ALSO HAZMAT
94 DEC 20 PM 4:11

REPORT OF GROUND WATER INVESTIGATION

CALIFORNIA SYRUP & EXTRACT SITE
1355 55th Street
Emeryville, California

CWEC 20539-001-02

Prepared for:

California Syrup and Extract Company
P.O. Box 8305
Emeryville, CA 94662

Prepared by:

Century West Engineering Corporation
7950 Dublin Blvd., Suite 203
Dublin, California 94568

October 25, 1994

centurywest
ENGINEERING CORPORATION

ALCO HAZMAT
94 DEC 20 PM 4:11

October 25, 1994

UST Local Oversight Program
Alameda County Health Agency
1131 Harbor Way Parkway
Alameda, Ca. 94502

Attention: Susan Hugo

Subject: Report of Ground Water Investigation
California Syrup & Extract Site
1355 55th Street
Emeryville, California
CWEC 20539-001-02

Ladies and Gentlemen:

Century West Engineering is pleased to submit this *Report of Ground Water Investigation* on behalf of California Syrup & Extract for the subject site, located at 1355 55th Street in Emeryville, California. This investigation consisted of the drilling, installing, and sampling of two ground water monitoring wells. The purpose of these well installation activities was to assess ground water quality in accordance with requirements for the closure-in-place of eight underground storage tanks (USTs) located in the 55th Street sidewalk in front of the subject site.

This report describes the investigative methods and presents the results of the ground water investigation. We appreciate the opportunity to present this report for your review and comments. Please contact us if you have questions or require additional information.

Very truly yours,

Robert Bogar
Geologist

REGISTERED GEOLOGIST
JAMES E. GRIBI
No. 5843
STATE OF CALIFORNIA

James E. Gribi
Registered Geologist
California No. 5843

RB/JEG:cc
Enclosures

25 YEARS OF SOLUTIONS

LEADING THROUGH EFFECTIVE SOLUTIONS

7950 Dublin Blvd., Suite 203 Dublin, California 94568 Phone: (510) 551-7774 FAX: (510) 551-7776

TABLE OF CONTENTS

1.0 INTRODUCTION

Century West Engineering is pleased to submit this report on behalf of California Syrup and Extract summarizing the recent well installation activities at the site located at 1355 55th Street, in Emeryville, California (see Figure 1 and Figure 2). This report describes the investigative methods and summarizes the results of this investigation.

1.1 Site Background

The California Syrup and Extract Company produced and bottled syrup and vinegar at the project site from approximately 1910 until the mid 1980s. In addition, ammonia was bottled at the project site in the 1960s. The east portion of the facility was leased out in the 1970s, and the west portion has been used for storage since the mid 1980s

Eight underground storage tanks (USTs) are located beneath the sidewalk adjacent to the California Syrup and Extract facility. These USTs were installed at various times throughout the life of the facility, and were used to store vehicle fuels, such as gasoline and diesel, and for bulk storage of aqueous ammonia and denatured alcohol for use in California Syrup and Extract's business. All of the USTs were installed prior to current Federal and State UST permitting and closure regulations. Thus, as each UST outlived its usefulness, it was simply taken out of use.

In July 1993, Century West Engineering conducted a soil boring investigation at the project site as a requirement for closure-in-place of the eight USTs located beneath the 55th Street sidewalk (see *Report of Soil Boring Investigation For UST Closure-In Place*, Century West Engineering, November 10, 1993). This investigation, which included the drilling and sampling of 13 soil borings adjacent to the USTs, revealed that three of the eight USTs (Tank No. 2 waste oil, Tank No. 3 diesel, and Tank No. 4 ammonia) showed evidence of product leakage. However, soil analytical results from the 13 soil borings indicated that releases from these three USTs have not had a significant impact on soils in the expected downgradient (westerly) direction from the USTs.

In accordance with the approved UST closure plan, the eight USTs were closed in-place by Allpro Environmental Corporation during the week of August 15, 1994. Closure-in-place consisted of filling each of the USTs with a cement/sand slurry.

1.2 Scope of Work

The scope of work for this investigation included the following tasks:

- **Task 1 Prepare a brief workplan for submittal to Alameda County UST Local Oversight Program.**
- **Task 2 Contract qualified driller and obtain permits from City of Emeryville and Alameda County.**
- **Task 3 Drill, install, and sample two ground water monitoring wells.**
- **Task 4 Conduct laboratory analysis of soil and water samples.**
- **Task 5 Prepare report of findings.**

These tasks were conducted in accordance with guidelines contained in *Tri-Regional Board Staff Recommendations for Preliminary Evaluation and Investigation of Underground Tank Sites*, (August 10, 1990) and *LUFT Field Manual*, (October 18, 1989).

1.3 Limitations

The services provided under this contract as described in this report include professional opinions and judgments based on data collected. These services have been provided according to generally accepted environmental protocol. The opinions and conclusions contained in this report are typically based on information obtained from:

1. Observations and measurements made by our field staff.
2. Contacts and discussions with regulatory agencies and others.
3. Review of available hydrogeologic data.

1.4 Regulatory Approval

Prior to beginning drilling activities, Century West Engineering submitted *Workplan for Ground Water Investigation*, (August 19, 1994) to Alameda County UST Local Oversight Program. Century West Engineering received verbal authorization to proceed from Ms. Susan Hugo of Alameda County UST Local Oversight Program prior to initiating field activities.

On September 1, 1994, an encroachment permit was obtained from City of Emeryville by Century West Engineering. On September 7, 1994, a monitoring well installation permit was obtained from Alameda Zone 7 Water Agency (permit no. 94522). Copies of these permits are contained in Appendix A.

On June 25, 1994, as part of a previous soil boring investigation at the project site, Subtronic Corporation conducted an underground utilities survey of the sidewalk area. On September 6, 1994, Underground Services Alert (USA) was notified (USA verification no. 288-861).

Prior to beginning field activities, a Site Safety Plan was issued to the drilling crew and a tailgate safety meeting was conducted.

2.0 DESCRIPTION OF FIELD ACTIVITIES

Well drilling and installation activities were conducted on September 8, 1994. Well development and sampling activities were conducted on September 20, 1994, and well elevations were measured on September 30, 1994.

2.1 Location of Monitoring Wells

Location of the two wells was based on: (1) Results of the soil boring investigation, as reported in *Report of Soil Boring Investigation For UST Closure-In-Place* (CWEC, November 10, 1993); and (2) Discussions with Ms. Susan Hugo of Alameda County UST Local Oversight Program. MW-1 was sited approximately ten feet in the expected downgradient (southwesterly) direction from Tank No. 3 in order to provide an assessment of ground water quality downgradient from Tank 2 and Tank 3 (see Figure 2). MW-2 was placed approximately ten feet southwest from Tank No. 5 in order to provide an assessment of ground water quality downgradient from Tank No. 4 and Tank No. 5.

2.2 Drilling and Sampling of Well Borings

The well borings were drilled by Kvilhaug Well Drilling to total depths of approximately 20 feet below grade using hollow stem auger equipment. Each well boring was logged and field screened by a qualified Century West Engineering geologist using sight and smell. Soil cuttings were placed in 55-gallon drums pending laboratory results. Boring logs for both well borings are contained in Appendix B.

Representative soil samples from each boring were taken at depths of approximately six and ten feet below grade. Undisturbed soils were sampled in advance of the auger as follows: (1) A two-inch inside diameter California-style split spoon sampler was driven into undisturbed soil ahead of the drill bit; (2) The sampler was raised quickly to the surface and the brass liners exposed; (3) The brass liner containing the most undisturbed soil was quickly sealed with aluminum foil and plastic end caps, labeled, and wrapped tightly with tape; and (4) The sealed soil sample was immediately placed in a cooler with crushed ice for transport to the analytical laboratory under formal chain-of-custody.

