

June 29, 1995

SECOR
International Incorporated

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SUMMARY REPORT, SOIL AND GROUNDWATER INVESTIGATION, 3924 MARKET STREET, OAKLAND, CALIFORNIA, FOR SAN FRANCISCO FRENCH BREAD COMPANY

Dear Ms. Eberle:

SECOR International Incorporated (*SECOR*) is pleased to submit this Summary Report for a soil and groundwater investigation conducted at 3924 Market Street in Oakland, California (the Site). This investigation was conducted on behalf of the San Francisco French Bread Company (SFFBC) the former operator of the Site. Please do not hesitate to contact me at (415) 882-1548 with any questions or comments.

Sincerely,

SECOR International Incorporated



Donald W. Moore, R.G.
Project Manager

cc: Mr. Peter Sher, SFFBC

Enclosure

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**SUMMARY REPORT
SOIL AND GROUNDWATER
INVESTIGATION**

for:

**3924 Market Street
Oakland, California**

Prepared for:

**San Francisco French Bread Company
7801 Edgewater Drive
Oakland, California**

SECOR PROJECT: 50090-007-01

June 28, 1995

Prepared by:

Don Zhang for

**Liping Zhang
Staff Geologist**

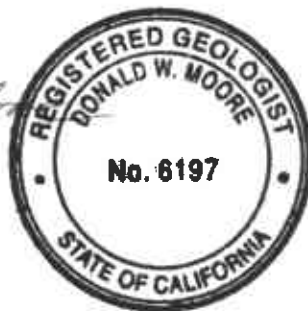
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1.0 INTRODUCTION

SECOR International Incorporated (*SECOR*) has prepared this Summary Report presenting the procedures and results of soil and groundwater investigation activities conducted at 3924 Market Street in Oakland, California (the Site, see Figure 1, Site Location Map). Investigative activities for the Site were requested by the Alameda County Department of Environmental Health (ACDEH) in a letter dated January 7, 1993. *SECOR* performed this investigation on behalf of San Francisco French Bread Company (SFFBC); the scope of work performed was in general accordance with *SECOR's* Work Plan dated July 30, 1993, as approved by the ACDEH.

1.1 SITE DESCRIPTION AND BACKGROUND

The Site is located at 3924 Market Street in Oakland, California and is a former Toscana Baking Company facility. The Site was formerly used to produce and distribute baked food products; the baking facility has not been in operation since 1987. The Site is currently owned and operated by Atthowe Fine Art Services (Figure 2). Land use in the Site vicinity is mixed residential and commercial.

The Site formerly operated a 500-gallon underground storage tank (UST) with associated product line and fuel dispenser for fueling delivery trucks (see Figure 2). The UST and product line were excavated and removed on March 29, 1991; during excavation activities the UST was noted to be in good condition with no visible holes (Groundwater Technology, Inc., 1991).

Two soil samples were collected from the UST excavation and one sample from along the location of the product line. Soil samples were analyzed for total petroleum hydrocarbons as gasoline (TPHg), TPH as diesel (TPHd), and benzene, toluene, ethylbenzene, and xylenes (BTEX). Each of the three soil samples was reported to contain detectable concentrations of petroleum hydrocarbon compounds at maximum concentrations of 26 milligrams per kilogram (mg/kg) of TPHg, 4.7 mg/kg of TPHd, and 0.3 mg/kg of benzene.

The UST excavation was overexcavated on June 21, 1991 and five additional soil samples were collected and analyzed for TPHg, TPHd, and BTEX. Each of the five soil samples were reported to contain concentrations of TPHg and BTEX; detectable concentrations TPHd were not reported from any of these soil samples. Maximum concentrations of TPHg and benzene reported from overexcavation activities were 210 mg/kg and 0.4 mg/kg, respectively.

In April 1993, *SECOR* conducted a file review at the ACDEH and the Regional Water Quality Control Board (RWQCB) to evaluate the groundwater conditions in the Site vicinity. Files reviewed from four properties within a half-mile radius of the Site indicated that groundwater in this area generally flows in a westerly direction. This flow direction is consistent with regional hydrologic conditions with groundwater flowing west towards the San Francisco Bay from the East Bay Hills.

1.2 SCOPE OF INVESTIGATION

During May and June 1995, *SECOR* conducted soil and groundwater investigation activities at the Site. *SECOR* performed the following tasks as part of this investigation:

- Obtained a well construction permit from the Alameda County Flood Control and Water Conservation District (ACFCWCD), and a minor encroachment permit from the City of Oakland;
- Advanced three soil borings to depths ranging from 21.5 to 24 feet below ground surface (bgs);
- Installed and developed three, 2-inch diameter groundwater monitoring wells (MW-1 through MW-3);
- Collected and submitted selected soil and groundwater samples for chemical analysis;
- Surveyed the three newly-installed monitoring wells; and,
- Prepared this Summary Report presenting the procedures and results of this soil and groundwater investigation.

2.0 MONITORING WELL INSTALLATION ACTIVITIES

2.1 PRELIMINARY FIELD ACTIVITIES

Prior to conducting field activities, *SECOR* obtained a well construction permit from the ACFCWCD, and a minor encroachment permit from the City of Oakland. Well locations were cleared with respect to underground utilities and other obstructions by California Utility Surveys (CUS) and Underground Service Alert (USA) was notified. *SECOR* also prepared a Site-specific Health and Safety Plan to address this scope of work.

2.2 DRILLING AND SOIL SAMPLING

Three boreholes (MW-1 through MW-3) were advanced in the vicinity of the former UST on May 25 and 26, 1995 by Bayland Drilling, Inc. of Menlo Park, California under the supervision of a *SECOR* geologist (Figure 2). Borings were advanced using a CME 75 drilling rig equipped with 8-inch diameter hollow-stem augers. Boreholes were advanced to total depths ranging from 21.5 to 24 feet bgs. During advancement of the boreholes, relatively undisturbed soil samples were collected for lithologic description and possible chemical analysis. Soil samples were collected in clean, 6-inch long brass tubes at 2.5-foot intervals above the first encountered groundwater and 5-foot intervals below the first encountered groundwater using a California modified split-spoon sampler. Upon retrieval from the borehole, soil samples were logged and classified according to the United Soil Classification System (USCS). Boring logs are presented in Appendix A.

Upon retrieval from the borehole, the soil sampler was disassembled and soil samples were visually logged on the basis of soil type, color, consistency, moisture content, and other distinguishing characteristics. Soil samples were screened in the field for the presence of total organic compounds using an organic vapor meter 580B Photoionization Detector (PID). This screening procedure consisted of placing approximately 20 grams of soil in a clean ziploc bag. After approximately five minutes, the tip of the PID was inserted into the bag and a headspace concentration in parts per million (ppm) was recorded. Results of the screening are shown on the boring logs presented in Appendix A.

From each sample interval above the first encountered groundwater, one 6-inch brass tube containing soil was kept for possible chemical analysis. The exposed ends of each brass tube were covered with teflon sheeting and fitted with plastic end caps. Each sample was labeled with boring number, depth, sample time, and date, then stored in a cooler containing ice. Soil samples selected for chemical analysis were transported to Superior Precision Analytical, Inc. (Superior) in Martinez, California, a state-certified laboratory, along with completed chain-of-custody records. Soil samples were analyzed for TPHg and TPHd by EPA Method 8015, modified and BTEX by EPA Method 8020. Soil samples MW-2-13 and MW-3-11 were also analyzed for TPH Fuel Scan by EPA Method 8015, modified.

2.3 MONITORING WELL INSTALLATION

After advancement to the respective total depths, the three boreholes were converted to groundwater monitoring wells MW-1 through MW-3 (Figure 2). Well construction designs are included with the boring logs in Appendix A. Table 1 provides well construction details and top of casing elevation for the three groundwater monitoring wells.

Flush threaded, 2-inch diameter Schedule 40 PVC casing and well screen were installed through the hollow stem of the augers for each monitoring well. The wells were completed using fifteen feet of 0.020-inch, machine-slotted, capped screen extending from the base of the borehole and finished with blank casing to ground surface. Filter sand (Lonestar #2/12) was placed in the annular space between the wall of the borehole and well screen to a height of one foot above the screened interval. One foot of bentonite pellets were placed above the sand and hydrated. A bentonite-cement mixture (5% bentonite) was then placed in the remaining annular space to ground surface. A protective water-tight well monument was grouted flush with ground surface to complete the installation. Each well was also completed with a locking well cap.

2.4 WELL DEVELOPMENT AND SAMPLING

Groundwater monitoring wells MW-1 through MW-3 were developed and sampled on June 1, 1995. Well development was accomplished by surging and bailing with a stainless-steel bailer. Well development continued until the groundwater was reasonably free of sediment; ten casing volumes of water were removed from each wellbore. Temperature, pH, and electrical conductivity were measured during well development and color and turbidity were visually monitored and recorded. Following development, each well was allowed to recharge, then sampled using a dedicated polyethylene bailer. Development water was collected and placed into 55-gallon drums and stored on-site. Hydrologic and Water Sample Field Data Sheets are included in Appendix B.

Groundwater samples were transferred directly from the bailer into laboratory-supplied sample containers. Sample containers were labeled with job number, sample number, time, date, and location. Samples were stored in a cooler containing ice and transported to Superior along with completed chain-of-custody records. Groundwater samples were analyzed for TPHg and TPHd by EPA Method 8015, modified and for BTEX by EPA Method 8020.

2.5 WELL SURVEYING AND WATER LEVEL MEASUREMENTS

The newly-installed wells (MW-1 through MW-3) were surveyed for top of PVC casing elevation relative to mean sea level (msl) by Ron Archer Civil Engineer, Inc. of Pleasanton, California, a California-licensed land surveyor. The benchmark #1363 found was a "cut square" in the top of the curb on the west side of Market Street, 10 feet south of the south property line of 40th Street; the elevation of this benchmark was taken as 58.034 feet msl. The top of casing elevation for monitoring wells are included in Table 1.

Depth-to-groundwater measurements for three monitoring wells were recorded on June 1, 1995 using an electronic water-level indicator. These measurements are recorded on the Hydrologic Data Sheet included in Appendix B and with the calculated groundwater elevations presented on Table 1.

2.6 DECONTAMINATION AND MATERIAL CONTAINMENT

To minimize the potential for cross-contamination, soil sampling and groundwater development equipment were washed in a dilute trisodium phosphate (TSP) solution, rinsed in fresh water, and final rinsed with distilled water or steam cleaned between each sampling location. Because groundwater samples were collected with pre-cleaned dedicated bailers, decontamination between groundwater sampling locations was not required. Down-hole drilling equipment was steam-cleaned between each boring location in a designated area prepared to contain rinsate. The water-level indicator was rinsed with deionized water between the sounding of each well to prevent cross-contamination.

Soil cuttings generated from field activities were stored in 55-gallon drums at an on-site location. All water generated during well development, sampling, and decontamination was stored in 55-gallon drums at an on-site location.

3.0 SUBSURFACE CONDITIONS

3.1 STRATIGRAPHY

Two soil intervals were recognized during advancement of the three boreholes that included an upper clay-dominated interval and a lower sand-dominated interval. Soil in the upper 15 feet bgs consisted of clay ranging in color from greenish gray to dark brown. This upper clay-dominated interval contained trace amounts of fine to coarse gravel and ranged in consistency from stiff to very stiff. Additional characteristics observed in this interval included white fine-grained sand nodules, gray clayey laminations, and iron and magnesium oxide staining. A sand and gravelly sand fill material was encountered to an approximate depth of 10 feet bgs at the MW-3 location; this fill is the former UST excavation or an underground utility backfill material.

Below the upper clay-dominated interval is a sand-dominated interval that included sand, gravelly sand and sandy gravel at least eight feet in thickness. This interval ranged in color from yellowish brown to greenish gray with fine- to coarse-grained sand and fine to coarse gravel with lesser amounts of silt; the consistency of this interval was medium dense. Additional characteristics included iron and magnesium oxide staining. This interval appears to be the primary shallow groundwater-bearing horizon beneath the Site. **Dark brown staining and odor were observed below 12 to 15 feet bgs in the MW-1 and MW-3 boreholes and to a lesser extent at the MW-2 borehole location.**

3.2 HYDROGEOLOGY

Groundwater was first encountered at depths between 14 and 17 feet bgs during borehole advancement at the MW-1 through MW-3 locations. Stabilized groundwater measurements at these locations were between 9.70 to 11.59 feet below the top of the PVC casing translating to groundwater elevations between 44.71 and 46.76 feet above msl. The primary water-bearing horizon beneath the Site appears to be the sand-dominated interval encountered at approximately 15 feet bgs. Groundwater appears to occur under semi-confined conditions based on the 3 to 5 foot increase in groundwater level following penetration of the lower sand-dominated interval.

