UST REMOVAL
1137 – 1167 65TH STREET
EMERYVILLE, CALIFORNIA
SCI 855.003

Subsurface Consultants, Inc.
Geotechnical & Environmental Engineers

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1137 – 1167 65TH STREET
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SCI 855.003

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1.0 INTRODUCTION

This report documents the closure of six underground storage tanks (USTs) observed by Subsurface Consultants, Inc. (SCI) at 1137-1167 65th Street property, in Oakland, California, referred to herein as the Site. The Site and former USTs are shown on Plates 1 and 2, respectively. SCI was retained by John Nady (Nady) to provide environmental consulting services during UST closure activities including:

- Assisting the contractor in the preparation of UST closure in place/removal plans in accordance with applicable regulatory agency guidelines.
- Collecting soil and groundwater samples and submitting samples to an accredited laboratory.
- Reviewing and evaluating the analytical data in relation to published regulatory criteria, and
- Preparing this summary report.

2.0 BACKGROUND

The Site consists of a group of buildings occupying 1137, 1147 and 1167 65th Street in Oakland, California. The buildings, mostly composed of concrete blocks and metal, are separated by narrow walkways. Building spaces are currently leased out to individual tenants.

Prior to 1979, various dry cleaning businesses occupied part or all of the building units at the Site. Building department and fire department records, business directories and title information suggest that from about 1935 to 1978 various dry cleaning businesses operated at the Site.

The UST installation permits were not found in any of the fire or building department files SCI reviewed. SCI reviewed previous draft reports prepared by Artesian Environmental (Artesian) in 1998. Artesian, a consultant retained by Nady to assist in determining the quantity, orientation, size and content of suspected USTs, identified the following:

- Two (or possibly three) USTs in the area below Tenant Unit R (Interior Tank Area)
- Four USTs in the exterior area which they thought might extend under Peabody Lane.
- Product within the exterior USTs contained total petroleum hydrocarbons within the stoddard solvent range, and various halogenated volatile organic compounds[1], and
- Product within the interior USTs contained total petroleum hydrocarbons within the stoddard solvent range, Tetrachloroethene, 111-Trichloroethane, and 112-Trichloroethane.

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[1] The draft documents we reviewed did not indicate the types of halogenated organic compounds present in the samples analyzed.

3.0 GEOPHYSICAL SURVEY

On September 5, 2001, SCI retained Norcal Geophysical Consultants (Norcal) to screen the two UST areas, and the area of Peabody Lane adjacent to the rear of the property to determine the lateral extent of the USTs. Norcal used ground penetrating radar (GPR) and line locating equipment to screen these areas for metallic improvements. Although their survey was hampered to some extent by the presence of metallic doors and awnings, their study identified the following:

- No significant laterally extensive metallic images exist in the area of Peabody Lane adjacent to the exterior tank area. This inferred that the exterior tanks would not extend below the street.
- Product conveyance pipelines extend northward from the exterior tank area approximately 20 to 25 feet at which point some of them make a 90-degree bend to the east. The eastbound lines were traced to the area of the interior tanks. Norcal was unable to trace the pipelines to the north, as they appear to extend below the tenant units.

A copy of the Norcal report is included in Appendix A.

4.0 PRODUCT CHARACTERIZATION

Controlled Environmental Services (CES) was retained by Nady to conduct product removal activities. Prior to removing the product, the UST contents needed to be properly profiled for disposal approval purposes. On September 13, 2001 and October 23, 2001 product samples were obtained from the ports of the tanks. Samples were obtained by SCI for characterization purposes and by CES for disposal profiling purposes. Each sample was obtained using a Caliwasa tube in order to obtain a vertical sample of tank contents since vertical differentiation had most likely taken place. SCI's product samples were decanted into pre-cleaned bottles supplied by the laboratory, and transported under chain-of-custody documents to Curtis and Tompkins, Ltd. (C&T) a State of California certified laboratory in Berkeley, California. Based on information provided through the previous Artesian studies, the characterization samples were tested for:

- Total petroleum hydrocarbons (TPH) as gasoline and naphtha by EPA Method 8015m/8020,
- TPH as diesel and motor oil by EPA Method 8015m using silica gel cleanup, and
- Volatile Organic Compounds (VOCs) by EPA Method 8260.

A summary of analytical results of the product samples is shown on Tables 1 and 2. In general, all the samples contained quantities of various TPH ranges, as well as a number of VOCs. The sample from Port 1 (Tank 1) had the highest concentrations of all the tanks, generally 10 to 100 times greater than detected concentrations in other tanks. The sample from Port 1 also had the greatest number of different chemicals detected. Analytical data and chain-of-custody documents for the characterization samples are presented in Appendix B.

5.0 PRODUCT REMOVAL

The Oakland Fire Department (OFD) required that a Tank Removal application be filed prior to conducting product removal efforts. CES prepared UST removal permits (Appendix C) and obtained approval to conduct removal activities from the OFD. Per OFD requirements, Underground Service Alert (USA) was also notified of the proposed work.

CES coordinated with Asbury Environmental Services (AES) to remove and dispose of the product. Product characterization samples and the results of analytical tests conducted by SCI were submitted and reviewed by Asbury, and their associated disposal/recycling facilities. The product and waste water which would be generated to flush out the UST was approved for disposal at the Demenon/Kerdoon (DK Environmental) facility in Compton, California, a licensed waste disposal facility permitted to accept such waste. On November 16 and 19 the product was removed from the tanks and transported under Hazardous Waste Manifests by AES, to the DK facility. Approximately 15,300 gallons of product and wastewater was removed from the 6 existing USTs.

Once the product was removed from the UST, the UST were rinsed and the rinsate water was also removed and transported to DK under appropriate manifests. Copies of the manifests and disposal certificates are presented in Appendix D. Approval documents from DK are also included in this appendix.

6.0 UST CLOSURE ACTIVITIES

6.1 Exterior Tank Area

6.1.1 Tank Closure Activities

On February 20, 2002, CES initiated UST activities at the site by breaking up and removing the existing at-grade concrete in the UST area, and excavating soil above and around the UST. Piping was removed from above the tanks and cut off and capped at the north wall of the excavation. Two separate pipe runs were located extending to/from the exterior UST area, as shown on Plate 3. Pipe sections and the excavated soil were placed on plastic sheeting laid on top of the concrete pavement in the onsite parking lot.

