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19 January 1999

Mr. Barney Chan
Alameda County Department of Environmental Health
1131 Harbor Bay Parkway, #250
Alameda, California 94502-6577

Subject: Report Regarding the 3925 Alameda Avenue Site,
Oakland, California
(EKI 980074.00)

99 JAN 19 PM 1:07
ENVIRONMENTAL
PROTECTION

Dear Mr. Chan:

Erler and Kalinowski, Inc. ("EKI") is pleased to present this letter report to the Alameda County Department of Environmental Health ("ACDEH") regarding the property located at 3925 Alameda Avenue, Oakland, California ("Site"). This report has been prepared on behalf of Smooke & Sons Investment Co. It is being submitted pursuant to the request of ACDEH in its letter, dated 2 November 1998, and in accordance with our telephone discussion with you on 25 November 1998.

The report includes:

1. A brief background of investigations conducted at the Site;
2. A summary of recent and historic groundwater monitoring results, including a review of (a) time trends in groundwater analytical data obtained from on-Site monitoring wells, and (b) recently collected bioattenuation parameter data;
3. A review of potential sources of elevated concentrations of chemicals of concern ("COCs") detected along the southeastern boundary of the Site and on the adjacent Thatcher Property at 569 High Street;
4. A discussion addressing concerns raised by ACDEH in its 2 November 1998 letter regarding the Tier 1 Risk-Based Corrective Action ("RBCA") risk assessment performed by Smith-Emery GeoServices ("Smith-Emery") for the Site ("Smith-Emery RA") (Smith-Emery, 1997);
5. Recommendations for additional soil and groundwater investigations at the Site; and,
6. The proposed schedule for completion of additional soil and groundwater investigations at the Site.

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1. BACKGROUND

1.1 Investigation of Former On-Site Underground Storage Tanks

Two underground storage tanks ("USTs") were removed from the Site on 10 March 1988. The USTs were described as a 10,000 gallon diesel tank and a 1,000 gallon gasoline tank (ENGEIO Incorporated, 1992). Soil samples were collected from the tank excavation immediately following the tank removal and again in 1994, subsequent to potential over-excavation of impacted soils (see Figure 2) (ENGEIO Incorporated, 1994). At the request of ACDEH, three groundwater monitoring wells were also installed on Site in 1995 (MW-1, MW-2, and MW-3). Quarterly groundwater monitoring of these wells was performed between June 1995 and March 1997. A fourth groundwater monitoring well, MW-4, was installed downgradient of the former tank locations in 1996 and monitored for three subsequent quarters. Grab groundwater samples were also collected from six Geoprobe borings completed in 1996 (Figure 2). All investigations conducted at the Site were performed at the request and under the oversight of ACDEH (Smith-Emery, 1995, 1996).

Results of these investigations indicate that elevated concentrations of total petroleum hydrocarbons as gasoline ("TPH-g"), diesel ("TPH-d"), benzene, toluene, ethylbenzene, and xylenes ("BTEX") are present in groundwater and deep soils (i.e., greater than 5 ft bgs) at the Site (ENGEIO Incorporated, 1992, 1994; Smith-Emery, 1995, 1996). Based on these results, a Tier 1 Risk-Based Corrective Action Assessment ("RBCA") for the Site, dated 15 May 1997, was performed by Smith-Emery and submitted to ACDEH for review (Smith-Emery, 1997). This report concluded that COCs detected in soil and groundwater at the Site do not exceed their respective Risk-Based Screening Levels corresponding to a cancer risk of 10^{-4} (" 10^{-4} RSBL") for the identified exposure pathways.

1.2 Elevated COC Concentrations detected at the Southeastern Site Boundary and the Thatcher Property at 569 High Street

Results of geoprobe investigations conducted at the Site in 1996 and a separate investigation performed in 1987 by Harding Lawson Associates on the adjacent property at 569 High Street owned by Thatcher, Hamilton, and Chestnut ("Thatcher Property at 569 High Street") (Harding Lawson, 1987) indicate that elevated concentrations of BTEX and petroleum hydrocarbons are present in groundwater along the southeastern boundary of the Site and on the adjacent Thatcher Property at 569 High Street. COC concentrations detected in groundwater at these locations are higher than COC concentrations detected immediately adjacent to, and downgradient, of the former USTs on the Site. Therefore, it is believed that COCs detected in groundwater at the southeastern boundary of the Site and on the Thatcher Property at 569 High Street likely originated from a separate source (see discussion in Section 3). Evaluation of potential

*now owned by
City of Oakland*

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sources in this area has been conducted as part of the scope of investigations discussed herein.

1.3 Additional Investigations Requested by Alameda County Department of Environmental Health

Based on its review of Site data and the Smith-Emery RA, the ACDEH in its letter dated 2 November 1998 has requested that:

- (a) existing Site monitoring wells be resampled for COCs and selected bioattenuation parameters to assess the stability and/or decline of COCs in groundwater at the Site, and
- (b) further investigation of COCs detected at the southeastern boundary of the Site and the Thatcher Property at 569 High Street be conducted.

In addition, the ACDEH has expressed concern regarding the use of the 10^{-4} risk level and estimation of Site soil and groundwater concentrations in the Smith-Emery RA.

In response to ACDEH's requests and concerns, the following additional investigations and tasks were performed by EKI:

- (a) existing on-site groundwater monitoring wells were resampled in December 1998 for COCs and selected bioattenuation parameters;
- (b) selected historical information regarding former use on the Site and adjacent properties was reviewed and a magnetometer survey was performed on 23 December 1998 by Subdynamics Locating Services (1) to identify potential source areas/locations in the vicinity of elevated COC concentrations detected in groundwater at the southeastern boundary of the Site and on the Thatcher Property at 569 High Street, and (2) to aid in the scoping of further investigations to be focused in this area; and
- (c) results of the Smith-Emery RA were reevaluated relative to current Site conditions and the concerns expressed by ACDEH.

The results of these investigations and evaluations are summarized in Sections 2 through 4 below. Additional recommended soil and groundwater investigations on the Site are summarized in Section 5.

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2. GROUNDWATER MONITORING

The following sections summarize the geohydrology of the area, discuss the results of the December 1998 groundwater level monitoring and groundwater sampling, provide an assessment of trends of COC concentrations detected in on-site monitoring wells over time, and assesses bioattenuation sampling results.

2.1 Geohydrology

The geologic units beneath the Site consist of permeable to relatively impermeable interbeds of fine-to-coarse-grained sediments of alluvial and estuarine deposits (Smith-Emery, 1997). Deposits beneath the Site in the upper 6 to 8 feet have been mapped as beach or near-shore deposits consisting of a mixture of clay, silt, sand, gravel, and shell fragments. Beneath this material, fine sands, clayey silt, sandy clay and locally gravelly sand have been encountered (ENGEO Incorporated, 1992). The major groundwater aquifers beneath the East Bay Plain occur at depths generally ranging from 50 to 1,000 feet bgs, with the depth to major aquifers increasing with distance from the foothills lying to the east. The first groundwater at the Site generally is encountered at approximately 15 feet bgs and contained within the permeable silts and sands, which are interbedded within low-permeability clayey silt deposits.

2.2 Groundwater Level Monitoring

Depths to groundwater in on-Site groundwater monitoring wells MW-1, MW-2, MW-3, and MW-4 were measured on 23 December 1998. The resulting data are summarized below:

Well	Date of Measurement	Casing Elevation (ft)	Depth to Water from Top of Casing (ft)	Groundwater Elevation, Mean Sea Level (ft)
MW-1	12/23/98	8.73	10.23	-1.5
MW-2	12/23/98	8.42	9.85	-1.43
MW-3	12/23/98	9.26	10.61	-1.35
MW-4	12/23/98	8.44	10.29	-1.85

These data were used to develop a groundwater contour map for this date, shown on Figure 3. As indicated on Figure 3, the direction of the hydraulic gradient on 23 December 1998 was towards the south. This gradient direction is consistent with prior groundwater gradient directions observed at the Site, which vary with flow towards the southeast to southwest. Review of historic data indicates that the predominant groundwater gradient direction across the Site is to the southwest.

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2.3 Groundwater Sampling

EKI collected groundwater samples from on-Site monitoring wells MW-1 through MW-4 on 17 December 1998. These samples were analyzed for the following constituents:

Monitoring Well Sample	Analysis
MW-2 and MW-3	TPH-g and BTEX/MTBE using EPA Method 8015M/8020
MW-1 and MW-4	TPH-g using EPA 8015M; MTBE/BTEX using EPA Method 8260
MW-1, MW-2, MW-3, and MW-4	TPH-d using EPA Method 8015M; plus bioattenuation parameters (i.e., dissolved oxygen, nitrate, sulfate, ferrous iron, Redox potential, pH)

Table 1 summarizes TPH, BTEX, and MTBE results obtained during the 17 December 1998 groundwater sampling event, as well as TPH, BTEX and MTBE results obtained during historical groundwater sampling events performed by others. Table 2 summarizes results of bioattenuation parameters obtained during the 17 December 1998 groundwater sampling event. Analytical laboratory data sheets for the 17 December 1998 sampling event are provided in Appendix A. Methods and procedures for sample collection are described in Appendix C.

2.3.1 TPH, BTEX and MTBE Concentrations

As indicated in Table 1, TPH, BTEX, and MTBE concentrations detected in recently collected samples are generally consistent with, or lower, than concentrations of these compounds previously detected in on-Site groundwater wells. Recently detected concentrations of TPH-g and TPH-d in on-Site monitoring wells are less than 7 mg/L. Recently detected concentrations of individual BTEX compounds in on-Site monitoring wells are below 1 mg/L, with the exception of concentrations of benzene detected at 2.2 mg/L in well MW-1, which is located immediately downgradient of the former USTs.

Recently detected concentrations of MTBE are less than 0.1 ug/l in all on-Site monitoring wells. Confirmation analyses (i.e., using EPA method 8260) for MTBE performed on groundwater samples from wells MW-1 and MW-4 were below limits of detection and less than 0.005 mg/L, respectively. These data indicate that recent and prior soil and groundwater analytical results for MTBE that were obtained using EPA Method 8015M/8020 at the Site are likely biased high due to potential interferences, which are not separable using this analytical method. Future MTBE analyses performed as part of

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the recommended investigations identified in Section 5, will be performed using EPA Method 8260.

Figures B1-1 through B1-4, included in Appendix B, present analytical data for TPH-g and TPH-d concentrations in each monitoring well as function of time. Figures B2-1 through B2-4, also included in Appendix B, present analytical data for BTEX and MTBE concentrations in each monitoring well as a function of time. As can be seen on these figures, groundwater concentrations of TPH and BTEX appear to be stable and possibly decreasing in MW-1 and MW-4. These results are supported by the analysis of bioattenuation data discussed in section 2.3.2 below and indicate that limited additional groundwater monitoring is necessary to establish stable and decreasing trends in COC concentrations in groundwater at the Site. The scope of additional recommended groundwater monitoring at the Site is summarized in Section 5.

2.3.2 Bioattenuation Data

Table 2 summarizes bioattenuation data collected during the December 1998 sampling event. These data include analytical results of sampling in the four on-Site monitoring wells for dissolved oxygen, nitrate, sulfate, ferrous iron, redox potential, and pH.

Biologically mediated degradation reactions are reduction/oxidation (redox) reactions, involving the transfer of electrons from the organic compound to an electron acceptor. Oxygen is the electron acceptor for aerobic metabolism, whereas nitrate, ferric iron, sulfate, and carbon dioxide can serve as electron acceptors for alternative anaerobic pathways (Newell et al., 1996; Wiedemeier et al., 1995).

As indicated in Table 2, dissolved oxygen concentrations measured in samples collected from wells MW-1, MW-2, and MW-4, located downgradient (i.e., southwest to southeast) of the former USTs, are lower than concentrations measured in samples collected from well MW-3, located upgradient of the former USTs. These dissolved oxygen data indicate that biodegradation is likely occurring downgradient of the former USTs area and within the groundwater plume.) not really

In addition, the oxidation-reduction potential measured in samples collected from wells MW-2 and MW-4 is negative (i.e., less than -100 millivolts) and reduced at MW-1 relative to upgradient levels. These trends indicate that anaerobic processes are likely occurring in groundwater within the plume area (ASTM, 1998; Newell et al., 1996; Wiedemeier et al., 1995). The bioattenuation data support the appearance of stable and potentially decreasing concentrations of COCs observed in on-Site groundwater monitoring wells, as discussed above.) disagree

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3. CHEMICALS OF CONCERN DETECTED AT SOUTHEASTERN BOUNDARY OF THE SITE AND THE ADJACENT THATCHER PROPERTY AT 569 HIGH STREET

Results of investigations conducted by Harding Lawson in 1987 (Harding Lawson Associates, 1987) indicate that elevated concentrations of petroleum hydrocarbons and BTEX exist in groundwater on the Thatcher Property at 569 High Street. In addition, grab groundwater sampling conducted by Smith-Emery in August 1996 at the southeastern boundary of the Site (i.e., at G-6, immediately adjacent to the northwestern boundary of the Thatcher Property at 569 High Street and the 555 High Street Property, which is currently owned by Roland Davies, Jerry Thorne, and Theodore Vinther ("Davies Property at 555 High Street")) indicate that elevated concentrations of petroleum hydrocarbons and BTEX also exist at this location (Figure 2). As discussed in Smith-Emery's 16 December 1998 report, petroleum hydrocarbon concentrations and BTEX concentrations detected on the Thatcher Property at 569 High Street and at G-6 are higher than concentrations detected at any time near or immediately downgradient of the former Site USTs. Maximum concentrations detected in grab groundwater and monitoring well samples collected in the vicinity of the former Site USTs and maximum concentrations detected at G-6 and the adjacent Thatcher Property at 569 High Street are summarized below:

Area of Concern	Maximum Concentration Detected in Groundwater (mg/L)						
	TPH-g	TPH-d	Benzene	Toluene	Ethyl-benzene	Xylene	MTBE
Near former Site USTs	81	330 *	11	0.72	1.8	3.9	0.37
94 Location G-6	4,200	1,800	15	27	70	191	96
HA 7/24/87 569 High St. (B-2)	NA**	600	8.7	18	NA	420	NA

Cannot compare MW + geoproduct HP results.

Notes:

- * Maximum TPH-diesel concentration of 330 mg/L was detected in MW-4, which is located near G-6. Maximum TPH-diesel concentration near the source was 8.2 mg/L.
- ** "NA" indicates samples were not analyzed for the compound.

These data indicate that petroleum hydrocarbon and BTEX concentrations detected at G-6 and the Thatcher Property at 569 High Street are likely the result of a separate source and are unrelated to potential releases at the Site USTs. This conclusion is supported by the relative absence of sands observed at boring location G-6. The absence of sands at boring G-6 indicate that COC concentrations detected in this ^{nearby} well are likely the result of a nearby source and not the result of migration from the former Site USTs, which would likely occur through more permeable deposits, such as those observed in monitoring wells MW-1, MW-2, and MW-3.

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3.1 Potential Sources of Petroleum Hydrocarbons Detected at G-6 and the Thatcher Property at 569 High Street

The following tasks were performed by EKI to identify potential off-Site sources of petroleum and BTEX detected in groundwater in the vicinity of prior groundwater sampling location G-6 and the Thatcher Property at 569 High Street:

- (a) review of fire department, building department, and agency files for the Thatcher Property at 569 High Street and the Davies Property at 555 High Street;
- (b) review of Sanborn maps from 1912, 1925, 1950, 1952, 1957, 1961, 1966, and 1969 for the area of concern (see Appendix D for example Sanborn maps from 1957 and 1969);
- (c) review of historical aerial photographs from 1939, 1940, 1947, 1950, 1977, 1979, and 1981 for the area of concern; and
- (d) performance of a magnetometer survey by Subdynamic Locating Services on 23 December 1998 along the southeastern boundary of the Site (i.e., in the vicinity of G-6) and on the Thatcher Property at 569 High Street.

