CAPE
ENVIRONMENTAL MANAGEMENT INC

TRANSMITTAL LETTER

Juliet Shin
Attn:

Alameda County Dept. of Env. Health
Co. name

1131 Harbor Bay Parkway, #250
Address

Alameda, CA 94502-6577

ph # 510 567 6763

Date April 29, 1996

RE: STID 4655

We are transmitting herewith the following:

- ☐ Specifications
- ☐ Original drawings
- ☐ Laboratory reports
- ☐ Prints
- ☐ Shop drawings
- ☐ Electronic media
- ☐ _____

- ☒ For your use
- ☐ Revise and resubmit
- ☐ No exception taken
- ☐ Make corrections needed

COPIES	DESCRIPTION
1	Fourth Quarter Groundwater Monitoring Report, March 1996
	Alameda Federal Center

REMARKS

20280 South Vermont Ave.
Suite 250
Torrance, CA 90502

Phone 310/532-4500
Fax 310/532-6022

From Larry Harlan

Cape Job. # 2403C.24

CAPE
ENVIRONMENTAL
MANAGEMENT
INC

April 25, 1996

Ms. Juliet Shin
Senior Hazardous Materials Specialist
Alameda County Department of Environmental Health
Environmental Protection Division
1131 Harbor Bay Parkway, #250
Alameda, California 94502-6577

SUBJECT: Fourth Quarter Groundwater Monitoring Report, March 1996
Alameda Federal Center
620 Central Avenue, Alameda, California
STID 4655

Dear Ms. Shin:

Please find enclosed the fourth quarter, March 1996, groundwater monitoring report for the above-referenced project. This report has been prepared by Cape Environmental Management Inc (Cape) on behalf of the General Services Administration (GSA) to assess groundwater contamination conditions due to underground storage tank releases.

If you have further questions or require additional information, please contact the undersigned at (310) 532-4500.

Respectfully Submitted,

CAPE ENVIRONMENTAL MANAGEMENT, INC.

Prepared by:

Larry M. Harlan
Project Geologist

Reviewed by:

William W. Millar, RG
Senior Geologist

Attachment

cc: James Lew/GSA Region 9
Project File

CAPE
ENVIRONMENTAL
MANAGEMENT
I N C

Fourth Quarter Groundwater Monitoring Report

Alameda Federal Center
620 Central Avenue
Alameda, California

GSA Project No. RCA21602
Cape Project No. 2403C.24

prepared for:

General Services Administration, Pacific Rim Region
525 Market Street
San Francisco, California 94105-2799

---

prepared by:

Cape Environmental Management Inc
20280 South Vermont Avenue
Suite 250
Torrance, California 90502

April 1996

TABLE OF CONTENTS

Section 1
Introduction

On behalf of General Services Administration (GSA), Cape Environmental Management Inc (Cape) is performing quarterly groundwater monitoring and testing at the Alameda Federal Center, located at 620 Central Avenue, Alameda, California. The purpose of the groundwater monitoring program is to investigate the extent and severity of impacted groundwater due to underground storage tank (UST) releases. Figure 1 is a Site Vicinity Map depicting the area around the subject site.

This report describes field work and analytical results for the fourth quarter, March 1996, of groundwater monitoring at the site. Previously, Cape has submitted to the Alameda County Department of Environmental Health (DEH) a Preliminary Site Assessment (PSA) Report, dated July 1995, a Second Quarter Groundwater Monitoring Report - August 1995, dated October 2, 1995, an Addenda to Second Quarter Groundwater Monitoring Report - August 1995, dated October 30, 1995, and a Third Quarter Groundwater Monitoring Report - December 1995, dated January 1996. Figure 2 is a Site Map depicting location and orientation of the subject site. Figure 3 illustrates tank areas 1 and 2, the location and orientation of the former USTs, and the location of monitoring wells used in the quarterly groundwater monitoring program, MW-1, MW-2R, MW-4, TW/MW-5, and MW-6.

Monitoring well MW-3 is located adjacent to two (2) existing 10,000-gallon USTs (Tanks 3 and 4). These USTs are scheduled for removal and MW-3 will be destroyed during the excavation and removal activities. Sampling of MW-3 has been omitted from the monitoring program; however, water level measurements are being obtained for use in estimating local groundwater gradient.

Section 2
Project Description

On March 8, 1996, Cape performed the fourth quarter of groundwater monitoring at the site. Activities included water level sounding, purging and sampling of monitoring wells MW-1, MW-2R, MW-4, TW/MW-5, and MW-6.

2.1 Water Level Sounding, Purging and Sampling

Cape performed concurrent water level sounding of wells MW-1, MW-2R, MW-3, MW-4, TW/MW-5, and MW-6 with the use of an electronic water level indicator. Following sounding activities, the wells were purged of approximately three (3) well volumes, measurements were recorded for temperature, pH, and conductivity, and samples were obtained from wells MW-1, MW-2R, MW-4, TW/MW-5, and MW-6. Depths to ground water and other purging and sampling details for each well are provided in Appendix A. Water samples were collected with dedicated disposable 2-inch diameter polyethylene hand bailers and placed in 40 milliliter (ml) glass and 1 liter amber glass containers, labelled, preserved at 4° Celsius, and transferred under Chain-of-Custody documentation to a state-certified laboratory.

2.2 Sample Preparations and Handling

All groundwater samples, following collection, were secured in laboratory supplied containers fitted with threaded Teflon-lined caps and containing hydrochloric acid preservative where appropriate. Sample containers were immediately placed in a pre-cooled ice chest and delivered to the analytical laboratory within approximately 5 hours after collection. Samples were submitted for a 10-day turn-around analytical testing schedule.

2.3 Laboratory Testing

Chemical analyses of samples from the five (5) groundwater monitoring wells included the following methods:

- hydrocarbon oil and grease (O&G) using method SMWW 5520 for all wells;
- total extractable petroleum hydrocarbons (TEPH) using DHS/LUFT procedure EPA Method 8015-modified (diesel fuel) for all wells;
- volatile halocarbons (VH) using EPA Test Method 8010 for all wells;
- polynuclear aromatic compounds (PNA) using EPA Method 8270 for all wells, and
- benzene, toluene, ethylbenzene, and total xylenes (BTEX) using EPA Method 8020 for MW-1 only

Section 3
Analytical and Monitoring Results

This section describes the analytical and monitoring results for the fourth quarter with respect to identified groundwater contamination and groundwater flow direction.

3.1 Analytical Results

Groundwater samples were obtained from pre-existing well MW-1, replacement well MW-2R, new monitoring wells MW-4 and MW-6, and new test well TW/MW-5. Well locations are shown on Figure 3 - Tank 1 and 2 Area/Boring Locations.

Concentrations of PNA's were reported to be below respective reporting limits (not detected) for all groundwater samples collected (MW-1, MW-2R, MW-4, TW/MW-5, and MW-6). Concentrations of VH were not detected in samples from wells MW-1, MW-2R, MW-4, and MW-6, however a concentration of 1.0 µg/l cis-1,2-dichloroethene was reported for TW/MW-5. BTEX analysis for the water sample from well MW-1 resulted in not detected. TEPH was not detected in wells MW-2R, MW-4, TW/MW-5, and MW-6, however a concentration of 13,000 µg/l was reported in MW-1. O&G was not detected in wells MW-2R, MW-4, TW/MW-5, and MW-6, however a concentration of 16 mg/l was reported for MW-1. Certified laboratory results and sample chain-of-custody documentation is provided in Appendix B. Fourth quarter groundwater sample analytical results are tabulated in Tables 1 and 2. Table 4 presents a summary of groundwater sample analytical data for the project to date.

The principal change in analytical results since the last quarter of monitoring is that water samples collected from MW-1 have shown an increase in TEPH concentrations from 49 µg/l to 13,000 µg/l and an increase in O&G concentrations from ND to 16 µg/l. Analytical results of samples obtained from MW-6 indicate a decrease in TEPH concentrations from 3,700 µg/l to ND. A VH concentration of 1.0 µg/l, which is at the method detection limit, was reported this quarter for TW/MW-5, whereas VH was not detected in the previous quarter.

3.2 Groundwater Gradient Determination

Static water level (SWL) gauging was performed for the groundwater monitoring wells on March 8, 1996. The SWL data for this quarter is presented in Table 3. A summary of SWL data for the groundwater monitoring wells to date is presented in Table 5. Survey graphics used in determining groundwater gradient are provided on Figure 4 - Groundwater Gradient Map. All elevations determined for this study are reduced to mean sea level datum.

Groundwater gradient at Tank 1 and 2 Area was detected by concurrent sounding of all five monitoring points. Depth to static groundwater from each reference point was then reduced to mean sea level elevations and a graphic 3-point solution method used to establish groundwater gradient and direction. The result of the determination is the approximate groundwater gradient = 0.0017 ft/ft (approximately 8.9 ft/mile) with a flow direction compass bearing of approximately 225° (SW). When compared to the last quarter results, this indicates a change in flow direction by approximately

Section 4
Summary and Recommendations

This section presents a summary of analytical results for the year-long groundwater monitoring program and includes recommendations for further action.

4.1 Summary

Cape performed a Preliminary Site Assessment on May 18, 1995, which constituted the initial first quarter of groundwater monitoring. Field work for subsequent monitoring quarters was conducted on August 31 and October 5, 1995 (second quarter and addendum), December 8, 1995 (third quarter), and March 8, 1996 (fourth quarter). Please refer to Table 4 - Summary of Water Sample Analytical Results which provides a comprehensive representation of analytical results for each well during the monitoring period. The following is a summary of groundwater monitoring program observations to date.

- O&G was not detected in any samples throughout the duration of the program, with the exception of fourth quarter results which indicated a concentration of 16 mg/l at MW-1.

- TVH (gasoline) was not detected in any samples throughout the duration of the program. Analysis for TVH was subsequently terminated after the second quarter following DEH approval.

- With the exception of MW-1, BTEX compounds were not detected in any samples throughout the duration of the program and analyses were subsequently terminated after the second quarter BTEX compounds were detected in the first quarter of monitoring at MW-1, with benzene reported at a concentration of 1.1 µg/l, however BTEX compounds were not detected in the three subsequent quarters.

- Analysis of total dissolved solids (TDS) was conducted in the second quarter Concentrations ranged from 380 to 450 mg/kg, which is below the recommended state maximum contaminant level (MCL) of 500 mg/l.

- With the exception of TW/MW-5 and MW-1, VH compounds were not detected throughout the program. TW/MW-5 was reported to contain a concentration of 1.0 µg/l chloroform in the first quarter and 1.0 µg/l cis-1,2-dichloroethene in the fourth quarter. VH compounds were not detected in the second and third quarters at TW/MW-5. In general, for MW-1 a decrease in volatile halocarbon compound concentrations was observed over the monitoring period. Most notably, PCE was detected in the first quarter at 7 µg/l , in the second quarter at 1.3 µg/l, and not detected in the third and fourth quarters PCE and chloroform were each reported at 1 µg/l in the first quarter and not detected in subsequent quarters Also, concentrations of the VH compounds cis-1,2-dichloroethene and trans-1,2-dichloroethene showed a decreasing trend in concentrations for the first three quarters and were not detected in the fourth quarter It should be noted, however, that concentrations of cis-1,2-dichloroethene for MW-1 were reported at 7.4 and 5.7 µg/l in the second and third quarters,

respectively, thereby exceeding the State MCL of 6.0 µg/l during the second quarter.

- With the exception of TW/MW-5, PNA compounds were not detected throughout the monitoring program. At TW/MW-5, the first quarter of PNA analyses indicated trace concentrations which were reported below the method detection limit (MDL) of 10 µg/l . This was accomplished by using the instrument detection limits (IDL) which ranged from 1 to 5 µg/l. Napthalene was reported at a concentration of 7.5 µg/l , fluoranthene at 8.5 µg/l, pyrene at 14 µg/l, chrysene at 5.5 µg/l, and benzo(a)pyrene at 6.2 µg/l. These compounds were not detected in the second, third, and fourth monitoring quarters. PNA analysis in the second quarter included all of the semi-volatile organic compounds, of which bis(2-ethylhexyl)phthalate was detected at a concentration of 14 µg/l.

- In general, a fluctuation in TEPH concentrations has been observed at monitoring wells MW-1 and MW-6 throughout the monitoring period. First quarter results for MW-1 indicated 5,500 µg/l TEPHd (quantified as diesel), second quarter results of 840 µg/l TEPHd and 1,400 µg/l TEPHmo (quantified as motor oil), third quarter results of 49 µg/l TEPHd, and fourth quarter monitoring results of 13,000 µg/l TEPHd. TEPH results for MW-6 indicated not detected in the first quarter, 370 µg/l TEPHd in the second quarter, 3,700 µg/l TEPHd in the third quarter, and not detected in the fourth quarter. Results for TW/MW-5 indicated 680 µg/l TEPHd in the first quarter, 230 µg/l TEPHd in the second quarter, and not detected in the third and fourth quarters. TEPH analysis at MW-2R and MW-4 indicated not detected for the first quarter, concentrations of 140 and 190 µg/l TEPHd, respectively in the second quarter, and not detected in the third and fourth quarters.

