



ALCO
HAZMAT

94 FEB 14 PM 3: 33

**CET Environmental
Services, Inc.**

5845 Doyle Street, Suite 104
Emeryville, California 94608
Telephone (510) 652-7001
Fax (510) 652-7002

February 9, 1994

Juliet Shin
Hazardous Materials Specialist
Alameda County Health Care Services Agency
Department of Environmental Health
80 Swan Way, Room 200
Oakland, CA 94621

*Well seems not
adequate for this
quarter - JS*

**Subject: Fourth Quarter Report, 1993
Quarterly Groundwater Sampling and Monitoring
1150 Ballena Blvd., Alameda, California
(CET Project No. 3571)**

Dear Ms. Shin:

This report presents the results of quarterly groundwater sampling and monitoring conducted by CET Environmental Services, Inc. (CET) at the subject property during the Fourth Quarter 1993. Quarterly activities included groundwater elevation measurements, groundwater flow direction and gradient determination, and the collection and analysis of groundwater samples. Activities at the subject property were conducted in accordance with the Alameda County Health Care Services Agency's (ACHCSA) August 4, 1993 letter.

BACKGROUND

During the October 17, 1989 Loma Prieta earthquake, two, single-walled, 12,000-gallon underground storage tanks (USTs) (one containing diesel fuel and the other containing gasoline) rose upward through the backfill in response to the liquefaction of soils which surrounded the tanks at the time of the earthquake. After the earthquake, the USTs were removed from service.

In September 1990, the two tanks were replaced with two, double-walled, 12,000-gallon USTs (one containing diesel fuel and the other containing gasoline) equipped with leak detection systems. These tanks remain in service to date. In December 1992, three groundwater monitoring wells (MW1, MW2, and MW3) were installed near the USTs by Law/Crandell, Inc. of San Rafael, California. These wells are the focus of the groundwater sampling and monitoring activities currently being conducted at the subject property.

In 1991, one, single-walled, 250-gallon waste oil underground storage tank (UST) was removed from the subject property. The waste oil tank pit has been vertically excavated to



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groundwater, and horizontally excavated to the bounds of utility lines and a building. To date, the waste oil tank pit has not been back-filled, but remains open and covered. Groundwater samples were collected from the open pit by CET, as requested by the ACHCSA; the results are presented in the Third Quarter 1993 Report (CET).

Two site location maps are included on Plates 1 and 2 (Attachment A). Locations of existing site groundwater monitoring wells (MW1, MW2, and MW3) are shown on Plate 3 (Attachment A).

QUARTERLY GROUNDWATER MONITORING

Groundwater Elevation Data and Flow Direction

On December 14, 1993, the depth to groundwater was measured in all site monitoring wells. The depth to groundwater ranged from 3.92 to 4.45 feet below the top of the well casing (btoc). A summary of groundwater elevation data is presented in Table 1 (Attachment B).

Plate 3 (Attachment A) shows interpreted groundwater elevation contours, and groundwater flow directions based on water levels measurements collected on December 14, 1993. The groundwater flow direction for December 14, 1993 was northwesterly (N40°W). The groundwater gradient calculated for December 14, 1993 is approximately 0.002 ft/ft.

Groundwater Sample Collection, & Analytical Methods

On September 2, 1993, groundwater samples (MW1, MW2 and MW3) were collected from all site monitoring wells. Groundwater samples were collected and handled in accordance with the protocol presented in Attachment C. The samples were submitted according to chain-of-custody protocol to Chromolab of San Ramon, California, a California Department of Health Services (DHS) accredited laboratory. Signed laboratory analytical reports, chain-of-custody documents and sample collection records are provided in Attachment D.

All samples were analyzed for total petroleum hydrocarbons as gasoline and as diesel (TPH/g and TPH/d, respectively), and for benzene, toluene, ethylbenzene, and total xylenes



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(BTEX). U.S. Environmental Protection Agency (EPA) Methods 5030/8015, 3510/8015, and 602, were utilized for the TPH/g, TPH/d, and BTEX analyses, respectively.

Groundwater Sample Analytical Results

Analytical results for groundwater samples are presented in Table 2 (Attachment B). Concentrations of TPH/g, TPH/d and BTEX were below the method detection limits in groundwater samples collected from the monitoring wells.

CONCLUSIONS

No gasoline constituents were detected in any of the monitoring wells this quarter. Groundwater was encountered at depths ranging from 3.92 to 4.45 feet btoc. The groundwater flow direction was determined to be northeasterly at the time of the sampling event. Due to the close proximity of the site to the Bay, a shift in groundwater flow direction could be expected due to potential tidal influences.

