

February 20, 1996

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

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FEBRUARY 21 1996
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QUARTERLY GROUNDWATER MONITORING REPORT, FOURTH QUARTER 1995, CITY OF EMERYVILLE FORMER FIRE STATION PROJECT, 4331 SAN PABLO AVENUE, EMERYVILLE, CALIFORNIA

Dear Ms. Hugo:

On behalf of the City of Emeryville, SECOR International Incorporated (*SECOR*) is pleased to submit this quarterly groundwater monitoring report for the former City of Emeryville Fire Station located at 4331 San Pablo Avenue in Emeryville, California (the "Site"). This report presents monitoring well sounding, groundwater elevation, and groundwater quality data collected from one Site well by *SECOR* during the fourth quarter of 1995.

SITE DESCRIPTION AND BACKGROUND

The Site is located in a mixed residential and light commercial area in the northwest portion of the City of Emeryville, in the northwest portion of Alameda County, California. The Site is bounded to the east by San Pablo Avenue (Figure 1). The Site is improved with two single story buildings and adjacent asphalt paved parking areas (Figure 2).

On July 26, 1994, *SECOR* supervised and documented the removal of one 1,000-gallon UST, associated equipment, and underground piping. Following removal of the UST, *SECOR* collected one soil sample from beneath the UST and one from beneath the fuel dispenser at the direction of an inspector from the Alameda County Department of Health Services (ACDHS). Analytical results indicated the presence of gasoline-range and diesel-range petroleum hydrocarbons in soil samples analyzed. The results of the UST removal and soil sampling were presented in *SECOR's Summary Report for Tank Removal and Soil Excavation, City of Emeryville Fire Station*, dated August 17, 1994.

On August 16, 1994, overexcavation of soil beneath the former fuel dispenser was performed. In addition, soil samples were collected from each of the four sidewalls of the UST excavation at that time. Confirmatory soil sampling beneath the former fuel dispenser revealed that the overexcavation was successful in removing petroleum hydrocarbon-affected soil beneath the fuel dispenser. UST sidewall sample results revealed the presence of gasoline-range hydrocarbons at concentrations up to 190 milligrams per kilogram (mg/kg) and diesel-range hydrocarbons at concentrations up to 260 mg/kg.

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The results of the overexcavation and UST sidewall sampling were presented in *SECOR's* report *Soil Sampling Results, 4331 San Pablo Avenue, Emeryville, California*, dated August 25, 1994.

Based on the results of the UST sidewall soil samples, the ACDHS requested the City of Emeryville to install a monitoring well downgradient and within ten feet of the former UST and perform quarterly groundwater monitoring and sampling activities. On February 7, 1995, *SECOR* requested information from Ms. Hugo to confirm the groundwater flow direction at the Site. Ms. Hugo provided groundwater information from the New Century Beverage Company site located directly adjacent to the Site. Based on the telephone conversation between *SECOR* and ACDHS, the confirmed groundwater flow direction was determined to be to the south-southwest.

On February 21, 1995, *SECOR* drilled one soil boring to a depth of 23 feet below ground surface (bgs) at the location shown on Figure 2. A groundwater monitoring well was installed in the soil boring following completion of drilling and sampling activities. Two soil samples were selected for chemical analysis during drilling procedures. Following monitoring well installation, the well was developed and a groundwater sample was collected and analyzed. The monitoring well has been monitored quarterly since February 1995. This report represents the fourth quarterly sampling event since installation of the groundwater monitoring well.

QUARTERLY GROUNDWATER MONITORING PROCEDURES

On December 11, 1995, groundwater monitoring well MW-1 was sounded and sampled by *SECOR*. The depth to groundwater and total well depth were measured using an electronic water-level indicator and recorded on a Groundwater Sample Field Data Sheet. Prior to sampling, the well was purged of approximately three wellbore volumes of water using a PVC bailer. During purging the evacuated groundwater was measured for pH, electrical conductivity, and temperature, and water visually inspected for color. Parameter results were recorded on a Groundwater Sample Field Data Sheet (see Attachment 1). Upon removal of the appropriate purge volume and stabilization of the measured parameters, a groundwater sample was collected from the well using a disposable PVC bailer. The sample was decanted into laboratory-supplied glassware and placed in a cooler containing ice for transport to NET Laboratories. The groundwater sample was analyzed for TPHg, TPHd, and BTEX compounds by EPA Methods 5030/8015 modified and 8020, respectively.

