

# Uriah Environmental Services Inc.

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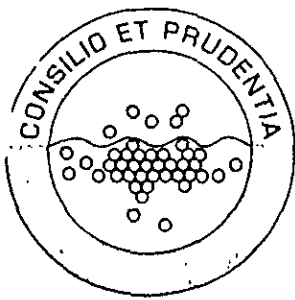
*SRID 307*

APPLICATION  
FOR  
CASE CLOSURE

BAYOX, INC.  
1171 OCEAN AVENUE  
OAKLAND, CA

C O P Y

February, 1993



# Uriah Environmental Services Inc.

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## SITE CLOSURE REPORT

Bayox, Inc.  
1171 Ocean Avenue  
Oakland, CA

RECEIVED  
APR 09 1993  
WESTERN AREA SHEA

### 1.0 INTRODUCTION

In March of 1989, the North Cal Construction Company excavated and removed a 5,000 gallon underground diesel fuel storage tank at the above referenced site. At the time of the tank excavation and removal, soil samples were collected from beneath each end of the tank. Analyses of these soil samples revealed no detectable levels of diesel fuel or waste oil. A grab water sample collected from the tank pit was analyzed using EPA Methods 8015 and 9070 and was found to contain 800 parts per million (ppm) Total Petroleum Hydrocarbons as Diesel (TPH-D) and 490 ppm Oil and Grease, respectively.

On September 6, 1989, Uriah, Inc. undertook a limited site assessment by advancing six (6) exploratory soil borings in the immediate area of the former diesel tank pit (see Figure 6). Soil samples were collected and analyzed for Total Petroleum Hydrocarbons as Diesel (TPH-D) and for benzene, toluene, ethylbenzene, and xylene (BTEX). TPH-D was detected in only one (1) sample at a level of 1.6 parts per million (ppm). None of the soil samples contained detectable levels of BTEX. Grab water samples were also collected from five (5) of the six borings and submitted for analysis. None of the water samples contained detectable levels of TPH-D or BTEX.

On December 26, 1989, Uriah, Inc. installed one (1) two-inch groundwater monitoring well according to the guidelines and requirements set forth by the Alameda County Health Care Services Agency (ACoHCSA), Hazardous Materials Division, and the San Francisco Bay Region Water Quality Control Board (RWQCB). The well was drilled within eight (8) feet of the former underground diesel fuel storage tank pit and in the downgradient direction (see Figure 5).

## 2.0 SITE DESCRIPTION

### 2.1.1 Location

The subject site is located on the southern side of Ocean Avenue between Marshall and Vallejo Streets in the city of Oakland, California (Figures 1 and 2). Vallejo Street runs north-south and forms a boundary between the cities of Oakland and Emeryville. San Francisco Bay is approximately 0.75 mile to the west.

### 2.1.2 Description

The subject site is currently occupied by Bayox, Inc., a subsidiary of Linde Gases of the West - a division of the Praxair Corporation. The site is bounded on the east by Marshall Street, and on the south and west by a mixture of residential and light-industrial occupancies. Single-family dwellings are located to the north, across Ocean Avenue, approximately 40 feet from the Bayox facility.

### 2.2.2 Topography

The site was not surveyed to a mean sea level datum. The property owner, however, has authorized the acquisition of this data should it be deemed necessary.

### 2.2.3 Geology

The soil underlying the site consists of dark brown to black silty clay to three (3) feet below ground surface (bgs). Yellowish-brown clay is found from 3 feet to 7 feet bgs. Clayey-gravel was encountered between 7 feet and 16 feet bgs. Soil in this range was orange-brown in color, with angular clasts to 2". Sandy gravel was present from 16 feet to 29.5 feet bgs. This soil was of medium density, dark orange-brown in color, and contained approximately 12% clay (Uriah soil boring logs, Appendices A and B).

### 2.2.4 Hydrogeology

Depth to groundwater varied from 5.00 feet to 7.35 feet bgs over the course of four (4) rounds of groundwater monitoring well sampling conducted by Uriah between January and November, 1990. The hydraulic gradient was previously determined to be 0.0087, and the direction of groundwater flow was found to be to the southwest (Initial Subsurface Investigation Report, Appendix D).

### 3.0 DRILLING OF SOIL BORING; INSTALLATION AND SAMPLING OF THE MONITORING WELL

On December 26, 1989, Uriah, Inc. installed one (1) two-inch groundwater monitoring well according to the guidelines and requirements set forth by the Alameda County Health Care Services Agency (ACoHCSA), Hazardous Materials Division, and the San Francisco Bay Region Water Quality Control Board (RWQCB). The well was drilled by employees of HEW Drilling Company within eight (8) feet of the former underground diesel fuel storage tank pit, in the previously determined downgradient direction (see Figure 5). All drilling was performed under the direction of Uriah staff Geologist Walter Floyd. The well was advanced using a truck-mounted, 8" outside diameter, continuous-flight, hollow-stem auger.

Soil samples were obtained at 5-foot intervals for lithologic evaluation (using the Unified Soil Classification System) and/or laboratory analysis, except between 9 feet and 15 feet where the sampling frequency was increased to 1-foot intervals in order to obtain a soil sample immediately above the water table as required by ACoHCSA. The samples were collected within clean brass sampling tubes (1.9 inches in diameter and 6.0 inches in length) placed within a California Modified Split Spoon Sampler driven through the hollow stem of the drilling auger. Immediately upon opening of the sampler, the ends of the sampling tube were wrapped in aluminum foil, fitted with plastic caps, sealed with black electrical tape, labeled, and placed on dry ice. During the course of the boring advancement, no discoloration of the soil or odor was noted to be present. While it was expected that the water table would be encountered at a depth of approximately nine (9) feet, it was not encountered until 14 feet below grade.

During the advancement of the boring, it was noted that the fine-grained clayey material present was saturated at approximately 10 feet. This would be expected as the finer grained material would have greater capillary forces than the gravel. However, the unit as a whole was not saturated until 14 feet. The boring was terminated at 29.5 feet. Soil samples obtained at depths of 5 feet (#OW1-5'), 9 feet (#OW1-9'), and 13.5 feet (#OW1-13.5') were transported under chain-of-custody for analysis for Total Petroleum Hydrocarbons as Gasoline (TPH-G), benzene, toluene, ethylbenzene, and total xylenes (BTEX) using EPA Methods MOD. 8015 and 8020, and for Total Petroleum Hydrocarbons as Diesel (TPH-D) using EPA Method MOD. 8015. Soil samples acquired below the water table were collected using a standard split spoon sampler due to the enhanced soil retention capability of this thinner diameter device. These samples were obtained for logging purposes only.

The monitoring well was constructed of 2.0 inch inside diameter threaded Schedule 40 PVC casing. The slotted interval extended 6.5 feet above the first encountered groundwater and 2 feet above static water level to allow any contaminant that may be migrating through the vadose zone to be captured. The

sand pack, which consisted of #3 Monterey Sand, extended 2 feet above the slotted casing, again to allow for the capture of vadose zone material that might be traveling on the top of the capillary fringe. The well was sealed with 1.5 feet of bentonite and 3.5 feet of grout which contained approximately 5% bentonite. Copies of the boring log and monitoring well construction details are enclosed in Appendix B.

All tailings from the drilling were placed on visqueen, covered, and stored on site pending the results of certified laboratory analysis for the determination of proper disposal.

The hollow-stem augers were steam cleaned prior to arrival on the site. All sampling equipment was steam cleaned prior to being brought on site and between all samplings.

The groundwater monitoring well was subsequently developed and sampled by Mr. Floyd on January 8, 1990. A copy of the groundwater monitoring well development and sampling report is enclosed in Appendix B.

#### **4.0 METHODS OF INVESTIGATION**

##### **4.1 Soil Sampling Methodology**

All soil samples acquired at this site were collected in brass sample sleeves.

Soil samples from the soil boring and well installation were collected by driving a 2.0 inch inside diameter California Modified Split Spoon Sampler containing a 1.9 inch diameter by 6.0 inch long brass sample sleeves through the hollow-stem auger(s) into undisturbed soil in the bottom of the test boring. Upon being withdrawn from the soil, the ends of each sleeve were covered with aluminum foil, fitted with plastic caps, sealed with black electrical tape, labeled, placed on dry ice, and then transported to a State-certified hazardous waste analytical laboratory under chain-of-custody.

##### **4.2 Groundwater Monitoring Well Design, Installation, and Development**

The groundwater monitoring well is constructed with 2.0 inch inside diameter Schedule 40 PVC casing. A screw-on/friction cap is used to seal the bottom of the casing. The well is screened with 0.020 inch slotted casing from 9 feet bgs to the bottom of the well at 29.5 feet bgs. The filter pack consists of clean #3 Monterey Sand and extends from 5 feet bgs to the bottom of the boring. The well is sealed with 1.5 feet of bentonite overlain with 3.5 feet of grout containing approximately 5% bentonite. The top of the casing is secured with a water-tight

locking cap and is protected by a traffic box set in a concrete seal. A schematic diagram showing the manner in which the monitoring well MW-1 is constructed is enclosed in Appendix B.

The static water level was measured with an electric water level tape. The total depth of the well was then measured, and the volume of water in the well casing computed.

The well was developed using a vented surge block and was purged using a clean WaTerra-brand hand pump until the pH, conductivity, and temperature were stabilized and the groundwater appeared to be relatively free of sand, silt, and/or other grit material. The corresponding measurement recorded at the time of well development are enclosed in Appendix B. The purged groundwater was stored in a DOT drum on site.

#### **4.3 Groundwater Sampling Methodology**

All groundwater samples were collected at the site by Uriah, Inc. Uriah's sampling protocol is as follows: Depth-to-water and total well depth are measured using an electrical sounding tape, and the volume of water stored in the well casing is then calculated. The well is purged of a minimum of three to four well volumes (or until the water is relatively free of sand, silt, and/or other grit material, and the pH, conductivity, and temperature of the water have stabilized) using a clean, disposable polyethylene bailer or a peristaltic pump. Measurements of cumulative water volume removed, pH, conductivity, and temperature are recorded on Uriah's Well Monitoring Form.

Subsequent to purging the well, the groundwater sample is collected from a point just below the water surface. The sample is then immediately transferred into Volatile Organic Analysis (VOA) vials and/or one-liter, amber glass sample bottles (depending upon what analyses are to be requested). These containers are promptly sealed with teflon-lined screw caps, labeled, and placed in a cooler under blue/dry ice for transportation under chain-of-custody to a State-certified hazardous waste analytical laboratory for analysis. Extracted groundwater in excess of that required for laboratory analysis is placed in a covered 55-gallon Department of Transportation (DOT) drum and stored on site pending receipt of laboratory data for the determination of proper disposal.

#### **4.4 Sample Handling and Analytical Procedures**

All samples were stored on blue ice or dry ice, in a refrigerated ice chest, and/or in a refrigerator during the time period between sample collection and delivery of the sample(s) to the laboratory.

Groundwater samples submitted by Uriah for TPH-G, TPH-D, and BTEX analyses were contained in unpreserved VOA vials and 1-liter amber glass bottles. All samples were transported under chain-of-custody procedures. Comparisons of chain-of-custody records and Certificates of Analyses (Appendices A and C) demonstrate that all analyses were performed within the appropriate holding times. The soil and groundwater samples from this site have been analyzed by the following certified laboratories: Sequoia Analytical, Inc., of Redwood City, CA.; Chromalab, Inc., of San Ramon, CA.; and Trace Analysis Laboratory, Inc. of Hayward, CA. The laboratory addresses and telephone numbers are shown on the respective Certificates of Analyses.

#### **4.5 Analytical Methods**

Analytical and sample preparation methods follow procedures in the EPA publication SW-846. According to the Certificates of Analyses, TPH-G was analyzed using EPA Methods 5030/8015, BTEX were analyzed using EPA Methods 5030/8015 and 8020 or 602, and TPH-D was analyzed using EPA Methods 3550 or 3510/8015. Detection limits are shown in Appendices A and C. All analytical procedures are in accordance with Table 2 of the Tri-Regional Board Staff Recommendation for Preliminary Evaluations and Investigations of Underground Tank Sites.

#### **4.6 Measurements of Free-Product**

The groundwater has been free of sheen or other evidence of free product. Analytical results have shown only very low levels of two (2) of the target contaminants in only one round of sampling. No measurement of free product thickness, therefore, was warranted.

#### **4.7 Depth-to-Water (DTW) Measurements**

DTW was measured using an electric water level measuring tape which is accurate to 0.01 feet.

### **5.0 EXTENT OF SOIL AND GROUNDWATER CONTAMINATION**

#### **5.1 Soil Contamination**

Soil samples were collected at the time the underground diesel fuel storage tank was excavated by North Cal Construction Company in March of 1989. Analyses of these samples revealed no detectable levels of diesel fuel or waste oil. A grab

water sample collected from the tank pit was analyzed using EPA Methods 8015 and 9070 and was found to contain 800 parts per million (ppm) Total Petroleum Hydrocarbons as Diesel (TPH-D) and 490 ppm Oil and Grease, respectively.

On September 6, 1989, Uriah, Inc. undertook a limited site assessment by advancing six (6) exploratory soil borings in the immediate area of the former diesel tank pit (see Figure 6). Grab water samples were collected from five (5) of the six borings and analyzed for Total Petroleum Hydrocarbons as Diesel (TPH-D). None of the water samples contained detectable levels of diesel fuel. The analytical results for the soil and groundwater samples obtained are summarized in Table I below:

TABLE I

Sample #	TPH-D	Benzene	Toluene	Ethylbenzene	Xylenes
<b>Soil Samples (ppm)</b>					
909-0341/LB1-S	ND	ND	ND	ND	ND
909-0342/LB2-S	ND	ND	ND	ND	ND
909-0334/LB3-S	1.6	ND	ND	ND	ND
909-0344/LB4-S	ND	ND	ND	ND	ND
909-0345/LB5-S	ND	ND	ND	ND	ND
909-0346/LB6-S	ND	ND	ND	ND	ND
Method Detection Limit (ppm)	1	0.05	0.1	0.1	0.1
<b>Grab Groundwater Samples (ppb)</b>					
909-0347A/LB1-W	ND	ND	ND	ND	ND
909-0348A/LB2-W	ND	ND	ND	ND	ND
909-0349A/LB3-W	ND	ND	ND	ND	ND
909-0350A/LB4-W	ND	ND	ND	ND	ND
909-0351A/LB6-W	ND	ND	ND	ND	ND
Method Detection Limit (ppb)	50	0.3	0.3	0.3	0.3
TPH-G = Total Petroleum Hydrocarbons as Gasoline TPH-D = Total Petroleum Hydrocarbons as Diesel ppm = Parts per million ppb = Parts per billion ND = Non-detectable					

Chain-of-custody records and Certificates of Analyses pertaining to the above are enclosed in Appendix A.



## 5.2 Groundwater Contamination

Monitoring well MW-1 is located to the northwest of the former tank pit excavation site, in the downgradient direction (see Figure 5).

Groundwater samples were collected between January and November of 1990. The first three (3) quarters of groundwater monitoring revealed non-detectable concentrations of TPH-G, TPH-D, and BTEX. In the last quarter (November, 1990) TPH-G and benzene were detected at 170 parts per billion (ppb) and 1.8 ppb, respectively. As all previous soil and groundwater samples were non-detectable for all contaminants, and because no gasoline tank was present, it is possible that: 1) the TPH-G and benzene reported during November of 1990 originated elsewhere and have migrated to the subject site over time; or 2) the November 1990 results are anomalous and representative of a sampling and/or laboratory error; or 3) the laboratory results are accurate in indicating gasoline-range compounds, but are not actually representative of gasoline, specifically (some gasoline-range compounds are naturally occurring e.g. certain hexane derivatives). The analytical results for the groundwater samples obtained from MW-1 are summarized in Table II below:

TABLE II

Date	TPH-G (ppb)	TPH-D (ppb)	Benzene (ppb)	Toluene (ppb)	Ethylbenzene (ppb)	Xylenes (ppb)
1/8/90	ND	ND	ND	ND	ND	ND
3/9/90	ND	ND	ND	ND	ND	ND
7/12/90	ND	ND	ND	ND	ND	ND
11/16/90	170	ND	1.8	ND	ND	ND*
Method Detection Limit (ppb)	50	50	0.5	0.5	0.5	0.5
TPH-G = Total Petroleum Hydrocarbons as Gasoline TPH-D = Total Petroleum Hydrocarbons as Diesel ppb = Parts per Billion ND = Non-detectable * = Trace Analytical Laboratory detection limit - 2 ppb						

Chain-of-custody records and Certificates of Analyses pertaining to the above are enclosed in Appendix C.

## 6.0 LOCAL AND REGIONAL HYDROGEOLOGY

The hydrogeology has been discussed above (Section 2.2.4). As indicated previously, during the advancement of the boring for the placement of the groundwater monitoring well, it was noted that the fine-grained clayey material present was saturated at approximately 10 feet. This would be as expected as the finer grained material would have greater capillary forces than the gravel. The unit as a whole, however, was not saturated until 14 feet. It is likely that contamination migrating through the vadose zone would cease downward movement at a depth of approximately 10 feet where the capillary fringe begins.

Because it appears that the groundwater has not been impacted by contamination from the subject site, we believe that further discussion of hydrogeology, especially with respect to transport of contamination, is not warranted.

## 7.0 BENEFICIAL USES

While the saline character of the groundwater at the Bayox facility site precludes practical application as a potential source of drinking water, it does interface with the waters of the Emeryville Marina, the Berkeley Marina, Aquatic Park, and the San Francisco Bay. These waters see significant commercial ship and recreational boat traffic, however, and frequent low level discharge of fuel from both types of vessels is common. It is likely that these low level discharges have had, and will continue to have, a much greater impact on Marina and Bay waters than the presence of fuel hydrocarbons detected in the groundwater at the Bayox facility site.

## 8.0 SITE HISTORY/ENVIRONMENTAL COMPLIANCE

Bayox, Inc. has occupied the 1171 Ocean Avenue site since 1981. It repackages industrial gases and is involved with the transport of compressed gases and liquids. Above ground storage tanks containing carbon dioxide, oxygen, nitrogen, and argon are present on the site.

A 5,000 gallon underground diesel fuel storage tank existed on this site until March of 1989 at which time it was excavated and removed by the North Cal Construction Company under the supervision of the County of Alameda. This tank had been used to refuel company operated vehicles and equipment. The removal action was not in response to a failure of the tank or its associated piping system but, rather, was in accordance with a corporate decision to remove and/or replace all underground storage tanks nationwide. This tank was precision tested annually as a matter of company policy.

Previously, on January 20, 1988, the tank failed a (precision) test performed by the Petrotech Company and it was subsequently determined that the tank had been improperly plumbed. The problem was corrected by disconnecting and relocating the vent line to the high end of the tank. A full system test, including product line, was conducted subsequent to this corrective action and the tank system was declared "tight" @ -.0004 gallons per hour. In the opinion of the Petrotech staff, only a limited amount of product was lost to the backfill directly under the pumping unit and fill areas. As a matter of routine, however, Bayox, Inc. filed an Unauthorized Release Report (URR). A soil boring was subsequently advanced to a depth corresponding to the bottom of the tank. Groundwater was encountered at this depth (available data suggests this was at 10.7 feet below grade). The groundwater was described only as "... being free of floating product". Copies of the Petrotech report, precision tank test results, and the URR are enclosed in Appendix D.

There are no other underground storage tanks known to exist on site at the present time.

According to Haines Directories, the site was occupied by Bay Area Fountain Service between 1979 and 1981. This firm is reported to have supplied and repaired soda fountain equipment. From at least 1967 to sometime between 1969 and 1979, this site was occupied by Berkeley Charter Lines Buses. The exact date of transfer of occupancy from Berkeley Charter Lines Buses to Bay Area Fountain Service is unclear due to incomplete listings in the Polk and Haines Directories.

According to employees of the Linde Division, the 1171 Ocean Avenue property was acquired from a "truck repair shop" (which we assume to be Berkeley Charter Lines Buses). It has been stated that the "... repair shop" utilized an underground diesel storage tank located beneath the area now occupied by the carbon dioxide storage tank. According to Linde Division records the diesel tank was excavated and removed in 1978. This appears to be confirmed by records of the City of Oakland Fire Department. A permit to remove an underground storage tank at 1171 Ocean Avenue was issued by that agency on September 14, 1981. At that time, however, no tank was found.

Research into San Francisco Bay Region Water Quality Control Board (RWQCB) files revealed that a number of contamination events have been reported as having occurred within a one-half mile radius of 1171 Ocean Avenue. A listing of these sites as available from the RWQCB is enclosed as Table III. Of the sites listed, particular note was taken of the Bolin Service Garage and the Property Contamination Control (PCC) site which are located at 6335 and 6400 San Pablo Avenue (Oakland), respectively. These sites are less than 0.1 mile from the subject property and are apparently upgradient of the Bayox facility. A brief summary of information found in RWQCB files is as follows:

**Site #1: Bolin Service Garage**  
**6335 San Pablo Avenue, Oakland, CA**

Two (2) underground storage tanks were removed from this location on April 11, 1988. At the time of removal, it was determined that piping associated with a gasoline tank had leaked product due to corrosion. An Unauthorized Release Report (URR) was filed by Property Contamination Control, Inc. on May 5, 1988. The URR indicated that the release had affected the soil only. The volume of product lost was unknown. The proposed remedial action indicated on the URR was for excavation and treatment. A letter was issued by Alameda County Health Care Services Agency (ACoHCSA) to the property owner on November 29, 1988, directing the property owner to conduct a subsurface investigation. Aside from the URR and letter from ACoHCSA, no other information was on file with the RWQCB.

**Site #2: PCC**  
**6400 San Pablo Avenue, Oakland, CA**

An Unauthorized Release Report (URR) was filed for this location by Property Contamination Control, Inc. (PCC) on January 13, 1989. This site was referred to as "St. Columbia Church - Vacant Lot". Two (2) underground storage tanks were removed from this location (date not specified). These tanks consisted of one (1) leaded gasoline tank and one (1) diesel fuel tank. The volume of these tanks was not indicated. The nature of the release and the volume of product lost was unknown. A form letter was issued by Alameda County Health Care Services Agency (ACoHCSA) on February 27, 1989, pertaining to analytical data, chain-of-custody records, hazardous waste manifest, etc. Aside from the URR and letter from ACoHCSA, no other information was on file with the RWQCB.

The relative proximity of the sites listed in Table III to the Bayox facility has been detailed in Figure 3.

## 9.0 CONCLUSIONS AND RECOMMENDATIONS

Analyses of soil samples collected following the excavation of the diesel fuel storage tank in March of 1989 revealed no detectable levels of diesel fuel or waste oil. Only low levels of residual contamination were detected in a grab water sample from the tank pit (Appendix D). Detectable levels of Total Petroleum Hydrocarbons as Diesel (TPH-D) were found in only one (1) of six (6) soil samples collected in September of 1989, at a level of 1.6 parts per million (ppm). Analyses of groundwater samples from five (5) soil borings advanced in the immediate area of the former tank pit revealed no detectable levels of fuel hydrocarbons or benzene, toluene, ethylbenzene, and total xylenes (BTEX; Appendix A). Soil and groundwater samples collected at the time of groundwater monitoring well installation in December of 1989 were non-

detectable for Total Petroleum Hydrocarbons as Gasoline (TPH-G), TPH-D, and BTEX (Appendix B). TPH-G, TPH-D, and BTEX were all non-detectable through the first three (3) rounds of quarterly groundwater monitoring well sampling. Low levels of TPH-G and benzene were detected in the fourth quarter (November, 1990) at 170 parts per billion (ppb) and 1.8 ppb, respectively (Table II and Appendix C).

Because benzene has been detected in groundwater samples acquired from the on-site monitoring well, and as benzene is well studied and likely the most toxic and a highly mobile constituent of gasoline, it is appropriate to use it as the benchmark by which potential negative impacts of the residual groundwater contamination at the Bayox site may be measured.

It is well documented that the extent of benzene migration and its persistence in the environment is largely a function of the amount of oxygen present (Ram, Christman, and Cantor, "Significance and Treatment of Volatile Organic Compounds in Water Supplies", 1990). Monoaromatic hydrocarbons, of which benzene is an example, are known to biodegrade in the presence of oxygen. Any dispersion caused by the heterogeneous character of the aquifer would also serve to enhance mixing of oxygenated water with the plume. Mixing of water containing oxygen with the plume would provide a basis for the continued biodegradation of benzene. This would retard the evolution of the plume, as well as result in a loss of mass (see Figure I, below).