All sampling equipment was thoroughly cleaned and decontaminated between each sample collection by triple rinsing first with water, then with dilute tri-sodium phosphate solution, and finally with distilled water. All downhole drilling equipment, including auger and drill bit, was steam cleaned before and after drilling each well boring.

2.3 Installation of Monitoring Wells

Each monitoring well was constructed using two-inch diameter Schedule 40 threaded PVC casing according to the following approximate specifications: (1) 0.020-inch slotted well casing was placed from approximately 20 feet to five feet in depth; (2) Filter sand was placed around the casing to a depth of four feet below grade; (3) A bentonite seal was placed around the casing from approximately four feet to three feet below grade; and (4) The remaining annulus was grouted using a cement/sand slurry (bentonite less than 5 percent).

The top of the well was enclosed in a traffic rated locking box set in concrete slightly above grade. A well Construction Diagram is shown on Figure 3.

2.4 Well Development and Sampling

Each monitoring well was developed using a two-inch diameter submersible 12-volt electric purge pump. Well development consisted of purging the well of at least three well volumes before sampling. During well development, ground water was periodically monitored for free-floating product thickness, pH, specific conductance, temperature and visible clarity. After these parameters had stabilized, ground water was sampled directly from a clean disposable PVC bailer in the following manner: (1) Four 40-ml VOAs and two one-liter amber bottles were completely filled directly from the bailer with a minimum of agitation; (2) After making sure that no air bubbles were present, each container was tightly sealed with a teflon-lined septum; and (3) Each container was then labeled and placed in cold storage for transport to the analytical laboratory under formal chain-of-custody.

All purged ground water was stored on site in a sealed drum pending analytical results of the ground water samples. All sampling equipment was thoroughly cleaned and decontaminated between each sample collection by triple rinsing as described above.

2.5 Determination of Ground Water Flow Gradient

Mean sea level elevations were surveyed from a City of Emeryville datum by Ahmad Maghaddas, a California-registered civil engineer. Elevations were measured for the two new wells, MW-1 and MW-2, as well as for a pre-existing well (herein designated as MW-3) located on the project site approximately 60 feet south from 55th street (see Figure 2). Following surveying, water depths in all three wells were measured to the nearest 0.01 feet, using a Solonist electronic probe. Well elevation data are summarized in Table 1. The surveyor's report is included in Appendix B.

Table 1
WELL ELEVATION DATA
California Syrup and Extract Site

Well Number	*Elevation of Top of Casing*[1]	*Depth to Water*[2] *(ft)*	*Water Table Elevation*[1]
MW-1	23.95	8.01	15.94
MW-2	23.41	7.81	15.60
MW-3[3]	24.21	11.31	12.90

1 - Elevation in feet above mean sea level.
2 - Depth to ground water from top of casing.
3 - Pre-existing well - not installed during this investigation.

2.6 Laboratory Analysis of Soil and Ground Water Samples

A total of four soil samples and two water samples were analyzed for total petroleum hydrocarbons as gasoline (TPH-G); total petroleum hydrocarbons as diesel and motor oil (TPH-D/MO); and benzene, toluene, ethylbenzene, and xylenes (BTEX). In addition, the water sample taken from the west well, MW-2, was analyzed for total ammonia. Laboratory analyses were conducted by Superior Precision Analytical, Inc., a California-certified analytical laboratory.

3.0 RESULTS OF INVESTIGATION

3.1 General Subsurface Conditions

Native soils were generally similar in both well borings, consisting primarily of clayey silts, with occasional sandy layers. Slight to strong hydrocarbon odors, with green hydrocarbon staining, were noted in MW-1 from approximately four to eight feet below grade. Slight to strong hydrocarbon odors, with some green hydrocarbon staining, were noted in MW-2 from approximately four to 10 feet below grade.

3.2 Hydrologic Conditions

Ground water was encountered in MW-1 and MW-2 at approximately eight feet in depth. Ground water was encountered in pre-existing well MW-3 at approximately 11 feet below grade. Pre-existing well MW-3, which appears to be constructed of six-inch diameter steel casing, appears to be at least 45 feet in depth. The depth of perforations, as well as the historical use of this well, is not known. Given these conditions, we have chosen to depict a ground water flow gradient on Figure 2 which is more westerly, thus placing more weight on the elevation results from MW-1 and MW-2, and less weight on the results from pre-existing well MW-3. Given our knowledge of the project area and on the closeness of this site to San Francisco Bay (located approximately one-half mile southwest from the project site), we believe that the southwest flow direction shown on Figure 2 is accurate.

No hydrocarbon odors or sheens were noted in purged ground water from MW-1. A slight hydrocarbon sheen, with no odor, was observed in purged water from MW-2.

3.3 Results of Laboratory Analyses

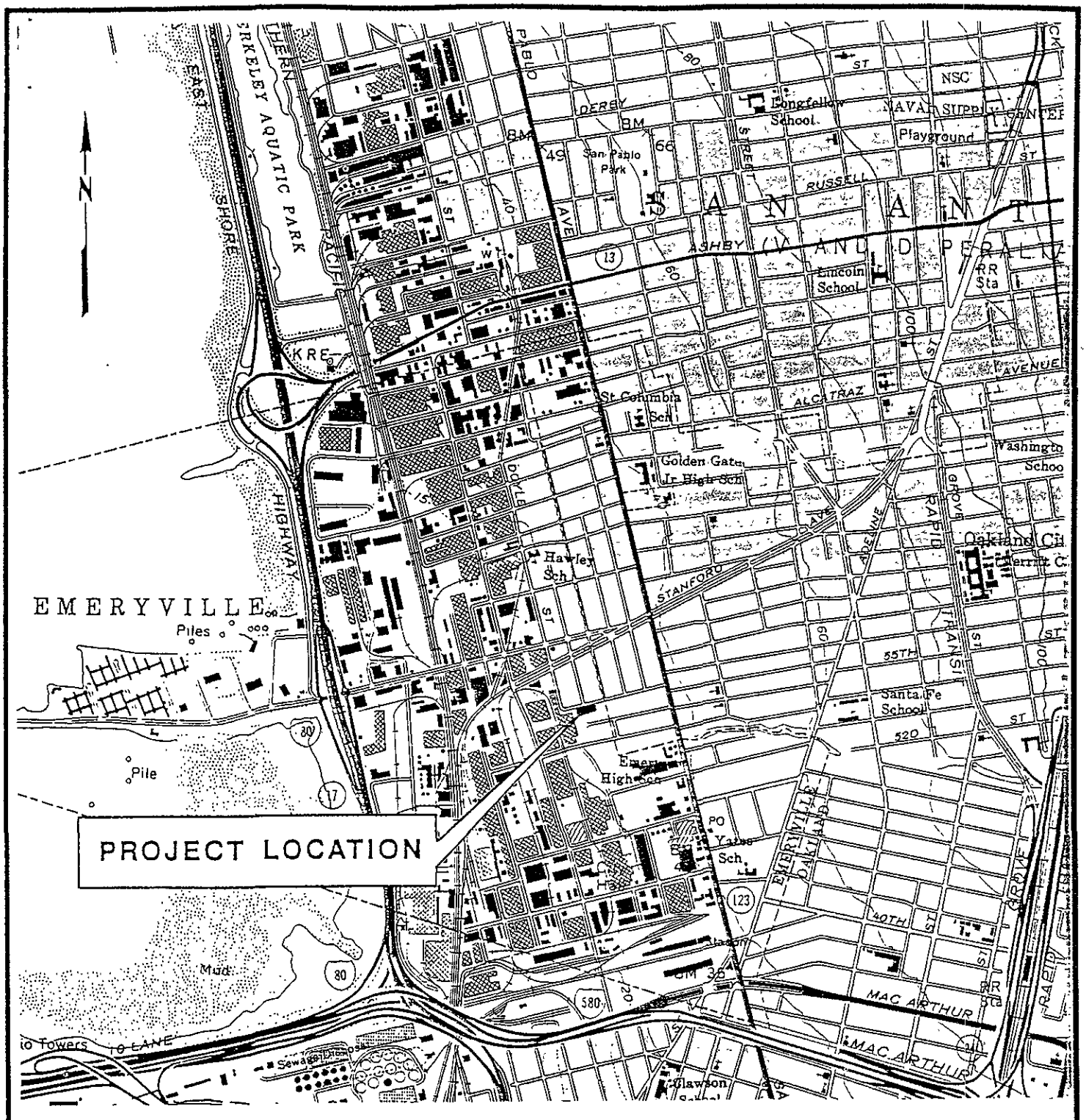
Soil and ground water samples are summarized in Table 2. Laboratory reports and chain of custody records are contained in Appendix D.