SUMMARY OF RESULTS

Results of quarterly groundwater monitoring activities for the fourth quarter of 1995, and historic monitoring well sounding and groundwater chemical data are summarized on Table 1.

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Monitoring Well Sounding

During this monitoring event, groundwater was measured at a depth of 11.91 feet below the top of the PVC casing. Depth to groundwater has decreased by 0.91 feet during this monitoring event when compared with the third quarter 1995 event.

Groundwater Chemical Results


The groundwater sample exhibited pH values ranging from 9.27 to 9.36 pH units; temperatures ranging from 59.4 to 60.3 degrees Fahrenheit; specific conductivities ranging from 654 to 686 micromhos per centimeter ($\mu\text{mhos/cm}$); and was tan in color. No measurable thickness of free phase petroleum product (free product) was present in the monitoring well, however, a sheen was reported on the Water Sample Field Data Sheet. Laboratory analytical reports and chain-of-custody records are included in Attachment 2.

During this sampling event, the groundwater sample collected from well MW-1 was reported to contain TPHg and TPHd concentrations of 87 and 98 milligrams per liter (mg/l), respectively, and benzene, toluene, ethylbenzene, and xylenes at concentrations of 230 micrograms per liter ($\mu\text{g/l}$), 19 $\mu\text{g/l}$, 42 $\mu\text{g/l}$, and 58 $\mu\text{g/l}$, respectively. The gasoline concentration detected by the laboratory reported an atypical chromatogram pattern when compared to the laboratory standard. The reported TPHg, TPHd and BTEX concentrations increased when compared to the third quarter 1995 chemical data. With the exception of xylenes, analyte concentrations reported in this monitoring event are historical high values.

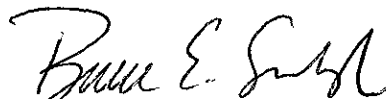
Please do not hesitate to contact us at (415) 882-1548 with any question or comments regarding this document.

Sincerely,

SECOR International Incorporated



Daniel E. Madsen
Project Manager



Bruce E. Scarbrough, R.G.
Principal Geologist

cc: Mr. Juan Arreguin, City of Emeryville

Attachments:

Table 1 - Groundwater Monitoring Data - Fourth Quarter 1995 and Historic Monitoring Well Sounding and Groundwater Chemical Data

