

July 16, 1998
961276NA

ENVIRONMENTAL
PROTECTION
98 JUL 21 PM 2:48

Ms. Susan Hugo
Hazardous Materials Specialist
Department of Environmental Health
Alameda County Health Agency
1131 Harbor Bay Parkway, 2nd Floor
Alameda, California 94502

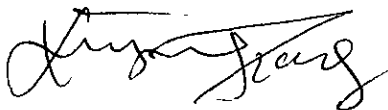
Subject: Transmittal of 2nd Quarter 1998 Groundwater Monitoring Results
City of Emeryville Fire Station No. 2 UST Site

Dear Ms. Hugo:

On behalf of the City of Emeryville Redevelopment Agency, transmitted herewith is the subject site quarterly groundwater monitoring results for the second quarter 1998. This is the fourth (last) monitoring event of a one-year quarterly groundwater monitoring program. The monitoring activities were performed in accordance with the Workplan (Woodward-Clyde, August 1996), which was submitted to and approved by the Alameda County Department of Environmental Health.

Please do not hesitate to call me at (510) 874-3060 or Mr. Ignacio Dayrit of the City of Emeryville Redevelopment Agency at (510) 596-4356 for questions and comments.

Sincerely,



Xinggang Tong, P.E.
Project Manager

cc: Ignacio Dayrit, City of Emeryville

July 16, 1998
961276NA

Mr. Ignacio Dayrit
City of Emeryville Redevelopment Agency
2200 Powell Street, 12th Floor
Emeryville, California 94608-1806

Subject: Quarterly Groundwater Monitoring Results for the 2nd Quarter 1998
City of Emeryville Fire Station No.2 UST Site

Dear Ignacio:

Woodward-Clyde is pleased to present the second quarter 1998 groundwater monitoring results for the City of Emeryville Fire Station No. 2 UST site, which is located at 6303 Hollis Street in Emeryville, California. This is the fourth (last) monitoring event of a one-year quarterly groundwater monitoring program. This groundwater monitoring program is requested by the Alameda County Department of Environmental Health (ACDEH) in a letter to the City dated May 29, 1996, and is authorized by the City in a contract to Woodward-Clyde dated July 12, 1996.

Groundwater samples were collected from the on-site monitoring well MW-1 on June 2, 1998, and were delivered to Curtis & Tompkins Analytical Laboratory of Berkeley for the analysis of Total Petroleum Hydrocarbons (TPH) as gasoline (TPH-G), Benzene, Toluene, Ethyl benzene, & Xylenes (BTEX), and Methyl Tertiary Butyl Ether (MTBE). Results are summarized in Table 1. Lead was not analyzed this quarter because it was not detected in the first two quarterly monitoring events. Compared to the result of first quarter 98 (the third monitoring event), TPH-G concentration in this quarter decreased approximately 10 times to 0.078 mg/L, which was at the same level as measured in the third and fourth quarters of 1997 (the first and second monitoring events). Benzene was measured at 34 ug/L. Toluene, ethylbenzene, and total xylenes were below the laboratory reporting limit of 5 ug/L. These concentrations are below their respective RBCA Tier 1 threshold levels for commercial indoor land use scenario, which was addressed in the RBCA evaluation report prepared by Woodward-Clyde in May 1997 and approved by the ACDEH in a letter to the City dated November 6, 1997.

MTBE was the exception. Its concentration increased steadily from 18 ug/L at the first monitoring event to 1,100 ug/L this quarter. MTBE was not detected in groundwater samples in the 1997 site investigation. MTBE is much more mobile than BTEX in groundwater. The steady increase of MTBE in groundwater while concentrations of other

Woodward-Clyde International-Americas

500 12th Street, Suite 200 • Oakland, California 94607-4014
(510) 893-3600 • Fax (510) 874-3268

gasoline components were relatively constant or decreasing indicates that off-site MTBE plume(s) may be migrating to this site. We suggest to review commercial activities in the neighborhood to identify potential petroleum hydrocarbon plume(s) that may impact this site.