Groundwater, which had infiltrated the tanks and filled the excavation, was pumped into waiting transportation vehicles and transported to DK under appropriate manifests (Appendix D). CES then inerted the UST by inserting approximately 30 pounds of dry ice into each tank. CES removed the exterior tanks, under observation of the Oakland Fire Department (OFD). Lower explosive limits (LEL) measurements taken and verified to be zero, prior to lifting the UST from the excavation and placing them onto waiting transportation trucks.

Tanks 1, 2, 3, and 4's dimensions were 8 feet in diameter and 11 feet in length. The bottom 3 feet of the tanks were cone shaped. The tops of the UST were situated about 2 feet below the previously existing ground surface.

After the tanks were removed, SCI checked the exterior of each tank for visible signs of corrosion and/or holes. Our observations are presented below:

- Tank 1 – no visible holes observed
- Tank 2 – one hole (3/8" diameter) was observed in the UST on its side close to the start of the cone.
- Tank 3 – numerous holes observed, the largest one was approximately 1/2" in diameter, deep pitting was also observed in the lower half of the UST.
- Tank 4 – numerous holes observed. The largest hole was approximately 4" in length and located right above the cone shaped part of the UST. Deep pitting was also observed in the lower half of the UST.

The UST were transported to Ecology Control Industries in Richmond, California, for disposal. The OFD requested that UST Unauthorized Release reports be submitted. Copies of the OFD Inspection Report, UST Unauthorized Release reports and the certificates of tank disposal are included in Appendix E. Wastewater removal manifests and disposal documentation is included in Appendix D.

The final excavation measured approximately 45 feet by 18 feet in plan area. The depth of the excavation was approximately 12 feet below ground surface (bgs). Groundwater was encountered at approximately 6 feet bgs.

6.1.2 Soil and Groundwater Sampling

On February 25 and 26, 2002, under the direction of OFD, SCI collected the following samples from the excavation:

- Four soil samples, one each from the native soil below the bottom of each tank (Tank 1 Bottom, Tank 2 Bottom, Tank 3 Bottom and Tank 4 Bottom), each at approximately 12 feet bgs.
- One soil sample from the east wall of the excavation at 6 feet bgs (E End @ 6), and above the groundwater surface.
- One soil sample from the west wall of the excavation at 6 feet bgs (W Wall @ 6)), and above the groundwater surface.
- Two soil samples; one each from beneath the pipe runs on the north wall of the excavation at approximately 2.5 and 3.0 feet bgs, respectively (Pipes #1 @ 2.5 and Pipes #2 @ 3.0).
- One grab groundwater sample. This sample was obtained following the removal of one tank pit volume of water as described in Section 7.2.

The locations of the soil samples are graphically shown on Plate 3. The sidewall soil samples were obtained in clean stainless steel liners, by pushing the liner directly into the sidewall of the excavation. The bottom samples were obtained by pushing a clean stainless steel liner into soil retrieved within the backhoe bucket. Soil and groundwater samples collected by SCI were stored

in a chilled ice-chest and transported under chain-of-custody documents to C&T. Analytical test reports are presented in Appendix B. Wastewater removal manifests and disposal documentation is included in Appendix D.

6.2 Interior Tank Area

6.2.1 Tank Closure Activities

On February 5, 2002, CES began breaking up and removing the existing at-grade concrete around the UST area, and excavating soil above and around the USTs. Since site conditions would not allow that the interior UST be removed in one piece, the OFD approved that these UST could be cut-up in place once they had been thoroughly rinsed and rinsate samples indicated that they were clean. CES spent several days rinsing these tanks in-place. The rinse water was pumped into waiting transportation trucks for direct disposal at DK Environmental.

Numerous pipelines varying from 1.5 inches in diameter to 18 inches in diameter were observed interconnected between Tanks 5 and 6. As they were cleaned, they were cut to gain clear access to the tops of the UST. A pipe run was observed extending perpendicular to the tank and leading into the adjacent room below the floor slab. These pipelines were capped at the north edge of the excavation. The locations and sizes of the pipes are graphically shown on Plate 4.

Once the rinsate samples indicated to the satisfaction of the OFD, that the UST were clean, CES began removing large sections of the manways to inspect the inside of the UST. Tank 5 appeared to have a textured fiberglass coating on the inside of the tank, which was suspected to contain asbestos. Tank 6 was not observed to have the suspect-asbestos lining. SCI petitioned the OFD, on behalf of Nady to allow closure of Tank 5 in place. The OFD granted this closure on the basis that the product was removed, the tank was rinsed clean, and potentially more environmental impacts could result from the cutting up of the lined UST. A copy of SCI request letter is included in Appendix E. Details specific to each tank are presented below.

Tank 5

The top portion of Tank 5 was uncovered and appeared to be in good condition with no holes observed. This tank measured 17 feet long and 5 feet in diameter. Tank 5 was abandoned by pumping neat cement into the tank from the fill port. Pipeline pieces were observed for visible holes; none were observed by SCI. The pipeline pieces were added to the pipeline stockpile located in the parking lot. These pieces were subsequently disposed of at the Richmond, California SimsMetal America Facility.

Tank 6

This tank measured 17 feet long and 5 feet in diameter. CES proceeded to remove this UST in pieces following cold cutting in place. Tank pieces were numbered to assist SCI in noting locations of holes, pitting, rusting and other forms of corrosion. The following observations were noted:

- Two holes (1/4-inch and ¾-inch in length) were observed on a weld, on the eastern side of the UST.
- One hole observed (1/4-inch) at the bottom of the tank on the western side.

The excavation for Tank 6 measured approximately 23 feet long and 12 feet wide, and about 10 feet bgs. Groundwater was encountered at approximately 9 feet bgs. Soil between Tanks 5 and 6 and on top of Tank 5 was also removed. Concrete, soil and pipes removed during tank removal activities were placed on plastic sheeting in the parking lot and covered.

All pipeline and tank pieces were were subsequently disposed of at the Richmond, California Simsmetal America Facility. A copy of the weigh tags and receipt for disposal are presented in Appendix E. A copy of the OFD Inspection Report is also included in Appendix E.