Results of this review and magnetometer survey are as follows:

- (a) A warehouse has existed on the Site since 1950. Prior to that, the Site was a lumber storage yard (Sanborn maps, historical photographs). No indication of any potential sources of petroleum hydrocarbons (e.g., tanks or drum storage) were identified along the southeastern boundary of the Site (i.e., near G-6) based on historical records/photographs and agency files reviewed by EKI.
- (b) Several storage buildings/warehouses have existed on the Thatcher Property at 569 High Street since prior to 1950 (Sanborn maps, Historical photographs). No indication of any potential sources of petroleum hydrocarbons (e.g., tanks or drum storage) were identified on this property based on historical records/photographs and agency files reviewed by EKI.
- (c) The adjacent Davies Property at 555 High Street housed numerous manufacturing facilities from approximately 1947 through 1969. These manufacturing activities included metal fabrication, woodworking, and painting. Sanborn Maps indicate the presence of a paint spray booth at the northeastern portion of the Davies Property at 555 High Street near the

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location where elevated concentrations of petroleum hydrocarbons have been detected on the Site and adjacent to the Thatcher Property at 569 High Street (see Appendix D for copies of 1957 and 1969 Sanborn Maps).

- (d) No underground tanks were specifically identified during the magnetometer survey. However, one subsurface anomaly was detected near site sampling location G-8 (see Figure 4) and an additional linear subsurface anomaly, possibly a pipe segment, was also identified northeast of G-6. This linear anomaly is approximately 30 feet in length and appeared to terminate at the southeastern boundary of the Site adjacent to Thatcher Property at 569 High Street and north of the rail spur on the Site (see Figure 4).

Based on these results, further investigation of on-Site soils is recommended along the rail spur and at the identified linear anomaly at the southeastern boundary of the Site. Grab groundwater sampling is also recommended where the linear anomaly exits on the Site and at former Site sampling location G-6 to confirm prior sampling analytical results. Additional sampling is not recommended near the subsurface anomaly identified near G-8 because results of prior sampling conducted at this location did not indicate the presence of significantly elevated concentrations of petroleum hydrocarbons or BTEX.

Due to the long history of manufacturing identified on the adjacent Davies Property at 555 High Street, and the likelihood that such activities could have led to potential soil and/or groundwater contamination on this adjacent site, we recommend that additional investigations also be conducted by the owner of the Davies Property at 555 High Street to assess the potential that releases on this property could have lead to petroleum hydrocarbons detected in the vicinity of G-6 and on the Thatcher Property at 569 High Street.

Further descriptions of recommended soil and groundwater investigations at the Site are presented in Section 5.

4. SMITH-EMERY'S TIER 1 RBCA RISK ASSESSMENT

In its 2 November 1998 letter, ACDEH expressed concern regarding the use of the 10^{-4} cancer risk level and the method for estimation of Site soil and groundwater concentrations in the Smith-Emery RA. The following discussion addresses these questions.

Smith-Emery performed a Tier 1 RBCA assessment using averaged soil and groundwater data collected from the Site (Smith-Emery, 1997). Potential human exposure pathways analyzed include volatilization of COCs from soil and groundwater into outdoor air,

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volatilization of COCs in soil and groundwater into buildings, and ingestion/dermal contact of COCs in soil. For all pathways except volatilization of COCs into buildings, the results of the Smith-Emery RBCA assessment indicate that average concentrations of COCs in soil and groundwater at the Site are less than the Risk-Based Screening Levels corresponding to a cancer risk of 10^{-5} ("the 10^{-5} RBSL") (see American Society for Testing and Materials ("ASTM"), 1995). For example, as indicated below, average Site benzene concentrations in soil and groundwater reported by Smith-Emery are below the ACDEH-adjusted 10^{-5} RBSL for benzene for all identified pathways, excluding volatilization of COCs into buildings.

Exposure Pathway	Average Site Benzene Concentrations Reported by Smith-Emery (1997)	10^{-5} RBSL for Benzene (a)
Volatilization from soil to outdoor air	0.24 mg/kg	1.3 mg/kg
Surficial soil ingestion/dermal/inhalation	0.24 mg/kg	29 mg/kg
Groundwater volatilization to outdoor air	1 mg/L	53.4 mg/L

(a) The 10^{-5} RBSL for benzene is taken as 29% of the RBSL presented in ASTM, 1995 (see Smith-Emery, 1997).

to act for AS of benzene (0.1)

(.1) (RBSL)

This conclusion regarding the insignificance of the above three pathways is independent of soil and groundwater concentration estimation techniques employed in the Smith-Emery Risk Assessment, because (a) the maximum concentration of benzene historically detected in groundwater at the Site, including the grab groundwater sample G-6 (i.e., 15 mg/L), is less than the ACDEH-adjusted 10^{-5} RBSL for all three pathways identified above, and (b) the maximum concentration of benzene detected in soils at the Site during the final 1994 soil sampling event (i.e., 0.18 mg/kg beneath the gasoline UST) was also below the corresponding ACDEH-adjusted 10^{-5} RBSL for all the pathways identified above.

B4-2 @ 9-10'

R ?

As discussed in the Smith-Emery RA, estimated average benzene concentrations in soil and groundwater at the Site, respectively, exceed the ACDEH-adjusted 10^{-5} RBSL for the volatilization pathways from soil and groundwater into indoor air for this hypothetical indoor pathway. However, no buildings currently exist on the Site above the area of impacted soil and groundwater, and no buildings are planned for construction over this area of the Site in the future. Therefore, using the ASTM (1995) model, estimated risks associated with current and planned land use at the Site do not exceed the 10^{-5} RBSL for the identified pathways of concern.

was it closed structure

*What about G-5-2-9
MW1-13.5 1.3
MW2-11.0 1.0
1.3 ppm Benz.*

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5.0 RECOMMENDED ADDITIONAL INVESTIGATIONS

5.1 Continued Monitoring of On-Site Groundwater

Current soil and groundwater conditions in the vicinity of the former USTs indicate that (a) the known source of petroleum hydrocarbons and BTEX in groundwater on the Site has been removed, (b) biologically mediated degradation reactions are likely occurring within the groundwater plume at the Site, and (c) concentrations of COCs in groundwater are stable or decreasing. Review of the Tier 1 RBCA assessment performed by Smith-Emery also indicates that concentrations of COCs in soil and groundwater correspond to risk levels of less than 10^{-5} cancer risk for current site conditions and planned land uses. Given these results, EKI recommends that annual groundwater monitoring be performed for an additional two years to verify that groundwater concentrations are stable or decreasing. In addition, resampling of bioattenuation parameters during the first annual groundwater sampling event (i.e., in December 1999) is recommended.

5.2 Additional Soil and Groundwater Investigations

As discussed in Section 3 above, no indication of any potential sources of petroleum hydrocarbons (e.g., tanks or drum storage) were identified along the southeastern boundary of the Site (i.e., near G-6) based on historical records/photographs and agency files reviewed by EKI. However, additional investigations are proposed along the southeastern boundary of the property to (a) confirm prior soil and groundwater sampling results in this area, and (b) evaluate the potential presence/impacts of the linear anomaly (i.e., potentially a pipeline) that was identified by the magnetometer survey performed in this area. These investigations include:

- (a) collection of a shallow (i.e., three to five feet in depth) soil sample and a grab groundwater sample at former sampling location G-6 to confirm the presence of petroleum hydrocarbon concentrations previously detected at this location;
- (b) collection of two shallow (i.e., three to five feet deep) soil samples along the railroad spur to evaluate the presence of chemically impacted soils along the tracks, and
- (c) collection of one soil sample and one grab groundwater sample near the identified linear anomaly where it exits the southeastern portion boundary of the Site.

*shallow +
deep*

The proposed sampling locations are shown on Figure 5. Utilities in the vicinity of these investigations will be mapped and, if appropriate, soil samples near the railroad spur will

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be collected near catch basins or along storm drain lines that may also run through this area.

Boreholes will be drilled using hollow stem augers, and grab groundwater samples will be collected through the augers. Both soil and groundwater samples will be analyzed for total purgeable petroleum hydrocarbons, total extractable petroleum hydrocarbons, BTEX using EPA Methods 8015 modified and 8020 modified. MTBE concentrations will be analyzed using EPA method 8260. Methods and procedures for collection of samples are described in Appendix C.

6.0 SCHEDULE FOR PROPOSED WORK

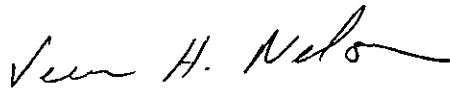
If approved by ACDEH, annual groundwater sampling of existing monitoring wells will be conducted in December 1999 and December 2000. Results of this monitoring will be summarized in annual monitoring reports submitted to ACDEH in March 2000 and March 2001. The need for further groundwater monitoring at the Site will be assessed at that time.

Proposed soil and groundwater investigations identified in Section 5.2 can be performed within six weeks of approval of the proposed investigations by the ACDEH. A report summarizing the results of these investigation can be prepared and submitted to ACDEH six weeks following completion of the field investigation (i.e., 12 weeks following approval by ACDEH).

Please contact us if you have any questions.

Very truly yours,

ERLER & KALINOWSKI, INC.



Vera H. Nelson, P.E.
Project Manager



Cindy S. Kao, Ph.D., P.E.
Environmental Engineer

cc: Richard Smooke, Smooke & Sons Investment Co.
Paul Wren, Smooke & Sons Investment Co.

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Appendix B Graphical Presentation of Analytical Groundwater Data
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Table 1
Summary of Analytical Data for Groundwater
3925 Alameda Avenue, Oakland, California

Date	Elev (ft msl)	Analytical Data from MW-1 (mg/L)							
		TPHG	Diesel	Kerosene	Benzene	Toluene	Ethylbenzene	Xylene	MTBE
6/21/95 (a),(b)	-0.57	81	9.8	8.2	11	0.72	1.8	3.9	NA (c)
9/22/95 (Q3 '95) (b)	-1.78	11.0	5	3	2.3	0.081	0.390	0.560	NA
12/7/95 (Q4 '95) (b)	-1.59	6	<0.5	<0.5	0.343	0.032	0.133	0.184	NA
3/29/96 (Q1 '96) (b)	-0.85	12	<0.05	4	0.730	0.089	0.300	0.180	0.270
6/26/96 (Q2 '96) (b)	-1.23	7	<0.05	3	2.3	0.062	0.230	0.160	0.093
9/20/96 (Q3 '96) (b)	-0.95	2.2	NA	NA	0.570	0.030	0.110	0.800	0.070
12/11/96 (Q4 '96) (b)	-0.63	8.1	4.0	NA	2.60	0.073	0.300	0.200	0.340
3/24/97 (Q1 '97) (b)	-0.66	11	NA	NA	2.8	0.055	0.34	0.16	0.029
12/17/98	-1.50	6	2.5	NA	2.2	0.046	0.31	<0.04	<0.04 (d)
Date	Elev (ft msl)	Analytical Data from MW-2 (mg/L)							
		TPHG	Diesel	Kerosene	Benzene	Toluene	Ethylbenzene	Xylene	MTBE
6/21/95 (a) (b)	-0.47	7.6	5.9	4.9	1.5	0.18	0.072	1.1	NA
9/22/95 (Q3 '95) (b)	-1.27	7.2	3.5	2	1.2	0.560	0.250	1.0	NA
12/7/95 (Q4 '95) (b)	-1.41	8	<0.5	<0.5	0.240	0.200	0.108	0.402	NA
3/29/96 (Q1 '96) (b)	-0.78	6	<0.05	2	0.640	0.300	0.190	0.490	0.078
6/26/96 (Q2 '96) (b)	-1.15	5	<0.05	1	1.0	0.170	0.150	0.290	0.120
9/20/96 (Q3 '96) (b)	-0.92	11.0	NA	NA	2.7	0.600	0.500	1.500	0.370
12/11/96 (Q4 '96) (b)	-0.58	5.2	3.0	NA	2.1	0.340	0.400	1.500	0.170
3/24/97 (Q1 '97) (b)	-0.65	10	NA	NA	3.3	0.44	0.8	2	0.015
12/17/98	-1.43	3.7	1.3	NA	0.9	0.053	0.19	0.46	0.08
Date	Elev (ft msl)	Analytical Data from MW-3 (mg/L)							
		TPHG	Diesel	Kerosene	Benzene	Toluene	Ethylbenzene	Xylene	MTBE
6/21/95 (a) (b)	-0.49	0.14	1.9	<0.5	0.00054	0.00052	0.0017	0.005	NA
9/22/95 (Q3 '95) (b)	-0.62	0.130	1.9	<0.5	0.001	0.001	0.012	0.013	NA
12/7/95 (Q4 '95) (b)	-1.38	<1	<0.5	<0.5	<0.005	<0.005	0.013	0.013	NA
3/29/96 (Q1 '96) (b)	-0.69	0.3	<0.05	0.2	0.002	0.002	0.015	0.009	0.006
6/26/96 (Q2 '96) (b)	-1.59	0.4	<0.05	0.6	0.004	0.004	0.025	0.012	0.009
9/20/96 (Q3 '96) (b)	-0.67	0.37	NA	NA	0.004	<0.0005	0.026	0.013	0.006
12/11/96 (Q4 '96) (b)	-0.40	0.39	0.1	NA	0.003	0.002	0.020	0.012	0.005
3/24/97 (Q1 '97) (b)	-0.62	0.26	NA	NA	0.002	0.0007	0.016	0.008	<0.0005
12/17/98	-1.35	0.15	1.1	NA	0.00071	<0.0005	0.0074	0.0031	<0.0025
Date	Elev (ft msl)	Analytical Data from MW-4 (mg/L)							
		TPHG	Diesel	Kerosene	Benzene	Toluene	Ethylbenzene	Xylene	MTBE
9/6/96 (a) (b)	NA	11	330	NA	0.31	0.053	0.47	1.1	0.17
9/20/96 (Q3 '96) (b)	-1.34	12.0	NA	NA	0.890	0.120	1.100	2.000	0.260
12/11/96 (Q4 '96) (b)	-0.98	2.4	2.0	NA	0.390	0.070	0.540	0.840	0.160
3/24/97 (Q1 '97) (b)	-0.99	15	NA	NA	1	0.15	1.6	1.1	0.042
12/17/98	-1.85	2.5	0.88	NA	0.074	0.013	0.18	0.093	0.0046 (d)

(a) Corresponds to first sampling event after well installation.

(b) Data obtained from quarterly monitoring reports prepared by Smith-Emery GeoServices for the Site

(c) "NA" indicates the compound was not analyzed or data not obtained.

