ALAMEDA COUNTY
HEALTH CARE SERVICES
AGENCY
DAVID J. KEARS, Agency Director

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

REMEDIAL ACTION COMPLETION CERTIFICATION

October 18, 1996

Richard K. Young et al.
c/o Melvin S. Gerton
829 Redwood Rd
Danville CA 94506

William & Judith McDonald et al.
1700 -150th Ave
San Leandro CA 94578

Dear Mr. Gerton and Mr. and Mrs. McDonald:

UNDERGROUND STORAGE TANK (UST) CASE
Former Parkers' Shell
5293 Crow Canyon Rd
Castro Valley CA 94552
SITE NO. 4439

This letter confirms the completion of site investigation and remedial action for the underground storage tanks formerly located at the above-described location. Enclosed is the Case Closure Summary for the referenced site for your records.

Based upon the available information, including the current land use, and with the provision that the information provided to this agency was accurate and representative of site conditions, no further action related to the underground storage tank release is required.

This notice is issued pursuant to a regulation contained in Title 23, California Code of Regulations, Division 3, Chapter 16, Section 2721 (e). If a change in land use, structural configuration, or site activities are proposed such that more conservative exposure scenarios should be evaluated, the owner must promptly notify this agency.

Please telephone Amy Leech at (510)567-6700 if you have any questions regarding this matter.

Sincerely,

Mee Ling Tung, Director of Environmental Health Services

ATTACHMENT

c: Robert Kuenning, 600 McCormick St., San Leandro CA 94577 w/attachment
Kevin Graves, RWQCB
Lori Casias, SWRCB w/attachment
Acting Chief of Environmental Protection Division
Files(ALL)

FILE COPY

CASE CLOSURE SUMMARY
Leaking Underground Fuel Storage Tank Program

Reopened/Revised on 07/10/97

I. AGENCY INFORMATION

Agency name: **Alameda County-HazMat**
Date:City/State/Zip: **Alameda, CA 94502**
Responsible staff person: **Amy Leech**
Date: **August 12, 1996** → Revised
Address: **1131 Harbor Bay Pkwy**
Phone: **(510) 567-6700**
Title: **Hazardous Materials Spec.**

II. CASE INFORMATION

Site facility name: **Former Parkers' Shell**
Site facility address: **5293 Crow Canyon Rd., Castro Valley, CA 94552**
RB LUSTIS Case No: **N/A**
Local Case No./LOP Case No.: **4439**
URF filing date: **05/10/89**
SWEEPS No: **N/A**

Responsible Parties:	Address:	Phone Numbers:
Richard K. Young et al. c/o Melvin S. Gerton	829 Redwood Rd Danville CA 94506	
William & Judith McDonald et al.	1700 -150th Ave San Leandro CA 94578	

Tank No:	Size in gal.:	Contents:	Closed in-place or removed?:	Date:
1	10,000	gasoline	removed	02/10/89
2	10,000	"	"	"
3	10,000	"	"	"
4	550	waste oil	"	"

III. RELEASE AND SITE CHARACTERIZATION INFORMATION

Cause and type of release: **Unknown**

Site characterization complete? **Yes**
Date approved by oversight agency: **08/09/96**

Monitoring Wells installed? **Yes** Number: **5**

Proper screened interval? **Not certain**

Highest GW depth below ground surface: **7.24 ft** Lowest depth: **16.33 ft**

Flow direction: **South and Southwest**

Most sensitive current use: **Vacant lot**

Are drinking water wells affected? **No** Aquifer name: **N/A**

Is surface water affected? **No** Nearest affected SW name:**N/A**

Off-site beneficial use impacts (addresses/locations): **Not Known**

Report(s) on file? **YES** Where is report(s) filed?
Alameda County, 1131 Harbor Bay Pkwy, Alameda, CA 94502

III. RELEASE AND SITE CHARACTERIZATION INFORMATION (cont'd)

Treatment and Disposal of Affected Material:

Material	Amount (include units)	Action (Treatment or Disposal w/destination)	Date
USTs	3-10,000 gallons	Erickson Inc.	02/10/89
	1- 550 gallons	255 Parr Blvd, Richmond CA	

Maximum Documented Contaminant Concentrations - - Before and After Cleanup

Contaminant	Soil (ppm)		Water (ppb)	
	Before	After	Before	After
TPH (Gasoline)	980[1]	NT	ND	ND
TPH (Diesel)	20[2]	"	ND	ND
Benzene	4.3[3]	"	ND	ND
Toluene	17[3]	"	ND	ND
Ethylbenzene	75[3]	"	ND	ND
Xylene	35[3]	"	ND	ND
Oil & Grease	35[4]	see comments below	ND	ND
Heavy Metals	NT	"	86	20
HVOC	NT	"	trace[5]	ND
SVOC	NT	"	NT	ND
PCBs (EPA 608)	NT	"	ND	ND

ND=non-detect
NT=not tested

1 Soil sample collected from the gasoline UST pit in 2/89.
2 Soil sample collected from boring MW-4 at 10 feet bgs in 5/91.
3 Soil sample collected from boring B-8 in 4/2/90.
4 Soil sample collected from the waste oil UST pit in 2/89.
5 The following chlorinated hydrocarbons were detected during the 5/22/91 sampling event: 1.1 ppb chloroform, 2.1 ppb bromodichloromethane, 6.1 ppb dibromochloromethane, and 2.8 ppb bromoform

Comments (Depth of Remediation, etc.):
Removal or remediation of contaminated soil did not occur at this site subsequent to the UST removal. Therefore, "after" soil concentrations are not available. Approximately 250 cubic yards of stockpile soil at this site was sampled on 7/25/96 and analyzed for the following constituents: Total Oil & Grease, Metals (Cd, Cr, Ni, Pb Zn and As), SVOCs by EPA method 8270. Analytical results of the composite samples collected from the stockpile soil were not significant for all constituents sought except for up to 2,000 ppm TOG identified in the composite sample collected from the soil stockpile identified as "B" (See attachment 7 and "Additional Comments" section for further information.)