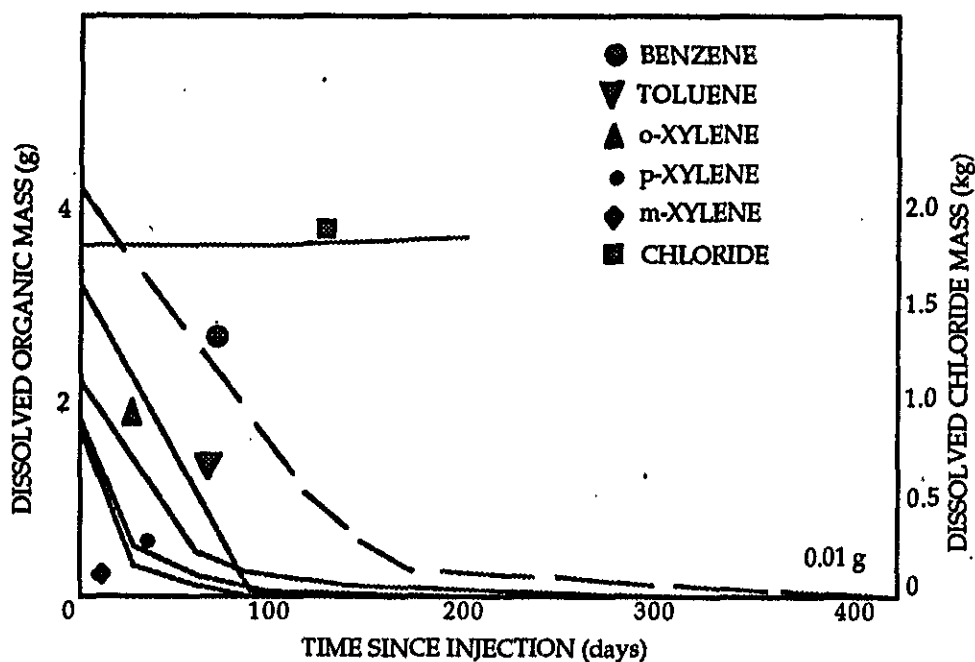


Figure I. Loss in mass over time for five aromatic compounds during the Borden tracer test. From Barry-Spark et al. (Ram, Christman, Cantor; 1990)

The significant recharge of surface waters potentially effected by the residual groundwater contamination found at the Bayox site tends to maintain a high level of oxygenation. Perhaps the most significant source of well oxygenated water would be that supplied by run-off and groundwater flowing from the Oakland hills (additional sources would include tidally influenced movement of water, rainfall, other bodies of fresh water entering the area, etc.).

Epidemiologic studies with data relevant to regulation of benzene are mostly of occupational groups, and are limited to the 8-hour workday, five days a week. Cancer risks are evaluated in working populations exposed to higher levels of contaminants than normally found in the general environment. Findings from high to much lower exposure levels have to be extrapolated, as urban levels of benzene are typically several orders of magnitude lower. Only a few investigations have been able to estimate worker exposures in enough detail so as to provide useful information for quantitative risk assessment. Under certain assumptions, these risk estimates have been used to extrapolate results and calculate the allowable concentration of benzene in drinking water to result in an excess risk no greater than  $10^{-5}$  or  $10^{-6}$  (the State of California Drinking Water Standard for benzene is 0.7 ppb). While the low level found in one groundwater sample collected 28 months ago slightly exceeded this level, it should be emphasized that the saline character of the groundwater at this site precludes practical application as a potential source of drinking water, and even as a source of agricultural and/or industrial processing water. This low level is unlikely to have significant environmental and/or public health impact(s). Benzene was also non-detectable in all previous soil and groundwater samples collected. In addition, it would be expected that trace amounts of residual benzene, if any, would be subject to continued biodegradation.

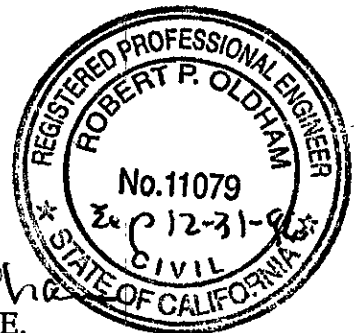
Available data indicates that soil contamination has been appropriately remediated and the site meets ACoHCSA and RWQCB standards. Groundwater appears to not have been significantly impacted to date. Little, if any, residual contamination appears to be present in groundwater. Because the source of fuel hydrocarbons (the underground diesel fuel storage tank) has been removed, and there is no residual contamination remaining in the soil, future significant negative impacts upon groundwater appear unlikely.

Sincerely,

*Valentin Constantinescu*

Valentin Constantinescu, M.Sc.  
Hydrogeologist

*Robert Oldham*  
Robert Oldham, P.E.  
Registered Civil Engineer



cc: Mr. Randy Lee  
San Francisco Bay Region  
Regional Water Quality Control Board

Mr. Brian Oliva  
Alameda County Health Care Services Agency  
Hazardous Materials Division

BT301/OCE1171/022193

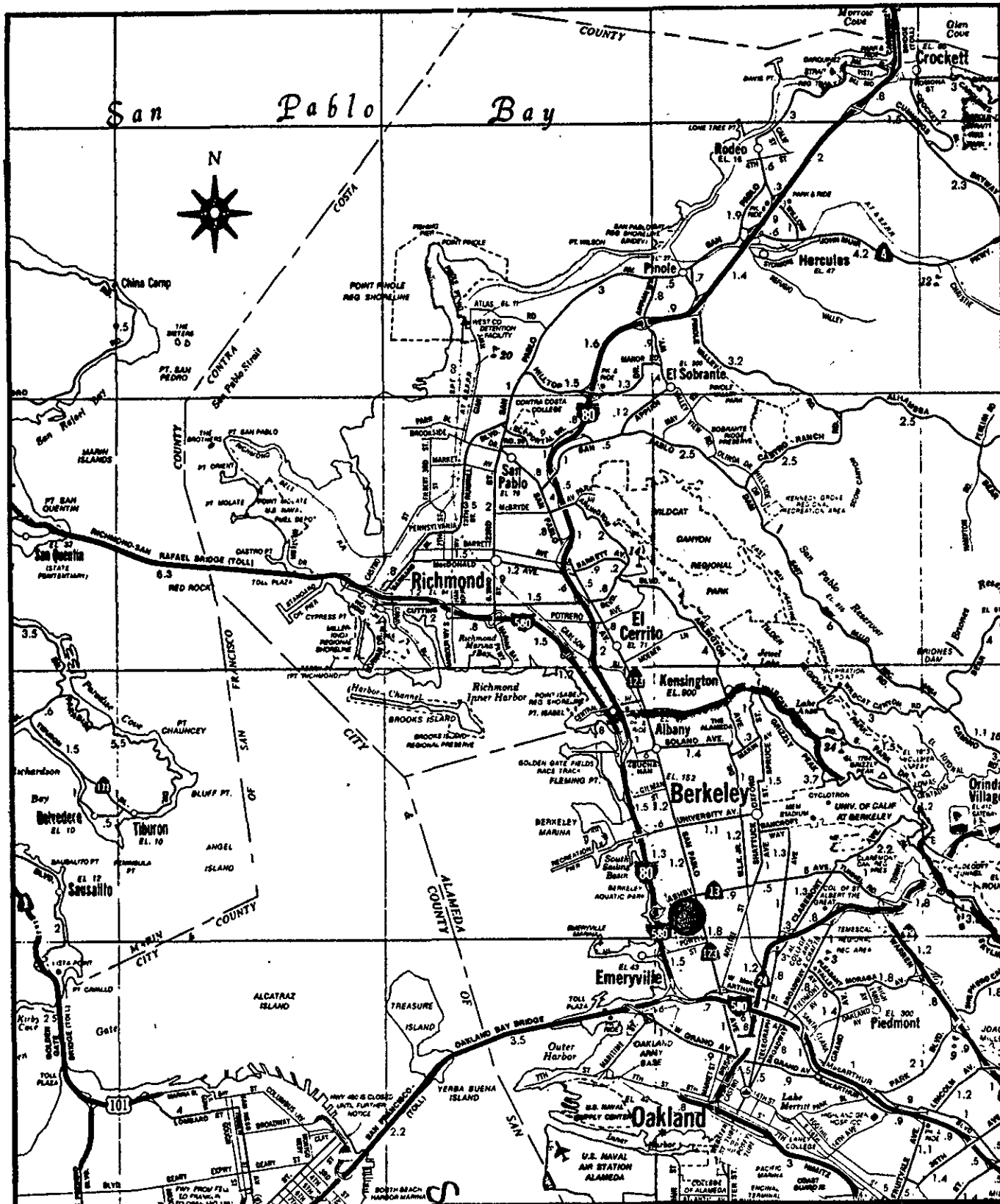
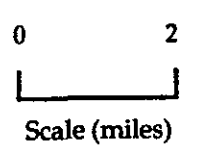
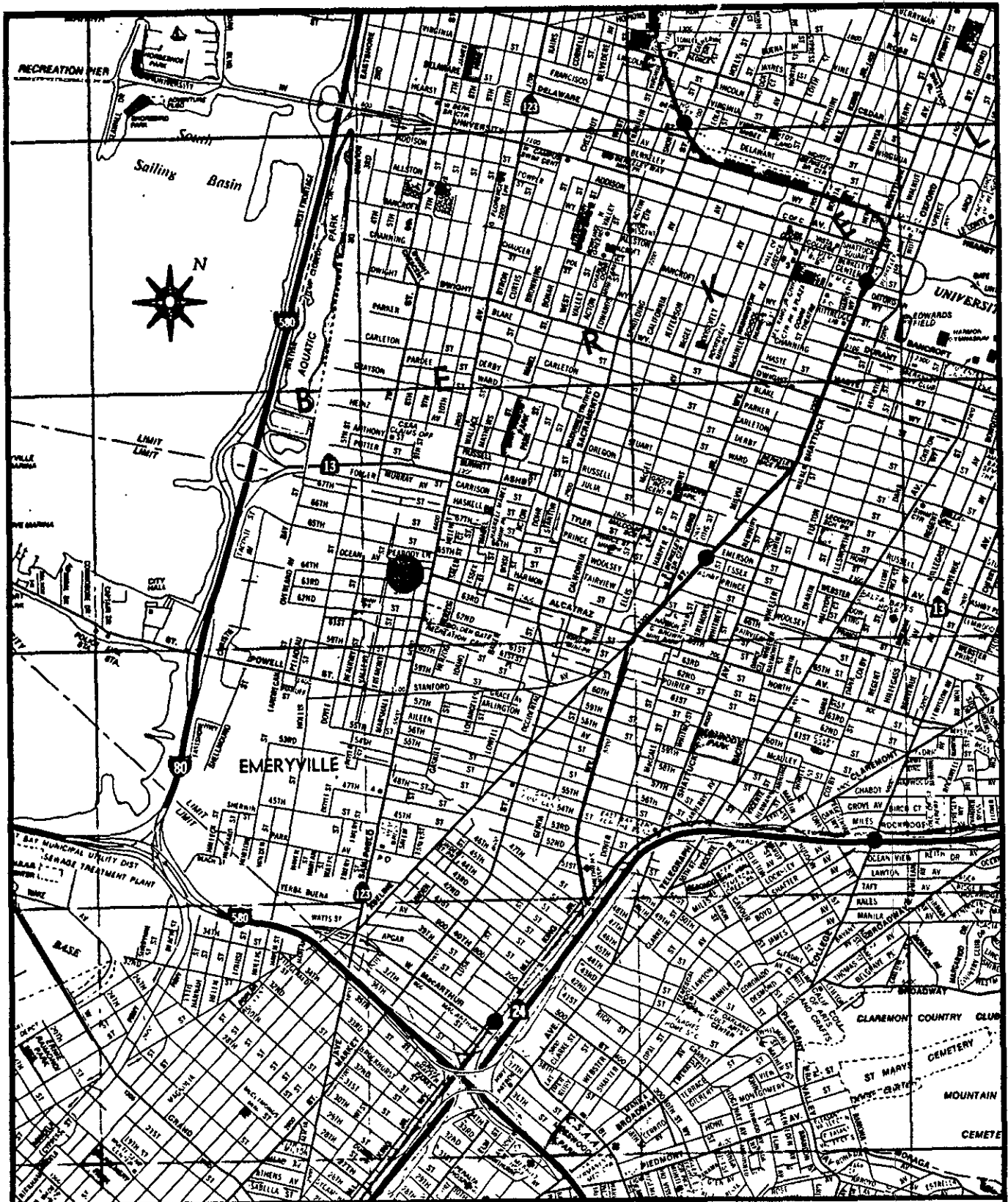


Figure 1 - Regional Map  
 Colored circle denotes location of  
 1171 Ocean Avenue,  
 Oakland, CA



**Uriah Environmental Services Inc.**  
 2401 East Orangeburg Avenue #675-218, Modesto, CA 95355





**Figure 2 - Locality Map**

Colored circle denotes location of  
1171 Ocean Avenue,  
Oakland, CA

0 0.5

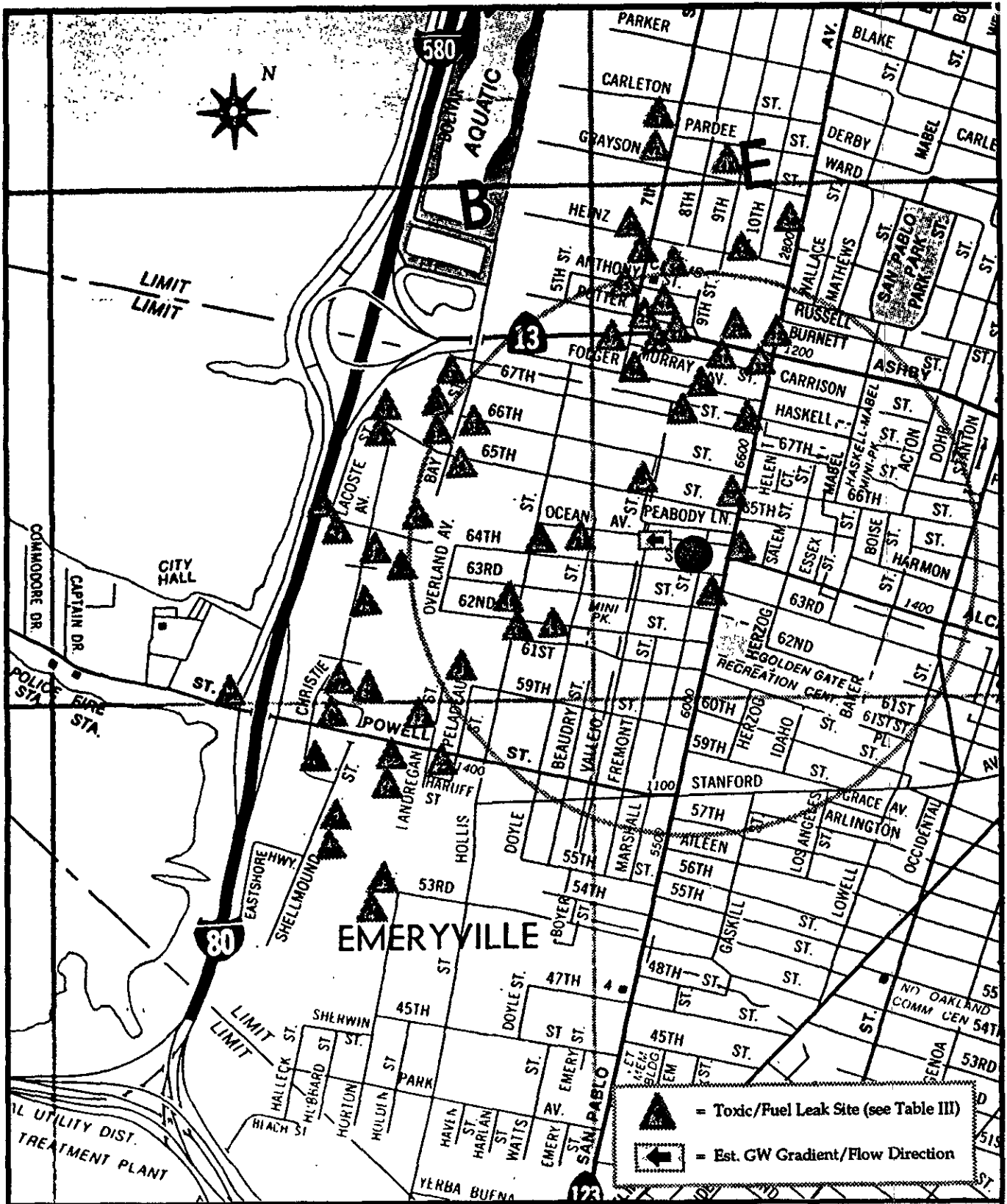


Scale (miles)



**Uriah Environmental Services Inc.**

2401 East Oranburg Avenue #675-218, Modesto, CA 95355



**Figure 3 - Proximity Map**  
 Colored circle denotes location of  
 1171 Ocean Avenue,  
 Oakland, CA

0 0.25  
 Scale (miles)



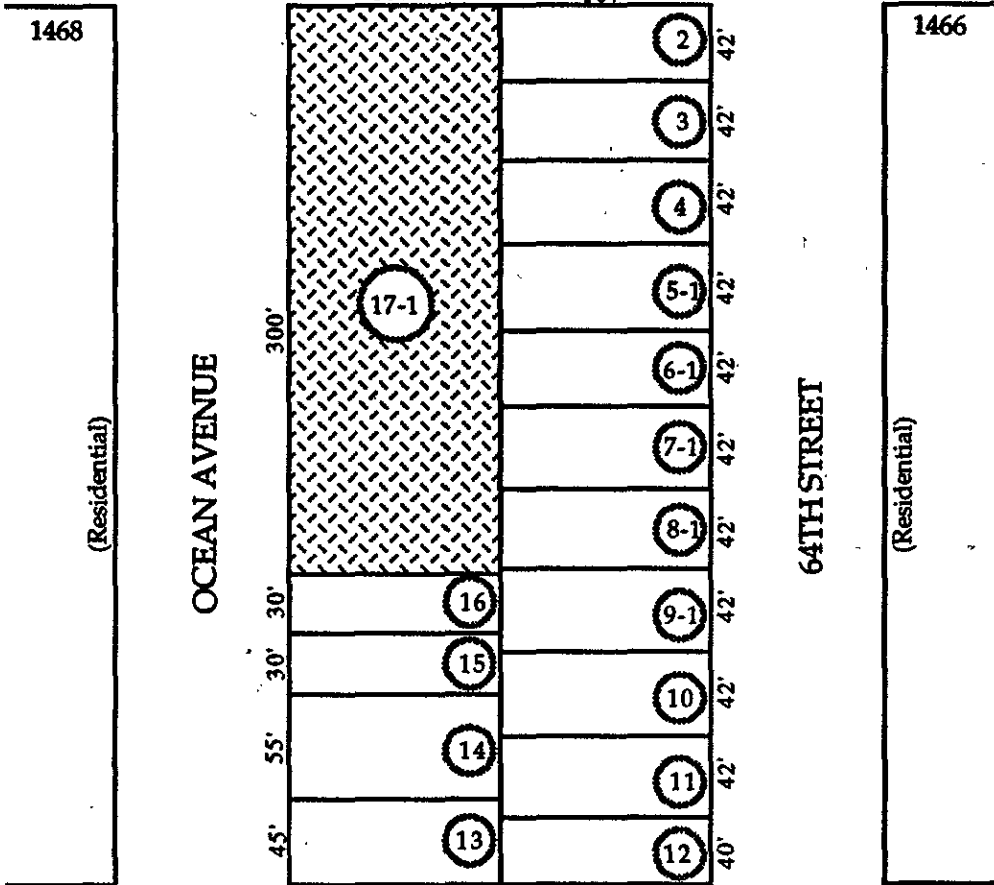
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↑ SAN PABLO AVENUE

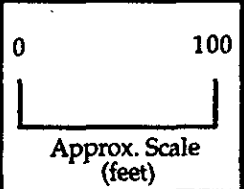


MARSHALL STREET



Re-drawn from Alameda County Assessor's Map 16-1467-17-1 (3/27/78)

**Figure 4 - Detail Map**  
Location and shape of subject site at  
1171 Ocean Avenue,  
Oakland, CA



**Uriah Environmental Services Inc.**  
2401 East Orangeburg Avenue #675-218, Modesto, CA 95355



MARSHALL STREET

(Residential)

OCEAN AVENUE

Driveway

OFFICE

Loading Dock/  
Cylinder  
Storage  
(Covered)



(Fence)

Driveway

(Fence)

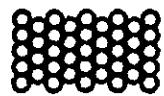
(Residential)

64TH STREET

(Former)  
Diesel Tank  
Pit



MW-1



(Outside)  
Cylinder Storage

(Fence)

1185 Ocean Avenue  
Bay Area Structural  
Engineering/Contractors

Figure 5 - Detail Map

Location and shape of subject site at  
1171 Ocean Avenue,  
Oakland, CA

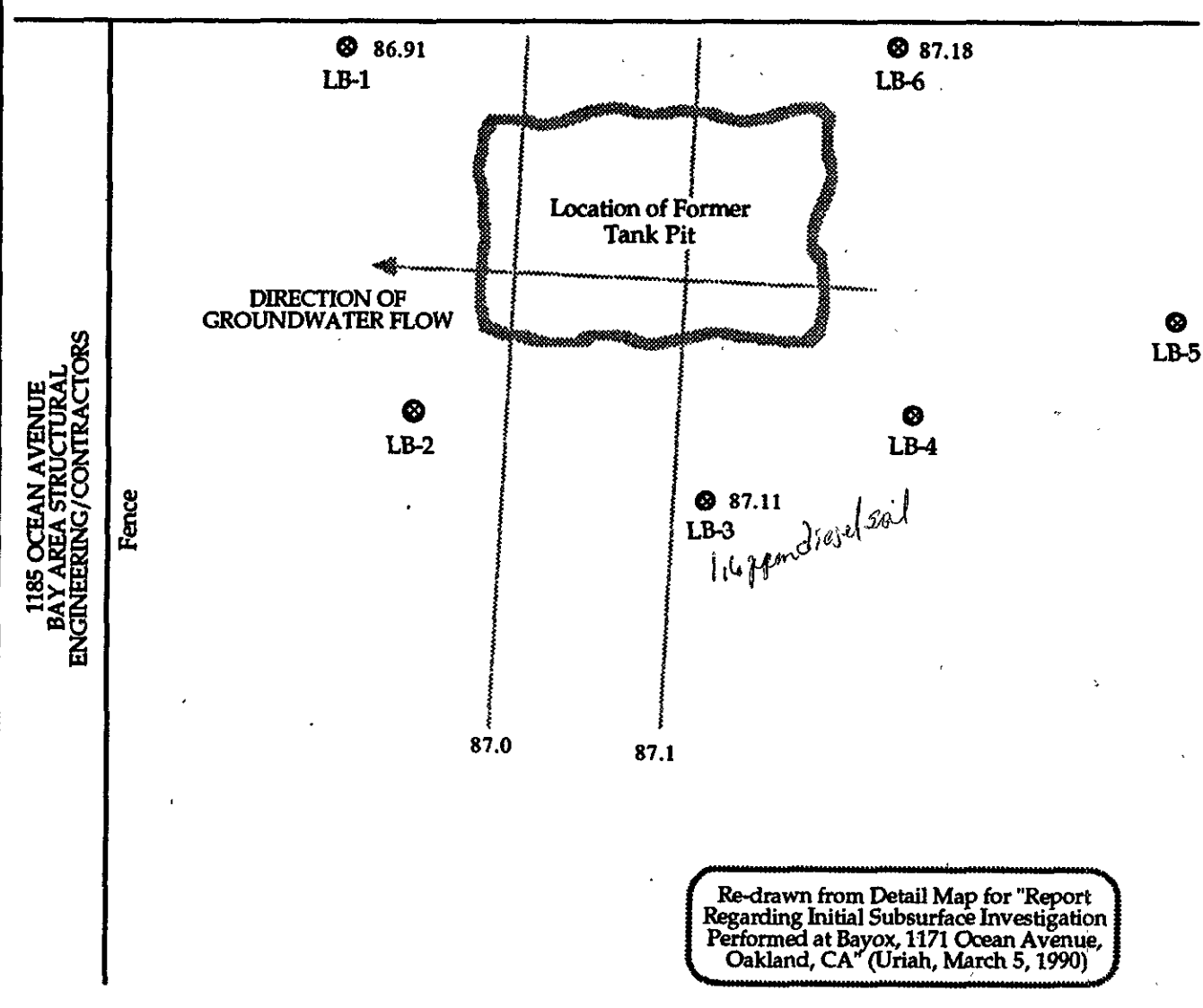


Uriah Environmental Services Inc.  
2401 East Orangburg Avenue #673-218, Modesto, CA 95355



OCEAN AVENUE

Sidewalk



Re-drawn from Detail Map for "Report Regarding Initial Subsurface Investigation Performed at Bayox, 1171 Ocean Avenue, Oakland, CA" (Uriah, March 5, 1990)

Figure 6 - Detail Map

Location of former tank pit and exploratory soil borings advanced at 1171 Ocean Avenue, Oakland, CA (9/6/89)



Uriah Environmental Services Inc.  
2401 East Orangeburg Avenue #675-218, Modesto, CA 95355