PLANNED ACTIVITIES

CET will collect groundwater elevation measurements, will determine groundwater flow direction and gradient, and will collect groundwater samples for chemical analysis on a quarterly basis. Quarterly groundwater samples will be submitted to a California DHS accredited laboratory for analysis for TPH/d, TPH/g, and BTEX.

Quarterly reports summarizing these activities at the subject property will be submitted to the ACHCSA. Activities at the subject property will be conducted in accordance with the ACHCSA's August 4, 1993 letter.



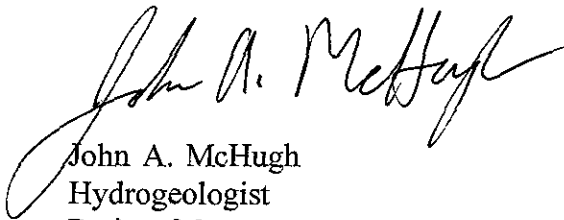
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Limitations and uncertainty to this report are in Attachment E.

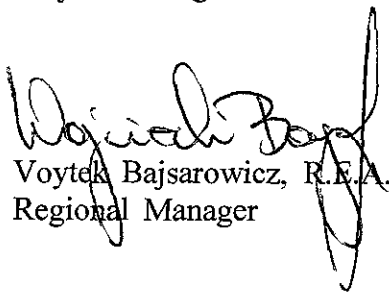
Please contact us if you have any questions or comments.

Sincerely,

CET ENVIRONMENTAL SERVICES, INC.



John A. McHugh
Hydrogeologist
Project Manager



Voytek Bajsarowicz, R.E.A.
Regional Manager

JAM/VB/:kaa

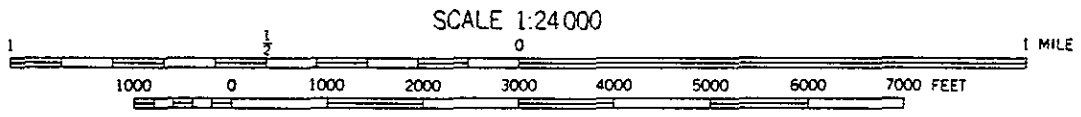
Attachments

cc: Don Anderson, Ballena Isle Marina



ATTACHMENT A

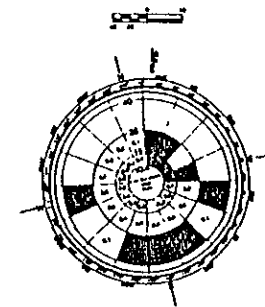
Plates



Site Location Map		
Ballena Bay Yacht Harbor 1150 Ballena Blvd., Alameda, CA		
Ballena Bay Marina		PLATE
JOB NUMBER	DATE	1
3571	1/94	

CET Environmental Services, Inc.

Two, 12,000-gallon USTs



B A L L E N A I S L E M A R I N A

Former Waste Oil Tank
(Current Waste Oil Tank Pit)

PLATE

2

CET Environmental Services, Inc.

