RMT INC

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SUPPLEMENTARY AREAL INVESTIGATION

FACILITY #516
330 Chestnut Street
OAKLAND, CALIFORNIA

Dec 1990

FOR

ARATEX SERVICES, INC.
SCHAUMBURG, ILLINOIS

PREPARED BY

RMT, INC.

DECEMBER 1990

REGISTERED PROFESSIONAL E... ZORAN BATCHK...

Exp 12/31/93

Zoran Batchko, P.E.
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ARA services
ARATEX SERVICES, Inc.

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91 JAN 25 AM 8:45

January 30, 1991

Mr. Dennis Byrne
Hazardous Materials Specialist
Department of Environmental Health
Hazardous Materials Program
80 Swan Way, Room 200
Oakland, CA 94621

Subject: Aratex Services, Inc.
~~958 28th Street~~ 330 Chestnut
Oakland, CA

Dear Dennis:

Enclosed is a copy of the Supplementary Areal Investigation report prepared by RMT, Inc. for the Aratex Services facility in Oakland, CA. RMT is presently reviewing the feasibility of various remediation options. Once this has been completed we will submit our remediation plan for your approval.

Please call if you have any questions.

Sincerely,

Rebecca J Whitsett

Rebecca J. Whitsett
Environmental Engineer

cc: F. Pfizenmayer
R. Simpson
P. Krejci/File:Oakland/Closed Plant

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EXECUTIVE SUMMARY

1. Subsurface conditions, which are typical of the near surface alluvial deposits in the East Bay, consist of fine to silty-fine sand with trace amounts of clay intermixed.

2. Ground water beneath the site is shallow [about 8.5 feet] and flows southward at a gradient of about 0.5%.

3. Free product was observed in the interstices of several soil samples obtained from investigation locations located within several feet of the tank's estimated former location; TPH-D and total aromatic volatile organic compound concentrations exceed test method detection limits by several orders of magnitude.

4. Neither field screening nor laboratory analyses detected hydrocarbons in samples from borings that were more than approximately 10 feet away from the tank's former location.

5. Previous investigations have noted the presence of floating product in ground water monitoring well RAO-3 only, which is located on the western boundary of the tank excavation.

6. Investigation results indicate that the lateral extent of the diesel affected zone is limited to an area lying within approximately 10 feet of the tank excavation limits; the depth of affected soils extends from about 5 feet to 11 feet deep within the former location of the tank.

1.0 INTRODUCTION

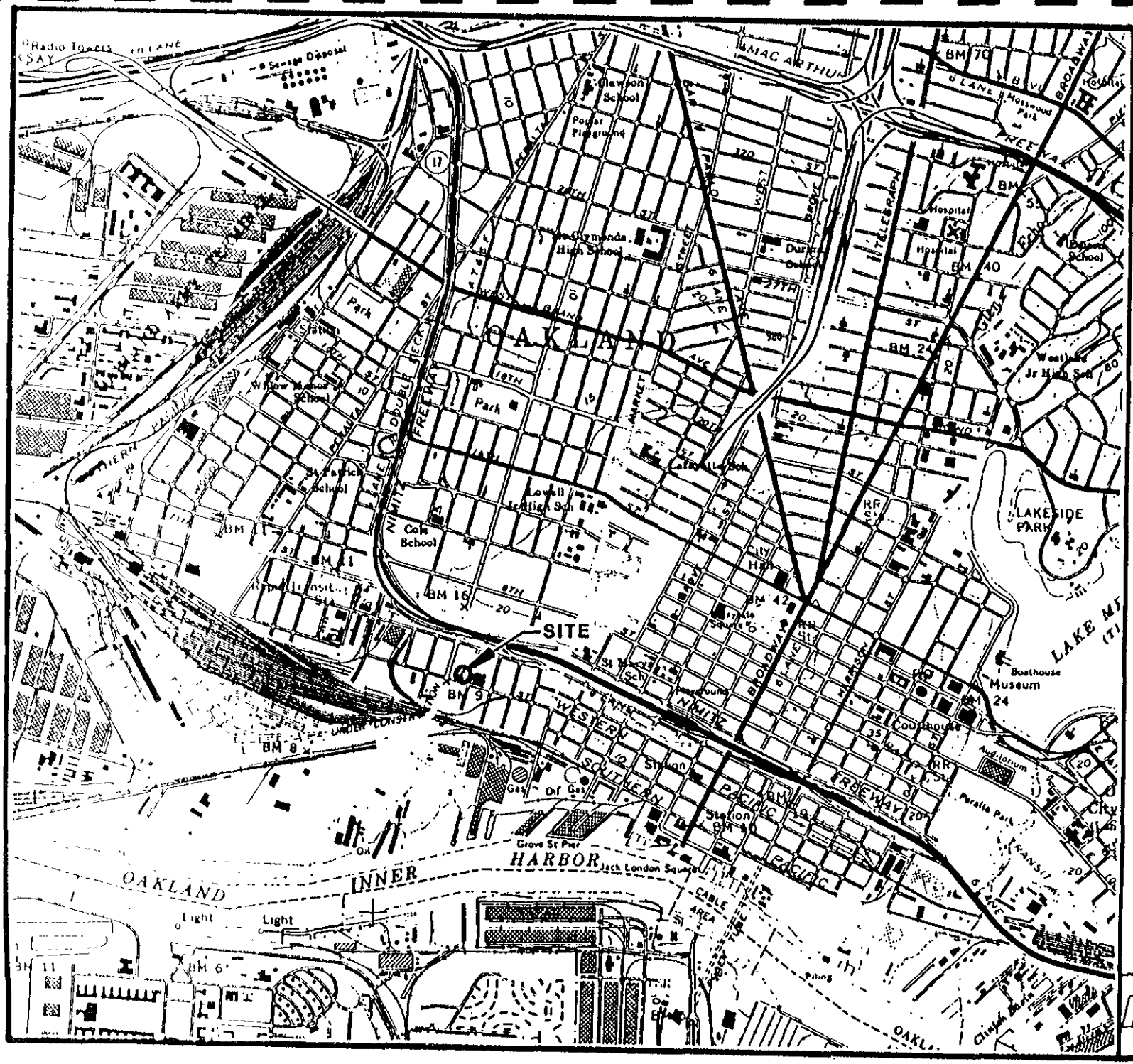
Aratex Services Inc. (Aratex), industrial laundry Facility #516 is located in southwestern Alameda County at 330 Chestnut Street, Oakland, California. As depicted on Figure 1, the facility is in the lowlands of Oakland between the Nimitz Freeway (Interstate Highway 880) and the Oakland Inner Harbor. The site borders on or in reclaimed tidal flat lands. This part of Oakland has historically been used for industrial and commercial purposes.

Available records indicate that the facility was developed in the late 1960's (C. Woodrow Bates, Civil Engineer; July 1966) and that through 1988, the laundry had an underground diesel fuel tank for backup boiler operations. The tank's integrity and appurtenant piping was tested in July of 1987. Based on the findings of the tank integrity test (leaking), the tank was removed by a subcontractor in December 1988. Closure documentation was submitted [by Aratex] to the Alameda County, Health Care Services Agency (AC-HCSA). The AC-HCSA required supplementary subsurface investigations to evaluate if either the surrounding soils or ground water had been affected by past operations. Findings from the supplementary investigations have lead to this supplementary areal investigation.

1.1 Investigations Background

The post-closure investigation requested by AC-HCSA was performed in June of 1989, by RMT for Aratex Services Inc. of Schaumburg, Illinois. The investigation consisted of drilling and sampling to almost 30-foot depth at four locations. All four borings were completed as 2-inch diameter ground water monitoring wells. As shown on Figure 2, all four investigation locations are within 60 feet of the former tank's location. In March of 1990, several months after submission of the subsurface investigation report to AC-HCSA, all four grounds water monitoring wells were resampled at Aratex's request. The wells were resampled to determine what change, if any, had occurred in site ground water conditions since the initial sampling in June 1989. The major findings from the June 1989 investigation (RMT, August 1989 revised October 1989) and March 1990 ground water sampling (RMT, August 1990) are summarized below. Summary data including well construction data, soil and ground water chemical analyses results and ground water measurements are presented in Tables 1 through 4. More detailed discussions of the previously completed investigations are presented in the respective reports from which the following summary is excerpted.

- Ground water is approximately 8.5 feet below ground surface, flows southward toward the Oakland Inner Harbor at a gradient of about 0.5%, and does not appear to vary over time.



CALIF

QUADRANGLE LOCATION

LOCATION OF ARATEX FACILITY #516, OAKLAND, CAL.

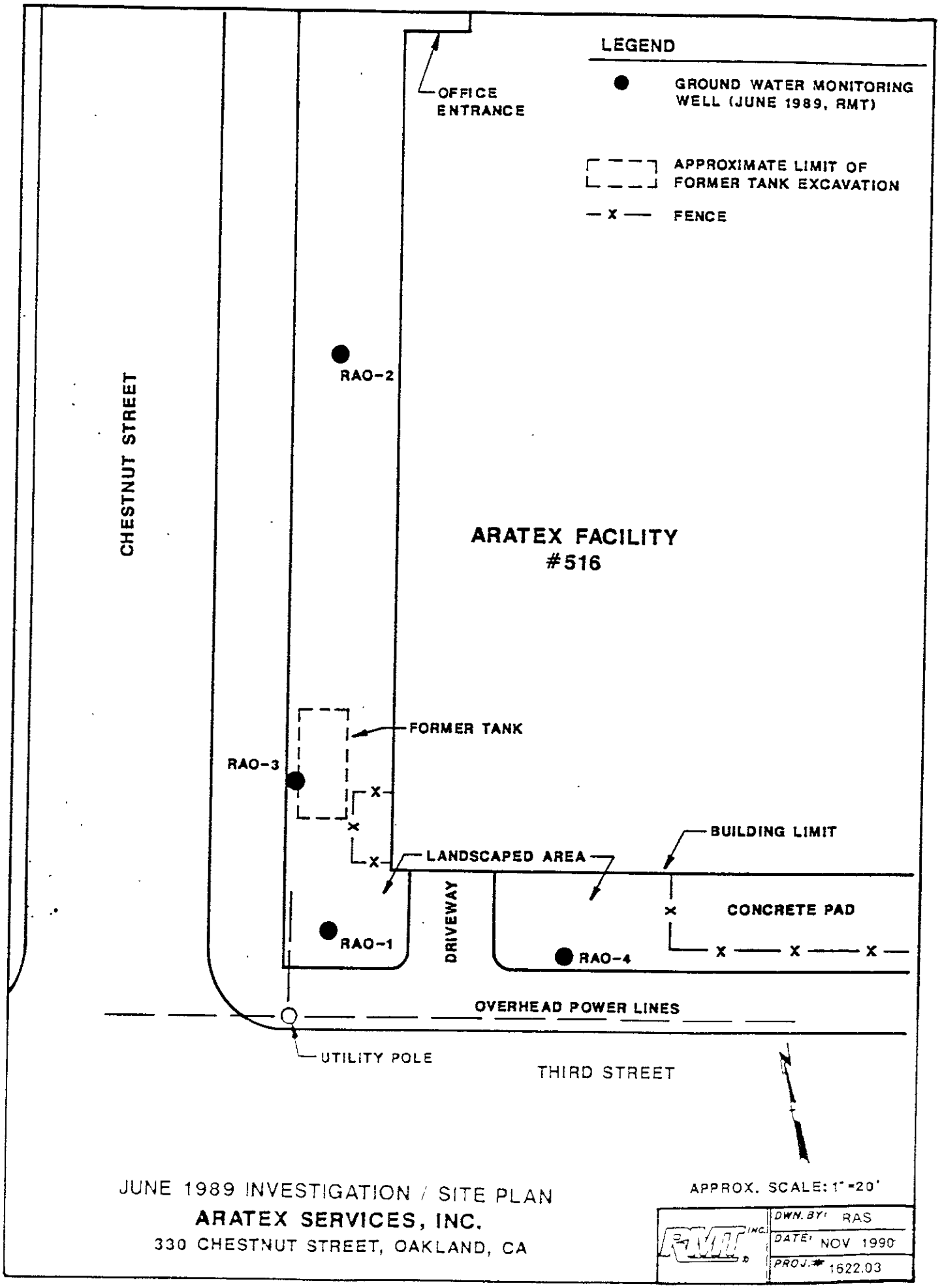
SOURCE: USGS OAKLAND WEST QUADRANGLE MAP, 7.5 MIN. SERIES.

NORTH

SCALE: 1"=2000'

RMT INC.	DWN BY: RAS
	DATE: NOV. 1990
	PROJ.#: 1622.03

FIGURE 1



JUNE 1989 INVESTIGATION / SITE PLAN

ARATEX SERVICES, INC.

330 CHESTNUT STREET, OAKLAND, CA

APPROX. SCALE: 1" = 20'

RMT INC.

DWN. BY: RAS

DATE: NOV 1990

PROJ.# 1622.03

FIGURE 2

TABLE 1

WELLS CONSTRUCTION SUMMARY[1]

June 1989 Post-Closure Investigation

	RAO-1	RAO-2	RAO-3	RAO-4
Top of Casing[2]	19.08	19.57	19.30	19.30
Depth To[3]:				
Top of Grout	~½	~½	~½	~½
Top of Bentonite	~3	~4	~3	~3
Top of Filter Pack	~5½	~5½	~4½	~5
Top of Screen	~7	~7	~6½	~7
Bottom of Screen	~25	~27	~24	~27
Bottom of Filter	~25	~27	~24	~27
Well Interval	5½-25	5½-27	4½-24	5-27

Notes:

1. See RMT report "Soil and Ground Water Investigation For: Aratex Services Facility #516 Located at 330 Chestnut Street, Oakland, California," dated August 1989, for detailed discussion of sampling and laboratory testing.

2. Top of casing elevations surveyed by RMT relative to arbitrary site datum.

3. All measurements noted in feet relative to ground surface; measurements are considered approximate.

TABLE 2

ANALYTICAL RESULTS OF SOIL SAMPLES[1]

Boring Number	Sample Depth (Feet)	Diesel Range[2] (mg/kg)	Aromatic Volatile Hydrocarbons[3] (μg/kg)				Oil[4] and Grease (mg/kg)
			Benzene	Toluene	Ethylbenzene	Xylenes	
RAO-1	5	ND	ND	ND	ND	ND	ND
RAO-1	10	ND	ND	ND	ND	ND	ND
RAO-1	20	ND	ND	ND	ND	ND	ND
RAO-2	5	ND	ND	ND	ND	ND	ND
RAO-2	10	ND	ND	ND	ND	ND	ND
RAO-2	15	ND	ND	ND	ND	ND	ND
RAO-2	20	ND	ND	ND	ND	ND	ND
RAO-3	8	22,529	ND	75	840	2,700	8,200
RAO-3	15	ND	ND	ND	ND	ND	ND
RAO-3	20	ND	ND	ND	ND	ND	ND
RAO-4	5	ND	ND	ND	ND	ND	ND
RAO-4	10	ND	ND	ND	ND	ND	ND

1. See RMT report "Soil and Ground Water Investigation For: Aratex Services Facility #516 Located at 330 Chestnut Street, Oakland, California," dated August 1989, for detailed discussion of sampling and laboratory testing. Sampled on June 9, 1989.

2. TPH-D - Total Petroleum Hydrocarbons as diesel by EPA Method 8015M (modified). Detection limits of 2 mg/kg.

   ND - Not detected at the limit of detection.

3. Aromatic Volatile Hydrocarbons (BTX&E) analyses by EPA Method 8020. Detection limits of 0.3 μg/kg.

4. Oil and grease analyses by EPA Method 503. Detection limits of 100 mg/kg.

TABLE 3

GROUND WATER ANALYSES RESULTS[1]

Compound	RAO-1	RAO-2	RAO-3	RAO-4	Detection Limit[4]
Fuel Range Analyses[2]:					
TPH-D (mg/l)	ND/ND	ND/ND	133/267	ND/ND	0.5
AVOC Analyses[3]:					
Benzene (μg/l)	ND/ND	ND/ND	3.4/1.9	ND/ND	0.2
Toluene (μg/l)	ND/ND	ND/ND	0.9/ND	ND/ND	0.2
Ethylbenzene (μg/l)	ND/ND	ND/ND	38/ND	ND/ND	0.2
Total Xylenes (μg/l)	ND/ND	ND/ND	86.0/143	ND/ND	<0.5

NOTES:

1. June 1989 sampling / March 1990 sampling by RMT, Inc.
2. TPH-D analyses by EPA Method 8015M and preparation method 3520.
3. AVOC analyses by EPA Method 602; total xylenes summation of meta- and o/p-xylenes.
4. Detection limits are for March 1990 sample analyses.

TABLE 4

WATER TABLE ELEVATIONS SUMMARY[1,2]

	RAO-1 TOC @ 19.08					RAO-2 TOC @ 19.57					RAO-4 TOC @ 19.30						RAO-4 TOC @ 19.30				
DATE:	6-09-89	6-16-89	3-07-90	3-23-90	3-24-90	6-09-89	6-16-89	3-07-90	3-23-90	3-24-90	6-09-89	6-16-89	9-13-89	3-07-90	3-23-90	3-24-90	6-09-89	6-09-89	3-07-90	3-23-90	3-24-90
TIME:				[~16:30]	[~09:30]				[~14:00]	[~ 09:20]					[~17:20]	[~09:10]				[~15:30]	[~09:40]
DEPTHS:																					
Product:	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	cf Note 3	cf Note 3	cf Note 4	8.20	8.07[6]	8.40	n.d.	n.d.	cf Note 7	n.d.	n.d.
Water:	8.05	8.17	8.24	8.39	8.42	7.78	8.17	9.19	8.32	8.35	8.03	8.18		cf Note 5	9.20[6]	8.46	8.31	8.47	cf Note 7	8.62	8.68
ELEVATION(S):																					
Product:	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*cf Note 4*	*cf Note 4*	-	11.1	11.23	10.90	*n.a.*	*n.a.*	*cf Note 7*	*n.a.*	*n.a*
Water:	11.03	10.91	10.84	10.69	10.66	11.79	11.4	10.38	11.25	11.22	11.27	11.14	-	cf Note 5	10.10	10.84	10.99	10.83	cf Note 7	10.68	10.62
PRODUCT (in):	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	sheen	sheen	7.0	cf Note 5	13.6[6]	0.7	n.a.	n.a.	cf Note 7	n.a.	n.a.

NOTES:

n.d. = not detected
n.a. = not applicable

1. Borings and wells by RMT, Inc. in June of 1989; reference "Soil and Ground Water Investigation For: Aratex Services; Facility #516," dated August 1989.
2. Top of casings (T.O.C.) surveyed by RMT in June of 1989; reference to an arbitrary site datum - not mean sea level.
3. No measurable quantity of free product although presence of sheet noted.
4. Top of product and depth to product water interface not noted.
5. Only able to distinguish depth to top of free product; equipment malfunction.
6. Top of free product clearly distinguished. However, depth to ground water not repeatable; the measurement noted is for maximum depth reading obtained with electronic interface probe and therefore represents maximum free product thickness at location RAO-3.
7. Well covered on this reading date.

- No detectable concentrations of petroleum-based organic compounds were noted for the vadose zone (above ground water) soil samples obtained from borings RAO-1, RAO-2, and RAO-4.

- No detectable concentrations of petroleum-based organic compounds were noted for the ground water samples obtained from monitoring wells RAO-1, RAO-2, and RAO-4.

- Diesel-range hydrocarbons (TPH-D) and one or more of the AVOCs benzene, toluene, total xylenes and ethylbenzene (BTX&E) were detected in both the [vadose zone] soil and ground water samples obtained from boring/well RAO-3.

- Although no free product was measured in any of the wells during the June 1989 ground water sampling, more than one-half foot of "diesel-like" product was measured in RAO-3 during the March 1990 ground water sampling and several subsequent measurements.

1.2 Local Geology

Geologically, the site is located in an area that is borderline to the Merrit Sand Unit and artificial fill. Historically, the near shore tidal flats have been reclaimed with dredged materials from the Bay. The Merrit Sand is characterized as a slightly coherent, normally consolidated, silty, fine-grained sand that is occasionally clayey with sandy clay lenses (D.H.Radbruch,1957). Radbruch characterizes the artificial fill "miscellaneous refuse, bay mud or sand dredged from the bay, and often times indistinguishable from natural bay mud or Merrit sand." Posey Unit, which is characterized as a firm sandy clay with occasional fine gravels that grades with depth to fine- to medium-grained sand, underlies Merrit Sand in this area.

Field observations to the depths explored are consistent with the published geologic descriptions for the area. Based on available U.S.G.S. maps (Nichols and Wright, 1971), Facility #516 is at the approximate boundary of the Merrit Sand and reclaimed area. However, except for instances where construction debris or some other foreign matter was observed, the geologic units were too similar to be distinguishable.

Regionally, the ground water gradient is toward the Bay with local ground water gradients influenced by topography, seasonal precipitation variations, surface drainage/recharge, and local stratigraphy conditions. Ground water in the area of the tidal flats is generally constant the year round. The elevation of the local water table is estimated to be several feet above the mean elevation for San Francisco Bay/Oakland Inner

Harbor, which is less than a half a mile south. Depth to ground water at the site [Table 4] is about 8 to 9 feet below ground surface.

1.3 Purpose And Scope

The two primary objectives of this investigation were: (1) define the areal extent of hydrocarbon-affected soils around RAO-3 and (2) identify a suitable remediation strategy. The approach of using closely-spaced, shallow borings is based on the findings from previously completed site investigations (RMT, August 1989 revised October 1989, and August 1990) and, most importantly, the interpretation that the source of observed free product is limited in areal extent.

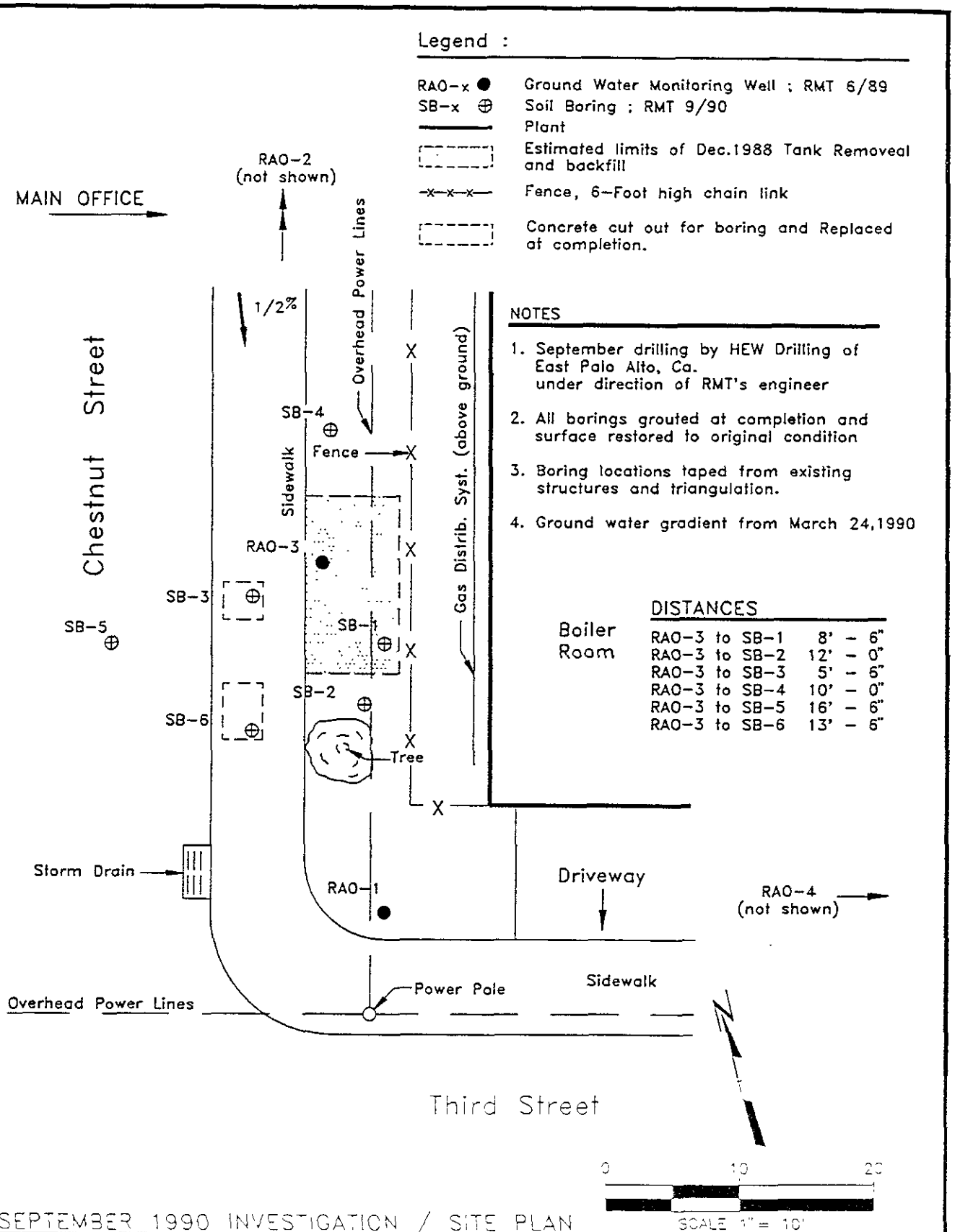
The maximum number of six locations were investigated as detailed in the AC-HCSA approved work plan (RMT; dated August 3, 1990). Samples were logged in the field by the engineer and screened for VOC emissions. Thirteen soil samples were analyzed for TPH-D and BTX&E. All six borings were backfilled with cement grout at completion.

2.0 FIELD INVESTIGATION

Field investigations, i.e. drilling and sampling, and pre-drilling coordination were performed under the direct supervision of RMT's engineer. Coordination included obtaining the necessary drilling permits [included with the drill logs] and underground public utility clearances for the work area. Underground utility clearance was coordinated through the northern office of Underground Services Alert (U.S.A.) and the facility manager prior to the start of drilling and on-site by the engineer just before the start of drilling. The Health and Safety Plan and Hazard Assessment prepared to guide RMT's site personnel during the execution of work are include in Appendix A. Drilling, sampling, field screening, decontamination, and waste containment are described below.

2.1 Drilling

Drilling and sampling was subcontracted to HEW Drilling of East Palo Alto, California; the work was performed on September 25, 1990. Investigation was by truck-mounted, CME 45B with 6-inch diameter, hollow stem augers; completed boring diameter was about 7.5 inches. Sampling was through the stem of the augers with a split barrel sampler. Boring locations based on field measurements are shown on Figure 3; also indicated on the figure are separation distances between the borings and RAO-3.



SEPTEMBER 1990 INVESTIGATION / SITE PLAN

ARATEX FACILITY # 516
330 Chestnut Street
Oakland, Ca.

RMT INC

DWN BY	PAS
DATE	DEC 07,1990
PROJ #	1622.03
FILE #	16220303

Figure 3

2.2 Sampling

Soil sampling started at a depth of five feet and was completed at a depth of 9.5 feet typically. Even though ground water is about 8.5 feet below ground surface, all sampling was performed in the dry. Sampling extended down to 11 feet at two locations [field VOC readings exceeded about 50 parts per million]. A modified California split spoon sampler with brass liners/sleeves was used to obtain representative samples. The sampler was either pushed with the drill rig's kelly or driven manually with a slide hammer; a standard SPT hammer could not be used because the drill rig mast could not be raised due to the proximity of overhead lines [see Figure 3]. The recovered samples were relatively "undisturbed" and suitable for soil classification, field screening, and laboratory hydrocarbons analyses.

The recovered samples were logged and inspected in the field by RMT's engineer. Soil classifications and field observations are summarized on the Log of Borings presented in Appendix B, which also includes the drilling and excavation permits. The logs include sample descriptions and recoveries, completion depths, general notes, and the field VOC screening results. Also included on the logs are observations made during sample inspection to assess if there was free product within the sample interstices. Inspection of the samples was completed by extruding soil from one of the brass sampling liners and then splitting the sample longitudinally to expose a fresh face.

Samples for laboratory analyses were prepared by first trimming off excess soil from the liner ends and then capping with aluminum foil and tightly fitting plastic end caps. The capped liners were sealed with several wraps of plastic tape. Laboratory samples were logged on to Chain of Custody forms and preserved on ice until they could be transported to the laboratory.

A total of nineteen soil samples were shipped on sampling day by courier to the laboratories of TMA/Norcal of Richmond, California, which had also performed the previous soil and ground water analyses. Thirteen of the samples were selected for petroleum hydrocarbon analysis; the other six were archived at TMA.

2.3 Field Screening

Representative lithologic samples were screened [in the field] for VOC emissions with a photoionization detector (PID). The PID was equipped with a 10 eV lamp and calibrated before the start of work to hexane gas. Maximum readings are recorded on the logs as parts per million of VOC per unit volume of air. PID/VOC readings are a qualitative indication of possible hydrocarbon contamination and are

used both as an aid in selecting soil samples for laboratory analysis and, as applicable, during subsequent interpretations of prevailing subsurface conditions.

Generally, the middle liner was used for field monitoring purposes. In no instance was the laboratory sample used for field VOC monitoring. The sample was prepared by first sealing the bottom of the liner as noted above, and then creating an approximately 1/2-inch to 1-inch deep cavity in the soils at the other end, covering with aluminum foil, securing the foil with tape, and allowing time for equilibration within the air cavity. At least 15 minutes and more typically 30 minutes was allowed for equilibration to occur in the sample headspace before taking readings. Samples were retained for soil classification purposes.

2.4 Decontamination

Preparation of the field machinery and sampling equipment for the subsurface investigation consisted of inspecting mechanized components for hydraulic fluid leaks or other malfunctions which could impact the investigation. Equipment which would be directly contacting the soils or ground water was steam cleaned before each use, i.e., augers, wrenches, and vice. Municipal supply water obtained from the plant was used for steam cleaning.

All soil sampling equipment contacting the soil was decontaminated to prevent sample cross contamination. The stainless steel split spoon samplers, including the cutting "shoe" and "sand baskets", and individual brass liners were decontaminated prior to each down hole trip, i.e. for each sampling interval. The decontamination procedure is detailed below.

1. An initial brushing and wash with tap water to remove particulate matter and any visible surficial films.
2. The equipment was then washed with a tri-sodium phosphate (TSP) and deionized water solution to remove any remaining particulate matter or residuals.
3. The TSP-washed equipment was then rinsed thoroughly with deionized water to remove TSP residuals.

The cleaned brass liners were placed in the sun on clean aluminum foil to air dry before use. The frequency at which the split spoon sampler was used only allowed for drip drying.

2.5 Waste Containment

Cuttings from drilling the six borings were collected in two, 55-gallon DOT-approved drums. Both drums were labeled with sampling date, sampler's name, drum's contents [soil], and soil's moisture content. These drums are secured in a controlled-access area of the site pending disposal. Water from decontaminating the drilling equipment was inadvertently washed down the nearby storm sewer (Figure 3) by driller's helper.

3.0 SUBSURFACE CONDITIONS

Subsurface conditions observed during this investigation supplement the findings of the June 1989 investigation (RMT, August 1989 revised October 1989). Collectively, these two studies provide what is believed to be a representative basis for the following subsurface descriptions. Excluding the imported fill, soils to 11-foot depth are predominantly medium to fine sands with varying percentages of silt and clay. As evidenced by the lack of free water accumulation within the borings during the investigation, the percentage of silt and clay fraction are significant enough to appreciably retard permeability; in situ hydraulic conductivity for the near-surface sands observed is estimated to be on the order of 1×10^{-5} cm/sec.

3.1 Stratigraphy

Subsurface conditions within 10 to 15 feet of the former tank were investigated by shallow drilling and sampling. Sampling was continuous from 5 feet below ground surface through completion at either 9.5 feet or 11 feet. Comparison of the logs developed from the sampling and cross referencing lithologic samples retained for evaluation purposes indicate, as would be expected, that stratigraphic conditions around the tank excavation are similar. It appears that SB-1 and SB-2 were within the limits of the former tank excavation; brick fragments were observed at location SB-2 down to 7-foot depth. Generally, the native near-surface soil is a silty fine sand layer extending from the surface down to at least ten feet. Color of the sand is in the brown chroma; at depths where hydrocarbons were detected or observed the color changes to olive green.

3.2 Hydrogeology

Ground water table measurements made during the June 1989 and March 1990 [Table 4] are comparable; depths to ground water during both periods were approximately 8½ feet below ground

surface. Based on a site datum [reference] elevation of 20 feet, ground water elevations vary from 11.25 feet at well RAO-2 to slightly less than 10.7 feet at wells RAO-1 and RAO-4. Ground water flow directions calculated from both measurement periods is southward at a gradient of about 0.5%. The ground water flow direction from the March 24, 1990 ground water measurements for wells RAO-1, RAO-2, and RAO-4 is included on Figure 3.

To date, floating free product has been detected in only well RAO-3. Historically, product thickness appears to increase slightly with time. Although a product sheen and odor was noted during the well's initial development and sampling (June 16, 1989), its thickness was too small to measure. Three months later (September 13, 1989) there was almost 0.6 feet of floating product in RAO-3. On March 23, 1990, free product thickness was estimated to be in excess of one foot. Although ground water did not accumulate in the September 1990 borings, free product was observed in the interstices of below ground water samples obtained from SB-1 and SB-2.

4.0 LABORATORY ANALYSES

Representative soils samples were analyzed by TMA/Norcal for hydrocarbon contamination in accordance with the approved work plan. At least two samples having the greatest field VOC reading from each boring were analyzed for diesel-range compounds total petroleum hydrocarbons (TPH-D) by EPA method 8015M and for aromatic volatile organic hydrocarbons (AVOC or BTX&E) by EPA method 8020. Samples for TPH-D analysis were prepared in accordance with EPA preparation Method 3520. TMA/Norcal is a California DOHS-certified laboratory for these analyses procedures. Analyses were completed within one week of sampling. Test sample selection procedures are described previously. Analyses are discussed below. The reported results are contained in Appendix C and summarized on Table 5, which also includes method detection limits and field VOC data for reference.

4.1 TPH-D Analyses

TPH testing was by EPA Test Method 8015M; analysis preparation for diesel range analyses was by EPA Method 3510. Detected concentrations range from 41,000 mg/kg for the 8.5-foot deep sample from SB-1 to "non detect" for samples from SB-5 and SB-6. At the four locations where TPH-D was detected the greatest concentrations appear to be at about the level of ground water. There does not appear to be any direct correlation of PID readings with the laboratory determined TPH-D concentrations. Figures 4a and 4b are interpretations of TPH-D concentrations within the soil at 7-foot and 9-foot depth. The map

TABLE 5

LABORATORY CHEMICAL ANALYSES RESULTS SUMMARY

MATRIX :

Soil [X]

Water [ ]

Boring / Sample / Depth

	METHOD LIMIT	SB-1 6.5 #3 7.0'-7.5'	SB-1 8.0 #2 8.5'-9.0'	SB-2 8.0 #3 9.0'-9.5'	SB-2 9.5 #2 0.0'-10.5	SB-3 6.5 #2 7.0'-7.5'	SB-3 8.0 #2 8.5 '-9.0	SB-4 6.5 #3 7.5'-8.0	SB-4 8.0 #3 9.0'-9.5'	SB-4 9.5 #3 0.5'-11.0	SB-5 6.5 #2 7.0'-7.5'	SB-5 8.0 #3 9.0'-9.5'	SB-6 6.5 #2 7.0'-7.5'	SB-6 8.0 #2 8.5'-9.0'
8015M														
Jet-fuel (TPH-J)	NA	-	-	-	-	-	-	-	-	-	-	-	-	-
Gasoline (TPH-G)	NA	-	-	-	-	-	-	-	-	-	-	-	-	-
Diesel (TPH-D)	1 mg/Kg	89	41,000	9,900	2,600	4,400	4,600	11	1,200	290	< 1	< 1	1.1	1.3
8020 (AVOC)														
Benzene 5	µg/Kg	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Toluene 5	µg/Kg	< 5	763	292	300	388	159	< 5	285	< 5	< 5	< 5	< 5	< 5
thylbenzene 5	µg/Kg	< 5	2,560	906	596	1,110	< 5	< 5	953	17	< 5	< 5	< 5	< 5
Xylenes (total) 5	µg/K	< 15	4,430	1,120	1,060	1,600	319	< 15	1,170	< 15	< 15	< 15	< 15	< 15
TOTAL	AVOCs	0	7,753	2,318	1,956	3,098	478	0	2,408	17	0	0	0	0
PID Rdngs (ppm)		9	18	> 1248	> 1248	671	392	58	1248	> 1248	n.d.	2	12	19

NOTES:

1. Samples obtained by HEW Drilling of East Menlo Park, Calif under the direction of RMT's engineer.
2. Laboratory analyses performed by TMA/Norcal of Richmond, California using the EPA methodology indicated.
3. PID readings obtained in the field using an OVA equiped with 10 eV lamp.
4. Results of previous soil and ground water analyses contained in RMT report dated Oct. 1989 and August 1990.

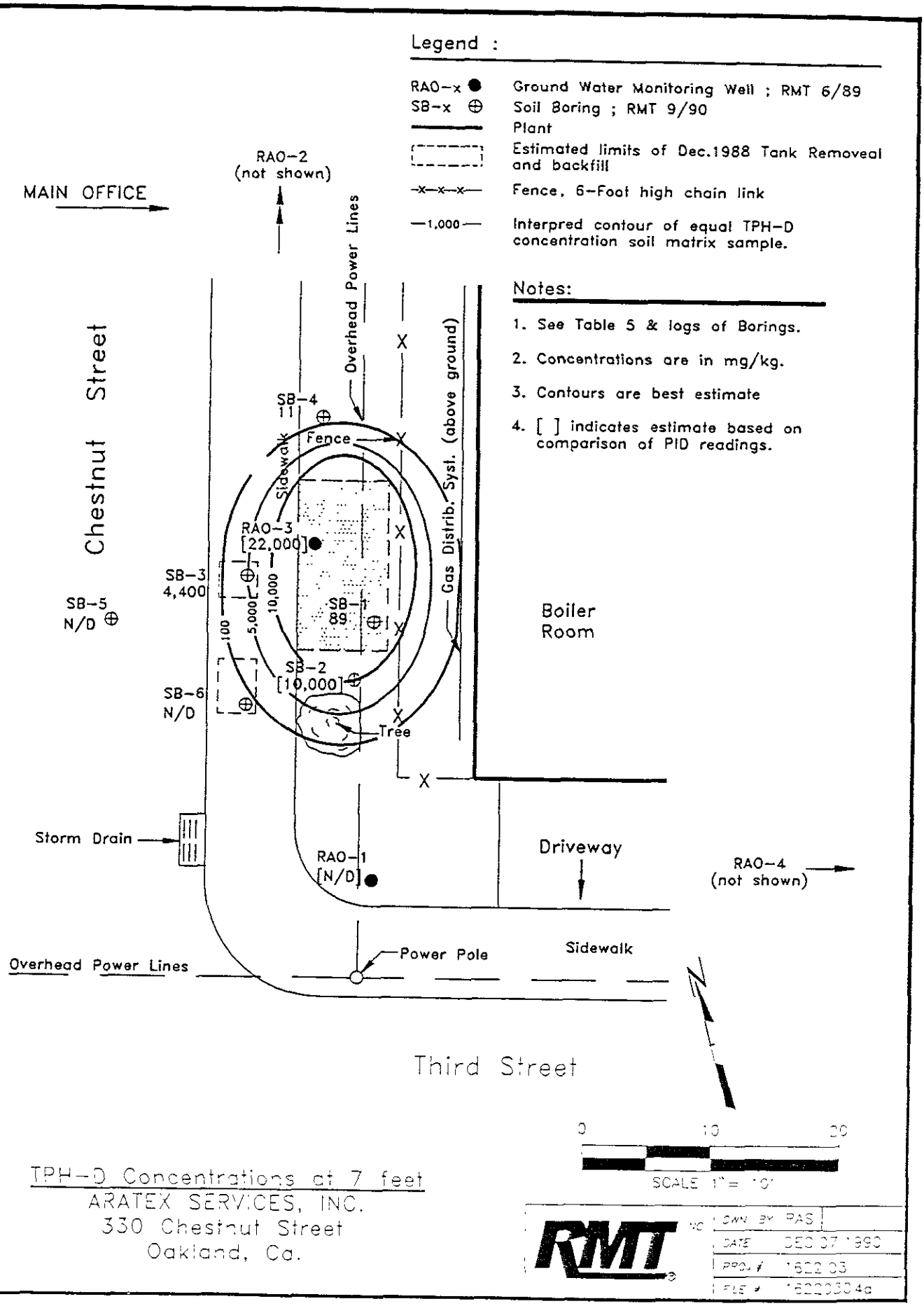
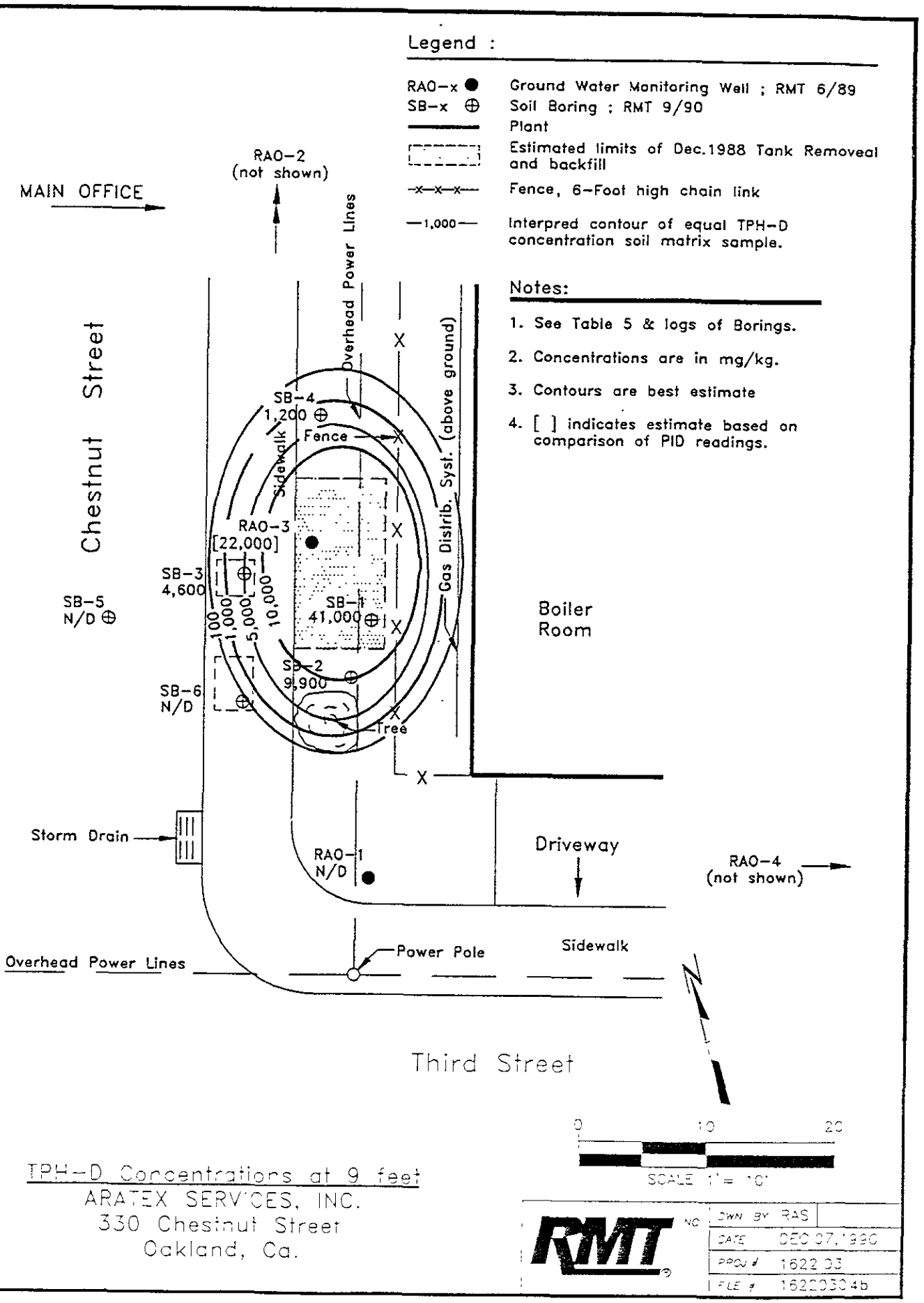

Legend :
RAO-x ● Ground Water Monitoring Well ; RMT 6/89
SB-x ⊕ Soil Boring ; RMT 9/90
Plant
Estimated limits of Dec.1988 Tank Removeal and backfill
-x-x-x- Fence, 6-Foot high chain link
—1,000— Interpred contour of equal TPH-D concentration soil matrix sample.
Notes:
1. See Table 5 & logs of Borings.
2. Concentrations are in mg/kg.
3. Contours are best estimate
4. [ ] indicates estimate based on comparison of PID readings.
RAO-2 (not shown)
MAIN OFFICE
Chestnut Street
Overhead Power Lines
Gas Distrib. Syst. (above ground)
SB-4 11
Fence
Sidewalk
RAO-3 [22,000]
SB-3 4,400
SB-5 N/D
SB-1 89
SB-2 [10,000]
SB-6 N/D
100
5,000
10,000
Tree
Boiler Room
Storm Drain
RAO-1 [N/D]
Driveway
RAO-4 (not shown)
Power Pole
Sidewalk
Overhead Power Lines
Third Street
0
10
20
SCALE 1" = 10'
TPH-D Concentrations at 7 feet
ARATEX SERVICES, INC.
330 Chestnut Street
Oakland, Ca.
RMT
DWN BY PAS
DATE DEC 07 1990
PROJ # 1622.03
FILE # 1622D03.4a

Figure 4a



TPH-D Concentrations at 9 feet
ARATEX SERVICES, INC.
330 Chestnut Street
Oakland, Ca.

DWN BY	RAS
DATE	DEC 07,'990
PROJ #	1622 03
FILE #	16220304b

Figure 4b

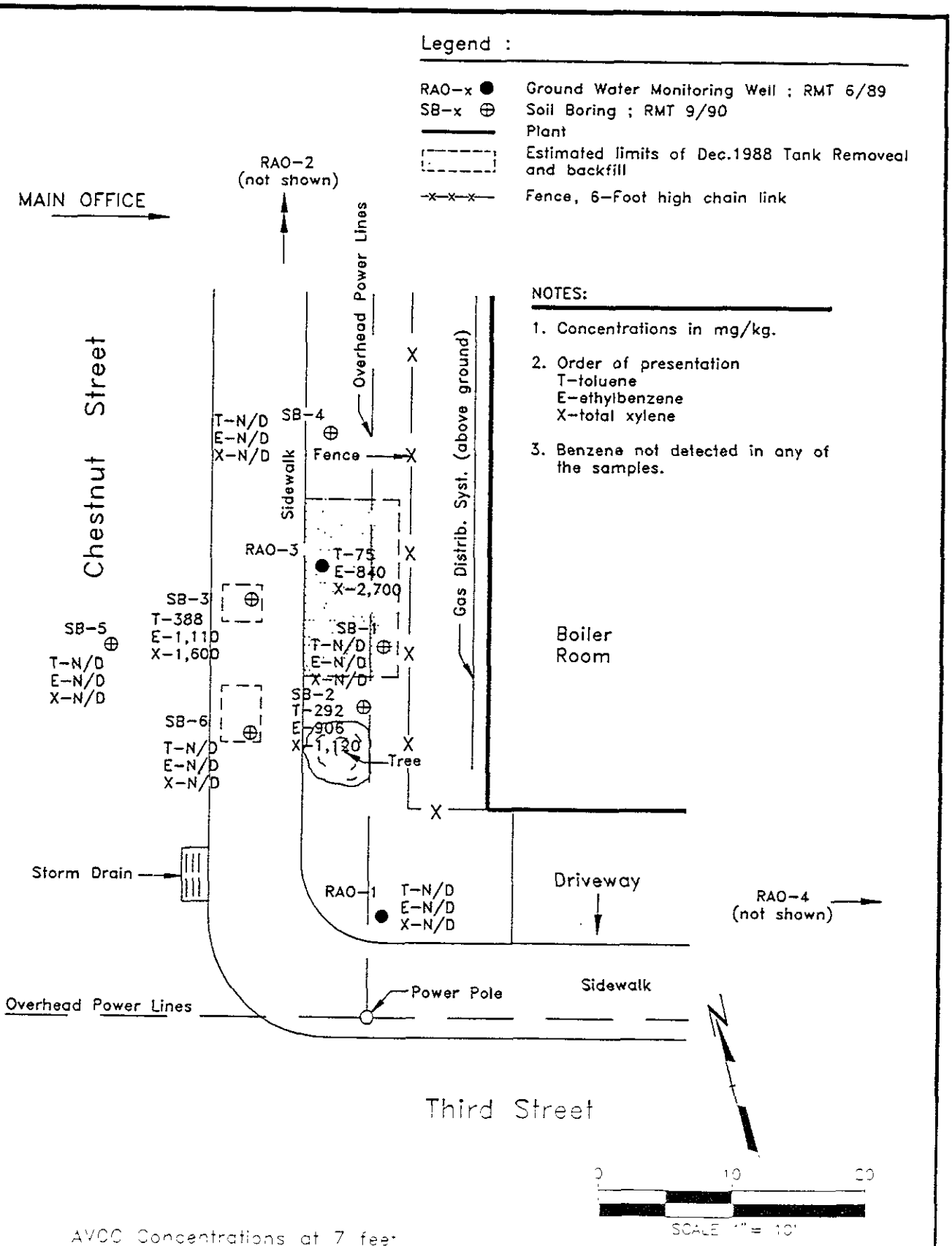
of concentrations is estimated from a combination of all data collected to date and is a best estimate. No evidence was observed to suggest that soils above 6-foot have been affected by diesel range compounds.

4.2 AVOC Analyses

The results of BTX&E analyses generally parallel findings for TPH-D except that benzene, chlorobenzene, or 1,2-, 1,3-, and 1,4-dichlorobenzenes were not detected in any of the 13 samples tested. Total AVOC concentration for samples from SB-1, -2, and -3 range from approximately 500 μg/Kg to 7,753 μg/Kg; no AVOCs were detected in the samples from SB-5 and SB-6; and at SB-4 TX&E concentrations totaled about 2,400 μg/Kg for the soil sample from 9 feet. There does not appear to be any direct correlation of PID readings with the laboratory determined BTX&E concentrations. Figures 5a and 5b are interpretations of TX&E concentrations within the soil at 7-foot and 9-foot depth. At intervals where testing was not performed concentrations are estimated from a combination of all data collected to date. No evidence was observed to suggest that soils above 6-foot have been affected by AVOCs.

5.0 FINDINGS AND CONCLUSIONS

Post-closure investigations of the area around the former location of facility #516's standby diesel fuel tank indicate that the area is affected by hydrocarbons. Monitoring of the four existing on-site ground water monitoring wells [most recently March 1990] indicate that hydrocarbon contamination is localized to [RAO-3] the area of the tank's former location; ground water samples from both downgradient wells, one of which is less than 25 feet away, were non-detect for petroleum hydrocarbons. The June 1989 investigation determined that the soils at RAO-3 were affected whereas at the other locations [RAO-1, RAO-2, and RAO-4] hydrocarbons were not detected in any of the six soil samples analyzed. The six [supplementary] borings completed for this study confirm hydrocarbon contamination of the near surface soils in the immediate area of the former standby tank location. Our interpretation of available data indicates that TPH-D and AVOC concentrations exceed state recommended maximums at radius of ten feet from the former tank's location; soil samples from SB-5 and SB-6, and RAO-1, which are from 13 feet to 25 feet distant from RAO-3, were not contaminated with petroleum hydrocarbons. The interpreted areal



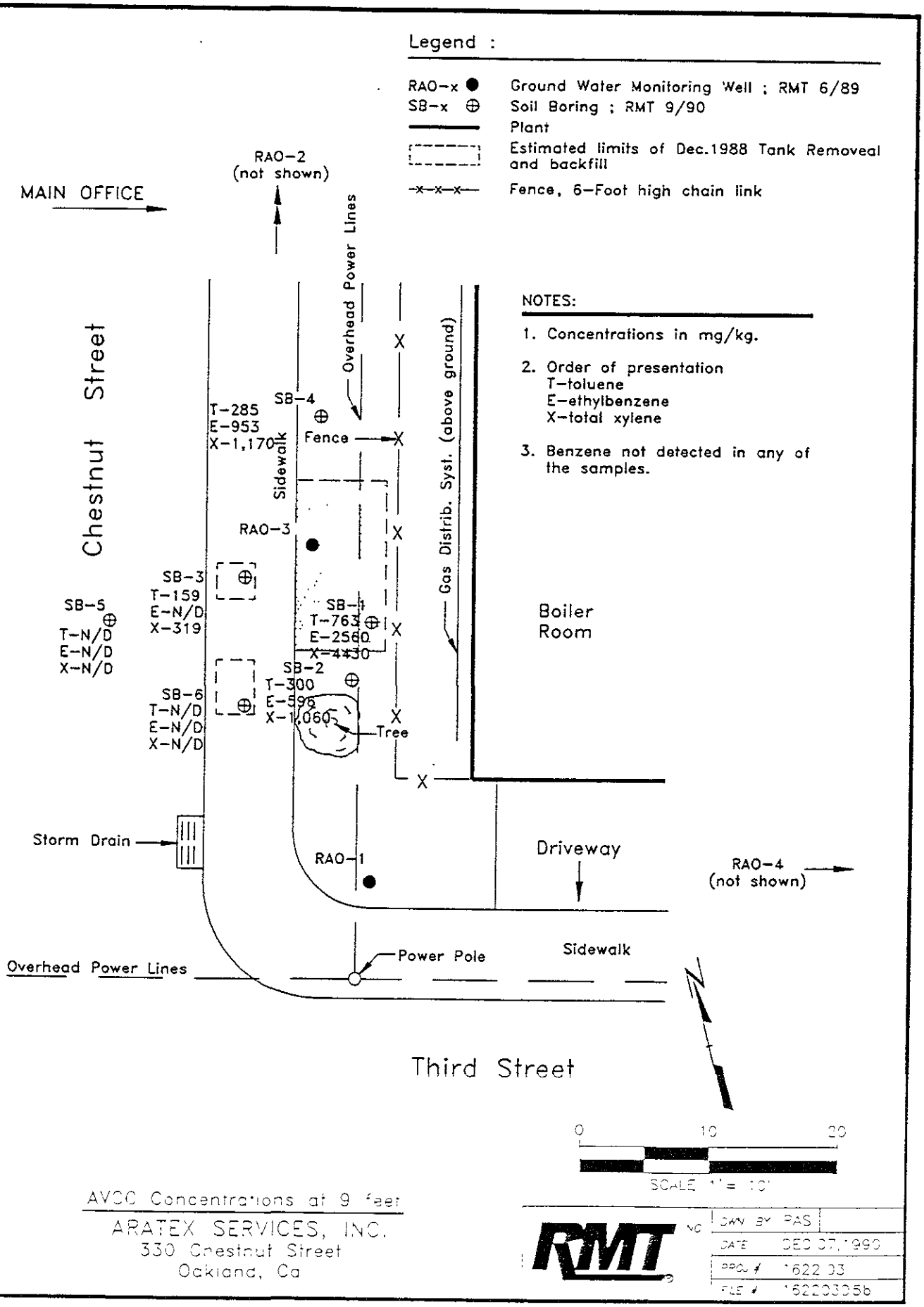
AVCC Concentrations at 7 feet

ARATEX SERVICES, INC.
330 Chestnut Street
Oakland, Ca.

RMT INC

DRN BY	PAS
DATE	DEC 07, 1990
PROJ #	1622.03
FILE #	16220005a

FIGURE 5a



AVCC Concentrations at 9 feet

ARATEX SERVICES, INC.
330 Chestnut Street
Oakland, Ca

RMT INC

DWN BY	PAS
DATE	DEC 07,1990
PROJ #	1622 03
FILE #	162203056

FIGURE 5b

and vertical extent of petroleum hydrocarbon contaminated zone is shown on Figure 6. Whereas the areal extent is based on more than 16 data points [soil analyses results] the vertical extent interpretation is limited and subject to significantly greater interpretation.

Remediation of the petroleum hydrocarbon affected soils is required. A feasibility analysis needs to be completed to determine cost effective remediation. Removal and replacement of affected soils is one quick and expedient solution; bioremediation is another; and soil washing with surfactants is another possibility. The next phase in the project will be development of cost estimates for these remediation strategies and resulting clean up levels.

6.0 REFERENCES

Bates, C. W.; July 1966; Survey of Property between 3rd and 5th Streets and Chestnuts and Linden Streets - 1 Sheet.

Hickenbottom, K. and Muir, K.; 1988; "Geohydrology and Ground Water Quality Overview of the East Bay Plain Area, Alameda County, California"; 205(j) Report, Alameda County Flood Control and Water Conservation District, 83 p.

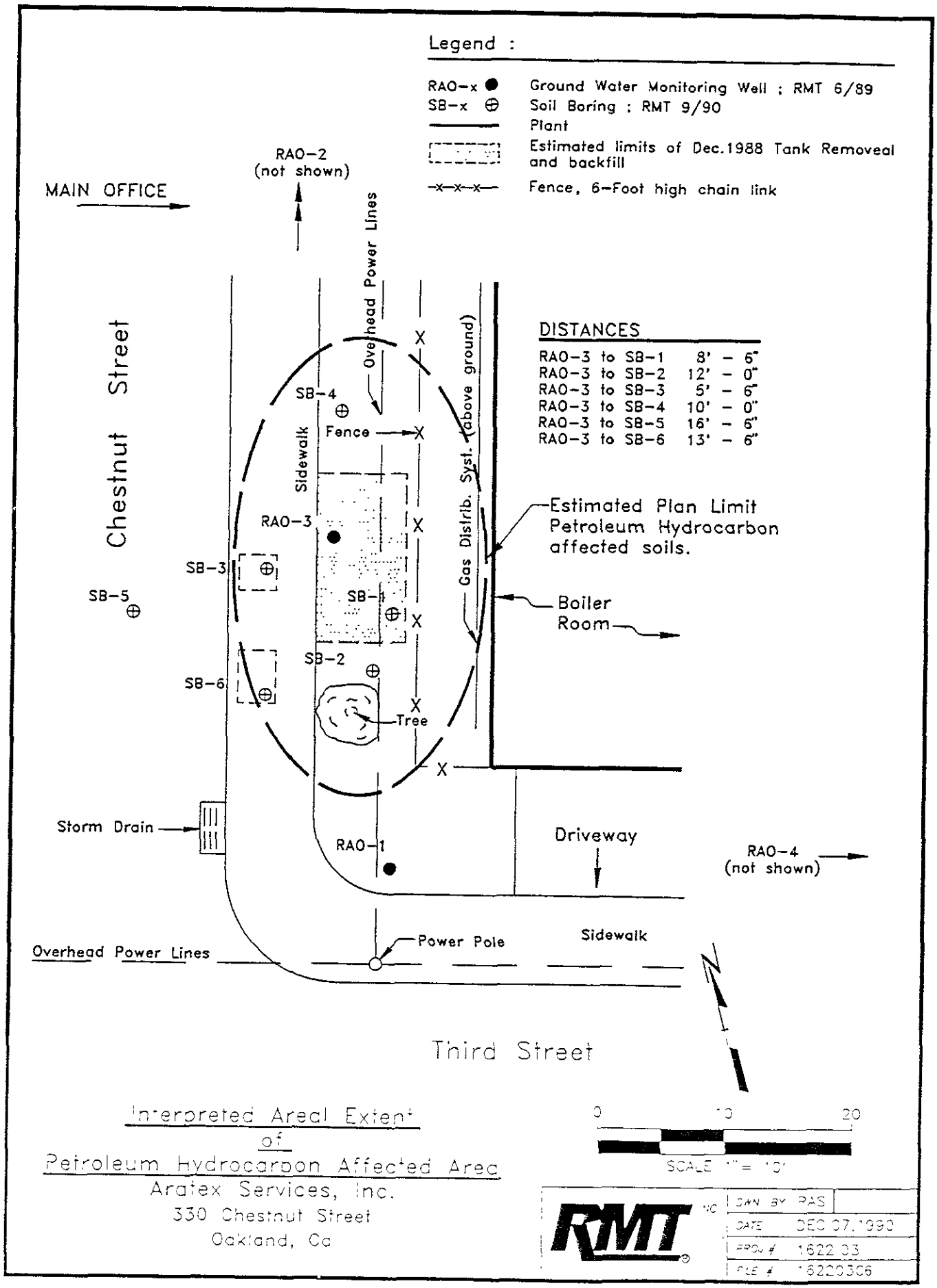
RMT, Inc.; August 1989; "Soil and Ground Water Investigation for: Aratex Services Facility #516 located at 330 Chestnut Street, Oakland, California" prepared for Aratex Services, Inc. of Schaumburg, Illinois; revised October, 1989.

RMT, Inc.; August 3, 1990; letter report to Ms. R.J. Whitsett: March 1990 ground water wells sampling and analyses.

SCS Engineers; July 31, 1987; Tank Testing Activities - Aratex, Oakland; Letter from Mr. Dean A. Richesin to Mr. Richard Huffman.

SCS Engineers, September 28, 1987; Tank No. 1 Retest [proposal] - Aratex, Oakland; Letter from K.A. Madenwald to Mr. Richard Huffman.

United States Geological Survey; 1980; Oakland West Quadrangle - California; 7.5 Minute Series topographic map, United States Department of the Interior.



Interpreted Areal Extent
of
Petroleum Hydrocarbon Affected Area
Aratex Services, Inc.
330 Chestnut Street
Oakland, Ca

DRAWN BY	PAS
DATE	DEC 07, 1990
PROJ #	1622.03
FILE #	16220306

Figure 6

APPENDIX A

[RMT's] HEALTH AND SAFETY PLANS

HAZARD ASSESSMENT

1. General Information

PROJECT: ARA-OAKLAND #516 PROJECT NUMBER: 1622.03

PROJECT MANAGER: Zoran Batchko

SITE LOCATION: 330 Chestnut Street, Oakland, California

PREPARED BY: Th. Van Biersel DATE: 8-30-90

APPROVED BY: (PM) (HSC) (CHSD)

DATE: 8-30-90

PROPOSED SCOPE OF WORK AND SPECIFIC TASKS: Drill six soil broing and collect soil sample for chemical analysis.

PROPOSED DATES OF ON-SITE WORK: September 10 to September 14, 1990

BACKGROUND REVIEW: Complete X Preliminary

DOCUMENTATION/SUMMARY OVERALL HAZARD: Serious Moderate
Low Unknown

2. Site Characterization

FACILITY DESCRIPTION: Industrial laundry

Status (active, inactive, unknown): Active

Operations (current and past): Industrial laundry

Unusual Features (utilities, terrain, etc.): overhead and underground utilities, work within the road right-of-way.

History (worker or non-worker injury, complaints from public, previous agency action): Former underground storage tank leakage.

Previous agency action.

3. Site Classification

SITE TYPE ALLOCATED _X_ 1 ___ 2 ___ 3

COMMENTS: Soil and groundwater contaminated with TPHD and BTXE. Free product over the groundwater.

4. Hazard Evaluation

SUBSTANCE* NAME	PHYSICAL STATE	KNOWN CONCENTRATION** LEVELS PRESENT	POTENTIAL ROUTES OF EXPOSURE	(PPM) OSHA PEL	(PPM) ACGIH [TLV]
TPH-D		22,529 mg/kg	skin/air	500	300
[1]Benzene		34 µg/l	skin/air	1	10
Toluene		75 µg/kg	skin/air	200	100
Ethybenzene		840 µg/kg	skin/air	100	100
Toral xylene		2700 µg/kg	skin/air	100	100

* Attach MSDS if available.
** Attach lab results or tables if available.

1. Known carcinogen

PHYSICAL SAFETY HAZARDS ON-SITE (i.e., heat or cold stress, confined spaces, explosion hazards, slippery ground, excavations, etc.) Underground utilities must be cleared. Driller should exercise extreme care due to overhead power lines. RMT use caution when near drill rig. Locate kill switch on rig. Note Chestnut Street traffic.

SITE HEALTH AND SAFETY PLAN

1. General Information

PROJECT: ARA-Oakland #516 PROJECT NUMBER: 1622.03

PROJECT MANAGER: Zoran Batchko

SITE LOCATION: 330 Chestnut Street, Oakland, California

PREPARED BY: Th. Van Biersel DATE: 8-30-90

APPROVED BY: _____ (PM) _____ (HSC) _____ (CHSD)

DATE: _____ _____ _____

Team Member	Responsibilities
Tom Davis	Health and Safety Representative
Zoran Batchko	Project Manager
Thomas Van Biersel	Sample Collection/(RMT) Site Health & Safety Representative

2. Training and Medical Surveillance

TRAINING LEVEL REQUIRED: ___ 1 _X_ 2 ___ 3

MEDICAL SURVEILLANCE LEVEL REQUIRED: _X_ 2 ___ 3

Special Medical Tests Required: None

EXCEPTIONS/MODIFICATIONS TO TRAINING OR MEDICAL SURVEILLANCE REQUIRED:

None

3. Personal Protection

Based on evaluation of potential hazards, the following levels of personal protection have been designated for the applicable work areas or tasks:

LOCATION	JOB FUNCTION	LEVEL OF PROTECTION			
Drilling Location	Drilling/Soil sampling	A	B	C	(D)
		A	B	C	D
		A	B	C	D
		A	B	C	D
		A	B	C	D
		A	B	C	D
		A	B	C	D
		A	B	C	D

SPECIFIC PROTECTION EQUIPMENT FOR EACH LEVEL ARE AS FOLLOWS:

Level A
SCBA or Air-Line Supplied Air Respirator
Fully-Encapsulated Suite Type:

Level C
Air-Purifying Respirator
Cartridge/Canister Type:
Full-Face/Half-Mask

Full face respirator with organic vapor cartridges. Rest same as level D.

Level B
Supplied Air Respirator

Level D

- Hardhat, Steel toe boots, & Safety glasses
- Inner vinyl gloves and outer rubber gloves
- Recommend ear protection when near sample hammer.

The following materials are required for protective equipment:

Protective Equipment	Material
Inner gloves	Vinyl
Outer glove	Rubber

CRITERIA FOR CHANGING PROTECTION LEVELS:

Change:		Approvals Required* HSR	HSC	CHSD
To Level C	when successive OVM Reading(s) in breathing space exceed 1 ppm.	X		
To Level	when			
To Level	when			
To Level	when			

Evacuate the area when OVM readings exceed 2,800 ppm [20% LEL for gasoline is 1.4 to 1.5% gasoline in air which is approx. 2,800 ppm].

Changes to the level of protection shall be made after the required approvals are obtained. All changes shall be recorded in the field log and reported to the HSC as soon as possible.

* HSR: On-Site Health & Safety Representative
HSC: Health & Safety Coordinator
CHSD: Corporate Health & Safety Director

4. Air Monitoring

The following monitoring instruments shall be used on-site to measure airborne contaminant concentrations in the breathing zone:

	Frequency of Monitoring
[ ] Combustible Gas Indicator	
[ ] O_2 Monitor	
[ ] Colorimetric Tubes (type)	
[ ] HNU	
[ ] OVA	
[X] Other (specify)	
OVM	Every sample internal and commencement
	of boring.

5. Site Control (Describe or attach sketch)

WORK ZONES:

Support Zone: Field vehicle (Note wind direction).

Contamination Reduction Zone: At least 40 feet from work area.

Exclusion Zone: Twenty five feet surrounding immediate work area.

SITE ENTRY PROCEDURES: Restrict work area during work. No unauthorized personnel.

DECONTAMINATION PROCEDURES:

Personnel: Soap and water, wash hands and arms after sampling. Rinse with clean water.

Equipment: Soap and water wash or steam clean and rinse all sampling equipment and other equipment in contact with drill cuttings or ground water

INVESTIGATION - DERIVED MATERIAL DISPOSAL: Drum (or securely contain) and label soil cuttings and steam clean water.

WORK LIMITATIONS (time of day, etc.): Daylight hours. Do not eat, drink, or smoke except in support zones. Do not drill within 20 feet of overhead lines or 10 feet of underground utilities.

6. Contingency Planning

LOCAL EMERGENCY RESOURCES:

	Phone Number
Ambulance	911
Hospital Emergency Room	911
Poison Control Center	911
Police	911
Fire Department	911
Airport	
EPA Contact	
Other Underground Service Alert	1-800-642-2444

SITE RESOURCES:

Water Supply On-site

Telephone On-site

Radio None

Other

EMERGENCY CONTACTS:

RMT Project Manager Zoran Batchko	(w) 213-452-5078 (h) 213-392-4675
RMT Health & Safety Coordinator Tom Davis	(w) 213-452-5078 (h) 213-392-1518
RMT Corporate Health and Safety Director Jeet Radia	(w) 614-793-0026 (h)
Client Contact Becky Whitsett	(708) 397-9500
Other Site - Bob Rash	(415) 835-9285

EMERGENCY ROUTES (Give direction or attach map):

Hospital To be determined prior to commencement of field activities.

Other

EMERGENCY PROCEDURES:

If an emergency develops at the site, the discoverer will take the following course of action:

- Notify the proper emergency services (fire, police, ambulance, etc.) for assistance.
- Notify other affected personnel at the site.
- Contact RMT and the client representative to inform them of the incident as soon as possible.
- Prepare a summary report of the incident for RMT and the client representative.

EMERGENCY EQUIPMENT REQUIRED ON-SITE:

[X] First Aid Kit	Plant	[X] Fire Extinguisher	driller
[ ] Eye Wash		[ ] Spill Control Media	
[ ] Show		[ ] Other	

APPENDIX B

LOGS OF BORINGS AND PERMITS

SB-1 THROUGH SB-6

RMT, Inc.
Unified Soil Classification System
F- 245 (2-81)

COARSE-GRAINED SOILS

(More than half of material is larger than No. 200 serve size.)

GRAVELS More than half of coarse fraction larger than No. 4 sieve size

Clean Gravels (Little or no fines)

GW	Well-graded gravels, gravel-sand mixtures, little or no fines
GP	Poorly graded gravels, gravel-sand mixtures, little or no fines

Gravels with Fines (Appreciable amount of fines)

GM^{d}_{u}	Silty gravels, gravel-sand-silt mixtures
GC	Clayey gravels, gravel-sand-clay mixtures

SANDS More than half of coarse fraction smaller than No. 4 sieve size

Clean Sands (Little or no fines)

SW	Well graded sands, gravelly sands, little or no fines
SP	Poorly graded sands, gravelly sands, little or no fines

Sands with Fines (Appreciable amount of fines)

SM^{d}_{u}	Silty sands, sand-silt mixtures
SC	Clayey sands, sand-clay mixtures

FINE-GRAINED SOILS

(More than half of material is smaller than No. 200 sieve.)

SILTS AND CLAYS Liquid limit less than 50%

ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity
CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
OL	Organic silts and organic silty clays of low plasticity

SILTS AND CLAYS Liquid limit greater than 50%

MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts
CH	Inorganic clays of high plasticity, fat clays
OH	Organic clays of medium to high plasticity, organic silts

HIGHLY ORGANIC SOILS

PT	Peat and other highly organic soils

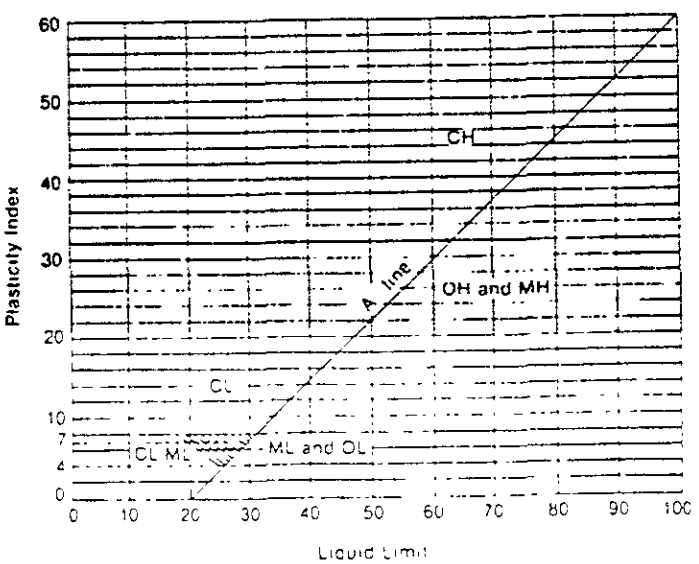
LABORATORY CLASSIFICATION CRITERIA

GW	$C_u = \frac{D_{60}}{D_{10}}$ greater than 4, $C_c = \frac{(D_{30})^2}{D_{10} \times D_{60}}$ between 1 and 3	
GP	Not meeting all gradation requirements for GW	
GM	Atterberg limits below "A" line or P.I. less than 4	Above "A" line with P.I. between 4 and 7 are borderline cases requiring use of dual symbols
GC	Atterberg limits above "A" line with P.I. greater than 7	
SW	$C_u = \frac{D_{60}}{D_{10}}$ greater than 6, $C_c = \frac{(D_{30})^2}{D_{10} \times D_{60}}$ between 1 and 3	
SP	Not meeting all gradation requirements for SW	
SM	Atterberg limits below "A" line or P.I. less than 4	Limits plotting in hatched zone with P.I. between 4 and 7 are borderline cases requiring use of dual symbols.
SC	Atterberg limits above "A" line with P.I. greater than 7	

Determine percentages of sand and gravel from grain-size curve. Depending on percentage of fines (fraction smaller than No. 200 sieve size), coarse-grained soils are classified as follows

Less than 5 per cent	GW, GP, SW, SP
More than 12 per cent	GM, GC, SM, SC
5 to 12 per cent	Borderline cases requiring dual symbols

PLASTICITY CHART



For classification of fine grained soils and fine fraction of coarse grained soils

Atterberg Limits plotting in hatched area are borderline classifications requiring use of dual symbols

Equation of A line PI = 0.73 (LL - 20)

RMT, INC.
Log of Test Boring - General Notes
F - 244 (2-81)

Descriptive Soil Classification

GRAIN SIZE TERMINOLOGY

Soil Fraction	Particle Size	U.S. Standard Sieve Size
Boulders	Larger than 12"	Larger than 12"
Cobbles	3" to 12"	3" to 12"
Gravel: Coarse	¾" to 3"	¾" to 3"
Fine	4.78 mm to ¾"	#4 to ¾"
Sand: Coarse	2.00 mm to 4.76 mm	#10 to #4
Medium	0.42 mm to 2.00 mm	#40 to #10
Fine	0.074 mm to 0.42 mm	#200 to #40
Silt	0.005 mm to 0.074 mm	Smaller than #200
Clay	Smaller than 0.005 mm	Smaller than #200

Plasticity characteristics differentiate between silt and clay.

GENERAL TERMINOLOGY

Physical Characteristics
Color, moisture, grain shape, fineness, etc.
Major Constituents
Clay, silt, sand, gravel
Structure
Laminated, varved, fibrous, stratified, cemented, fissured, etc.
Geologic Origin
Glacial, alluvial, eolian, residual, etc.

RELATIVE DENSITY

Term	"N" Value
Very Loose	0-4
Loose	4-10
Medium Dense	10-30
Dense	30-50
Very Dense	Over 50

RELATIVE PROPORTIONS OF COHESIONLESS SOILS

Proportional Term	Defining Range By Percentage of Weight
Trace	0%- 5%
Little	5%-12%
Some	12%-35%
And	35%-50%

CONSISTENCY

Term	q_u-tons/sq. ft.
Very Soft	0.0 to 0.25
Soft	0.25 to 0.50
Medium	0.50 to 1.0
Stiff	1.0 to 2.0
Very Stiff	2.0 to 4.0
Hard	Over 4.0

ORGANIC CONTENT BY COMBUSTION METHOD

Soil Description	Loss on Ignition
Non Organic	Less than 4%
Organic Silt/Clay	4-12%
Sedimentary Peat	12-50%
Fibrous and Woody Peat	More than 50%

PLASTICITY

Term	Plastic Index
None to Slight	0-4
Slight	5-7
Medium	8-22
High to Very High	Over 22

The penetration resistance, N, is the summation of the number of blows required to effect two successive 6" penetrations of the 2" split-barrel sampler. The sampler is driven with a 140 lb. weight falling 30" and is seated to a depth of 6" before commencing the standard penetration test.

Symbols

DRILLING AND SAMPLING

CS—Continuous Sampling
RC—Rock Coring: Size AW, BW, NW, 2" W
RQD—Rock Quality Designator
RB—Rock Bit
FT—Fish Tail
DC—Drove Casing
C—Casing: Size 2½", NW, 4", HW
CW—Clear Water
DM—Drilling Mud
HSA—Hollow Stem Auger
FA—Flight Auger
HA—Hand Auger
COA—Clean-Out Auger
SS—2" Diameter Split-Barrel Sample
2ST—2" Diameter Thin-Walled Tube Sample
3ST—3" Diameter Thin-Walled Tube Sample
PT—3" Diameter Piston Tube Sample
AS—Auger Sample
WS—Wash Sample
PTS—Peat Sample
PS—Pitcher Sample
NR—No Recovery
S—Sounding
PMT—Borehole Pressuremeter Test
VS—Vane Shear Test
WPT—Water Pressure Test

LABORATORY TESTS

q_p—Penetrometer Reading, tons/sq. ft.
q_u—Unconfined Strength, tons/sq. ft.
W—Moisture Content, %
LL—Liquid Limit, %
PL—Plastic Limit, %
SL—Shrinkage Limit, %
LI—Loss on Ignition, %
D—Dry Unit Weight, lbs./cu. ft.
pH—Measure of Soil Alkalinity or Acidity
FS—Free Swell, %

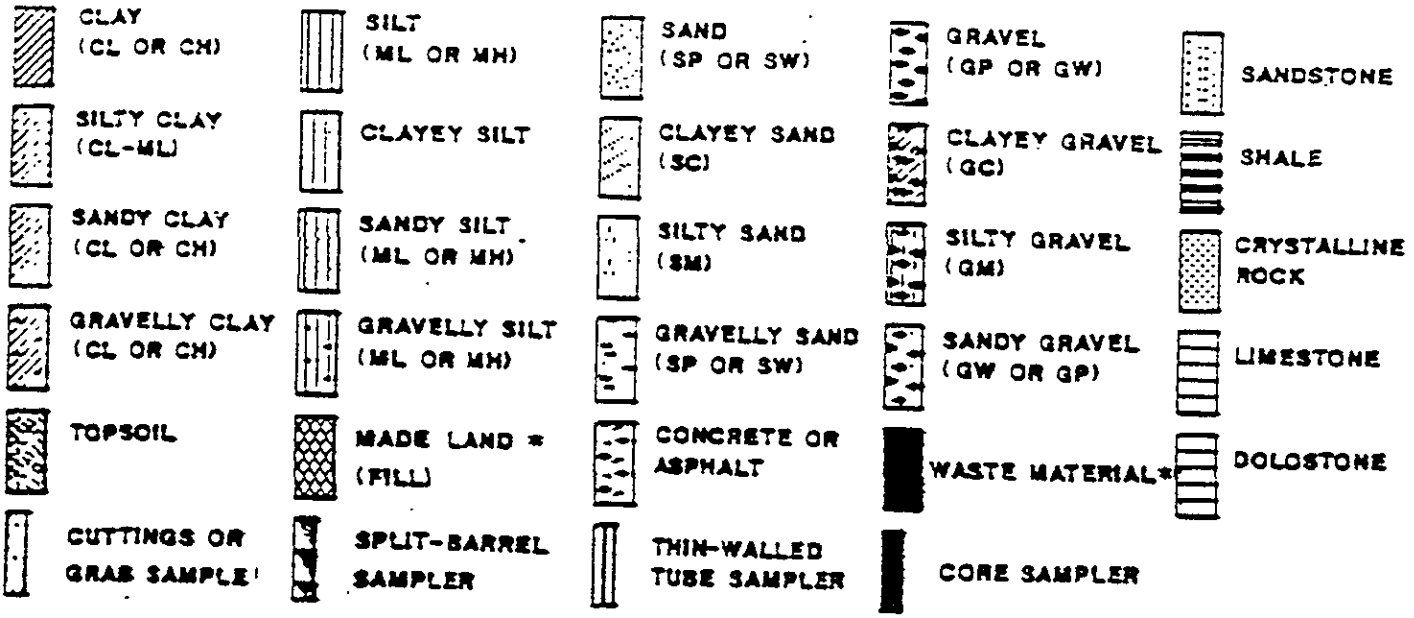
WATER LEVEL MEASUREMENT

▽—Water Level at time shown
NW—No Water Encountered
WD—While Drilling
BCR—Before Casing Removal
ACR—After Casing Removal
CW—Caved and Wet
CM—Caved and Moist

Note: Water level measurements shown on the boring logs represent conditions at the time indicated and may not reflect static levels, especially in cohesive soils.

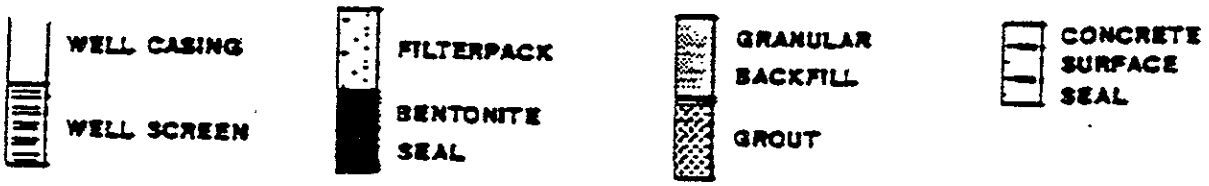
EXPLANATORY NOTES FOR BORING LOGS

LEGEND FOR GRAPHIC LOG:



* DETAILS INCLUDED UNDER VISUAL CLASSIFICATION AND GENERAL OBSERVATIONS.

LEGEND FOR WELL CONSTRUCTION:



** SEE RMT FORM F-17, MONITORING WELL DIAGRAM, FOR CONSTRUCTION DETAILS.

ABBREVIATIONS:

HSA - HOLLOW STEM AUGER
SSA - SOLID STEM AUGER
CR - CLEAR WATER ROTARY
MR - MUD ROTARY
AR - AIR ROTARY
DC - DRIVE CASING
SC - SPIN CASING
SS - 2" SPLIT-BARREL SAMPLER
SSS - 3" SPLIT-BARREL SAMPLER
ST - 2" THIN-WALLED TUBE SAMPLER
[illegible] - PISTON SAMPLER
[illegible] - AUGER CUTTINGS SAMPLE
RS - ROTARY CUTINGS SAMPLE

tr. - TRACE
lit. - LITTLE
f. - FINE
m. - MEDIUM
c. - COARSE
v. - VERY
Lt. - LIGHT
Dk. - DARK
Br. - BROWN
Gr. - GREY
Yl. - YELLOW
Gn. - GREEN

NOTES:

1. Borings drilled with 6-inch O.D. hollow stem auger; sampling with modified California split barrel sampler [2.5-inch ID].

2. Samples obtained by hydraulicly pushing, manual slide hammer, or combination of both.

3. Ground water not observed during drilling.

4. OVA Readings noted in Column "N"; in parts per million of air volume.

LOG OF TEST BORING

F-203 (R 01-87)

BORING NO. SB-1
SHEET NO. 1 OF 1

PROJECT NAME ARATEX #516 VZI-RI/FS
PROJECT NO. 1622.03
LOCATION Oakland, CA
INSTALLATION 09/25/90
CONTRACTOR HEW Drilling
SURFACE ELEV.
DRILLING METHOD HSA
BOREHOLE DIA. 7.5 IN.

SAMPLING NOTES						VISUAL CLASSIFICATION AND GENERAL OBSERVATIONS
INTERVAL		RECOVERY		MOISTURE		
NO.	TYPE	N (PPM)	IN		DEPTH	
						SAND, fine, brownish yellow, loose, dry, (SP), (Fill).
						Silty fine SAND, dark brown, loose, damp (SP-SM).
A	SS	13	12		5	-with occasional brownish yellow clayey SAND pockets at 5'.
B	SS	191	9			-moist below 6.5' with slight olive green discoloration, faint diesel odor.
C	SS	689	18			-below 7.5' wet with trace free water. -below 8' olive green with strong diesel like odor.
D	SS	1248+	18		10	[Note: 0 recovery on initial sampling with 18" recovery on resampling]
						End of Boring at 9.5 Ft. Sampling Completed to 11.0 Ft.
						Notes: 1. No water accumulation in boring. 2. Boring collapsed to 7-foot depth on auger removal.

GENERAL NOTES

DATE STARTED 25 SEP 90
DATE COMPLETED 25 SEP 90
RIG CME 45B
CREW CHIEF B. Douglas
LOGGED Z. Batchko CHECKED

WATER LEVEL OBSERVATIONS

WHILE DRILLING ▽
AT COMPLETION ▼
AFTER DRILLING
CAVE-IN: DATE/TIME DEPTH
WATER: DATE/TIME DEPTH

LOG OF TEST BORING

F-203 (R 01-87)

BORING NO. SB-2
SHEET NO. 1 OF 1

PROJECT NAME ARATEX #516 VZI-RI/FS
PROJECT NO. 1622.03
LOCATION Oakland, CA
INSTALLATION 09/25/90
CONTRACTOR HEW Drilling
SURFACE ELEV.
DRILLING METHOD HSA
BOREHOLE DIA. 7.5 IN.

SAMPLING NOTES						VISUAL CLASSIFICATION AND GENERAL OBSERVATIONS
INTERVAL		RECOVERY		MOISTURE		
NO.	TYPE	N (PPM)	IN		DEPTH	
						SAND, fine, reddish brown, some silt, loose, dry, with occasional brick fragments, (SP), (Fill).
						-moist below 2.5'.
A	SS		2		5	SAND, medium to fine, brownish yellow, loose, moist, with some silt, trace clay, (SP-SM).
						-brick obstructing sampler just above the shoe.
B	SS	36	10			-with several medium gravel-sized brick fragments.
C	SS	Over	18			Silty fine SAND, olive green, trace clay, medium, wet, trace free water and free product, strong diesel odor, (SP-SM).
D	SS	Over	18		10	-strong diesel odor. -lost bottom 6" on retrieval.
						End of Boring at 9.5 Ft. Sampling Completed to 11.0 Ft. Notes: 1. No water accumulation in boring during advancement. 2. "Over" indicates PID Readings exceed meters range. 3. Boring collapsed to 6.5-foot depth on auger removal.

GENERAL NOTES

DATE STARTED 25 SEP 90
DATE COMPLETED 25 SEP 90
RIG CME 45B
CREW CHIEF B. Douglas
LOGGED Z. Batchko CHECKED

WATER LEVEL OBSERVATIONS

WHILE DRILLING ▽
AT COMPLETION ▼
AFTER DRILLING
CAVE-IN: DATE/TIME DEPTH
WATER: DATE/TIME DEPTH

LOG OF TEST BORING

F-203 (R 01-87)

BORING NO. SB-3
SHEET NO. 1 OF 1

PROJECT NAME ARATEX #516 VZI-RI/FS
PROJECT NO. 1622.03
LOCATION Oakland, CA
INSTALLATION 09/25/90
CONTRACTOR HEW Drilling
SURFACE ELEV.
DRILLING METHOD HSA
BOREHOLE DIA. 7.5 IN.

SAMPLING NOTES						VISUAL CLASSIFICATION AND GENERAL OBSERVATIONS
INTERVAL		RECOVERY		MOISTURE		
NO.	TYPE	N	IN		DEPTH	
		(PPM)				4-inch thick concrete sidewalk.
						SAND, fine, dark brown to dark gray, some silt, trace coarse gravel, loose, dry, (SW-SP), (Base-Fill).
						Silty fine SAND, dark brown, trace clay, medium, moist, (SP-SM).
A	SS		0		5	-below 5' brown, dense, with some clay.
						-moist to wet below 6'.
B	SS	671	18			-below 7' wet with trace free water, trace free product, olive green, and diesel-like odor.
C	SS	392	18			-no free product evident below 8'.
						-with small reddish-brown, medium sand pockets below 8' with slight odor.
					10	End of Boring at 8 Ft. Sampling Completed to 9.5 Ft.