**TABLE I**

**Soil and Groundwater Sample Results  
Exploratory Soil Borings  
Limited Site Assessment, September 6, 1989**

Sample #	TPH-D	Benzene	Toluene	Ethylbenzene	Xylenes
<b>Soil Samples (ppm)</b>					
909-0341/LB1-S	ND	ND	ND	ND	ND
909-0342/LB2-S	ND	ND	ND	ND	ND
909-0334/LB3-S	1.6	ND	ND	ND	ND
909-0344/LB4-S	ND	ND	ND	ND	ND
909-0345/LB5-S	ND	ND	ND	ND	ND
909-0346/LB6-S	ND	ND	ND	ND	ND
<b>Method Detection Limit (ppm)</b>	<b>1</b>	<b>0.05</b>	<b>0.1</b>	<b>0.1</b>	<b>0.1</b>
<b>Grab Groundwater Samples (ppb)</b>					
909-0347A/LB1-W	ND	ND	ND	ND	ND
909-0348A/LB2-W	ND	ND	ND	ND	ND
909-0349A/LB3-W	ND	ND	ND	ND	ND
909-0350A/LB4-W	ND	ND	ND	ND	ND
909-0351A/LB6-W	ND	ND	ND	ND	ND
<b>Method Detection Limit (ppb)</b>	<b>50</b>	<b>0.3</b>	<b>0.3</b>	<b>0.3</b>	<b>0.3</b>
TPH-G = Total Petroleum Hydrocarbons as Gasoline TPH-D = Total Petroleum Hydrocarbons as Diesel ppm = Parts per million ppb = Parts per billion ND = Non-detectable					

**TABLE II**

**Quarterly Groundwater Monitoring  
Sample Results**

Date	TPH-G (ppb)	TPH-D (ppb)	Benzene (ppb)	Toluene (ppb)	Ethylbenzene (ppb)	Xylenes (ppb)
1/8/90	7.04 ND	ND	ND	ND	ND	ND
3/9/90	5.0 ND	ND	ND	ND	ND	ND
5/12/90	6.77 ND	ND	ND	ND	ND	ND
11/16/90	7.38 170 ✓	ND	1.8	ND	ND	ND*
<b>Method Detection Limit (ppb)</b>	50	50	0.5	0.5	0.5	0.5
<p>TPH-G = Total Petroleum Hydrocarbons as Gasoline                      TPH-D = Total Petroleum Hydrocarbons as Diesel                      ppb = Parts per Billion                      ND = Non-detectable                      * = Trace Analytical Laboratory detection limit - 2 ppb</p>						

**TABLE III**  
**Regional Water Quality Control Board (RWQCB)**  
**Fuel Leaks List and North Bay Toxics List (excerpts) - Alameda County**  
**As of 10/08/92 (including 11/02/92 update)**

Site	Street #	Street	Site Name	RWQCB Case #	Approx. Distance From Subject Site (miles)
1	6335	San Pablo Avenue	Bolin's Service Garage	01-0212	0.08
2	6400	San Pablo Avenue	PCC	01-1142	0.08
3	1200	65th Street	Oliver Rubber Company	01-1091	0.15
4	1249	67th Street	Fabco	01-0608	0.25
5	6549	San Pablo Avenue	Myers Container Corporation	NBTL	0.13
6	1333	62nd Street	Dutro Company	01-0523	0.28
7	1600	63rd Street	Peterson Manufacturing Co.	01-1159	0.50
8		64th & LaCoste	Garrett Freight Line	01-0682	0.63
9	1301	65th Street	Henry Horn & Sons	01-0753	0.43
10	1650	65th Street	Emeryville Bayfront/USPO	01-0558	0.55
11	1665	65th Street	Bay Center Project	01-0157	0.55
12	1275	66th Street	Liquid Sugars Inc.	01-0917	0.45
13	6601	Bay Street	Leopard Trading Company	01-0896	0.53
14	6603	Bay Street	Dubovsky Property	01-0516	0.53
15	6707	Bay Street	Mike Roberts Color Productions	01-0971	0.53
16	5903	Christie Avenue	Weatherford BMW	01-1651	0.75
17	6202	Christie Avenue	Felix Tank Excavation Site	01-0617	0.60
18	6425	Christie Street	Emeryville Market Place	01-0559	0.55
19	6050	Hollis Street	Hollis Street Project	01-0773	0.35
20	6400	Hollis Street	HFH, Limited	01-0764	0.28
21	1351	Ocean Avenue	Getz Construction Company	01-0697	0.20
22	5733	Pelledeau	Schwabacher-Frey	01-1307	0.55
23	1700	Powell Street	BP Oil/Mobil	01-0222	0.70
24	1800	Powell Street	Shell	01-1336	0.85
25	901	Ashby Avenue	Super-7	01-1444	0.43
26	930	Ashby Avenue	MacBeath Hardware	01-0931	0.38
27	999	Ashby Avenue	J.W.P. Mechanical	01-0812	0.38
28	1001	Ashby Avenue	Allen Perry	01-0060	0.40
29	722	Folger Avenue	Coulter Steel & Forge Co.	01-0460	0.35
30	741	Folger Avenue	Gring Pest Control	01-0724	0.30
31	1020	Murray Street	Folger Murphy Property	01-0648	0.33



**TABLE III**  
**Regional Water Quality Control Board (RWQCB)**  
**Fuel Leaks List and North Bay Toxics List (excerpts) - Alameda County**  
**As of 10/08/92 (including 11/02/92 update)**

Site	Street #	Street	Site Name	RWQCB Case #	Approx. Distance From Subject Site (miles)
32	2900	San Pablo Avenue	Berkeley Business Center	01-0187	0.43
33	2995	San Pablo Avenue	Chevron	01-0353	0.38
34	6701	San Pablo Avenue	UC Marchant Building	01-1525	0.25
35	4543	Horton Street	Unknown	01-1563	0.80
36	4549	Horton Street	Rifkin Realty Partners	01-1240	0.85
37	4650	Shellmound Street	Pfizer Pigments, Inc.	01-1165	0.90
38	5600	Shellmound Street	A & J Trucking, Inc.	01-0012	0.63
39	5800	Shellmound Street	Nielsen Property	01-1047	0.68
40	2817	7th Street	Chronicle Depot	01-0396	0.55
41	2700	7th Street	Carleton Business Center	01-0280	0.78
42	2703	7th Street	Carleton Business Center	01-0281	0.75
43	2700	9th Street	Berkeley Humane Society	01-0194	0.70
44	2821	10th Street	Emerald Packaging	01-0557	0.55
45	717	Potter Street	Bay Export Services	01-0162	0.50
46	800	Potter Street	Krenz LTD	01-0868	0.45
47	700	Heinz Avenue	Durkee-Wareham	01-0522	0.60
48		64th Street & Bay Street	Emeryville Redevelopment	NBTL	0.45
49	6121	Hollis Street	US Postal Service	NBTL	0.35
50	5743	Landregan Street	Michel and Pelton	NBTL	0.70
51	5899	Peladean	Westinghouse Elec. Corp.	NBTL	0.45
52	1520	Powell Street	Chevron Asphalt Plant	NBTL	0.60
53		Powell Street & Landregan	Chevron Emeryville Terminal	NBTL	0.65
54		64th Street & Lacoste	Garrett Freight Lines	NBTL	0.65
55	4500	Shellmound Street	Myers Container Corporation	NBTL	0.75
56	2850	7th Street	Edwards/Temescal	NBTL	0.50
57		Murray/Folger/7th	U.C. Berkeley	NBTL	0.43
58	2832	San Pablo Avenue	Meyer Sound	NBTL	0.63

**APPENDIX A**

Limited Site Assessment Report (Uriah, 10/4/89)  
Exploratory Soil Boring Logs  
Laboratory Analyses/Reports (Soil and Groundwater Samples)  
Chain-of-custody Record



# Uriah Inc.

An Environmental Services Company

October 4, 1989

Mr. Sam Rohn  
Region Environmental Coordinator  
Linde Division  
Union Carbide Corporation  
2420 Camino Ramon  
San Ramon, CA 94583

Re: Limited Site Assessment At Bayox, 1171 Ocean Avenue,  
Oakland, CA

Dear Mr. Rohn:

On September 6, 1989, in accordance with protocol set forth within Uriah's previously submitted proposal for work dated June 19, 1989 and with the approval of the Hazardous Materials Division of the Alameda County Health Care Services Agency, Uriah, Inc. undertook a Limited Site Assessment to determine the lateral and vertical extent of fuel hydrocarbon contamination of soil and groundwater at the above referenced location.

A 5,000 gallon underground diesel fuel storage tank was excavated and removed from this site on March 22, 1989. Results of analyses of a groundwater sample obtained during the removal process indicated a level of Total Petroleum Hydrocarbons as Diesel of 800 parts per million (ppm). The 490 ppm Oil and Grease level also reported was detected with an EPA Method which would have simply analyzed for hydrocarbons comprising a portion of diesel fuel, therefore, the contaminants detected are included within the 800 ppm figure.

## METHODOLOGY

Six exploratory soil borings were advanced around the area formerly occupied by the 5,000 gallon underground fuel storage tank with a truck-mounted 8" outside diameter, continuous-flight, hollow-stem augers by the staff of Bayland Drilling Company under the direction of Mr. Walter Floyd, Uriah staff geologist. All borings were advanced to a depth at which groundwater was

encountered (between 8 and 13 feet) with the exception of boring #LB-5 which was advanced to a depth of 15 feet and then terminated due to auger resistance. To avoid the possibility of drilling into an unmarked underground utility line, or similar entity, the drilling was not forced. A groundwater sample was not obtained from #LB-5 as no water entered the boring during the four hours following drilling. During the course of the drilling, the soils encountered were stiff, silty clays with an occasional gravel lens (see site map for specific boring locations).

Each boring was continuously logged using the Unified Soil Classification System. Soil samples were obtained at five foot intervals beginning five feet below grade for lithology and/or laboratory analysis in accordance with the approved proposal and as deemed appropriate by the on site professional. These samples were obtained by driving a split spoon sampler through the hollow stem of the drilling auger(s). The soil (samples) were collected within clean brass sampling tubes (1.92 inches in diameter and 6 inches in length) fitted within the split spoon sampler. Immediately upon the opening of the sampler, the ends of each tube were wrapped in aluminum foil, fitted with plastic caps, sealed with black electrical tape, labeled, placed on dry ice and then transported under chain of custody to a certified hazardous analytical laboratory for analysis for Total Petroleum Hydrocarbons as Diesel (TPH-D), benzene, toluene, total xylenes, and ethylbenzene (BTX&E) using EPA Methods 3550/8015 and 5030/8020 respectively. While a faint odor consistent with diesel fuel was noted within sample #LB-6, no product odors were detected in soil samples #LB-1 through #LB-5.

The drilling augers were steam cleaned prior to being brought onto the site and were again steam cleaned or replaced with clean augers between each boring. All tailings from the borings were placed on visqueen and stored on site pending receipt of laboratory data.

A grab water sample was collected from each boring with a previously unused, clean, disposable bailer. Each sample was immediately transferred into a one (1) liter, amber glass sample bottle and two (2) Volatile Organics Analysis (VOA) vials, promptly sealed with teflon-lined screw caps, labeled, placed on blue ice, and transported to a certified hazardous waste analytical laboratory under chain of custody for analysis for Total Petroleum Hydrocarbons as Diesel (TPH-D), benzene, toluene, total xylenes, and ethylbenzene (BTX&E) using EPA Methods 3510/8015 and 5030/8020 respectively.

Borings #LB-2, LB-4, and LB-5 were backfilled with grout on the same day as they were drilled. The three remaining borings (#LB-1, LB-3, and LB-6) were left open in order to determine

the hydraulic gradient. This was accomplished by inserting a length of 2" slotted PVC pipe into each of the borings so as to construct temporary wells. After allowing the water levels to equilibrate for 24 hours, the borings were surveyed and the gradient determined. Development of the data thus acquired revealed a groundwater flow to the Southwest. The remaining borings were then also backfilled with grout.

### LABORATORY RESULTS

Laboratory results as received from the certified hazardous waste analytical laboratory are enclosed as Attachment B.

### RESULTS AND RECOMMENDATIONS

All constituents analyzed for in soil and groundwater samples were found to be below detection limits with the exception of soil sample #LB-3 which was found to have a level of Total Petroleum Hydrocarbons as Diesel (TPH-D) of 1.6 parts per million (ppm).

As a result of data acquired during the course of this investigation, it is proposed that the level of Total Petroleum Hydrocarbons as Diesel of 800 ppm detected in soil at the time of the original tank removal was probably due to a small amount of spillage which occurred during the excavation process and not as a result of leakage from the tank system.

Additional copies of this report have been included for your convenience. It is recommended that a copy be forwarded to each of the following agencies:

San Francisco Bay Region Water Quality Control Board  
1111 Jackson Street, 6th Floor  
Oakland, CA 94607  
Attention: Dyan Whyte

Alameda County Health Care Services Agency  
Hazardous Materials Division  
80 Swan Way, Room 200  
Oakland, CA  
Attention: Gil Wistar

If you have any questions, or if we may be of further assistance, please contact either of the undersigned at (415) 455-4991.

Sincerely,

*Walter Floyd*

Walter Floyd  
Geologist

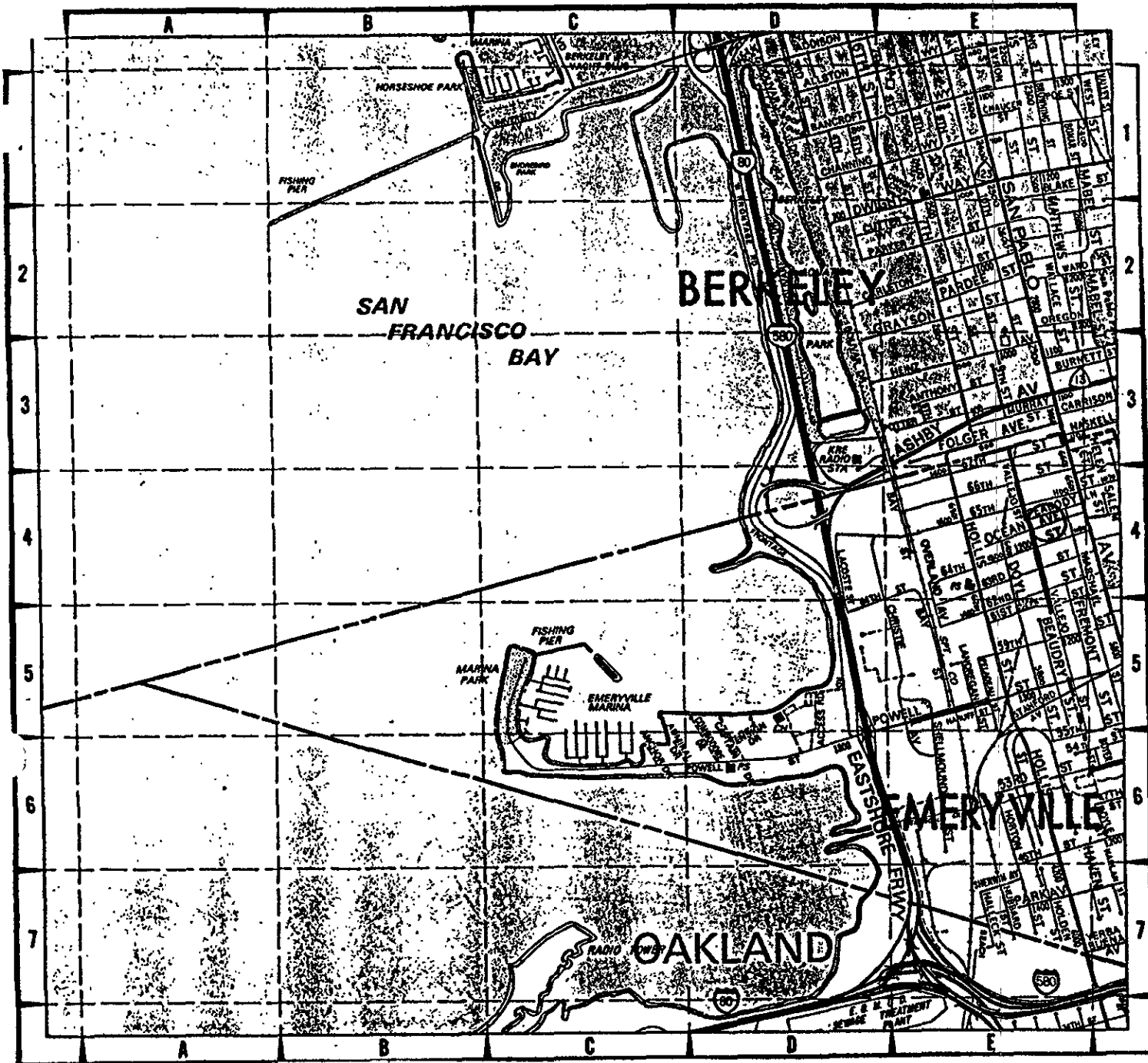
and

*Denise A. Rapp*

Denise A. Rapp  
Vice-President, Uriaah, Inc.

WF:DAR:ms

Attachments- Attachment A- Boring Logs  
Attachment B- Laboratory Results



URIAH ENVIRONMENTAL SERVICES, INC.

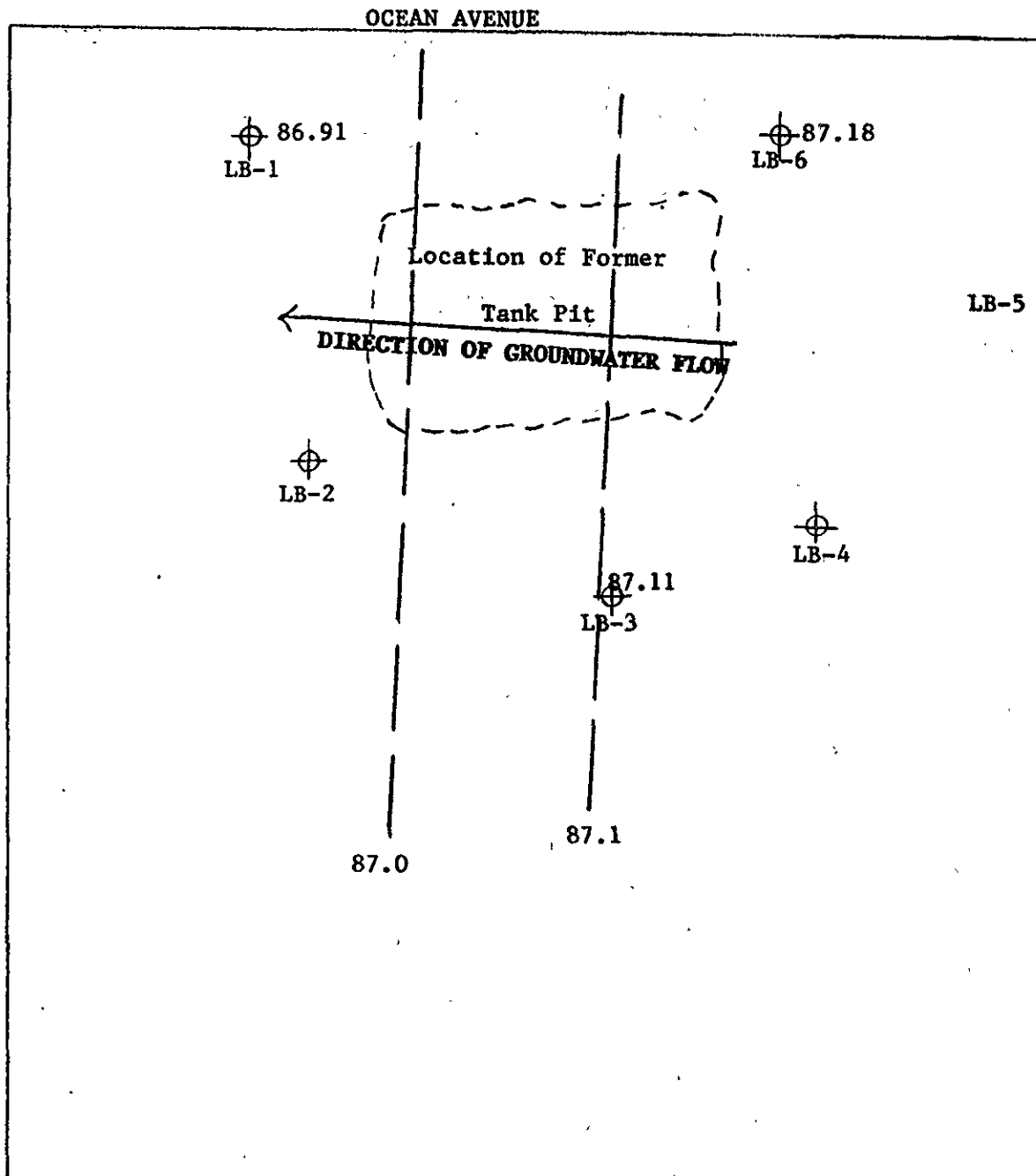
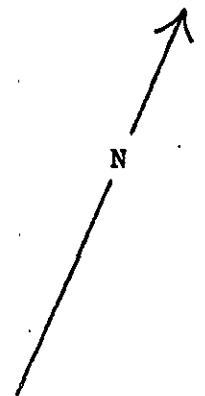
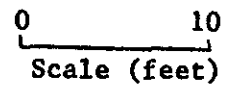
SITE LOCATION:

1171 OCEAN AVENUE, OAKLAND, CA



Scale (miles)

N



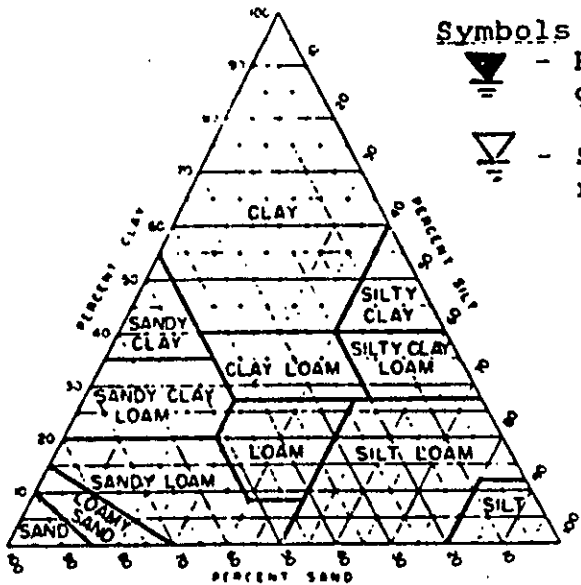


**ATTACHMENT A**

**WELL LOG  
KEY TO ABBREVIATIONS**

**Sampling Method**

- Cal. Mod. - California modified split-spoon sampler (2" inner diameter) driven 18" by a 140-pound hammer having a 30" drop. Where penetration resistance is designated "P", sampler was instead pushed by drill rig.
- Disturbed - Sample taken from drill-return materials as they surfaced.
- n/a - Not applicable



**Symbols**

- First encountered ground water
- Static ground recovery



**Drilling Method**

- HSA - Hollow stem auger
- CFA - Continuous flight auger
- Air - Reverse air circulation
- HND - Hand Auger

**OVR (ppm)**

ND - No Detection

**SOIL TEXTURAL CLASSES GRAIN-SIZE SCALE**

GRADE LIMITS U.S. Standard		GRADE NAME
inches	sieve size	
-----	-----	Boulders
--12.0--	-----	Cobbles
-----	-----	Gravel
---3.0---	3.0 in.	Coarse
---0.19---	No. 4	Medium
0.08	No. 10	Fine
-----	No. 40	Silt
-----	No. 200	Clay

# Key To Boring Logs

PRIMARY DIVISIONS			GROUP SYMBOL	SECONDARY DIVISIONS	
COARSE GRAINED SOILS MORE THAN HALF OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	GRAVELS MORE THAN HALF OF COARSE FRACTION IS LARGER THAN NO. 4 SIEVE	CLEAN GRAVELS (LESS THAN 5% FINES)	GW	Well graded gravels, gravel-sand mixtures, little or no fines.	
		GRAVEL WITH FINES	GP	Poorly graded gravels or gravel-sand mixtures, little or no fines.	
		SANDS MORE THAN HALF OF COARSE FRACTION IS SMALLER THAN NO. 4 SIEVE	CLEAN SANDS (LESS THAN 5% FINES)	GM	Silty gravels, gravel-sand-silt mixtures, non-plastic fines.
			SANDS WITH FINES	GC	Clayey gravels, gravel-sand-clay mixtures, plastic fines.
	FINE GRAINED SOILS MORE THAN HALF OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE	SILTS AND CLAYS LIQUID LIMIT IS LESS THAN 50%	CLEAN SANDS (LESS THAN 5% FINES)	SW	Well graded sands, gravelly sands, little or no fines.
			SANDS WITH FINES	SP	Poorly graded sands or gravelly sands, little or no fines.
		SILTS AND CLAYS LIQUID LIMIT IS GREATER THAN 50%	SANDS WITH FINES	SM	Silty sands, sand-silt mixtures, non-plastic fines.
			SANDS WITH FINES	SC	Clayey sands, sand-clay mixtures, plastic fines.
HIGHLY ORGANIC SOILS	SILTS AND CLAYS LIQUID LIMIT IS 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 IS 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.		
		Pt	Peat and other highly organic soils.		