Table 2
SUMMARY OF ANALYTICAL RESULTS
California Syrup and Extract Site

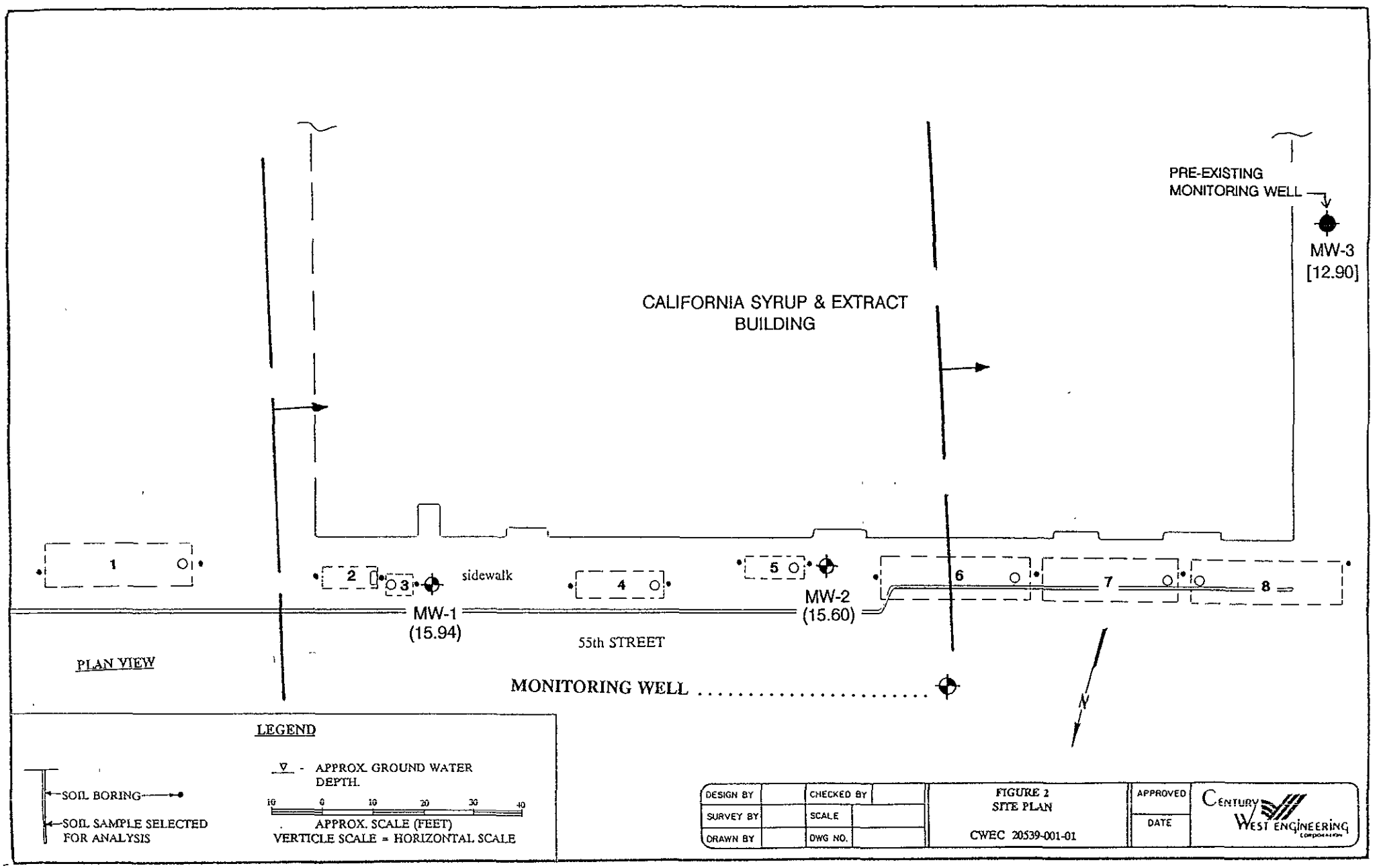
Sample ID	Sample Depth	Concentration (ppm)						
		TPH-G	TPH-D	TPH-MO	B	T	E	X
Soil Samples								
MW-1.1	6.0 ft	16	28	ND(100)	ND(.005)	0.15	0.080	0.38
MW-1.2	10.5 ft	ND(1)[1]	ND(10)	ND(100)	ND(.005)	ND(.005)	ND(.0025)	ND(.005)
MW-2.1	6.0 ft	650	250[2]	ND(100)	1.2	3.4	11	16
MW-2.2	10.0 ft	ND(1)	ND(10)	ND(100)	0.051	ND(.005)	0.070	0.006
Ground Water Samples								
MW-1	--	ND(.05)	ND(.05)	ND(0.5)	ND(.0005)	ND(.0005)	ND(.0005)	ND(.0005)
MW-2	--	0.970	0.630[2]	ND(0.5)	0.057	0.0034	0.0036	0.030

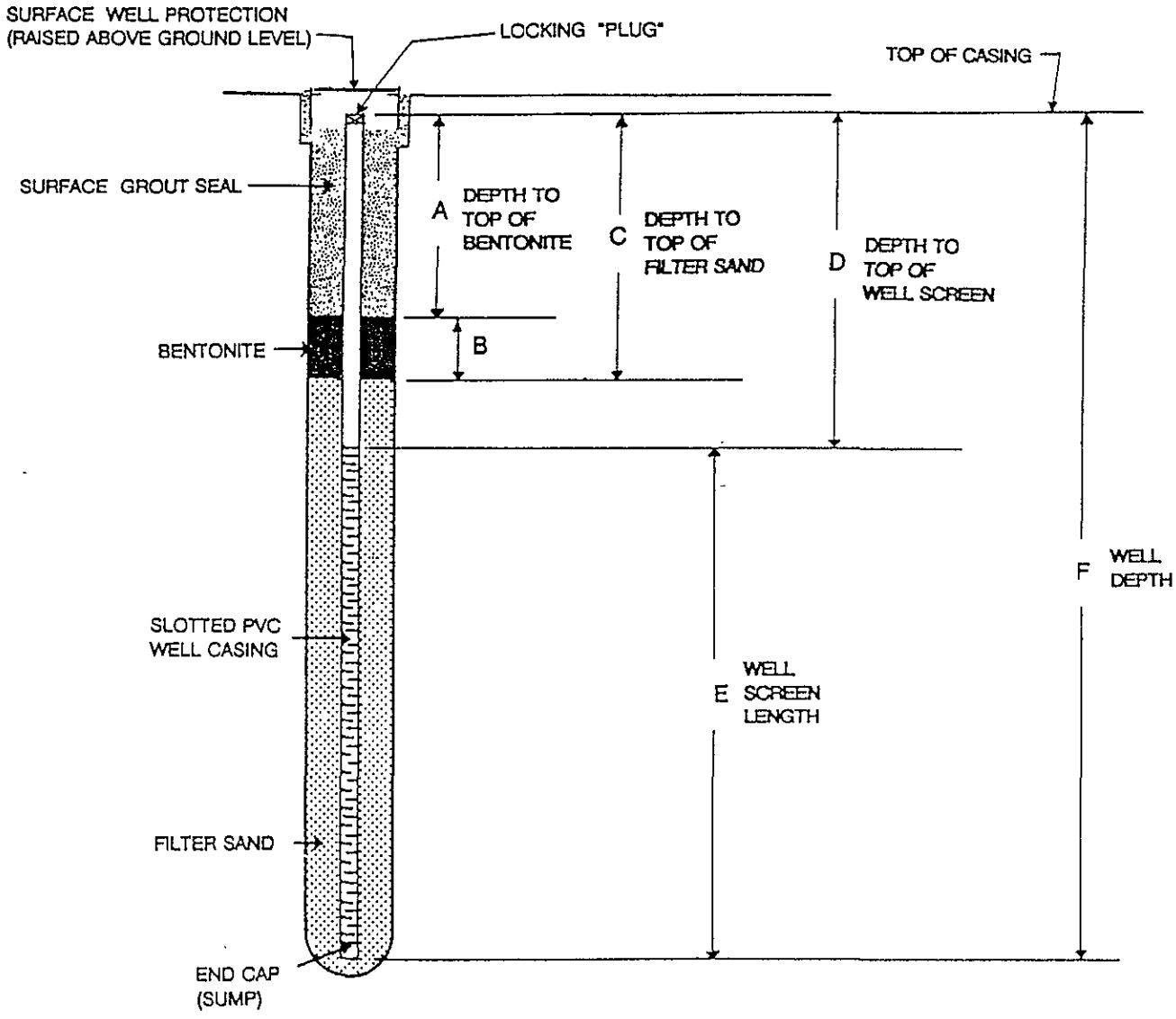
1 - Not detected above the value expressed in the parentheses.
2 - Laboratory report states,"Does not match typical diesel pattern - lighter hydrocarbons present"