GENERAL NOTES

DATE STARTED 25 SEP 90
DATE COMPLETED 25 SEP 90
RIG CME 45B
CREW CHIEF B. Douglas
LOGGED Z. Batchko CHECKED ZB

WATER LEVEL OBSERVATIONS

WHILE DRILLING ▽
AT COMPLETION ▼
AFTER DRILLING
CAVE-IN: DATE/TIME DEPTH
WATER: DATE/TIME DEPTH

LOG OF TEST BORING

F-203 (R 01-87)

BORING NO. SB-4
SHEET NO. 1 OF 1

PROJECT NAME ARATEX #516 VZI-RI/FS
PROJECT NO. 1622.03
LOCATION Oakland, CA
INSTALLATION 09/25/90
CONTRACTOR HEW Drilling
SURFACE ELEV.
DRILLING METHOD HSA
BOREHOLE DIA. 7.5 IN.

SAMPLING NOTES					VISUAL CLASSIFICATION AND GENERAL OBSERVATIONS
INTERVAL NO.	TYPE	RECOVERY N (PPM)	IN	DEPTH	
					Topsoil.
					Silty SAND, fine, dark brown, medium, dry, (SP).
					-moist below 2'.
A	SS	33	15	5	
B	SS	58	18		Silty SAND, medium to fine, brownish-yellow, medium, with ferric nodules and trace green gray silty CLAY pockets, slight odor, (SP-SM).
C	SS	1248	18		Silty SAND, fine, dark brown, dense, wet, some clay, strong diesel-like odor, (SP-SM).
D	SS	Over	18	10	-with occasional medium sand pockets below 9.5', strong odor.
					End of Boring at 9.5 Ft. Sampling Completed to 11.0 Ft.

GENERAL NOTES

DATE STARTED 25 SEP 90
DATE COMPLETED 25 SEP 90
RIG CME 45B
CREW CHIEF B. Douglas
LOGGED Z. Batchko CHECKED

WATER LEVEL OBSERVATIONS

WHILE DRILLING ▽
AT COMPLETION ▼
AFTER DRILLING
CAVE-IN: DATE/TIME DEPTH
WATER: DATE/TIME DEPTH

LOG OF TEST BORING

F-203 (R 01-87)

BORING NO. SB-5
SHEET NO. 1 OF 1
PROJECT NAME ARATEX #516 VZI-RI/FS
PROJECT NO. 1622.03
LOCATION Oakland, CA
INSTALLATION 09/25/90
CONTRACTOR HEW Drilling
SURFACE ELEV.
DRILLING METHOD HSA
BOREHOLE DIA. 7.5 IN.

SAMPLING NOTES						VISUAL CLASSIFICATION AND GENERAL OBSERVATIONS
INTERVAL		RECOVERY		MOISTURE		
NO.	TYPE	N (PPM)	IN		DEPTH	
						6-inch thick a/c pavement.
						SAND, fine, dark brown to olive gray, sme silt, trace coarse gravel, medium, dry, (SW), (Base-Fill).
						SAND, fine, dark brown to brownish yellow, some silt, trace clay, medium, moist. (SP-SM)
						-with occasional fine roots to 5.5'.
A	SS	1	18		5	-grading to medium and fine sand with depth.
						-wet below 5.5'
B	SS	n/d	18			-trace free water below 6'.
C	SS	2	18			
					10	End of Boring at 8 Ft. Sampling Completed to 9.5 Ft.

GENERAL NOTES

DATE STARTED 25 SEP 90
DATE COMPLETED 25 SEP 90
RIG CME 45B
CREW CHIEF B. Douglas
LOGGED Z. Batchko CHECKED ZB

WATER LEVEL OBSERVATIONS

WHILE DRILLING ▽
AT COMPLETION ▼
AFTER DRILLING
CAVE-IN: DATE/TIME DEPTH
WATER: DATE/TIME DEPTH

LOG OF TEST BORING

F-203 (R 01-87)

BORING NO. SB-6
SHEET NO. 1 OF 1

PROJECT NAME ARATEX #516 VZI-RI/FS
PROJECT NO. 1622.03
LOCATION Oakland, CA
INSTALLATION 09/25/90
CONTRACTOR HEW Drilling
SURFACE ELEV.
DRILLING METHOD HSA
BOREHOLE DIA. 7.5 IN.

SAMPLING NOTES						VISUAL CLASSIFICATION AND GENERAL OBSERVATIONS
INTERVAL		RECOVERY		MOISTURE		
NO.	TYPE	N (PPM)	IN		DEPTH	
						4-inch thick concrete sidewalk.
						SAND, dark brown-olive gray, some silt, trace coarse gravel, medium, dry, (SW), (Base-Fill).
						SAND, fine, brownish yellow, some silt, moist, (SP-SM).
A	SS	36	18		5	-grading slightly coarser with depth.
B	SS	12	18			-trace free water below 6.5' and medium to fine SAND.
C	SS	19	18			
					10	End of Boring at 8.0 Ft. Sampling Completed to 9.5 Ft.

GENERAL NOTES

DATE STARTED 25 SEP 90
DATE COMPLETED 25 SEP 90
RIG CME 45B
CREW CHIEF B. Douglas
LOGGED Z. Batchko CHECKED

WATER LEVEL OBSERVATIONS

WHILE DRILLING ▽
AT COMPLETION ▼
AFTER DRILLING
CAVE-IN: DATE/TIME DEPTH
WATER: DATE/TIME DEPTH

RMT INC.

West Coast Office
Suite 370
3250 Ocean Park Blvd.
Santa Monica, CA 90405
Phone: 213-452-5078
FAX: 213-450-5787

August 31, 1990

Mr. J. Killingstad
Chief Water Resources Engineer
ALAMEDA COUNTY FLOOD CONTROL AND
WATER CONSERVATION DISTRICT, ZONE 7
5997 Parkside Drive
Pleasanton, California 94566

RMT contacted your office on August 29th to amend the attached Ground Water Protection Ordinance Permit Application (#90520).

In confirmation of this communication, RMT will be using HEW Drilling Company, Inc., of Palo Alto (License #384167) to perform the proposed geotechnical project. The work is currently scheduled for September 12, 1990.

Thank you for your attention to this matter.

Sincerely,

Zoran Batchko, P.E.
Project Engineer

/ncw

attachment

1622.03:DrillWrk.ltr:RMTcmn

ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

5997 PARKSIDE DRIVE ♦ PLEASANTON, CALIFORNIA 94566 ♦ (415) 484-2600

GROUNDWATER PROTECTION ORDINANCE PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

LOCATION OF PROJECT Aratex Facility #516
330 Chestnut St., Oakland CA
(Corner of Chestnut and third St.)

CLIENT Rebecca Whitsett
Name Aratex Services, Inc.
Address 1834 Walden Office Phone 708-397-9500
City Schaumburg, IL Zip 60173

APPLICANT
Name Zoran Batchko, PE
RMT, Inc.
Address 3250 Ocean Park Blvd Phone (213) 452-5078
City Santa Monica, CA Zip 90405

DESCRIPTION OF PROJECT
Water Well Construction ___ Geotechnical Investigation
Cathodic Protection ___ General ___
Well Destruction ___ Contamination X

PROPOSED WATER WELL USE
Domestic ___ Industrial ___ Irrigation ___
Municipal ___ Monitoring ___ Other ___

PROPOSED CONSTRUCTION
Drilling Method:
Mud Rotary ___ Air Rotary ___ Auger ___
Cable ___ Other Hand Auger

DRILLER'S LICENSE NO. 384167
HEW DRILLING

ALL PROJECTS
Drill Hole Diameter ___ in. Maximum
Casing Diameter ___ in. Depth ___ ft.
Surface Seal Depth ___ ft. Number ___

GEOTECHNICAL PROJECTS
Number of Borings 6
Hole Diameter ~~X~~ in. 6½" Maximum Depth 10 ft.

ESTIMATED STARTING DATE 9-4-90
ESTIMATED COMPLETION DATE 9-28-90

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

APPLICANT'S SIGNATURE [signature] Date 8/22/90
for Aratex Services, Inc.
Becky Whitsett

FOR OFFICE USE

PERMIT NUMBER 90520
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, irrigation, and monitoring wells unless a lesser depth is specially approved.

(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 [signature] Date 27 Aug 90
Todd N. Wendler

21989

LOG OF TEST BORING

F-203 (R 01-87)

BORING NO. RA01
SHEET NO. 1 OF 1
PROJECT NO. 1622.01
INSTALLATION 6/7/89
SURFACE ELEV.
BOREHOLE DIA. 8 IN.

PROJECT NAME ARATEX - OAKLAND
LOCATION 3RD&CHESTNUT ST.OAKLAND,CA
CONTRACTOR ANDERSON GEOTECH.
DRILLING METHOD HSA

SAMPLING NOTES

INTERVAL NO.	TYPE	RECOVERY N	RECOVERY IN	MOISTURE DEPTH	VISUAL CLASSIFICATION AND GENERAL OBSERVATIONS	GENERAL WELL CONSTRUCT.
					Fill material, (peat), organic, loose, dark brown.	
				5	Very fine to fine SAND, moderate brown, moist.	
5	SS	49	11			
					Medium Clayey SAND, moderate yellowish brown, trace organics, moist.	
				10		
10	SS	48	12		Medium SAND, dark-yellowish brown.	
				15		
					CLAY.	
					Medium Clayey SAND, dark-yellowish brown, trace organics, soft.	
				20		
20	SS	95	12			
				25	EOB at about 25.0 ft.	
				30		
				35		

GENERAL NOTES

DATE STARTED 7 JUN 89
DATE COMPLETED 7 JUN 89
RIG MOBILE B-34
CREW CHIEF SWARTOUT
LOGGED LYVERSE CHECKED

WATER LEVEL OBSERVATIONS

WHILE DRILLING ▽ 9.0 FT.
AT COMPLETION ▽ 8.1 FT.
AFTER DRILLING
CAVE-IN: DATE/TIME DEPTH
WATER: DATE/TIME 6/8/89@07:45 DEPTH 7.90 FT.

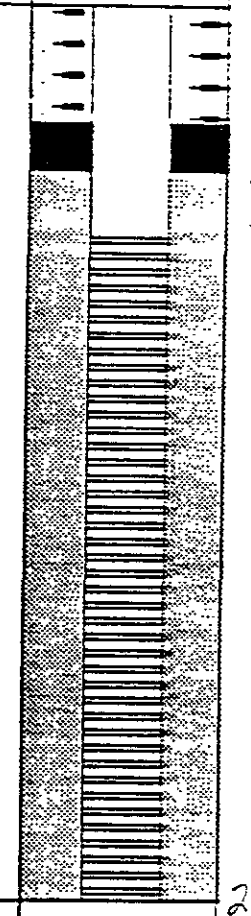
LOG OF TEST BORING

F-203 (R 01-87)

BORING NO. RA02
SHEET NO. 1 OF 1
PROJECT NO. 1622.01
INSTALLATION 6/8/89
SURFACE ELEV.
BOREHOLE DIA. 8 IN.

PROJECT NAME ARATEX - OAKLAND
LOCATION 3RD&CHESTNUT ST.OAKLAND,CA
CONTRACTOR ANDERSON GEOTECH.
DRILLING METHOD HSA

SAMPLING NOTES INTERVAL NO.	TYPE	RECOVERY/MOISTURE N	IN	DEPTH	VISUAL CLASSIFICATION AND GENERAL OBSERVATIONS	GENERAL WELL CONSTRUCT.
				0	Organic (peat) FILL material, dusky brown.	
5	SS	57	12	5	Fine to medium SAND, moderate yellowish brown, some fine gravel (5mm).	
10	SS	58	12	10	Same as above, but with some clay. Clayey SAND, moderate brown, some iron stain.	
15	SS	36	12	15		
20	SS	100	10	20	Above grades to CLAY and SAND, grayish, stiff.	
				25	Same as above.	
				27	EOB at 27 ft.	
				30		
				35		



GENERAL NOTES

DATE STARTED 7 JUN 89
DATE COMPLETED 7 JUN 89
RIG MOBILE B-34
CREW CHIEF SWARTOUT
LOGGED LYVERSE CHECKED

WATER LEVEL OBSERVATIONS

WHILE DRILLING ▽ 9.0 FT.
AT COMPLETION ▽ 8.1 FT.
AFTER DRILLING
CAVE-IN: DATE/TIME DEPTH
WATER: DATE/TIME 6/8/89 07:45 DEPTH 8.00 FT.

LOG OF TEST BORING

F-203 (R 01-87)

RMT

BORING NO. RA03
SHEET NO. 1 OF 1
PROJECT NO. 1622.01
INSTALLATION 6/8/89
SURFACE ELEV.
BOREHOLE DIA. 8 IN.

PROJECT NAME ARATEX - OAKLAND
LOCATION 3RD&CHESTNUT ST.OAKLAND,CA
CONTRACTOR ANDERSON GEOTECH.
DRILLING METHOD HSA

SAMPLING NOTES					VISUAL CLASSIFICATION AND GENERAL OBSERVATIONS	GENERAL WELL CONSTRUCT.
INTERVAL NO.	TYPE	RECOVERY N	IN	MOISTURE DEPTH		
				0	FILL material (tank pit). Medium to coarse SAND, brownish to black, little gravel.	
				5		
8	SS	67	10		Estimated bottom of tank pit (change in auger rotation).	
				10	Clayey SAND, gray, hydrocarbon odor and staining.	
15	SS	35	8	15	Same as above, but pale yellowish brown, less clay than above.	
20	SS	42	5	20	Medium Clayey SAND, dark yellowish brown, some organic streaks, soft.	
				25	Boring terminiated at 24.0 ft.	
				30		
				35		

GENERAL NOTES

DATE STARTED 8 JUN 89
DATE COMPLETED 8 JUN 89
RIG MOBILE B-34
CREW CHIEF SWARTOUT
LOGGED LYVERSE CHECKED

WATER LEVEL OBSERVATIONS

WHILE DRILLING ▽ 10.0 FT.
AT COMPLETION ▽
AFTER DRILLING
CAVE-IN: DATE/TIME DEPTH
WATER: DATE/TIME 6/8/89 12:20 DEPTH 8.35 FT.

LOG OF TEST BORING

F-203 (R 01-87)

BORING NO. RA04
SHEET NO. 1 OF 1
PROJECT NO. 1622.01
INSTALLATION 6/8/89
SURFACE ELEV.
BOREHOLE DIA. 8 IN.