6.2.2 Soil and Groundwater Sampling

On February 13 and March 7, 2002, under the direction of OFD, SCI collected the following samples:

- Two soil samples, one from each end of Tank 5 (Tank 5 E End and Tank 5 W End), each at approximately 6 feet bgs.
- Two soil samples, one from each end of Tank 6 (Tank 6 E End and Tank 6 W End), each at approximately 6 feet bgs.
- Two soil samples, one from each wall of Tank 6 (Tank 6 N Wall @ 2.0 (pipeline run area) and Tank 6 S Wall @ 5.0).
- One grab groundwater sample from the Tank 6 excavation. This sample was obtained following the removal of one tank pit volume of water as described in Section 7.2.

The locations of the soil samples are graphically shown on Plate 4. The sidewall soil samples were obtained in clean stainless steel liners, by pushing the liner directly into the sidewall of the excavation. The bottom samples were obtained by pushing a clean stainless steel liner into soil retrieved within the backhoe bucket. Soil and groundwater samples collected by SCI were stored in a chilled ice-chest and transported under chain-of-custody documents to C&T. Analytical test reports are presented in Appendix B. Wastewater removal manifests and disposal documentation is included in Appendix D.

7.0 ANALYTICAL TESTING PROGRAM AND RESULTS

7.1 Soil Results

As requested by OFD, all the soil samples were analyzed for the chemicals which had been detected in the tank product samples. The testing program included the following:

- Total petroleum hydrocarbons (TPH) as gasoline, Stoddard solvent and naphtha by EPA Method 8015m/8020,
- TPH as diesel by EPA Method 8015m using silica gel cleanup, and

- Volatile Organic Compounds (VOCs) by EPA Method 8260.

Results of chemical analyses on the UST excavation soil samples are presented in Tables 2 and 3. Tables 2 and 3 include current risk-based criteria published by the San Francisco Regional Water Quality Control Board (SFRWQCB[2]), and the EPA Region 9 Preliminary Remediation Goals[3] (PRGs) for comparison purposes. The reported or cited risk driving factors are also presented in the tables.

7.1.1 Exterior Tank Area Results

With the exception of the soil samples obtained from beneath the pipe runs (Pipe #1 and Pipe #2), all samples detected elevated concentrations of TPH as gasoline, naphtha, stoddard solvent and diesel ranged materials. The highest concentrations were detected from the bottom samples taken from the below the center of each tank that was removed. In these samples, gasoline range TPH concentrations varied from 110 mg/kg to 2,900 mg/kg, naphtha range TPH concentrations varied from 58 mg/kg to 1,500 mg/kg, diesel range TPH concentrations varied from 12 mg/kg to 390 mg/kg and stoddard solvent range TPH concentrations varied from 74 mg/kg to 1,800 mg/kg.

Analyses of the soil samples detected a number of VOCs including isopropylbenzene, propylbenzene, 1,3,5-trimethylbenzene, 1,2,4-trimethylbenzene, sec-butylbenzene, para-isopropyl toluene, n-butylbenzene and naphtha. It is suspected that these VOCs are chemical constituents within the hydrocarbon-based product mixtures previously contained in the UST.

7.1.2 Interior Tank Area Results

With the exception of the soil sample obtained from the north wall of Tank 6 (Tank 6 N Wall @ 2.0), all samples detected elevated concentrations of TPH as gasoline, naphtha, stoddard solvent and diesel range materials. The highest concentrations were detected from the bottom samples taken from each end of both tanks. In these samples gasoline range TPH concentrations varied from 470 mg/kg to 26,000 mg/kg, naphtha range TPH concentrations varied from 240 mg/kg to 12,000 mg/kg, diesel range TPH concentrations varied from 670 mg/kg to 1,800 mg/kg and stoddard solvent range TPH concentrations varied from 300 mg/kg to 17,000 mg/kg..

Analyses of the soil samples also detected a number of VOCs including benzene, toluene, ethylbenzene, xylenes (BTEX), isopropylbenzene, propylbenzene, 1,3,5-trimethylbenzene, 1,2,4-trimethylbenzene, sec-butylbenzene, para-isopropyl toluene, and n-butylbenzene. It is suspected that these VOCs are chemical constituents within the hydrocarbon-based product mixtures previously contained in the UST.

No VOCs (including BTEX) were detected in the two soil samples taken from the sidewalls of the excavation (Tank 6 N. @ 2.0 and Tank 6 S. Wall @ 5.0).

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2 *Application of Risk Based Screening Levels and Decision Making to Sites with Impacted Soil and Groundwater*, RWQCB, December 2001

3 Environmental Protection Agency (EPA), *Preliminary Remediation Goals*, 2000.

7.2 Groundwater Results

The depth to groundwater in the exterior and interior excavations recharged to approximately 7 feet and 8 feet bgs, respectively. A sheen was observed on the recharged groundwater in the exterior excavation. A strong odor was detected in groundwater in both excavations. One grab groundwater sample was taken each from the exterior excavation and from the Tank 6 excavation. Groundwater was allowed to recharge, prior to taking the groundwater sample. The groundwater samples were decanted into pre-cleaned bottles supplied by the laboratory. Samples were stored in a chilled ice-chest and transported under chain-of-custody documents to C&T Based on the results of the product characterization, the samples were tested for:

- Total petroleum hydrocarbons (TPH) as gasoline, naphtha and stoddard solvent by EPA Method 8015m/8020,
- TPH as diesel and motor oil by EPA Method 8015m using silica gel cleanup, and
- Volatile Organic Compounds (VOCs) by EPA Method 8260.

A summary of analytical results of the grab groundwater samples are shown on Table 4. Table 4 includes current risk-based criteria published by the San Francisco Regional Water Quality Control Board (SFRWQCB), and the EPA Region 9 Preliminary Remediation Goals (PRGs) for comparison purposes. The reported or cited risk driving factors are also presented in the table.

7.2.1 Exterior Tank Area Results

Analyses of one grab groundwater sample obtained from the exterior excavation detected a mixture of petroleum hydrocarbons including 66,000 micrograms per liter (ug/L) of gasoline range TPH, 34,000 ug/L of naphtha range TPH, 82,000 ug/L of diesel range TPH and 42,000 ug/L of stoddard solvent range TPH.

VOCs detected were similar to those detected in the soil samples taken from the same area, with the exception that Tetrachloroethene (PCE, 83 ug/L) and 1,2-dichloroethene (1,2-DCE, 9.6 ug/L) were detected at concentrations above their respected Maximum Contaminant Levels (MCL) (PCE, 5 ug/L and 1,2-DCE, 6 ug/L). PCE was one of the constituents within the USTs and 1,2-DCE is a degradation product of PCE.