Groundwater elevations calculated from the June 1, 1995 depth-to-groundwater measurements are contoured and displayed as Figure 3. This map indicates a general groundwater flow direction to the west under an approximate hydraulic gradient of 0.06 feet per foot (ft/ft). Depth-to-groundwater measurements and groundwater elevations are summarized on Table 1.

3.3 SOIL AND GROUNDWATER ANALYTICAL RESULTS

Soil Analytical Results

A total of five soil samples were submitted for chemical analysis on the basis of sample depth, PID screening, and field observations made during borehole advancement. **Field screening with the PID indicated the presence of organic vapors ranging from 1.4 to 419 ppm for soil samples collected above the first encountered groundwater. Field observations indicated an odor and dark brown**

staining at the approximate depth of groundwater, most notably at the MW-1 and MW-3 borehole locations.

Due to the apparent heavy nature of the dark brown staining and uncertainty of the type of petroleum hydrocarbons potentially present, a TPH Fuel Scan was conducted on soil samples MW-2-13 and MW-3-11. For the MW-2-13 sample, petroleum hydrocarbons were observed in the diesel range; however, the chromatogram pattern was unrecognizable due to the low concentrations present in this sample. The chromatogram pattern observed from the MW-3-11 sample indicated a petroleum hydrocarbon mixture in the kerosene and diesel range.

Based on the results of the TPH Fuel Scan, one soil sample from each borehole, collected from above the first encountered groundwater was selected for chemical analysis. Soil sample MW-3-11 was reported to contain TPHg, TPHd, toluene, and xylenes at concentrations of 4 mg/kg, 28 mg/kg, 0.011 mg/kg, and 0.069 mg/kg, respectively; benzene and ethylbenzene were not reported above the laboratory reporting limit. Soil samples MW-1-8.5 and MW-2-10.5 did not report detectable concentrations of TPHg, TPHd, and BTEX. Soil analytical results are summarized on Table 2 and laboratory analytical reports and chain-of-custody records are included in Appendix C.

Groundwater Analytical Results

Laboratory analysis of the groundwater sample collected from well MW-1 was reported to contain TPHg, TPHd, toluene, and xylenes at respective concentrations of 73 micrograms per liter ($\mu\text{g}/\ell$), 3,600 $\mu\text{g}/\ell$, 1.0 $\mu\text{g}/\ell$, and 3.0 $\mu\text{g}/\ell$. The groundwater sample collected from well MW-3 was reported to contain TPHg, TPHd, benzene, toluene, and xylenes at respective concentrations of 72 $\mu\text{g}/\ell$, 370 $\mu\text{g}/\ell$, 1.0 $\mu\text{g}/\ell$, 0.6 $\mu\text{g}/\ell$, and 0.9 $\mu\text{g}/\ell$. Laboratory analysis of the groundwater sample collected from well MW-2 did not yield reportable concentrations of TPHg, TPHd, and BTEX. Groundwater analytical results are summarized on Table 2 and displayed graphically on Figure 4. Laboratory analytical reports and chain-of-custody records are included in Appendix C.

Groundwater analytical results indicate that groundwater in the vicinity of monitoring wells MW-1 and MW-3 has been impacted by petroleum hydrocarbons. Based on the predominance of diesel-range hydrocarbons (TPHd) and the very low to non-detectable BTEX concentrations, it appears that diesel fuel is the primary fuel hydrocarbon present in soil and groundwater. Groundwater in the vicinity of well MW-2 does not appear to be impacted by petroleum hydrocarbons.

4.0 SUMMARY AND RECOMMENDATIONS

Results of this soil and groundwater investigation indicate that petroleum hydrocarbons are present in shallow groundwater at the locations of monitoring wells MW-1 and MW-3. The nondetectable analyte concentrations reported in the groundwater sample from well MW-2 indicate that the southern extent of petroleum hydrocarbons in groundwater is defined. Based on the results of the TPH Fuel Scan of soil samples and the predominance of diesel-range hydrocarbons in groundwater samples from MW-1 and MW-3, it appears the a release of diesel fuel may have occurred at the Site. This data, however, is inconsistent with previous soil analyses from the UST excavation activities that reported concentrations of TPHg and nondetectable concentrations of TPHd.

Groundwater elevation data collected from Site wells indicates that groundwater flows in a westerly direction under an average hydraulic gradient of 0.06 ft/ft. The primary shallow groundwater-bearing horizon appears to be a sand-dominated interval that occurs at approximately 15 feet bgs. Groundwater within this interval appears to occur under semi-confined conditions.

The presence of higher petroleum hydrocarbon concentrations (3,600 $\mu\text{g}/\ell$ of TPHd) at upgradient well MW-1 and the reportedly good condition of the former UST as observed during UST removal activities, suggest that a release may not be associated with the former UST. Other possible sources include the former product line and/or fuel dispenser or an unknown source upgradient from well MW-1.

Based on the results of this soil and groundwater investigation, *SECOR* recommends that quarterly groundwater monitoring and reporting be conducted at the Site for a period of one year. Following one year of groundwater monitoring, the Site data will be summarized and evaluated, and recommendations made for further action.

5.0 REFERENCES

SECOR, 1993, Work Plan for Preliminary Site Assessment, 3924 Market Street, Oakland, California, July 30, 1993.

Groundwater Technology, Inc., 1991, Underground Storage Tank Closure Report for the Property located at 3924 Market Street, Oakland, California, July 22, 1991.

TABLE 1
WELL CONSTRUCTION DETAILS AND GROUNDWATER ELEVATIONS
 3924 Market Street
 Oakland, California

WELL	TOTAL DEPTH ^(a)	SCREENED INTERVAL ^(d)	CASING DIAMETER ^(b)	TOP OF CASING ELEVATION ^(c)	DEPTH TO GROUNDWATER ^(d) 6/1/95	GROUNDWATER ELEVATION ^(c) 6/1/95
MW-1	21	6-21	2	56.46	9.70	46.76
MW-2	24	9-24	2	57.41	11.59	45.82
MW-3	24	9-24	2	56.24	11.53	44.71

NOTES:

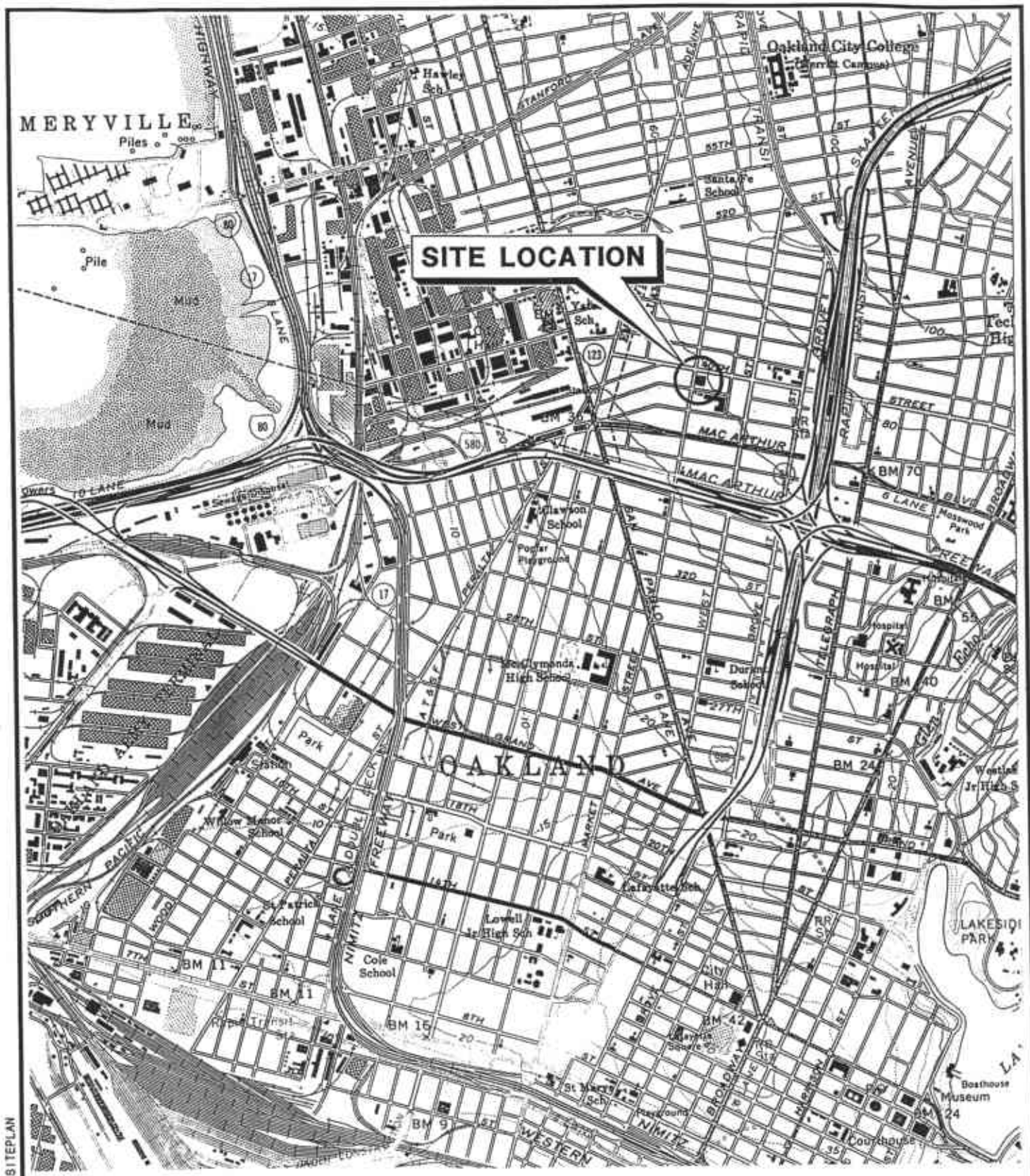
- (a) Measured in feet below ground surface.
- (b) Measured in inches.
- (c) Measured in feet above mean sea level.
- (d) Measured in feet below top of PVC casing.

TABLE 2
SOIL AND GROUNDWATER ANALYTICAL RESULTS
 3924 Market Street
 Oakland, California

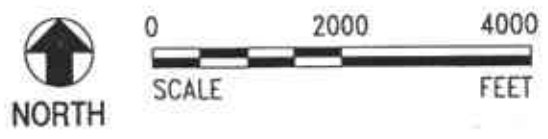
SAMPLE NUMBER	SAMPLE DEPTH ^(a)	TPHg ^(b) (mg/kg) ^(c)	TPHd ^(d) (mg/kg)	BENZENE (mg/kg)	TOLUENE (mg/kg)	ETHYLBENZENE (mg/kg)	XYLENES (mg/kg)
SOIL							
MW-1-8.5	8.5-9.0	ND ^(e) < 1.0	ND < 10	ND < 0.005	ND < 0.005	ND < 0.005	ND < 0.005
MW-2-10.5	10.5-11.0	ND < 1.0	ND < 10	ND < 0.005	ND < 0.005	ND < 0.005	ND < 0.005
MW-3-11	11.0-11.5	4	28	ND < 0.005	0.011	ND < 0.005	0.069
GROUNDWATER							
SAMPLE NUMBER	SCREENED INTERVAL ^(a)	TPHg (μ g/l) ^(f)	TPHd (μ g/l)	BENZENE (μ g/l)	TOLUENE (μ g/l)	ETHYLBENZENE (μ g/l)	XYLENES (μ g/l)
MW-1	6-21	73	3,600	ND < 0.5	1.0	ND < 0.5	3.0
MW-2	9-24	ND < 50	ND < 50	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5
MW-3	9-24	72	370	1.0	0.6	ND < 0.5	0.9

NOTES:

- (a) Measured in feet below ground surface.
- (b) Total petroleum hydrocarbons as gasoline.
- (c) Milligrams per kilogram.
- (d) Total petroleum hydrocarbons as diesel.
- (e) Not detected at specified reporting limit.
- (f) Micrograms per liter.