4.2 Recommendations

Based upon the information obtained during the monitoring program, Cape recommends terminating quarterly groundwater sampling and testing for all wells. It may be prudent, however, to perform at least one additional sampling event for monitoring well MW-1. At MW-1 it was observed that the volatile halocarbon compound cis-1,2-dichloroethene was present at a concentration which exceeded the state MCL in the second quarter and was slightly below the MCL in the third quarter. Also, fourth quarter TEPH results at MW-1 indicated a higher concentration than has been previously observed.

Table 1
Fourth Quarter Analytical Results March 1996
Petroleum Compounds

Sample ID	Date Sampled	O&G (mg/L)	TEPH (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)
MW-1	3/8/96	16	13,000	ND	ND	ND	ND
MW-2R	3/8/96	ND	ND	--	--	--	--
MW-4	3/8/96	ND	ND	--	--	--	--
TW/MW-5	3/8/96	ND	ND	--	--	--	--
MW-6	3/8/96	ND	ND	--	--	--	--

NOTES:

mg/L- Milligrams per liter.
µg/L- Micrograms per liter.
ND- Not detected at or above Reporting Limit (RL).
-- Not analyzed
O&G- Hydrocarbon oil and grease using Test Method SMWW 5520 with RL of 5 mg/L.
TEPH- Total extractable petroleum hydrocarbon using California Department of Health Services (DOHS) Method (EPA Method 8015 Modified) with RL of 50 µg/L quantified in the diesel range.
BTEX- Benzene, toluene, ethyl benzene and total xylenes using EPA Test Method 8020 with RL of 1.0 µg/L.

Table 2
Fourth Quarter Analytical Results December 1996
Volatile Halocarbons and Polynuclear Aromatic Hydrocarbons

Sample ID	Date Sampled	VH (μg/L)	PNA (μg/L)
MW-1	3/8/95	ND	ND
MW-2R	3/8/95	ND	ND
MW-4	3/8/95	ND	ND
TW/MW-5	3/8/95	1.0 cis-1,2-dichloroethene (1.0)	ND
MW-6	3/8/95	ND	ND

NOTES: Results indicate concentration of compound detected and corresponding reporting limit (RL) in parenthesis following respective compound.

μg/L- Micrograms per liter.
ND- Compounds not detected at or above RL.
VH- Halogenated volatile organics using EPA Test Method 8010 with compound RL's ranging from 1.0 μg/L to 20 μg/L.
PNA- Polynuclear aromatic hydrocarbons using EPA Test Method 8270 with RL of 10 μg/L.

Table 3
Fourth Quarter, March 1996
Static Water Level (SWL) Measurements

Location	Date	Time	SWL	Casing Elevation	Water Elevation
MW-1	3/8/95	1026	3.49	8.19	4.70
MW-2R	3/8/95	1019	3.46	8.27	4.81
MW-3	3/8/95	1444	4.55	9.00	4.45
MW-4	3/8/95	1024	3.88	8.53	4.65
TW/MW-5	3/8/95	1021	3.51	8.37	4.86
MW-6	3/8/95	1023	3.86	8.61	4.75

NOTES:

SWL in feet below top of well casing.
Elevations in feet above mean sea level.

Table 4
Summary of Water Sample Analytical Results
Alameda Federal Center, Groundwater Monitoring Well MW-1

Collection Date	5/18/95	8/31/95	10/5/95	12/8/95	3/8/96
Compound					
O&G (mg/l)(SMWW 5520)	ND	ND	NA	ND	16
TEPH (µg/l)(DOHS 8015 mod.)	**5,500 d**	**840 d** **1,400 mo**	NA	**49 d**	**13,000 d**
TVH (µg/l)(DOHS 8015 mod.)	ND	NA	ND	NA	NA
Benzene (µg/l)(EPA 8020)	1.1	NA	ND	ND	ND
Toluene (µg/l)(EPA 8020)	ND	NA	ND	ND	ND
Ethyl Benzene (µg/l)(EPA8020)	0.9	NA	ND	ND	ND
Total Xylenes (µg/l)(EPA 8020)	1.6	NA	ND	ND	ND
Tot. dis. solids (mg/l)(EPA 160.1)	NA	410	NA	NA	NA
Volatile Halocarbons (EPA 8010)					
cis-1,2-dichloroethene (µg/l)	3	NA	7.4	5.7	ND
trans-1,2-dichloroethene (µg/l)	3	NA	3.4	2.1	ND
trichloroethene (µg/l)	7	NA	1.3	ND	ND
tetra-chloroethene (µg/l)	1	NA	ND	ND	ND
chloroform (µg/l)	1	NA	ND	ND	ND
Polynuclear Aromatic Hydrocarbons (EPA 8270)					
bis(2-ethylhexyl)phthalate (µg/l)	NA	ND	NA	NA	NA
napthalene (µg/l)	ND	ND	NA	ND	ND
fluoranthene (µg/l)	ND	ND	NA	ND	ND
pyrene (µg/l)	ND	ND	NA	ND	ND
chrysene (µg/l)	ND	ND	NA	ND	ND
benzo(a)pyrene (µg/l)	ND	ND	NA	ND	ND

Notes:

mg/l	**milligrams per liter**
µg/l	**micrograms per liter**
ND	not detected at or above the method reporting limit (RL)
NA	Not Analyzed
O&G	hydrocarbon oil and grease using test method SMWW 5520
TEPH	total extractable petroleum hydrocarbons using California Department of Health Services (DOHS) Method EPA 8015 modified A "d" or "mo" following the reported concentration represents quantitation in the diesel or motor oil range, respectively
TVH	total Volatile hydrocarbons as gasoline using California DOHS Method EPA 8015 modified

Table 4 (Continued)

Summary of Water Sample Analytical Results
Alameda Federal Center, Groundwater Monitoring Well MW-2R

Collection Date	5/18/95	8/31/95	12/8/95	3/8/96
Compound				
O&G (mg/l)(SMWW 5520)	ND	ND	ND	ND
TEPH (µg/l)(DOHS 8015 mod.)	ND	140 d	ND	ND
TVH (µg/l)(DOHS 8015 mod.)	ND	ND	NA	NA
Benzene (µg/l)(EPA 8020)	ND	ND	NA	NA
Toluene (µg/l)(EPA 8020)	ND	ND	NA	NA
Ethyl Benzene (µg/l)(EPA8020)	ND	ND	NA	NA
Total Xylenes (µg/l)(EPA 8020)	ND	ND	NA	NA
Total dis. solids (mg/l)(EPA 160.1)	NA	390	NA	NA
Volatile Halocarbons (EPA 8010)				
cis-1,2-dichloroethene (µg/l)	ND	ND	ND	ND
trans-1,2-dichloroethene (µg/l)	ND	ND	ND	ND
trichloroethene (µg/l)	ND	ND	ND	ND
tetra-chloroethene (µg/l)	ND	ND	ND	ND
chloroform (µg/l)	ND	ND	ND	ND
Polynuclear Aromatic Hydrocarbons (EPA 8270)				
bis(2-ethylhexyl)phthalate (µg/l)	NA	ND	NA	NA
napthalene (µg/l)	ND	ND	ND	ND
fluoranthene (µg/l)	ND	ND	ND	ND
pyrene (µg/l)	ND	ND	ND	ND
chrysene (µg/l)	ND	ND	ND	ND
benzo(a)pyrene (µg/l)	ND	ND	ND	ND

Notes:

mg/l	**milligrams per liter**
µ/l	micrograms per liter
ND	not detected at or above the method reporting limit (RL)
NA	Not Analyzed
O&G	hydrocarbon oil and grease using test method SMWW 5520
TEPH	total extractable petroleum hydrocarbons using California Department of Health Services (DOHS) Method EPA 8015 modified A "d" or "mo" following the reported concentration represents quantitation in the diesel or motor oil range, respectively.
TVH	total Volatile hydrocarbons as gasoline using California DOHS Method EPA 8015 modified

Table 4 (Continued)

Summary of Water Sample Analytical Results
Alameda Federal Center, Groundwater Monitoring Well MW-3

Collection Date	5/18/95	not sampled	not sampled	not sampled
Compound				
O&G (mg/l)(SMWW 5520)	ND	NA	NA	NA
TEPH (µg/l)(DOHS 8015 mod.)	92 d	NA	NA	NA
TVH (µg/l)(DOHS 8015 mod.)	ND	NA	NA	NA
Benzene (µg/l)(EPA 8020)	ND	NA	NA	NA
Toluene (µg/l)(EPA 8020)	ND	NA	NA	NA
Ethyl Benzene (µg/l)(EPA8020)	ND	NA	NA	NA
Total Xylenes (µg/l)(EPA 8020)	ND	NA	NA	NA
Total dis. solids (mg/l)(EPA 160.1)	NA	NA	NA	NA
Volatile Halocarbons (EPA 8010)				
cis-1,2-dichloroethene (µg/l)	ND	NA	NA	NA
trans-1,2-dichloroethene (µg/l)	ND	NA	NA	NA
trichloroethene (µg/l)	ND	NA	NA	NA
tetra-chloroethene (µg/l)	ND	NA	NA	NA
chloroform (µg/l)	ND	NA	NA	NA
Polynuclear Aromatic Hydrocarbons (EPA 8270)				
bis(2-ethylhexyl)phthalate (µg/l)	NA	NA	NA	NA
napthalene (µg/l)	ND	NA	NA	NA
fluoranthene (µg/l)	ND	NA	NA	NA
pyrene (µg/l)	ND	NA	NA	NA
chrysene (µg/l)	ND	NA	NA	NA
benzo(a)pyrene (µg/l)	ND	NA	NA	NA

Notes:

mg/l	**milligrams per liter**
µ/l	micrograms per liter
ND	not detected at or above the [illegible]ethod reporting [illegible]mit (RL)
NA	Not Analyzed
O&G	hydrocarbon oil and grease using test method SMWW 5520
TEPH	total extractable petroleum hydrocarbons using California Department of Health Services (DOHS) Method EPA 8015 modified. A "d" or "mo" following the reported concentration represents quantitation in the diesel or motor oil range, respectively.
TVH	total Volatile hydrocarbons as gasoline using California DOHS Method EPA 8015 modified

Table 4 (Continued)

Summary of Water Sample Analytical Results
Alameda Federal Center, Groundwater Monitoring Well MW-4

Collection Date	5/18/95	8/31/95	12/8/95	3/8/96
Compound				
O&G (mg/l)(SMWW 5520)	ND	ND	ND	ND
TEPH (µg/l)(DOHS 8015 mod.)	ND	190 d	ND	ND
TVH (µg/l)(DOHS 8015 mod.)	ND	ND	NA	NA
Benzene (µg/l)(EPA 8020)	ND	ND	NA	NA
Toluene (µg/l)(EPA 8020)	ND	ND	NA	NA
Ethyl Benzene (µg/l)(EPA8020)	ND	ND	NA	NA
Total Xylenes (µg/l)(EPA 8020)	ND	ND	NA	NA
Total dis. solids (mg/l)(EPA 160.1)	NA	410	NA	NA
Volatile Halocarbons (EPA 8010)				
cis-1,2-dichloroethene (µg/l)	ND	ND	ND	ND
trans-1,2-dichloroethene (µg/l)	ND	ND	ND	ND
trichloroethene (µg/l)	ND	ND	ND	ND
tetra-chloroethene (µg/l)	ND	ND	ND	ND
chloroform (µg/l)	ND	ND	ND	ND
Polynuclear Aromatic Hydrocarbons (EPA 8270)				
bis(2-ethylhexyl)phthalate (µg/l)	NA	ND	NA	NA
napthalene (µg/l)	ND	ND	ND	ND
fluoranthene (µg/l)	ND	ND	ND	ND
pyrene (µg/l)	ND	ND	ND	ND
chrysene (µg/l)	ND	ND	ND	ND
benzo(a)pyrene (µg/l)	ND	ND	ND	ND

Notes:

mg/l	milligrams per liter
µ/l	micrograms per liter
ND	not detected at or above the method reporting limit (RL)
NA	Not Analyzed
O&G	hydrocarbon oil and grease using test method SMWW 5520
TEPH	total extractable petroleum hydrocarbons using California Department of Health Services (DOHS) Method EPA 8015 modified. A "d" or "mo" following the reported concentration represents quantitation in the diesel or motor oil range, respectively
TVH	total Volatile hydrocarbons as gasoline using California DOHS Method EPA 8015 modified

Table 4 (Continued)

Summary of Water Sample Analytical Results
Alameda Federal Center, Groundwater Monitoring Well TW/MW-5