7.2.2 Interior Groundwater Results

Analyses of one grab groundwater samples obtained from the interior excavation detected a mixture of petroleum hydrocarbons including 21,000 ug/L of gasoline range TPH, 11,000 ug/L of naphtha range TPH, 94,000 ug/L of diesel range TPH and 13,000 ug/L of stoddard solvent range TPH.

VOCs detected were similar to those detected in the soil samples taken from the same area, with the exception that benzene and xylenes were also detected. Benzene was detected at a concentration of 47 ug/L, which is greater than benzenes' MCL (1 ug/L). Acetone was also detected in the grab groundwater sample at a concentration of 23 ug/L. Acetone was not previously detected in soil samples taken from the interior excavation, however it was detected in the product from both interior tanks.

8.0 EXCAVATION BACKFILL PLACEMENT

All excavations were backfilled by first placing drain rock in the excavations to approximately 1 foot above the standing groundwater level. For the exterior tank area 7 feet of drain rock was placed; for the interior tanks area 2 feet of drain rock was placed. The drain rock was tamped into place. Base rock was placed upon the drain rock to within approximately 2 feet of the ground surface. Clean imported soil was then placed into the excavation and compacted. A reinforced concrete slab was constructed over the soil to return the area to its original grade.

9.0 STOCKPILE SAMPLING AND SOIL CHARACTERIZATION

Soil removed from both excavations were segregated, placed on and covered by plastic sheeting, and stored in the parking area. At the completion of this phase of field activities approximately 70 cubic yards (cy) of from the exterior excavation and 40 cy of soil from the interior excavation were stockpiled in the parking area, with approximately 5 cy of soil and concrete from previous work. In order to profile the soil for disposal SCI sampled the stockpiles by obtaining four samples from both the interior and exterior excavation stockpiles. SCI requested that C&T create two four-part composites for analytical testing (Interior SP and Exterior SP). The two composite samples were tested for the following:

- Total petroleum hydrocarbons (TPH) as gasoline, stoddard solvent and naphtha by EPA Method 8015m/8020,
- TPH as diesel by EPA Method 8015m using silica gel cleanup, and
- Cadmium, chromium, nickel, lead and zinc, by EPA Method 6010.

Based on the results of the analytical testing and landfill disposal requirements the composite sample Exterior SP was also tested for:

- Soluble Concentration of lead using the California Waste Extraction Test (WET) and USEPA Method 6010, and
- Toxicity Characteristic Leaching Procedure for lead, using USEPA Method 13111.

Analytical data is summarized in Table 5. Analytical test reports are presented in Appendix B.

CES submitted the stockpiled soils' analytical test results to Chemical Waste Management and Republic Services Landfill facilities for their review. Due to the presence of elevated concentrations of soluble lead, the stockpiled soil from the exterior UST area (4-18 cubic yard truck loads) was transported to and disposed of as Non-RCRA Hazardous Waste at the Chemical Waste Management Kettleman City Facility. Stockpiled soil from the interior UST area (2-18 cubic yard truck loads) did not contain elevated concentrations of lead, and was approved for local disposal as Non-hazardous waste. The interior stockpiled soil was transported to and disposed of at the Republic Services Vasco Road Landfill facility. Manifests are presented in Appendix D.

Table 1· Summary of Results of Product Samples from Tanks
1137-1167 65th Street
Oakland, California
SCI 855.003

		Ports					
		Exterior Tanks				Interior Tanks	
		1	2	3	4	5	6
		9/13/01	9/13/01	9/13/01	10/23/01	10/23/01	10/23/01
Petroleum Hydrocarbons							
Gasoline Range	mg/L	130,000,000	7,700	8,000	3,800,000	5,100	81,000,000
Naphtha Range	mg/L	59,000,000	3,600	3,700	2,100,000	2,500	44,000,000
Diesel Range*	mg/L	280,000,000	<390,000	<400,000	2,300,000	19,000	91,000
Volatile Organic Compounds**							
Benzene	ug/L	2,400	18	<13	<17	<2 5	3.1
Toulene	ug/L	24,000	25	17	23	14	3.7
Ethylbenzene	ug/L	74,000	39	28	62	23	4.5
Xylenes	ug/L	730,000	600	540	840	250	161
Tetrachloroethene	ug/L	42,000	<13	<13	5 3	3 3	3.1
cis-1,2-Dichloroethene	ug/L	170	<13	<13	2.4	<2 5	15
Trichloroethene	ug/L	550	<13	<13	3.0	<2 5	3 1
Isopropylbenzene (Cumene)	ug/L	170,000	<130	<130	53	<25	<31
Propylbenzene (n)	ug/L	210,000	<130	<130	82	40	<31
1,3,5-Trimethylbenzene	ug/L	470,000	360	380	400	150	130
1,2,4-Trimethylbenzene	ug/L	470,000	790	670	1,800	400	270
sec-Butylbenzene	ug/L	140,000	<130	<130	<17	<25	<31
para-Isopropyl Toluene	ug/L	140,000	<130	<130	23	<25	<31
n-buytlbenzene	ug/L	130,000	<130	<130	18	<25	<31
Naphthalene	ug/L	10,000	<130	<130	<17	<25	<31
Styrene	ug/L	<1,300	<130	<130	<17	300	<31
Methylene Chloride	ug/L	<5,000	<500	720	<67	<100	<130
Acetone	ug/L	<5,000	<500	<500	130	810	520
2-Butanone (MEK)	ug/L	<2,500	<250	<250	<33	270	180
4-methyl-2-pentanone(MIBK)	ug/L	<2,500	<250	<250	<33	<50	64

Notes

Port locations are shown on Plate 3

***** Using Silica gel cleanup

****** Only VOCs detected are listed

mg/L Milligrams per liter

ug/L Micrograms per liter

<13 less than listed analytical reporting limit

Table 2 Summary of Results of Soil Samples
Exterior Tank Area
1137-1167 65th Street
Oakland, California
SCI 855 003