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

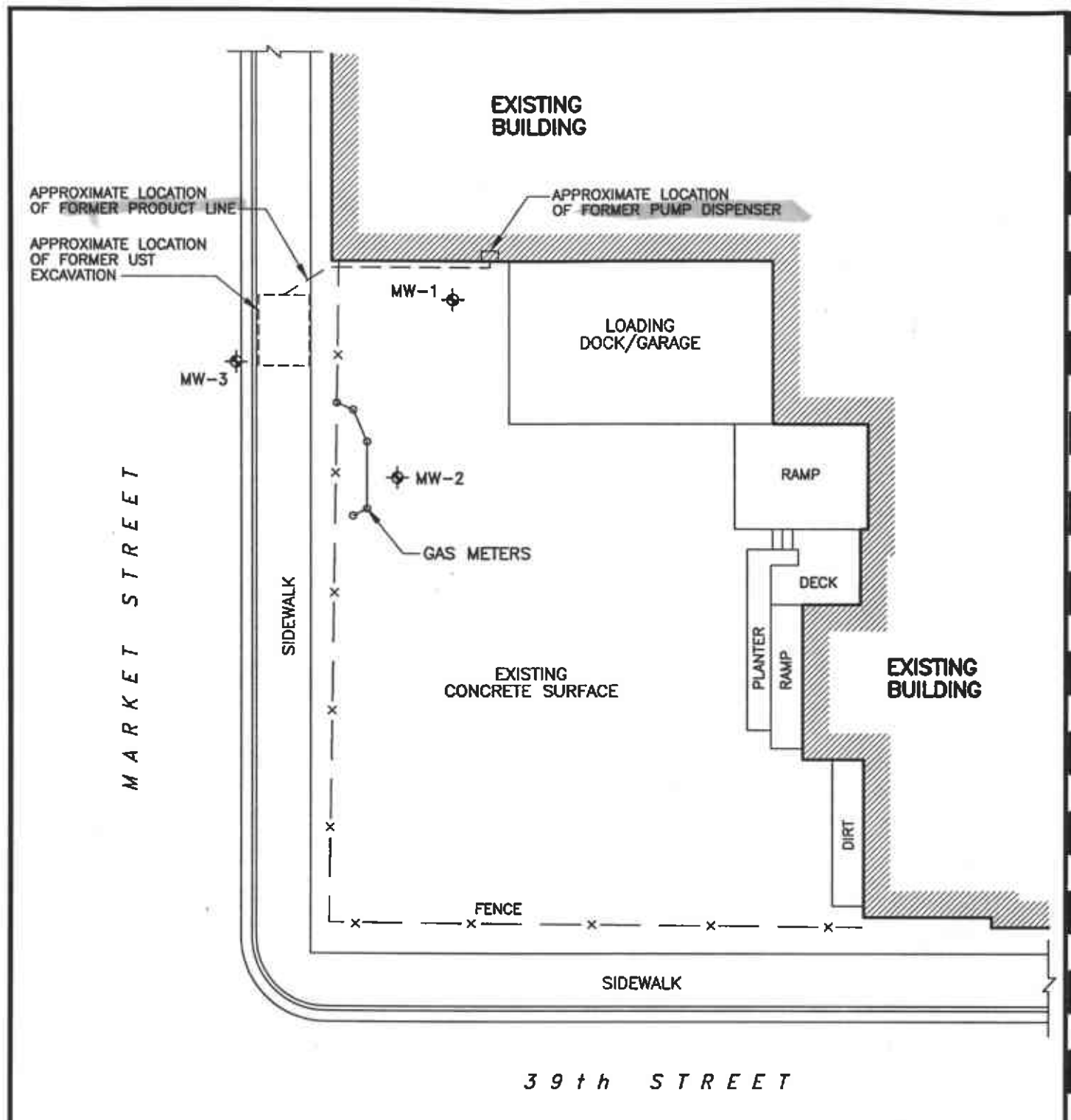


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DRAWN	CCR
APPR	DWM
DATE	12JUN95
JOB NO.	50090-007-01

FIGURE 1
3924 MARKET STREET
OAKLAND, CALIFORNIA
SITE LOCATION MAP

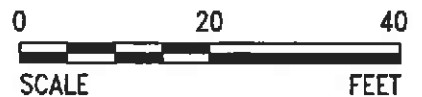


LEGEND:

⊕ MW-1 GROUNDWATER MONITORING WELL



NORTH



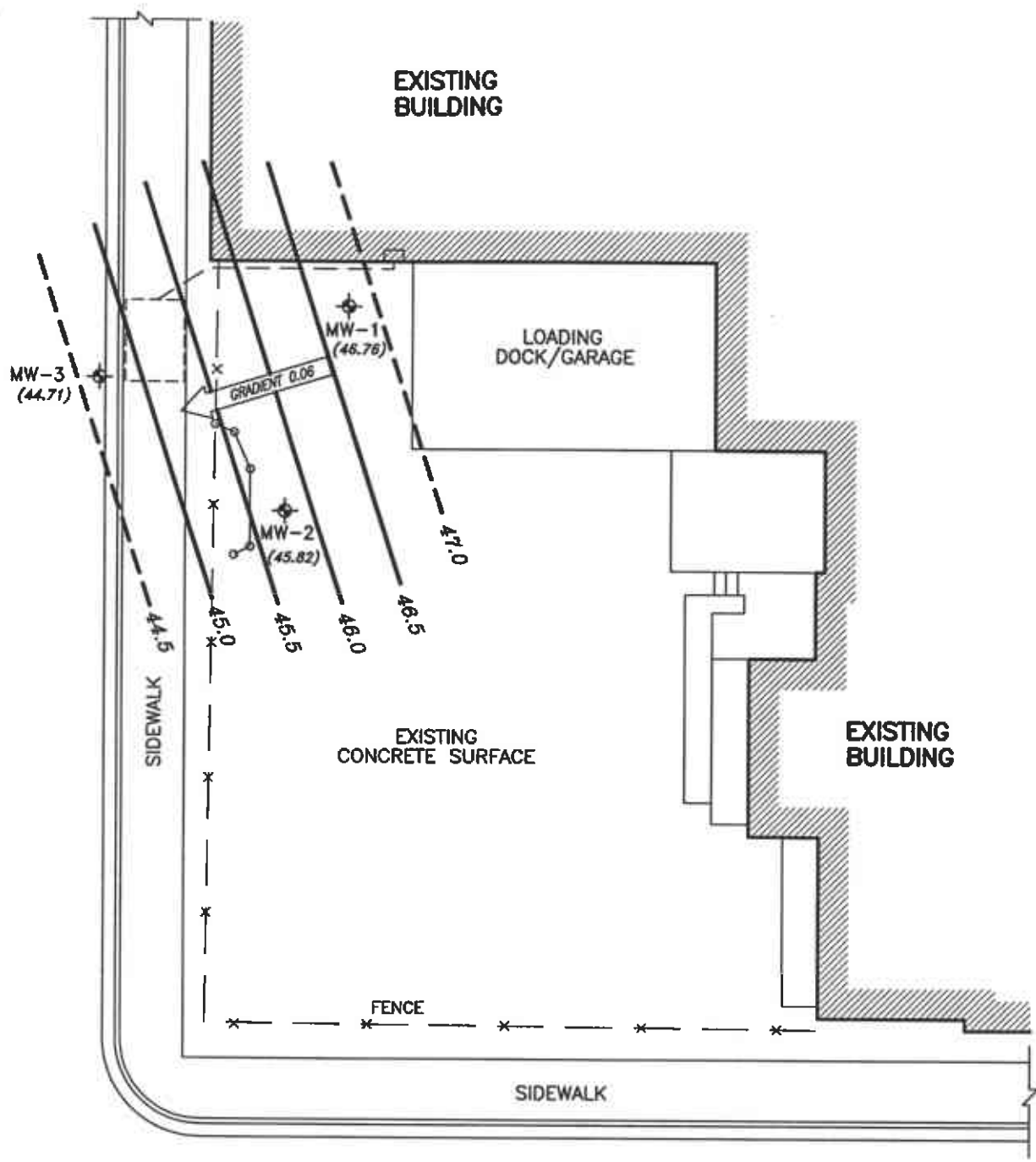
REFERENCE: SURVEYED BY RON ARCHER CIVIL ENGINEER, INC.,
JUNE 2, 1995.

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INCORPORATED




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JOB NO.	50090-007-01

FIGURE 2
3924 MARKET STREET
OAKLAND, CALIFORNIA

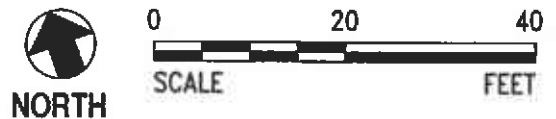
SITE PLAN



LEGEND:

-  MW-1
 GROUNDWATER MONITORING WELL
 (46.76) GROUNDWATER ELEVATION (FEET MSL)
-  47.0
 GROUNDWATER ELEVATION CONTOUR (FEET MSL)
-  GRADIENT 0.06
 GROUNDWATER FLOW DIRECTION AND GRADIENT

39th STREET



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DATE	12JUN95
JOB NO.	50090-007-01

FIGURE 3
3924 MARKET STREET
OAKLAND, CALIFORNIA
**GROUNDWATER ELEVATION
CONTOUR MAP - JUNE 1, 1995**

TPHg	72
TPHd	370
B	1.0
T	0.6
E	ND
X	0.9

TPHg	73
TPHd	3,600
B	ND
T	1.0
E	ND
X	3.0

MW-1

LOADING DOCK/GARAGE

MW-3

MW-2

TPHg	ND
TPHd	ND
B	ND
T	ND
E	ND
X	ND

EXISTING CONCRETE SURFACE

EXISTING BUILDING

MARKET STREET

SIDEWALK

FENCE

SIDEWALK

LEGEND:

⊕ MW-1 GROUNDWATER MONITORING WELL

39th STREET

CHEMICAL ANALYTICAL RESULTS

ANALYTES

- Total Petroleum Hydrocarbons as Gasoline
- Total Petroleum Hydrocarbons as Diesel
- Benzene
- Toluene
- Ethylbenzene
- Xylenes

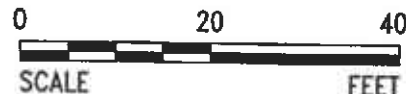
TPHg	72
TPHd	370
B	1.0
T	0.6
E	ND
X	0.9

Concentration (ug/l)

Not Detected at or Above the Laboratory Reporting Limit



NORTH



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DATE	12JUN95
JOB NO.	50090-007-01

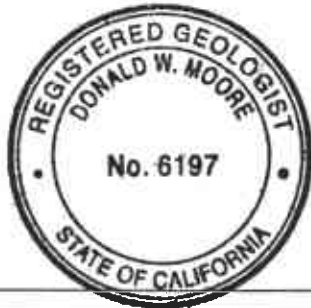
FIGURE 4
3924 MARKET STREET
OAKLAND, CALIFORNIA
GROUNDWATER CHEMICAL RESULTS - JUNE 1, 1995

APPENDIX A
BORING LOGS

H:\SF\FB\SOIL\H20.RPT (SI)
50090-007-01/003

Project: SFFBC - 3924 MARKET STREET, OAKLAND		Log of Boring/Monitoring Well:
Boring Location: LOADING DOCK DRIVEWAY	Project No.: 50090-007-01	MW-1
Subcontractor and Equipment: BAYLAND - CME 75 HT	Logged By: L.Z.	
Sampling Method: CAL. MOD. SPLIT SPOON	Monitoring Device: OVM 580B	Comments:
Start Date/Time: 5/25/95//1330	Finish Date/Time: 5/25/95//1640	
First Water (bgs): 14.5 FEET	Stabilized Water Level (bgs): 9.70 FEET	

Sample Number	Blows/Foot	PID (ppm)	Depth (Feet)	Recovery	USCS Symbol	Water Level	Surface Elevation: 56.79 FT. Top Casing Elevation: 56.46 FT.	Boring Abandonment/ Well Construction Details
							LITHOLOGIC DESCRIPTION (color, grain size, consistency, moisture, other)	
	HAND AUGERED		0					
			1				CONCRETE ROADBASE	
MW-1-6	14	1.4	2					
			3				VERY DARK GRAYISH BROWN (10YR 3/2) CLAY (CL) very stiff, moist, iron oxide staining (0,0,0,100)	
MW-1-8.5	11	1.4	4					
			5					
			6					
MW-1-11	9	4.2	7					
			8				GREENISH GRAY (5G 5/1) CLAY (CL) trace fine to coarse gravel, angular, stiff, moist, iron and magnesium oxide staining (5,0,0,95)	
			9					
			10					
MW-1-13.5	19	4.6	11				grades to (10,0,0,90)	
			12					
			13					
			14					
			15					
			16				GRAYISH GREEN (5G 4/2) GRAVELLY SAND (SP) fine-to coarse-grained, with silt and clay, fine to coarse gravel, medium dense, wet, iron oxide staining, strong odor, brown staining (15,65,10,10)	
			17					
			18					
			19					
			20					
			21				YELLOWISH BROWN (10YR 5/4) SAND (SP) fine-grained, medium dense, wet, iron oxide staining, moderate odor, brown staining (0,100,0,0)	
			22					
			23					
			24					
			25					
			26					
			27					
			28					
			29					
			30					