Woodward-Clyde retained Environmental Sampling Services to perform field sampling activities. Prior to purging, depth from the top of well casing to water was measured at 3.06 feet using a Solinst electronic water level meter. The well was then purged by manually bailing out 10 gallons (approximately 4 well casing volumes) of groundwater using a disposable PVC bailer. Temperature, pH, and conductivity of the purged water were monitored during the well purging. Well monitoring data sheet is included with this report. After the water parameters stabilized, a new disposable bailer was gently lowered into the well approximately half its length past the air-water interface. The bailer was retrieved and the water was promptly transferred to appropriate sample containers supplied by the laboratory. Sample containers were promptly capped, labeled, placed in an ice-cooled container, and delivered to Curtis & Tompkins under chain-of-custody in the same day the samples were collected. For quality control, a trip blank was included in the container and was analyzed for TPH-G and BTEX.

The purged water was placed in a 55-gallon DOT drum, which was labeled and left on site for future disposal. Woodward-Clyde retained PLS Surveys, Inc. of Oakland to survey the well elevation on July 10, 1997. The top of the well casing is measured at 17.02 feet mean sea level (MSL).

Please call me at (510) 874-3060 if you have questions or comments.

Sincerely,

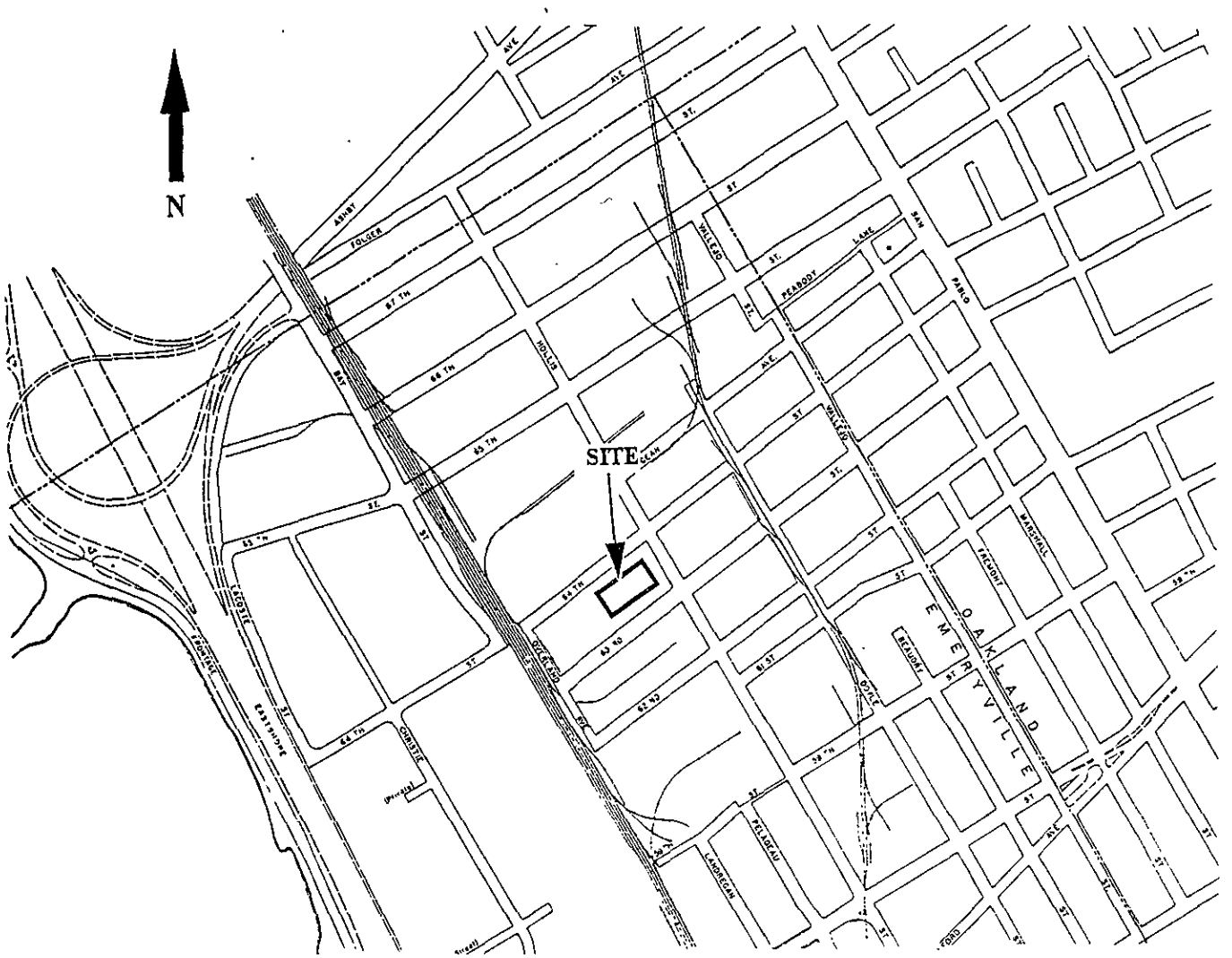


Xinggang Tong, Ph.D., P.E.
Project Manager



Enclosures:

- A. Table 1 - Groundwater analytical results (current and historical)
- B. Site location maps
- C. Well purging data sheet
- D. Laboratory analytical report



Project No.
94166NA

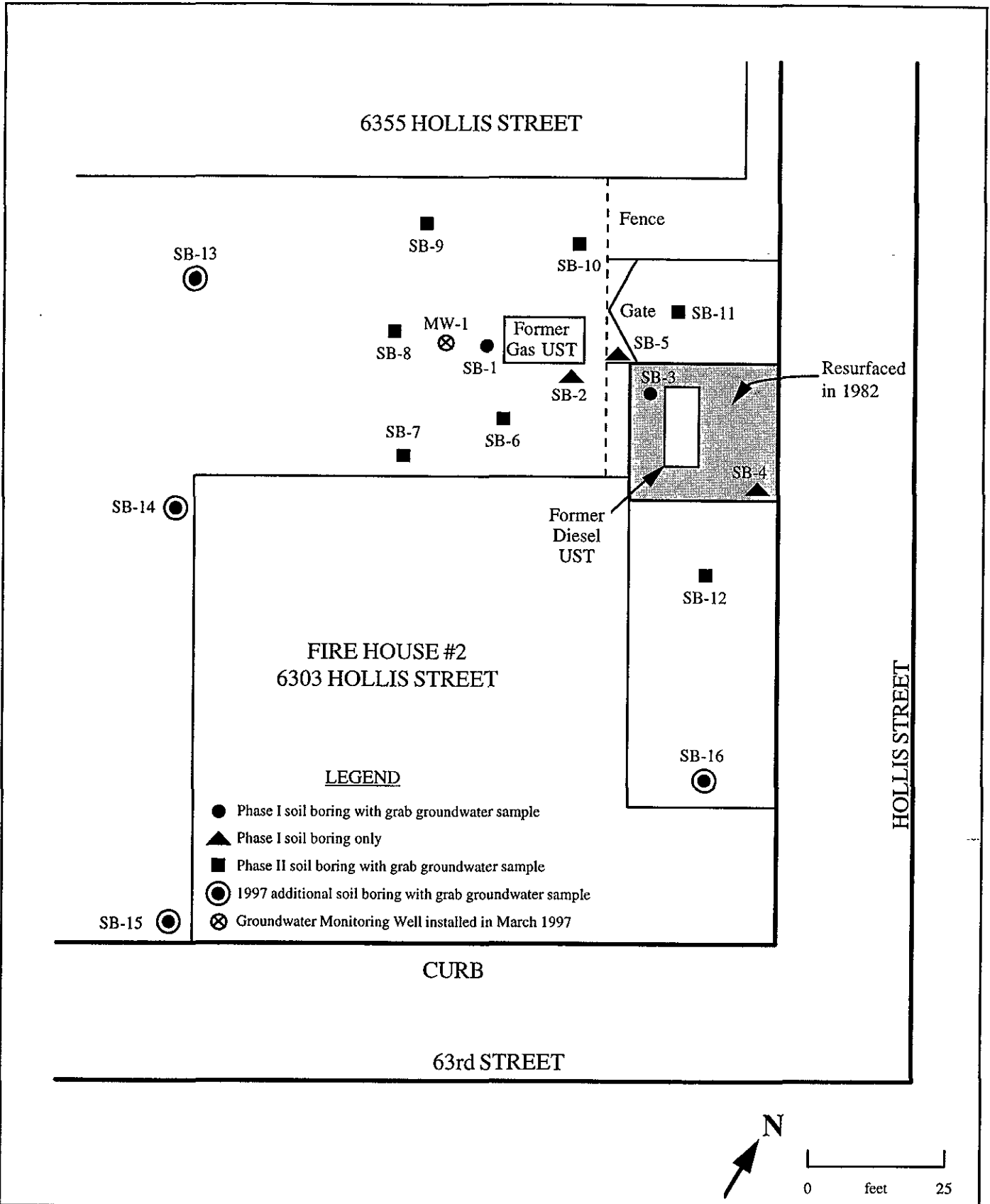
CITY OF EMERYVILLE
Fire Station Number 2