Collection Date	5/17/95	8/31/95	12/8/95	3/8/96
Compound				
O&G (mg/l)(SMWW 5520)	ND	ND	ND	ND
TEPH (µg/l)(DOHS 8015 mod.)	680 d	230 d	ND	ND
TVH (µg/l)(DOHS 8015 mod.)	ND	ND	NA	NA
Benzene (µg/l)(EPA 8020)	ND	ND	NA	NA
Toluene (µg/l)(EPA 8020)	ND	ND	NA	NA
Ethyl Benzene (µg/l)(EPA8020)	ND	ND	NA	NA
Total Xylenes (µg/l)(EPA 8020)	ND	ND	NA	NA
Total dis. solids (mg/l)(EPA 160.1)	NA	380	NA	NA
Volatile Halocarbons (EPA 8010)				
cis-1,2-dichloroethene (µg/l)	ND	ND	ND	1.0
trans-1,2-dichloroethene (µg/l)	ND	ND	ND	ND
trichloroethene (µg/l)	ND	ND	ND	ND
tetra-chloroethene (µg/l)	ND	ND	ND	ND
chloroform (µg/l)	1.0	ND	ND	ND
Polynuclear Aromatic Hydrocarbons (EPA 8270)				
bis(2-ethylhexyl)phthalate (µg/l)	NA	14	NA	NA
napthalene (µg/l)	7.5	ND	ND	ND
fluoranthene (µg/l)	8.5	ND	ND	ND
pyrene (µg/l)	14	ND	ND	ND
chrysene (µg/l)	5.5	ND	ND	ND
benzo(a)pyrene (µg/l)	6.2	ND	ND	ND

Notes:

mg/l	**milligrams per liter**
µl	micrograms per liter
ND	not detected at or above the method reporting limit (RL)
NA	Not Analyzed
O&G	hydrocarbon oil and grease using test method SMWW 5520
TEPH	total extractable petroleum hydrocarbons using California Department of Health Services (DOHS) Method EPA 8015 modified. A "d" or "mo" following the reported concentration represents quantitation in the diesel or motor oil range, respectively.
TVH	total Volatile hydrocarbons as gasoline using California DOHS Method EPA 8015 modified

Table 4 (Continued)

Summary of Water Sample Analytical Results
Alameda Federal Center, Groundwater Monitoring Well MW-6

Collection Date	5/18/95	8/31/95	12/8/95	3/8/96
Compound				
O&G (mg/l)(SMWW 5520)	ND	ND	ND	ND
TEPH (µg/l)(DOHS 8015 mod.)	ND	370 d	3700 d	ND
TVH (µg/l)(DOHS 8015 mod.)	ND	ND	NA	NA
Benzene (µg/l)(EPA 8020)	ND	ND	NA	NA
Toluene (µg/l)(EPA 8020)	ND	ND	NA	NA
Ethyl Benzene (µg/l)(EPA8020)	ND	ND	NA	NA
Total Xylenes (µg/l)(EPA 8020)	ND	ND	NA	NA
Total dis. solids (mg/l)(EPA 160.1)	NA	450	NA	NA
Volatile Halocarbons (EPA 8010)				
cis-1,2-dichloroethene (µg/l)	ND	ND	ND	ND
trans-1,2-dichloroethene (µg/l)	ND	ND	ND	ND
trichloroethene (µg/l)	ND	ND	ND	ND
tetra-chloroethene (µg/l)	ND	ND	ND	ND
chloroform (µg/l)	ND	ND	ND	ND
Polynuclear Aromatic Hydrocarbons (EPA 8270)				
bis(2-ethylhexyl)phthalate (µg/l)	NA	ND	NA	NA
napthalene (µg/l)	ND	ND	ND	ND
fluoranthene (µg/l)	ND	ND	ND	ND
pyrene (µg/l)	ND	ND	ND	ND
chrysene (µg/l)	ND	ND	ND	ND
benzo(a)pyrene (µg/l)	ND	ND	ND	ND

Notes:

mg/l	**milligrams per liter**
µg/l	micrograms per liter
ND	not detected at or above the method reporting limit (RL)
NA	Not Analyzed
O&G	hydrocarbon oil and grease using test method SMWW 5520
TEPH	total extractable petroleum hydrocarbons using California Department of Health Services (DOHS) Method EPA 8015 modified. A "d" or "mo" following the reported concentration represents quantitation in the diesel or motor oil range, respectively.
TVH	total Volatile hydrocarbons as gasoline using California DOHS Method EPA 8015 modified

Table 5
Summary Quarterly Static Water Level (SWL) Measurements

Location	Date	Time	SWL	Casing Elevation	Water Elevation
MW-1	5/18/95	1813	4.2	8.19	3.99
	8/31/95	1125	4.93	8.19	3.26
	10/5/95	1252	5.09	8.19	3.1
	11/1/95	1157	5.25	8.19	2.94
	12/8/95	1041	5.36	8.19	2.83
	3/8/96	1026	3.49	8.19	4.7
MW-2R	5/18/95	1822	4.14	8.27	4.13
	8/31/95	1110	4.78	8.27	3.49
	10/5/95	1248	4.99	8.27	3.28
	11/1/95	1210	5.15	8.27	3.12
	12/8/95	1033	5.3	8.27	2.97
	3/8/96	1019	3.46	8.27	4.81
MW-3	5/16/95	1415	4.72	9	4.28
	8/31/95	1119	5.12	9	3.88
	10/5/95	1225	5.2	9	3.8
	11/1/95	1226	5.28	9	3.72
	12/8/95	1026	5.3	9	3.7
	3/8/96	1444	4.55	9.00	4.45
MW-4	5/18/95	1810	4.52	8.53	4.01
	8/31/95	1114	5.18	8.53	3.35
	10/5/95	1242	5.38	8.53	3.15
	11/1/95	1202	5.53	8.53	3
	12/8/95	1037	5.66	8.53	2.87
	3/8/96	1024	3.88	8.53	4.65

NOTES: SWL in feet below top of well casing.
Elevations in feet above mean sea level.

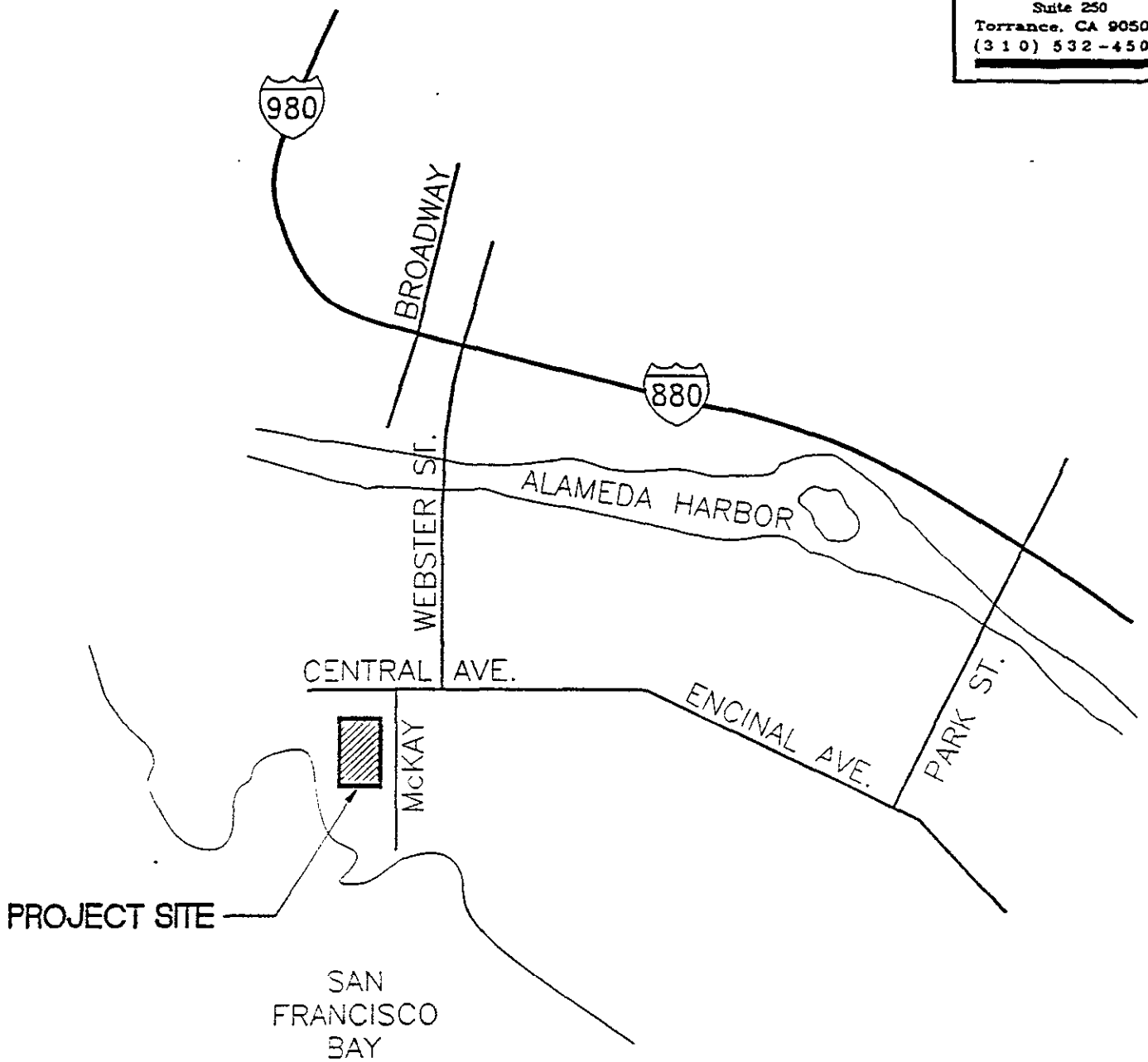
Table 5 (continued)
Summary Quarterly Static Water Level (SWL) Measurements

Location	Date	Time	SWL	Casing Elevation	Water Elevation
TW/MW-5	5/18/95	1819	4.27	8.37	4.1
	8/31/95	1107	4.98	8.37	3.39
	10/5/95	1233	5.17	8.37	3.2
	11/1/95	1214	5.33	8.37	3.04
	12/8/95	1039	5.47	8.37	2.9
	3/8/96	1021	3.51	8.37	4.86
MW-6	5/18/95	1819	4.27	8.61	4.1
	8/31/95	1112	5.22	8.61	3.39
	10/5/95	1239	5.42	8.61	3.19
	11/1/95	1206	5.58	8.61	3.03
	12/8/95	1035	5.71	8.61	2.9
	3/8/96	1023	3.86	8.61	4.75

NOTES: SWL in feet below top of well casing.
Elevations in feet above mean sea level.

FIGURES

C A P E
ENVIRONMENTAL
MANAGEMENT
I N C
20280 S Vermont Ave.
Suite 250
Torrance, CA 90502
(310) 532-4500



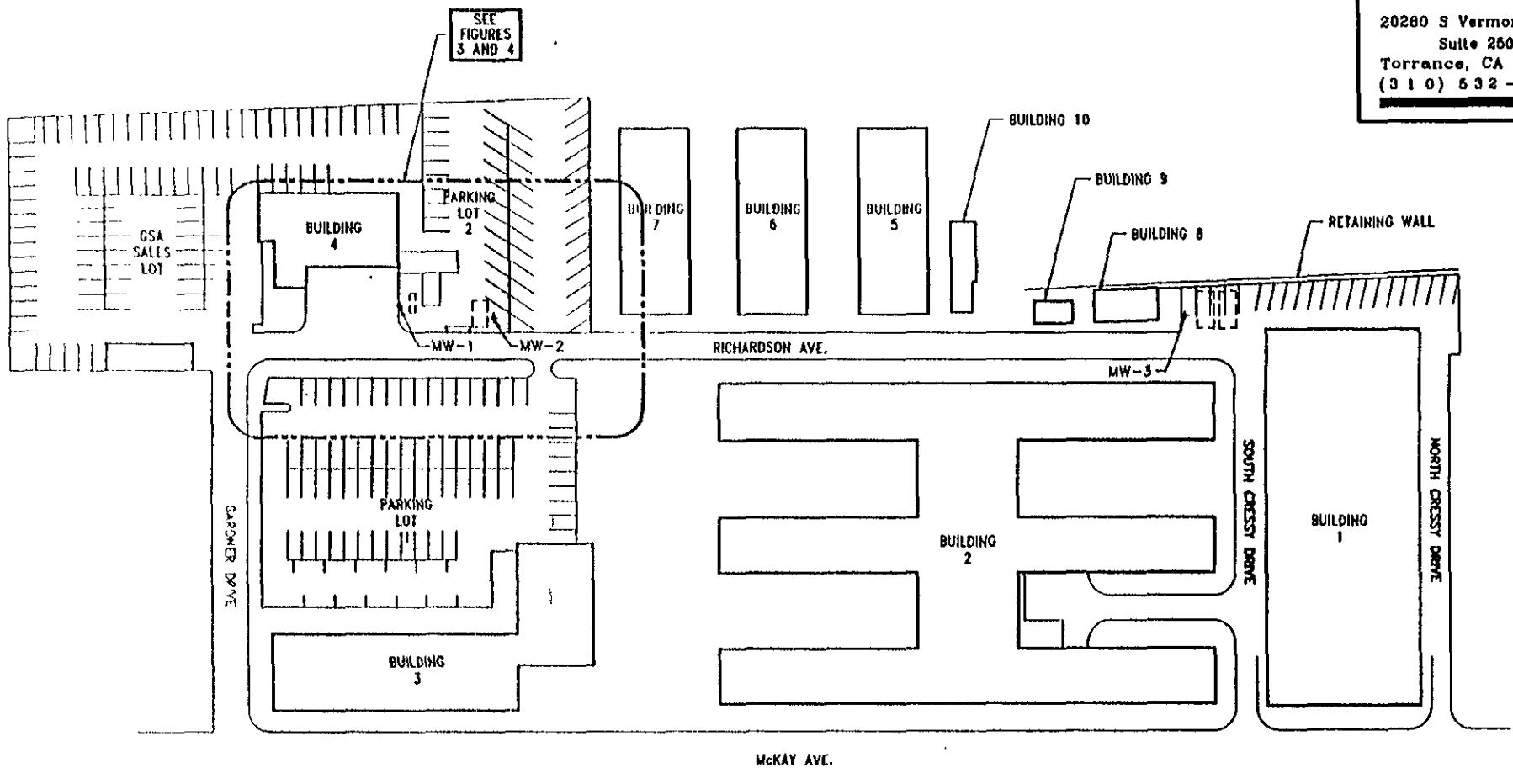
VICINITY MAP

NOT TO SCALE

PROJECT NORTH

SHEET TITLE: FIGURE 1 – SITE VICINITY MAP		CHECKED BY: L. HARLAN	PROJECT NUMBER: 2403C.24
PROJECT TITLE: ALAMEDA FEDERAL CENTER, ALAMEDA, CA	DRAWN BY: J GONZALES	DATE: SEP. 25, '95	SHEET: 1 OF 1