Reviewed By: Donald W. Moore Date: 6/20/95
 Revised By: _____ Date: _____

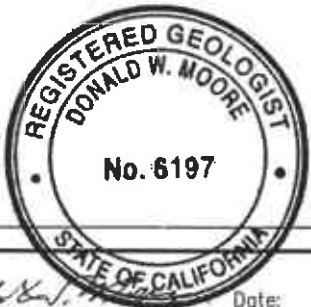
E:\LOGS\SF-BREAD\MARKET\MW-1

Project: SFFBC - 3924 MARKET STREET, OAKLAND		Log of Boring/Monitoring Well:	
Boring Location: EAST OF GAS METERS		Project No.: 50090-007-01	
Subcontractor and Equipment: BAYLAND - CME 75 HT		Logged By: L.Z.	
Sampling Method: CAL. MOD. SPLIT SPOON		Monitoring Device: OVM 580B	
Start Date/Time: 5/25/95//1715		Finish Date/Time: 5/25/95//1950	
First Water (bgs): 17.0 FEET		Stabilized Water Level (bgs): 11.59 FEET	

MW-2

Comments:

Sample Number	Blows/Foot	PID (ppm)	Depth (Feet)	Recovery	USCS Symbol	Water Level	Surface Elevation: 57.75 FT. Top Casing Elevation: 57.41 FT.	Boring Abandonment/ Well Construction Details
							LITHOLOGIC DESCRIPTION (color, grain size, consistency, moisture, other)	
			0					
			1				CONCRETE	Traffic-rated Christy Box
			2				VERY DARK GRAYISH BROWN (10YR 3/2) CLAY (CL) stiff, moist, iron oxide staining (0,0,0,100)	2" Sch.40 PVC Blank Casing
			3					Grout
			4					
MW-2-5.5	10	2.3	5				grades trace fine-to coarse-grained sand	
			6					Bentonite Pellets
MW-2-8	12	1.4	7				DARK BROWN (10YR 3/3) CLAY (CL) trace fine gravel, very stiff, moist, iron oxide staining, white sand nodules (5,0,0,95)	
			8					
			9				grades Greenish Gray (5G 5/1), stiff	
MW-2-10.5	10	1.8	10					2" Sch.40 0.020" Slot Screen
			11					
			12					
MW-2-13	22	2.3	13				YELLOWISH BROWN (10YR 5/6) CLAY (CL) very stiff, moist, magnesium oxide staining, gray clay laminations, slight odor, dark brown staining (0,0,0,100)	
			14					
			15					
MW-2-15.5	15	3.2	16				GREENISH GRAY (5BG 5/1) SAND (SP) fine-grained, medium dense, moist, iron and magnesium oxide staining, slight odor (0,100,0,0)	#2/12 Lonestar Sand
			17					
			18					
	10	2.3	19				YELLOWISH BROWN (10YR 5/6) SANDY GRAVEL (GP) fine to coarse gravel, angular, fine-grained sand, medium dense, wet, iron oxide staining, slight odor (80,20,0,0)	
			20					
			21					
			22					
	38	1.8	23					End Cap
			24					Bentonite Pellets
			25					
			26					
			27					
			28					
			29					
			30					



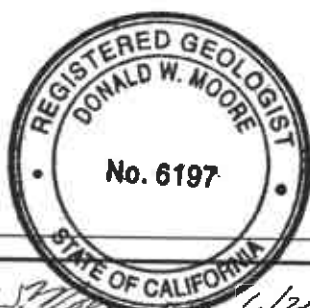
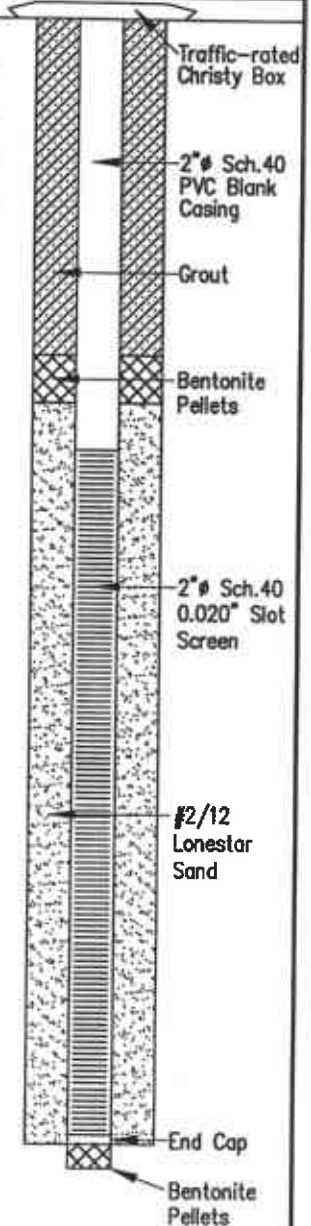
E:\LOGS\SF-BREAD\MARKET\MW-2

SECOR

Reviewed By: *Donald W. Moore* Date: 6/20/95
 Revised By: _____ Date: _____

Project: SFFBC - 3924 MARKET STREET, OAKLAND		Log of Boring/Monitoring Well:
Boring Location: MARKET STREET	Project No.: 50090-007-01	MW-3
Subcontractor and Equipment: BAYLAND - CME 75 HT	Logged By: L.Z.	
Sampling Method: CAL. MOD. SPLIT SPOON	Monitoring Device: OVM 580B	Comments:
Start Date/Time: 5/26/95//0930	Finish Date/Time: 5/26/95//1310	
First Water (bgs): 14.0 FEET	Stabilized Water Level (bgs): 11.53 FEET	

Sample Number	Blows/Foot	PID (ppm)	Depth (Feet)	Recovery	USCS Symbol	Water Level	Surface Elevation: 56.57 FT. Top Casing Elevation: 56.24 FT.	Boring Abandonment/ Well Construction Details
							LITHOLOGIC DESCRIPTION (color, grain size, consistency, moisture, other)	
			0					
			1				CONCRETE	
			2				GREENISH GRAY (5BG 5/1) SAND (SP) (FILL) fine-to medium-grained, medium dense, moist, magnesium oxide staining (0,100,0,0)	
			3					
			4				DARK BLUISH GRAY (5B 4/1) GRAVELLY SAND (SW) (FILL) fine-to coarse-grained, fine gravel, loose, moist (20,80,0,0)	
MW-3-6	4	24.9	5					
			6					
MW-3-8.5	4	2.8	7				grades increasing coarse gravel (30,70,0,0)	
			8					
			9				Base Fill Material	
MW-3-11	15	419	10				GREENISH GRAY (5BG 5/1) CLAY (CL) trace fine gravel, angular, very stiff, moist, iron oxide staining, moderate odor (5,0,0,95)	
			11					
MW-3-13.5	21	57.7	12				GREENISH GRAY (5G 5/1) CLAY (CL) very stiff, moist, iron oxide staining, strong odor (0,0,0,100)	
			13					
			14					
			15					
			16				GREENISH GRAY (5BG 5/1) SANDY GRAVEL (GW) fine to coarse gravel, angular, fine-grained sand, medium dense, wet, dark brown staining (80,20,0,0)	
			17					
			18					
			19					
			20				grades Yellowish Brown (70,30,0,0)	
			21					
			22					
			23					
			24					
			25					
			26					
			27					
			28					
			29					
			30					



Reviewed By: *Donald W. Moore* Date: 6/20/95
 Revised By: _____ Date: _____

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APPENDIX B
HYDROLOGIC AND WATER SAMPLE FIELD DATA SHEETS

HYDROLOGIC DATA SHEET

DATE: 6/1/95 PROJECT: SFRB Oakland PROJECT # 10090-007-01

EVENT: Well Developing SAMPLER: LZ

WELL OR LOCATION	TIME	MEASUREMENT					COMMENTS
		TOC TD	DTW	DTP	PT	ELEV	
MW-3	0810	23.33	11.53				2", Dolphin
MW-2	0859	24.05	11.59				2", Dolphin
MW-1	0905	16.90	9.70				2", Dolphin, strong chemical odor, shaft
8 drums on-site:							
5 soil							
2 decon water							
1 purged GW							

CODES: TOC - TOP OF CASING (FEET, RELATIVE TO MEAN SEA LEVEL)
 DTW - DEPTH TO WATER (FEET)
 DTP - DEPTH TO PRODUCT (FEET)
 PT - PRODUCT THICKNESS (FEET)
 ELEV - GROUNDWATER ELEVATION (FEET, RELATIVE TO MEAN SEA LEVEL)

SEACOR WATER SAMPLE FIELD DATA SHEET

PROJECT NO: 10090-007-01
 PURGED BY: LD
 SAMPLED BY: CB

WELL ID: MN-3
 SAMPLE ID: MN-3
 CLIENT NAME: SFFB
 LOCATION: Oakland

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>2.0</u>
DEPTH TO WATER (feet): <u>11.3</u>	CALCULATED PURGE (gal) <u>20.0</u>
DEPTH OF WELL (feet): <u>23.33</u>	ACTUAL PURGE VOL. (gal) <u>20.0</u>

DATE PURGED: 6/1/95 Start (2400 Hr) 0940 End (2400 Hr.) 1035
 DATE SAMPLED: 6/1/95 Start (2400 Hr) _____ End (2400 Hr.) 1045

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

FIELD MEASUREMENTS						
TIME (2400 Hr)	VOLUME (gal)	pH (unit)	E.C. (micro/cm @ 25°C) x 100	TEMPERATURE (°F)	COLOR (Auel)	TURBIDITY (NTU) Visual
<u>1007</u>	<u>7</u>	<u>9.59</u>	<u>6.78</u>	<u>67.2</u>	<u>Brown</u>	<u>H5h</u>
<u>1023</u>	<u>14</u>	<u>7.84</u>	<u>6.36</u>	<u>67.2</u>	<u>✓</u>	<u>✓</u>
<u>1028</u>	<u>16</u>	<u>7.46</u>	<u>6.07</u>	<u>66.7</u>	<u>✓</u>	<u>✓</u>
<u>1035</u>	<u>20</u>	<u>7.39</u>	<u>6.09</u>	<u>69.3</u>	<u>✓</u>	<u>✓</u>

D.O. (ppm): _____ COLOR, COBALT (0-100): _____

ODOR: Strong chemical odor

Clear
 Cloudy
 Yellow
Brown

PURGING EQUIPMENT		SAMPLING EQUIPMENT	
<input type="checkbox"/> 2" Bladder Pump	<input type="checkbox"/> Baller (Teflon®)	<input type="checkbox"/> 2" Bladder Pump	<input type="checkbox"/> Baller (Teflon®)
<input type="checkbox"/> Centrifugal Pump	<input type="checkbox"/> Baller (PVC)	<input type="checkbox"/> DDL Sampler	<input checked="" type="checkbox"/> Baller (PVC/disposable)
<input type="checkbox"/> Submersible Pump	<input checked="" type="checkbox"/> Baller (Stainless Steel)	<input type="checkbox"/> Submersible Pump	<input type="checkbox"/> Baller (Stainless Steel)
<input type="checkbox"/> Well Wizard™	<input type="checkbox"/> Dedicated	<input type="checkbox"/> Well Wizard™	<input type="checkbox"/> Dedicated
Other: _____		Other: _____	

WELL INTEGRITY: Good LOCK #: Dolphin
 REMARKS: Heavy chert

SEACOR WATER SAMPLE FIELD DATA SHEET

PROJECT NO: 17090-007-01
 PURGED BY: LB
 SAMPLED BY: LB

WELL ID: MW-2
 SAMPLE ID: MW-2
 CLIENT NAME: SFFB
 LOCATION: Oakland

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>2.1</u>
DEPTH TO WATER (feet): <u>11.59</u>	CALCULATED PURGE (gal) <u>21.0</u>
DEPTH OF WELL (feet): <u>24.05</u>	ACTUAL PURGE VOL (gal) <u>21.5</u>

DATE PURGED: 6/1/95 Start (2400 Hr) 1140 End (2400 Hr.) 1218
 DATE SAMPLED: 6/1/95 Start (2400 Hr) _____ End (2400 Hr.) 1230

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

FIELD MEASUREMENTS						
TIME (2400 Hr)	VOLUME (gal)	pH (water)	E.C. (umho/cm @ 25°C) X100	TEMPERATURE (°F)	COLOR (Visual)	TURBIDITY (NTU) Visual
<u>1152</u>	<u>7</u>	<u>7.74</u>	<u>10.61</u>	<u>75.8</u>	<u>Brown</u>	<u>High</u>
<u>1206</u>	<u>14</u>	<u>7.65</u>	<u>8.57</u>	<u>69.4</u>	<u>Y</u>	<u>Y</u>
<u>1210</u>	<u>16</u>	<u>7.28</u>	<u>8.30</u>	<u>68.1</u>	<u>Y</u>	<u>Y</u>
<u>1218</u>	<u>21.5</u>	<u>7.33</u>	<u>8.21</u>	<u>69.0</u>	<u>Y</u>	<u>Y</u>