In addition to the results summarized in Table 2, the MW-2 ground water sample contained 0.55 ppm of total ammonia.



DESIGNED BY:	CHECKED BY:	FIGURE 1	DATE:	FIGURE:
DRAWN BY:	SCALE:	SITE VICINITY MAP CWEC : 20539-001-02	CENTURY WEST ENGINEERING	
DWG. NO.:				


PRE-EXISTING
MONITORING WELL
MW-3
[12.90]
CALIFORNIA SYRUP & EXTRACT
BUILDING
1
2
3
sidewalk
4
5
6
7
8
MW-1
(15.94)
MW-2
(15.60)
55th STREET
PLAN VIEW
MONITORING WELL
N
LEGEND
SOIL BORING
SOIL SAMPLE SELECTED
FOR ANALYSIS
▽ - APPROX. GROUND WATER
DEPTH.
10 0 10 20 30 40
APPROX. SCALE (FEET)
VERTICLE SCALE = HORIZONTAL SCALE
DESIGN BY
CHECKED BY
SURVEY BY
SCALE
DRAWN BY
DWG NO.
FIGURE 2
SITE PLAN
CWEC 20539-001-01
APPROVED
DATE
CENTURY WEST ENGINEERING



WELL SPECIFICATIONS			MW-1	MW-2
WELL CASING:	Two-inch Sch. 40 PVC	A	3.0 feet	3.0 feet
WELL SLOT SIZE:	0.020 inch	B	1.0 feet	1.0 feet
BENTONITE:	Hydrated pellets	C	4.0 feet	4.0 feet
SURFACE SEAL:	Cement slurry (bent. < 5%)	D	5.10 feet	5.36 feet
WELL PLUG:	Locking expandable cap	E	19.80 feet	19.96 feet
SURFACE PROTECTION:	Traffic rated, water tight	F	20.20 feet	20.44 feet

OREGON SURVEYING EQUIPMENT CO. 94420

DESIGN BY		CHECKED BY		FIGURE 3	APPROVED
SURVEY BY		SCALE	NO SCALE	WELL CONSTRUCTION DIAGRAM	DATE
DRAWN BY	JEG	DWG. NO.		CWEC: 20539-001-02	

CENTURY WEST ENGINEERING CORPORATION

APPENDIX A

PERMITS

ZONE 7 WATER AGENCY

5997 PARKSIDE DRIVE PLEASANTON, CALIFORNIA 94588 VOICE (510) 484-2600
FAX (510) 462-3914

DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

LOCATION OF PROJECT CALIFORNIA SYRUP & EXTRACT
EXTRACT - 1355 55TH ST.
EMERYVILLE, CA

CLIENT
Name CALIFORNIA SYRUP & EXTRACT
Address P.O. BOX 8805 Voice (510) 420-9163
City EMERYVILLE Zip 94662

APPLICANT
Name Bob Bray - Courtney Wett
Engineering Fax (510) 551-7776
Address 7760 Dublin Blvd Voice (510) 551-7774
City Dublin Zip 94568

TYPE OF PROJECT

Well Construction		Geotechnical Investigation	
Cathodic Protection	___	General	
Water Supply	___	Contamination	X
Monitoring	X	Well Destruction	___

PROPOSED WATER SUPPLY WELL USE
Domestic ___ Industrial ___ Other X
Municipal ___ Irrigation ___

DRILLING METHOD:
Mud Rotary ___ Air Rotary ___ Auger X
Cable ___ Other ___

DRILLER'S LICENSE NO. 482-390

WELL PROJECTS
Drill Hole Diameter 6 in. Maximum
Casing Diameter 2 in. Depth 22 ft.
Surface Seal Depth 3 ft. Number 2

GEOTECHNICAL PROJECTS
Number of Borings ___ Maximum
Hole Diameter ___ in. Depth ___ ft.

ESTIMATED STARTING DATE 09/08/94
ESTIMATED COMPLETION DATE 09/08/94

I hereby agree to comply with all requirements of this permit and Alameda County Ordinance No. 73-68.

APPLICANT'S SIGNATURE Bob Bray Date 8/25/94

FOR OFFICE USE

PERMIT NUMBER 94522
LOCATION NUMBER ___

PERMIT CONDITIONS

Circled Permit Requirements Apply

(A.) GENERAL
1. A permit application should be submitted so as to arrive at the Zone 7 office five days prior to proposed starting date.
2. Submit to Zone 7 within 60 days after completion of permitted work the original Department of Water Resources Water Well Drillers Report or equivalent for well Projects, or drilling logs and location sketch for geotechnical projects.
3. Permit is void if project not begun within 90 days of approval date.

(B.) WATER WELLS, INCLUDING PIEZOMETERS
1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth is 50 feet for municipal and industrial wells or 20 feet for domestic and irrigation wells unless a lesser depth is specially approved. Minimum seal depth for monitoring wells is the maximum depth practicable or 20 feet.

C. GEOTECHNICAL. Backfill bore hole with compacted cuttings or heavy bentonite and upper two feet with compacted material. In areas of known or suspected contamination, tremied cement grout shall be used in place of compacted cuttings.

D. CATHODIC. Fill hole above anode zone with concrete placed by tremie.

E. WELL DESTRUCTION. See attached.

Approved Craig A. Mayfield Date 7 Sep 94

91992

ENCROACHMENT PERMIT

CITY OF EMERYVILLE
PUBLIC WORKS DEPARTMENT
(510) 596-4330
2200 POWELL ST., 12TH FLR.
EMERYVILLE, CA 94608

(10-93 THIS SUPERSEDES ALL PREVIOUS FORMS)

DATE 09/01/94 PERMIT NO. 94-9-01

COMPANY CENTURY WEST ENGINEERING

CONTACT PERSON JIM GRIBI PHONE NO. (510) 551-7774

ADDRESS 7950 Dublin Blvd, Ste 203, Dublin CA 94568

LOCATION OF WORK 1355 55th Street, Emeryville

PLANNED DATE OF COMMENCEMENT 09/08/94 PLANNED DATE OF COMPLETION 09/08/94

DESCRIPTION OF WORK Install two (2) ground water Monitoring wells IN Sidewalk

☐ 24 HR NOTICE PRIOR TO START OF WORK ☐ MONUMENTS TO BE REPLACED ☐ PLAN REQUIRED

REMARKS _____

NOTE: IF SUBCONTRACTOR IS TO DO WORK, PROOF OF ADEQUATE INSURANCE MUST BE PRESENTED PRIOR TO START OF WORK OR THIS PERMIT IS VOID.