C A P E
ENVIRONMENTAL
MANAGEMENT
I N C
20280 S Vermont Ave.
Suite 250
Torrance, CA 90502
(310) 532-4500



LEGEND

MW EXISTING MONITORING WELL

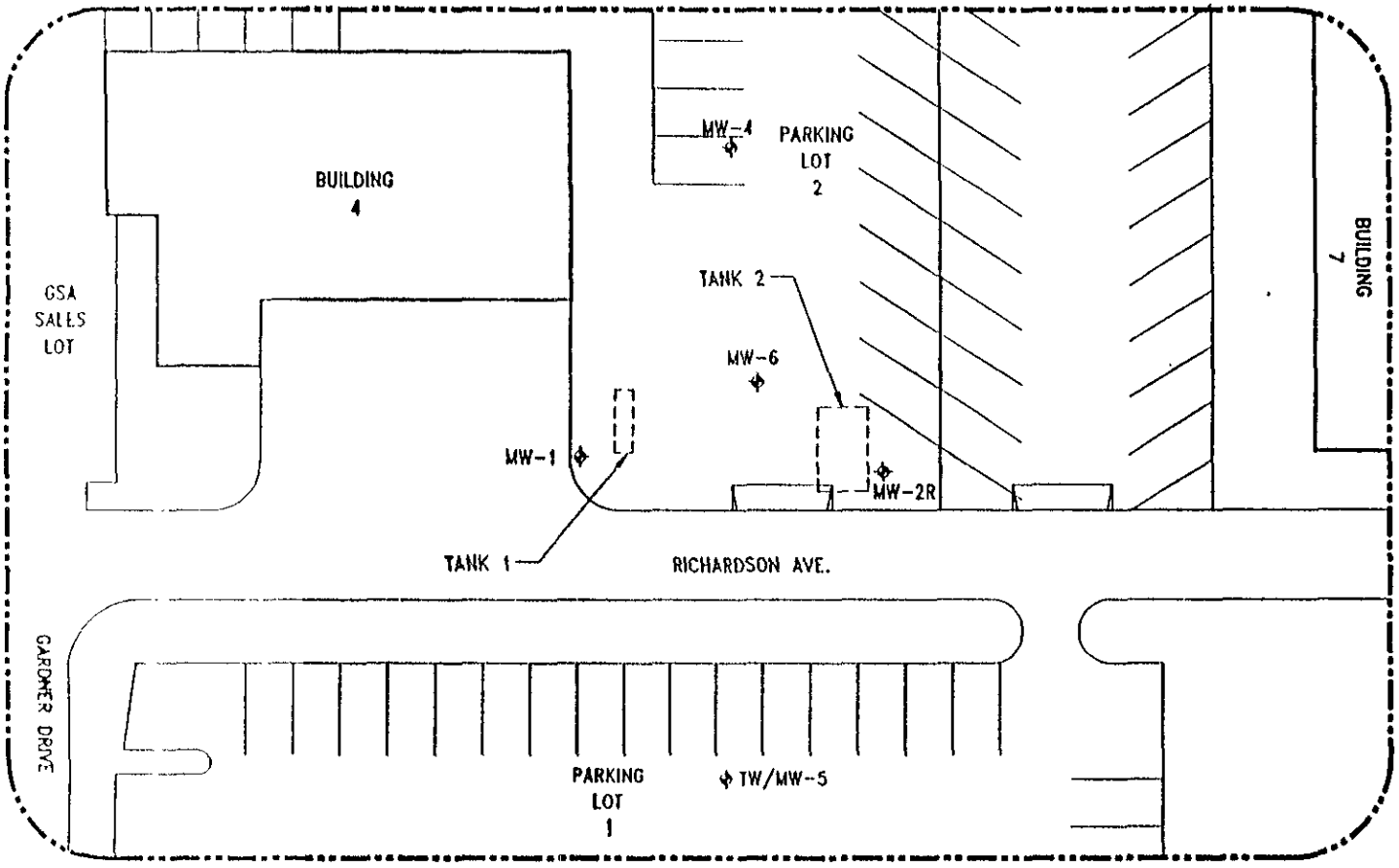
GRAPHIC SCALE

0 50' 100' 150'

PROJECT NORTH

SHEET TITLE: FIGURE 2 - SITE PLAN	CHECKED BY: L. HARLAN	PROJECT NUMBER: 2403C.24	
PROJECT TITLE: ALAMEDA FEDERAL CENTER, ALAMEDA, CA	DRAWN BY: J. GONZALES	DATE: SEP. 25, '95	SHEET: 1 OF 1

C A P E
ENVIRONMENTAL
MANAGEMENT
I N C
20280 S Vermont Ave.
Suite 250
Torrance, CA 90502
(310) 532-4600



LEGEND

MW — EXISTING MONITORING WELL

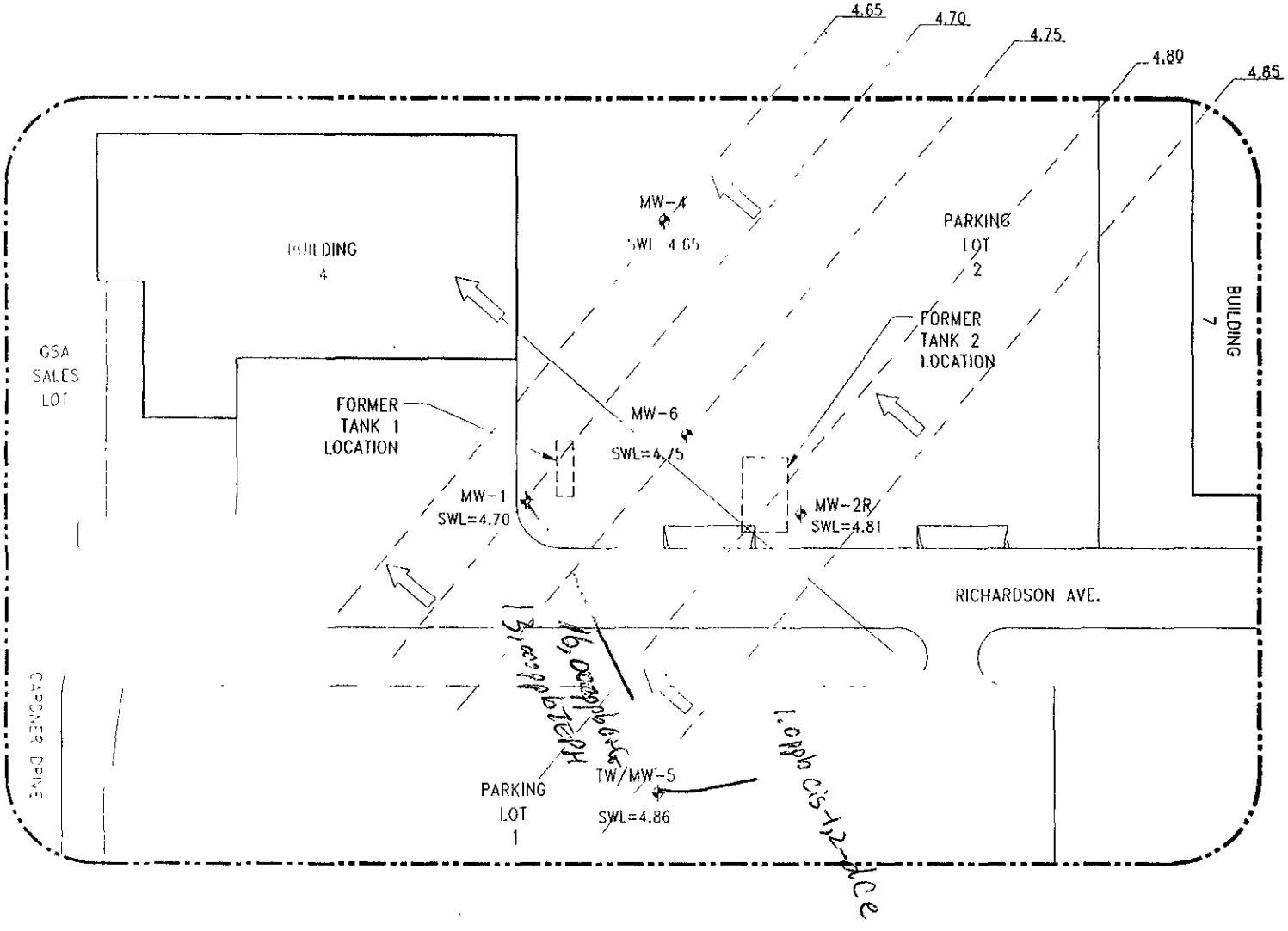
----- APPROX. LOCATION OF REMOVED UST's

GRAPHIC SCALE

PROJECT NORTH

SHEET TITLE: FIGURE 3 - TANK 1 & 2 AREA / BORING LOCATIONS		CHECKED BY: L. HARLAN	PROJECT NUMBER: 2403C.24
PROJECT TITLE: ALAMEDA FEDERAL CENTER, ALAMEDA, CA	DRAWN BY: J. GONZALES	DATE: SEP. 25, '95	SHEET: 1 OF 1

C A P E
ENVIRONMENTAL
MANAGEMENT
I N C
20280 S Vermont Ave.
Suite 250
Torrance, CA 90502
(3 1 0) 5 3 2 - 4 5 0 0



LEGEND

MW	EXISTING MONITORING WELL
	APPROX. LOCATION OF REMOVED UST's
	GROUNDWATER GRADIENT
SWL	STATIC WATER LEVEL ELEVATIONS IN FEET ABOVE MEAN LEVEL
	EQUIPOTENTIAL ELEVATION CONTOUR

GRAPHIC SCALE

PROJECT NORTH

SHEET TITLE: FIGURE 4 - GROUNDWATER GRADIENT MAP (MAR. 8, 1996)		CHECKED BY: L. HARLAN	PROJECT NUMBER: 2403C.24	
PROJECT TITLE: ALAMEDA FEDERAL CENTER, ALAMEDA, CA	DRAWN BY: J GONZALES	DATE: APR 25, '96	SHEET: 1 OF 1	

APPENDIX A

GROUNDWATER MONITOR WELL SAMPLING AND FIELD DATA SHEET

Groundwater Monitor Well Sampling & Field Data Sheet

CAPE ENVIRONMENTAL MANAGEMENT INC

Location No. MW-1
Sample No. MW-1
Project/Client: GSA - Alameda
Location:
Job No. 2403C.24

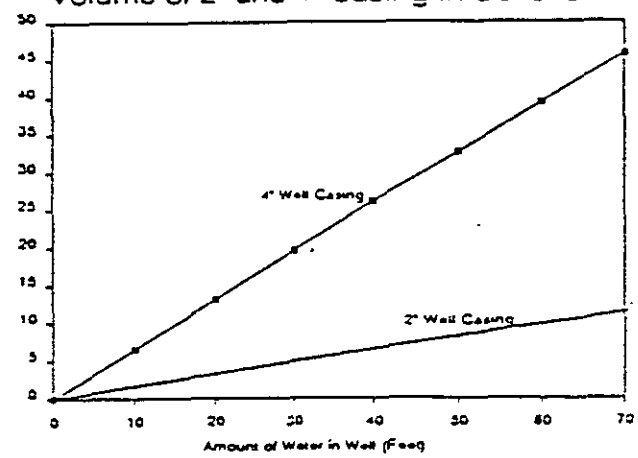
Date: 3.8.96 Time: 1458
Weather:
Conditions Overcast
Air Temperature ~70° F
Personnel LH

WELL INFORMATION

Casing, Dia.: 2"
( ) Stainless Steel
( ) Steel
(X) PVC
( ) Teflon
( ) Other
Water Level: 3.49
Total Depth: 13
Measuring Device
( ) M-Scope
(X) Other Solinst
Volume of Water in Casing 1.5 gal
Datum:
( ) Top of Surf. Casing
(X) Top of Well Casing
( ) Other