PROJECT NAME ARATEX - OAKLAND
LOCATION 3RD&CHESTNUT ST.OAKLAND.CA
CONTRACTOR ANDERSON GEOTECH.
DRILLING METHOD HSA

SAMPLING NOTES INTERVAL NO.	TYPE	RECOVERY/MOISTURE N	IN	DEPTH	VISUAL CLASSIFICATION AND GENERAL OBSERVATIONS	GENERAL WELL CONSTRUCT.
				0	FILL material, peat, loose, dark brown.	
5	SS	74	10	5	Very fine to fine SAND, moderate brown.	
10	SS	37	8	10 ▽	Medium SAND, moderate yellowish brown, some clay. CLAY, stiff, moist.	
				15	Medium SAND, dark yellowish brown.	
				20		
				25		
				27	EOB at 27 ft.	
				30		
				35		

GENERAL NOTES

DATE STARTED 8 JUN 89
DATE COMPLETED 8 JUN 89
RIG MOBILE B-34
CREW CHIEF SWARTOUT
LOGGED LYVERSE CHECKED

WATER LEVEL OBSERVATIONS

WHILE DRILLING ▽ 10.0 FT.
AT COMPLETION ▽
AFTER DRILLING
CAVE-IN: DATE/TIME DEPTH
WATER: DATE/TIME 6/8/89 15:20 DEPTH 8.36 FT.

APPENDIX C

LABORATORY CHEMICAL ANALYSES RESULTS - SOIL MATRIX

EPA Methods 8015M and 8020

TMA
Thermo Analytical Inc.

TMA/Norcal
2030 Wright Avenue
P.O. Box 4040
Richmond, CA 94804-0040
(415) 235-2633 Fax No. (415) 235-0438

October 10, 1990

RMT
3250 Ocean Park Blvd.
Suite 370
Santa Monica, CA 90405

Attention: Mr. Zoran Batchko

TMA/Norcal Work Order: NO-09-292
Reference: 1622.03

Dear Mr. Batchko:

Enclosed are the results for thirteen of nineteen samples received on September 25, 1990. Six samples have been archived. The cost for archiving samples is $20 per sample per month.

A copy of the Chain-of-Custody Form is enclosed. If you have any questions please give me a call at (415) 235-2633, extension 254.

Sincerely yours,

Robert A. Fox
Program Manager/Chemist

Attachments: BTXE by EPA 8020 (13 pages)
TPH - Diesel by Modified 8015 (1 page)
Chain-of-Custody (2 pages)

EPA METHOD 8020
TARGET ANALYTE RESULTS

Client: RMT, INC.
Client Sample ID: SB-1 6.5 #3
TMA/Norcal SAMPLE ID: NO-09-292-1

Date Received: 09/25/90
Date Analyzed: 09/27/90

CAS. No	COMPOUND	RESULTS (ug/Kg)	DETECTION LIMITS (ug/Kg)
71-43-2	benzene	<5	5
108-88-3	toluene	<5	5
100-41-4	ethylbenzene	<5	5
108-38-3	xylenes	<15	15

Analyst

Data Release Authorized By

EPA METHOD 8020
TARGET ANALYTE RESULTS

Client: RMT, INC.
Client Sample ID: SB-1 8.0 #2
TMA/Norcal SAMPLE ID: NO-09-292-2

Date Received: 09/25/90
Date Analyzed: 09/27/90

CAS. No	COMPOUND	RESULTS (ug/Kg)	DETECTION LIMITS (ug/Kg)
71-43-2	benzene	<5	5
108-88-3	toluene	763	5
100-41-4	ethylbenzene	2560	5
108-38-3	xylenes	4430	15

Analyst

Data Release Authorized By

EPA METHOD 8020
TARGET ANALYTE RESULTS

Client: RMT, INC.
Client Sample ID: SB-2 8.0 #3
TMA/Norcal SAMPLE ID: NO-09-292-3

Date Received: 09/25/90
Date Analyzed: 09/27/90

CAS. No	COMPOUND	RESULTS (ug/Kg)	DETECTION LIMITS (ug/Kg)
71-43-2	benzene	<5	5
108-88-3	toluene	292	5
100-41-4	ethylbenzene	906	5
108-38-3	xylenes	1120	15

Analyst

Data Release Authorized By

EPA METHOD 8020
TARGET ANALYTE RESULTS

Client: RMT, INC.
Client Sample ID: SB-2 9.5 #2
TMA/Norcal SAMPLE ID: NO-09-292-4

Date Received: 09/25/90
Date Analyzed: 09/27/90

CAS. No	COMPOUND	RESULTS (ug/Kg)	DETECTION LIMITS (ug/Kg)
71-43-2	benzene	<5	5
108-88-3	toluene	300	5
100-41-4	ethylbenzene	596	5
108-38-3	xylenes	1060	15

Analyst

Data Release Authorized By

EPA METHOD 8020
TARGET ANALYTE RESULTS

Client: RMT, INC.
Client Sample ID: SB-3 8.0 #2
TMA/Norcal SAMPLE ID: NO-09-292-5

Date Received: 09/25/90
Date Analyzed: 09/27/90

CAS. No	COMPOUND	RESULTS (ug/Kg)	DETECTION LIMITS (ug/Kg)
71-43-2	benzene	<5	5
108-88-3	toluene	159	5
100-41-4	ethylbenzene	<5	5
108-38-3	xylenes	319	15

Analyst

Data Release Authorized By

EPA METHOD 8020
TARGET ANALYTE RESULTS

Client: RMT, INC.
Client Sample ID: B-3 9.5 #2
TMA/Norcal SAMPLE ID: NO-09-292-6

Date Received: 09/25/90
Date Analyzed: 09/27/90

CAS. No	COMPOUND	RESULTS (ug/Kg)	DETECTION LIMITS (ug/Kg)
71-43-2	benzene	<5	5
108-88-3	toluene	388	5
100-41-4	ethylbenzene	1110	5
108-38-3	xylenes	1600	15

Analyst

Data Release Authorized By

EPA METHOD 8020
TARGET ANALYTE RESULTS

Client: RMT, INC.
Client Sample ID: SB-4 6.5 #3
TMA/Norcal SAMPLE ID: NO-09-292-7

Date Received: 09/25/90
Date Analyzed: 10/01/90

CAS. No	COMPOUND	RESULTS (ug/Kg)	DETECTION LIMITS (ug/Kg)
71-43-2	benzene	<5	5
108-88-3	toluene	<5	5
100-41-4	ethylbenzene	<5	5
108-38-3	xylenes	<15	15

Analyst

Data Release Authorized By

EPA METHOD 8020
TARGET ANALYTE RESULTS

Client: RMT, INC.
Client Sample ID: SB-4 8.0 #3
TMA/Norcal SAMPLE ID: NO-09-292-8

Date Received: 09/25/90
Date Analyzed: 09/27/90

CAS. No	COMPOUND	RESULTS (ug/Kg)	DETECTION LIMITS (ug/Kg)
71-43-2	benzene	<5	5
108-88-3	toluene	285	5
100-41-4	ethylbenzene	953	5
108-38-3	xylenes	1170	15

Analyst

Data Release Authorized By

EPA METHOD 8020
TARGET ANALYTE RESULTS

Client: RMT, INC
Client Sample ID: SB-4 9.5 #3
TMA/Norcal SAMPLE ID: N0-09-292-9

Date Received: 09/25/90
Date Analyzed: 10/01/90

CAS. No	COMPOUND	RESULTS (ug/Kg)	DETECTION LIMITS (ug/Kg)
71-43-2	benzene	<5	5
108-88-3	toluene	<5	5
100-41-4	ethylbenzene	17.1	5
108-38-3	xylenes	<15	15

Analyst

Data Release Authorized By

EPA METHOD 8020
TARGET ANALYTE RESULTS

Client: RMT, INC
Client Sample ID: SB-5 6.5 #2
TMA/Norcal SAMPLE ID: NO-09-292-10

Date Received: 09/25/90
Date Analyzed: 10/01/90

CAS. No	COMPOUND	RESULTS (ug/Kg)	DETECTION LIMITS (ug/Kg)
71-43-2	benzene	<5	5
108-88-3	toluene	<5	5
100-41-4	ethylbenzene	<5	5
108-38-3	xylenes	<15	15

Analyst

Data Release Authorized By

EPA METHOD 8020
TARGET ANALYTE RESULTS

Client: RMT, INC
Client Sample ID: SB-5 8.0 #3
TMA/Norcal SAMPLE ID: NO-09-292-11

Date Received: 09/25/90
Date Analyzed: 10/01/90

CAS. No	COMPOUND	RESULTS (ug/Kg)	DETECTION LIMITS (ug/Kg)
71-43-2	benzene	<5	5
108-88-3	toluene	<5	5
100-41-4	ethylbenzene	<5	5
108-38-3	xylenes	<15	15

Analyst

Data Release Authorized By

EPA METHOD 8020
TARGET ANALYTE RESULTS

Client: RMT, INC
Client Sample ID: SB-6 6.5 #2
TMA/Norcal SAMPLE ID: NO-09-292-12

Date Received: 09/25/90
Date Analyzed: 09/28/90

CAS. No	COMPOUND	RESULTS (ug/Kg)	DETECTION LIMITS (ug/Kg)
71-43-2	benzene	<5	5
108-88-3	toluene	<5	5
100-41-4	ethylbenzene	<5	5
108-38-3	xylenes	<15	15

Analyst

Data Release Authorized By

EPA METHOD 8020
TARGET ANALYTE RESULTS

Client: RMT, INC
Client Sample ID: SB-6 8.0 #2
TMA/Norcal SAMPLE ID: NO-09-292-13

Date Received: 09/25/90
Date Analyzed: 09/28/90

CAS. No	COMPOUND	RESULTS (ug/Kg)	DETECTION LIMITS (ug/Kg)
71-43-2	benzene	<5	5
108-88-3	toluene	<5	5
100-41-4	ethylbenzene	<5	5
108-38-3	xylenes	<15	15

Analyst

Data Release Authorized By

ANALYSIS RESULTS REPORT
TOTAL PETROLEUM HYDROCARBONS

Client: RMT, INC.
Matrix: SOIL
TMA/Norcal Workorder #: NO-09-292

Date Received: 09/25/90
Date Extracted: 09/25/90
Date Analyzed: 09/27/90

CLIENT ID	TMA/Norcal ID	DIESEL (MG/KG)	DETECTION LIMIT (MG/KG)
SB-1 6.5 #3	N009292-01	89	1
SB-1 8.0 #2	N009292-02	41,000	1
SB-2 8.0 #3	N009292-03	9,900	1
SB-2 9.5 #2	N009292-04	2,600	1
SB-3 8.0 #2	N009292-05	4,400	1
SB-3 9.5 #2	N009292-06	4,600	1
SB-4 6.5 #3	N009292-07	11	1
SB-4 8.0 #3	N009292-08	1,200	1
SB-4 9.5 #3	N009292-09	290	1
SB-5 6.5 #2	N009292-10	<1.0	1
SB-5 8.0 #3	N009292-11	<1.0	1
SB-6 6.5 #2	N009292-12	1.1	1
SB-6 8.0 #2	N009292-13	1.3	1

Assay: EPA SW846 MODIFIED METHOD 8015
TOTAL PETROLEUM HYDROCARBONS QUANTITATED AS DIESEL

Analyst

Data Release Authorized By

744 [illegible]
Phone (608)831-4444
FAX (608)831-3334

To: TMM/NorCal
2030 Wright Ave
Richmond

CALL ZORAN BATCHKO 213-452-5078

F-268 (R2/88)
(Use Black Ink Only)

CHAIN OF CUSTODY RECORD

Sample Type: (GW, WW, SW, Soil, Other)

№ 007720

Bottles Prepared by:	Date/Time	Office Code: (State)
N/A	9/25/90	

Project No.	Client:
1622.03	ARA #516

RMT Lab NO	Yr. 90 Date	Time	Sample Station ID	Total Number Of Containers	Container Inventory: 8015m-diesel	(BTX&E) 8020	Archive	Filtered (Yes/No)	Preserved (Code)	Refrigerated (Yes/No)
SB-4 5-3	9/25	8:40					X			
SB-4 6.5-3	"	8:55			X	X				
SB-4 8-3	"	9:10			X	X				
SB-4 9.5-3	"	9:45			X	X				
SB-1 5.0-#3	"	10:15					X			
SB-1 6.5-3	"	10:45			X	X				
SB-1 8.0-#2	"	11:15			X	X				
SB-2 6.5-#3	"	12:15					X			
SB-2 8.0-3		12:30			X	X				
SB-2 9.5-2		12:45			X	X				
SB-3 6.5-2		1:40					X			
SB-3 8.0-2		1:55			X	X				
SB-3 9.5-2		2:10			X	X				

Code: A - None
B - HNO_3
C - H_2SO_4
D - NaOH
E - _____

Normal TAT

Comments:

SAMPLER

Relinquished by (Sig.)	Date/Time	Received by (Sig.)	Date/Time
① Zoran Batchko	9/25/90 5pm	② Shipper Name & # Frank Zarrillo	
③ Relinquished by (Sig.)	Date/Time	④ Received by (Sig.) Shipper Name & # CR	Date/Time
⑤ Relinquished by (Sig.)	Date/Time	⑥ Received by (Sig.) Shipper Name & # Yellow Cab	Date/Time 9/25/90 1730

HAZARDS ASSOCIATED WITH SAMPLES Max

TPH-D @ 22,529 mg/kg (max value)
B ND
T ... 75 ug/kg
X ... 2700 ug/kg
E .. 840 ug/kg

(For Lab Use Only)

Receipt Temp _____ Receipt pH _____

Client P.O. Number. _____

Subsequent Analysis: _____ (Check)

Date Resubmitted _____

Seal # _____ at'chd by ◯ Recvd. Intact by ◯ Seal # _____ at'chd by ◯ Recvd. Intact by ◯

CHAIN OF CUSTODY RECORD

(Soil, Other)

№ 007521

Bottles Prepared by: N/A

Date/Time: 9/25/90

Office Code: (State) CA

Project No.: 1622.03

Client: ARA #516

RMT Lab NO.	Yr. 90 Date	Time	Sample Station ID	Total Number Of Containers	Container Inventory: 8015M - diesel	BTX&E 8020	Archive
SB-6 5.0-2	9/25/90				X	X	
SB-6 6.5-2	"				X	X	
SB-6 8.0-2	"						X
SB-5 5.0-2	"				X	X	
SB-5 6.5-2	"				X	X	
SB-5 8.0-3	"						X

Filtered (Yes/No)

Preserved (Code)

Refrigerated (Yes/No)

Code: A - None
B - HNO_3
C - H_2SO_4
D - NaOH
E - _____

Comments:

SAMPLER

Relinquished by (Sig.) ① [signature] — Date/Time 9/25/90 5pm

Received by (Sig.) ② — Shipper Name & # Federal Express — Date/Time

Relinquished by (Sig.) ③ — Date/Time

Received by (Sig.) ④ [signature] — Shipper Name & # Yellow Cab — Date/Time 9/25/90 1730

Relinquished by (Sig.) ⑤ — Date/Time

Received by (Sig.) ⑥ — Shipper Name & # — Date/Time

HAZARDS ASSOCIATED WITH SAMPLES

(For Lab Use Only)

Receipt Temp _____ Receipt pH _____

Client P.O. Number. _____

Subsequent Analysis: _____ (Check)

Date Resubmitted _____

Seal # _____ at'chd by ◯ Recvd. Intact by ◯ Seal # _____ at'chd by ◯ Recvd. Intact by ◯