IV. CLOSURE

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

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

Does corrective action protect public health for current land use? **YES**
Site management requirements: **There are plans to spread the existing stockpile soil at this site identified to have elevated levels of Total Oil & Grease and then cap the entire site over with concrete or blacktop to eliminate any contact exposure prior to using the site for a retail gasoline service station. If land-use plans deviate from this plan, then this soil should be disposed of off-site under manifest and/or the appropriate regulatory agencies must be notified prior to the re-use of this stockpile soil.**

IV. CLOSURE (cont'd)

Should corrective action be reviewed if land use changes? **YES**

Monitoring wells Decommissioned: **No, pending case closure review.**
Number Decommissioned: **0** Number Retained: **5**

List enforcement actions taken: **n/a**
List enforcement actions rescinded: **n/a**

V. LOCAL AGENCY REPRESENTATIVE DATA

Name: Amy Leech
Signature: A Leech
Title: Hazardous Materials Specialist
Date: 9/20/96

Reviewed by
Name: Madhulla Logan
Signature: Madhulla Logan
Title: Hazardous Materials Specialist
Date: 9-19-96

Name: Thomas Peacock
Signature: Thomas Peacock
Title: Supervising, Hazardous Materials Spec.
Date: 9-19-96

VI. RWQCB NOTIFICATION

Date Submitted to RB: 09-20-96
RWQCB Staff Name: Kevin Graves, P.E.
Title: Assoc. Water Resources Control Engineer

RB Response: Approved
Signature: K. Graves
Date: 9/20/96

VII. ADDITIONAL COMMENTS

On February 10, 1989, four USTs (three 10,000-gallon gasoline USTs and one 550-gallon waste oil UST) were removed from a former gasoline/auto service station located at 5293 Crow Canyon Road in Castro Valley, California. (See attachment 1 for site location.) Up to 980 ppm TPHg and 4.0 ppm benzene were identified in soil samples collected at 13 feet bgs from the gasoline pit. Analytical results for TOG and TPH-D, the only constituents sought, from the soil sample collected at 7 feet bgs from the waste oil pit were 35 ppm and non-detect, respectively. (See attachment 2 for sample locations and results.)

Between April and May 1990, 11 soil borings were advanced across the site to assess the impact to soil and groundwater. Soil borings SB-1 through SB-9, excluding SB-5, were drilled to a depth of 20 feet bgs in the approximate vicinities of the former dispenser islands, along product piping, and around the former gasoline UST pit. Groundwater was encountered in borings SB-1, SB-2, SB-3, SB-4, SB-6, SB-8, and SB-9 from 15 to 19 feet bgs and stabilized at 7 to 9 feet bgs. Three soil borings were advanced to between 30.5 feet to 60 feet bgs and converted into monitoring wells MW-1, MW-2, and MW-3. It is not clear if the monitoring wells were screened properly since initially groundwater was first encountered in MW-1 at 42 ft bgs, MW-2 at 18 ft bgs, and MW-3 at 50 ft bgs and, then, later stabilized at 15.8 ft, 8.85 ft, and 15.1 ft bgs, respectively. (See attachment 6 for boring logs) Elevated levels of TPH-G and BTEX were identified in soil samples collected from 5 to 10 feet bgs from borings SB-1, SB-2, SB-6, SB-8, and SB-9; soil sample results were not reported for MW-2 and MW-3. TPH-G and BTEX were not detected in reported samples collected deeper than 10 feet bgs. (See attachment 3 for sample locations and results.)

Five additional borings (B-10, B-11, B-12, MW-4, and MW-5) were advanced in May 1990 to further define the extent of soil contamination. Monitoring wells MW-4 and MW-5 were installed approximately 15 feet southwest of the former gasoline pit and boring SB-8, respectively, to assess groundwater conditions directly downgradient from areas previously identified with the highest concentrations of soil contamination. Fuel product odors were noted during drilling at borings B-10, B-11, MW-4, and MW-5, between 3 to 15 ft bgs.

VII. ADDITIONAL COMMENTS (cont'd)

"Particularly heavy soil contamination" was reportedly apparent at boring MW-4 between 5 to 15 ft bgs. However, low levels of TPH-G and TX were detected in samples collected from B-10 (11.5 feet to the depth explored at 20 feet) and 5.3 ppm TPH-G was detected at 10' bgs in boring MW-4. Soil sampling and drilling were reported to be very difficult due to the subsurface materials that consist of indurated sedimentary rocks of interbedded claystone, siltstone, and sandstone. (See attachment 4 for sample locations and results and attachment 6 for boring logs.)

Groundwater has apparently been sampled seven times (6/90, 2/91, 5/91, 8/91, 11/91, 1/92, 4/94). Laboratory analytical results are not available for the 2/91, 8/91, 11/91, and 1/92 sampling events. Groundwater flow direction is to the south and southwest. Groundwater samples were analyzed for TPH-G and BTEX in all three wells.

In addition, analyses for TPH-D, TOG, HVOCs, chlorinated pesticides, heavy metals, and PNA's, PCB's and creosote were performed on groundwater samples collected from monitoring MW-3. Except for trace concentrations of certain chlorinated hydrocarbons detected in samples collected from monitoring well MW-3 in May 1991, analytical results for all constituents sought were non-detect. (See attachment 5 for historic groundwater data.)