Intake, Diameter:
( ) Stainless Steel
( ) Steel
( ) PVC
( ) Teflon
( ) Other
Well Conditions:
Well Clean to Bottom
(X) yes, ( ) no
Well in Good Condition
(X) yes, ( ) no
Surface Protection:
Clean (X) yes, ( ) no
Condition Fair, Stripped cover belt.
Lock (X) yes, ( ) no

Volume of 2" and 4" Casing in Gallons



Purging Data:

Method:
( ) Bladder Pump
( ) Bailer
(X) Submersible Pump
( ) Peristaltic Pump
( ) Other
Materials:
Pump/Bailer
( ) Teflon
( ) Stainless Steel
(X) PVC
( ) Other

Tubing/rope
( ) Teflon
(X) Polypropylene
( ) Nylon
( ) Other
Pumping Rate
Elapsed Time
Volume Pumped 8
Well Evacuated (X) yes, ( ) no
Number of Well Volumes Purged 5

Purging Equipment
( ) Dedicated
( ) Prepared Off-Site
(X) Field Cleaned

Time Series Data

Measurement	1	2	3	4
Well Volumes	3 gal	5 gal	8 gal.	
Water Temp.	69.3	68.1	68.0	
pH	6.90	6.77	6.92	
Other Cond.	538	407	477	

Clear w/ light sheen

Sampling Data:

Method:
( ) Bladder Pump
(X) Bailer
( ) Submersible Pump
( ) Peristaltic Pump
( ) Other
Materials: Pump/Bailer
( ) Teflon
( ) Stainless Steel
(X) PVC
( ) Other
Materials: Tubing/rope
( ) Teflon
( ) Polypropylene
(X) Nylon
( ) Other
Sampling Equipment
(X) Dedicated
( ) Prepared Off-Site
( ) Field Cleaned
Metals Sample Field Filtered
( ) Yes
( ) No
Method

Physical & Chemical Data:

Appearance:
(X) Clear
( ) Turbid
( ) Color
( ) Immiscible Product
(X) Other Light sheen
Filed Condition of Sample
Temp
pH
Other

Certification:
This sample was collected and handled in accordance with standard regulatory and corporate procedures

Groundwater Monitor Well Sampling & Field Data Sheet

CAPE ENVIRONMENTAL MANAGEMENT INC

Location No. MW-2R
Sample No. MW-2R
Project/Client: GSA- Alameda
Location:
Job No. 2403C.24

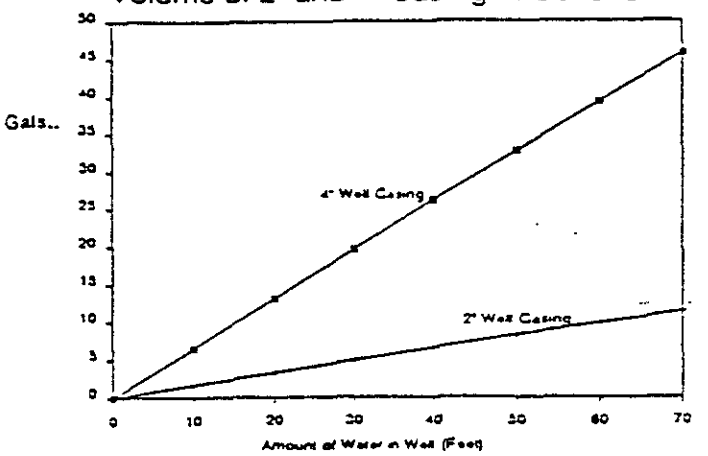
Date: 3-8-96 Time: 1253
Weather:
Conditions Overcast
Air Temperature ~ 70° F
Personnel CH

WELL INFORMATION

Casing, Dia.: 4"
( ) Stainless Steel
( ) Steel
(X) PVC
( ) Teflon
( ) Other
Water Level: 3.46
Total Depth: 14
Measuring Device
( ) M-Scope
(X) Other Solinst
Volume of Water in Casing 5 gal. Approx.
Datum:
( ) Top of Surf. Casing
(X) Top of Well Casing
( ) Other

Intake, Diameter:
( ) Stainless Steel
( ) Steel
( ) PVC
( ) Teflon
( ) Other
Well Conditions:
Well Clean to Bottom
(X) yes, ( ) no
Well in Good Condition
(X) yes, ( ) no
Surface Protection:
Clean (X) yes, ( ) no
Condition Good
Lock (X) yes, ( ) no

Volume of 2" and 4" Casing in Gallons



Purging Data:

Method:
( ) Bladder Pump
( ) Bailer
(X) Submersible Pump
( ) Peristaltic Pump
( ) Other
Materials:
Pump/Bailer
( ) Teflon
( ) Stainless Steel
(X) PVC
( ) Other

Tubing/rope
( ) Teflon
(X) Polypropylene
( ) Nylon
( ) Other
Pumping Rate
Elapsed Time
Volume Pumped 15 gal.
Well Evacuated ( ) yes, (X) no
Number of Well Volumes Purged 3

Purging Equipment
( ) Dedicated
( ) Prepared Off-Site
(X) Field Cleaned

Time Series Data

Measurement	1	2	3	4
Well Volumes	2 gal	10 gal	15 gal.	
Water Temp.	70.4	69.4	68.6	
pH	7.28	7.02	6.92	
Other Cond.	633	635	646	

Clear

Sampling Data:

Method:
( ) Bladder Pump
(X) Bailer
( ) Submersible Pump
( ) Peristaltic Pump
( ) Other
Materials: Pump/Bailer
( ) Teflon
( ) Stainless Steel
(X) PVC
( ) Other
Materials: Tubing/rope
( ) Teflon
( ) Polypropylene
(X) Nylon
( ) Other
Sampling Equipment
(X) Dedicated
( ) Prepared Off-Site
( ) Field Cleaned
Metals Sample Field Filtered
( ) Yes
( ) No
Method

Physical & Chemical Data:

Appearance:
(X) Clear
( ) Turbid
( ) Color
( ) Immiscible Product
( ) Other
Filed Condition of Sample
Temp
pH
Other

Certification:
This sample was collected and handled in accordance with standard regulatory and corporate procedures

Groundwater Monitor Well Sampling & Field Data Sheet

CAPE ENVIRONMENTAL MANAGEMENT INC

Location No. MW-4
Sample No. MW-4
Project/Client: GSA · Alameda
Location:
Job No. 2403c.24

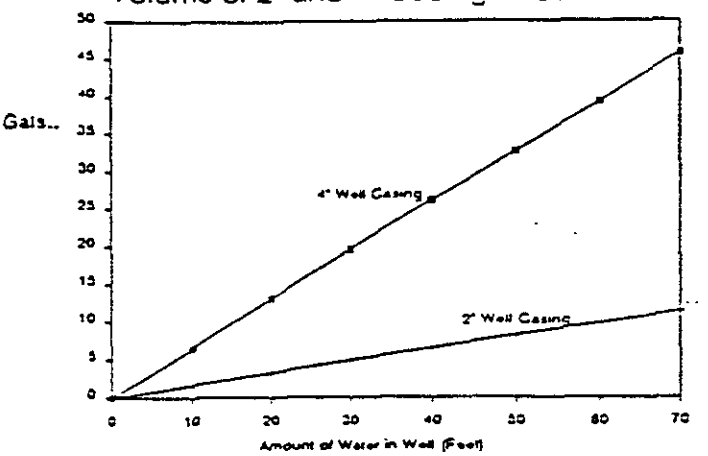
Date: 3-8-96 Time: 1405
Weather:
Conditions Overcast
Air Temperature ~ 70° F
Personnel CH

WELL INFORMATION

Casing, Dia.: 4"
( ) Stainless Steel
( ) Steel
(X) PVC
( ) Teflon
( ) Other
Water Level: 3.88
Total Depth: 14
Measuring Device
( ) M-Scope
(X) Other Solinst
Volume of Water in Casing 5 Gal. Approx.
Datum:
( ) Top of Surf. Casing
(X) Top of Well Casing
( ) Other

Intake, Diameter:
( ) Stainless Steel
( ) Steel
( ) PVC
( ) Teflon
( ) Other
Well Conditions:
Well Clean to Bottom
(X) yes, ( ) no
Well in Good Condition
(X) yes, ( ) no
Surface Protection:
Clean (X) yes, ( ) no
Condition Good
Lock (X) yes, ( ) no

Volume of 2" and 4" Casing in Gallons



Purging Data:

Method:
( ) Bladder Pump
( ) Bailer
(X) Submersible Pump
( ) Peristaltic Pump
( ) Other
Materials:
Pump/Bailer
( ) Teflon
( ) Stainless Steel
(X) PVC
( ) Other

Tubing/rope
( ) Teflon
(X) Polypropylene
( ) Nylon
( ) Other
Pumping Rate
Elapsed Time
Volume Pumped 15 gal
Well Evacuated ( ) yes, (X) no
Number of Well Volumes Purged 3

Purging Equipment
( ) Dedicated
( ) Prepared Off-Site
(X) Field Cleaned

Time Series Data

Measurement	1	2	3	4
Well Volumes	2	6	12	15
Water Temp.	70.2	68.1	68.1	68.2
pH	6.78	6.68	6.70	6.82
Other ____	639	634	630	566

Sampling Data:

Method:
( ) Bladder Pump
(X) Bailer
( ) Submersible Pump
( ) Peristaltic Pump
( ) Other
Materials: Pump/Bailer
( ) Teflon
( ) Stainless Steel
(X) PVC
( ) Other
Materials: Tubing/rope
( ) Teflon
( ) Polypropylene
(X) Nylon
( ) Other
Sampling Equipment
(X) Dedicated
( ) Prepared Off-Site
( ) Field Cleaned
Metals Sample Field Filtered
( ) Yes
( ) No
Method

Physical & Chemical Data:

Appearance:
( ) Clear
(X) Turbid
(X) Color Black to Clear
( ) Immiscible Product
( ) Other
Filed Condition of Sample
Temp
pH
Other

Certification:
This sample was collected and handled in accordance with standard regulatory and corporate procedures

Groundwater Monitor Well Sampling & Field Data Sheet

CAPE ENVIRONMENTAL MANAGEMENT INC

Location No. TW/MW-5
Sample No. TW/MW-5
Project/Client: GSA · Alameda
Location:
Job No. 2403C.24

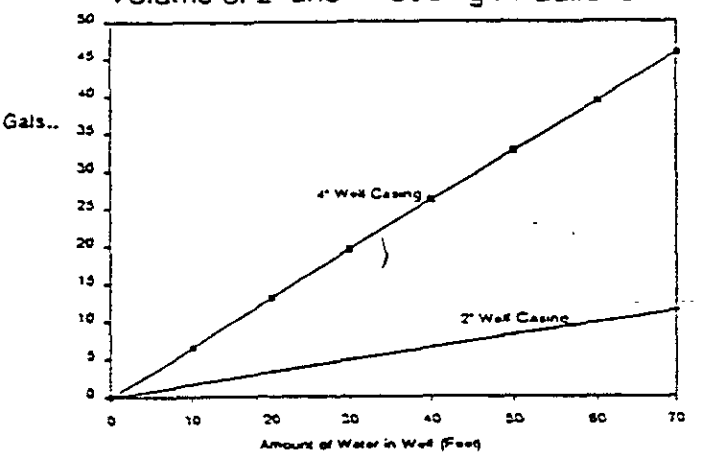
Date: 3·8·96 Time: 1212
Weather:
Conditions Overcast
Air Temperature ~ 70° F
Personnel CH

WELL INFORMATION

Casing, Dia.: 2"
( ) Stainless Steel
( ) Steel
(X) PVC
( ) Teflon
( ) Other
Water Level: 3.51
Total Depth: 13
Measuring Device
( ) M-Scope
(X) Other Solinst
Volume of Water in Casing 1.5 Approx
Datum:
( ) Top of Surf. Casing
(X) Top of Well Casing
( ) Other

Intake, Diameter:
( ) Stainless Steel
( ) Steel
( ) PVC
( ) Teflon
( ) Other
Well Conditions:
Well Clean to Bottom
(X) yes, ( ) no
Well in Good Condition
(X) yes, ( ) no
Surface Protection:
Clean (X) yes, ( ) no
Condition Good
Lock (X) yes, ( ) no

Volume of 2" and 4" Casing in Gallons



Purging Data:

Method:
( ) Bladder Pump
( ) Bailer
(X) Submersible Pump
( ) Peristaltic Pump
( ) Other
Materials:
Pump/Bailer
( ) Teflon
( ) Stainless Steel
(X) PVC
( ) Other

Tubing/rope
( ) Teflon
(X) Polypropylene
( ) Nylon
( ) Other
Pumping Rate
Elapsed Time
Volume Pumped 8 gal
Well Evacuated ( ) yes, (X) no
Number of Well Volumes Purged 5

Purging Equipment
( ) Dedicated
( ) Prepared Off-Site
(X) Field Cleaned

Time Series Data

Measurement	1	2	3	4
Well Volumes	2 gal.	4 gal.	6 gal	8 gal.
Water Temp.	71.3	70.0	69.5	68.9
pH	6.6	7.13	7.28	7.28
Cond. ~~Other~~	586	592	569	559