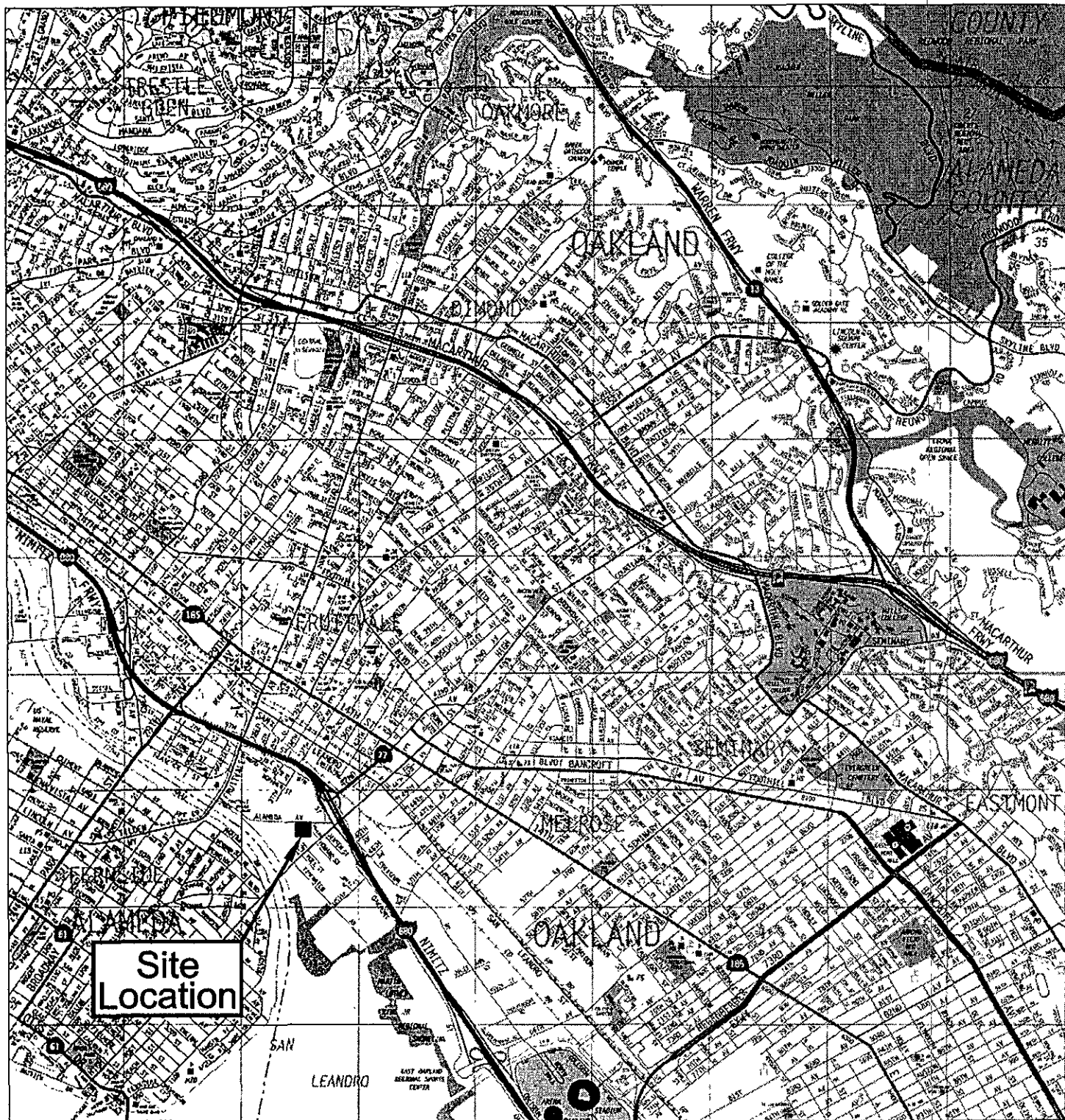
(d) Analyzed using EPA Method 8260. Analyses for MTBE during prior quarters and at wells MW-2 and MW-3 in December 1998 were performed using EPA Method 8015M/8020

Table 2
Summary of Bioattenuation Data
3925 Alameda Avenue, Oakland, California

most "up" ground water

Compound	Date	Analytical Data from MW-1 (mg/L)			
		MW-1	MW-2	MW-3	MW-4
dissolved oxygen (mg/L)	12/17/98	1.3	1.9	3.1	0.8
nitrate (mg/L)	12/17/98	5.9	7.3	<1.0	<1.0
sulfate (mg/L)	12/17/98	34	39	28	31
ferrous iron (mg/L)	12/17/98	3.3	3	3.3	3.3
oxidation reduction potential (mv)	12/17/98	5.6	-116	26.0	-117
pH	12/17/98	6.7	7.0	6.8	6.6
temperature	12/17/98	21.1	20.8	19.7	21.2

*← redox in
 control tank
 anaerobic
 conditions*



Basemap source: 1997 Thomas Guide for Alameda/Contra Costa Counties.



0 3200 6400



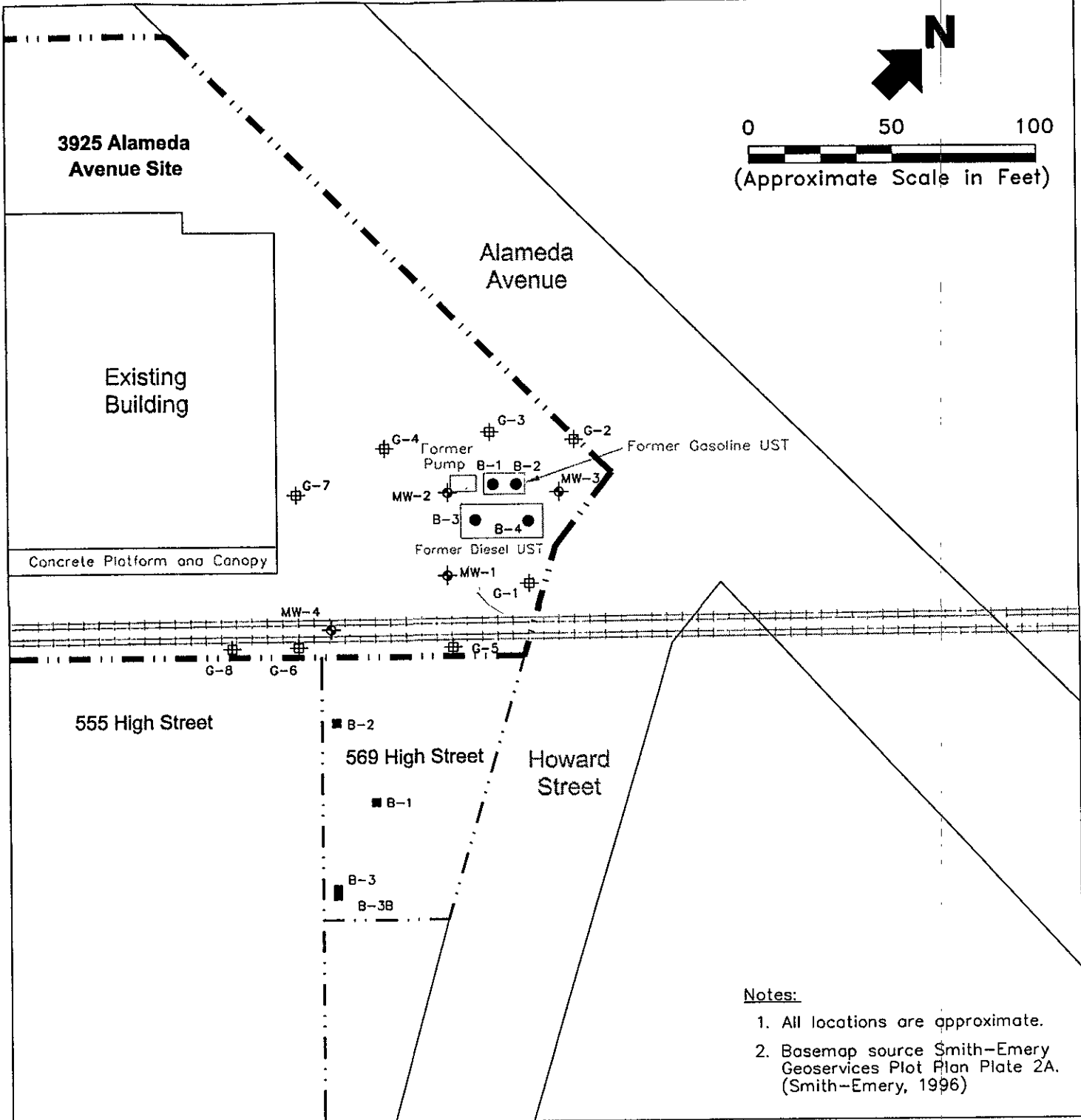
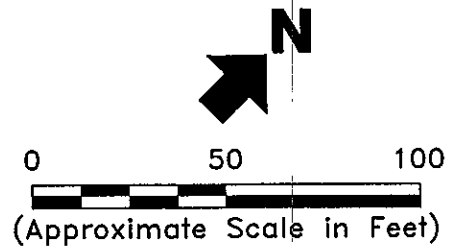
(Approximate Scale in Feet)

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Site Location Map

3925 Alameda Ave.
Oakland, CA
January 1999
EKI 980074.00

Figure 1



- Notes:**
1. All locations are approximate.
 2. Basemap source Smith-Emerly Geoservices Plot Plan Plate 2A. (Smith-Emerly, 1996)

LEGEND

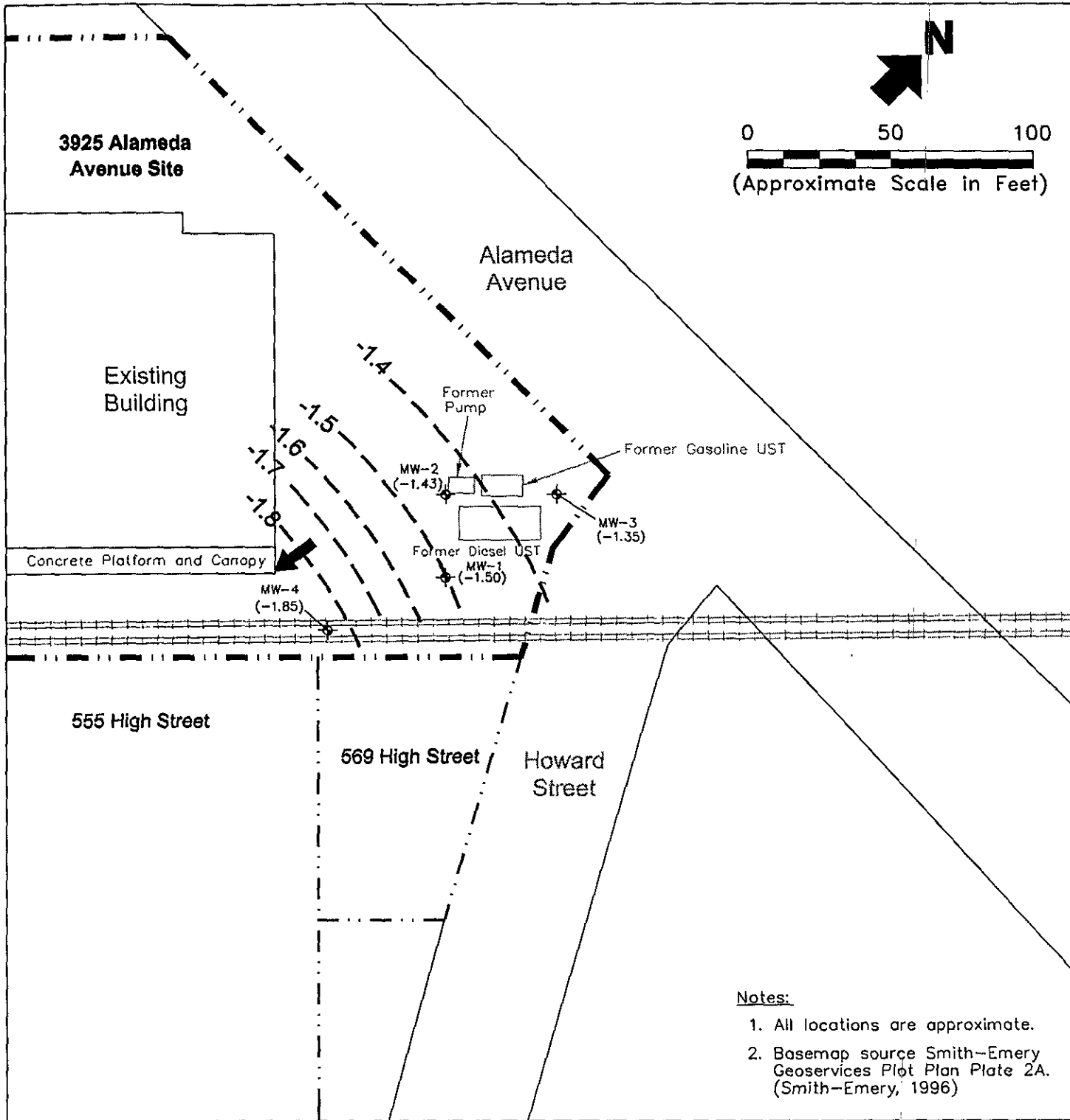
- Approximate Site Boundary
- Railroad Tracks
- On-Site Monitoring Well Location
- On-Site Geoprobe Location
- On-Site Soil Boring Location Collected at Former USTs in 1994
- Off-Site Soil Boring/Grab Groundwater Location

Erler & Kalinowski, Inc.

Site Plan

3925 Alameda Ave.
Oakland, CA
January 1999
EKI 980074.00

Figure 2



Notes:

1. All locations are approximate.
2. Basemap source Smith-Emery Geoservices Plot Plan Plate 2A. (Smith-Emery, 1996)

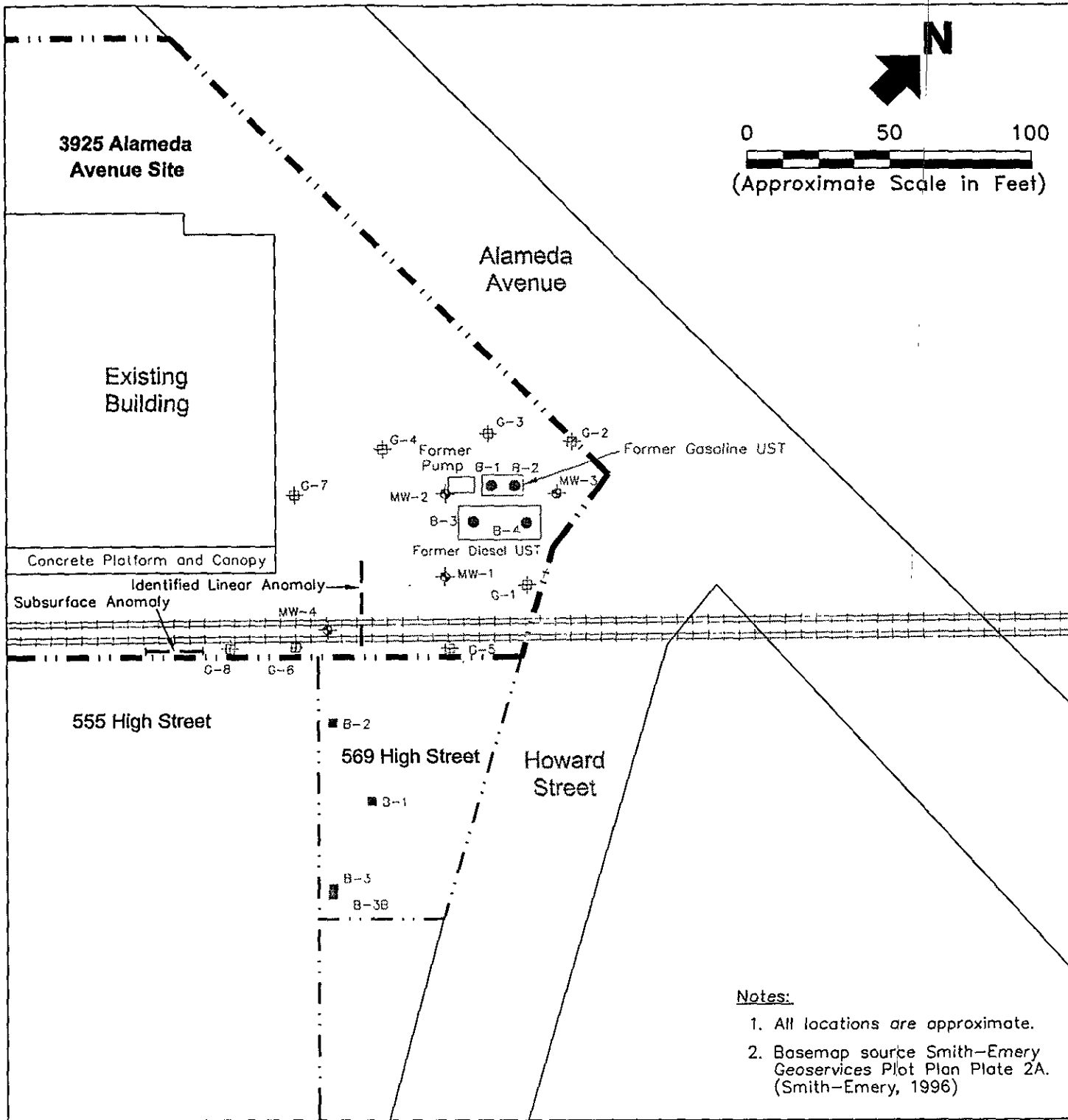
LEGEND

- Approximate Site Boundary
- Railroad Tracks
- On-Site Monitoring Well Location
- Groundwater Elevation Contour (feet msl)
- Groundwater Elevation (feet msl) Measured on 23 December 1998
- Approximate Groundwater Gradient Direction

Erler & Kalinowski, Inc.