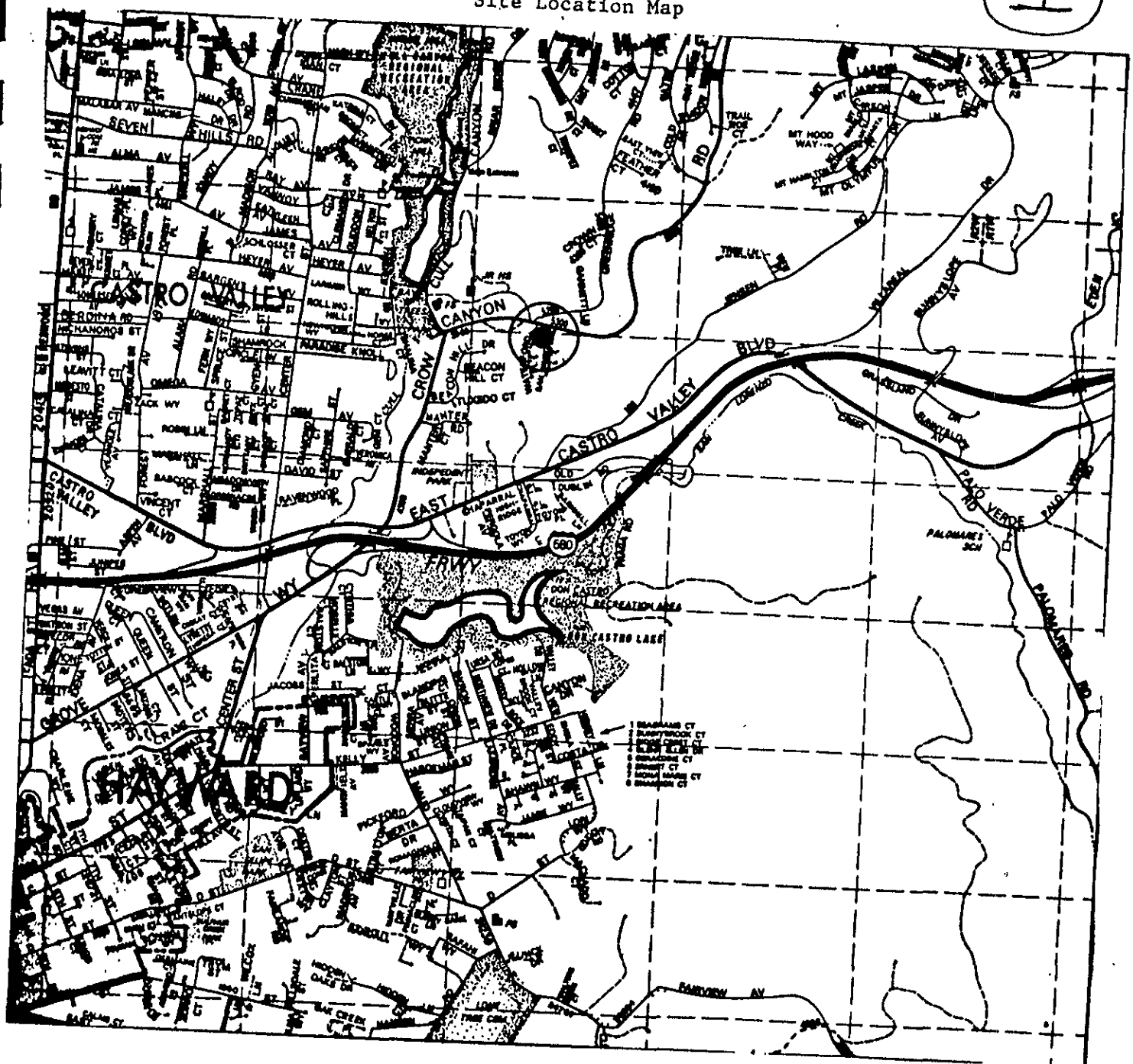
Overexcavation of contaminated soil was reportedly not performed at this site due to the consolidated nature of the substrate. Soil samples collected at the north area of the property where the fuel islands were located identified elevated levels of TPH-G and BTEX. The highest concentration of benzene detected in soil sampled and analyzed during the site investigations was identified in a sample collected from boring SB-8 at 5 feet bgs (390 ppm TPH-G and 4.3 ppm benzene). The 95% upper confidence limit (UCL) of the average concentration of benzene concentrations identified in all soil samples collected at the five foot level at this site was determined to be 0.62 ppm. A risk analysis was evaluated for the following soil contaminant exposure pathways: 1) Soil Vapor Intrusion from Soil to Buildings, 2) Soil Volatilization to Outdoor Air, and 3) Surficial Soil. Based on the 0.62 ppm concentration of benzene, there appears to be no significant risk to human health that exceeds $1x10^{-5}$ cancer risk for residential exposure to these pathways.

Approximately 250 cubic yards of stockpile soil was identified and sampled at this site on July 25, 1996. The stockpile soil is currently segregated into three piles on the site and is presumed to have originated from back-fill material removed during the 1989 excavations of the gasoline and waste oil tanks and soil cuttings accumulated during subsequent soil and groundwater investigations. The 7/25/96 composite samples collected from the stockpile were analyzed for the following constituents: Total Oil & Grease, Metals (Cd, Cr, Ni, Pb Zn and As), SVOCs by EPA method 8270. Analytical results of these samples were not significant for all constituents sought except for up to 2,000 ppm TOG identified in the composite sample collected from the soil stockpile identified as "B". There are plans to spread all existing stockpile soil at this site, including the soil identified to have elevated levels of Total Oil & Grease, and then prior to using the site for a retail gasoline service station, cap the entire site over with concrete or blacktop to eliminate any contact exposure.. If land-use plans deviate from this plan, then this soil should be disposed of off-site under manifest and/or the appropriate regulatory agencies must be notified prior to the re-use of this stockpile soil at this site. (See attachment 7 for current location of soil stockpile "B".)

Based on this information, no further investigations are recommended at this site since it appears to meet the San Francisco RWQCB's definition of a low risk soils case.

Figure 1

Site Location Map

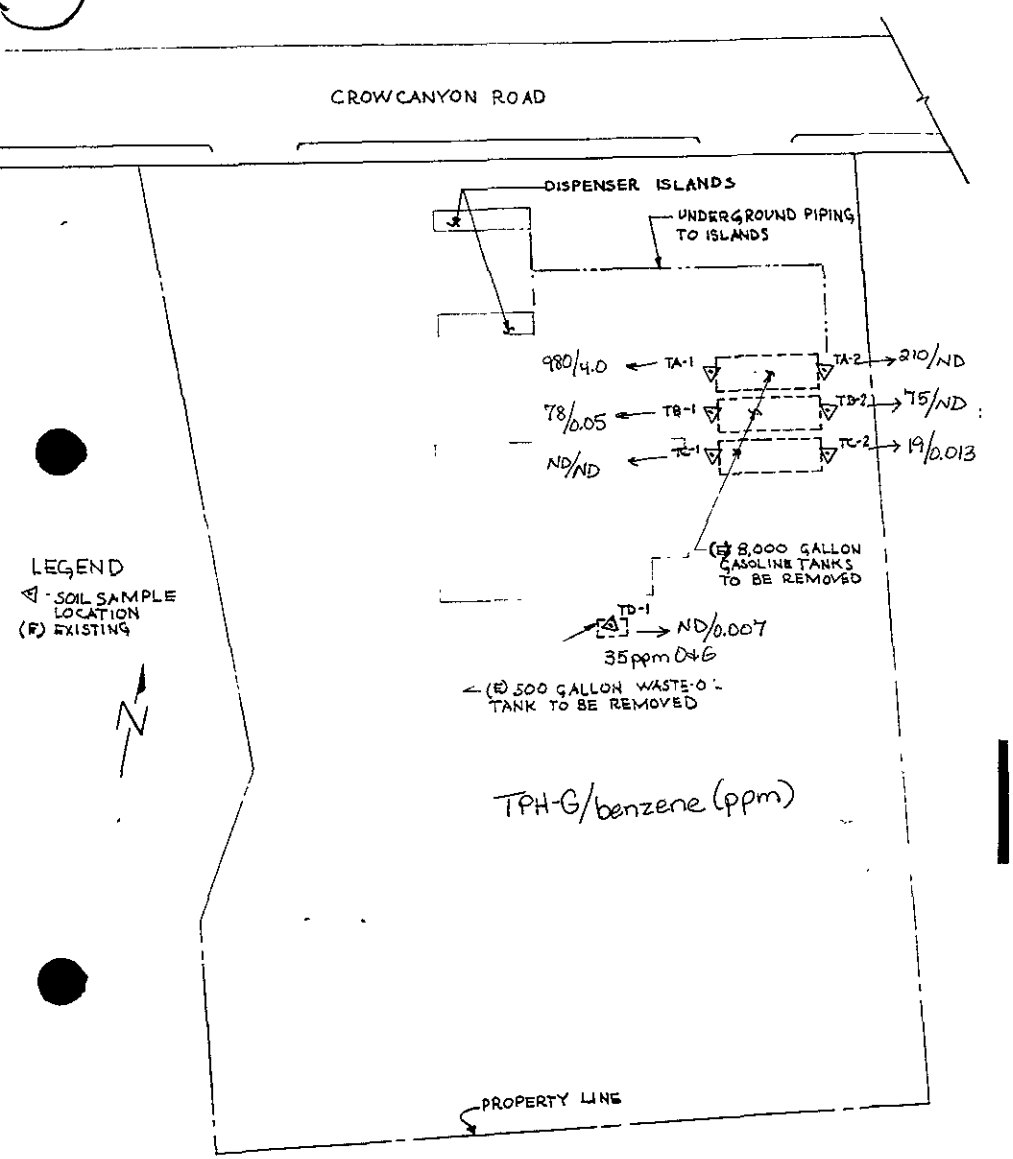


Site Location

1 inch = 2,200 feet

from Thomas Bros.