Site Plan

Ballena Bay Marina

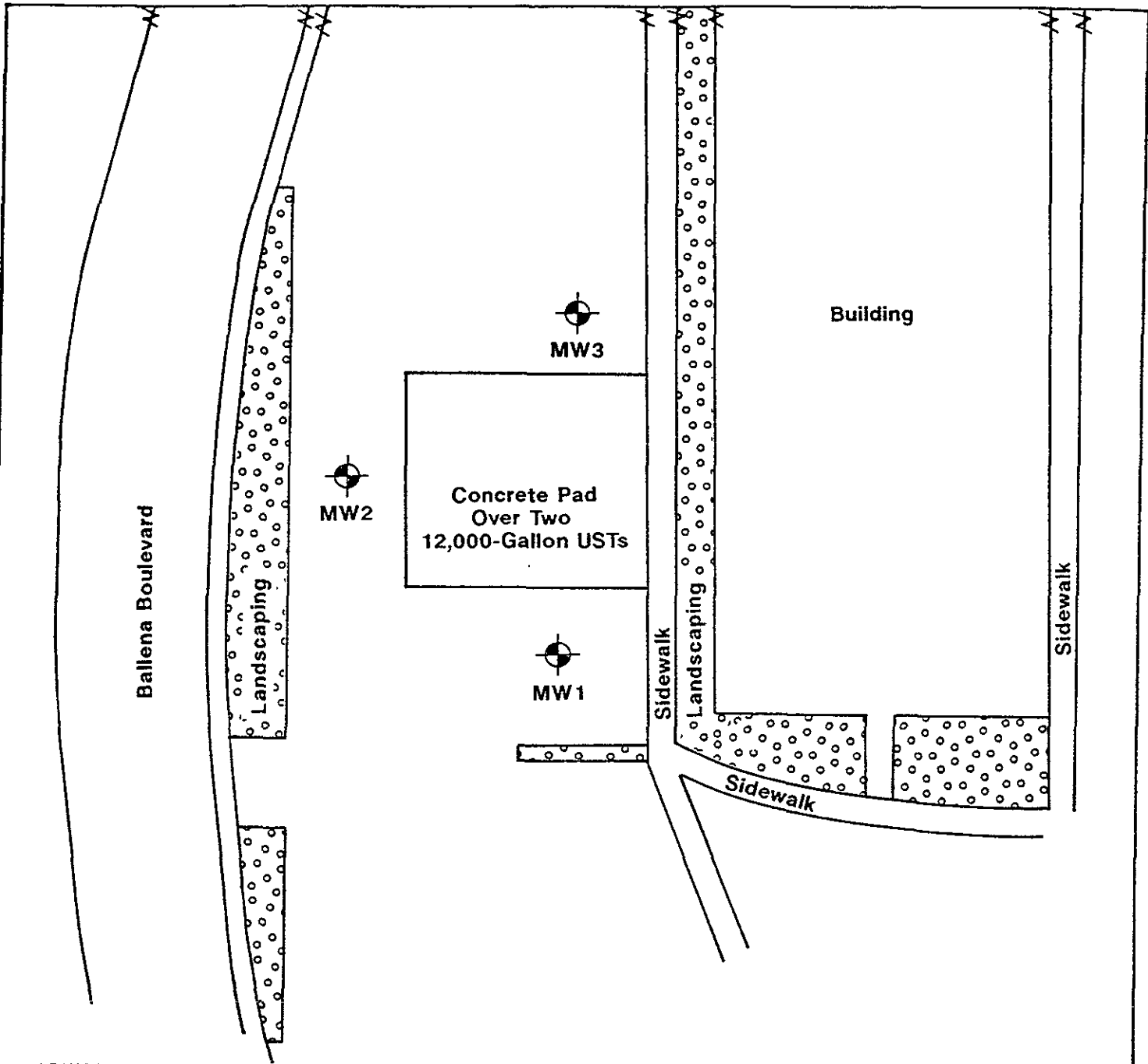
Ballena Bay Yacht Harbor
1150 Ballena Blvd., Alameda, CA