FOR INSPECTION UPON COMPLETION OF WORK, PLEASE CALL JUAN ARREGUIN AT (510) 596-4333. PLEASE REFER TO THE PERMIT NUMBER LISTED ABOVE.

FOR REFUNDABLE DEPOSIT UPON ENGINEER SIGN-OFF, PLEASE CALL KATHLEEN WALLS AT (510) 596-4336. PLEASE REFER TO THE PERMIT NUMBER LISTED ABOVE.

INSPECTION COMPLETED _____ BY _____

REFUNDABLE DEPOSIT RETURNED _____ BY _____

Juan E. Arreguin
CITY ENGINEER

APPENDIX B

BORING LOGS

CENTURY WEST ENGINEERING CORPORATION

MONITORING WELL LOG - MW-1
CALIFORNIA SYRUP AND EXTRACT

Site Location: 1355 55th Street	Boring ID: MW-1	Total Depth: 20.0 ft
Boring Location: East Well	Elevation:	Initial GW Depth: 8.0 ft
Purpose: Ground water investigation	Logged By: Bob Bogar	Final GW Depth:
Date: September 8, 1994	Blank Casing:	From: 5.10 To: 0.0 ft
Consulting Firm: Century West Engineering	Perforations:	From: 20.0 To: 5.10 ft
Project Number: 20539-001-02	Filter Sand:	From: 20.4 To: 4.0 ft
Drilling Contractor: Kvilhaug Drilling	Bentonite:	From: 4.0 To: 3.0 ft
Drilling Method: Hollow Stem Auger	Grout:	From: 3.0 To: 0.5 ft

Depth		Sample ID	Blow Counts	Profile	Soil Description		Remarks
01 02 03 04 05					0 - 0.5 ft 0.5 - 2.0 ft 2.0 - 4.0 ft	Concrete Dark brown clayey SILT; moist, soft; no hydrocarbon odor or discoloration. Light brown clayey SILT; moist, soft; no hydrocarbon odor or discoloration.	Note: Hand augered to 2 1/2 ft.
06 07 08 09 10	T ⊥ T	MW-1.1	10 10 10 6	▽	4.0 - 8.0 ft	Dark green sandy SILT; moist, soft; slight to strong hydrocarbon odor.	
11 12 13 14 15	⊥	MW-1.2	9 15		8.0 - 15.0 ft	Light reddish brown clayey SILT; no hydrocarbon odor or discoloration.	
16 17 18 19 20					15.0 - 20.0 ft Final Auger Depth - 20 ft Ground Water - 8 ft	Grey brown, clayey sandy SILT; no hydrocarbon odor or discoloration.	

CENTURY WEST ENGINEERING CORPORATION

MONITORING WELL LOG - MW-2
CALIFORNIA SYRUP AND EXTRACT

Site Location: 1355 55th Street	Boring ID: MW-2	Total Depth: 20.0 ft
Boring Location: West Well	Elevation:	Initial GW Depth: 8.0 ft
Purpose: Ground water investigation	Logged By: Bob Bogar	Final GW Depth:
Date: September 8, 1994	Blank Casing:	From: 5.36 To: 0.0 ft
Consulting Firm: Century West Engineering	Perforations:	From: 20.0 To: 5.36 ft
Project Number: 20539-001-02	Filter Sand:	From: 20.4 To: 4.0 ft
Drilling Contractor: Kvilhaug Drilling	Bentonite:	From: 4.0 To: 3.0 ft
Drilling Method: Hollow Stem Auger	Grout:	From: 3.0 To: 0.5 ft

Depth		Sample ID	Blow Counts	Profile	Soil Description		Remarks
01 02 03 04 05					0 - 0.5 ft 0.5 - 2.5 ft 2.5 - 4.0 ft	Concrete Light brown SILT; moist, soft; no hydrocarbon odor or discoloration; blocks of concrete to 1 ft. Light brown clayey SILT; moist, soft; no hydrocarbon odor or discoloration.	Note: Hand augered to 2 1/2 ft.
06 07 08 09 10	T ⊥ T	MW-2.1 MW-2.2	2 3 8 8 12	▽	4.0 - 7.0 ft 7.0 - 10.0 ft	Light to dark green SILT; moist, soft; strong hydrocarbon odor. Light brown to grey silty CLAY; moist; slight hydrocarbon odor.	
11 12 13 14 15	⊥		20		10.0 - 20.0 ft	Light brown clayey SILT; moist, soft; no hydrocarbon odor or discoloration.	
16 17 18 19 20					Final Auger Depth - 20 ft Ground Water - 8 ft		

APPENDIX C

SURVEYOR'S REPORT

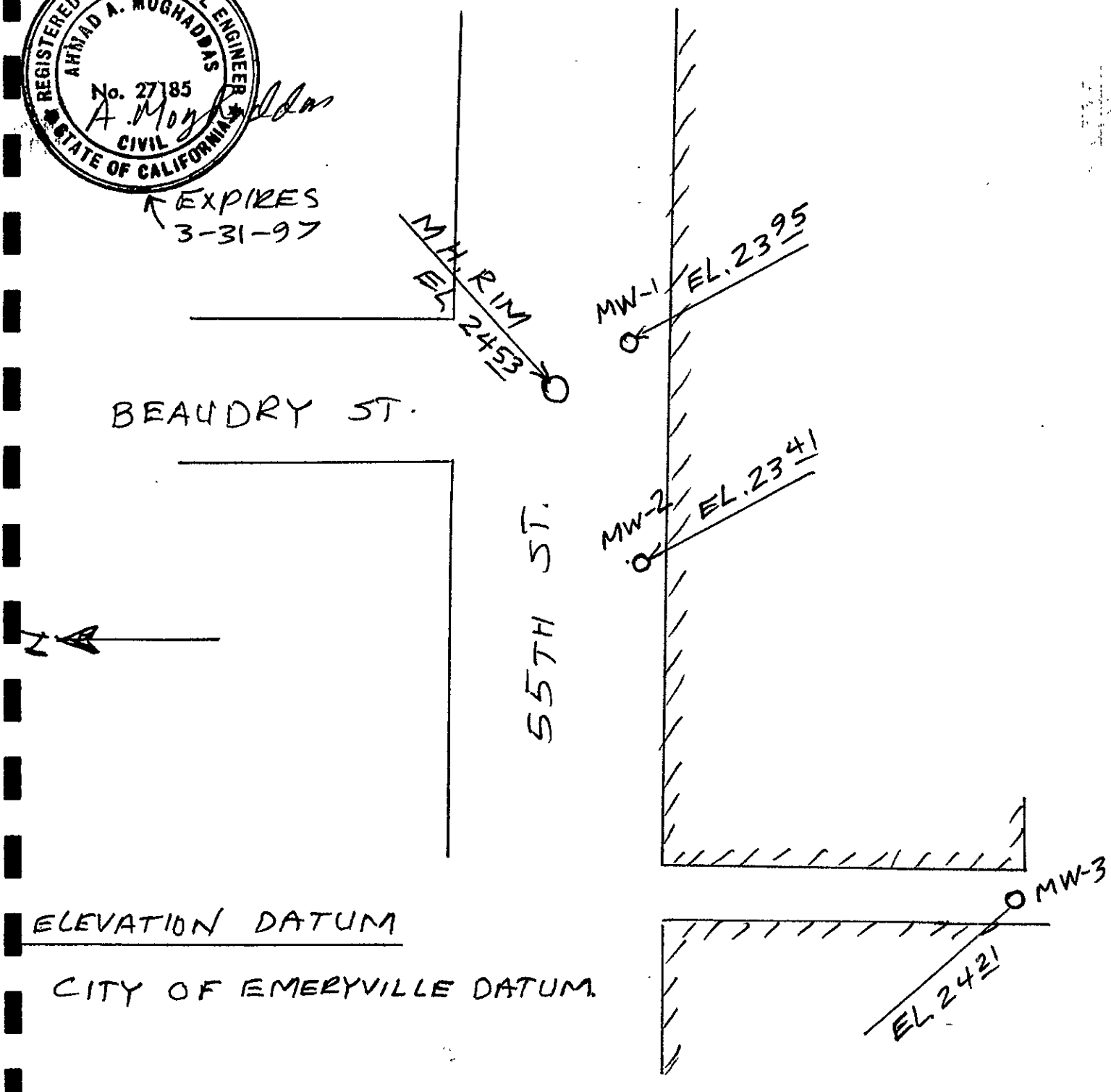
AHMAD MOGHADDAS
REGISTERED CIVIL ENGINEER
1631 BERKELEY WAY
BERKELEY, CA 94703
843-6580

