

65

CAMBRIA

Wait for another 2 gtes sampling to confirm
NITE conc. in MW-4 and if further dg well is
necessary. TBA also found in SW -
OCT 03 2001 (can it be signs of biodegradation?)
September 26, 2001

eva chu
Alameda County Health Care Services Agency
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502

Re: **Offsite Monitoring Well Installation Report and Site Conceptual Model**
Shell-branded Service Station
11989 Dublin Boulevard
Dublin, California
Incident # 98995328
Cambria Project # 243-0548



Dear Ms. chu:

Cambria Environmental Technology, Inc. (Cambria) is submitting this *Offsite Monitoring Well Installation Report and Site Conceptual Model* on behalf of Equiva Services LLC. The well installation was conducted in accordance with our April 18, 2001 *Offsite Investigation Work Plan* that was approved by the Alameda County Health Care Services Agency in a letter dated April 20, 2001. The purpose of the well is to define the downgradient extent of hydrocarbons and oxygenates in groundwater. Presented below are summaries of the site background, investigation procedures, investigation results, and conclusions.

SITE BACKGROUND

Site Location: This operating Shell-branded service station is located at the intersection of Dublin Boulevard and San Ramon Road in Dublin, California (Figure 1). The surrounding area is primarily commercial with retail businesses adjacent to the site. A Chevron service station is located northeast of the Shell-branded site. Currently, three gasoline underground storage tanks (UST) and one diesel UST are in use onsite.

Soil and Groundwater Investigation Summary

June 1997 Dispenser and Piping Removal and Replacement: In June 1997, soil samples were collected and analyzed during dispenser and piping replacement. Maximum detected concentrations of total petroleum hydrocarbons as gasoline (TPHg) and total petroleum


Oakland, CA
San Ramon, CA
Sonoma, CA

**Cambria
Environmental
Technology, Inc.**

1144 65th Street
Suite B
Oakland, CA 94608
Tel (510) 420-0700
Fax (510) 420-9170

hydrocarbons as diesel (TPHd) were 690 parts per million (ppm) and 12,000 ppm, respectively. The highest detected benzene and methyl tertiary butyl ether (MTBE) (by EPA Method 8020) concentrations during the same sampling event were 0.55 ppm and 8.9 ppm, respectively, both from beneath the center dispenser in the northern pump island.

August 1997 Tank Backfill Well Destruction: On August 8, 1997, six tank backfill wells were destroyed in accordance with permit #97433 issued by the Alameda County Flood Control and Water Conservation District Zone 7 (Zone 7). One tank backfill well still exists onsite. Water was not encountered at 12 feet below grade (fbg), the maximum tank backfill well depth.



November 1997 Subsurface Investigation: On November 19, 1997, Cambria advanced four soil borings at the site to define the extent of hydrocarbons in soil and groundwater. The maximum concentrations in soil were 11 ppm TPHg, 300 ppm TPHd and 0.0051 ppm benzene in sample SB-3 from 25 fbg. The maximum MTBE concentration (by EPA Method 8020) was 0.11 ppm in sample SB-2 at 20 fbg. A groundwater sample collected from SB-2 contained 470 parts per billion (ppb) TPHg, 4,900 ppb TPHd, 17 ppb benzene and 110 ppb MTBE. No groundwater was encountered in the other borings.

August 1998 Subsurface Investigation: On August 5, 1998, Cambria advanced two soil borings to evaluate soil and groundwater conditions in the assumed downgradient direction of the UST complex. Maximum concentrations detected in soil were 250 ppm TPHg and 2.8 ppm benzene from SB-2 at 30 fbg.

January 1999 Subsurface Investigation: On June 8 and 9, 1999, Cambria installed three onsite groundwater monitoring wells. The maximum concentration of TPHg in soil was detected in sample MW-3 at a depth of 25.5 fbg at 4.1 ppm. The maximum concentrations of TPHd and MTBE (by EPA Method 8260) were detected in MW-2 at a depth of 25.5 fbg at 103 ppm and 1.14 ppm, respectively. No benzene, toluene, ethylbenzene and xylenes (BTEX), hydrocarbons, or MTBE (by EPA Method 8020) was detected in soil samples collected from monitoring well MW-1 or in vadose zone soil samples collected from MW-2 and MW-3. Maximum analyte concentrations in groundwater were detected in well MW-2 at 2,600 ppb TPHg, 0.699 ppb TPHd, 9,370 ppb MTBE by EPA Method 8020, 55 ppb benzene, and 59.5 ppb ethylbenzene.

Groundwater Depth and Flow Direction: The depth to groundwater at the site varies from 6 fbg in well MW-1 to 20 to 24 fbg in wells MW-2 and MW-3. Groundwater flow direction as determined in Cambria's *Second Quarter 2001 Monitoring Report* is to the east at a gradient of 0.125 ft/ft. The steep gradient at the site may be due to lithologic controls, possibly associated with the nearby Calaveras Fault. Topography slopes slightly to the east.

Soil Lithology: The site is underlain by gravelly fill to approximately 2 fbg. The fill is underlain by clayey sands to the maximum explored depth of 33 fbg.

INVESTIGATION PROCEDURES

The monitoring well was installed to provide downgradient definition of fuel hydrocarbons and oxygenates in groundwater. Cambria advanced one soil boring downgradient of the site and converted the boring to a groundwater monitoring well. Soil samples were collected for lithologic logging purposes and one sample was collected from the apparent capillary fringe zone for chemical analysis.

The procedures for this investigation, described in Cambria's approved work plan, are summarized below. Analytical results for soil and groundwater are summarized in Tables 1 and 2, and certified laboratory reports are presented as Attachment A. Boring logs and Cambria's standard field procedures for monitoring wells are presented as Attachments B and C, respectively.

Drilling Date: July 26, 2001.

Drilling Company: Gregg Drilling of Martinez, California (C-57 License #485165).

Personnel Present:	Title:	Company:
Shannon Couch	Staff Geologist	Cambria
Sue Landsittel	Staff Geologist	Cambria
Bobby Deason	Driller	Gregg Drilling


Permits: Zone 7 Drilling Permit # 21094 (Attachment D).
City of Dublin Public Works Department encroachment permit 01-41 (Attachment D).

Drilling Method: 8-inch hollow-stem auger.

Soil Sampling Method: Soil samples were collected at 5-foot intervals using a split-spoon sampler with brass sample tubes.

Number of Wells: One, MW-4 (Figure 2).

Well Depth: 35.0 fbg (Attachment B).

- 
- Sediment Lithology:*** Soil encountered in the boring consisted of sandy fill to approximately 5 fbg, clayey silt to approximately 20 fbg, and silty clay to the total explored depth of 35.0 fbg (Attachment B).
- Groundwater Depths:*** Groundwater was encountered at approximately 24.0 fbg during drilling activities. Static groundwater depth in MW-4 was measured by Blaine Tech Services (Blaine) of San Jose, California at 26.32 fbg on August 17, 2001.
- Well Materials:*** Well MW-4 was constructed using 2-inch diameter Schedule 40 PVC casing with 0.010-inch slotted screen. The filter pack consisted of Monterey 2x12 sand from 35 to 18 fbg and bentonite from 18 to 16 fbg, and Portland Type I cement was placed from 16 to 1 fbg. A traffic-rated well box was installed to protect the well and complete the well to grade (Attachment B).
- Screened Interval:*** 20 to 35 fbg (Attachment B).
- Well Elevation Survey*** The top of casing elevation was surveyed by Virgil Chavez Land Surveying of Vallejo, California (Attachment E).
- Well Development:*** Blaine developed MW-4 on August 10, 2001 MW-4 using surge-block agitation and pump evacuation. Blaine sampled the wells on August 17, 2001. Groundwater analytical results are presented in Table 2 and as Attachment A.
- Chemical Analyses:*** One soil sample was collected from the boring at the apparent soil-groundwater interface and was analyzed by a State-certified laboratory for TPHg, BTEX, and MTBE by EPA Method 8260B. In addition to the above compounds, the groundwater sample was analyzed for di-isopropyl ether, ethyl-t-butyl ether, tert-amyl methyl ether, and tert-butanol (TBA).
To characterize stockpiled soil cuttings from the boring for disposal, four brass tubes of soil were collected, then composited and analyzed by the analytical laboratory for:
- TPHg by EPA Method 8260B;
 - BTEX and MTBE by Method 8260B; and
 - Total threshold limit concentration lead.

Soil Handling:

Soil cuttings produced from the boring were stored in 55-gallon drums on the Shell-branded site and were profiled for disposal at Forward Landfill in Manteca, California. Soil disposal confirmation will be included in the fourth quarter 2001 monitoring report.

INVESTIGATION RESULTS

Analyte Results in Soil: No TPHg, BTEX, or MTBE was detected in the soil sample collected at the soil-groundwater interface. Laboratory analytical results for the soil sample collected during this investigation and soil sample results from previous investigations are summarized in Table 1. The certified laboratory analytical results for soil samples collected during this investigation are presented in Attachment A.

Analyte Results in Groundwater: TPHg, MTBE and TBA were detected in the groundwater sample at 2,400 ppb, 8,300 ppb, and 2,200 ppb, respectively. No BTEX or other oxygenates were detected in the groundwater sample. Laboratory analytical results are summarized in Table 2 and the certified laboratory analytical results are presented as Attachment A.

CONDUIT STUDY

As discussed in Cambria's November 8, 2000 *Potential Receptor Survey and Conduit Study*, which was incomplete because some conduit map information was unavailable at the time of submission, additional conduit study results would be submitted with the next report. We have since obtained the map information necessary to complete the conduit map from the City of Dublin, Dublin San Ramon Services District, and Pacific Gas and Electric. The final results of the conduit study are presented on Figure 2. Since the conduits in the area of the hydrocarbon plume are all located at depths above groundwater, it is highly unlikely that the conduits present a pathway for hydrocarbons or oxygenates.

CONCLUSIONS AND RECOMMENDATIONS

The extent of TPHg, BTEX, and MTBE in the soil downgradient of the site has been defined by the sample collected from the soil-groundwater interface in well MW-4. However, although

MTBE attenuates from approximately 15,000 ppb in onsite well MW-2 to 8,300 ppb in MW-4, the lateral extent of MTBE has not been determined by the newly installed well. We recommend continued quarterly sampling to establish groundwater gradient and analyze trends. In addition, we will investigate a suitable location for a downgradient monitoring well to further characterize the plume.

Cambria's site conceptual model is presented as Attachment F.

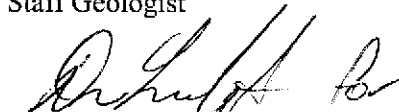
CLOSING

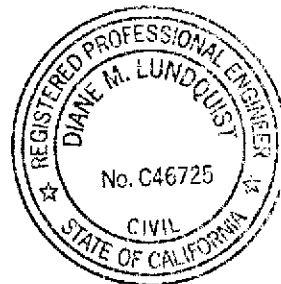


Please call Barbara Jakub at (510) 420-3309 if you have any questions or comments.

Sincerely,
Cambria Environmental Technology, Inc.