D.O. (ppm): _____ COLOR, COBALT (0-100): _____

ODOR: chemical odor

Clear
 Cloudy
 Yellow
 (Brown)

PURGING EQUIPMENT		SAMPLING EQUIPMENT	
___ 2" Bladder Pump	___ Baller (Teflon®)	___ 2" Bladder Pump	___ Baller (Teflon®)
___ Centrifugal Pump	___ Baller (PVC)	___ DDL Sampler	<input checked="" type="checkbox"/> Baller (PVC/disposable)
___ Submersible Pump	<input checked="" type="checkbox"/> Baller (Stainless Steel)	___ Submersible Pump	___ Baller (Stainless Steel)
___ Well Wizard™	___ Dedicated	___ Well Wizard™	___ Dedicated
Other: _____		Other: _____	

WELL INTEGRITY: Good LOCK #: Dolphin
 REMARKS: steer

SEACOR WATER SAMPLE FIELD DATA SHEET

PROJECT NO: 10090-007-01
 PURGED BY: LF
 SAMPLED BY: LF

WELL ID: MW-1
 SAMPLE ID: MW-1A
 CLIENT NAME: SFFB
 LOCATION: Oakland

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) _____
DEPTH TO WATER (feet): <u>9.70</u>	CALCULATED PURGE (gal) <u>11.2</u>
DEPTH OF WELL (feet): <u>16.90</u>	ACTUAL PURGE VOL. (gal) <u>12.0</u>
	<u>16.0</u>

DATE PURGED: 6/1/95 Start (2400 Hr) 1300 End (2400 Hr.) 1335
 DATE SAMPLED: 6/1/95 Start (2400 Hr) _____ End (2400 Hr.) 1345

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

FIELD MEASUREMENTS

TIME (2400 Hr)	VOLUME (gal)	pH (water)	E.C. (umho/cm @ 25°C) X100	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (NEED visual)
<u>1309</u>	<u>5</u>	<u>8.04</u>	<u>8.44</u>	<u>73.9</u>	<u>Brown</u>	<u>High</u>
<u>1317</u>	<u>9</u>	<u>7.59</u>	<u>7.93</u>	<u>66.4</u>	<u>✓</u>	<u>✓</u>
<u>1326</u>	<u>11</u>	<u>7.38</u>	<u>7.42</u>	<u>64.9</u>	<u>✓</u>	<u>✓</u>
<u>1332</u>	<u>15</u>	<u>7.27</u>	<u>7.17</u>	<u>69.2</u>	<u>✓</u>	<u>✓</u>

D.O. (ppm): _____ COLOR, COBALT (0-100): _____

ODOR: Strong Chemical Odor

- Clear
- Cloudy
- Yellow
- Brown

PURGING EQUIPMENT

- _____ 2" Bladder Pump _____ Baller (Teflon®)
- _____ Centrifugal Pump _____ Baller (PVC)
- _____ Submersible Pump Baller (Stainless Steel)
- _____ Well Wizard™ _____ Dedicated

Other: _____

SAMPLING EQUIPMENT

- _____ 2" Bladder Pump _____ Baller (Teflon®)
- _____ DDL Sampler Baller (PVC/disposable)
- _____ Submersible Pump _____ Baller (Stainless Steel)
- _____ Well Wizard™ _____ Dedicated

Other: _____

WELL INTEGRITY: Good LOCK #: Dolphin
 REMARKS: Heavy Sheen

* MW-1 FP Sample 6/1/95, 1250

APPENDIX C

**LABORATORY ANALYTICAL REPORTS AND
CHAIN-OF-CUSTODY RECORDS**



Superior Precision Analytical, Inc.

A member of ESSCON Environmental Support Service Consortium

CERTIFICATE OF ANALYSIS

Laboratory No.: 81711
Client: SECOR
Client Job No.: 50090-007-01

Date Received: May 26, 1995
Date Reported: May 30, 1995

TPH Scan

#	Sample ID	Date Sampled	Date Analyzed	Results
03	MW-3-11	05/26/95	05/30/95	(1)
	MW-2-13	05/26/95	05/30/95	(2)

- (1) Pattern observed indicates a mixture of Kerosene and Diesel.
- (2) Hydrocarbons were observed in the Diesel range but the pattern was unrecognizable due to low concentration present.

mg/kg - parts per million (ppm)
 ND = Not Detected
 NA = Not Applicable
 R = Reporting Limit

Cecilia J. Jorgensen 5/30/95
 Senior Chemist
 Account Manager

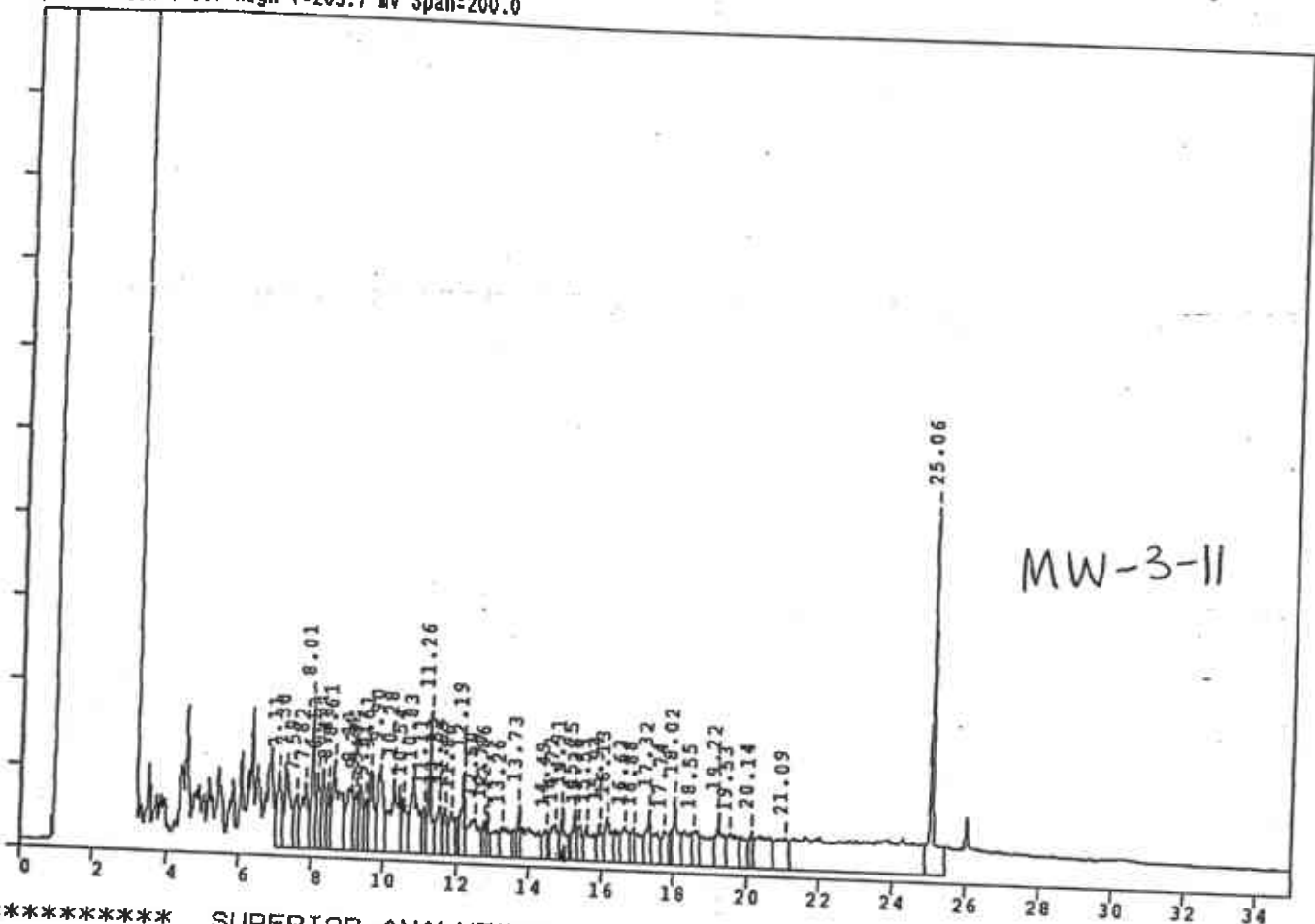
Certified Laboratories

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

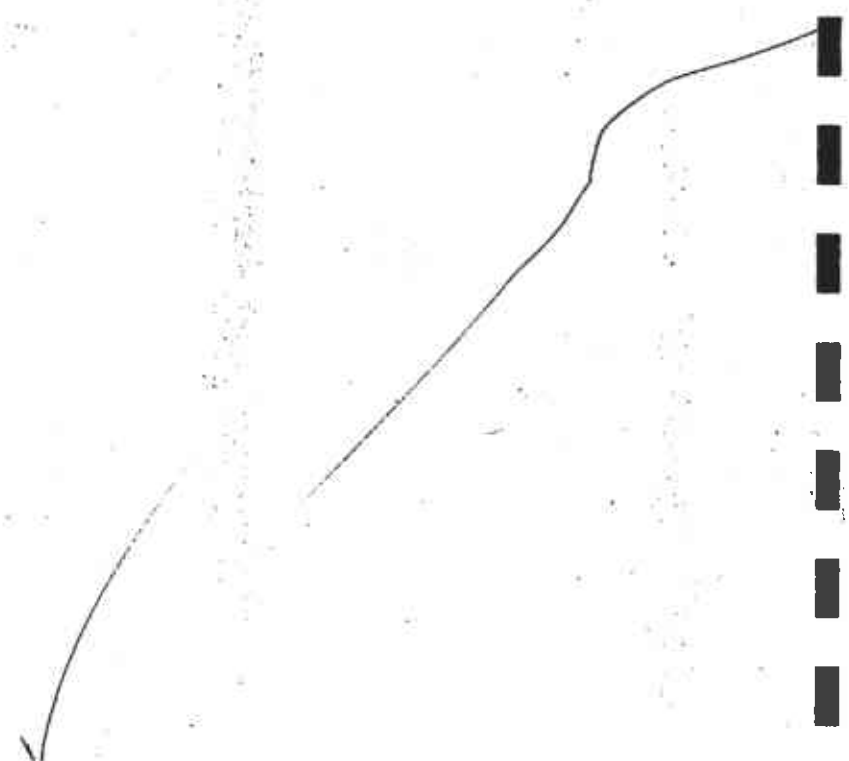
1555 Burke St., Unit I
 San Francisco, California 94124
 (415) 647-2081 / fax (415) 821-7123

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

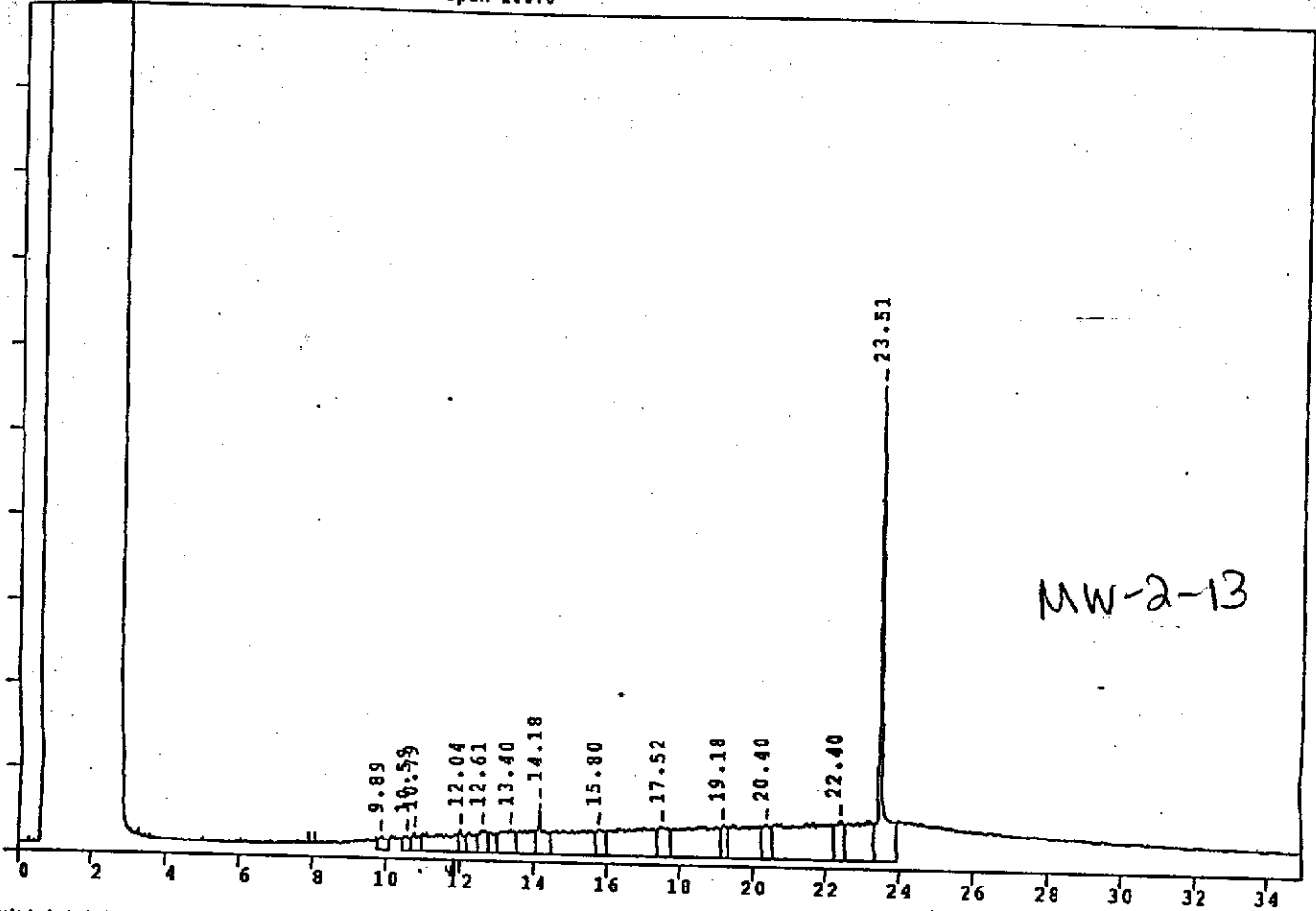
C:\DS\TPH1\05309502.04R Date printed=05-30-1995 Time= 15:45:44
File Name=SAS1-BE30102-02-81711-03
to 35.0 min. Low Y=5.7 High Y=205.7 mv Span=200.0