4. Site Plan at 5293 Crow Canyon Road, Castro Valley



3. DISCUSSION AND CONCLUSIONS

The results of laboratory analysis show contamination is present around the tank pit. TPH (Total Petroleum Hydrocarbons) concentrations at the end of the pit are 980 ppm as gasoline. A copy of the certified laboratory results is included as Appendix B.

An investigation into the vertical and lateral extent of contamination will be required. A workplan will need to be developed to define how the contaminated soil will be remediated; this plan must be submitted to Alameda County Health Hazardous Materials Division (Larry Seto) for approval.

Four samples were collected from the excavated material and a composite analysis completed to determine levels of contamination. This shows that high concentrations of oil & grease are present and that levels of gasoline are low. Additional samples should be collected and analyzed to develop the work plan for remediation, which is outside the scope of this report.

The results of this investigation represent conditions at the time and location at which samples were collected and for the parameters analyzed in the laboratory. It does not fully characterize the site for contamination resulting from other sources or parameters not analyzed.

TABLE 1 - SOIL SAMPLE ANALYSIS - TANK REMOVAL

Sample ID Chemical Compound	TA-1 (ppm)	TA-2 (ppm)	TB-1 (ppm)	TB-2 (ppm)	TC-1 (ppm)	TC-2 (ppm)	TD-1 (ppm)
TPH (light)	980.0	210.0	78.0	75.0	ND	19.0	ND
TPH (diesel)	NA	NA	NA	NA	NA	NA	ND
Benzene	4.0	<0.08	0.05	<0.04	ND	0.013	0.007
Ethylbenzene	17.0	0.34	0.29	0.13	0.015	0.022	0.005
Toluene	35.0	0.29	0.26	0.12	0.010	0.035	0.017
Xylenes	75.0	0.27	0.64	0.19	0.062	0.310	0.020
Oil & Grease	NA	NA	NA	NA	NA	NA	35.0

NA - Not Applicable
ND - Not Detected

TABLE 2 - SOIL SAMPLE ANALYSIS - STOCKPILE

Sample ID Chemical Analysis	Composite S1 to S4 (ppm)
TPH (light)	84.0
Oil & Grease	775.0

MICHAEL J. MAJORS CIVIL ENGINEERS, INC.

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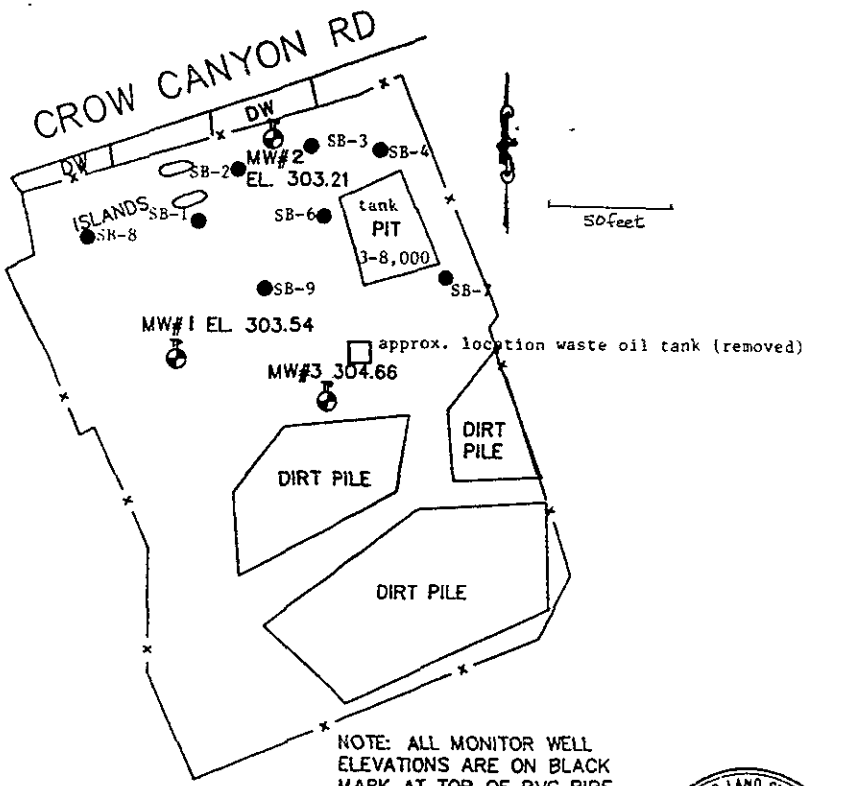
Figure 1
Site Plan



NOTE: ALL MONITOR WELL ELEVATIONS ARE ON BLACK MARK AT TOP OF PVC PIPE.

● denotes soil boring/sampling location

BM BRASS DISK IN TOP OF CURB AT THE MOST EASTERLY CURB RETURN AT CROW CANYON ROAD AND SAN SIMEON PLACE. ELEV. : 307.73 FEET

