12	24	320	—	1.51
MW-9	08/03/99	19.89	0.00	10.31	9.58	1,400	7	2.7	31	59	470	—	0.71
RW-1	09/24/90	15.75	0.00	11.15	4.60	160	16	ND	7.5	5.6	—	—	—
RW-1	01/18/91	15.75	0.00	11.40	4.35	ND	4.2	ND	ND	ND	—	—	—
RW-1	03/27/91	15.75	0.00	9.45	6.30	64	5.0	2.9	1.8	6.3	—	—	—
RW-1	06/17/91	15.75	0.00	10.24	5.51	ND	ND	ND	ND	1.2	—	—	—
RW-1	09/13/91	15.75	0.00	10.99	4.76	ND	ND	ND	ND	ND	—	—	—
RW-1	12/16/91	15.75	0.00	11.16	4.59	ND	ND	ND	ND	ND	—	—	—
RW-1	06/16/92	15.75	0.00	10.26	5.49	ND	ND	ND	ND	ND	—	—	—
RW-1	09/14/92	15.75	0.00	10.83	4.92	—	—	—	—	—	—	—	—
RW-1	03/15/93	15.75	0.00	8.52	7.23	260	2.0	1.3	0.7	1.4	—	—	—
RW-1	06/17/93	15.75	0.00	—	—	ND	ND	ND	ND	ND	—	—	—
RW-1	09/21/93	15.75	0.00	10.55	5.20	—	—	—	—	—	—	—	—
RW-1	12/15/93	15.75	0.00	11.27	4.48	—	—	—	—	—	—	—	—
RW-1	03/23/94	15.75	0.00	12.27	3.48	—	—	—	—	—	—	—	—
RW-1	03/06/95	15.75	0.02	8.76	7.01	—	—	—	—	—	—	—	—
RW-1*	05/01/95	18.87	0.00	7.96	10.91	230	5.4	ND	ND	4.7	—	—	—
RW-1	07/19/95	18.87	0.00	10.48	8.39	59	6.1	ND	ND	ND	48	—	—
RW-1**	08/02/95	18.87	0.00	—	—	—	—	—	—	—	—	—	—
RW-1	10/30/95	18.87	0.00	19.83	-0.96	110	24	ND	0.56	0.62	3.8	—	—
RW-1	01/15/96	18.87	0.00	17.94	0.93	ND	ND	ND	ND	ND	2.8	—	—
RW-1	08/13/96	18.87	0.00	11.17	7.70	ND	ND	ND	ND	ND	100	—	—