## DEFINITION OF TERMS

	U.S. STANDARD SERIES SIEVE			CLEAR SQUARE SIEVE OPENINGS			
	200	40	10	4	3/4"	3"	12"
SILTS AND CLAYS	SAND			GRAVEL		COBBLES	BOULDERS
	FINE	MEDIUM	COARSE	FINE	COARSE		

## GRAIN SIZES

SANDS AND GRAVELS	BLOWS/FOOT <sup>†</sup>
VERY LOOSE	0 - 4
LOOSE	4 - 10
MEDIUM DENSE	10 - 30
DENSE	30 - 50
VERY DENSE	OVER 50

SILTS AND CLAYS	STRENGTH <sup>‡</sup>	BLOWS/FOOT <sup>†</sup>
VERY SOFT	0 - 1/4	0 - 2
SOFT	1/4 - 1/2	2 - 4
FIRM	1/2 - 1	4 - 8
STIFF	1 - 2	8 - 15
VERY STIFF	2 - 4	15 - 32
HARD	OVER 4	OVER 32

### RELATIVE DENSITY

<sup>†</sup> Number of blows of 140 pound hammer falling 30 inches to drive a 2 inch O.D. (1-3/8 inch I.D.) split spoon (ASTM D-1586).

<sup>‡</sup> Unconfined compressive strength in tons/sq. ft. as determined by laboratory testing or approximated by the standard penetration test (ASTM D-1586) pocket penetrometer, torvane, or visual observation.

### CONSISTENCY

## UNIFIED SOIL CLASSIFICATION SYSTEM

(ASTM D-2487)

Soil Color derived from the MUNSSELL Soil Color Charts


# Exploratory Boring Log

Project No.	Boring & Casing Diameter	Logged By Walter Floyd- Geologist
Project Name Linde- Oakland	Casing Elevation	Date Drilled 9/6/89
Boring No. LB-1	Hollow-stem Flight Auger 8"	Depth to Groundwater 8'

Penetration blows/ft	G. W. level	Depth (ft) Samples	Litho- graphy USCS	Description
		0	CL	Dark brown to black SILTY CLAY (CL), no odors, soft.
		5	CL	Yellowish-brown CLAY (CL), no odors, firm.
7; 12	▼	10		Boring terminated at 11 feet.
		15		


# Exploratory Boring Log

Project No.	Boring & Casing Diameter	Logged By Walter Floyd- Geologist
Project Name Linde- Oakland	Casing Elevation	Date Drilled 9/6/89
Boring No. LB-2	Hollow-stem Flight Auger 8"	Depth to Groundwater 8.5'

Penetration blows/ft	G. W. level	Depth (ft) Samples	Litho- graphy USCS	Description
6, 10		0	CL	Dark brown to black SILTY CLAY (CL), no odor, soft.
		5	GC	Gravel lense of CLAYEY GRAVEL (GC), 2' thick, no odors.
		5	CL	Yellowish-brown CLAY (CL), no odors.
		10		Boring terminated at 11.5'.
		15		

# Exploratory Boring Log

Project No.	Boring & Casing Diameter	Logged By Walter Floyd- Geologist
Project Name Linde- Oakland	Casing Elevation	Date Drilled 9/6/89
Boring No. LB-3	Hollow-stem Flight Auger 8"	Depth to Groundwater 9.5'

Penetration blows/ft	G. W. level	Depth (ft) Samples	Litho- graphy USCS	Description
8, 14		0	CL	Dark brown to black CLAY (CL), soft, no odor.
		5	CL	Yellowish-brown SILTY CLAY (CL), stiff, no odor.
		10		
		15		Boring terminated at 12.5'.

# Exploratory Boring Log

Project No.	Boring & Casing Diameter	Logged By Walter Floyd- Geologist
Project Name Linde- Oakland	Casing Elevation	Date Drilled 9/6/89
Boring No. LB-4	Hollow-stem Flight Auger 8"	Depth to Groundwater 9.5'

Penetration blows/ft	G. W. level	Depth (ft) Samples	Litho- graphy USCS	Description
7, 14	▼	0	CL	Dark brown CLAY (CL), soft, no odor.
		5	CL	Yellowish-brown SILTY CLAY (CL), stiff, no odor.
		10		
		15		Boring terminated at 12.5'.

# Exploratory Boring Log

Project No.	Boring & Casing Diameter	Logged By
Linde- Oakland	8"	Walter Floyd- Geologist
Project Name	Casing Elevation	Date Drilled
Linde- Oakland		9/6/89
Boring No.	Hollow-stem Flight Auger	Depth to Groundwater
LB-5	8"	

Penetration blows/ft	G. W. level	Depth (ft) Samples	Litho-graphy USCS	Description
9, 15		0	CL	Dark brown CLAY (CL), soft, no odor.
		5	CL	Yellowish-brown SILTY CLAY (CL), stiff, no odor.
		10		
		15		Encountered resistance and boring terminated @ 15'. No groundwater encountered.



# Exploratory Boring Log

Project No.	Boring & Casing Diameter	Logged By Walter Floyd- Geologist
Project Name Linde- Oakland	Casing Elevation	Date Drilled 9/6/89
Boring No. LB-6	Hollow-stem Flight Auger 8"	Depth to Groundwater 13'

Penetration blows/ft	G. W. level	Depth (ft) Samples	Litho- graphy USCS	Description
9, 15	▼	0	CL	Dark brown CLAY (CL), soft, no odor.
		5	CL	Yellowish-brown SILTY CLAY (CL), stiff. Slight odor at 5', goes away with depth.
		10		
		15		Boring terminated at 16'.
		20		

ATTACHMENT B



# SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063  
(415) 364-9600 • FAX (415) 364-9233

Uriah Environmental  
464 Lindbergh Avenue  
Livermore, CA 94550  
Attention: Walter Floyd

Client Project ID: #26389W1, Linde, Oakland  
Matrix Descript: Soil  
Analysis Method: EPA 3550/8015  
First Sample #: 909-0341

Sampled: Sep 6, 1989  
Received: Sep 6, 1989  
Extracted: Sep 13, 1989  
Analyzed: Sep 22, 1989  
Reported: Sep 29, 1989

## TOTAL PETROLEUM FUEL HYDROCARBONS (EPA 8015)

Sample Number	Sample Description	High B.P. Hydrocarbons mg/kg (ppm)
909-0341	LB1-S	N.D.
909-0342	LB2-S	N.D.
909-0343	LB3-S	1.6
909-0344	LB4-S	N.D.
909-0345	LB5-S	N.D.
909-0346	LB6-S	N.D.

Detection Limits: 1.0

High Boiling Point Hydrocarbons are quantitated against a diesel fuel standard.  
Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

*Vickie Tague*  
Vickie Tague  
Project Manager

9090341.UR1 <1>



# SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063  
(415) 364-9600 • FAX (415) 364-9233

Uriah Environmental  
484 Lindbergh Avenue  
Livermore, CA 94550  
Attention: Walter Floyd

Client Project ID: #26389W1, Linde, Oakland  
Matrix Descript: Water  
Analysis Method: EPA 3510/8015  
First Sample #: 909-0347 A

Sampled: Sep 6, 1989  
Received: Sep 6, 1989  
Extracted: Sep 13, 1989  
Analyzed: Sep 22, 1989  
Reported: Sep 29, 1989

## TOTAL PETROLEUM FUEL HYDROCARBONS (EPA 8015)

Sample Number	Sample Description	High B.P. Hydrocarbons $\mu\text{g/L}$ (ppb)
9090347 A	LB1-W	N.D.
9090348 A	LB2-W	N.D.
9090349 A	LB3-W	N.D.
9090350 A	LB4-W	N.D.
9090351 A	LB6-W	N.D.

Detection Limits:

50.0

High Boiling Point Hydrocarbons are quantitated against a diesel fuel standard.  
Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

*V. Tague*  
Vickie Tague  
Project Manager

9090341.URI <2>



# SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063  
(415) 364-9600 • FAX (415) 364-9233

Uriah Environmental 464 Lindbergh Avenue Livermore, CA 94550 Attention: Walter Floyd	Client Project ID: #26389W1, Linde, Oakland Sample Descript: Soil, LB1-S Analysis Method: EPA 5030/8020 Lab Number: 909-0341	Sampled: Sep 6, 1989 Received: Sep 6, 1989 Analyzed: Sep 20, 1989 Reported: Sep 29, 1989
---	---	---

## BTEX DISTINCTION (EPA 8020)

Analyte	Detection Limit mg/kg (ppm)	Sample Results mg/kg (ppm)
Benzene.....	0.05	N.D.
Toluene.....	0.1	N.D.
Ethyl Benzene.....	0.1	N.D.
Xylenes.....	0.1	N.D.

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

SEQUOIA ANALYTICAL

*V M Tague*  
Vickie Tague  
Project Manager



# SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063  
(415) 364-9600 • FAX (415) 364-9233

Uriah Environmental 464 Lindbergh Avenue Livermore, CA 94550 Attention: Walter Floyd	Client Project ID: #26389W1, Linde, Oakland Sample Descript: Soil, LB2-S Analysis Method: EPA 5030/8020 Lab Number: 909-0342	Sampled: Sep 6, 1989 Received: Sep 6, 1989 Analyzed: Sep 20, 1989 Reported: Sep 29, 1989
---	---	---

## BTEX DISTINCTION (EPA 8020)

Analyte	Detection Limit mg/kg (ppm)	Sample Results mg/kg (ppm)
Benzene.....	0.05	N.D.
Toluene.....	0.1	N.D.
Ethyl Benzene.....	0.1	N.D.
Xylenes.....	0.1	N.D.

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

SEQUOIA ANALYTICAL

*V. Tague*  
Vickie Tague  
Project Manager



# SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063  
(415) 364-9600 • FAX (415) 364-9233

Uriah Environmental  
464 Lindbergh Avenue  
Livermore, CA 94550  
Attention: Walter Floyd

Client Project ID: #26389W1, Linde, Oakland  
Sample Descript: Soil, LB3-S  
Analysis Method: EPA 5030/8020  
Lab Number: 909-0343

Sampled: Sep 6, 1989  
Received: Sep 6, 1989  
Analyzed: Sep 20, 1989  
Reported: Sep 29, 1989

## BTEX DISTINCTION (EPA 8020)

Analyte	Detection Limit mg/kg (ppm)	Sample Results mg/kg (ppm)
Benzene.....	0.05	N.D.
Toluene.....	0.1	N.D.
Ethyl Benzene.....	0.1	N.D.
Xylenes.....	0.1	N.D.

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

SEQUOIA ANALYTICAL

*V. Tague*  
Vickie Tague  
Project Manager



# SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063  
(415) 364-9600 • FAX (415) 364-9233

Uriah Environmental 464 Lindbergh Avenue Livermore, CA 94550 Attention: Walter Floyd	Client Project ID: #26389W1, Linde, Oakland Sample Descript: Soil, LB4-S Analysis Method: EPA 5030/8020 Lab Number: 909-0344	Sampled: Sep 6, 1989 Received: Sep 6, 1989 Analyzed: Sep 20, 1989 Reported: Sep 29, 1989
---	---	---

## BTEX DISTINCTION (EPA 8020)

Analyte	Detection Limit mg/kg (ppm)	Sample Results mg/kg (ppm)
Benzene.....	0.05	N.D.
Toluene.....	0.1	N.D.
Ethyl Benzene.....	0.1	N.D.
Xylenes.....	0.1	N.D.

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

SEQUOIA ANALYTICAL

*V. Tague*  
Vickie Tague  
Project Manager





# SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063  
(415) 364-9600 • FAX (415) 364-9233

Uriah Environmental 464 Lindbergh Avenue Livermore, CA 94550 Attention: Walter Floyd	Client Project ID: #26389W1, Linde, Oakland Sample Descript: Soil, LB5-S Analysis Method: EPA 5030/8020 Lab Number: 909-0345	Sampled: Sep 6, 1989 Received: Sep 6, 1989 Analyzed: Sep 20, 1989 Reported: Sep 29, 1989
---	---	---

## BTEX DISTINCTION (EPA 8020)

Analyte	Detection Limit mg/kg (ppm)	Sample Results mg/kg (ppm)
Benzene.....	0.05	N.D.
Toluene.....	0.1	N.D.
Ethyl Benzene.....	0.1	N.D.
Xylenes.....	0.1	N.D.

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

SEQUOIA ANALYTICAL

*VMTague*  
Vickie Tague  
Project Manager



# SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063  
(415) 364-9600 • FAX (415) 364-9233

Uriah Environmental 464 Lindbergh Avenue Livermore, CA 94550 Attention: Walter Floyd	Client Project ID: #26389W1, Linde, Oakland Sample Descript: Soil, LB6-S Analysis Method: EPA 5030/8020 Lab Number: 909-0346	Sampled: Sep 6, 1989 Received: Sep 6, 1989 Analyzed: Sep 20, 1989 Reported: Sep 29, 1989
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## BTEX DISTINCTION (EPA 8020)

Analyte	Detection Limit mg/kg (ppm)	Sample Results mg/kg (ppm)
Benzene.....	0.05	N.D.
Toluene.....	0.1	N.D.
Ethyl Benzene.....	0.1	N.D.
Xylenes.....	0.1	N.D.

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

SEQUOIA ANALYTICAL

*UM Tague*  
Vickie Tague  
Project Manager



# SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063  
(415) 364-9600 • FAX (415) 364-9233

Uriah Environmental  
464 Lindbergh Avenue  
Livermore, CA 94550  
Attention: Walter Floyd

Client Project ID: #26389W1, Linde, Oakland  
Sample Descript: Water, LB1-W  
Analysis Method: EPA 5030/8020  
Lab Number: 909-0347 B

Sampled: Sep 6, 1989  
Received: Sep 6, 1989  
Analyzed: Sep 20, 1989  
Reported: Sep 29, 1989

## BTEX DISTINCTION (EPA 8020)

Analyte	Detection Limit µg/L (ppb)	Sample Results µg/L (ppb)
Benzene.....	0.3	N.D.
Toluene.....	0.3	N.D.
Ethyl Benzene.....	0.3	N.D.
Xylenes.....	0.3	N.D.

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

SEQUOIA ANALYTICAL

*V. Tague*  
Vickie Tague  
Project Manager



# SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063  
(415) 364-9600 • FAX (415) 364-9233

Urlah Environmental 464 Lindbergh Avenue Livermore, CA 94550 Attention: Walter Floyd	Client Project ID: #26389W1, Linde, Oakland Sample Descript: Water, LB2-W Analysis Method: EPA 5030/8020 Lab Number: 909-0348 B	Sampled: Sep 6, 1989 Received: Sep 6, 1989 Analyzed: Sep 20, 1989 Reported: Sep 29, 1989
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## BTEX DISTINCTION (EPA 8020)

Analyte	Detection Limit µg/L (ppb)	Sample Results µg/L (ppb)
Benzene.....	0.3	N.D.
Toluene.....	0.3	N.D.
Ethyl Benzene.....	0.3	N.D.
Xylenes.....	0.3	N.D.

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

SEQUOIA ANALYTICAL

*VM Tague*  
Vickie Tague  
Project Manager



# SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063  
(415) 364-9600 • FAX (415) 364-9233

Uriah Environmental 464 Lindbergh Avenue Livermore, CA 94550 Attention: Walter Floyd	Client Project ID: #26389W1, Linde, Oakland Sample Descript: Water, LB4-W Analysis Method: EPA 5030/8020 Lab Number: 909-0350 B	Sampled: Sep 6, 1989 Received: Sep 6, 1989 Analyzed: Sep 20, 1989 Reported: Sep 29, 1989
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## BTEX DISTINCTION (EPA 8020)

Analyte	Detection Limit µg/L (ppb)	Sample Results µg/L (ppb)
Benzene.....	0.3	N.D.
Toluene.....	0.3	N.D.
Ethyl Benzene.....	0.3	N.D.
Xylenes.....	0.3	N.D.

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

SEQUOIA ANALYTICAL

Vickie Tague  
Project Manager



# SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063  
(415) 364-9600 • FAX (415) 364-9233

Uriah Environmental 464 Lindbergh Avenue Livermore, CA 94550 Attention: Walter Floyd	Client Project ID: #26389W1, Linde, Oakland Sample Descript: Water, LB3-W Analysis Method: EPA 5030/8020 Lab Number: 909-0349 B	Sampled: Sep 6, 1989 Received: Sep 6, 1989 Analyzed: Sep 20, 1989 Reported: Sep 29, 1989
---	--	---

## BTEX DISTINCTION (EPA 8020)

Analyte	Detection Limit µg/L (ppb)	Sample Results µg/L (ppb)
Benzene.....	0.3	N.D.
Toluene.....	0.3	N.D.
Ethyl Benzene.....	0.3	N.D.
Xylenes.....	0.3	N.D.

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

SEQUOIA ANALYTICAL

*V. Tague*  
Vickie Tague  
Project Manager



# SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063  
(415) 364-9600 • FAX (415) 364-9233

Uriah Environmental  
464 Lindbergh Avenue  
Livermore, CA 94550  
Attention: Walter Floyd

Client Project ID: #26389W1, Linde, Oakland  
Sample Descript: Water, LB6-W  
Analysis Method: EPA 5030/8020  
Lab Number: 909-0351 B

Sampled: Sep 6, 1989  
Received: Sep 6, 1989  
Analyzed: Sep 20, 1989  
Reported: Sep 29, 1989

## BTEX DISTINCTION (EPA 8020)

Analyte	Detection Limit µg/L (ppb)	Sample Results µg/L (ppb)
Benzene.....	0.3	N.D.
Toluene.....	0.3	N.D.
Ethyl Benzene.....	0.3	N.D.
Xylenes.....	0.3	N.D.

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

SEQUOIA ANALYTICAL

*V. Tague*  
Vickie Tague  
Project Manager



# SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063  
(415) 364-9600 • FAX (415) 364-9233

Uriah Environmental  
464 Lindbergh Avenue  
Livermore, CA 94550  
Attention: Walter Floyd

Client Project ID: #26389W1, Linde, Oakland

QC Sample Group: 9090347-51

Reported: Sep 29, 1989

## QUALITY CONTROL DATA REPORT

ANALYTE	Diesel	Toluene	Ethyl Benzene	Xylenes
---------	--------	---------	---------------	---------

Method:	EPA 8015	EPA 8020	EPA 8020	EPA 8020
Analyst:	E. Hamilton	C. Camba	C. Camba	C. Camba
Reporting Units:	µg/L	µg/L	µg/L	µg/L
Date Analyzed:	Sep 22, 1989	Sep 20, 1989	Sep 20, 1989	Sep 20, 1989
QC Sample #:	Matrix	9090350	9090350	9090350

Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Spike Conc. Added:	317	2.5	2.5	7.5
Conc. Matrix Spike:	317	2.41	2.44	7.31
Matrix Spike % Recovery:	100	96	98	97
Conc. Matrix Spike Dup.:	331	2.44	2.45	7.38
Matrix Spike Duplicate % Recovery:	104	98	98	98
Relative % Difference:	4.3	1.2	0.41	1.0

SEQUOIA ANALYTICAL

*MTague*  
Vickie Tague  
Project Manager

% Recovery:	$\frac{\text{Conc. of M.S.} - \text{Conc. of Sample}}{\text{Spike Conc. Added}} \times 100$
Relative % Difference:	$\frac{\text{Conc. of M.S.} - \text{Conc. of M.S.D.}}{(\text{Conc. of M.S.} + \text{Conc. of M.S.D.}) / 2} \times 100$





# SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063  
(415) 364-9600 • FAX (415) 364-9233

Uriah Environmental  
464 Lindbergh Avenue  
Livermore, CA 94550  
Attention: Walter Floyd

Client Project ID: #26389W1, Linde, Oakland

QC Sample Group: 9090341-46

Reported: Sep 29, 1989

## QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl Benzene	Xylenes
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Method:	EPA 5030/ 8020	EPA 5030/ 8020	EPA 5030/ 8020	EPA 5030/ 8020
Analyst:	G. Spak	G. Spak	G. Spak	G. Spak
Reporting Units:	mg/kg	mg/kg	mg/kg	mg/kg
Date Analyzed:	Sep 20, 1989	Sep 20, 1989	Sep 20, 1989	Sep 20, 1989
QC Sample #:	Matrix	Matrix	Matrix	Matrix
<b>Sample Conc.:</b>	N.D.	N.D.	N.D.	N.D.
<b>Spike Conc. Added:</b>	1.0	1.0	1.0	3.0
<b>Conc. Matrix Spike:</b>	0.43	0.66	0.67	1.9
<b>Matrix Spike % Recovery:</b>	43	66	67	63
<b>Conc. Matrix Spike Dup.:</b>	0.43	0.73	0.71	2.0
<b>Matrix Spike Duplicate % Recovery:</b>	43	73	71	67
<b>Relative % Difference:</b>	0	10	5.8	5.1

SEQUOIA ANALYTICAL

*VM Tague*  
Vickie Tague  
Project Manager

% Recovery:	$\frac{\text{Conc. of M.S.} - \text{Conc. of Sample}}{\text{Spike Conc. Added}} \times 100$
Relative % Difference:	$\frac{\text{Conc. of M.S.} - \text{Conc. of M.S.D.}}{(\text{Conc. of M.S.} + \text{Conc. of M.S.D.}) / 2} \times 100$

**URIAH ENVIRONMENTAL SERVICES, INC.  
CHAIN OF CUSTODY**

\*\*\*\*For Office Use Only\*\*\*\*

Project Name: LINDE OAKLAND Job# 263 89 W 1

SAMPLING COMPLETED: 2:00 AM/PM, DATE: 9-6-89 BY: W. FLOYD

SITE NAME AND ADDRESS: 1131 OCEAN  
OAKLAND

REGULATORY AGENCY REPRESENTATIVE PRESENT: \_\_\_\_\_

REGULATORY AGENCY REPRESENTATIVE TITLE: \_\_\_\_\_

LAB USED: SAL LAB ON SITE? yes/no

SAMPLE TO LAB VIA? Lab Rep Uriah Staff Courier

SAMPLE#	SOIL/WATER PRODUCT	ANALYZE FOR	# OF CONTAINERS	SINGLE/ COMPOSITE
<u>LB 1</u>	<u>S.W</u>	<u>TPH-D, BTXE</u>	<u>4</u>	
<u>LB 2</u>	<u>S.W</u>		<u>4</u>	
<u>LB 3</u>	<u>S.W</u>		<u>4</u>	
<u>LB 4</u>	<u>S.W</u>		<u>4</u>	
<u>LB 5</u>	<u>S</u>		<u>1</u>	
<u>LB 6</u>	<u>S.W</u>		<u>4</u>	

SAMPLE RELEASED BY:

Walter Floyd 2:45 AM/PM, 9/6/89

\_\_\_\_\_ : \_\_\_\_\_ AM/PM, \_\_\_/\_\_\_/89

\_\_\_\_\_ : \_\_\_\_\_ AM/PM, \_\_\_/\_\_\_/89

SAMPLE ACCEPTED BY:

[Signature] 2:45 AM/PM, 9/6/89

\_\_\_\_\_ : \_\_\_\_\_ AM/PM, \_\_\_/\_\_\_/89

\_\_\_\_\_ : \_\_\_\_\_ AM/PM, \_\_\_/\_\_\_/89

TURN AROUND: ROUTINE

RESULTS TO URIAHS BY: \_\_\_\_\_

**APPENDIX B**

**Soil Boring Log (Well Development, 12/26/89)**

**Well Details**

**Well Log Key**

**Boring Log Key**

**Alameda County Well Permit Application**

**Laboratory Analysis/Report (Initial groundwater sampling)**

**Chain-of-custody Record**

PROJECT NO. \_\_\_\_\_ LOCATION 1171 Ocean Avenue, Carlsbad, CA  
 CLIENT. Linde Gases LOGGED BY Walter Floyd, Geologist  
 BORE HOLE NO. \_\_\_\_\_ MONITOR HOLE NO. MW-1 ELEVATION \_\_\_\_\_  
 DATE DRILLED 12/26/89 START 1030 FINISH 130  
 DRILLING METHOD H/S Auger SAMPLING METHOD CA MOD SS DRILLED BY H.E.W. Drilling

DEPTH BELOW SURFACE	SAMPLES COLLECTED			SOIL DESCRIPTION TEXTURE, COLOR, MOISTURE *CONSISTENCY, GRAIN-SZ., ETC.	UNIFIED SOIL CLASSIF.	GRAPHIC LOG	PENETRATION COLLECTED		WELL CONSTRUCTION DETAILS	
	INT	OVR	SAMPLE NO				Blows	SPT	Christy Box	
0				CLAY- yellowish-brown, stiff, no odors, pebbles present (less than 5 pct).	CL		4,7,10	11	2" Blank PVC	Grout
5			OW-5							Bentonite
7		▽	OW-9'	Change to CLAYEY-GRAVEL @ 7', orange-brown, angular clasts to 2", no odors.	GC		7,9,16	16		
10			OW-11.5'	Clay matrix is saturated.			5,10,11	15		
13.5		▽	OW-13.5'	Groundwater encountered at 14'.			7,10,11	17	2" Slotted PVC	
15			OW-15'				4,6,9	10		
16			OW-20'	Change at 16' to SANDY-GRAVEL. Contains approx. 12 pct clay. Dark orange-brown, medium dense.	GW		3,8	11		#3 Monterey Sand
25			OW-25'				7,7	14		
29.5			OW-29.5'	Boring terminated at 29.5'.			11,35	46	Barrel Cap	