JOB NUMBER

DATE

3571

1/94



LEGEND

 Groundwater Monitoring Well

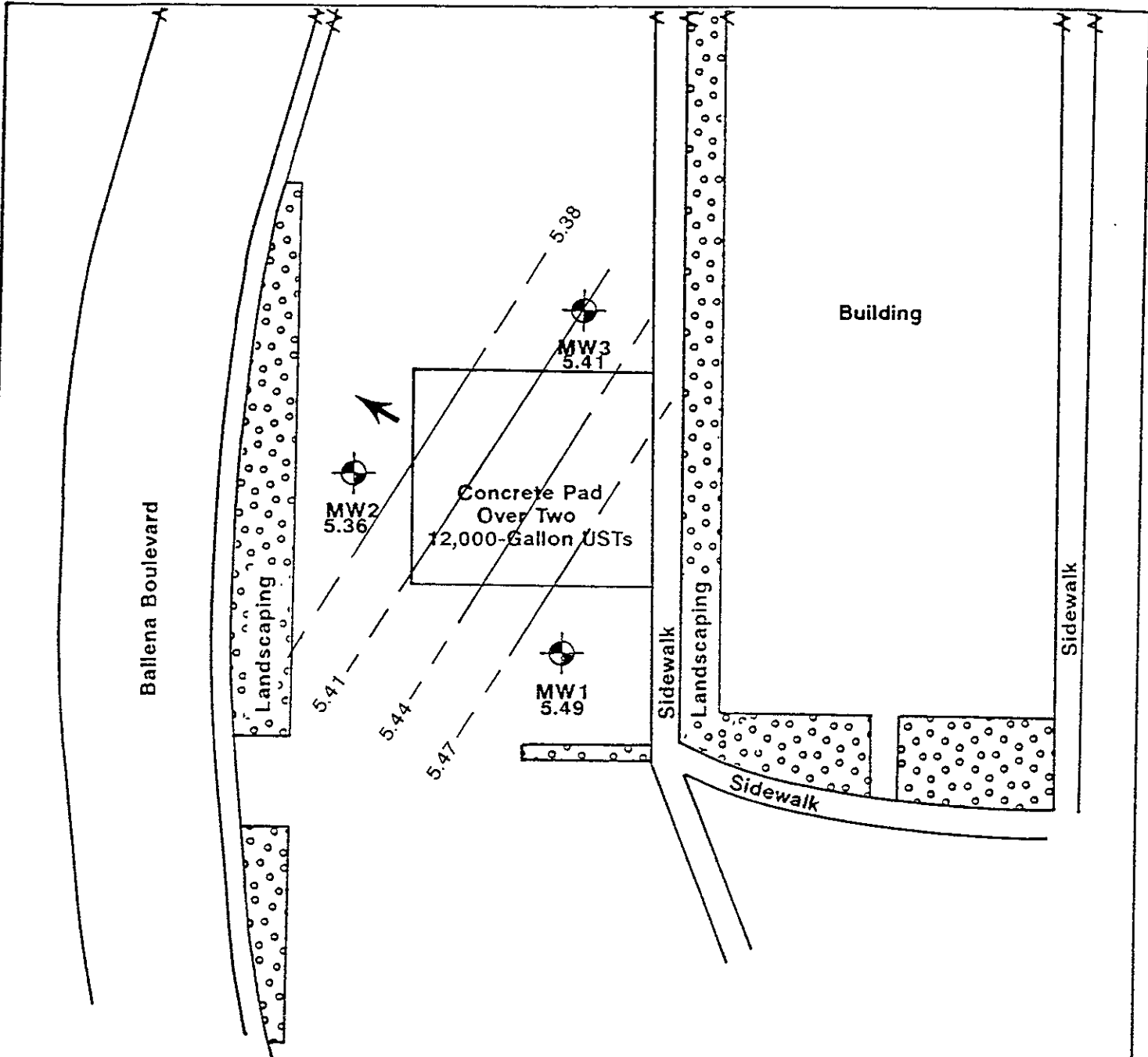


Base Map Source: LAW/CRANDALL, INC.
Job # 2123-20559-1, Figure 3.






Site Plan		
Ballena Bay Yacht Harbor 1150 Ballena Blvd., Alameda, CA		
Ballena Bay Marina		PLATE
JOB NUMBER	DATE	3
3571	1/94	

CET Environmental Services, Inc.



LEGEND

-  Groundwater Monitoring Well
-  Line of Equal Groundwater Elevation (feet)
-  Direction of Groundwater Flow



Base Map Source: LAW/CRANDALL, INC.
Job # 2123-20559-1, Figure 3.



Groundwater Elevations and Contours
Ballena Bay Yacht Harbor
1150 Ballena Blvd., Alameda, CA

CET Environmental Services, Inc.

Ballena Bay Marina		PLATE 4
JOB NUMBER 3571	DATE 1/94	



ATTACHMENT B

Tables



Table 1
Groundwater Elevation Summary
1150 Ballena Blvd., Alameda, California

Well No.	TOC Elevation^a	Date Measured	Depth to Groundwater^b	Groundwater Elevation^c
MW1	9.41	09/02/93	4.50	4.91
		12/14/93	3.92	5.49
MW2	9.81	09/02/93	5.00	4.81
		12/14/93	4.45	5.36
MW3	9.74	09/02/93	5.90	3.84
		12/14/93	4.33	5.41

- a. TOC Elevation = top of well casing elevation; measured in feet above a benchmark with an assumed elevation of 10.00 feet. (Data provided by Law/Crandell, Inc.)
- b. Depth to Groundwater = measured in feet below top of well casing.
- c. Groundwater Elevation = depth to groundwater subtracted from TOC elevation.



Table 2

Groundwater Analytical Data Summary-Petroleum Hydrocarbon Constituents
1150 Ballena Blvd., Alameda, California

Well No.	Date Sampled	TPH/d ^a (µg/L) ^g	TPH/g ^b (µg/L) ^g	B ^c (µg/L) ^g	T ^c (µg/L) ^g	E ^c (µg/L) ^g	X ^c (µg/L) ^g	SVOCs ^d (µg/L) ^g	TOG ^e (µg/L) ^g	PCBs ^f (µg/L) ^g
MW1	09/02/93	98	<50 ^h	<0.5	<0.5	<0.5	<0.5	NA ⁱ	NA	NA
	12/14/93	<50	<50	<0.5	<0.5	<0.5	<0.5	NA ⁱ	NA	NA
MW2	09/02/93	<50	<50	<0.5	<0.5	<0.5	<0.5	NA	NA	NA
	12/14/93	<50	<50	<0.5	<0.5	<0.5	<0.5	NA	NA	NA
MW3	09/02/93	<50	<50	<0.5	<0.5	<0.5	<0.5	NA	NA	NA
	12/14/93	<50	<50	<0.5	<0.5	<0.5	<0.5	NA	NA	NA
OP1	09/02/93	9,100	580	<0.5	<0.5	19	0.5	ND ^j	43,000	<0.5