Groundwater Elevation Contour Map

3925 Alameda Ave.
Oakland, CA
January 1999
EKI 980074.00
Figure 3



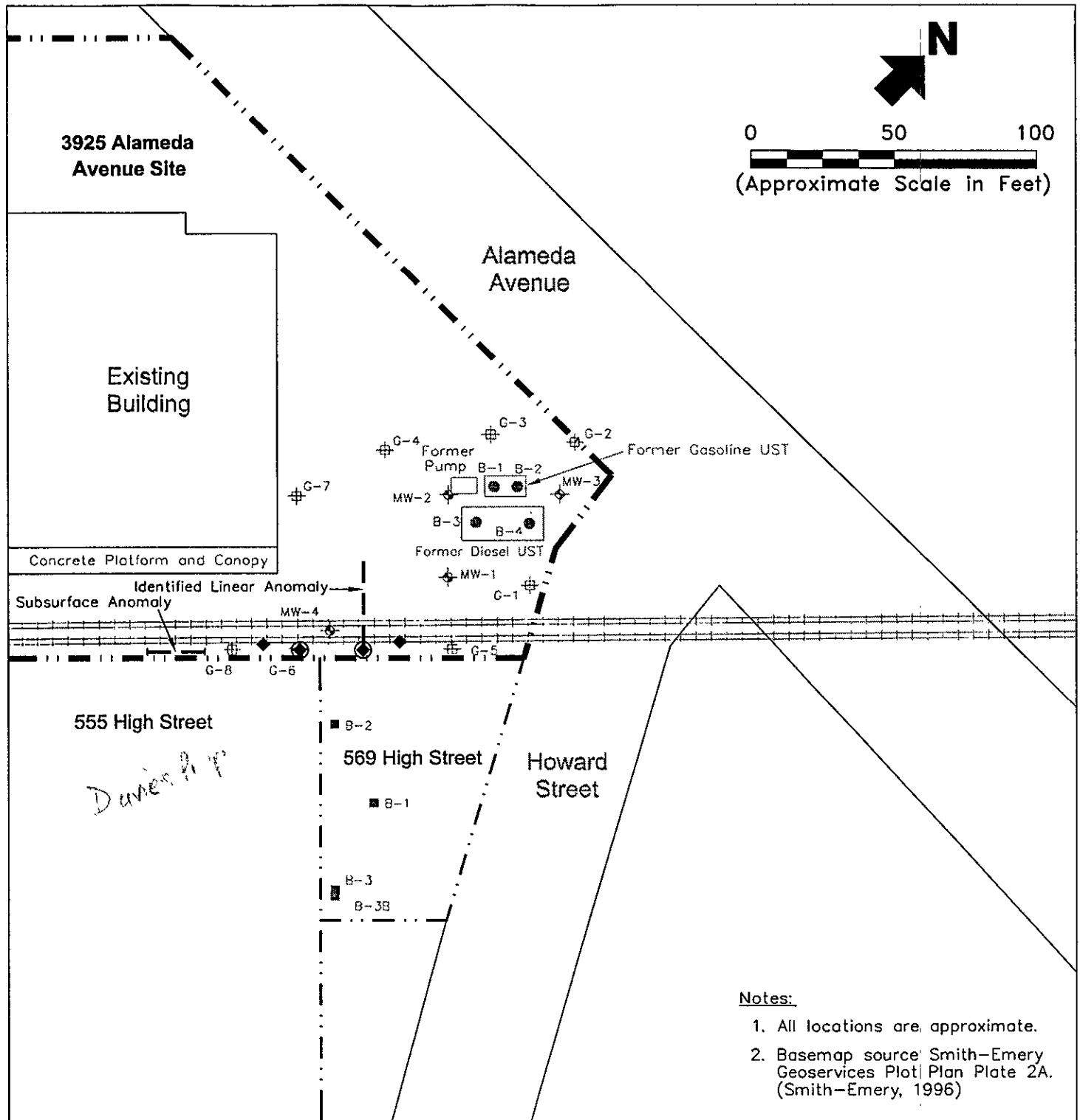
LEGEND

- Approximate Site Boundary
- Railroad Tracks
- On-Site Monitoring Well Location
- On-Site Geoprobe Location
- On-Site Soil Boring Location Collected at Former USTs in 1994
- Off-Site Soil Boring/Grab Groundwater Location

Erler & Kalinowski, Inc.

Structures Identified During Magnetometer Survey

3925 Alameda Ave.
Oakland, CA
January 1999
EKI 980074.00
Figure 4



Notes:

1. All locations are approximate.
2. Basemap source: Smith-Emery Geoservices Plot Plan Plate 2A. (Smith-Emery, 1996)

LEGEND

- Approximate Site Boundary
- ==== Railroad Tracks
- ◆ On-Site Monitoring Well Location
- ⊕ On-Site Geoprobe Location
- On-Site Soil Boring Location Collected at Former USTs in 1994
- Off-Site Soil Boring/Grab Groundwater Location
- ◆ Proposed Soil Sample Location
- Proposed Grab Groundwater Sample Location

Erler & Kalinowski, Inc.

Proposed Soil and
 Grab Groundwater
 Sampling Locations
 3925 Alameda Ave.
 Oakland, CA
 January 1999
 EKI 980074.00
Figure 5

APPENDIX A

**WATER SAMPLE LABORATORY ANALYTICAL REPORTS,
CHAIN OF CUSTODY DOCUMENT,
GROUNDWATER PURGE FORMS,
AND GROUNDWATER LEVEL SURVEY**



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Erfert & Kalinowski, Inc.
1730 South Amphlett, Ste 320
San Mateo, CA 94402

Client Proj. ID: 980074.00/3925 Alameda

Lab Proj. ID: 9812B96

Sampled: 12/17/98

Received: 12/17/98

Analyzed: see below

Attention: Vera Nelson/Cindy Ka

Reported: 01/05/99

LABORATORY ANALYSIS

Analyte	Units	Date Analyzed	Detection Limit	Sample Results
Lab No: 9812B95-01 Sample Desc: LIQUID,MW-1				
Nitrate as Nitrate Sulfate	mg/L	12/18/98	1.0	5.9
	mg/L	12/18/98	1.0	34
Lab No: 9812B95-02 Sample Desc: LIQUID,MW-2				
Nitrate as Nitrate Sulfate	mg/L	12/18/98	1.0	7.3
	mg/L	12/18/98	1.0	39
Lab No: 9812B95-03 Sample Desc: LIQUID,MW-3				
Nitrate as Nitrate Sulfate	mg/L	12/18/98	1.0	N.D.
	mg/L	12/18/98	1.0	28
Lab No: 9812B95-04 Sample Desc: LIQUID,MW-4				
Nitrate as Nitrate Sulfate	mg/L	12/18/98	1.0	N.D.
	mg/L	12/18/98	1.0	31

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

SEQUOIA ANALYTICAL - ELAP #1210


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Erler & Kalinowski, Inc. 1730 South Amphlett, Ste 320 San Mateo, CA 94402	Client Proj. ID: 980074.00/3925 Alameda	Sampled: Received: 12/17/98 Analyzed: see below
Attention: Vera Nelson/Cindy Ka	Lab Proj. ID: 9812B95	Reported: 01/05/99

LABORATORY ANALYSIS

Analyte	Units	Date Analyzed	Detection Limit	Sample Results
Lab No: 9812B95-05 Sample Desc: LIQUID, Method Blank				
Nitrate as Nitrate Sulfate	mg/L	12/18/98	1.0	N.D.
	mg/L	12/18/98	1.0	N.D.

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

SEQUOIA ANALYTICAL - ELAP #1210


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Eier & Kallnowski, Inc.
1730 South Amphlett, Ste 320
San Mateo, CA 94402

Client Proj. ID: 980074.00/3925 Alameda
Sample Descript: MW-1
Matrix: LIQUID
Analysis Method: EPA 8015 Mod
Lab Number: 9812B95-01

Sampled: 12/17/98
Received: 12/17/98
Analyzed: 12/30/98
Reported: 01/05/99

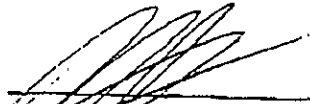
Attention: Vera Nelson/Cindy Ka
QC Batch Number: GC123098BTEX30A
Instrument ID: GCHP30

Total Purgeable Petroleum Hydrocarbons (TPPH)

Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	500	6000
Chromatogram Pattern:		GAS
Surrogates	Control Limits %	% Recovery
Trifluorotoluene	70 130	117

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

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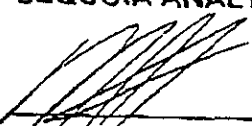
Erler & Kalinowski, Inc.
1730 South Amphlett, Ste 320
San Mateo, CA 94402
Attention: Vera Nelson/Cindy Ka
QC Batch Number: MS121898MTBEH6A
Instrument ID: H6
Client Proj. ID: 980074.00/3925 Alameda
Sample Descript: MW-1
Matrix: LIQUID
Analysis Method: EPA 8260
Lab Number: 9812B95-01
Sampled: 12/17/98
Received: 12/17/98
Analyzed: 12/19/98
Reported: 01/05/99

BTEX Distinction (EPA 8260)

Analyte	Detection Limit ug/L	Sample Results ug/L
Benzene	40	
Ethylbenzene	40	2200
Toluene	40	310
Total Xylenes	40	46
		N.D.
Surrogates	Control Limits %	% Recovery
1,2-Dichloroethane-d4	76	114
Toluene-d8	88	110
4-Bromofluorobenzene	86	115

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

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Miller & Kalinowski, Inc.
730 South Amphlett, Ste 320
San Mateo, CA 94402

Client Proj. ID: 980074.00/3925 Alameda
Sample Descript: MW-1
Matrix: LIQUID
Analysis Method: EPA 8260
Lab Number: 9812B95-01

Sampled: 12/17/98
Received: 12/17/98
Analyzed: 12/19/98
Reported: 01/05/99

Attention: Vera Nelson/Cindy Ka

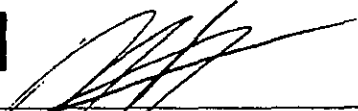
GC Batch Number: MS121898MTBEH6A
Instrument ID: H6

Methyl t-Butyl Ether (MTBE)

Analyte	Detection Limit ug/L	Sample Results ug/L
Methyl t-Butyl Ether	40	N.D.
Surrogates	Control Limits %	% Recovery
1,2-Dichloroethane-d4	76 114	98

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

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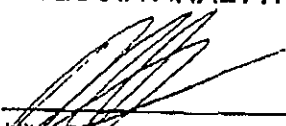
Erler & Kalinowski, Inc. 1730 South Amphlett, Ste 320 San Mateo, CA 94402	Client Proj. ID: 980074.00/3925 Alameda Sample Descript: MW-1 Matrix: LIQUID Analysis Method: EPA 8015 Mod Lab Number: 9812B95-01	Sampled: 12/17/98 Received: 12/17/98 Extracted: 12/21/98 Analyzed: 12/22/98 Reported: 01/05/99
Attention: Vera Nelson/Cindy Ka		
QC Batch Number: GC1221980HBPEXD		
Instrument ID: GCHP5A		

Total Extractable Petroleum Hydrocarbons (TEPH)

Analyte	Detection Limit ug/L	Sample Results ug/L
TEPH as Diesel Chromatogram Pattern: Unidentified HC	50	2500
		C9-C24
Surrogates n-Pentacosane (C25)	Control Limits % 50 150	% Recovery 111

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

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Eler & Kalinowski, Inc.
1730 South Amphlett, Ste 320
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Attention: Vera Nelson/Cindy Ka
QC Batch Number: GC123198BTEX17A
Instrument ID: GCHP17

Client Proj. ID: 980074.00/3925 Alameda
Sample Descript: MW-2
Matrix: LIQUID
Analysis Method: 8015Mod/8020
Lab Number: 9812B95-02

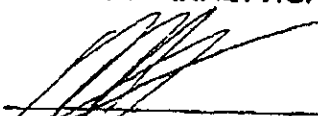
Sampled: 12/17/98
Received: 12/17/98
Analyzed: 12/31/98
Reported: 01/05/99

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX and MTBE

Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	1000	3700
Methyl t-Butyl Ether	50	80
Benzene	10	900
Toluene	10	53
Ethyl Benzene	10	190
Xylenes (Total)	10	460
Chromatogram Pattern:		GAS
Surrogates	Control Limits %	% Recovery
Trifluorotoluene	70 130	112

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

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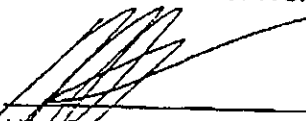
Erlar & Kalinowski, Inc. 1730 South Amphlett, Ste 320 San Mateo, CA 94402	Client Proj. ID: 980074.00/3925 Alameda Sample Descript: MW-2 Matrix: LIQUID Analysis Method: EPA 8015 Mod Lab Number: 9812B95-02	Sampled: 12/17/98 Received: 12/17/98 Extracted: 12/21/98 Analyzed: 12/22/98 Reported: 01/05/99
Attention: Vera Nelson/Cindy Ka		
QC Batch Number: GC1221980HBPEXD		
Instrument ID: GCHP5A		

Total Extractable Petroleum Hydrocarbons (TEPH)

Analyte	Detection Limit ug/L	Sample Results ug/L
TEPH as Diesel Chromatogram Pattern: Unidentified HC	50	1300
		C9-C24
Surrogates n-Pentacosane (C25)	Control Limits % 50 150	% Recovery 98

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

SEQUOIA ANALYTICAL - ELAP #1210


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Erler & Kalinowski, Inc.
1730 South Amphlett, Ste 320
San Mateo, CA 94402

Attention: Vera Nelson/Cindy Ka

QC Batch Number: GC123098BTEX30A
Instrument ID: GCHP90

Client Proj. ID: 980074.00/3925 Alameda
Sample Descript: MW-3
Matrix: LIQUID
Analysis Method: 8015Mod/8020
Lab Number: 9812B95-03

Sampled: 12/17/98
Received: 12/17/98

Analyzed: 12/30/98
Reported: 01/05/99

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX and MTBE

Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	50	150
Methyl t-Butyl Ether	2.5	N.D.
Benzene	0.50	0.71
Toluene	0.50	N.D.
Ethyl Benzene	0.50	7.4
Xylenes (Total)	0.50	3.1
Chromatogram Pattern:		GAS
Surrogates	Control Limits %	% Recovery
Trifluorotoluene	70 130	95

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

SEQUOIA ANALYTICAL - ELAP #1210


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FAX (707) 792-0342


Eler & Kallnowski, Inc. 1730 South Amphlett, Ste 320 San Mateo, CA 94402	Client Proj. ID: 980074.00/3925 Alameda Sample Descript: MW-3 Matrix: LIQUID Analysis Method: EPA 8015 Mod Lab Number: 9812B95-03	Sampled: 12/17/98 Received: 12/17/98 Extracted: 12/21/98 Analyzed: 12/29/98 Reported: 01/05/99
Attention: Vera Nelson/Cindy Ka	QC Batch Number: GC1221980HBPEXD Instrument ID: GCHP4B	

Total Extractable Petroleum Hydrocarbons (TEPH)

Analyte	Detection Limit ug/L	Sample Results ug/L
TEPH as Diesel Chromatogram Pattern: Unidentified HC	50	1100
		C8-C24
Surrogates n-Pentacosane (C25)	Control Limits % 50 150	% Recovery 194 Q

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

SEQUOIA ANALYTICAL - ELAP #1210



 Mike Gregory
 Project Manager





**Sequoia
Analytical**

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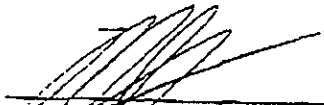
Erler & Kalinowski, Inc. 1730 South Amphlett, Ste 320 San Mateo, CA 94402	Client Proj. ID: 980074.00/3925 Alameda Sample Descript: MW-4 Matrix: LIQUID Analysis Method: EPA 8015 Mod Lab Number: 9812B95-04	Sampled: 12/17/98 Received: 12/17/98 Analyzed: 12/30/98 Reported: 01/05/99
Attention: Vera Nelson/Cindy Ka		
QC Batch Number: GC123098BTEX30A		
Instrument ID: GCHP30		