***** SUPERIOR ANALYTICAL SAN FRANCISCO LAB *****
SAMPLE ID: SAS1-BE30102-02-81711-03 DATA FILE: C:\DS\TPH1\05309502.04R



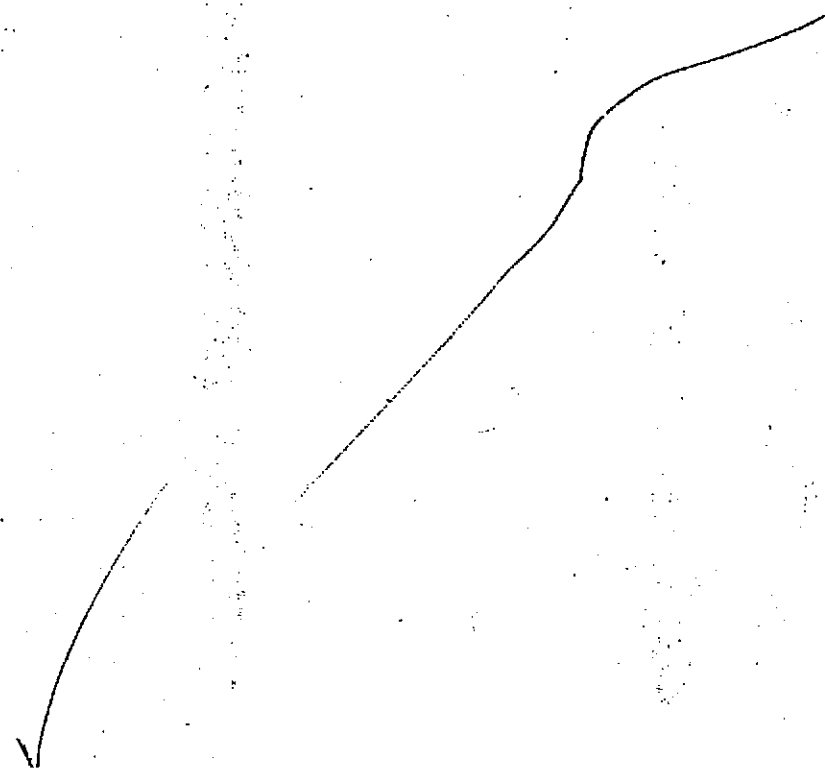
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Sample Name=SAS1-8E30142-02-81711-13
0.0 to 35.0 min. Low Y=2.203 High Y=202.203 mv Span=200.0



***** SUPERIOR ANALYTICAL SAN FRANCISCO LAB *****

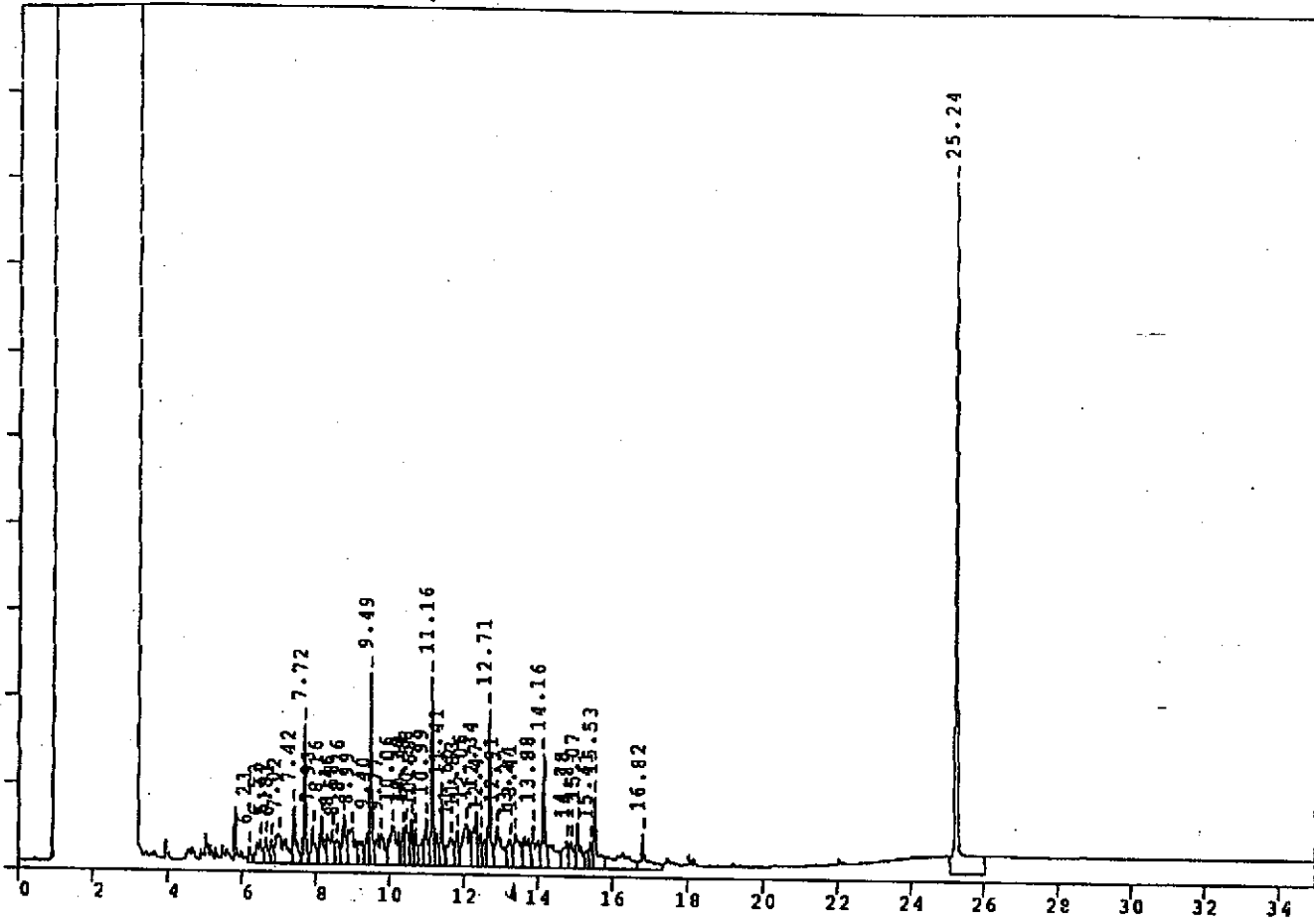
SAMPLE ID: SAS1-BE30142-02-81711-13

DATA FILE: C:\DS\TPH2\05309542.04R
OPERATOR: DAN



Sample Name=KERO 50

Run to 35.0 min. Low Y=7.52 High Y=207.52 mv Span=200.0



***** SUPERIOR ANALYTICAL SAN FRANCISCO LAB *****
 DATE RUN: Apr 21, 1995 02:15:44 OPERATOR:

SAMPLE NAME: *KEROSENE STANDARD*
 KERO 50

RAW DATA FILE: C:\CP\TPH1\042095.16R INSTRUMENT:3115A3499--GC 02
 METHOD FILE: C:\CP\TPH1\KERO.MET VERSION: 7
 CALIBRATION FILE: C:\CP\TPH1\DS28.CAL VERSION: 14
 DILUTION:1 HP FILE NAME 042095.SEQ #16

* * * * *

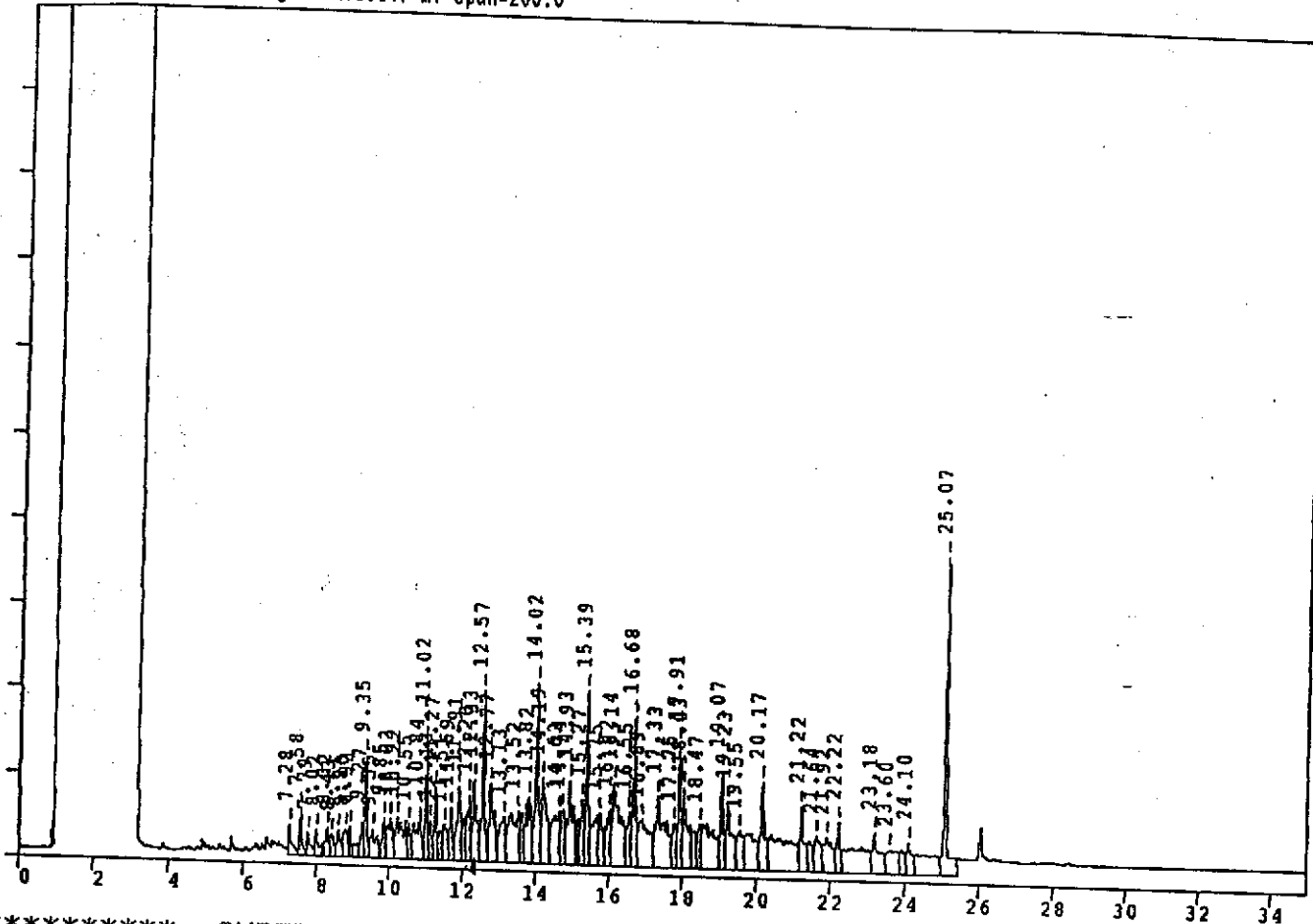
Peak #	Ret Time (min)	Peak Area	Peak Name	Concentration ug/l
6	7.422	78724	C-10	1.79
22	10.990	69863	C-12	1.43
34	13.879	87374	C-14	1.65
42	25.239	818570	TETRACOSANE	22.17

Kerosene Range Area Sum 6-18 MIN= 3267328.000
 TOTAL= 43.455 < 2000??