- a. TPH/d = total petroleum hydrocarbons as diesel
- b. TPH/g = total petroleum hydrocarbons as gasoline
- c. B = benzene; T = toluene; E = ethylbenzene; x = total xylenes
- d. SVOCs = semi volatile organic compounds
- e. TOG = total oil and grease
- f. PCBs = polychlorinated biphenols
- g. µg/L = micrograms per liter, equal to parts per billion (ppb)
- h. <50 = less than method detection limit of 50 µg/L
- i. NA = analysis not requested
- j. ND = no analytes detected above respective method detection limits
(see analytical test reports for individual analyte detection limits)



ATTACHMENT C

Soil & Groundwater Sample Collection & Handling Protocol



SOIL & GROUNDWATER SAMPLE COLLECTION & HANDLING PROTOCOL

INTRODUCTION & PURPOSE

Because reliable and representative test results must be generated from soil and groundwater samples, it is essential to establish a sampling procedure which assures that all samples are:

- Collected by approved and repeatable methods
- Representative of the materials(s) at the desired location and depth
- Uncontaminated by container and sampling equipment

The following sampling protocol was designed to be a guide to the sampling and handling procedures for soil and groundwater samples. Based on conditions which may be encountered in the field, some modifications to this protocol may be required to fit the needs of an individual site.

SAMPLING PROCEDURES

Groundwater Sampling

Prior to collecting groundwater samples, monitoring wells were purged by bailing until pH, conductivity, and temperature levels stabilize. A minimum of four well casing volumes was purged from each well. Wells were purged and groundwater samples were obtained using a teflon bailer, or disposable polyethelene bailer, and nylon rope. New nylon rope is used for each well.

The appropriate number of sample containers and type were used for each sample collected, in accordance with the analytical laboratory requirements and EPA protocol. The bottles were filled using the bailer. All sample bottles were pre-cleaned by the supplier according to EPA protocols.

To prevent cross contamination of groundwater samples by the sampling equipment, all reusable equipment used in sampling was washed with a trisodium phosphate solution (TSP), triple rinsed with purified water, and allowed to air dry prior to each use. A sample of the purified water was retained for analysis as part of sample quality assurance.

Soil Sampling

After the soil sampler was driven to the desired depth and the samples were retrieved, each end of the tube containing the soil sample retained for laboratory analysis was sealed with teflon sheeting, covered with plastic end caps, and sealed with PVC tape. All sample containers (tubes) were steamed cleaned (or washed with TSP, as above) and air dried prior to use. The soil sample recovered in the tube just above the sample retained for chemical analysis was examined in the field for visual and olfactory indications of chemical contamination and used for lithologic description.



The Unified Soil Classification System (USCS) was used to log and describe the soil by the onsite geologist. These logs also include details of the sampling process such as depth, apparent odors, discoloration, and any other factors which may be required to evaluate the presence of contamination at the site.

POST SAMPLING PROCEDURES

One field/travel blank consisting of one sample bottle filled with purified water accompanied soil and groundwater sample containers at all times, including during transport to and from the site. Purified water field/travel blanks were analyzed according to the appropriate EPA Methods corresponding to the soil/groundwater sample analyses.

Sample containers were labeled with sample number, project number, date, and the initials of the person collecting the sample. A separate sample collection record was maintained for each groundwater sample collected.

Soil and groundwater samples collected were analyzed by an analytical laboratory certified by the California Department of Health Services (DHS). Quality assurance documentation accompanied all analytical reports generated by the laboratory.

The samples were placed in a cooler with dry ice (for soil samples) or bagged ice (for water samples) immediately following collection, and remained in the cooler until refrigerated at the analytical laboratory. The samples were delivered to the laboratory direct by courier or overnight freight within 48 hours of time of collection. Appropriate chain of custody forms were used for all samples.



ATTACHMENT D

**Chain-of-Custody Records
Sample Collection Records
Laboratory Analytical Reports**

RECEIVED 3-8-7 117

CHROMALAB, INC.