9-30-97

MONITORING WELLS IN EMERYVILLE CA.

REGISTERED PROFESSIONAL ENGINEER
AHMAD A. MOGHADDAS
No. 27185
CIVIL
STATE OF CALIFORNIA
A. Moghaddas

EXPIRES 3-31-97



ELEVATION DATUM

CITY OF EMERYVILLE DATUM.

APPENDIX D

LABORATORY DATA REPORTS AND CHAIN OF CUSTODY RECORDS

Superior Precision Analytical, Inc.
A member of ESSCON Environmental Support Service Consortium

CENTURY WEST ENGINEERING
Attn: JIM GRIBI

Project 20539-001-02
Reported 15-September-1994

ANALYSIS FOR GASOLINE, BENZENE, TOLUENE, ETHYLBENZENE, AND XYLENES
by EPA SW-846 Methods 5030/8015M/8020.

Chronology

Laboratory Number 58665

Identification	Sampled	Received	Extracted	Analyzed	Run #	Lab #
MW-1.1 (6')	09/08/94	09/08/94	09/09/94	09/09/94		1
MW-1.2 (10.5')	09/08/94	09/08/94	09/09/94	09/09/94		2
MW-2.1 (6'.5')	09/08/94	09/08/94	09/12/94	09/12/94		3
MW-2.2 (10')	09/08/94	09/08/94	09/09/94	09/09/94		4

Certified Laboratories

825 Arnold Dr., Suite 114
Martinez, California 94553
(510) 229-1512 / fax (510) 229-1526

1555 Burke St., Unit I
San Francisco, California 94124
(415) 647-2081 / fax (415) 821-7123

309 S. Cloverdale St., Suite B-24
Seattle, Washington 98108
(206) 763-2992 / fax (206) 763-8429

CENTURY WEST ENGINEERING
Attn: JIM GRIBI

Project 20539-001-02
Reported 15-September-1994

ANALYSIS FOR GASOLINE, BENZENE, TOLUENE, ETHYLBENZENE, AND XYLENES

Laboratory Number	Sample Identification	Matrix
58665- 1	MW-1.1 (6')	Soil
58665- 2	MW-1.2 (10.5')	Soil
58665- 3	MW-2.1 (6'.5')	Soil
58665- 4	MW-2.2 (10')	Soil

RESULTS OF ANALYSIS

Laboratory Number:	58665- 1	58665- 2	58665- 3	58665- 4
Gasoline_Range:	16	ND<1	650	ND<1
Benzene:	ND<0.05	ND<.005	1.2	0.051
Toluene:	0.15	ND<.005	3.4	ND<.005
Ethyl Benzene:	0.080	ND<.005	11	0.070
Total Xylenes:	0.38	ND<.005	16	0.006
Concentration:	mg/kg	mg/kg	mg/kg	mg/kg
-- Surrogate % Recoveries --				
Trifluorotoluene (SS):	112	96	MI	107

MI = Matrix interference.

Certified Laboratories

825 Arnold Dr., Suite 114
Martinez, California 94553
(510) 229-1512 / fax (510) 229-1526

1555 Burke St., Unit I
San Francisco, California 94124
(415) 647-2081 / fax (415) 821-7123

309 S. Cloverdale St., Suite B-24
Seattle, Washington 98108
(206) 763-2992 / fax (206) 763-8429

Superior Precision Analytical, Inc.
A member of ESSCON Environmental Support Service Consortium

ANALYSIS FOR GASOLINE, BENZENE, TOLUENE, ETHYLBENZENE, AND XYLENES
Quality Assurance and Control Data - Soil

Laboratory Number 58665

Compound	Method Blank (mg/kg)	RL (mg/kg)	Spike Recovery (%)	Limits (%)	RPD (%)
Gasoline Range:	ND<1	1	116/117	50-123	1%
Benzene:	ND<.005	.005	85/80	59-153	6%
Toluene:	ND<.005	.005	93/90	59-153	3%
Ethyl Benzene:	ND<.005	.005	90/85	59-153	6%
Total Xylenes:	ND<.005	.005	98/95	59-153	3%

Definitions:

ND = Not Detected
RPD = Relative Percent Difference
RL = Reporting Limit
mg/kg = Parts per million (ppm)
QC File No. 58665

Cecilia G. Joaquin 9/16/94
Senior Chemist
Account Manager

Certified Laboratories

825 Arnold Dr., Suite 114
Martinez, California 94553
(510) 229-1512 / fax (510) 229-1526

1555 Burke St., Unit I
San Francisco, California 94124
(415) 647-2081 / fax (415) 821-7123

309 S. Cloverdale St., Suite B-24
Seattle, Washington 98108
(206) 763-2992 / fax (206) 763-8429

Superior Precision Analytical, Inc.
A member of ESSCON Environmental Support Service Consortium

CENTURY WEST ENGINEERING
Attn: JIM GRIBI

Project 20539-001-02
Reported 14-September-1994

Total Petroleum Hydrocarbons by Modified Method 8015

Chronology — Laboratory Number 58665

Identification	Sampled	Received	Extracted	Analyzed	Run #	Lab #
MW-1.1 (6')	09/08/94	09/08/94	09/12/94	09/13/94		1
MW-1.2 (10.5')	09/08/94	09/08/94	09/12/94	09/13/94		2
MW-2.1 (6')	09/08/94	09/08/94	09/12/94	09/13/94		3
MW-2.2 (10')	09/08/94	09/08/94	09/12/94	09/13/94		4

Certified Laboratories

825 Arnold Dr., Suite 114
Martinez, California 94553
(510) 229-1512 / fax (510) 229-1526

1555 Burke St., Unit I
San Francisco, California 94124
(415) 647-2081 / fax (415) 821-7123

309 S. Cloverdale St., Suite B-24
Seattle, Washington 98108
(206) 763-2992 / fax (206) 763-8429

CENTURY WEST ENGINEERING
Attn: JIM GRIBI

Project 20539-001-02
Reported 14-September-1994

Total Petroleum Hydrocarbons by Modified Method 8015

Laboratory Number	Sample Identification	Matrix
58665- 1	MW-1.1 (6')	Soil
58665- 2	MW-1.2 (10.5')	Soil
58665- 3	MW-2.1 (6')	Soil
58665- 4	MW-2.2 (10')	Soil

RESULTS OF ANALYSIS

Laboratory Number:	58665- 1	58665- 2	58665- 3	58665- 4
Motor Oil Range:	ND<100	ND<100	ND<100	ND<100
Diesel Range:	28	ND<10	250*	ND<10
Concentration:	mg/kg	mg/kg	mg/kg	mg/kg

*Does not match typical diesel pattern - lighter hydrocarbons present.