1st 2 gal. abundant sediment (fine sand)

Sampling Data:

Method:
( ) Bladder Pump
(X) Bailer
( ) Submersible Pump
( ) Peristaltic Pump
( ) Other
Materials: Pump/Bailer
( ) Teflon
( ) Stainless Steel
(X) PVC
( ) Other
Materials: Tubing/rope
( ) Teflon
( ) Polypropylene
(X) Nylon
( ) Other
Sampling Equipment
(X) Dedicated
( ) Prepared Off-Site
( ) Field Cleaned
Metals Sample Field Filtered
( ) Yes
( ) No
Method

Physical & Chemical Data:

Appearance:
( ) Clear
(X) Turbid
( ) Color
( ) Immiscible Product
(X) Other Suspended Lines
Filed Condition of Sample
Temp
pH
Other

Certification:
This sample was collected and handled in accordance with standard regulatory and corporate procedures

Groundwater Monitor Well Sampling & Field Data Sheet

CAPE ENVIRONMENTAL MANAGEMENT INC

Location No. MW-6
Sample No. MW-6
Project/Client: GSA- Alameda
Location:
Job No. 2403C.24

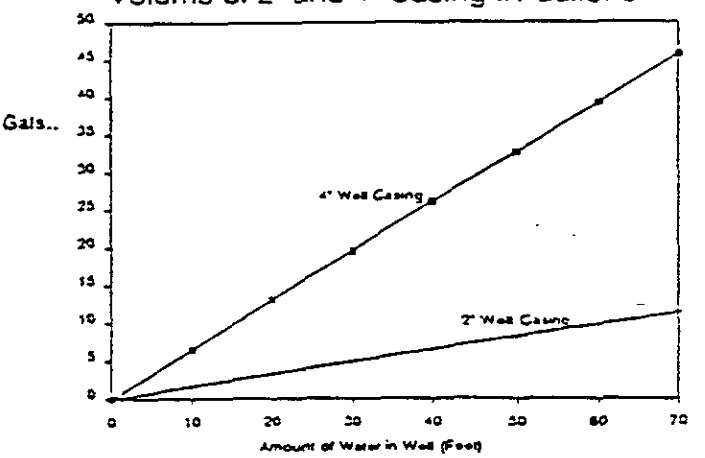
Date: 3-8-96 Time: 1332
Weather:
Conditions Overcast
Air Temperature ~70°F
Personnel CH

WELL INFORMATION

Casing, Dia.: 4"
( ) Stainless Steel
( ) Steel
( ) PVC
( ) Teflon
( ) Other
Water Level: 3.86
Total Depth: 14
Measuring Device
( ) M-Scope
(X) Other Solinst
Volume of Water in Casing 5 gal. Approx
Datum:
( ) Top of Surf. Casing
(X) Top of Well Casing
( ) Other

Intake,
Diameter:
( ) Stainless Steel
( ) Steel
( ) PVC
( ) Teflon
( ) Other
Well Conditions:
Well Clean to Bottom
(X) yes, ( ) no
Well in Good Condition
(X) yes, ( ) no
Surface Protection:
Clean (X) yes, ( ) no
Condition Good
Lock (X) yes, ( ) no

Volume of 2" and 4" Casing in Gallons



Purging Data:

Method:
( ) Bladder Pump
( ) Bailer
(X) Submersible Pump
( ) Peristaltic Pump
( ) Other
Materials:
Pump/Bailer
( ) Teflon
( ) Stainless Steel
(X) PVC
( ) Other

Tubing/rope
( ) Teflon
(X) Polypropylene
( ) Nylon
( ) Other
Pumping Rate
Elapsed Time
Volume Pumped 15 gal
Well Evacuated ( ) yes, (X) no
Number of Well Volumes Purged 3

Purging Equipment
( ) Dedicated
( ) Prepared Off-Site
( ) Field Cleaned

Time Series Data

Measurement	1	2	3	4
Well Volumes	3gal	6 gal.	11gal	15 gal
Water Temp.	68.4	67.1	67.1	66.7
pH	8.12	7.56	7.34	7.35
Other Cond.	141	155	167	211

Clear, slight turbidity

Sampling Data:

Method:
( ) Bladder Pump
(X) Bailer
( ) Submersible Pump
( ) Peristaltic Pump
( ) Other
Materials: Pump/Bailer
( ) Teflon
( ) Stainless Steel
(X) PVC
( ) Other
Materials: Tubing/rope
( ) Teflon
( ) Polypropylene
(X) Nylon
( ) Other
Sampling Equipment
(X) Dedicated
( ) Prepared Off-Site
( ) Field Cleaned
Metals Sample Field Filtered
( ) Yes
( ) No
Method

Physical & Chemical Data:

Appearance:
(X) Clear
( ) Turbid
( ) Color
( ) Immiscible Product
( ) Other
Filed Condition of Sample
Temp
pH
Other

Certification:
This sample was collected and handled in accordance with standard regulatory and corporate procedures

APPENDIX B

CERTIFIED LABORATORY REPORTS AND SAMPLE CHAIN OF CUSTODY DOCUMENTATION

Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878
2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

ANALYTICAL REPORT

Prepared for:

Cape Environmental, Inc.
20280 South Vermont Ave
Suite 250
Torrance, CA 90502

Date: 22-MAR-96
Lab Job Number: 124740
Project ID: 2403C.24
Location: Alameda

Reviewed by: _____

Reviewed by: _____

Curtis & Tompkins, Ltd.

Client: Cape Environmental, Inc.

Laboratory Login Number: 124740

Project Name: Alameda
Project Number: 2403C.24

Report Date: 22 March 96

ANALYSIS: Hydrocarbon Oil & Grease (Gravimetric) **METHOD:** SMWW 17:5520BF

Lab ID	Sample ID	Matrix	Sampled	Received	Analyzed	Result	Units	RL	Analyst	QC Batch
124740-001	TW/MW-5	Water	08-MAR-96	08-MAR-96	13-MAR-96	ND	mg/L	5	DLP	26399
124740-002	MW-2R	Water	08-MAR-96	08-MAR-96	13-MAR-96	ND	mg/L	5	DLP	26399
124740-003	MW-6	Water	08-MAR-96	08-MAR-96	13-MAR-96	ND	mg/L	5	DLP	26399
124740-004	MW-4	Water	08-MAR-96	08-MAR-96	13-MAR-96	ND	mg/L	5	DLP	26399
124740-005	MW-1	Water	08-MAR-96	08-MAR-96	13-MAR-96	16.	mg/L	5	DLP	26399

ND = Not Detected at or above Reporting Limit (RL).

Curtis & Tompkins, Ltd.

QC Batch Report

Client: Cape Environmental, Inc.
Project Name: Alameda
Project Number: 2403C.24

Laboratory Login Number: 124740
Report Date: 22 March 96

ANALYSIS: Hydrocarbon Oil & Grease (Gravimetric) **QC Batch Number: 26399**

Blank Results

Sample ID	Result	MDL	Units	Method	Date Analyzed
MB	ND	5	mg/L	SMWW 17:5520BF	13-MAR-96

Spike/Duplicate Results

Sample ID	Recovery	Method	Date Analyzed
BS	83%	SMWW 17:5520BF	13-MAR-96
BSD	83%	SMWW 17:5520BF	13-MAR-96

		Control Limits
Average Spike Recovery	83%	80% - 120%
Relative Percent Difference	.9%	< 20%

TEH-Tot Ext Hydrocarbons

Client: Cape Environmental, Inc.
Project#: 2403C.24
Location: Alameda

Analysis Method: CA LUFT (EPA 8015M)
Prep Method: EPA 3520

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
124740-001	TW/MW-5	26390	03/08/96	03/12/96	03/14/96	
124740-002	MW-2R	26390	03/08/96	03/12/96	03/14/96	
124740-003	MW-6	26390	03/08/96	03/12/96	03/14/96	
124740-004	MW-4	26390	03/08/96	03/12/96	03/14/96	

Analyte Diln Fac:	Units	124740-001 1	124740-002 1	124740-003 1	124740-004 1
Diesel Range	ug/L	<50	<50	<50	<50
Surrogate					
Hexacosane	%REC	96	93	94	101

TEH-Tot Ext Hydrocarbons

Client: Cape Environmental, Inc.
Project#: 2403C.24
Location: Alameda

Analysis Method: CA LUFT (EPA 8015M)
Prep Method: EPA 3520

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
124740-005	MW-1	26390	03/08/96	03/12/96	03/14/96	

Analyte	Units	124740-005	
Diln Fac:		1	
Diesel Range	ug/L	13000	YH
Surrogate			
Hexacosane	%REC	144	*

* Values outside of QC limits
Y: Sample exhibits fuel pattern which does not resemble standard
H: Heavier hydrocarbons than indicated standard

Curtis & Tompkins, Ltd.

Lab #: 124740 BATCH QC REPORT

TEH-Tot Ext Hydrocarbons			
Client:	Cape Environmental, Inc.	Analysis Method:	CA LUFT (EPA 8015M)
Project#:	2403C.24	Prep Method:	EPA 3520
Location:	Alameda		

METHOD BLANK			
Matrix:	Water	Prep Date:	03/12/96
Batch#:	26390	Analysis Date:	03/14/96
Units:	ug/L		
Diln Fac:	1		

MB Lab ID: QC16985

Analyte	Result	
Diesel Range	<50	
Surrogate	%Rec	Recovery Limits
Hexacosane	69	60-140

Curtis & Tompkins, Ltd.

Lab #: 124740 BATCH QC REPORT

TEH-Tot Ext Hydrocarbons			
Client:	Cape Environmental, Inc.	Analysis Method:	CA LUFT (EPA 8015M)
Project#:	2403C.24	Prep Method:	EPA 3520
Location:	Alameda		

BLANK SPIKE/BLANK SPIKE DUPLICATE

Matrix:	Water	Prep Date:	03/12/96
Batch#:	26390	Analysis Date:	03/13/96
Units:	ug/L		
Diln Fac:	1		

BS Lab ID: QC16986

Analyte	Spike Added	BS	%Rec #	Limits
Diesel Range	2475	2143	87	60-140
Surrogate	**%Rec**	**Limits**		
Hexacosane	65	60-140		

BSD Lab ID: QC16987

Analyte	Spike Added	BSD	%Rec #	Limits	RPD #	Limit
Diesel Range	2475	2278	92	60-140	6	<35
Surrogate	**%Rec**	**Limits**				
Hexacosane	68	60-140				

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

Aromatic Volatile Organics
EPA 8020 Analyte List

Client:	Cape Environmental, Inc.	Analysis Method:	EPA 8020
Project#:	2403C.24	Prep Method:	EPA 5030
Location:	Alameda		

Field ID:	MW-1	Sampled:	03/08/96
Lab ID:	124740-005	Received:	03/08/96
Matrix:	Water	Extracted:	03/09/96
Batch#:	26333	Analyzed:	03/09/96
Units:	ug/L		
Diln Fac:	1		

Analyte	Result	Reporting Limit
Benzene	ND	1.0
Toluene	ND	1.0
Ethylbenzene	ND	1.0
m,p-Xylenes	ND	1.0
o-Xylene	ND	1.0
Chlorobenzene	ND	1.0
1,3-Dichlorobenzene	ND	1.0
1,4-Dichlorobenzene	ND	1.0
1,2-Dichlorobenzene	ND	1.0

Surrogate	%Recovery	Recovery Limits
Bromobenzene	100	81-124

Curtis & Tompkins, Ltd

Lab #: 124740 BATCH QC REPORT

EPA 8020 Purgeable Aromatics
EPA 8020 Analyte List

Client: Cape Environmental, Inc.
Project#: 2403C.24
Location: Alameda

Analysis Method: EPA 8020
Prep Method: EPA 5030

METHOD BLANK

Matrix: Water
Batch#: 26333
Units: ug/L
Diln Fac: 1

Prep Date: 03/08/96
Analysis Date: 03/08/96

MB Lab ID: QC16766

Analyte	Result	Reporting Limit
Benzene	ND	1.0
Toluene	ND	1.0
Ethylbenzene	ND	1.0
m,p-Xylenes	ND	1.0
o-Xylene	ND	1.0
Chlorobenzene	ND	1.0
1,3-Dichlorobenzene	ND	1.0
1,4-Dichlorobenzene	ND	1.0
1,2-Dichlorobenzene	ND	1.0
Surrogate	**%Rec**	**Recovery Limits**
Bromobenzene	99	81-124

Curtis & Tompkins, Ltd.

Lab #: 124740 BATCH QC REPORT

Halogenated Volatile Organics

Client: Cape Environmental, Inc.
Project#: 2403C.24
Location: Alameda

Analysis Method: EPA 8010
Prep Method: EPA 5030

BLANK SPIKE/BLANK SPIKE DUPLICATE

Matrix: Water
Batch#: 26333
Units: ug/L
Diln Fac: 1

Prep Date: 03/09/96
Analysis Date: 03/09/96

BS Lab ID: QC16768

Analyte	Spike Added	BS	%Rec #	Limits
1,1-Dichloroethene	20	13.82	69	68-134
Trichloroethene	20	22.72	114	85-141
Chlorobenzene	20	19.88	99	69-135

Surrogate	%Rec	Limits
Bromobenzene	95	85-119

BSD Lab ID: QC16769

Analyte	Spike Added	BSD	%Rec #	Limits	RPD #	Limit
1,1-Dichloroethene	20	18.33	92	68-134	28 *	<14
Trichloroethene	20	23.3	117	85-141	3	<14
Chlorobenzene	20	19.49	97	69-135	2	<13

Surrogate	%Rec	Limits
Bromobenzene	97	85-119

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits
RPD: 1 out of 3 outside limits
Spike Recovery: 0 out of 6 outside limits

Curtis & Tompkins, Ltd.

Lab #: 124740 BATCH QC REPORT

EPA 8020 Purgeable Aromatics
EPA 8020 Analyte List

Client: Cape Environmental, Inc.
Project#: 2403C.24
Location: Alameda

Analysis Method: EPA 8020
Prep Method: EPA 5030

BLANK SPIKE/BLANK SPIKE DUPLICATE

Matrix: Water
Batch#: 26333
Units: ug/L
Diln Fac: 1

Prep Date: 03/09/96
Analysis Date: 03/09/96

BS Lab ID: QC16768

Analyte	Spike Added	BS	%Rec #	Limits
Benzene	20	20.5	102	88-118
Toluene	20	20.21	101	85-119
Chlorobenzene	20	20.19	101	90-115
Surrogate	**%Rec**	**Limits**		
Bromobenzene	98	81-124		

BSD Lab ID: QC16769

Analyte	Spike Added	BSD	%Rec #	Limits	RPD #	Limit
Benzene	20	19.62	98	88-118	4	<11
Toluene	20	19.35	97	85-119	4	<13
Chlorobenzene	20	19.67	99	90-115	3	<13
Surrogate	**%Rec**	**Limits**				
Bromobenzene	99	81-124				

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits
RPD: 0 out of 3 outside limits
Spike Recovery: 0 out of 6 outside limits

Halogenated Volatile Organics
EPA 8010 Analyte List

Client:	Cape Environmental, Inc.	Analysis Method:	EPA 8010
Project#:	2403C.24	Prep Method:	EPA 5030
Location:	Alameda		

Field ID:	MW-1	Sampled:	03/08/96
Lab ID:	124740-005	Received:	03/08/96
Matrix:	Water	Extracted:	03/09/96
Batch#:	26333	Analyzed:	03/09/96
Units:	ug/L		
Diln Fac:	1		

Analyte	Result	Reporting Limit
Chloromethane	ND	2.0
Bromomethane	ND	2.0
Vinyl Chloride	ND	2.0
Chloroethane	ND	2.0
Methylene Chloride	ND	20
Trichlorofluoromethane	ND	1.0
1,1-Dichloroethene	ND	1.0
1,1-Dichloroethane	ND	1.0
cis-1,2-Dichloroethene	ND	1.0
trans-1,2-Dichloroethene	ND	1.0
Chloroform	ND	1.0
Freon 113	ND	1.0
1,2-Dichloroethane	ND	1.0
1,1,1-Trichloroethane	ND	1.0
Carbon Tetrachloride	ND	1.0
Bromodichloromethane	ND	1.0
1,2-Dichloropropane	ND	1.0
cis-1,3-Dichloropropene	ND	1.0
Trichloroethene	ND	1.0
1,1,2-Trichloroethane	ND	1.0
trans-1,3-Dichloropropene	ND	1.0
Dibromochloromethane	ND	1.0
Bromoform	ND	2.0
Tetrachloroethene	ND	1.0
1,1,2,2-Tetrachloroethane	ND	1.0
Chlorobenzene	ND	1.0
1,3-Dichlorobenzene	ND	1.0
1,4-Dichlorobenzene	ND	1.0
1,2-Dichlorobenzene	ND	1.0

Surrogate	%Recovery	Recovery Limits
Bromobenzene	113	85-119

Halogenated Volatile Organics
EPA 8010 Analyte List

Client:	Cape Environmental, Inc.	Analysis Method:	EPA 8010
Project#:	2403C.24	Prep Method:	EPA 5030
Location:	Alameda		

Field ID:	MW-2R	Sampled:	03/08/96
Lab ID:	124740-002	Received:	03/08/96
Matrix:	Water	Extracted:	03/09/96
Batch#:	26333	Analyzed:	03/09/96
Units:	ug/L		
Diln Fac:	1		

Analyte	Result	Reporting Limit
Chloromethane	ND	2.0
Bromomethane	ND	2.0
Vinyl Chloride	ND	2.0
Chloroethane	ND	2.0
Methylene Chloride	ND	20
Trichlorofluoromethane	ND	1.0
1,1-Dichloroethene	ND	1.0
1,1-Dichloroethane	ND	1.0
cis-1,2-Dichloroethene	ND	1.0
trans-1,2-Dichloroethene	ND	1.0
Chloroform	ND	1.0
Freon 113	ND	1.0
1,2-Dichloroethane	ND	1.0
1,1,1-Trichloroethane	ND	1.0
Carbon Tetrachloride	ND	1.0
Bromodichloromethane	ND	1.0
1,2-Dichloropropane	ND	1.0
cis-1,3-Dichloropropene	ND	1.0
Trichloroethene	ND	1.0
1,1,2-Trichloroethane	ND	1.0
trans-1,3-Dichloropropene	ND	1.0
Dibromochloromethane	ND	1.0
Bromoform	ND	2.0
Tetrachloroethene	ND	1.0
1,1,2,2-Tetrachloroethane	ND	1.0
Chlorobenzene	ND	1.0
1,3-Dichlorobenzene	ND	1.0
1,4-Dichlorobenzene	ND	1.0
1,2-Dichlorobenzene	ND	1.0

Surrogate	%Recovery	Recovery Limits
Bromobenzene	118	85-119

Halogenated Volatile Organics
EPA 8010 Analyte List

Client:	Cape Environmental, Inc.	Analysis Method:	EPA 8010
Project#:	2403C.24	Prep Method:	EPA 5030
Location:	Alameda		

Field ID:	MW-4	Sampled:	03/08/96
Lab ID:	124740-004	Received:	03/08/96
Matrix:	Water	Extracted:	03/09/96
Batch#:	26333	Analyzed:	03/09/96
Units:	ug/L		
Diln Fac:	1		

Analyte	Result	Reporting Limit
Chloromethane	ND	2.0
Bromomethane	ND	2.0
Vinyl Chloride	ND	2.0
Chloroethane	ND	2.0
Methylene Chloride	ND	20
Trichlorofluoromethane	ND	1.0
1,1-Dichloroethene	ND	1.0
1,1-Dichloroethane	ND	1.0
cis-1,2-Dichloroethene	ND	1.0
trans-1,2-Dichloroethene	ND	1.0
Chloroform	ND	1.0
Freon 113	ND	1.0
1,2-Dichloroethane	ND	1.0
1,1,1-Trichloroethane	ND	1.0
Carbon Tetrachloride	ND	1.0
Bromodichloromethane	ND	1.0
1,2-Dichloropropane	ND	1.0
cis-1,3-Dichloropropene	ND	1.0
Trichloroethene	ND	1.0
1,1,2-Trichloroethane	ND	1.0
trans-1,3-Dichloropropene	ND	1.0
Dibromochloromethane	ND	1.0
Bromoform	ND	2.0
Tetrachloroethene	ND	1.0
1,1,2,2-Tetrachloroethane	ND	1.0
Chlorobenzene	ND	1.0
1,3-Dichlorobenzene	ND	1.0
1,4-Dichlorobenzene	ND	1.0
1,2-Dichlorobenzene	ND	1.0

Surrogate	%Recovery	Recovery Limits
Bromobenzene	109	85-119

Halogenated Volatile Organics
EPA 8010 Analyte List

Client:	Cape Environmental, Inc.	Analysis Method:	EPA 8010
Project#:	2403C.24	Prep Method:	EPA 5030
Location:	Alameda		

Field ID:	TW/MW-5	Sampled:	03/08/96
Lab ID:	124740-001	Received:	03/08/96
Matrix:	Water	Extracted:	03/09/96
Batch#:	26333	Analyzed:	03/09/96
Units:	ug/L		
Diln Fac:	1		

Analyte	Result	Reporting Limit
Chloromethane	ND	2.0
Bromomethane	ND	2.0
Vinyl Chloride	ND	2.0
Chloroethane	ND	2.0
Methylene Chloride	ND	20
Trichlorofluoromethane	ND	1.0
1,1-Dichloroethene	ND	1.0
1,1-Dichloroethane	ND	1.0
cis-1,2-Dichloroethene	1.0	1.0
trans-1,2-Dichloroethene	ND	1.0
Chloroform	ND	1.0
Freon 113	ND	1.0
1,2-Dichloroethane	ND	1.0
1,1,1-Trichloroethane	ND	1.0
Carbon Tetrachloride	ND	1.0
Bromodichloromethane	ND	1.0
1,2-Dichloropropane	ND	1.0
cis-1,3-Dichloropropene	ND	1.0
Trichloroethene	ND	1.0
1,1,2-Trichloroethane	ND	1.0
trans-1,3-Dichloropropene	ND	1.0
Dibromochloromethane	ND	1.0
Bromoform	ND	2.0
Tetrachloroethene	ND	1.0
1,1,2,2-Tetrachloroethane	ND	1.0
Chlorobenzene	ND	1.0
1,3-Dichlorobenzene	ND	1.0
1,4-Dichlorobenzene	ND	1.0
1,2-Dichlorobenzene	ND	1.0

Surrogate	%Recovery	Recovery Limits
Bromobenzene	116	85-119

Halogenated Volatile Organics
EPA 8010 Analyte List

Client:	Cape Environmental, Inc.	Analysis Method:	EPA 8010
Project#:	2403C.24	Prep Method:	EPA 5030
Location:	Alameda		
Field ID:	MW-6	Sampled:	03/08/96
Lab ID:	124740-003	Received:	03/08/96
Matrix:	Water	Extracted:	03/09/96
Batch#:	26333	Analyzed:	03/09/96
Units:	ug/L		
Diln Fac:	1		

Analyte	Result	Reporting Limit
Chloromethane	ND	2.0
Bromomethane	ND	2.0
Vinyl Chloride	ND	2.0
Chloroethane	ND	2.0
Methylene Chloride	ND	20
Trichlorofluoromethane	ND	1.0
1,1-Dichloroethene	ND	1.0
1,1-Dichloroethane	ND	1.0
cis-1,2-Dichloroethene	ND	1.0
trans-1,2-Dichloroethene	ND	1.0
Chloroform	ND	1.0
Freon 113	ND	1.0
1,2-Dichloroethane	ND	1.0
1,1,1-Trichloroethane	ND	1.0
Carbon Tetrachloride	ND	1.0
Bromodichloromethane	ND	1.0
1,2-Dichloropropane	ND	1.0
cis-1,3-Dichloropropene	ND	1.0
Trichloroethene	ND	1.0
1,1,2-Trichloroethane	ND	1.0
trans-1,3-Dichloropropene	ND	1.0
Dibromochloromethane	ND	1.0
Bromoform	ND	2.0
Tetrachloroethene	ND	1.0
1,1,2,2-Tetrachloroethane	ND	1.0
Chlorobenzene	ND	1.0
1,3-Dichlorobenzene	ND	1.0
1,4-Dichlorobenzene	ND	1.0
1,2-Dichlorobenzene	ND	1.0

Surrogate	%Recovery	Recovery Limits
Bromobenzene	110	85-119

Curtis & Tompkins, Ltd.

Lab #: 124740 BATCH QC REPORT

Halogenated Volatile Organics
EPA 8010 Analyte List

Client: Cape Environmental, Inc.
Project#: 2403C.24
Location: Alameda

Analysis Method: EPA 8010
Prep Method: EPA 5030

METHOD BLANK

Matrix: Water
Batch#: 26333
Units: ug/L
Diln Fac: 1

Prep Date: 03/08/96
Analysis Date: 03/08/96

MB Lab ID: QC16766

Analyte	Result	Reporting Limit
Chloromethane	ND	2.0
Bromomethane	ND	2.0
Vinyl Chloride	ND	2.0
Chloroethane	ND	2.0
Methylene Chloride	ND	20
Trichlorofluoromethane	ND	1.0
1,1-Dichloroethene	ND	1.0
1,1-Dichloroethane	ND	1.0
cis-1,2-Dichloroethene	ND	1.0
trans-1,2-Dichloroethene	ND	1.0
Chloroform	ND	1.0
Freon 113	ND	1.0
1,2-Dichloroethane	ND	1.0
1,1,1-Trichloroethane	ND	1.0
Carbon Tetrachloride	ND	1.0
Bromodichloromethane	ND	1.0
1,2-Dichloropropane	ND	1.0
cis-1,3-Dichloropropene	ND	1.0
Trichloroethene	ND	1.0
1,1,2-Trichloroethane	ND	1.0
trans-1,3-Dichloropropene	ND	1.0
Dibromochloromethane	ND	1.0
Bromoform	ND	2.0
Tetrachloroethene	ND	1.0
1,1,2,2-Tetrachloroethane	ND	1.0
Chlorobenzene	ND	1.0
1,3-Dichlorobenzene	ND	1.0
1,4-Dichlorobenzene	ND	1.0
1,2-Dichlorobenzene	ND	1.0

Surrogate	%Rec	Recovery Limits
Bromobenzene	108	85-119

Polynuclear Aromatic Hydrocarbons by GC/MS

Client:	Cape Environmental, Inc.	Analysis Method:	EPA 8270
Project#:	2403C.24	Prep Method:	EPA 3520
Location:	Alameda		

Field ID:	MW-1	Sampled:	03/08/96
Lab ID:	124740-005	Received:	03/08/96
Matrix:	Water	Extracted:	03/11/96
Batch#:	26362	Analyzed:	03/19/96
Units:	ug/L		
Diln Fac:	1		

Analyte	Result	Reporting Limit
Naphthalene	ND	10
Acenaphthylene	ND	10
Acenaphthene	ND	10
Fluorene	ND	10
Phenanthrene	ND	10
Anthracene	ND	10
Fluoranthene	ND	10
Pyrene	ND	10
Benzo(a)anthracene	ND	10
Chrysene	ND	10
Benzo(b)fluoranthene	ND	10
Benzo(k)fluoranthene	ND	10
Benzo(a)pyrene	ND	10
Indeno(1,2,3-cd)pyrene	ND	10
Dibenz(a,h)anthracene	ND	10
Benzo(g,h,i)perylene	ND	10

Surrogate	%Recovery	Recovery Limits
Nitrobenzene-d5	94	35-114
2-Fluorobiphenyl	85	43-116
Terphenyl-d14	78	33-141

Polynuclear Aromatic Hydrocarbons by GC/MS

Client:	Cape Environmental, Inc.	Analysis Method:	EPA 8270
Project#:	2403C.24	Prep Method:	EPA 3520
Location:	Alameda		

Field ID:	MW-2R	Sampled:	03/08/96
Lab ID:	124740-002	Received:	03/08/96
Matrix:	Water	Extracted:	03/11/96
Batch#:	26362	Analyzed:	03/18/96
Units:	ug/L		
Diln Fac:	1		

Analyte	Result	Reporting Limit
Naphthalene	ND	10
Acenaphthylene	ND	10
Acenaphthene	ND	10
Fluorene	ND	10
Phenanthrene	ND	10
Anthracene	ND	10
Fluoranthene	ND	10
Pyrene	ND	10
Benzo(a)anthracene	ND	10
Chrysene	ND	10
Benzo(b)fluoranthene	ND	10
Benzo(k)fluoranthene	ND	10
Benzo(a)pyrene	ND	10
Indeno(1,2,3-cd)pyrene	ND	10
Dibenz(a,h)anthracene	ND	10
Benzo(g,h,i)perylene	ND	10

Surrogate	%Recovery	Recovery Limits
Nitrobenzene-d5	97	35-114
2-Fluorobiphenyl	85	43-116
Terphenyl-d14	58	33-141

Polynuclear Aromatic Hydrocarbons by GC/MS

Client:	Cape Environmental, Inc.	Analysis Method:	EPA 8270
Project#:	2403C.24	Prep Method:	EPA 3520
Location:	Alameda		

Field ID:	MW-4	Sampled:	03/08/96
Lab ID:	124740-004	Received:	03/08/96
Matrix:	Water	Extracted:	03/11/96
Batch#:	26362	Analyzed:	03/19/96
Units:	ug/L		
Diln Fac:	1		

Analyte	Result	Reporting Limit
Naphthalene	ND	10
Acenaphthylene	ND	10
Acenaphthene	ND	10
Fluorene	ND	10
Phenanthrene	ND	10
Anthracene	ND	10
Fluoranthene	ND	10
Pyrene	ND	10
Benzo(a)anthracene	ND	10
Chrysene	ND	10
Benzo(b)fluoranthene	ND	10
Benzo(k)fluoranthene	ND	10
Benzo(a)pyrene	ND	10
Indeno(1,2,3-cd)pyrene	ND	10
Dibenz(a,h)anthracene	ND	10
Benzo(g,h,i)perylene	ND	10

Surrogate	%Recovery	Recovery Limits
Nitrobenzene-d5	90	35-114
2-Fluorobiphenyl	82	43-116
Terphenyl-d14	49	33-141

Polynuclear Aromatic Hydrocarbons by GC/MS

Client:	Cape Environmental, Inc.	Analysis Method:	EPA 8270
Project#:	2403C.24	Prep Method:	EPA 3520
Location:	Alameda		

Field ID:	TW/MW-5	Sampled:	03/08/96
Lab ID:	124740-001	Received:	03/08/96
Matrix:	Water	Extracted:	03/11/96
Batch#:	26362	Analyzed:	03/19/96
Units:	ug/L		
Diln Fac:	1		

Analyte	Result	Reporting Limit
Naphthalene	ND	10
Acenaphthylene	ND	10
Acenaphthene	ND	10
Fluorene	ND	10
Phenanthrene	ND	10
Anthracene	ND	10
Fluoranthene	ND	10
Pyrene	ND	10
Benzo(a)anthracene	ND	10
Chrysene	ND	10
Benzo(b)fluoranthene	ND	10
Benzo(k)fluoranthene	ND	10
Benzo(a)pyrene	ND	10
Indeno(1,2,3-cd)pyrene	ND	10
Dibenz(a,h)anthracene	ND	10
Benzo(g,h,i)perylene	ND	10

Surrogate	%Recovery	Recovery Limits
Nitrobenzene-d5	89	35-114
2-Fluorobiphenyl	78	43-116
Terphenyl-d14	29*	33-141

* Values outside of QC limits

Polynuclear Aromatic Hydrocarbons by GC/MS

Client:	Cape Environmental, Inc.	Analysis Method:	EPA 8270
Project#:	2403C.24	Prep Method:	EPA 3520
Location:	Alameda		

Field ID:	MW-6	Sampled:	03/08/96
Lab ID:	124740-003	Received:	03/08/96
Matrix:	Water	Extracted:	03/11/96
Batch#:	26362	Analyzed:	03/19/96
Units:	ug/L		
Diln Fac:	1		

Analyte	Result	Reporting Limit
Naphthalene	ND	10
Acenaphthylene	ND	10
Acenaphthene	ND	10
Fluorene	ND	10
Phenanthrene	ND	10
Anthracene	ND	10
Fluoranthene	ND	10
Pyrene	ND	10
Benzo(a)anthracene	ND	10
Chrysene	ND	10
Benzo(b)fluoranthene	ND	10
Benzo(k)fluoranthene	ND	10
Benzo(a)pyrene	ND	10
Indeno(1,2,3-cd)pyrene	ND	10
Dibenz(a,h)anthracene	ND	10
Benzo(g,h,i)perylene	ND	10

Surrogate	%Recovery	Recovery Limits
Nitrobenzene-d5	88	35-114
2-Fluorobiphenyl	81	43-116
Terphenyl-d14	55	33-141

Polynuclear Aromatic Hydrocarbons by GC/MS

Client: Cape Environmental, Inc.
Project#: 2403C.24
Location: Alameda

Analysis Method: EPA 8270
Prep Method: EPA 3520

METHOD BLANK

Matrix: Water
Batch#: 26362
Units: ug/L
Diln Fac: 1

Prep Date: 03/11/96
Analysis Date: 03/14/96

MB Lab ID: QC16872

Analyte	Result	Reporting Limit
Naphthalene	ND	10
Acenaphthylene	ND	10
Acenaphthene	ND	10
Fluorene	ND	10
Phenanthrene	ND	10
Anthracene	ND	10
Fluoranthene	ND	10
Pyrene	ND	10
Benzo(a)anthracene	ND	10
Chrysene	ND	10
Benzo(b)fluoranthene	ND	10
Benzo(k)fluoranthene	ND	10
Benzo(a)pyrene	ND	10
Indeno(1,2,3-cd)pyrene	ND	10
Dibenz(a,h)anthracene	ND	10
Benzo(g,h,i)perylene	ND	10

Surrogate	%Rec	Recovery Limits
Nitrobenzene-d5	96	35-114
2-Fluorobiphenyl	78	43-116
Terphenyl-d14	87	33-141

Curtis & Tompkins, Ltd.

Lab #: 124740 BATCH QC REPORT

Polynuclear Aromatic Hydrocarbons by GC/MS

Client: Cape Environmental, Inc.
Project#: 2403C.24
Location: Alameda

Analysis Method: EPA 8270
Prep Method: EPA 3520

BLANK SPIKE/BLANK SPIKE DUPLICATE

Matrix: Water
Batch#: 26362
Units: ug/L
Diln Fac: 1

Prep Date: 03/11/96
Analysis Date: 03/14/96

BS Lab ID: QC16873

Analyte	Spike Added	BS	%Rec #	Limits
Acenaphthene	25	21.04	84	46-118
Pyrene	25	16.46	66	26-127
Surrogate	**%Rec**	**Limits**		
Nitrobenzene-d5	98	35-114		
2-Fluorobiphenyl	80	43-116		
Terphenyl-d14	84	33-141		

BSD Lab ID: QC16874

Analyte	Spike Added	BSD	%Rec #	Limits	RPD #	Limit
Acenaphthene	25	21.82	88	46-118	5	<31
Pyrene	25	16.95	68	26-127	3	<31
Surrogate	**%Rec**	**Limits**				
Nitrobenzene-d5	98	35-114				
2-Fluorobiphenyl	80	43-116				
Terphenyl-d14	84	33-141				

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits
RPD: 0 out of 2 outside limits
Spike Recovery: 0 out of 4 outside limits

CHAIN OF CUSTODY FORM

Curtis & Tompkins, Ltd.
2323 Fifth Street
Berkeley, CA 94710
(510) 486-0900 Phone
(510) 486-0532 Fax

Sampler: Larry M. Harlan

Report to: SAME

Project No: 2403C.24

Company: Cape Env. Mgmt. Inc

Project Name: GSA- Alameda

Telephone: 310 532 4500

Turnaround Time: 10 Day (Normal)

Fax: 310 532 6022

Laboratory Number	Sample ID.	Sampling Date	Sampling Time	Matrix: Soil	Matrix: Water	Matrix: Waste	# of Containers	Preservative: HCl	Preservative: H_2SO_4	Preservative: HNO_3	Preservative: ICE	Field Notes	Analyses: Oil & Grease (5520)	Analyses: TEH	Analyses: 8010	Analyses: 8270 PNA's Only
-1	TW/MW-5	3.8.96	1232		X		2	X				VOA			X	
	TW/MW-5	"	1232				2					1 L AMBER		X		X
	TW/MW-5	"	1232				1	X				1 L AMBER	X			
-2	MW-2R	"	1310				2	X				VOA			X	
	MW-2R	"	1310				2					1 L AMBER		X		X
	MW-2R	"	1310				1	X				1 L AMBER	X			
-3	MW-6	"	1340				2	X				VOA			X	
	MW-6	"	1340				2					1 L AMBER		X		X
	MW-6	"	1340				1	X				1 L AMBER	X			
-4	MW-4	"	1425				2	X				VOA			X	
	MW-4	"	1425				2					1 L AMBER		X	—	X
	MW-4	"	1425				1	X				1 L AMBER	X			
		3.8.96			X											

NOTES:
Same analyses as previous C&T Lab Job No. 123658 (Dec. 27 1995).

RELINQUISHED BY:

Larry M. Harlan 3/8/96 1652 DATE/TIME

DATE/TIME

DATE/TIME

RECEIVED BY:

DATE/TIME

DATE/TIME

3/9/96 DATE/TIME

Signature on this form constitutes a firm purchase order for the services requested above.

CHAIN OF CUSTODY FORM

Curtis & Tompkins, Ltd.
2323 Fifth Street
Berkeley, CA 94710
(510) 486-0900 Phone
(510) 486-0532 Fax

Sampler: Larry M. Harlan

Report to: SAME

Project No: 2403c.24

Company: Cape Env. Mgmt. Inc

Project Name: GSA Alameda

Telephone: 310 532 4500

Turnaround Time: 10 Day (Normal)

Fax: 310 532 6022

Laboratory Number	Sample ID.	Sampling Date	Sampling Time	Matrix: Soil	Matrix: Water	Matrix: Waste	# of Containers	Preservative: HCl	Preservative: H_2SO_4	Preservative: HNO_3	Preservative: ICE	Field Notes	Analyses: Oil & Grease (5520)	Analyses: TEH	Analyses: 8010	Analyses: 8270 PNA's Only	Analyses: 8020 BTEX
-5	MW-1	3.8.96	1515		X		4	X				VOA			X		X
	MW-1	"	1515		X		2					1 L AMBER		X		X	
	MW-1	"	1515		X		1	X				1 L AMBER	X				

NOTES:

RELINQUISHED BY:

Larry M. Harlan 3/8/96 1652 DATE/TIME

DATE/TIME

DATE/TIME

RECEIVED BY:

DATE/TIME

DATE/TIME

Tom Boo 3/9/96 0930 DATE/TIME

Signature on this form constitutes a firm purchase order for the services requested above.