Sue Landsittel
Staff Geologist


Stephan Bork, C.E.G., C.H.G.
Associate Hydrogeologist



Figures: 1 - Vicinity / Area Well Survey Map
 2 - Monitoring Well and Utility Location Map

Tables: 1 - Soil Analytical Results
 2 - Groundwater Analytical Data

Attachments: A - Soil and Groundwater Analytical Reports
 B - Boring/Well Log
 C - Standard Field Procedures for Installation of Monitoring Wells
 D - Well and Encroachment Permits
 E - Survey Results
 F - Site Conceptual Model

cc: Karen Petryna, Equiva Services LLC, P.O. Box 7869, Burbank, CA 91510-7869

G:\Dublin 11989 Dublin\2001 Site Investigation\11989Dublin MWinstall Aug01.doc

CAMBRIA

Table 1. Soil Analytical Results - Shell-branded Service Station - Incident # 98995328, 11989 Dublin Boulevard, Dublin, California

Sample ID	Sampling Date	Depth	TPHg (fbg)	TPHd	← (ppm) →				
					MTBE	Benzene	Toluene	Ethylbenzene	Xylenes
P-1	6/17/97	4-5	24	97	6.3	<0.025	0.27	0.098	2.5
P-2	6/17/97	4-5	<1.0	<1.0	<0.025	<0.0050	<0.0050	<0.0050	<0.0050
P-3	6/17/97	4-5	<1.0	1.4	<0.025	<0.0050	<0.0050	<0.0050	<0.0050
P-4	6/17/97	4-5	2	160	0.027	<0.0050	<0.0050	<0.0050	0.015
D-1	6/17/97	4-5	<1.0	9.9	0.060	<0.0050	0.014	0.0062	0.068
D-2	6/17/97	4-5	86	20	8.9	0.55	3.3	0.99	7.8
TS-1	6/20/97	4-5	<1.0	<1.0	<0.025	<0.0050	<0.0050	<0.0050	<0.0050
TS-2	6/20/97	4-5	<1.0	<1.0	<0.025	<0.0050	<0.0050	<0.0050	<0.0050
TS-3	6/20/97	4-5	<1.0	<1.0	<0.025	<0.0050	<0.0050	<0.0050	<0.0050
TS-4	6/20/97	4-5	<1.0	<1.0	<0.025	<0.0050	<0.0050	<0.0050	<0.0050
TS-5	6/20/97	4-5	<1.0	4.6	<0.025	<0.0050	<0.0050	<0.0050	<0.0050
TS-6	6/20/97	4-5	<1.0	1.7	<0.025	<0.0050	<0.0050	<0.0050	<0.0050
TS-7	6/20/97	4-5	690	12,000	<1.2	<0.25	<0.25	<0.25	2.2
TS-8	6/20/97	4-5	<1.0	1.3	<0.025	<0.0050	<0.0050	<0.0050	<0.0050
TS-9	6/20/97	4-5	<1.0	2.2	<0.025	<0.0050	<0.0050	<0.0050	<0.0050
TS-10	6/20/97	4-5	<1.0	2.6	<0.025	<0.0050	<0.0050	<0.0050	<0.0050
TS-11	6/20/97	4-5	<1.0	11	<0.025	<0.0050	<0.0050	<0.0050	0.0051
TS-12	6/20/97	4-5	<1.0	3.7	<0.025	<0.0050	<0.0050	<0.0050	<0.0050
SB-1, 10'	11/19/97	10	<1.0	1.3	<0.025	<0.0050	<0.0050	<0.0050	<0.0050
SB-1, 20	11/19/97	20	<1.0	<1.0	0.025	<0.0050	<0.0050	<0.0050	<0.0050
SB-1, 35'	11/19/97	35	<1.0	<1.0	<0.025	<0.0050	<0.0050	<0.0050	<0.0050
SB-2, 10'	11/19/97	10	<1.0	<1.0	<0.025	<0.0050	<0.0050	<0.0050	<0.0050
SB-2, 20'	11/19/97	20	1.8	19	0.11	<0.0050	<0.0050	<0.0050	<0.0050
SB-3, 10'	11/19/97	10	<1.0	<1.0	<0.025	<0.0050	<0.0050	<0.0050	<0.0050
SB-3, 25'	11/19/97	25	11	300	0.069	0.0051	0.18	<0.0050	0.013
SB-3, 35'	11/19/97	35	<1.0	<1.0	<0.025	<0.0050	<0.0050	<0.0050	<0.0050
SB-4, 10'	11/19/97	10	<1.0	1.8	0.031	<0.0050	<0.0050	<0.0050	<0.0050
SB-4, 25'	11/19/97	25	<1.0	<1.0	<0.025	<0.0050	<0.0050	<0.0050	<0.0050

CAMBRIA

Table 1. Soil Analytical Results - Shell-branded Service Station - Incident # 98995328, 11989 Dublin Boulevard, Dublin, California

Sample ID	Sampling Date	Depth (fbg)	TPHg	TPHd	MTBE	← (ppm) →			
						Benzene	Toluene	Ethylbenzene	Xylenes
MW-1 (5.0)	6/8-6/9/99	5	<0.40	<5.0	<0.0020	<0.0020	<0.0020	<0.0040	<0.01
MW-1 (10.0)	6/8-6/9/99	10	<0.40	<5.0	<0.0020	<0.0020	<0.0020	<0.0040	<0.01
MW-1 (15.0)	6/8-6/9/99	15	<0.40	<5.0	<0.0020	<0.0020	<0.0020	<0.0040	<0.01
MW-1 (20.0)	6/8-6/9/99	20	<0.40	<5.0	<0.0020	<0.0020	<0.0020	<0.0040	<0.01
MW-2-10.5	6/8-6/9/99	10.5	<0.80	<5.0	<0.020	<0.0040	<0.0040	<0.0040	<0.0080
MW-2-15.5	6/8-6/9/99	15.5	<0.80	<5.0	<0.020	<0.0040	<0.0040	<0.0040	<0.0080
MW-2-20.5	6/8-6/9/99	20.5	<0.80	<5.0	<0.020	<0.0040	<0.0040	<0.0040	<0.0080
MW-2-25.5	6/8-6/9/99	25.5	<0.80	103	1.28 (1.14)	<0.0040	<0.0040	<0.0040	<0.0080
MW-2-30.5	6/8-6/9/99	30.5	<0.80	<5.0	1.76 (0.90)	<0.0040	<0.0040	<0.0040	<0.0080
MW-3-10.5	6/8-6/9/99	10.5	<0.80	<5.0	<0.020	<0.0040	<0.0040	<0.0040	<0.0080
MW-3-15.5	6/8-6/9/99	15.5	<0.80	<5.0	<0.020	<0.0040	<0.0040	<0.0040	<0.0080
MW-3-20.5	6/8-6/9/99	20.5	<0.80	<5.0	<0.020	<0.0040	<0.0040	<0.0040	<0.0080
MW-3-25.5	6/8-6/9/99	25.5	4.1	35.2	0.0597	<0.0040	<0.0040	<0.0040	<0.0080
MW-3-30.5	6/8-6/9/99	30.5	1.39	<5.0	0.063 (0.0622)	<0.0040	<0.0040	<0.0040	<0.0080
MW-4-25.5	7/26/01	25.5	(<1.0)	---	(<0.0050)	(<0.0050)	(<0.0050)	(<0.0050)	(<0.0050)

Abbreviations and Notes:

TPHg = Total petroleum hydrocarbons as gasoline by modified EPA method 8015; results in parenthesis by EPA Method 8260B

TPHd = Total petroleum hydrocarbons as diesel by modified EPA method 8015

Benzene, toluene, ethylbenzene, and total xylenes by EPA Method 8020; results in parenthesis by EPA Method 8260B

MTBE = Methyl tert-butyl ether by EPA Method 8020; results in parenthesis by EPA Method 8260B

fbg = Feet below grade

ppm = parts per million

<n = Below detection limit of n ppm

CAMBRIA

**Table 2. Groundwater Analytic Data - Shell-branded Service Station - Incident # 98995328,
11989 Dublin Boulevard, Dublin, California**

Sample ID	TPHg	MTBE	Benzene	Toluene	Ethylbenzene (ppb)	Xylenes	DIPE	ETBE	TAME	TBA
MW-4	2,400	8,300	<10	<10	<10	<10	<10	<10	<10	2,200

Abbreviations and Notes:

TPHg = Total petroleum hydrocarbons as gasoline by EPA Method 8260B

Benzene, toluene, ethylbenzene, and total xylenes by EPA Method 8260B

MTBE = Methyl tert-butyl ether by EPA Method 8260B

DIPE = Diisopropyl ether by EPA Method 8260B

ETBE = Ethyl-t-butyl ether by EPA Method 8260B

TAME = Tert-amyl methyl ether by EPA Method 8260B

TBA = Tert-Butanol by EPA Method 8260B

ppb = part per billion

Sample date: August 17, 2001

<n = Below detection limit of n ppb

ATTACHMENT A

Soil and Groundwater Analytical Reports



Report Number : 21519

Date : 8/14/2001

Barbara Jakub
Cambria Environmental Technology, Inc.
1144 65th St. Suite B
Oakland, CA 94608

Subject : 1 Soil Sample
Project Name : 11989 Dublin Boulevard, Dublin, CA
Project Number :
P.O. Number : 98995328

Dear Ms. Jakub,

Chemical analysis of the samples referenced above has been completed. Summaries of the data are contained on the following pages. Sample(s) were received under documented chain-of-custody. US EPA protocols for sample storage and preservation were followed.

Kiff Analytical is certified by the State of California (# 2236). If you have any questions regarding procedures or results, please call me at 530-297-4800.

Sincerely,



Joel Kiff



Report Number : 21519

Date : 8/14/2001

Project Name : 11989 Dublin Boulevard, Dublin, CA

Project Number :

Sample : MW-4-25.5

Matrix : Soil

Lab Number : 21519-01

Sample Date : 7/26/2001

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 0.0050	0.0050	mg/Kg	EPA 8260B	8/3/2001
Toluene	< 0.0050	0.0050	mg/Kg	EPA 8260B	8/3/2001
Ethylbenzene	< 0.0050	0.0050	mg/Kg	EPA 8260B	8/3/2001
Total Xylenes	< 0.0050	0.0050	mg/Kg	EPA 8260B	8/3/2001
Methyl-t-butyl ether (MTBE)	< 0.0050	0.0050	mg/Kg	EPA 8260B	8/12/2001
TPH as Gasoline	< 1.0	1.0	mg/Kg	EPA 8260B	8/3/2001
Toluene - d8 (Surr)	101		% Recovery	EPA 8260B	8/3/2001
4-Bromofluorobenzene (Surr)	103		% Recovery	EPA 8260B	8/3/2001

Approved By:  Joel Kiff

Report Number : 21519

Date : 8/14/2001

Project Name : **11989 Dublin Boulevard, Dublin, CA**

Project Number :

21519 Quality Control Data - Method Blank

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 0.0050	0.0050	mg/Kg	EPA 8260B	8/3/2001
Toluene	< 0.0050	0.0050	mg/Kg	EPA 8260B	8/3/2001
Ethylbenzene	< 0.0050	0.0050	mg/Kg	EPA 8260B	8/3/2001
Total Xylenes	< 0.0050	0.0050	mg/Kg	EPA 8260B	8/3/2001
Methyl-t-butyl ether (MTBE)	< 0.0050	0.0050	mg/Kg	EPA 8260B	8/3/2001
TPH as Gasoline	< 1.0	1.0	mg/Kg	EPA 8260B	8/3/2001
Toluene - d8 (Surr)	101		% Recovery	EPA 8260B	8/3/2001
4-Bromofluorobenzene (Surr)	99.1		% Recovery	EPA 8260B	8/3/2001

Approved By:  Joel Kiff

Report Number : 21519

Date : 8/14/2001

QC Report : Matrix Spike/ Matrix Spike Duplicate

Project Name : 11989 Dublin Boulevard, Dublin, CA

Project Number :

Parameter	Spiked Sample	Sample Value	Spike Level	Spike Dup. Level	Spiked Sample Value	Duplicate Spiked Sample Value	Units	Analysis Method	Date Analyzed	Spiked Sample Percent Recov.	Duplicate Spiked Sample Percent Recov.	Relative Percent Diff.	Spiked Sample Percent Recov. Limit	Relative Percent Diff. Limit
Spike Recovery Data														
Benzene	21519-01	<0.0050	0.0357	0.0366	0.0301	0.0355	mg/Kg	EPA 8260B	8/2/2001	84.2	96.8	13.9	70-130	25
Toluene	21519-01	<0.0050	0.0357	0.0366	0.0303	0.0356	mg/Kg	EPA 8260B	8/2/2001	84.9	97.4	13.6	70-130	25
Tert-Butanol	21519-01	<0.0050	0.178	0.183	0.169	0.178	mg/Kg	EPA 8260B	8/2/2001	94.8	97.3	2.62	70-130	25
Methyl-t-Butyl Ether	21519-01	<0.0050	0.0357	0.0366	0.0348	0.0362	mg/Kg	EPA 8260B	8/2/2001	97.5	98.8	1.38	70-130	25