		Sample ID								RBSL Table B-1 (Residential Use)		RBSL Table B-2 (Commercial / Industrial Use)	
		Tank 1 Bottom	Tank 2 Bottom	Tank 3 Bottom	Tank 4 Bottom	E End @ 6'	W End @ 6'	Pipe #1	Pipe #2	RBSL	Risk Driver	RBSL	Risk Driver
		2/25/02	2/25/02	2/25/02	2/25/02	2/26/02	2/26/02	2/26/02	2/26/02				
Petroleum Hydrocarbons*													
Gasoline Range	mg/kg	110	440	1,500	1,600	2,200	2,900	<0 99	<0 95	400	Soil Leaching	400	Soil Leaching
Naphtha Range	mg/kg	58	230	750	830	1,100	1,500	<0 99	<0 95	400	Soil Leaching	400	Soil Leaching
Diesel Range	mg/kg	69	34	220	12	220	390	68	6 8	500	Soil Leaching	500	Soil Leaching
Stoddard Solvent	mg/kg	74	280	940	1,000	1,400	1,800	<0 99	<0 95	400	Soil Leaching	400	Soil Leaching
Volatile Organic Compounds**													
Benzene	ug/kg	<130	<250	<250	<250	<250	<250	<5 0	<4 9	180	Direct Exposure	390	Direct Exposure
Toulene	ug/kg	<130	<250	<250	<250	<250	<250	<5 0	<4 9	8,400	Soil Leaching	8,400	Soil Leaching
Ethylbenzene	ug/kg	<130	<250	<250	<250	<250	<250	<5 0	<4 9	24,000	Soil Leaching	24,000	Soil Leaching
Xylenes	ug/kg	<130	<250	<250	<250	950	<250	<5 0	<4 9	1,000	Soil Leaching	1,000	Soil Leaching
Tetrachloroethene	ug/kg	<130	<250	310	<250	<250	<250	<5 0	<4 9	150	Indoor Air Impacts	530	Indoor Air Impacts
cis-1,2-Dichloroethene	ug/kg	<130	<250	<250	<250	<250	<250	<5 0	<4 9	2,700	Indoor Air Impacts	7,700	Indoor Air Impacts
Trichloroethene	ug/kg	<130	<250	<250	<250	<250	<250	<5 0	<4 9	440	Indoor Air Impacts	1,500	Indoor Air Impacts
Isopropylbenzene (Cumene)	ug/kg	<130	<250	<250	740	1,300	520	<5 0	<4 9	160,000	Soil Leaching	520,000	Indoor Air Impacts
Propylbenzene (n)	ug/kg	<130	<250	570	1,700	3,200	1,300	<5 0	<4 9	(130,000)	PRG Value	(550,000)	PRG Value
1,3,5-Trimethylbenzene	ug/kg	<130	300	680	<250	<250	1,100	<5 0	<4 9	(21,000)	PRG Value	(70,000)	PRG Value
1,2,4-Trimethylbenzene	ug/kg	230	680	1,600	840	<250	<250	<5 0	<4 9	(51,000)	PRG Value	(170,000)	PRG Value
sec-Butylbenzene	ug/kg	<130	290	960	2,100	1,700	1,700	<5 0	<4 9	(100,000)	PRG Value	(410,000)	PRG Value
para Isopropyl Toluene	ug/kg	<130	370	930	940	920	890	<5 0	<4 9	NE	--	NE	
n-buytlbenzene	ug/kg	<130	550	1,500	1,900	2,400	1,700	<5 0	<4 9	(130,000)	PRG Value	(550,000)	PRG Value
Naphthalene	ug/kg	<130	<250	<250	660	<250	<250	<5 0	<4 9	1,700	Indoor Air	4,900	Soil Leaching
Styrene	ug/kg	<130	<250	<250	<250	<250	<250	<5 0	<4 9	17,000	Indoor Air	17,000	Soil Leaching
Methylene Chloride	ug/kg	<130	<250	<250	<250	<250	<250	<5 0	<4 9	890	Soil Leaching	3,100	Indoor Air
Acetone	ug/kg	<130	<250	<250	<250	<250	<250	<5 0	<4 9	510	Soil Leaching	510	Soil Leaching
2-Butanone (MEK)	ug/kg	<130	<250	<250	<250	<250	<250	<5 0	<4 9	13,000	Soil Leaching	13,000	Soil Leaching
4-methyl-2-pentanone(MIBK)	ug/kg	<130	<250	<250	<250	<250	<250	<5 0	<4 9	3 8	Soil Leaching	3 8	Soil Leaching

Notes

Sample Locations are shown on Plate 3

* Using Silica gel cleanup

** Only VOCs detected are listed

mg/Kg Milligrams per kilogram

ug/kg Micrograms per kilogram

<130 less than listed analytical reporting limit

NE No RBSL or PRG established

RBSL Table B 1 Risk Based Screening Level Components for Surface Soil (Potentially Impacted Groundwater is not a Current or Potential Source of Drinking Water) for residential reuse for established by the SFBRWQCB Interim Final December 2001

RBSL Table B 2 Risk Based Screening Level Components for Surface Soil (Potentially Impacted Groundwater is not a Current or Potential Source of Drinking Water) for commercial/industrial reuse for established by the SFBRWQCB Interim Final December 2001

(660) No RBSL published for component The value presented is from EPA's Preliminary Remediation Goals (PRG) 2000

Table 3 Summary of Results of Soil Samples
Interior Tank Area
1137-1167 65th Street
Oakland, California
SCI 855 003