Total Purgeable Petroleum Hydrocarbons (TPPH)

Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas Chromatogram Pattern:	500	2500 GAS
Surrogates Trifluorotoluene	Control Limits % 70 130	% Recovery 108

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

SEQUOIA ANALYTICAL - ELAP #1210


Milka Gregory
Project Manager





Sequoia Analytical

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Eriar & Kalinowski, Inc. 1730 South Amphlett, Ste 320 San Mateo, CA 94402	Client Proj. ID: 980074.00/3925 Alameda Sample Descript: MW-4 Matrix: LIQUID Analysis Method: EPA 8260 Lab Number: 9812B95-04	Sampled: 12/17/98 Received: 12/17/98 Analyzed: 12/19/98 Reported: 01/05/99
Attention: Vera Nelson/Cindy Ka		
QC Batch Number: MS121998MTBEH6A		
Instrument ID: H6		

BTEX Distinction (EPA 8260)

Analyte	Detection Limit ug/L	Sample Results ug/L
Benzene	4.0	74
Ethylbenzene	4.0	180
Toluene	4.0	13
Total Xylenes	4.0	93
Surrogates	Control Limits %	% Recovery
1,2-Dichloroethane-d4	76	114
Toluene-d8	88	110
4-Bromofluorobenzene	86	115

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

SEQUOIA ANALYTICAL - ELAP #1210



Mike Gregory
Project Manager





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Erler & Kalinowski, Inc. 1730 South Amphlett, Ste 320 San Mateo, CA 94402	Client Proj. ID: 980074.00/3925 Alameda Sample Descript: MW-4 Matrix: LIQUID Analysis Method: EPA 8260 Lab Number: 9812B95-04	Sampled: 12/17/98 Received: 12/17/98 Analyzed: 12/19/98 Reported: 01/05/99
---	---	---

QC Batch Number: MS121998MTBEH6A
Instrument ID: H6

Methyl t-Butyl Ether (MTBE)

Analyte	Detection Limit ug/L	Sample Results ug/L
Methyl t-Butyl Ether	4.0	4.6
Surrogates	Control Limits %	% Recovery
1,2-Dichloroethane-d4	76 114	89

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

SEQUOIA ANALYTICAL - ELAP #1210



Mike Gregory
Project Manager





Sequoia Analytical

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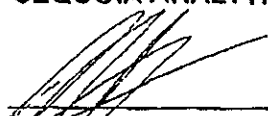
Erler & Kallnowski, Inc. 1730 South Amphlett, Ste 320 San Mateo, CA 94402	Client Proj. ID: 980074.00/3925 Alameda Sample Descript: MW-4 Matrix: LIQUID Analysis Method: EPA 8015 Mod Lab Number: 9812B95-04	Sampled: 12/17/98 Received: 12/17/98 Extracted: 12/21/98 Analyzed: 12/23/98 Reported: 01/05/99
Attention: Vera Nelson/Cindy Ka		
QC Batch Number: GC1221980HBPEXD		
Instrument ID: GCHP5A		

Total Extractable Petroleum Hydrocarbons (TEPH)

Analyte	Detection Limit ug/L	Sample Results ug/L
TEPH as Diesel Chromatogram Pattern: Unidentified HC	50	880 C9-C24
Surrogates n-Pentacosane (C25)	Control Limits % 50 150	% Recovery 96

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

SEQUOIA ANALYTICAL - ELAP #1210



 Mike Gregory
 Project Manager





Sequoia Analytical

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Erier & Kalinowski, Inc. 1730 South Amphlett, Ste 320 San Mateo, CA 94402	Client Proj. ID: 980074.00/3925 Alameda Sample Descript: Method Blank Matrix: LIQUID Analysis Method: EPA 8260 Lab Number: 9812B95-05	Sampled: Received: 12/17/98 Analyzed: 12/19/98 Reported: 01/05/99
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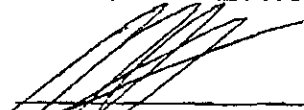
Instrument ID: H6

BTEX Distinction (EPA 8260)

Analyte	Detection Limit ug/L	Sample Results ug/L
Benzene	2.0	N.D.
Ethylbenzene	2.0	N.D.
Toluene	2.0	N.D.
Total Xylenes	2.0	N.D.
Surrogates	Control Limits %	% Recovery
1,2-Dichloroethane-d4	76	114
Toluene-d8	88	110
4-Bromofluorobenzene	86	115

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

SEQUOIA ANALYTICAL - ELAP #1210



 Mike Gregory
 Project Manager





**Sequoia
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Erler & Kallnowski, Inc. 1730 South Amphlett, Ste 320 San Mateo, CA 94402	Client Proj. ID: 980074.00/3925 Alameda Sample Descript: Method Blank Matrix: LIQUID Analysis Method: EPA 8260 Lab Number: 9812B95-05	Sampled: Received: 12/17/98 Analyzed: 12/19/98 Reported: 01/05/99
Attention: Vera Nelson/Cindy Ka		

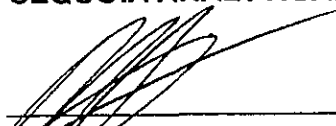
Instrument ID: H6

Methyl t-Butyl Ether (MTBE)

Analyte	Detection Limit ug/L	Sample Results ug/L
Methyl t-Butyl Ether	2.0	N.D.
Surrogates	Control Limits %	% Recovery
1,2-Dichloroethane-d4	76 114	104

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

SEQUOIA ANALYTICAL - ELAP #1210



Mike Gregory
Project Manager





Sequoia Analytical

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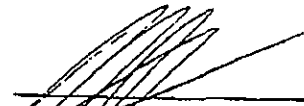
Eler & Kallnowski, Inc. 1730 South Amphlett, Ste 320 San Mateo, CA 94402	Client Proj. ID: 980074.00/3925 Alameda Sample Descript: Method Blank Matrix: LIQUID Analysis Method: 8015Mod/8020 Lab Number: 9812B95-05	Sampled: Received: 12/17/98 Analyzed: 12/30/98 Reported: 01/05/99
Attention: Vera Nelson/Cindy Ka		
QC Batch Number: GC123098BTEX30A		
Instrument ID: GCHF30		

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX and MTBE

Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas		
Methyl t-Butyl Ether	50	N.D.
Benzene	2.5	N.D.
Toluene	0.50	N.D.
Ethyl Benzene	0.50	N.D.
Xylenes (Total)	0.50	N.D.
Chromatogram Pattern:	0.50	N.D.
Surrogates	Control Limits %	% Recovery
Trifluorotoluene	70 130	97

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

SEQUOIA ANALYTICAL - ELAP #1210


Mike Gregory
Project Manager





Sequoia Analytical

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Eiter & Kainowski, Inc. 1730 South Amphlett, Ste 320 San Mateo, CA 94402	Client Proj. ID: 980074.00/3925 Alameda Sample Descript: Method Blank Matrix: LIQUID Analysis Method: EPA 8015 Mod Lab Number: 9812B95-05	Sampled: Received: 12/17/98 Extracted: 12/21/98 Analyzed: 12/22/98 Reported: 01/05/99
Attention: Vera Nelson/Cindy Ka		
QC Batch Number: GC1221980HBPEXD Instrument ID: GCHP5A		

Total Extractable Petroleum Hydrocarbons (TEPH)

Analyte	Detection Limit ug/L	Sample Results ug/L
TEPH as Diesel Chromatogram Pattern:	50	N.D.
Surrogates n-Pentacosane (C25)	Control Limits % 50 150	% Recovery 79

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

SEQUOIA ANALYTICAL - ELAP #1210



 Mike Gregory
 Project Manager





Sequoia Analytical

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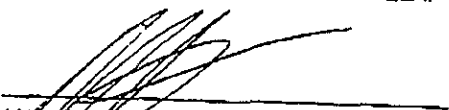
Erlar & Kalinowski, Inc. 1730 South Amphlett, Ste 320 San Mateo, CA 94402	Client Proj. ID: 980074.00/3925 Alameda Sample Descript: Method Blank Matrix: LIQUID Analysis Method: EPA 8015 Mod Lab Number: 9812B95-05	Sampled: Received: 12/17/98 Analyzed: 12/30/98 Reported: 01/05/99
Attention: Vera Nelson/Cindy Ka QC Batch Number: GC123098BTEX30A Instrument ID: GCHP30		

Total Purgeable Petroleum Hydrocarbons (TPPH)

Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas Chromatogram Pattern:	50	N.D.
Surrogates Trifluorotoluene	Control Limits % 70 130	% Recovery 97

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

SEQUOIA ANALYTICAL - ELAP #1210



 Mike Gregory
 Project Manager





Sequoia Analytical

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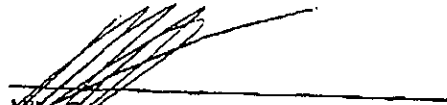
Erier & Kallnowski, Inc. 1730 South Amphlett, Ste 320 San Mateo, CA 94402	Client Proj. ID: 980074.00/3925 Alameda Sample Descript: Method Blank Matrix: LIQUID Analysis Method: 8015Mod/8020 Lab Number: 9812895-06	Sampled: Received: 12/17/98 Analyzed: 12/31/98 Reported: 01/05/99
Attention: Vera Nelson/Cindy Ka QC Batch Number: GC123198BTEX17A Instrument ID: GCHP17		

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX and MTBE

Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas		
Methyl t-Butyl Ether	50	N.D.
Benzene	2.5	N.D.
Toluene	0.50	N.D.
Ethyl Benzene	0.50	N.D.
Xylenes (Total)	0.50	N.D.
Chromatogram Pattern:	0.50	N.D.
Surrogates	Control Limits %	% Recovery
Trifluorotoluene	70 130	115

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

SEQUOIA ANALYTICAL - ELAP #1210



 Mike Gregory
 Project Manager





**Sequoia
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Erlor & Kalinowski, Inc.	Client Proj. ID: 980074.00/3925 Alameda	Received: 12/17/98
1730 South Amphlett, Ste 320		
San Mateo, CA 94402	Lab Proj. ID: 9812B95	Reported: 01/05/99
Attention: Vera Nelson/Cindy Kao		

LABORATORY NARRATIVE

In order to properly interpret this report, it must be reproduced in its entirety. This report contains a total of _____ pages including the laboratory narrative, sample results, quality control, and related documents as required (cover page, COC, raw data, etc.).

MTBE6W Note:

Sample 9812B95-01 was diluted 20 times due to high hydrocarbons.

Sample 9812B95-04 was diluted 2 times due to high hydrocarbons.

Method Blank Note:

Sample 9812B95-01, 04 were analyzed under different MS/MSD batches, but there was only 1 LCS/Method Blank performed for both batches. Therefore, there will be only 1 Method Blank reported.

#Q - Surrogate coelution was confirmed.

SEQUOIA ANALYTICAL



Mike Gregory
Project Manager



CHAIN OF CUSTODY / SAMPLE ANALYSIS REQUEST

Erler & Kalinowski, Inc.

Page of

Analytical Laboratory: Sequoia Analytical

Project Number: EKI 980074.00

Date Sampled: 12/17/98

Project Name: 3925 Alameda Avenue

Sampled By: R.D. Lion

Source of Samples: GW monitoring wells

Report Results To: Vera Nelson/Cindy Kao

Location: Oakland, CA

Phone Number: 650) 578-1172

Lab Sample I D	Field Sample I D	Sample Type	Number and Type of Containers	Time Collected	Analyses Requested (EPA Method Number)	Results Required By (Date/Time)
01	MW-1	water	4-VOAs +HCl 1-1 L. amber glass 1-1L. Plastic	15:28	TPH-g by EPA 8015M, and BTEX/MTBE by EPA 8260 TPH-d by EPA 8015M nitrate & sulfate	10 day TAT
02	MW-2	water	4-VOAs +HCl 1-1 L. amber glass 1-1L. Plastic	14:41	TPH-g and BTEX/MTBE by EPA 8015M/8020 TPH-d by EPA 8015M nitrate & sulfate	10 day TAT
03	MW-3	water	4-VOAs +HCl 1-1 L. amber glass 1-1L. Plastic	13:44	TPH-g and BTEX/MTBE by EPA 8015M/8020 TPH-d by EPA 8015M nitrate & sulfate	10 day TAT
04	MW-4	water	4-VOAs +HCl 1-1 L. amber glass 1-1L. Plastic	16:30	TPH-g by EPA 8015M, and BTEX/MTBE by EPA 8260 TPH-d by EPA 8015M nitrate & sulfate	10 day TAT

Special Instructions:

9812895

Relinquished By:

Received By:

Name / Signature / Affiliation

Date

Time

Name / Signature / Affiliation

<u>R.D. Lion / Erler & Kalinowski, Inc.</u>	<u>EKI</u>	<u>12/17/98</u>	<u>18:33</u>	<u>Vera Nelson / Sequoia</u>	<u>12/17/98 1830</u>

Daily Inspection Report No. _____

Sheet:	1	of	_____
Date:	12/17/98		
Project:	3925 ALMEIDA AV		
EKI Job No.:	980074.00		

Contractor: _____

EKI Staff On-site: ROGER LEON

Weather: CLEAR

Temperature: _____ F Max _____ F Min

Work Hours: 11:40 to 16:40 Memos Issued: _____

Photos: _____

Special Conditions, Delays, Changes: _____

Accidents, Damage: WELL PLUGS / LOCKS SHOULD BE REPLACED.

Sampling, Testing: PURGE & SAMPLE WELLS

Visitors to Site: _____

Work Report (Work done, Personnel/Equipment working): 11:40 I ARRIVED ON SITE / MET DAN AREOLA / TEAMMAN

I VIEWED THE HEALTH / SAFETY PLAN, THEN OPENED WELLS FOR A WATER LEVEL SURVEY. ALL

LOCKS WERE RUSTED AND ALL SEAL PLUGS WERE CORRODED AND SHOULD BE REPLACED.

I MEASURED WATER LEVELS & CALIBRATED FIELD INSTRUMENTS.

13:05 I PURGED MW-3 WITH A PIC BATTERY, THEN COLLECTED A SAMPLE WITH A DISPOSABLE BATTERY.

13:57 I PURGED & SAMPLED MW-2 AS ABOVE. SAMPLES WERE PLACED ON ICE.

14:51 I PURGED & SAMPLED MW-1 AS ABOVE.