KIFF ANALYTICAL, LLC

720 Olive Drive, Suite D Davis, CA 95616 530-297-4800

Approved By: Joel Kiff



Report Number : 21519

Date : 8/14/2001

QC Report : Laboratory Control Sample (LCS)

Project Name : **11989 Dublin Boulevard, Dublin, CA**

Project Number :

Parameter	Spike Level	Units	Analysis Method	Date Analyzed	LCS Percent Recov.	LCS Percent Recov. Limit
Benzene	0.0397	mg/Kg	EPA 8260B	8/2/2001	96.4	70-130
Toluene	0.0397	mg/Kg	EPA 8260B	8/2/2001	97.3	70-130
Tert-Butanol	0.198	mg/Kg	EPA 8260B	8/2/2001	95.3	70-130
Methyl-t-Butyl Ether	0.0397	mg/Kg	EPA 8260B	8/2/2001	96.5	70-130

KIFF ANALYTICAL, LLC

Approved By:  Joel Kiff

720 Olive Drive, Suite D Davis, CA 95616 530-297-4800

720 Olive Drive, Suite D
Davis, CA 95616

(530) 297-4800 (530) 297-4803 fax

Equiva Project Manager to be invoiced:

- SCIENCE & ENGINEERING
- TECHNICAL SERVICES
- CRMT HOUSTON

Karen Petryna

INCIDENT NUMBER (S&E ONLY)							
9	8	9	9	5	3	2	8
SAP OR GRMT NUMBER (TS/GRMT)							

DATE: 7/30/01
PAGE: 1 of 1

CONSULTANT COMPANY: Cambria Environmental Technology, Inc.			SITE ADDRESS (Street and City): 11989 Dublin Boulevard, Dublin, CA		
ADDRESS: 1144 65th St., Suite B			PROJECT CONTACT (Repeat): Barb Jakob		CONSULTANT PROJECT NO.: 243-0548
CITY: Oakland, CA 94608			SAMPLER NAME(S) (Print): Shannon Couch, Sue Landford		
TELEPHONE: 510.420.0700	FAX: 510.420.9170	E-MAIL: sland@kcl.com	CAPUSED ON		
TURNAROUND TIME (BUSINESS DAYS): <input checked="" type="checkbox"/> 10 DAYS <input type="checkbox"/> 5 DAYS <input type="checkbox"/> 72 HOURS <input type="checkbox"/> 48 HOURS <input type="checkbox"/> 24 HOURS <input type="checkbox"/> LESS THAN 24 HOURS					

<input type="checkbox"/> LA - RWQCB REPORT FORMAT <input type="checkbox"/> UST AGENCY: _____ GCMS MTBE CONFIRMATION: HIGHEST _____ HIGHEST per BORING _____ ALL _____ SPECIAL INSTRUCTIONS OR NOTES: TEMPERATURE ON RECEIPT <input type="checkbox"/>		REQUESTED ANALYSIS										FIELD NOTES: Container/Preservative or PID Readings or Laboratory Notes

Field Sample Identification	SAMPLING		MATRIX	NO. OF CONT.	TPH - Purgeable (E015m)	TPH - Extractable (E015m)	BTEX / MTBE (E021B)	BTEX / MTBE + Oxygenates (E250B)	VOCs Full List + Oxygenates (E250B)	MTBE (E250B) Confirmation, See Note	EPA 5035 Extraction for Volatiles	VOCs Halogenated/Aromatic (E021B)	Ethanol, Methanol (E015B)	Metals (Specify)	TRPH (415.1)	Vapor VOCs BTEX / MTBE (T0-15)	Vapor VOCs Full List (T0-15)	Vapor TPH (ASTM 3415m)	Vapor Fixed Gases (ASTM D1945)	Test for Disposal (4B-)					
	DATE	TIME																							
MW-4-25-5	7/26/01	12:00	Soil	1	X		X																		-01

Requested by: (Signature) <i>Barb Jakob</i>	Received by: (Signature) _____	Date: 7/30/01	Time: 10:31
Requested by: (Signature) _____	Received by: (Signature) _____	Date: _____	Time: _____
Requested by: (Signature) _____	Received by: (Signature) <i>Scott O'Connell</i> / KIFF ANALYTICAL	Date: 073001	Time: 1213



Report Number : 21777

Date : 9/5/2001

Nick Sudano
Blaine Tech Services
1680 Rogers Avenue
San Jose, CA 95112-1105

Subject : 1 Water Sample
Project Name : 11989 Dublin Blvd., Dublin
Project Number : 010813-N5
P.O. Number : 98995328

Dear Mr. Sudano,

Chemical analysis of the samples referenced above has been completed. Summaries of the data are contained on the following pages. Sample(s) were received under documented chain-of-custody. US EPA protocols for sample storage and preservation were followed.

Kiff Analytical is certified by the State of California (# 2236). If you have any questions regarding procedures or results, please call me at 530-297-4800.

Sincerely,

A handwritten signature in black ink that reads "Joel Kiff". The signature is written in a cursive style with a large, looping initial "J".

Joel Kiff



Report Number : 21777

Date : 9/5/2001

Project Name : 11989 Dublin Blvd., Dublin

Project Number : 010813-N5

Sample : MW-4

Matrix : Water

Lab Number : 21777-01

Sample Date :8/13/2001

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 10	10	ug/L	EPA 8260B	8/18/2001
Toluene	< 10	10	ug/L	EPA 8260B	8/18/2001
Ethylbenzene	< 10	10	ug/L	EPA 8260B	8/18/2001
Total Xylenes	< 10	10	ug/L	EPA 8260B	8/18/2001
Methyl-t-butyl ether (MTBE)	8300	20	ug/L	EPA 8260B	8/22/2001
Diisopropyl ether (DIPE)	< 10	10	ug/L	EPA 8260B	8/18/2001
Ethyl-t-butyl ether (ETBE)	< 10	10	ug/L	EPA 8260B	8/18/2001
Tert-amyl methyl ether (TAME)	< 10	10	ug/L	EPA 8260B	8/18/2001
Tert-Butanol	2200	100	ug/L	EPA 8260B	8/18/2001
TPH as Gasoline	2400	1000	ug/L	EPA 8260B	8/18/2001
Toluene - d8 (Surr)	100		% Recovery	EPA 8260B	8/18/2001
4-Bromofluorobenzene (Surr)	99.3		% Recovery	EPA 8260B	8/18/2001

Approved By:  Joel Kiff

Report Number : 21777

Date : 9/5/2001

Project Name : 11989 Dublin Blvd., Dublin

Project Number : 010813-N5

21777 Quality Control Data - Method Blank

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	8/22/2001
Toluene	< 0.50	0.50	ug/L	EPA 8260B	8/22/2001
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	8/22/2001
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	8/22/2001
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	8/22/2001
Diisopropyl ether (DIPE)	< 0.50	0.50	ug/L	EPA 8260B	8/22/2001
Ethyl-t-butyl ether (ETBE)	< 0.50	0.50	ug/L	EPA 8260B	8/22/2001
Tert-amyl methyl ether (TAME)	< 0.50	0.50	ug/L	EPA 8260B	8/22/2001
Tert-Butanol	< 5.0	5.0	ug/L	EPA 8260B	8/22/2001
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	8/22/2001
Toluene - d8 (Surr)	101		% Recovery	EPA 8260B	8/22/2001
4-Bromofluorobenzene (Surr)	97.6		% Recovery	EPA 8260B	8/22/2001

Approved By:  Joel Kiff

Report Number : 21777

Date : 9/5/2001

QC Report : Matrix Spike/ Matrix Spike Duplicate

Project Name : 11989 Dublin Blvd., Dublin

Project Number : 010813-N5

Parameter	Spiked Sample	Sample Value	Spike Level	Spike Dup. Level	Spiked Sample Value	Duplicate Spiked Sample Value	Units	Analysis Method	Date Analyzed	Spiked Sample Percent Recov.	Duplicate Spiked Sample Percent Recov.	Relative Percent Diff.	Spiked Sample Percent Recov. Limit	Relative Percent Diff. Limit
Spike Recovery Data														
Benzene	21755-12	630	19.8	19.0	474	468	ug/L	EPA 8260B	8/18/2001	0.00	0.00	0.00	70-130	25
Toluene	21755-12	20	19.8	19.0	36.9	36.5	ug/L	EPA 8260B	8/18/2001	187.8	89.2	1.67	70-130	25
Tert-Butanol	21755-12	79	99.2	95.0	189	179	ug/L	EPA 8260B	8/18/2001	112	106	5.44	70-130	25
Methyl-t-Butyl Ether	21755-12	18	19.8	19.0	33.8	34.4	ug/L	EPA 8260B	8/18/2001	180.4	87.4	8.35	70-130	25

KIFF ANALYTICAL, LLC

720 Olive Drive, Suite D Davis, CA 95616 530-297-4800

Approved By:  Joel Kiff

Report Number : 21777

Date : 9/5/2001

QC Report : Laboratory Control Sample (LCS)


Project Name : **11989 Dublin Blvd., Dublin**

Project Number : **010813-N5**

Parameter	Spike Level	Units	Analysis Method	Date Analyzed	LCS Percent Recov.	LCS Percent Recov. Limit
Benzene	19.2	ug/L	EPA 8260B	8/18/2001	91.8	70-130
Toluene	19.2	ug/L	EPA 8260B	8/18/2001	99.3	70-130
Tert-Butanol	96.2	ug/L	EPA 8260B	8/18/2001	95.6	70-130
Methyl-t-Butyl Ether	19.2	ug/L	EPA 8260B	8/18/2001	92.6	70-130

KIFF ANALYTICAL, LLC

720 Olive Drive, Suite D Davis, CA 95616 530-297-4800

Approved By:  _____
Joel Kiff

ATTACHMENT B

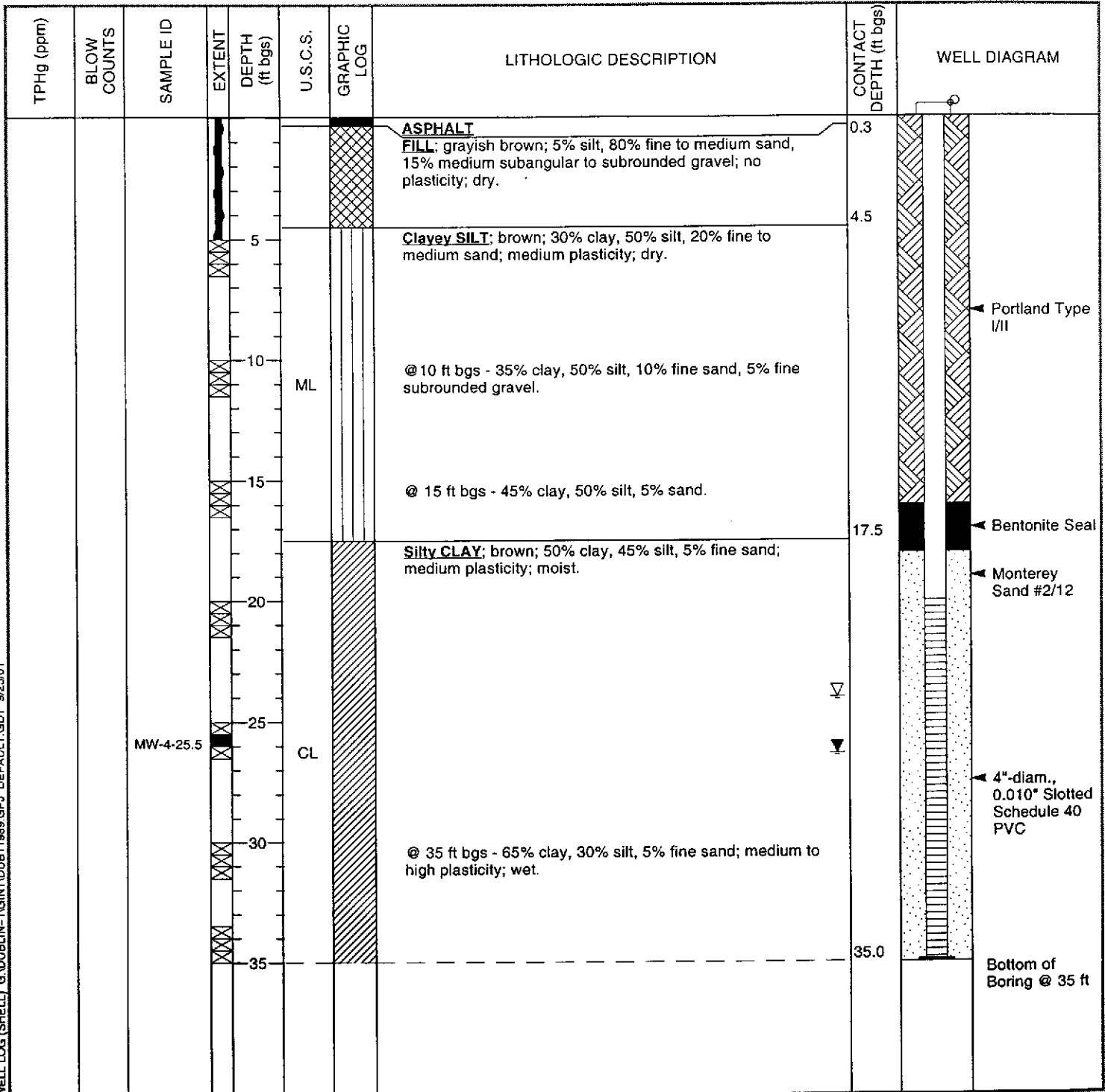
Boring/Well Log



Cambria Environmental Technology, Inc.
 1144 - 65th St.
 Oakland, CA 94608
 Telephone: (510) 420-0700
 Fax: (510) 420-9170

BORING/WELL LOG

CLIENT NAME	Equiva Services LLC	BORING/WELL NAME	MW-4
JOB/SITE NAME	Shell-branded service station	DRILLING STARTED	26-Jul-01
LOCATION	11989 Dublin Boulevard, Dublin CA	DRILLING COMPLETED	26-Jul-01
PROJECT NUMBER	243-0548	WELL DEVELOPMENT DATE (YIELD)	NA
DRILLER	Gregg Drilling	GROUND SURFACE ELEVATION	364.24' ft above msl. (rim)
DRILLING METHOD	Hollow-stem auger	TOP OF CASING ELEVATION	364.01 ft above msl
BORING DIAMETER	8"	SCREENED INTERVAL	20 to 34.9 ft bgs
LOGGED BY	S. Couch	DEPTH TO WATER (First Encountered)	24.0 ft (26-Jul-01)
REVIEWED BY	S. Bork, RG# 5620	DEPTH TO WATER (Static)	26.32 ft (17-Aug-01)
REMARKS	Hand augered to 5' bgs; located on east side of San Ramon Rd approximately 80' south of San Ramon/Dublin intersection.		



WELL LOG (SHELL) G:\DUBLIN-1\GINT\DU011989.GPJ DEFAULT.GDT 9/25/01

ATTACHMENT C

Standard Field Procedures for Installation of Monitoring Wells

CAMBRIA

STANDARD FIELD PROCEDURES FOR INSTALLATION OF MONITORING WELLS

This document presents standard field methods for drilling and sampling soil borings and installing, developing and sampling ground water monitoring wells. These procedures are designed to comply with Federal, State and local regulatory guidelines. Specific field procedures are summarized below.

SOIL BORINGS

Objectives

Soil samples are collected to characterize subsurface lithology, assess whether the soils exhibit obvious hydrocarbon or other compound vapor or staining, and to collect samples for analysis at a State-certified laboratory. All borings are logged using the Unified Soil Classification System by a trained geologist working under the supervision of a California Registered Geologist (RG).

Soil Boring and Sampling

Soil borings are typically drilled using hollow-stem augers or direct-push technologies such as the Geoprobe®. Soil samples are collected at least every five ft to characterize the subsurface sediments and for possible chemical analysis. Additional soil samples are collected near the water table and at lithologic changes. Samples are collected using lined split-barrel or equivalent samplers driven into undisturbed sediments at the bottom of the borehole.

Drilling and sampling equipment is steam-cleaned prior to drilling and between borings to prevent cross-contamination. Sampling equipment is washed between samples with trisodium phosphate or an equivalent EPA-approved detergent.

Sample Analysis

Sampling tubes chosen for analysis are trimmed of excess soil and capped with Teflon tape and plastic end caps. Soil samples are labeled and stored at or below 4° C on either crushed or dry ice, depending upon local regulations. Samples are transported under chain-of-custody to a State-certified analytic laboratory.

Field Screening

One of the remaining tubes is partially emptied leaving about one-third of the soil in the tube. The tube is capped with plastic end caps and set aside to allow hydrocarbons to volatilize from the soil. After ten to fifteen minutes, a portable volatile vapor analyzer measures volatile hydrocarbon vapor concentrations in the tube headspace, extracting the vapor through a slit in the cap. Volatile vapor analyzer measurements are used along with the field observations, odors, stratigraphy and ground water depth to select soil samples for analysis.

CAMBRIA

Water Sampling

Water samples, if they are collected from the boring, are either collected using a driven Hydropunch® type sampler or are collected from the open borehole using bailers. The ground water samples are decanted into the appropriate containers supplied by the analytic laboratory. Samples are labeled, placed in protective foam sleeves, stored on crushed ice at or below 4°C, and transported under chain-of-custody to the laboratory. Laboratory-supplied trip blanks accompany the samples and are analyzed to check for cross-contamination. An equipment blank may be analyzed if non-dedicated sampling equipment is used.

Grouting

If the borings are not completed as wells, the borings are filled to the ground surface with cement grout poured or pumped through a tremie pipe.

MONITORING WELL INSTALLATION, DEVELOPMENT AND SAMPLING

Well Construction and Surveying

Ground water monitoring wells are installed to monitor ground water quality and determine the ground water elevation, flow direction and gradient. Well depths and screen lengths are based on ground water depth, occurrence of hydrocarbons or other compounds in the borehole, stratigraphy and State and local regulatory guidelines. Well screens typically extend 10 to 15 ft below and 5 ft above the static water level at the time of drilling. However, the well screen will generally not extend into or through a clay layer that is at least three ft thick.

Well casing and screen are flush-threaded, Schedule 40 PVC. Screen slot size varies according to the sediments screened, but slots are generally 0.010 or 0.020 inches wide. A rinsed and graded sand occupies the annular space between the boring and the well screen to about one to two ft above the well screen. A two ft thick hydrated bentonite seal separates the sand from the overlying sanitary surface seal composed of Portland type I,II cement.

Well-heads are secured by locking well-caps inside traffic-rated vaults finished flush with the ground surface. A stovepipe may be installed between the well-head and the vault cap for additional security.

The well top-of-casing elevation is surveyed with respect to mean sea level and the well is surveyed for horizontal location with respect to an onsite or nearby offsite landmark.

CAMBRIA

Well Development

Wells are generally developed using a combination of ground water surging and extraction. Surging agitates the ground water and dislodges fine sediments from the sand pack. After about ten minutes of surging, ground water is extracted from the well using bailing, pumping and/or reverse air-lifting through an eductor pipe to remove the sediments from the well. Surging and extraction continue until at least ten well-casing volumes of ground water are extracted and the sediment volume in the ground water is negligible. This process usually occurs prior to installing the sanitary surface seal to ensure sand pack stabilization. If development occurs after surface seal installation, then development occurs 24 to 72 hours after seal installation to ensure that the Portland cement has set up correctly.

All equipment is steam-cleaned prior to use and air used for air-lifting is filtered to prevent oil entrained in the compressed air from entering the well. Wells that are developed using air-lift evacuation are not sampled until at least 24 hours after they are developed.

Ground Water Sampling

Depending on local regulatory guidelines, three to four well-casing volumes of ground water are purged prior to sampling. Purging continues until ground water pH, conductivity, and temperature have stabilized. Ground water samples are collected using bailers or pumps and are decanted into the appropriate containers supplied by the analytic laboratory. Samples are labeled, placed in protective foam sleeves, stored on crushed ice at or below 4°C, and transported under chain-of-custody to the laboratory. Laboratory-supplied trip blanks accompany the samples and are analyzed to check for cross-contamination. An equipment blank may be analyzed if non-dedicated sampling equipment is used.

F:\TEMPLATE\SOPs\GW Installation.wpd

ATTACHMENT D

Well and Encroachment Permits



ZONE 7 WATER AGENCY

5987 PARKSIDE DRIVE, PLEASANTON, CALIFORNIA 94588-5127 PHONE (510) 484-2600 X236
FAX (510) 462-3814

RECEIVED
MAY 2 - 2001

DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

LOCATION OF PROJECT 11989 DUBLIN BOULEVARD,
DUBLIN, CA
CORNER OF DUBLIN BVD & SAN RAMON ROAD

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

CLIENT
Name EQUIVA SERVICES LLC
Address P.O. BOX 7869 Phone _____
City BURBANK, CA Zip 91510-7869

APPLICANT
Name CAMBRIA ENVIRONMENTAL TECHNOLOGY, INC.
Shannon Couch Fax 510.420.9170
Address 1144 125th STREET, SUITE B Phone 510.420.3339
City OAKLAND Zip 94608

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

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

DRILLING METHOD:
Mud Rotary Air Rotary Auger
Cable Other

DRILLER'S LICENSE NO. 057485105

WELL PROJECTS
Drill Hole Diameter 8 1/2 in. Maximum 35 ft.
Casing Diameter _____ in. Depth _____ ft.
Surface Seal Depth _____ ft. Number 1

GEOTECHNICAL PROJECTS
Number of Borings _____ Maximum
Hole Diameter _____ in. Depth _____ ft.

ESTIMATED STARTING DATE MAY 20th
ESTIMATED COMPLETION DATE MAY 20th

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

APPLICANT'S SIGNATURE [Signature] Date 01 MAY 01

FOR OFFICE USE

PERMIT NUMBER 21094
WELL NUMBER 3S/1W 2J8
APN _____

PERMIT CONDITIONS

Circled Permit Requirements Apply

- (A) GENERAL
 1. A permit application should be submitted so as to arrive at the Zone 7 office five days prior to proposed starting date.
 2. Submit to Zone 7 within 80 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 80 days of approve 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 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 & 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 [Signature] Date 5/18/01

Wyman Hong

**CITY OF DUBLIN
PUBLIC WORKS DEPARTMENT**
100 Civic Plaza
Dublin, California 94568
(925) 833-6630

PERMIT NO. 01-41

ENCROACHMENT PERMIT

PERMIT TO DO WORK IN ACCORDANCE WITH CITY OF DUBLIN MUNICIPAL CODE CHAPTER 7.04 AND ANY SPECIAL REQUIREMENTS SHOWN OR LISTED HEREIN.

Applicant/Permittee:	Permit Fee:	\$ 10.00
Name: <u>CAMBRIA ENVIRONMENTAL</u>	Plancheck Fee:	\$
Address: <u>144 105th Street, Suite B</u>	Resurfacing Surcharge:	\$
144 105th Street, Suite B <u>Oakland, CA</u>	Inspection Fees:	\$ 50.00
Telephone <u>510.420.3339</u>		\$
	Total Fees:	\$ 90.00
	Bond: Surety: \$	Cash: \$
	Total Paid:	\$ 90.00
	Receipt No. <u>20023</u>	

PLEASE READ THIS PERMIT CAREFULLY. KEEP IT AT THE WORK SITE. TO ARRANGE FOR INSPECTION, PHONE 833-6630 AT LEAST 48 HOURS BEFORE YOU START WORK.

JOB LOCATION: 11989 DUBLIN BLVD - ^{across the street} east of site in sidewalk

DESCRIPTION OF WORK: (Attach 2 copies of plans. Attach additional pages if needed.)

Installation of one monitoring well in sidewalk, soil & groundwater sampling

Length of Excavation _____ **l.f.** **Width** 12" **l.f.** **Depth** ~ 35' **ft.**

U. S. A. IDENTIFICATION NUMBER (if applicable) _____

ATTENTION IS DIRECTED TO THE GENERAL PROVISIONS PRINTED ON THE REVERSE SIDE OF THIS PERMIT AND TO THE FOLLOWING SPECIAL REQUIREMENTS:

1. Permittee shall provide and keep current a certificate of Public Liability and Workers Compensation Insurance which names the City of Dublin and its employees and agents as additional insureds.
2. Worksites left in an unsafe condition will be secured by the City Maintenance Department and the cost charged to the permittee.

Inspections required: backfill and final.

No lane closures prior to 9:00 a.m. or after 3:30 p.m.

Prosecution of Work: All work authorized by the permit shall be performed in a workmanlike, diligent, and expeditious manner, and must be complete to the satisfaction of the City Engineer.

Liability and Damages: The permittee shall be responsible for all liability imposed by law for personal injury or property damage which may arise out of the work permitted and done by permittee under this permit, or which may arise out of failure on the part of the permittee to perform his obligations under said permit in respect to maintenance and encroachment. The permittee shall protect and indemnify the City of Dublin, its officers and employees, and save them harmless in every way from all action by law for damage or injury to persons or property that may arise out of or be occasioned in any way because of his operations as provided in this permit.

Signature of Permittee:

By: [Signature]

City Engineer

By: [Signature]

ATTACHMENT E

Survey Results

Virgil Chavez Land Surveying

312 Georgia Street, Suite 225
Vallejo, California 94590-5907
(707) 553-2476 • Fax (707) 553-8698

August 23, 2001
Project No. 1703-22a

Sue Landsittel
Cambria Environmental
1144 65th Street, Suite B
Oakland, Ca. 94608

Subject: Monitoring Well Survey
Shell Service Station
11989 Dublin Blvd.
Dublin, Ca.

Dear Sue:

This is to confirm that we have proceeded at your request to survey the monitoring wells located at the above referenced location. The survey was performed on August 23, 2001. The benchmark for the survey was a bronze disk established by the USGS, located under a manhole cover in the left turn lane in front of Mervyn's on Dublin Blvd. Measurement locations were marked at approximate north side of top of box and top of casings. The stations and offsets are referenced to the face of the existing station building looking easterly. Survey data compiled from previous work included in this report. Benchmark Elevation = 347.662 feet, NGVD29

<u>Monitoring Well No.</u>	<u>Rim Elevation</u>	<u>TOC Elevation</u>
MW - 1	368.23'	367.99'
MW - 2	365.78'	365.43'
MW - 3	365.55'	364.97'
MW - 4	364.24'	364.01'

<u>Well No.</u>	<u>Station</u>	<u>Offset</u>
MW - 1	0-32.22	-71.16 (Lt.)
MW - 2	1+14.98	-16.09 (Lt.)
MW - 3	1+17.45	21.93 (Rt.)
MW - 4	2+75.24	3.44 (Rt.)
SW Bldg Cor.	0+00.00	0.00
NW Bldg Cor.	0+57.78	0.00



Sincerely,

Virgil D. Chavez
 Virgil D. Chavez, PLS 6323

ATTACHMENT F
Site Conceptual Model

SITE CONCEPTUAL MODEL
9/7/01
Cambria Environmental Technology, Inc.

Address:	11989 Dublin Boulevard	Incident Number:	98995328
City:	Dublin, CA	Regulator:	Alameda County Health Care Services Agency

Item	Evaluation Criteria	Comments/Discussion
1	Hydrocarbon Source	
1.1	Identify/Describe Release Source and Volume (if known)	The MTBE source and spill volume is unknown. Soil samples collected in 1997 indicated hydrocarbon and MTBE impact beneath the dispensers.
1.2	Discuss Steps Taken to Stop Release	In June 1997, the product piping and dispensers were replaced at the site.
2	Site Characterization	
2.1	Current Site Use/Status	The site is an active Shell-branded service station located on the southwestern corner of Dublin Boulevard and San Ramon Road. The surrounding area is primarily commercial with retail businesses adjacent to the site. A Chevron service station is located northeast of the site. Currently three gasoline and one diesel USTs are in use onsite.
2.2	Soil Definition Status	TPHg and BTEX in the soil are defined in the upgradient direction by well MW-1 and in the downgradient direction by MW-4.
2.3	Separate-Phase Hydrocarbon Definition Status	No SPH has been detected at the site.
2.4	Groundwater Definition Status (BTEX)	The upgradient extent of BTEX is defined by well MW-1 and in the downgradient direction by MW-4. BTEX has not been detected in these two wells.
2.5	BTEX Plume Stability and Concentration Trends	Based on quarterly monitoring since July 1999, the BTEX plume appears to be stable to decreasing in MW-2 and MW-3. Since monitoring began, BTEX has not been detected in MW-1.
2.6	Groundwater Definition Status (MTBE)	The upgradient extent of MTBE is defined by well MW-1. The lateral extent of MTBE is not defined in the downgradient direction by newly installed well MW-4. Further groundwater monitoring is required.
2.7	MTBE Plume Stability and Concentration Trends	Based on periodic monitoring since July 1999, MTBE concentrations appear to be stable to decreasing in MW-2 and MW-3. Since monitoring began, MTBE has not been detected in MW-1. No trend has been established for MW-4 since it has only been sampled once.

Item	Evaluation Criteria	Comments/Discussion
2.8	Groundwater Flow Direction, Depth Trends and Gradient Trends	Groundwater flow direction has been toward the east-northeast with a hydraulic gradient of approximately 0.122. Depth to groundwater in onsite wells ranges from approximately 6.0 feet below grade (fbg) in MW-1 to 24.0 fbg in MW-2 and 3.
2.9	Stratigraphy and Hydrogeology	The site is underlain by clayey silt, sandy silt, and clayey sand to the total explored depth of 41.0 ft. The steep hydraulic gradient across the site may be due to the nearby Calaveras Fault.
2.10	Preferential Pathways Analysis	Based on the results of a conduit study, no preferential pathways were identified.
2.11	Other Pertinent Issues	
3	Remediation Status	
3.1	Remedial Actions Taken	The product piping and dispensers were replaced in 1997. No other known remedial actions have been taken.
3.2	Area Remediated	An unknown quantity of soil was removed from the area immediately around the dispensers during replacement in
3.3	Remediation Effectiveness	As indicated by soil samples collected at the time the dispensers were replaced, hydrocarbons and MTBE were present in the soil beneath two of the dispensers.
4	Well and Sensitive Receptor Survey	
4.1	Designated Beneficial Water Use	The RWQCB basin plan designates groundwater in the area as a municipal and domestic water supply, industrial process water supply, industrial service water supply, and agricultural water supply.
4.2	Shallow Groundwater Use	Shallow wells within a half-mile of the site are associated with monitoring or are of unknown use.
4.3	Deep Groundwater Use	Deep groundwater in the region is used as a domestic water source. The closest domestic well is located approximately 800 feet to the west of the site in the upgradient direction.
4.4	Well Survey Results	In a November 2000 potential receptor survey by Cambria, 65 wells were identified within a one-half mile radius of the site: six domestic wells, one irrigation well, two test wells, five destroyed wells, and forty-seven monitoring wells. The closest domestic well is approximately 800 feet to the west of the site in the upgradient direction.

Item	Evaluation Criteria	Comments/Discussion
4.5	Likelihood of Impact to Wells	Unlikely, given that the potential receptor survey identified the closest well as approximately 800 feet upgradient from the site and no known wells in the nearby downgradient direction.
4.6	Likelihood of Impact to Surface Water	Unlikely, as Dublin Creek, the closest surface water body, is located 1/4 mile southwest of the site.
5	Risk Assessment	
5.1	Site Conceptual Exposure Model (current and future uses)	The site is an active Shell-branded service station surrounded by mixed commercial and residential property. The plume lies beneath the eastern portion of the site and extends downgradient to the southeastern. The highest MTBE concentrations in soil and groundwater soil exist downgradient of the UST complex.
5.2	Exposure Pathways	(1) Inhalation of vapors in outdoor air from impacted soil and groundwater.
5.3	Risk Assessment Status	No formal risk assessment has been performed.
5.4	Identified Human Exceedances	NA
5.5	Identified Ecological Exceedances	NA
6	Additional Recommended Data or Tasks	
6.1	Establish Trend for MW-4	Continue sampling MW-4 to determine a trend in MTBE concentrations.
6.2	Downgradient Plume Definition	Install downgradient well to define plume.

Known Environmental Documents for site:

August 4, 1997 *Stockpile, Piping, and Dispenser Soil Sampling Report*, Cambria

June 2, 1997 *Fuel Sample Analysis*, Cambria

February 24, 1998 *Subsurface Investigation Report*, Cambria

June 15, 1998 *Secondary Subsurface Investigation Workplan*, Cambria

February 29, 2000 *Well Installation Report*, Cambria

November 8, 2000 *Potential Receptor Survey and Conduit Study*, Cambria

Attached:

Latest QMR map (2/01)

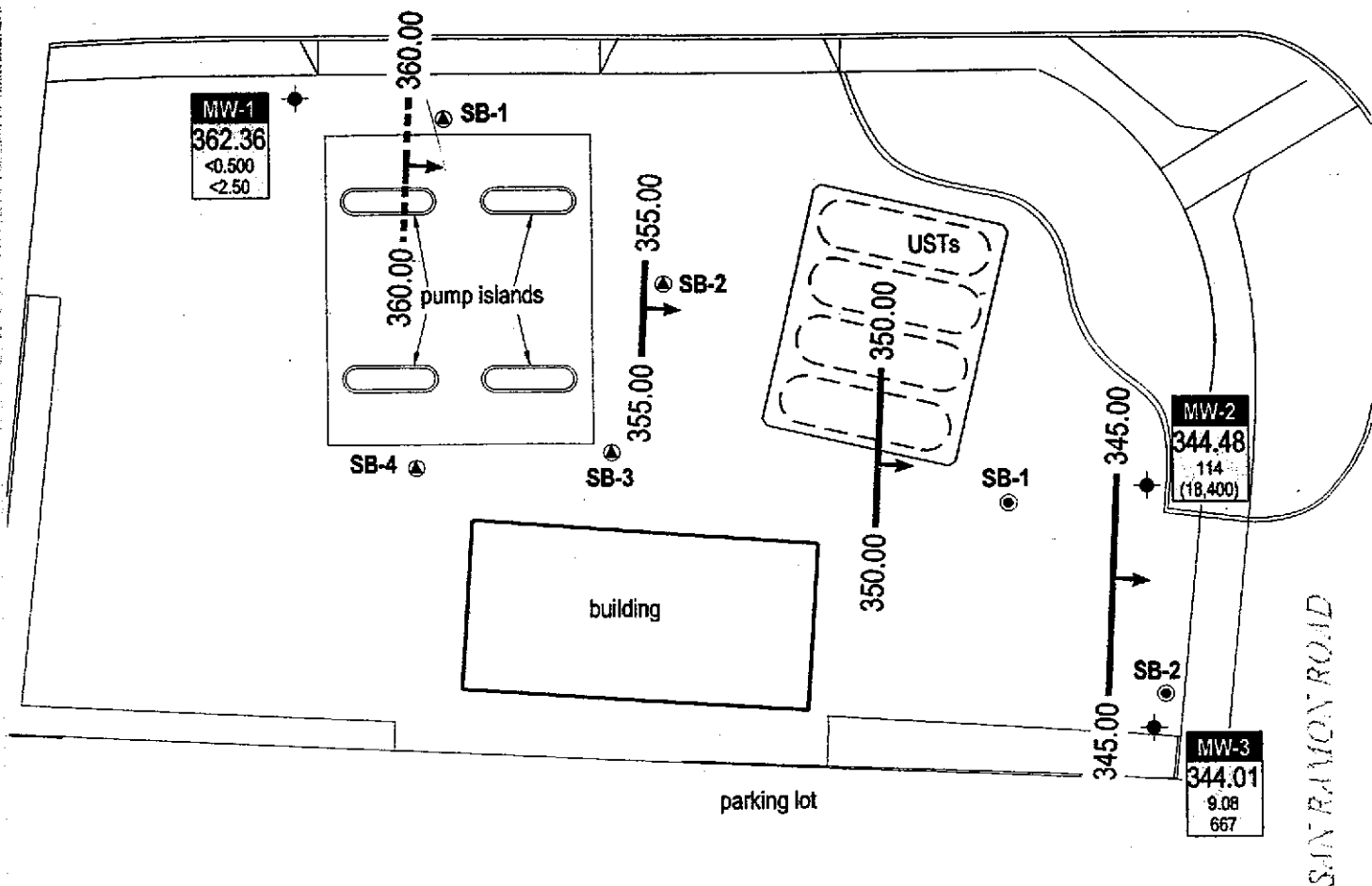
Latest groundwater monitoring tables (2/01)