		Sample ID						RBSL Table B-1 (Residential Use)		RBSL Table B-2 (Commercial / Industrial Use)	
		Tank 5 E End	Tank 5 W End	Tank 6 N Wall @ 2 0	Tank 6 S Wall @ 5 0	Tank 6 E End	Tank 6 W End	RBSL	Risk Driver	RBSL	Risk Driver
		2/13/02	2/13/02	3/7/02	3/7/02	2/13/02	2/13/02				
Petroleum Hydrocarbons											
Gasoline Range	mg/kg	17,000	13,000	<0 98	310	470	26,000	400	Soil Leaching	400	Soil Leaching
Naphtha Range	mg/kg	8,400	6,200	<0 98	140	240	12,000	400	Soil Leaching	400	Soil Leaching
Diesel Range*	mg/kg	1,000	1,800	53	260	670	1,500	500	Soil Leaching	500	Soil Leaching
Stoddard Solvent	mg/kg	11,000	8,400	<0 98	270	300	17,000	400	Soil Leaching	400	Soil Leaching
Volatile Organic Compounds**											
Benzene	ug/kg	<2,000	<1,700	<4 7	<4 8	<420	<3,100	180	Direct Exposure	390	Direct Exposure
Toulene	ug/kg	<2,000	<1,700	<4 7	<4 8	<420	<3,100	8,400	Soil Leaching	8,400	Soil Leaching
Ethylbenzene	ug/kg	8,600	5,900	<4 7	<4 8	<420	<3,100	24,000	Soil Leaching	24,000	Soil Leaching
Xylenes	ug/kg	<2,000	<1,700	<4 7	<4 8	<420	<3,100	1,000	Soil Leaching	1,000	Soil Leaching
Tetrachloroethene	ug/kg	<2,000	<1,700	<4 7	<4 8	<420	<3,100	150	Indoor Air Impacts	530	Indoor Air Impacts
cis-1,2-Dichloroethene	ug/kg	<2,000	<1,700	<4 7	<4 8	<420	<3,100	2,700	Indoor Air Impacts	7,700	Indoor Air Impacts
Trichloroethene	ug/kg	<2,000	<1,700	<4 7	<4 8	<420	<3,100	440	Indoor Air Impacts	1,500	Indoor Air Impacts
Isopropylbenzene (Cumene)	ug/kg	5,600	4,100	<4 7	<4 8	<420	8,500	160,000	Soil Leaching	520,000	Indoor Air Impacts
Propylbenzene (n)	ug/kg	16,000	11,000	<4 7	<4 8	<420	24,000	(130,000)	PRG Value	(550,000)	PRG Value
1,3,5-Trimethylbenzene	ug/kg	25,000	17,000	<4 7	<4 8	1,600	46,000	(21,000)	PRG Value	(70,000)	PRG Value
1,2,4-Trimethylbenzene	ug/kg	63,000	47,000	<4 7	<4 8	2,100	100,000	(51,000)	PRG Value	(170,000)	PRG Value
sec-Butylbenzene	ug/kg	13,000	9,600	<4 7	<4 8	<420	30,000	(100,000)	PRG Value	(410,000)	PRG Value
para-Isopropyl Toluene	ug/kg	9,900	8,500	<4 7	<4 8	510	27,000	NE	--	NE	--
n-buytlbenzene	ug/kg	14,000	1,000	<4 7	<4 8	<420	<3,100	(130,000)	PRG Value	(550,000)	PRG Value
Naphthalene	ug/kg	<2,000	<1,700	<4 7	<4 8	<420	<3,100	1,700	Indoor Air	4,900	Soil Leaching
Styrene	ug/kg	<2,000	<1,700	<4 7	<4 8	<420	<3,100	17,000	Indoor Air	17,000	Soil Leaching
Methylene Chloride	ug/kg	<2,000	<1,700	<4 7	<4 8	<420	<3,100	890	Soil Leaching	3,100	Indoor Air
Acetone	ug/kg	<2,000	<1,700	<4 7	<4 8	<420	<3,100	510	Soil Leaching	510	Soil Leaching
2-Butanone (MEK)	ug/kg	<2,000	<1,700	<4 7	<4 8	<420	<3,100	13,000	Soil Leaching	13,000	Soil Leaching
4-methyl-2-pentanone(MIBK)	ug/kg	<2,000	<1,700	<4 7	<4 8	<420	<3,100	3 8	Soil Leaching	3 8	Soil Leaching

Notes

Sample locations are shown on Plate 2

* Using Silica gel cleanup

** Only VOCs detected are listed

mg/Kg Milligrams per kilogram

ug/kg Micrograms per kilogram

<13 less than listed analytical reporting limit

NE No RBSL or PRG established

RBSL Table B 1 Risk Based Screening Level Components for Surface Soil (Potentially Impacted Groundwater is not a Current or Potential Source of Drinking Water) for residential reuse for established by the SFBRWQCB, Interim Final December 2001

RBSL Table B-2 Risk Based Screening Level Components for Surface Soil (Potentially Impacted Groundwater is not a Current or Potential Source of Drinking Water) for commercial/industrial reuse for established by the SFBRWQCB Interim Final December 2001

(660) No RBSL published for component The value presented is from EPA's Preliminary Remediation Goals (PRG), 2000

Table 4 Summary of Results of Grab Groundwater Samples
1137-1167 65th Street
Oakland, California
SCI 855 003

		Sample ID		RBSL Table F-1		RBSL Table F-2	
		Interior***	Exterior				
		2/20/01	2/25/02	RBSL	Risk Driver	RBSL	Risk Driver
Petroleum Hydrocarbons							
Gasoline Range	ug/L	**21,000**	**66,000**	40,000	Ceiling Value	**500,000**	Aquatic Life Protection
Naphtha Range	ug/L	**11,000**	**34,000**	40,000	Ceiling Value	**500,000**	Aquatic Life Protection
Diesel Range*	ug/L	**94,000**	**82,000**	10,000	Human Toxicity	**640,000**	Indoor Air Impacts
Stoddard Solvent	ug/L	**13,000**	**42,000**	10,000	Human Toxicity	**640,000**	Indoor Air Impacts
Volatile Organic Compounds**							
Benzene	ug/L	**47**	<7 1	1 0	Human Toxicity	**46**	Aquatic Life
Toulene	ug/L	<5 0	<7 1	40	Ceiling Value	**130**	Aquatic Life
Ethylbenzene	ug/L	**9 4**	<7 1	30	Ceiling Value	**290**	Aquatic Life
Xylenes	ug/L	**114**	**24**	13	Aquatic Life	**13**	Aquatic Life
Tetrachloroethene	ug/L	<5 0	**83**	5 0	Human Toxicity	**120**	Aquatic Life
cis-1,2-Dichloroethene	ug/L	<5 0	**9 6**	6 0	Human Toxicity	**590**	Aquatic Life
Trichloroethene	ug/L	<5 0	<7 1	5 0	Human Toxicity	**360**	Aquatic Life
Isopropylbenzene (Cumene)	ug/L	**44**	**10**	(660)	PRG Value - Tap Water	NE	Not Established
Propylbenzene (n)	ug/L	**91**	**29**	(61)	PRG Value - Tap Water	NE	Not Established
1,3,5-Trimethylbenzene	ug/L	**180**	**62**	(12)	PRG Value - Tap Water	NE	Not Established
1,2,4-Trimethylbenzene	ug/L	**330**	**150**	(12)	PRG Value - Tap Water	NE	Not Established
sec-Butylbenzene	ug/L	**44**	**26**	(61)	PRG Value - Tap Water	NE	Not Established
para-Isopropyl Toluene	ug/L	**40**	**36**	NE	Not Established	NE	Not Established
n-buytlbenzene	ug/L	**40**	**41**	(61)	PRG Value - Tap Water	NE	Not Established
Naphthalene	ug/L	<5 0	<7 1	21	Ceiling Value	**24**	Aquatic Life
Styrene	ug/L	<5 0	<7 1	(1,600)	PRG Value - Tap Water	NE	Not Established
Methylene Chloride	ug/L	<5 0	<7 1	(4)	PRG Value - Tap Water	NE	Not Established
Acetone	ug/L	**23**	<7 1	700	Human Toxicity	**1,500**	Aquatic Life
2-Butanone (MEK)	ug/L	<5 0	<7 1	4,200	Human Toxicity	**14,000**	Aquatic Life
4-methyl-2-pentanone(MIBK)	ug/L	<5 0	<7 1	120	Human Toxicity	**170**	Aquatic Life

Notes

***** Using Silica gel cleanup
****** Only VOCs detected are listed
mg/L Milligrams per liter
ug/L Micrograms per liter
<5 0 less than listed analytical reporting limit
NE No RBSL or PRG established

RBSL Table F 1 - Components for Groundwater Screening Levels (Groundwater is a Current or Potential Drinking Water Resource) established by the SFBRWQCB, Interim Final December 2001

RBSL Table F-2 - Components for Groundwater Screening Levels (Groundwater is not a Current or Potential Drinking Water Resource) established by the SFBRWQCB, Interim Final December 2001

(660) No RBSL published for component The value presented is from EPA's Preliminary Remediation Goals (PRG), 2000

TABLES

Table 5: Summary of Results of
Stockpile Composite Soil Samples
1137-1167 65th Street
Oakland, California
SCI 855.003

		Sample ID	
		Interior SP	Exterior SP
		2/25/02	2/25/02
Petroleum Hydrocarbons			
Gasoline Range	mg/kg	<0.99	24
Naphtha Range	mg/kg	<0.99	12
Diesel Range*	mg/kg	45	34
Stoddard Solvent	mg/kg	<0.99	16
Volatile Organic Compounds**			
Benzene	ug/kg	<4.8	<4.8
Toulene	ug/kg	<4.8	<4.8
Ethylbenzene	ug/kg	<4.8	<4.8
Xylenes	ug/kg	<4.8	<4.8
Acetone	ug/kg	<4.8	<4.8
Tetrachloroethene	ug/kg	<4.8	<4.8
cis-1,2-Dichloroethene	ug/kg	<4.8	<4.8
Trichloroethene	ug/kg	<4.8	<4.8
Isopropylbenzene (Cumene)	ug/kg	<4.8	<4.8
Propylbenzene (n)	ug/kg	<4.8	<4.8
1,3,5-Trimethylbenzene	ug/kg	<4.8	<4.8
1,2,4-Trimethylbenzene	ug/kg	<4.8	<4.8
sec-Butylbenzene	ug/kg	<4.8	<4.8
para-Isopropyl Toluene	ug/kg	<4.8	<4.8
n-buytlbenzene	ug/kg	<4.8	<4.8
Naphthalene	ug/kg	<4.8	<4.8
Styrene	ug/kg	<4.8	<4.8
Methylene Chloride	ug/kg	<4.8	<4.8
Acetone	ug/kg	<4.8	<4.8
2-Butanone (MEK)	ug/kg	<4.8	<4.8
4-methyl-2-pentanone(MIBK)	ug/kg	<4.8	<4.8
Metals			
Cadmium	mg/kg	2.8	1.7
Chromium	mg/kg	21	12
Lead	mg/kg	8.9	200
Lead (STLC)	ug/L	–	32,000
Lead (TCLP)	ug/L	–	590
Nickel	mg/kg	29	63
Zinc	mg/kg	66	600

Notes:

* Using Silica gel cleanup

** Only VOCs detected are listed

mg/Kg Milligrams per kilogram

ug/kg Micrograms per kilogram

ug/L Micrograms per liter

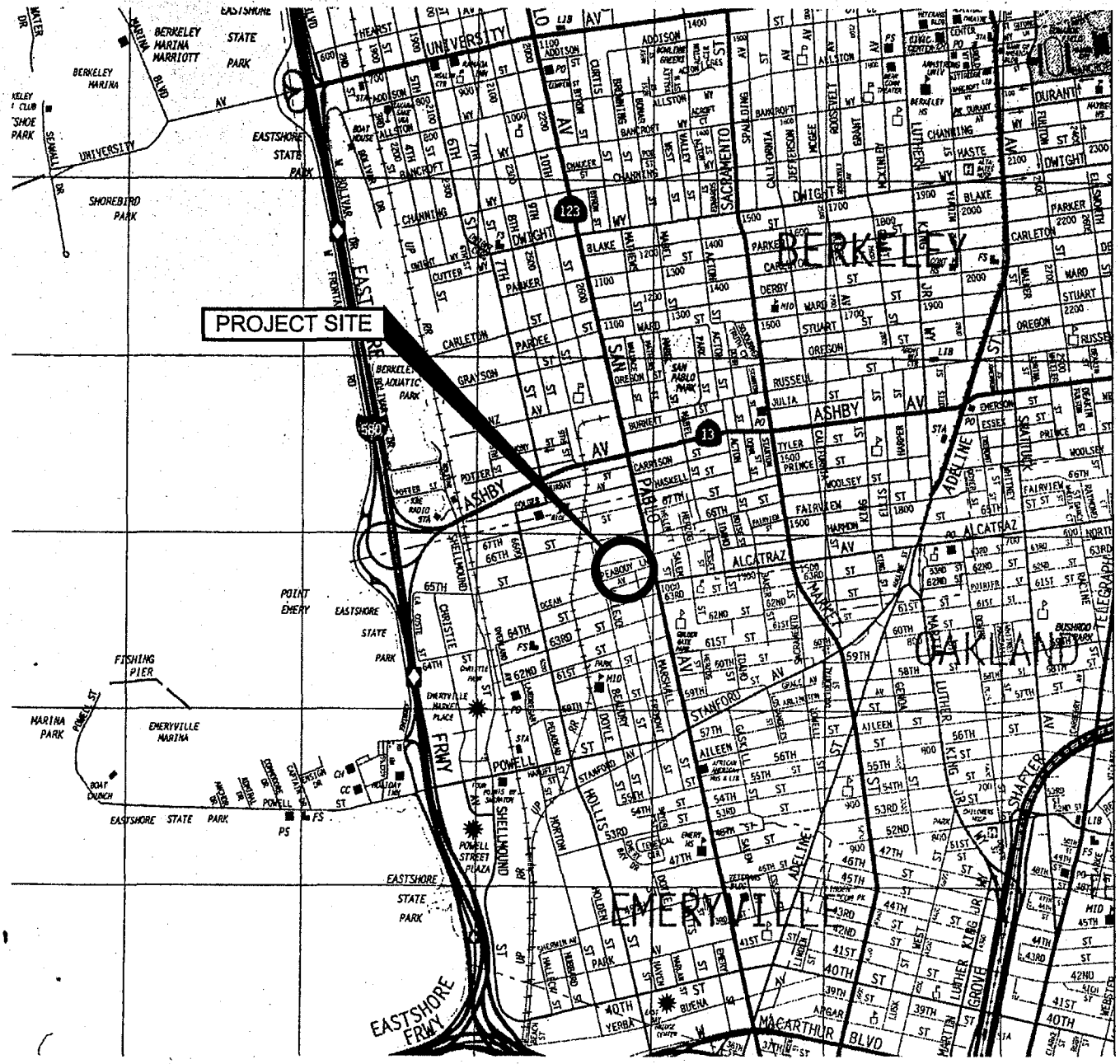
– Not Analyzed

<4.8 less than listed analytical reporting limit.

STLC Soluble Toxicity Leaching Characteristic

TCLP Toxicity Characteristic Leaching Procedure

PLATES



NOTE:

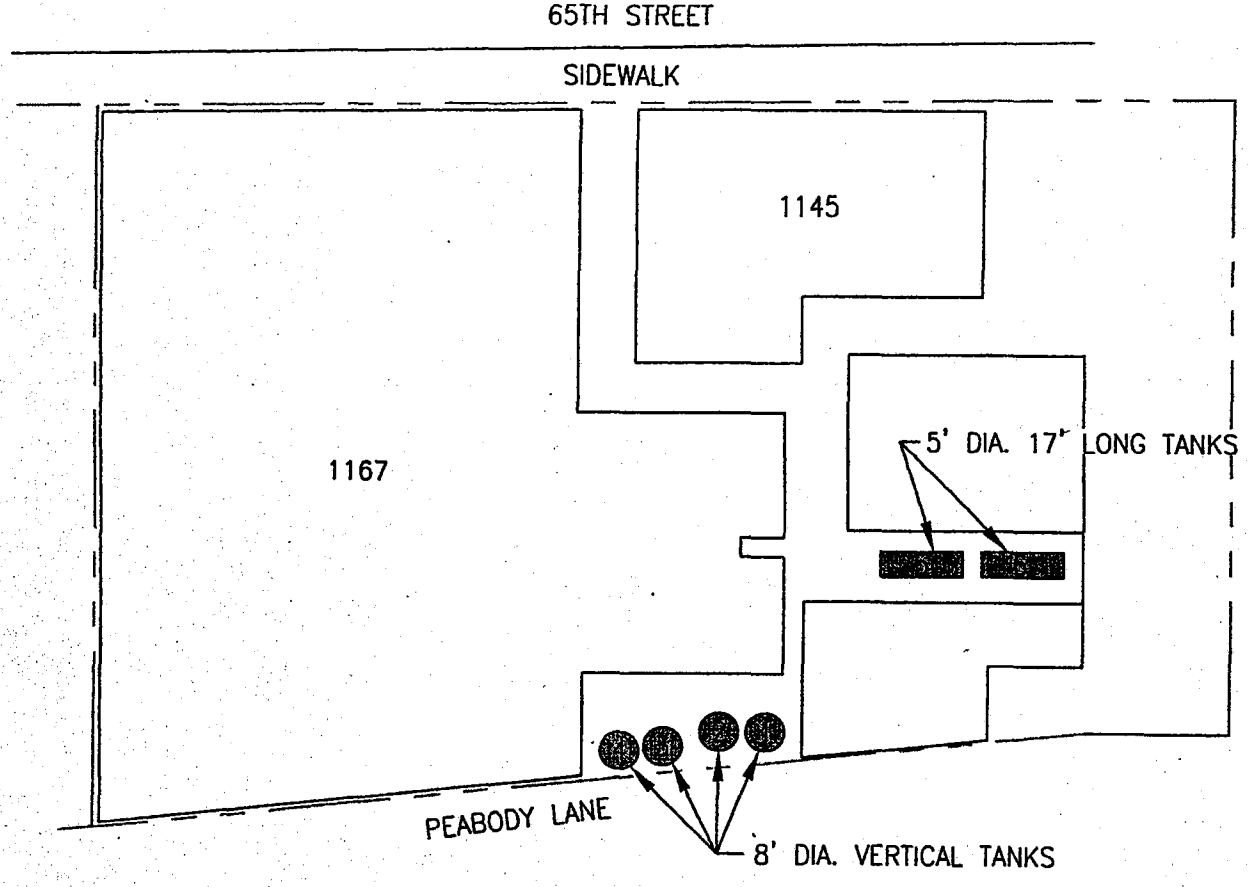
THIS VICINITY MAP IS BASED ON A THOMAS BROTHERS MAP FOR SAN FRANCISCO, ALAMEDA AND CONTRA COSTA COUNTIES, CALIFORNIA, MAP 629, YEAR 2000

VICINITY MAP

1137-1167 65TH STREET
OAKLAND, CALIFORNIA

DRAWN BY:	DATE	PLATE
CFY	11/12/01	1
JOB NUMBER	FILE NUMBER:	
855.003	A885.003.02	

Subsurface Consultants, Inc.
Geotechnical & Environmental Engineers



APPROXIMATE SCALE IN FEET

0 40 80

N

SITE PLAN

1137-1167 65TH STREET
OAKLAND, CALIFORNIA

Subsurface Consultants, Inc.
Geotechnical & Environmental Engineers

DRAWN BY:	DATE	PLATE
CFY	3/28/02	2
JOB NUMBER	FILE NUMBER:	
855.003	A855.003.01	

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