Figure 1

SITE LOCATION

Woodward-Clyde Consultants 

July 15, 1995

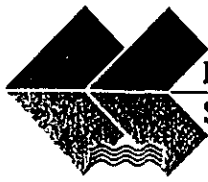


Project No. 961276NA	City of Emeryville Fire Station No. 2	LOCATION OF MONITORING WELL MW-1	Figure 2
Woodward-Clyde Consultants			

TABLE 1
GROUNDWATER ANALYTICAL RESULTS
CITY OF EMERYVILLE FIRE STATION NO. 2

Sample No.	Date Sampled	Water level		TPH ^a Gasoline (mg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	MTBE (ug/L)	Total Lead (ug/L)	Notes
		TOC (ft)	MSL (ft)								
MW-1	6/2/98	3.06	13.96	0.078	34	ND (5)	ND (5)	ND (5)	1100	NA	2nd quarter 98
Trip Blank	6/2/98			ND (0.05)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (2)	NA	2nd quarter 98
MW-1	3/13/98	3.02	14.00	0.76	66	5.7	6.1	17	720	NA	1st quarter 98
Trip Blank	3/13/98			ND (0.05)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (5)	NA	1st quarter 98
MW-1	12/5/97	3.02	14.00	0.06	0.7	ND (0.5)	ND (0.5)	ND (2)	120	ND (40)	4th quarter 97
Trip Blank	12/5/97			ND (0.05)	ND (0.5)	ND (0.5)	ND (0.5)	ND (2)	ND (5)	NA	4th quarter 97
MW-1	9/26/97	4.36	12.66	ND (0.05)	1.0	ND (0.5)	0.6	ND (2)	18	ND (40)	3rd quarter 97
Trip Blank	9/26/97			ND (0.05)	ND (0.5)	ND (0.5)	ND (0.5)	ND (2)	ND (5)	NA	3rd quarter 97
SB-3	3/15/95	NA	NA	NA	220	3,800	2,500	14,000	NA	NA	Phase I
SB-1	3/15/95	NA	NA	0.99	6.1	40	33	160	NA	NA	investigation
Trip Blank	3/15/95	NA	NA	NA	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	NA	NA	
SB-6-W	6/17/95	NA	NA	0.41	24	27	27	110	NA	NA	Phase II
SB-7-W	6/17/95	NA	NA	5.50	36	30	180	510	NA	NA	investigation
SB-8-W	6/17/95	NA	NA	0.46	18	36	27	100	NA	NA	
SB-9-W	6/17/95	NA	NA	ND (0.05)	ND (0.5)	ND (0.5)	0.7	3.7	NA	NA	Phase II
SB-10-W	6/17/95	NA	NA	ND (0.05)	ND (0.5)	ND (0.5)	0.6	3.3	NA	NA	investigation
SB-11-W	6/17/95	NA	NA	0.23	12	8.6	12	44	NA	NA	
SB-12-W	6/17/95	NA	NA	0.97	40	130	38	170	NA	NA	Phase II
Trip Blank	6/17/95	NA	NA	ND (0.05)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	NA	NA	investigation
SB-13-W	3/26/97	NA	NA	ND (0.05)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (5)	NA	additional
SB-14-W	3/26/97	NA	NA	ND (0.05)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (5)	NA	investigation
SB-15-W	3/26/97	NA	NA	ND (0.05)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (5)	NA	
SB-16-W	3/26/97	NA	NA	29	430	1,200	1,000	4,700	ND (500)	NA	additional
Trip Blank	3/26/97	NA	NA	ND (0.05)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (5)	NA	investigation

Notes: ^a Total petroleum hydrocarbons by EPA Method 8015 (Mod.), quantified as gasoline.
Benzene, toluene, ethylbenzene and xylenes by EPA Method 8020.
NA - Not analyzed; ND - Not detected at or above the detection limit given in parentheses.
TOC - measured to top of well casing; MSL - mean sea level.