Environmental Laboratory (1094)

5 DAYS TURNAROUND

December 28, 1993

ChromaLab File No.: 9312186

CET ENVIRONMENTAL SERVICES, INC

Attn: Mark Lafferty

RE: Three water samples for Diesel analysis

Project Name: BALLENA BAY

Project Number: 3571-209

Date Sampled: December 14, 1993 Date Submitted: December 15, 1993


Date Extracted: December 22, 1993 Date Analyzed: December 22, 1993

RESULTS:

<u>Sample I.D.</u>	<u>Diesel ($\mu\text{g/L}$)</u>
MW 1	N.D.
MW 2	N.D.
MW 3	N.D.

BLANK	N.D.
SPIKE RECOVERY	101%
DUP SPIKE RECOVERY	97%
DETECTION LIMIT	50
METHOD OF ANALYSIS	3510/8015

ChromaLab, Inc.


Alex Tam
Analytical Chemist


Eric Tam
Laboratory Director

CHROMALAB, INC.

Environmental Laboratory (1094)

RECEIVED 12-7-1994

5 DAYS TURNAROUND

December 30, 1993

ChromaLab File#: 9312186

CET ENVIRONMENTAL SERVICES, INC

Atten: Mark Lafferty

Project: BALLENA BAY

Project#: 3571-209

Submitted: December 15, 1993

re: 3 samples for Gasoline and BTEX analysis.

Matrix: WATER

Sampled on: December 14, 1993

Analyzed on: December 22, 1993

Method: EPA 5030/8015/602

Run#: 1900

Lab #	SAMPLE ID	Gasoline (ug/L)	Benzene (ug/L)	Toluene (ug/L)	Ethyl Benzene (ug/L)	Total Xylenes (ug/L)
39499	MW1	N.D.	N.D.	N.D.	N.D.	N.D.
39500	MW2	N.D.	N.D.	N.D.	N.D.	N.D.
39501	MW3	N.D.	N.D.	N.D.	N.D.	N.D.
DETECTION LIMITS		50	0.5	0.5	0.5	0.5
BLANK		N.D.	N.D.	N.D.	N.D.	N.D.
BLANK SPIKE RECOVERY(%)		101	93	102	101	102

ChromaLab, Inc.



Billy Thach
Chemist



Eric Tam
Laboratory Director

CHROMALAB, INC.

DOHS 1094

SUBM #: 9312186
 CLIENT: CET
 2239 (DUE: 12/30/93
 REF: 14463

014463
12/15/93

Chain of Custody

DATE 12-14-93 PAGE 1 OF 1

PROJ MGR <u>Mark Lafferty</u> COMPANY <u>CET Environmental</u> ADDRESS <u>Emeryville, CA</u>					ANALYSIS REPORT															NUMBER OF CONTAINERS									
					TPH - Gasoline (EPA 5030, 8015)	TPH - Gasoline (5030, 8015) w/BTEX (EPA 602, 8020)	TPH - Diesel (EPA 3510/3550, 8015)	PURGEABLE AROMATICS BTEX (EPA 602, 8020)	PURGEABLE HALOCARBONS (EPA 601, 8010)	VOLATILE ORGANICS (EPA 624, 8240, 524.2)	BASE/NEUTRALS, ACIDS (EPA 625/627, 8270, 525)	TOTAL OIL & GREASE (EPA 5520, B+F, E-F)	PCB (EPA 608, 8080)	PESTICIDES (EPA 608, 8080)	TOTAL RECOVERABLE HYDROCARBONS (EPA 418.1)	METALS: Cd, Cr, Pb, Zn, Ni	CAM METALS (17)	PRIORITY POLLUTANT METALS (13)	TOTAL LEAD		EXTRACTION (TCIP, STIC)								
SAMPLER'S (SIGNATURE) <u>J. Long</u>		PHONE NO) <u>652-7001</u>		SAMPLE ID	DATE	TIME	MATRIX	PRESERV.																					
	MW1	12-14-93	13:50	H ₂ O	HCl		X	X														4							
	MW2	"	14:20	"	"		X	X														4							
	MW3	"	14:50	"	"		X	X														4							
PROJECT INFORMATION					SAMPLE RECEIPT					RELINQUISHED BY 1			RELINQUISHED BY 2			RELINQUISHED BY 3													
PROJECT NAME: <u>Ballena Bay</u>					TOTAL NO OF CONTAINERS <u>12</u>					SIGNATURE) <u>Jaysen Long</u> 10:20			SIGNATURE)			SIGNATURE)													
PROJECT NUMBER <u>3571-209</u>					HEAD SPACE					(TIME)			(TIME)			(TIME)													
P.O. #					REC'D GOOD CONDITION/COLD					DATE) <u>12/15/93</u>			(DATE)			(DATE)													
					CONFORMS TO RECORD					CET Environmental			(PRINTED NAME)			(PRINTED NAME)													
										COMPANY)			COMPANY)			COMPANY)													
TAT	STANDARD 5-DAY			24	48	72	OTHER					RECEIVED BY 1			RECEIVED BY 2			RECEIVED BY (LABORATORY) 3											
SPECIAL INSTRUCTIONS/COMMENTS: <div style="border: 2px solid black; border-radius: 50%; padding: 10px; display: inline-block; margin-top: 10px;">10-day TAT</div>												SIGNATURE)			SIGNATURE)			SIGNATURE) <u>Gary Cook</u> 10:15			(TIME)			(TIME)			(TIME)		
												(PRINTED NAME)			(PRINTED NAME)			DATE) <u>12/15/93</u>			(DATE)			(DATE)			(DATE)		
												COMPANY)			COMPANY)			COMPANY)			COMPANY)			COMPANY)			LAB)		