Figure 1 - Site Location Map

Figure 2 - Site Plan

Appendix A - Field Report and Groundwater Sample Field Data Sheets

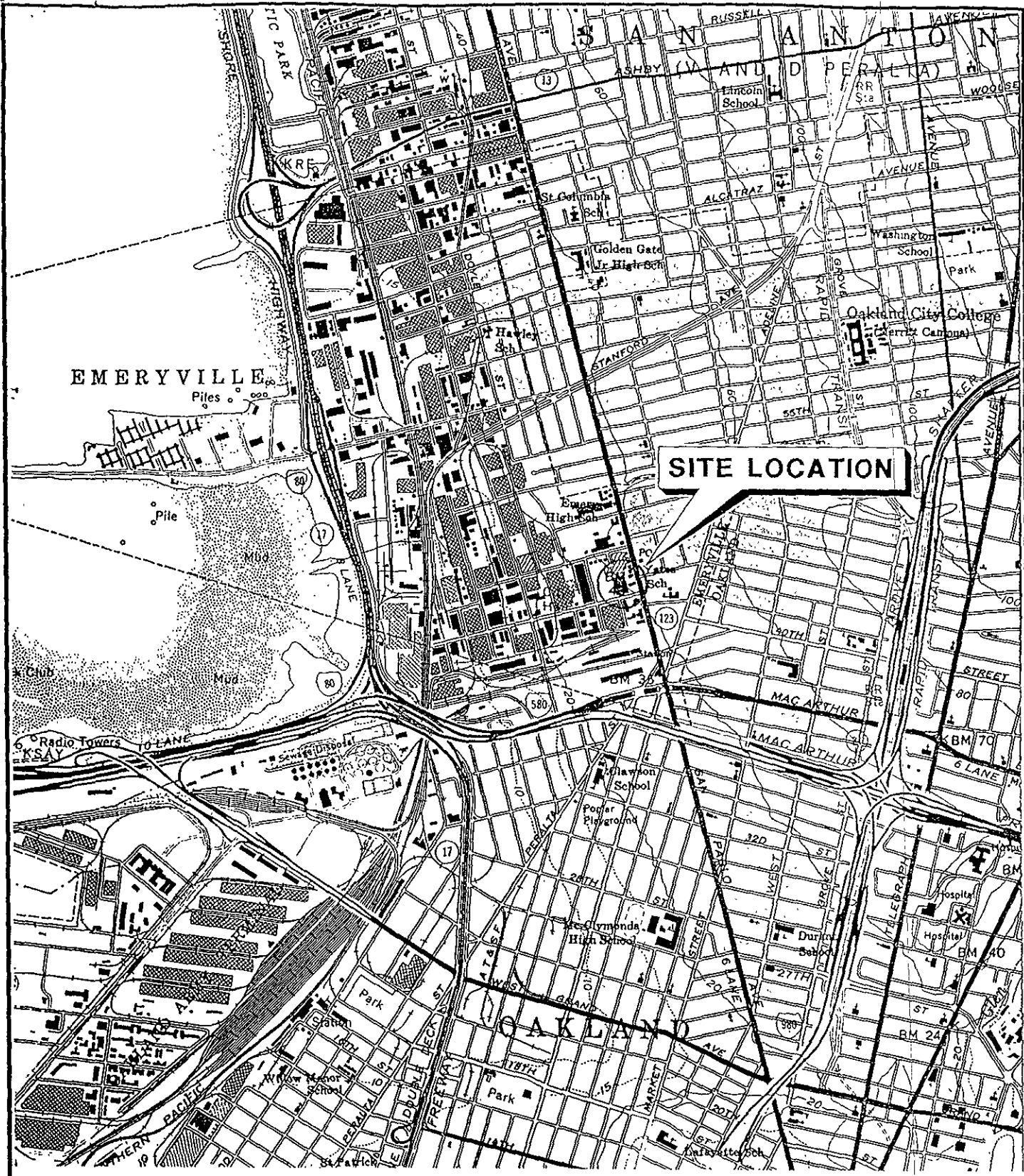
Appendix B - Laboratory Analytical Reports and Chain-of-Custody Records

TABLE 1
GROUNDWATER MONITORING DATA - FOURTH QUARTER 1995
AND HISTORIC MONITORING WELL SOUNDING AND GROUNDWATER CHEMICAL DATA
FORMER CITY OF EMERYVILLE FIRE STATION
4331 San Pablo Avenue
Emeryville, California

SAMPLE I.D.	SAMPLE DATE	Depth to Water ⁽¹⁾	TPHg ⁽²⁾ (mg/l) ⁽⁴⁾	TPHd ⁽³⁾ (mg/l)	Benzene (µg/l) ⁽⁵⁾	Toluene (µg/l)	Ethylbenzene (µg/l)	Xylenes (µg/l)
MW-1	2/24/95	4.79	1.6	1.2 ⁽⁶⁾	170	7.2	26	84
MW-1	5/24/95	8.50	1.4	1.2 ⁽⁶⁾	320	3.5	29	28
MW-1	9/11/95	11.00	0.7	1.8 ⁽⁶⁾	43	2.4	4.9	5.9
MW-1	12/11/95	11.91	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]

Notes:

- (1) = Depth below top of casing measured in feet.
- (2) = Total petroleum hydrocarbons as gasoline.
- (3) = Total petroleum hydrocarbons as diesel.
- (4) = Milligrams per liter.
- (5) = Micrograms per liter.
- (6) = Atypical chromatogram pattern; see Certified Analytical Report.