Certified Laboratories

825 Arnold Dr., Suite 114
Martinez, California 94553
(510) 229-1512 / fax (510) 229-1526

1555 Burke St., Unit I
San Francisco, California 94124
(415) 647-2081 / fax (415) 821-7123

309 S. Cloverdale St., Suite B-24
Seattle, Washington 98108
(206) 763-2992 / fax (206) 763-8429

Total Petroleum Hydrocarbons by Modified Method 8015
Quality Assurance and Control Data - Soil

Laboratory Number 58665

Compound	Method Blank (mg/kg)	RL (mg/kg)	Spike Recovery (%)	Limits (%)	RPD (%)
Diesel Range:	ND<10	10	110/107	50-150	3%
Motor Oil Range:	ND<100	100			

Definitions:
ND = Not Detected
RPD = Relative Percent Difference
RL = Reporting Limit
mg/kg = Parts per million (ppm)
QC File No. 58665

Cecilia G Jorgenson 9/16/94
Senior Chemist
Account Manager

Certified Laboratories

825 Arnold Dr., Suite 114
Martinez, California 94553
(510) 229-1512 / fax (510) 229-1526

1555 Burke St., Unit I
San Francisco, California 94124
(415) 647-2081 / fax (415) 821-7123

309 S. Cloverdale St., Suite B-24
Seattle, Washington 98108
(206) 763-2992 / fax (206) 763-8429

NATIONAL ENVIRONMENTAL TESTING, INC.

SUPERIOR LABS

CHAIN OF CUSTODY RECORD

58445

COMPANY: CETOURUM WEST ENGINEERING
ADDRESS: 7950 DUBLIN BLVD
PHONE: (510) 551-7774 FAX: (510) 557-7776
PROJECT NAME/LOCATION: CSE / 20537-001-02
PROJECT NUMBER: 11
PROJECT MANAGER: J. GRIBI

REPORT TO:
INVOICE TO:
P.O. NO.
NET QUOTE NO.

SAMPLED BY (PRINT NAME): Bob Boger — SIGNATURE: Bob Boger
(PRINT NAME) — SIGNATURE

DATE	TIME	SAMPLE ID/DESCRIPTION	# and Type of Containers	ANALYSES: TPH-D/MO	ANALYSES: TPH-G/BTEX	ANALYSES: 5 HOLD	COMMENTS
9/8		MW-1,1 (6')		X	X		ANALYZE ALL 4 SAMPLES FOR TPH-G/BTEX, TPH-D/MO
9/8		MW-1,2 (10½')		X	X		
9/8		MW-2,1 (6')		X	X		
9/8		MW-2,2 (10')		X	X		

Please initial:
Samples Stored in ice
Appropriate containers
Samples preserved N/A
VOA's without headspace N/A
Comments:

CONDITION OF SAMPLE: BOTTLES INTACT? YES / NO
FIELD FILTERED? YES / NO
COC SEALS PRESENT AND INTACT? YES / NO
VOLATILES FREE OF HEADSPACE? YES / NO
TEMPERATURE UPON RECEIPT:
Bottles supplied by NET? YES / NO

SAMPLE REMAINDER DISPOSAL: RETURN SAMPLE REMAINDER TO CLIENT VIA
I REQUEST NET TO DISPOSE OF ALL SAMPLE REMAINDERS — DATE

RELINQUISHED BY	DATE/TIME	RECEIVED BY:	RELINQUISHED BY:	DATE/TIME	RECEIVED FOR NET BY:
Bob Boger	9/8/94 5:40pm	Enrique Rivera # 506	Enrique Rivera 506	9-8-94 5:35PM	Monroe Superior 9/8/94 5:35PM

METHOD OF SHIPMENT

REMARKS:

PT 1 - ORIGINAL - WHITE PT 2 - NET PROJECT MANAGER - YELLOW PT 3 - CUSTOMER COPY - PINK

Superior Precision Analytical, Inc.
A member of ESSCON Environmental Support Service Consortium

CENTURY WEST ENGINEERING
Attn: JIM GRIBI

Project 20539-001-02
Reported 23-September-1994

ANALYSIS FOR GASOLINE, BENZENE, TOLUENE, ETHYLBENZENE, AND XYLENES
by EPA SW-846 Methods 5030/8015M/8020.

Chronology — Laboratory Number 58719

Identification	Sampled	Received	Extracted	Analyzed	Run #	Lab #
MW-1	09/20/94	09/21/94	09/22/94	09/22/94		1
MW-2	09/20/94	09/21/94	09/22/94	09/22/94		2

Certified Laboratories

825 Arnold Dr., Suite 114
Martinez, California 94553
(510) 229-1512 / fax (510) 229-1526

1555 Burke St., Unit I
San Francisco, California 94124
(415) 647-2081 / fax (415) 821-7123

309 S. Cloverdale St., Suite B-24
Seattle, Washington 98108
(206) 763-2992 / fax (206) 763-8429

CENTURY WEST ENGINEERING
Attn: JIM GRIBI

Project 20539-001-02
Reported 23-September-1994

ANALYSIS FOR GASOLINE, BENZENE, TOLUENE, ETHYLBENZENE, AND XYLENES

Laboratory Number	Sample Identification	Matrix
58719- 1	MW-1	Water
58719- 2	MW-2	Water

RESULTS OF ANALYSIS

Laboratory Number:	58719- 1	58719- 2
Gasoline_Range:	ND<50	970
Benzene:	ND<0.5	57
Toluene:	ND<0.5	3.6
Ethyl Benzene:	ND<0.5	3.4
Total Xylenes:	ND<0.5	30
Concentration:	ug/L	ug/L
-- Surrogate % Recoveries --		
Trifluorotoluene (SS):	98	138

Certified Laboratories

825 Arnold Dr., Suite 114
Martinez, California 94553
(510) 229-1512 / fax (510) 229-1526

1555 Burke St., Unit I
San Francisco, California 94124
(415) 647-2081 / fax (415) 821-7123

309 S. Cloverdale St., Suite B-24
Seattle, Washington 98108
(206) 763-2992 / fax (206) 763-8429

ANALYSIS FOR GASOLINE, BENZENE, TOLUENE, ETHYLBENZENE, AND XYLENES
Quality Assurance and Control Data - Water

Laboratory Number 58719

Compound	Method Blank (ug/L)	RL (ug/L)	Spike Recovery (%)	Limits (%)	RPD (%)
Gasoline_Range:	ND<50	50	112/104	56-117	7%
Benzene:	ND<0.5	0.5	75/81	59-149	8%
Toluene:	ND<0.5	0.5	84/86	59-149	2%
Ethyl Benzene:	ND<0.5	0.5	84/86	59-149	2%
Total Xylenes:	ND<0.5	0.5	91/93	59-149	2%

Definitions:
ND = Not Detected
RPD = Relative Percent Difference
RL = Reporting Limit
ug/L = Parts per billion (ppb)
QC File No. 58719

Cecilia Joaquin 9/26/94
Senior Chemist
Account Manager

Certified Laboratories

825 Arnold Dr., Suite 114
Martinez, California 94553
(510) 229-1512 / fax (510) 229-1526

1555 Burke St., Unit I
San Francisco, California 94124
(415) 647-2081 / fax (415) 821-7123

309 S. Cloverdale St., Suite B-24
Seattle, Washington 98108
(206) 763-2992 / fax (206) 763-8429

Superior Precision Analytical, Inc.
A member of ESSCON Environmental Support Service Consortium