15:48 I PURGED & SAMPLED MW-4 AS ABOVE. I DECONNED EQUIPMENT / DRUMS

PURGE WATER

16:40 I LEFT THE SITE FOR THE DAY.

intense steam
no free product
1/8" floating

2 DRUMS PURGE WATER LEFT NEAR MW-4

Distribution: Project Inspection File (orig)
Project Manager

By: Roger Leon

3925 Alameda Avenue
GROUNDWATER PURGE FORM

PROJECT NAME: 3925 Alameda Avenue DATE: 12/17/98
PROJECT NUMBER: 980074.00 WELL NAME: MW-1 PERSONNEL: R.D. Lion

WELL VOLUME CALCULATION:

Depth of Well (ft.) 19.70 - Depth to Water (ft.) 10.11 = Water Column (ft. below) 9.59 * Multiplier 0.64 = Casing Vol. (gallons) 6.14
Multiplier for 4-inch casing diameter = 0.64

PURGE METHOD: 3 1/2 inch BAILER
PUMP INLET DEPTH: _____
START TIME: 14:51 END TIME: 15:20
TOTAL GALLONS PURGED: 22
NOTES/SAMPLES COLLECTED:
MW-1 @ 15:28

INSTRUMENT CALIBRATION	
Instrument	Field measure / Standard measure
Specific Conductance	
pH	
pH	(SEE MW-3)
Turbidity	
ORP	
Temperature	
Depth Probe	

Time	Volume Purged (gallons)	Temperature (C)	Specific Conductance, mS/cm	Oxidation Reduction Potential, mv	pH	Turbidity (NTU)	Depth to water (feet)	Purge Rate (gpm)	Casing Volumes removed	mg/L Dissolved Oxygen	mg/L Ferrous Iron
15:00	8	21.7	1300	+023	6.69	87.4	-	SHEEN	1.30	1.2	
15:11	16	21.2	1339	-006	6.67	206.	10.60	SHEEN	2.61	1.4	
15:20	22	20.5	1289	-034	6.79	350.	-	"	3.58	1.2	3.30

3925 Alameda Avenue
GROUNDWATER PURGE FORM

PROJECT NAME: 3925 Alameda Avenue DATE: 12/17/98
 PROJECT NUMBER: 980074.00 WELL NAME: MW-2 PERSONNEL: R.D. Lion

WELL VOLUME CALCULATION:
 Depth of Well (ft.) Depth to Water (ft.) Water Column (ft. (below)) Multiplier Casing Vol. (gallons)
 19.92 - 9.73 = 10.19 * 0.64 = 6.52
 Multiplier for 4-inch casing diameter = 0.64

PURGE METHOD: 3 1/2 inch PVC BAILER
 PUMP INLET DEPTH: VARIABLE - TO BOTTOM
 START TIME: 13:57 END TIME: 14:22
 TOTAL GALLONS PURGED: 23
 NOTES/SAMPLES COLLECTED:
 MW-2 @ 14:41

INSTRUMENT CALIBRATION	
Instrument	Field measure Standard measure
Specific Conductance	
pH	
pH	(SEE MW-3)
Turbidity	
ORP	
Temperature	
Depth Probe	

Time	Volume Purged (gallons)	Temperature (C)	Specific Conductance, mS/cm	Oxidation Reduction Potential, mv	pH	Turbidity (NTU)	Depth to water (feet)	Purge Rate (gpm)	Casing Volumes removed	Dissolved Oxygen mg/L	Ferrous Iron mg/L
14:02	7	20.8	1.329	-105	6.66	102.1	—	TRACES SHEEN	1.07	1.5 mg/L	H ₂ S ODOR
14:12	15	20.4	1.304	-227	6.79	156.	11.95	"	2.3	2.0	"
14:22	23	21.3	1.321	-016	7.42	238.	11.75	"	3.53	2.3	2.95
NOTE: STRONG H ₂ S ODOR, TRACE OF SHEEN											

3925 Alameda Avenue
GROUNDWATER PURGE FORM

PROJECT NAME: 3925 Alameda Avenue DATE: 12/17/98
PROJECT NUMBER: 980074.00 WELL NAME: MW-3 PERSONNEL: R.D. Lora

WELL VOLUME CALCULATION:

Depth of Well (ft.) Depth to Water (ft.) Water Column (ft. below) Multiplier Casing Vol. (gallons)

19.95 - 10.50 = 9.45 * 0.64 = 6.05

Multiplier for 4-inch casing diameter = 0.64

PURGE METHOD: 3 1/2 inch PVC Bailer

PUMP INLET DEPTH: VARIABLE - TO BOTTOM

START TIME: 12:57 END TIME: 13:29

TOTAL GALLONS PURGED: 21

NOTES/SAMPLES COLLECTED:
MW-3 @ 13:44

INSTRUMENT CALIBRATION

Instrument	Field measure	Standard measure
Specific Conductance	1.06	1.000
pH	6.97	7.01
pH	4.01	4.01
Turbidity	0.02	0.02

ORP: ZOBELL SOLUTION: 236 mv

Temperature

Depth Probe #5

Time	Volume Purged (gallons)	Temperature (C)	Specific Conductance, mS/cm	Oxidation Reduction Potential, mv	pH	Turbidity (NTU)	Depth to water (feet)	Purge Rate (gpm)	Casing Volumes removed	Dissolved Oxygen	HAZ FERROUS IRON mg/L	Ferrous Iron
13:03	8	19.8	1.529	+004	6.77	364	18.2	1.33	1.32	2.6 mg/L	—	—
13:17	16	20.2	1.530	+029	6.75	926	18.8	0.57	2.65	3.9 mg/L	—	—
13:29	21	19.1	1.508	+049	6.86	873	17.0	0.42	3.47	2.9 mg/L	3.30	—

3925 Alameda Avenue
GROUNDWATER PURGE FORM

PROJECT NAME: 3925 Alameda Avenue DATE: 12/17/98
PROJECT NUMBER: 980074.00 WELL NAME: MW-4 PERSONNEL: R.D. Lon

WELL VOLUME CALCULATION:
Depth of Well (ft.) Depth to Water (ft.) Water Column (ft.) Multiplier (below) Casing Vol. (gallons)
1973 - = * 0.64 =
Multiplier for 4-inch casing diameter = 0.64

PURGE METHOD: 3 1/2 INCH PVC BARRIER
PUMP INLET DEPTH: _____
START TIME: 15:48 END TIME: 16:12
TOTAL GALLONS PURGED: _____
NOTES/SAMPLES COLLECTED: 16:30

INSTRUMENT CALIBRATION

Instrument	Field measure	Standard measure
Specific Conductance		
pH		
pH		
Turbidity		(SEE MW-3)
ORP		
Temperature		
Depth Probe		

Time	Volume Purged (gallons)	Temperature (C)	Specific Conductance, mS/cm	Oxidation Reduction Potential, mv	pH	Turbidity (NTU)	Depth to water (feet)	Purge Rate (gpm)	Casing Volumes removed	Dissolved Oxygen	Ferrous Iron
15:54	7	21.2	0.874	-106	6.63	256	10.02			0.4	
16:03	15	21.6	0.982	-142	6.64	287	10.25			0.8	
16:12	23	20.9	1.112	-103	6.59	203	10.28			1.1	3.3

GROUNDWATER LEVEL SURVEY

Erier &
Kalinowski, Inc.

Job Name: 3925 ALAMEDA AV.

Date: 12/17/98

EKI Job No.: 980074.00

Personnel: R.D. Lion

Well Number:										
Condition of well:	MW-1	MW-2	MW-3	MW-4						
Type of Cover	FLUSH	→	→	→						
Covered?	YES	→	→	→						
Locked?	YES	→	→	→						
Sealed?	YES	YES	YES	YES						
Standing water?	YES	YES	YES	YES						
Dia. of casing	4 INCH	→	→	→						
Measuring point	MARK, TOP OF PVC CASING									
Elevation of well			*							
Time opened	12:23	12:14	12:18	12:26						
Time of measurement	12:43	12:41	12:39							
Depth probe used	#5	#5	#5	#5						
Depth to water	10.11	9.73	10.50	(NOT RECORDED)						
Depth of well	19.70	19.92	19.95	19.73						
Conductivity vs. Depth, mMhos/cm										
Temperature vs. Depth Deg. C.										
COMMENTS:										

CHAIN OF CUSTODY / SAMPLE ANALYSIS REQUEST

Erler & Kalinowski, Inc.

Page of

Analytical Laboratory: Sequoia Analytical

Project Number: EKI 980074.00

Date Sampled: 12/17/98

Project Name: 3925 Alameda Avenue

Sampled By: R.D. Lion

Source of Samples: GW monitoring wells

Report Results To: Vera Nelson/Cindy Kao

Location: Oakland, CA

Phone Number: 650) 578-1172

Lab Sample I D	Field Sample I D	Sample Type	Number and Type of Containers	Time Collected	Analyses Requested (EPA Method Number)	Results Required By (Date/Time)
	MW-1	water	4-VOAs +HCl 1-1 L. amber glass 1-1L. Plastic	15:28	TPH-g by EPA 8015M, and BTEX/MTBE by EPA 8260 TPH-d by EPA 8015M nitrate & sulfate	10 day TAT
	MW-2	water	3-VOAs +HCl 1-1 L. amber glass 1-1L. Plastic	14:41	TPH-g and BTEX/MTBE by EPA 8015M/8020 TPH-d by EPA 8015M nitrate & sulfate	10 day TAT
	MW-3	water	4-VOAs +HCl 1-1 L. amber glass 1-1L. Plastic	13:44	TPH-g and BTEX/MTBE by EPA 8015M/8020 TPH-d by EPA 8015M nitrate & sulfate	10 day TAT
	MW-4	water	4-VOAs +HCl 1-1 L. amber glass 1-1L. Plastic	16:30	TPH-g by EPA 8015M, and BTEX/MTBE by EPA 8260 TPH-d by EPA 8015M nitrate & sulfate	10 day TAT

Special Instructions:

Relinquished By:

Received By:

Name / Signature / Affiliation

Date

Time

Name / Signature / Affiliation

Rose Lion / Project Manager	EKI	12/17/98	18:33	Nell Lane / Sequoia	12/17/98	18:30

GROUNDWATER LEVEL SURVEY

Job Name: 3925 ALTRUDA AV.

Date: 12/23/98

Job No.: 980074.00

Personnel: R-D-Lion

Well Number:										
Condition of well:	MW-1	MW-2	MW-3	MW-4						
Type of Cover	FLUSH									
Covered?	YES									
Locked?	NO	NO	NO	YES						
Sealed?	YES	YES	YES	YES						
Standing water?	NO									
Dia. of casing	4 INCH									
Measuring point	MARK, TOP OF PVC CASING									
Elevation of well	—	—	—	—						
Time opened	15:09	15:06	15:07	15:05						
Time of measurement	15:27	15:24	15:22	15:31						
Depth probe used	#9									
Depth to water	10.23 10.23	9.85 9.85	10.61 10.61	10.29 10.29						
Depth Elev. G.W. of well msl	-1.5	-1.43	-1.35	-1.85						
well casing elevation msl	8.73'	8.42	9.26'	8.44'						

COMMENTS: SEALING PLUGS AND PADLOCKS WERE REPAIRED (KEY #0712)

APPENDIX B

GRAPHICAL PRESENTATION OF ANALYTICAL GROUNDWATER DATA

Figure B1-1
Concentration of TPH in Groundwater Over Time: MW-1
3925 Alameda Avenue, Oakland, California
(EKI 980074.00)

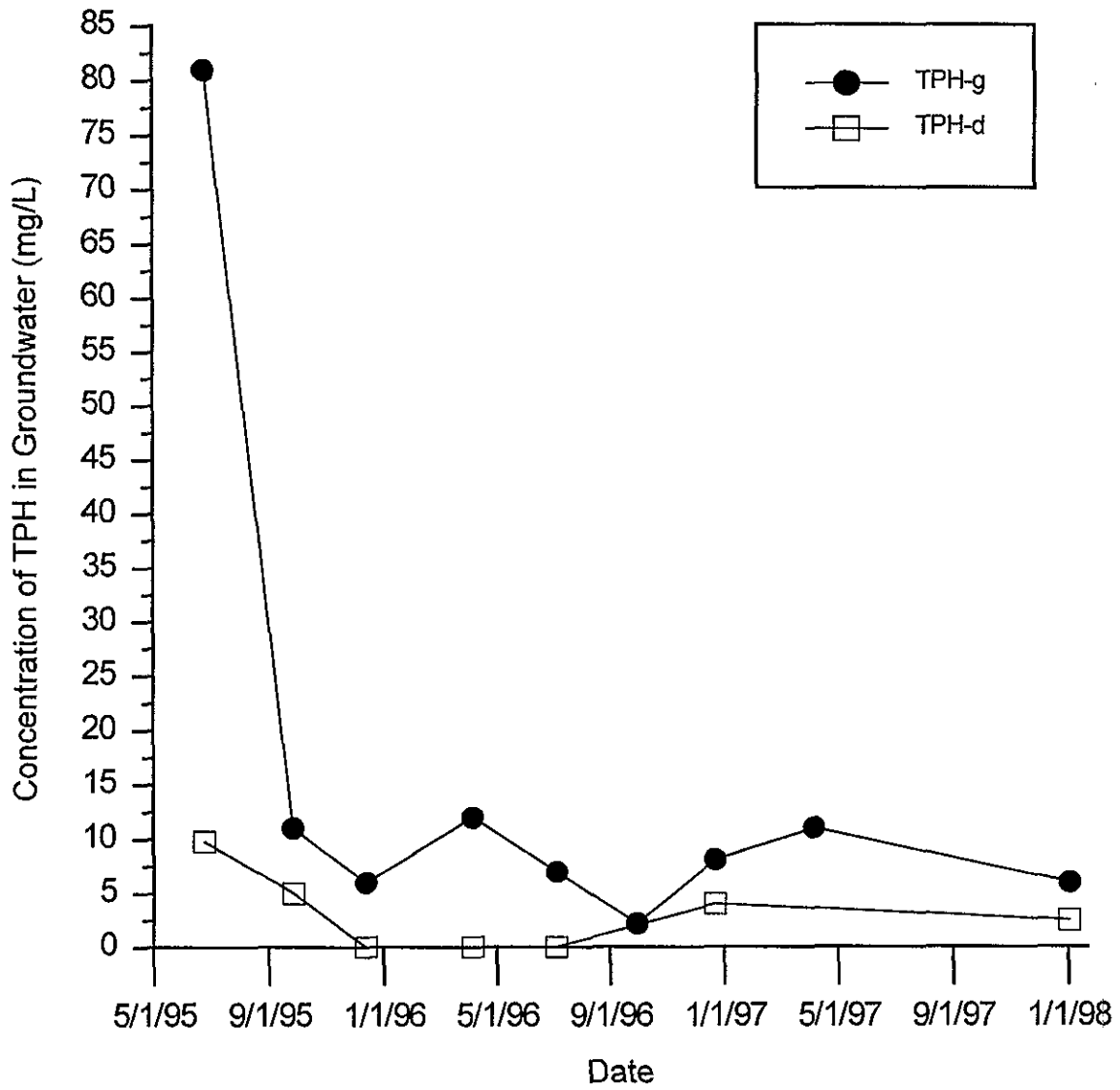


Figure B1-2
Concentration of TPH in Groundwater Over Time: MW-2
3925 Alameda Avenue, Oakland, California
(EKI 980074.00)

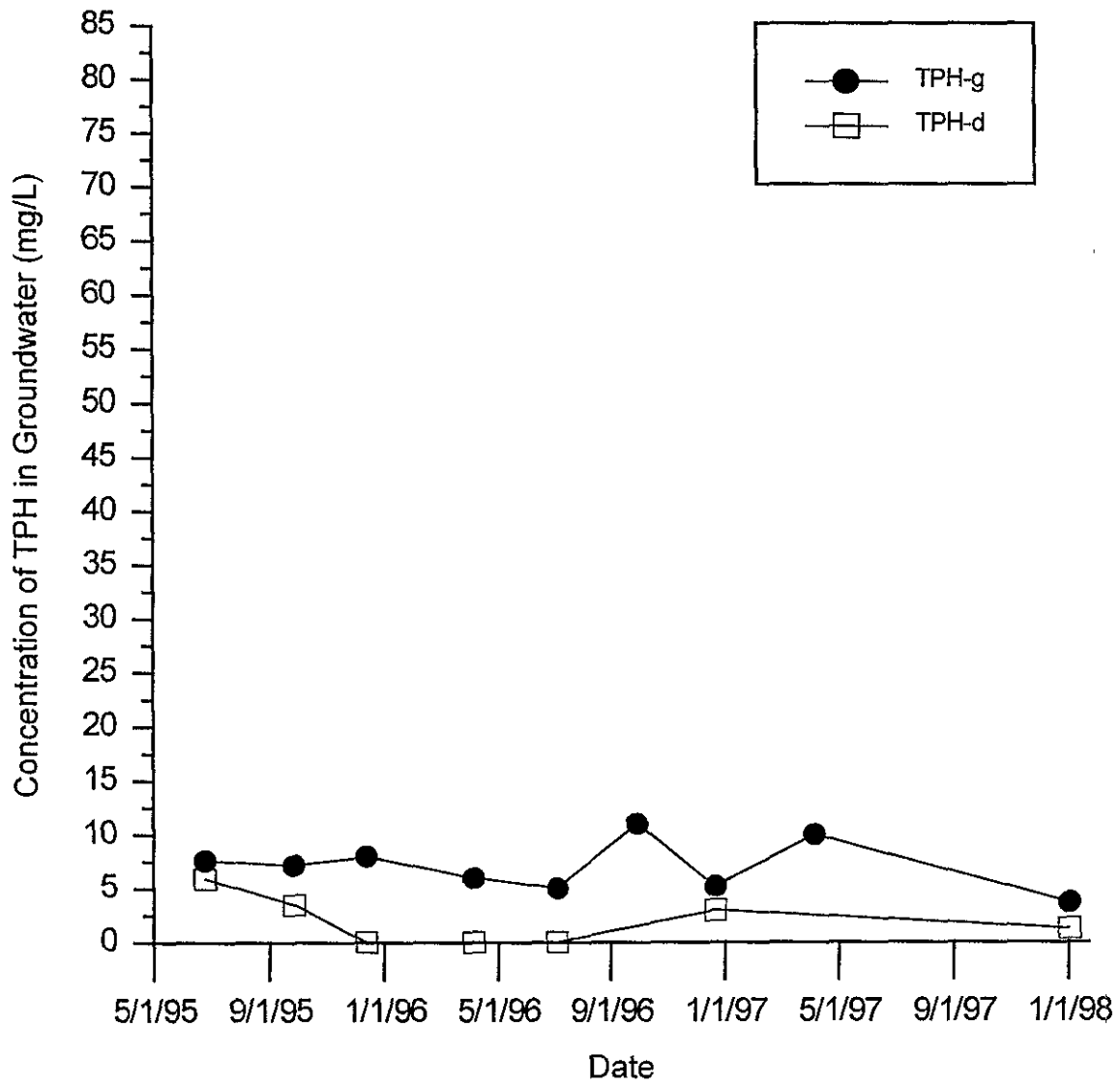


Figure B1-3
Concentration of TPH in Groundwater Over Time: MW-3
3925 Alameda Avenue, Oakland, California
(EKI 980074.00)

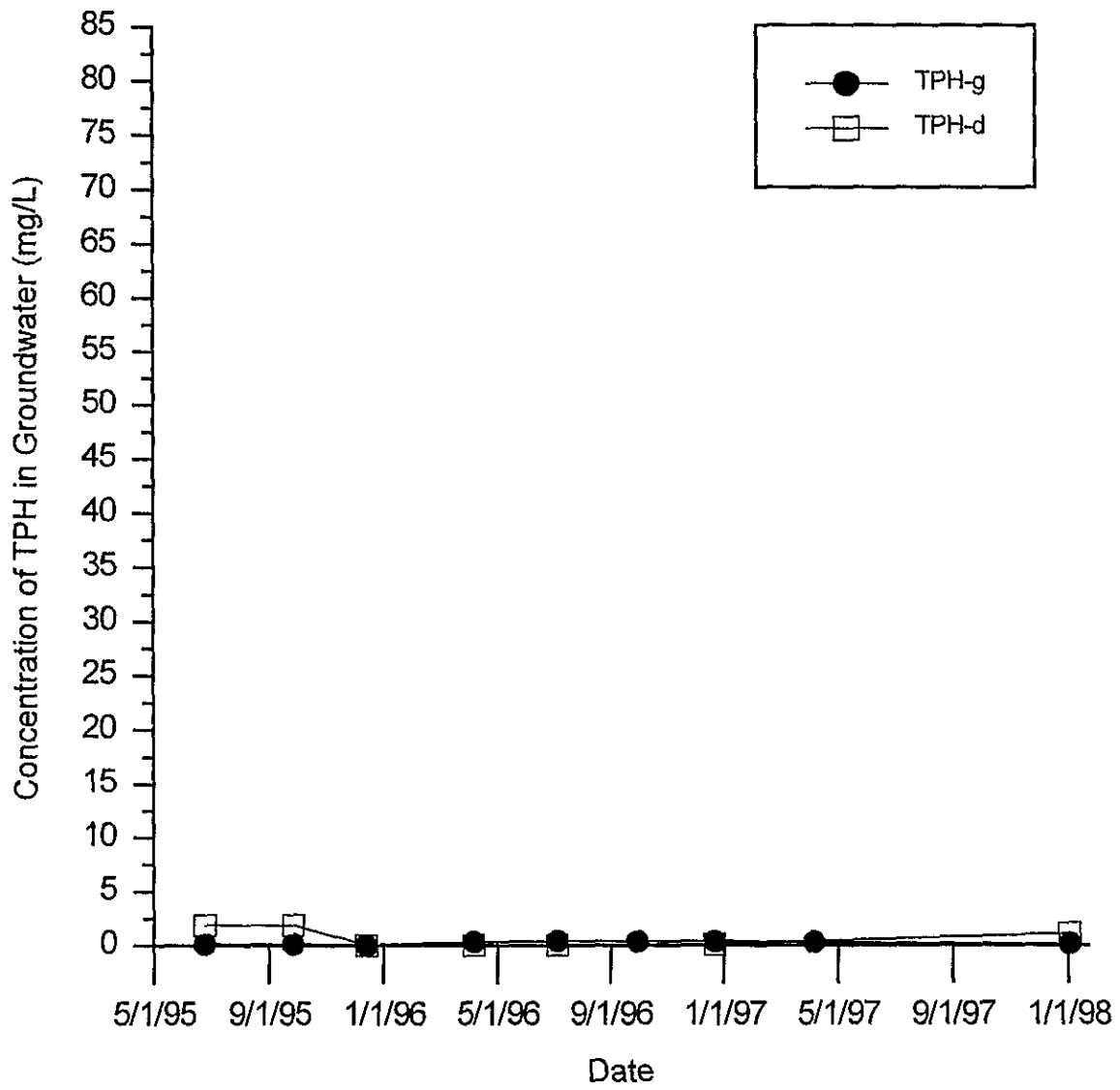


Figure B1-4
Concentration of TPH in Groundwater Over Time: MW-4
3925 Alameda Avenue, Oakland, California
(EK1 980074.00)

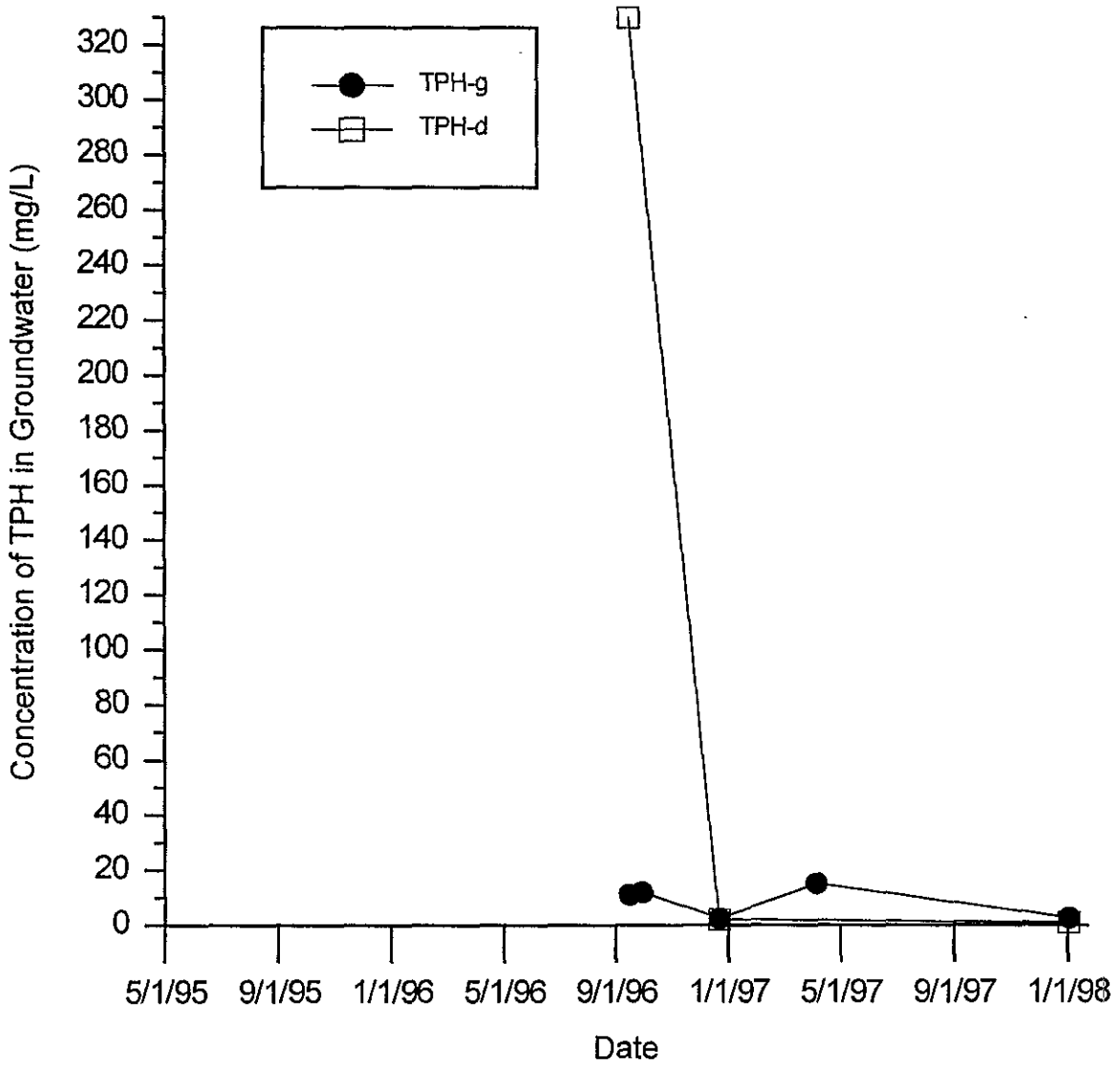


Figure B2-1

Concentration of BTEX and MTBE in Groundwater Over Time: MW-1
3925 Alameda Avenue, Oakland, California
(EKI 980074.00)

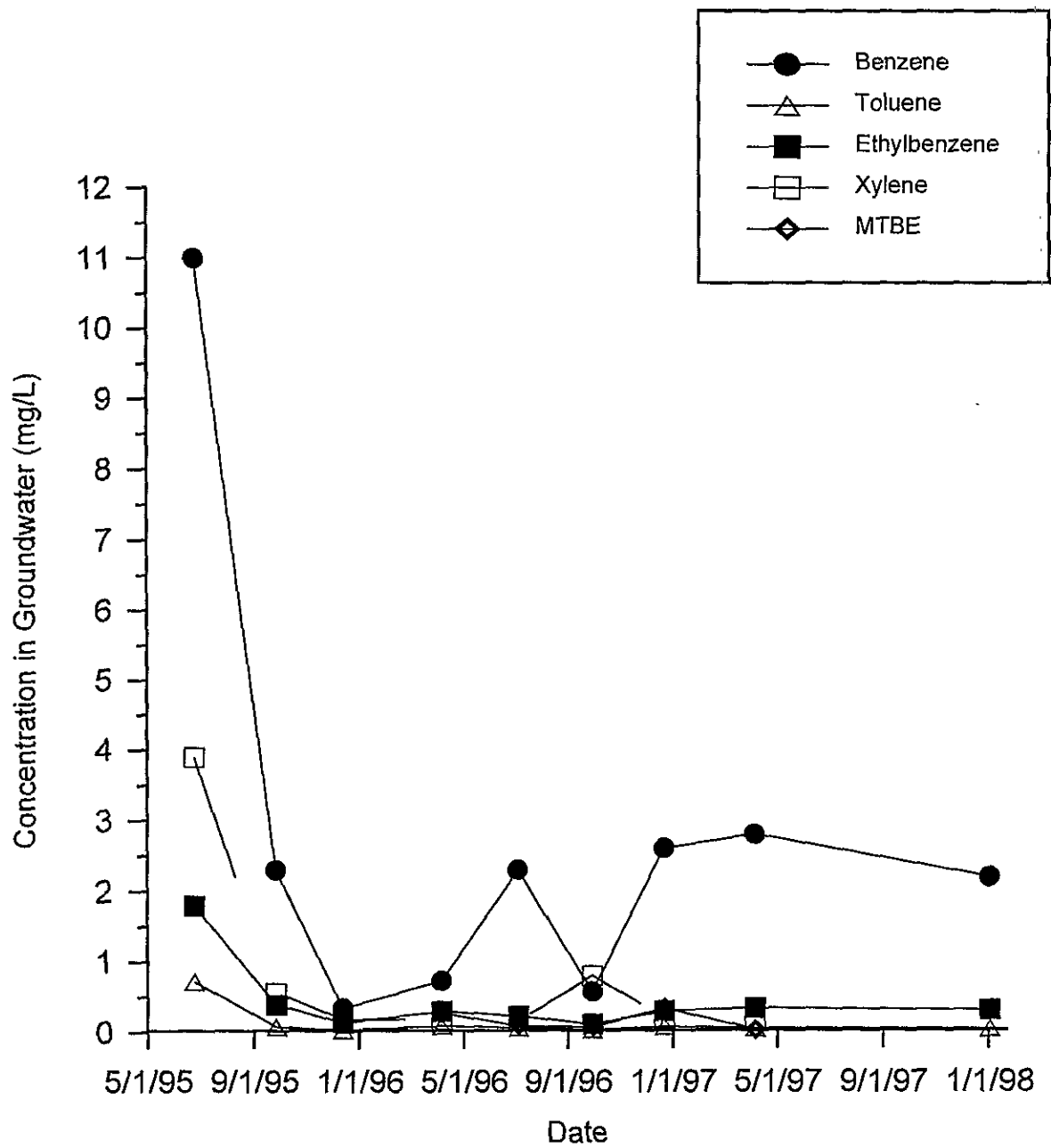


Figure B2-2
Concentration of BTEX and MTBE in Groundwater Over Time: MW-2
3925 Alameda Avenue, Oakland, California
(EKI 980074.00)

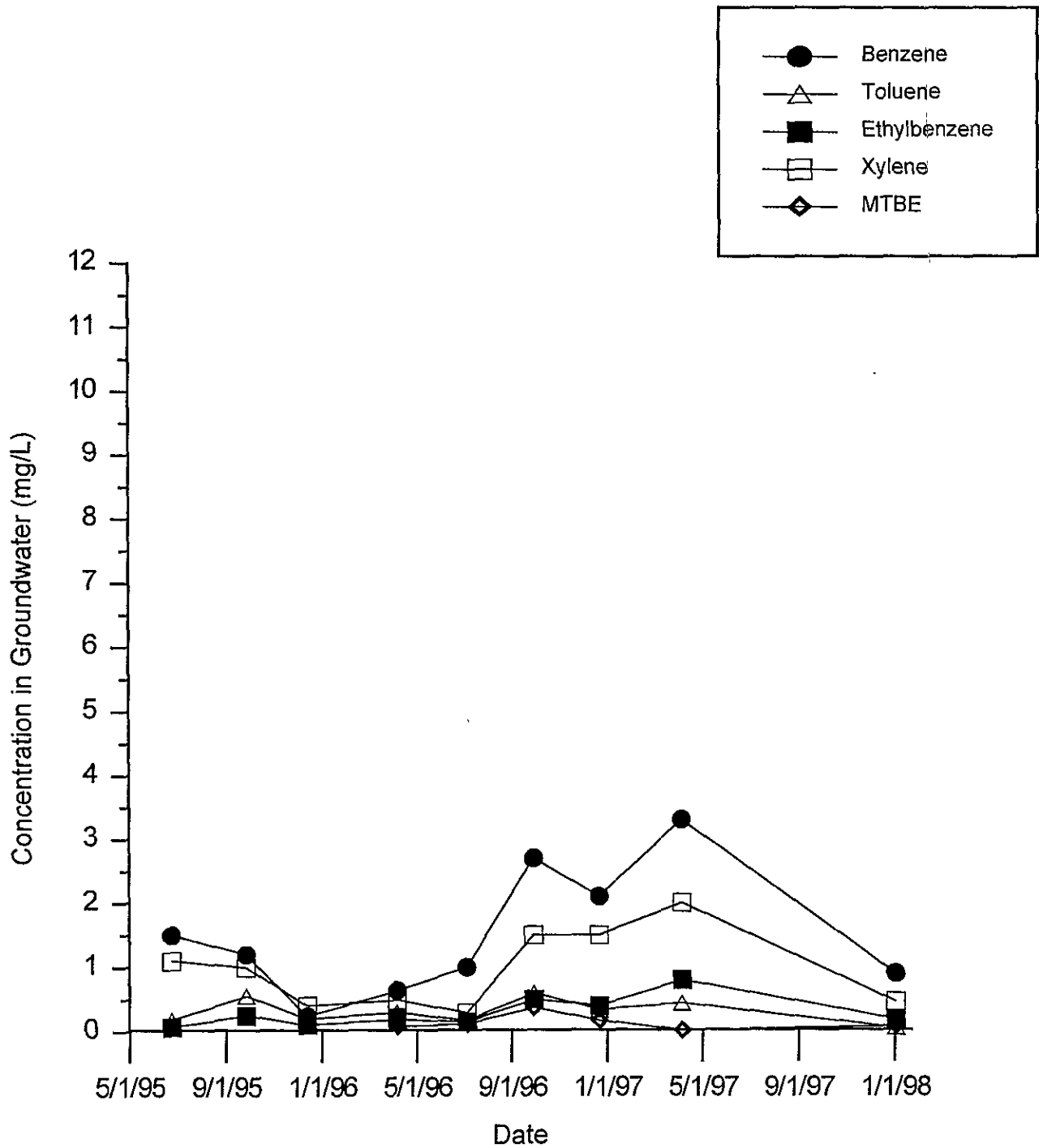


Figure B2-3
Concentration of BTEX and MTBE in Groundwater Over Time: MW-3
3925 Alameda Avenue, Oakland, California
(EKI 980074.00)