**Environmental
Sampling Services**

June 2, 1998

Mr. Xinggang Tong
Woodward-Clyde Consultants
500-12th Street, Suite 200
Oakland, California 94607-4014

Subject: City of Emeryville, 40th Street Right-of -Way Quarterly Groundwater Sampling

Dear Mr. Tong,

Please find enclosed the Water Quality Sample Log Sheets and associated invoices for Site Numbers 1 and 2. All samples were sent to Curtis & Thompkins Limited in Berkeley, California.

Sincerely,

Jacqueline Lee
President

Enclosure





**Environmental
Sampling Services**

WATER QUALITY SAMPLE LOG SHEET WELL IDENTIFICATION: MW-1 DATE: 6/2/98

Project Name: Fire Station #2 Emeryville Client Project Number: 961276NA

Well Description: 2" 3" 4" 5" 6" Other _____ Well Type: PVC Stainless Steel Other: _____

Is Well Secured? Yes / No Bolt Size 15/16" Type of lock / Lock number: No Lock

Observations / Comments: _____

Purge Method: Teflon Disposable Bailer Centrifugal Pump GrundFos Redi-flow Pump Other: _____

Pump Lines: NA New / Cleaned / Dedicated Bailer Line: NA New / Cleaned / Dedicated

Method of Cleaning Pump: NA Alconox Liquidnox Tap Water DI Rinse Other: _____

Method of Cleaning Bailer: NA Alconox Liquidnox Tap Water DI Rinse Other: _____

Sampling Method: Disp. Teflon Bailer Disp. PVC Bailer GrundFos Redi-flow Pump Other: _____

pH Meter Serial No.: 217254 / 330089 Spec. Cond. Meter Serial No.: 96H0203AB AE

Date/Time Calibrated: 4/20/11:15 4/7/10 @ 25°C Spec. Cond. Meter Calibration: Self Test Other: _____

Method to Measure Water Level: Solinst Serial No.: ESST#2 P.I.D. Reading: NA

Water Level at Start (DTW): 3.06 Water Level Prior To Sampling: 9.86

TD = 20.36 - 3.06 (DTW) = 17.3 (ft. of water) x "K" = 2.8 (Gals./CV) x 3 (No. of CV) = 8.4 (Gals.)

"K" = 0.163(2" well) "K" = 0.653(4" well) "K" = 1.02(5" well) "K" = 1.46(6" well) "K" = 2.61(8" well)

FIELD WATER QUALITY PARAMETERS

Date	Time	Discharge (gallons)	pH	Temp. (°C)	Specific Conductance mS <u>uS</u>	Turbidity (NTU's)	Color	Comments
6/2/98	11:34	2	6.62	19.1	1341	64.7	Cloudy Lt. Brown	
	11:41	4	6.64	18.6	1390	19.2	Clear	
	11:48	6	6.67	18.4	1388	21.3	"	
	11:55	8	6.65	18.4	1380	22.0	"	
	12:02	10	6.67	18.3	1339	19.1	"	
6/2/98	12:10	After Sampling	6.76	18.6	1301	18.6	Clear	

Total Discharge: 10 gallons Casing Volumes Removed: 3.6

Method of disposal of discharged water: 55 Gallon Drum(s) Poly Tank Other: _____

Date/Time Sampled: 6/2/98 @ 12:05 Analysis/No. of Bottles: TPH gas, BTEX & MTBE, (3-40ml VOA's w/Hcl)

QA/QC: _____ @ _____ as an Equipment Blank Duplicate MS/MSD Lab Split Field Blank

Comments: _____

Environmental Sampling Services
6680 Alhambra Ave. Martinez, CA 94553
Tel/Fax: (510) 372-8108

Sampled By: S. Penman and J. Lee Initials: SP JL



Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878

2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

A N A L Y T I C A L R E P O R T

Prepared for:

Woodward-Clyde Consultants
500 12th Street
Suite 100
Oakland, CA 94607

Date: 10-JUN-98
Lab Job Number: 133895
Project ID: 941114NA
Location: Emeryville Projects

Reviewed by:

Troy Bell

Reviewed by:

[Signature]

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Woodward-Clyde Consultants

500 12th Street, Suite 200, Oakland, CA 94607-4014
(510) 893-3600

Chain of Custody Record

PROJECT NO. *Emeryville Projects*
941114 NA & 961276 NA

SAMPLERS: (Signature)

[Signature]

ANALYSES

Sample Matrix
(Soil, Water, Air)

EPA Method

EPA Method

EPA Method

EPA Method

TPH as GAS, BTEX & MTBE

TPH diesel & Motor oil

EPA 82-70 PAHs only

Number of Containers

REMARKS
(Sample preservation, handling procedures, etc.)