Table 1  
Summary of Groundwater Monitoring and Analysis

Quik Stop Market No. 46

Well ID	Date	Casing Elevation (feet)	Free Product Thickness (feet)	Depth to Water (feet)	Groundwater				Ethyl-benzene (ppb)	Total Xylenes (ppb)	MTBE (ppb)	MTBE 8260 (ppb)	Dissolved Oxygen (ppm)
					Elevation (feet)	TPH-G (ppb)	Benzene (ppb)	Toluene (ppb)					
RW-1	01/29/97	18.87	0.00	8.79	10.08	ND	1.4	ND	ND	ND	48	—	2.45
RW-1	08/20/97	18.87	0.00	20.47	-1.60	110	ND	0.86	0.62	1.5	ND	—	0.88
RW-1	01/23/98	18.87	0.00	13.71	5.16	—	—	—	—	—	—	—	1.70
RW-1	02/25/98	18.87	0.00	11.47	7.40	ND	5.7	ND	ND	ND	170	—	—
RW-1	08/25/98	18.87	0.00	10.10	8.77	ND	ND	ND	ND	1.4	ND	—	0.99
RW-1	12/02/98	18.87	0.00	8.52	10.35	ND	ND	ND	ND	ND	8.1	—	2.56
RW-1	01/06/99	18.87	0.00	9.51	9.38	ND	ND	ND	ND	ND	10	—	—
RW-1	02/02/99	18.87	0.00	8.92	9.95	ND	ND	ND	ND	ND	6.3	—	1.58
RW-1	03/04/99	18.87	0.00	7.64	11.23	ND	2.5	ND	ND	0.92	100	—	—
RW-1	05/06/99	18.87	0.00	8.16	10.71	ND	1.5	ND	ND	ND	49	—	0.92
RW-1	06/09/99	18.87	0.00	8.79	10.08	ND	ND	ND	ND	ND	7.6	—	0.54
RW-1	07/08/99	18.87	0.00	9.10	9.77	ND	11.0	ND	0.85	0.67	100.0	—	1.13
RW-1	08/03/99	18.87	0.00	9.32	9.55	ND	ND	ND	ND	ND	27.0	—	0.85
RW-2	05/01/85	19.04	0.00	8.13	10.91	2,400	130	27	31	106	—	—	—
RW-2	07/19/95	19.04	0.00	10.62	8.42	73	11	ND	ND	1.5	16	—	—
RW-2**	08/02/95	19.04	0.00	19.33	-0.29	—	—	—	—	—	—	—	—
RW-2	10/30/95	19.04	0.00	19.66	-0.62	430	63	1.7	2.8	5.1	36	—	—
RW-2	01/15/96	19.04	0.00	18.40	0.64	310	65	1.5	1.6	4.0	6.9	—	—
RW-2	03/22/96	19.04	0.00	7.65	11.39	480	130	10	8.5	10	83	—	—
RW-2	08/13/96	19.04	0.00	10.97	8.07	ND	0.9	ND	ND	ND	24	—	—
RW-2#	01/29/97	19.04	—	—	—	—	—	—	—	—	—	—	—
RW-2	08/20/97	19.04	0.00	21.06	-2.02	320	56	3.2	3.1	10	24	—	0.88
RW-2	01/23/98	19.04	0.00	14.18	4.86	—	—	—	—	—	—	—	4.92
RW-2	02/25/98	19.04	0.00	11.79	7.25	220	19	1.2	2.4	2.0	130	—	—
RW-2	08/25/98	19.04	0.01	9.12	9.93	ND	1.8	ND	ND	ND	72	—	0.54
RW-2	12/02/98	19.04	0.01	10.36	8.69	120	2.4	0.52	0.57	ND	41	—	0.75
RW-2	01/06/99	19.04	0.01	9.66	9.39	65	2.3	ND	ND	ND	24	—	—
RW-2	02/02/99	19.04	0.01	8.97	10.08	220	5.2	1.5	1.3	1.2	100	—	0.48
RW-2	03/04/99	19.04	0.01	7.78	11.27	210	11	ND	ND	5.5	48	—	—
RW-2	05/06/99	19.04	0.00	8.19	10.85	180	3.6	ND	0.72	1.6	62	—	1.14
RW-2	06/09/99	19.04	0.00	8.73	10.31	120	3.3	ND	1.4	1.0	16	—	0.58
RW-2	07/08/99	19.04	0.00	11.59	7.45	330	16.0	0.8	3.7	5.6	47	—	18+
RW-2	08/03/99	19.04	0.00	9.09	9.95	380	1.1	ND	3.0	2.3	97	—	18+

SEP-20-1999 13:03

TRC ALTON GEOSCIENCE

925 698 0388

P.12/13

Table 1  
**Summary of Groundwater Monitoring and Analysis**

Quik Stop Market No. 46

Well ID	Date	Casing	Free Product	Depth to	Groundwater	TPH-G (ppb)	Benzene (ppb)	Toluene (ppb)	Ethyl-	Total	MTBE (ppb)	8260 (ppb)	Dissolved Oxygen (ppm)
		Elevation (feet)	Thickness (feet)	Water (feet)	Elevation (feet)				benzene (ppb)	Xylenes (ppb)			

NOTES:

ppb = parts per billion  
 TPH-G = total petroleum hydrocarbons as gasoline  
 ND = not detected at or above method detection limits  
 — = not measured/not analyzed  
 MTBE = methyl tert-butyl ether

Trace = free product observed but thickness not measured  
 \* = Casing top re-surveyed relative to mean sea level (NGVD, 1929) by Ron Archer Civil Engineer, Inc. on 5/1/95.  
 \*\* = Fluid levels were re-surveyed on 8/2/95 with the automatic recovery system (ARS) operating. The ARS was not operating when fluid levels were measured on 7/19/95.  
 \*\*\* = Depth to water not static due to ORC.  
 # = well inaccessible for sampling