# WELL DETAILS

PROJECT NAME: Linde Gases

BORING/WELL NO. MW-1

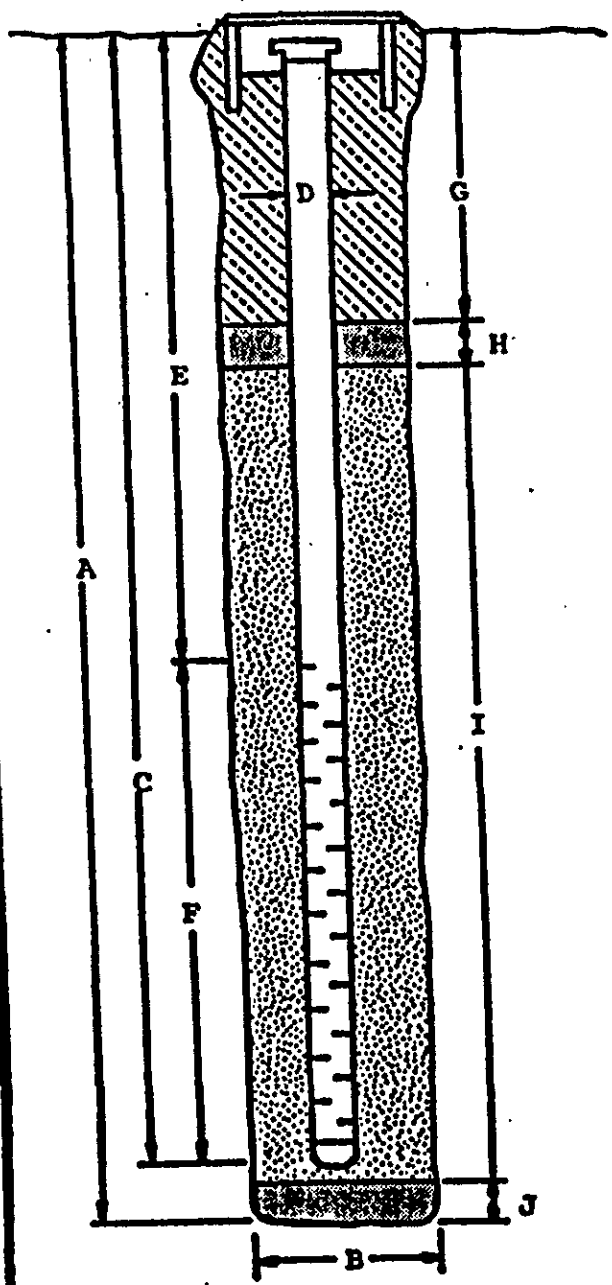
PROJECT NUMBER: \_\_\_\_\_

CASING ELEVATION: \_\_\_\_\_

WELL PERMIT NO.: \_\_\_\_\_

SURFACE ELEVATION: \_\_\_\_\_

G-5 Vault Box



- A. Total Depth: 29'
- B. Boring Diameter: 8"  
Drilling method: H/S Auger
- C. Casing Length: 29'  
Material: PVC
- D. Casing Diameter: 2"
- E. Depth to Perforations: 9'
- F. Perforated Length: 20'  
Perforated Interval: 29'-9'  
Perforation Type: Factory Slot  
Perforation Size: 0.020"
- G. Surface Seal: 5'-0'  
Seal Material: Grout
- H. Seal: 7.5'-5'  
Seal Material: Bentonite
- I. Gravel Pack: 29'-7.5'  
Pack Material: Monterey Sand  
Size: #3
- J. Bottom Seal: \_\_\_\_\_  
Seal Material: \_\_\_\_\_



ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

6997 PARKSIDE DRIVE ▲ PLEASANTON, CALIFORNIA 94566 ▲ (415) 484-2600

GROUNDWATER PROTECTION ORDINANCE PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

FOR OFFICE USE

LOCATION OF PROJECT 1171 Ocean Avenue  
Oakland, CA

PERMIT NUMBER 89733  
LOCATION NUMBER \_\_\_\_\_

CLIENT  
BY Union Carbide - Linde Division  
Address 2420 Camino Ramon Phone (415) 866-6800  
San Ramon Zip 94583

PERMIT CONDITIONS

Circled Permit Requirements Apply

APPLICANT  
BY Uriah Environmental Services Inc.  
Address 464 Lindbergh Ave. Phone (415) 455-4991  
Livermore Zip 94550

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 30 feet for municipal and industrial wells or 20 feet for domestic and irrigation wells unless a lesser depth is specially approved. Minimum seal depth for monitoring wells is the maximum depth practicable or 20 feet.

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

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

E. WELL DESTRUCTION. See attached.

\* 10 feet, depending on depth to water.

TYPE OF PROJECT		Geotechnical Investigation	
Construction		General	_____
Cathodic Protection	_____	Contamination	_____
Water Supply	_____	Well Destruction	_____
Monitoring	<u>X</u>		

PROPOSED WATER SUPPLY WELL USE  
Residential \_\_\_\_\_ Industrial \_\_\_\_\_ Other \_\_\_\_\_  
Municipal \_\_\_\_\_ Irrigation \_\_\_\_\_

DRAINAGE METHOD:  
Rotary \_\_\_\_\_ Air Rotary \_\_\_\_\_ Auger X  
Other \_\_\_\_\_

APPLICANT'S LICENSE NO. HEW 384167

PROJECTS  
Drill Hole Diameter 8" in. Maximum  
Casing Diameter 2" in. Depth 30 ft.  
Surface Seal Depth 4 ft.\* Number 1

TECHNICAL PROJECTS  
Number of Borings \_\_\_\_\_ Maximum  
Hole Diameter \_\_\_\_\_ in. Depth \_\_\_\_\_ ft.

ESTIMATED STARTING DATE 12/26/89  
ESTIMATED COMPLETION DATE 12/26/89

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

APPLICANT'S SIGNATURE \_\_\_\_\_ Date 12-20-89

Approved Wyman Hong Date 19 Dec 89  
Wyman Hong

# CHROMALAB, INC.

Analytical Laboratory  
Specializing in GC-GC/MS

- Environmental Analysis
- Hazardous Waste (#238)
- Drinking Water (#955)
- Waste Water
- Consultation

January 4, 1990

ChromaLab File No.; 1289109

URIAH ENVIRONMENTAL SERVICES, INC.

Attn: Walt Floyd

RE: Three soil samples for Gasoline/BTEX and Diesel analyses

Project Name: LINDE OAKLAND

Job No.: 36089WIMW

Analysis Duration: December 28, 1989 - January 4, 1990

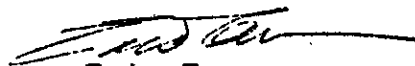
## RESULTS:

Sample No.	Gasoline (mg/Kg)	Diesel (mg/Kg)	Benzene (µg/Kg)	Toluene (µg/Kg)	Ethyl Benzene (µg/Kg)	Total Xylenes (µg/Kg)
OW 1-5'	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
OW 1-9'	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
OW 1-13.5'	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
BLANK SPIKED	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
RECOVERY	85.8%	95.1%	99.5%	109.0%	118.0%	90.9%
METHOD OF ANALYSIS	MOD. 8015	MOD. 8015	8020	8020	8020	8020

ChromaLab, Inc.



David Duong  
Senior Chemist



Eric Tam  
Laboratory Director

CL # 1289109

Project Name: LINDE OAKLAND

Job# 36089 W1 MW

SAMPLING COMPLETED: 12:30 AM/PM, DATE: 12/26/89 BY: WALT FLOYD

SITE NAME AND ADDRESS: BAKUY  
1171 OCEAN AVE. OAKLAND

REGULATORY AGENCY REPRESENTATIVE PRESENT: \_\_\_\_\_

REGULATORY AGENCY REPRESENTATIVE TITLE: \_\_\_\_\_

LAB USED: CHROMA-LAB

LAB ON SITE? yes/no

SAMPLE TO LAB VIA? Lab Rep Uriah Staff Courier \_\_\_\_\_

SAMPLE#	SOIL/WATER PRODUCT	ANALYZE FOR		# OF CONTAINERS	SINGLE/ COMPOSITE
<u>OW1-5</u>	<u>SOIL</u>	<u>TPH-D</u>	<u>BTXE/gas</u>	<u>1</u>	<u>SINGLE</u>
<u>OW2-9</u>	↓	↓	↓	↓	↓
<u>OW1-13.5</u>	↓	↓	↓	↓	↓
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
<u>OW2-11.5</u>	<u>SOIL</u>	<u>HOLD</u>		_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

SAMPLE RELEASED BY:

Walt Floyd 2:30 AM/PM, 12/26/89

\_\_\_\_\_ AM/PM, \_\_\_/\_\_\_/89

\_\_\_\_\_ AM/PM, \_\_\_/\_\_\_/89

SAMPLE ACCEPTED BY:

[Signature] 2:25 AM/PM, 12/26/89

\_\_\_\_\_ AM/PM, \_\_\_/\_\_\_/89

\_\_\_\_\_ AM/PM, \_\_\_/\_\_\_/89

TURN AROUND: ROUTINE

RESULTS TO URIAH BY: \_\_\_\_\_



CHART I

GROUNDWATER MONITORING WELL DATA FOR:

Bayox  
1171 Ocean Avenue  
Oakland, CA

DATE: January 8, 1990

OBSERVATIONS: Weather was rainy on January 7, 1990

WELL DEPTH (feet)	DEPTH TO WATER TABLE (feet)	WELL VOL. (gal.)	MIN. GAL. TO BE PUMPED (gal.)
29.04	7.04	3.5	10.5

GROUNDWATER SAMPLE #: MW-1

GAL. PUMPED	TIME	pH	CONDUCTIVITY (Mohms/cm)	TEMPERATURE (Centigrade)
Initial	10:30a	7.6	1610	14.0
2	10:33a	6.8	1220	15.0
4	10:36a	6.5	1140	15.0
6	10:39a	6.2	1100	15.0
8	10:42a	6.3	1090	15.0
10	10:45a	6.2	1060	15.0
12	10:48a	6.2	1040	15.0

# CHROMALAB, INC.

Analytical Laboratory  
Specializing in GC-GC/MS

- Environmental Analysis
- Hazardous Waste (#238)
- Drinking Water (#855)
- Waste Water
- Consultation

January 15, 1990

Chromalab File No.: 0190033

URIAH ENVIRONMENTAL SERVICES, INC.

Attn: Walt Floyd

RE: One water sample for Gasoline/BTEX and Diesel analyses

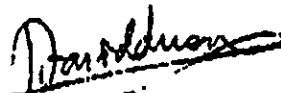
Project Name: LINDE - OAKLAND

Duration of Analysis: January 9-15, 1990

## RESULTS:

Sample No.	Gasoline (mg/L)	Diesel (mg/L)	Benzene (ug/L)	Toluene (ug/L)	Ethyl Benzene (ug/L)	Total Xylenes (ug/L)
MW-1	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
BLANK SPIKE	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
RECOVERY	85.8%	96.9%	99.5%	109.0%	118.0%	90.9%
DETECTION LIMIT	0.5	0.5	1.0	1.0	1.0	1.0
METHOD OF ANALYSIS	MOD. 8015	MOD. 8015	8020	8020	8020	8020

Chromalab, Inc.

  
David Duong  
Senior Chemist

  
Eric Tam  
Laboratory Director

CLIENT MGR. WALT FLOYD  
 COMPANY UKIAH  
 ADDRESS \_\_\_\_\_

APPLICANT'S (SIGNATURE) Walter Floyd (PHONE NO.) \_\_\_\_\_

### ANALYSIS REQUEST

SAMPLE ID.	DATE	TIME	MATRIX	LAB ID.	TPH - Gasol line (EPA 5030)	TPH - Gasol line (5030) W/BTEX (EPA 602, 8020)	TPH - Diesel (EPA 3510, 3550)	PURGEABLE AROMATICS BTEX (EPA 602, 8020)	PURGEABLE HALOCARBONS (EPA 601, 8010)	VOLATILE ORGANICS (EPA 624, 8240)	BASE/NEUTRALS, ACIDS (EPA 624/627, 8270)	TOTAL OIL & GREASE (EPA 5030AE)	PESTICIDES/PCB (EPA 608, 8080)	PHENOLS (EPA 604, 8040)	METALS: Cd, Cr, Pb, Zn	CAN METALS (18) W/CP VI	PRIORITY POLLUTANT METALS (13)	NUMBER OF CONTAINERS	
MW-1	1-8-90	1:55	H <sub>2</sub> O			X	X												

**PROJECT INFORMATION**  
 SUBJECT: INDE - OAKLAND  
 NO. \_\_\_\_\_  
 SHIPPING ID. NO. \_\_\_\_\_  
 SPECIAL INSTRUCTIONS/COMMENTS: \_\_\_\_\_

**SAMPLE RECEIPT**  
 TOTAL NO. OF CONTAINERS \_\_\_\_\_  
 CHAIN OF CUSTODY SEALS \_\_\_\_\_  
 REC'D GOOD CONDITION/COLD \_\_\_\_\_  
 CONFORMS TO RECORD \_\_\_\_\_  
 LAB NO. \_\_\_\_\_

RELINQUISHED BY <u>Walter Floyd</u> (Signature) <u>WALT FLOYD</u> (Printed Name) <u>UKIAH</u> (Company)	1. RELINQUISHED BY  (Signature) (Printed Name) (Company)	2. RELINQUISHED BY  (Signature) (Printed Name) (Company)
RECEIVED BY  (Signature) (Printed Name) (Company)	1. RECEIVED BY  (Signature) (Printed Name) (Company)	2. RECEIVED BY (LABORATORY) <u>Yuanhua Tan</u> (Signature) <u>Chromalab</u> (Printed Name) (LAB)

## **APPENDIX C**

**Quarterly Groundwater Monitoring Reports  
(1/8/90, 3/9/90, 7/12/90, 11/16/90)  
Laboratory Analyses/Reports  
Chain-of-custody Records**

# CHROMALAB, INC.

Analytical Laboratory  
Specializing in GC-GC/MS

- Environmental Analysis
- Hazardous Waste (#238)
- Drinking Water (#955)
- Waste Water
- Consultation

January 4, 1990

ChromaLab File No.; 1289109

URIAH ENVIRONMENTAL SERVICES, INC.

Attn: Walt Floyd

RE: Three soil samples for Gasoline/BTEX and Diesel analyses

Project Name: LINDE OAKLAND

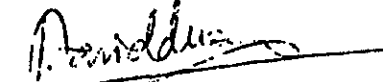
Job No.: 36089WIMW

Analysis Duration: December 28, 1989 - January 4, 1990

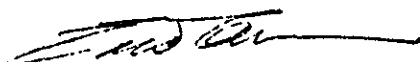
RESULTS:

Sample No.	Gasoline (mg/Kg)	Diesel (mg/Kg)	Benzene (ug/Kg)	Toluene (ug/Kg)	Ethyl Benzene (ug/Kg)	Total Xylenes (ug/Kg)
OW 1-5'	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
OW 1-9'	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
OW 1-13.5'	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
BLANK SPIKED	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
RECOVERY	85.8%	95.1%	99.5%	109.0%	118.0%	90.9%
METHOD OF ANALYSIS	MOD. 8015	MOD. 8015	8020	8020	8020	8020

ChromaLab, Inc.



David Duong  
Senior Chemist



Eric Tam  
Laboratory Director

CHART I

GROUNDWATER MONITORING WELL DATA FOR:

Bayox  
1171 Ocean Avenue  
Oakland, CA

DATE: January 8, 1990

OBSERVATIONS: Weather was rainy on January 7, 1990

WELL DEPTH (feet)	DEPTH TO WATER TABLE (feet)	WELL VOL. (gal.)	MIN. GAL. TO BE PUMPED (gal.)
29.04	7.04	3.5	10.5

GROUNDWATER SAMPLE #: MW-1

GAL. PUMPED	TIME	pH	CONDUCTIVITY (Mohms/cm)	TEMPERATURE (Centigrade)
Initial	10:30a	7.6	1610	14.0
2	10:33a	6.8	1220	15.0
4	10:36a	6.5	1140	15.0
6	10:39a	6.2	1100	15.0
8	10:42a	6.3	1090	15.0
10	10:45a	6.2	1060	15.0
12	10:48a	6.2	1040	15.0

# CHROMALAB, INC.

Analytical Laboratory  
Specializing in GC-GC/MS

- Environmental Analysis
- Hazardous Waste (#235)
- Drinking Water (#255)
- Waste Water
- Consultation

January 15, 1990

ChromaLab File No.: 0190033

URIAH ENVIRONMENTAL SERVICES, INC.

Attn: Walt Floyd

RE: One water sample for Gasoline/BTEX and Diesel analyses

Project Name: LINDE - OAKLAND

Duration of Analysis: January 9-15, 1990

## RESULTS:

Sample No.	Gasoline (mg/L)	Diesel (mg/L)	Benzene (ug/L)	Toluene (ug/L)	Ethyl Benzene (ug/L)	Total Xylenes (ug/L)
MW-1	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
BLANK SPIKE	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
RECOVERY	85.8%	96.9%	99.5%	109.0%	118.0%	90.9%
DETECTION LIMIT	0.5	0.5	1.0	1.0	1.0	1.0
METHOD OF ANALYSIS	MOD. 8015	MOD. 8015	8020	8020	8020	8020

ChromaLab, Inc.

  
David Dunning  
Senior Chemist

  
Eric Tam  
Laboratory Director

CL # 1289109

Project Name: LINNE OAKLAND

Job# 36089 W1 MW

SAMPLING COMPLETED: 12:30 AM/PM, DATE: 12/26/89 BY: WALT FLOYD

SITE NAME AND ADDRESS: BAYVIEW  
1171 OCEAN AVE. OAKLAND

REGULATORY AGENCY REPRESENTATIVE PRESENT: \_\_\_\_\_

REGULATORY AGENCY REPRESENTATIVE TITLE: \_\_\_\_\_

LAB USED: CHROMA-LAB

LAB ON SITE? yes/no

SAMPLE TO LAB VIA? Lab Rep Uriah Staff Courier

SAMPLE#	SOIL/WATER PRODUCT	ANALYZE FOR		# OF CONTAINERS	SINGLE/ COMPOSITE
<u>OW1-5</u>	<u>SOIL</u>	<u>TPH-D</u>	<u>BTXE/gas</u>	<u>1</u>	<u>SINGLE</u>
<u>OW2-9</u>	↓	↓	↓	↓	↓
<u>OW1-13.5</u>	↓	↓	↓	↓	↓
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
<u>OW1-11.5</u>	<u>SOIL</u>	<u>HOLD</u>		_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

SAMPLE RELEASED BY:

Walter Floyd 2:30 AM/PM, 12/26/89

SAMPLE ACCEPTED BY:

[Signature] 2:25 AM/PM, 12/26/89

\_\_\_\_\_ AM/PM, \_\_\_/\_\_\_/89

\_\_\_\_\_ AM/PM, \_\_\_/\_\_\_/89

\_\_\_\_\_ AM/PM, \_\_\_/\_\_\_/89

\_\_\_\_\_ AM/PM, \_\_\_/\_\_\_/89

TURN AROUND: ROUTINE

RESULTS TO URIAH BY: \_\_\_\_\_



CHART I

GROUNDWATER MONITORING WELL DATA FOR:

Bayox  
1171 Ocean Avenue  
Oakland, CA

DATE: March 9, 1990

WELL DEPTH (feet)	DEPTH TO WATER TABLE (feet)	WELL VOL. (gal.)	MIN. GAL. TO BE PUMPED (gal.)
28.80	5.00	3.8	11.4

GROUNDWATER SAMPLE #: MW-1

GAL. PUMPED	TIME	pH	CONDUCTIVITY (Mohms/cm)	TEMPERATURE (Centigrade)
Initial	10:45a	7.8	1150	16.0
2	10:48a	7.3	980	14.0
4	10:51a	6.9	980	15.0
6	10:54a	6.7	990	15.0
8	10:57a	6.4	990	15.0
10	11:00a	6.3	980	15.0
12	11:03a	6.3	990	15.0

# CHROMALAB, INC.

Analytical Laboratory  
Specializing in GC-GC/MS

- Environmental Analysis
- Hazardous Waste (#238)
- Drinking Water (#955)
- Waste Water
- Consultation

March 15, 1990

ChromaLab File No.: 0390051

URIAH ENVIRONMENTAL SERVICES, INC.

Attn: Walter Floyd.

RE: One water sample for Gasoline/BTEX and Diesel analyses

Project Name: LINDE

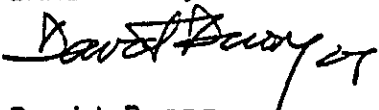
Project Location: Oakland

Duration of Analysis: March 10-14, 1990

## RESULTS:

Sample No.	Gasoline (mg/L)	Diesel (mg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl Benzene (µg/L)	Total Xylenes (µg/L)
MW-1	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
BLANK SPIKE	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
RECOVERY	82.6%	82.9%	92.9%	107.6%	97.8%	103.6%
DETECTION LIMIT	0.5	0.5	1.0	1.0	1.0	1.0
METHOD OF ANALYSIS	MOD. 8015	3510/ 8015	602	602	602	602

CHROMALAB, INC.



David Duong  
Senior Chemist



Eric Tam  
Laboratory Director



GROUNDWATER MONITORING WELL SAMPLING DATA FOR:

BAYOX  
1171 OCEAN AVENUE  
OAKLAND, CA

WELL NO.	WELL DEPTH (FEET)	DEPTH TO WATER TABLE (FEET)	WELL VOL. (GAL.)	MINIMUM VOL. TO BE PUMPED (GAL.)
MW-1	28.44	6.84	3.45	10.35

SAMPLE: #MW-1  
DATE: JULY 12, 1990

TIME	GAL. PUMPED	pH*	CONDUCTIVITY* (umhos/cm)	TEMPERATURE (Degrees C)
12:47 PM	INIT.	7.1	1000	18
12:49 PM	2.5	6.8	1000	17
12:57 PM	5.0	6.8	1000	17
1:24 PM	7.5	6.7	1010	18
1:26 PM	10.0	6.7	980	17
1:28 PM	11.0	6.8	1010	17

\*Initial pH and conductivity readings were noted to be erratic. It was determined that the pH meter was malfunctioning. A new pH meter was acquired and the well redeveloped with new readings obtained.

# CHROMALAB, INC.

Analytical Laboratory  
Specializing in GC-GC/MS

- Environmental Analysis
- Hazardous Waste (#E694)
- Drinking Water (#955)
- Waste Water
- Consultation

October 15, 1990

ChromaLab File No.: 0790083

URIAH ENVIRONMENTAL SERVICES, INC.

Attn: Tony Favero

RE: One water sample for Gasoline/BTEX, and Diesel analyses

Project Name: BAYOX (LINDE OAK)

Date Sampled: July 12, 1990

Date Submitted: July 12, 1990


Date Extracted: July 14-18, 1990

Date Analyzed: July 14-18, 1990

## RESULTS:

Sample No.	Gasoline (mg/L)	Diesel (mg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl Benzene (µg/L)	Total Xylenes (µg/L)
#1	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
BLANK SPIKED RECOVERY	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
DETECTION LIMIT	97.1%	97.8%	91.6%	102.3%	111.0%	106.7%
METHOD OF ANALYSIS	0.5	5.0	0.5	0.5	0.5	0.5
	5030/ 8015	3550/ 8015	602	602	602	602

CHROMALAB, INC.

  
David Duong  
Senior Chemist

  
Eric Tam  
Laboratory Director



GROUNDWATER MONITORING WELL SAMPLING DATA FOR:

BAYOX  
1171 OCEAN AVENUE  
OAKLAND, CA

SAMPLE: SMP1, SMP2  
DATE: NOVEMBER 16, 1990

WELL NO.	WELL DEPTH (FEET)	DEPTH TO WATER TABLE (FEET)	WELL VOL. (GAL.)	MINIMUM VOL. TO BE PUMPED (GAL.)
MW-1	28.35	7.35	3.36	10.8*

TIME	GAL. PUMPED	pH	CONDUCTIVITY (umhos/cm)	TEMPERATURE (Degrees C)
3:16 P	Init.	7.6	831	17
3:21 P	2.0	7.1	688	17
3:26 P	3.0	7.0	710	17
3:29 P	4.0	7.0	694	17
3:33 P	6.0	7.3	683	17

\*Due to apparent inconsistencies in initial depth to water data, measurements were repeated with the results as shown above.



LOG NO.: 9322  
DATE SAMPLED: 11/16/90  
DATE RECEIVED: 11/19/90  
DATE ANALYZED: 11/24/90  
DATE REPORTED: 11/30/90  
PAGE: Two

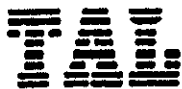
Sample Type: Water

Method and Constituent	Units	SMP-2	
		Concentration	Reporting Limit
DHS Method:			
Total Petroleum Hydrocarbons as Gasoline	ug/l	170	50
Modified EPA Method 8020:			
Benzene	ug/l	1.8	0.5
Toluene	ug/l	ND	0.5
Xylenes	ug/l	ND	2
Ethylbenzene	ug/l	ND	0.5

Concentrations reported as ND were not detected at or above the reporting limit.

Louis W. DuPuis  
Quality Assurance/Quality Control Manager





LOG NO.: 9322  
DATE SAMPLED: 11/16/90  
DATE RECEIVED: 11/19/90  
DATE EXTRACTED: 11/27/90  
DATE ANALYZED: 11/29/90  
DATE REPORTED: 11/30/90

CUSTOMER: Uriah, Inc.  
REQUESTER: T. Favero  
PROJECT: Linde, Oakland, CA

Sample Type: Water

<u>Method and Constituent</u>	<u>Units</u>	<u>SMP-1</u>	
		<u>Concen- tration</u>	<u>Reporting Limit</u>
DHS Method: Total Petroleum Hydro- carbons as Diesel	ug/l	ND	50

Concentrations reported as ND were not detected at or above the reporting limit.

# Uriah, Inc.

An Environmental Services Company

484 Lindbergh Avenue  
 Livermore, CA 94550  
 (415) 455-4991 Office  
 (415) 455-4995 FAX

## Chain of Custody

DATE 11/16/90 PAGE 1 OF 1

PROJ. MGR. <u>T. FAVERO</u>					ANALYSIS REQUEST													NUMBER OF CONTAINERS									
COMPANY <u>BAVOX (LINDE)</u>					TPH - Gasoline (EPA 5030)	TPH - Gasoline (5030) w/STEX (EPA 602, 8020)	JPH - Diesel (EPA 3510, 3550)	PURGEABLE AROMATICS BTX (EPA 602, 8020)	PURGEABLE HALOCARBONS (EPA 601, 8010)	VOLATILE ORGANICS (EPA 624, 8240)	BASE/NEUTRALS, ACIDS (EPA 624/827, 8270)	TOTAL OIL & GREASE (EPA 5034E)	PESTICIDES/PCB (EPA 608, 8080)	PHENOLS (EPA 604, 8040)	METALS: Cd, Cr, Pb, Zn	CAR METALS (18) w/CF VI	PRIORITY POLLUTANT METALS (13)		9322								
ADDRESS <u>1171 OCEAN AVE</u> <u>OAKLAND, CA</u>																											
SAMPLERS (SIGNATURE) <u>[Signature]</u>					(PHONE NO.) <u>455-4991</u>																						
SAMPLE ID.	DATE	TIME	MATRIX	LAB ID.																							
SMP 1 (LITER)	11/16/90	3:35	WATER				X																				
SMP 2 (VIA)	11/16/90	3:37	WATER			X																					
SMP 3 is a backup for SMP 2																											
PROJECT INFORMATION					SAMPLE RECEIPT					RELINQUISHED BY 1.				RELINQUISHED BY 2.				RELINQUISHED BY 3.									
PROJECT: <u>Linde, Oakland, CA</u>					TOTAL NO. OF CONTAINERS					<u>UNLABLED CONTAINERS</u>																	
PO NO.					CHAIN OF CUSTODY SEALS					(Signature) <u>[Signature]</u> (Time)				(Signature) (Time)				(Signature) (Time)									
SHIPPING ID. NO.					REC'D GOOD CONDITION/COLD					(Printed Name) <u>[Name]</u> (Date)				(Printed Name) (Date)				(Printed Name) (Date)									
VIA:					CONFORMS TO RECORD					(Company)				(Company)				(Company)									
LAB NO.										RECEIVED BY 1. <u>[Signature]</u> 11/14/90				RECEIVED BY 2.				RECEIVED BY (LABORATORY) 3.									
SPECIAL INSTRUCTIONS/COMMENTS:					SMP 2 and SMP 3 are identical Run testing for only one of them. No final turnaround time.					(Signature) (Time)				(Signature) (Time)				(Signature) (Time)									
										(Printed Name) (Date)				(Printed Name) (Date)				(Printed Name) (Date)									
										(Company)				(Company)				(LAB)									

**APPENDIX D**

**Initial Subsurface Investigation Report (Uriah, 3/5/90)  
Letter from Petrotech, Inc. (2/12/88)  
Precision Tank Test Results/Report  
Unauthorized Release Report**



# Uriah Inc.

*An Environmental Services Company*

REPORT REGARDING THE INITIAL  
SUBSURFACE INVESTIGATION PERFORMED AT:

BAYOX  
1171 OCEAN AVENUE, OAKLAND, CA

MARCH 5, 1990



# Uriah Inc.

An Environmental Services Company

March 5, 1990

Mr. Sam Rohn  
Region Environmental Coordinator  
Linde Division  
Union Carbide Corporation  
2420 Camino Ramon  
San Ramon, CA 94583

Re: Completion of an Initial Subsurface Investigation at Bayox,  
1171 Ocean Avenue, Oakland, CA.

Dear Mr. Rohn:

In accordance with the protocol set forth within Uriah's previously submitted proposal for work dated December 8, 1989 and with the approval of the Hazardous Materials Division of the Alameda County Health Care Services Agency, Uriah, Inc. undertook the completion of an Initial Subsurface Investigation at the above referenced location.

## SITE OVERVIEW AND HISTORY

This site is currently occupied by Bayox, a subsidiary of Linde Gases- a division of the Union Carbide Corporation. It is located on the southern side of Ocean Avenue between Marshall and Vallejo Streets in Oakland, California. Vallejo Street runs North-South and is the boundary between the cities of Oakland and Emeryville. The area has mixed residential and light-industrial occupancy with single family dwellings located across Ocean Avenue approximately 40 feet from the Bayox facility.

Bayox has occupied the 1171 Ocean Avenue site since 1981. It repackages industrial gases and is involved with the transport of compressed gases and liquids. Above ground storage tanks containing carbon dioxide, oxygen, nitrogen, and argon are present on the site. A 5,000 gallon underground diesel fuel storage tank existed on this site until March of 1989 at which

time it was excavated and removed by the North Cal Construction Company under the supervision of the County of Alameda. This tank had been used to refuel company operated vehicles and equipment. There are no other underground storage tanks known to exist on site at the present time.

According to the Haines Directory, the site was occupied by Bay Area Fountain Service between 1979 and 1981. This firm is reported to have supplied and repaired soda fountain equipment. From at least 1967 to sometime between 1969 and 1979, the site was occupied by Berkeley Charter Lines Buses. The exact date of transfer of occupancy from Berkeley Charter Lines Buses to Bay Area Fountain Service is unclear due to incomplete listings in the Polk and Haines Directories.

According to employees of the Linde Division, the 1171 Ocean Avenue property was acquired from a "truck repair shop" (which we assume to be Berkeley Charter Lines Buses). It has been stated that the "...repair shop" utilized an underground diesel storage tank located beneath the area now occupied by the carbon dioxide storage tank. According to Linde Division records the diesel tank was excavated and removed in 1978. There is, however, no asphalt patch visible in the area consistent with those normally associated with underground storage tank removals. In addition, records of underground tank removals maintained by both the Alameda County Department of Environmental Health and the San Francisco Bay Region Water Quality Control Board date back only to 1984. Records of the City of Oakland Fire Department are stored within the Oakland City Hall which has been closed to public access since the October 17, 1989 earthquake.

Research into San Francisco Bay Region Water Quality Control Board (RWQCB) files revealed that a number of contamination events have been reported as having occurred within a one-half mile radius of Bayox. A listing of these sites as available from the RWQCB is enclosed as Attachment "E". Of the sites listed, particular note was taken of the Bolin Service Gargage which is at 6335 San Pablo Avenue (Oakland), only one block apparently upgradient of the Bayox facility. However, RWQCB records concerning the Bolin site are incomplete and a visual inspection revealed no evidence of underground tank excavation, or groundwater monitoring.

A complete listing of area businesses is included as Attachment "F" for 1967 through 1989.

#### HISTORY OF ENVIRONMENTAL COMPLIANCE

The 5,000 gallon underground diesel storage tank removed during March of 1989 was precision tested annually as a matter of

company policy. On January 20, 1988, the tank failed a (precision) test performed by the Petrotech Company and it was subsequently determined that the tank had been improperly plumbed. The problem was corrected by disconnecting and relocating the vent line to the high end of the tank. A full system test, including product line, was conducted subsequent to this corrective action and the tank system was declared "tight" @  $-.0004$  gallons per hour. In the opinion of Petrotech staff, only a limited amount of product was lost to the backfill directly under the pumping unit and fill areas.

A soil boring was subsequently advanced to a depth corresponding to the bottom of the tank. Groundwater was encountered at this depth (available data suggests this was at 10.7 feet below grade). The groundwater was described only as "...being free of floating product". A copy of this report is enclosed as Attachment "D".

On March 22, 1989, the aforementioned underground storage tank was removed in accordance with a corporate decision to remove and/or replace all underground storage tanks nationwide. At the time of the tank excavation and removal, a soil sample was collected from beneath each end of the tank. Analyses of these soil samples revealed no detectable levels of waste oil or diesel fuel. A grab water sample collected from the tank pit was analyzed using EPA Methods 8015 and 9070 and found to contain 800 parts per million (ppm) Total Petroleum Hydrocarbons as Diesel and 490 ppm Oil and Grease respectively (EPA Method 9070 is a gas chromatography method for waste oil analysis that is capable of detecting diesel fuel).

On September 6, 1989, staff of Uriah, Inc. undertook a limited site assessment by advancing six (6) exploratory soil borings in the immediate area of the previously backfilled and paved diesel tank pit. Grab water samples were collected from five of the six borings and analyzed for Total Petroleum Hydrocarbons as Diesel (TPH-D). None of the water samples contained detectable levels of diesel fuel. The nature of grab sampling groundwater from the top of an aquifer can be expected to show higher concentrations of diesel fuel (and similar compounds) and would be encountered within samples acquired from a well. This is due to the fact that discrete hydrocarbon concentrations are greatest at the uppermost portion of the aquifer and diminish with depth and distance from the source of contamination. Therefore, samples from a developed groundwater monitoring well are more likely to provide analytical results which represent the mean concentration of contaminant(s) throughout the formation in which the slotted interval of the well is located.

The determination of gradient conducted by Uriah in September of 1989 found that groundwater was moving West roughly parallel to Ocean Avenue. The hydraulic gradient was determined to be

0.0087. Uriah estimates that the hydraulic conductivity for the clayey gravel to be on the order of 0.001 centimeters per second, which corresponds to a groundwater velocity of approximately 9 feet per year. If the hydraulic conductivity is actually 0.1 cm/sec. which is not unreasonable for gravel, then the groundwater would be moving 900 feet per year.

#### GROUNDWATER MONITORING WELL INSTALLATION

On December 26, 1989, Uriah, Inc. undertook the installation of a 2" groundwater monitoring well in accordance with requirements set forth by the Alameda County Health Care Services Agency, Hazardous Materials Division, and guidelines of the San Francisco Bay Region Water Quality Control Board.

The well was advanced using a truck-mounted, 8" outside diameter, continuous-flight, hollow-stem auger(s) by employees of HEW Drilling Company under the direction of Walter Floyd, Uriah Staff Geologist in the previously determined downgradient direction within 8 feet of the former diesel underground fuel storage tank pit. (See site map for specific well location). Soil samples were obtained at 5 foot intervals for lithologic evaluation (using the Unified Soil Classification System) and/or laboratory analysis except between 9' and 15', where the sampling frequency was increased to a 1 foot interval in order to obtain a soil sample immediately above the water table as required by Alameda County. While it was expected that the water table would be encountered at a depth of 9 feet, it was not encountered until 14 feet below grade. During the advancement of the boring, it was noted that the fine-grained clayey material present was saturated at approximately 10 feet. This would be as expected as the finer grained material would have greater capillary forces than the gravel. However, the unit as a whole was not saturated until 14 feet. It is likely that contamination migrating through the vadose zone would cease downward movement at a depth of approximately 10 feet where the capillary fringe begins. The sample collected at 9.0-9.5' is expected to better satisfy the intent of the requirement for sampling above the water table than the sample collected at 13.5 feet.

Soil samples were collected within clean brass sampling tubes (1.92 inches in diameter and 6 inches in length) placed within a California Modified Split Spoon Sampler driven through the hollow stem of the drilling auger(s). Immediately upon the opening of the sampler, the ends of the sampling tubes were wrapped in aluminum foil, fitted with plastic caps, sealed with black electrical tape, labeled, placed on dry ice, and transported to a certified hazardous waste analytical laboratory under chain of custody for analysis. Selected soil samples were analyzed for Total Petroleum Hydrocarbons as Gasoline (TPH-G), benzene, toluene, total xylenes, and ethylbenzene



(BTX&E) using EPA Methods MOD. 8015 and 8020, and Total Petroleum Hydrocarbons as Diesel (TPH-D) using EPA Method MOD. 8015. Soil samples acquired below the water table were collected using a standard split spoon sampler due to the enhanced soil retention capability of this thinner diameter device. These samples were obtained for logging purposes only.

Throughout the course of the advancement of the boring, no product odors were noted. As previously stated, groundwater was encountered at 14 feet. The boring was terminated at 29.5 feet and then converted to a groundwater monitoring well using 2" inside diameter threaded, Schedule 40 PVC casing. The slotted interval extended 6.5 feet above the first encountered groundwater and 2 feet above static water level to allow any contaminant that may be migrating through the vadose zone to be captured. The sand pack, which consisted of #3 Monterey Sand, extended 2 feet above the slotted casing, again to allow for the capture of vadose zone material that might be traveling on the top of the capillary fringe. The well was sealed with 1.5 feet of bentonite and 3.5 feet of grout which contained approximately 5% bentonite. (See Boring Log And Well Construction Details enclosed as Attachment B.)

All tailings from the drilling were placed on visqueen, covered and stored on site pending the results of certified laboratory analysis for the determination of proper disposal.

The hollow-stem augers were steam cleaned prior to arrival on site. All sampling equipment was steam cleaned prior to being brought on site and between all samplings.

The well was subsequently developed and sampled by Mr. Floyd on January 8, 1990. (See the Groundwater Monitoring Well Development and Samplig Report enclosed as Attachment A.)

### LABORATORY RESULTS

Copies of all laboratory results as received from the certified hazardous waste analytical laboratory are enclosed as Attachment C.

### CONCLUSIONS AND RECOMMENDATIONS

All constituents analyzed for in soil and groundwater samples attendant to the installation and development of the groundwater monitoring well were found to be below laboratory detection limits. In light of the data acquired during the course of this investigation, and in consideration of previous work performed by Uriah, Inc. on September 6, 1989, it is believed that the contamination encountered in the groundwater sampled

during the initial tank removal occurred as a result of limited spillage and/or product loss from the tank system and was not representative of a significant contamination event.

It is recommended that sampling of the newly installed monitoring well be conducted at least quarterly for a minimum of one year, or more frequently as indicated by the results of measurements of groundwater depth to be performed on a monthly basis.

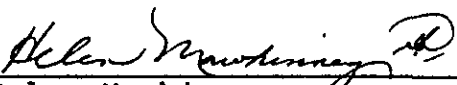
Additional copies of this report have been included for your convenience. It is recommended that a copy be forwarded to each of the following agencies:

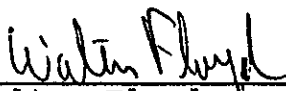
San Francisco Bay Region Water Quality Control Board  
1800 Harrison Street, Suite 700  
Oakland, CA 94612  
Attention: Vijay Patel

Alameda County Health Care Service Agency  
Hazardous Materials Division  
80 Swan Way, Room 200  
Oakland, CA  
Attention: Gil Wistar

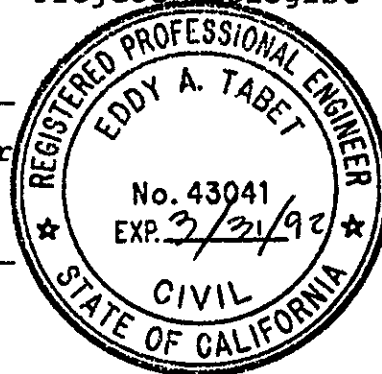
Thank you for having selected Uriah, Inc. as your service provider. If you have any questions, or if we may otherwise be of assistance, please contact one of the undersigned at (415) 455-4991.


Sincerely,

  
\_\_\_\_\_  
Helen Mawhinney  
Senior Environmental Specialist

  
\_\_\_\_\_  
Walter Floyd  
Project Geologist

  
\_\_\_\_\_  
Eddy Tabet, P.E.  
Registered Professional Civil Engineer



  
\_\_\_\_\_  
Denise A. Rapp  
Vice-President, Uriah, Inc.

WF:ET:DAR:ms  
enc.

Attachment A- Groundwater Monitoring Well ..  
Development And Sampling Report

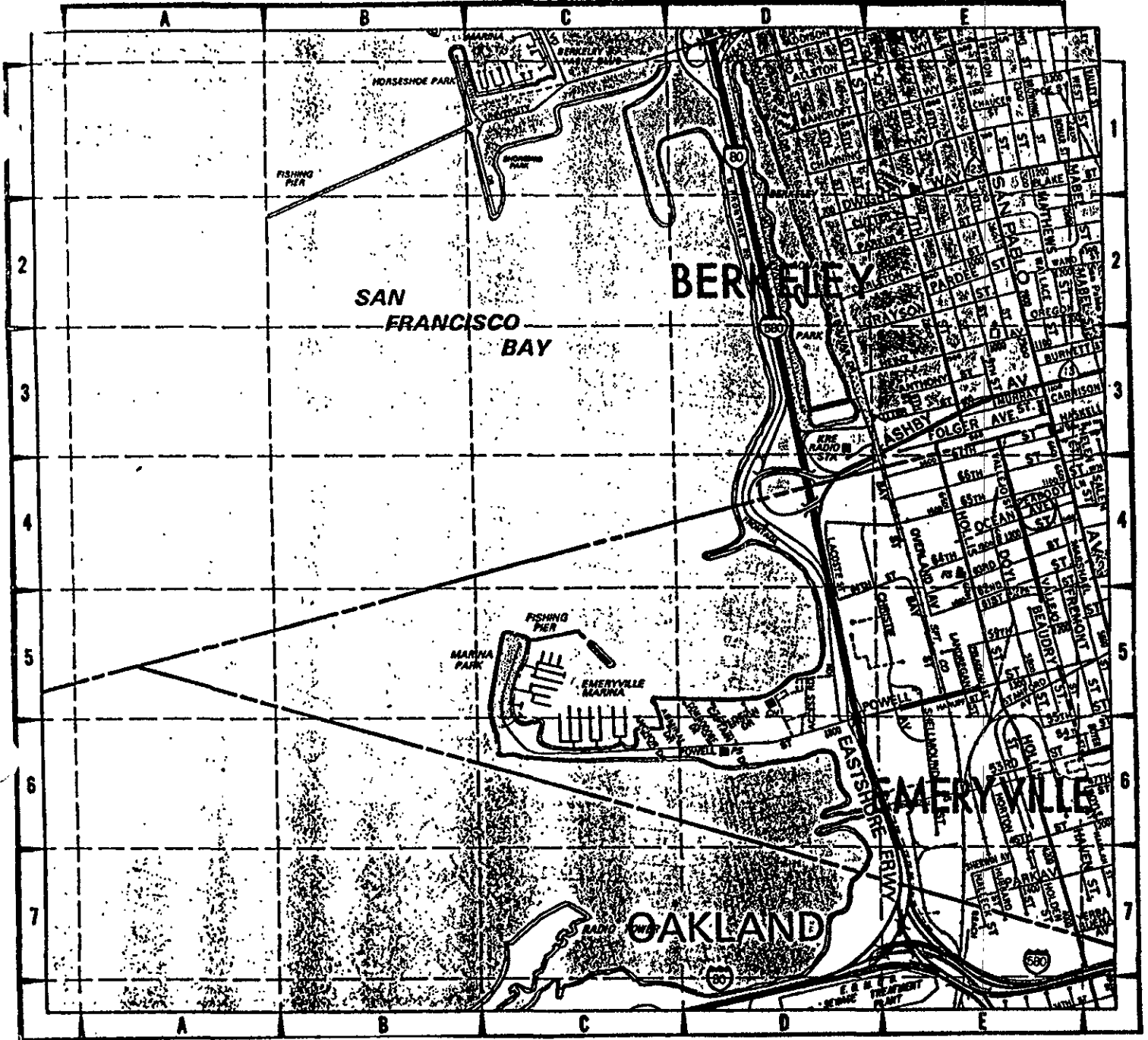
Attachment B- Boring Log And Well Construction  
Details

Attachment C- Certified Analytical Results And  
Chains Of Custody

Attachment D- Petrotech Report

Attachment E- List Of Known Fuel Leaks Within  
A One-Half Mile Radius Of The  
Bayox Facility

Attachment F- City Directory Listings



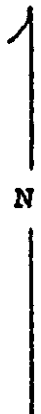
URIAH ENVIRONMENTAL SERVICES, INC.

SITE LOCATION:

1171 OCEAN AVENUE, OAKLAND, CA



Scale (miles)

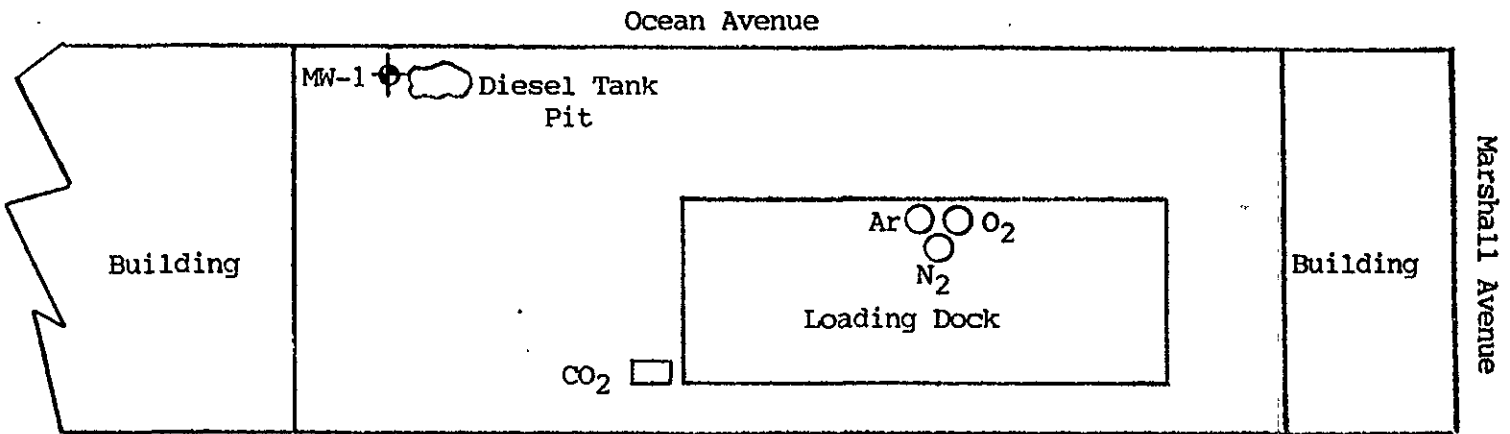
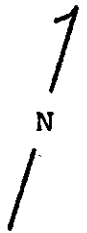
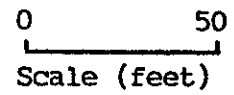


URIAH ENVIRONMENTAL SERVICES, INC.