DATE TIME SAMPLE NUMBER

40th St Site :

-1	6/2/98	1320	EW-1	W				X	X	X	7
-2	6/2/98	1358	LF-4	W				X	X		5

Fire Station No. 2 SITE

-3	6/2/98	1205	MW-1					X			3
-4	6/2/98	11:00	Trip Blank					X			2

Question/Results to: Xinggang Tong (510)874-3060

Samples to Curtis & Tompkins contact Tracy Bohjar @ (510)486-0900

10 Day TAT

TOTAL NUMBER OF CONTAINERS **17**

RELINQUISHED BY: (Signature)

[Signature]

DATE/TIME

6/2/98 11:35

RECEIVED BY: (Signature)

[Signature] 6-2-98 2:35pm

RELINQUISHED BY: (Signature)

DATE/TIME

RECEIVED BY: (Signature)

METHOD OF SHIPMENT:

HAND DELIVER

SHIPPED BY: (Signature)

COURIER: (Signature)

RECEIVED FOR LAB BY: (Signature)

DATE/TIME



TVH-Total Volatile Hydrocarbons

Client: Woodward-Clyde Consultants
Project#: 941114NA
Location: Emeryville Projects

Analysis Method: EPA 8015M
Prep Method: EPA 5030

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
133895-001	EW-1	41332	06/02/98	06/08/98	06/08/98	
133895-002	LF-4	41258	06/02/98	06/05/98	06/05/98	
133895-003	MW-1	41258	06/02/98	06/05/98	06/05/98	
133895-004	TRIP BLANK	41258	06/02/98	06/05/98	06/05/98	

Matrix: Water

Analyte	Units	133895-001	133895-002	133895-003	133895-004
Diln Fac:		20	1	1	1
Gasoline C7-C12	ug/L	18000	400	78	<50
Surrogate					
Trifluorotoluene	%REC	109	120	115	113
Bromofluorobenzene	%REC	98	117	109	106

BTXE

 Client: Woodward-Clyde Consultants
 Project#: 941114NA
 Location: Emeryville Projects

 Analysis Method: EPA 8020A
 Prep Method: EPA 5030

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
133895-001	EW-1	41332	06/02/98	06/08/98	06/08/98	
133895-002	LF-4	41258	06/02/98	06/05/98	06/05/98	
133895-003	MW-1	41332	06/02/98	06/08/98	06/08/98	
133895-004	TRIP BLANK	41258	06/02/98	06/05/98	06/05/98	

Matrix: Water

Analyte	Units	133895-001	133895-002	133895-003	133895-004
Diln Fac:		20	1	10	1
MTBE	ug/L	350	14	1100	<2
Benzene	ug/L	2100	7.9	34	<0.5
Toluene	ug/L	460	0.52	<5	<0.5
Ethylbenzene	ug/L	910	9.5	<5	<0.5
m,p-Xylenes	ug/L	2400	31	<5	<0.5
o-Xylene	ug/L	590	4.7	<5	<0.5
Surrogate					
Trifluorotoluene	%REC	81	87	85	84
Bromofluorobenzene	%REC	79	91	81	83



TVH-Total Volatile Hydrocarbons

Client: Woodward-Clyde Consultants
Project#: 941114NA
Location: Emeryville Projects

Analysis Method: EPA 8015M
Prep Method: EPA 5030

METHOD BLANK

Matrix: Water
Batch#: 41332
Units: ug/L
Diln Fac: 1

Prep Date: 06/08/98
Analysis Date: 06/08/98

MB Lab ID: QC72326

Analyte	Result	
Gasoline C7-C12	<50	
Surrogate	%Rec	Recovery Limits
Trifluorotoluene	106	59-162
Bromofluorobenzene	95	59-162