TABLE 2

## Summary of Soil Sample Analyses

Sample	Date	Depth (fbg)	TPH-G (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl- benzene (mg/kg)	Total Xylenes (mg/kg)	MtBE (mg/kg)	MtBE 8260 (mg/kg)
B-1@8	06/09/99	8	ND	ND	ND	ND	ND	ND	---
B-1@12	06/09/99	12	ND	ND	ND	ND	ND	ND	---
B-1@15	06/09/99	15	ND	ND	ND	ND	ND	ND	---
B-1@20	06/09/99	20	ND	ND	ND	ND	ND	ND	---
B-2@15	06/09/99	15	ND	ND	ND	ND	ND	ND	---
B-2@20	06/09/99	18	ND	ND	ND	ND	ND	ND	---
B-3@15	06/09/99	15	1.2	0.014	ND	0.075	0.041	0.0067	---
B-3@18	06/09/99	18	18	0.30	0.085	0.27	0.57	0.38	---
B-3@20	06/09/99	20	ND	ND	ND	ND	ND	ND	---
B-4@15	06/09/99	15	ND	ND	ND	ND	ND	ND	---
B-4@20	06/09/99	20	ND	ND	ND	ND	ND	0.007	---
B-5@15	06/09/99	15	56	0.39	0.17	0.32	0.60	0.53	---
B-5@20	06/09/99	20	ND	0.037	ND	ND	0.0053	0.039	---
B-6@15	06/09/99	15	ND	ND	ND	ND	ND	ND	---
B-6@20	06/09/99	20	1100	31	23	66	190	45	36 *
B-7@15	06/09/99	15	ND	ND	ND	ND	ND	ND	---
B-7@20	06/09/99	20	ND	ND	ND	ND	ND	ND	---
AB-1	07/14/98	10	ND	ND	ND	ND	ND	---	---
AB-1	07/14/98	20	9,200	14	26	38	140	---	---
AB-1	07/14/98	30	6	0.0068	0.012	0.015	0.037	---	---
AB-2	07/14/98	15	37	0.10	0.13	ND	0.37	---	---
AB-2	07/14/98	20	2.8	0.23	0.024	0.052	0.066	---	---
AB-3	07/14/98	10	ND	ND	ND	ND	ND	---	---
AB-3	07/14/98	20	1.4	ND	ND	ND	0.015	---	---
AB-4	07/14/98	10	ND	ND	ND	ND	ND	---	---
AB-4	07/14/98	20	360	5.2	2.3	4.2	7.6	---	---
AB-5	07/14/98	20	ND	0.042	ND	0.0090	ND	---	---
AB-6	07/14/98	10	750	4.9	4.3	23	2.0	---	---
AB-6	07/14/98	20	ND	ND	ND	ND	ND	---	---
SB-1	11/07/89	6	ND	ND	ND	ND	ND	---	---
SB-1	11/07/89	11	ND	ND	ND	ND	ND	---	---
SB-1	11/07/89	16	190	ND	ND	0.27	ND	---	---
SB-1	11/07/89	21	180	ND	0.67	ND	ND	---	---
SB-1	11/07/89	26	ND	ND	ND	ND	ND	---	---
SB-2	11/07/89	6	ND	ND	ND	ND	ND	---	---
SB-2	11/07/89	11	ND	ND	ND	ND	ND	---	---
SB-2	11/07/89	16	47	ND	0.12	ND	ND	---	---
SB-2	11/07/89	21	69	0.36	0.3	ND	ND	---	---
SB-2	11/07/89	26	ND	0.32	ND	ND	ND	---	---
SB-3	11/07/89	6	ND	ND	ND	ND	ND	---	---
SB-3	11/07/89	11	ND	ND	ND	ND	ND	---	---
SB-3	11/07/89	16	ND	ND	ND	ND	ND	---	---
SB-3	11/07/89	21	ND	ND	ND	ND	ND	---	---
SB-3	11/07/89	26	2.3	0.69	ND	ND	ND	---	---
SB-4	11/07/89	6	ND	ND	ND	ND	ND	---	---
SB-4	11/07/89	11	ND	ND	ND	ND	ND	---	---
SB-4	11/07/89	16	58	ND	ND	ND	ND	---	---
SB-4	11/07/89	21	1,500	2.4	4.9	5.8	5.8	---	---
SB-4	11/07/89	26	2.1	ND	ND	ND	ND	---	---
MW-1	11/10/88	5.5 and 10.0*	220	ND	ND	ND	0.3	---	---
MW-1	11/10/88	15.0	26	ND	ND	ND	0.5	---	---