CENTURY WEST ENGINEERING
Attn: JIM GRIBI

Project 20539-001-02
Reported 23-September-1994

Total Petroleum Hydrocarbons by EPA Method 8015M

Chronology

Laboratory Number 58719

Identification	Sampled	Received	Extracted	Analyzed	Run #	Lab #
MW-1	09/20/94	09/21/94	09/21/94	09/21/94		1
MW-2	09/20/94	09/21/94	09/21/94	09/21/94		2

Certified Laboratories

825 Arnold Dr., Suite 114
Martinez, California 94553
(510) 229-1512 / fax (510) 229-1526

1555 Burke St., Unit I
San Francisco, California 94124
(415) 647-2081 / fax (415) 821-7123

309 S. Cloverdale St., Suite B-24
Seattle, Washington 98108
(206) 763-2992 / fax (206) 763-8429

CENTURY WEST ENGINEERING
Attn: JIM GRIBI

Project 20539-001-02
Reported 23-September-1994

Total Petroleum Hydrocarbons by EPA Method 8015M

Laboratory Number	Sample Identification	Matrix
58719- 1	MW-1	Water
58719- 2	MW-2	Water

RESULTS OF ANALYSIS

Laboratory Number:	58719- 1	58719- 2
Diesel Range:	ND<50	630*
Motor Oil Range:	ND<500	ND<500
Concentration:	ug/L	ug/L

* Does not match typical diesel pattern - lighter hydrocarbons present.

Certified Laboratories

825 Arnold Dr., Suite 114
Martinez, California 94553
(510) 229-1512 / fax (510) 229-1526

1555 Burke St., Unit I
San Francisco, California 94124
(415) 647-2081 / fax (415) 821-7123

309 S. Cloverdale St., Suite B-24
Seattle, Washington 98108
(206) 763-2992 / fax (206) 763-8429

Total Petroleum Hydrocarbons by EPA Method 8015M
Quality Assurance and Control Data - Water

Laboratory Number 58719

Compound	Method Blank (ug/L)	RL (ug/L)	Spike Recovery (%)	Limits (%)	RPD (%)
Diesel Range:	ND<50	50	69/74	50-150	7%
Motor Oil Range:	ND<500	500			

Definitions:
ND = Not Detected
RPD = Relative Percent Difference
RL = Reporting Limit
ug/L = Parts per billion (ppb)
QC File No. 58719

Cecilia G Jongeun 9/26/94
Senior Chemist
Account Manager

Certified Laboratories

825 Arnold Dr., Suite 114
Martinez, California 94553
(510) 229-1512 / fax (510) 229-1526

1555 Burke St., Unit I
San Francisco, California 94124
(415) 647-2081 / fax (415) 821-7123

309 S. Cloverdale St., Suite B-24
Seattle, Washington 98108
(206) 763-2992 / fax (206) 763-8429

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (415) 364-9600, FAX (415) 364-9233
1900 Bates Avenue, Suite L, Concord, CA 94520, (510) 686-9600, FAX (510) 686-9689
819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

Superior Precision Analytical
1555 Burke Street, Unit I
San Francisco, CA 94124

Attention: Rich Phaler

Client Proj. ID: 20539-001-02

Lab Proj. ID: 9409C69

Sampled: 09/20/94
Received: 09/22/94
Analyzed: see below

Reported: 09/26/94

LABORATORY ANALYSIS

Analyte	Units	Date Analyzed	Detection Limit	Sample Results
Lab No: 9409C69-01				
Sample Desc : **LIQUID,MW-2**				
Nitrogen: Ammonia	mg/L	09/23/94	0.10	0.55

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210

Suzanne Chin
Project Manager

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (415) 364-9600, FAX (415) 364-9233
1900 Bates Avenue, Suite L, Concord, CA 94520, (510) 686-9600, FAX (510) 686-9689
819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

Superior Precision Analytical
1555 Burke St., Unit 1
San Francisco, CA 94124
Attention: Rich Phaler

Client Project ID: 20539-001-02
Matrix: Liquid
QC Sample Group: 9409C69 -01
Reported: Sep 27, 1994

QUALITY CONTROL DATA REPORT

ANALYTE	Ammonia
Method:	EPA 350.3
Analyst:	L. Stenstrom
MS/MSD Batch#:	9409C2805
Date Prepared:	9/23/94
Date Analyzed:	9/23/94
Instrument I.D.#:	N/A
Conc. Spiked:	20 mg/L
Matrix Spike % Recovery:	90
Matrix Spike Duplicate % Recovery:	90
Relative % Difference:	0.0
LCS Batch#:	-
Date Prepared:	-
Date Analyzed:	-
Instrument I.D.#:	-
LCS % Recovery:	-
% Recovery Control Limits:	70-130

SEQUOIA ANALYTICAL

Suzanne Chin
Project Manager

Please Note:
The LCS is a control sample of known, interferent free matrix that is analyzed using the same reagents, preparation, and analytical methods employed for the samples. The matrix spike is an aliquot of sample fortified with known quantities of specific compounds and subjected to the entire analytical procedure. If the recovery of analytes from the matrix spike does not fall within specified control limits due to matrix interference, the LCS recovery is to be used to validate the batch.

NATIONAL ENVIRONMENTAL TESTING, INC.

SUPERIOR

CHAIN OF CUSTODY RECORD

58719

COMPANY: COMMONWEALTH TEST ENGINEERING
ADDRESS: 7155 LINCOLN BLVD
PHONE: (570) 551-7774 FAX: (570) 551-7776
PROJECT NAME/LOCATION: CSE
PROJECT NUMBER: 29539-001-02
PROJECT MANAGER: J. GRIBI

REPORT TO:
INVOICE TO:
P.O. NO.
NET QUOTE NO.

SAMPLED BY
(PRINT NAME) Bob Bagar SIGNATURE Bob B
(PRINT NAME) SIGNATURE

DATE	TIME	SAMPLE ID/DESCRIPTION	MATRIX	LAB #	COMP	# and Type of Containers: VOA	AMBER	TOC	SOC	OTHER	ANALYSES: TPH-G/BTEX	TPH-D/MS	AMMONIA	COMMENTS
9/20		MW-1	L			4				2	X	X		
9/20		MW-2	L			4				3	X	X	X	

Please initial:
Samples Stored in ice
Appropriate Containers
Samples preserved
VOA's without headspace
Comments: RCVD 1 LITER FOR MW-1
4 LITER LABELLED MW-2 AS PER
B. EDGAR USE LITERS MW-2 (WEST) &
MW-2 NO TREATMENT HOLD OTHER
MW-2 LITERS CA RECEIVED
MW2 ONLY.
5oC

CONDITION OF SAMPLE: BOTTLES INTACT? YES / NO
FIELD FILTERED? YES / NO
COC SEALS PRESENT AND INTACT? YES / NO
VOLATILES FREE OF HEADSPACE? YES / NO
TEMPERATURE UPON RECEIPT:
Bottles supplied by NET? YES / NO

SAMPLE REMAINDER DISPOSAL: RETURN SAMPLE REMAINDER TO CLIENT VIA
I REQUEST NET TO DISPOSE OF ALL SAMPLE REMAINDERS DATE

RELINQUISHED BY:	DATE/TIME	RECEIVED BY:	RELINQUISHED BY:	DATE/TIME	RECEIVED FOR NET BY:
Bob Bagar	9/20/94 16:12	Cheryl A. Rocke	Cheryl A. Rocke 9-21-94 11:45	9/21/94 9:50A	Steve Ruis 719

METHOD OF SHIPMENT

REMARKS: ~~Received~~ Relinquished: Steve Ruis 719 Aero Received: Amy A Morgan 9/21/94 11:45 am

PT 1 - ORIGINAL - WHITE PT 2 - NET PROJECT MANAGER - YELLOW PT 3 - CUSTOMER COPY - PINK