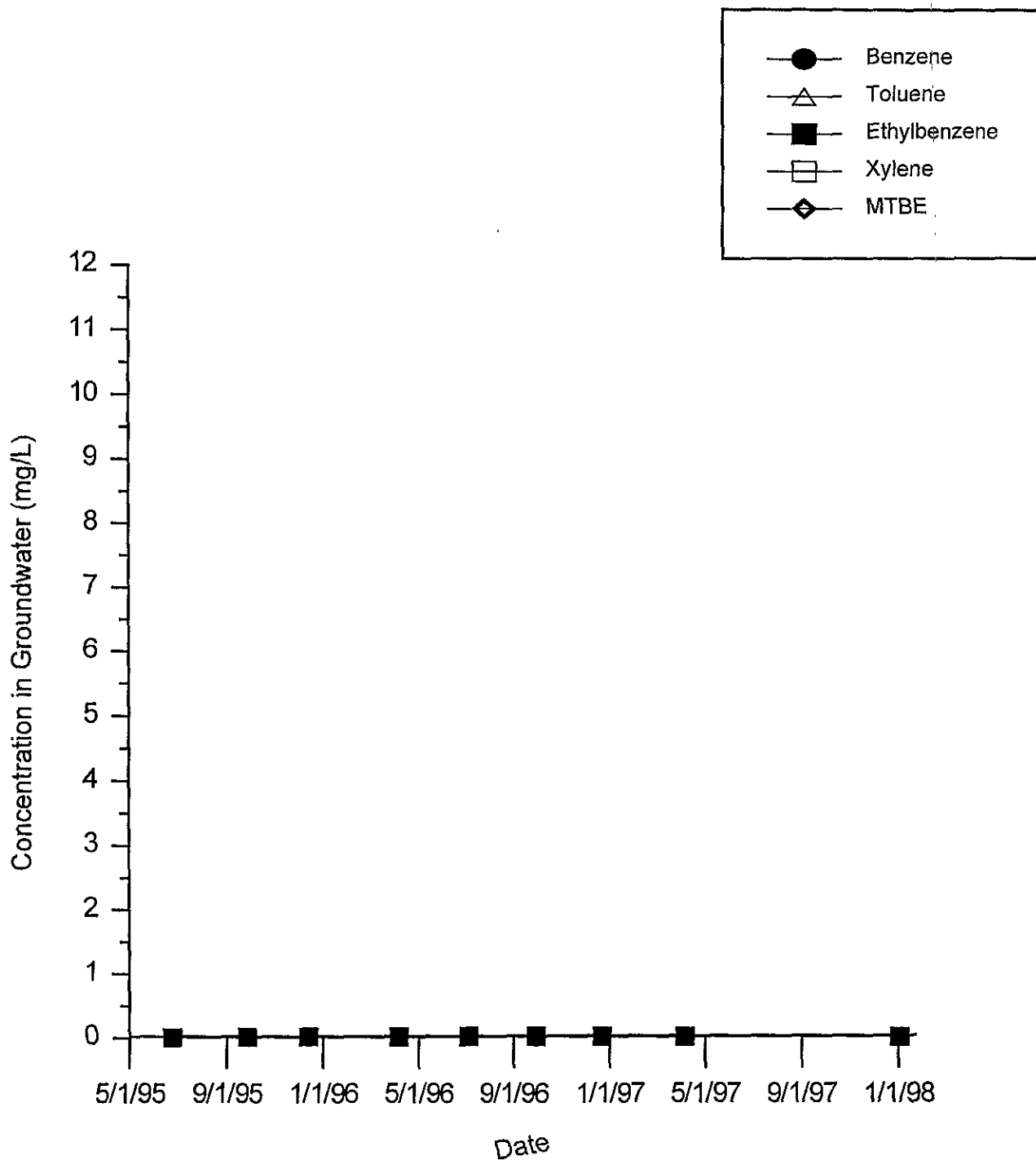
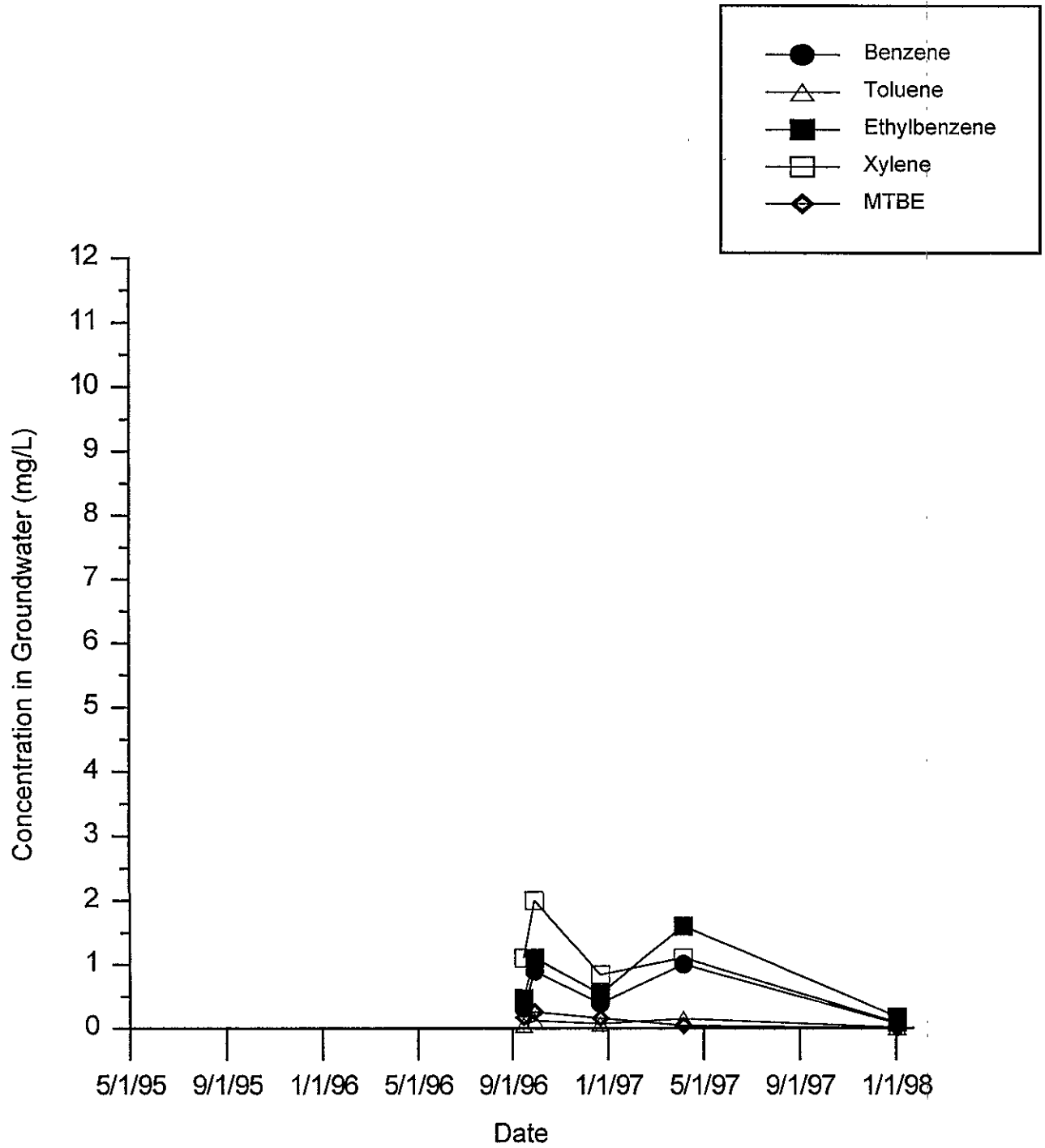


Figure B2-4
Concentration of BTEX and MTBE in Groundwater Over Time: MW-4
3925 Alameda Avenue, Oakland, California
(EKI 980074.00)



APPENDIX C
METHODS AND PROCEDURES FOR COLLECTION OF SOIL AND
GROUNDWATER SAMPLES

APPENDIX C

FIELD METHODS AND PROCEDURES FOR DRILLING OF RECOMMENDED SOIL BOREHOLES AND GRAB GROUNDWATER SAMPLING

3925 Alameda Avenue
Oakland, California
(EKI 980074.00)

These field methods and procedures describe environmental sampling protocols that will be employed during recommended soil borehole drilling and grab groundwater sampling for the 3925 Alameda Avenue site in Oakland, California ("Site"). Groundwater monitoring procedures described in Section 4.0 below are consistent with monitoring procedures used by EKI to collect groundwater samples from on-Site groundwater wells during the December 1998 sampling event. The methods described below are for environmental characterizations only and are not intended for geotechnical purposes.

Prior to drilling, Underground Services Alert ("USA") will be notified and a private utility locating company will be contracted to clear drilling locations. Any plans available from the Site property owner will also be reviewed.

1.0 Hollow Stem Auger Drilling Method for Soil Boreholes

Pre-cleaned, eight-inch outside diameter ("OD") continuous-flight hollow stem augers will be used to drill the borings for grab groundwater sampling to depths of approximately 10 to 5 feet below ground surface ("bgs"). Soil cuttings generated during drilling will be contained in 55-gallon drums approved by the Department of Transportation ("DOT").

Soil samples will be collected at approximately 3 to 5 feet bgs from boreholes by driving either 2.5-inch, 2-inch, or standard penetration samplers into the undisturbed soil ahead of the augers. Between sample intervals, samplers will be cleaned using a brush and a Liquinox® and potable water solution, then rinsed twice in potable water. Rinse water will be collected for proper disposal.

Soil samplers will be used to collect samples from boreholes solely for soil descriptive (logging) purposes. Soil samples collected during drilling will be visually characterized, logged using the Unified Soil Classification System and Munsell Soil Color Chart, and screened to a preliminary degree for the presence of VOCs using an organic vapor meter.

FIELD METHODS AND PROCEDURES

2.0 Collection of Grab Groundwater Samples

If water is present in the borehole, grab groundwater samples will be collected immediately following completion of drilling. If water is not present in the borehole immediately after drilling, the boreholes will be left open until a sufficient quantity of water has entered and grab groundwater samples can be collected. Either a clean Teflon[®] bailer or new disposable polyethylene bailer with new, unused nylon string will be used to collect samples at each grab groundwater sampling location. The bailer will be slowly lowered through the augers to collect the sample. Samples retained in the bailer will be transferred to the appropriate laboratory-supplied bottles (i.e., VOA vials) with chemical preservative. Each sample will be labeled with a unique sample number as well as the date and time of collection, placed in a Ziploc[®] plastic bag, logged onto a chain-of-custody form, and placed in a chilled ice chest for transport to the laboratory.

3.0 Backfilling Soil Borings

All soil borings will be backfilled with cement grout to the total depth of the boring in accordance with Santa Clara Valley Water District ("SCVWD") specifications. Backfilling will be accomplished by mixing cement grout at the surface and pouring the grout into the open borehole if less than 5 feet of water is present in the borehole or pumping the grout into the borehole using a tremie pipe if more than 5 feet of water is present in the borehole. If a tremie pipe is used, then grout will be pumped from the bottom of the borehole to displace water present in the borehole. Displaced water will be contained and transferred into 55-gallon drums.

Boreholes will be completed at the surface to match, as closely as practicable, the surrounding paving surface.

4.0 Well Monitoring

Monitoring wells will be sampled in a sequence beginning with the well that has the lowest anticipated contaminant concentration and proceeding to wells exhibiting increasingly higher concentrations, based on the most recent chemical analyses of water samples from the wells.

Prior to sampling any well, all tools and equipment that are to be used in the well will be thoroughly decontaminated. Decontamination may be accomplished by either (1) steam cleaning or (2) washing in a solution of Alconox[®] or equivalent non-phosphate detergent, followed by rinsing with clean water, then rinsing with distilled water.

FIELD METHODS AND PROCEDURES

At each well to be sampled, the depth to water and the depth to the bottom of the well will be measured and recorded. This information will be used to calculate the volume of water in the well casing. Each well will also be checked for the presence of floating product on the water surface in the well.

Prior to sampling, a pump, a Teflon[®] bailer, and/or a disposable bailer will be used to purge each well. A different disposable bailer will be used for each well that is purged with a disposable bailer. Each well will be purged by removing a minimum of three well casing volumes of water from the well. If a well dewateres during purging, it will be allowed to recharge to at least 75 percent of original volume before sampling. If a well contain less than one foot of water, a grab water sample will be collected instead. During purging, each well will be monitored for temperature, conductivity, and pH. Purging will be considered complete when these parameters stabilize or a minimum of three casing volumes of water have been removed. The water level will be measured again immediately upon completion of purging.

Following purging, each well will be sampled with a Teflon[®] or disposable bailer. The sample will be collected from the midpoint of the water column. Upon retrieval of the bailer, the water samples are transferred to the appropriate laboratory-supplied bottles and preserved as appropriate for the analyses to be performed.

A sample label will be attached to each sample container. The label will include a unique sample identification number, the well number, the time, and the date when the sample was collected. The sealed containers will be placed in zip-closure plastic bags, then placed on ice in a cooler for temporary storage and transport to the laboratory for chemical analysis. Chain-of-custody records will be initiated.

Well development water will be temporarily contained in steel drums pending receipt of results of analyses of groundwater from the respective well(s). The development water will then be disposed of properly.

5.0 Equipment Cleaning

Drilling, soil sampling, and groundwater sampling equipment items used during the investigation will be cleaned prior to and during their use. Augers and down hole equipment used in advancing soil borings and collecting soil samples will be brought to the Site precleaned. In addition, subcontractor's down-hole drilling equipment will be inspected by the supervising engineer or geologist for cleanliness prior to drilling.

FIELD METHODS AND PROCEDURES

Between borings, drilling and reusable groundwater sampling equipment will be steam-cleaned at a designated on-site location. Rinse water generated during the steam-cleaning operations will be contained in DOT-approved 55-gallon drums and upon completion, moved to and left on the 3925 Alameda Avenue property at a designated location.

6.0 Disposal of Investigation-Derived Wastes

Wastes generated during the investigations at the Site will include soil and water generated during drilling of soil boreholes and water from decontamination of the field testing equipment. Soil and water generated from drilling activities will be placed in DOT-approved 55-gallon drums. Waste soil and water containers will be properly labeled as to the contents and dates of generation, placed on the 3925 Alameda Avenue property, and left at a designated location, out of the way of current site operations, approved by the existing tenant. Waste soil and water will be disposed off-Site by Smooke & Sons Investment Co. in accordance with applicable state and federal laws.

APPENDIX D

EXAMPLE SANBORN MAPS

3925 Alameda Avenue (Site) and Vicinity

- (1) 1957 Sanborn Map showing northeast portion of Site and 569 High Street
- (2) 1957 Sanborn Map showing southwest portion of Site and 555 High Street
- (3) 1969 Sanborn Map showing northeast portion of Site and 569 High Street
- (4) 1969 Sanborn Map showing southwest portion of Site and 555 High Street