CONC= 43.455
 UNITS = mg/L OR mg/kg

SURROGATE RECOVERY = 62.967 %

REVIEWED BY: _____ DATE: _____



***** SUPERIOR ANALYTICAL SAN FRANCISCO LAB *****

SAMPLE ID: C1W1-8E30102-00-00000-DIE 200 **DIESEL STANDARD**
 RUN DATE: May 30, 1995 14:14:38 DATA FILE: C:\DS\TPH1\05309502.02R
 SEQ FILE NAME: 05309502.SEQ #2 OPERATOR:
 METHOD: C:\DS\TPH1\TPH1.MET INSTRUMENT: 3115A3499--GC 02
 CALIB.: C:\DS\TPH1\TPH1.CAL SAMPLE WT/VOL: 1
 DILUTION: 1

Peak #	Ret Time (min)	Peak Area	Peak Name	Concentration ug/l
2	7.577	55078	C-10	
17	10.844	139526	C-12	1.25
30	13.823	154685	C-14	2.85
41	16.552	86239	C-16	2.93
49	19.065	123625	C-18	1.54
53	21.221	118654	C-20	2.21
57	23.182	128836	C-22	2.30
60	25.074	372729	TETRACOSANE	2.87
Recovery - TETRACOSANE				10.11
				: 93%

Compound	Start	End	Total Area	I&S Area	Adj Area	Amount/ng	Conc/ppm
WASH. DIESEL	11.00	27.00	6281616	372729	5908887	149.68	149.68
MONTANA DIESEL	4.00	32.00	7380014	372729	7007285	153.35	153.35
KEROSENE	6.00	18.00	5431850	0	5431850	113.99	113.99
HYD OIL	14.00	31.00	4666728	372729	4293999	87.86	87.86
MINOR OIL	7.00	26.00	7380014	372729	7007285	143.38	143.38
MINERAL SPIRITS	0.00	0.00	0	0	0	0.00	0.00
AK102	7.00	27.00	7380014	372729	7007285	153.35	153.35
810	7.00	31.00	7380014	372729	7007285	153.35	153.35
DS 8	7.00	31.00	7380014	372729	7007285	153.35	153.35
DIESEL	7.00	26.00	7380014	372729	7007285	153.35	153.35

Reviewed by: _____ Date: _____



Superior Precision Analytical, Inc.

A member of ESSCON Environmental Support Service Consortium

SECOR

90 NEW MONTGOMERY ST. #620
SAN FRANCISCO, CA 94105

Date: June 12, 1995

Attn: Donald Moore

Laboratory Number : 81769

Project Number/Name : 50090-007-01

This report has been reviewed and
approved for release.

C. HORN for.
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

COR
Attn: Donald Moore

Project 50090-007-01
Reported on June 12, 1995

Gasoline Range Petroleum Hydrocarbons and BTXE
by EPA SW-846 5030/8015M/8020
Gasoline Range quantitated as all compounds from C6-C10

Chronology

Laboratory Number 81769

Sample ID	Sampled	Received	Extract.	Analyzed	QC Batch	LAB #
MW-1-8.5	05/25/95	06/02/95	06/07/95	06/07/95	BF071.03	01
MW-2-10.5	05/25/95	06/02/95	06/07/95	06/07/95	BF071.03	02
MW-3-11	05/25/95	06/02/95	06/07/95	06/07/95	BF071.03	03

QC Samples

QC Batch #	QC Sample ID	Type	Ref.	Matrix	Extract.	Analyzed
BF071.03-08	Method Blank	MB		Soil	06/07/95	06/07/95
BF071.03-09	DITCH CUTTING 1A	MS	81694-01	Soil	06/07/95	06/07/95
BF071.03-10	DITCH CUTTING 1A	MSD	81694-01	Soil	06/07/95	06/07/95

Certified Laboratories

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Martinez, California 94553
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1555 Burke St., Unit I
San Francisco, California 94124
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(206) 763-2992 / fax (206) 763-8429



Superior Precision Analytical, Inc.

A member of ESSCON Environmental Support Service Consortium

SECOR
Attn: Donald Moore

Project 50090-007-01
Reported on June 12, 1995

Gasoline Range Petroleum Hydrocarbons and BTXE
by EPA SW-846 5030/8015M/8020
Gasoline Range quantitated as all compounds from C6-C10

LAB ID	Sample ID	Matrix	Dil. Factor	Moisture
81769-01	MW-1-8.5	Soil	1.0	-
81769-02	MW-2-10.5	Soil	1.0	-
81769-03	MW-3-11	Soil	1.0	-

RESULTS OF ANALYSIS

Compound	81769-01		81769-02		81769-03	
	Conc.	RL	Conc.	RL	Conc.	RL
	mg/kg		mg/kg		mg/kg	
Gasoline_Range	ND	1	ND	1	4	1
Benzene	ND	0.005	ND	0.005	ND	0.005
Toluene	ND	0.005	ND	0.005	0.011	0.005
Ethyl Benzene	ND	0.005	ND	0.005	ND	0.005
Xylenes	ND	0.005	ND	0.005	0.069	0.005
>> Surrogate Recoveries (%) <<						
Trifluorotoluene (SS)	91		89		85	



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Gasoline Range Petroleum Hydrocarbons and BTXE
by EPA SW-846 5030/8015M/8020
Gasoline Range quantitated as all compounds from C6-C10

Quality Assurance and Control Data

Laboratory Number: 81769
Method Blank(s)

BF071.03-08
Conc. RL
mg/kg

Gasoline_Range	ND	1
Benzene	ND	0.005
Toluene	ND	0.005
Ethyl Benzene	ND	0.005
Xylenes	ND	0.005

> Surrogate Recoveries (%) <<
Trifluorotoluene (SS) 91



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Gasoline Range Petroleum Hydrocarbons and BTXE
by EPA SW-846 5030/8015M/8020
Gasoline Range quantitated as all compounds from C6-C10

Quality Assurance and Control Data

Laboratory Number: 81769

Compound	Sample conc.	SPK Level	SPK Result	Recovery %	Limits %	RPD %
For Soil Matrix (mg/kg)						
BF071.03 09 / 10 - Sample Spiked: 81694 - 01						
Gasoline_Range	ND	3.20	2.8/2.6	88/81	65-135	8
Benzene	ND	0.200	0.225/0.231	113/116	65-135	3
Toluene	ND	0.200	0.204/0.209	102/105	65-135	3
Ethyl Benzene	ND	0.200	0.198/0.200	99/100	65-135	1
Xylenes	ND	0.600	0.616/0.626	103/104	65-135	1
>> Surrogate Recoveries (%) <<						
Trifluorotoluene (SS)				90/92	50-150	

Definitions:

- ND = Not Detected
- RL = Reporting Limit
- NA = Not Analysed
- RPD = Relative Percent Difference
- ug/L = parts per billion (ppb)
- mg/L = parts per million (ppm)
- ug/kg = parts per billion (ppb)
- mg/kg = parts per million (ppm)

Certified Laboratories

825 Arnold Dr., Suite 114
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Superior Precision Analytical, Inc.

A member of ESSCON Environmental Support Service Consortium

ECOR

Attn: Donald Moore

Project 50090-007-01

Reported on June 7, 1995

Total Petroleum Hydrocarbons as Diesel
by EPA SW-846 Method 8015M
Diesel Range quantitated as all compounds from C10-C25

Chronology

Laboratory Number 81769

Sample ID

Sample ID	Sampled	Received	Extract.	Analyzed	QC Batch	LAB #
MW-1-8.5	05/25/95	06/02/95	06/06/95	06/07/95	BF062.42	01
MW-2-10.5	05/25/95	06/02/95	06/06/95	06/07/95	BF062.42	02
MW-3-11	05/25/95	06/02/95	06/06/95	06/07/95	BF062.42	03

QC Samples

QC Batch #	QC Sample ID	Type	Ref.	Matrix	Extract.	Analyzed
BF062.42-06	Method Blank	MB		Soil	06/06/95	06/07/95
BF062.42-07	Laboratory Spike	LS		Soil	06/06/95	06/07/95
BF062.42-08	Laboratory Spike Duplicate	LSD		Soil	06/06/95	06/07/95
BF062.42-09	B-4,5'	MS	81728-01	Soil	06/06/95	06/07/95
BF062.42-10	B-4,5'	MSD	81728-01	Soil	06/06/95	06/07/95

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A member of ESSCON Environmental Support Service Consortium

SECOR
Attn: Donald Moore

Project 50090-007-01
Reported on June 7, 199

Total Petroleum Hydrocarbons as Diesel
by EPA SW-846 Method 8015M
Diesel Range quantitated as all compounds from C10-C25

LAB ID	Sample ID	Matrix	Dil. Factor	Moisture
81769-01	MW-1-8.5	Soil	1.0	-
81769-02	MW-2-10.5	Soil	1.0	-
81769-03	MW-3-11	Soil	1.0	-

RESULTS OF ANALYSIS

Compound	81769-01		81769-02		81769-03	
	Conc.	RL	Conc.	RL	Conc.	RL
	mg/kg		mg/kg		mg/kg	
Diesel:	ND	10	ND	10	28	10
>> Surrogate Recoveries (%) << Tetracosane	119		114		148	

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Total Petroleum Hydrocarbons as Diesel
by EPA SW-846 Method 8015M
Diesel Range quantitated as all compounds from C10-C25

Quality Assurance and Control Data

Laboratory Number: 81769
Method Blank(s)

BF062.42-06

Conc. RL

%

Diesel: ND 10

> Surrogate Recoveries (%) <<

Tetracosane 115



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Total Petroleum Hydrocarbons as Diesel
by EPA SW-846 Method 8015M
Diesel Range quantitated as all compounds from C10-C25

Quality Assurance and Control Data

Laboratory Number: 81769

Compound	Sample conc.	SPK Level	SPK Result	Recovery %	Limits %	RPD %
For Soil Matrix (mg/Kg)						
BF062.42 07 / 08 - Laboratory Control Spikes						
Diesel:		100	112/114	112/114	50-150	2
>> Surrogate Recoveries (%) <<						
Tetracosane				126/104	50-150	
For Soil Matrix (mg/Kg)						
BF062.42 09 / 10 - Sample Spiked: 81728 - 01						
Diesel:	ND	100	118/119	118/119	50-150	1
>> Surrogate Recoveries (%) <<						
Tetracosane				116/113	50-150	

Definitions:

- ND = Not Detected
- RL = Reporting Limit
- NA = Not Analysed
- RPD = Relative Percent Difference
- ug/L = parts per billion (ppb)
- mg/L = parts per million (ppm)

- ug/kg = parts per billion (ppb)
- mg/kg = parts per million (ppm)

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Seattle, Washington 98108
(206) 763-2992 / fax (206) 763-8429

81711

Chain-of-Custody Number:

SEACOR Chain-of-Custody Record

Field Office: San Francisco
 Address: 90 New Montgomery St
Suite 620
San Francisco, CA 94105

Additional documents are attached, and are a part of this Record.
 Job Name: 50090 - 007 - 01 SFFB
 Location: Oakland, CA

Project # 50090-007-01 Task # _____
 Project Manager Don Moore
 Laboratory Superior
 Turnaround Time See Comments
 Sampler's Name Liping Zhang
 Sampler's Signature [Signature]

Analysis Request

Sample ID	Date	Time	Matrix	HCID	TPH _g /BTEX/WTPH-G 8015 (modified)/9020	TPH _g /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)	TCPLP Metals	Soil Final Screen	Comments/ Instructions	Number of Containers
MW-1-6	5/25	1357	Soil														Hold for instructions	1
MW-1-8.5		1406			X	X											✓ ✓ ✓	1
MW-1-11		1413															✓ ✓ ✓	1
MW-1-13.5		1419															✓ ✓ ✓	1
MW-2-5.5		1725															✓ ✓ ✓	1
MW-2-8		1731															✓ ✓ ✓	1
MW-2-10.5		1738			X	X											✓ ✓ ✓	1
MW-2-13		1745														X	> 24-Hour Turnaround Time	1
MW-2-15.5	✓	1755	✓														Hold for instructions	1

Special Instructions/Comments:

Relinquished by:
 Sign [Signature]
 Print Liping Zhang
 Company SEACOR
 Time 1226 Date 5/26/95

Received by:
 Sign [Signature]
 Print JOHN WILLIAMS
 Company AERO
 Time 1500 Date 5/26/95

Sample Receipt
 Total no. of containers: 9
 Chain of custody seals: _____
 Rec'd. good condition/cold: _____
 Conforms to record: _____

Relinquished by:
 Sign [Signature]
 Print JOHN WILLIAMS
 Company AERO
 Time 1510 Date 5/26/95

Received by:
 Sign [Signature]
 Print [Signature]
 Company AERO
 Time 3:10 Date 5/26/95

Client: SEACOR
 Client Contact: Don Moore
 Client Phone: (415) 882-1048

Relinquished by: D. Louie 5/26/95 Date: 5/26/95 Page 1 of 2
 R. notified 9 a.m. 5/26/95 11:30

SEACOR Chain-of-Custody Record

Field Office: San Francisco
 Address: 90 New Montgomery St.
Suite 620
San Francisco, CA 94105

Additional documents are attached, and are a part of this Record.