LICENSED LAND SURVEYOR C.R. PELSER LS 4624 EXPIRES 12-31-90 STATE OF CALIFORNIA

Drawn DE Job 4307-01 Checked DE

Scale 1"=50' Date 7-16-90 Parcel

3

5

TABLE 1
SAMPLE ANALYTICAL RESULTS

SAMPLE #	GASOLINE	BENZENE	TOLUENE	ETHYL BENZENE	TOTAL XYLENES
	mg/kg	ug/kg	ug/kg	ug/kg	ug/kg
SB-1, 5'	110	2,500	1,200	690	1,300
SB-1, 10'	N.D.	780	44	19	18
SB-1, 15'	N.D.	N.D.	N.D.	N.D.	N.D.
SB-1, 20'	N.D.	N.D.	N.D.	N.D.	N.D.
SB-2, 5'	7.8	240	5.1	97	5.5
SB-2, 10'	N.D.	N.D.	N.D.	N.D.	N.D.
SB-2, 20'	N.D.	N.D.	N.D.	N.D.	N.D.
SB-3, 5'	N.D.	90	N.D.	16	10
SB-3, 10'	N.D.	N.D.	N.D.	N.D.	N.D.
SB-3, 15'	N.D.	N.D.	N.D.	N.D.	N.D.
SB-4, 10'	N.D.	N.D.	N.D.	N.D.	N.D.
SB-4, 15'	N.D.	N.D.	N.D.	N.D.	N.D.
SB-4, 20'	N.D.	6.3	N.D.	N.D.	N.D.
SB-6, 5'	N.D.	N.D.	N.D.	N.D.	N.D.
SB-6, 10'	79	23	10	330	310
SB-6, 15'	N.D.	N.D.	N.D.	N.D.	N.D.
SB-7, 10'	N.D.	N.D.	N.D.	N.D.	N.D.
SB-7, 15'	N.D.	N.D.	N.D.	N.D.	N.D.
SB-7, 20'	N.D.	N.D.	N.D.	N.D.	N.D.
SB-8, 5'	390	4,300	4,000	2,800	5,300
SB-8, 10'	N.D.	37	11	N.D.	5.4
SB-8, 15'	N.D.	49	20	7.5	15
SB-8, 20'	N.D.	N.D.	N.D.	N.D.	N.D.
SB-9, 5'	N.D.	N.D.	N.D.	N.D.	N.D.
SB-9, 10'	66	190	85	170	320
SB-9, 15'	N.D.	N.D.	N.D.	N.D.	N.D.
MW-1, 5'	N.D.	N.D.	N.D.	N.D.	N.D.
MW-1, 10'	N.D.	N.D.	N.D.	N.D.	N.D.
MW-1, 15'	N.D.	N.D.	N.D.	N.D.	N.D.
MW-1, 20'	N.D.	N.D.	N.D.	N.D.	N.D.
MW-1, 40'	N.D.	N.D.	N.D.	N.D.	N.D.

*Soil results for MW2+MW3 not included in reports.

Water Samples

	GASOLINE	Diesel	EPA 601	EPA 602	EPA 608	EPA 625	O&G
	mg/l		ug/l	ug/l	ug/l	ug/l	
MW-1	N.D.	NA	N.D.	N.D.	N.D.	N.D.	NA
MW-2	N.D.	NA	N.D.	N.D.	N.D.	N.D.	NA
MW-3	N.D.	ND	N.D.	N.D.	N.D.	N.D.	ND

N.D. - not detected

4

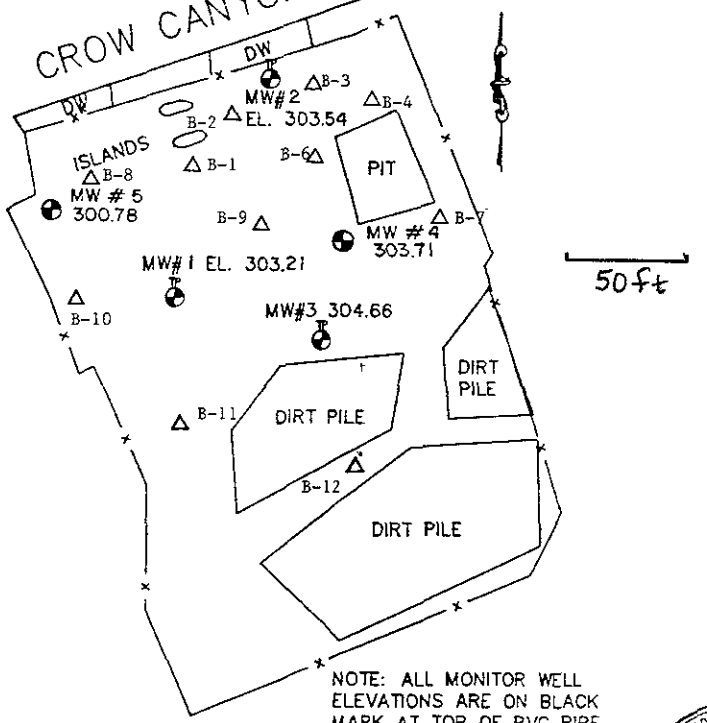


Figure 3
Locations of Sample Points to Date
5293 Crow Canyon Rd.,
Castro Valley, Ca.
Aqua Science Engineers, Inc.
1 inch = 50 feet

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TABLE ONE:
RESULTS OF
SOIL SAMPLE ANALYSES
(5-16-91)

Soil Sample #	TPH gasoline mg/kg	benzene ug/kg	toluene ug/kg	ethyl benzene ug/kg	total xylenes ug/kg
B-10,5'	N.D.	N.D.	N.D.	N.D.	N.D.
B-10,11.5'	10.6	N.D.	140	N.D.	190
B-10,15'	28.2	N.D.	160	N.D.	260
B-10,20'	3.5	N.D.	N.D.	N.D.	N.D.
B-11,5'	N.D.	N.D.	N.D.	N.D.	N.D.
B-11,20'	N.D.	N.D.	N.D.	N.D.	N.D.
B-12,5'	N.D.	N.D.	N.D.	N.D.	N.D.
B-12,10'	N.D.	N.D.	N.D.	N.D.	N.D.
B-12,15'	N.D.	N.D.	N.D.	N.D.	N.D.
B-12,20'	N.D.	N.D.	N.D.	N.D.	N.D.
B-12,25'	N.D.	N.D.	N.D.	N.D.	N.D.
MW-4,5'	N.D.	N.D.	N.D.	N.D.	N.D.
MW-4,10'	5.3	N.D.	N.D.	N.D.	N.D.
MW-4,15'	N.D.	N.D.	N.D.	N.D.	N.D.
MW-4,20'	N.D.	N.D.	N.D.	N.D.	N.D.
MW-5,5'	N.D.	N.D.	N.D.	N.D.	N.D.
MW-5,9.5'	N.D.	N.D.	N.D.	N.D.	N.D.
MW-5,15'	N.D.	N.D.	N.D.	N.D.	N.D.

Soil Sample #	TPH-diesel mg/kg	TOG mg/kg	chlorinated hydrocarbons ug/kg
B-12,10'	N.D.	N.D.	97 dichloromethane (methylene chloride)
B-12,15'	N.D.	N.D.	6,400 dichloromethane
MW-4,10'	N.D.	----	----

2.0 GROUNDWATER FLOW DIRECTION AND GRADIENT

On April 13, 1994, ASE measured the depth to water in each site well using an electric water level sounder. The surface of the groundwater was also checked for the presence of free-floating hydrocarbons or sheen. No free-floating hydrocarbons or sheen were observed on the surface of any site well. Depth to groundwater measurements for this and previous sampling periods are presented below in Table One.

TABLE ONE
Summary of Groundwater Well Survey Data

Well I.D.	Date of Measurement	Top of Casing Elevation (relative to project datum)	Depth to Water (feet)	Groundwater Elevation (project data)
MW-1	08-21-91	303.21	15.96	287.25
	11-23-91		16.33	286.88
	01-28-92		16.24	286 97
	04-13-94		15.34	287.87
MW-2	08-21-91	303.54	9.48	294.06
	11-23-91		10.05	293.49
	01-28-92		9.95	293.59
	04-13-94		7.24	296.30
MW-3	08-21-91	304.66	14.57	290.09
	11-23-91		16.28	288.38
	01-28-92		16.26	288.40
	04-13-94		13.86	290.80
MW-4	08-21-91	303.71	13.92	289.79
	11-23-91		15.47	288 24
	01-28-92		15.09	288.62
	04-13-94		10.53	293.18
MW-5	08-21-91	300.78	10.10	290.68
	11-23-91		10.10	290.68
	01-28-92		9.91	290.87
	04-13-94		9.72	291.06

Groundwater elevation contours for all four sampling periods are presented on Figures 2 through 5. Groundwater flowed to the south or southwest during all four sampling periods. The gradient was approximately 0.07 feet/foot.

TABLE TWO
Summary of Analytical Results of **WATER** Samples
All results are in **parts per billion**

Well ID & Dates Sampled	Analytical Lab	TPH-G	TPH-D	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Oil & Grease
MW-1								
08-21-91	MTX	<50	---	<0.3	<0.3	<0.3	<1	---
11-23-91	MTX	<50	---	<0.3	<0.3	<0.3	<1	---
01-28-92	MTX	<50	---	<0.3	<0.3	<0.3	<1	---
04-13-94	AEN	<50	---	<0.5	<0.5	<0.5	<2	---
MW-2								
08-21-91	MTX	<50	---	<0.3	<0.3	<0.3	<1	---
11-23-91	MTX	<50	---	<0.3	<0.3	<0.3	<1	---
01-28-92	MTX	<50	---	<0.3	<0.3	<0.3	<1	---
04-13-94	AEN	<50	---	<0.5	<0.5	<0.5	<2	---
MW-3								
08-21-91	MTX	<50	<50	<0.3	<0.3	<0.3	<1	<500
11-23-91	MTX	<50	<50	<0.3	<0.3	<0.3	<1	<500
01-28-92	MTX	<50	<50	<0.3	<0.3	<0.3	<1	<500
04-13-94	AEN	<50	<50	<0.5	<0.5	<0.5	<2	<1,000
MW-4								
08-21-91	MTX	<50	---	<0.3	<0.3	<0.3	<1	---
11-23-91	MTX	<50	---	<0.3	<0.3	<0.3	<1	---
01-28-92	MTX	<50	---	<0.3	<0.3	<0.3	<1	---
04-13-94	AEN	<50	---	<0.5	<0.5	<0.5	<2	---
MW-5								
08-21-91	MTX	<50	---	<0.3	<0.3	<0.3	<1	---
11-23-91	MTX	<50	---	<0.3	<0.3	<0.3	<1	---
01-28-92	MTX	<50	---	<0.3	<0.3	<0.3	<1	---
04-13-94	AEN	<50	---	<0.5	<0.5	<0.5	<2	---

MTX = Medtox of Pleasant Hill, California
AEN = American Environmental Network of Pleasant Hill, California

TABLE THREE:
HISTORICAL RESULTS OF
GROUNDWATER SAMPLE ANALYSES
THROUGH 6-7-91

Groundwater Sample #	TPH gasoline mg/l	benzene ug/l	toluene ug/l	ethyl benzene ug/l	total xylenes ug/l
MW-1 (6-1-90)	N.D.	N.D.	N.D.	N.D.	N.D.
MW-1 (2-28-91)	N.D.	N.D.	N.D.	N.D.	N.D.
MW-1 (5-22-91)	N.D.	N.D.	N.D.	N.D.	N.D.
MW-2 (6-1-90)	N.D.	N.D.	N.D.	N.D.	N.D.
MW-2 (2-28-91)	N.D.	N.D.	N.D.	N.D.	N.D.
MW-2 (5-22-91)	N.D.	N.D.	N.D.	N.D.	N.D.
MW-3 (6-1-90)	N.D.	N.D.	N.D.	N.D.	N.D.
MW-3 (2-28-91)	N.D.	N.D.	N.D.	N.D.	N.D.
MW-3 (5-22-91)	N.D.	N.D.	N.D.	N.D.	N.D.
MW-4 (5-22-91)	N.D.	N.D.	N.D.	N.D.	N.D.
MW-5 (5-22-91)	N.D.	N.D.	N.D.	N.D.	N.D.

Water Sample #	TPH-diesel mg/l	TOG mg/l	chlorinated hydrocarbons ug/l	BNA extractables ug/l	metals mg/l
MW-3* (6-1-90)	N.D.	N.D.	N.D.	N.D.	0.004 Cd 0.027 Zn
MW-3 (2-28-91)	N.D.	N.D.	N.D.	N.D.	N.D.
MW-3* (5-22-91)	N.D.	N.D.	4.1 chloroform 2.1 bromodichloromethane 6.1 dibromochloromethane 2.8 bromoform	N.D.	N.D.
MW-4 (5-22-91)	N.D.	----	----	----	----

* = samples also analyzed N.D. for PCB's
mg/kg = parts per million
ug/kg = parts per billion
N.D. = Not Detected
---- = not analyzed

PROJECT: 5293 Crow Canyon Rd., Castro Valley — MONITORING WELL # MW-1

depth ft.	SOILS DESCRIPTION	GRAPHIC SYMBOL	WELL COMPLETION	REMARKS
0–4	silt, sand, gravel, tan red brown, sand fine to med. gr., 20-30%, clayey 20%, dry, loose		stovepipe well cover	locking top cap
4–8	sandstone and siltstone, Interbedded, tan orange brown, ss fine to med. gr., bedded 1-3 cm., siltstone is sandy, v. fine 20-30%, clayey 10%, dry, hard		2" sched 40 PVC blank	soil sample 4.5-5' gasoline odor mod. 7'
8–14	siltstone and claystone, interbedded, dk. gray, sandy v fine 10%, hard, dry		portland cement (0–28)	sample 9.5-11', no odor
14–18	siltstone, claystone, sandstone, interbedded, claystone is dk. gray, silt- and sandstone are lt. gray, mixed as bioturbated, ss 20-30%, bedded 1-5 cm., hard, dry			sample 14.5-15.5', no odor; ▼ approx 15'
18–20				19'- 30 min water check negative
20–24	claystone, dk. gray, sandy v. fine 10% mostly in bedding planes, bedded 1-3 cm, dry			sample 19.5-21', no odor
24–28	claystone, dk. gray, silty 10-20%, sandy v. fine <10%, dry, hard, bedded 1-3 cm.			sample 24.5-26', no odor
28–38	siltstone and sandstone, interbedded, dk. gray and lt. gray, respectively, ss fine to med. gr, v. hard, bedded 1-3 cm		bentonite pellets (28–32)	sample 29.5-30', no odor; sampler refusal 35' 30 min. water check negative
38–40	siltstone and sandstone, as above,		2" sched 40 PVC, 0.01" slotted (from 35); #2/12 sand (from 32)	
40–45	siltstone and sandstone, interbedded, dk. gray and lt. gray, sandstone fine to med. gr., siltstone sandy v. fine 10%, clayey 20%, hard, moist			sample 39.5-40', no odor, moistening; ▽ approx 42'

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PROJECT: 5293 Crow Canyon Rd., Castro Valley — MONITORING WELL # MW-1

depth ft.	SOILS DESCRIPTION	GRAPHIC SYMBOL	WELL COMPLETION	REMARKS
46	as above			well completion details preceding
47–50	siltstone and claystone, interbedded, dk. gray and lt. gray, siltstone is sandy v. fine 10%, claystone silty 20%, v. hard			
50	—Bottom of hole—		threaded bottom cap	

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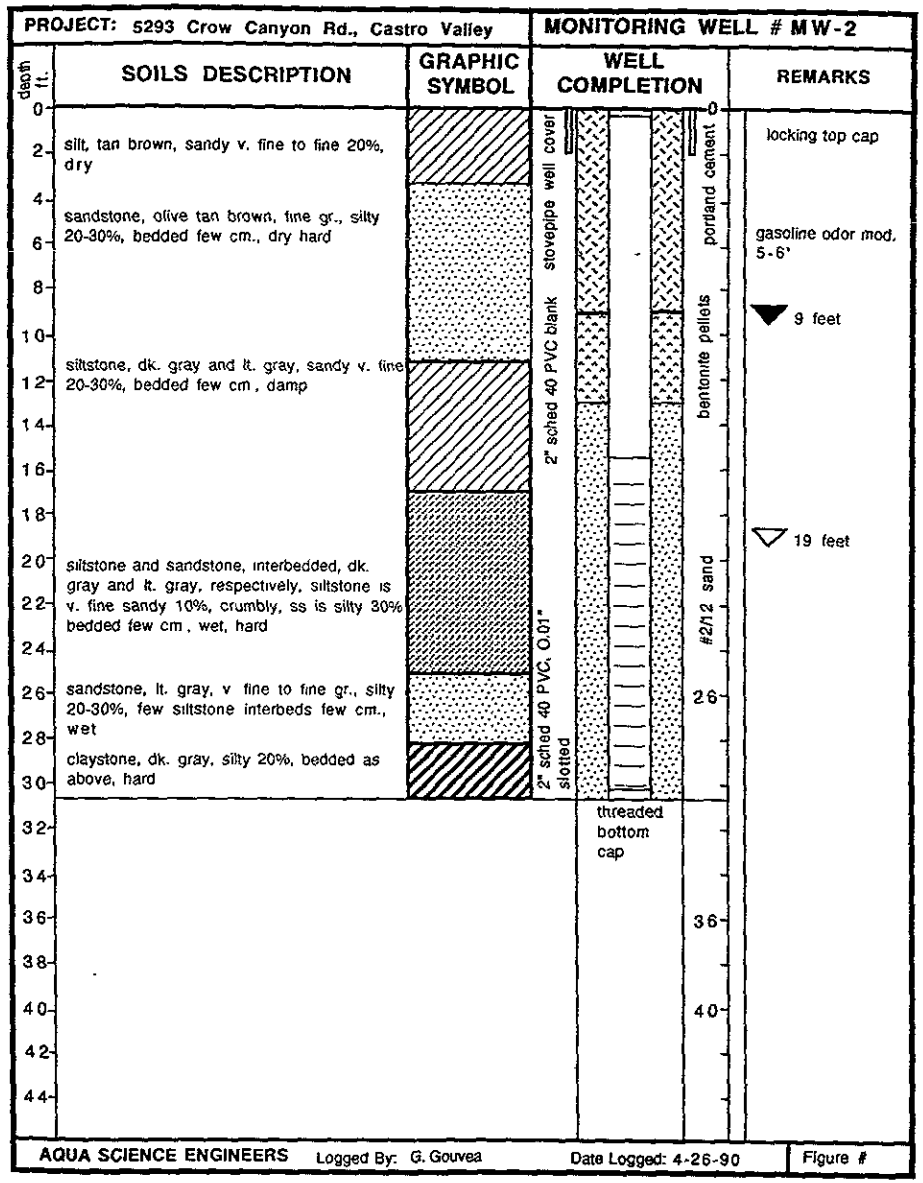

PROJECT: 5293 Crow Canyon Rd., Castro Valley
MONITORING WELL # MW-2
depth ft.
SOILS DESCRIPTION
GRAPHIC SYMBOL
WELL COMPLETION
REMARKS
silt, tan brown, sandy v. fine to fine 20%, dry
sandstone, olive tan brown, fine gr., silty 20-30%, bedded few cm., dry hard
siltstone, dk. gray and lt. gray, sandy v. fine 20-30%, bedded few cm , damp
siltstone and sandstone, interbedded, dk. gray and lt. gray, respectively, siltstone is v. fine sandy 10%, crumbly, ss is silty 30% bedded few cm , wet, hard
sandstone, lt. gray, v fine to fine gr., silty 20-30%, few siltstone interbeds few cm., wet
claystone, dk. gray, silty 20%, bedded as above, hard
2" sched 40 PVC stovepipe well cover
2" sched 40 PVC blank
2" sched 40 PVC, 0.01" slotted
threaded bottom cap
portland cement
bentonite pellets
#2/12 sand
locking top cap
gasoline odor mod. 5-6'
9 feet
19 feet
AQUA SCIENCE ENGINEERS
Logged By: G. Gouvea
Date Logged: 4-26-90
Figure #

PROJECT: 5293 Crow Canyon Rd., Castro Valley — MONITORING WELL # MW-4

depth ft.	SOIL/ROCK DESCRIPTION	GRAPHIC SYMBOL	WELL COMPLETION	REMARKS
0–2	silt, clay,sand, gravel, tan brown, sand fine to med. gr., 20%, clay 20%, gravel "pea" 10%,dry		2" sched 40 PVC, machine slotted stovepipe well cover and blank casing	fuel odor mild to strong 3-12'
2–4	siltstone, green gray to gray orange, ss interbeds, fine to med. gr., bedded1-3 cm., siltstone is sandy, v. fine 20-30%, clayey 10%, dry, hard			
4–6				soil sample 5-6' mild to mod odors
6–8				
8–10				
10–12	siltstone, lt. gray olive to gray olive, rusty fracture/bedding planes, friable, damp		portland cement locking top cap	soil sample 10-11' mod. odor
12–14				approx 13.5'
14–16	v. fine to fine gr. sandstone interbeds few cm. thick		bentonite pellets	
16–18				sample 15-16' no odors
18–20				
20–22	siltstone, dk gray black and lt. gray inter-layered few mm., sandy v. fine gr. 20-40%, clayey layers to 40%, damp		#2/12 sand	sample 20-21' no odors
22–24				
24–26				
26–28				
28–30				
30	Bottom of Hole		threaded bottom cap	overnight water check positive
30–32				approx 30'
32–34				
34–36				
36–38				
38–40				
40–42				
42–44				

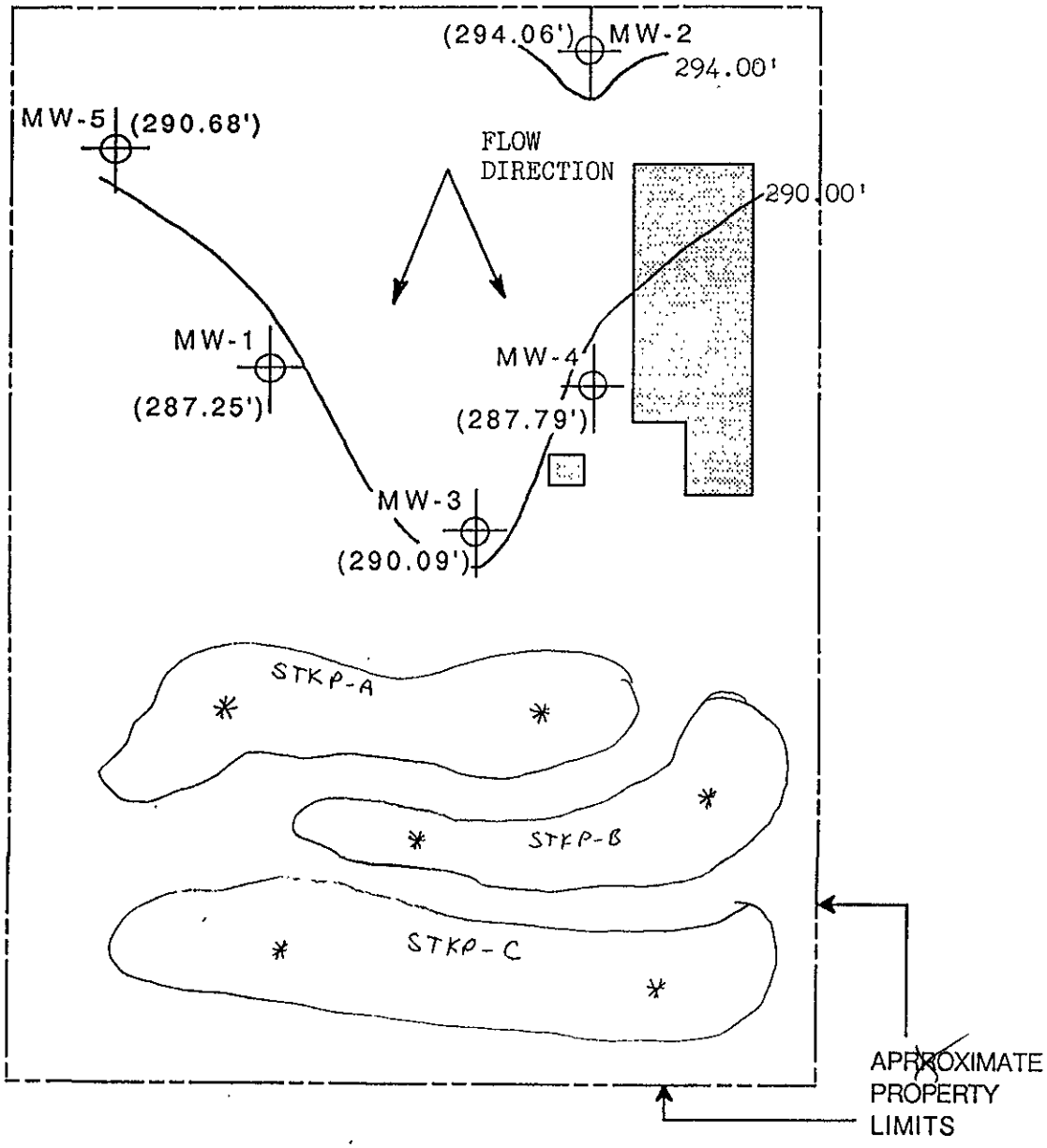
AQUA SCIENCE ENGINEERS, INC. Logged by: Greg Gouvea Date Logged: 5-9-91 Figure #

PROJECT: 5293 Crow Canyon Rd., Castro Valley — MONITORING WELL # MW-5

depth ft.	SOIL/ROCK DESCRIPTION	GRAPHIC SYMBOL	WELL COMPLETION	REMARKS
0–2	silt, dk. yellow brown, clayey 20%, sandy v. fine 10%, loose, dry		2" sched 40 PVC, machine slotted stovepipe well cover and blank casing	no odors
2–4				soil sample 5-6' no odors
4–6				
6–8	sandstone, dk. yellow orange, fine to med. gr., silty 10%, crumbly, dry			gasoline odors mild to mod. 7-10'
8–10				
10–12			portland cement locking top cap	very hard drilling mod. odor
12–14	sandstone, dk. yellow brown and green gray mottled, bedded approx. 1" distinct, silty as interbeds			approx 13.5'
14–16			bentonite pellets	
16–18				softer drilling 17'
18–20				
20–22	siltstone, dk gray black and lt. gray inter-layered few mm., sandy v. fine gr. 20-40%, clayey layers to 40%, damp		#2/12 sand	approx 20'
22–24	auger refusal, 24.5'			
24	Bottom of Hole		threaded bottom cap	
24–26				
26–28				
28–30				
30–32				
32–34				
34–36				
36–38				
38–40				
40–42				
42–44				

AQUA SCIENCE ENGINEERS, INC. Logged by: Greg Gouvea Date Logged: 5-6-91 Figure #

CROW CANYON ROAD



* = Sample Point

LEGEND

MW-1 (287.25') — MONITORING WELL WITH GROUNDWATER ELEVATION IN FEET AMSL

NORTH

1" = 40'

POTENTIOMETRIC SURFACE MAP 8-21-91

FORMER RAMOS PROPERTY
5293 Crow Canyon Road
Castro Valley, California

AQUA SCIENCE ENGINEERS, INC. | Figure 2