TABLE 2  
Summary of Soil Sample Analyses

Sample	Date	Depth (fbg)	TPH-G (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	MtBE (mg/kg)	MtBE 8260 (mg/kg)
MW-1	11/10/88	20.0	ND	ND	ND	ND	ND	—	—
MW-2	11/11/88	5.0 and 10.0*	ND	ND	ND	ND	ND	—	—
MW-2	11/11/88	15.0	250	0.6	ND	1.3	6.1	—	—
MW-2	11/11/88	20.0	680	5.2	49	53	230	—	—
MW-3	11/11/88	5.5	2,300	4.4	6.2	9.6	58	—	—
MW-3	11/11/88	10.0	35	ND	0.3	0.3	1.2	—	—
MW-3	11/11/88	20.0	3,000	ND	7.5	12	39	—	—
MW-4	03/05/90	6	ND	ND	ND	ND	ND	—	—
MW-4	03/05/90	11	ND	ND	ND	ND	ND	—	—
MW-5	03/05/90	6	ND	ND	ND	ND	ND	—	—
MW-5	03/05/90	11	ND	ND	ND	ND	ND	—	—
MW-5	03/05/90	16	570	ND	ND	0.69	1.2	—	—
MW-5	03/05/90	21	ND	ND	ND	ND	ND	—	—
MW-6	03/06/90	6	ND	ND	ND	ND	0.0074	—	—
MW-6	03/06/90	11	ND	ND	ND	ND	ND	—	—
MW-6	03/06/90	16	ND	ND	0.0041	ND	ND	—	—
MW-6	03/06/90	21	ND	ND	ND	ND	ND	—	—
MW-7	03/07/90	6	ND	ND	ND	ND	ND	—	—
MW-7	03/07/90	11	ND	ND	ND	ND	ND	—	—
MW-8	03/07/90	6	ND	ND	ND	ND	ND	—	—
MW-8	03/07/90	11	ND	ND	0.003	ND	ND	—	—
MW-8	03/07/90	16	ND	ND	0.0037	ND	ND	—	—
MW-8	03/07/90	21	ND	ND	ND	ND	ND	—	—
MW-9	04/07/95	11	ND	ND	ND	ND	ND	—	—
MW-9	04/07/95	17	ND	ND	0.0065	ND	0.0058	—	—
MW-9	04/07/95	20	990	1.6	2.6	3.6	3.5	—	—
MW-9	04/07/95	23	77	0.47	0.24	0.40	1.5	—	—
MW-9	04/07/95	28.5	170	0.71	0.52	0.90	4.0	—	—
RW-2	04/07/95	11.5	1.3	ND	ND	ND	0.0054	—	—
RW-2	04/07/95	15	57	ND	0.21	0.24	1.5	—	—
RW-2	04/07/95	20	150	0.59	0.67	0.29	1.3	—	—
RW-2	04/07/95	24.5	77	1.0	0.26	0.44	ND	—	—
RW-2	04/07/95	30	160	ND	0.58	0.98	1.4	—	—
MW-1R	01/04/89	5.5, 10, 15 and 20*	190	0.29	0.28	1.3	3.6	—	—
T1 - North	06/15/88	16.0	346	ND	378	ND	2,473	—	—
T2 - North	06/15/88	16.0	59	ND	358	ND	778	—	—
T1 - South	06/15/88	16.0	860	ND	1,233	ND	4,736	—	—
T2 - South	06/15/88	16.0	ND	13	86	56	91	—	—
Dispensers	06/15/88	4.0	ND	47	50	30	195	—	—

NOTES:  
 \* mg/kg = milligrams per kilogram  
 TPH-G = total petroleum hydrocarbons as gasoline  
 \* = composite sample  
 ND = not detected at or above laboratory method detection limit  
 fbg = feet below grade  
 — = not analyzed