RECORD OF GROUNDWATER LEVEL MEASUREMENTS

Page 1 of 1

Date Measured: 12 - 14 - 93

Job No.: 3571-209

Site Location: Ballena Bay

Well location map attached? Yes No

Method of Measurement: Electric well sounder,
 Other: _____

Weather/Visibility: Partly Cloudy

Notes: Cut existing locks and replaced
w/ 3303's on all wells

Well I.D.	Time (24 hr)	G.W.L. (1/100 ft)	G.W.L. 3x's?	B.O.W. (1/2ft)	Remarks
MW1	13:17	3.92	✓	13.5	
MW2	13:21	4.45	✓	14.5	
MW3	13:24	4.33	✓	14.5	

Measured by (Signature): J. Long

SAMPLE COLLECTION RECORD - MONITOR WELL

Date: 12-14-93 Sample I.D.: MW1 Job No.: 3571-209

Site Location: Ballena Bay

No. of Containers : 4 / (check one): Well Samples;
 Duplicates from well _____; Travel Blanks;
 Field Blanks; Other (explain) / _____

W.L. (1/100'): 3.92 Time : 13:17 B.O.W. (1/2'): 13.5

Method: Electric Well Sounder; Other / _____

Meters calibrated: / N Well Loc. Map: Y / N

Calculated Purge Volume (4 casing volumes): 6 gallons

Purging Method: Disposable Bailer; Teflon Bailer;
 Other / _____

Time Start Purging (24 hr): 13:33, Product: Y / N
 Sheen: Y / N, Odor: / N, Vapor: _____ ppm / %LEL
 Turbidity: none, Color: clear

Time Stop Purging (24 hr): 13:43, Product: Y / N
 Sheen: Y / N, Odor: / N, Vapor: _____ ppm / %LEL
 Turbidity: moderate, Color: gray-green

Time (24 hr)	Temp. (C)	pH	Cond. (uS)	H2O (Gal)	Turbid. (NTU)
<u>13:36</u>	<u>19</u>	<u>8.06</u>	<u>0570</u>	<u>2</u>	<u>-</u>
<u>13:39</u>	<u>19</u>	<u>8.04</u>	<u>0570</u>	<u>4</u>	<u>-</u>
<u>13:42</u>	<u>19</u>	<u>8.04</u>	<u>0580</u>	<u>6</u>	<u>-</u>
<u>:</u>	<u>:</u>	<u>:</u>	<u>:</u>	<u>:</u>	<u>:</u>
<u>:</u>	<u>:</u>	<u>:</u>	<u>:</u>	<u>:</u>	<u>:</u>

Sample Collection Time (24 hr): 13:50

Notes: Odor of vegetation

Collected By (signature): J. Long

SAMPLE COLLECTION RECORD - MONITOR WELL

Date: 12-14-93 Sample I.D.: MW2 Job No.: 3571-209

Site Location: Ballena Bay

No. of Containers : 4 / (check one): Well Samples;
 Duplicates from well _____; Travel Blanks;
 Field Blanks; Other (explain)/ _____

W.L. (1/100'): 4.45 Time : 13:21 B.O.W. (1/2'): 14.5

Method: Electric Well Sounder; Other/ _____

Meters calibrated: Y / N Well Loc. Map: Y / N

Calculated Purge Volume (4 casing volumes): 6 gallons

Purging Method: Disposable Bailer; Teflon Bailer;
 Other/ _____

Time Start Purging (24 hr): 14:02, Product: Y / N
 Sheen: Y / N, Odor: Y / N, Vapor: _____ ppm / %LEL
 Turbidity: none, Color: clear