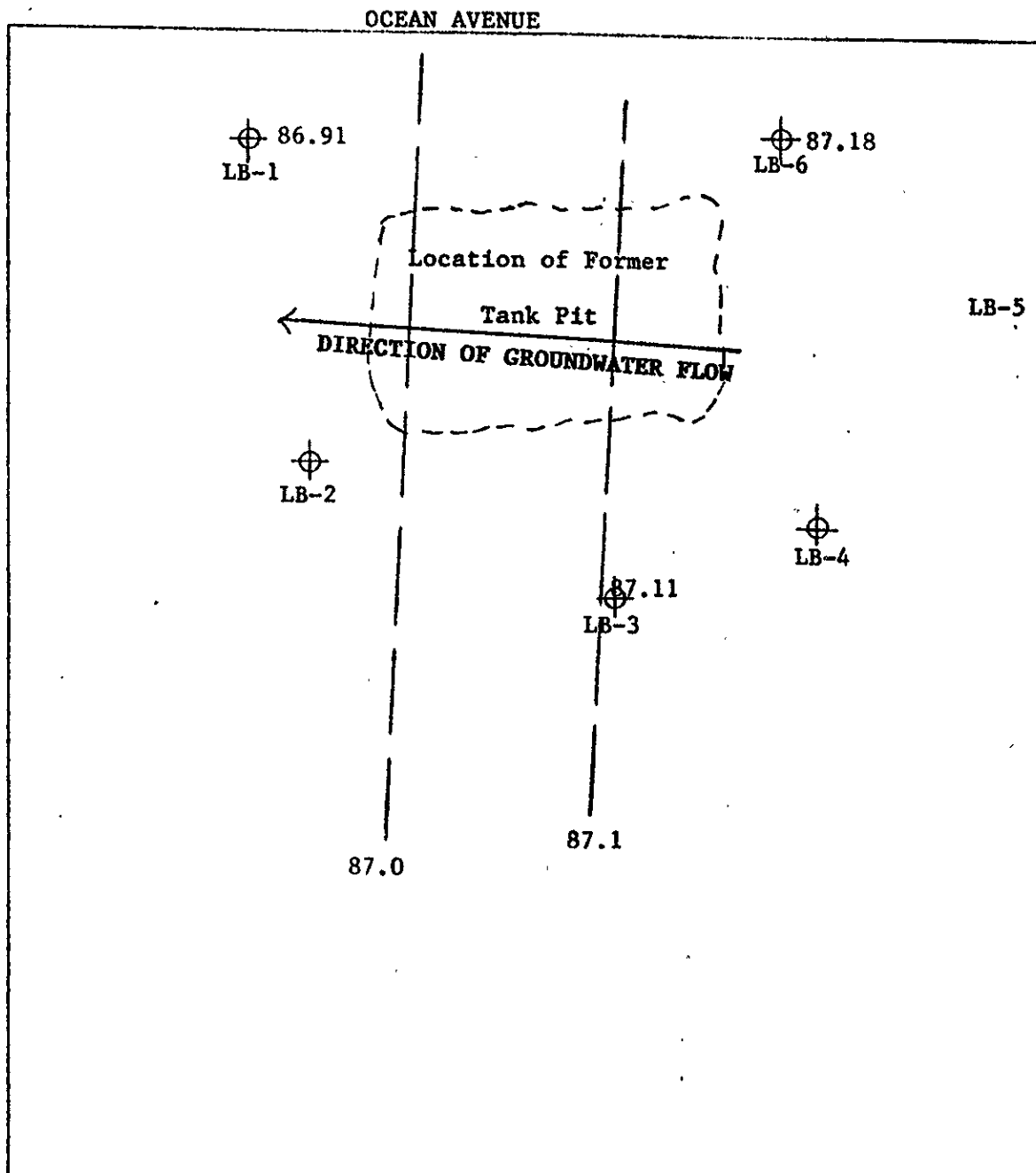
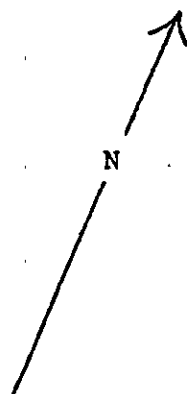
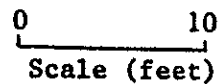
AT:

1171 OCEAN AVENUE, OAKLAND, CA

Site Map



Work performed on 9/6/89



ATTACHMENT A



# Uriah Inc.

An Environmental Services Company

## GROUNDWATER MONITORING WELL DEVELOPMENT AND SAMPLING REPORT:

On January 8, 1990, Uriah, Inc. staff collected one groundwater sample from the monitoring well recently installed at 1171 Ocean Avenue, Oakland, CA.

### Methodology

Depth to groundwater was measured using an electrical measuring tape in order to calculate well volume. The well was then purged using a WaTerra brand hand pump until the pH, conductivity and temperature were stabilized and the groundwater appeared to be relatively free of sandy silt and other grit material. Chart I, attached, indicates the pH, conductivity, and temperature measurements. The purged groundwater was stored in a DOT drum on site.

The groundwater sample was collected within a disposable, polyethylene bailer lowered into the well just below the water surface. The groundwater sample appeared clean and contained little (if any) suspended soil sediment. The sample was immediately transferred into two (2) 40 milliliter capacity Volatile Organics Analysis (VOA) vials and a one liter amber glass sample bottle and then promptly sealed with teflon-lined screw caps. The sample was then labeled, placed on blue ice and transported to a certified hazardous waste analytical laboratory under chain of custody for analysis for Total Petroleum Hydrocarbons as Gasoline (TPH-G), benzene, toluene, total xylenes, and ethylbenzene (BTX&E) using EPA Methods MOD. 8015 and 8020 and Total Petroleum Hydrocarbons as Diesel (TPH-D) using EPA Method MOD. 8015.

### Laboratory Results

The laboratory results as received from the certified hazardous waste analytical laboratory are enclosed.

### Conclusions



All constituents analyzed for were found to be below detection limits.

Prepared By: DAR

CHART I

GROUNDWATER MONITORING WELL DATA FOR:

Bayox  
1171 Ocean Avenue  
Oakland, CA

DATE: January 8, 1990

OBSERVATIONS: Weather was rainy on January 7, 1990

WELL DEPTH (feet)	DEPTH TO WATER TABLE (feet)	WELL VOL. (gal.)	MIN. GAL. TO BE PUMPED (gal.)
29.04	7.04	3.5	10.5

GROUNDWATER SAMPLE #: MW-1

GAL. PUMPED	TIME	pH	CONDUCTIVITY (Mohms/cm)	TEMPERATURE (Centigrade)
Initial	10:30a	7.6	1610	14.0
2	10:33a	6.8	1220	15.0
4	10:36a	6.5	1140	15.0
6	10:39a	6.2	1100	15.0
8	10:42a	6.3	1090	15.0
10	10:45a	6.2	1060	15.0
12	10:48a	6.2	1040	15.0

ATTACHMENT B

( )

PROJECT NO. \_\_\_\_\_

LOCATION 1171 Ocean Avenue, Oakland, CA

CLIENT. Linde Gases

LOGGED BY Walter Floyd, Geologist

BORE HOLE NO. \_\_\_\_\_

MONITOR HOLE NO. MW-1

ELEVATION \_\_\_\_\_

DATE DRILLED 12/26/89

START 1030

FINISH 130

DRILLING METHOD H/S Auger SAMPLING METHOD CA MOD SS

DRILLED BY H.E.W. Drilling

DEPTH BELOW SURFACE	SAMPLES COLLECTED			SOIL DESCRIPTION TEXTURE, COLOR, MOISTURE *CONSISTENCY, GRAIN-SIZ., ETC.	UNIFIED SOIL CLASS.	GRAPHIC LOG	PENETRATION COLLECTED		WELL CONSTRUCTION DETAILS	
	INT	OVR	SAMPLE NO				Blows	SPT	Christy	
									Box	
0				CLAY- yellowish-brown, stiff, no odors, pebbles present (less than 5 pct).	CL				2" Blank PVC	Grout
5			OW-5				4,7,10	11		
7		▽		Change to CLAYEY-GRAVEL @ 7', orange-brown, angular clasts to 2", no odors.						
10			OW-9'		GC		7,9,16	16		Bentonite
11.5'			OW-11.5'	Clay matrix is saturated.			5,10,11	15		
13.5'		▽		Groundwater encountered at 14'.			7,10,11	17	2" Slotted PVC	
15			OW-15				4,6,9	10		
16				Change at 16' to SANDY-GRAVEL. Contains approx. 12 pct clay. Dark orange-brown, medium dense.						
20			OW-20'		GW		3,8	11		#3 Monterey Sand
25			OW-25'				7,7	14		
30			OW-29.5'	Boring terminated at 29.5'.			11,35	46	Screw Cap	

# WELL DETAILS

PROJECT NAME: Linde Gases

BORING/WELL NO. MW-1

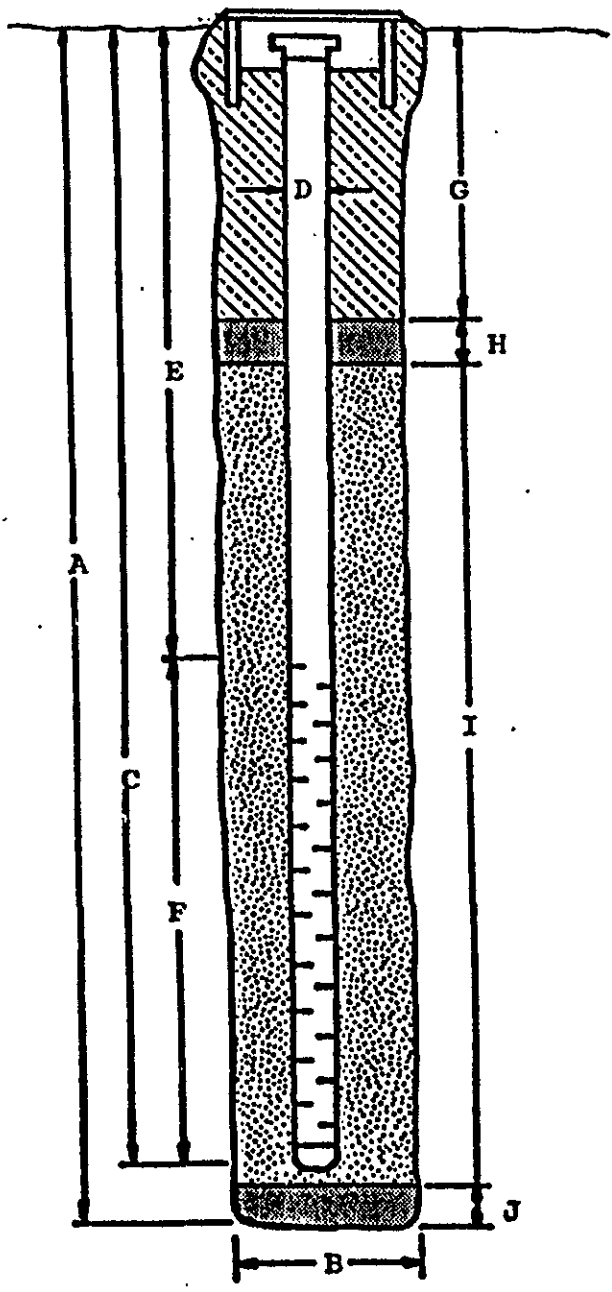
PROJECT NUMBER: \_\_\_\_\_

CASING ELEVATION: \_\_\_\_\_

WELL PERMIT NO.: \_\_\_\_\_

SURFACE ELEVATION: \_\_\_\_\_

G-5 Vault Box



- A. Total Depth: 29'
- B. Boring Diameter: 8"  
Drilling method: H/S Auger
- C. Casing Length: 29'  
Material: PVC
- D. Casing Diameter: 2"
- E. Depth to Perforations: 9'
- F. Perforated Length: 20'  
Perforated Interval: 29'-9'  
Perforation Type: Factory Slot  
Perforation Size: 0.020"
- G. Surface Seal: 5'-0'  
Seal Material: Grout
- H. Seal: 7.5'-5'  
Seal Material: Bentonite
- I. Gravel Pack: 29'-7.5'  
Pack Material: Monterey Sand  
Size: #3
- J. Bottom Seal: \_\_\_\_\_  
Seal Material: \_\_\_\_\_



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

FOR OFFICE USE

LOCATION OF PROJECT 1171 Ocean Avenue
Oakland, CA

PERMIT NUMBER 89733
LOCATION NUMBER

APPLICANT
Union Carbide - Linde Division
2420 Camino Ramon Phone(415) 866-6800
San Ramon Zip 94583

PERMIT CONDITIONS

Circled Permit Requirements Apply

APPLICANT
Uriah Environmental Services Inc.
464 Lindbergh Ave. Phone (415)455-4991
Livermore Zip 94550

TYPE OF PROJECT
Construction Geotechnical Investigation
Radiologic Protection General
Water Supply Contamination
Monitoring X Well Destruction

PROPOSED WATER SUPPLY WELL USE
Domestic Industrial Other
Municipal Irrigation

DIGGING METHOD:
Rotary Air Rotary Auger X
Other

OPERATOR'S LICENSE NO. HEW 384167

PROJECTS
Drill Hole Diameter 8" In. Maximum
Casing Diameter 2" In. Depth 30 ft.
Surface Seal Depth 4 ft.\* Number 1

TECHNICAL PROJECTS
Number of Borings
Hole Diameter In. Maximum
Depth ft.

ESTIMATED STARTING DATE 12/26/89
ESTIMATED COMPLETION DATE 12/26/89

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

APPLICANT'S SIGNATURE Date 12-24-89

- A. GENERAL
1. A permit application should be submitted so as to arrive at the Zone 7 office five days prior to proposed starting date.
2. Submit to Zone 7 within 60 days after completion of permitted work the original Department of Water Resources Water Well Drillers Report or equivalent for well projects, or drilling logs and location sketch for geotechnical projects.
3. Permit is void if project not begun within 90 days of approval date.
B. WATER WELLS, INCLUDING PIEZOMETERS
1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth is 50 feet for municipal and industrial wells or 20 feet for domestic and irrigation wells unless a lesser depth is specially approved. Minimum seal depth for monitoring wells is the maximum depth practicable or 20 feet.
C. GEOTECHNICAL. Backfill bore hole with compacted cuttings or heavy bentonite and upper two feet with compacted material. In areas of known or suspected contamination, tremied cement grout shall be used in place of compacted cuttings.
D. CATHODIC. Fill hole above anode zone with concrete placed by tremie.
E. WELL DESTRUCTION. See attached.
\* 10 feet, depending on depth to water.

Approved Wyman Hong Date 19 Dec 89
Wyman Hong

ATTACHMENT C

# CHROMALAB, INC.

Analytical Laboratory  
Specializing in GC-GC/MS

- Environmental Analysis
- Hazardous Waste (#238)
- Drinking Water (#955)
- Waste Water
- Consultation

January 4, 1990

ChromaLab File No.; 12B9109

URIAH ENVIRONMENTAL SERVICES, INC.

Attn: Walt Floyd

RE: Three soil samples for Gasoline/BTEX and Diesel analyses

Project Name: LINDE OAKLAND

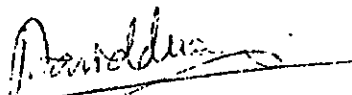
Job No.: 36089WIMW

Analysis Duration: December 28, 1989 - January 4, 1990

## RESULTS:

Sample No.	Gasoline (mg/Kg)	Diesel (mg/Kg)	Benzene (µg/Kg)	Toluene (µg/Kg)	Ethyl Benzene (µg/Kg)	Total Xylenes (µg/Kg)
OW 1-5'	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
OW 1-9'	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
OW 1-13.5'	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
BLANK SPIKED	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
RECOVERY	85.8%	95.1%	99.5%	109.0%	118.0%	90.9%
METHOD OF ANALYSIS	MOD. 8015	MOD. 8015	8020	8020	8020	8020

ChromaLab, Inc.

  
David Duong  
Senior Chemist

  
Eric Tam  
Laboratory Director



CL # 1289109

Project Name: LINDE OAKLAND

Job# 36089 W1 MW

SAMPLING COMPLETED: 12:50 AM/PM, DATE: 12/26/89 BY: WALT FLOYD

SITE NAME AND ADDRESS: BAKUY  
1171 OCEAN AVE. OAKLAND

REGULATORY AGENCY REPRESENTATIVE PRESENT: \_\_\_\_\_

REGULATORY AGENCY REPRESENTATIVE TITLE: \_\_\_\_\_

LAB USED: CHROMA-LAB

LAB ON SITE? yes/no

SAMPLE TO LAB VIA? Lab Rep Uriah Staff Courier \_\_\_\_\_

SAMPLE#	SOIL/WATER PRODUCT	ANALYZE FOR		#. OF CONTAINERS	SINGLE/ COMPOSITE
<u>OW1-5</u>	<u>SOIL</u>	<u>TPH-D</u>	<u>BTXE/gas</u>	<u>1</u>	<u>SINGLE</u>
<u>OW2-9</u>	↓	↓	↓	↓	↓
<u>OW1-13.5</u>	↓	↓	↓	↓	↓
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
<u>OW1-11.5</u>	<u>SOIL</u>	<u>HOLD</u>		_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

SAMPLE RELEASED BY: Walter Floyd 2:30 AM/PM, 12/26/89  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

SAMPLE ACCEPTED BY: [Signature] 2:25 AM/PM, 12/26/89  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

TURN AROUND: ROUTINE

RESULTS TO URIAH BY: \_\_\_\_\_

# CHROMALAB, INC.

Analytical Laboratory  
Specializing in GC-GC/MS

- Environmental Analysis
- Hazardous Waste (#238)
- Drinking Water (#955)
- Waste Water
- Consultation

January 15, 1990

ChromaLab File No.: 0190033

URIAH ENVIRONMENTAL SERVICES, INC.

Attn: Walt Floyd

RE: One water sample for Gasoline/BTEX and Diesel analyses

Project Name: LINDE - OAKLAND

Duration of Analysis: January 9-15, 1990

## RESULTS:

Sample No.	Gasoline (mg/L)	Diesel (mg/L)	Benzene (ug/L)	Toluene (ug/L)	Ethyl Benzene (ug/L)	Total Xylenes (ug/L)
MW-1	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
BLANK SPIKE	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
RECOVERY	85.8%	96.9%	99.5%	109.0%	118.0%	90.9%
DETECTION LIMIT	0.5	0.5	1.0	1.0	1.0	1.0
METHOD OF ANALYSIS	MOD. 8015	MOD. 8015	8020	8020	8020	8020

ChromaLab, Inc.

  
David Duong  
Senior Chemist

  
Eric Tam  
Laboratory Director

# CHROMIALAB, INC.

2239 Omega Road, #1 • San Ramon, California 94583  
415/831-1788 • Facsimile 415/831-8798

Chain of Custody

DATE \_\_\_\_\_ PAGE \_\_\_\_\_ OF \_\_\_\_\_

ROJ. MGR. WALT FLOYD  
COMPANY URIAH  
ADDRESS \_\_\_\_\_

AMPLERS (SIGNATURE) Walt Floyd PHONE NO. \_\_\_\_\_

### ANALYSIS REQUEST

SAMPLE ID.	DATE	TIME	MATRIX	LAB ID.	TPH - Gasol/Ine (EPA 5030)	TPH - Gasol/Ine (5030) W/STEX (EPA 602, 8020)	TPH - Diesel (EPA 3510, 3550)	PURGEABLE AROMATICS BTX (EPA 602, 8020)	PURGEABLE HALOCARBONS (EPA 601, 8010)	VOLATILE ORGANICS (EPA 604, 8240)	BASE/NEUTRALS, ACIDS (EPA 624/627, 8270)	TOTAL OIL & GREASE (EPA 5030AE)	PESTICIDES/PCB (EPA 606, 8060)	PHENOLS (EPA 604, 8040)	METALS: Cd, Cr, Pb, Zn	CAN METALS (18) W/Cr VI	PRIORITY POLLUTANT METALS (13)	NUMBER OF CONTAINERS
					MW-1	1-8-90	1:55	H <sub>2</sub> O		X	X							

PROJECT INFORMATION	SAMPLE RECEIPT
PROJECT: <u>LINDE - OAKLAND</u>	TOTAL NO. OF CONTAINERS
CONTAINER NO.	CHAIN OF CUSTODY SEALS
SHIPPING ID. NO.	REC'D GOOD CONDITION/COLD
DATE:	CONFORMS TO RECORD
	LAB NO.

RELINQUISHED BY	1.	RELINQUISHED BY	2.	RELINQUISHED BY	3.
<u>Walt Floyd</u>	<u>1:55</u>				
(Signature)	(Time)	(Signature)	(Time)	(Signature)	(Time)
<u>WALT FLOYD</u>	<u>1-8-90</u>				
(Printed Name)	(Date)	(Printed Name)	(Date)	(Printed Name)	(Date)
(Company)		(Company)		(Company)	
RECEIVED BY	1.	RECEIVED BY	2.	RECEIVED BY (LABORATORY)	3.
				<u>Yus K...</u>	<u>1-8-90</u>
(Signature)	(Time)	(Signature)	(Time)	(Signature)	(Time)
(Printed Name)	(Date)	(Printed Name)	(Date)	(Printed Name)	(Date)
(Company)		(Company)		(LAB)	

SPECIAL INSTRUCTIONS/COMMENTS:

ATTACHMENT D



Specializing in Modern Fueling Systems

February 12, 1988

BAYOX  
Mr. Jim Gindt  
1171 Ocean Ave.  
Oakland, CA 94608

Dear Jim,

This letter is written to sum up the history of your recent underground fuel tank situation.

Upon our original precision test on 1/20/88, our test results indicated a loss in excess of the allowable detection limits. At that time, the product temperature was unstable and the product level was declining at a continual rate. This was the second of two failed test results, with similar results.

As ordered, we then excavated the top end of the tank and found the tank to be improperly plumbed. We disconnected and relocated the vent line to the high end of the tank, opposite the fill. The tank was pressure and soap tested before removal of any piping, and all piping was found to be tight. The piping was also pressure and soap tested after repairs had been made. Venting the tank in this manner will allow proper temperature calculations on precision tests, in addition to aiding in the ease of test set-up.

During our excavations, we discovered only limited amounts of contamination in the backfill directly under the pumping unit and fill areas. All other areas of the tank and soil show no sign of leakage. We also bored a hole to within approximately 2" above the bottom of the tank and reached the water table; no product was visible floating on the water table. An indicated air test was conducted on the upper half of the tank at 2.5psi, with no loss in 14 hours. We conducted the third precision test on 2/11/88 after repairs had been made, with passing results.

We hope this brief history has explained the solution to the situation, as well as the causes. As always, if you should have any questions regarding the work, testing, or conditions, please feel free to call.

Sincerely,

A handwritten signature in black ink that reads "Wayne A. Wellock". The signature is written in a cursive style with a large, sweeping 'W' and 'A'.

Wayne Wellock  
Owner

cc: Alameda County Health Dept.

PRECISION UNDERGROUND TANK SYSTEM TEST RESULTS

by  
 PETRO TECH  
 P.O. Box 555  
 Windsor, CA 95402  
 (707)838-4126

Operator BAYOX  
 Address 1171 Ocean Av  
 City, State Oakland, CA  
 Telephone 415-547-8337  
 Contact Jim Gindt

Tank Owner \_\_\_\_\_  
 Address \_\_\_\_\_  
 City, State SAME  
 Telephone \_\_\_\_\_

TANK SYSTEM INFORMATION

Product DIESEL #2  
 Capacity 5,000  
 Construction STEEL  
 Approximate Age 5 years  
 Pump System SUCTION  
 Vapor Recovery NONE  
 Burial Depth 35 inches  
 Diameter 9V inches  
 Leak Detector NONE

TANK TEST INFORMATION

Time Tank Topped Off 2:10 @ 09:00  
 Start Test Time 10:00  
 Begin Recorded Test Data 11:00  
 End Recorded Test Data 13:00  
 Value of Line on Chart in Gallons .0070  
 Coefficient of Expansion per 1 °F. 0.0043  
 Total Liquid Level in Inches 194"  
 Water Table Level in Inches 74"  
 Water Table on Tank in Inches 55"  
 Pressure on Tank Bottom in p.s.i. 4.0

NOTES & RECOMMENDATIONS

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

PRODUCT LINE TEST DATA

Start Graduate Level \_\_\_\_\_  
 End Graduate Level \_\_\_\_\_  
 Net Change of Graduate Level N/A  
 Value per Graduation in Gallons \_\_\_\_\_  
 Elapsed Time in Minutes \_\_\_\_\_  
 Net Result in Gallons per Hour \_\_\_\_\_

\*\*\*\*\* FINAL CERTIFIED RESULTS \*\*\*\*\*  
 FULL TANK SYSTEM passed failed inconclusive @ \_\_\_\_\_ gallons per hour.  
 PRODUCT LINE passed failed inconclusive @ \_\_\_\_\_ gallons per hour @ \_\_\_\_\_ p.s.i.  
 FULL SYSTEM + PRODUCT LINE passed failed inconclusive @ .0004 gallons per hour.  
 TANK ONLY passed failed inconclusive @ \_\_\_\_\_ gallons per hour at 2" above tank.  
 \*\*\*\*\*

DISCLAIMER:

The system used to conduct the above test(s) is the HORNER, 'EZY CHEK' Leak Detection System. The data provided by PETRO TECH meets N.F.P.A. Pub.#329 requirements. The system utilized to generate this data is capable of detecting a loss of liquid at a rate of .05 gallons per hour, as required by law. This criteria of .05 per hour is not to be construed as a permissible leak rate. Rather an accuracy tolerance of the testing equipment and allows for variables involved. PETRO TECH guarantees only that data for this report meets the above stated criteria under the conditions during the time of the conductance of the test. We assume no responsibility for any product leakage which may occur as a result of performing this test.

Operator's Signature Wayne Williams Date 2-11-88  
 #CA0199

**COPY**

HORNER 'BZY CHECK' TANK TEST DATA SHEET

City 2-11-88  
Location BAYOX  
1171 OCEAN AVE  
OAKLAND, CA

Rev. 12/87

meter 94"  
Initial Depth + 35"  
Lead Pipe + 65"  
Initial Head = 194"  
@ .031/in. = 6.6  
Error on Tank - 2.0  
.036 / in.  
Initial P.S.I. = 4.0

Product DIESEL Gravity 31.0 Temp. 52° API Corr. 31.6  
Capacity 5000 x Coefficient .0004V32 = 2.216 (B)  
Calibrations 25 + 25 + 255 = 75.5 + 3 = Cal. Adj. 25.17  
Calibrator Size .05 + Cal. Adj. 25.17 = .00198611 (A)  
Product Level on Arrival \_\_\_\_\_ Ground Water Level 74" B.G.  
Water Level in Tank Before Test 0, After Test 0  
Weather Conditions CLEAR/MILD Tidal Zone (yes/no) YES  
Pump Type SUCTION Vapor Recovery None  
Leak Detector(s) None Monitoring Wells \_\_\_\_\_

OBSERVED LIQUID CHANGES			CALCULATED TEMP. CHANGES			RESULT	
Start Level	End Level	Level Change	Start Temp.	End Temp.	Temp. Change	Final Result	Time
39	24	-15 x .0020 = -.0300	59.307	29.7	-.010 x 2.216 = -.0222	-.0018	11:00
24	81	-11 x " = -.0270	29.7	28.3	-.014 x " = -.0310	+0.0010	11:30
81	68	-13 x " = -.0260	28.3	26.7	-.016 x " = -.0355	+0.0135	11:45
68	55	-13 x " = -.0260	26.7	25.6	-.011 x " = -.0244	-.0016	12:00
55	42	-13 x " = -.0260	25.6	24.4	-.012 x " = -.0266	+0.0006	12:15
42	31	-11 x " = -.0220	24.4	23.2	-.012 x " = -.0266	+0.0006	12:30
31	19	-12 x " = -.0240	23.2	22.0	-.010 x " = -.0222	+0.0002	12:45
19			22.0	21.0	-.010 x " = -.0222	-.0018	13:00
						(-.0004)	

Start Level \_\_\_\_\_  
End Level \_\_\_\_\_  
Change \_\_\_\_\_  
Elapsed Time \_\_\_\_\_

LOG & NOTES

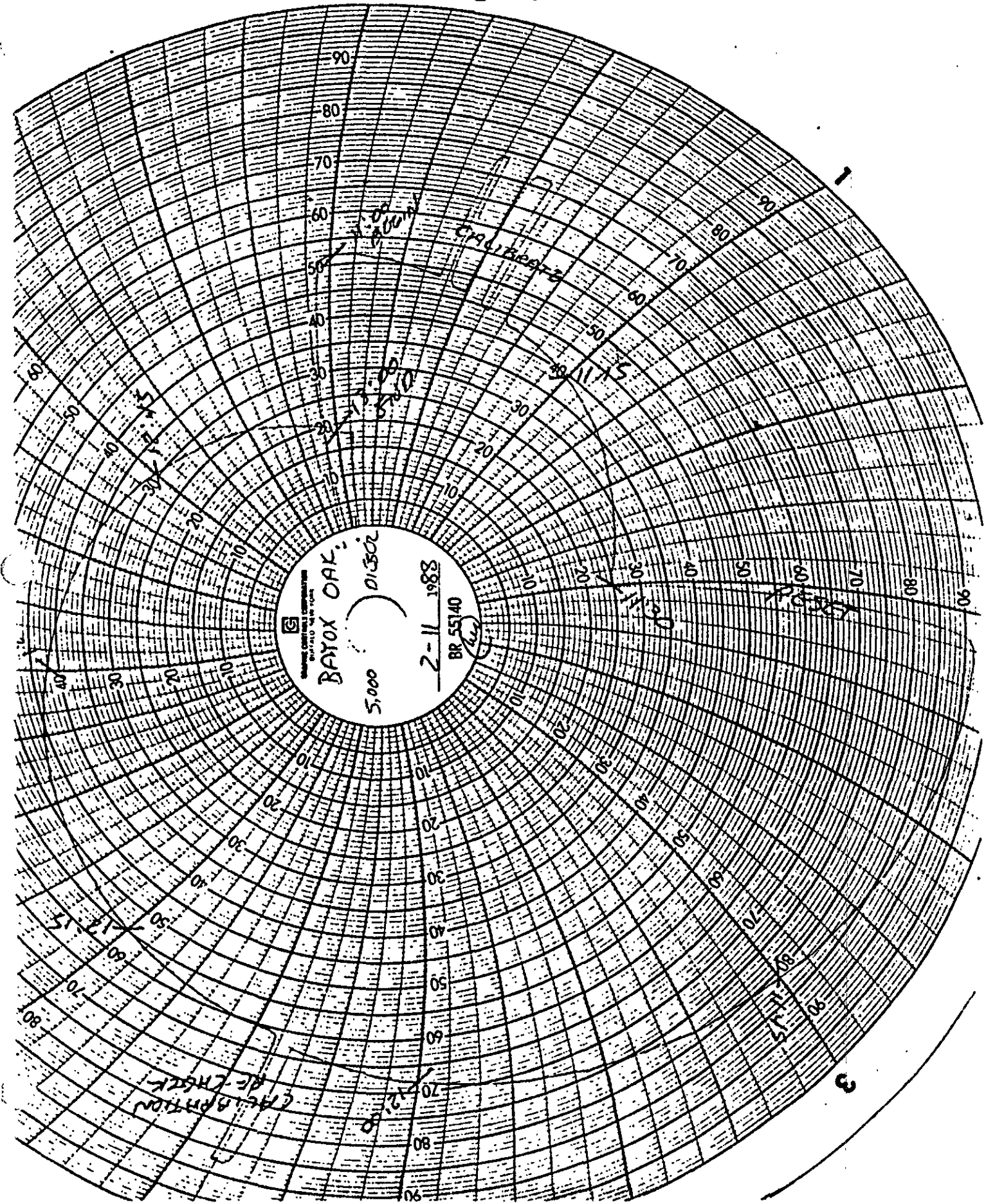
~~1/2~~ TANK TOP WAS PREVIOUSLY PRESSURE TESTED AND NO INDICATIONS OF LEAKAGE OBSERVED. NO CONTAMINATION FOUND OTHER THAN THE USUAL MINOR CONTAMINATION AROUND FILL & VAPOR PLUM. GROUND WATER IN BACKFILL WAS NOT IMPACTED (BY VISUAL INSPECTION).

TOP-OFF TANK 1,000 GALS 2 HRS PRIOR TO TEST.  
10:00 ARRIVE ON SITE ADD 2.2 GALS TO TOP-OFF TANK.  
10:30 LEVEL HIGH TO DEFLECT  
11:00 LOWER LEVEL & BEGIN TEST

\* DUE TO RE-ADJUST

**COPY**

8



3



# UNDERGROUND STORAGE TANK UNAUTHORIZED RELEASE (LEAK) / CONTAMINATION SITE REPORT

AGENCY YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>	HAS STATE OFFICE OF EMERGENCY SERVICES REPORT BEEN FILED? <input type="checkbox"/> YES <input type="checkbox"/> NO	FOR LOCAL AGENCY USE ONLY I HEREBY CERTIFY THAT I AM A DESIGNATED GOVERNMENT EMPLOYEE AND THAT I HAVE REPORTED THIS INFORMATION TO LOCAL OFFICIALS PURSUANT TO SECTION 25100.7 OF THE HEALTH AND SAFETY CODE.
REPORT DATE	CASE #	SIGNED _____ DATE _____

NAME OF INDIVIDUAL FILING REPORT <b>Jim Gindt</b>	PHONE <b>415.547-8357</b>	SIGNATURE 
REPRESENTING <input checked="" type="checkbox"/> OWNER/OPERATOR <input type="checkbox"/> REGIONAL BOARD <input type="checkbox"/> LOCAL AGENCY <input checked="" type="checkbox"/> OTHER <b>STOLEN MANAGER</b>	COMPANY OR AGENCY NAME <b>Bayox, Inc.</b>	

ADDRESS **1171 - OCEAN Ave** CITY **DALLAS** STATE **CA** ZIP **94608**

NAME <b>William Cardoza</b> <input type="checkbox"/> UNKNOWN	CONTACT PERSON <b>William Cardoza</b>	PHONE <b>415 547-1800</b>
ADDRESS <b>1171 - OCEAN Ave</b> CITY <b>DALLAS</b> STATE <b>CA</b> ZIP <b>94608</b>		

FACILITY NAME (IF APPLICABLE) <b>BAYOX, INC</b>	OPERATOR <b>Jim Gindt</b>	PHONE <b>415 547-1800</b>
ADDRESS <b>1179 - OCEAN Ave</b> CITY <b>DALLAS</b> COUNTY <b>Alameda</b> ZIP <b>94608</b>		

CROSS STREET	TYPE OF AREA <input type="checkbox"/> COMMERCIAL <input type="checkbox"/> INDUSTRIAL <input type="checkbox"/> RURAL <input checked="" type="checkbox"/> RESIDENTIAL <input type="checkbox"/> OTHER	TYPE OF BUSINESS <input type="checkbox"/> RETAIL FUEL STATION <input type="checkbox"/> FARM <input checked="" type="checkbox"/> OTHER <b>Welding Distributor</b>
--------------	---	---

LOCAL AGENCY AGENCY NAME	CONTACT PERSON	PHONE ( )
REGIONAL BOARD		PHONE ( )

(1) <b>Diesel #2 Fuel</b>	QUANTITY LOST (GALLONS) <b>0</b> <input type="checkbox"/> UNKNOWN
(2)	QUANTITY LOST (GALLONS) _____ <input type="checkbox"/> UNKNOWN

DATE DISCOVERED M <u>1</u> D <u>19</u> Y <u>8</u>	HOW DISCOVERED <input type="checkbox"/> INVENTORY CONTROL <input type="checkbox"/> SUBSURFACE MONITORING <input type="checkbox"/> NUISANCE CONDITIONS <input checked="" type="checkbox"/> TANK TEST <input type="checkbox"/> TANK REMOVAL <input type="checkbox"/> OTHER
DATE DISCHARGE BEGAN _____ <input type="checkbox"/> UNKNOWN	METHOD USED TO STOP DISCHARGE (CHECK ALL THAT APPLY) <input type="checkbox"/> REMOVE CONTENTS <input type="checkbox"/> REPLACE TANK <input type="checkbox"/> CLOSE TANK <input type="checkbox"/> REPAIR TANK <input type="checkbox"/> REPAIR PIPING <input type="checkbox"/> CHANGE PROCEDURE <input checked="" type="checkbox"/> OTHER <b>Move vent to other side of tank</b>

SOURCE OF DISCHARGE <input type="checkbox"/> TANK LEAK <input type="checkbox"/> UNKNOWN <input type="checkbox"/> PIPING LEAK <input checked="" type="checkbox"/> OTHER <b>No Discharge</b>	TANKS ONLY/CAPACITY <b>5000</b> GAL AGE _____ YRS <input type="checkbox"/> UNKNOWN	MATERIAL <input type="checkbox"/> FIBERGLASS <input checked="" type="checkbox"/> STEEL <input type="checkbox"/> OTHER	CAUSE(S) <input type="checkbox"/> OVERFILL <input type="checkbox"/> RUPTURE/FAILURE <input type="checkbox"/> CORROSION <input type="checkbox"/> UNKNOWN <input type="checkbox"/> SPILL <input checked="" type="checkbox"/> OTHER <b>Moved vent</b>
---	---	--	---

CHECK ONE ONLY  
 UNDETERMINED  SOIL ONLY  GROUNDWATER  DRINKING WATER - (CHECK ONLY IF WATER WELLS HAVE ACTUALLY BEEN AFFECTED)

CHECK ONE ONLY  
 SITE INVESTIGATION IN PROGRESS (DEFINING EXTENT OF PROBLEM)  CLEANUP IN PROGRESS  SIGNED OFF (CLEANUP COMPLETED OR UNNECESSARY)  
 NO ACTION TAKEN  POST CLEANUP MONITORING IN PROGRESS  NO FUNDS AVAILABLE TO PROCEED  EVALUATING CLEANUP ALTERNATIVES

CHECK APPROPRIATE ACTION(S) (SEE BACK FOR DETAILS)

<input type="checkbox"/> CAP SITE (CS)	<input type="checkbox"/> EXCAVATE & DISPOSE (ED)	<input type="checkbox"/> REMOVE FREE PRODUCT (FP)	<input type="checkbox"/> ENHANCED BIO DEGRADATION (IT)
<input type="checkbox"/> CONTAMINATION BARRIER (CB)	<input type="checkbox"/> EXCAVATE & TREAT (ET)	<input type="checkbox"/> PUMP & TREAT GROUNDWATER (GT)	<input type="checkbox"/> REPLACE SUPPLY (RS)
<input type="checkbox"/> TREATMENT AT HOOKUP (HU)	<input type="checkbox"/> NO ACTION REQUIRED (NA)	<input checked="" type="checkbox"/> OTHER (OT) <b>No discharge - Moved vent</b>	

COMMENTS

# Permit Application



<input checked="" type="checkbox"/> 01 New Permit	<input checked="" type="checkbox"/> 03 Installed before July 1, 1984	<input type="checkbox"/> 05 Renewed Permit	<input type="checkbox"/> 06 Amended Permit
<input type="checkbox"/> 02 Provisional Permit	<input type="checkbox"/> 04 Installed after July 1, 1984		

### I Owner

Name (Corporate, Individual or Public Agency): BAYOX, Inc.

Street Address: 1171-Ocean Ave City: OAKLAND State: CA ZIP: 94608

### II Facility

Facility Name: BAYOX, Inc. Dealer/Foreman/Supervisor: SIM GINDT STORE MANAGER

Street Address: 1171-Ocean Ave Nearest Cross Street: \_\_\_\_\_

City: OAKLAND County: ALAMEDA ZIP: 94608

Mailing Address: \_\_\_\_\_ City: \_\_\_\_\_ State: \_\_\_\_\_ ZIP: \_\_\_\_\_

Phone w/area code: 415-547-1800 Type of Business:  01 Gasoline Station  02 Other: WEIGHING & CRYOGENIC GAS DISTRIBUTION

NUMBER OF CONTAINERS AT THIS FACILITY: <u>1</u>	Rural Areas Only: _____	Township: _____	Range: _____
Section: _____		Section: _____	

### III 24 Hour Emergency Contact Person

Days Name (last name last) and Phone w/area code: SIM GINDT (415) 222-1760

Nights Name (last name last) and Phone w/area code: SIM GINDT - 415-~~222~~ 222-1760

**COMPLETE THE FOLLOWING ON A SEPARATE FORM FOR EACH CONTAINER**

### IV Description

A.  01 Tank  02 Other: \_\_\_\_\_ Container Number (if there is no number assign one): 001

B. Manufacturer (if appropriate): \_\_\_\_\_ Year of Mfg.: \_\_\_\_\_ C. Year Installed: 1981  Unknown

D. Container Capacity: \_\_\_\_\_ gallons  Unknown E. Does the Container Store (Check One):  01 Waste  02 Product

F. Does the Container Store Motor Vehicle Fuel or Waste Oil?  01 Yes  02 No If Yes, Check appropriate box(es):  
 01 Unleaded  02 Regular  03 Premium  04 Diesel  05 Waste Oil  06 Other (List): \_\_\_\_\_

If you answered yes; do not complete Part VIII.

### V Container Construction

A. Thickness of Primary Containment: 1/4  Gauge  Inches  cm  Unknown

B.  01 Vaulted (Located in an underground Vault.)  02 Non-vaulted  03 Unknown

C.  01 Double Walled  02 Single Walled  03 Lined Wrapped

D.  01 Carbon Steel  02 Stainless Steel  03 Fiberglass  04 Polyvinyl Chloride  05 Concrete  06 Aluminum

07 Steel Clad  08 Bronze  09 Composite  10 Non-metallic  11 Earthen Walls

12 Unknown  13 Other: \_\_\_\_\_

**Container Construction**

E.  01 Rubber Lined    02 Alkyd Lining    03 Epoxy Lining    04 Phenolic Lining    05 Glass Lining    06 Clay Lining  
 07 Unlined    08 Unknown    09 Other \_\_\_\_\_

F.  01 Polyethylene Wrap    02 Vinyl Wrapping    03 Cathodic Protection  
 04 Unknown    05 None    06 tar or asphalt    09 Other \_\_\_\_\_

**VI Piping**

A. Aboveground Piping:  01 Double-walled pipe    02 Concrete-lined trench    03 Gravity    04 Pressure    05 Suction  
 06 Unknown    07 None

B. Underground Piping:  01 Double-walled pipe    02 Concrete-lined trench    03 Gravity    04 Pressure    05 Suction  
 06 Unknown    07 None

**VII Leak Detection**

01 Visual    02 Stock Inventory    03 Tile Drain    04 Vapor Sniff Wells    05 Sensor Instrument  
 06 Ground Water Monitoring Wells    07 Pressure Test    08 Internal Inspection    09 None  
 10 Other VENT WAS AT WRONG END OF TANK

**VIII Chemical Composition of Materials Currently or Previously Stored in Underground Containers**  
 If you checked yes to IV-F you are not required to complete this section

currently stored	previously stored	CAS # (if known)	Chemical Do Not Use Commercial Name (Use additional paper for more room)
<input type="checkbox"/> 01	<input type="checkbox"/> 02		
<input type="checkbox"/> 01	<input type="checkbox"/> 02		
<input type="checkbox"/> 01	<input type="checkbox"/> 02		

Is Container located on an Agricultural Farm?  01 Yes    02 No

Person Filling (Signature) Jim Lindt   Phone w/area code 415-547-8337

**Local Agency Use Only**

ENCL NAME \_\_\_\_\_ CITY \_\_\_\_\_ COUNTY \_\_\_\_\_  
 CONTACT PERSON \_\_\_\_\_ PHONE W/AREA CODE \_\_\_\_\_  
 SECTION DATE (1ST INSPECTION) \_\_\_\_\_ PERMIT APPROVAL DATE \_\_\_\_\_ PERMIT ID. NUMBER \_\_\_\_\_

**OR STATE USE ONLY**

STATE ID. NUMBER \_\_\_\_\_ Accounting Number \_\_\_\_\_ County Number \_\_\_\_\_  
 Date Received  01 \_\_\_\_\_  02 \_\_\_\_\_  03 \_\_\_\_\_

ATTACHMENT E

LIST OF KNOWN FUEL LEAKS WITHIN A ONE HALF MILE RADIUS  
OF THE BAYOX FACILITY

Bay Center Project.....65th Avenue & Christy Street,  
Emeryville, CA

Bay Export Services.....717 Potter, Berkeley, CA

Berkeley Business Center.....2900 San Pablo Avenue,  
Berkeley, CA

Bolin's Service Garage.....6335 San Pablo Avenue, Oakland, CA

Chevron.....2995 San Pablo Avenue, Berkeley, CA

Emeryville Market Plaza.....64th & Lacoste, Emeryville, CA

Fabco.....1249 67th Street, Oakland, CA

Folger Murphy Property.....1020 Murray Street, Berkeley, CA

Gring Pest Control.....741 Folger, Berkeley, CA

Henry Horn & Sons.....1301 65th Street, Emeryville, CA

HFH, Limited.....6400 Hollis Street, Emeryville, CA

Hollis Street Project.....6050 Hollis Street, Emeryville, CA

MacBeth Hardware.....930 Ashby, Berkeley, CA

McGuire & Hester.....796 66th Avenue, Oakland, CA

Peterson Manufacturing.....1600 63rd Street, Emeryville, CA

Schwarbacker Frey.....5733 Pellededeau, Emeryville, CA

Weatherford BMW.....5903 Christy Avenue, Emeryville, CA



Known Fuel Leak Sites Within A One-Half Mile Radius  
Of The Bayox Facility.



ATTACHMENT F

CITY DIRECTORY LISTINGS- 1989

Alcatraz Street  
1049...Last Resort Auto  
1738...Five Star Maintenance  
1830...The Printing Center

Baker Street  
Residential

Boise Street  
Residential

Carrison Street  
Residential

Christie Avenue  
5861...Bearing Engineering  
5892...Advantage Tire Service  
5900...Porter Coating Company  
5903...Weatherford BMW

Doyle Street  
5514...Construction Materials Testing

Essex Street  
1915...West Coast Print Center

Folger Street  
741...Gring Pest Control  
746...Howlett Machinery Works  
751...Toyota Berkeley Tire  
1053...Berkeley Mercedes

Fremont Street  
Residential

Haskell Street  
Residential

Hollis Street  
3250...Romak Iron Works and Steel  
4001...Lipscomb Chemical  
4065...Western Dye Casting  
6655...McGrath Steel Company

Herzog Street  
No Sites of Concern

King Street  
No Sites of Concern

Landregan Street  
5679...Whitey Research  
Tool  
5749...Trucking Company

Marshall Street  
No Sites of Concern

Overland Street  
No Sites of Concern

Peladeau Street  
5866...Alpha Furniture  
Stripping

Powell Street  
1249...Jerrys Crankshaft  
1255...Brown & Caldwell

Sacramento Street  
2979...Four Mile Cleaner

San Pablo Avenue  
6006...Grand Auto  
6027...V&B Transmission  
6045...Breckenridge  
Auto

Salem Street  
No Sites of Concern

Vallejo Street  
No Sites of Concern



CITY DIRECTORY LISTINGS- 1987

Alcatraz Street  
715...Myles Milling  
1049...Last Resort Auto  
1830...Printing Center  
1908...Photo Lab  
  
2711...Rotech Scientific Equipment

Baker Street  
Residential

California Street  
No Sites of Concern

Carrison Street  
No Sites of Concern

Christie Avenue  
5801...Computer Products  
Duplex Products  
Environmental Research  
Mobile Chem  
5892...Tire Systems  
5895...Bearing Engineering  
5903...Weatherford BMW  
6363...Design Lab

Doyle Street  
5514...Pittsburgh Testing Lab  
FRA Labs  
Tiger Paints  
U.S. Research Labs  
5749...Silverstone, Alan Corp

Essex Street  
1915...West Coast Print Center

Folger Avenue  
741...Pest Control  
746...Howlett Machine Works  
751...T&M Parts/Truck & Machine  
830...Print Mint  
1043...Printing Firm  
1051...Printing Firm  
1053...Printing Firm

Fremont Street  
No Sites of Concern

Hollis Street  
3250...Romak Iron  
Works  
4001...Lipscomb Chem  
4065...Western Dye  
Casting  
6655...Devo Marine  
Coating

Herzog Street  
No Sites of Concern

King Street  
909...Precision Dye  
Cutting

Landregan Street  
5679...Whitey Research  
Tool  
5749...Trucking Firm

Overland Street  
No Sites of Concern

Peladeau Street  
5866...Alpha Furniture  
Stripping

Powell Street  
1249...Jerrys Crankshaft

CITY DIRECTORY LISTINGS- 1967

Alcatraz Street  
No Sites of Concern

Baker Street  
No Sites of Concern

Beaudry Street  
No Sites of Concern

Boise Street  
No Sites of Concern

California Street  
No Sites of Concern

Carrison Street  
No Sites of Concern

Christie Avenue  
5900...Boysen, Walter N Paint Mfg

Doyle Street  
5514...Pittsburgh Testing Lab  
5515...Electro Motive Parts  
5540...Fiberboard Products

Essex Street  
No Sites of Concern

Folger Street  
No Sites of Concern

Fremont Street  
No Sites of Concern

Haskell Street  
No Sites of Concern

Hollis Street  
4065...Western Die Casting  
4069...Winslow Oil Filters  
4245...Pacific Gas & Electric  
4246...California Plywood Co  
5812...Thaler Pipe and Supply  
5915...Trucking Firms  
6635...Aluminum Products  
6655...McGrath Steel

Herzog Street  
No Sites of Concern

King Street  
No Sites of Concern

Landregan Street  
5675...Pacific Value  
5677...Sealed Power  
Piston Rings  
5679...Whitey Research  
Tool Mfg  
5743...Michel & Pelton  
Chem Mfg Co

Marshall Street  
No Sites of Concern

Overland Street  
No Sites of Concern

Ocean Avenue  
1171...Berkeley Charter  
Lines Buses  
1185...Haws Plating  
Works

Peladeau Street  
5762...Laura Scudders

Powell Street  
1234...Standard Oil  
Service Station  
1245...B&D Phillips  
Service Station  
1400...Union Service  
Gas Station

Sacramento Street  
No Sites of Concern

San Pablo Street  
6400...Bonel Tire  
Service

Salem Street  
No Sites of Concern

Vallejo Street  
No Sites of Concern

59th Street  
No Sites of Concern

60th Street  
No Sites of Concern

61st Street  
No Sites of Concern

62nd Street  
1300...General Converting Laminating Corp Plastic  
1333...Christy Metal Products

63rd Street  
No Sites of Concern

64th Street  
1300...Plant Asbestos Mfg Co

65th Street  
1200...Oliver Tire and Rubber Co  
1265...Baker Metal products  
1274...Mohawk Petro Corp Bulk Plant  
1280...Steel Corp  
1289...Caine Steel Co

66th Street  
No Sites of Concern

67th Street  
1464...B.O. Machine Shop  
1494...Steel Forge