BTXE

Client: Woodward-Clyde Consultants	Analysis Method: EPA 8020A
Project#: 941114NA	Prep Method: EPA 5030
Location: Emeryville Projects	

METHOD BLANK

Matrix: Water	Prep Date: 06/08/98
Batch#: 41332	Analysis Date: 06/08/98
Units: ug/L	
Diln Fac: 1	

MB Lab ID: QC72326

Analyte	Result
MTBE	<2.0
Benzene	<0.5
Toluene	<0.5
Ethylbenzene	<0.5
m,p-Xylenes	<0.5
o-Xylene	<0.5

Surrogate	%Rec	Recovery Limits
Trifluorotoluene	79	53-124
Bromofluorobenzene	75	41-142



TVH-Total Volatile Hydrocarbons

Client: Woodward-Clyde Consultants	Analysis Method: EPA 8015M
Project#: 941114NA	Prep Method: EPA 5030
Location: Emeryville Projects	

LABORATORY CONTROL SAMPLE

Matrix: Water	Prep Date: 06/08/98
Batch#: 41332	Analysis Date: 06/08/98
Units: ug/L	
Diln Fac: 1	

LCS Lab ID: QC72325

Analyte	Result	Spike Added	%Rec #	Limits
Gasoline C7-C12	1875	2000	94	80-119
Surrogate	%Rec	Limits		
Trifluorotoluene	144	59-162		
Bromofluorobenzene	109	59-162		

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Spike Recovery: 0 out of 1 outside limits



BTXE

Client: Woodward-Clyde Consultants Analysis Method: EPA 8020A
 Project#: 941114NA Prep Method: EPA 5030
 Location: Emeryville Projects

BLANK SPIKE/BLANK SPIKE DUPLICATE

Matrix: Water Prep Date: 06/08/98
 Batch#: 41332 Analysis Date: 06/08/98
 Units: ug/L
 Diln Fac: 1

BS Lab ID: QC72327

Analyte	Spike Added	BS	%Rec #	Limits
MTBE	20	19.86	99	65-135
Benzene	20	17.87	89	69-109
Toluene	20	18.34	92	72-116
Ethylbenzene	20	17.91	90	67-120
m,p-Xylenes	20	19.01	95	69-117
o-Xylene	20	18.61	93	75-122
Surrogate	%Rec	Limits		
Trifluorotoluene	83	53-124		
Bromofluorobenzene	80	41-142		

BSD Lab ID: QC72328

Analyte	Spike Added	BSD	%Rec #	Limits	RPD #	Limit
MTBE	20	19.71	99	65-135	1	20
Benzene	20	18.54	93	69-109	4	11
Toluene	20	18.98	95	72-116	3	11
Ethylbenzene	20	18.34	92	67-120	2	12
m,p-Xylenes	20	19.6	98	69-117	3	11
o-Xylene	20	19.05	95	75-122	2	12
Surrogate	%Rec	Limits				
Trifluorotoluene	81	53-124				
Bromofluorobenzene	80	41-142				

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 6 outside limits

Spike Recovery: 0 out of 12 outside limits



TVH-Total Volatile Hydrocarbons

Client: Woodward-Clyde Consultants	Analysis Method: EPA 8015M
Project#: 941114NA	Prep Method: EPA 5030
Location: Emeryville Projects	

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Field ID: ZZZZZZ	Sample Date: 06/02/98
Lab ID: 133898-011	Received Date: 06/02/98
Matrix: Water	Prep Date: 06/09/98
Batch#: 41332	Analysis Date: 06/09/98
Units: ug/L	
Diln Fac: 1	

MS Lab ID: QC72329

Analyte	Spike Added	Sample	MS	%Rec #	Limits
Gasoline C7-C12	2000	<50	2049	102	71-131
Surrogate	%Rec	Limits			
Trifluorotoluene	153	59-162			
Bromofluorobenzene	117	59-162			

MSD Lab ID: QC72330

Analyte	Spike Added	MSD	%Rec #	Limits	RPD #	Limit
Gasoline C7-C12	2000	2002	100	71-131	2	26
Surrogate	%Rec	Limits				
Trifluorotoluene	152	59-162				
Bromofluorobenzene	117	59-162				

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 1 outside limits

Spike Recovery: 0 out of 2 outside limits