Previous soil results

Well Survey map and table (11/00)

Boring/Well logs (4/01)

DUBLIN BOULEVARD



EXPLANATION

- MW-1 ● Monitoring well location
 - SB-1 ▲ Soil boring locations for November 16, 1997 investigation
 - SB-1 ● Soil boring locations for August 5, 1998 investigation
 - Groundwater flow direction
 - XX.XX Groundwater elevation contour, in feet above mean sea level (msl), approximately located, dashed where inferred
- | | |
|-----------------|--|
| Well | Well designation |
| ELEV | Groundwater elevation, in feet above msl |
| Benzene
MTBE | Benzene and MTBE concentrations are in parts per billion and are analyzed by EPA Method 8020; MTBE results in parentheses are analyzed by EPA Method 8260. |

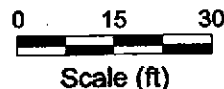


FIGURE
1

Shell-branded Service Station

11989 Dublin Boulevard
Dublin, California
Incident #98995328



C A M B R I A

Groundwater Elevation Contour Map

April 19, 2001

G:\DUBLIN\11989\FIGURES\FIGURE1\CM01-MP.DWG

WELL CONCENTRATIONS
Shell-branded Service Station
11989 Dublin Boulevard
Dublin, CA

Well ID	Date	TPPH (ug/L)	TEPH (ug/L)	B (ug/L)	T (ug/L)	E (ug/L)	X (ug/L)	MTBE 8020 (ug/L)	MTBE 8260 (ug/L)	TOC (MSL)	Depth to Water (ft.)	GW Elevation (MSL)	D.O. Reading (ppm)
MW-1	07/20/1999	<50.0	<50.0	<0.500	<0.500	<0.500	<0.500	<5.00	NA	367.99	6.24	361.75	NA
MW-1	10/25/1999	<50.0	<50.0	<0.500	<0.500	<0.500	<0.500	<5.00	NA	367.99	6.36	361.63	NA
MW-1	01/27/2000	<50.0	<50.0	<0.500	<0.500	<0.500	<0.500	<2.50	NA	367.99	5.65	362.34	NA
MW-1	04/03/2000	<50.0	<50.0	<0.500	<0.500	<0.500	<0.500	<2.50	NA	367.99	5.68	362.31	1.2/1.6
MW-1	07/27/2000	<50.0	NA	<0.500	<0.500	<0.500	<0.500	<2.50	NA	367.99	5.69	362.30	1.0/1.1
MW-1	10/16/2000	<50.0	NA	<0.500	<0.500	<0.500	<0.500	<2.50	NA	367.99	5.74	362.25	1.2/0.8
MW-1	01/16/2001	<50.0	NA	<0.500	<0.500	<0.500	<0.500	<2.50	NA	367.99	5.71	362.28	0.59/2.8
MW-1	04/19/2001	<50.0	NA	<0.500	<0.500	<0.500	<0.500	<2.50	NA	367.99	5.63	362.36	1.4/1.5
MW-2	07/20/1999	2,600	699	55.0	<2.50	59.5	<2.50	9,370	NA	365.43	20.31	345.12	NA
MW-2	10/25/1999	4,710	761	61.1	<10.0	74.6	<10.0	22,800	NA	365.43	22.80	342.63	NA
MW-2	01/27/2000	3,820	1490	60.8	<10.0	156	<10.0	13,400	15,000a	365.43	19.17	346.26	NA
MW-2	04/03/2000	7,130	NA	184	14.9	238	18.8	34,200	28,000	365.43	19.03	346.40	1.6/1.7
MW-2	07/27/2000	311	NA	10.0	<0.500	<0.500	<0.500	280	NA	365.43	19.09	346.34	1.9/1.7
MW-2	10/16/2000	3,970	NA	123	<5.00	68.5	<5.00	14,000	15,600	365.43	23.98	341.45	0.5/0.5
MW-2	01/16/2001	5,780	NA	125	9.71	139	6.93	7,660	7,810	365.43	22.12	343.31	0.90/2.61
MW-2	04/19/2001	4,460	NA	114	7.61	115	4.87	15,200	18,400	365.43	20.95	344.48	1.6/1.5
MW-3	07/20/1999	208	177	4.69	<0.500	<0.500	<0.500	664	NA	364.97	24.23	340.74	NA
MW-3	10/25/1999	378	182	9.49	<0.500	<0.500	<0.500	1,410	NA	364.97	23.26	341.71	NA
MW-3	01/27/2000	428	100	29.4	<0.500	<0.500	<0.500	941	NA	364.97	19.53	345.44	NA
MW-3	04/03/2000	<125	NA	11.4	<1.25	<1.25	<1.25	639	NA	364.97	19.13	345.84	1.4/1.9
MW-3	07/27/2000	4,360	NA	78.4	6.95	85.8	2.61	26,600	25,200b	364.97	19.10	345.87	1.9/2.0
MW-3	10/16/2000	586	NA	21.3	<0.500	<0.500	<0.500	3,310	NA	364.97	24.11	340.86	1.1/0.8
MW-3	01/16/2001	558	NA	14.7	<0.500	<0.500	<0.500	2,210	NA	364.97	22.19	342.78	0.87/3.5
MW-3	04/19/2001	376	NA	9.08	<0.500	<0.500	<0.500	667	NA	364.97	20.96	344.01	1.7/1.4

WELL CONCENTRATIONS
Shell-branded Service Station
11989 Dublin Boulevard
Dublin, CA

Well ID	Date	TPPH (ug/L)	TEPH (ug/L)	B (ug/L)	T (ug/L)	E (ug/L)	X (ug/L)	MTBE 8020 (ug/L)	MTBE 8260 (ug/L)	TOC (MSL)	Depth to Water (ft.)	GW Elevation (MSL)	D.O. Reading (ppm)
---------	------	----------------	----------------	-------------	-------------	-------------	-------------	------------------------	------------------------	--------------	----------------------------	--------------------------	--------------------------

Abbreviations:

TPPH = Total petroleum hydrocarbons as gasoline by modified EPA Method 8015

TEPH = Total petroleum hydrocarbons as diesel by modified EPA Method 8015

BTEX = benzene, toluene, ethylbenzene, xylenes by EPA Method 8020

MTBE = methyl-tertiary-butyl ether by EPA Method 8020

TOC = Top of Casing Elevation

GW = Groundwater

DO = Dissolved Oxygen

ug/L = parts per billion

ppm = parts per million

msl = Mean sea level

ft = Feet

<n = Below detection limit

n/n = Pre-purge/Post-purge DO Readings

NA = Not applicable

Notes:

Wells surveyed June 21, 1999 by Virgil Chavez Land Surveying of Vallejo, California.

a = Sample was analyzed outside the EPA recommended holding time.

b = Concentration is an estimate.

CAMBRIA

Table 2. Ground Water Analytic Data - Shell-branded Service Station - WIC# 204-2277-0204, 11989 Dublin Boulevard, Dublin, California

Sample ID	TPPH	TEPH	MTBE	Benzene	Toluene	Ethylbenzene	Xylenes
	(Concentrations reported in micrograms per liter)						

August 5, 1998 Samples:

SB-1	140,000	54,000	16,000 (14,000)	<1,000	<1,000	<1,000	<1,000
SB-2	10,000	7,000	8,400	<25	210	<25	<25

Abbreviations/Notes:

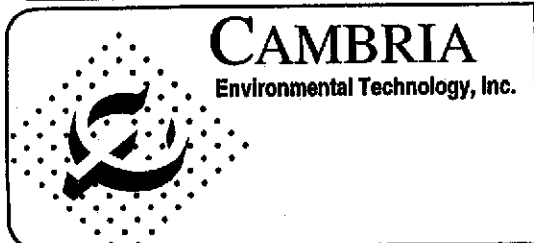
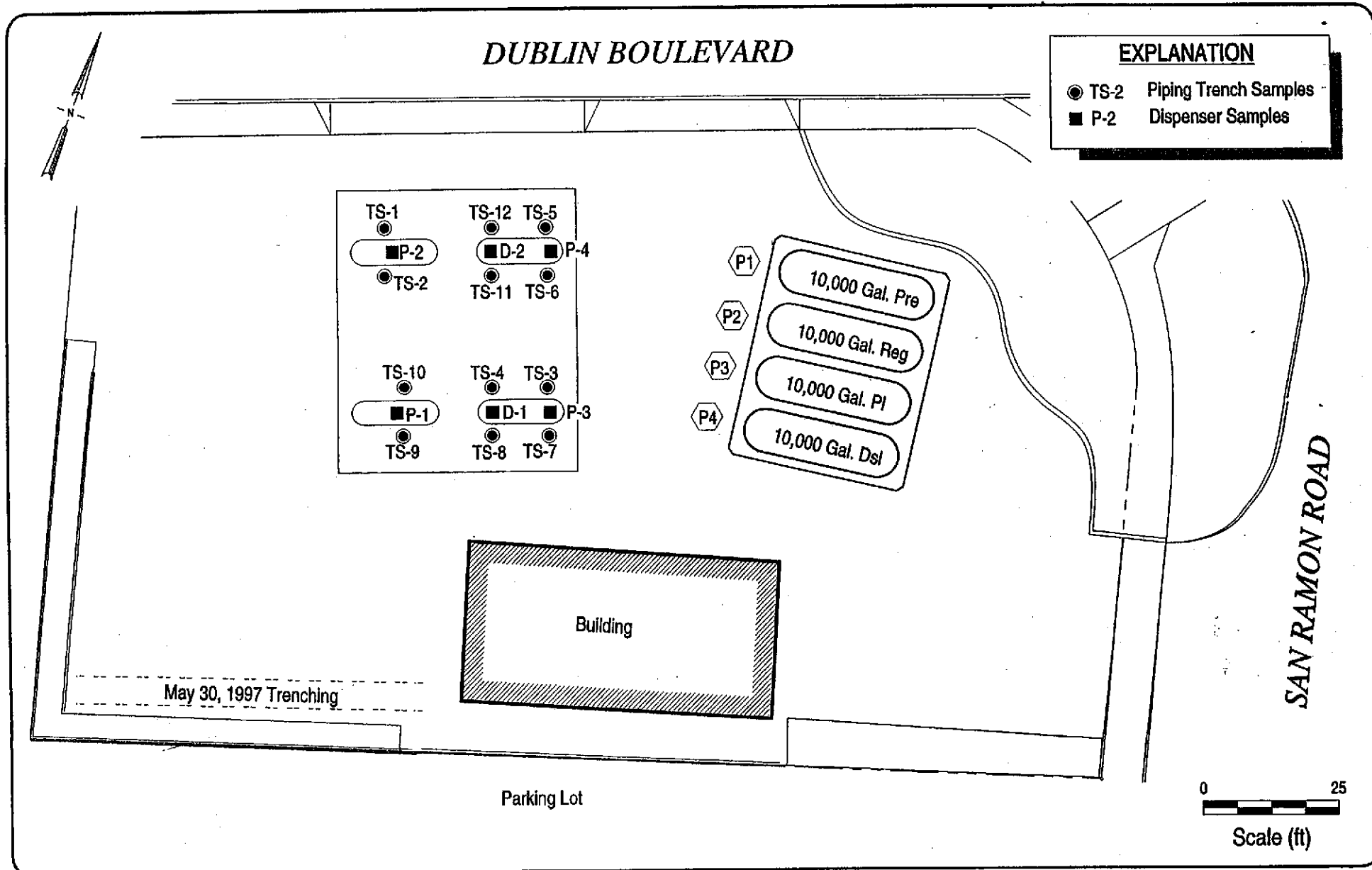
TPPH = Total purgable petroleum hydrocarbons as gasoline by modified EPA Method 8015.

TEPH = Total extractable petroleum hydrocarbons as diesel by modified EPA Method 8015.

Benzene, ethylbenzene, toluene, xylenes by EPA method 8020.

MTBE = Methyl tert-butyl ether by EPA Method 8020. Parenthesis indicate confirmation analysis by EPA Method 8260

<n = Below detection limit of n micrograms per liter



Shell Service Station
11989 Dublin Boulevard
Dublin, California

F:\PROJECTS\HELL\0UB11989\FIGURES\DISP-SMPL.DWG

Dispenser and Trench (Piping) Samples

FIGURE

1

Table 1. Soil Sample Analytic Data - Shell Service Station - WIC# 204-2277-0204, 11989 Dublin Boulevard, Dublin, California

Sample ID	TPHg	TPHd	MTBE (Concentrations reported in milligrams per kilogram)	Benzene	Toluene	Ethylbenzene	Xylenes
May 30, 1997 Samples:							
SP-1	<1.0	---	---	<0.0050	<0.0050	<0.0050	<0.0050
SP-2	<1.0	---	---	<0.0050	<0.0050	<0.0050	0.024
SP-3	<1.0	---	---	<0.0050	<0.0050	<0.0050	<0.0050
SP-4	<1.0	---	---	<0.0050	<0.0050	<0.0050	<0.0050
June 17, 1997 Samples:							
P-1	24	97	6.3	<0.025	0.27	0.098	2.5
P-2	<1.0	<1.0	<0.025	<0.0050	<0.0050	<0.0050	<0.0050
P-3	<1.0	1.4	<0.025	<0.0050	<0.0050	<0.0050	<0.0050
P-4	2	160	0.027	<0.0050	<0.0050	<0.0050	0.015
D-1	<1.0	9.9	0.060	<0.0050	0.014	0.0062	0.068
D-2	86	20	8.9	0.55	3.3	0.99	7.8

Table 1. Soil Sample Analytic Data - Shell Service Station - WIC# 204-2277-0204, 11989 Dublin Boulevard, Dublin, California

Sample ID	TPHg	TPHd	MTBE (Concentrations reported in milligrams per kilogram)	Benzene	Toluene	Ethylbenzene	Xylenes
June 20, 1997 Samples:							
TS-1	<1.0	<1.0	<0.025	<0.0050	<0.0050	<0.0050	<0.0050
TS-2	<1.0	<1.0	<0.025	<0.0050	<0.0050	<0.0050	<0.0050
TS-3	<1.0	<1.0	<0.025	<0.0050	<0.0050	<0.0050	<0.0050
TS-4	<1.0	<1.0	<0.025	<0.0050	<0.0050	<0.0050	<0.0050
TS-5	<1.0	4.6	<0.025	<0.0050	<0.0050	<0.0050	<0.0050
TS-6	<1.0	1.7	<0.025	<0.0050	<0.0050	<0.0050	<0.0050
TS-7	690	12,000	<1.2	<0.25	<0.25	<0.25	2.2
TS-8	<1.0	1.3	<0.025	<0.0050	<0.0050	<0.0050	<0.0050
TS-9	<1.0	2.2	<0.025	<0.0050	<0.0050	<0.0050	<0.0050
TS-10	<1.0	2.6	<0.025	<0.0050	<0.0050	<0.0050	<0.0050
TS-11	<1.0	11	<0.025	<0.0050	<0.0050	<0.0050	0.0051
TS-12	<1.0	3.7	<0.025	<0.0050	<0.0050	<0.0050	<0.0050

Abbreviations/Notes:

TPHg = Total petroleum hydrocarbons as gasoline by modified EPA method 8015, reported as total purgable petroleum hydrocarbons as gasoline.

TPHd = Total petroleum hydrocarbons as diesel by modified EPA method 8015, reported as total extractable hydrocarbons as diesel.

MTBE = Methyl tert-butyl ether by EPA Method 8020.

Benzene, ethylbenzene, toluene, xylenes by EPA method 8020.

All samples taken at approximately 4-5 feet below grade.

Table 1. Soil and Ground Water Analytical Results - Shell Service Station - WIC# 204-2277-0204, 11989 Dublin Boulevard, Dublin, California

Sample ID	TPHg	TPHd	MTBE	Benzene	Toluene	Ethylbenzene	Xylenes
Soil Samples (in milligrams per kilogram):							
SB-1, 10'	<1.0	1.3	<0.025	<0.0050	<0.0050	<0.0050	<0.0050
SB-1, 20'	<1.0	<1.0	0.025	<0.0050	<0.0050	<0.0050	<0.0050
SB-1, 35'	<1.0	<1.0	<0.025	<0.0050	<0.0050	<0.0050	<0.0050
SB-2, 10'	<1.0	<1.0	<0.025	<0.0050	<0.0050	<0.0050	<0.0050
SB-2, 20'	1.8	19	0.11	<0.0050	<0.0050	<0.0050	<0.0050
SB-3, 10'	<1.0	<1.0	<0.025	<0.0050	<0.0050	<0.0050	<0.0050
SB-3, 25'	11	300	0.069	0.0051	0.18	<0.0050	0.013
SB-3, 35'	<1.0	<1.0	<0.025	<0.0050	<0.0050	<0.0050	<0.0050
SB-4, 10'	<1.0	1.8	0.031	<0.0050	<0.0050	<0.0050	<0.0050
SB-4, 25'	<1.0	<1.0	<0.025	<0.0050	<0.0050	<0.0050	<0.0050
Ground Water Sample (in milligrams per liter):							
SB-2	0.47	4.9	0.37	0.017	0.0024	<0.0010	0.0011

Abbreviations/Notes:

TPHg = Total petroleum hydrocarbons as gasoline by modified EPA method 8015.

TPHd = Total petroleum hydrocarbons as diesel by modified EPA method 8015.

MTBE = Methyl tert-butyl ether by EPA Method 8020.

Benzene, ethylbenzene, toluene, xylenes by EPA method 8020.

All samples collected on November 19, 1997.

CAMBRIA

**Table 1. Soil Boring Analytic Data - Shell-branded Service Station - Incident # 98995328,
11989 Dublin Boulevard, Dublin, California**

Sample ID	Depth	TPPH	TEPH	MTBE	Benzene	Toluene	Ethylbenzene	Xylenes
		←----- (ppm) -----→						
MW-1 (5.0)	5.0'	<0.40	<5.0	<0.0020	<0.0020	<0.0020	<0.0040	<0.01
MW-1 (10.0)	10.0'	<0.40	<5.0	<0.0020	<0.0020	<0.0020	<0.0040	<0.01
MW-1 (15.0)	15.0'	<0.40	<5.0	<0.0020	<0.0020	<0.0020	<0.0040	<0.01
MW-1 (20.0)	20.0'	<0.40	<5.0	<0.0020	<0.0020	<0.0020	<0.0040	<0.01
MW-2-10.5	10.5'	<0.80	<5.0	<0.020	<0.0040	<0.0040	<0.0040	<0.0080
MW-2-15.5	15.5'	<0.80	<5.0	<0.020	<0.0040	<0.0040	<0.0040	<0.0080
MW-2-20.5	20.5'	<0.80	<5.0	<0.020	<0.0040	<0.0040	<0.0040	<0.0080
MW-2-25.5	25.5'	<0.80	103	1.28 (1.14)	<0.0040	<0.0040	<0.0040	<0.0080
MW-2-30.5	30.5'	<0.80	<5.0	1.76 (0.90)	<0.0040	<0.0040	<0.0040	<0.0080
MW-3-10.5	10.5'	<0.80	<5.0	<0.020	<0.0040	<0.0040	<0.0040	<0.0080
MW-3-15.5	15.5'	<0.80	<5.0	<0.020	<0.0040	<0.0040	<0.0040	<0.0080
MW-3-20.5	20.5'	<0.80	<5.0	<0.020	<0.0040	<0.0040	<0.0040	<0.0080
MW-3-25.5	25.5'	4.1	35.2	0.0597	<0.0040	<0.0040	<0.0040	<0.0080
MW-3-30.5	30.5'	1.39	<5.0	0.063 (0.0622)	<0.0040	<0.0040	<0.0040	<0.0080

Abbreviations and Notes:

TPPH = Total purgeable petroleum hydrocarbons as gasoline by modified EPA Method 8015

TEPH = Total extractable petroleum hydrocarbons as diesel by modified EPA Method 8015

Benzene, toluene, ethylbenzene, and total xylenes by EPA Method 8020

MTBE = Methyl tert-butyl ether by EPA Method 8020. Result in parentheses indicates MTBE by EPA Method 8260

ppm = parts per million

All samples collected on June 8 and 9, 1999

<n = Below detection limit of n ppm

CAMBRIA

Table 1. Soil Boring Analytic Data - Shell-branded Service Station - WIC# 204-2277-0204, 11989 Dublin Boulevard, Dublin, California

Sample ID	TPPH	TEPH	MTBE	Benzene	Toluene	Ethylbenzene	Xylenes
	(Concentrations reported in milligrams per kilogram)						
August 5, 1998 Samples:							
SB-1 (5')	<1.0	13	<0.025	<0.0050	<0.0050	<0.0050	<0.0050
SB-1 (10')	<1.0	2.4	<0.025	<0.0050	<0.0050	<0.0050	<0.0050
SB-1 (15')	<1.0	1.6	0.074	<0.0050	<0.0050	<0.0050	<0.0050
SB-1 (20')	<1.0	<1.0	0.90	<0.0050	<0.0050	<0.0050	<0.0050
SB-1 (25')	46	120	1.4	<0.025	1.0	<0.025	0.052
SB-1 (30')	26	2.3	1.1	<0.025	0.35	0.037	0.093
SB-2 (5')	<1.0	3.2	<0.025	<0.0050	<0.0050	<0.0050	<0.0050
SB-2 (10')	<1.0	1.3	<0.025	<0.0050	<0.0050	<0.0050	<0.0050
SB-2 (15')	<1.0	<1.0	<0.025	<0.0050	<0.0050	<0.0050	<0.0050
SB-2 (20')	<1.0	<1.0	<0.025	<0.0050	<0.0050	<0.0050	<0.0050
SB-2 (25')	91	13	0.43	1.0	0.26	<0.025	0.22
SB-2 (30')	250	42	<0.50	2.8	0.72	<0.10	0.69

Abbreviations/Notes:

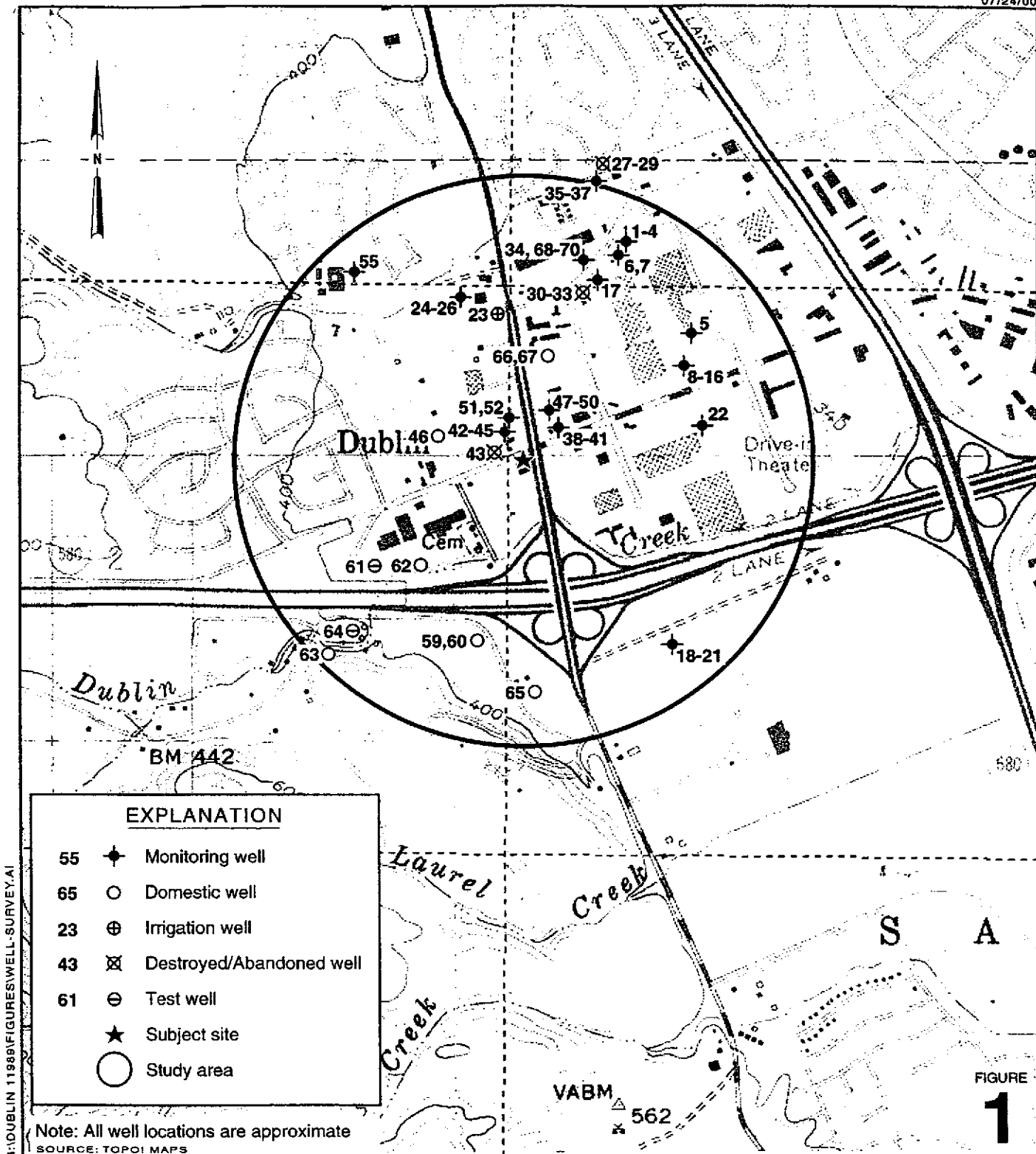
TPPH = Total purgable petroleum hydrocarbons as gasoline by modified EPA Method 8015.

TEPH = Total extractable petroleum hydrocarbons as diesel by modified EPA Method 8015.

Benzene, ethylbenzene, toluene, xylenes by EPA Method 8020.

MTBE = Methyl tert-butyl ether by EPA Method 8020. Parenthesis indicate confirmation analysis by EPA Method 8260

<n = Below detection limits for n milligrams per kilograms



EXPLANATION

- 55 ★ Monitoring well
- 65 ○ Domestic well
- 23 ⊕ Irrigation well
- 43 ⊗ Destroyed/Abandoned well
- 61 ⊖ Test well
- ★ Subject site
- Study area

Note: All well locations are approximate
SOURCE: TOPOI MAPS

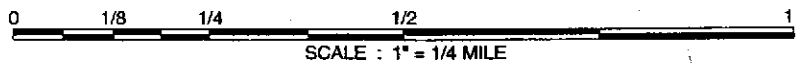


FIGURE
1

Shell-branded Service Station
 11989 Dublin Boulevard
 Dublin, California
 Incident #98995328



C A M B R I A

Area Well Survey

(1/2 Mile Radius)

Table 1. Well Survey Results - Shell-branded Service Station, 11989 Dublin Blvd. Dublin California. Incident # 98995328

LOCATION	Well ID	Installation Date	Owner	Use	Depth (fbg)	Screened Interval (fbg)	Sealed Interval (fbg)
Well Locations provided by the State of California Department of Water Resources							
1	01-488A	February 20, 1991	Target Stores Inc.	MON	20.5	5-20	0-3
2	01-488B	February 20, 1991	Target Stores Inc.	MON	20.5	5-20	0-3
3	01-488C	February 19, 1991	Target Stores Inc.	MON	20.5	5-20	0-3
4	01-488D	February 19, 1991	Target Stores Inc.	MON	23	5-20	0-3
5	01-217M	November 8, 2000	Montgomery Ward	DEST	18		
6	285520	June 13, 1991	Target Stores Inc.	MON	20	5-20	0-3
7	285529	September 19, 1991	Target Stores Inc.	MON	15	4.5-14.5	0-3
8	01-413R	January 11, 1989	Montgomery Ward	MON	21	6-21	0-5
9	01-413S	January 20, 1989	Montgomery Ward	MON	12.5	2-12.5	.1-2
10	01-413T	January 12, 1989	Montgomery Ward	MON	12.5	2-12.5	.1-2
11	01-413U	January 12, 1989	Montgomery Ward	MON	12.5	2-12.5	.1-2
12	01-413V	February 8, 1989	Montgomery Ward	MON	22	6.5-22	0-4
13	01-413W	December 2, 1988	Montgomery Ward	MON	26.5	10.5-26.5	0-9.5
14	01-413X	December 1, 1988	Montgomery Ward	MON	13.5	1-13.5	0-1
15	01-217N	August 15, 1989	Montgomery Ward	MON	23	8-23	0-6
16	01-217O	August 15, 1989	Montgomery Ward	MON	25	10-25	0-8
17	01-555R	December 13, 1993	Enea Plaza	MON	23	8-23	0-8
18	01-490H	May 10, 1991	Stoneridge Chrysler/Plymouth	MON	30	15-30	0-15
19	01-490I	May 10, 1991	Stoneridge Chrysler/Plymouth	MON	30	15-30	0-15
20	01-490J	May 11, 1991	Stoneridge Chrysler/Plymouth	MON	30	15-30	0-15
21	01-490K	May 11, 1991	Stoneridge Chrysler/Plymouth	MON	30	15-30	0-15
22	372623	November 20, 1991	Bedford Properties	MON	30	20-30	0-18
23	3S/1W-2B 1	December 13, 1950	R. Banke	IRR	200		
24	253972D	June 1, 1976	Zone 7 WaterAgency	MON	47	37-42	24-26
25	337044	July 27, 1990	Public Storage Inc.	DEST	80		

Table 1. Well Survey Results - Shell-branded Service Station, 11989 Dublin Blvd. Dublin California. Incident # 98995328

LOCATION	Well ID	Installation Date	Owner	Use	Depth (fbg)	Screened Interval (fbg)	Sealed Interval (fbg)
26	337045	July 27, 1990	Public Storage Inc.	DEST	60		
27	107240	August 7, 1992	Dougherty Regional Fire Authority	DEST	30		
28	107241	August 7, 1992	Dougherty Regional Fire Authority	DEST	30		
29	107242	August 7, 1992	Dougherty Regional Fire Authority	DEST	30		
30	412699A	April 3, 1996	Exxon Company, USA	DEST	25		
31	412699B	April 3, 1996	Exxon Company, USA	DEST	26		
32	412699C	April 3, 1996	Exxon Company, USA	DEST	28		
33	412699D	April 3, 1996	Exxon Company, USA	DEST	26		
34	471514	September 21, 1993	Chevron USA, Inc.	MON	18	3-18	0-2.5
35	425488	September 23, 1993	Dougherty Regional Fire Authority	MON	25	9-24	0-7
36	425486	September 22, 1993	Dougherty Regional Fire Authority	MON	26	10-25	0-8
37	425487	September 24, 1993	Dougherty Regional Fire Authority	MON	26	9-24	0-7
38	340308	March 27, 1990	Chevron USA, Inc.	MON	37	21-36	0-20
39	340307	March 26, 1990	Chevron USA, Inc.	MON	37	22-37	0-20
40	340306	March 26, 1990	Chevron USA, Inc.	MON	37.5	21-36	0-20
41	340305	March 28, 1990	Chevron USA, Inc.	MON	37.5	21-36	0-20
42	364661A	November 7, 1990	Unocal Corp.	MON	20	4-20	0-3
43	364661B	November 6, 1990	Unocal Corp.	MON	24	4-23	0-3
44	364661C	November 6, 1990	Unocal Corp.	MON	20	4-20	0-3
45	364661D	November 6, 1990	Unocal Corp.	MON	20	4-20	0-3
46	33973	July 5, 1979	Dublin Historical Society	DOM	110	60-110	0-30
47	423799	December 6, 1991	Chevron USA, Inc.	MON	35.5	15-35	0-14
48	482155A	November 25, 1992	Chevron USA, Inc.	MON	51.5	22.5-50	0-22
49	482155B	November 24, 1992	Chevron USA, Inc.	MON	31.5	25-30	0-23
50	482155C	November 25, 1992	Chevron USA, Inc.	MON	31.5	25-30	0-23
51	495421A	October 4, 1993	Unocal Corp.	MON	25	10-25	0-8

Table 1. Well Survey Results - Shell-branded Service Station, 11989 Dublin Blvd. Dublin California. Incident # 98995328

LOCATION	Well ID	Installation Date	Owner	Use	Depth (fbg)	Screened Interval (fbg)	Sealed Interval (fbg)
52	495421B	October 4, 1993	Unocal Corp.	MON	25	10-25	0-8
53	405163	September 15, 1992	US Geological Survey	MON	503		0-503
54	11746	November 19, 1948	DeLucci	DOM	72		
55	3S/1W-2B2		C.R. Nisen	UNK	33		
56	3S/1W-2K		C.R. Nisen	UNK	35		
57	107488	December 27, 1978	R.B. Furniture	DEST	57		
58	120078	September 25, 1975	Blank	DOM	150	50-150	0-50
59	3S/1W-2 SE		Joe Martin	UNK	204	84-96	
60	3S/1W-2 SE		Joe Martin	UNK	112	32-108	
61	62404	July 12, 1963	Volk-McLain Communities Inc.	TEST	568		0-568
62	62405	August 29, 1963	Volk-McLain Communities Inc.	DOM	593	189-517	0-82
63	162222	March 30, 1985	Walter Panganiban	DOM	400	40-400	0-20
64	162220	March 25, 1985	Walter Panganiban	TEST	300		
65	3S/1W-2 SW		Jim Nutt	UNK	80	30-50	
66	3S/1W-2	November 7, 1958	Roy Neidt	UNK	76	35-72	
67	24364		Coffee	DOM	44		

Notes and Abbreviations:

Location = Column number refers to map location on Figure 1.

Well ID = California State well identification number as recorded by the Department of Water Resources in Sacramento, California.

MON = Monitoring well

DEST = Destroyed well. (Wells do not have screens or seals)

IRR = Irrigation well.

DOM = Domestic well.

TEST = Test well (Wells do not have screens or seals)

UNK = Unknown or unspecified type of well