SOURCE: BASE MAP FROM U.S.G.S. OAKLAND, WEST CA QUADRANGLE. 7.5 MINUTE SERIES TOPOGRAPHIC, PHOTOREVISED 1980.



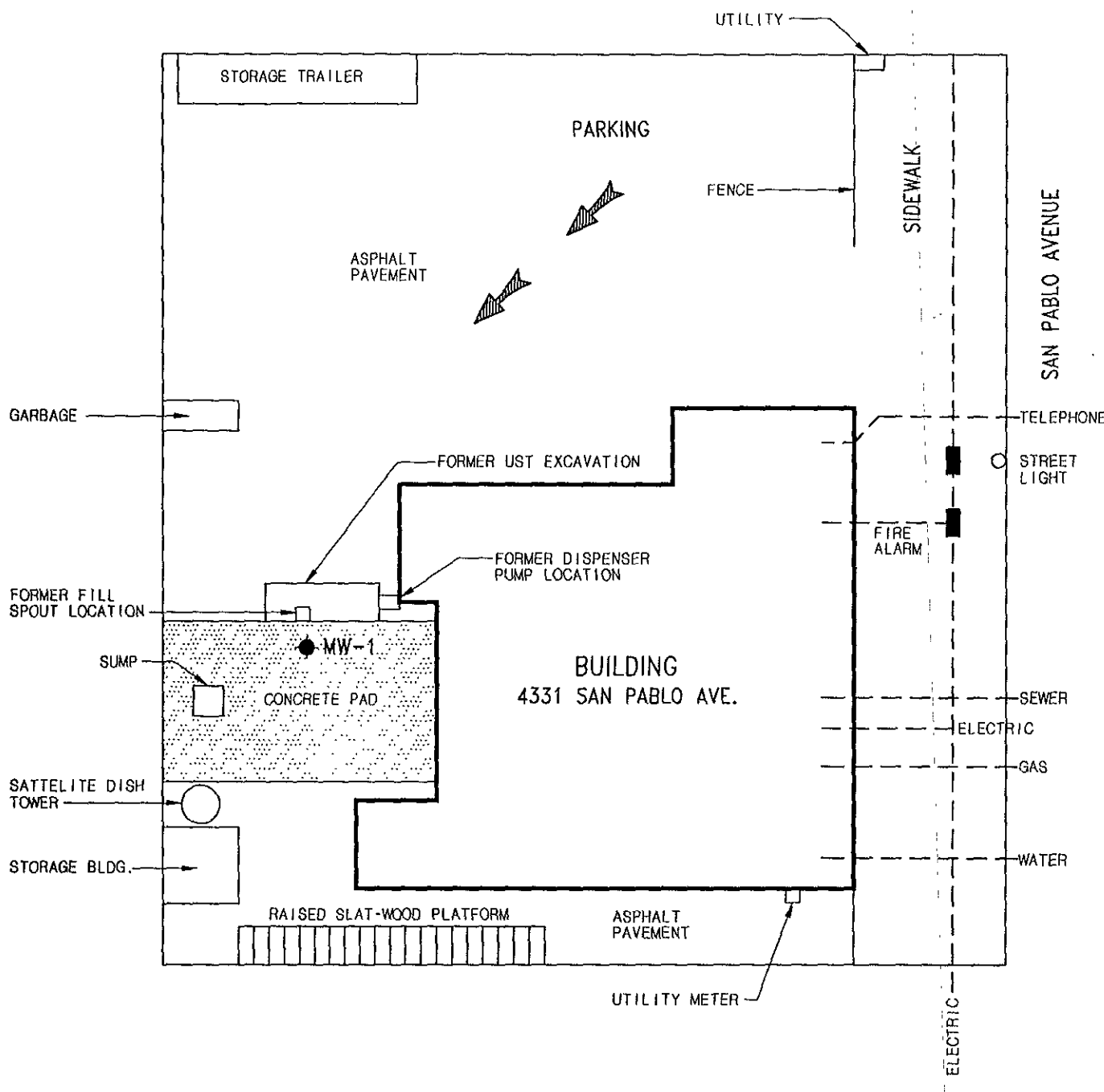
199408-050818 1 JOBS\EMERYV.LOC

SECOR
INTERNATIONAL
INCORPORATED

DRAWN	CCR
APPR	DEM
DATE	04AUG94
JOB NO	50100-003-02

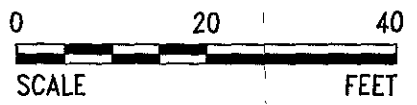
FIGURE 1
CITY OF EMERYVILLE
4331 SAN PABLO AVENUE
EMERYVILLE, CALIFORNIA

SITE LOCATION MAP



LEGEND:

- ◆ MW-1 GROUNDWATER MONITORING WELL
- ↘ GROUNDWATER FLOW DIRECTION



199407-281516 \JOBS\EMERY\1818 SITE

**SECOR
INTERNATIONAL
INCORPORATED**

DRAWN	CCR
APPR	DEM
DATE	03MAR95
JOB NO.	50100-003-02

FIGURE 2
CITY OF EMERYVILLE
4331 SAN PABLO AVENUE
EMERYVILLE, CALIFORNIA

SITE PLAN

ATTACHMENT 1

Groundwater Sample Field Data Sheet

SEACOR WATER SAMPLE FIELD DATA SHEET

PROJECT NO: 50/00-003-02
 PURGED BY: LB
 SAMPLED BY: LB

WELL ID: MW-1
 SAMPLE ID: MW-1
 CLIENT NAME: City of Emeryville
 LOCATION: Emeryville, CA

TYPE: Groundwater Surface Water _____ Treatment Effluent _____ Other _____

CASING DIAMETER (inches): 2 3 _____ 4 _____ 4.5 _____ 6 _____ Other _____

CASING ELEVATION: (feet/MSL): _____	VOLUME IN CASING (gal) <u>1.5</u>
DEPTH TO WATER (feet): <u>11.91</u>	CALCULATED PURGE (gal) <u>4.5</u>
DEPTH OF WELL (feet): <u>20.45</u>	ACTUAL PURGE VOL. (gal) <u>4.5</u>

DATE PURGED: 12/11/95 Start (2400 Hr) 1030 End (2400 Hr.) 1045
 DATE SAMPLED: 12/11/95 Start (2400 Hr) _____ End (2400 Hr.) 1100

FIELD QC SAMPLES COLLECTED AT THIS WELL (i.e. FB-1, X-DUP-1): _____

FIELD MEASUREMENTS

TIME (2400 Hr)	VOLUME (gal)	pH (units)	E.C. (umhos/cm @ 25°C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (NEE) visual
<u>1035</u>	<u>1.5</u>	<u>9.36</u>	<u>686</u>	<u>59.4</u>	<u>Tan</u>	<u>High</u>
<u>1039</u>	<u>3.0</u>	<u>9.27</u>	<u>655</u>	<u>60.1</u>	<u>v</u>	<u>"</u>
<u>1045</u>	<u>4.5</u>	<u>9.30</u>	<u>654</u>	<u>60.2</u>	<u>v</u>	<u>v</u>
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____

D.O. (ppm): _____ COLOR, COBALT (0-100): _____ Clear
 Cloudy
 Yellow
 Brown

ODOR: Smell like gas, heavy steam

PURGING EQUIPMENT

2" Bladder Pump Bailor (Teflon®)
 Centrifugal Pump Bailor (PVC)
 Submersible Pump Bailor (Stainless Steel)
 Well Wizard™ Dedicated
 Other: Disposable Bailor

SAMPLING EQUIPMENT

2" Bladder Pump Bailor (Teflon®)
 DDL Sampler Bailor (PVC Disposable)
 Submersible Pump Bailor (Stainless Steel)
 Well Wizard™ Dedicated
 Other: _____

WELL INTEGRITY: Good LOCK #: Dolphin
 REMARKS: _____

SIGNATURE: [Signature] Page 1 of 1

ATTACHMENT 2

Laboratory Certified Analytical Reports and Chain-of-Custody Records



NATIONAL
ENVIRONMENTAL
TESTING, INC.

Santa Rosa Division
3636 North Laughlin Road
Suite 110
Santa Rosa, CA 95403-8226
Tel: (707) 526-7200
Fax (707) 541-2333

Dan Madsen
SECOR
90 New Montgomery
Suite 620
San Francisco, CA 94105

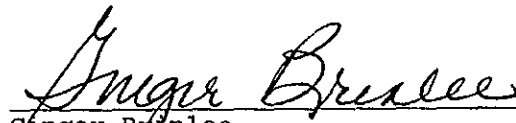
Date: 01/02/1996
NET Client Acct. No: 74000
NET Job No: 95.04734
Received: 12/14/1995

Client Reference Information

City of Emeryville/Proj. No. 50100-100-003-02/Task No. 00

Sample analysis in support of the project referenced above has been completed and results are presented on the following pages. Results apply only to the samples analyzed. Reproduction of this report is permitted only in its entirety. Please refer to the enclosed "Key to Abbreviations" for definition of terms. Should you have questions regarding procedures or results, please feel free to call me at (707) 541-2305.

Submitted by:



Ginger Brunlee
Project Coordinator

Enclosure(s)





Client Name: SECOR
 Client Acct: 74000
 NET Job No: 95.04734

Date: 01/02/1996
 ELAP Cert: 1386
 Page: 2

Ref: City of Emeryville/Proj. No. 50100-100-003-02/Task No. 00

SAMPLE DESCRIPTION: MW-1
 Date Taken: 12/11/1995
 Time Taken: 11:00
 NET Sample No: 257214

Parameter	Results	Flags	Reporting		Method	Date	Date	Run
			Limit	Units		Extracted	Analyzed	Batch No.
TPH (Gas/BTXE,Liquid)	--						12/19/1995	3416
METHOD 5030/M8015	--						12/19/1995	3416
DILUTION FACTOR*	5						12/19/1995	3416
as Gasoline	8.7	GH, FD	1	mg/L	5030		12/20/1995	3423
METHOD 8020 (GC,Liquid)	--						12/19/1995	3416
Benzene	230		2	ug/L	8020		12/19/1995	3416
Toluene	19		2	ug/L	8020		12/19/1995	3416
Ethylbenzene	42		2	ug/L	8020		12/19/1995	3416
Xylenes (Total)	58		2	ug/L	8020		12/19/1995	3416
SURROGATE RESULTS	--						12/19/1995	3416
Bromofluorobenzene (SURR)	105	FD		% Rec.	5030		12/20/1995	3423
METHOD M8015 (EXT., Liquid)						01/02/1996		
DILUTION FACTOR*	50						12/28/1995	1135
as Diesel	98		2	mg/L	3510		12/28/1995	1135

FD : Compound quantitated at a 20X dilution factor.

GH : The positive result appears to be a heavier hydrocarbon than Gasoline.

NOTE: Results apply only to the samples analyzed. Reproduction of this report is permitted only in its entirety.



Client Name: SECOR
Client Acct: 74000
NET Job No: 95.04734

Date: 01/02/1996
ELAP Cert: 1386
Page: 3

Ref: City of Emeryville/Proj. No. 50100-100-003-02/Task No. 00

CONTINUING CALIBRATION VERIFICATION STANDARD REPORT

Parameter	CCV Standard % Recovery	CCV Standard Amount Found	CCV Standard Amount Expected	Units	Date Analyzed	Analyst Initials	Run Batch Number
TPH (Gas/BTXE,Liquid)							
as Gasoline	88.0	0.44	0.50	mg/L	12/18/1995	dld	3416
Benzene	99.4	4.97	5.00	ug/L	12/18/1995	dld	3416
Toluene	97.0	4.85	5.00	ug/L	12/18/1995	dld	3416
Ethylbenzene	100.0	5.00	5.00	ug/L	12/18/1995	dld	3416
Xylenes (Total)	100.0	15.0	15.0	ug/L	12/18/1995	dld	3416
Bromofluorobenzene (SURR)	98.0	98	100	% Rec.	12/18/1995	dld	3416
TPH (Gas/BTXE,Liquid)							
as Gasoline	88.0	0.44	0.50	mg/L	12/20/1995	dld	3423
Benzene	107.8	5.39	5.00	ug/L	12/20/1995	dld	3423
Toluene	105.2	5.26	5.00	ug/L	12/20/1995	dld	3423
Ethylbenzene	107.6	5.38	5.00	ug/L	12/20/1995	dld	3423
Xylenes (Total)	108.7	16.3	15.0	ug/L	12/20/1995	dld	3423
Bromofluorobenzene (SURR)	102.0	102	100	% Rec.	12/20/1995	dld	3423
METHOD M8015 (EXT., Liquid)							
as Diesel	89.6	896	1000	mg/L	12/28/1995	tts	1135

NOTE: Results apply only to the samples analyzed. Reproduction of this report is permitted only in its entirety.



Client Name: SECOR
Client Acct: 74000
NET Job No: 95.04734

Date: 01/02/1996
ELAP Cert: 1386
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Ref: City of Emeryville/Proj. No. 50100-100-003-02/Task No. 00

METHOD BLANK REPORT

Parameter	Method	Reporting	Units	Date	Analyst	Run
	Blank					
TPH (Gas/BTXE,Liquid)	Found					Number
as Gasoline	ND	0.05	mg/L	12/18/1995	dld	3416
Benzene	ND	0.5	ug/L	12/18/1995	dld	3416
Toluene	ND	0.5	ug/L	12/18/1995	dld	3416
Ethylbenzene	ND	0.5	ug/L	12/18/1995	dld	3416
Xylenes (Total)	ND	0.5	ug/L	12/18/1995	dld	3416
Bromofluorobenzene (SURR)	104		% Rec.	12/18/1995	dld	3416
TPH (Gas/BTXE,Liquid)						
as Gasoline	ND	0.05	mg/L	12/20/1995	dld	3423
Benzene	ND	0.5	ug/L	12/20/1995	dld	3423
Toluene	ND	0.5	ug/L	12/20/1995	dld	3423
Ethylbenzene	ND	0.5	ug/L	12/20/1995	dld	3423
Xylenes (Total)	ND	0.5	ug/L	12/20/1995	dld	3423
Bromofluorobenzene (SURR)	105		% Rec.	12/20/1995	dld	3423
METHOD M8015 (EXT., Liquid)						
as Diesel	ND	0.05	mg/L	12/28/1995	tts	1135

NOTE: Results apply only to the samples analyzed. Reproduction of this report is permitted only in its entirety.



Client Name: SECOR
 Client Acct: 74000
 NET Job No: 95.04734

Date: 01/02/1996
 ELAP Cert: 1386
 Page: 5

Ref: City of Emeryville/Proj. No 50100-100-003-02/Task No. 00

MATRIX SPIKE / MATRIX SPIKE DUPLICATE

Parameter	Matrix Spike			Spike Amount	Sample Conc.	Matrix Spike			Date Analyzed	Run Batch	Sample Spiked
	Matrix Spike % Rec.	Spike Dup % Rec.	RPD			Matrix Spike Conc.	Dup. Conc.	Units			
TPH (Gas/BTXE,Liquid)											257346
as Gasoline	80.0	80.0	0.0	0.50	ND	0.40	0.40	mg/L	12/18/1995	3416	257346
Benzene	94.7	90.6	4.4	8.12	ND	7.69	7.36	ug/L	12/18/1995	3416	257346
Toluene	100.4	99.6	0.7	27.4	ND	27.5	27.3	ug/L	12/18/1995	3416	257346
TPH (Gas/BTXE,Liquid)											257434
as Gasoline	86.0	84.0	2.4	0.50	ND	0.43	0.42	mg/L	12/20/1995	3423	257434
Benzene	86.8	80.5	7.5	9.84	ND	8.54	7.92	ug/L	12/20/1995	3423	257434
Toluene	99.6	98.6	1.0	28.2	ND	28.1	27.8	ug/L	12/20/1995	3423	257434
METHOD M8015 (EXT., Liquid)											257133
as Diesel				1.00	ND			mg/L	12/28/1995	1135	257133

NOTE: Results apply only to the samples analyzed. Reproduction of this report is permitted only in its entirety.



KEY TO ABBREVIATIONS and METHOD REFERENCES

- < : Less than; When appearing in results column indicates analyte not detected at the value following. This datum supercedes the listed Reporting Limit.
- * : Reporting Limits are a function of the dilution factor for any given sample. To obtain the actual reporting limits for this sample, multiply the stated Reporting Limits by the dilution factor (but do not multiply reported values).
- ICVS : Initial Calibration Verification Standard (External Standard).
- mean : Average; sum of measurements divided by number of measurements.
- mg/Kg (ppm) : Concentration in units of milligrams of analyte per kilogram of sample, wet-weight basis (parts per million).
- mg/L : Concentration in units of milligrams of analyte per liter of sample.
- mL/L/hr : Milliliters per liter per hour.
- MPN/100 mL : Most probable number of bacteria per one hundred milliliters of sample.
- N/A : Not applicable.
- NA : Not analyzed.
- ND : Not detected; the analyte concentration is less than applicable listed reporting limit.
- NTU : Nephelometric turbidity units.
- RPD : Relative percent difference, $100 \text{ (Value 1 - Value 2) / mean value}$.
- SNA : Standard not available.
- ug/Kg (ppb) : Concentration in units of micrograms of analyte per kilogram of sample, wet-weight basis (parts per billion).
- ug/L : Concentration in units of micrograms of analyte per liter of sample.
- umhos/cm : Micromhos per centimeter.

Method References

Methods 100 through 493: see "Methods for Chemical Analysis of Water & Wastes", U.S. EPA, 600/4-79-020, rev. 1983.

Methods 601 through 625: see "Guidelines Establishing Test Procedures for the Analysis of Pollutants" U.S. EPA, 40 CFR, Part 136, rev. 1988.

Methods 1000 through 9999: see "Test Methods for Evaluating Solid Waste", U.S. EPA SW-846, 3rd edition, 1986.

SM: see "Standard Methods for the Examination of Water & Wastewater, 17th Edition, APHA, 1989.

Chain-of-Custody Number:

SEACOR Chain-of-Custody Record

Field Office: San Francisco
 Address: 90 New Montgomery St 4620
San Francisco, CA 94105

Additional documents are attached, and are a part of this Record.
 Job Name: City of Emeryville
 Location: Emeryville, CA

Project # 10100-003-02 Task # 00
 Project Manager Dan Madson
 Laboratory NET
 Turnaround Time Standard
 Sampler's Name Liping Zhang
 Sampler's Signature [Signature]

				Analysis Request													Number of Containers	
Sample ID	Date	Time	Matrix	HClD	TPHg/BTEX/WTPH-G 8015 (modified)/8020	TPHd/WTPH-D 8015 (modified)	TPH 418.1/WTPH 418.1	Aromatic Volatiles 602/8020	Volatile Organics 624/8240 (GC/MS)	Halogenated Volatiles 601/8010	Semi-volatile Organics 625/8270 (GC/MS)	Pesticides/PCBs 608/8080	Total Lead 7421	Priority Pollutant Metals (13)	TCLP Metals	Comments/ Instructions		
MW-1	12/11	1100	Water		X	X												5

Special Instructions/Comments:

Relinquished by: [Signature]
 Sign [Signature]
 Print Liping Zhang
 Company SEACOR
 Time 16:00 Date 12/11/95

Relinquished by: P. Smart
 Sign [Signature]
 Print NET
 Company NET
 Time 16:30 Date 12/13/95

Received by: [Signature]
 Sign [Signature]
 Print P. Smart
 Company NET
 Time 10:00 Date 12/13/95

Received by: [Signature]
 Sign [Signature]
 Print PAN GUYEN
 Company NET
 Time 15:00 Date 12/13/95

Sample Receipt

Total no. of containers: 5
 Chain of custody seals: 5
 Rec'd. good condition/cold: 5
 Conforms to record: 5

Client: SEACOR
 Client Contact: Dan Madson
 Client Phone: (415) 885-7548

VIA NCS

TO... NO