Job Name: 50090-009-01 SFFB
 Location: Oakland, CA

Project # 50090-007-01 Task # _____
 Project Manager Don Moore
 Laboratory Superior
 Turnaround Time See Comments

Analysis Request

Sampler's Name Liping Zhang
 Sampler's Signature [Signature]

Sample ID	Date	Time	Matrix	HClD	TPH/g/BTEX/WTPH-G 8015 (modified/8020)	TPH/d/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 609/8080	Total Lead 7421	Priority Pollutant Metals (13)	TCLP Metals	8015 Fuel Scan	Comments/ Instructions	Number of Containers
MW-3-6	5/26	1022	Soil														Hold for instructions	1
MW-3-8.5		1028															Hold for instructions	1
MW-3-11		1032		X	X												24-Hour Turnaround Time	1
MW-3-13.5		1040															Hold for instructions	1
C-1	5/26	0855	Soil														Hold for instructions	1
C-2		0857																1
C-3		0901																1
C-4		1121																1
C-5		1157																1

Special Instructions/Comments:

* Composite to one sample

Relinquished by: _____

Sign [Signature]
 Print Liping Zhang
 Company SEACOR
 Time 1226 Date 5/26/95

Received by: John Williams

Sign _____
 Print JOHN WILLIAMS
 Company AERO
 Time 1500 Date 5/26/95

Sample Receipt

Total no. of containers: 9
 Chain of custody seals: _____
 Rec'd, good condition/cold: _____
 Conforms to record: _____

Relinquished by: John Williams

Sign [Signature]
 Print JOHN WILLIAMS
 Company AERO
 Time 1510 Date 5/26/95

Received by: D. Louie

Sign [Signature]
 Print _____
 Company AERO
 Time 3110 Date 5/26/95

Client: SEACOR

Client Contact: Don Moore

Client Phone: (415) 882-7548



Superior Precision Analytical, Inc.

A member of ESSCON Environmental Support Service Consortium

SECOR
90 NEW MONTGOMERY ST. #620
SAN FRANCISCO, CA 94105

Date: June 9, 1995

Attn: Donald Moore

Laboratory Number : 81761

Project Number/Name : 50090-007-01

This report has been reviewed and
approved for release.

Callom for
Senior Chemist
Account Manager

Certified Laboratories

825 Arnold Dr., Suite 114
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Superior Precision Analytical, Inc.

A member of ESSCON Environmental Support Service Consortium

SECOR
Attn: Donald Moore

Project 50090-007-01
Reported on June 9, 1995

Gasoline Range Petroleum Hydrocarbons and BTXE
by EPA SW-846 5030/8015M/8020
Gasoline Range quantitated as all compounds from C6-C10

Chronology

Laboratory Number 81761

Sample ID	Sampled	Received	Extract.	Analyzed	QC Batch	LAB #
MW-3	06/01/95	06/01/95	06/07/95	06/07/95	BF071.05	01
MW-2	06/01/95	06/01/95	06/07/95	06/07/95	BF071.05	02
MW-1A	06/01/95	06/01/95	06/07/95	06/07/95	BF071.05	04

QC Samples

QC Batch #	QC Sample ID	TypeRef.	Matrix	Extract.	Analyzed
BF071.05-02	Method Blank	MB	Water	06/07/95	06/07/95
BF071.05-04	Y5459-S3	MS 81725-01	Soil	06/07/95	06/07/95
BF071.05-05	Y5459-S3	MSD 81725-01	Soil	06/07/95	06/07/95



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A member of ESSCON Environmental Support Service Consortium

SECOR
Attn: Donald Moore

Project 50090-007-01
Reported on June 9, 1995

Gasoline Range Petroleum Hydrocarbons and BTXE
by EPA SW-846 5030/8015M/8020
Gasoline Range quantitated as all compounds from C6-C10

LAB ID	Sample ID	Matrix	Dil. Factor	Moisture
81761-01	MW-3	Water	1.0	-
81761-02	MW-2	Water	1.0	-
81761-04	MW-1A	Water	1.0	-

RESULTS OF ANALYSIS

Compound	81761-01		81761-02		81761-04	
	Conc.	RL	Conc.	RL	Conc.	RL
	ug/L		ug/L		ug/L	
Gasoline Range	72	50	ND	50	73	50
Benzene	1.0	0.5	ND	0.5	ND	0.5
Toluene	0.6	0.5	ND	0.5	1.0	0.5
Ethyl Benzene	ND	0.5	ND	0.5	ND	0.5
Total Xylenes	0.9	0.5	ND	0.5	3.0	0.5
>> Surrogate Recoveries (%) <<						
Trifluorotoluene (SS)	111		103		102	

Water

Certified Laboratories



Superior Precision Analytical, Inc.

A member of ESSECON Environmental Support Service Consortium

Gasoline Range Petroleum Hydrocarbons and BTXE
by EPA SW-846 5030/8015M/8020
Gasoline Range quantitated as all compounds from C6-C10

Quality Assurance and Control Data ✓

Laboratory Number: 81761

Method Blank(s)

BF071.05-02

Conc. RL

ug/L

Gasoline_Range	ND	50
Benzene	ND	0.5
Toluene	ND	0.5
Ethyl Benzene	ND	0.5
Total Xylenes	ND	0.5

>> Surrogate Recoveries (%) <<

Trifluorotoluene (SS) 104



Superior Precision Analytical, Inc.

A member of ESSCON Environmental Support Service Consortium

Gasoline Range Petroleum Hydrocarbons and BTXE
by EPA SW-846 5030/8015M/8020
Gasoline Range quantitated as all compounds from C6-C10

Quality Assurance and Control Data

Laboratory Number: 81761

Compound	Sample conc.	SPK Level	SPK Result	Recovery %	Limits %	RPD %
----------	--------------	-----------	------------	------------	----------	-------

For Soil Matrix (mg/kg)
BF071.05 04 / 05 - Sample Spiked: 81725 - 01

Gasoline_Range	ND	3.20	3.4/3.6	106/113	65-135	6
Benzene	ND	0.200	0.21/0.21	105/105	65-135	0
Toluene	ND	0.200	0.22/0.21	110/105	65-135	5
Ethyl Benzene	ND	0.200	0.21/0.20	105/100	65-135	5
Total Xylenes	ND	0.600	0.64/0.61	107/102	65-135	5

>> Surrogate Recoveries (%) <<

Trifluorotoluene (SS)				103/104	50-150	
-----------------------	--	--	--	---------	--------	--

Definitions:

ND = Not Detected

RL = Reporting Limit

NA = Not Analysed

RPD = Relative Percent Difference

ug/L = parts per billion (ppb)

mg/L = parts per million (ppm)

ug/kg = parts per billion (ppb)

mg/kg = parts per million (ppm)

Certified Laboratories

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Superior Precision Analytical, Inc.

A member of ESSCON Environmental Support Service Consortium

SECOR
Attn: Donald Moore

Project 50090-007-01
Reported on June 7, 1995

Total Petroleum Hydrocarbons as Diesel
by EPA SW-846 Method 8015M
Diesel Range quantitated as all compounds from C10-C25

Chronology

Laboratory Number 81761

Sample ID	Sampled	Received	Extract.	Analyzed	QC Batch	LAB #
MW-3	06/01/95	06/01/95	06/01/95	06/07/95	BF013.21	01
MW-2	06/01/95	06/01/95	06/01/95	06/07/95	BF013.21	02
MW-1A	06/01/95	06/01/95	06/01/95	06/07/95	BF013.21	04

QC Samples

QC Batch #	QC Sample ID	TypeRef.	Matrix	Extract.	Analyzed
BF013.21-03	Method Blank	MB	Water	06/01/95	06/02/95
BF013.21-04	Laboratory Spike	LS	Water	06/01/95	06/02/95
BF013.21-05	Laboratory Spike Duplicate	LSD	Water	06/01/95	06/02/95

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SECOR

Attn: Donald Moore

Project 50090-007-01
Reported on June 7, 1995

Total Petroleum Hydrocarbons as Diesel
by EPA SW-846 Method 8015M
Diesel Range quantitated as all compounds from C10-C25

LAB ID	Sample ID	Matrix	Dil. Factor	Moisture
81761-01	MW-3	Water	1.0	-
81761-02	MW-2	Water	1.0	-
81761-04	MW-1A	Water	1.0	-

RESULTS OF ANALYSIS

Compound	81761-01		81761-02		81761-04	
	Conc.	RL	Conc.	RL	Conc.	RL
	ug/L		ug/L		ug/L	
Diesel:	370	50	ND	50	3600	50
Surrogate Recoveries (%) <<						
tetracosane	90		138		103	

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Total Petroleum Hydrocarbons as Diesel
by EPA SW-846 Method 8015M
Diesel Range quantitated as all compounds from C10-C25

Quality Assurance and Control Data

Laboratory Number: 81761
Method Blank(s)

BF013.21-03
Conc. RL
%

Diesel: ND 50

>> Surrogate Recoveries (%) <<
Tetracosane 72



Superior Precision Analytical, Inc.

A member of ESSCON Environmental Support Service Consortium

Total Petroleum Hydrocarbons as Diesel
by EPA SW-846 Method 8015M
Diesel Range quantitated as all compounds from C10-C25

Quality Assurance and Control Data

Laboratory Number: 81761

Compound	Sample conc.	SPK Level	SPK Result	Recovery %	Limits %	RPD %
----------	--------------	-----------	------------	------------	----------	-------

For Water Matrix (ug/L)
BF013.21 04 / 05 - Laboratory Control Spikes

Diesel:		2000	1559/1471	78/74	50-150	5
> Surrogate Recoveries (%) << Tetracosane				71/91	50-150	

Definitions:

ND = Not Detected
 RL = Reporting Limit
 NA = Not Analysed
 RPD = Relative Percent Difference
 ug/L = parts per billion (ppb)
 mg/L = parts per million (ppm)

ug/kg = parts per billion (ppb)
 mg/kg = parts per million (ppm)

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 Seattle, Washington 98108
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8761

Chain-of-Custody Number: A

SEACOR Chain-of-Custody Record

Address
90 New Montgomery Street
Suite 620
San Francisco, CA 94105

Project # 50090-007-01 Task # 002
 Project Manager Don Moore
 Laboratory Superior
 Turn-around time: Standard
 Sampler's Name: Liping Zhang
 Sampler's Signature: [Signature]

Analysis Request

Sample ID	Date	Time	Matrix	TPHg/BTEX 8015 (modified)/8020	TPHd 8015 (modified)	TPH 418.1	Aromatic Volatiles 602/8020	Volatile Organics 624/8240 (GC/MS)	Halogenated Volatiles 601/8010	Semi-volatile Organics 625/8270 (GC/MS)	Pesticides/PCB's 608/8080	Total Lead 7421	Priority Pollutant Metals (13)	TCLP Metals	Comments/Instructions	Number of Containers
MW-3	6/1	1045	Water	X	X											4
MW-2		1230		X	X											4
MW-1		1250													HOLD	3
MW-1A	✓	1345	✓	X	X											4

Special Instructions/Comments:

Relinquished by:
 Sign [Signature]
 Print Liping Zhang
 Company SEACOR
 Time 1533 Date 6/1/95

Relinquished by:
 Sign [Signature]
 Print MARK HARRISON
 Company AERO
 Time 5:15 PM Date 6/1/95

Received by:
 Sign [Signature]
 Print MARK HARRISON
 Company AERO
 Time 3:47 Date 6/1/95

Received by:
 Sign [Signature]
 Print SPAMT2
 Company SPAMT2
 Time 5:15 Date 6/1/95

Sample Receipt

Total no. of containers 15
 Chain of custody seals:
 Rec'd good condition/cold:
 Conforms to record:

SEACOR
 Client:
Don Moore
 Client Contact:
(415) 882-1548
 Client Phone Number: