

ALAMEDA COUNTY
HEALTH CARE SERVICES



AGENCY
DAVID J. KEARS, Agency Director

ENVIRONMENTAL HEALTH SERVICES
ENVIRONMENTAL PROTECTION
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577
(510) 567-6700
FAX (510) 337-9335

May 6, 2003

Mr. Travis Bryant
Interstate Brands Corporation
1324 Arden Way
Sacramento, CA 95815

Dear Mr. Bryant:

Subject: Fuel Leak Site Case Closure for 945 53rd Street, Oakland, CA;
Case No. RO0000075

This letter transmits the enclosed underground storage tank (UST) case closure letter in accordance with Chapter 6.75 (Article 4, Section 25299.37[h]). The State Water Resources Control Board adopted this letter on February 20, 1997. As of March 1, 1997, the Alameda County Environmental Protection Division is required to 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 the subject site. The subject fuel leak case is closed.

SITE INVESTIGATION AND CLEANUP SUMMARY

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

- Up to 360ppm TPHg, 790 ppm TPHd, and 0.79 ppm benzene remain in soil beneath the site
- Up to 9,800 ppb TPHg and 58 ppb benzene remain in groundwater beneath the site

If you have any questions, please call Eva Chu at (510) 567-6762. Thank you.

Sincerely,

Donna L. Drogos, P.E.
Supervising Hazardous Materials Specialist
Underground Storage Tank Local Oversight Program

Enclosures:

1. Case Closure Letter
2. Case Closure Summary

cc: Ms. Betty Graham (w/enc)
Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

Mr. Toru Okamoto (w/enc)
Division of Clean Water Programs
Underground Storage Tank Cleanup Fund
State Water Resources Control Board
P.O. Box 944212
Sacramento, CA 94244-2120

Leroy Griffin
Oakland Fire Department - OES

Donna Drogos, eva chu, Database (w/enc)

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Interstate Brands Corporation
1324 Arden Way
Sacramento, CA 95815

Dear Mr. Bryant:

Subject: Fuel Leak Site Case Closure for 945 53rd Street, Oakland, CA;
Case No. RO0000075

This letter confirms the completion of a site investigation and remedial action for the underground storage tank(s) 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 tank(s) 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, this agency finds that the site investigation and corrective action carried out at your underground storage tank(s) site is in compliance with the requirements of subdivisions (a) and (b) of Section 25299.37 of the Health and Safety Code and with corrective action regulations adopted pursuant to Section 25299.77 of the Health and Safety Code and that no further action related to the petroleum release(s) at the site is required.

This notice is issued pursuant to subdivision (h) of Section 25299.37 of the Health and Safety Code.

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

Sincerely,

Mee Ling Tung, Director

Alameda County Environmental Health

**CASE CLOSURE SUMMARY
UNDERGROUND FUEL STORAGE TANK LOCAL OVERSIGHT PROGRAM**

CALIFORNIA REGIONAL WATER
 66
 FEB 26 2003
 Date: December 3, 2002

I. AGENCY INFORMATION

Agency Name: Alameda County Environmental Health	Address: 1131 Harbor Bay Parkway
City/State/Zip: Alameda, CA 94502	Phone: (510) 567-6700
Responsible Staff Person: Eva Chu	Title: Hazardous Materials Specialist

II. CASE INFORMATION

Alameda County Environmental Health
MAR 04 2003

Site Facility Name: Interstate Brands Corporation		
Site Facility Address: 945 53 rd Street, Oakland, CA 94609		
RB LUSTIS Case No.: --- <i>01-2463</i>	Local Case No.: StID 3928	LOP Case No.: RO0000075
URF Filing Date: 9/24/93	SWEEPS No.: ---	APN: 49-1173-3
Responsible Parties	Addresses	Phone Number
Interstate Brands Corp Andy Ratto	1324 Arden Way, Sacramento, CA 95815	(916) 561-0127

Tank I.D. No	Size in Gallons	Contents	Closed In Place/Removed?	Date
1	1000	Gasoline	Removed	12/22/92
2	8000	Diesel	Removed	12/22/92
3	200	Used Oil	Removed	12/22/92
Piping			Not reported	---

III. RELEASE AND SITE CHARACTERIZATION INFORMATION

Cause and Type of Release: Unknown cause of release of gasoline and diesel to subsurface		
Site characterization complete? Yes	Date Approved By Oversight Agency: ---	
Monitoring wells installed? Yes	Number: 3	Proper screened interval? Yes*
Highest GW Depth Below Ground Surface: 6.37'	Lowest Depth: 13.77'	Flow Direction: Southwest
Most Sensitive Current Use: Potential drinking water source (as defined by Groundwater Basin Plan)		

* MW-1 and MW-3 screened within the water table, MW-2 screen has been submerged by up to 4 feet.

Summary of Production Wells in Vicinity: No water supply wells identified within ¼ mile of the site.	
Are drinking water wells affected? No	Aquifer Name: East Bay Plain
Is surface water affected? No	Nearest SW Name: Temescal Creek, 90 feet SSW of former USTs
Off-Site Beneficial Use Impacts (Addresses/Locations): None	
Reports on file? Yes	Where are reports filed? Alameda County Environmental Health Oakland Fire Department – OES, 1605 Martin Luther King Jr Way, Oakland, CA 94612

TREATMENT AND DISPOSAL OF AFFECTED MATERIAL			
Material	Amount (Include Units)	Action (Treatment or Disposal w/Destination)	Date
Tank	3 USTs	Disposed by Erickson, Richmond, CA	Oct 1992
Piping	Not reported	Assumed disposed with USTs	---
Soil	100 cubic yards	Disposed at Forward LF, Manteca, CA	Oct 1993

MAXIMUM DOCUMENTED CONTAMINANT CONCENTRATIONS BEFORE AND AFTER CLEANUP (Please see Attachments for additional information on contaminant locations and concentrations)									
Contaminant	Soil (ppm)		Water (ppb)		Contaminant	Soil (ppm)		Water (ppb)	
	Before ¹	After ²	Before ³	After ⁴		Before ¹	After ²	Before ³	After ⁴
TPH (Gas)	360	360	39,000	9,800	Benzene	0.79	.79	1,000	58
TPH (Diesel)	790	790	2,500	<50	Toluene	0.14	1.4	2,000	130
TPH (Kerosene)	260	260	---	---	Ethyl Benzene	4.5	4.5	2,300	810
TPH (Motor Oil)	160	160	---	---	Xylene	21	21	15,000	2,900
Oil & Grease	270	270	5,900	5,900	MTBE (if not analyzed, explain below)	---	<.005	<30	<250 ⁶
Other: (8010/8270)	ND	---	---	---	Heavy Metals	97 ⁵	---	---	---

- 1 maximum soil concentration from tank pit, 12/92 or soil borings, 5/94.
 - 2 no overexcavation conducted at site
 - 3 maximum historic groundwater concentrations
 - 4 most recent groundwater sampling event, 8/99
 - 5 <1ppm Cd, 31ppm Cr, 5.1ppm Pb, 25ppm Ni, and 97ppm Zn
 - 6 Results from previous four quarters of groundwater monitoring events were <5ppb for MTBE
- ND Not Detected

Site History and Description of Corrective Actions:

The Site is currently a maintenance garage and warehouse facility for Interstate Brands Corporation. The site formerly consisted of a bakery thrift store and distribution center that was moved to a detached building in late 1992.

Three USTs in a common excavation were removed in December 1992. A total of 5 soil samples (TP-1 through TP-5) were collected beneath the USTs and a soil sample, D-1, was collected beneath the two dispensers. Low levels of petroleum hydrocarbons were noted in the soil samples collected beneath the USTs (up to 120ppm TPHk, 58ppm TPHmo, and low to ND levels of BTEX). The soil sample beneath the dispensers contained 790ppm TPHd. Groundwater was noted at 11.5 feet bgs in the tank pit. A grab groundwater sample (W-1) was also collected. Up to 2,900ppb TPHg and 540, 420, 20 and 220ppb BTEX, respectively, were in the water sample.

Site History continued...

In May 1994, three groundwater monitoring wells (MW-1 through MW-3) were installed at the site. Soil samples were collected from each soil boring for laboratory analysis. Boring MW-1 contained 360ppm TPHg, 260ppm TPHk, 140ppm TOG, and 0.79, 1.4, 4.5, and 21ppm BTEX, respectively, at 7 feet bgs. Two additional soil borings, Boring A and Boring B, were advanced in March 1999 to further delineate the extent of soil and groundwater contamination upgradient of the former tank excavation. Soil and grab groundwater samples collected from these borings did not contain elevated levels of TPH and BTEX constituents.

When borings were advanced in 1994 and 1999, groundwater was encountered at approximately 11 to 13.5 feet bgs and stabilized at 9 to 13 feet bgs. Sediments encountered consist mostly of clayey silt with varying amounts of sandy clayey silt or silty clayey sand. Groundwater flows generally to the southwest with a hydraulic gradient of approximately 0.05 feet/feet. The groundwater monitoring wells were monitored/sampled from May 1994 to March 1999. Only well MW-1 contains residual dissolved contamination. The contaminant concentrations appear to indicate a decreasing and/or stable trend. The plume appears to attenuate beyond well MW-3.

In December 2000, a tier 2 ASTM RBCA was prepared for the site, assuming an acceptable excess cancer risk value of 1×10^{-5} and a hazard index of 1 for non-carcinogens in a commercial scenario. BTEX were selected as the chemicals of concern. Site Specific Target Levels (SSTLs) were calculated for both clayey silt and sand sediments. Residual BTEX concentrations in groundwater (from March 1999 sampling event) did not exceed the calculated SSTLs for both sediment types for a commercial scenario. In January 2002, an addendum to the risk assessment was prepared to address human health risk in a residential scenario. Current BTEX concentrations in groundwater did not exceed the calculated SSTLs. Residual soil BTEX concentrations were also compared with Oakland's Tier 2 RBCA for sandy silts. Their respective SSTLs were not exceeded for soil volatilization to indoor air for a residential scenario. Residual TPH concentrations in soil and groundwater exceed RWQCB screening levels.

Temescal Creek appears to run across the southwest corner of the property. The creek most likely is within a concrete-lined conduit. Well MW-3 is the down-gradient well at the site and is closest to Temescal Creek. With the exception of two sampling events, groundwater from well MW-3 shows little or not detectable levels of fuel constituents. It is not anticipated that the plume will impact Temescal Creek.

IV. CLOSURE

Does completed corrective action protect existing beneficial uses per the Regional Board Basin Plan? Yes No		
Does completed corrective action protect potential beneficial uses per the Regional Board Basin Plan? Yes No		
Does corrective action protect public health for current land use? Alameda County Environmental Health staff does not make specific determinations concerning public health risk. However, based upon the information available in our files to date, it does not appear that the release would present a risk to human health, based upon current commercial land use and conditions.		
Site Management Requirements: A site safety plan must be prepared for construction workers in the event excavation/trenching is proposed in the vicinity of residual soil and groundwater contamination. Case closure for this fuel leak site granted for commercial land use on this property. If a change in land use to residential or other conservative scenario occurs at this property, Alameda County Environmental Health must be notified and the case needs to be re-evaluated.		
Should corrective action be reviewed if land use changes? Yes		
Monitoring Wells Decommissioned: No	Number Decommissioned: 0	Number Retained: 3
List Enforcement Actions Taken: None		
List Enforcement Actions Rescinded: None		

V. ADDITIONAL COMMENTS, DATA, ETC.

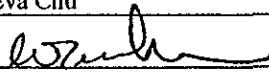
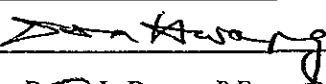
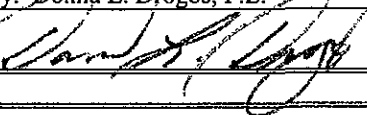
Considerations and/or Variances:

- Residual soil and groundwater pollution remains in place at this site.
- Analysis for heavier end petroleum hydrocarbons (O&G, TPH-mo, TPH-k) not performed in final groundwater monitoring event.
- Overexcavation of contaminated soil not performed.

Conclusion:


Alameda County Environmental Health staff believe that the levels of residual contamination do not pose a significant threat to water resources, public health and safety, and the environment under the current commercial land uses (maintenance garage and warehouse facility) based upon the information available in our files to date. Residual soil and groundwater contamination in vicinity of former USTs appears localized and attenuating. ACEH staff recommends closure for this site.

VI. LOCAL AGENCY REPRESENTATIVE DATA

Prepared by: Eva Chu	Title: Hazardous Materials Specialist
Signature: 	Date: 12/03/02
Reviewed by: Don Hwang	Title: Hazardous Materials Specialist
Signature: 	Date: 12/3/02
Approved by: Donna L. Drogos, P.E.	Title: Supervising Hazardous Materials Specialist
Signature: 	Date: 12/04/02

This closure approval is based upon the available information and with the provision that the information provided to this agency was accurate and representative of site conditions.

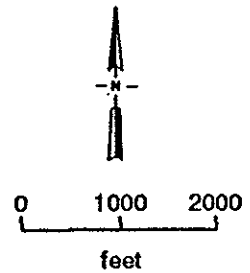
VII. REGIONAL BOARD NOTIFICATION

Regional Board Staff Name: Betty Graham	Title: Assoc. Water Resources Control Engineer
RB Response: Concur, based solely upon information contained in this case closure summary.	Date Submitted to RB: 12/6/02
Signature: 	Date: Feb 28, 2003

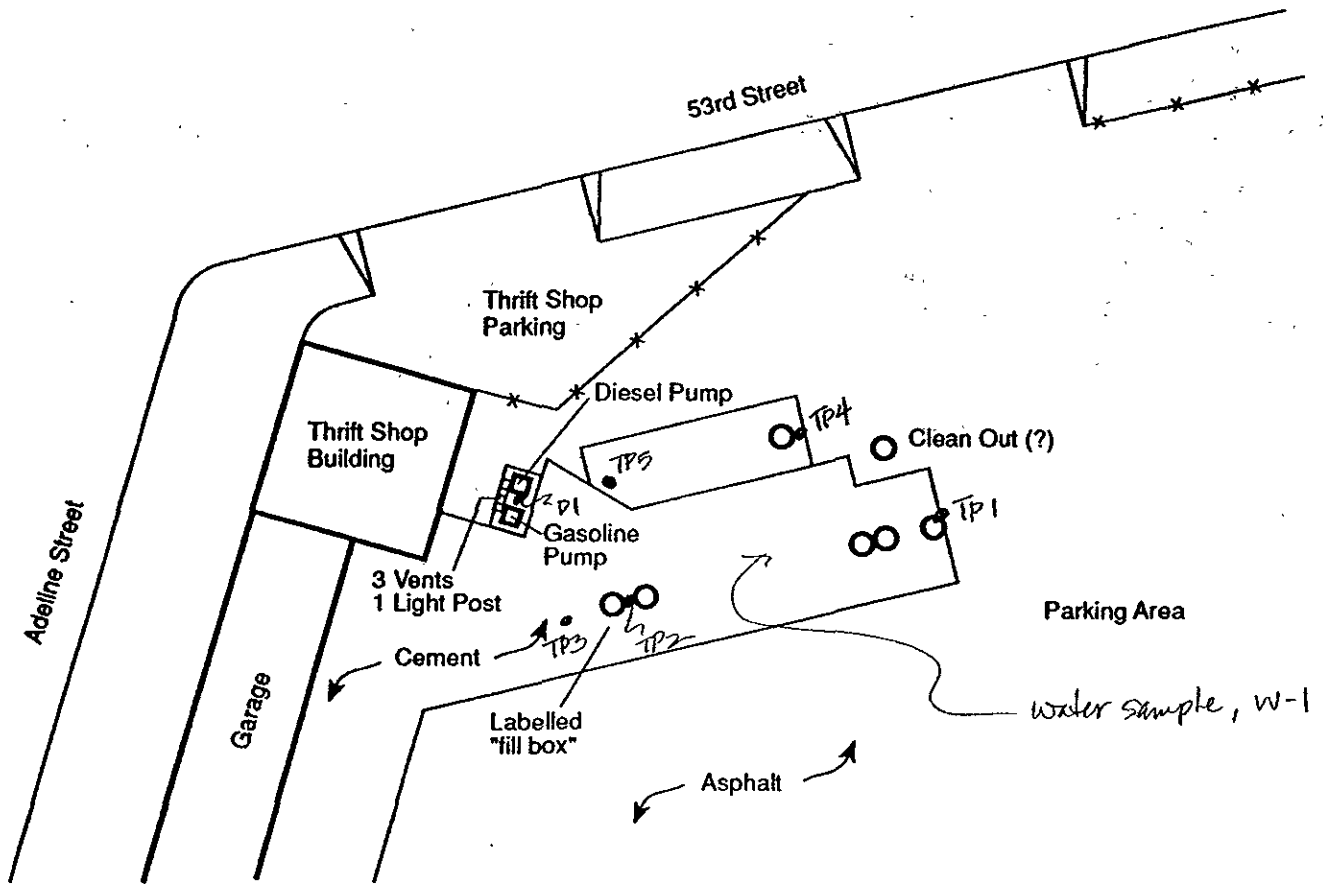
Attachments:

1. Site Vicinity Map
2. Site Plan
3. Groundwater Elevation Contours, Including Boring A and B
4. Site Plan with Temescal Creek
5. Soil Analytical Data (3 pp)
6. Supplemental Groundwater and Soil Analytical Data
7. Groundwater Monitoring Data (2 pp)
8. Soil Physical Property and SSTL Summary (RBCA Tier 2 Analysis)
9. Estimated Residential SSTL
10. Boring Logs (5 pp)

This document and the related CASE CLOSURE LETTER, shall be retained by the lead agency as part of the official site file.



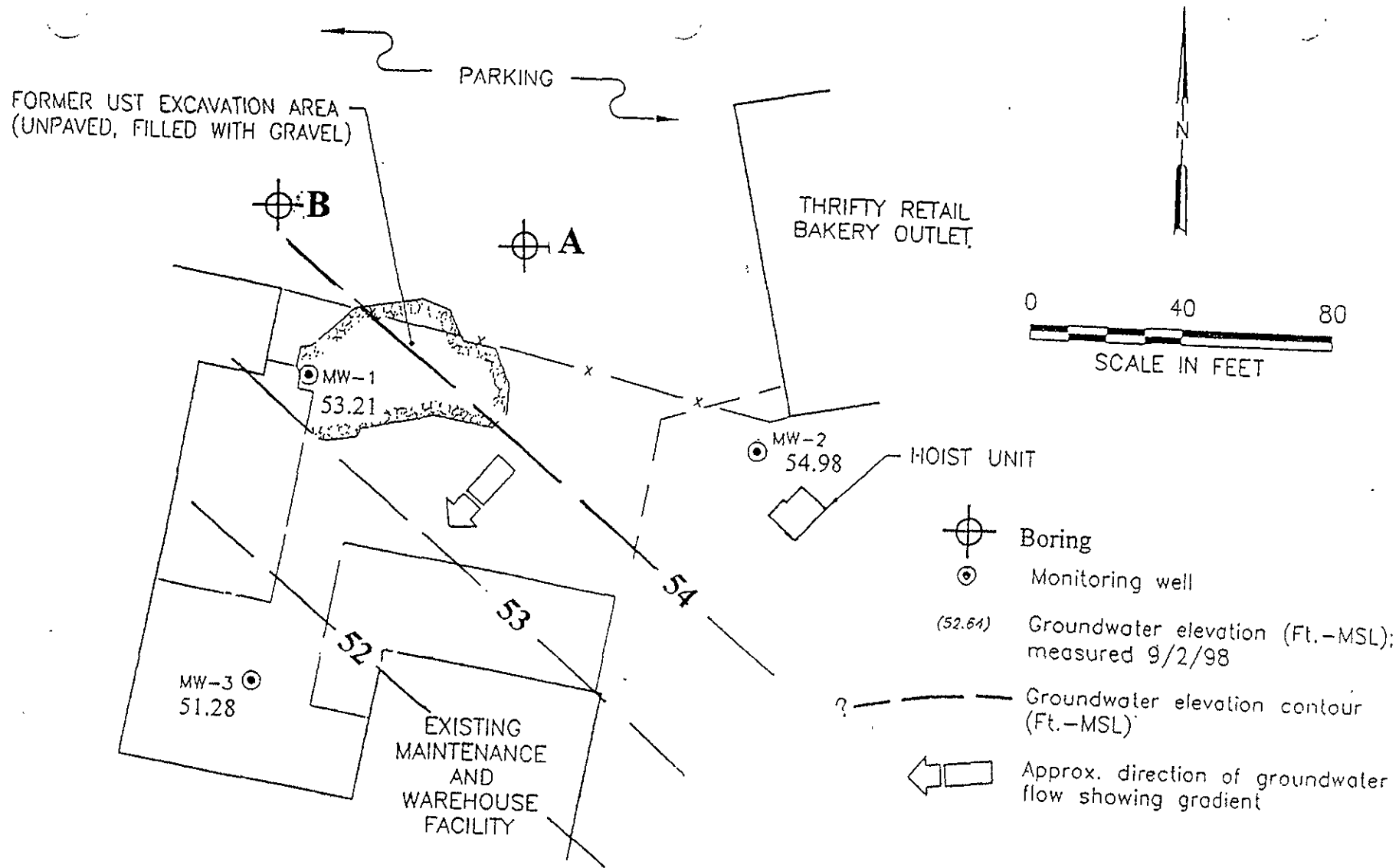
Project No. 92CB040	Continental Baking Company 1040 46th Street 945-5354	SITE LOCATION	Figure 1
Woodward-Clyde Consultants			



Project No. 92CB040	Continental Baking Company 1010 46th Street 945-53rd St. Emeryville, California Oakland, CA	UNDERGROUND STORAGE TANK LOCATIONS	Figure 3
Woodward-Clyde Consultants			

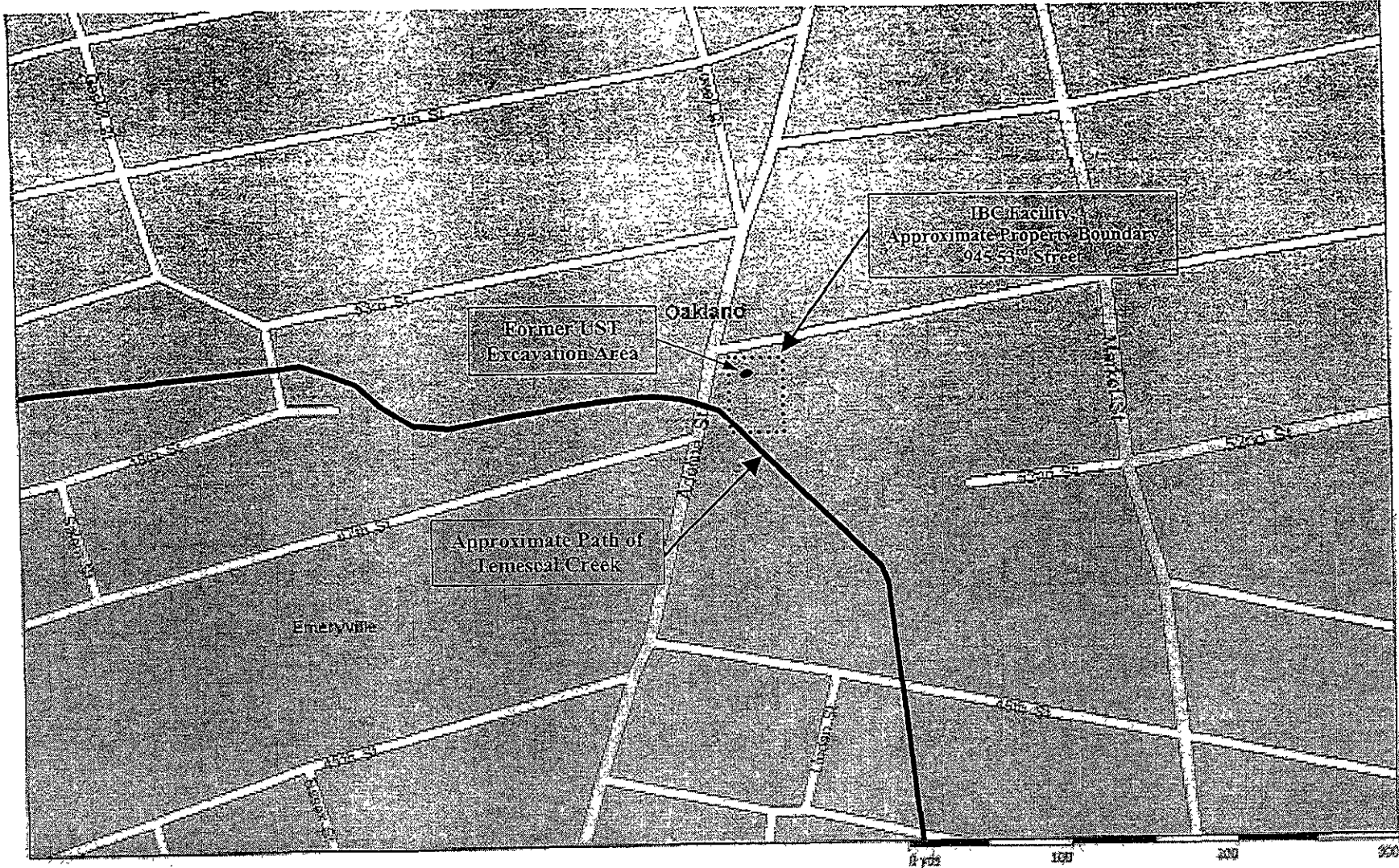
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SITE PLAN



Project No. 41-07099010 00	IBC 945 53rd Street, Oakland California	GROUNDWATER ELEVATION CONTOURS	Figure 1
URS GREINER WOODWARD-CLYDE			

(Source: URS/Greiner Woodward Clyde Report dated April 20, 1999)



Blankinship & Associates, Inc.

Agricultural & Environmental
 Engineers & Scientists
 2940 Spafford Street
 Suite 130
 Davis, California 95616

Ph: (330) 757-0941 Fax: (330) 757-0940

**Approximate Underground Path of Temescal Creek in the
 Vicinity of the IBC Facility at 945 53rd Street, Oakland**

Project	IBC Oakland	Figure	1
Date	3/20/02		
Scale	As Shown		

TABLE 2

SUMMARY OF ANALYTICAL RESULTS OF TANK CLOSURE SAMPLES
 CONTINENTAL BAKING COMPANY
 (1010 46TH STREET) *945 53rd Street*
 OAKLAND, CALIFORNIA
 (Page 1 of 2)

Sample Location	Sample Depth (feet)	Collection Date	Modified EPA Method 8015/8020								418.1	8010	8270	7421	6010
			TPH-G	TPH-D	TPH-K	TPH-O	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	TRPH	Volatile Organics	Semi-Vol Organics	Total Lead	Metals
SOIL SAMPLES RESULTS (mg/kg, ppm)															
FTP-1	14	12/22/92	--	<1.00	<1.00	<10.0	<0.0062	<0.0062	<0.0062	<0.0062	} <i>1010 46th Street</i>	--	--	--	--
FTP-2	14	12/22/92	--	<1.00	<1.00	<10.0	<0.0062	<0.0062	<0.0062	<0.0062		--	--	--	--
TP-1	11.5	12/22/92	<1.0	--	--	--	<0.005	<0.005	<0.005	<0.005	--	--	--	4.8	--
TP-2	13	12/22/92	<1.0	--	--	--	<0.005	<0.005	<0.005	<0.005	--	--	--	5.1	--
TP-3	9	12/22/92	<1.0	<4.5 ¹	<1.00	<10.0	<0.005	<0.005	<0.005	<0.005	34	<0.04	ND ²	5.0	Note 3
TP-4	13	12/22/92	--	<1.00	<1.00	<10.0	<0.0062	<0.0062	<0.0062	<0.0062	--	--	--	--	--
TP-5	11	12/22/92	--	<1.00	120	58	<0.0062	0.014	0.092	0.034	--	--	--	--	--
D-1	4	12/22/92	<70 ⁴	790 ⁵	<4.0	<40	<0.02	<0.02	<0.02	<0.02	--	--	--	--	--

See following page for abbreviations and explanation of footnotes.

TABLE 2

SUMMARY OF ANALYTICAL RESULTS OF TANK CLOSURE SAMPLES

CONTINENTAL BAKING COMPANY

(1010 46TH STREET) 945-53rd Street

OAKLAND, CALIFORNIA

(Page 2 of 2)

Sample Location	Sample Depth (feet)	Collection Date	Modified EPA Method 8015/8020								418.1	8010	8270	7421	6010
			TPH-G	TPH-D	TPH-K	TPH-O	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	TRPH	Volatile Organics	Semi-Vol Organics	Total Lead	Metals
WATER SAMPLE RESULTS (mg/L, ppm)															
W-1	--	12/22/92	2.9 ⁶	<0.05	<0.05	<0.5	0.54	0.42	0.02	0.22	--	--	--	--	--

NOTES:

TPH-G Total Petroleum Hydrocarbons Quantified as Gasoline

TPH-D Total Petroleum Hydrocarbons Quantified as Diesel

TPH-K Total Petroleum Hydrocarbons Quantified as Kerosene

TPH-O Total Petroleum Hydrocarbons Quantified as Oil

TRPH Total Recoverable Petroleum Hydrocarbons

-- Denotes that the sample was not analyzed for the noted parameter

¹ Laboratory reported 4.5 mg/kg of "unknown hydrocarbon." WCC reviewed the chromatogram and the reported quantity is due to a single response peak. Although it occurred in the diesel range, the pattern did not conform to the diesel pattern. The detection limit has been adjusted to reflect the presence of the "unknown hydrocarbon."

² All analytes were not detected at/or above their respective reporting limits ranging from 0.33 to 1.6 mg/kg.

³ Sample was analyzed for select four metals by EPA 6010: [Cd] = <1.0 mg/kg; [Cr] = 31.0 mg/kg; [Ni] = 25 mg/kg; [Zn] = 97 mg/kg

⁴ The laboratory reported <4 mg/kg gasoline. However, the laboratory also reported 70 mg/kg of "unknown hydrocarbon." WCC reviewed the chromatogram and the reported quantity appears to be the more volatile portion of diesel eluting. The detection limit has been adjusted to reflect the presence of the "unknown hydrocarbon."

⁵ Reported as "unknown hydrocarbon" by the laboratory. WCC has interpreted the result as degraded diesel after having reviewed the chromatogram.

⁶ Reported as <0.5 mg/L. However, the laboratory reported 2.9 mg/kg of "unknown hydrocarbon." WCC has interpreted the result as degraded gasoline after having reviewed the chromatogram.



TABLE 3.
SOIL SAMPLES ANALYTICAL RESULTS SUMMARY
CBC - OAKLAND
92CB040
OAKLAND, CALIFORNIA

Sample ID (Depth, R)	TPH as Gasoline/BTEX (EPA Modified 8015/8020)				TPH as Diesel (EPA Modified 8015)			TRPH (EPA 5520 EF)	
	Benzene	Toluene	Ethylbenzene	Total Nylens	TPH as Gasoline	TPH as Kerosene	TPH as Diesel	TPH as Motor Oil	Oil and Grease
MW-1 (5)	ND	ND	0.29	1.7	49	64	ND	28	120
MW-1 (7)	0.79	1.4	4.5	21	360	260	ND	ND	140
MW-1 (10)	0.53	0.75	0.44	0.75	52	ND	ND	ND	ND
MW-2 (5)	ND	ND	ND	ND	ND	ND	ND	14	87
MW-2 (10)	ND	ND	ND	ND	ND	ND	ND	ND	53
MW-2 (12)	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-3 (6.5)	ND	ND	ND	ND	ND	ND	ND	35	110
MW-3 (10)	ND	ND	ND	ND	ND	ND	ND	160	270

Notes:

- (1) All results are in mg/kg.
 - (2) Samples analyzed by Incheape Testing Services, Anamatrix Laboratories, May 18-23, 1994
 - (3) Refer to laboratory reports for analytical laboratory reporting limits
- ND Not Detected

Woodward-Clyde

Table 1. Supplement to EMCON Groundwater Monitoring and Soil Analytical Data

IBC Oakland, CA

<u>Well</u>	<u>Matrix Type</u>	<u>Sample Date</u>	TPH Diesel <u>ug/L</u>	TPH Gas <u>ug/L</u>	Benzene <u>ug/L</u>	Toluene <u>ug/L</u>	Ethyl Benzene <u>ug/L</u>	Xylenes <u>ug/L</u>	MTBE <u>ug/L</u>
MW1	Water	3/23/99	<50	9800	58	130	810	2900	<250
MW2	Water	3/23/99	<50	<50	<0.5	<0.5	<0.5	<0.5	<0.5
MW3	Water	3/23/99	<50	<50	<0.5	<0.5	<0.5	<0.5	<0.5
Boring A	Water	3/9/99	<50	74	<0.5	1	<0.5	0.98	<0.5
Boring B	Water	3/9/99	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Boring A	Soil	3/9/99	<1	<1	<0.005	<0.005	<0.005	<0.005	<0.005
Boring B	Soil	3/9/99	<1	<1	<0.005	<0.005	<0.005	<0.005	<0.005

Notes:

Source: URS/Greiner Woodward Clyde Report dated April 20, 1999

Samples collected from Borings A and B at a depth of approximately 12 feet bgs.

Soil values in mg/Kg.

Table 1

Groundwater Monitoring Data
 Interstate Brands Corporation
 (1010 46th Street) 945 - 53rd Street
 Oakland, California

Well	Date	Top of Casing Elevation (feet)	Depth to Water (feet)	Groundwater Elevation (feet MSL*)	TPH Diesel (µg/L)	TPH Gasoline (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	Total Oil & Grease (mg/L)	MTBE (µg/L)			
MW-1	05/26/94	61.84	9.27	52.57	1,300	12,000	57	340	370	3,100	<5.0	NA			
MW-1	07/29/94	61.84	9.81	52.03	NA	NA	NA	NA	NA	NA	NA	NA			
MW-1	08/26/94	61.84	9.87	51.97	510/650 [1]	6,700/8,400	22/35	71/97	310/410	1,000/1,400	<5.0/<5.0	NA			
MW-1	10/04/94	61.84	9.89	51.95	NA	NA	NA	NA	NA	NA	NA	NA			
MW-1	10/27/94	61.84	9.94	51.90	NA	NA	NA	NA	NA	NA	NA	NA			
MW-1	11/30/94	61.84	8.92	52.92	1,300	29,000	480	1,100	1,200	5,300	<5.0	NA			
MW-1	01/03/95	61.84	8.79	53.05	NA	NA	NA	NA	NA	NA	NA	NA			
MW-1	01/31/95	61.84	8.33	53.51	NA	NA	NA	NA	NA	NA	NA	NA			
MW-1	03/16/95	61.84	8.07	53.77	1,900	29,000	140	1,400	1,800	9,700	<5.0	NA			
MW-1	06/12/95	61.84	9.02	52.82	810/540 [1]	3,900/11,000	23/280	57/610	200/400	680/2,000	<5.0/<5.0	NA			
MW-1	08/30/95	61.84	9.44	52.40	350 [1]	3,300	26	36	250	490	<5.0	NA			
MW-1	11/29/95	61.84	9.93	51.91	270	1,700	20	21	110	210	<5.0	NA			
MW-1	03/06/96	61.84	8.37	53.47	2,500/2,400 [1]	39,000/38,000	690/1,000	1,800/2,000	2,300/2,300	14,000/15,000	5.9	NA			
MW-1	07/08/96	61.84	9.10	52.74	670/580 [1]	3,000/2,600	89/9.5	79/85	140/120	350/270	NA	NA			
MW-1	04/04/97	61.84	9.14	52.70	1,400	3,500	13	27	190	410	NA	<30 [5]			
MW-1	09/23/97	61.84	9.15	52.69	260	2,100	13	11	200	220	NA	<5			
MW-1	03/30/98	61.84	8.73	53.11	-----Well inaccessible for sampling-----										
MW-1	09/02/98	61.84	9.20	52.64	280	1,400	7	7	90	120	NA	<12			
MW-2	05/26/94	63.10	9.30	53.80	<50/<50	<50/<50	<0.5/<0.5	<0.5/<0.5	<0.5/<0.5	<0.5/<0.5	<5.0	NA			
MW-2	07/29/94	63.10	9.70	53.40	NA	NA	NA	NA	NA	NA	NA	NA			
MW-2	08/26/94	63.10	9.89	53.21	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	NA			
MW-2	10/04/94	63.10	9.86	53.24	NA	NA	NA	NA	NA	NA	NA	NA			
MW-2	10/27/94	63.10	9.96	53.14	NA	NA	NA	NA	NA	NA	NA	NA			
MW-2	11/30/94	63.10	8.95	54.15	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	NA			
MW-2	01/03/95	63.10	8.15	54.95	NA	NA	NA	NA	NA	NA	NA	NA			
MW-2	01/31/95	63.10	6.96*	56.14	NA	NA	NA	NA	NA	NA	NA	NA			
MW-2	03/16/95	63.10	6.37*	56.73	<50/<50	<50/<50	<0.5/<0.5	<0.5/<0.5	<0.5/<0.5	<0.5/<0.5	<5.0	NA			
MW-2	06/12/95	63.10	9.07	54.03	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	NA			
MW-2	08/30/95	63.10	9.53	53.57	52 [3]	<50	<0.5	<0.5	<0.5	<0.5	<5.0	NA			
MW-2	11/29/95	63.10	9.74	53.36	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	NA			
MW-2	03/06/96	63.10	7.23	55.87	68 [4]	<50	<0.5	<0.5	<0.5	<0.5	<5.0	NA			
MW-2	07/08/96	63.10	8.84	54.26	<50	<50	<0.5	<0.5	<0.5	<0.5	NA	NA			
MW-2	04/04/97	63.10	8.70	54.40	<50	<50	<0.5	<0.5	<0.5	<0.5	NA	<3			

Table 1

Groundwater Monitoring Data
 Interstate Brands Corporation
 (1010 46th Street) 945-53rd Street
 Oakland, California

Well	Date	Top of Casing Elevation (feet)	Depth to Water (feet)	Groundwater Elevation (feet MSL*)	TPH Diesel (µg/L)	TPH Gasoline (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	Total Oil & Grease (mg/L)	MTBE (µg/L)
MW-2	09/23/97	63.10	9.18	53.92	<50	<50	<0.5	<0.5	<0.5	<0.5	NA	<5
MW-2	03/30/98	63.10	7.14	55.96	<50	<50	<0.5	<0.5	<0.5	<0.5	NA	<5
MW-2	09/02/98	63.10	9.37	53.73	<50	<50	<0.5	<0.5	<0.5	<0.5	NA	<3
MW-3	05/26/94	62.51	12.88	49.63	99	<50	<0.5	<0.5	<0.5	1.7	<5.0	NA
MW-3	07/29/94	62.51	13.61	48.90	NA	NA	NA	NA	NA	NA	NA	NA
MW-3	08/26/94	62.51	13.71	48.80	66 [2]	<50	<0.5	<0.5	<0.5	<0.5	<5.0	NA
MW-3	10/04/94	62.51	13.74	48.77	NA	NA	NA	NA	NA	NA	NA	NA
MW-3	10/27/94	62.51	13.77	48.74	NA	NA	NA	NA	NA	NA	NA	NA
MW-3	11/30/94	62.51	11.85	50.66	78/85	100/100	<0.5/1.9	<0.5/<0.5	<0.5/1.0	2.1/4.3	<5.0	NA
MW-3	01/03/95	62.51	12.09	50.42	NA	NA	NA	NA	NA	NA	NA	NA
MW-3	01/31/95	62.51	10.64	51.87	NA	NA	NA	NA	NA	NA	NA	NA
MW-3	03/16/95	62.51	10.79	51.72	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	NA
MW-3	06/12/95	62.51	12.05	50.46	120 [2]	<50	<0.5	<0.5	<0.5	<0.5	<5.0	NA
MW-3	08/30/95	62.51	13.54	48.97	88/57 [3]	<50/<50	<0.5/<0.5	<0.5/<0.5	<0.5/<0.5	<0.5/<0.5	<5.0/<5.0	NA
MW-3	11/29/95	62.51	13.72	48.79	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	NA
MW-3	03/06/96	62.51	10.78	51.73	140 [3]	<50	<0.5	<0.5	<0.5	<0.5	<5.0	NA
MW-3	07/08/96	62.51	13.39	49.12	<50	<50	<0.5	<0.5	<0.5	<0.5	NA	NA
MW-3	04/04/97	62.51	13.23	49.28	<50	<50	<0.5	<0.5	<0.5	<0.5	NA	<3
MW-3	09/23/97	62.51	13.35	49.16	<50	<50	<0.5	<0.5	<0.5	<0.5	NA	<5
MW-3	03/30/98	62.51	12.16	50.35	75	<50	<0.5	<0.5	<0.5	0.64	NA	<5
MW-3	09/02/98	62.51	13.19	49.32	<50	<50	<0.5	<0.5	<0.5	<0.5	NA	<3

Table 5. Soil Physical Property and Site Specific Target Level (SSTL) Summary

**RBCA Tier 2 Analysis
IBC Oakland, CA**

Clayey Silt

Sand

Clayey Silt Physical Properties

Physical Property	Vadose Zone	Capillary Zone
Total porosity (unitless)	0.36	
Volumetric water content (unitless)	0.24	0.324
Volumetric air content (unitless)	0.12	0.036
Dry bulk density (Kg/L)	1.7	
Vertical hydraulic conductivity (ft/day)	2.8E-2	
Vapor permeability (ft ²)	1.1E-14	
Capillary zone thickness (ft)	8.9E-1	

Note: Values from Appendix B, Page B-7.

Sand Physical Properties

Physical Property	Vadose Zone	Capillary Zone
Total porosity (unitless)	0.41	
Volumetric water content (unitless)	0.08	0.369
Volumetric air content (unitless)	0.33	0.041
Dry bulk density (Kg/L)	1.7	
Vertical hydraulic conductivity (ft/day)	2.8E+1	
Vapor permeability (ft ²)	1.1E-11	
Capillary zone thickness (ft)	1.6E-1	

Note: Values from Appendix B, Page B-7. 0% Organic Carbon value used.

Clayey Silt Groundwater SSTLs (mg/L)

PATHWAY	Groundwater Volatilization to Indoor Air	Groundwater Volatilization to Outdoor Air
LOCATION (Distance from Source, ft.)	0	
LAND USE	Commercial	Commercial
CHEMICAL		
Benzene	8.9E-1	1.7E+2
Toluene	3.6E+2	>5.2E+2
Ethylbenzene	>1.7E+2	>1.7E+2
Xylene (mixed isomers)	>2.0E+2	>2.0E+2
Methyl t-Butyl ether	7.9E+3	>4.8E+4

Sand Groundwater SSTLs (mg/L)

PATHWAY	Groundwater Volatilization to Indoor Air	Groundwater Volatilization to Outdoor Air
LOCATION (Distance from Source, ft.)	0	
LAND USE	Commercial	Commercial
CHEMICAL		
Benzene	1.9E-1	2.2E+1
Toluene	7.8E+1	>5.2E+2
Ethylbenzene	>1.7E+2	>1.7E+2
Xylene (mixed isomers)	>2.0E+2	>2.0E+2
Methyl t-Butyl ether	3.5E+3	>4.8E+4

Estimated Residential Site-Specific Target Level (SSTL) Summary and Comparison to Latest Groundwater Data, IBC, Oakland, CA

Chemical	Pathway →	SSTL for Groundwater Volatilization to Indoor Air (mg/L)	SSTL for Groundwater Volatilization to Outdoor Air (mg/L)	Latest Groundwater Data from March 23, 1999 (mg/L)
Benzene		0.21		
Toluene		100	100	0.058
Ethylbenzene		>170	>520	0.13
Xylene (mixed isomers)		>200	>170	0.81
Methyl t-Butyl ether		2300	>200	2.9
			>48000	<0.250

Project: CBC - Oakland
 Project Location: Oakland, California
 Project Number: 92CB040

Log of Boring MW-1

Sheet 1 of 1

Date(s) Drilled	5/16/94	Total Depth Drilled (feet)	21.5	Top of Casing Elevation (feet)	61.84 MSL	Groundwater Level (feet)	▽ 11	Completion	▽	24 Hours	9.27		
Logged by	L. Autie	Checked by		Diameter of Hole (inches)	7 1/8	Diameter of Well (inches)	4	Number of Samples		Disturbed	0	Undisturbed	5
Drilling Company	Kvilhaug Drilling			Drilling Method	Hollow Stem Auger			Drill Rig Type	B-53				
Sampler Type	Mod. CA - Split Spoon			Drill Bit Size/Type				Type of Well Casing	4-inch PVC Schedule 40				
Screen Perforation	0.020" Slot (5' - 20')			Type of Sand Pack	#2/12 Sand (4' - 20')								
Type of Seals	Bentonite (3' - 4')			Grout (0' - 3')									
Comments	Located in former tank area next to bldg.												

Depth, feet	Elevation, feet	SAMPLES			USCS Classification	Graphic Log	MATERIAL DESCRIPTION	Well Completion Log	OVA (ppm)	REMARKS
		Type	Number	Blows/foot						
0					FILL					
60						SILT (FILL MATERIAL) Dark brown, damp, soft				
						Gravels to 1" in diameter				
5										Rock in Shoe No Recovery
			6 9 15							
55					ML	CLAYEY SILT Blue green mottled, slightly moist to moist, some coarse sand			110	50% Recovery
			5 9 10			more sand, slightly moist	▽			
10							▽		870	
			3 11 15							
50										
15					SM-ML	SANDY CLAYEY SILT Light yellow brown, coarse to very coarse sand, 6" at top, grades to more silty			> 1000	
			4 4 5							
45										
20										
			3 4 5							
40										

Project: CBC - Oakland
 Project Location: Oakland, California
 Project Number: 92CB040

Log of Boring MW-2

Sheet 1 of 1

Date(s) Drilled	5/11/94	Total Depth Drilled (feet)	21.5	Top of Casing Elevation (feet)	63.10 MSL	Groundwater Level (feet)	▽ 12	Completion	▽	24 Hours	9.30	
Logged by	L. Autle	Checked by		Diameter of Hole (inches)	7 1/8	Diameter of Well (inches)	4	Number of Samples	Disturbed	0	Undisturbed	6
Drilling Company	Kvilhaug Drilling			Drilling Method	Hollow Stem Auger			Drill Rig Type	B-53			
Sampler Type	Mod. CA - Split Spoon			Drill Bit Size/Type				Type of Well Casing	4-inch PVC Schedule 40			
Screen Perforation	0.020" Slot (10' - 20')			Type of Sand Pack	#2/12 Sand (8' - 20')							
Type of Seals	Bentonite (6' - 8')			Grout (0' - 6')								
Comments	Located upgradient from the former tank form											

Depth, feet	Elevation, feet	SAMPLES			USCS Classification	Graphic Log	MATERIAL DESCRIPTION	Well Completion Log	OVA (ppm)	REMARKS
		Type	Number	Blows/foot						
0					ML	--- SILTY CLAY / CLAYEY SILT Brown				
5			4 7 10		ML	CLAYEY SILT Mottled tan and yellow, slightly moist, moderately dense, some coarse to fine sand		2	50% Recovery	
10			3 6 12				▽	-2	Final Water Before Development 5/12/94	
15			3 4 5			grades to moist	▽	2		
20			2 3 5			very wet		1		
21.5			3 4 5							



Project: CBC - Oakland
 Project Location: Oakland, California
 Project Number: 92CB040

Log of Boring MW-3

Sheet 1 of 1

Date(s) Drilled	5/11/94	Total Depth Drilled (feet)	22.0	Top of Casing Elevation (feet)	62.51 MSL	Groundwater Level (feet)	First 13.5	Completion	24 Hours 12.88
Logged by	L. Autle'	Checked by		Diameter of Hole (inches)	7 1/8	Diameter of Well (inches)	4	Number of Samples	Disturbed 0 Undisturbed 5
Drilling Company	Kvillhaug Drilling			Drilling Method	Hollow Stem Auger		Drill Rig Type	B-53	
Sampler Type	Mod. CA - Split Spoon			Drill Bit Size/Type			Type of Well Casing	4-inch PVC Schedule 40	
Screen Perforation	0.020" Slot (10' - 20')			Type of Sand Pack	#2/12 Sand (8' - 21')				
Type of Seals	Bentonite (6' - 8')			Grout (0' - 6')					
Comments	Located in the corner of the bldg.								

Depth, feet	Elevation, feet	SAMPLES			USCS Classification	Graphic Log	MATERIAL DESCRIPTION	Well Completion Log	OVA (ppm)	REMARKS
		Type	Number	Blows/foot						
0					CL					
						SILTY CLAY Brown with some yellow, some sand, moist				
-60										
5						CLAY (organic) Black blue, some pebbles, moist, soft				
			3							
			4							
			4							
			6							
-55			6		SM-ML	SILTY SAND / SANDY SILT and CLAY Yellow brown, fine sand, very moist			3	
			7							
10					CL	SILTY CLAY Blue mottled, very soft, moist				
			2							
			2							
			3			Grades to black, very moist			6	
50										
			1							
			1			Some pebbles up to 1/4" in diameter, some coarse sand, high organic particles			86	
			1							
15					SM	SILTY CLAYEY SAND Black-green, gravels up to 1/2" in diameter, very wet, soft			48	Hydrocarbon Odor Present
			2							
			1							
			1							
45										
			3							
			5		ML	CLAYEY SILT Yellow brown, medium dense, some sand, moist			38	
			11							
20										

IBC, Oakland, California

BORING LOCATION: 945 53rd Street, Oakland			GROUND SURFACE ELEVATION (ft): 62 (approx) TOP OF WELL CASING ELEVATION (ft): N/A		
DRILLING AGENCY	Precision Sampling	DRILLER	DATE STARTED: 3/9/99 DATE FINISHED: 3/9/99		
DRILLING EQUIPMENT	Envirocore	COMPLETION DEPTHS		BORING: 25.0 (ft) WELL: N/A (ft)	
DRILLING METHOD	Continuous Sample	DRILL BIT 2-1/4 in	SAMPLING METHOD: Bottles and Polycarbonate Tubes, Teflon Tape and Endcaps		
SIZE AND TYPE OF CASING	Temporary 3/4"-dia. screened PVC Used for Water Sampling		NUMBER OF SAMPLES	SOIL.: 1	GROUNDWATER: 1
TYPE OF PERFORATION	0.010 inch	FROM 15' TO 25'	WATER DEPTH (ft)	FIRST: N/A	COMPL.: 24 hr.: N/A
SIZE AND TYPE OF PACK	N/A	FROM N/A TO N/A	LOGGED BY	A.Giangerelli	CHECKED BY A.Ridley

TYPE OF SEAL	TYPE		FR	TO	TYPE		FR	TO
	No. 1: Portland Cement/Bentonite Mix		0	25'	No. 3: N/A		N/A	N/A
	No. 2: N/A		N/A	N/A	No. 4: N/A		N/A	N/A

LOG OF BORING A

(Sheet 1 of 1)

DEPTH (feet)	SOIL GRAPHIC	MATERIAL DESCRIPTION	ELEVATION (feet) (approx)	WELL GRAPHIC	OVM Reading (soil), ppm	OVM Reading (airspace), ppft	WATER LEVEL	DEPTH (feet)	SAMPLES			INDEX PROPERTIES				NOTES
									NUMBER	TIME	SAMPLED	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	UNCONFINED COMPRESSIVE STRENGTH (psf)		
0		Clayey SAND (SC) with gravel Moist, gray	60													Start: 1515
5			55													
10		Damp, greenish gray	50						1	1550	IBC-S-3-9-A					
15		Wet, brownish colored, increase in clay content, larger gravel size	45													Water Table
20		Silty SAND (SM) Brown, wet, sand content increases with depth	40													Water sample collected at 1655
25		Clayey SAND (SC) with gravel Becomes wet with depth	35													End: 1730 Grouted Boring
30			30													
35																

IBC, Oakland, California

BORING LOCATION: 945 53rd Street, Oakland			GROUND SURFACE ELEVATION (ft): 62 (approx) TOP OF WELL CASING ELEVATION (ft): N/A		
DRILLING AGENCY	Precision Sampling	DRILLER	DATE STARTED: 3/9/99 DATE FINISHED: 3/9/99		
DRILLING EQUIPMENT	Envirocore	COMPLETION BORING: 31.0 (ft) WELL: N/A (ft)			DEPTHS
DRILLING METHOD	Continuous Sample	DRILL BIT 2-1/4 in	SAMPLING METHOD: Bottles and Polycarbonate Tubes, Teflon Tape and Endcaps		
SIZE AND TYPE OF CASING	Temporary 3/4"-dia. screened PVC Used for Water Sampling			NUMBER OF SAMPLES	SOIL.: 1 GROUNDWATER: 1
TYPE OF PERFORATION	0.010 inch	FROM 21' TO 31'	WATER DEPTH (ft)	FIRST: N/A	COMPL.: 28 24 hr.: N/A
SIZE AND TYPE OF PACK	N/A	FROM N/A TO N/A	LOGGED BY	A.Giangerelli	CHECKED BY A.Ridley

TYPE OF SEAL	TYPE		FR	TO	TYPE		FR	TO	LOG OF BORING B (Sheet 1 of 1)
	No. 1: Portland Cement/Bentonite Mix		0	31'	No. 3: N/A		N/A	N/A	
	No. 2: N/A		N/A	N/A	No. 4: N/A		N/A	N/A	

DEPTH (feet)	SOIL GRAPHIC	MATERIAL DESCRIPTION	ELEVATION (feet) (approx)	WELL GRAPHIC	OVM Reading (soil), ppm	OVM Reading (airspace), ppit	WATER LEVEL	DEPTH (feet)	SAMPLES			INDEX PROPERTIES			NOTES		
									NUMBER	TYPE	TIME SAMPLED	SAMPLE ID	MOISTURE CONTENT (%)	DRY DENSITY (pcf)		UNCONFINED COMPRESSIVE STRENGTH (psf)	
0		Clayey SAND (SC) with gravel Moist, brown	60												Start: 1710		
5																	
10		Wet outside the tube at 10 feet															
15		Becoming wet								1	1800	IBC-S-3-9-B				Drilled directly to 25'	
20																Water sample collected at 1900 to 1915	
25																	
30		Wet															
31			BOTTOM OF BORING AT 31 FEET	30													Grouted Boring End: 1955