Time Stop Purging (24 hr): 14:12, Product: Y / N
 Sheen: Y / N, Odor: Y / N, Vapor: _____ ppm / %LEL
 Turbidity: moderate, Color: gray-green

Time (24 hr)	Temp. (C)	pH	Cond. (uS)	H2O (Gal)	Turbid. (NTU)
<u>14:05</u>	<u>20</u>	<u>7.85</u>	<u>0550</u>	<u>2</u>	<u>-</u>
<u>14:08</u>	<u>20</u>	<u>7.76</u>	<u>0550</u>	<u>4</u>	<u>-</u>
<u>14:11</u>	<u>20</u>	<u>7.75</u>	<u>0560</u>	<u>6</u>	<u>-</u>
<u>:</u>	<u>:</u>	<u>:</u>	<u>:</u>	<u>:</u>	<u>:</u>
<u>:</u>	<u>:</u>	<u>:</u>	<u>:</u>	<u>:</u>	<u>:</u>

Sample Collection Time (24 hr): 14:20

Notes: Vegetation odor

Collected By (signature): J. Long

SAMPLE COLLECTION RECORD - MONITOR WELL

Date: 12-14-93 Sample I.D.: MW3 Job No.: 3571-209

Site Location: Ballena Bay

No. of Containers : 4 / (check one): Well Samples;
 Duplicates from well _____; Travel Blanks;
 Field Blanks; Other (explain) / _____

W.L. (1/100'): 4.33 Time : 13:24 B.O.W. (1/2'): 14.5

Method: Electric Well Sounder; Other / _____

Meters calibrated: Y / N Well Loc. Map: Y / N

Calculated Purge Volume (4 casing volumes): 6 gallons

Purging Method: Disposable Bailer; Teflon Bailer;
 Other / _____

Time Start Purging (24 hr): 14:32, Product: Y / N
 Sheen: Y / N, Odor: Y / N, Vapor: _____ ppm / %LEL
 Turbidity: _____, Color: _____

Time Stop Purging (24 hr): 14:42, Product: Y / N
 Sheen: Y / N, Odor: Y / N, Vapor: _____ ppm / %LEL
 Turbidity: moderate, Color: gray-green

Time (24 hr)	Temp. (C)	pH	Cond. (uS)	H2O (Gal)	Turbid. (NTU)
<u>14:35</u>	<u>19</u>	<u>7.73</u>	<u>0750</u>	<u>2</u>	<u>—</u>
<u>14:38</u>	<u>19</u>	<u>7.77</u>	<u>0770</u>	<u>4</u>	<u>—</u>
<u>14:41</u>	<u>19</u>	<u>7.76</u>	<u>0770</u>	<u>6</u>	<u>—</u>
<u>:</u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
<u>:</u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>

Sample Collection Time (24 hr): 14:50

Notes: Vegetation odor

Collected By (signature): J. Long



ATTACHMENT E
Limitations and Uncertainty



LIMITATIONS AND UNCERTAINTY

This report was prepared in general accordance with the accepted standard of practice which exists in northern California at the time the investigation was conducted and within the scope of services outlined in our proposal. It should be recognized that the definition and evaluation of surface and subsurface environmental conditions is a difficult and inexact science. Judgements leading to conclusions and recommendations generally are made with an incomplete knowledge of the conditions present. It is possible that variations in the soil and/or groundwater conditions could exist beyond the points explored for this investigation. Also changes in groundwater conditions could exist beyond the points explored for this investigation. Also changes in groundwater conditions could occur sometime in the future due to variations in tides, rainfall, temperature, local or regional water use or other factors. If the client wishes to reduce the uncertainty beyond the level associated with this study, CET Environmental Services, Inc. should be notified for additional consultation.

The discussion and recommendations presented in this report are based on: 1) information and data provided by third party consultants, 2) the exploratory test borings drilled at the site, 3) the observations of field personnel, 4) the results of laboratory analysis by a California Department of Health Services (DHS) accredited laboratory, and 5) interpretations of federal, state, and local regulations and/or ordinances.

Chemical analytical data included in this report have been obtained from state certified laboratories. The analytical methods employed by the laboratories were in accordance with procedures suggested by the U. S. Environmental Protection Agency and State of California. CET Environmental Services, Inc. is not responsible for laboratory errors in procedures or reporting.

CET has conducted this investigation in a manner consistent with the level of care and skill ordinarily exercised by members of the environmental consulting profession currently practicing under similar conditions in northern California. CET has prepared this report for the client's (and assigned parties) exclusive use for this particular project. No other warranties, expressed or implied, as to the professional advice provided are made.